NEBRASKA RETIREMENT SYSTEMS COMMITTEE

2019

Report on Political Subdivision Underfunded Defined Benefit Retirement Plans

Committee Members
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2019 Summary of Underfunded Political Subdivision Defined Benefit Plan Reports

Background

In 2014 LB 759 was enacted to require reporting by political subdivisions with defined benefit plans in order to provide oversight of these entities by the Nebraska Public Employees Retirement Committee. The bill was codified at Neb. Rev. Stat. 13-2402. It requires any governing entity that offers a defined benefit plan which was open to new employees on January 2004 to file a report with the Nebraska Retirement Systems Committee if the most recent actuarial valuation report indicates that (1) the contributions do not equal the actuarial requirement for funding or (2) the funded ratio of the plan is less than eighty percent. The report must include, at a minimum, an analysis of the future benefit changes, contribution changes, or other proposed corrective action to improve the plan's funding condition.

Under Neb. Rev. Stat. 13-2402, the Nebraska Retirement Systems Committee may require the entity to present the report to the Committee at a public hearing. If a governmental entity fails to file the required information with the Committee, the State Auditor is authorized to audit the public pension system, or cause it to be audited at the political subdivision's own expense. The annual reporting requirement began November 1, 2014. In 2015, the reporting date was changed to October 15 of each year.

2019 Underfunded Pension Plans

During the past year there has been no change in the number or identity of defined benefit plans funded below the 80% funding level. Below is a list of the seven underfunded political subdivisions and a summary of the 2018/2019 and 2017/2018 funding status for each plan:

- Douglas County Employees
- Eastern Nebraska Health Agency
- Metro Area Transit Hourly Employees
- Omaha Civilian Employees
- Omaha Police and Fire
- Omaha Public Power District
- Omaha Public Schools – Omaha School Employees Retirement

POLITICAL SUBDIVISION	2018/2019 FUNDING STATUS*	2017/2018 FUNDING STATUS*
Douglas County Employees	65.6%	68.0%
Eastern Nebraska Health Agency	Not Available – biennial valuation	74.0%
Metro Area Transit Hourly Employees	67.3%	77.0%
Omaha Civilian Employees	51.8%	53.0%
Omaha Police and Fire	52.4%	52.1%
Omaha Public Power District	67.8%	70.0%
Omaha Public Schools (OSERS plan)	63.0%	64.0%

*Funding status year varies because some plans are based on calendar year and so current plan year data is not yet available.

Required Reporting Information

The Committee created a Reporting Form which was forwarded to each political subdivision in September 2019. Each entity was asked to submit the information identified on the Form.

A public hearing was conducted by the Committee on November 19, 2019 at which time they presented the following information:

1. Please list the following information for **plan years 2015 through current plan year 2019:**

    a. Funding status
    b. Assumed rate of return
    c. Actual investment return
    d. Member and employer contribution rates -- percentage
    e. Normal cost – percentage
    f. Actuarially required contribution (ARC) – percentage & dollar amount
    g. ARC contribution – actual dollar amount contributed & percentage of ARC actually contributed

2. Provide a brief narrative of the circumstances that led to the current underfunding of the retirement plan.

3. Have there been any changes in the actuarial methods and/or assumptions since the previous actuarial valuation report? If so, please describe.

4. Describe corrective actions implemented to improve the funding status of the plan including, but not limited to, benefit changes, increased contribution rates and/or employer contributions. Provide a copy of any actuarial projections based on these changes.

5. Describe any recent or ongoing negotiations with bargaining groups that may impact the funding of the plan.

6. Provide a copy of the most recent Actuarial Experience Study conducted on the plan.

7. Identify the current assumed rate of return. Describe any recent changes to this rate and if there are plans to review the rate in the upcoming year.

8. Provide a copy of the most recent actuarial valuation report. If the valuation report is completed biannually (or less often), include an updated report for the interim year/s, if available.

Reporting materials provided by each governmental entity are included in the Appendices to this Report.

Summaries of Plan Funding and Benefit Changes

Douglas County Employees:

The plan's funding ratio has fluctuated dramatically over the past 23 years. In 1996 the funding ratio was 97.8%. A number of benefit enhancements were then adopted and by 2004 the funding ratio had fallen to 64.8%. Despite an increase in member and employer contributions in 2005 to 8.5%, poor stock market performance during the Great Recession in 2008-2009 negatively impacted the plan's funded ratio, which reached a low point of 57.8% in 2010.

In 2011, substantive changes were made to ensure the financial viability of the plan which have increased the plan funding ratio by 7.8 percentage points from its low point in 2010 to its current 65.6%. These plan changes have also materially impacted the plan's forecast of funded percentage.

In 2017, following the most recent Experience Study, actuarial valuation updates were made to the mortality table, the amortization period of the unfunded liability was reduced, and the rates of early retirement and termination of employment were revised. No recent or ongoing negotiations with any employee labor groups are expected to impact the funding of the pension plan. The next Experience Study will be conducted in 2020.

Current forecast by Silverstone projects the following funding ratios if all assumptions are met:

2024	67.7%
2029	72.0%
2034	78.0%
2039	87.2%

Douglas County Employees Plan Summary

YEAR	FUNDED RATIO	ASSUMED INVEST RATE	ACTUAL INVEST RETURN	NORMAL COST	TOTAL ARC %	EE RATES	CNTY RATES	UAL	% OF ARC PAID
2019	65.6%	7.5%	-2.8%	10.8%	18.1%	8.5%	8.5%	$168,000,000	93.5%
2018	68.0%	7.5%	16.8%	11.2%	18.0%	8.5%	8.5%	$148,540,000	94.4%
2017	67.2%	7.5%	6.8%	10.9%	17.5%	8.5%	8.5%	$140,285,000	104.7%
2016	67.3%	7.5%	2.3%	10.7%	15.8%	8.5%	8.5%	$133,784,248	110.8%
2015	66.8%	7.5%	5.2%	11.3%	16.5%	8.5%	8.5%	$131,057,379	111.8%

Eastern Nebraska Human Services Agency:

The Agency conducts Actuarial Valuations on a biennial basis. The actual investment return was -2.4%. The assumed rate of 7.0% has not changed since the inception of the plan. The Agency paid 107.0% of its ARC in 2018. There is no information yet on the amount of ARC paid in 2019.

For the 2018 actuarial valuation, the mortality table was updated to the Static IRS 2018 annuitant-distinct mortality table, based on the RP 2014 mortality table. The unfunded accrued liability amortization period was changed as of January 1, 2018 from a 30 year open amortization to a 25 year closed layer amortization. The plan funding ratio is expected to reach 100% in 2042 based on the January 1, 2018 census data and assets and projected with assumptions as described in the January 1, 2018 valuation report. The agency has been increasing employer contributions by one-half percent annually since 2010. Under the assumptions applied, a funded ratio greater than 100% will be attained in 24 years, with the forecasted funding status exceeding 80% in 6 years.

The Eastern Nebraska Human Services Agency (ENHSA) was established in 1974 by Cass, Sarpy, Douglas, Dodge and Washington counties. The purpose of this cooperative agreement was to promote and administratively support ENOA (Eastern Nebraska Office of Aging), ENCOR and the Alpha School. The administrative structure is county government with one representative from each of the five county boards serving on the governing board. The Agency serves several thousand individuals including senior citizens and individuals who are intellectually and developmentally disabled.

Eastern Nebraska Human Services Agency Plan Summary

YEAR	FUNDED RATIO	ASSUMED INVEST RATE	ACTUAL INVEST RETURN	NORMAL COST	TOTAL ARC %	EE RATES	AGENCY RATES	UAL	% OF ARC PAID
2019*									
2018	N.A.	7%	-2.4%	N.A.	12.19%	2.75%	9.5%	N.A.	TBD
2017	74%	7%	11.7%	74%	12.19%	2.75%	9.5%	$14,245,604	107.0%
2016	N.A.	7%	6.8%	N.A.	11.55%	2.75%	9%	N.A.	108.7%
2015	71%	7%	6.8%	7.0%	11.55%	2.75%	8.5%	$13,710,422	106.9%
2014	N.A.	7%	0.2%	N.A.	10.77%	2.75%	8.0%	N.A.	108.3%

*Eastern Nebraska Human Services Agency Plan year ends December 31. Actuarial Valuations are conducted every other year. The next valuation report will be conducted in 2020.

Metro Area Transit Hourly Employees:

The current funding ratio is 67.3%. This is nearly a ten percent decrease from a 77% funding level in 2018. A major contributing factor is the negative investment return of -4.84% this past Plan year. Due to lower capital market expectations, the interest rates used to value liabilities have been decreased several times in the last nine years. In 2009 the assumed rate was reduced from 8% to 7.5%; in 2015 it was reduced from 7.5% to 7.0%; and in 2016 it was reduced from 7.0% to 6.75% where it remains.

The employer's contribution rate changed from 6.5% of payroll to 7.5% and the employee's contribution rate changed from 6% to 7%. For those employees hired on or after January 1, 2018, the Pension Committee:

- changed the normal retirement date from age 65 to the age when the employee reaches full retirement for purposes of receiving Social Security benefits
- eliminated the early retirement option
- the benefit factor percentage used in the calculation of the monthly benefit was changed to a tiered structure based on years of service in lieu of the current method of using the same benefit factor percentage regardless of years of service

In addition, to reflect the increasing average age of the Plan participants, the asset allocation has been modified to reduce the volatility of returns. To increase net investment returns, the entire portfolio has been indexed, reducing Plan investment management fees from 71 basis points to 9 basis points.

The collective bargaining agreement between Metro and the Transport Workers Union was renegotiated during 2017. Pension funding is one of the major components of these negotiations. Past and future negotiations include reopeners in each year in order to address required matters that might arise prior to expiration of the bargaining agreement.

Metro Area Transit Hourly Employees Summary

YEAR	FUNDED RATIO	ASSUMED INVEST. RATE	ACTUAL INVEST RETURN	NORMAL COST	TOTAL ARC %	EE RATES	CNTY RATES	UAL	% OF ARC PAID
2019	67.3%	6.75%	-4.84%	7.36%	N.A.	7.0%	7.5%	N.A.	N.A.
2018	77%	6.75%	13.35%	7.21%	N.A.	7.0%	7.5%	$11.453,127	102.35%
2017	71%	6.75%	5.80%	7.39%	N.A.	6.0%	6.5%	$11.424,110	94.42%
2016	72%	6.75%	-1.50%	7.35%	N.A.	6.0%	6.5%	$10,885,560	78.28%
2015	76%	7.0%	6.10%	7.39%	N.A.	6.0%	6.5%	$10,912,605	88.30%

Omaha Civilian Employees:

The funded ratio dropped from 53% to 51.8%. Last year's return on investment was .3%; this year's investment return was -0.8%. The City of Omaha paid 91.02% of the ARC. The Unfunded Actuarial Liability increased to approximately $232.5 million.

The unfunded actuarial liability (UAL) is funded on a "layered" basis, with the initial base funded as a level-percent of payroll over a 26-year closed period that began January 1, 2016. Each experience base is funded as a level percent of payroll over a 20-year closed period.

It is reported that additional savings should be seen in future years as members covered by the provisions of the Cash Balance Plan for employees hired on or after March 1, 2015 continue to grow. The most recent projections show the system will reach fully funded status in 2048.

The City has reached agreement with all its civilian bargaining groups for a period of either 2018 to 2021 or 2018 to 2020. None of these labor agreements addressed pension changes or reform, instead they focused on healthcare reform. The City of Omaha reports that parties will continue to evaluate the pension system and will continue to address it after allowing the recent changes to be in effect for a period of time.

Omaha Civilian Employees Plan Summary

YEAR	FUNDED RATIO	ASSUMED INVEST RATE	ACTUAL INVEST RETURN	NORMAL COST	TOTAL ARC %	EE RATES	CITY RATES	UAL	% OF ARC PAID
2019*									
2018	51.8%	7.5%	Estimated -.8%	9.818%	31.662%	10.075%	18.775%	$232,506,762	Pending
2017	53%	7.5%	-.3%	9.923%	31.056%	10.075%	18.775%	$223,286,679	91.02%
2016	55.5%	8%	13.1%	9.721%	27.740%	10.075%	18.775%	$197,537,024	106.81%
2015	55.9%	8%	10.2%	9.843%	27.526%	10.075%	18.775%	$193,616,559	108.36%
2014	56.2%	8%	3.5%	9.881%	33.724%	10.075%	18.775%	$188,911,964	84.50%

*Omaha Civilian Plan Year ends December 31 so the valuation report based on the 2019 Plan year is not yet available.

Omaha Police and Fire:

The investment return was -2.8%. The funded ratio is relatively unchanged; in 2018 the funding ratio was 52.1% compared to the current funding ratio of 52.4%. Last year the City of Omaha contributed 96.29% of its ARC obligation; this year's payment is pending. The Unfunded Actuarial Liability has increased from approximately $707 million to $738 million.

As part of Police Officers agreement, the City and the employees have agreed to contribute an additional 0.75% of wages into the system for 2018 to 2020.

The employees in this plan are represented by four bargaining groups. Three of the groups have collective bargaining agreements in place through 2018. The fourth group, the Omaha Police Officers Association, entered into a collective bargaining agreement for 2015 through 2020; the agreement was effective in March 2017. In addition to the contribution change noted above, the widow's pension provision was changed to provide that a widow's pension is only payable if the officer and spouse were married as of the date of the officer's retirement.

Police Management has a collective bargaining agreement for 2019 which does not include any additional pension contributions. The collective bargaining agreements for the Professional Firefighters Association and the Fire Management group expired at the end of 2018 and negotiations are ongoing. It is not expected that these negotiations will include any additional pension contributions.

The most recent projection have the system fully funded in in 2046 if all assumptions are met.

Omaha Police and Fire Plan Summary

YEAR	FUNDED RATIO	ASSUMED INVEST RATE	ACTUAL INVEST RETURN	NORMAL COST	TOTAL ARC %	EMPLOYEE RATES	CITY RATES	UAL	% OF ARC PAID
2019*									
2018	52.4%	7.75%	Estimated -2.8%	22.034%	53.447%	16.10%-17.23%	32.97%-34.44%	$669,449,659	Pending
2017	52.1%	7.75%	-2.33%	22.21%	53.199%	16.10%-17.23%	32.97%-34.44%	$648,833,922	96.29%
2016	51.8%	8%	15.0%	21.99%	50.212%	15.35%-17.23%	32.97%-33.67%	$611,737,378	101.46%
2015	50.8%	8%	9.10%	22.14%	50.097%	15.35%-17.23%	32.97%-33.67%	$602,562,135	101.81%
2014	49.6%	8%	0.70%	22.191%	50.031%	15.35%-17.23%	32.97%-33.67%	$598,810,,636	100.54%

*Omaha Police & Fire Plan Year ends December 31 so the valuation report based on the 2019 Plan year is not yet available.

Omaha Public Power District:

OPPD Plan year is based on the calendar year so the 2019 Valuation Report is not yet available. In 2018 the funding ratio was slightly decreased to 67.8% from the previous year's funding ratio of 70.0%. The investment return in 2018 was low at -6.34%.

OPPD has consistently paid 100% of its ARC in each of the previous five reporting years. As a result of the Experience Study conducted in 2016 the assumed rate of return was decreased from 7.75% to 7.0%.

OPPD has been working to address funding and long-term sustainability of the plan. Negotiations with bargaining groups occur on an ongoing basis. In 2012 the Board moved to a Cash Balance Plan for employees hired on and after January 1, 2013. In 2013 the District changed early retirement eligibility, which generally prevents employees from receiving early retirement benefits before age 55. In 2017 negotiations with bargaining units resulted in an increase in employee contributions, which gradually increase beginning in 2018 at 6.7% through 2022 when the employee contribution rate will be 9.0%, where it will remain.

The district updated the mortality table in 2019 to the PUB-2010 General table projected using Scale MP-2018 with generational projection. The Plan's unfunded liability is amortized over 20 years as a level dollar amount. A new amortization base is established each year for unexpected changes in the unfunded liability such as plan amendments, assumption changes or gains/losses. Because of the 20-year amortization period, the plan is not projected to be fully funded until the end of the last amortization period which is 2039, based on the new amortization bases that were effective January 1, 2019.

Omaha Public Power District Summary

YEAR	FUNDED RATIO	ASSUMED INVEST RATE	ACTUAL INVEST RETURN	NORMAL COST	TOTAL ARC %	EE RATES	DISTRICT RATES	UAL	% OF ARC PAID
2019*									
2018	67.8%	7.0%	-6.34%	12.3%	33.0%	7.2%	33.0%	$495,772,429	100%
2017	70.0%	7.0%	16.49%	12.1%	29.8%	6.7%	29.8%	$442,395,055	100%
2016	69.2%	7.0%	6.74%	11.1%	28.3%	6.2%	25.2%	$448,100,797	100%
2015	72.4%	7.75%	-1.07%	11.83%	25.2%	6.2%	17.53%	$433,114,517	100%
2014	73.9%	7.75%	3.85%	11.59%	23.73%	6.2%	21.11%		

*Omaha Public Power District Plan year ends December 31 so the 2019 Valuation Report is not yet available.

Omaha Public School (OSERS):

Last year the OSERS' Plan funding status decreased from 64% to 63%, with an increase in the unfunded actuarial liability from $771 million to $814 million. At the March 6, 2019 meeting the OSERS Board of Trustees modified the method for amortizing the Unfunded Actuarial Accrued Liability (UAAL). While the amortization policy continues to use the layered amortization methodology, the Board reset the initial amortization base to the UAAL as of January 1, 2019. This base is now the "legacy" base and is amortized over a closed 30-year period, beginning January 1, 2019, with payments as a level-percent of payroll. New amortization bases in the future will also be amortized over closed 30-year periods, with payments as a level-percent of payroll. The projected actuarial required contributions (ARCs), if all assumptions are met, for the next five years are as follows:

Year	Amount of Projected ARC
2020	$21.4 million
2021	$24.2 million
2022	$26.5 million
2023	$28.6 million
2024	$30.4 million

Omaha School Employees Retirement System Summary

YEAR	FUNDED RATIO	ASSUMED INVEST RATE	ACTUAL INVEST RETURN	NORMAL COST	TOTAL ARC %	EE RATES	OPS RATES	UAL	**% OF ARC PAID
2019*									
2018	63%	7.5%	-2.4%	12.96%	26.97%	9.78%	9.878%	$814,069,000	100%
2017	64%	7.5%	13.5%	13.0%.	27.05%	9.78%	9.878%	$771,000,000	100%
2016	65%	7.5%	-0.70%	13.07%	26.29%	9.78%	9.878%	$713,000,000	82.2%
2015	73%	8%	-4.10%	11.96%	20.76%	9.78%	9.878%	$486,000,000	No ARC due
2014	74%	8%	13.3%	12.02%	20.23%	9.78%	9.878%	$446,000,000	No ARC due

*Omaha School Employees Retirement Plan year ends December 31 so the 2019 Valuation Report is not yet available.

**The percent of ARC paid as noted in the actuarial valuation reports includes contributions by the State of Nebraska of the statutorily required 2% of total compensation of all OSERS members. The following is a list of the contribution amounts contributed by the State of Nebraska to the OSERS Plan:

Year	Amount of State Contribution
2019	$7,420,302
2018	$7,110,567
2017	$6,896,530
2016	$6,660,783
2015	$6,452,650

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Summary Charts of 2014/15-2019 Actuarial and Investment Information

Douglas County Employees Plan

YEAR	FUNDED RATIO	ASSUMED INVEST RATE	ACTUAL INVEST RETURN	NORMAL COST	TOTAL ARC %	EE RATES	CNTY RATES	UAL	% OF ARC PAID
2019	65.6%	7.5%	-2.8%	10.8%	18.1%	8.5%	8.5%	$168,000,000	93.5%
2018	68.0%	7.5%	16.8%	11.2%	18.0%	8.5%	8.5%	$148,540,000	94.4%
2017	67.2%	7.5%	6.8%	10.9%	17.5%	8.5%	8.5%	$140,285,000	104.7%
2016	67.3%	7.5%	2.3%	10.7%	15.8%	8.5%	8.5%	$133,784,248	110.8%
2015	66.8%	7.5%	5.2%	11.3%	16.5%	8.5%	8.5%	$131,057,379	111.8%

Eastern Nebraska Health Agency Plan

YEAR	FUNDED RATIO	ASSUMED INVEST RATE	ACTUAL INVEST RETURN	NORMAL COST	TOTAL ARC %	EE RATES	AGENCY RATES	UAL	% OF ARC PAID
2019*									
2018	N.A.	7%	-2.4%	N.A.	12.19%	2.75%	9.5%	N.A.	TBD
2017	74%	7%	11.7%	74%	12.19%	2.75%	9.5%	$14,245,604	107.0%
2016	N.A.	7%	6.8%	N.A.	11.55%	2.75%	9%	N.A.	108.7%
2015	71%	7%	6.8%	7.0%	11.55%	2.75%	8.5%	$13,710,422	106.9%
2014	N.A.	7%	0.2%	N.A.	10.77%	2.75%	8.0%	N.A.	108.3%

*Eastern Nebraska Human Services Agency Plan year ends December 31. Actuarial Valuations are conducted every other year. The next valuation report will be conducted in 2020.

Metro Area Transit Hourly Employees

YEAR	FUNDED RATIO	ASSUMED INVEST. RATE	ACTUAL INVEST RETURN	NORMAL COST	TOTAL ARC %	EE RATES	CNTY RATES	UAL	% OF ARC PAID
2019	67.3%	6.75%	-4.84%	7.36%	N.A.	7.0%	7.5%	N.A.	N.A.
2018	77%	6.75%	13.35%	7.21%	N.A.	7.0%	7.5%	$11.453,127	102.35%
2017	71%	6.75%	5.80%	7.39%	N.A.	6.0%	6.5%	$11.424,110	94.42%
2016	72%	6.75%	-1.50%	7.35%	N.A.	6.0%	6.5%	$10,885,560	78.28%
2015	76%	7.0%	6.10%	7.39%	N.A.	6.0%	6.5%	$10,912,605	88.30%

Omaha Civilian Employees Plan

YEAR	FUNDED RATIO	ASSUMED INVEST RATE	ACTUAL INVEST RETURN	NORMAL COST	TOTAL ARC %	EE RATES	CITY RATES	UAL	% OF ARC PAID
2019*									
2018	51.8%	7.5%	Estimated -.8%	9.818%	31.662%	10.075%	18.775%	$232,506,762	Pending
2017	53%	7.5%	-.3%	9.923%	31.056%	10.075%	18.775%	$223,286,679	91.02%
2016	55.5%	8%	13.1%	9.721%	27.740%	10.075%	18.775%	$197,537,024	106.81%
2015	55.9%	8%	10.2%	9.843%	27.526%	10.075%	18.775%	$193,616,559	108.36%
2014	56.2%	8%	3.5%	9.881%	33.724%	10.075%	18.775%	$188,911,964	84.50%

*Omaha Civilian Plan Year ends December 31 so the valuation report based on the 2019 Plan year is not yet available.

Omaha Police and Fire Plan

YEAR	FUNDED RATIO	ASSUMED INVEST RATE	ACTUAL INVEST RETURN	NORMAL COST	TOTAL ARC %	EMPLOYEE RATES	CITY RATES	UAL	% OF ARC PAID
2019*									
2018	52.4%	7.75%	Estimated -2.8%	22.034%	53.447%	16.10%-17.23%	32.97%-34.44%	$669,449,659	Pending
2017	52.1%	7.75%	-2.33%	22.21%	53.199%	16.10%-17.23%	32.97%-34.44%	$648,833,922	96.29%
2016	51.8%	8%	15.0%	21.99%	50.212%	15.35%-17.23%	32.97%-33.67%	$611,737,378	101.46%
2015	50.8%	8%	9.10%	22.14%	50.097%	15.35%-17.23%	32.97%-33.67%	$602,562,135	101.81%
2014	49.6%	8%	0.70%	22.191%	50.031%	15.35%-17.23%	32.97%-33.67%	$598,810,,636	100.54%

*Omaha Police & Fire Plan Year ends December 31 so the valuation report based on the 2019 Plan year is not yet available.

Omaha Public Power District

YEAR	FUNDED RATIO	ASSUMED INVEST RATE	ACTUAL INVEST RETURN	NORMAL COST	TOTAL ARC %	EE RATES	DISTRICT RATES	UAL	% OF ARC PAID
2019*									
2018	67.8%	7.0%	-6.34%	12.3%	33.0%	7.2%	33.0%	$495,772,429	100%
2017	70.0%	7.0%	16.49%	12.1%	29.8%	6.7%	29.8%	$442,395,055	100%
2016	69.2%	7.0%	6.74%	11.1%	28.3%	6.2%	25.2%	$448,100,797	100%
2015	72.4%	7.75%	-1.07%	11.83%	25.2%	6.2%	17.53%	$433,114,517	100%
2014	73.9%	7.75%	3.85%	11.59%	23.73%	6.2%	21.11%		

*Omaha Public Power District Plan year ends December 31 so the 2019 Valuation Report is not yet available.

Omaha School Employees Retirement System

YEAR	FUNDED RATIO	ASSUMED INVEST RATE	ACTUAL INVEST RETURN	NORMAL COST	TOTAL ARC %	EE RATES	OPS RATES	UAL	**% OF ARC PAID
2019*									
2018	63%	7.5%	-2.4%	12.96%	26.97%	9.78%	9.878%	$814,069,000	100%
2017	64%	7.5%	13.5%	13.0%.	27.05%	9.78%	9.878%	$771,000,000	100%
2016	65%	7.5%	-0.70%	13.07%	26.29%	9.78%	9.878%	$713,000,000	82.2%
2015	73%	8%	-4.10%	11.96%	20.76%	9.78%	9.878%	$486,000,000	No ARC due
2014	74%	8%	13.3%	12.02%	20.23%	9.78%	9.878%	$446,000,000	No ARC due

*Omaha School Employees Retirement Plan year ends December 31 so the 2019 Valuation Report is not yet available.

**The percent of ARC paid as noted in the actuarial valuation reports includes contributions by the State of Nebraska of the statutorily required 2% of total compensation of all OSERS members.

The following is a list of the contribution amounts contributed by the State of Nebraska to the OSERS Plan:

Year	Amount of State Contribution
2019	$7,420,302
2018	$7,110,567
2017	$6,896,530
2016	$6,660,783
2015	$6,452,650

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Conclusion

Since the annual reporting requirements began in 2014, eight political subdivisions have submitted reports on underfunded plans. In 2017, one of the plans -- Lincoln Police and Fire -- after making significant funding and benefit changes, reached a funding level of 80.9% funding level and is no longer required to annually report to the Nebraska Retirement Systems Committee (the funding level this year increased to 82%). The Committee will continue to monitor this Plan to ensure that the funding level remains above the 80% reporting threshold.

Beginning in 2016, under Neb. Rev. Stat. 13-2402, a new reporting requirement was added for all political subdivisions with defined benefit plans to conduct an Experience Study at least every four years. As a result of the recommendations under the Experience Studies, five of the seven plans have reduced their assumed investment rates as follows: Metro Area Transit Hourly lowered its rate to 6.75% from 7%; Omaha Civilian Employees and OSERS lowered to 7.5% from 8%; Omaha Police and Fire lowered to 7.75% from 8%; and OPPD lowered to 7.0% from 7.75%. The Douglas Employees Plan remained at 7.5% and the Eastern Nebraska Health Agency Plan remained at 7.0%.

According to information provided, the most recent Experience Studies were completed in the following years: Douglas County Employees in 2017; Eastern Nebraska Human Services Agency in 2016; Omaha Civilian Employees study was submitted in February 2018 for the period ending December 31, 2015; Omaha Police and Fire study was submitted in March 2018 for the period ending December 31, 2015; Omaha Public Power District study was conducted in 2016; and Omaha School Employees Retirement Plan study was submitted in April 2017 for the period ending August 31, 2016. The next round of Experience Studies are expected to be conducted by most plans within the next two years.

All of the plans reported negative actual market investment returns during the most recent plan valuation year which is a sharp investment return change for most of the plans from the previous year investment returns. Douglas County reported -2.8% (previous year was 16.8%); Eastern Nebraska Human Services Agency reported -2.4% (previous year was 11.7%); Metro Area Transit Hourly reported -4.84% (previous year was 13.35%); Omaha Public Power District reported -6.34% (previous year was 16.49%) and the OSERS investment return was -2.4% (previous year was 13.5%). However, the City of Omaha Plans have received negative investment returns in the current and past Plan years. The investment returns for the Omaha Civilian is estimated to be -0.8% (previous year was -0.3%) and the estimated investment return for Omaha Police and Fire is -2.8% (previous year was -2.33%).

The negative market investment returns contributed to decreased funding levels. Douglas County dropped to 65.6% from 68%; Metro Area Transit dropped to 67.3% from 77%; Omaha Public Power District dropped to 67.8% from 70%; OSERS reported a decrease to 63% from 64%; and Omaha Civilian decreased to 51.8% from 53%. Omaha Police & Fire remained essentially unchanged at 52%. Eastern Nebraska Health Agency is on a biennial reporting schedule so there was no new funding level reported this year; last year the funding level was 74%.

Payment by political subdivisions of the full amount of the recommended ARC has improved by most political subdivisions. Eastern Nebraska Health Agency reported a contribution of 107% of its ARC. Metro Area Transit Hourly reported 102.35% – an increase from 94.42% from the previous year. OPPD again, as it has each year, contributed 100% of its ARC. OPS again contributed 100% of the ARC for the OSERS Plan. The City of Omaha in the past two years had contributed over 100% of the ARC. However, this past year it contributed 91.02% of the Civilian ARC and 96.29% of the Police and Fire ARC.

The Committee will continue to monitor the funding progress of each plan and the political subdivisions' corrective actions to ensure there is a continued commitment to adequate funding.

APPENDICES

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Appendix A

Douglas County Employees Retirement Plan Information

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Douglas County
091919

2019 Pension Plan Reporting Form

1)

	2019	2018	2017	2016	2015
Funding Status	65.6% *	68.0%	67.2%	67.3%	66.8%
Assumed Rate of Return	7.5%	7.5%	7.5%	7.5%	7.5%
Actual Investment Return - Actuarial	4.1%	11.4%	6.2%	5.6%	9.0%
Actual Investment Return - Market	(2.8%)	16.8%	6.8%	2.3%	5.2%
Member & Employer Contribution Rates	8.5%	8.5%	8.5%	8.5%	8.5%
Normal Cost	10.8%	11.2%	10.9%	10.7%	11.3%
Actuarial Required Contribution (ARC)	$24.8MM (18.1%)	$23.1MM (18.0%)	$21.5MM (17.5%)	$19.4MM (16.4%)	$18.7MM (16.5%)
ARC - Actual dollars contributed	$23.2 (expected)	$23.6MM	$22.5MM	$21.5MM	$20.9MM
ARC - Percentage of ARC contributed	93.5% (expected)	102.2%	104.7%	110.8%	111.8%

* Based on the March 31, 2019 market value of assets, the funded percentage was 67.8%.

2) See attached narrative.

3) In July 2015, the long-term disability benefit provision was removed from the Pension Plan and has been replaced by a separate fully-insured long-term disability plan. On January 1, 2016 the interest crediting rate on member contributions was changed from 5.0% to the 10-year treasury rate in effect on the 1st of November of the preceding plan year. The combined impact of these two changes was a $3.6 million decrease in the actuarial accrued liability and a 0.6% increase to the Plan's funded ratio.

In the January 1, 2017 Actuarial Valuation, the following actuarial assumptions were updated:

a) RP2000 Mortality Table with longer expected lives.
b) Amortization of unfunded liability was reduced from 30 years to 25 years.
c) Early retirement rates and rates of termination of employment were updated.

The net impact of these changes in actuarial assumptions was a 0.1% decrease to the funding status and $1.3 million increase to the Actuarially Required Contribution.

4) Based on actuarial projections, the Douglas County Pension Plan is projected to reach 100% funding status in the year 2045.

5) The amortization method is a 25-year amortization of the unfunded actuarial liability based on a closed, layered level percent of pay.

6) See attached narrative.

7) There are no impacts on the Douglas County Pension Plan from any recent or ongoing labor negotiations.

8) The March, 2017 Actuarial Experience Analysis is attached.

9) The assumed rate of return of the plan is 7.5%. No changes have been made in the past year and none are contemplated in the near future.

10) The January 1, 2019 Interim Actuarial Review is attached.

Douglas County, Nebraska
Analytical Report on Defined Benefit Pension Plan

The most recent actuarial valuation was performed by the Silverstone Group for the Douglas County Employees' Defined Benefit Pension Plan as of January 1, 2019. The report showed the plan was 65.6% funded, had net assets on an actuarial basis of $320.4 million, and had an unfunded actuarial accrued liability of $168.0 million. The plan had 3,765 participants and an equal member and employer contribution rate of 8.5% of pay. The normal cost was $14.7 million and the actuarial required contribution was $24.8 million. The funded ratio has decreased from 68.0% on January 1, 2018, although improved stock market performance during the first quarter of 2019 improved the funded ratio to 67.8% as of March 31, 2019.

To understand why the Douglas County DB Plan is only 65.6% funded, it is important to look at the recent history of changes to the Plan. In 1996, the Plan was 97.8% funded. In 1996 for law enforcement and in 1997 for all other plan participants, the following changes were made:

- Unreduced benefit upon Rule of 75.
- Benefit formula increased from 1.5% of pay per year of service to 2% of pay per year of service.

In 1998 a 3% COLA was approved, in 2000 a 4% COLA was approved, and in 2002 a 3% COLA was approved. By 2004, the funding ratio had fallen to 64.8%. The Plan is a contributory plan with the County's contribution equal to the Member's contribution. The County and Member contributions each increased from 5.5% of pay in 2005 to the present level of 8.5% of pay by 2008. Poor stock market performance during the Great Recession also negatively impacted the Plan's funded ratio which reached a low point of 57.8% in 2010.

The members of the Pension Committee and the County Board of Commissioners recognized that substantive changes had to be made to the Plan rules to ensure the financial viability of the Plan for its current participants. Accordingly, effective for all employees hired after December 31, 2011, the following pension provisions were put in place:

- No rule of 75.
- Benefit formula was reduced from 2% of pay per year of service to 1.5% of pay per year of service.
- Maximum retirement income was reduced from 60% of participant's final average compensation to 45%.

Sheriff Deputies (who account for about 10% of total plan participants) have slightly different plan provisions which provide for increased benefits with early retirement.

These plan changes, along with no COLA increases being given since 2002, have increased the plan funding ratio by 7.8 percentage points from its low point in 2010 to 65.6% as of January 1, 2019. These plan changes have also materially impacted the Plan's forecast of funded percentage so that the forecast now projects the plan achieving acceptable funded levels in the future as shown in the following forecast developed by Silverstone in January, 2019:

Estimated Funded Percentage*

2019	65.6%
2024	67.7%
2029	72.0%
2034	78.0%
2039	87.2%

**Forecast based on current plan assumptions.*

In July 2015, the Long-Term Disability (LTD) program was removed from the Pension Plan and put into a separate fully-insured benefit plan. On January 1, 2016 the interest crediting rate on member contributions was changed from 5.0% to the 10-year Treasury Rate in effect on November 1st of the preceding plan year. The combined impact of these two changes was a $3.6 million decrease in the actuarial accrued liability and a 0.6% increase to the Plan's funded ratio. On January 1, 2017, actuarial valuation updates were made to the mortality table, the amortization period of the unfunded liability was reduced, and the rates of early retirement and termination of employment were revised. The net impact of these changes was a 0.1% decrease to funding status and a $1.3 million increase to the Actuarially Required Contribution. No recent or ongoing negotiations with any employee labor groups are expected to impact the funding of the pension plan.

The Douglas County Pension Committee, Board of Commissioners, and administrative staff believe the aforementioned combination of actions will significantly improve the financial condition of the Douglas County Employee Defined Benefit Pension Plan and ensure the financial viability and payment of benefits to participants going forward.

SilverStone GROUP

June 4, 2019

PERSONAL AND CONFIDENTIAL

Mr. Joe Lorenz
Budget & Finance Director
Douglas County Employees' Retirement Plan
1819 Farnam Street
Omaha, NE 68183

RE: 2019 Interim Actuarial Review

Dear Joe:

Enclosed are fifteen copies of the January 1, 2019 interim actuarial review for the Douglas County Employees' Retirement Plan. The results contained in this review are consistent with our retirement committee presentation on May 30, 2019.

If you have any questions about the information provided in the report, please give me a call.

Sincerely,

Glen C. Gahan, FSA
Principal

GCG/ks

Enclosures

11516 MIRACLE HILLS DRIVE, SUITE 100
OMAHA, NEBRASKA 68154
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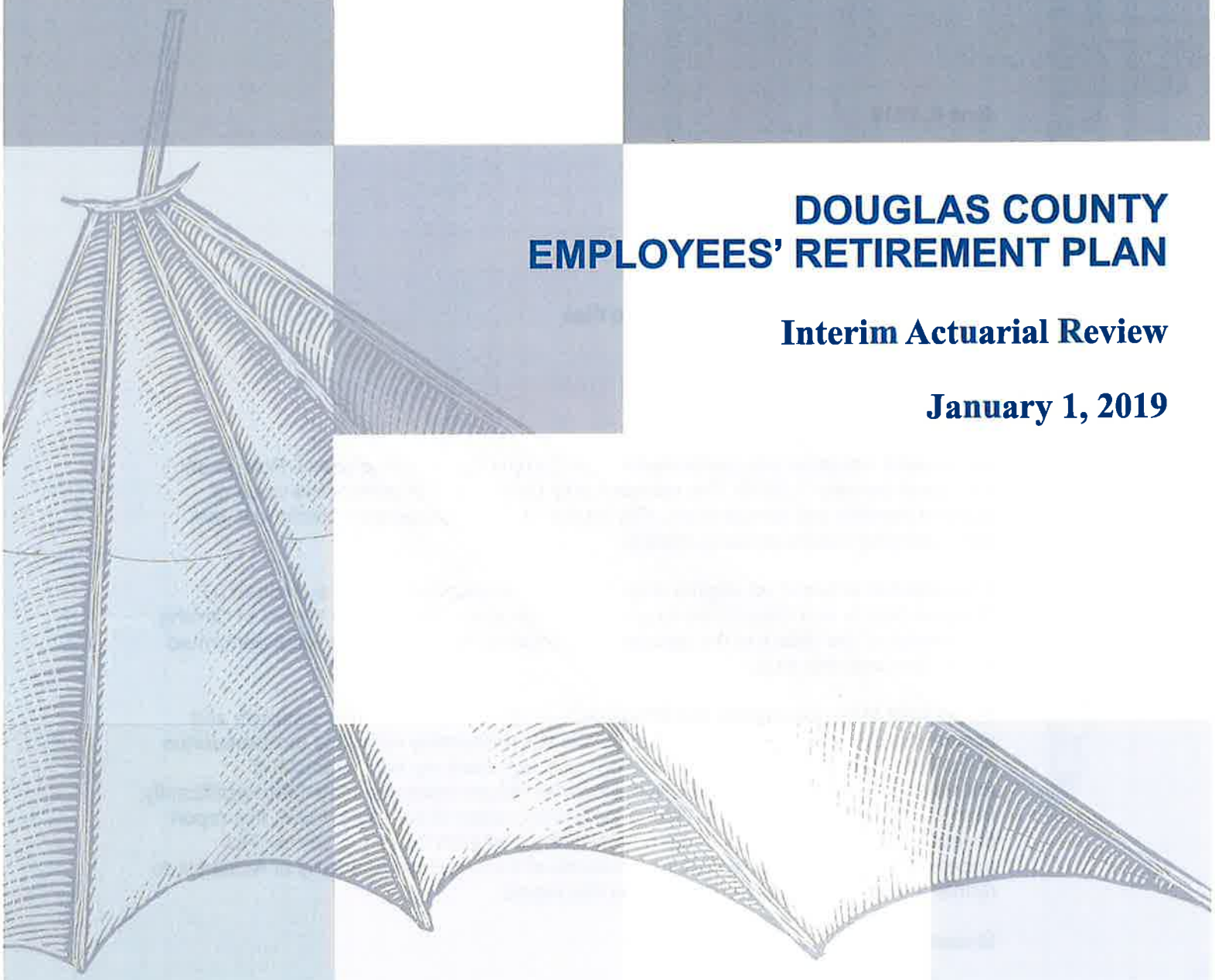
DOUGLAS COUNTY EMPLOYEES' RETIREMENT PLAN

Interim Actuarial Review

January 1, 2019



Wisdom at Work.

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June 4, 2019

ACTUARIAL CERTIFICATION

Employees' Retirement Committee
Douglas County Employees' Retirement Plan
1819 Farnam Street
Omaha, NE 68183

Committee Members:

An actuarial valuation was performed for the Douglas County Employees' Retirement Plan as of January 1, 2019. The valuation was prepared to determine the value of accrued benefits and annual costs. The results of the valuation are contained in the accompanying interim actuarial review.

The valuation is based on eligible employees and summary of assets submitted by Douglas County and data concerning retired employees submitted by United of Omaha. Summaries of the data and the calculations contained in the valuation were performed by our firm from this data.

To the best of my knowledge, the information supplied in this report is complete and accurate and, in my opinion, the assumptions are reasonably related to the experience of the plan and to reasonable expectations and represent my best estimate of anticipated experience under the Plan. However, future measures may differ significantly from the current measurement. Due to the limited scope of our assignment, this report does not include an analysis of the potential range of such future measures. The undersigned meets the qualification standards of the American Academy of Actuaries to render the actuarial opinion contained in this report.

Sincerely,

Glen C. Gahan, FSA
Principal
Member of American Academy of Actuaries

Enrolled Actuary No. 17-04875

GCG/ks

Enclosure

11516 MIRACLE HILLS DRIVE, SUITE 100
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Table of Contents

Purpose of Interim Actuarial Review

Purpose - The interim Actuarial Review is prepared for the year between the biannual Actuarial Valuation of the Employees' Retirement Plan to provide:

- An update of the funding status
- An update of plan liabilities
- An update of contribution requirements
- Status of Plan Participants
- Value of Plan Assets

Determine Actuarial Accrued Liability and Annual Costs

Evaluate Unfunded Accrued Liability

Actuarial Review Based On:

- Existing Plan Provisions as of January 1, 2019
- Current Active and Non-Active Participant Data
- Actuarial Value of Plan Assets
- Actuarial Methods and Assumptions

Participant Data

	Plan Year Beginning January 1 2018	2019
Active Participants:		
Under Age 65	2,146	2,121
Age 65 & Over	36	38
Total	2,182	2,159
Non-Active Participants:		
Retired		
39G 12795 (after 2/28/2003)	830	899
GDA 6148 (prior to 3/1/2003)	429	402
Vested Terminated	106	100
Terminated Non-Vested	91	182
Disabled	28	23
Total Non-Active	1,484	1,606
Total Participants	3,666	3,765
Annual Compensation:		
Total, Under Age 65	$128,499,679	$136,743,463 *
Average Per Participant	59,879	64,471
Annual Pension Benefit		
Current Retired	24,982,760	26,725,556
Immediate Disability Payments	56,711	36,491
Deferred to Age 65		
Vested Terminated	1,159,950	1,003,344
Disabled	674,000	544,318

*Include annualized amount for those hired in the prior year.

Market Value of Plan Assets

Summary of Changes in Value of Plan Assets

Market Value of Plan Assets on January 1, 2018		$326,905,394
Plus Increases		
Employee Contributions	11,826,407	
County Contributions	11,817,806	
Investment Experience	(9,094,532)	
		14,549,681
Less Decreases		
Pensions Paid to Retirees	28,165,351	
Refunds to Terminated EEs	2,635,803	
Disability Premiums/Administration	0	
Administrative Expenses	889,204	
		31,690,358
Market Value of Plan Assets on January 1, 2019		$309,764,717
Approximate Rate of Return		-2.8%

Plan Investments	**% of Total**	**Market Value**
US Bank		
Operating Account - Cash and Cash Equivalents	2.1%	$6,545,523
Aristotle	3.6%	11,055,038
Atlanta Capital	8.7%	27,099,357
State Street - Fixed Income Portfolio	2.7%	8,426,728
JP Morgan	8.1%	25,058,304
Winslow - Capital Management	3.8%	11,835,873
Sanderson International	3.3%	10,254,158
Harding Loevner	5.4%	16,587,882
Wells Cap Emerging	5.5%	17,152,871
Macquarie	9.9%	30,367,808
Total		164,383,542
United of Omaha Insurance Company		
General Asset Account GDA 6148	22.5%	69,586,072
Small Company Fund GDA 6148	3.1%	9,526,474
Institutional Index 500 GDA 6148	21.3%	66,130,393
General Asset Account 39G-12795	0.0%	138,236
Total		145,381,175
Grand Total	100.0%	$309,764,717

Description of Actuarial Value of Assets

Objective

Since January 1, 1986, an actuarial value of plan assets has been used to determine annual contribution requirements and to evaluate the funding status of the Retirement Plan. An actuarial value of plan assets is used to smooth fluctuations in market value from one valuation date to the next.

Description

Actuarial value is equal to:

- Adjusted value of plan assets
- Plus, one-half of the excess of market value over the adjusted value of plan assets

Where adjusted value of plan assets equal:

- Actuarial value of plan assets on the prior valuation date
- Plus contributions with expected interest
- Less pensions paid, refunds and other disbursements with expected interest

Actuarial Value of Plan Assets

Actuarial Value of Plan Assets on January 1, 2018		$315,694,446
Plus Increases		
Employee Contributions	11,826,407	
County Contributions	11,817,806	
Expected Interest	23,375,353	
		47,019,566
Less Decreases		
Pensions Paid to Retirees	28,165,351	
Refunds to Terminated EEs	2,635,803	
Disability Premiums/Administration	0	
Administrative Expenses	889,204	
		31,690,358
Adjusted Value on January 1, 2019		331,023,654
Market Value on January 1, 2019		309,764,717
One-Half Excess, Market Value Less Adjusted Value		(10,629,469)
Actuarial Value of Plan Assets on January 1, 2019		$320,394,185
Approximate Rate of Return		4.1%
Actuarial Value as a % of Market Value		103.4%

Unfunded Accrued Liability

	Plan Year Beginning January 1 2018	2019
Actuarial Accrued Liability		
1. Active	$213,480,553	$220,044,496
2. Vested Terminated Participants	6,471,917	5,669,146
3. Terminated Non-Vested*	1,317,806	4,295,618
4. Disabled Participants	2,631,437	2,457,835
5. Retirees	240,332,061	255,904,624
6. Total (1) + (2) + (3) + (4) + (5)	464,233,774	488,371,719
Actuarial Value of Plan Assets		
7. Actuarial Value of Plan Assets	315,694,446	320,394,185
Unfunded Accrued Liability		
8. Unfunded Accrued Liability (6) - (7)	148,539,328	167,977,534
9. Ratio of Assets to Accrued Benefits (7) / (6)	68.0%	65.6%

*Amount equal to expected refund of member contributions.

Annual Normal Cost

	Plan Year Beginning January 1 2018	2019
Annual Normal Cost		
Retirement, Death, Termination and Disability	$13,390,908	$13,802,858
Immediate Disability Benefit	0	0
Annual Administrative Expense	980,716	929,294
Total	14,371,624	14,732,152
Expected Plan Contributions		
From Employees	10,922,473	11,623,194
From County	10,922,473	11,623,194
Total	21,844,946	23,246,388

Actuarially Determined Contribution

The Members contribute 8.5% of covered payroll annually to the Plan, with Sheriff members hired after July 1, 2011 contributing less after 32 years of service. In accordance with applicable State and County statutes, the County contributes an annual amount equal to the Member contributions.

An actuarially determined contribution is the annual calculated contribution amount as determined by application of the plan's actuarial methods and assumptions. This contribution provides a measure of the amount of contributions needed to fund the benefits earned in the current year plus the 25-year amortization of the unfunded accrued liability. It is an illustrative amount useful as a benchmark comparison to the actual contributions into the plan and is also reported in the annual Governmental Accounting Standards Board (GASB) disclosures. The plan is not currently being funded on this basis, but is funded by the fixed contribution rates described above.

	Plan Year Beginning January 1	
	2018	2019
1. Annual Normal Cost	$14,371,624	$14,732,152
2. Amortization of the Unfunded Accrued Liability	7,927,168	9,183,234
3. One-half Year Interest on (1) and (2)	836,205	896,827
4. Actuarially Determined Contribution	23,134,997	24,812,213
Actuarial Methodology		
Actuarial Cost Method	Projected Unit Credit	Projected Unit Credit
Amortization Method	Level Percent of Pay	Level Percent of Pay
Amortization Period	Closed, Layered 25 Years	Closed, Layered 25 Years
Actuarial Assumptions	Same, as described in report	Same, as described in report

Amortization of Unfunded Accrued Liability

	Plan Year Beginning January 1 2018		2019
Unfunded Accrued Liability (UAL)	$148,539,328		$167,977,534
Annual Normal Cost	14,371,624		14,732,152
Actuarially Determined Contribution	23,134,997		24,812,213
Expected Plan Contributions			
From Employees	10,922,473		11,623,194
From County	10,922,473		11,623,194
Total	21,844,946	*	23,246,388
Amount Available to Reduce UAL	7,473,322		8,514,236
Years Required to Amortize the UAL			
as a level percent of pay	26.0		25.7
as a level dollar amount	Unable to Amortize		Unable to Amortize
Interest - only on the UAL	11,140,450		12,598,315

*Actual amount contributed was $23,644,213.

Accrued Liability Payments

One of the components included to determine the actuarially determined contribution is the Accrued Liability Payment. The Accrued Liability Payment is an annual amount that will amortize:

- The unfunded accrued liability established as of January 1, 2017.
- An increase or decrease in the unfunded accrued liability due to plan amendment.
- An increase or decrease in the unfunded accrued liability due to a change in actuarial assumptions.
- An increase or decrease in the unfunded accrued liability resulting from actuarial gains or losses due to plan experience more or less favorable than expected.

This section of the report documents the Amortization Bases established for the Plan and displays other values associated with minimum funding.

Amortization Base	Date Established	Source of Base
140,285,787	January 1, 2017	Initial Unfunded
5,714,314	January 1, 2018	Actuarial Loss
16,456,582	January 1, 2019	Actuarial Loss

Minimum Funding

The Unamortized Balance is based on the methodolgy for the actuarially determined contribution and does not reflect actual past funding of the Amortization Bases. For each amortization base, the initial amortization period and the remaining term of the amortization period determined on the valuation date are displayed.

Charge Bases

Amortization Base	Initial Term-Years	Remaining Term on Valuation Date	Minimum Payment
140,285,787	25	23	8,020,601
5,714,314	25	24	310,853
16,456,582	25	25	851,780
		Total	$ 9,183,234

Credit Bases

Amortization Base	Initial Term-Years	Remaining Term on Valuation Date	Minimum Payment
0	0	0	0
		Total	$ -

Total $ 9,183,234

Risk Disclosures

The Actuarial Standards Board provides guidance to actuaries when performing certain actuarial services in the form of standards of practice. The Board has issued a new standard of practice on risk disclosure that applies to actuaries when performing a funding valuation of a defined benefit pension plan. This standard of practice addresses assessment and disclosure of the risk that actual future measurements may differ significantly from expected future measurements of pension liabilities, funded status, and actuarially determined contributions.

Risk is defined as the potential of actual future measurements to deviate from expected future measurements. This deviation results when actual future experience is different from actuarially assumed experience. Sample sources of risk include: investment returns, asset/liability mismatch, interest rates, longevity and other demographic risks, and contribution risk. The following are certain significant measures of risk as they pertain to the plan.

	January 1, 2018	January 1, 2019
Retired Participant Liability	240,332,061	255,904,624
Total Plan Liability	464,233,774	488,371,719
Ratio	51.8%	52.4%

More risk related to investment returns is associated with plans whose retiree liability is a significant and growing proportion of the plan's total liability, since it is more difficult to restore a plan financially after losses occur due to a shorter duration of liability where significant retired liability exists.

	January 1, 2018	January 1, 2019
Contributions in prior year	22,525,334	23,644,213
Benefit Payments in prior year	(26,057,732)	(30,801,154)
Net Cash Flow	(3,532,398)	(7,156,941)

More risk related to investment volatility is associated with plans whose benefit payments are significant compared to the plan contributions. If, for example, a plan has negative cash flow and experiences investment returns below an assumed rate then there are fewer assets that can be reinvested to earn potentially higher returns that may follow.

	January 1, 2018	January 1, 2019
Duration of Plan Liability	12.2 years	12.0 years

Duration is a present value weighted average of the timing of future benefit payments. Plans with a higher duration have more risk related to future interest rates. Additionally, more risk related to asset/liability mismatch is associated with plans whose liability duration differs significantly from the duration of plan investments.

Risk Disclosures

(continued)

	January 1, 2018	January 1, 2019
Market Value of Assets	326,905,394	309,764,717
Annual Payroll	124,582,198	127,889,917
Asset Volatility Ratio	2.6	2.4

More risk related to investment return and future costs are associated with plans whose asset volatility ratio is high and growing; which is a characteristic of more mature plans.

	January 1, 2018	January 1, 2019
Market Value of Assets	326,905,394	309,764,717
Actuarial Accrued Liability	464,233,774	488,371,719
Ratio	70.4%	63.4%

More risk is associated with plans that have lower funded ratios.

	January 1, 2018	January 1, 2019
Actuarial Accrued Liability	464,233,774	488,371,719
Annual Payroll	124,582,198	127,889,917
Liability Volatility Ratio	3.7	3.8

More risk related to experience losses and future costs are associated with plans whose liability volatility ratio is high and growing; which is a characteristic of more mature plans.

The assumptions used to determine the risk measures above are identical to the assumptions used for recommended funding purposes on the respective valuation dates.

History of Plan Changes

2016 Long Term Disability provision for active members was eliminated from the Plan as of 7/1/2015. LTD is provided by insurance outside of the pension plan. The interest crediting rate on employee contributions was changed from 5% to the 10-Year Treasury rate for November prior to the valuation date as of 1/1/2016.

2012 Certain bargaining employees hired after June 30, 2011 and all non-bargaining employees hired after December 31, 2011. It is anticipated that all bargaining units will be under these same benefit provisions after their next contract is negotiated.

- 1.5% of pay per year of service (45% maximum)
- No Rule of 75
- 8.5% contribution rate
- Early Retirement at age 50 and 10 years of service or age 60 and 5 years of service
- Early Retirement reduction of 5% per year

Sheriff Deputies hired after June 30, 2011

- Benefit formula changed to the following:
  - 1.0% of pay for 1 to 10 years of service
  - 2.0% of pay for 11 to 20 years of service
  - 2.5% of pay for 21 to 32 years of service
- Contribution rate changed to the following:
  - 8.5% for 1-32 years of service
  - 7.5% at 33 years of service
  - 6.5% at 34 years of service
  - 5.5% at 35+ years of service
- Early Retirement at age 53
- Early Retirement reduction of 4.8% per year
- No Early Retirement reduction if 30 or more years of service

2008 Member and County contribution rate increased from 7.5% to 8.5%

2007 Member and County contribution rate increased from 6.5% to 7.5%

2006 Member and County contribution rate increased from 5.5% to 6.5%

2002 Increase retiree pension by 3%, but not less than $5 a month

2000 Increase retiree pension by 4%, but not less than $5 a month

1998 Increase retiree pension by 3%, but not less than $5 a month

History of Plan Changes

(continued)

1997

1. Rule of 75 for other than law enforcement
   - Unreduced benefit upon Rule of 75
   - 2.0% benefit formula after January 1, 1962
   - 5.5% member contributions

1996

1. Rule of 75 for law enforcement
   - Unreduced benefit upon Rule of 75
   - 2.0% benefit formula after January 1, 1962
   - 5.5% member contributions
2. Participation begins on first day of employment
3. Increase retiree pension by 4% but not less than $10 a month

1994

1. Benefit formula change to the following:
   - 1% of pay for service before January 1, 1962
   - 1.5% of pay for service after January 1, 1962
2. Decrease in interest rate on employee contributions to 5% effective July 1, 1994
3. Increase retiree pension by 3%

1992

1. Early Retirement Incentive Program (112 members elected benefit)
2. Early Termination of Employment Incentive Program (188 members elected benefit)
3. Increase retiree pension by 3%

1990

1. Benefit formula change to the following:
   - 1% of pay for service before January 1, 1962
   - 1.4625% of pay for service after January 1, 1962
2. Increase retiree pension by 4%
3. Vesting changed from 25% after 5 graded to 100% after 15 to 25% after 5 increased 15% a year up to 10
4. Maximum Disability Benefit increased from $36,000 to $57,600

1988

1. Benefit formula change to the following:
   - 1.425% of pay for service after January 1, 1962
   - 1% of pay for service before January 1, 1962
2. Increase retiree pension by 4%, but no less than $5 a month
3. Changed eligibility requirements to include participants hired after age 60

History of Plan Changes

(continued)

1986

1. Benefit formula change to the following:
   - 1% of pay for service before January 1, 1962
   - 1.2% of pay for service from January 1, 1962 to January 1, 1972
   - 1.4% of pay for service after January 1, 1972
2. Increase retiree pension by 6% but not less than $5 a month

1984

1. Increased benefit formula from 1.1% of pay to 1.2% for service after January 1, 1974
2. Increase retiree pension by 6%, but not less than $5 a month

1982

1. Added Special Early Retirement
2. Benefit formula change from 1% of pay to 1.1% of pay for service after January 1, 1972
3. Increase retiree pension by 6%, but not less than $10 a month
4. Changes in disability retirement provisions
5. Changes in actuarial assumptions
6. Special provisions for county employees change to state employees

1980

1. Special Early Retirement
2. Change in service definition – unlimited sick leave
3. $10/month increase in pension to retirees
4. Added Late Retirement Benefit

History of Plan Funding

Year	Actuarial Value Of Assets ($1,000s)	Actuarial Accrued Liability		Funded Ratio	
		Before Changes ($1,000s)	After Changes ($1,000s)	Before Changes	After Changes
2019	$320,394	$488,372	$488,372	65.6%	65.6%
2018	315,694	464,170	464,234	68.0%	68.0%
2017	287,478	428,146	427,763	67.1%	67.2%
2016	274,878	412,283	408,662	66.7%	67.3%
2015	263,790	394,847	394,847	66.8%	66.8%
2014	245,830	380,727	380,727	64.6%	64.6%
2013	219,494	362,117	362,117	60.6%	60.6%
2012	205,795	343,542	343,178	59.9%	60.0%
2011	196,119	321,700	321,700	61.0%	61.0%
2010	177,797	307,407	307,407	57.8%	57.8%
2009	167,994	290,127	290,127	57.9%	57.9%
2008	177,834	269,970	270,351	65.9%	65.8%
2007	165,309	253,386	248,986	65.2%	66.4%
2006	151,686	239,229	239,602	63.4%	63.3%
2005	142,403	221,642	221,642	64.2%	64.2%
2004	132,769	204,952	204,952	64.8%	64.8%
2003	125,238	188,697	188,697	66.4%	66.4%
2002	126,336	167,690	172,615	75.3%	73.2%
2000	117,626	124,906	127,011	94.2%	92.6%
1998	97,626	107,071	108,391	91.2%	90.1%
1996	81,626	78,202	83,472	104.4%	97.8%
1994	69,860	71,242	72,869	98.1%	95.9%
1992	60,912	59,747	66,161	101.9%	92.1%
1990	48,387	47,474	48,717	101.9%	99.3%
1988	37,662	36,212	37,390	104.0%	100.7%
1986	30,161	27,830	30,455	108.4%	99.0%
1984	21,752	20,912	22,203	104.0%	98.0%
1982	16,115	16,687	17,828	96.6%	90.4%
1980	11,468	15,229	15,597	75.3%	73.5%

Actuarial Cost Method

Annual costs were calculated using the Projected Unit Credit Actuarial Cost Method. Projected Unit Credit is one of the Accrued Benefit Actuarial Cost Methods. Using Projected Unit Credit, annual costs equal the sum of the normal cost and an amount to amortize the unfunded actuarial accrued liability. The normal cost is defined as the actuarial value of retirement and ancillary benefits that are allocated to the current year.

The unfunded actuarial accrued liability is equal to the accrued liability reduced by the actuarial value of plan assets. The accrued liability is defined as the actuarial value of retirement and ancillary benefits that have been allocated to years of service prior to the current year.

The method allocates an equal amount of a participant's projected retirement benefit to each year of service. The benefit at normal retirement is projected assuming salaries increase at the assumed rates. The projected retirement benefit is then divided by the participant's years of service to determine the portion of the retirement benefit allocated to each year. Service includes years following the later of the date of hire and July 1, 1952 (January 1, 1955 for former Board of Health participants) and prior to the assumed retirement age.

As experience develops under the Retirement Plan, actuarial gains and losses will result. Actuarial gains and losses indicate the extent to which actual experience is deviating from that expected on the basis of the actuarial assumptions. Actuarial gains result from experience more favorable than assumed and reduce the unfunded accrued liability. Actuarial losses result from experience less favorable than assumed and increase the unfunded accrued liability. All actuarial gains and losses are included in the determination of the unfunded accrued liability as of the valuation date.

The unfunded actuarial accrued liability is amortized over 25 years on a fixed percentage of pay, closed layered basis. This amortization method was adopted effective January 1, 2017.

Asset Valuation Method

The Actuarial Value of Plan Assets held in the pension trusts was calculated as the sum of the following:

- Adjusted Value of Plan Assets
- One-half of the excess of Market Value over the Adjusted Value of Plan Assets

The Adjusted Value of Plan Assets equals:

- Actuarial Value of Plan Assets on the prior valuation date, plus contributions and expected interest, less
- Pensions paid, refunds and other disbursements with expected interest

Actuarial Assumptions

Investment Return

7.5% compounded annually.

Salary Scale

Salaries were assumed to increase at an annual rate compounded annually following the valuation date varying by age, as illustrated below.

Age	Percentage Increase
18-44	5.50%
45-54	5.00%
55+	4.50%

Mortality Rates

The static, combined healthy lives RP-2000 mortality tables projected to 2017 and further projected 7 years for annuitants and 15 years for non-annuitants. Separate tables are used for annuitants and non-annuitants as well as for male and female.

Disability Rates

None.

Withdrawal Rates

Based on rates as illustrated below:

Age	Rate
22	28.3%
27	12.7%
32	10.0%
37	8.2%
42	5.9%
47	4.0%
52	2.3%
57	1.9%

Accrued Sick Leave

7 days per year.

Actuarial Assumptions
(continued)

Retirement Rate

Age	Rule of 75	Other
50	30%	5%
51-54	5%	2%
55-61	10%	5%
62-64	20%	10%
65-69	30%	30%
70	100%	100%

Retirement rate is 30% the first year a Member is eligible for Rule of 75.

Age	Sheriffs Hired after June 30, 2011
53-54	5%
55	25%
56-57	15%
58	20%
59-61	25%
62	30%
63	35%
64	40%
65	100%

Retirement rate is 100% for sheriffs hired after June 30, 2011 at 30 years of service.

Interest Rate on Employee Contributions

3.12% per annum.

Administrative Expenses

Annual administrative expenses have been estimated as 3/10 of 1% of plan assets.

Summary of Plan Provisions

Effective Date	January 1, 1963
Plan Year	January 1 through December 31.
Participation	First day of continuous employment.
Definitions	
Member	Any employee who participates in the Plan as an active participant or a non-active participant entitled to a disability pension, a deferred vested retirement benefit or a current retirement benefit.
Benefit Service	Years of service following the later of July 1, 1952 and the date of hire and prior to the normal retirement date. Years of service prior to January 1, 1955 are not considered for members who were participants of the Omaha-Douglas County Board of Health Retirement Plan.
Final Average Compensation	Average monthly compensation paid during the 60 consecutive months of the last 120 months of service that produces the largest average monthly compensation. The average monthly compensation is limited for members who were participants of the Omaha-Douglas County Board of Health Retirement Plan prior to 1975.
Normal Retirement Date	First day of calendar month coinciding with or next following the 65th birthday (age 55 for sheriff deputies hired after June 30, 2011).
Rule of 75 Retirement	First day of calendar month coincident with or next following the attainment of age 50, and completion of a sufficient number of years of service so that when such years are added to the members attained age, the total equals or exceeds 75. Such service must be exclusive of accumulated sick leave. There is no Rule of 75 Retirement for bargaining employees hired after June 30, 2011 (or later date based on applicable bargaining unit contract) and all non-bargaining employees hired after December 31, 2011.

Early Retirement

Following attainment of age 55 and 20 years of service, or age 60 and 5 years of service. Age 53 for sheriff deputies hired after June 30, 2011. Age 50 and 10 years of service or age 60 and 5 years of service for bargaining employees hired after June 30, 2011 (or later date based on applicable bargaining unit contract) and all non-bargaining employees hired after December 31, 2011.

Benefits

Normal Retirement

For participants who were actively employed on October 4, 1997 and retire thereafter, a monthly income equal to the sum of (1) and (2), not to exceed 60% of the participant's final Average Compensation:

(1) 1% of Final Average Compensation, multiplied by years of benefit service prior to January 1, 1962, plus

(2) 2.0% of Final Average Compensation multiplied by years of benefit service following January 1, 1962.

For bargaining employees hired after June 30, 2011 (or later date based on applicable bargaining unit contract) and all non-bargaining employees hired after December 31, 2011, a monthly income equal to 1.5% for each year of service not to exceed 45% of the participant's final Average Compensation.

For sheriff deputies hired after June 30, 2011, a monthly income equal to the sum of (1), (2) and (3), not to exceed 60% of the participant's final Average Compensation:

(1) 1.0% of Final Average Compensation multiplied by 1-10 years of benefit service.

(2) 2.0% of Final Average Compensation multiplied by 11-20 years of benefit service.

(3) 2.5% of Final Average Compensation multiplied by 21-32 years of benefit service.

Early Retirement	Monthly income computed in the same manner as normal retirement, based on benefit service and final average compensation at the early retirement date, and reduced by 1/4 of 1% for each full calendar month that the initial retirement payment precedes the normal retirement date. Reduced by .4167% for each full calendar month that the initial retirement payment precedes the normal retirement date for bargaining employees hired after June 30, 2011 (or later date based on applicable bargaining unit contract) and all non-bargaining employees hired after December 31, 2011. Reduced by .4% for each full calendar month that the initial retirement payment precedes the normal retirement date for sheriff deputies hired after June 30, 2011.
Rule of 75 Retirement	If the eligibility requirements for Rule of 75 Retirement are met, the early retirement benefit will not be reduced for the period that retirement precedes the normal retirement date.
Late Retirement	A member who attains the age of 65 after December 31, 1987, shall be entitled to the Normal Retirement Benefit based on Years of Service and Final Average Compensation determined as of the late Retirement Date.
Death	A benefit of 60% of earned pension is payable until death of the spouse if an employee has completed 8 years of service at the date of death. The earned pension is based on length of service and final average compensation to the date of death. The participant and spouse must be married for at least one year prior to date of death. If the employee is not survived by dependents or does not qualify for the spouse benefit, the employee's contributions, plus accumulated interest is paid to the beneficiary upon death.

Disability/Re-employment Supplement

If an employee who has been receiving disability benefits is able to return to active employment but receives compensation at a rate less than what was being paid as a disability pension (including Social Security and Worker's Compensation), supplemental payments will be made to him equal to the difference between his compensation and his disability pension. The duration of such supplemental payments will not exceed 36 months.

Termination Benefit

Deferred monthly income equal to the earned benefit based on service and compensation to the date of termination and multiplied by a vesting factor:

Completed Years of Service on Date of Termination	Vesting Factor
Less than 5	0.00
5	0.25
6	0.40
7	0.55
8	0.70
9	0.85
10 Years and Over	1.00

If a member's employment is terminated due to a change in employment status as provided by the Nebraska Legislature to that of a state employee, such member's Vested Factor will be 1.00. The termination benefits to which he is entitled shall be based on the average monthly compensation of the member during Douglas County employment and/or state employment which immediately follows Douglas County employment.

Upon termination prior to qualifying for a vested pension or in lieu of the vested pension, the employee may withdraw his contributions increased by interest. Effective July 1, 1994, the interest rate credited is 5% compounded annually. This interest rate credit was changed to the 10-year treasury rate for the month of November, preceding the plan year, as of January 1, 2016.

Form of Annuity

Normal Form

Joint life annuity, 60% continuing to spouse or dependent children.

Five years certain and life, if no eligible dependents.

Contribution

Participant

Members contributed 5.5% of total earnings prior to January 1, 2006. The annual contribution rate increased to 6.5% as of January 1, 2006, 7.5% as of January 1, 2007 and 8.5% as of January 1, 2008 and thereafter.

Sheriff deputies hired after June 30, 2011 contribute according the following schedule:

Years of Service	Percentage
Less than 33	8.50%
33	7.50%
34	6.50%
35 or more	5.50%

Member contributions are credited annually with interest based on the November 10-Year treasury rate.

Effective July 1, 1985, the Employee contribution is "picked up" and contributed to the Plan by Douglas County.

County

The County pays the balance of the cost of the plan. By law, the County cannot contribute more than the participants for pension earned after the effective date of the plan. The County pays for all benefits earned for service before the plan was effective.

Participant Census Statistics

	Plan Year Beginning January 1		
	2017	2018	2019
Active Participants			
Number	2,146	2,182	2,159
Average Attained Age	45.2	45.1	45.0
Average Past Service	10.7	10.5	10.6
Total Annual Compensation	$119,649,815	$124,582,198	$127,889,917
Average Annual Compensation	55,755	57,095	59,236
Actives under old formula	1,499	1,332	1,245
Percent of Total Actives	69.9%	61.0%	57.7%
Actives under reduced formula	647	850	914
Percent of Total Actives	30.1%	39.0%	42.3%
Non-Active Participants			
Number	1,434	1,484	1,606
Average Attained Age	67.5	67.5	66.4
Total Annual Benefits	25,707,177	28,191,227	32,605,327
Average Annual Benefit	17,927	18,997	20,302
Retirees under Mutual Contract	452	429	402
Total Retirees	1,218	1,259	1,301
Percent of Total Retirees	37.1%	34.1%	30.9%

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Welcome.

Douglas County

Employees' Retirement Plan
Actuarial Review

as of January 1, 2019

May 30, 2019

Actuarial Valuation Overview

- An actuarial valuation is performed annually to report on the financial health of the Retirement Plan, including:
  - Funded Percentage
  - Summary of Plan Liabilities and Assets
  - Value of Earned Benefits
  - Actuarially Determined Contribution
  - Summary of County and Employee Contributions

Plan Provisions

- Monthly Annuity – the plan provides monthly benefits payable to the members and beneficiaries
- Amount of Benefit – determined by the member's pay, service and the plan's benefit formula. Pay is averaged over five years.
- Benefit Formula – depends on the member's date of hire and classification:
  - All prior to June 30, 2011
    - 2% of Average Pay times Years of Service
    - Maximum of 60% of Average Pay
    - Eligible for Rule of 75 Retirement
  - Generally, those hired after December 31, 2011
    - 1.5% of Average Pay times Years of Service
    - Maximum of 45% of Average Pay
    - Not eligible for Rule of 75
  - Sheriff deputies hired after June 30, 2011 have a service-graded benefit formula, with a maximum benefit of 60% of Average Pay
    - No Rule of 75
    - Unreduced benefit after 30 years of service
    - Unreduced at age 55

Plan Provisions (cont'd)

- Full retirement benefits (unreduced) are payable:

	Hired Prior to 2012	Hired After 2011	Sheriff Deputies Hired After 2011
Normal Retirement Date	65	65	55
Rule of 75	50 with Age + Svc > 75	N/A	N/A

- Early Retirement – a reduced pension payable after:

Hired Prior to 2012	▪ Age 55 with 20 years of service ▪ Age 60 with five years of service
Hired After 2012	▪ Age 50 with 10 years of service ▪ Age 60 with five years of service
Sheriff Deputies Hired After 2011	▪ Age 53

- Other Benefits – may be payable upon death

Plan Provisions (cont'd)

- Vesting Schedule – a deferred pension is earned based on the vesting schedule

Years of Service	Vesting Percentage
Less than 5	0%
5	25%
6	40%
7	55%
8	70%
9	85%
10 +	100%

Plan Changes (no significant plan changes recently)

- Disability Benefits – The disability provision for active members was removed from the Plan as of July 1, 2015. Disabilities occurring after this date are covered under an insurance contract separate from the pension plan.
- Interest on Member Contributions – Effective January 1, 2016, the interest crediting rate on Member Contributions was changed from 5.0% to the 10-year Treasury rate for the November preceding the Plan Year.
  - 2019 3.12%
  - 2018 2.35%
  - 2017 2.14%
  - 2016 2.26%

Plan Members

Number of Members	2018	2019
Actives		
• Prior Benefit Formula With Rule 75	1,332	1,245
• Newer, Reduced Benefit Formula	850	914
• Total	2,182	2,159
Retirees and Beneficiaries		
• Contract 39G – 12795 (after 2/28/2003)	830	899
• Contract GDA – 6148 (prior to 3/1/2003)	429	402
Vested Terminated	106	100
Terminated Non-Vested	91	182
Disabled*	28	23
Total	**3,666**	**3,765**
Retirees and Beneficiaries as a Percent of Total	**34.3%**	**34.6%**

* Disability benefits provided by an insurance contract held outside of the pension plan effective July 1, 2015.

Actuarial Assumptions

- Investment Return 7.5% per year
- Salary Increases

Age	Annual Increase
18 – 44	5.5%
45 – 54	5.0%
55 +	4.5%

- Mortality Table RP 2000 projected to 2024 for Annuitants and 2032 for Non-Annuitants
- Withdrawal Rates (Sample)

Age	Annual Increase
22	28.3%
32	10.0%
42	5.9%
52	2.3%

- Member Contributions 8.5% of Pay
- County Contributions Same amount as members

Actuarial Assumptions (cont'd)

Retirement Rates*

Age	Rule of 75	Other
50	30%	5%
51 – 54	5%	2%
55 – 61	10%	5%
62 – 64	20%	10%
65 – 69	30%	30%
70+	100%	100%

*30% assumed to retire upon eligibility for Rule of 75.

Actuarial Assumptions (cont'd)

Retirement Rates* – Sheriffs hired after June 30, 2011

Age	Rate
53 – 54	5%
55	25%
56 – 57	15%
58	20%
59 – 61	25%
62	30%
63	35%
64	40%
65+	100%

*100% assumed to retire at 30 years of service

Actuarial Measurements (thousands)

	2018	2019
Actuarial Accrued Liability	$464,234	$488,372
Actuarial Value of Assets	$315,694	$320,394*
Funded Percentage	68.0%	65.6%*
Unfunded Liability	$148,540	$167,978*

*Based on the March 31, 2019 market value of assets, the actuarial value of assets would have been $331,244, the funded percentage 67.8% and the unfunded disability $157,128.

Actuarial Determined Contribution

	2018	2019
Expected Member Contributions	$10,923	$11,623
Expected County Contributions	$10,922	$11,623
Total	**$21,845**	**$23,246**

Actuarial Determined Contribution		
▪ Normal Cost (Value Of Benefits Earned In The Year)	$14,372	$14,732
▪ 25-Year Amortization of Unfunded Liability	$7,927	$9,183
▪ ½ year interest	$836	$897
Total	**$23,135**	**$24,812**

*Actual total for 2018 was $23,644,213

Plan Asset History as of January 1

Year	Market Value of Assets	Rate of Return Prior Year
2019	$309,764,717	-2.8%
2018	$326,905,394	16.8%
2017	$283,902,001	6.8%
2016	$269,520,264	2.3%
2015	$267,549,482	5.2%
2014	$258,340,593	18.9%
2013	$219,605,063	10.3%
2012	$200,860,360	0.5%
2011	$199,988,291	11.0%
2010	$179,166,378	16.0%
2009	$151,275,593	-18.7%
2008	$184,386,700	4.9%
2007	$175,115,759	12.1%
2006	$157,653,656	7.1%
2005	$148,916,100	10.0%

Note: Market value of assets as of March 31, 2019 was $331,464,000, with a one-year rate of return of 4.54%.
15-year geometric average return of 6.3%

Historical Funded Percentage

Year	Actuarial Value of Assets ($1,000s)	Actuarial Accrued Liability ($1,000s)	Funded Ratio
2019	$320,394	$488,372	65.6%
2018	$315,694	$464,234	68.0%
2017	$287,478	$427,763	67.2%
2016	$274,878	$408,662	67.3%
2015	$263,790	$394,847	66.8%
2014	$245,830	$380,727	64.6%
2013	$219,494	$362,117	60.6%
2012	$205,795	$343,178	60.0%
2011	$196,119	$321,700	61.0%
2010	$177,797	$307,407	57.8%
2009	$167,994	$290,127	57.9%
2008	$177,834	$270,351	65.8%
2007	$165,309	$248,986	66.4%
2006	$151,686	$239,602	63.3%
2005	$142,403	$221,642	64.2%

Looking Forward

- Funding Policy
- Mortality Table Update
- Reporting of Risk Measures
- Forecasts of Funding Percentage

Funding Policy

- The County's funding policy is to contribute amounts to the plan necessary to fund benefits earned under the plan, along with members' contributions, based on the Contribution Rates below.

- Nebraska State statue limits the County's contribution to no more than the amounts contributed by the members.

- Member Contributions: 8.5% of Pay
  - For all members, regardless of date of hire or classification
    - Except for sheriff deputies, reduced at 33 years of service

- County Contributions: Same Amount as Members

Mortality Table Update

- There is a new public pension plan mortality table published by the Society of Actuaries in January 2019. The RP-2000 mortality table is used now, which is a commonly used table.

- Later in 2019, this new public pension mortality table will be analyzed and likely recommended to be adopted for 2020. We also expect this table to include a generational mortality improvement scale. Early indications are the new table will predict longer life expectancies and result in an increase in plan liabilities and costs.
  - This analysis will be part of an overall experience study performed every two years to confirm the actuarial assumptions continue to be reasonable as compared to emerging experience.

Risk Measures

- The Actuarial Standards of Practice are requiring the addition of certain risk disclosures.
- Risk is defined as the potential of actual future measurements deviating from expected future measurements resulting from actual future experience deviating from actuarially assumed experience.
- Sample sources of risk include:
  - Investment Return
  - Asset/Liability Mismatch
  - Interest Rate Risk
  - Longevity and Other Demographic Risks
  - Contribution Risk

Risk Measures (cont'd)

	January 1, 2018	January 1, 2019
Market Value of Assets	$326,905,394	$309,764,717
Participant Payroll	$124,582,198	$127,889,917
Ratio	2.6	2.4
More risk is associated with plans whose size (assets and liabilities) are significantly larger than annual payroll.		
Market Value of Assets	$326,905,394	$309,764,717
Actuarial Accrued Liability	$464,233,774	$488,371,719
Ratio	70.4%	63.4%
More risk is associated with plans that have lower funded ratios.		
Retired Participant Liability	$240,332,061	$255,904,624
Total Actuarial Accrued Liability	$464,233,774	$488,371,719
Ratio	51.8%	52.4%
More risk is associated with plans whose retiree liability is a significant and growing proportion of the plan's total liability.		
Benefit Payments	$26,057,732	$30,801,154*
Total Contributions	$22,525,334	$23,644,213
Ratio	115.7%	130.3%
More risk is associated with plans whose benefit payments are significantly larger than contributions.		

*Included two benefit payments in November 2018.

Forecast of Funded Percentage

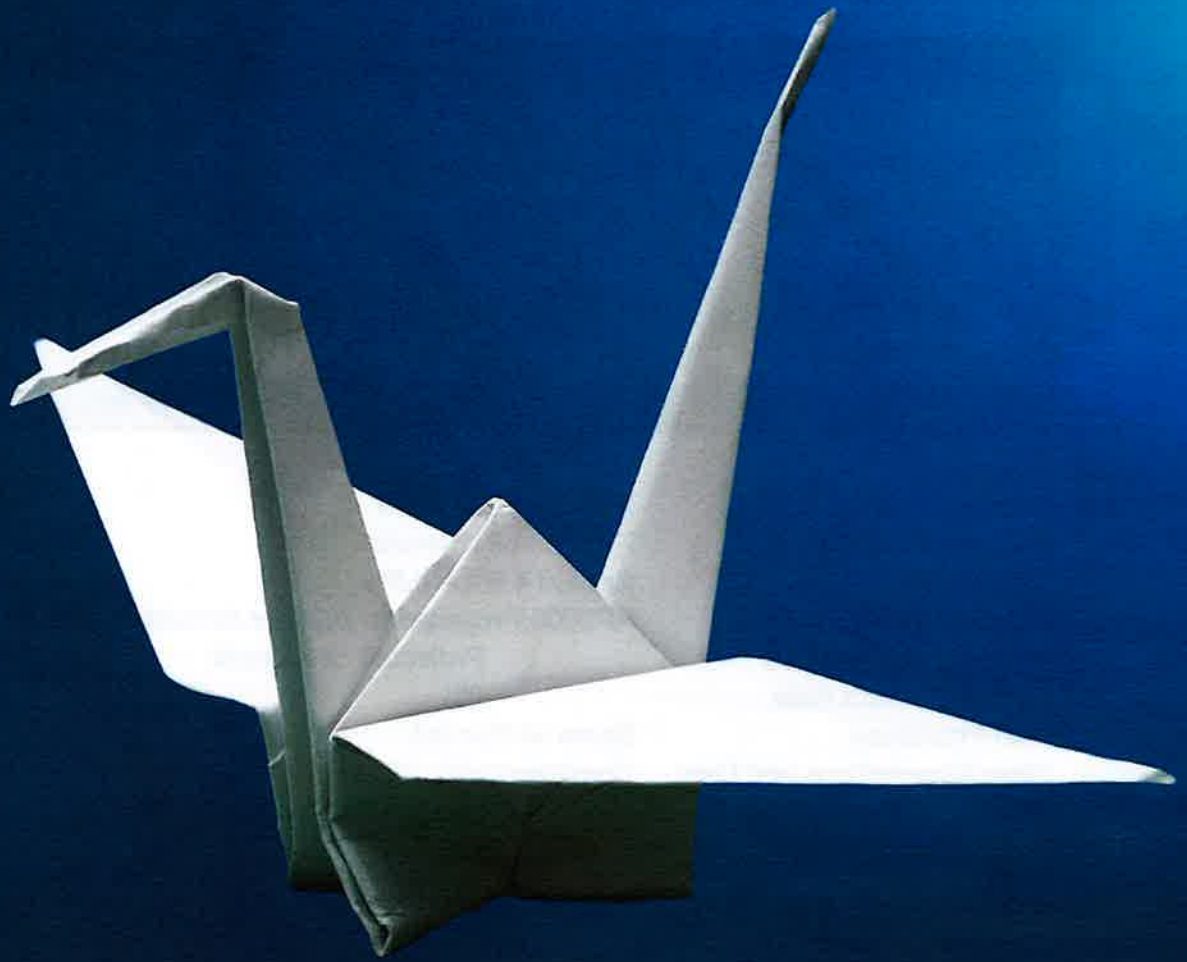
Forecast Period	Year	Estimated Funded Percentage		
		6.5% Investment Return	7.5% Investment Return	8.5 % Investment Return
Current – Actual	2019	65.6%	65.6%	65.6%
5 Years	2024	65.1%	67.7%	70.5%
10 Years	2029	65.4%	72.0%	79.1%
15 Years	2034	66.3%	78.0%	91.2%
20 Years	2039	69.0%	87.2%	109.1%

Assumptions

- Investment Return — 7.5%, 6.5% or 8.5%
- Discount Rate — 7.5% for all scenarios
- Salary Scale — Graded 4.5% – 5.5%
- Mortality Table — RP2000 Projected to 2024 for Annuitants and 2032 for Non-Annuitants
- Actuarial Cost Method — Projected Unit Credit
- Member Growth Rate — 0%
- Plan Provisions — Same as Current
- Other Assumptions and Data — Consistent with Valuation

Forecasts are intended for illustrative purposes as an indication of future trends and risks. Actual future funded percentages will differ from these forecasts as actual plan experience differs from the assumptions.

Thank You.



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Appendix B

Eastern Nebraska Health Agency
Retirement Plan Information

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2019 Report
Eastern Nebraska Human Services Agency Employees Retirement Plan

1. Information for plan years 2014 through 2019*:

	2019	2018	2017	2016	2015	2014
Funding Status	N/A	74%	N/A	71%	N/A	76%
Assumed rate of return	7.0%	7.0%	7.0%	7.0%	7.0%	7.0%
Prior year actual return	-2.4%	11.7%	6.8%	0.2%	6.4%	15.6%
Member contribution rates: % of pay	2.75%	2.75%	2.75%	2.75%	2.75%	2.75%
Employer contribution rates: % of pay	9.5%	9.5%	9.0%	8.5%	8.0%	7.5%
Normal cost: % of pay	N/A	7.4%	N/A	7.0%	N/A	7.1%
ARC: % of pay	12.19%	12.19%	11.55%	11.55%	10.77%	10.77%
ARC ($)	$2,996,916	$2,923,820	$2,668,776	$2,603,684	$2,241,905	$2,197,946
Contribution ($)	TBD	$3,127,775	$2,900,037	$2,783,724	$2,427,556	$2,246,729
Contribution: % of ARC	TBD	107.0%	108.7%	106.9%	108.3%	102.2%

* Actuarial Valuations are conducted every other year. Accordingly, the 2019 ARC as a percentage of pay is the same as for 2018 which was the most recent year in which an actuarial valuation was performed.

2. **Circumstances that led to the current underfunding of the retirement plan:** Prior to 2014, actual contributions were significantly less than the ARC. Additionally, investment losses resulting from the financial crisis of 2008/09 significantly reduced the plan's funding status. For the most recent 2018 valuation, changes in assumptions (described in the next question) also reduced the funding status.

3. **Changes in the actuarial methods and/or assumptions since the previous actuarial valuation report:** For the 2018 actuarial valuation, the mortality table was updated to the Static IRS 2018 annuitant-distinct mortality table, based on the RP 2014 mortality table. The unfunded accrued liability amortization period was changed as of January 1, 2018 from a 30 year open amortization to a 25 year closed layer amortization. There were no other changes in the actuarial assumptions or methods.

4. **Year the plan funding ratio expected to reach 100%:** 2042 based on the January 1, 2018 census data and assets and projected with assumptions as described in the January 1, 2018 valuation report.

5. **Method used to amortize the unfunded actuarial liability:** 25 years on fixed level dollar, closed layered basis.

6. **Corrective actions implemented to improve the funding status of the plan:** The agency has been increasing employer contributions by one-half percent annually since 2010, getting to 9.5% in 2018. The most recent forecast study was completed in October 2018 (see attached). The forecast shows steady future annual improvements in the funding status with the current 9.5% contribution schedule, with the forecasted funding status exceeding 80% in 5 years.

7. **Negotiations with bargaining groups:** The majority of the agency's employees are covered under a collective bargaining agreement. As of this report, the agency is not in negotiations for any plan changes.

8. **The most recent Actuarial Experience Study was completed in July 2016 and is attached.**

9. **The current assumed rate of return is 7.0%.** This assumption has not been changed since inception of the Plan. The rate is reviewed in the Actuarial Experience Study conducted every four years.

10. **The report for the January 1, 2018 actuarial valuation is attached.**

EASTERN NEBRASKA HUMAN SERVICES AGENCY EMPLOYEES RETIREMENT PLAN

Actuarial Valuation Report

January 1, 2018

Wisdom at Work.

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August 3, 2018

ACTUARIAL CERTIFICATION

Pension Committee
Eastern Nebraska Human Services Agency
4715 South 132nd Street
Omaha, NE 68137

Dear Committee Members:

An actuarial valuation was performed for the Eastern Nebraska Human Services Agency Employees Retirement Plan as of January 1, 2018. The valuation was prepared to determine the value of accrued benefits and annual costs. The results of the valuation are contained in the accompanying report.

The valuation is based on eligible employees submitted by your office. A statement of plan assets was furnished by United of Omaha, American Funds, and Stichler Wealth Management. We have not made an independent audit of this data, but have relied on the accuracy of the information that was supplied.

To the best of my knowledge, the information supplied in this report is complete and accurate and in my opinion the assumptions are reasonably related to the experience of the Plan and to reasonable expectations and represent my best estimate of anticipated experience under the Plan. However, future measures may differ significantly from the current measurement. Due to the limited scope of our assignment, this report does not include an analysis of the potential range of such future measures. The undersigned meets the Qualification Standards of the American Academy of Actuaries to render the actuarial opinion contained in this report.

Sincerely,

Glen C. Gahan, FSA, MAAA
Enrolled Actuary

GCG/ks

Enclosure

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Financial Highlights

	2016	2017	2018
Annual Contributions			
Recommended	2,603,684	2,668,776 *	2,923,820
Actual	2,783,724	2,900,037	N/A
Plan Assets	33,595,512	36,287,530	40,879,777
Prior Year Investment Return	0.2%	6.8%	11.7%
Funding Basis			
Actuarial Accrued Liability	47,305,934		55,125,381
Plan Assets	33,595,512		40,879,777
Unfunded Actuarial Accrued Liability	13,710,422		14,245,604
Accrued Benefit Basis			
Vested Benefit Value	43,521,210		50,842,736
Accrued Benefit Value	44,386,988		51,902,778
Funded Ratios**			
Funding Basis - AAL	71%		74%
Accrued Benefit Basis	76%		79%
Normal Cost	1,571,092		1,781,369
As a percent of covered payroll	7.0%		7.4%
Interest Rates			
Funding Basis	7.00%		7.00%
Accrued Benefit Basis	7.00%		7.00%
Annual Covered Payroll	22,545,677		23,985,346
Number of Participants			
Active and Disabled	678		668
Retired and Beneficiary	216		251
Vested Terminations and Transfers	77		76
Total	971		995

* Increased from prior year recommended contribution by 2.5% salary scale.

** Ratio of plan assets to applicable actuarial liability.

Comments on the Valuation

The results of the actuarial valuation prepared for the Eastern Nebraska Human Services Agency Employees Retirement Plan as of January 1, 2018 are summarized in this report. The following observations are provided regarding the report.

Plan Experience

Examining the overall plan experience since the last valuation on January 1, 2016, we note:

- Since the prior valuation, the number of active participants has decreased from 678 to 668. Annual covered payroll for participants under Normal Retirement Age increased from $22,545,677 to $23,985,346, a 6.4% increase. The average salary for participants under Normal Retirement Age increased from $35,394 to $37,951, a 7.2% increase.

- For active participants included in the valuation, average age increased from 45.0 to 45.2 years and average service increased from 10.4 to 10.9 years.

- The investment return on plan assets since the prior valuation was higher on average than the assumed 7.0% rate. The approximate investment return rate for 2016 was 6.8%, and for 2017 was 11.7%.

- On the same actuarial basis as used in 2016 and prior to any assumption changes, the Unfunded Accrued Liability (UAL) decreased by $1,290,000, from $13,710,000 to $12,420,000. Contributing factors were:

    - Investment return rates greater than expected decreased the UAL by approximately $1,630,000.

    - Contributions more than the Normal Cost plus interest on the UAL subtracted about $440,000 from the UAL.

    - Net actuarial losses from other sources increased the UAL by approximately $780,000.

Comments on the Valuation

Actuarial Assumptions

The mortality table was updated to the static IRS 2018 annuitant-distinct mortality table based on the RP 2014 table. The effect of this change increased the UAL by $1,822,710. The corresponding increase in the normal cost was $52,457.

All other assumptions are the same as those used in the 2016 valuation.

Recommended Contribution

The recommended contribution consists of the plan's normal cost plus a 25-year amortization payment of the unfunded accrued liability. This amortization period is closed for the initial unfunded actuarial accrued liability (UAAL) as of Janaury 1, 2018. New bases will be established in future years for changes in the UAAL due to changes in plan provisions, actuarial assumptions and experience (gains)/losses.

We recommend ENHSA increase the total contribution to the plan to at least $2,923,820 for 2018. Plan contributions include amounts contributed by the employees and by the employer. For 2018, the anticipated employee contributions at the current rate of 2.75% are $659,597 and the anticipated employer contributions at the current rate of 9.5% are $2,278,608 for a total of $2,938,205.

Annual Contributions

Annual contributions to the Retirement Plan as illustrated herein are comprised of employee contributions equal to a percentage of expected compensation as of the valuation date and an amount payable by the employer.

		January 1, 2018	
	January 1, 2016	Before Assumption Changes	After Assumption Changes*
Recommended Contribution			
Normal Cost	$1,571,092	$1,728,912	$1,781,369
Unfunded Accrued Liability Payment	1,032,592	996,276	1,142,451
Total	2,603,684	2,725,188	2,923,820
Expected Employee Contribution			
Employee Contribution Rate	2.75%	2.75%	2.75%
Covered Payroll	22,545,677	23,985,346	23,985,346
Expected Employee Contribution	620,006	659,597	659,597
Recommended Employer Contribution			
Normal Cost less Employee Contribution	951,086	1,069,315	1,121,772
Employer Normal Cost as a Percent of Pay	4.22%	4.46%	4.68%
Total Contribution less Employee Contribution	1,983,678	2,065,591	2,264,223
Employer Contribution as a Percent of Pay	8.80%	8.61%	9.44%

* The mortality table assumption was changed as shown in the Actuarial Assumptions section.

Valuation Results

A summary of the results of the actuarial valuations performed as of January 1, 2016 and January 1, 2018 is displayed below:

		January 1, 2018	
	January 1, 2016	Before Assumption Changes	After Assumption Changes*
Unfunded Accrued Liability			
Accrued Liability	$47,305,934	$53,302,671	$55,125,381
Less: Plan Assets	33,595,512	40,879,777	40,879,777
Unfunded Accrued Liability	$13,710,422	$12,422,894	$14,245,604
Ratio of Assets to Accrued Liability	71%	77%	74%
Annual Normal Cost			
Retirement, Death, Termination and Deferred Disability Benefits	$1,546,883	$1,699,436	$1,751,893
Administrative Expense Load	24,209	29,476	29,476
Total	$1,571,092	$1,728,912	$1,781,369

* The mortality table assumption was changed as shown in the Actuarial Assumptions section.

Plan Assets

All future plan benefits will be derived from plan assets on the valuation date, future contributions and investment income on these amounts. The changes in the value of plan assets since the last valuation and the value of plan assets on the current valuation date are displayed below.

Changes in Value of Plan Assets

Market Value of Assets on January 1, 2016	$33,595,512
Contribution Receivable	0
Adjusted Plan Assets on January 1, 2016	$33,595,512
Employer Contributions	2,065,502
Employee Contributions	718,222
Investment Income	2,326,078
Monthly Benefit Payments	(2,095,874)
Lump Sum Distributions	(292,412)
Administrative Charges	(29,498)
Market Value of Assets on January 1, 2017	$36,287,530
Contribution Receivable	0
Adjusted Plan Assets on January 1, 2017	$36,287,530
Employer Contributions	2,237,304
Employee Contributions	662,733
Investment Income	4,281,306
Monthly Benefit Payments	(2,364,047)
Lump Sum Distributions	(195,573)
Administrative Charges	(29,476)
Market Value of Assets on January 1, 2018	$40,879,777
Contribution Receivable	0
Adjusted Plan Assets on January 1, 2018	$40,879,777

Asset Allocation

Employee Funds - Annuity Contract	$4,101,486
Employee Funds - Equities	6,533,193
Employer Funds - Annuity Contract	10,171,347
Employer Funds - Equities	20,073,751
	$40,879,777

Plan Financial Information

Another objective of preparing the actuarial valuation is to evaluate the funding status of the Plan. The following display compares the funding status of the Plan for the two most recent actuarial valuations.

	January 1, 2016	January 1, 2018
1. Actuarial Present Value of Vested Accrued Benefits		
Retirees and Beneficiaries of Deceased Participants	$17,757,931	$23,305,137
Vested Terminated Participants	1,695,034	1,817,677
Active Participants	24,068,245	25,719,922
Total	$43,521,210	$50,842,736
2. Actuarial Present Value of Non-Vested Accrued Benefits for Active Participants	$865,778	$1,060,042
3. Actuarial Present Value of Accrued Benefits (1) + (2)	$44,386,988	$51,902,778
4. Value of Assets	$33,595,512	$40,879,777
5. Funded Ratio*		
Vested Accrued Benefits	77%	80%
Accrued Benefits	76%	79%
Interest Rate	7.00%	7.00%

The actuarial present value of vested and non-vested benefits has been determined based on the actuarial assumptions shown in the Actuarial Assumptions section.

* Ratio of plan assets to applicable actuarial present value.

Actuarial Cost Method

Annual costs were calculated using the Projected Unit Credit Actuarial Cost Method. Projected Unit Credit is one of the Accrued Benefit Actuarial Cost Methods. Using Projected Unit Credit, annual costs equal the sum of the normal cost and an amount to amortize the unfunded accrued liability. The normal cost is defined as the actuarial value of retirement and ancillary benefits that are allocated to the current year.

The unfunded accrued liability is equal to the accrued liability reduced by the actuarial value of plan assets. The accrued liability is defined as the actuarial value of retirement and ancillary benefits that have been allocated to years of service prior to the current year.

The method allocates an equal amount of a participant's projected retirement benefit to each year of service. The benefit at normal retirement is projected assuming salaries increase at the assumed rates. The projected retirement benefit is then divided by the participant's years of service to determine the portion of the retirement benefit allocated to each year.

At the end of each year, a determination of actuarial gains and losses is made. Actuarial gains and losses indicate the extent to which actual experience is deviating from that expected on the basis of the actuarial assumptions. Actuarial gains result from experience more favorable than assumed and reduce the unfunded accrued liability. Actuarial losses result from experience less favorable than assumed and increase the unfunded accrued liability. All actuarial gains and losses are included in the determination of the unfunded accrued liability as of the valuation date.

The unfunded actuarial accrued liability is amortized over 25 years on a fixed level dollar, closed layered basis. This amortization method was adopted effective January 1, 2018.

Asset Valuation Method

The value of plan assets is based on the contract value of assets held at United of Omaha and the market value of assets held at American Funds and Stichler Wealth Management.

Actuarial Assumptions

Interest Rate

7.0% compounded annually.

Salary Scale

Salaries were assumed to increase at an annual rate of 2.5% compounded annually following the valuation date.

Mortality Rates

The mortality rates are based on the static IRS 2018 annuitant-distinct mortality table based on the RP 2014 table.

Turnover Rates

Based on years of service and age as follows:

Years of Service	Annual Rate
0	54.0%
1	25.5%
2	15.0%
3 or more	150% of Scale T-7 of the Actuary's Pension Handbook

Elected Form of Distribution

	Percent Electing	
Age	Deferred Annuity	Employee Contribution
Under 55	25%	75%
55 and over	100%	0%

Retirement Rate

Participants are assumed to retire in accordance with the following schedule:

Normal Retirement Age	Annual Rate of Retirement
62 with 30 years	15%
63 with 30 years	5%
64 with 30 years	5%
65	100%

Normal Retirement Age

Age 65 or Age 62 with 30 years of service earned as of the valuation date.

Actuarial Assumptions
(continued)

Marriage Rate	75% of the participants were assumed to be married at retirement. Female spouses are assumed to be 3 years younger than male spouses.
Administrative Expenses	Equal to prior plan year actual expense.

Summary of Plan Provisions

Effective Date	January 1, 1982.
Plan Year	January 1 through December 31.
Participation	Full-time employees are eligible to participate on January 1 or July 1 coinciding with or next following the completion of 6 months of service.
Definitions	
Service	Any period of time the Employee is in the employ of the Employer as a full-time Employee.
Year of Service	A consecutive 12 month period during which 2,000 hours of service has been completed. For purposes of retirement benefits, a Year of Service shall include the fractional portion of the year from the most recent employment anniversary to date of termination.
Average Monthly Compensation	Average of monthly compensation during the five consecutive years of the last ten years of service which produces the highest average.
Normal Retirement Date	First day of the month coinciding with or next following the attainment of age 65, or age 62 with 30 years of service.
Early Retirement Date	First day of any month following the attainment of age 55 and completion of 10 years of service, or age 60 and 5 years of service.
Late Retirement Date	Anytime following Normal Retirement Date.
Disability Retirement	If a participant has completed five years of service and becomes disabled, they will remain active in the plan until their Normal Retirement Date. Mandatory employee contributions will be waived.

Summary of Plan Provisions (continued)

Benefits

Normal Retirement	Monthly annuity equal to 1.75% of Average Monthly Compensation multiplied by the number of Years of Service.
Early Retirement	Monthly annuity computed in the same manner as the Normal Retirement Benefit but based on the service and Average Monthly Compensation as of the Early Retirement Date and reduced by 0.25% for each full month that the Early Retirement Date precedes the Normal Retirement Date.
Late Retirement	Monthly annuity computed in the same manner as the Normal Retirement Benefit but based on the service and Average Monthly Compensation earned as of the Late Retirement Date.
Disability	Monthly annuity payable at Normal Retirement Age computed in the same manner as the Normal Retirement Benefit assuming that compensation as of the date of Disability and service continued to the Normal Retirement Date.
Preretirement Death Benefit	A benefit is payable at the death of an active participant. Death Prior to Early Retirement Date - A lump sum equal to the participant's contributions plus accumulated interest is payable to a designated beneficiary. Death After Early Retirement Date - A monthly income payable to a surviving spouse or dependent children equal to 60% of the earned benefit determined at the participant's death. This amount is payable beginning at the participant's Normal Retirement Date. A reduced monthly income may be selected by the surviving spouse or the dependent children to be payable beginning at any date following the participant's Early Retirement Date. The monthly income is payable for the life of the surviving spouse. If paid to the dependent children, the monthly income will continue until the youngest child attains age 21. If the participant is not survived by an eligible spouse or dependent children a lump sum equal to the participant's contributions plus accumulated interest is payable to a designated beneficiary.

Summary of Plan Provisions
(continued)

Termination Benefit

Benefit upon termination equal to a vested interest in the earned pension as of the date of termination determined according to the following schedule:

Years of Service	Vesting %
Less than 5 years	0%
5	50%
6	60%
7	70%
8	80%
9	90%
10 or more years	100%

Normal Forms of Annuity

Married Participant

Joint and 60% Survivor annuity.

Single Participant

Five Year Certain & Life annuity.

Contributions

Participant

A monthly amount equal to 2.75% of monthly compensation. The contributions are picked up by the employer effective July 1, 2013.

Employer

An amount necessary to provide the benefits under the plan based upon the recommendations of periodic actuarial valuations. Currently, the employer has scheduled the following contribution rates as a percentage of payroll:

2010	5.5%
2011	6.0%
2012	6.5%
2013	7.0%
2014	7.5%
2015	8.0%
2016	8.5%
2017	9.0%
2018	9.5%

Participant Census Statistics

January 1, 2018

Active Participants Included in Valuation

Age at Valuation Date	Years of Service									Average Salary
	0-4	5-9	10-14	15-19	20-24	25-29	30-34	35+	Total	
Under 20	0	0	0	0	0	0	0	0	0	0
20-24	32	1	0	0	0	0	0	0	33	31,986
25-29	53	19	1	0	0	0	0	0	73	32,406
30-34	49	26	9	1	0	0	0	0	85	33,158
35-39	25	19	12	19	0	0	0	0	75	36,027
40-44	20	9	12	12	6	0	0	0	59	37,209
45-49	21	11	8	6	11	2	0	0	59	37,965
50-54	23	6	5	12	13	4	2	0	65	38,606
55-59	19	15	20	12	10	7	8	1	92	41,211
60-64	15	10	10	16	13	9	7	11	91	40,706
65 & Over	6	10	6	2	2	1	1	8	36	40,737
Total	263	126	83	80	55	23	18	20	668	
Average Salary	34,209	35,482	36,329	38,571	39,014	45,819	48,214	60,602		37,198

Average Salary - based on reported compensation for calendar 2017.

Participant Census Statistics
(continued)

January 1, 2018
Non-Active Participants Included in Valuation

	Number	Total Annual Benefit	Average Annual Benefit
Retired & Beneficiary	251	$2,417,240	$9,630
Vested Terminated	76	428,122	5,633
Total	327	2,845,362	8,701

Retired & Beneficiary Participants in Pay Status

Age	Number	Total Annual Benefit	Average Annual Benefit
Under 55	1	$9,468	$9,468
55-59	9	76,891	8,543
60-64	24	272,737	11,364
65-69	67	787,743	11,757
70-74	57	616,969	10,824
75-79	43	308,943	7,185
80-84	23	164,464	7,151
85-89	19	141,002	7,421
Over 89	8	39,023	4,878
Total	251	2,417,240	9,630

Participant Census Statistics
(continued)

	Active	Non-Active		Total
		Deferred	Retired	
Number on January 1, 2016	678	77	216	971
Terminated				
Non-Vested	-17	0	0	-17
Vested - Lump Sum	-80	-11	0	-91
Vested - Deferred	-20	+20	0	0
Deceased				
Vested - Lump Sum	-2	0	0	-2
Vested - Beneficiary	-1	-1	-4	-6
No Additional Benefit	0	-1	-5	-6
Retired				
Monthly Benefit	-37	-5	+42	0
Lump Sum	0	0	0	0
Certain Period Expired	0	0	-4	-4
Beneficiary	0	0	+6	+6
Return to Active	+3	-3	0	0
New Entrants or Prior Omissions During Plan Year	+144	0	0	+144
Number on January 1, 2018	668	76	251	995

Non-Active Participants	**Number**	**Annual Benefit**
Deferred Participants	76	$2,417,240
Retired & Beneficiary Participants	251	$428,122

Appendix C

Metro Area Transit Hourly Employees Retirement Plan Information

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LB 759 REPORTING FORM (HOURLY PLAN)
Metro Area Transit Hourly Employees' Pension Plan

1. Plan Information for Years 2014 through Current Plan Year 2019

	2014	2015	2016	2017	2018	2019
1a Funding Status*	76%	76%	72%	71%	77%	67.3%
1b Assumed Rate of Return	7.00%	7.00%	6.75%	6.75%	6.75%	6.75%
1c Actual Investment Return	14.20%	6.10%	-1.50%	5.80%	13.35%	-4.84%
1d Member Contribution Rate	6.00%	6.00%	6.00%	6.00%	7.00%	7.00%
Employer Contribution Rate**	6.50%	6.50%	6.50%	6.50%	7.50%	7.50%
1e Normal Cost Percentage	7.28%	7.39%	7.35%	7.39%	7.21%	7.36%
1f Actuarially Determined Contribution (ADC)						
Percentage	84.30%	88.30%	78.30%	N/A	N/A	N/A
Dollar Amount	$833,212	$847,243	$901,256	$958,333	$835,474	$891,105
1g Actuarially Determined Contribution (ADC)						
Actual Dollars Contributed	$702,245	$748,129	$705,467	$904,824	$855,109	TBD
Actual Percentage Contributed	84.28%	88.30%	78.28%	94.42%	102.35%	TBD

* Funding Status for 2018 and prior is based on Market Value of Assets compared to Present Value of Accrued Benefits. Starting in 2019, Funding Status is based on Actuarial Value of Assets compared to Actuarial Accrued Liability in order to coincide with the basis for calculating the Actuarially Determined Contribution.

** Employer contribution rate increased to 7.5% effective 9/1/2017 and employer made a onetime lump-sum contribution to the Plan equal to 1% of the total of the active Plan participants' compensation for the period beginning on July 1, 2016 and ending on August 31, 2017, making the effective employer contribution rate 7.5% since July 1, 2016.

2. Circumstances That Led to Underfunding the Plan

In prior periods, investment returns did not meet the return assumptions. In addition, due to lower capital market expectations, the interest rates used to value liabilities have been decreased several times in the last decade (see below).

2009 reduced from 8.00% to 7.50%
2015 reduced from 7.50% to 7.00%
2016 reduced from 7.00% to 6.75%

3. Changes in Actuarial Methods/Assumptions Since Previous Actuarial Valuation Report

None.

4. In what year is the plan's funding ratio expected to reach 100%?

If the Metro pays the ADC each year, the investments earn exactly the assumed interest rate each year, and there are no changes in the plan provisions or in the actuarial methods and assumptions we project that the plan's funding ratio will reach 100% in 2042.

5. What is the method used to amortize the unfunded actuarial liability?

Unfunded actuarial liability is amortized for 30 years starting in 2012, graded down for each successive year. The Individual Entry Age Normal Cost is the actuarial cost method used to value the liabilities.

6. Description of Corrective Actions Implemented to Improve the Funding Status of the Plan:

The Hourly Pension Committee members have amended the plan document to increase the employer and employee contribution rates. The employer contribution rate increased from 6.5 % to 7.5%. The employee contribution rate increased from 6% to 7%. For those employees hired on or after January 1, 2018, the Pension Committee also (i) changed the normal retirement date from age 65 to the age when the employee reaches full retirement for purposes of receiving Social Security benefits, and (ii) eliminated the early retirement option. The benefit factor percentage used in the calculation of the monthly benefit for those employees hired on or after January 1, 2018, was also changed by the Pension Committee to a tiered structure based on years of service in lieu of the current method of using the same benefit factor percentage regardless of years of service. In addition, a one-time lump sum contribution was made to the Plan in an amount equal to 1% of the total of the active Plan participants' compensation for the period beginning on July 1, 2016 and ending on August 31, 2017, making the effective employer contribution rate 7.5% since July 1, 2016. The Pension Committee believes all these changes will address the funding issue. The Pension Committee is comprised of bargaining unit employees, management representatives and a Metro Transit Board member. The actuarial assumptions are reviewed annually to give committee members a data regarding plan performance. The Committee meets a minimum of once per year to review plan performance, assumptions, asset allocations and potential plan changes. The interest rate (the assumed actuarial rate of return) used on the actuarial report remained the same in 2019 as 2018.

In addition, to reflect the increasing average age of the Plan participants, the asset allocation has been modified to reduce the volatility of returns. To increase net investment returns, the entire portfolio has been indexed, reducing Plan investment management fees from 71 basis points to 9 basis points.

7. Recent or Ongoing Negotiations

The collective bargaining agreement between Metro and the Transport Workers Union was renegotiated during 2017. Pension funding, is one of the major components of these negotiations. Past and future negotiations include reopeners in each year in order to address required matters that might arise prior to expiration of the bargaining agreement. As previously mentioned, the primary changes to the Plan resulting from the renegotiations of the collective bargaining agreement were increases in the employer and employee contribution rates, and, for those employees hired on or after January 1, 2018, the (i) changing the normal retirement date from age 65 to the age when the employee reaches full retirement age for purposes of receiving Social Security benefits, and (ii) eliminated the early retirement option.

8. Most Recent Actuarial Experience

There has not been an experience study done in recent years. Due to the very small size of the participant population, it has been felt that preparation of a formal experience study would not add credible insight in our demographic assumptions. Rather, from time to time we have prepared short analysis of prior termination and retirement rates, as well as anecdotal analysis of compensation increase assumptions and mortality table assumptions and have modified actuarial assumptions as was felt appropriate.

9. Current Assumed Rate of Return

The current assumed rate of return is 6.75%. This is the same rate that was used in 2018. There are no current plans to review the rate in the upcoming year.

10. Most Recent Actuarial Valuation Report

Attached please find the most recent valuation dated January 1, 2019. The valuations are completed every year with the next one due January 1, 2020.

Milliman Actuarial Valuation

Milliman

METRO AREA TRANSIT
HOURLY EMPLOYEES' PENSION PLAN

Actuarial Valuation as of January 1, 2019
To Determine Funding for Fiscal Year 2019

Prepared by

Rebecca A. Sielman, FSA
Consulting Actuary

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Windsor, CT 06095 USA
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May 14, 2019

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Certification

We have performed an actuarial valuation of the Plan as of January 1, 2019 to determine funding for fiscal year 2019. This report presents the results of our valuation.

The ultimate cost of a pension plan is the total amount needed to provide benefits for plan members and beneficiaries and to pay the expenses of administering the plan. Pension costs are met by contributions and by investment return on plan assets. The principal purpose of this report is to set forth an actuarial recommendation of the contribution, or range of contributions, which will properly fund the plan, in accordance with applicable government regulations. In addition, this report provides:

- A valuation of plan assets and liabilities to review the year-to-year progress of funding.
- Information needed to meet disclosure requirements.
- Review of plan experience for the previous year to ascertain whether the assumptions and methods employed for valuation purposes are reflective of actual events and remain appropriate for prospective application.
- Assessment of the relative funded position of the plan, i.e., through a comparison of plan assets and projected plan liabilities.
- Comments on any other matters which may be of assistance in the funding and operation of the plan.

This report may not be used for purposes other than those listed above without Milliman's prior written consent. If this report is distributed to other parties, it must be copied in its entirety, including this certification section.

Milliman's work is prepared solely for the internal business use of Metro Area Transit ("Metro"). To the extent that Milliman's work is not subject to disclosure under applicable public records laws, Milliman's work may not be provided to third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of its work product. Milliman's consent to release its work product to any third party may be conditioned on the third party signing a Release, subject to the following exceptions: (a) Metro may provide a copy of Milliman's work, in its entirety, to Metro's professional service advisors who are subject to a duty of confidentiality and who agree to not use Milliman's work for any purpose other than to benefit Metro; and (b) Metro may provide a copy of Milliman's work, in its entirety, to other governmental entities, as required by law. No third party recipient of Milliman's work product should rely upon Milliman's work product. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

In preparing this report, we relied on employee census data and financial information as of the valuation date, furnished by Metro. We performed a limited review of the data used directly in our analysis for reasonableness and consistency and have found them to be reasonably consistent and comparable with data used for other purposes. If the underlying data or information is inaccurate or incomplete, the results of our analysis may likewise be inaccurate or incomplete and our calculations may need to be revised. If there are material defects in the data, it is possible that they would be uncovered by a detailed, systematic review and comparison of the data to search for data values that are questionable or for relationships that are materially inconsistent. Such a review was beyond the scope of our assignment.

Certification

The calculations reported herein have been made on a basis consistent with our understanding of ERISA and the related sections of the tax code. Additional determinations may be needed for purposes other than meeting funding requirements, such as judging benefit security at plan termination or meeting employer accounting requirements. On the basis of the foregoing, we hereby certify that, to the best of our knowledge, this report is complete and accurate and all costs and liabilities were determined in conformance with generally accepted actuarial principles and practices.

I further certify that, in my opinion, each actuarial assumption, method and technique used is reasonable taking into account the experience of the Plan and reasonable expectations or would, in the aggregate, result in a total contribution equivalent to that which would be determined if each such assumption, method, or technique were reasonable. Future actuarial measurements may differ significantly from the current measurements presented in this report due to factors such as, but not limited to, 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 the actuarial assignment, we did not perform an analysis of the potential range of such future measurement.

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

We 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.

Rebecca A. Sielman, FSA
Consulting Actuary

Section I - Executive Summary
Changes Since the Prior Valuation

Plan Changes

We reflected the plan amendment which changed the normal retirement eligibility and benefit formula for members hired after January 1, 2018. As a result of this amendment, the Accrued Liability decreased by approximately $5,700 and the Actuarially Determined Contribution decreased by about $7,900.

Changes in Actuarial Methods and Assumptions

None.

Other Significant Changes

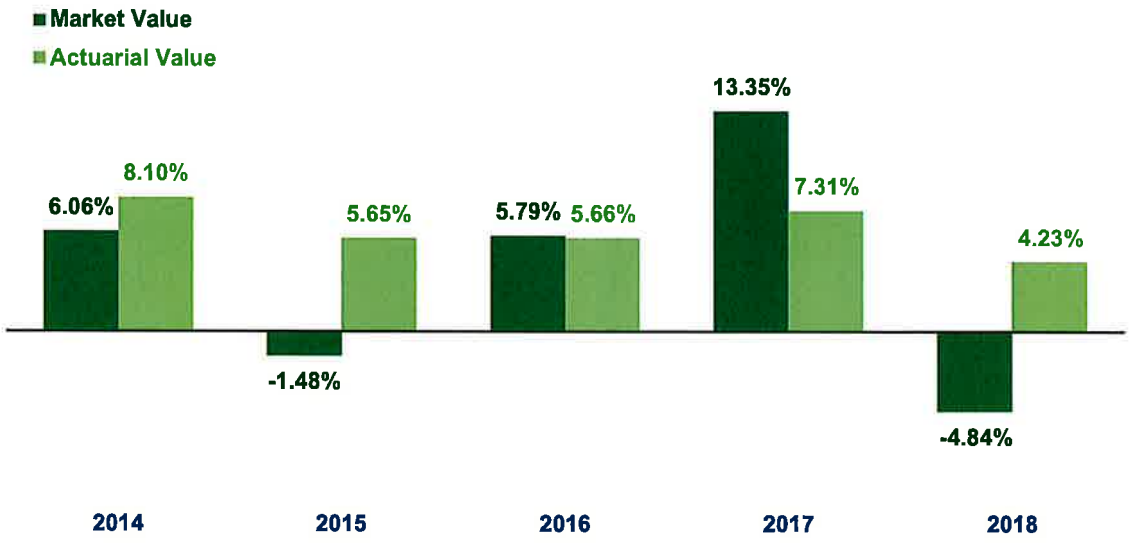
None.

Section I - Executive Summary
Assets

There are two different measures of the plan's assets that are used throughout this report. The Market Value is a snapshot of the plan's investments as of the valuation date. The Actuarial Value is a smoothed asset value designed to temper the volatile fluctuations in the market by recognizing investment gains or losses asymptotically over four years.

	Market	Actuarial
Value as of January 1, 2018	$24,197,918	$23,825,275
Metro and Member Contributions	1,652,963	1,652,963
Investment Income	(1,103,652)	1,044,981
Benefit Payments and Administrative Expenses	(2,355,732)	(2,355,732)
Value as of January 1, 2019	22,391,497	24,167,487

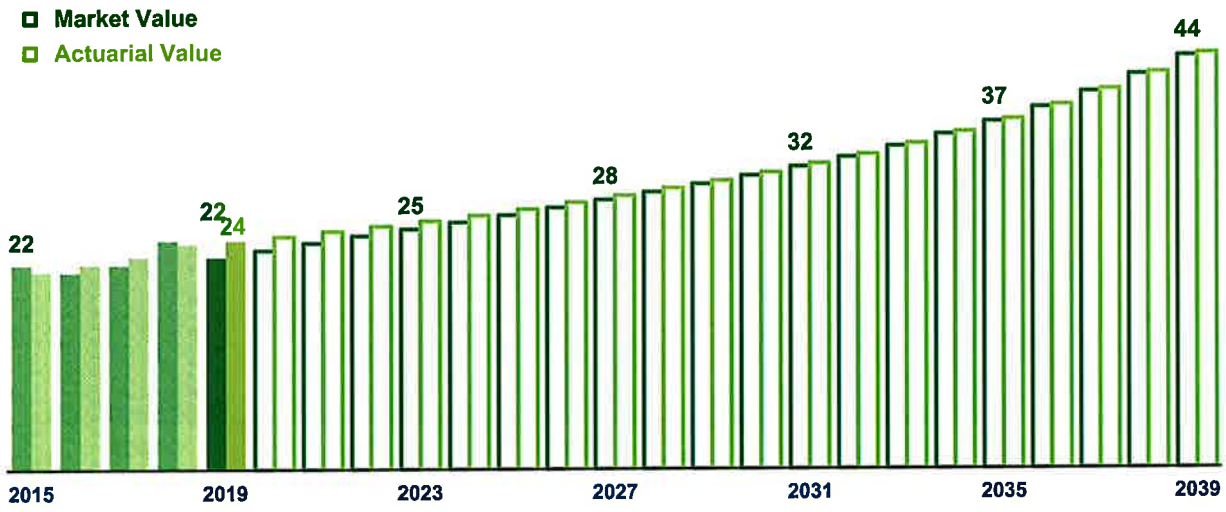
For fiscal year 2018-19, the plan's assets earned -4.84% on a Market Value basis and 4.23% on an Actuarial Value basis. The actuarial assumption for this period was 6.75%; the result is an asset loss of about $2.7 million on a Market Value basis and a loss of about $0.6 million on an Actuarial Value basis. Historical rates of return are shown in the graph below.



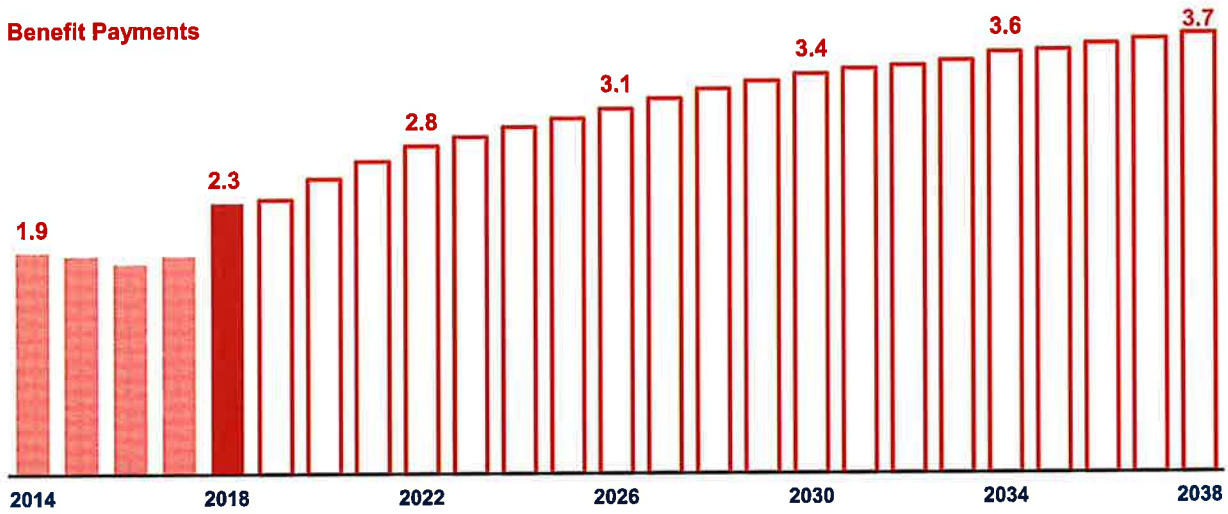
Please note that the Actuarial Value currently exceeds the Market Value by $1.8 million. This figure represents investment losses that will be gradually recognized in future years. This process will exert upward pressure on Metro's contribution, unless there are offsetting market gains.

Section I - Executive Summary
Assets (continued)

The graph below shows how this year's asset values compare to where the plan's assets have been over the past several years and how they are projected to change over the next 20 years. For purposes of this projection, we have assumed that Metro always contributes the Actuarially Determined Contribution and the investments always earn the assumed interest rate each year.

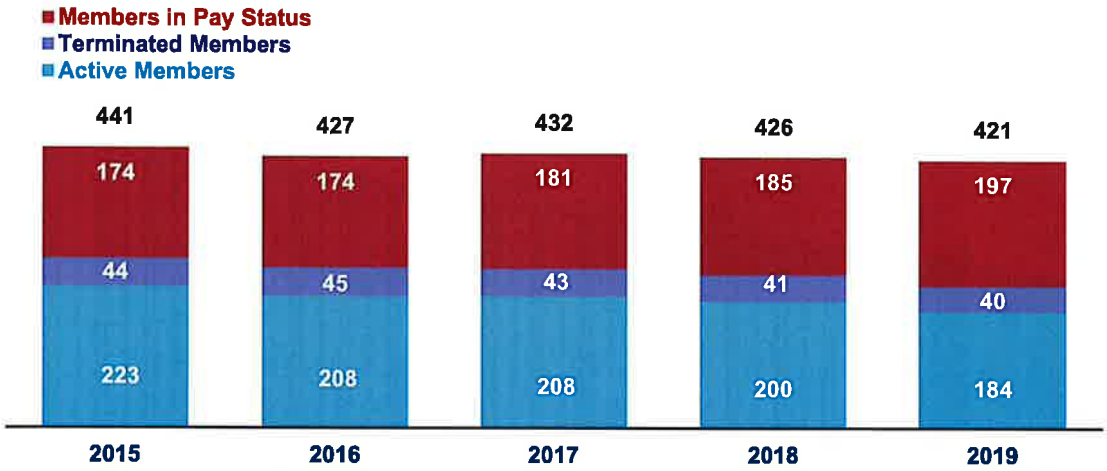


In 2018-19, the plan paid out $2,304,956 in benefits to members. Over the next 20 years, the plan is projected to pay out a total of $64.2 million in benefits to members.



Section I - Executive Summary
Membership

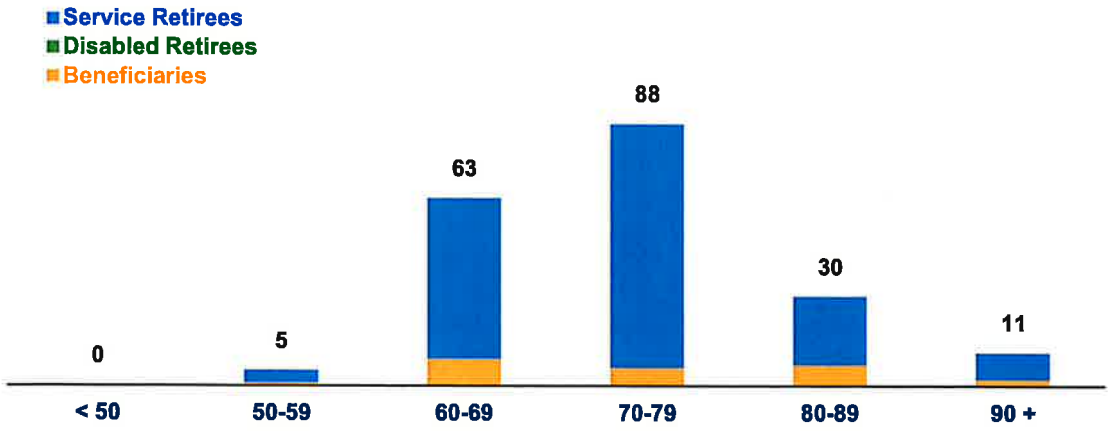
There are three basic categories of plan members included in the valuation: (1) members who are receiving monthly pension benefits, (2) former employees who have a vested right to benefits but have not yet started collecting, and (3) active employees who have met the eligibility requirements for membership.



Members in Pay Status on January 1, 2019

Service Retirees	172	Average Age	73.7
Disabled Retirees	0	Total Annual Benefit	$2,115,804
Beneficiaries	25	Average Annual Benefit	10,740
Total	197		

The members in pay status fall across a wide distribution of ages:



Section I - Executive Summary
Membership (continued)

Terminated Vested Members on January 1, 2019

Count	40
Average Age	58.6
Total Annual Benefit	$184,824
Average Annual Benefit	4,621

Nonvested Members Due Refunds on January 1, 2019

Count	0

Active Members on January 1, 2019

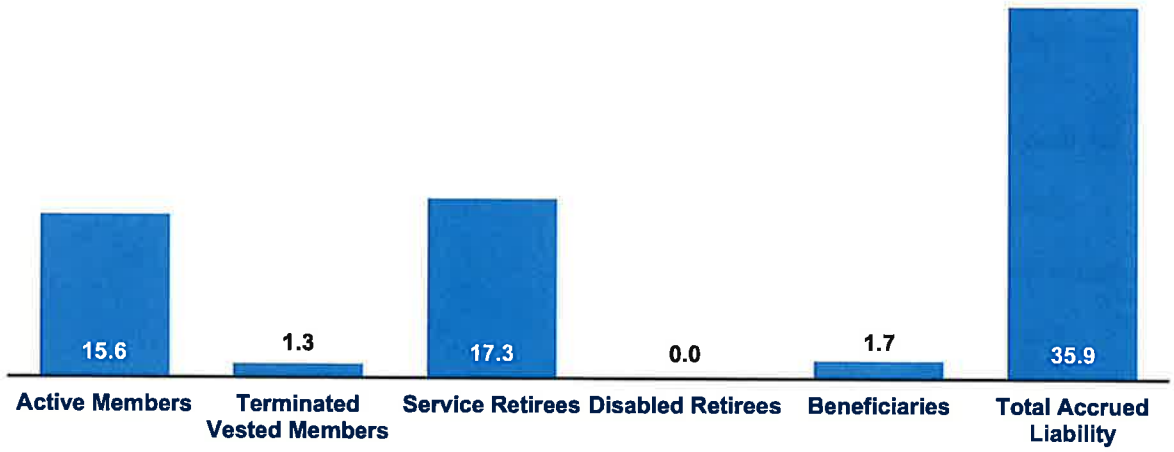
Count	184
Average Age	53.5
Average Service	11.2
Payroll	$11,485,056
Average Payroll	62,419

The table below illustrates the age and years of service of the active membership:

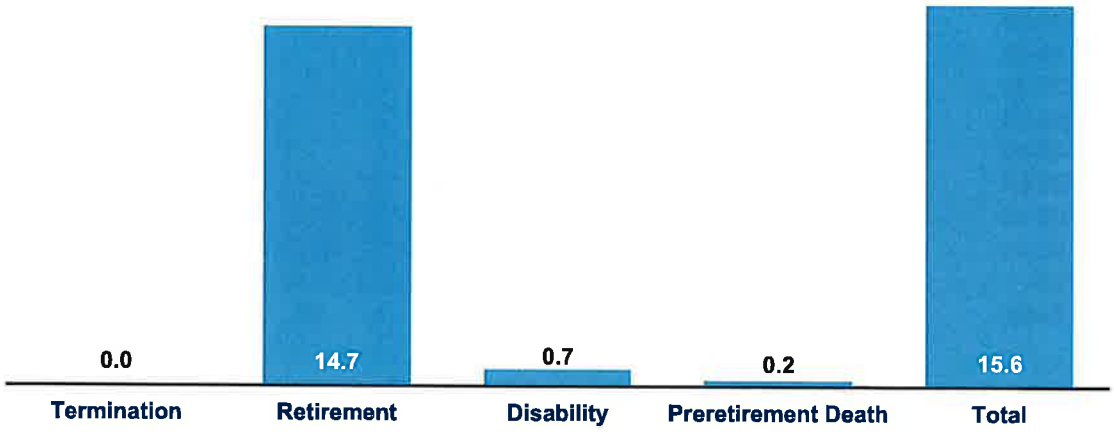
	Years of Service							
Age	**0-4**	**5-9**	**10-14**	**15-19**	**20-24**	**25-29**	**30+**	**Total**
< 25	2							2
25-29								0
30-34	3	1	2					6
35-39	3	4	2					9
40-44	14	6	3	2				25
45-49	6	9	4	2				21
50-54	10	5	6	8	1			30
55-59	11	13	5	6	4		1	40
60-64	3	6	9	8	7	2	5	40
65+		2	2	1	4	1	1	11
Total	52	46	33	27	16	3	7	184

Section I - Executive Summary
Accrued Liability

The Accrued Liability (in $ millions) as of January 1, 2019 consists of the following pieces:

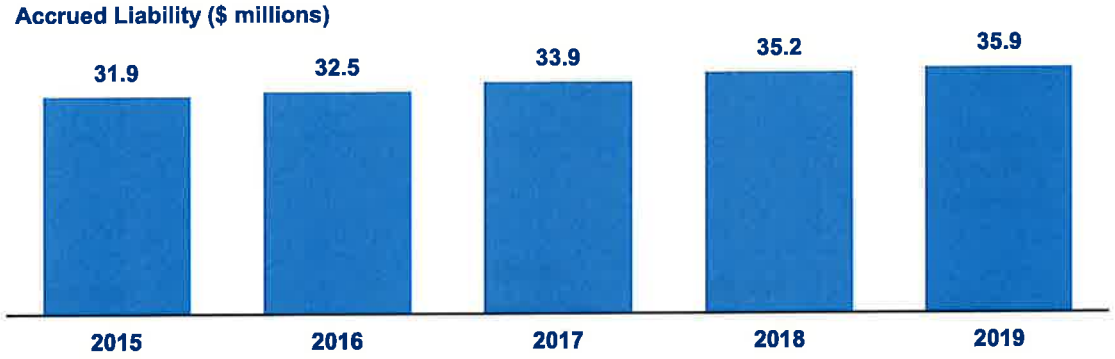


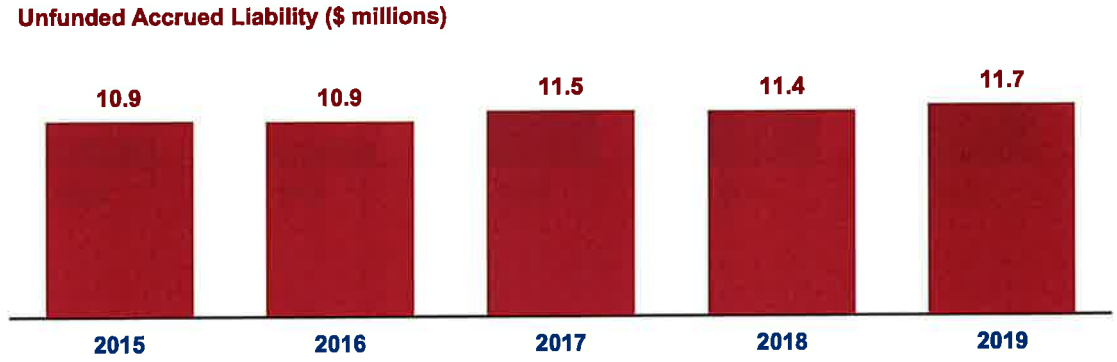
The Accrued Liability for active members can be broken down further by the different types of benefits provided by the plan:

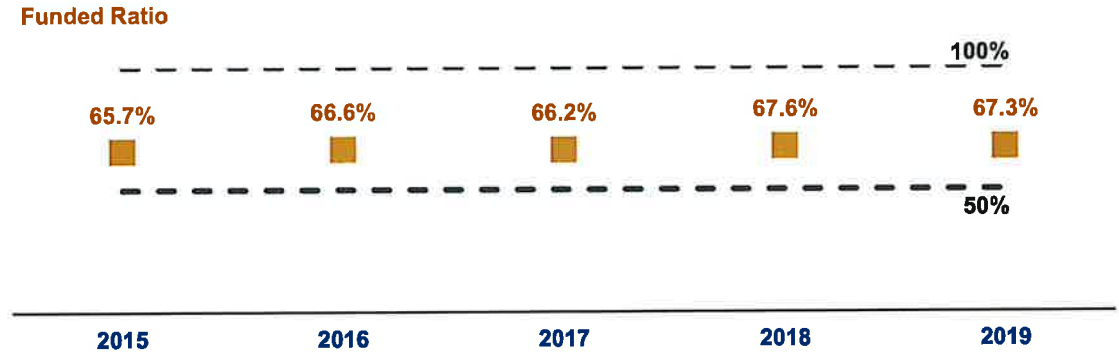


Section I - Executive Summary
Funded Status

The Accrued Liability grows over time as active members earn additional benefits, and goes down over time as members receive benefits; it may also change when there are changes to the plan provisions or changes in the actuarial assumptions. The Unfunded Accrued Liability is the dollar difference between the Accrued Liability and the Actuarial Value of Assets; the Funded Ratio is the ratio of the two.



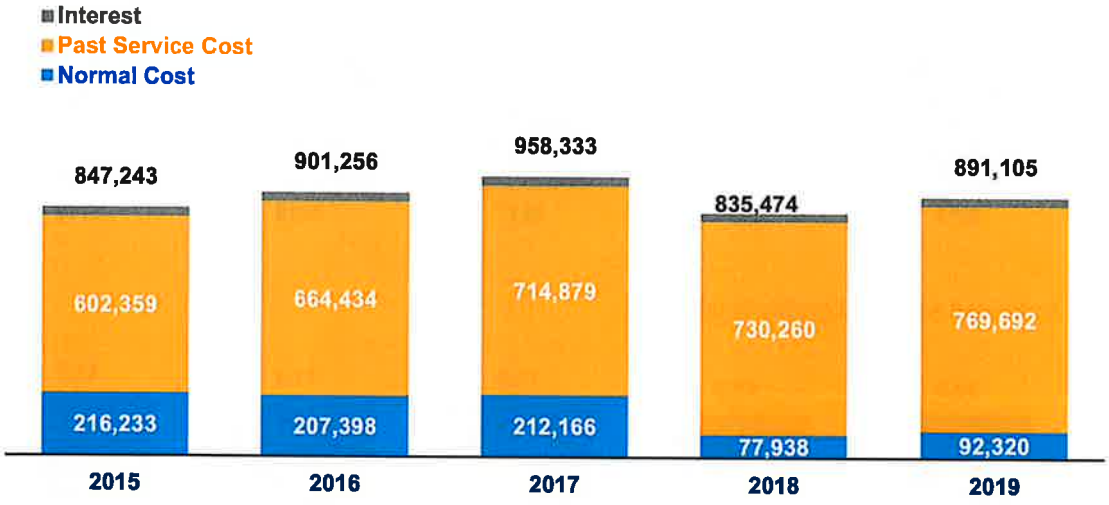




Section I - Executive Summary
Actuarially Determined Contribution

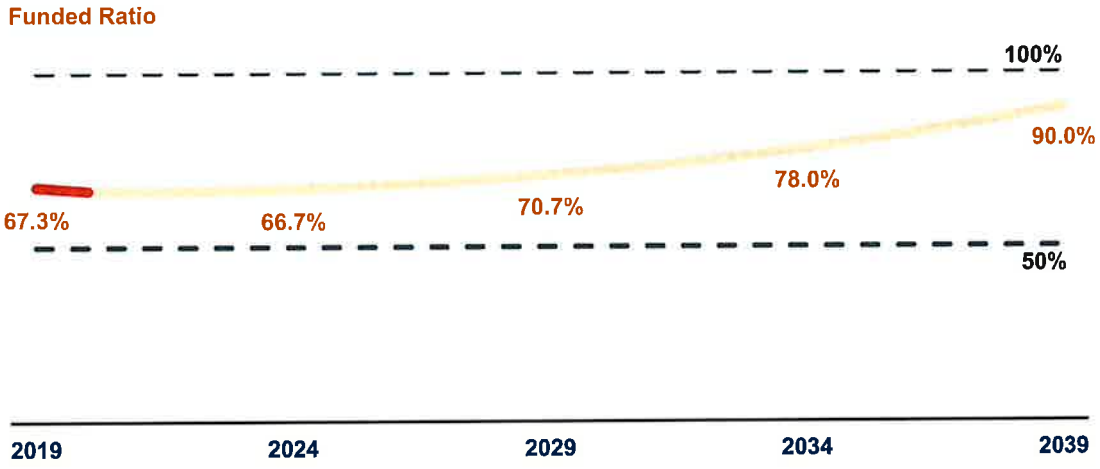
The Actuarially Determined Contribution consists of three pieces: a Normal Cost payment to fund the benefits earned each year, a Past Service Cost to gradually reduce any unfunded or surplus liability, and Interest.

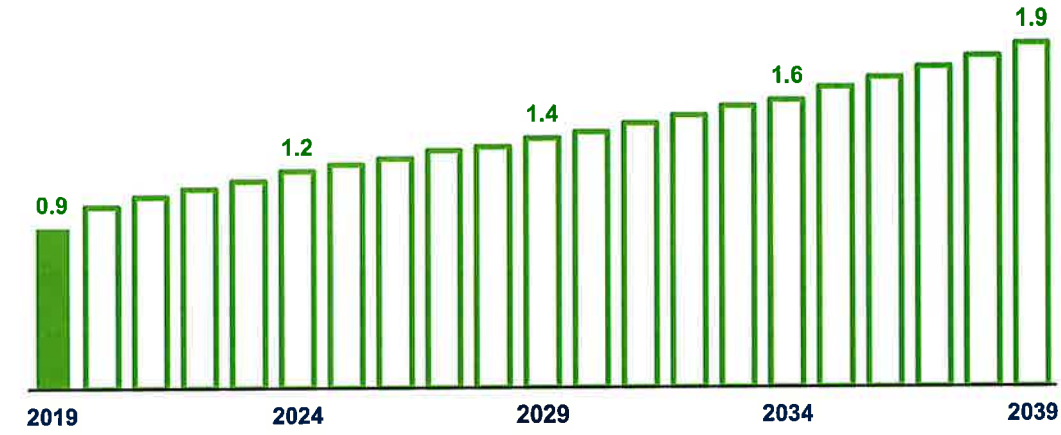
The Actuarially Determined Contribution for fiscal year 2019 is shown graphically below, along with the comparable figures for the preceding four fiscal years. Note that the Normal Cost is relatively consistent from year to year, whereas the Past Service Cost tends to be more volatile since it reflects the impact of asset performance.



Section I - Executive Summary
Long-Range Forecast

If Metro pays the Actuarially Determined Contribution each year, the investments earn exactly the assumed interest rate each year, and there are no changes in the plan provisions or in the actuarial methods and assumptions, then we project the following changes in the plan's funded status and the long-range contribution levels:

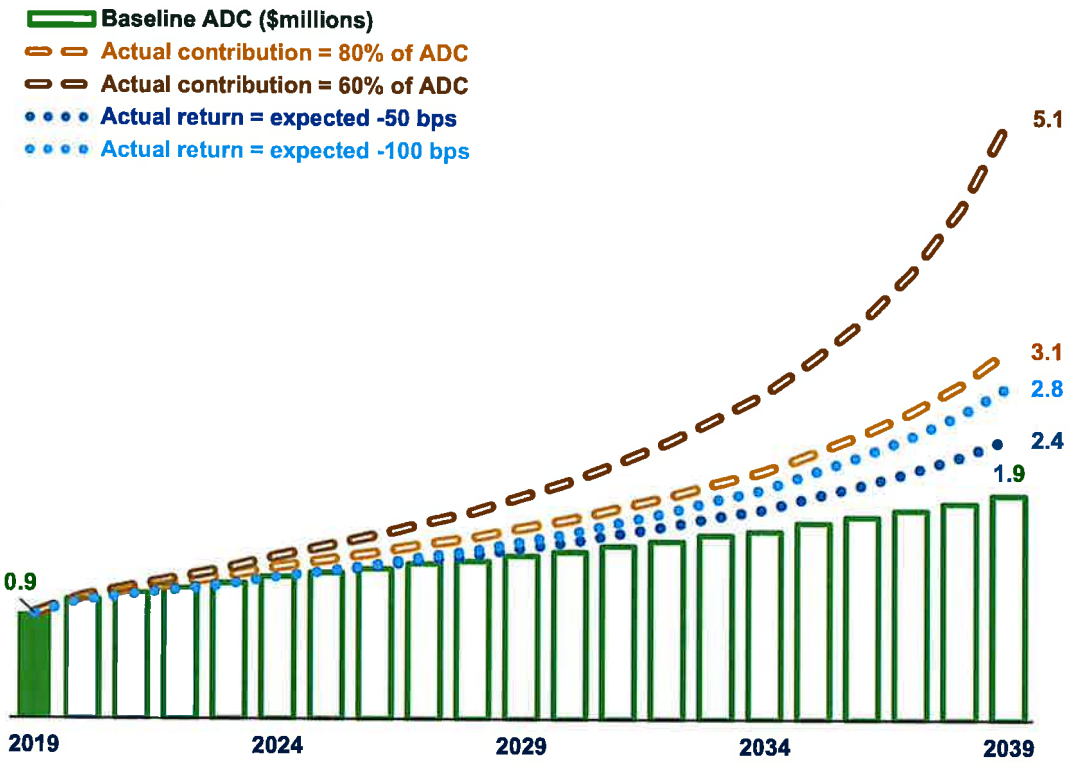




To the extent that there are future investment or liability gains or losses, changes in the actuarial assumptions or methods, or plan changes, the actual valuation results will differ from these forecasts. Please see Section III C for more details of the long range forecast.

Section I - Executive Summary
Long-Range Forecast (continued)

Pension benefits are paid for through a combination of contributions from Metro and from employees, and from investment income. If Metro pays less than the Actuarially Determined Contribution each year, or if the investments persistently earn less than the assumed interest rate, then the plan's funded status would suffer, and to compensate, Metro's contribution levels would be pushed higher. The risks of underfunding and underearning are illustrated in the hypothetical scenarios below:



The scenarios illustrated above are based on deterministic projections that assume emerging plan experience always exactly matches the actuarial assumptions; in particular that actual asset returns will be constant in every year of the projection period. Variation in asset returns, contribution amounts, and many other factors may have a significant impact on the long-term financial health of the plan, the liquidity constraints on plan assets, and Metro's future contribution levels. Stochastic projections could be prepared that would enable Metro to understand the potential range of future results based on the expected variability in asset returns and other factors. Such analysis was beyond the scope of this engagement.

Section I - Executive Summary
Summary of Principal Results

Membership as of	January 1, 2018	January 1, 2019
Active Members	200	184
Terminated Members	41	40
Members in Pay Status	185	197
Total Count	426	421
Payroll	$12,169,930	$11,485,056

Assets and Liabilities as of	January 1, 2018	January 1, 2019
Market Value of Assets	$24,197,918	$22,391,497
Actuarial Value of Assets	23,825,275	24,167,487
Accrued Liabiilty for Active Members	16,986,924	15,649,759
Accrued Liabiilty for Terminated Members	1,370,863	1,299,840
Accrued Liabiilty for Members in Pay Status	16,891,598	18,956,517
Total Accrued Liability	35,249,385	35,906,116
Unfunded Accrued Liability	11,424,110	11,738,629
Funded Ratio	67.6%	67.3%

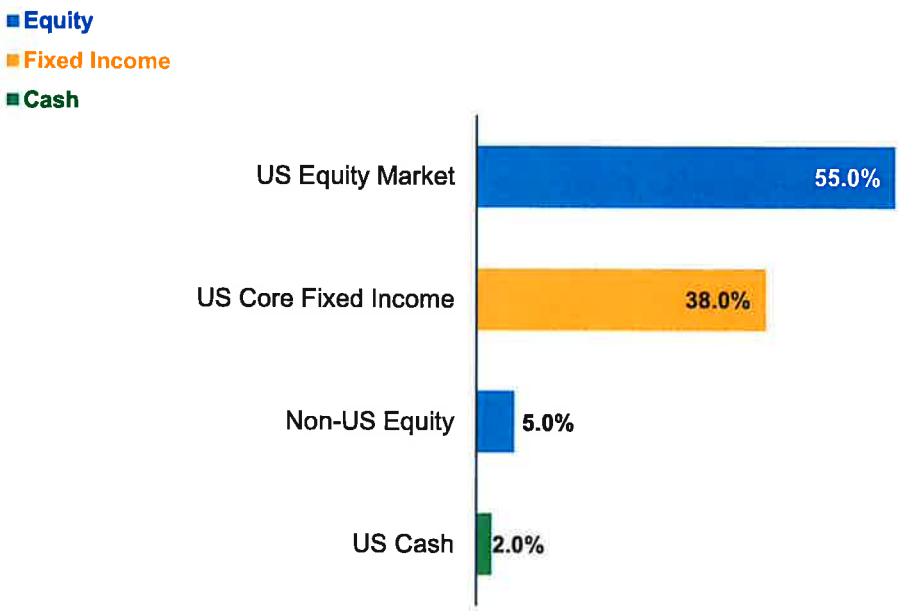
Actuarially Determined Contribution for Fiscal Year	2018	2019
Normal Cost	$77,938	$92,320
Past Service Cost	730,260	769,692
Interest	27,276	29,093
Actuarially Determined Contribution	835,474	891,105

Section II - Plan Assets
A. Summary of Fund Transactions

Market Value as of January 1, 2018	$24,197,918
Metro Contributions	855,109
Member Contributions	797,854
Net Investment Income	(1,103,652)
Benefit Payments	(2,304,956)
Administrative Expenses	(50,776)
Market Value as of December 31, 2018	22,391,497
Expected Return on Market Value of Assets	1,640,215
Market Value (Gain)/Loss	2,743,867
Approximate Rate of Return *	-4.84%

* The rate shown here is not the dollar or time weighted investment yield rate which measures investment performance. It is an approximate net return assuming all activity occurred on average midway through the fiscal year.

Target Asset Allocation as of December 31, 2018



Section II - Plan Assets
B. Development of Actuarial Value of Assets

In order to minimize the impact of market fluctuations on the contribution level, we use an Actuarial Value of Assets that recognizes gains and losses asymptotically over a four year period. The Actuarial Value of Assets as of January 1, 2019 is determined below.

1.	Expected Actuarial Value of Assets:	
	a. Actuarial Value of Assets as of January 1, 2018	$23,825,275
	b. Metro and Member Contributions	1,652,963
	c. Benefit Payments and Administrative Expenses	(2,304,956)
	d. Expected Earnings Based on 6.75% Interest	1,586,201
	e. Expected Actuarial Value of Assets as of January 1, 2019	24,759,483
2.	Market Value of Assets as of January 1, 2019	22,391,497
3.	Unrecognized Gains/(Losses): (2) - (1e)	(2,367,986)
4.	Amount Recognized as of January 1, 2019: 25% of (3)	(591,996)
5.	Actuarial Value of Assets as of January 1, 2019: (1e) + (4)	24,167,487
6.	Actual Earnings on Actuarial Value of Assets: (5) - [(1a) + (1b) + (1c)]	994,205
7.	Approximate Rate of Return on Actuarial Value of Assets	4.23%
8.	Actuarial Value (Gain)/Loss: (1d) - (6)	591,996

Section III - Development of Contribution
A. Past Service Cost

In determining the Past Service Cost, the Unfunded Accrued Liability is amortized as a level percent over 30 years from January 1, 2012.

		January 1, 2018	January 1, 2019
1.	Accrued Liability		
	Active Members	$16,986,924	$15,649,759
	Terminated Members	1,370,863	1,299,840
	Service Retirees	15,383,598	17,280,188
	Disabled Retirees	0	0
	Beneficiaries	1,508,000	1,676,329
	Total Accrued Liability	35,249,385	35,906,116
2.	Actuarial Value of Assets (see Section IIB)	23,825,275	24,167,487
3.	Unfunded Accrued Liability: (1) - (2)	11,424,110	11,738,629
4.	Funded Ratio: (2) / (1)	67.6%	67.3%
5.	Amortization Period	24	23
6.	Amortization Growth Rate	2.50%	2.50%
7.	Past Service Cost: (3) amortized over (5)	730,260	769,692

Section III - Development of Contribution
B. Actuarially Determined Contribution

		2018	2019
1.	Total Normal Cost	$877,894	$845,600
2.	Expected Member Contributions	851,895	803,954
3.	Expected Administrative Expenses	35,000	35,000
4.	Expected Investment Expenses	16,939	15,674
5.	Net Normal Cost: (1) - (2) + (3) +(4)	77,938	92,320
6.	Past Service Cost (see Section IIIA)	730,260	769,692
7.	Interest on (5) + (6) to the start of the fiscal year	27,276	29,093
8.	Actuarially Determined Contribution: (5) + (6) + (7)	835,474	891,105

Section III - Development of Contribution
C. Long Range Forecast

This forecast is based on the results of the January 1, 2019 actuarial valuation and assumes that Metro will pay the Actuarially Determined Contribution each year, the assets will return the assumed interest rate on a market value basis each year, and there are no future changes in the actuarial methods or assumptions or in the plan provisions. Actual results at each point in time will yield different values, reflecting the actual experience of the plan membership and assets.

	Values as of the Valuation Date					Cash Flows Projected to the Following Fiscal Year			
Valuation Date	Accrued Liability	Actuarial Value of Assets	Unfunded Accrued Liability	Funded Ratio	Fiscal Year	Metro Contributions	Member Contributions	Benefit Payments	Net Cash Flows
1/1/2019	$35,906,116	$24,167,487	$11,738,629	67.3%	2019	$891,105	$803,954	($2,335,779)	($640,720)
1/1/2020	37,239,000	24,649,000	12,590,000	66.2%	2020	1,009,000	797,000	(2,515,000)	(709,000)
1/1/2021	38,124,000	25,178,000	12,946,000	66.0%	2021	1,064,000	799,000	(2,662,000)	(799,000)
1/1/2022	38,918,000	25,715,000	13,203,000	66.1%	2022	1,106,000	802,000	(2,791,000)	(883,000)
1/1/2023	39,620,000	26,255,000	13,365,000	66.3%	2023	1,150,000	813,000	(2,868,000)	(905,000)
1/1/2024	40,283,000	26,852,000	13,431,000	66.7%	2024	1,205,000	826,000	(2,953,000)	(922,000)
1/1/2025	40,924,000	27,506,000	13,418,000	67.2%	2025	1,241,000	839,000	(3,024,000)	(944,000)
1/1/2026	41,540,000	28,209,000	13,331,000	67.9%	2026	1,274,000	853,000	(3,105,000)	(978,000)
1/1/2027	42,127,000	28,945,000	13,182,000	68.7%	2027	1,318,000	864,000	(3,191,000)	(1,009,000)
1/1/2028	42,677,000	29,716,000	12,961,000	69.6%	2028	1,338,000	881,000	(3,273,000)	(1,054,000)
1/1/2029	43,173,000	30,505,000	12,668,000	70.7%	2029	1,386,000	899,000	(3,337,000)	(1,052,000)
1/1/2030	43,662,000	31,361,000	12,301,000	71.8%	2030	1,418,000	920,000	(3,400,000)	(1,062,000)
1/1/2031	44,133,000	32,273,000	11,860,000	73.1%	2031	1,468,000	942,000	(3,444,000)	(1,034,000)
1/1/2032	44,618,000	33,282,000	11,336,000	74.6%	2032	1,510,000	969,000	(3,471,000)	(992,000)
1/1/2033	45,143,000	34,407,000	10,736,000	76.2%	2033	1,562,000	999,000	(3,512,000)	(951,000)
1/1/2034	45,693,000	35,654,000	10,039,000	78.0%	2034	1,594,000	1,028,000	(3,584,000)	(962,000)
1/1/2035	46,222,000	36,977,000	9,245,000	80.0%	2035	1,666,000	1,054,000	(3,602,000)	(882,000)
1/1/2036	46,818,000	38,473,000	8,345,000	82.2%	2036	1,719,000	1,086,000	(3,654,000)	(849,000)
1/1/2037	47,430,000	40,108,000	7,322,000	84.6%	2037	1,777,000	1,118,000	(3,693,000)	(798,000)
1/1/2038	48,085,000	41,904,000	6,181,000	87.1%	2038	1,837,000	1,151,000	(3,737,000)	(749,000)

Section III - Development of Contribution
D. History of Funded Status

Valuation Date	Actuarial Value of Assets	Accrued Liability	Unfunded Accrued Liability	Funded Ratio
January 1, 2013	18,335,855	30,577,378	12,241,523	60.0%
January 1, 2014	19,886,881	31,038,929	11,152,048	64.1%
January 1, 2015	20,939,210	31,851,815	10,912,605	65.7%
January 1, 2016	21,663,121	32,548,681	10,885,560	66.6%
January 1, 2017	22,443,739	33,896,866	11,453,127	66.2%
January 1, 2018	23,825,275	35,249,385	11,424,110	67.6%
January 1, 2019	24,167,487	35,906,116	11,738,629	67.3%

Section III - Development of Contribution
E. History of Metro Contributions

Fiscal Year	Actuarially Determined Contribution	Actual Metro Contribution	Payroll	Actual Contribution as a Percent of Payroll
2013	847,072	726,238	11,350,348	6.4%
2014	833,212	702,245	11,362,603	6.2%
2015	847,243	748,129	11,514,912	6.5%
2016	901,256	705,467	11,390,621	6.2%
2017	958,333	904,824	11,497,480	7.9%
2018	835,474	855,109	12,169,930	7.0%
2019	891,105	TBD	11,485,056	TBD

Section IV - Membership Data
A. Reconciliation of Membership from Prior Valuation

Details of the changes in the Plan membership since the last valuation are shown below. Additional details on the Plan membership are provided in the remainder of Section IV.

	Active Members	Terminated Vested Members	Nonvested Members Due Refunds	Service Retirees	Disabled Retirees	Beneficiaries	Total
January 1, 2018	200	41	0	162	0	23	426
Terminated							
- no benefits due	-	-	-	-	-	-	0
- paid refund	(8)	-	-	-	-	-	(8)
- vested benefits due	(2)	2	-	-	-	-	0
Retired	(11)	(4)	-	15	-	-	0
Died							
- with beneficiary	(1)	1	-	(2)	-	2	0
- no beneficiary	-	-	-	(3)	-	-	(3)
Benefits expired	-	-	-	-	-	-	0
New member	14	-	-	-	-	-	14
Rehired/ Eligible	2	-	-	-	-	-	2
Transfer to Salaried Plan	(2)	-	-	-	-	-	(2)
Correction	(8)	-	-	-	-	-	(8)
January 1, 2019	184	40	0	172	0	25	421

Section IV - Membership Data
B. Statistics of Active Membership

	As of January 1, 2018	As of January 1, 2019
Number of Active Members	200	184
Average Age	53.9	53.5
Average Service	11.4	11.2
Total Payroll	$12,169,930	$11,485,056
Average Payroll	60,850	62,419

Section IV - Membership Data
C. Statistics of Inactive Membership

	As of January 1, 2018	As of January 1, 2019
Terminated Vested Members		
Number	41	40
Total Annual Benefit	$247,254	$184,824
Average Annual Benefit	6,031	4,621
Average Age	53.1	58.6
Nonvested Members Due Refunds		
Number	0	0
Service Retirees		
Number	162	172
Total Annual Benefit	$1,726,224	$1,929,480
Average Annual Benefit	10,656	11,218
Average Age	73.5	73.6
Disabled Retirees		
Number	0	0
Total Annual Benefit	$0	$0
Average Annual Benefit	0	0
Average Age	0.0	0.0
Beneficiaries		
Number	23	25
Total Annual Benefit	$164,160	$186,324
Average Annual Benefit	7,137	7,453
Average Age	72.4	74.2

Section IV - Membership Data
D. Distribution of Inactive Members as of January 1, 2019

	Age	Number	Annual Benefits
Terminated Vested Members	< 50	0	$0
	50 - 59	21	87,164
	60 - 69	19	97,660
	70 - 79	0	0
	80 - 89	0	0
	90 +	0	0
	Total	40	184,824
Service Retirees	< 50	0	$0
	50 - 59	4	70,037
	60 - 69	54	703,647
	70 - 79	82	867,630
	80 - 89	23	224,704
	90 +	9	63,462
	Total	172	1,929,480
Disabled Retirees	< 50	0	$0
	50 - 59	0	0
	60 - 69	0	0
	70 - 79	0	0
	80 - 89	0	0
	90 +	0	0
	Total	0	0
Beneficiaries	< 50	0	$0
	50 - 59	1	2,399
	60 - 69	9	65,161
	70 - 79	6	60,810
	80 - 89	7	55,227
	90 +	2	2,727
	Total	25	186,324

Section V - Analysis of Risk
A. Introduction

The results of this actuarial valuation are based on one set of reasonable assumptions. However, it is almost certain that future experience will not exactly match these assumptions. As an example, the plan's investments may perform better or worse than assumed in any single year and over any longer time horizon. It is therefore important to consider the potential impacts of these likely differences when making decisions that may affect the future financial health of the plan, or of the plan's members.

In addition, as plans mature they accumulate larger pools of assets and liabilities. The increase in size in turn increases the potential magnitude of adverse experience. As an example, the dollar impact of a 10% investment loss on a plan with $1 billion in assets and liabilities is much greater than the dollar impact for a plan with $1 million in assets and liabilities. Since pension plans make long-term promises and rely on long-term funding, it is important to consider how mature the plan is today, and how mature it may become in the future.

Actuarial Standard of Practice No. 51 (ASOP 51) directs actuaries to provide pension plan sponsors with information concerning the risks associated with the plan:

- Identify risks that may be significant to the plan.
- Assess the risks identified as significant to the plan. The assessment does not need to include numerical calculations.
- Disclose plan maturity measures and historical information that are significant to understanding the plan's risks.

This section of the report uses the framework of ASOP 51 to communicate important information about significant risks to the plan, the plan's maturity, and relevant historical plan data.

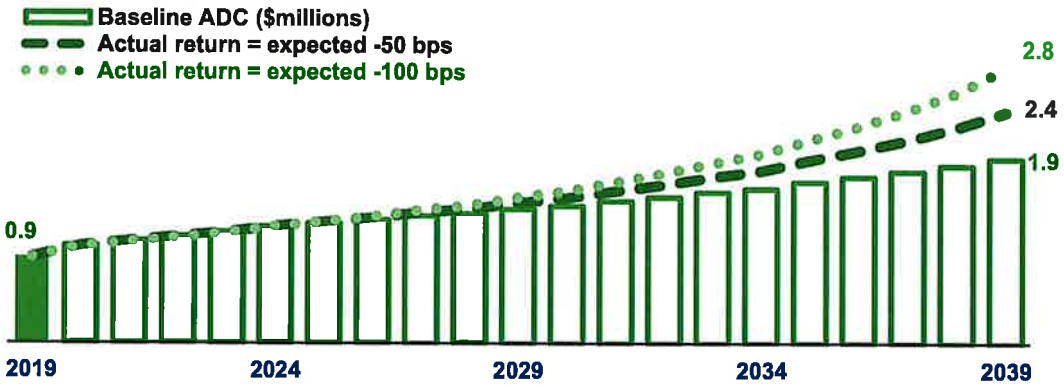
Please see Section III C for more information on the basis for the projected results shown on the following pages.

Section V - Analysis of Risk
B. Risk Identification and Assessment

Investment Risk

Definition: This is the potential that investment returns will be different than expected.

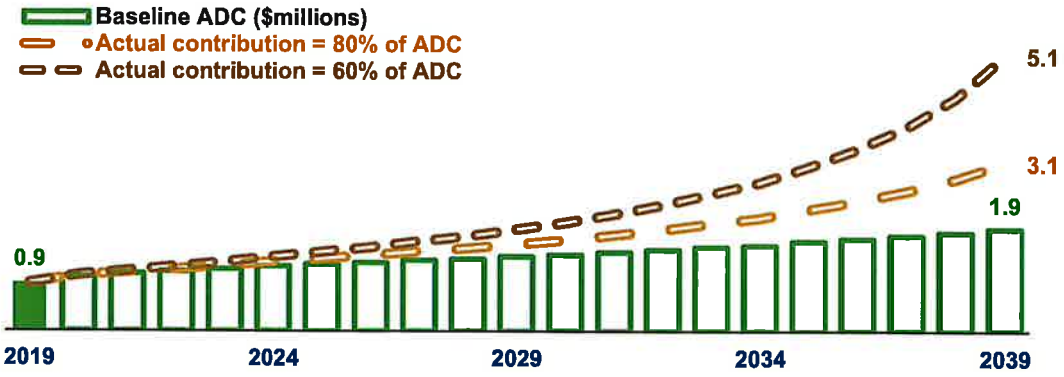
Identification: To the extent that actual investment returns differ from the assumed investment return, the plan's future assets, Actuarially Determined Contributions, and funded status may differ significantly from those presented in this valuation. The consequences of persistent underperformance on future Actuarially Determined Contribution levels are illustrated below:



Contribution Risk

Definition: This is the potential that actual future contributions will be less than the Actuarially Determined Contribution.

Identification: Over the past 5 years, actual contributions have been 89.5% of the Actuarially Determined Contribution in total. The consequences of persistent underfunding on future Actuarially Determined Contribution levels are illustrated below:



Section V - Analysis of Risk
B. Risk Identification and Assessment

Liquidity Risk

Definition: This is the potential that assets must be liquidated at a loss earlier than planned in order to pay for the plan's benefits and operating costs. This risk is heightened for plans with negative cash flows, in which contributions are not sufficient to cover benefit payments plus expenses.

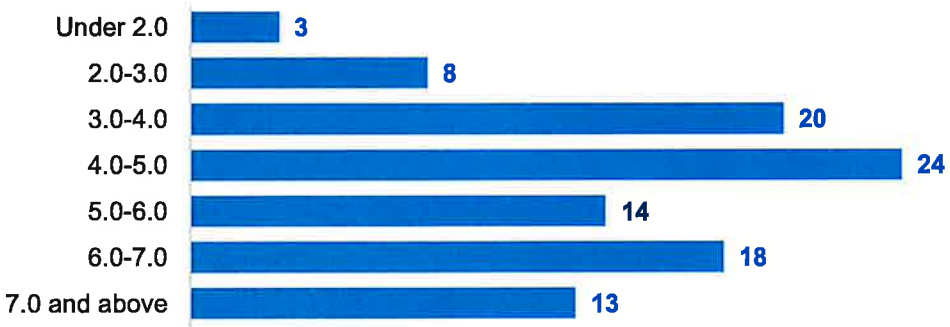
Identification: In 2018, the plan had negative cash flow, with Metro and member contributions to the plan of $1,652,963 compared to $2,355,732 of benefit payments and administrative expenses paid out of the plan. We suggest that you consult with your investment advisors with respect to the liquidity characteristics of the plan's investment holdings.

Maturity Risk

Definition: This is the potential for total plan liabilities to become more heavily weighted toward inactive liabilities over time, and for plan assets and/or liabilities to become larger relative to the active member liability.

Identification: The plan is subject to maturity risk because as plan assets and liabilities continue to grow, the dollar impact of any gains or losses on the assets or liabilities also becomes larger.

Assessment: As of January 1, 2019, the plan's Asset Voliatility Ratio (the ratio of the market value of plan assets to payroll) is 1.9. According to Milliman's 2018 Public Pension Funding Study, the 100 largest US public pension plans have the following range of Asset Volatility Ratios:



Inflation Risk

Definition: This is the potential for a pension to lose purchasing power over time due to inflation.

Identification: The members of pension plans without fully inflation-indexed benefits are subject to the risk that their purchasing power will be reduced over time due to inflation.

Assessment: This plan does not contain a mechanism to regularly increase benefits after retirement, so members bear all of the inflation risk.

Section V - Analysis of Risk
B. Risk Identification and Assessment

Insolvency Risk

Definition: This is the potential that a plan will become insolvent; that is, assets will be fully depleted.

Identification: If a plan becomes insolvent, contractually required benefits must be paid from the plan sponsor's other remaining assets.

Assessment: Under the GASB 68 depletion date methodology, the plan is not projected to become insolvent. Please see the GASB 68 report for more details on the underlying analysis.

Demographic Risks

Definition: This is the potential that mortality, turnover, retirement, or other demographic experience will be different than expected.

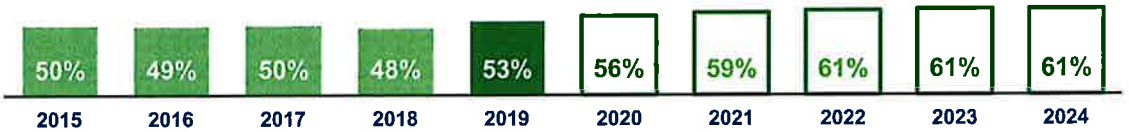
Identification: The pension liabilities reported herein have been calculated by assuming that members will follow patterns of demographic experience as described in Appendix B. If actual demographic experience or future demographic assumptions are different from what is assumed to occur in this valuation, future pension liabilities, Actuarially Determined Contributions, and funded status may differ significantly from those presented in this valuation. Formal Experience Studies performed on a regular basis are helpful in ensuring that the demographic assumptions reflect emerging plan experience.

Section V - Analysis of Risk
C. Maturity Measures

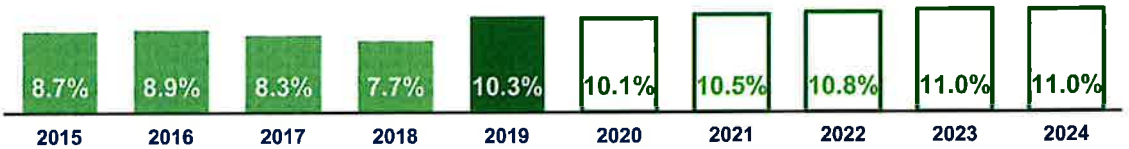
The metrics presented below are different ways of understanding the plan's maturity level, both in the past and as it is expected to change in the coming years.

Asset Volatility Ratio: Market Value of Assets compared to Payroll

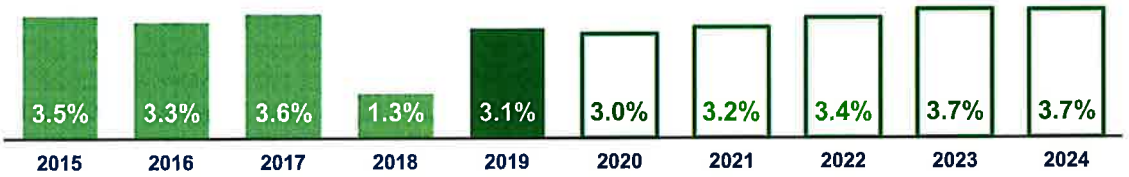
Accrued Liability for members in pay status compared to total Accrued Liability



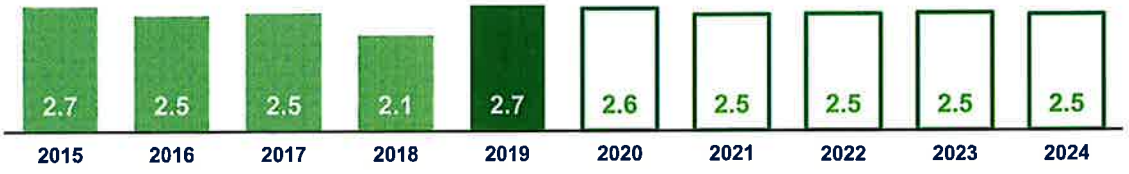
Benefit Payments compared to Market Value of Assets



Net Cash Flows compared to Market Value of Assets



Benefit Payments compared to Metro Contributions



Duration of Accrued Liability (based on GASB 68 sensitivity disclosures)

Appendix A - Actuarial Funding Method

The actuarial funding method used in the valuation of this Plan is known as the Entry Age Normal Method. The Actuarially Determined Contribution consists of three pieces: Normal Cost plus a Past Service Cost payment to gradually eliminate the Unfunded Accrued Liability plus Interest.

The Normal Cost is determined by calculating the present value of future benefits for present active Members that will become payable as the result of death, disability, retirement or termination. This cost is then spread as a level percentage of earnings from entry age to termination as an Active Member. If Normal Costs had been paid at this level for all prior years, a fund would have accumulated. Because this fund represents the portion of benefits that would have been funded to date, it is termed the Accrued Liability. In fact, it is calculated by adding the present value of benefits for Retired Members and Terminated Vested Members to the present value of benefits for Active Members and subtracting the present value of future Normal Cost contributions.

The funding cost of the Plan is derived by making certain specific assumptions as to rates of interest, mortality, turnover, etc. which are assumed to hold for many years into the future. Since actual experience may differ somewhat from the assumptions, the costs determined by the valuation must be regarded as estimates of the true costs of the Plan.

The Unfunded Accrued Liability is the excess of the Accrued Liability over the assets which have been accumulated for the plan. This Unfunded Accrued Liability is amortized as a level percent over 30 years from January 1, 2012.

The Actuarial Value of Assets is determined by recognizing market gains and losses asymptotically over a four year period.

The long-range forecasts included in this report have been developed by assuming that members will terminate, retire, become disabled, and die according to the actuarial assumptions with respect to these causes of decrement, and that pay increases, cost of living adjustments, and so forth will likewise occur according to the actuarial assumptions. For those employee groups whose new employees are eligible to participate in this plan, members who are projected to leave active employment are assumed to be replaced by new active members with the same age, service, gender, and pay characteristics as those hired in the past few years.

Appendix B - Actuarial Assumptions

Each of the assumptions used in this valuation was set based on industry standard published tables and data, the particular characteristics of the plan, relevant information from the plan sponsor or other sources about future expectations, and our professional judgment regarding future plan experience. We believe the assumptions are reasonable for the contingencies they are measuring, and are not anticipated to produce significant cumulative actuarial gains or losses over the measurement period.

Interest Rate

6.75% (net of all expenses)

Inflation

2.50%

Amortization Growth Rate

2.50%

Expenses

$35,000 for administrative expenses, plus 0.07% of Market Value of Assets for investment expenses.

Salary Scale

4.00%

Turnover

Based on a table of annual withdrawal rates below:

Age	Year 1 & 2	Years 3+
20	15.0%	12.0%
25	15.0%	12.0%
30	12.0%	11.0%
35	10.0%	10.0%
40	8.0%	8.0%
45	8.0%	6.0%
50	8.0%	4.0%
55	8.0%	3.0%

Disability

Based on Table 5, Period 2 of the Society of Actuaries 1942 Disability Study.

Retirement

Age	<30 Years	>30 Years
58	5%	20%
59	5%	20%
60	5%	20%
61	5%	20%
62	25%	25%
63-64	25%	25%
65-66	50%	50%
67	100%	100%

Appendix B - Actuarial Assumptions

Mortality	RP-2000 Combined Healthy Mortality Table with separate tables for males and females, and generational mortality improvement per Scale AA.
Marital Status	80% of active participants are assumed to be married. Female spouses are assumed to be 3 years younger than male spouses.

Appendix C - Summary of Plan Provisions

This exhibit summarizes the major provisions of the Plan. It is not intended to be, nor should it be interpreted as a complete statement of all plan provisions. All eligibility requirements and benefit amounts shall be determined in strict accordance with the plan document itself. To the extent that this summary does not accurately reflect the plan provisions, then the results of this valuation may not be accurate.

Original Effective Date

July 1, 1979

Plan Year

January 1, through December 31.

Eligibility

First of the month following completion of 120 days of service.

Compensation

Regular compensation plus overtime but excluding reimbursed expenses, bonuses, commissions, deferred compensation and other extra or unusual compensation.

Final Average Compensation

Average of the Compensation paid during the five highest consecutive paid years out of the last ten years of employment.

Year of Service

Twelve consecutive month period beginning with the person's employment date during which the member works 1,000 hours.

Vesting

Years of Service	Vesting %
0-4	0%
5	50%
6	60%
7	70%
8	80%
9	90%
10+	100%

Normal Retirement Eligibility

For members hired prior to January 1, 2018, age 65. For members hired after January 1, 2018, social security normal retirement age.

Normal Retirement Benefit

For members hired prior to January 1, 2018, 1.40% of Final Average Compensation multiplied by Years of Service. For members hired after January 1, 2018, 1.20% of Final Average Compensation for years 1 through 10, 1.30% of Final Average Compensation for years 11 through 20, and 1.40% thereafter.

Early Retirement Eligibility

Age 58 with 20 years of service, or any age with 30 years of service.

Early Retirement Benefit

Accrued benefit based on service and compensation to date with a 0.50% reduction for each month by which early retirement precedes normal retirement. No reduction applies if a member has 30 or more years of service.

Appendix C - Summary of Plan Provisions

Preretirement Death Benefit	Surviving spouses of members with at least 10 years of service are eligible to receive a benefit equal to the accrued benefit the member would have received if they terminated employment, deferred their benefit to their earliest retirement date, and elected the 100% joint and survivor annuity option. Surviving spouses of members with less than 10 years of service are entitled to a refund of the member's employee contributions with interest.
Employee Contributions	Active members contribute 7.00% of payroll. Prior to January 1, 2018 members contributed 6.00% of payroll.
Normal Form of Payment	Modified Cash Refund Annuity.
Optional Forms of Payment	10 year certain and life, 100%/66.7%/50% joint and survivor annuity. The 100% joint and survivor annuity is automatic for married members unless another option is elected.

Appendix D - Glossary

Actuarial Cost Method - This is a procedure for determining the Actuarial Present Value of Benefits and allocating it to time periods to produce the Actuarial Accrued Liability and the Normal Cost.

Accrued Liability - This is the portion of the Actuarial Present Value of Benefits attributable to periods prior to the valuation date by the Actuarial Cost Method (i.e., that portion not provided by future Normal Costs).

Actuarial Assumptions - With any valuation of future benefits, assumptions of anticipated future events are required. If actual events differ from the assumptions made, the actual cost of the plan will vary as well. Some examples of key assumptions include the interest rate, salary scale, and rates of mortality, turnover and retirement.

Actuarial Present Value of Benefits - This is the present value, as of the valuation date, of future payments for benefits and expenses under the Plan, where each payment is: a) multiplied by the probability of the event occurring on which the payment is conditioned, such as the probability of survival, death, disability, termination of employment, etc.; and b) discounted at the assumed interest rate.

Actuarial Value of Assets - This is the value of cash, investments and other property belonging to the plan, typically adjusted to recognize investment gains or losses over a period of years to dampen the impact of market volatility on the Actuarially Determined Contribution.

Actuarially Determined Contribution ("ADC") - This is the employer's periodic contributions to a defined benefit plan, calculated in accordance with actuarial standards of practice.

Attribution Period - The period of an employee's service to which the expected benefit obligation for that employee is assigned. The beginning of the attribution period is the employee's date of hire and costs are spread across all employment.

Interest Rate - This is the long-term expected rate of return on any investments set aside to pay for the benefits. In a financial reporting context (e.g., GASB 68) this is termed the Discount Rate.

Normal Cost - This is the portion of the Actuarial Present Value of Benefits allocated to a valuation year by the Actuarial Cost Method.

Past Service Cost - This is a catch-up payment to fund the Unfunded Accrued Liability over time (generally 10 to 30 years). A closed amortization period is a specific number of years counted from one date and reducing to zero with the passage of time; an open amortization period is one that begins again or is recalculated at each valuation date. Also known as the Amortization Payment.

Return on Plan Assets - This is the actual investment return on plan assets during the fiscal year.

Unfunded Accrued Liability - This is the excess of the Accrued Liability over the Actuarial Value of Assets.

Appendix D

Omaha Civilian Employees Retirement Plan Information

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City of Omaha
Jean Stothert, Mayor

Finance Department
Omaha/Douglas Civic Center
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(402) 444-5416
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Stephen B. Curtiss
Finance Director
Acting City Comptroller

Allen Herink
Finance Administrator

October 11, 2019

Senator Mark Kolterman, Chairperson
Nebraska Retirement Systems Committee
PO BOX 94604
State Capitol
Lincoln, NE 68509-4604

Dear Senator Kolterman:

Neb. Rev. Stat § 13-2402(3) requires a governing entity that offers a defined benefit retirement plan to file a report if the funded ratio is less than eighty percent. The City of Omaha is submitting this report regarding the City of Omaha Employees Retirement System (COERS) because the funded ratio is less than eighty percent.

The City through its negotiations with the bargaining agents has made efforts to address the funding shortfall in COERS. Some of those efforts are addressed below. The attached table compares the actuarial data for plan years 2014 through current plan year 2019.

COERS has been underfunded for a number of years and the circumstances leading to it being underfunded are varied. When the system was fully funded in the late 1990s, benefits were increased and even though the actuarial cost was calculated, the benefits appear to have exceeded those costs. There also have been some years where the investment loss was historically large. Other factors include reduction in the number of civilian employees over the past 20 years, lack of wage increases in some instances, and the delay in replacing retired personnel.

As a result of an Experience Study for 2012-2015 which was accepted in February, 2018, a number of changes to the actuarial assumptions were adopted by the Board. A copy of the Experience Study is included with this report. The following changes were made to the economic assumptions which changes were made in the January 1, 2018 actuarial valuation:

	Current	Recommended
Price inflation	3.25%	2.50%
Investment return	8.00%	7.50%
General wage growth	4.00%	3.10%
Payroll growth	4.00%	3.00%
Cash Balance Interest Crediting Rate	6.25%	6.00%

There were also some changes to the Demographic assumption, the most significant of which was a change to the mortality assumption.

In an effort to improve the condition of the system, the City entered into new labor agreements with all its civilian bargaining groups at the end of 2014/beginning of 2015. These bargaining agreements addressed payroll years 2013 through 2017 and included increased contributions by the City for wages paid 2013

until the contracts became effective. An actuarial projection was recently done and it is enclosed. It shows that the system will be fully funded in 2048.

The summary of some of the changes made for the 2013 to 2017 agreements addressing civilian employees are:

- Contributions by the City increased 7% over the four years of the agreements from 11.775% to 18.775%.
- Existing employees will receive 1.9% per year for future years of service instead of 2.25%.
- The City went from the Rule of 80 to the Rule of 85 and raised the minimum retirement age with some grandfathering of these provisions. The retirement age went from 60 to 65 over the course of the agreements.
- The smoothing of the salary on which a person's pension was calculated from a highest one year in your last five years to the average of your last five years of employment.
- Dramatically decreased the disability benefit for the existing employees.
- Implementing a Cash Balance Plan for employees hired on or after 3/1/2015. A cash balance plan is a type of defined benefit plan which allows for the employer and employee to share some of the risk of poor investment returns. The pay credit for the plan starts at 13% and goes up 1% for each 8 years of service. The interest credit is guaranteed at 4% with an additional amount being three quarters of the amount earned by the Plan over 7% on a 5 year rolling average, with the interest credit being capped at 7%. One has to have 10 years of service to vest.

The City has reached agreement with all its civilian bargaining groups for a period of either 2018 to 2021 or 2018 to 2020. None of these labor agreements addressed pension changes/reform, instead they focused on healthcare reform. The parties will continue to evaluate the pension system and will continue to address it after allowing the recent changes to be in effect for a period of time.

As of January 1, 2018, the system had a market value of $254.5 million in assets and a funded ratio of 53%. It had a funded ratio of 55% in 2017 and 56% in 2016. The actuarial contribution to the system had improved for a number of years, but as a result of the change in assumptions, there is a shortfall in the actuarial required contribution of 2.206% after a couple of years where there was an excess. This is still far better than shortfalls in excess of 15% that occurred in 2013 and 2014. Additional savings should be seen in the future years as members covered by the provisions of the Cash Balance Plan continues to grow. The most recent projections show the system will reach fully funded status in 30 years. The assumed rate of return for the system is 7.5%. a 1/2% decrease from previous years.

The unfunded actuarial liability (UAL) is funded on a "layered" basis, with the initial base being funded as a level-percent of payroll over a 25-year closed period that began January 1, 2016. The base attributable to the increase in the UAL due to the changed in assumptions in the 2018 valuation is amortized over a closed 25-year period. In addition, a new base is created in each valuation which is equal to the unexpected change in the UAL from actual versus expected experience, as measured in that valuation. Each experience base is funded as a level percent of payroll over a 20-year closed period.

As requested, we enclose the most recent Actuarial Experience Study which was submitted in February, 2018. The System's actuary is in the process of finalizing the Actuarial Valuation Report effective January 1, 2019. We would anticipate approval by the Board in November, 2019 and we will provide that report to you as soon as possible after approval.

If you or the Committee should have any questions regarding this report please let me know.

Sincerely,

Stephen Curtiss (GV)

Stephen Curtiss
Acting City Comptroller

Enclosures

COERS EXHIBIT 1

	ITEM	2014		2015		2016		2017		2018		2019	
	Net Assets (actuarial value)	1/1/14	$ 237,579,690	1/1/15	$ 242,248,074	1/1/16	$ 244,543,841	1/1/17	$ 246,234,597	1/1/18	$ 251,320,837	1/1/19	$ 249,518,547
	Unfunded Actuarial Accrued Liability	1/1/14	$ 205,174,423	1/1/15	$ 188,911,964	1/1/16	$ 192,589,171	1/1/17	$ 197,537,024	1/1/18	$ 223,286,679	1/1/19	$ 232,506,762
1a	Funding Status	1/1/14	53.7%	1/1/15	56.2%	1/1/16	55.9%	1/1/17	55.5%	1/1/18	53.0%	1/1/19	51.8%
1b	Assumed Rate of Return	1/1/14	8.0%	1/1/15	8.0%	1/1/16	8.0%	1/1/17	8.0%	1/1/18	7.5%	1/1/19	7.5%
1c	Actual Return	FYE 12/31/14	5.3%	FYE 12/31/15	3.5%	FYE 12/31/16	10.2%	FYE 12/31/17	13.1%	FYE 12/31/18	-0.3%	FYE 12/31/19	Pending
	Normal Cost ($)	1/1/14	$ 7,808,536	1/1/15	$ 5,822,238	1/1/16	$ 6,149,062	1/1/17	$ 6,229,103	1/1/18	$ 6,578,160	1/1/19	$ 6,749,691
1e	Normal Cost (%)	1/1/14	13.231%	1/1/15	9.881%	1/1/16	9.843%	1/1/17	9.721%	1/1/18	9.923%	1/1/19	9.818%
1f	Actuarial Rate of Contribution (ARC)	1/1/14	38.454%	1/1/15	33.724%	1/1/16	27.526%	1/1/17	27.740%	1/1/18	31.056%	1/1/19	31.662%
1d	Member Contribution Rate	1/1/14	10.075%	1/1/15	10.075%	1/1/16	10.075%	1/1/17	10.075%	1/1/18	10.075%	1/1/19	10.075%
1d	Employer Contribution Rate	1/1/14	11.775%	1/1/15	18.775%	1/1/16	18.775%	1/1/17	18.775%	1/1/18	18.775%	1/1/19	18.775%
	Contribution Margin	1/1/14	-16.604%	1/1/15	-4.874%	1/1/16	1.324%	1/1/17	1.110%	1/1/18	-2.206%	1/1/19	-2.812%
1f	Actuarial Required Contribution	FYE 12/31/14	$ 17,162,883	FYE 12/31/15	$ 14,676,786	FYE 12/31/16	$ 11,794,456	FYE 12/31/17	$ 12,383,422	FYE 12/31/18	$ 14,990,504	FYE 12/31/19	Pending
1g	Employer Actual Dollars Contributed	FYE 12/31/14	$ 12,326,643	FYE 12/31/15	$ 12,401,231	FYE 12/31/16	$ 12,779,968	FYE 12/31/17	$ 13,227,230	FYE 12/31/18	$ 13,645,009	FYE 12/31/19	Pending
1g	% of ARC by Employer Contribution	FYE 12/31/14	71.82%	FYE 12/31/15	84.50%	FYE 12/31/16	108.36%	FYE 12/31/17	106.81%	FYE 12/31/18	91.02%	FYE 12/31/19	Pending

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October 2, 2018

Mr. Allen Herink
City of Omaha
1819 Farnam Street
Omaha, NE 68183

Re: Projections of Long Term Funding for City of Omaha Employees' Retirement System

Dear Al:

At your request, we have completed an actuarial projection of the future valuation results for the City of Omaha Employees' Retirement System (COERS) over the next 30 years. This projection is based on the January 1, 2018 actuarial valuation results and was performed to examine the long-term funding of the System, given the current scheduled contribution rates and benefit structures in place.

This letter summarizes the results of our study and quantifies the expected changes in the funded ratio, unfunded actuarial liability, and full funding date (the year in which the actuarial assets is equal to or greater than the System's liability, i.e., no unfunded actuarial liability exists). For purposes of this study, the System's funding was studied each year over the long term, assuming all of the actuarial assumptions are met in the future, including the investment return assumption.

Results

The projection results that were used in our analysis require the use of many assumptions. Please see the "Disclaimers, Caveats, and Limitations" section later in this letter for a detailed discussion of the assumptions and methods used to produce the projected financial results for the System. To the extent actual experience deviates from that assumed, the future valuation results will also vary, perhaps significantly, from those in our projections.

Based on our projections, the Omaha Employees' Retirement System is expected to reach fully funded status (no unfunded actuarial liability) in the January 1, 2048 valuation. These projections assume all assumptions, including the investment return assumption (7.50%), are met in all future years.

Results

Exhibit 1, attached to this letter, shows the projected actuarial liability, actuarial assets, unfunded actuarial liability and funded ratio (actuarial assets divided by actuarial liability) for each year in the 30-year projection period for COERS. Exhibits 2 and 3 are graphs of the data in Exhibit 1. The blue bar is the portion of the total actuarial liability that is funded (which is equal to the lesser of the asset value and the actuarial liability) and the red bar represents the unfunded actuarial liability. The green bar at the end of the projection period reflects the fact that assets exceed the actuarial liability. As these exhibits indicate, COERS is projected to reach full funding (no unfunded actuarial liability) in the January 1, 2048 valuation.

The projections are dependent on a number of factors including the actuarial assumption used. If other assumptions were used, the results would vary, perhaps significantly.

Disclaimers, Caveats, and Limitations

This analysis is based primarily upon the benefit provisions and actuarial assumptions used in the January 1, 2018 actuarial valuation and the actuarial projection model prepared by Cavanaugh Macdonald Consulting, LLC. Significant items are noted below:

- An investment return assumption of 7.50% was used to project both assets and liabilities for the COERS.
- The liabilities and costs used in our analysis were based on the actuarial assumptions regarding mortality, disability, retirement, salary increases, and termination of employment used in the January 1, 2018 actuarial valuation.
- The number of active members in the System is assumed to remain at the current level over the entire projection period. When current active members were assumed to terminate or retire, they were replaced by new hires with a similar entry age as recent new hires.
- It was assumed there would be no change to the plan provisions or scheduled contribution rates over the projection period.
- The entry age normal cost method was used to develop the normal costs.
- We relied upon the membership data as provided by the City for the January 1, 2018 actuarial valuation. The numerical results depend on the integrity of this information. If there are material inaccuracies in the data, the results presented herein may be different and our calculations may need to be revised.

The projections used in our analysis are based on one set of assumptions out of a range of many possibilities over a 30 year projection period. A different set of assumptions could lead to different results. The projections are not intended to predict the System's financial condition or its ability to pay benefits in the future, and do not provide any guarantee of future financial soundness of the System. Over time, a defined benefit plan's total cost will depend on a number of factors including

the amount of benefits paid, the number of people paid benefits, the duration of the benefit payments, plan expenses, and the amount of earnings on assets invested to pay benefits. These amounts and other variables are uncertain and unknowable at the time our calculations were prepared. Because not all of the assumptions will unfold exactly as expected, actual results will differ from the projections. To the extent that actual experience deviates significantly from the assumptions, the funded status of the System could be significantly better or significantly worse than indicated in this study.

I am a member of the American Academy of Actuaries and meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinion contained herein. I am available to provide additional information or answer questions if it is necessary or desirable.

Please feel free to contact me if you have questions or need anything further.

Sincerely,

Patrice Beckham

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

Exhibit 1
City of Omaha Employees' Retirement System

Projection of Future Valuation Results

Jan 1 Year	Unfunded Actuarial Liability ($M)	Actuarial Liability ($M)	Actuarial Assets ($M)	Funded Ratio
2018	$223.29	$474.61	$251.32	53.0%
2019	224.56	478.29	253.73	53.0%
2020	225.86	481.68	255.82	53.1%
2021	227.07	484.60	257.53	53.1%
2022	228.17	487.18	259.01	53.2%
2023	229.02	489.64	260.62	53.2%
2024	229.57	492.10	262.53	53.4%
2025	229.74	494.46	264.72	53.5%
2026	229.52	496.74	267.22	53.8%
2027	228.86	498.97	270.11	54.1%
2028	227.72	501.21	273.49	54.6%
2029	226.07	503.47	277.40	55.1%
2030	223.82	505.79	281.97	55.7%
2031	220.92	508.10	287.18	56.5%
2032	217.33	510.42	293.09	57.4%
2033	212.96	512.78	299.82	58.5%
2034	207.77	515.23	307.46	59.7%
2035	201.67	517.85	316.18	61.1%
2036	194.56	520.67	326.11	62.6%
2037	186.37	523.58	337.21	64.4%
2038	177.02	526.63	349.61	66.4%
2039	166.38	529.90	363.52	68.6%
2040	154.36	533.56	379.20	71.1%
2041	140.81	537.52	396.71	73.8%
2042	125.61	541.82	416.21	76.8%
2043	108.63	546.47	437.84	80.1%
2044	89.68	551.59	461.91	83.7%
2045	68.59	557.26	488.67	87.7%
2046	45.18	563.49	518.31	92.0%
2047	19.23	570.34	551.11	96.6%
2048	(9.50)	577.95	587.45	101.6%

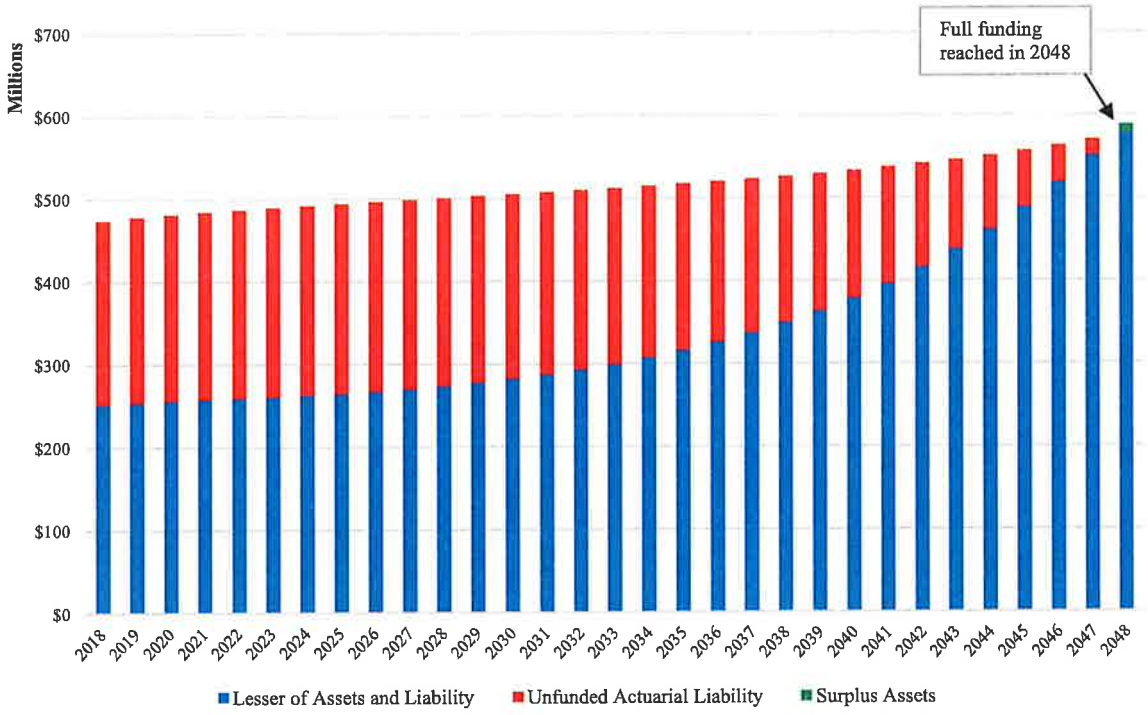
Projections are based on the January 1, 2018 actuarial valuation and assume that all assumptions are met in the future, including the 7.50% assumed rate of return. To the extent actual experience differs from that assumed, the actual valuation results in future years will also differ from the projections shown here. Please see the January 1, 2018 valuation report for details on the actuarial methods and assumptions used in this study.

This exhibit is an attachment to a letter that contains important information and explanations regarding the numbers shown. Therefore, it should only be considered with the accompanying letter from Cavanaugh Macdonald Consulting dated October 2, 2018.

Exhibit 2

City of Omaha Employees' Retirement System

Projected Assets and Unfunded Actuarial Liability (UAL)

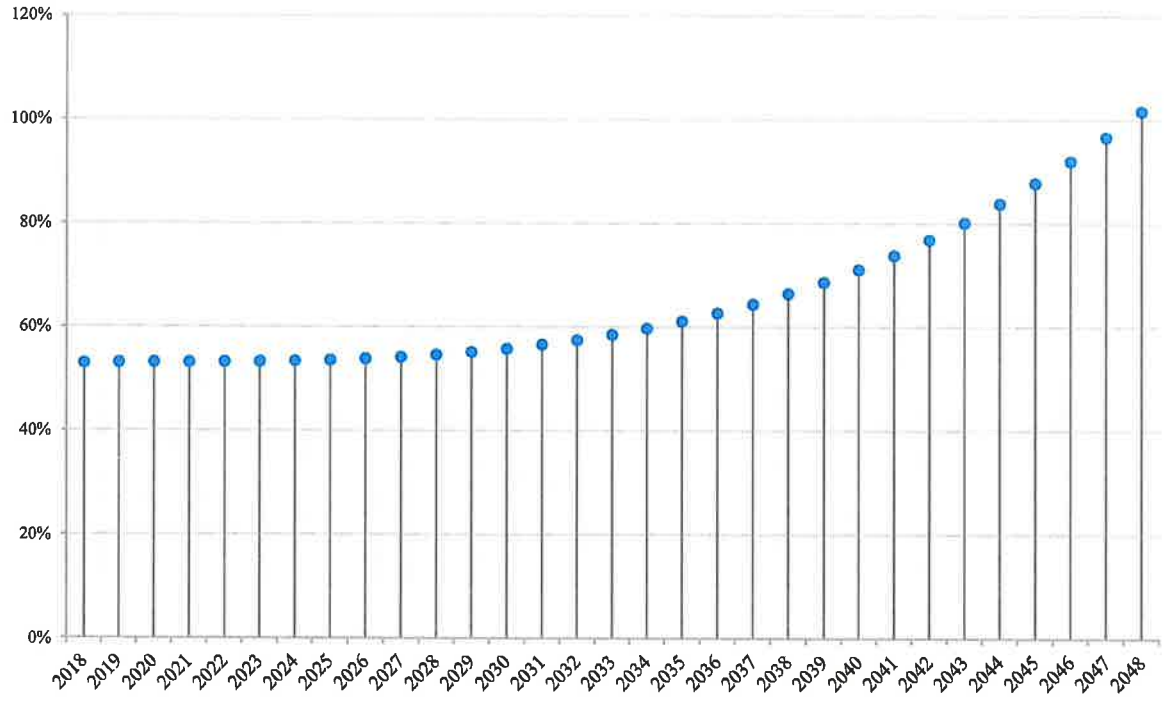


These projections assume that all actuarial assumptions are met in each future year, including the 7.50% assumed rate of return on the market value of assets. This graph should only be considered with the letter from Cavanaugh Macdonald Consulting dated October 2, 2018 which contains important information regarding the assumptions and methods used in the projections.

Exhibit 3

City of Omaha Employees' Retirement System

Projected Funded Ratio



These projections assume that all actuarial assumptions are met in each future year, including the 7.50% assumed rate of return on the market value of assets. This graph should only be considered with the letter from Cavanaugh Macdonald Consulting dated October 2, 2018 which contains important information regarding the assumptions and methods used in the projections.

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City of Omaha Employees' Retirement System
Annual Report to the Nebraska Legislative Committee

Presented by:
Patrice A. Beckham, FSA, EA, FCA, MAAA

November 19, 2019

Background

- City ordinance requires a 50/50 split of pension costs between the city and members
- Both benefit provisions and contribution rates are negotiated in labor contracts
  - As a result, the actuarial contribution rate is not contributed each year
  - This results in a contribution shortfall/(margin) in each valuation
- COERS' members include employees covered by several different bargaining groups.
  - Current agreements (which expire in 2020 or 2021) do not include pension changes

Changes Made to Address Long-Term Funding

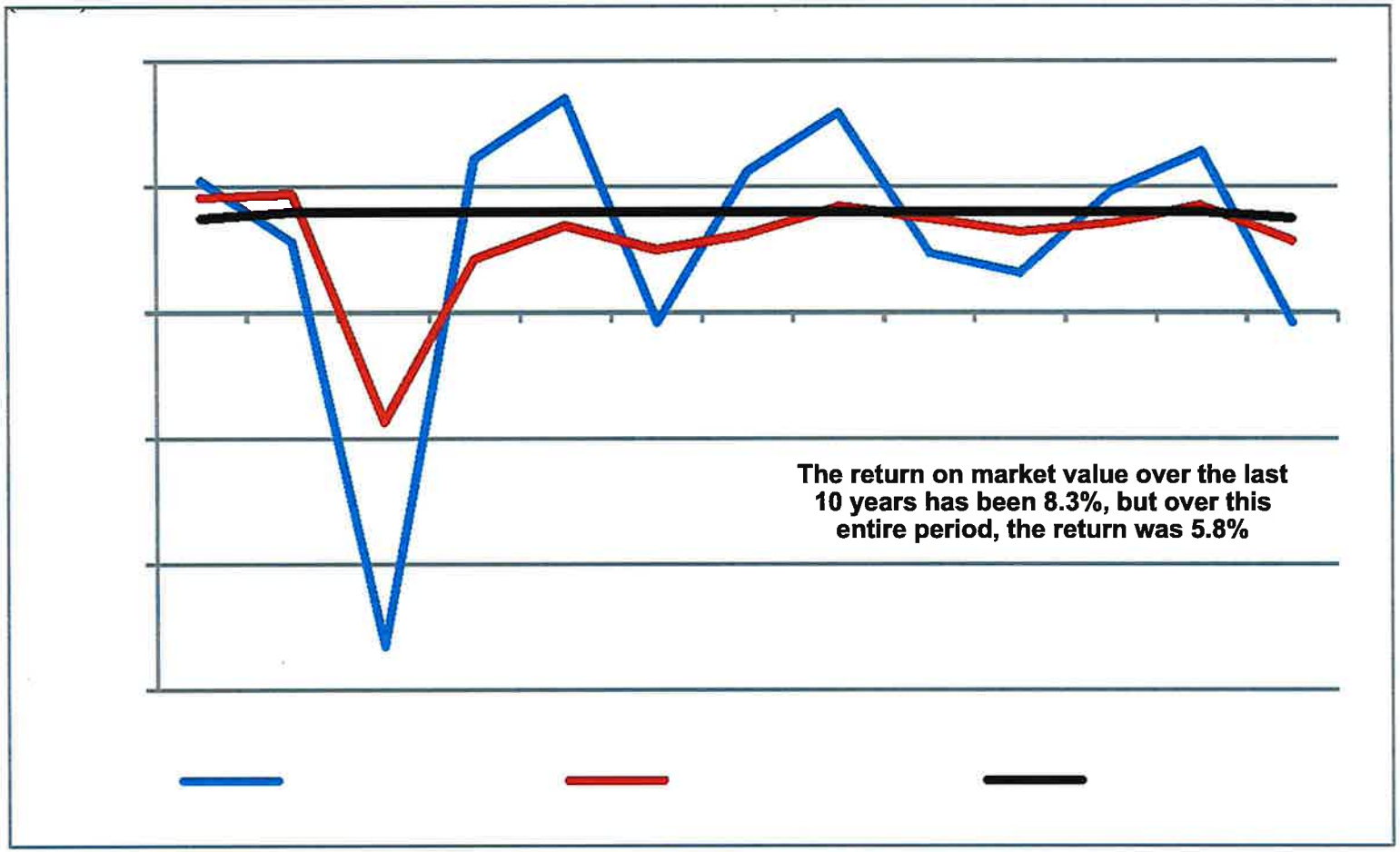
- Projections in 2012 indicated assets would be depleted in about 20 years
- Significant changes to both benefit provisions and contributions were made in late 2014/early 2015
  - Later retirement age (Rule of 80 to 85 and age 60 to age 65)
  - Existing employees' benefit accrual lowered from 2.25% to 1.9%
  - Benefits based on highest 5 years vs highest one year
  - Disability benefit for existing employees significant decreased
  - Increased contributions by city by 7%
  - Implemented a Cash Balance Plan for employees hired on/after 3/1/2015
    - ✔ Shares pre-retirement risk directly with employees
    - ✔ Guaranteed interest credit of 4% plus dividend based on actual returns

Changes to Actuarial Assumptions
(First reflected in 1/1/2018 Valuation)

- Lowering investment return assumption from 8.00% to 7.50%
  - Decrease in inflation assumption which impacted other economic assumptions like general wage increase
  - Changed mortality to RP-2014 Table with one-year age setback for females (no age adjustment for males). Reflects longer life expectancy.
  - Other changes (retirement, termination of employment, refund election) were less significant

- Net impact of changes was a $27.5 million increase in the UAL, a 3.3% decrease in the funded ratio and increase in actuarial contribution rate of 3.85%

Historical Investment Returns



- Major factor impacting the 1/1/2019 valuation was the return of -0.8% for calendar year 2018

Note that no valuation was prepared in 2005 or 2006.

Key Valuation Measurements

	2019	2018	2017
Actuarial Liability ($M)	$ 482.0	$ 474.6	$ 443.8
Actuarial Assets ($M)	$ 249.5	$ 251.3	$ 246.2
Unfunded Actuarial Liability	$ 232.5	$ 223.3	$ 197.5
Funded Ratio (Actuarial Assets)	52%	53%	55%
Funded Ratio (Market Assets)	49%	54%	54%
Scheduled Rate (Total)	28.850%	28.850%	28.850%
Actuarial Contribution Rate	(31.662%)	(31.056%)	(27.740%)
Contribution Margin/(Shortfall)	(2.812%)	(2.206%)	1.1 10%

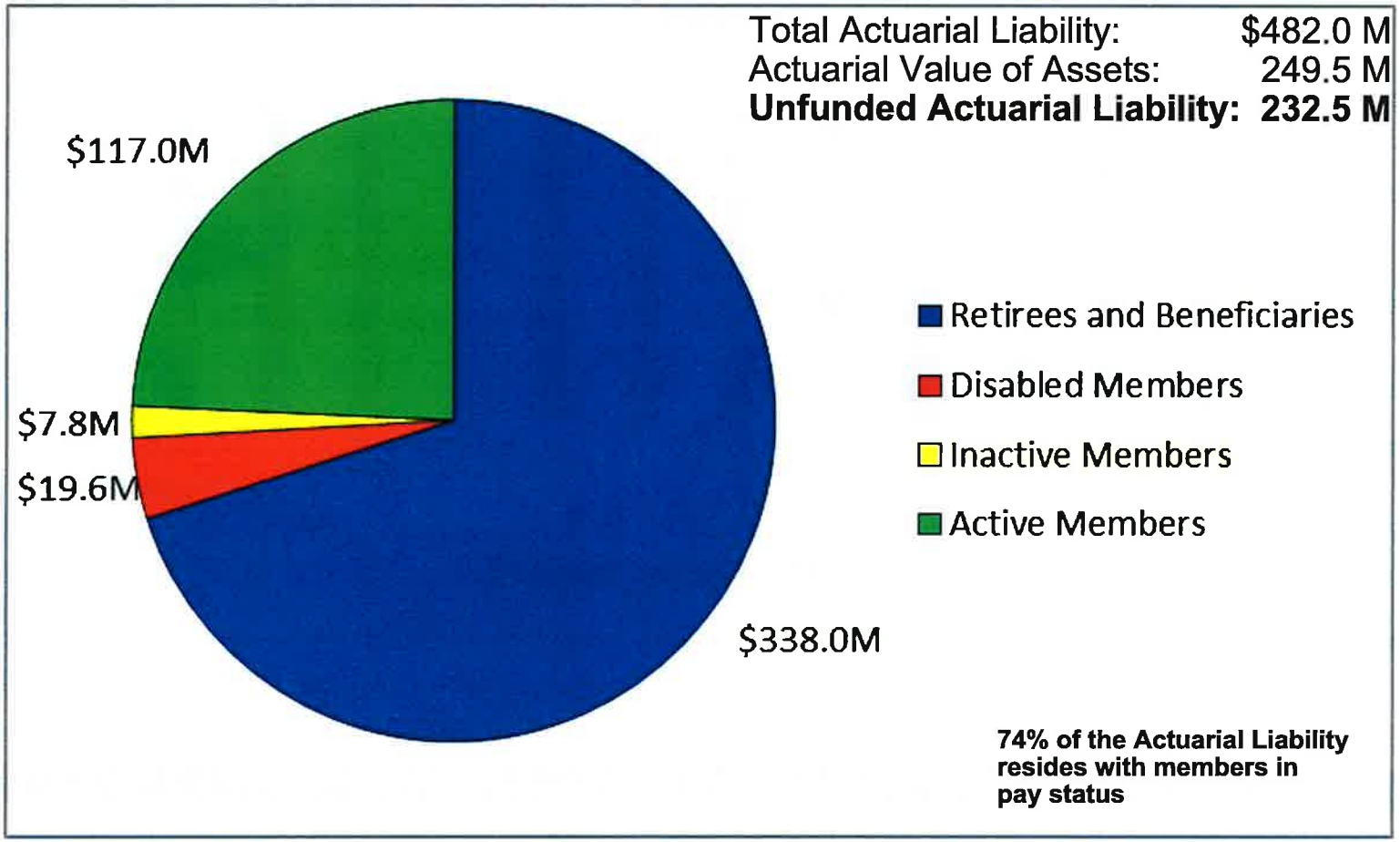
Note: actuarial assumptions were changed in the 2018 valuation.

Note: numbers may not add due to rounding.

Historical Active Membership Information

Cash Balance members increased from 27% of the total in the 2018 valuation to 34% in the 2019 valuation.

Actuarial Liabilities by Membership Group



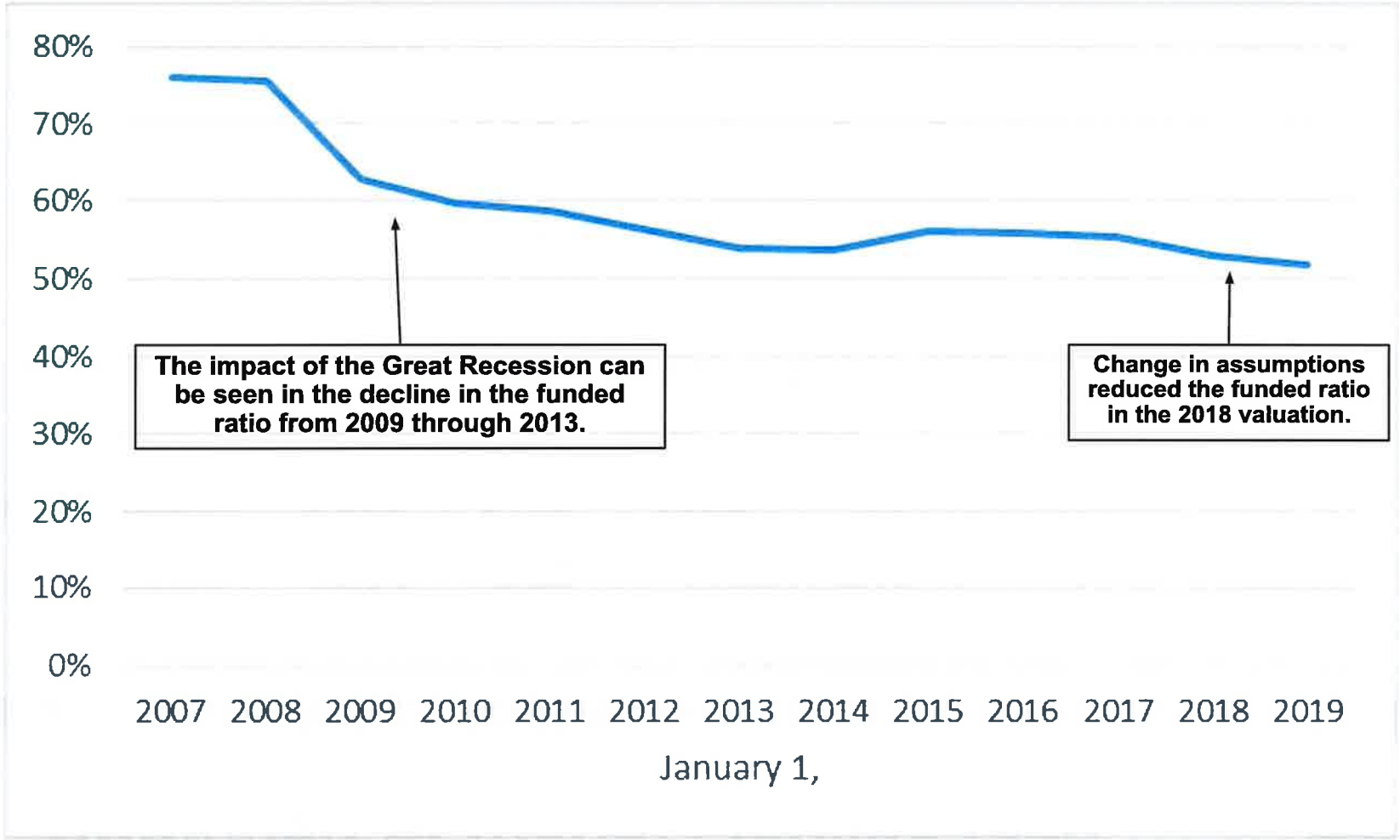
Note: numbers may not add due to rounding.

Unfunded Actuarial Liability ($M)

	2018	2017	2016			
UAL January 1	$223	$198	$194			
– Expected change from amortization method				1	2	3
– Contributions below/(above) actuarial rate				1	(1)	(1)
– Investment experience				4	(1)	2
– Liability experience	3	(2)	0			
– Other experience				0	0	0
– Change in valuation of QDRO records				0	0	0
– Assumption changes	0	27	0			
– Plan provision changes	0	0	0			
UAL December 31	$233	$223	$198			

Note: numbers may not add due to rounding.

Historical Funded Status



Change in Contribution Rate

Actuarial Rate - January 1, 2018 31.056%

- Investment experience 0.413
- Demographic experience 0.278
- Other experience 0.022
- Contributions below the actuarial rate 0.135
- Change in normal cost rate (0.105)
- Actual payroll growth compared to expected (0.137)

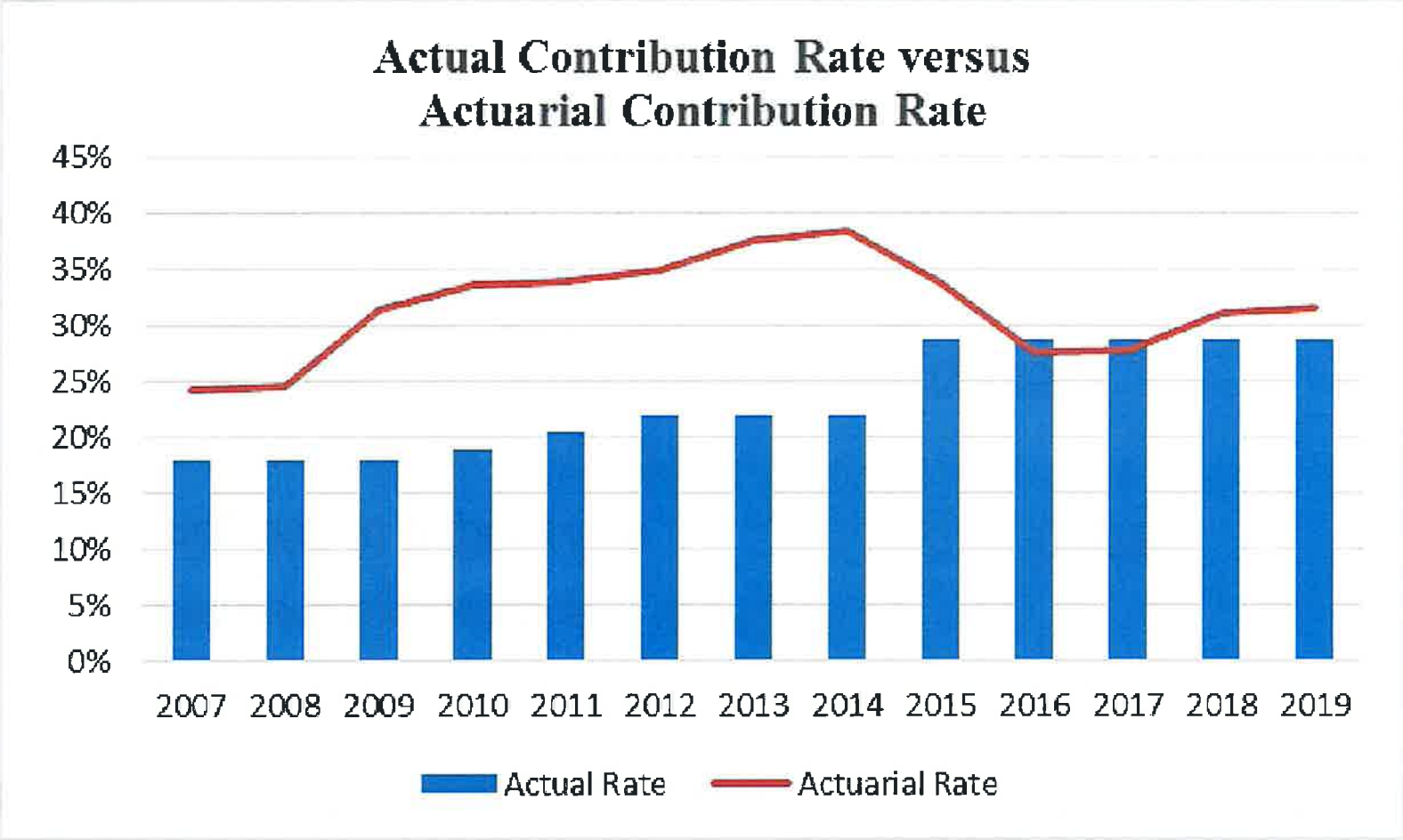
Actuarial Rate - January 1, 2019 31.662%

Employee Contribution Rate 10.075%

City Contribution Rate 18.775%

Contribution Shortfall (2.812%)

Actual vs Actuarial Contributions



In recent years, the actual contributions have been closer to the actuarial contribution rate, but it will take many years of higher contributions and lower benefit costs to improve the funded ratio.

Closing Comments

- Investment return in 2018 was -0.8% compared to expected return of 7.50%
  - Note contributions do not automatically change to reflect actual experience
  - No projection model prepared this year, but return in 2018 is expected to extend the projected full funding date
- It will take many years for the impact of the benefit and contribution changes to improve the funded ratio
- Consequently, the funded ratio is expected to remain low (below 70%) for around 20 years

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The City of Omaha
Employees' Retirement System

Actuarial Valuation as of
January 1, 2019

www.CavMacConsulting.com

Cavanaugh Macdonald
CONSULTING, LLC
The experience and dedication you deserve

November 11, 2019

Board of Trustees
City of Omaha Employees' Retirement System
1819 Farnam Street
Omaha, NE 68183

RE: January 1, 2019 Actuarial Valuation

Members of the Board:

In accordance with your request, we have completed an actuarial valuation of the City of Omaha Employees' Retirement System as of January 1, 2019 for the plan year ending December 31, 2019. The major findings of the valuation are contained in this report. There have been no changes to the plan provisions or actuarial methods and assumptions since the prior valuation.

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

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: experience differing from that anticipated by the 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 System'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.

Actuarial computations presented in this report are for purposes of determining the actuarial contribution rates for funding the System. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals. Determinations for purposes other than meeting these requirements may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes. For example, actuarial computations for purposes of fulfilling financial accounting requirements for the System under Governmental Accounting Standards No. 67 and No. 68 are provided in separate reports.

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.

This is to certify that the independent consulting actuary is a member of the American Academy of Actuaries, has experience in performing valuations for public retirement plans, and meets the qualification standards of the American Academy of Actuaries to render the actuarial opinion contained herein. The valuation was prepared in accordance with principles of practice prescribed by the Actuarial Standards Board and the actuarial calculations were performed by qualified actuaries in accordance with accepted actuarial procedures based on the current provisions of the retirement plan and on actuarial assumptions that are internally consistent and reasonably based on the actual experience of the System. The Board of Trustees has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in Appendix B.

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

Sincerely,

Patrice Beckham

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

TABLE OF CONTENTS

EXECUTIVE SUMMARY

This report presents the results of the January 1, 2019 actuarial valuation of the City of Omaha Employees' Retirement System. The primary purposes of performing the valuation are:

- to estimate the liabilities for the future benefits expected to be provided by the System;
- to determine the actuarial contribution rate, based on the System's funding policy;
- to measure and disclose various asset and liability measures;
- to assess and disclose the key risks associated with funding the Plan;
- to monitor any deviation between actual System experience and experience predicted by the actuarial assumptions so that recommendations for assumption changes can be made when appropriate;
- to analyze and report on any significant trends in contributions, assets and liabilities over the past several years.

There were no changes to the benefit provisions or actuarial methods and assumptions since last year's report. The actuarial valuation results provide a "snapshot" view of the System's financial condition on January 1, 2019. The unfunded actuarial liability (UAL) in the current valuation is $232.5 million, an increase of $9.2 million from last year's UAL of $223.3 million. The valuation results reflect net unfavorable experience for the past plan year as demonstrated by a higher UAL than expected, based on the actuarial assumptions used in the January 1, 2018 actuarial valuation. Unfavorable experience on the actuarial value of assets resulted in an experience loss of $4.3 million. There was also a net experience loss on liabilities of $2.9 million. Based on the contribution rates in the bargaining agreements, the actual contributions during 2018 were lower than the actuarial contributions by $1.4 million which increased the unfunded actuarial liability.

The System uses an asset smoothing method in the valuation process. As a result, the System's funded status and the actuarial contribution rate are based on the actuarial (smoothed) value of assets – not the pure market value. The estimated investment return, net of expenses, on the market value of assets during 2018 was -0.8%. The unfavorable investment experience during 2018 resulted in a rate of return on the actuarial value of assets of +5.7% for 2018, which is below the assumed return of 7.5%. As a result, it generated an actuarial experience loss of $4.3 million. The actuarial value of assets now exceeds the market value of assets by $12.8 million or 5.4% of the market value. Actual market returns over the next few years will determine the rate at which the deferred investment loss is actually recognized. With the current deferred loss, a return of about 13% on the market value of assets in 2019 would be required to meet the 7.5% return on the actuarial value of assets.

The change in the assets, liabilities, and contribution rate of the System over the last year are discussed in more detail in the following sections.

MEMBERSHIP

There were 1,201 active members in the 2019 valuation compared to 1,222 in the 2018 valuation, a decrease of 1.7%. The following graph shows the number of active members in the valuation over the last 13 years, which has fluctuated up and down. When the number of active members increases, it has a positive influence on the System's funding and actuarial contribution rate. While the normal cost rate is unaffected by the size of the membership, the UAL contribution rate is favorably impacted by a larger group of active members and the resulting higher payroll. In the valuation, the UAL is amortized assuming covered payroll will also grow at 3.0% per year. If total payroll grows more than the assumed rate of 3.0%, the UAL payment will be divided by covered payroll that is higher than expected, resulting in a lower UAL contribution rate.

The graph below also shows the portion of total actives covered by the Final Average Pay Plan (for employees hired before March 1, 2015) and the Cash Balance Plan (for employees hired on/after March 1, 2015). In the 2019 valuation, there were 404 members covered by the Cash Balance Plan, about 34% of the total active membership. In the January 1, 2018 valuation, the Cash Balance Plan covered about 27% of the total active group.

ASSETS

As of January 1, 2019, the System had total funds of $236.7 million, when measured on a market value basis. This was a decrease of $17.8 million from the prior year's value of $254.5 million, and represents an approximate rate of return, net of expenses, of -0.8%.

The market value of assets is not used directly in the actuarial calculation of the System's funded status and the actuarial contribution rate. An asset valuation method is used to smooth the effects of market fluctuations. The actuarial value of assets is equal to the expected asset value (based on last year's actuarial value of assets, net cash flows and a rate of return equal to the actuarial assumed rate of return (7.5%)) plus 25% of the difference between the actual market value and the expected asset value. See Exhibit 2 for the detailed development of the actuarial value of assets as of January 1, 2019. The rate of return on the actuarial value of assets was +5.7%, resulting in an actuarial loss of $4.3 million.

The components of the change in the market value and actuarial value of assets are shown below:

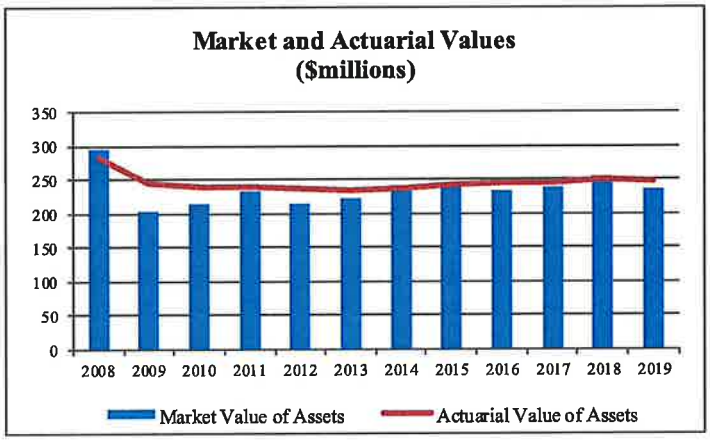
	Market Value ($M)	Actuarial Value ($M)
Net Assets, January 1, 2018	$ 254.5	$ 251.3
City and Member Contributions	+ 21.0	+ 21.0
Benefit Payments and Refunds	- 36.8	- 36.8
Investment Gain/(Loss)	+ (2.0)	+ 14.0
Net Assets, January 1, 2019	236.7	249.5
Estimated Rate of Return	(0.8%)	+5.7%

The deferred investment loss (difference between the actuarial value of assets and market value of assets) as of January 1, 2019 is $12.8 million, compared with $3.2 million of deferred investment gain in last year's valuation. The unrecognized investment loss of $12.8 million will be reflected in the determination of the actuarial value of assets for funding purposes over time, to the extent it is not offset by future investment gains. This means that earning the assumed rate of investment return of 7.5% per year (net of investment expenses) on a market value basis will result in small actuarial losses on the actuarial value of assets in the future.

The deferred investment loss represents about 5.4% of the market value of assets (compared to a deferred investment gain of 1.3% of the market value in the 2018 valuation). If the deferred loss was recognized immediately in the actuarial value assets, the UAL would increase by $12.8 million to $245.3 million, the funded ratio would decrease to 49.1%, the actuarial contribution rate would increase from 31.662% to 32.945%, and the contribution shortfall would increase from 2.812% to 4.095% of payroll.

A comparison of asset values on both a market and actuarial basis for the last six years is shown in the following table.

	January 1 ($M)					
	2014	2015	2016	2017	2018	2019
Actuarial Value of Assets	$238	$242	$244	$246	$251	$250
Market Value of Assets	$240	$239	$232	$240	$255	$237
Actuarial Value/Market Value	99%	101%	105%	103%	99%	105%



An asset smoothing method is used to mitigate the volatility in the market value of assets. By using a smoothing method, the actuarial (or smoothed) value can be either above or below the pure market value.

LIABILITIES

The first step in determining the actuarial contribution rate for the System is to calculate the liabilities for all expected future benefit payments. These liabilities represent the present value of future benefits (PVFB) expected to be earned by the current System members, assuming that all actuarial assumptions are realized. Thus, the PVFB reflects service and salary increases that are expected to occur in the future before the benefit becomes payable. The PVFB for the various types of benefits provided by the System can be found in the liabilities portion of the valuation balance sheet (see Exhibit 3).

The other critical measurement of System liabilities in the valuation process is the actuarial liability (AL). This is the portion of the PVFB that will not be paid by the future normal costs (i.e. the portion of the PVFB that is allocated to prior service periods). As of January 1, 2019, the AL for the System is $482.0 million.

The following chart compares the AL and System assets for the current and prior valuation:

	As of January 1	
	2019	2018
Actuarial Liability (AL)	$482,025,309	$474,607,516
Assets at Actuarial Value	$249,518,547	$251,320,837
Unfunded Actuarial Liability (AVA)	$232,506,762	$223,286,679
Funded Ratio (Actuarial Value)	52%	53%
Assets at Market Value	$236,701,312	$254,532,138
Unfunded Actuarial Liability (MVA)	$245,323,997	$220,075,378
Funded Ratio (Market Value)	49%	54%

Note that the funded ratio does not indicate whether or not the System assets are sufficient to settle benefits earned to date. The funded ratio, by itself, also may not be indicative of future funding requirements.

EXPERIENCE FOR THE 2018 PLAN YEAR

The difference between the actuarial liability (AL) and the actuarial value of assets at the same date is referred to as the unfunded actuarial liability (UAL). Benefit improvements, experience gains/losses, changes in the actuarial assumptions or methods, and actual contributions made will impact the amount of the UAL.

Actuarial gains (or losses) result from actual experience that is more (or less) favorable than anticipated based on the actuarial assumptions. These "experience" (or actuarial) gains or losses are reflected in the UAL and are measured as the difference between the expected UAL and the actual UAL, taking into account any changes due to assumptions/methods or benefit provision changes. During 2018, the net experience was unfavorable (a higher UAL than expected). There was an actuarial loss for 2018 of $4.3 million on the actuarial value of assets and an actuarial loss of $2.9 million on liabilities. The largest source of loss for the System's liabilities was salary increases that were higher than expected.

The change in the UAL between January 1, 2018 and January 1, 2019 is shown below (in millions):

Unfunded Actuarial Liability, January 1, 2018	223.3
· Expected change in UAL	0.8
· Contributions below actuarial rate	1.4
· Investment experience	4.3
· Demographic experience	2.9
· Other experience	(0.2)
Unfunded Actuarial Liability, January 1, 2019	232.5

CONTRIBUTION LEVELS

The actuarial contribution rate of the System is composed of two parts:

(1) Normal cost (which is the allocation of costs attributed to the current year's membership service) and,
(2) Amortization payment on the unfunded actuarial liability.

The normal cost rate is independent of the System's funded status and represents the cost, as a percent of payroll, of the benefits provided by the System which is allocated to the current year of service. The total normal cost for the System is 9.818% of pay, or $6.7 million this year. The normal cost rate represents the long-term cost of the benefit structure for the current active members.

The System's total actuarial contribution rate (payable as a percentage of member payroll) increased by 0.606% of pay, to 31.662% in the January 1, 2019 valuation, from 31.056% in the January 1, 2018 valuation. The primary components of the change in the actuarial contribution rate are shown in the following table:

	Rate	
Total Actuarial Contribution Rate, January 1, 2018	31.056	%
· Actuarial (Gain) / Loss - Investment Experience	0.413	
· Actuarial (Gain) / Loss - Demographic Experience	0.278	
· Contributions Below the Actuarial Rate	0.135	
· Change in Normal Cost Rate	(0.105)	
· Payroll Growth Higher than Expected	(0.137)	
· Other Experience	0.022	
Total Actuarial Contribution Rate, January 1, 2019	31.662	%

As the table above shows, the actuarial contribution rate increased from 31.056% to 31.662%, mainly due to actuarial losses on both assets and liabilities. For the current valuation, the total actuarial contribution rate is 31.662% of pay (9.818% normal cost + 21.844% UAL payment). The scheduled contributions for the year are 28.850%, resulting in a contribution shortfall of 2.812%. This indicates that the target date for full funding will not occur at the end of the amortization period, even if all actuarial assumptions are met.

COMMENTS

As of January 1, 2019, 404 out of 1,201 active members are covered under the Cash Balance benefit structure, or about 34%. Although nearly 35% of active members are covered by the Cash Balance Plan, the majority of the actuarial liability is attributable to the legacy plan (the Final Average Pay Plan). It will take many years before the Cash Balance Plan design has a significant impact on the System's liabilities and costs. We expect to continue to see growth in the number of active members covered by the cash balance benefit structure, but the System's liabilities will continue to reside with members in the legacy benefit structure (final average pay plan) for many years.

The results of this valuation indicate that the fixed contribution rates for employees and the city in the current bargaining agreements are 2.812% lower than the total actuarial contribution rate. The contribution shortfall should not be misunderstood. It is an indication that, if all assumptions are met in the future, the System will not reach full funding at the date anticipated in the System's funding policy (end of the amortization periods). However, it does not necessarily mean the System will never be fully funded. With

the new benefit structure for members hired after March 1, 2015, a projection of future valuation results is necessary in order to quantify the expected date the System will reach full funding. Such a project is outside the scope of this assignment, but we strongly encourage the System to perform such modeling to assist the Board and other interested parties in the evaluation of the long-term financial health of the System. The model can also be used to perform important analysis of the various risks related to funding the System.

The return on the market value of assets in 2018 was -0.8%. As a result, the deferred investment gain of $3.2 million that existed on January 1, 2018 has been eliminated and there is now a deferred investment loss of $12.8 million. The funded ratio of the system, on a market value basis, is 49% in the January 1, 2019 actuarial valuation. While the System's financial health in future years will be negatively impacted by the contribution shortfall and positively impacted by changes to the benefit structure, the net impact on the System's long-term funding cannot be quantified without performing an open group projection of future valuation results. As mentioned earlier, such analysis was not performed because it is outside the regular scope of services requested by the Board.

As mentioned earlier in this report, the System uses an asset smoothing method in the actuarial valuation. While this is a very common procedure for public retirement systems, it is important to be aware of the potential impact of the unrecognized investment experience. The System currently has a deferred investment loss of $12.8 million. It is valuable to compare the key valuation results from the 2019 valuation using both the actuarial and market value of assets (see following table).

	$ Millions	
	Using Actuarial Value of Assets	Using Market Value of Assets
Actuarial Liability	$482.0	$482.0
Asset Value	249.5	236.7
Unfunded Actuarial Liability	$232.5	$245.3
Funded Ratio	51.8%	49.1%
Normal Cost Rate	9.818%	9.818%
UAL Contribution Rate	21.844%	23.127%
Total Actuarial Contribution Rate	31.662%	32.945%
Employee Contribution Rate	10.075%	10.075%
City Contribution Rate	18.775%	18.775%
Contribution (Shortfall)/Margin	(2.812%)	(4.095%)

A typical retirement plan faces many different risks. The term "risk" is most commonly associated with an outcome with undesirable results. However, in the actuarial world risk can be translated as uncertainty. The actuarial valuation process uses many actuarial assumptions to project how future contributions and investment returns will meet the cash flow needs for future benefit payments. Of course, we know that actual experience will not unfold exactly as anticipated by the assumptions and that uncertainty, whether favorable or unfavorable, creates risk. Actuarial Standard of Practice Number 51 defines risk as the potential of actual future measurements to deviate from expected results due to actual experience that is different than the actuarial assumptions. Risk evaluation is an important part of managing a defined benefit plan. Please see Section II of this report for an in-depth discussion of the specific risks facing the City of Omaha Employees' Retirement System.

THE CITY OF OMAHA EMPLOYEES' RETIREMENT SYSTEM

PRINCIPAL VALUATION RESULTS

	January 1, 2019	January 1, 2018	% Chg
MEMBERSHIP			
1. Active Membership			
- Number of Members:			
Hired before March 1, 2015	797	889	(10.3)
Hired on or after March 1, 2015	404	333	21.3
Total	1,201	1,222	(1.7)
- Projected Payroll for Upcoming Fiscal Year	$75,407,531	$72,754,142	3.6
- Average Projected Pay	$62,787	$59,537	5.5
- Average Attained Age	45.6	45.6	0.0
- Average Entry Age	36.7	36.7	0.0
2. Inactive Membership			
- Number of Retirees / Beneficiaries	1,391	1,364	2.0
- Number of Disabled Members	96	101	(5.0)
- Number of Deferred Vested Members	96	81	18.5
- Average Annual Benefit	$23,997	$23,746	1.1
- Number of Participants Due a Refund	62	52	19.2
ASSETS AND LIABILITIES			
1. Net Assets			
- Market Value	$236,701,312	$254,532,138	(7.0)
- Actuarial Value	249,518,547	251,320,837	(0.7)
2. Projected Liabilities	$539,115,182	$529,259,210	1.9
3. Actuarial Liability	482,025,309	474,607,516	1.6
4. Unfunded Actuarial Liability	$232,506,762	$223,286,679	4.1
5. Funded Ratios			
Actuarial Value Assets / Actuarial Liability	51.76%	52.95%	(2.2)
Market Value Assets / Actuarial Liability	49.11%	53.63%	(8.4)
CONTRIBUTIONS			
1. Normal Cost Rate	9.818%	9.923%	(1.1)
2. UAL Contribution Rate	21.844%	21.133%	3.4
3. Total Actuarial Contribution Rate (1) + (2)	31.662%	31.056%	2.0
4. Employee Contribution Rate	10.075%	10.075%	0.0
5. City Contribution Rate Per Ordinance	18.775%	18.775%	0.0
6. Contribution (Shortfall)/Margin (4) + (5) - (3)	(2.812%)	(2.206%)	27.5

EXHIBIT 1

SUMMARY OF FUND ACTIVITY
(Market Value Basis)

For Year Ended December 31, 2018

Assets at January 1, 2018	$	254,532,138
Receipts:		
City Contributions		13,645,009
Employee Contributions		7,330,393
Investment Earnings, Net of Expenses		(2,029,559)
Total Receipts		18,945,843
Disbursements:		
Benefit Payments		35,785,560
Refund of Contributions		987,095
Administrative Expenses		4,014
Total Disbursements		36,776,669
Assets as of December 31, 2018	$	236,701,312
Estimated Net Rate of Return		(0.8%)

EXHIBIT 2

DETERMINATION OF ACTUARIAL VALUE OF ASSETS

The actuarial value of assets is used to minimize the impact of annual fluctuations in the market value of investments on the contribution rate. The current asset valuation method is called the "Expected +25% Method."

The "expected value" of assets is determined by applying the investment return assumption to last year's actuarial value of assets and the net difference of receipts and disbursements for the year. The actual market value is compared to the expected value and 25% of the difference (positive or negative) is added to the expected value to arrive at the actuarial value of assets for the current year.

1.	Actuarial Value of Assets as of January 1, 2018	$	251,320,837
2.	Actual Receipts / Disbursements		
	a. Total Contributions		20,975,402
	b. Benefit Payments/Other		(36,772,655)
	c. Net Change		(15,797,253)
3.	Expected Actuarial Value of Assets as of January 1, 2019 [(1) * 1.075] + [(2c) * 1.075 ½]		253,790,959
4.	Market Value of Assets as of January 1, 2019		236,701,312
5.	Excess of Market Value over Expected Actuarial Value as of January 1, 2019		(17,089,647)
6.	Preliminary Actuarial Value of Assets as of January 1, 2019 [(3) + 25% of (5)]		249,518,547
7.	20% Calculation of Corridor		
	a. 80% of (4)		189,361,050
	b. 120% of (4)		284,041,574
8.	Final Actuarial Value of Assets as of January 1, 2019 (6) but not < (7a) nor > (7b)	$	249,518,547
9.	Rate of Return on Actuarial Value of Assets		5.7%

EXHIBIT 2 (continued)

A historical comparison of the market and actuarial value of assets is shown below:

Date	Market Value of Assets (MVA)	Actuarial Value of Assets (AVA)	AVA / MVA
1/1/2008	$294,658,022	$283,243,750	96.13%
1/1/2009	204,452,506	245,343,007	120.00%
1/1/2010	213,219,632	240,109,413	112.61%
1/1/2011	232,346,583	240,291,310	103.42%
1/1/2012	215,434,784	236,741,347	109.89%
1/1/2013	223,233,088	235,591,941	105.54%
1/1/2014	240,342,815	237,579,690	98.85%
1/1/2015	238,730,446	242,248,074	101.47%
1/1/2016	232,157,235	243,516,453	104.89%
1/1/2017	239,825,244	246,234,597	102.67%
1/1/2018	254,532,138	251,320,837	98.74%
1/1/2019	236,701,312	249,518,547	105.41%

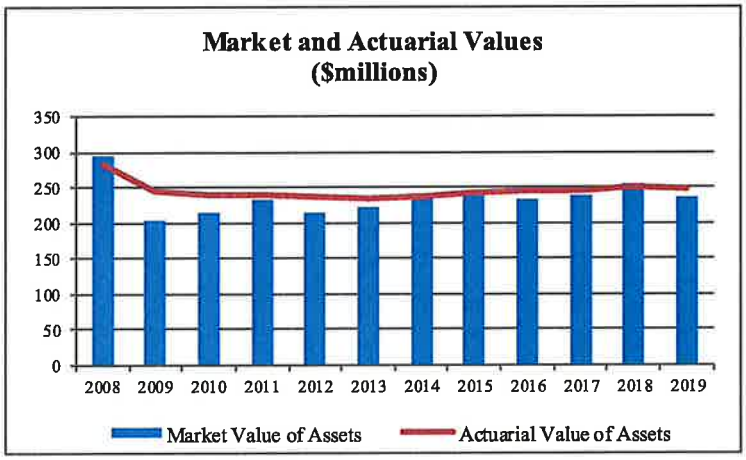


EXHIBIT 3

ACTUARIAL BALANCE SHEET

An actuarial statement of the status of the System in balance sheet form as of January 1, 2019 is as follows:

Assets

Current assets (actuarial value)		$ 249,518,547
Present value of future normal costs		57,089,873
Present value of future employer contributions to fund unfunded actuarial liability		232,506,762
Total Assets		$ 539,115,182

Liabilities

Present value of future retirement benefits for:		
Active employees	$ 143,914,937	
Retired employees, contingent annuitants and spouses receiving benefits	338,046,047	
Deferred vested employees	7,303,362	
Inactive employees due refunds	499,440	
Inactive employees – disabled	19,631,883	
Total		$ 509,395,669
Present value of future death benefits payable upon death of active members		3,592,105
Present value of future benefits payable upon termination of active members		15,704,149
Present value of future benefits payable upon disability of active members		10,423,259
Total Liabilities		$ 539,115,182

EXHIBIT 4

UNFUNDED ACTUARIAL LIABILITY

As of January 1, 2019

The actuarial liability is the portion of the present value of future benefits which will not be paid by future normal costs, i.e., the portion allocated to past years of service. The actuarial value of assets is subtracted from the actuarial liability to determine the unfunded actuarial liability.

1.	Present Value of Future Benefits	$	539,115,182
2.	Present Value of Future Normal Costs		57,089,873
3.	Actuarial Liability (1) – (2)		482,025,309
4.	Actuarial Value of Assets		249,518,547
5.	Unfunded Actuarial Liability (3) – (4)	$	232,506,762
6.	Funded Ratio (4) / (3)		51.76%

EXHIBIT 5

SCHEDULE OF AMORTIZATION BASES

The System amortizes the unfunded actuarial liability (UAL) using a "layered" approach for the UAL where the UAL as of January 1, 2016 (initial base) is amortized over a closed amortization period of 25 years. Changes to the UAL resulting from changes in the set of actuarial assumptions are amortized over an appropriate period, as determined by the Board of Trustees in consultation with the actuary. Changes to the UAL in subsequent years that result from actual experience that is different than expected, based on the actuarial assumptions, are set up as a new amortization base with payments determined as a level percentage of payroll over a closed 20-year period beginning on that valuation date. The total UAL payment is the sum of the amortization payments on each of the amortization bases.

Note that although an actuarial contribution rate is determined for the City of Omaha Employees' Retirement System, the System is funded based on fixed contribution rates specified in the various collective bargaining agreements.

Amortization Bases	Original Amount	January 1, 2019 Remaining Years	Year of Last Payment	Outstanding Balance as of January 1, 2019	Annual Contribution (mid-year)
2016 Initial UAL Base	$ 193,616,559	22	2040	$ 199,571,033	$ 14,207,297
2017 Experience Base	1,111,921	18	2036	1,110,350	89,766
2018 Assumption Changes	27,470,165	24	2042	27,647,947	1,870,094
2018 Experience Base	(4,251,525)	19	2037	(4,237,556)	(330,644)
2019 Experience Base	8,414,988	20	2038	8,414,988	635,377
Total				**$ 232,506,762**	**$ 16,471,890**

EXHIBIT 6

DEVELOPMENT OF

2019 ACTUARIAL CONTRIBUTION RATE

The actuarial cost method used to determine the required level of annual contributions to support the expected benefits is the Entry Age Normal Cost Method. Under this method, the total cost is comprised of the normal cost rate and the unfunded actuarial liability payment. The System is financed by fixed contribution rates from the employees and the City as set out in the bargaining agreements with the various employee groups.

1. (a)	Normal Cost	$	6,749,691
(b)	Expected Payroll in 2019 for Current Actives	$	68,750,249
(c)	Normal Cost Rate (a) / (b)		9.818%
2.	Unfunded Actuarial Liability at Valuation Date	$	232,506,762
3.	Unfunded Actuarial Liability Payment	$	16,471,890
4.	Total Projected Payroll for 2019	$	75,407,531
5.	Unfunded Actuarial Liability Payment as Percent of Pay (3) / (4)		21.844%
6.	Total Actuarial Contribution Rate (1c) + (5)		31.662%
7.	Employee Contribution Rate		10.075%
8.	City Contribution Rate		18.775%
9.	Contribution (Shortfall)/Margin* (7) + (8) - (6)		(2.812%)

*Shortfall indicates the UAL will not be fully amortized within the period set in the Funding Policy, if all assumptions are met in the future.

EXHIBIT 7

CALCULATION OF ACTUARIAL GAIN/(LOSS)

For Plan Year Ending December 31, 2018

Liabilities		
1. Actuarial liability as of January 1, 2018	$	474,607,516
2. Normal cost for 2018		6,578,160
3. Interest at 7.50% on (1) and (2) to December 31, 2018		36,088,926
4. Benefit payments during 2018		(36,772,655)
5. Interest on benefit payments		(1,354,045)
6. Expected actuarial liability as of December 31, 2018	$	479,147,902
7. Actuarial liability as of December 31, 2018	$	482,025,309
Assets		
8. Actuarial value of assets as of January 1, 2018	$	251,320,837
9. Contributions during 2018		20,975,402
10. Benefit payments during 2018		(36,772,655)
11. Interest at 7.50% on (8), (9) and (10) to December 31, 2018		18,267,375
12. Expected actuarial value of assets as of December 31, 2018	$	253,790,959
13. Actual actuarial value of assets as of December 31, 2018	$	249,518,547
Gain / (Loss)		
14. Expected unfunded actuarial liability (6) – (12)	$	225,356,943
15. Actual unfunded actuarial liability (7) – (13)		232,506,762
16. Actuarial Gain / (Loss) (14) – (15)		(7,149,819)
17. Actuarial Gain / (Loss) on Actuarial Assets (13) – (12)		(4,272,412)
18. Actuarial Gain / (Loss) on Actuarial Liability (6) – (7)	$	(2,877,407)

EXHIBIT 8

ANALYSIS OF EXPERIENCE

The purpose of conducting an actuarial valuation of a retirement plan is to estimate the costs and liabilities for the benefits expected to be paid from the plan, to determine the annual level of contributions for the current plan year that should be made to support these benefits, and finally, to analyze the plan's experience. The costs and liabilities of this retirement plan depend not only upon the benefit formula and plan provisions but also upon factors such as the investment return on the system assets, mortality rates among active and retired members, withdrawal and retirement rates among active members, and rates at which salaries increase.

The actuarial assumptions employed as to these and other contingencies in the current valuation are set forth in Appendix B of this report.

Since the overall results of the valuation will reflect the choice of assumptions made, periodic studies of the various components comprising the plan's experience are conducted in which the experience for each component is analyzed in relation to the assumption used for that component (called an experience study). This summary is not intended to be an actual "experience study" but rather an analysis of sources of gain and loss in the past plan year.

Gain/(Loss) By Source

The System experienced a net actuarial loss on liabilities of $2,877,000 during the plan year ended December 31, 2018, and an actuarial loss on assets of $4,272,000. The total actuarial loss was $7,150,000. The major components of this aggregate actuarial experience are shown below:

Liability Sources		**Gain/(Loss)**
Salary Increases	$	(2,655,000)
Mortality		1,204,000
Terminations		(194,000)
Retirements		(722,000)
Disability		(109,000)
New Entrants/Rehires		(247,000)
Disabled Retiree Conversions*		6,000
Miscellaneous		(160,000)
Total Liability Gain/(Loss)	$	(2,877,000)
Asset Gain/(Loss)	$	(4,272,000)
Total Actuarial Gain/(Loss)	$	(7,150,000)

*Upon reaching age 65, disabled members are converted from disability retirement to service retirement and their benefits are recalculated.

Numbers may not add due to rounding.

SECTION II

RISK CONSIDERATIONS

Actuarial Standards of Practice are issued by the Actuarial Standards Board and are binding on credentialed actuaries practicing in the United States. These standards generally identify what the actuary should consider, document and disclose when performing an actuarial assignment. In September, 2017, Actuarial Standard of Practice Number 51, Assessment and Disclosure of Risk in Measuring Pension Obligations, (ASOP 51) was issued as final with application to measurement dates on or after November 1, 2018. This ASOP, which applies to funding valuations, actuarial projections, and actuarial cost studies of proposed plan changes, is first applicable for the January 1, 2019 actuarial valuation for the City of Omaha Employees' Retirement System (System).

A typical retirement plan faces many different risks, but the greatest risk is the inability to make benefit payments when due. If plan assets are depleted, benefits may not be paid which could create legal and litigation risk or the plan could become "pay as you go". The term "risk" is most commonly associated with an outcome with undesirable results. However, in the actuarial world, risk can be translated as uncertainty. The actuarial valuation process uses many actuarial assumptions to project how future contributions and investment returns will meet the cash flow needs for future benefit payments. Of course, we know that actual experience will not unfold exactly as anticipated by the assumptions and that uncertainty, whether favorable or unfavorable, creates risk. ASOP 51 defines risk as the potential of actual future measurements to deviate from expected results due to actual experience that is different than the actuarial assumptions.

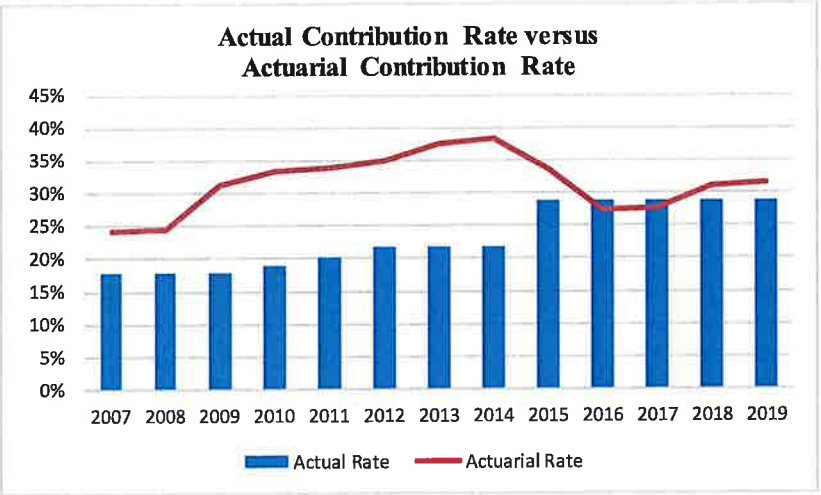
The various risk factors for a given plan can have a significant impact – positive or negative – on the actuarial projection of liability and contribution rates.

There are a number of risks inherent in the funding of a defined benefit plan. These include:

- economic risks, such as investment return and price inflation;
- demographic risks such as mortality, payroll growth, aging population including impact of baby boomers, and retirement ages;
- contribution risk, i.e., the potential for contribution rates to be too high for the plan sponsor to pay;
- external risks such as the regulatory and political environment.

Although the last two are real risks to the retirement system, ASOP 51 does not require the actuary to opine on those risks so no discussion is included here.

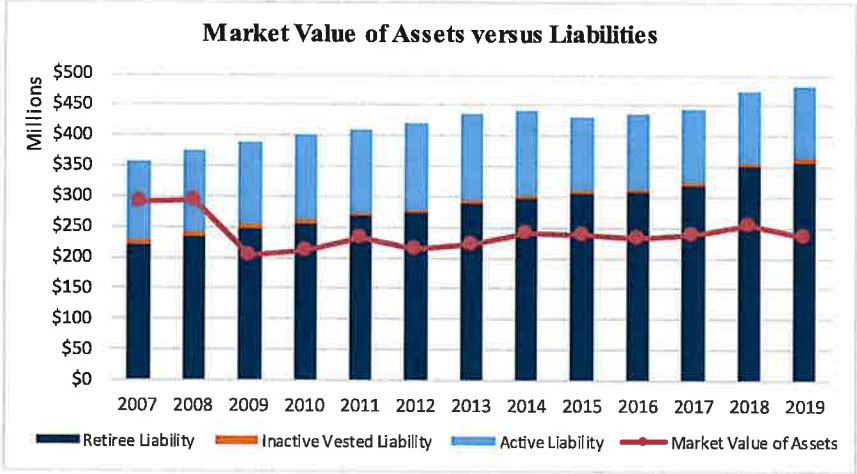
There is typically a direct correlation between healthy, well-funded retirement plans and consistent contributions equal to the full actuarial contribution rate each year. The City of Omaha Employees' Retirement System is funded by fixed contribution rates made by both the members and the City. This funding approach tends to create more risk than a system whose funding policy requires that the actuarial contribution rate be made each year. Although changes have been made in the past to both the benefits and the contribution rates to address long-term funding concerns, there is a lag in implementing such a change. The following graph illustrates that the fixed contribution rates have failed to meet the actuarial required contribution amount for 11 of the last 13 years.



Funding a retirement system with fixed contribution rates creates some unique funding challenges. The most significant risk factor for the City of Omaha Employees' Retirement System is investment return because the inherent volatility of returns due to the asset allocation can produce wide variations in the actual return on the market value of assets from year to year. When the actual experience is lower than expected (based on the assumption), the contributions to the System do not automatically adjust to compensate for the loss of investment income. The delay in responding to adverse economic experience, due to the fact any changes to the benefits or contributions must be resolved in the bargaining process, can result in a significant reduction in funded status before any corrective action occurs.

A new plan design, called a Cash Balance Plan, was created for members hired on/after March 1, 2015. The benefit structure shares the pre-retirement investment risk directly with the members by reflecting actual performance in the dividend interest crediting rate for the cash balance accounts. To the extent that actual returns are lower than assumed, the actual interest credited to the cash balance accounts will also be lower (although not dollar for dollar). As a result, the benefit amounts for members will be lower which will partially offset the impact of the lower returns. It will be many years before the full impact of the risk-sharing design of the Cash Balance Plan has a meaningful impact on the System's funding, but over the long term this is a positive factor for the System's funding.

The current funded status of the System, using the market value of assets, is 49%. The market value of assets on January 1, 2019 was $237 million while the retiree liability on the same date was $358 million. Essentially, the current assets are only sufficient to fund about 66% of the retiree liability, assuming all actuarial assumptions are met. As the graph below illustrates, the actuarial liabilities have increased steadily over this time period, but the asset value has held relatively steady since 2011. As a result, there has been an increasing amount of unfunded actuarial liability over this period.



A key demographic risk for all retirement systems, including the City of Omaha Employees' Retirement System, is improvements in mortality (longevity) greater than anticipated. While the actuarial assumptions reflect small, continuous improvements in mortality experience over time and these assumptions are refined every experience study, the risk arises because there is a possibility of some sudden shift, perhaps from a significant medical breakthrough that could quickly increase liabilities. Likewise, there is some possibility of a significant public health crisis that could result in a significant number of additional deaths in a short time period, which would also be significant, although more easily absorbed. While either of these events could happen, it represents a small probability and thus represents much less risk than the volatility associated with investment returns.

Finally, the unfunded actuarial liability is amortized as a level percentage of payroll. The underlying assumption used in developing the payment schedule assumes an increasing payroll over time which is dependent on a stable employment level, i.e., active member count remains the same. If payroll does not grow as expected, fewer contribution dollars are received and funding progress is delayed which means that a decrease in the number of active members will have a negative impact on the funding of the System. Likewise, an increase in the number of active members, as has occurred over the past ten years, actually improves the funding of the System.

The following exhibits summarize some historical information that helps indicate how certain key risk metrics have changed over time. Many are due to the maturing of the retirement system.

EXHIBIT 9

HISTORICAL ASSET VOLATILITY RATIOS

As a retirement system matures, the size of the market value of assets increases relative to the covered payroll of active members, on which the System is funded. The size of the plan assets relative to covered payroll, sometimes referred to as the asset volatility ratio, is an important indicator of the contribution risk for the System. The higher this ratio, the more sensitive a plan's actuarial contribution rate is to investment return volatility. In other words, it will be harder to recover from investment losses with increased contributions.

Actuarial Valuation Date	Market Value of Assets	Estimated Plan Year Payroll	Asset Volatility Ratio	Increase in ACR with a Return 10% Lower than Assumed*
1/1/2007	$292,040,611	$48,684,642	6.00	4.53%
1/1/2008	294,658,022	52,278,938	5.64	4.26%
1/1/2009	204,452,506	53,004,716	3.86	2.91%
1/1/2010	213,219,632	55,427,868	3.85	2.91%
1/1/2011	232,346,583	59,235,591	3.92	2.96%
1/1/2012	215,434,784	62,825,685	3.43	2.59%
1/1/2013	223,233,088	63,327,394	3.53	2.67%
1/1/2014	240,342,815	63,413,206	3.79	2.86%
1/1/2015	238,730,446	64,876,227	3.68	2.78%
1/1/2016	232,157,235	69,005,865	3.36	2.54%
1/1/2017	239,825,244	70,873,306	3.38	2.55%
1/1/2018	254,532,138	72,754,142	3.50	2.64%
1/1/2019	236,701,312	75,407,531	3.14	2.37%

Note: Years prior to 1/1/2011 were provided by the prior actuary.

*The impact of asset smoothing is not reflected in the impact on the Actuarial Contribution Rate (ACR). Current year assumptions are used for all years shown.

The assets at January 1, 2019 are 314% of payroll, so underperforming the investment return assumption by 10% (i.e., earn -2.50% for one year) is equivalent to 31.4% of payroll and moves the ACR by 2.37%. While the actual impact in the first year is mitigated by the asset smoothing method, this illustrates the risk associated with volatile investment returns.

EXHIBIT 10

HISTORICAL CASH FLOWS

Plans with negative cash flows will experience increased sensitivity to investment return volatility. Cash flows, for this purpose, are measured as contributions less benefit payments. If the System has negative cash flows and then experiences returns below the assumed rate, there are fewer assets to be reinvested to earn the higher returns that typically follow. The City of Omaha Employees' Retirement System has had negative cash flows of over 5% for the last ten years. This fact should be considered by the investment consultant in evaluating the System's asset allocation.

Year End	Market Value of Assets (MVA)	Contributions	Benefit Payments	Net Cash Flow	Net Cash Flow as a Percent of MVA
12/31/2007	294,658,022	9,237,365	22,496,006	(13,258,641)	(4.50%)
12/31/2008	204,452,506	10,069,244	23,943,022	(13,873,778)	(6.79%)
12/31/2009	213,219,632	9,950,347	25,247,988	(15,297,641)	(7.17%)
12/31/2010	232,346,583	10,576,517	26,336,846	(15,760,329)	(6.78%)
12/31/2011	215,434,784	12,246,998	27,326,503	(15,079,505)	(7.00%)
12/31/2012	223,233,088	13,417,974	28,784,245	(15,366,271)	(6.88%)
12/31/2013	240,342,815	13,367,736	30,477,173	(17,109,437)	(7.12%)
12/31/2014	238,730,446	18,647,784	31,316,243	(12,668,459)	(5.31%)
12/31/2015	232,157,235	18,985,569	32,769,865	(13,784,296)	(5.94%)
12/31/2016	239,825,244	19,646,070	33,720,639	(14,074,569)	(5.87%)
12/31/2017	254,532,138	20,333,419	35,424,356	(15,090,937)	(5.93%)
12/31/2018	236,701,312	20,975,402	36,772,655	(15,797,253)	(6.67%)

Note: Years prior to 1/1/2011 were provided by the prior actuary.

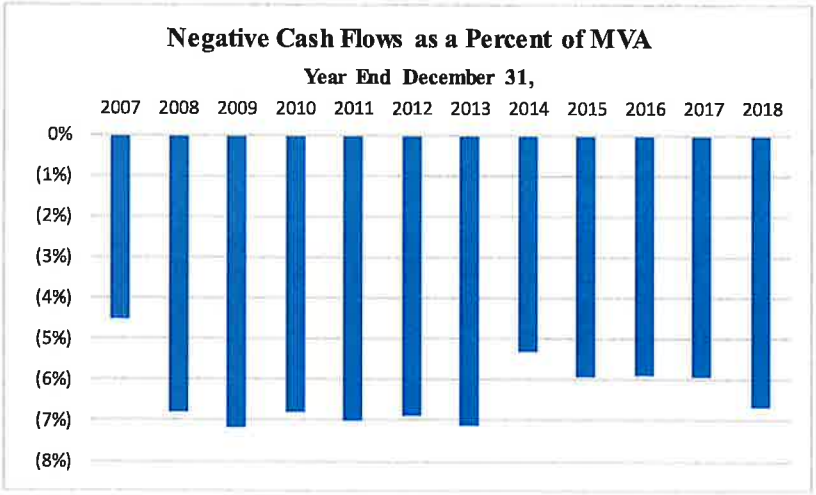


EXHIBIT 11

LIABILITY MATURITY MEASUREMENTS

Most public sector retirement systems have been in operation for many years. As a result, they have aging plan populations, and in some cases declining active populations, resulting in an increasing ratio of retirees to active members and a growing percentage of retiree liability. With more of the total liability residing with retirees, investment volatility has a greater impact on the funding of the system since it is more difficult to restore the system financially after losses occur when there is comparatively less payroll over which to spread costs.

Valuation Date	Retiree Liability (a)	Total Actuarial Liability (b)	Retiree Percentage (a / b)	Market Value of Assets (c)	Ratio (c / a)
1/1/2007	$220,955,272	$357,060,698	61.9%	$292,040,611	1.32
1/1/2008	233,841,457	374,918,443	62.4%	294,658,022	1.26
1/1/2009	248,744,279	389,986,183	63.8%	204,452,506	0.82
1/1/2010	254,677,923	401,416,694	63.4%	213,219,632	0.84
1/1/2011	267,983,708	409,442,601	65.5%	232,346,583	0.87
1/1/2012	273,287,125	420,810,359	64.9%	215,434,784	0.79
1/1/2013	291,595,687	436,270,409	66.8%	223,233,088	0.77
1/1/2014	298,858,244	442,754,113	67.5%	240,342,815	0.80
1/1/2015	305,515,709	431,160,038	70.9%	238,730,446	0.78
1/1/2016	308,712,233	437,133,012	70.6%	232,157,235	0.75
1/1/2017	320,526,759	443,771,621	72.2%	239,825,244	0.75
1/1/2018	351,551,713	474,607,516	74.1%	254,532,138	0.72
1/1/2019	357,677,930	482,025,309	74.2%	236,701,312	0.66

Note: Years prior to 1/1/2011 were provided by the prior actuary.

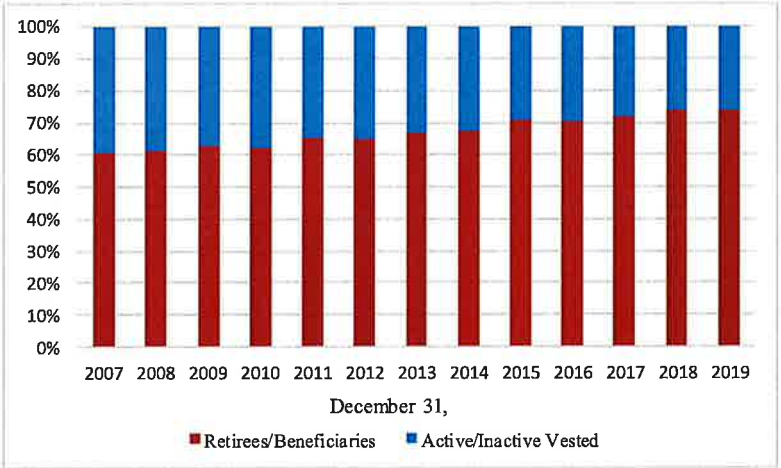


EXHIBIT 12

HISTORICAL MEMBER STATISTICS

Valuation Date January 1,	Number of Active	Number of Retired	Active/ Retired
2007	1,101	1,192	0.92
2008	1,125	1,223	0.92
2009	1,116	1,243	0.90
2010	1,116	1,257	0.89
2011	1,130	1,281	0.88
2012	1,156	1,308	0.88
2013	1,150	1,355	0.85
2014	1,116	1,370	0.81
2015	1,143	1,400	0.82
2016	1,194	1,386	0.86
2017	1,197	1,430	0.84
2018	1,222	1,465	0.83
2019	1,201	1,487	0.81

Note: Years prior to 1/1/2011 were provided by prior actuary.

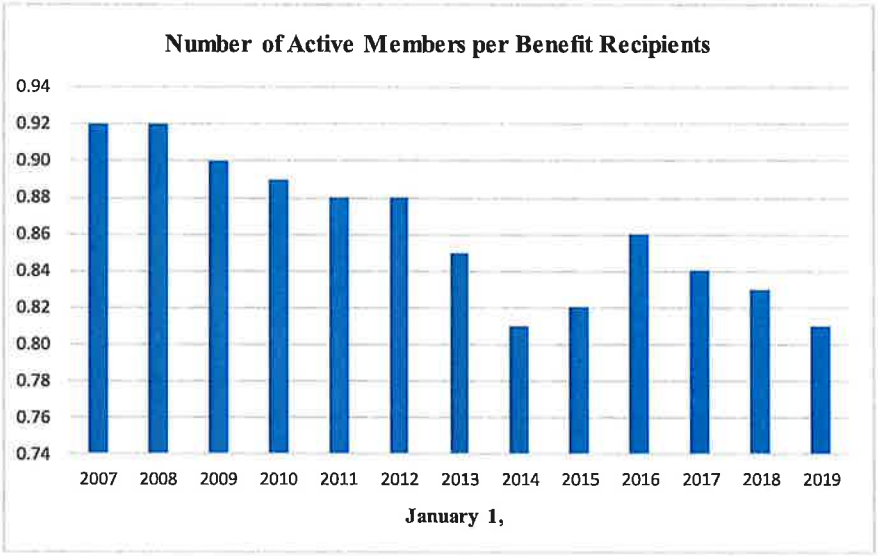


EXHIBIT 13

COMPARISON OF VALUATION RESULTS UNDER ALTERNATE INVESTMENT RETURN ASSUMPTIONS

This exhibit compares the key January 1, 2019 valuation results under five (5) different investment return assumptions to illustrate the impact of different assumptions on the funding of the System. Note that only the investment return assumption is changed, as identified in the heading below. All other assumptions are unchanged for purposes of this analysis.

Investment Return Assumption	**7.00%**	**7.25%**	**7.50%**	**7.75%**	**8.00%**
Contributions					
Total Normal Cost	10.808%	10.296%	9.818%	9.370%	8.950%
UAL Contribution Rate	23.215%	22.526%	21.844%	21.168%	20.498%
Total Actuarial Contribution Rate	34.023%	32.822%	31.662%	30.538%	29.448%
Employee Contribution Rate	10.075%	10.075%	10.075%	10.075%	10.075%
City Contribution Rate Per Ordinance	18.775%	18.775%	18.775%	18.775%	18.775%
Contribution (Shortfall)/Margin	**(5.173%)**	**(3.972%)**	**(2.812%)**	**(1.688%)**	**(0.598%)**
Actuarial Liability ($ in thousands)	$506,084	$493,802	$482,025	$470,728	$459,886
Actuarial Value of Assets	249,519	249,519	249,519	249,519	249,519
Unfunded Actuarial Liability	$256,565	$244,283	$232,507	$221,210	$210,367
Funded Ratio	49.30%	50.53%	51.76%	53.01%	54.26%

Note: All other assumptions are unchanged for purposes of this sensitivity analysis.

SECTION III

OTHER INFORMATION

In this section, we provide some historical information regarding the funding progress of the system. These exhibits retain some of the information that used to be required for accounting purposes and are included because they provide relevant information on the System's historical funding.

EXHIBIT 14

SCHEDULE OF EMPLOYER CONTRIBUTIONS

Fiscal Year Ending	Annual Required Contribution* (a)	Total Employer Contribution* (b)	Percentage of ARC Contributed* (b) / (a)
12/31/2005	$ 6,877,913	$ 4,500,192	65.43%
12/31/2006	6,213,801	4,145,033	66.71%
12/31/2007	8,883,617	4,975,039	56.00%
12/31/2008	9,212,669	5,374,082	58.33%
12/31/2009	12,893,331	5,310,754	41.19%
12/31/2010	14,149,386	5,717,610	40.41%
12/31/2011	14,564,847	6,618,110	45.44%
12/31/2012	15,658,045	7,216,050	46.09%
12/31/2013	17,406,168	7,194,482	41.33%
12/31/2014	17,162,883	12,326,643	71.82%
12/31/2015	14,676,786	12,401,231	84.50%
12/31/2016	11,794,456	12,779,968	108.36%
12/31/2017	12,383,422	13,227,230	106.81%
12/31/2018	14,990,504	13,645,009	91.02%

* Information prior to 2011 was provided by the prior actuary and has not been reviewed or verified by Cavanaugh Macdonald Consulting.

Note: Although an actuarial contribution rate is calculated in the valuation, the system is funded by fixed contribution rates set out in the bargaining agreements for the individual employee groups.

EXHIBIT 15

SCHEDULE OF FUNDING PROGRESS

Actuarial Valuation Date[1]	Actuarial Value of Assets (a)	Actuarial Liability (AL) (b)	Unfunded AL (UAL) (b-a)	Funded Ratio (a/b)	Covered Payroll (P/R) (c)	UAL as a Percentage of Covered P / R [(b-a)/c]
12/31/2006	$292,000,000	$361,700,000	$ 69,700,000	80.7%	$48,200,000	144.6%
12/31/2007	294,700,000	369,000,000	74,300,000	79.9%	54,000,000	137.6%
12/31/2008	204,500,000	387,700,000	183,200,000	52.7%	56,400,000	324.8%
12/31/2009	213,200,000	402,800,000	189,600,000	52.9%	55,700,000	340.4%
12/31/2010	232,400,000	414,500,000	182,100,000	56.1%	56,700,000	321.2%
1/1/2011	240,291,310	409,442,601	169,151,291	58.7%	59,235,591	285.6%
1/1/2012	236,741,347	420,810,359	184,069,012	56.3%	62,825,685	293.0%
1/1/2013	235,591,941	436,270,409	200,678,468	54.0%	63,327,394	316.9%
1/1/2014	237,579,690	442,754,113	205,174,423	53.7%	63,413,206	323.6%
1/1/2015	242,248,074	431,160,038	188,911,964	56.2%	64,876,227	291.2%
1/1/2016	244,543,841	437,133,012	192,589,171	55.9%	69,005,865	279.1%
1/1/2017	246,234,597	443,771,621	197,537,024	55.5%	70,873,306	278.7%
1/1/2018	251,320,837	474,607,516	223,286,679	53.0%	72,754,142	306.9%
1/1/2019	249,518,547	482,025,309	232,506,762	51.8%	75,407,531	308.3%

[1] Results prior to 2011 were provided by the prior actuary and were reported at the end of the year rather than the valuation date.

Note: the investment return assumption was changed from 8.0% to 7.5% in the 2018 valuation.

APPENDIX A

SUMMARY OF PLAN PROVISIONS

Effective Date: Section 22 - 21	January 1, 1949
Active Member: Section 22 – 24 and 25	All City employees except: policemen, firemen, persons paid on a contractual or fee basis, seasonal, temporary and part-time employees, and elected officials who do not make written application.
Final Average Compensation (FAC): Section 22 - 32	Highest 78 pay periods in the employee's last 130 pay periods of employment divided by three for members who are within five years of normal retirement as of March 1, 2015 under the eligibility criteria set forth in the 2009 through 2012 labor agreements; or the last 130 pay periods divided by five for all other employees. Minimum FAC, regardless of retirement date, shall never be less than the FAC determined as of 2/28/2015 (highest consecutive 26 pay periods in 130 pay periods prior to 2/28/2015).
Member Contributions: Section 22 – 26(a)	Each member will contribute 10.075% of total compensation.
City of Omaha Contributions: Section 22 – 26(e)	The City will contribute a percentage of each member's total compensation as shown in the following table.

Year	Percent Contributed
2013	13.775%
2014	17.775%
2015	18.775%

Service Credits Section 22 – 28 and 29	The member shall receive membership service credit for each full pay period of employment. Intervening periods of military service in time of emergency shall be counted, provided the member is honorably discharged and returns to work within 90 days after such discharge. Membership credits shall be earned by those receiving a disability pension. However, the total credited service will not exceed 30, unless more than 30 years were earned as an active member.

APPENDIX A

SUMMARY OF PLAN PROVISIONS
(continued)

Service Retirement Eligibility: Section 22 - 30	Members who are within five years of normal retirement as of March 1, 2015 under the eligibility criteria set forth in the 2009 through 2012 labor agreement will remain eligible for a service retirement if (a) they are age 60 with five years of service or (b) meet the Rule of 80 with a minimum age of 50. A member is eligible for a service retirement after reaching age 55 with five years of service, but the pension is reduced 8% per year for years prior to age 60. Members who are more than five but less than ten years of normal retirement as of March 1, 2015 under the eligibility criteria set forth in the 2009 through 2012 labor agreement are eligible to retire after age 55 if their age plus service is 85 or more (Rule of 85). Otherwise, a member is eligible to retire after age 57 with five years of service, but the pension is reduced 8% per year for years prior to age 62. Members who are <u>not</u> within ten years of normal retirement as of March 1, 2015 under the eligibility criteria set forth in the 2009 through 2012 labor agreement, are eligible to retire after age 55 if their age plus service is 85 or more (Rule of 85). Otherwise, such member is eligible to retire after age 60 with five years of service, but the pension is reduced 8% per year for years prior to age 65. Members who are hired on or after March 1, 2015 are eligible to retire after age 55 with ten years of service.
Service Retirement Pension: Section 22 - 32	For members hired <u>before</u> March 1, 2015, a monthly pension equal to 2.25% of Final Average Compensation times years of service during and before 2014, plus 1.90% for years of service during and after 2015. For members hired <u>on or after</u> March 1, 2015, the system shall establish and maintain a "cash balance account" for each employee. The cash balance account shall be equal to the sum of the employee's pay credits, interest credits and dividends, which are explained further in the following paragraphs.

APPENDIX A

SUMMARY OF PLAN PROVISIONS
(continued)

Interest Credits and Dividends: On the last day of each plan year, each cash balance account shall receive an interest credit equal to 4.0% of the balance at the beginning of the plan year. Additionally, each account may be credited with a dividend equal to 75% of the System's investment return, on a market value basis, that is over 7.0% on a rolling five-year return. The dividend is capped at 3.0% until January 1, 2020.

Pay Credits: On the last day of each plan year, each cash balance account shall receive a pay credit equal to the following percentages of the member's pensionable earnings for the plan year:

Years of Service	Percentage
Less Than 8	13.0%
8 – 15	14.0%
16 – 23	15.0%
24 or More	16.0%

Monthly Benefit: At retirement, a member may elect to receive benefit payments as a single life annuity, life annuity with 10 years certain, life annuity with 15 years certain, Joint and 50% Survivor, Joint and 75% Survivor, or Joint and 100% Survivor. The annuity conversion factor shall be based on 5% interest and the RP 2000 Mortality Table Projected to 2034 with a male/female blend of 67%/33%.

Disability Benefits:

1. Non-Service Related
   Section 22 - 35

An employee who sustains an injury or illness not in the line of duty and as a result becomes unfit for active duty shall be granted a non-service-connected disability retirement of 1.50% multiplied by the employee's years of service multiplied by their Final Average Compensation. Members who were hired before March 1, 2015 are eligible for this benefit with five years of service. Members who were hired on or after March 1, 2015 are eligible for this benefit with ten years of service.

APPENDIX A

SUMMARY OF PLAN PROVISIONS
(continued)

2. Service-Related Section 22 - 35	An employee who is a member of the system who sustains an injury or illness in the line of duty and as a result becomes unfit for active duty shall be granted a service-connected disability retirement of 1.75% multiplied by the employee's years of service multiplied by their Final Average Compensation. This benefit is available only if the member has served a minimum of six months of service.
Spouse's Pension:	
1. Death of Active Member Section 22 - 36	For members hired before March 1, 2015, a monthly pension equal to 75% of the member's accrued pension is paid to the surviving spouse until death or remarriage. The member must have had five years of service or had a service-connected death and six months of service. For members hired on or after March 1, 2015, a lump sum payment of the member's full cash balance account if the member had ten or more years of service prior to death. If the member had less than ten years of service prior to death, then the surviving spouse is eligible to receive a lump sum payment equal to the member's contributions with 4.0% interest.
2. Death of a Member Eligible for Retirement or Death of Retired Member Section 22 - 36	For members hired before March 1, 2015, if the surviving spouse was legally married to the member for at least one year, then they shall be entitled to 75% of the pension the member was receiving or was eligible to receive at the time of death. Upon the spouse's remarriage, all benefits cease.
Children's Pension: Section 22 - 36	For members hired before March 1, 2015, upon the death of the active or retired member, the following benefit will be paid to the surviving children until age 18 or prior to death or marriage, except that if a child is totally disabled, the full pension continues until the cessation of total disability or dependency for support whichever occurs first:

APPENDIX A

SUMMARY OF PLAN PROVISIONS
(continued)

Number of Dependent Children	Percentage of Accrued Benefit
1	5%
2	10%
3	15%
4 or more	20%

Lump Sum Death Benefits:

1. Active Member without Eligible Dependents Section 22 - 37	Accumulated member's contributions, plus $5,000.
2. Retired Member without Eligible Dependents Section 22 - 37	Accumulated member's contribution less previous pension payments made, plus $5000.
3. Active Member with Eligible Dependents Section 22 - 37	$5,000
4. Retired Member with Eligible Dependents Section 22 - 37	$5,000
Vesting: Section 22 – 39	For members who were hired before March 1, 2015, upon severance of employment with less than five years of service and prior to obtaining eligibility under Section 22 – 30, a refund of such member's accumulated contributions, including credited interest, will be paid. For members who were hired on or after March 1, 2015, upon severance of employment with less than ten years of service and prior to obtaining eligibility under Section 22 – 30, a refund of such member's accumulated contributions, including 4.0% interest, will be paid.

APPENDIX A

SUMMARY OF PLAN PROVISIONS
(continued)

Section 22 – 40	For members who were hired before March 1, 2015, upon severance of employment with more than five years of service and prior to obtaining eligibility for retirement, the member may elect, in lieu of receiving a refund of contributions, to receive a monthly pension, reduced for early retirement if applicable. Such deferred pension shall be based on service credited to the date of severance. For members who were hired on or after March 1, 2015, upon severance of employment with more than ten years of service and prior to obtaining eligibility for retirement, the member may elect, in lieu of receiving a refund of contributions, to leave their contributions in the System and thereby be eligible for a deferred service retirement pursuant to Section 22 – 40.
Supplemental Pension: Section 22 – 123	Retirees (including widows, widowers and children) receive a supplemental pension (Cost of Living Adjustment – COLA) after five years equal to the lesser of 3% or $50 per month. The COLA is granted for the full remaining period that benefits are payable. No COLAs will be available for members who retire after January 28, 1998.

APPENDIX B

ACTUARIAL METHODS AND ASSUMPTIONS

Actuarial Cost Method

Valuation of the System uses the *"entry age-normal"* cost method. Under this actuarial method, the value of future costs attributable to future employment of participants is determined. This is called present value of future normal costs. The following steps indicate how this is determined for benefits expected to be paid upon normal retirement.

1. The expected pension benefit at normal retirement is determined for each participant.

2. A normal cost, as a level-percent of pay, is determined for each participant assuming that such level percent is paid from the employee's entry age into employment to his normal retirement. This normal cost is determined so that its accumulated value at normal retirement is sufficient to provide the expected pension benefits.

3. The sum of the normal costs for all participants for one year determines the total normal cost of the System for one year.

4. The value of future payments of normal cost in future years is determined for each participant based on his years of service to normal retirement age.

5. The sum of the value of future payments of normal cost for all participants determines the present value of future normal costs.

The value of future costs attributable to past employment of participants, which is called the actuarial liability, is equal to the present value of benefits less the present value of future normal costs. The unfunded actuarial liability is equal to the excess of the actuarial liability over assets.

As experience develops with the System, actuarial gains and losses result. These actuarial gains and losses indicate the extent to which actual experience is deviating from that expected on the basis of the actuarial assumptions. In each year, as they occur, actuarial gains and losses are recognized in the unfunded actuarial liability as of the valuation date.

Actuarial Value of Assets

The actuarial value of assets is equal to the expected asset value (based on last year's actuarial value of assets, net cash flows and a rate of return equal to the actuarial assumed rate of 7.5%) plus 1/4 of the difference between the actual market value and the expected asset value. The actuarial value of assets cannot exceed 120% or fall below 80% of the market value of assets.

Unfunded Actuarial Liability Amortization Method

The unfunded actuarial liability (UAL) is funded on a "layered" basis, with the initial base being funded as a level-percent of payroll over a 25-year closed period that began January 1, 2016. In addition, a new base is created in each valuation which is equal to the unexpected change in the UAL from actual versus expected experience, as measured in that valuation. Each experience base is funded as a level percent of payroll over a 20-year closed period. Each assumption change base is funded as a level percent of payroll over a closed period selected by the Board.

APPENDIX B

ACTUARIAL METHODS AND ASSUMPTIONS (continued)

Investment Return: 7.50% per year, net of investment expenses.

Price Inflation: 2.50% per year, net of investment expenses.

Interest Credited to Cash Balance Accounts: 6.00% per year

Individual Salary Increases:

Years of Service	Annual Rate of Increase For Sample Years: Inflation	Productivity	Merit & Longevity	Total Increase
1	2.50%	0.60%	4.90%	8.00%
5	2.50%	0.60%	1.40%	4.50%
10	2.50%	0.60%	0.90%	4.00%
15	2.50%	0.60%	0.65%	3.75%
20	2.50%	0.60%	0.15%	3.25%
25	2.50%	0.60%	0.15%	3.25%
30	2.50%	0.60%	0.15%	3.25%
35+	2.50%	0.60%	0.00%	3.10%

Payroll Growth Assumption: 3.00%

Service Retirement Age:

Members within 5 Years of Unreduced Retirement Eligibility as of March 1, 2015

Age	Eligible for Unreduced Retirement: 1st Year Eligible	Subsequent Years
50-53	35%	25%
54-55	35%	20%
56-60	30%	20%
61	25%	20%
62	25%	30%
63-64	25%	25%
65-69	50%	30%
70	100%	100%

Members eligible for Early, but not Unreduced Retirement, are assumed to retire at a rate of 3.50% per year from age 55 to 59.

APPENDIX B

ACTUARIAL METHODS AND ASSUMPTIONS (continued)

Members within 6-10 Years of Unreduced Retirement Eligibility as of March 1, 2015

Eligible for Unreduced Retirement		
Age	1st Year Eligible	Subsequent Years
55	35%	20%
56-60	30%	20%
61	25%	20%
62	25%	30%
63-64		25%
65-69		30%
70		100%

Members eligible for Early, but not Unreduced Retirement, are assumed to retire at a rate of 3.50% per year from age 57 to 61.

Members more than 10 Years from Unreduced Retirement Eligibility as of March 1, 2015

Eligible for Unreduced Retirement		
Age	1st Year Eligible	Subsequent Years
55	35%	20%
56-60	30%	20%
61	25%	20%
62	25%	30%
63-64	25%	25%
65	50%	30%
66-69		30%
70		100%

Members eligible for Early, but not Unreduced Retirement, are assumed to retire at a rate of 3.50% per year from age 60 to 64.

APPENDIX B

ACTUARIAL METHODS AND ASSUMPTIONS (continued)

Members Hired on or After March 1, 2015

Age	Probability Of Retirement
55-59	5%
60-61	7%
62-64	20%
65	35%
66	25%
67-69	20%
70	100%

Deferred vested members are assumed to begin receiving benefits at age 60.

Decrement Timing

Middle of year

Mortality:

Active Members

RP-2014 Mortality Table, adjusted to 2006 (reflecting the 2006 base mortality rates), with generational projection using the ultimate projection scale used by the Nebraska Public Employees Retirement System

Pensioners

RP-2014 Mortality Table, adjusted to 2006 (reflecting the 2006 base mortality rates), with generational projection using the ultimate projection scale used by the Nebraska Public Employees Retirement System

Disabled

RP-2014 Disabled Mortality Table, adjusted to 2006 (reflecting the 2006 base mortality rates), with generational projection using the MP-2016 scale

Disability:

Age	Annual Rate
20	0.11%
30	0.14%
40	0.19%
50	0.41%
60	1.48%

20% of disabilities are assumed to be service-connected.

Percent Married at Death or Retirement:

75%

APPENDIX B

ACTUARIAL METHODS AND ASSUMPTIONS (continued)

Spouse Age Difference: Husbands assumed to be three years older than wives.

Number of Children per Married Member: 0

Termination:

Years of Service	Annual Rate Male	Annual Rate Female
0	11.00%	15.00%
1	10.00%	14.00%
2	8.25%	12.00%
3	7.25%	10.50%
4	6.25%	9.00%
5	5.50%	8.00%
6	5.00%	7.00%
7	4.50%	6.00%
8	4.25%	5.00%
9	4.00%	4.50%
10	3.75%	4.30%
11	3.50%	4.00%
12	3.25%	3.80%
13	3.00%	3.50%
14	2.75%	3.00%
15	2.50%	2.50%
16	2.25%	2.00%
17+	2.00%	2.00%

Vested Terminations Electing Refund: 50% of members with less than 20 years of service.

Member hired prior to March 1, 2015 are assumed to take the more valuable of a lump sum or the present value of an annuity at age 65.

For members hired on or after March 1, 2015, members are assumed to take the more valuable of a lump sum or the present value of an annuity at age 60.

APPENDIX C

HISTORICAL SUMMARY OF MEMBERSHIP

The following table displays selected historical data as available.

Valuation Date 1-Jan	Total Count	Active Members						Number			
		Number	Age	Entry Age	Average Service	Annual Pay ($)*	Pay Increase	Disabled	Terminated Refund Due	Deferred Vested	Retired
2009	2,440	1,116	47.3	36.4	10.9	47,495	2.21%	122		81	1,121
2010	2,456	1,116	47.8	37.1	10.8	49,667	4.57%	124		83	1,133
2011	2,493	1,130	47.4	36.9	10.5	49,030	(1.28%)	120		82	1,161
2012	2,568	1,156	47.3	36.8	10.5	50,335	2.66%	121	27	77	1,187
2013	2,608	1,150	46.9	36.7	10.2	50,842	1.01%	122	28	75	1,233
2014	2,607	1,116	47.1	36.7	10.4	51,501	1.30%	121	44	77	1,249
2015	2,656	1,143	46.6	36.5	10.1	50,774	(1.41%)	114	39	74	1,286
2016	2,691	1,194	46.5	36.7	9.8	52,439	3.28%	112	34	77	1,274
2017	2,739	1,197	46.2	36.7	9.5	54,347	3.64%	109	36	76	1,321
2018	2,820	1,222	45.6	36.7	8.9	54,718	0.68%	101	52	81	1,364
2019	2,846	1,201	45.6	36.7	8.9	55,935	2.22%	96	62	96	1,391

* Annual Pay is the actual pay reported for the prior plan year.

MEMBERSHIP DATA FOR VALUATION
(Hired before March 1, 2015)

The summary of member characteristics presented below covers the membership as of January 1, 2019. The schedules at the end of the report show the distribution of the various member groups by present age, along with other pertinent data.

Total number of members in valuation:

(a) Active members	797
(b) Deferred vested members	96
(c) Terminated members due a refund	24
(d) Disabled members	96
(e) Retired members, spouses and children receiving benefits	1,391
(f) Total members in valuation	2,404

Average age of members in valuation:

(a) Active members	
Attained Age	48.8
Hire Age	36.3
(b) Deferred vested members	47.9
(c) Disabled members	64.7
(d) Retired members	70.1
(e) Spouses and children receiving benefits	73.1

Active members eligible for vested benefits as of January 1, 2019:

(a) Members under age 55 with 5 or more years of service – eligible for deferred vested benefits	446
(b) Members age 55 and over with 5 or more years of service – eligible for early or normal retirement benefits	253
(c) Members eligible for refund of contributions only	98
(d) Total	797

MEMBERSHIP DATA FOR VALUATION
(Hired on or after March 1, 2015)

The summary of member characteristics presented below covers the membership as of January 1, 2019. The schedules at the end of the report show the distribution of the various member groups by present age, along with other pertinent data.

Total number of members in valuation:

(a) Active members	404
(b) Deferred vested members	0
(c) Terminated members due a refund	38
(d) Disabled members	0
(e) Retired members, spouses and children receiving benefits	0
(f) Total members in valuation	442

Average age of members in valuation:

(a) Active members	
Attained Age	39.2
Hire Age	37.5
(b) Deferred vested members	N/A
(c) Disabled members	N/A
(d) Retired members	N/A
(e) Spouses and children receiving benefits	N/A

Active members eligible for vested benefits as of January 1, 2019:

(a) Members under age 55 with 10 or more years of service – eligible for deferred vested benefits	0
(b) Members age 55 and over with 10 or more years of service – eligible for early or normal retirement benefits	0
(c) Members eligible for refund of contributions only	404
(d) Total	404

MEMBERSHIP DATA RECONCILIATION

January 1, 2018 to January 1, 2019

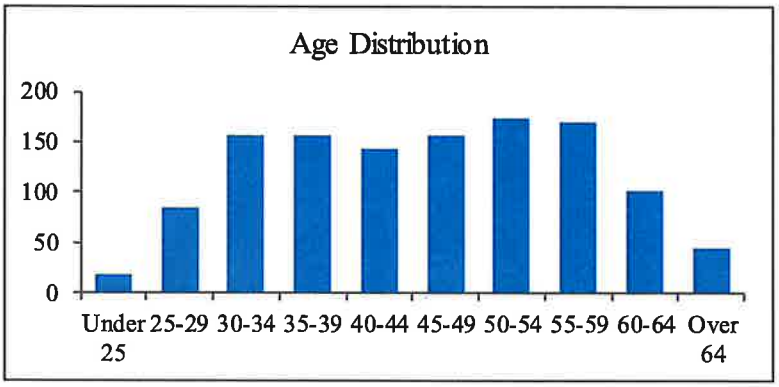
The number of members included in the valuation, as summarized in the table below, is in accordance with the data submitted by the System for eligible employees as of the valuation date.

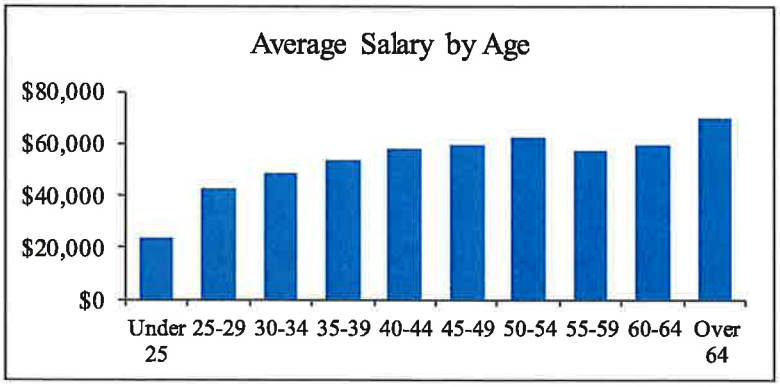
	Active Members	Termination Refund Due	Deferred Vested	Disabled	Retirees	Beneficiaries	Total
Total Members as of 1/1/2018	1,222	52	81	101	1,101	263	2,820
New Members	121	6	0	0	0	0	127
Terminations							
Rehired	1	(1)	0	0	0	0	0
Refunded: Paid	(46)	(21)	(2)	0	0	0	(69)
Refunded: Due	(26)	26	0	0	0	0	0
Deferred Vested	(22)	0	22	0	0	0	0
LTD	0	0	0	0	0	0	0
Retirements	(49)	0	(4)	0	53	0	0
Benefits Expired	0	0	0	0	0	0	0
Data Corrections	0	0	0	0	1	0	1
Deaths							
With Beneficiary	0	0	0	(2)	(8)	10	0
Without Beneficiary	0	0	(1)	(3)	(16)	(13)	(33)
Total Members as of 1/1/2019	1,201	62	96	96	1,131	260	2,846

SCHEDULE I

ACTIVE MEMBERS AS OF JANUARY 1, 2019
(Total)

	Count of Members			Valuation Salaries of Members		
Age	Males	Females	Total	Males	Females	Total
Under 25	15	3	18	$ 353,599	$ 71,498	$ 425,097
25-29	56	28	84	2,327,977	1,253,191	3,581,168
30-34	94	62	156	4,562,284	2,980,551	7,542,835
35-39	107	49	156	5,676,644	2,682,967	8,359,611
40-44	103	40	143	5,953,343	2,324,252	8,277,595
45-49	118	39	157	7,324,054	1,966,506	9,290,560
50-54	132	41	173	8,457,362	2,387,318	10,844,680
55-59	123	46	169	7,446,070	2,296,205	9,742,275
60-64	63	38	101	3,781,336	2,255,047	6,036,383
Over 64	28	16	44	2,121,509	955,735	3,077,244
Total	839	362	1,201	$48,004,178	$19,173,270	$67,177,448

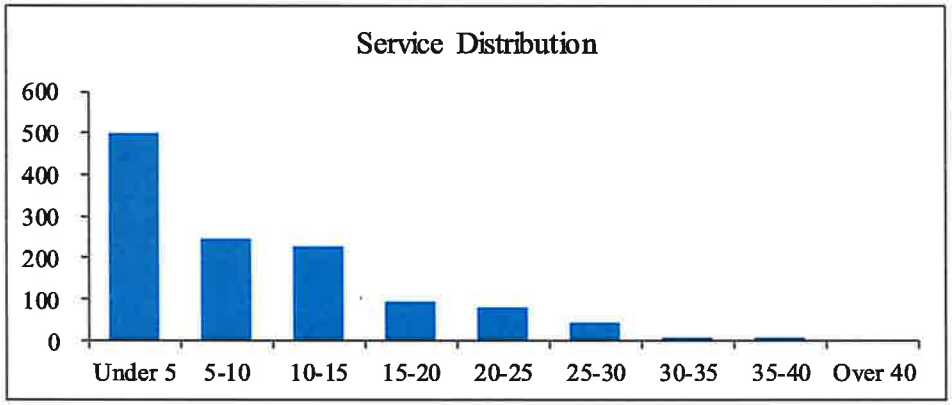




SCHEDULE I (continued)

ACTIVE MEMBERS AS OF JANUARY 1, 2019
(Total)

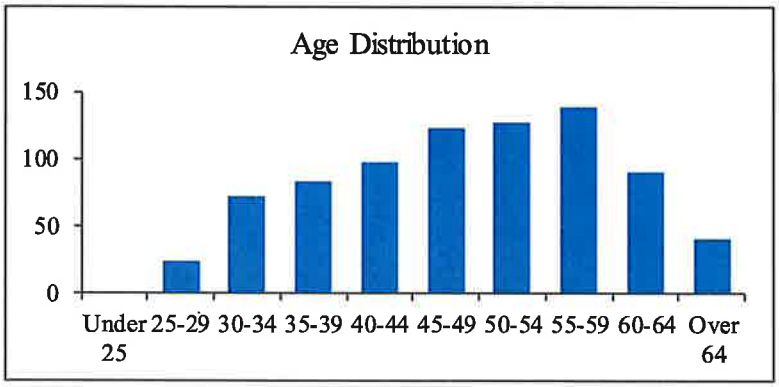
	Service									
Age	Under 5	5-10	10-15	15-20	20-25	25-30	30-35	35-40	Over 40	Total
Under 25	18	0	0	0	0	0	0	0	0	18
25-29	75	9	0	0	0	0	0	0	0	84
30-34	105	43	8	0	0	0	0	0	0	156
35-39	89	37	27	3	0	0	0	0	0	156
40-44	58	35	37	10	3	0	0	0	0	143
45-49	48	37	38	20	14	0	0	0	0	157
50-54	48	22	42	20	27	13	1	0	0	173
55-59	39	28	44	26	14	13	3	2	0	169
60-64	17	29	20	11	12	11	0	1	0	101
Over 64	4	7	11	4	10	5	3	0	0	44
Total	501	247	227	94	80	42	7	3	0	1,201

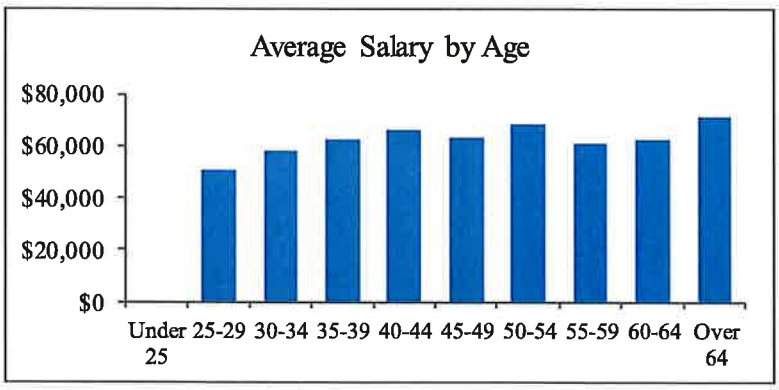


SCHEDULE I (continued)

ACTIVE MEMBERS AS OF JANUARY 1, 2019
(Hired before March 1, 2015)

	Count of Members			Valuation Salaries of Members		
Age	Males	Females	Total	Males	Females	Total
Under 25	0	0	0	$ 0	$ 0	$ 0
25-29	20	3	23	1,018,630	147,382	1,166,012
30-34	43	29	72	2,476,843	1,708,862	4,185,705
35-39	57	26	83	3,585,472	1,587,235	5,172,707
40-44	70	28	98	4,576,573	1,873,407	6,449,980
45-49	95	28	123	6,319,191	1,485,611	7,804,802
50-54	101	27	128	7,044,043	1,668,050	8,712,093
55-59	103	36	139	6,535,372	1,915,810	8,451,182
60-64	56	34	90	3,531,002	2,098,821	5,629,823
Over 64	25	16	41	1,960,274	955,735	2,916,009
Total	570	227	797	$37,047,400	$13,440,913	$50,488,313

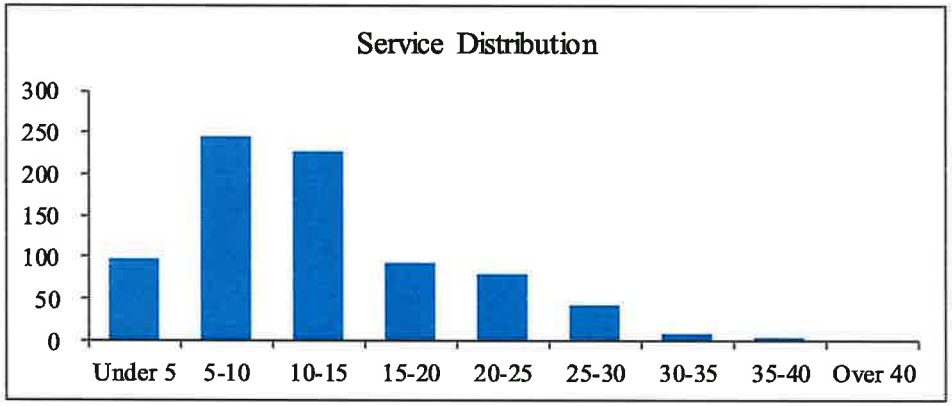




SCHEDULE I (continued)

ACTIVE MEMBERS AS OF JANUARY 1, 2019
(Hired before March 1, 2015)

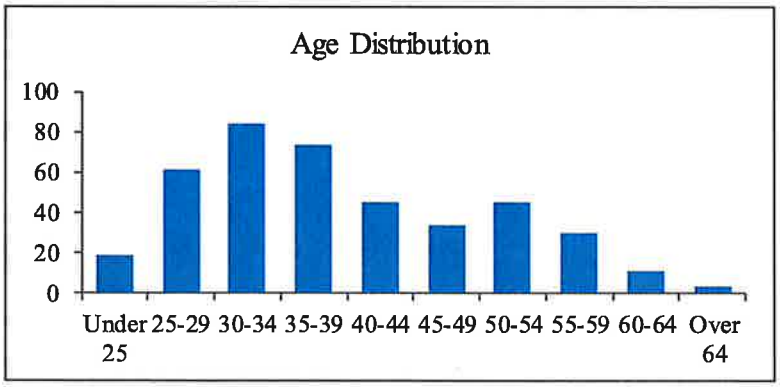
	Service									
Age	Under 5	5-10	10-15	15-20	20-25	25-30	30-35	35-40	Over 40	Total
Under 25	0	0	0	0	0	0	0	0	0	0
25-29	14	9	0	0	0	0	0	0	0	23
30-34	21	43	8	0	0	0	0	0	0	72
35-39	16	37	27	3	0	0	0	0	0	83
40-44	13	35	37	10	3	0	0	0	0	98
45-49	14	37	38	20	14	0	0	0	0	123
50-54	3	22	42	20	27	13	1	0	0	128
55-59	10	27	44	26	14	13	3	2	0	139
60-64	6	29	20	11	12	11	0	1	0	90
Over 64	1	7	11	4	10	5	3	0	0	41
Total	98	246	227	94	80	42	7	3	0	797

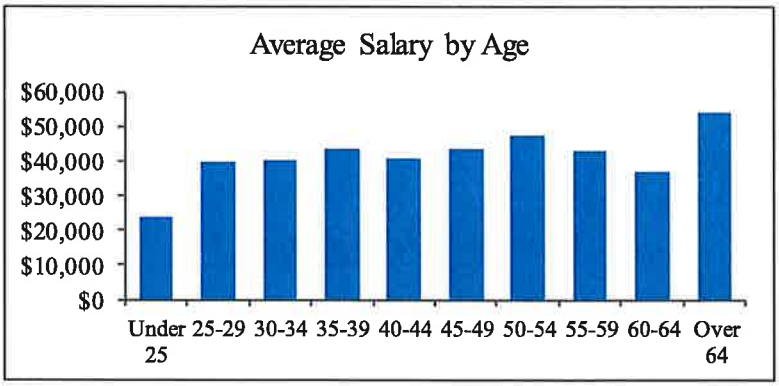


SCHEDULE I (continued)

ACTIVE MEMBERS AS OF JANUARY 1, 2019
(Hired on or after March 1, 2015)

	Count of Members			Valuation Salaries of Members		
Age	Males	Females	Total	Males	Females	Total
Under 25	15	3	18	$ 353,599	$ 71,498	$ 425,097
25-29	36	25	61	1,309,347	1,105,809	2,415,156
30-34	51	33	84	2,085,441	1,271,689	3,357,130
35-39	50	23	73	2,091,172	1,095,732	3,186,904
40-44	33	12	45	1,376,770	450,845	1,827,615
45-49	23	11	34	1,004,863	480,895	1,485,758
50-54	31	14	45	1,413,319	719,268	2,132,587
55-59	20	10	30	910,698	380,395	1,291,093
60-64	7	4	11	250,334	156,226	406,560
Over 64	3	0	3	161,235	0	161,235
Total	269	135	404	$10,956,778	$5,732,357	$16,689,135

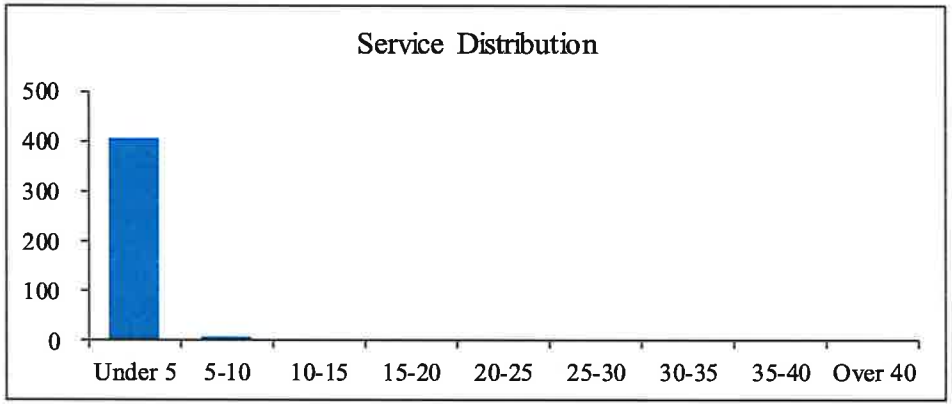




SCHEDULE I (continued)

ACTIVE MEMBERS AS OF JANUARY 1, 2019
(Hired on or after March 1, 2015)

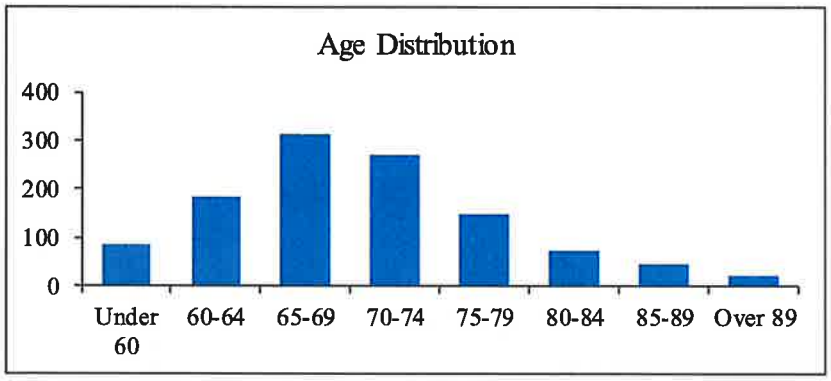
	Service									
Age	Under 5	5-10	10-15	15-20	20-25	25-30	30-35	35-40	Over 40	Total
Under 25	18	0	0	0	0	0	0	0	0	18
25-29	61	0	0	0	0	0	0	0	0	61
30-34	84	0	0	0	0	0	0	0	0	84
35-39	73	0	0	0	0	0	0	0	0	73
40-44	45	0	0	0	0	0	0	0	0	45
45-49	34	0	0	0	0	0	0	0	0	34
50-54	45	0	0	0	0	0	0	0	0	45
55-59	29	1	0	0	0	0	0	0	0	30
60-64	11	0	0	0	0	0	0	0	0	11
Over 64	3	0	0	0	0	0	0	0	0	3
Total	403	1	0	0	0	0	0	0	0	404

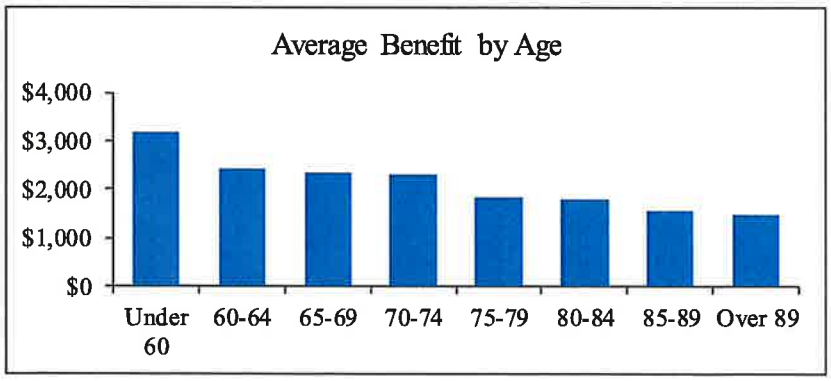


SCHEDULE II

RETIRED MEMBERS AS OF JANUARY 1, 2019

	Count of Retirees			Current Monthly Benefits		
Age	Males	Females	Total	Males	Females	Total
Under 60	51	32	83	$ 161,351	$103,101	$ 264,452
60-64	108	76	184	279,122	168,710	447,832
65-69	209	103	312	510,063	224,238	734,301
70-74	180	89	269	446,837	175,978	622,815
75-79	105	41	146	202,878	62,672	265,550
80-84	53	19	72	98,413	30,341	128,754
85-89	29	15	44	52,731	15,665	68,396
Over 89	13	8	21	21,948	8,961	30,909
Total	748	383	1,131	$1,773,343	$789,666	$2,563,009

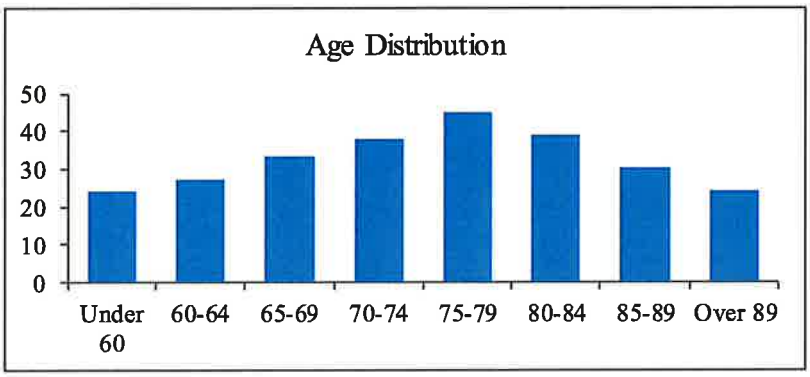


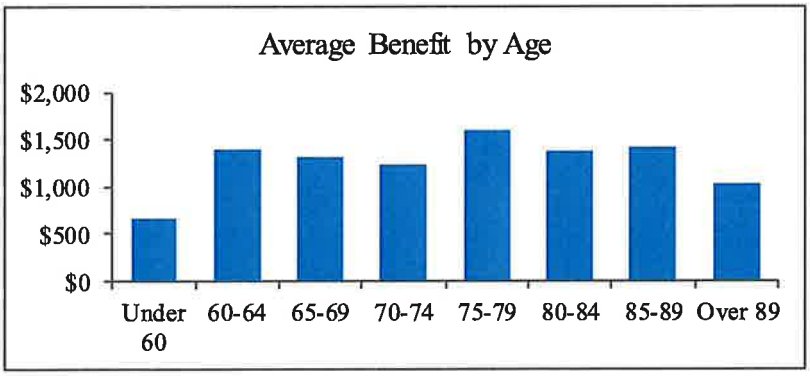


SCHEDULE III

BENEFICIARIES RECEIVING BENEFITS AS OF JANUARY 1, 2019

	Count of Beneficiaries			Current Monthly Benefits		
Age	Males	Females	Total	Males	Females	Total
Under 60	4	20	24	$ 1,644	$ 14,330	$ 15,974
60-64	2	25	27	690	37,089	37,779
65-69	6	27	33	5,871	37,602	43,473
70-74	5	33	38	4,875	41,985	46,860
75-79	2	43	45	3,179	68,891	72,070
80-84	0	39	39	0	53,796	53,796
85-89	2	28	30	2,857	39,651	42,508
Over 89	2	22	24	1,880	22,907	24,787
Total	23	237	260	$20,996	$316,251	$337,247





SCHEDULE IV
DEFERRED VESTED MEMBERS AS OF JANUARY 1, 2019

	Count of Members			Expected Monthly Benefit		
Age	Males	Females	Total	Males	Females	Total
Under 25	0	0	0	$ 0	$ 0	$ 0
25-29	0	0	0	0	0	0
30-34	4	3	7	2,453	1,975	4,428
35-39	4	7	11	4,275	5,191	9,466
40-44	8	5	13	10,205	4,897	15,102
45-49	10	10	20	12,663	9,881	22,544
50-54	13	8	21	16,594	9,284	25,878
55-59	11	11	22	16,196	15,314	31,510
Over 59	2	0	2	1,951	0	1,951
Total	52	44	96	$64,337	$46,542	$110,879

SCHEDULE V

DISABLED MEMBERS RECEIVING BENEFITS AS OF JANUARY 1, 2019

	Count of Members			Current Monthly Benefit		
Age	Males	Females	Total	Males	Females	Total
Under 25	0	0	0	$ 0	$ 0	$ 0
25-29	0	0	0	0	0	0
30-34	0	0	0	0	0	0
35-39	0	0	0	0	0	0
40-44	0	1	1	0	2,052	2,052
45-49	3	0	3	5,639	0	5,639
50-54	7	0	7	12,211	0	12,211
55-59	15	2	17	29,183	3,408	32,591
Over 59	56	12	68	84,890	17,036	101,926
Total	81	15	96	$131,923	$22,496	$154,419

Appendix E

Omaha Police and Fire Retirement Plan Information

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City of Omaha
Jean Stothert, Mayor

Finance Department

Omaha/Douglas Civic Center
1819 Farnam Street, Suite 1004
Omaha, Nebraska 68183-1004
(402) 444-5416
Telefax (402) 546-1150

Stephen B. Curtiss
Finance Director
Acting City Comptroller

Allen Herink
Finance Administrator

October 11, 2019

Senator Mark Kolterman, Chairperson
Nebraska Retirement Systems Committee
PO BOX 94604
State Capitol
Lincoln, NE 68509-4604

Dear Senator Kolterman:

Neb. Rev. Stat § 13-2402(3) requires a governing entity that offers a defined benefit retirement plan to file a report if the funded ratio is less than eighty percent. The City of Omaha is submitting this report regarding the City of Omaha Police & Fire Retirement System (COPFRS) because the funded ratio is less than eighty percent.

The City through its negotiations with the public safety bargaining agents has made efforts to address the funding shortfall in COPFRS. Some of those efforts are addressed below. The attached table compares the actuarial data for plan years 2014 through current plan year 2019. Since the Actuarial Report for January 1, 2019 is not yet complete, there are several items that are not current for 2019. We anticipate that Report will be presented and accepted in November of 2019 and when it is, we will provide a copy to you and update the attached table.

In 2015, the Actuarial Committee elected to change the valuation methodology for the members who are currently participating or are expected to participate in the Deferred Retirement Option Plan (DROP) in the future. Under the methodology, the Entry Age Normal Cost calculation spreads the cost of benefits over the member's entire career. As part of the change in methodology, certain actuarial assumptions related to the DROP were developed. These include the percentage of eligible members assumed to elect to participate in the DROP, the DROP period, and the interest rate assumed to be credited to the DROP account.

An experience study for 2012-2015 was completed and presented to the Board in March, 2018. The Experience Study suggested a number of assumption changes which the Board accepted and agreed to at the August 16, 2018 meeting. The following changes were made to the economic assumptions which changes were made in the January 1, 2018 actuarial valuation which will carry over to the January 1, 2019 actuarial valuation:

	Current	Recommended
Price inflation	3.25%	2.50%
Investment return	8.00%	7.75%
General wage growth	4.00%	3.25%
Payroll growth	4.00%	3.25%

In addition, there were some changes to Demographic Assumptions which are also described in the Experience Study that is attached to this report.

There are numerous circumstances that led to the current underfunding. When the system was fully funded in the late 1990s, benefits were increased and even though the actuarial cost was calculated, the benefits appear to have exceeded those costs. There also have been some years where the investment loss was historically large. During the economic downturn of early 2000s, there were some additional benefits (compensatory time paid at end of career) negotiated as part of wage and other compensation deferments. It was anticipated that people would take advantage of the additional time off, but many did not, resulting in an increase in the compensation amount upon which the pension was calculated. Another factor has been that wages have not increased at the rate in the actuarial assumptions.

Significant efforts were made to address the funding status of COPFRS starting in 2008. In 2008, then Mayor Mike Fahey established the Bates Commission to examine the issue. The Bates Commission, made up of business leaders, union leaders, and City leaders, made a number of recommendations in their final report. The report was the impetus for collaborative efforts between the City and its unions to address the funding issue in labor negotiations. In an effort to improve the funding status, the City increased contributions and modified pension benefits through labor agreements with the police union in October, 2010 and with the fire union in December, 2012. The changes in contributions and benefits included:

- Changing minimum retirement age from 45 to 50
- Requiring 30 years of service instead of 25 years to get the maximum benefit
- Implementing a Career Overtime Average (COTA) so that employees could not artificially enhance their pension by working a lot of overtime or selling comp time in their last year of employment
- Smoothing the salary on which a pension calculation was based from highest 1 year to highest 3 years
- Pensions for new hires was based only on base salary
- For all groups excluding the police union, capping pension for new hires at 65% and requiring 30 years of service
- Increased City contributions to the system by 13% to 14%

The employees who are part of the COPFRS are from four (4) bargaining groups. The Omaha Police Officers Association entered into a collective bargaining agreement for 2015 through 2020 which agreement was effective in March, 2017. As part of that collective bargaining agreement, the City and the employees have agreed to contribute an additional 0.75% of wages into the system for 2018 to 2020. There was also a change to the widow's pension provision to provide that a widow's pension is only payable if the officer and spouse were married as of the date of the officer's retirement. Police Management has a collective bargaining agreement for 2019 which does not include any additional pension contributions. They collective bargaining agreements for the Professional Firefighters' Association and the Fire Management group expired at the end of 2018 and negotiations are ongoing. It is not expected that these negotiations will include any additional pension contributions.

The Trustees of the System and the City believe some of the changes described above are starting to see a positive effect. As of January 1, 2018, the system had market assets of approximately $723.5 million and a funded ratio of 53%. The system had a funded ratio of 52% in 2017. The System had a funded ratio of 49% in 2014 and 44% in 2013. The actuarial contribution rate needed for the system on 1/1/2018 was 53.199% and the total amount being contributed was 51.287%, this contribution shortfall was a change from recent years, not surprising due to the change of assumptions. The unfunded actuarial liability is amortized, as a level percentage of payroll, over a closed 30-year period that began on January 1, 2014.

The most recent projection had the system fully funded in 2046. A copy of that projection is attached for your convenience.

As requested, we enclose the most recent Actuarial Experience Study which was submitted in March, 2018 and the most recent Actuarial Valuation Report which was presented to the Board in November, 2018. The System's actuary is in the process of finalizing the Actuarial Valuation Report effective January 1, 2019. We would anticipate approval by the Board in November, 2019 and we will provide that report to you as soon as possible after approval.

If you or the Committee should have any questions regarding this report please let me know.

Sincerely,

Stephen B. Curtiss

Stephen B. Curtiss
Finance Director

Enclosures

COPFRS EXHIBIT 1

	ITEM	2014		2015		2016		2017		2018		2019	
	Net Assets (actuarial value)	1/1/14	$ 548,360,223	1/1/15	$ 590,191,585	1/1/16	$ 621,403,975	1/1/17	$ 656,171,797	1/1/18	$ 706,595,615	1/1/19	$ 737,383,005
	Unfunded Actuarial Accrued Liability	1/1/14	$ 622,607,530	1/1/15	$ 598,810,636	1/1/16	$ 602,562,135	1/1/17	$ 611,737,378	1/1/18	$ 648,833,922	1/1/19	$ 669,449,659
1a	Funding Status	1/1/14	46.8%	1/1/15	49.6%	1/1/16	50.8%	1/1/17	51.8%	1/1/18	52.1%	1/1/19	52.4%
1b	Assumed Rate of Return	1/1/14	8.00%	1/1/15	8.00%	1/1/16	8.00%	1/1/17	8.00%	1/1/18	7.75%	1/1/19	7.75%
1c	Actual Return	FYE 12/31/14	4.94%	FYE 12/31/15	0.70%	FYE 12/31/16	9.10%	FYE 12/31/17	15.00%	FYE 12/31/18	-2.33%	FYE 12/31/19	Pending
	Normal Cost ($)	1/1/14	$ 27,285,957	1/1/15	$ 26,946,719	1/1/16	$ 27,426,921	1/1/17	$ 27,892,194	1/1/18	$ 28,859,311	1/1/19	$ 29,894,631
1e	Normal Cost (%)	1/1/14	23.103%	1/1/15	22.191%	1/1/16	22.146%	1/1/17	21.991%	1/1/18	22.211%	1/1/19	22.034%
1f	Actuarial Rate of Contribution (ARC)	1/1/14	52.138%	1/1/15	50.031%	1/1/16	50.097%	1/1/17	50.212%	1/1/18	53.199%	1/1/19	53.447%
1d	Member Contribution Rate	1/1/14	15.35%-17.23%	1/1/15	15.35%-17.23%	1/1/16	15.35%-17.23%	1/1/17	15.35%-17.23%	1/1/18	16.10%-17.23%	1/1/19	16.10%-17.23%
1d	Employer Contribution Rate	1/1/14	32.97%-33.67%	1/1/15	32.97%-33.67%	1/1/16	32.97%-33.67%	1/1/17	32.97%-33.67%	1/1/18	32.97%-34.42%	1/1/19	32.97%-34.42%
	Contribution Margin	1/1/14	-1.544%	1/1/15	0.550%	1/1/16	0.446%	1/1/17	0.297%	1/1/18	-1.912%	1/1/19	-2.190%
1f	Actuarial Required Contribution	FYE 12/31/14	$ 43,524,890	FYE 12/31/15	$ 41,910,737	FYE 12/31/16	$ 42,468,180	FYE 12/31/17	$ 45,939,660	FYE 12/31/18	$ 50,677,368	FYE 12/31/19	Pending
1g	Employer Actual Dollars Contributed	FYE 12/31/14	$ 41,851,986	FYE 12/31/15	$ 42,138,403	FYE 12/31/16	$ 43,235,242	FYE 12/31/17	$ 46,608,741	FYE 12/31/18	$ 48,796,603	FYE 12/31/19	Pending
1g	% of ARC by Employer Contribution	FYE 12/31/14	96.16%	FYE 12/31/15	100.54%	FYE 12/31/16	101.81%	FYE 12/31/17	101.46%	FYE 12/31/18	96.29%	FYE 12/31/19	Pending

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October 2, 2018

Mr. Allen Herink
City of Omaha
1819 Farnam Street
Omaha, NE 68183

Re: Projections of Long Term Funding for City of Omaha Police and Fire Retirement System

Dear Al:

At your request, we have completed an actuarial projection of the future valuation results for the City of Omaha Police and Fire Retirement System (COPFRS) over the next 30 years. This projection is based on the January 1, 2018 actuarial valuation results and was performed to examine the long-term funding of the System, given the current scheduled contribution rates and benefit structures in place.

This letter summarizes the results of our study and quantifies the expected changes in the funded ratio, unfunded actuarial liability, and full funding date (the year in which the actuarial assets is equal to or greater than the System's liability, i.e., no unfunded actuarial liability exists). For purposes of this study, the System's funding was studied each year over the long term, assuming all of the actuarial assumptions are met in the future, including the investment return assumption.

Results

The projection results that were used in our analysis require the use of many assumptions. Please see the "Disclaimers, Caveats, and Limitations" section later in this letter for a detailed discussion of the assumptions and methods used to produce the projected financial results for the System. To the extent actual experience deviates from that assumed, the future valuation results will also vary, perhaps significantly, from those in our projections.

Based on our projections, the Omaha Police and Fire Retirement System is expected to reach fully funded status (no unfunded actuarial liability) in the January 1, 2046 valuation. These projections assume all assumptions, including the investment return assumption (7.75%), are met in all future years.

Results

Exhibit 1, attached to this letter, shows the projected actuarial liability, actuarial assets, unfunded actuarial liability and funded ratio (actuarial assets divided by actuarial liability) for each year in the 30-year projection period for COPFRS. Exhibits 2 and 3 are graphs of the data on Exhibit 1. The blue bar is the portion of the total actuarial liability that is funded (which is equal to the lesser of the asset value and the actuarial liability) and the red bar represents the unfunded actuarial liability. The green bars near the end of the projection period reflect the fact that assets exceed the actuarial liability. As these exhibits indicate, COPFRS is projected to reach full funding (no unfunded actuarial liability) in 2046.

The projections are dependent on a number of factors including the actuarial assumptions used. If other assumptions were used, the results would vary, perhaps significantly.

Disclaimers, Caveats, and Limitations

This analysis is based primarily upon the benefit provisions, scheduled contribution rates and actuarial assumptions used in the January 1, 2018 actuarial valuation and the actuarial projection model prepared by Cavanaugh Macdonald Consulting, LLC. Significant items are noted below:

- An investment return assumption of 7.75% was used to project both assets and liabilities for the COPFRS.
- The liabilities and costs used in our analysis were based on the actuarial assumptions regarding mortality, disability, retirement, salary increases, and termination of employment used in the January 1, 2018 actuarial valuation.
- The number of active members in the System was assumed to remain at the current level over the entire projection period. When current active members were assumed to terminate or retire, they were replaced by new hires with a similar entry age as recent new hires.
- It was assumed there would be no change to the plan provisions or scheduled contribution rates over the projection period.
- The entry age normal cost method was used to develop the normal costs.
- We relied upon the membership data as provided by the City for the January 1, 2018 actuarial valuation. The numerical results depend on the integrity of this information. If there are material inaccuracies in the data, the results presented herein may be different and our calculations may need to be revised.

The projections used in our analysis are based on one set of assumptions out of a range of many possibilities over a 30-year projection period. A different set of assumptions could lead to different results. The projections are not intended to predict the System's financial condition or its ability to pay benefits in the future, and do not provide any guarantee of future financial soundness of the System. Over time, a defined benefit plan's total cost will depend on a number of factors including

the amount of benefits paid, the number of people paid benefits, the duration of the benefit payments, plan expenses, and the amount of earnings on assets invested to pay benefits. These amounts and other variables are uncertain and unknowable at the time our calculations were prepared. Because not all of the assumptions will unfold exactly as expected, actual results will differ from the projections. To the extent that actual experience deviates significantly from the assumptions, the funded status of the System could be significantly better or significantly worse than indicated in this study.

I am a member of the American Academy of Actuaries and meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinion contained herein. I am available to provide additional information or answer questions if it is necessary or desirable.

Please feel free to contact me if you have questions or need anything further.

Sincerely,

Patrice Beckham

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

Exhibit 1

Omaha Police and Fire Retirement System

Projections of Future Valuation Results

Jan 1 Year	Unfunded Actuarial Liability ($M)	Actuarial Liability ($M)	Actuarial Assets ($M)	Funded Ratio
2018	$648.83	$1,355.43	$706.60	52.1%
2019	651.09	1,408.80	757.71	53.8%
2020	652.98	1,464.78	811.80	55.4%
2021	654.26	1,522.83	868.57	57.0%
2022	655.98	1,583.08	927.10	58.6%
2023	656.72	1,644.08	987.36	60.1%
2024	655.93	1,698.64	1,042.71	61.4%
2025	654.02	1,750.70	1,096.68	62.6%
2026	651.10	1,798.04	1,146.94	63.8%
2027	647.11	1,845.70	1,198.59	64.9%
2028	641.59	1,892.45	1,250.86	66.1%
2029	634.23	1,934.75	1,300.52	67.2%
2030	625.84	1,968.18	1,342.34	68.2%
2031	616.65	2,008.75	1,392.10	69.3%
2032	604.49	2,042.71	1,438.22	70.4%
2033	589.82	2,074.43	1,484.61	71.6%
2034	572.66	2,107.04	1,534.38	72.8%
2035	552.38	2,134.92	1,582.54	74.1%
2036	528.99	2,164.64	1,635.65	75.6%
2037	501.26	2,198.69	1,697.43	77.2%
2038	467.45	2,219.60	1,752.15	78.9%
2039	428.30	2,233.35	1,805.05	80.8%
2040	384.46	2,250.51	1,866.05	82.9%
2041	336.17	2,286.02	1,949.85	85.3%
2042	281.64	2,327.40	2,045.76	87.9%
2043	218.93	2,367.73	2,148.80	90.8%
2044	147.63	2,407.34	2,259.71	93.9%
2045	68.90	2,454.13	2,385.23	97.2%
2046	(19.01)	2,503.65	2,522.66	100.8%
2047	(117.30)	2,554.29	2,671.59	104.6%
2048	(225.52)	2,609.10	2,834.62	108.6%

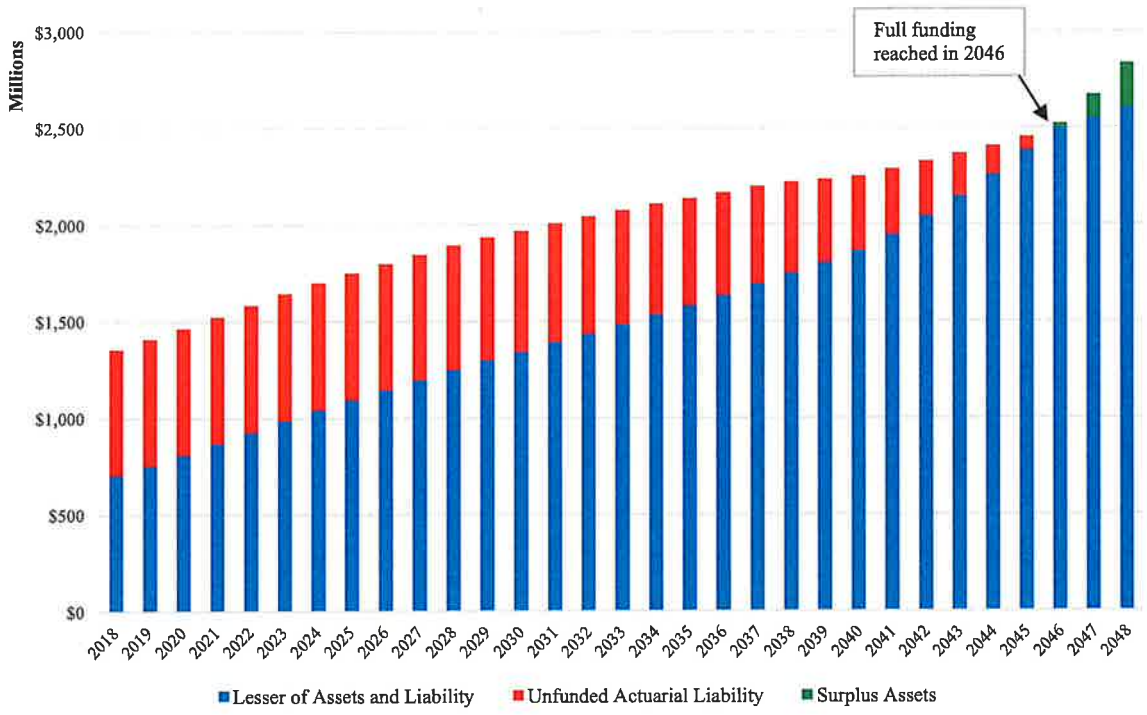
Projections are based on the January 1, 2018 actuarial valuation and assume that all assumptions are met in the future, including the 7.75% assumed rate of return. To the extent actual experience differs from that assumed, the actual valuation results in future years will also differ from the projections shown here. Please see the January 1, 2018 valuation report for details on the actuarial methods and assumptions used in this study.

This exhibit is an attachment to a letter that contains important information and explanations regarding the numbers shown. Therefore, it should only be considered with the accompanying letter from Cavanaugh Macdonald Consulting dated October 2, 2018.

Exhibit 2

Omaha Police and Fire Retirement System

Projected Assets and Unfunded Actuarial Liability (UAL)

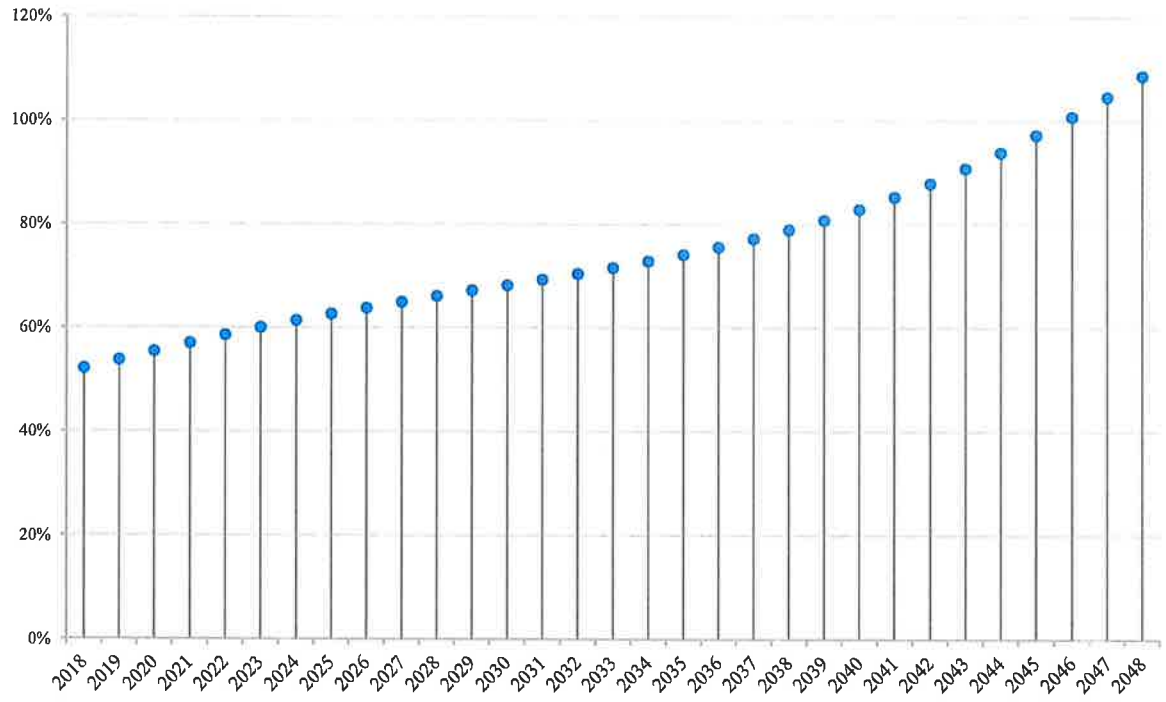


These projections assume that all actuarial assumptions are met in each future year, including the 7.75% assumed rate of return on the market value of assets. This graph should only be considered with the letter from Cavanaugh Macdonald Consulting dated October 2, 2018 which contains important information regarding the assumptions and methods used in the projections.

Exhibit 3

Omaha Police and Fire Retirement System

Projected Funded Ratio



These projections assume that all actuarial assumptions are met in each future year, including the 7.75% assumed rate of return on the market value of assets. This graph should only be considered with the letter from Cavanaugh Macdonald Consulting dated October 2, 2018 which contains important information regarding the assumptions and methods used in the projections.

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City of Omaha Police & Fire Retirement System
Annual Report to the Nebraska Legislative Committee

Presented by:
Patrice A. Beckham, FSA, EA, FCA, MAAA

November 19, 2019

www.CavMacConsulting.com

Background

- City ordinance requires a 50/50 split of costs between the city and members
- Both benefit provisions and contribution rates are negotiated in labor contracts
  - As a result, the actuarial contribution rate is not contributed each year
  - This results in a contribution shortfall/(margin) in each valuation
- COPFRS members include employees from four different bargaining groups
  - No current bargaining agreement for Fire
  - Two (police union and management) have agreements in place through 2020

Changes Made to Address Long-Term Funding

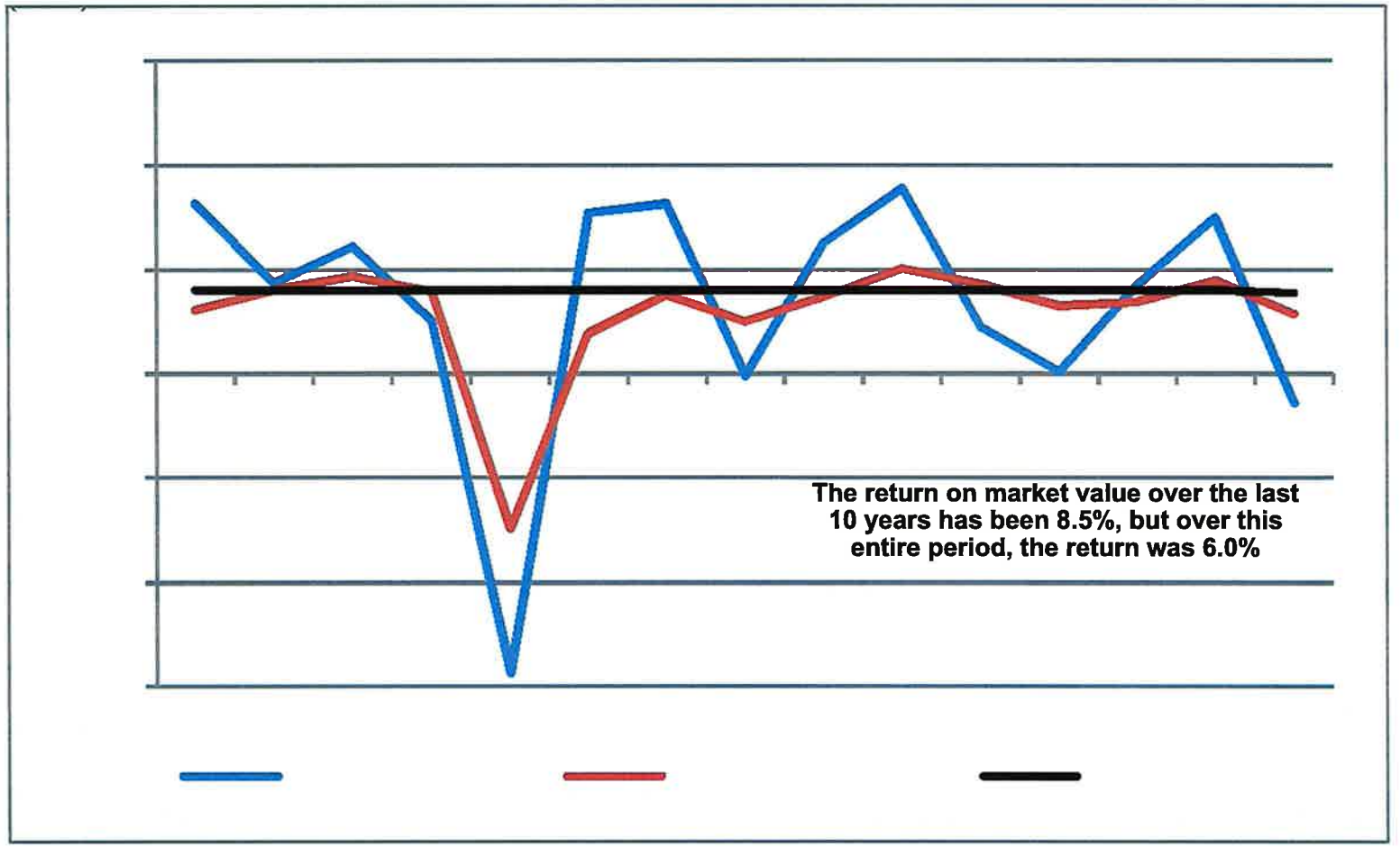
- Return on market value for 2008 was -28% and projections indicated assets would be depleted in about 20 years
- Significant changes to both benefit provisions and contributions were made in 2010 for Police and in 2013 for Fire
  - Later retirement age (age 45 to age 50)
  - Existing employees' benefit accrual decreased
  - Benefits based on highest 78 pay periods vs highest 26
  - Career Overtime Average is excluded for new hires
  - Retiree spouse death benefits decreased to 50% of member's benefit
  - Increased contributions by city by 13% for Police and12% for Fire

Changes in Actuarial Assumptions
(first reflected in 1/1/2018 Valuation)

- Lowering Investment return assumption from 8.00% to 7.75%
  - Decrease in inflation assumption which impacted other economic assumptions like general wage increase
  - Other changes (retirement, disability, termination of employment, merit component of salary increase) were less significant

- Net impact of changes was a $41 million increase in the UAL, a 1.6% decrease in the funded ratio, and an increase in actuarial contribution rate of 3.76%
  - Contribution margin of 1.844% (before assumption changes) moved to a contribution shortfall of 1.912%

Historical Investment Returns



- Major factor impacting the 1/1/2019 valuation was the return of -2.8% for calendar year 2018

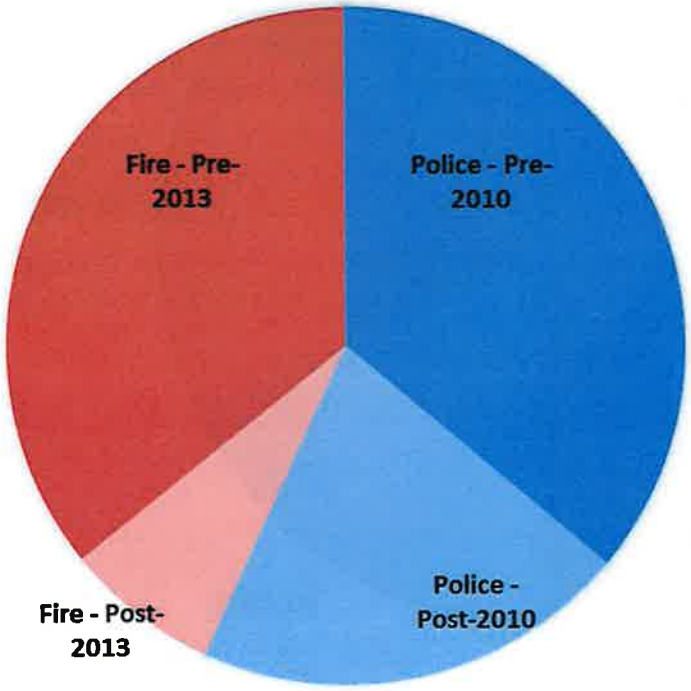
Key Valuation Measurements

	2019	2018	2017
Actuarial Liability ($M)	$1,407	$1,355	$1,268
Actuarial Assets ($M)	737	707	656
Unfunded Actuarial Liability	$669	$649	$612
Funded Ratio (Actuarial Assets)	52%	52%	52%
Funded Ratio (Market Assets)	49%	53%	50%
Scheduled Contribution Rate	51.257%	51.287%	50.509%
Actuarial Contribution Rate	(53.447%)	(53.199%)	(50.212%)
Contribution Margin/(Shortfall)	(2.190%)	(1.912%)	0.297%

Note: actuarial assumptions were changed in the 2018 valuation.

Numbers may not add due to rounding.

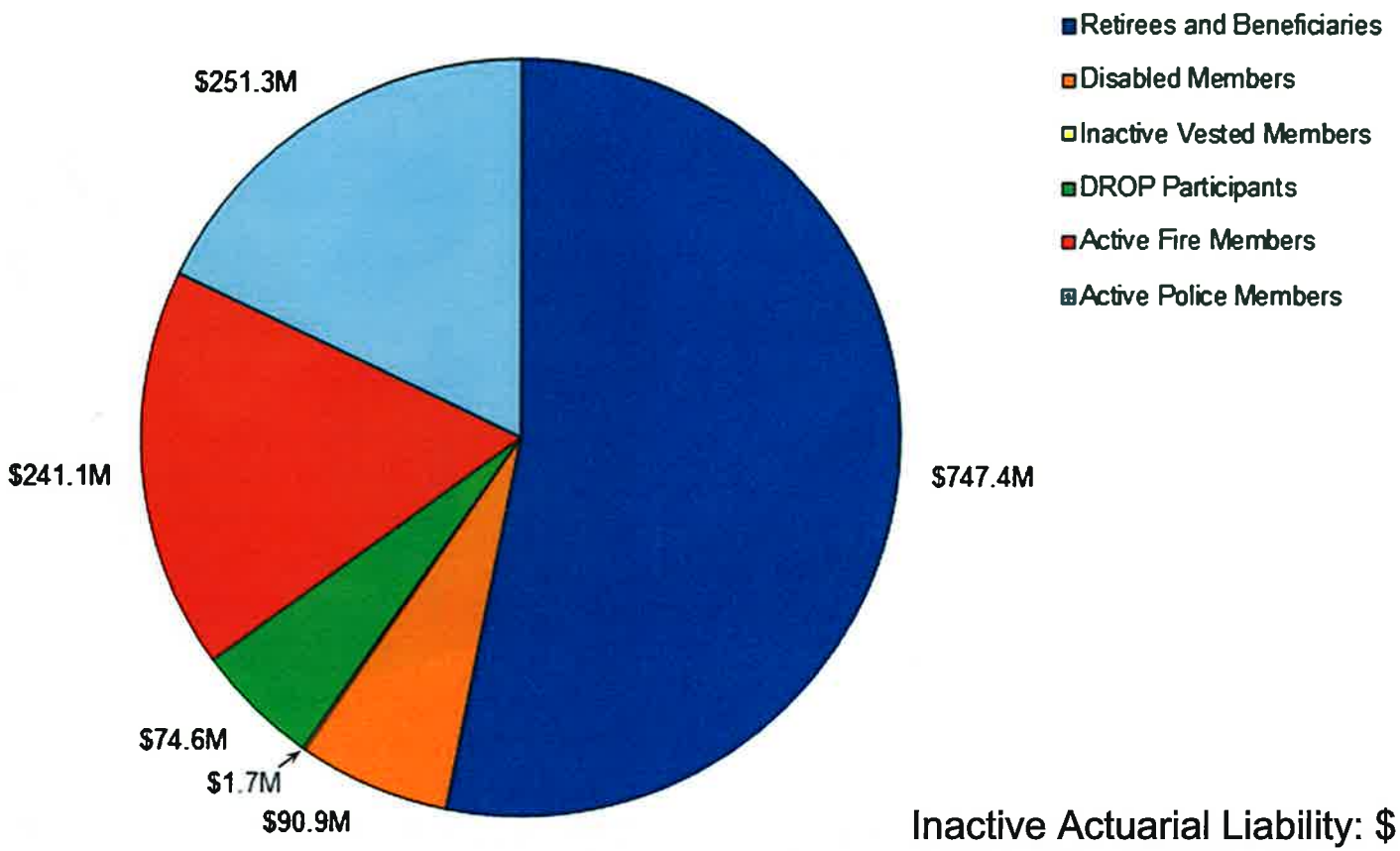
2019 Active Membership by Tier



Active Counts	Police	Fire	Total
Tier 1*	525	520	1,045
Tier 2*	302	107	409
Total	827	627	1,454
Percentage of Tier 2 Actives	**37%**	**17%**	**28%**

*** Tier 2 members are actives hired after January 1, 2010 for Police and January 1, 2013 for Fire.**

Actuarial Liabilities by Membership Group



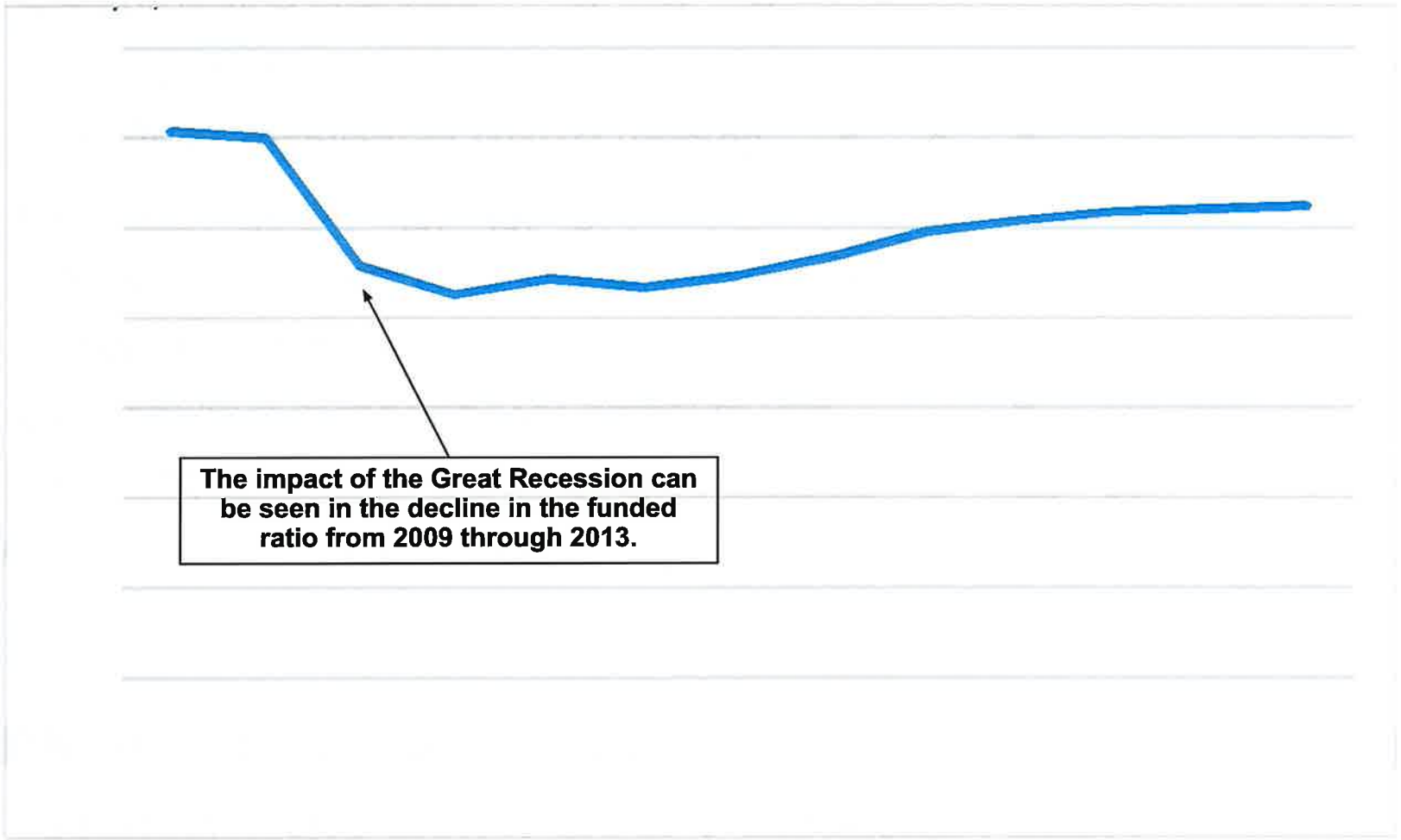
Note: numbers may not add due to rounding.

Inactive Actuarial Liability:	$ 915M
Active Actuarial Liability:	492M
Total Actuarial Liability:	$1,407M
Actuarial Assets:	737M
Unfunded Liability:	$ 669M

Changes to Unfunded Actuarial Liability ($M)

	2018	2017	2016					
UAL January 1	$649	$612	$603					
– Expected change from amortization method				6	10	11		
– Contributions below/(above) actuarial rate					2	(1)	(1)	
– Investment experience				14	(6)	7		
– Liability experience				1	(5)	(8)		
– Other experience	(3)	(2)	0					
– Change in valuation of QDRO records				0	0	0		
– Assumption/data changes	0	41	0					
– Plan provision changes	0	0	0					
UAL December 31	$669	$649	$612					

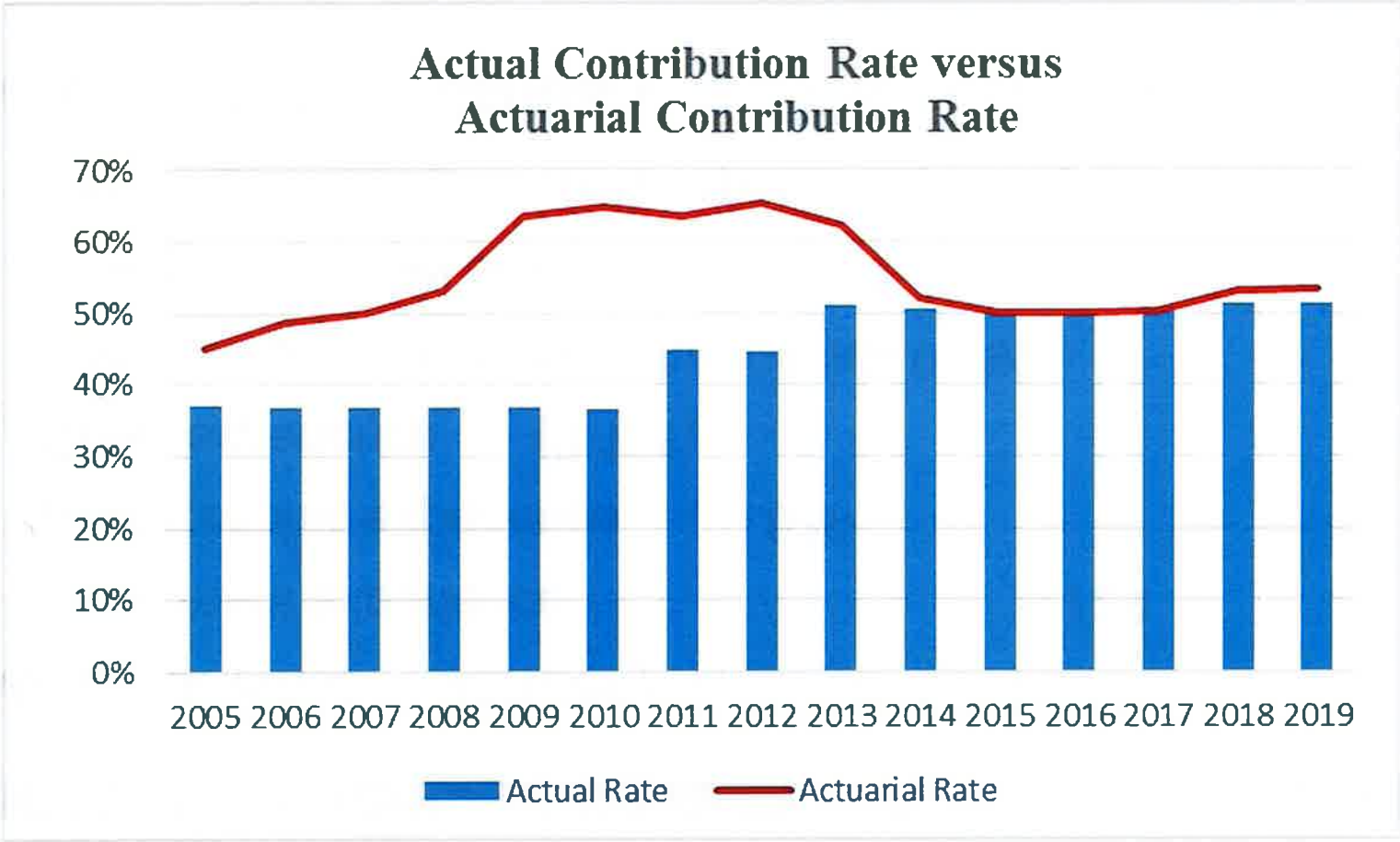
Historical Funded Status



Change in Contribution Rate

Actuarial Rate - January 1, 2018	53.199%
– Investment experience	0.729
– Demographic experience	0.039
– Other experience	(0.121)
– Contributions below the actuarial rate	0.099
– Change in normal cost rate	(0.177)
– Payroll growth higher than expected	(0.321)
Actuarial Rate - January 1, 2019	53.447%
Employee Contribution Rate	16.564%
City Contribution Rate	34.693%
Contribution Shortfall	**(2.190%)**

Actual vs Actuarial Contributions



In recent years, the actual contributions have been closer to the actuarial contribution rate, but it will take many years of higher contributions and lower benefit costs to improve the funded ratio.

Closing Comments

- Investment return in 2018 was -2.8% compared to expected return of 7.75%
  - Note contributions do not automatically change to reflect actual experience
  - No projection model prepared this year, but return in 2018 is expected to extend the projected full funding date
- It will take many years for the impact of the benefit and contribution changes to improve the funded ratio
- Consequently, the funded ratio is expected to remain low (below 70%) for around 20 years

Cavanaugh Macdonald
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The City of Omaha
Police & Fire Retirement System

Actuarial Valuation as of
January 1, 2019

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Cavanaugh Macdonald
CONSULTING, LLC
The experience and dedication you deserve

November 11, 2019

Board of Trustees
City of Omaha Police and Fire Retirement System
1819 Farnam Street
Omaha, NE 68183

RE: January 1, 2019 Actuarial Valuation

Dear Members of the Board:

In accordance with your request, we have completed an actuarial valuation of the City of Omaha Police and Fire Retirement System as of January 1, 2019 for the plan year ending December 31, 2019. The major findings of the valuation are contained in this report. There have been no changes to the plan provisions or actuarial assumptions and methods since the prior valuation.

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

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: experience differing from that anticipated by the 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 System'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.

Actuarial computations presented in this report are for purposes of determining the actuarial contribution rates for funding the System. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals. Determinations for purposes other than meeting these requirements may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes. For example, actuarial computations for purposes of fulfilling financial accounting requirements for the System under Governmental Accounting Standards No. 67 and No. 68 are provided in separate reports.

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.

This is to certify that the independent consulting actuaries are members of the American Academy of Actuaries, have experience in performing valuations for public retirement plans, and meet the qualification standards of the American Academy of Actuaries to render the actuarial opinion contained herein. The valuation was prepared in accordance with principles of practice prescribed by the Actuarial Standards Board and the actuarial calculations were performed by qualified actuaries in accordance with accepted actuarial procedures, based on the current provisions of the retirement plan and on actuarial assumptions that are internally consistent and reasonable based on the actual experience of the System and future expectations. The Board of Trustees has the final decision regarding the selection of the assumptions and adopted them as indicated in Appendix B.

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

Sincerely,

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

Bryan Hoge, FSA, EA, FCA, MAAA
Senior Actuary

TABLE OF CONTENTS

EXECUTIVE SUMMARY

This report presents the results of the January 1, 2019 actuarial valuation of the City of Omaha Police and Fire Retirement System. The primary purposes of performing the valuation are:

- to estimate the liabilities for the future benefits expected to be provided by the System;
- to determine the actuarial contribution rate, based on the System's funding policy;
- to measure and disclose various asset and liability measures;
- to assess and disclose the key risks associated with funding the System;
- to monitor any deviation between actual System experience and experience predicted by the actuarial assumptions so that recommendations for assumption changes can be made when appropriate;
- to analyze and report on any significant trends in contributions, assets and liabilities over the past several years.

There have been no changes to the plan provisions, actuarial assumptions, or actuarial methods since the prior valuation.

The actuarial valuation results provide a "snapshot" view of the System's financial condition on January 1, 2019. The unfunded actuarial liability (UAL) in the current valuation is $669 million, an increase of $20 million from last year's UAL of $649 million. The valuation results reflect net unfavorable experience for the past plan year as determined by the fact the actual UAL was higher than expected, based on the actuarial assumptions used in the January 1, 2018 actuarial valuation. Unfavorable experience on the actuarial value of assets resulted in an actuarial loss of $14 million and unfavorable demographic experience produced an actuarial loss on liabilities of $1 million. The unfavorable demographic experience was primarily due to salary increases larger than expected and more members electing to retire or DROP than expected, based on the actuarial assumptions.

The System uses an asset smoothing method in the valuation process. As a result, the System's funded status and the actuarial contribution rate are based on the actuarial (smoothed) value of assets – not the market value. The net investment return on the market value of assets during 2018 was -2.8%, but due to deferred investment gains from prior years, the rate of return on the actuarial value of assets for the 2018 plan year was +5.7%. However, this return is still lower than the expected return of 7.75% so the System experienced an actuarial loss on assets. In addition, the net deferred investment experience changed from a $17 million deferred gain in last year's valuation to a $43 million deferred loss in the current valuation (actuarial value of assets is about 6% higher than market value). Actual returns over the next few years will determine the rate at which the deferred investment loss of $43 million is recognized. Given the current deferred losses, a return of 14% on the market value of assets in 2019 would be necessary to produce a 7.75% return on the actuarial value of assets and avoid an actuarial loss on assets in the January 1, 2020 valuation.

The number of active members increased from the prior valuation which resulted in higher covered payroll than expected which favorably impacts the funding of the System. The actual payroll increase was 4.3% compared with the expected increase of 3.25%.

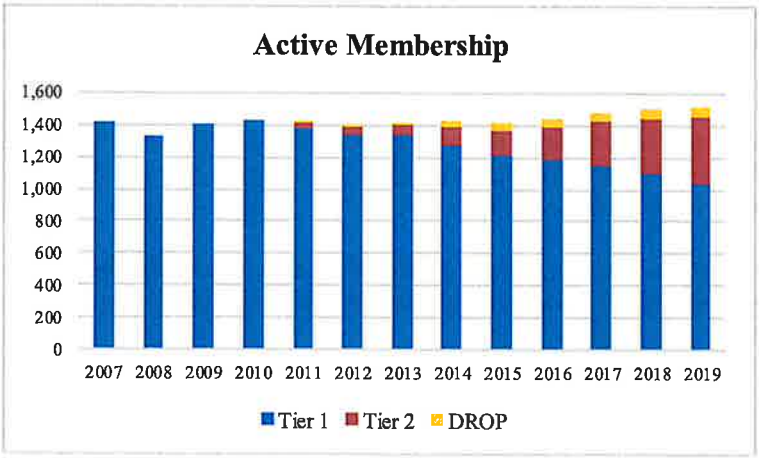
A summary of the key results from the January 1, 2019 valuation is shown in the following table. Additional detail on the changes and experience affecting the valuation results can be found in the following sections of this Board Summary.

	January 1, 2019	January 1, 2018
Unfunded Actuarial Liability ($M)	$669.4	$648.8
Funded Ratio (Actuarial Assets)	52.41%	52.13%
Employee Contribution Rate	16.564%	16.573%
Total City Contribution Rate	34.693%	34.714%
Normal Cost Rate	22.034%	22.211%
UAL Amortization Rate	31.413%	30.988%
Total Contribution Rate	53.447%	53.199%
Contribution (Shortfall)/Margin	(2.190%)	(1.912%)

MEMBERSHIP

There was a total of 1,523 contributing members (active and DROP) in the 2019 valuation compared to 1,509 in the 2018 valuation, a 0.9% increase. The number of non-DROP members was 1,454 in the 2019 valuation compared to 1,446 in the 2018 valuation. The graph below shows the number of contributing members in the valuation over the last 13 years. The size of the active group has varied somewhat over this period, but remained fairly stable. The current count of 1,523 is the highest over the 13 year period. When the number of active members increases, it has a positive impact on the System's funding as covered payroll is higher and more contributions are received. The UAL is amortized assuming covered payroll will grow at 3.25% per year. If total payroll grows more than 3.25% (as this year when the increase was 4.3%), the UAL payment is divided by payroll that is larger than expected, which results in a lower UAL contribution rate. As a result, the total actuarial contribution rate is lower and the contribution shortfall is also lower.

The graph also shows the portion of total actives covered by Tier 1 provisions and Tier 2 provisions (for Police members hired on/after January 1, 2010 and Fire members hired on/after January 1, 2013). In the 2019 valuation, there were 409 Tier 2 members, about 28% of the total active membership. In the January 1, 2018 valuation, the about 24% of the total active group were Tier 2 members.



ASSETS

As of January 1, 2019, the System had total funds of $694.2 million, when measured on a market value basis. This was a decrease of $29.3 million from the prior year and represents an approximate net rate of return of around -2.8%.

The market value of assets is not used directly in the actuarial calculation of the System's funded status and the actuarial contribution rate. An asset valuation method is used to smooth the effects of market fluctuations. The actuarial value of assets is equal to the expected asset value (based on last year's actuarial value of assets, net cash flows and a rate of return equal to the actuarial assumed rate of return for 2018 of 7.75%) plus 25% of the difference between the actual market value and the expected asset value. See Exhibit 2 for the detailed development of the actuarial value of assets as of January 1, 2019. The rate of return on the actuarial value of assets was 5.7% which is below the assumed return of 7.75% during 2018, producing an actuarial loss.

The components of the change in the market value and actuarial value of assets are shown below:

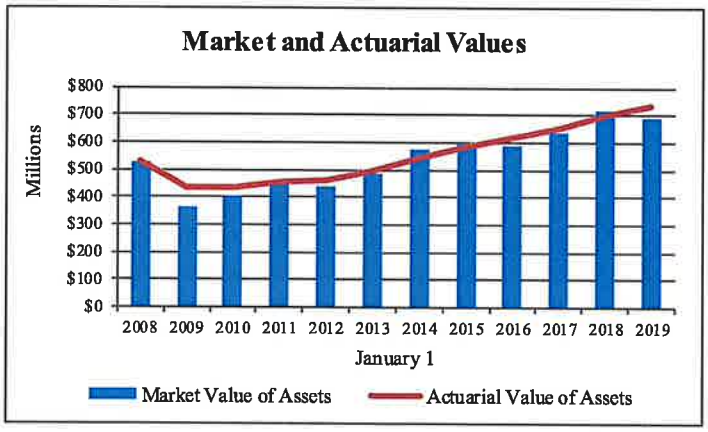
	Market Value ($M)	Actuarial Value ($M)
Net Assets, January 1, 2018	$ 723.5	$ 706.6
• City and Member Contributions	+ 71.8	+ 71.8
• Benefit Payments and Refunds	– 81.0	– 81.0
• Investment Gain/(Loss)	+ (20.1)	+ 40.0
Net Assets, January 1, 2019	$ 694.2	$ 737.4
Estimated Net Rate of Return	(2.8%)	5.7%

The deferred investment loss that is not recognized as of January 1, 2019 is $43.2 million, compared with a deferred investment gain of $16.9 million in last year's valuation. The unrecognized loss will be reflected in the determination of the actuarial value of assets for funding purposes over time, to the extent there are no future gains to offset the deferred loss. This means that earning the assumed net rate of investment return of 7.75% per year on a market value basis will result in an actuarial loss on the actuarial value of assets in the future.

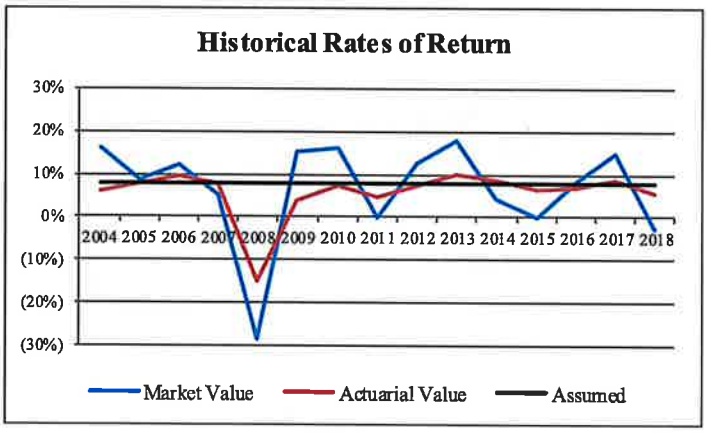
The unrecognized investment loss is 6.2% of the market value of assets at January 1, 2019. If the deferred loss was recognized immediately in the actuarial value of assets, the unfunded actuarial liability would increase by $43.2 million to $712.6 million, the funded percentage would decrease from 52% to 49%, the actuarially determined contribution rate would increase from 53.447% to 55.718%, and the contribution shortfall of 2.190% would increase to 4.461%.

A comparison of asset values on both a market and actuarial basis for the last six years is shown below:

	January 1 ($M)					
	2019	2018	2017	2016	2015	2014
Actuarial Value of Assets	$737	$707	$656	$621	$590	$548
Market Value of Assets	$694	$724	$636	$594	$600	$579
Actuarial Value/Market Value	106%	98%	103%	105%	98%	95%



An asset smoothing method is used to mitigate the volatility in the market value of assets. By using a smoothing method, the actuarial (or smoothed) value is expected to be both above and below the pure market value at different points in time. The significant investment losses in 2008 resulted in the actuarial value of assets exceeding the market value from 2009 through 2013. Since 2014, the actuarial and market values have been relatively close.



The rate of return on the actuarial value of assets has been less volatile than the rate of return on the market value of assets, which is the reason for using a smoothing method. However, during this time period, the rate of return on the actuarial value of assets has been at or below the assumed rate of return for most of the period. Due to smoothing, the calendar year 2008 return impacted the return on actuarial value for many years.

LIABILITIES

The first step in determining the actuarial contribution rate for the System is to calculate the liabilities for all expected future benefit payments. These liabilities represent the present value of future benefits (PVFB) expected to be earned by the current members, assuming that all actuarial assumptions are realized. Thus, the PVFB reflects service and salary increases that are expected to occur in the future before benefit payments commence. The various components of the PVFB can be found in the liabilities portion of the valuation balance sheet (see Exhibit 3).

The other critical measurement of System liabilities in the valuation process is the actuarial liability. This is the portion of the PVFB that will not be paid by the future normal costs (i.e. it is the portion of the PVFB that is allocated to past service).

The following chart compares the actuarial liability and assets for the current and prior valuation.

	As of January 1	
	2019	2018
Actuarial Liability	$ 1,406,832,664	$ 1,355,429,537
Assets at Actuarial Value	(737,383,005)	(706,595,615)
Unfunded Actuarial Liability (Actuarial Value)	$ 669,449,659	$ 648,833,922
Funded Ratio (Actuarial Value)	52%	52%
Actuarial Liability	$ 1,406,832,664	$ 1,355,429,537
Assets at Market Value	(694,210,435)	(723,507,045)
Unfunded Actuarial Liability (Market Value)	$ 712,622,229	$ 631,922,492
Funded Ratio (Market Value)	49%	53%

Note that the funded ratio does not indicate whether or not the System assets are sufficient to settle benefits earned to date. The funded ratio, by itself, also may not be indicative of future funding requirements.

EXPERIENCE FOR THE 2018 PLAN YEAR

The difference between the actuarial liability and the actuarial value of assets at the same date is referred to as the unfunded actuarial liability (UAL). Benefit improvements, experience gains/losses, changes in the actuarial assumptions or methods, and actual contributions made will impact the amount of the unfunded actuarial liability.

Experience or actuarial gains (or losses) result from actual experience that is more (or less) favorable than anticipated based on the actuarial assumptions. These "experience" (or actuarial) gains or losses are reflected in the unfunded actuarial liability and are measured as the difference between the expected unfunded actuarial liability and the actual unfunded actuarial liability, taking into account any changes due to assumptions, methods or benefit provision changes. The experience for 2018, in total, was unfavorable. There was an actuarial loss of $14 million on the actuarial value of assets and an actuarial loss of $1 million on actuarial liabilities. The largest sources of loss on the liabilities were due to salary increases larger than expected and more retirements (including DROP) than expected, based on the actuarial assumptions.

The change in the unfunded actuarial liability between January 1, 2018 and January 1, 2019 is shown below (in millions):

Unfunded Actuarial Liability, January 1, 2018	$649
· Expected change in UAL	6
· Contribution shortfall in 2018	2
· Investment experience	14
· Demographic experience	1
· Other experience	(3)
Unfunded Actuarial Liability, January 1, 2019	$669

CONTRIBUTION LEVELS

The actuarial contribution to the System is composed of two parts:

(1) The normal cost (which is the allocation of costs attributed to the current year of service) and,
(2) The amortization payment on the Unfunded Actuarial Liability (UAL).

The normal cost rate is independent of the System's funded status and represents the cost, as a percent of payroll, of the benefits provided by the System which is allocated to the current year of service. Only active members have a normal cost.

Beginning with the 2018 valuation, the UAL is amortized using a "layered" approach. The UAL as of January 1, 2018 continues to be amortized according to the existing schedule at that time (25 years remain as of January 1, 2019). Each new amount of UAL generated as a result of actuarial experience in subsequent years is established as a separate UAL base, with a separate payment schedule over a closed 20-year period.

		January 1, 2019	January 1, 2018	% Chg
1.	Normal Cost Rate	22.034%	22.211%	(0.8)
2.	UAL Contribution Rate	31.413%	30.988%	1.4
3.	Total Contribution Rate (1) + (2)	53.447%	53.199%	0.5
4.	Employee Contribution Rate	16.564%	16.573%	(0.1)
5.	City Contribution Per Ordinance	33.768%	33.750%	0.1
6.	City Prior Service Payment	0.925%	0.964%	(4.0)
7.	Contribution (Shortfall)/Margin (4) + (5) + (6) - (3)	(2.190%)	(1.912%)	14.5

The total normal cost for the System is 22.034% of pay. When offset by the expected employee contributions for 2019, the employer portion of the normal cost is 5.470% of pay. The normal cost represents the long-term cost of the benefit structure in the System, given the current actuarial assumptions and plan membership. As current active member leave in the future and are replaced by new hires who are covered by a different benefit structure, with a lower cost, the normal cost rate is expected to decline.

The System's total actuarial contribution rate (payable as a percent of member payroll) increased by 0.248% of pay, from 53.199% in the January 1, 2018 valuation to 53.477% in the January 1, 2019 valuation. As a result, there is a contribution shortfall of 2.190% in the current valuation (actual contribution rates are less than the actuarial contribution rate). The primary components of the change in the total actuarial contribution rate are shown in the following table:

	Rate	
Total Actuarial Contribution Rate, January 1, 2018	53.199	%
• Actuarial (Gain) / Loss - Investment Experience	0.729	
• Actuarial (Gain) / Loss - Demographic Experience	0.039	
• Other Experience	(0.121)	
• Contributions Below the Actuarial Rate	0.099	
• Change in Normal Cost Rate	(0.177)	
• Payroll Growth Higher than Expected	(0.321)	
Total Actuarial Contribution Rate, January 1, 2019	53.447	%

As the table above illustrates, the most significant factor in the increase in the actuarial contribution rate was the actuarial loss on assets, which increased the actuarial contribution rate by 0.729%. Payroll growth higher than expected offset part of the impact of the asset experience. Due to the increase in the actuarial contribution rate, last year's contribution shortfall of 1.912% of pay is now a contribution shortfall of 2.190% of pay in the current valuation.

COMMENTS

On January 1, 2019, the actuarial value of assets was $737 million and the market value of assets was $694 million. Due to the return on the market value of assets of -2.8% in 2018, the deferred investment gain of $17 million that existed in the prior valuation has become a $43 million deferred investment loss in the current valuation. The return on the actuarial value of assets was below the assumed rate of return (7.75%) which resulted in a $14 million actuarial loss. There was also a liability loss of $1 million during 2018, primarily due to salary increases larger than expected and more retirements (including DROP) than expected, based on the actuarial assumptions. The funded ratio, based on the actuarial value of assets, remains low but held steady at 52%.

As of January 1, 2019, there were 409 Tier 2 members, about 28% of the total active membership, up from 24% in the January 1, 2018 valuation. As a higher portion of total actives is covered by Tier 2 provisions, the normal cost of the System will continue to decline. However, the majority of the liability will remain with the Tier 1 members for many years.

The actuarial contribution rate for calendar year 2019 exceeds the current contribution rates for the members and the City, producing a contribution shortfall of 2.190% of payroll. The contribution shortfall of 2.190% is based on the actuarial valuation performed on January 1, 2019 which is a snapshot measurement on that date and which assumes no future change in either the normal cost rate or the UAL contribution rate. While the System's financial health is expected to improve in future years due to a decrease in the normal cost rate over time, the impact on the System's long-term funding cannot be quantified without performing an open group projection of future valuation results. Such a project is outside the scope of this valuation assignment, but we strongly encourage the System to perform such modeling to assist the Board and other interested parties in the evaluation of the long-term financial health of the System. The model can also be used to perform important analysis of the various risks related to funding the System.

As mentioned earlier in this report, the System uses an asset smoothing method in the actuarial valuation. While this is a very common practice for public retirement systems, it is important to be aware of the potential impact of the unrecognized investment experience. The key valuation results from the 2019 valuation, using both the actuarial and market value of assets, are shown in the following table to provide full disclosure of the impact of asset smoothing on the funding of the System.

($ Millions)	Using Actuarial Value of Assets	Using Market Value of Assets
Actuarial Liability	$1,406.8	$1,406.8
Asset Value	737.4	694.2
Unfunded Actuarial Liability	669.4	712.6
Funded Ratio	52.4%	49.3%
Normal Cost Rate	22.034%	22.034%
UAL Contribution Rate	31.413%	33.684%
Actuarial Contribution Rate	53.447%	55.718%
Employee Contribution Rate	16.564%	16.564%
City Contribution Rate	34.693%	34.693%
Contribution (Shortfall)/Margin	(2.190%)	(4.461%)

A typical retirement plan faces many different risks. The term "risk" is most commonly associated with an outcome with undesirable results. However, in the actuarial world risk can be translated as uncertainty. The actuarial valuation process uses many actuarial assumptions to project how future contributions and investment returns will meet the cash flow needs for future benefit payments. Of course, we know that actual experience will not unfold exactly as anticipated by the assumptions and that uncertainty, whether favorable or unfavorable, creates risk. Actuarial Standard of Practice Number 51 defines risk as the potential of actual future measurements to deviate from expected results due to actual experience that is different than the actuarial assumptions. Risk evaluation is an important part of managing a defined benefit plan. Please see Section II of this report for an in-depth discussion of the specific risks facing the City of Omaha Police and Fire Retirement System.

THE CITY OF OMAHA POLICE AND FIRE RETIREMENT SYSTEM

PRINCIPAL VALUATION RESULTS

	January 1, 2019	January 1, 2018	% Chg
MEMBERSHIP			
1. Active Membership			
- Police Active Members			
- Tier 1	525	560	(6.3)
- Tier 2	302	253	19.4
- Total	827	813	1.7
- Fire Active Members			
- Tier 1	520	546	(4.8)
- Tier 2	107	87	23.0
- Total	627	633	(0.9)
- Total Active Members	1,454	1,446	0.6
- Number of DROP Participants	69	63	9.5
- Total Employees	1,523	1,509	0.9
- Projected Payroll for Upcoming Fiscal Year	$143,575,171	$137,647,929	4.3
- Average Projected Pay	$94,271	$91,218	3.3
2. Inactive Membership			
- Number of Retirees / Beneficiaries	1,291	1,262	2.3
- Number of Disabled Members	224	223	0.4
- Number of Inactive Vesteds	8	11	(27.3)
- Average Annual Benefit	$49,496	$48,068	3.0
- Number of Participants Due a Refund	9	11	(18.2)
ASSETS AND LIABILITIES			
1. Net Assets			
- Market Value	$694,210,435	$723,507,045	(4.0)
- Actuarial Value	$737,383,005	$706,595,615	4.4
2. Actuarial Liability	$1,406,832,664	$1,355,429,537	3.8
3. Unfunded Actuarial Liability	$669,449,659	$648,833,922	3.2
4. Funded Ratios			
Actuarial Value Assets / Actuarial Liability	52.41%	52.13%	0.5
Market Value Assets / Actuarial Liability	49.35%	53.38%	(7.5)
CONTRIBUTIONS			
1. Normal Cost Rate	22.034%	22.211%	(0.8)
2. UAL Rate	31.413%	30.988%	1.4
3. Total Contribution Rate (1) + (2)	53.447%	53.199%	0.5
4. Employee Contribution Rate	16.564%	16.573%	(0.1)
5. City Contribution Per Ordinance	33.768%	33.750%	0.1
6. City Prior Service Payment	0.925%	0.964%	(4.0)
7. Contribution (Shortfall)/Margin (4) + (5) + (6) - (3)	(2.190%)	(1.912%)	14.5

EXHIBIT 1
SUMMARY OF FUND ACTIVITY

(Market Value Basis)

For Year Ended December 31, 2018

Assets at January 1, 2018	$	723,507,045
Receipts:		
City Contributions		48,796,603
Employee Contributions		23,016,566
Investment Earnings, Net of Expenses		(20,041,135)
Total Receipts		51,772,034
Disbursements:		
Benefits Payments		73,961,179
Refund of Contributions		7,083,844
Administrative Expenses		23,621
Total Disbursements		81,068,644
Assets as of December 31, 2018	$	694,210,435
Annualized Net Yield		(2.8%)

EXHIBIT 2

DETERMINATION OF ACTUARIAL VALUE OF ASSETS

The actuarial value of assets is used to minimize the impact of annual fluctuations in the market value of investments on the contribution rate. The current asset valuation method is called the "Expected +25% Method."

The "expected value" of assets is determined by applying the investment return assumption to last year's actuarial value of assets and the net difference of receipts and disbursements for the year. The actual market value is compared to the expected value and 25% of the difference (positive or negative) is added to the expected value to arrive at the actuarial value of assets for the current year.

1.	Actuarial Value of Assets as of January 1, 2018	$	706,595,615
2.	Actual Receipts / Disbursements		
	a. Total Contributions		71,813,169
	b. Benefit Payments/Other		(81,045,023)
	c. Net Change		(9,231,854)
3.	Expected Actuarial Value of Assets as of January 1, 2019 [(1) * 1.0775] + [(2c) * 1.0775 ½]		751,773,862
4.	Market Value of Assets as of January 1, 2019		694,210,435
5.	Excess of Market Value over Expected Actuarial Value as of January 1, 2019		(57,563,427)
6.	Preliminary Actuarial Value of Assets as of January 1, 2019 [(3) + 25% of (5)]		737,383,005
7.	Calculation of 20% Corridor		
	a. 80% of (4)		555,368,348
	b. 120% of (4)		833,052,522
8.	Final Actuarial Value of Assets as of January 1, 2019 (6), but not < (7a), nor > (7b)	$	737,383,005
9.	Rate of Return on Actuarial Value of Assets		5.7%

EXHIBIT 2 (continued)

A historical comparison of the market and actuarial value of assets is shown below:

Date	Market Value of Assets (MVA)	Actuarial Value of Assets (AVA)	AVA / MVA
1/1/2008	$529,923,390	$530,493,413	100.1%
1/1/2009	365,923,877	439,108,652	120.0%
1/1/2010	405,390,038	440,478,409	108.7%
1/1/2011	452,640,303	456,158,774	100.8%
1/1/2012	440,429,392	467,375,458	106.1%
1/1/2013	489,800,140	495,847,234	101.2%
1/1/2014	579,494,652	548,360,223	94.6%
1/1/2015	599,927,168	590,191,585	98.4%
1/1/2016	594,178,499	621,403,975	104.6%
1/1/2017	636,381,482	656,171,797	103.1%
1/1/2018	723,507,045	706,595,615	97.7%
1/1/2019	694,210,435	737,383,005	106.2%

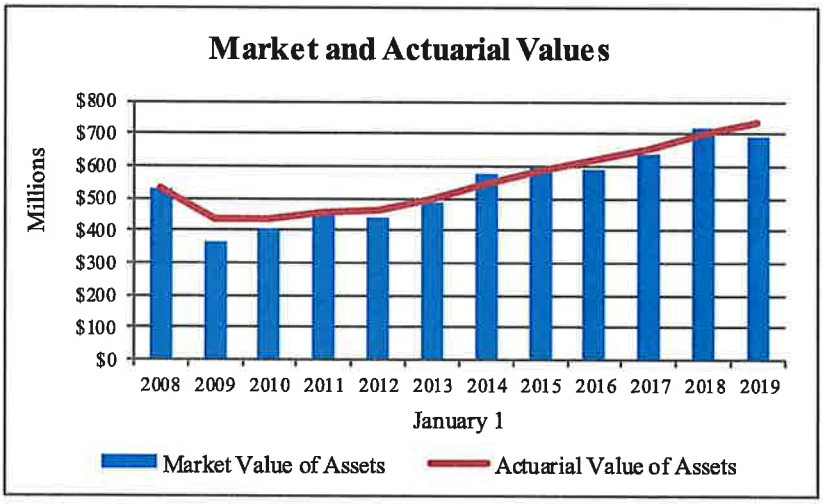


EXHIBIT 3

ACTUARIAL BALANCE SHEET

An actuarial statement of the status of the plan in balance sheet form as of January 1, 2019 is as follows:

Assets

Current assets (actuarial value)		$ 737,383,005
Present value of future normal costs		268,309,123
Present value of future contributions to fund unfunded actuarial liability		669,449,659
Total Assets		$ 1,675,141,787

Liabilities

Present value of future retirement benefits for:

Active employees	$ 741,000,808	
DROP participants - account balances	10,562,130	
DROP participants - annuities	68,092,991	
Retired employees, contingent annuitants and spouses receiving benefits	747,394,115	
Disabled members	90,876,541	
Inactive vested employees	1,593,862	
Inactive employees due refunds	74,574	
Total		$ 1,659,595,021
Present value of future death benefits payable upon death of active members		9,293,658
Present value of future benefits payable upon termination of active members		6,253,108
Total Liabilities		$ 1,675,141,787

EXHIBIT 4

UNFUNDED ACTUARIAL LIABILITY

As of January 1, 2019

The actuarial liability is the portion of the present value of future benefits which will not be paid by future normal costs. The actuarial value of assets is subtracted from the actuarial liability to determine the unfunded actuarial liability.

The City makes scheduled payments of $1,327,600 annually through the year 2028 in addition to the payroll related contributions. The present value of these contributions was applied to the Unfunded Actuarial Liability (UAL) to determine the amount of the UAL to be funded as a percent of payroll (contribution rates).

1.	Present Value of Future Benefits	$ 1,675,141,787
2.	Present Value of Future Normal Costs	268,309,123
3.	Actuarial Liability (1) – (2)	1,406,832,664
4.	Actuarial Value of Assets	737,383,005
5.	Unfunded Actuarial Liability (3) – (4)	669,449,659
6.	Present Value of Prior Service Payments	9,352,245
7.	Adjusted Unfunded Actuarial Liability (Payable from Payroll Related Contributions) (5) – (6)	$ 660,097,414

EXHIBIT 5

CALCULATION OF ACTUARIAL GAIN / (LOSS)
For Plan Year Ending December 31, 2018

Liabilities		
1. Actuarial liability less prior service payments as of January 1, 2018	$	1,345,470,994
2. Normal cost for 2018		28,859,311
3. Interest at 7.75% on (1) and (2) to December 31, 2018		106,510,599
4. Benefit payments during 2018		(81,045,023)
5. Interest on benefit payments		(3,081,897)
6. Expected actuarial liability as of December 31, 2018	$	1,396,713,984
7. Actuarial liability less prior service payments as of December 31, 2018	$	1,397,480,419
Assets		
8. Actuarial value of assets as of January 1, 2018	$	706,595,615
9. Contributions during 2018		71,813,169
10. Benefit payments during 2018		(81,045,023)
11. Interest on items (8), (9) and (10)		54,410,101
12. Expected actuarial value of assets as of December 31, 2018	$	751,773,862
13. Actual actuarial value of assets as of December 31, 2018	$	737,383,005
Gain / (Loss)		
14. Expected unfunded actuarial liability (6) – (12)	$	644,940,122
15. Actual unfunded actuarial liability (7) – (13)	$	660,097,414
16. Actuarial Gain / (Loss) (14) – (15)	$	(15,157,292)
17. Actuarial Gain / (Loss) on Actuarial Assets (13) – (12)	$	(14,390,857)
18. Actuarial Gain / (Loss) on Actuarial Liability (6) – (7)	$	(766,435)

EXHIBIT 6

ANALYSIS OF EXPERIENCE

The purpose of conducting an actuarial valuation of a retirement plan is to estimate the costs and liabilities for the benefits expected to be paid from the plan, to determine the annual level of contribution for the current plan year that should be made to support these benefits and, finally, to analyze the plan's experience. The costs and liabilities of this retirement plan depend not only upon the benefit formula and plan provisions but also upon factors such as the investment return on the Fund, mortality rates among active and retired members, withdrawal and retirement rates among active members, rates at which salaries increase and the rate at which the cost of living increases.

The actuarial assumptions employed as to these and other contingencies in the current valuation are set forth in Appendix B of this report.

Since the overall results of the valuation will reflect the choice of assumptions made, periodic studies of the various components of the plan's experience are conducted in which the experience for each component is analyzed in relation to the assumption used for that component (called an experience study). This summary is not intended to be an actual "experience study" but rather an analysis of sources of gain and loss in the past plan year.

Gain/(Loss) By Source

The System experienced a net actuarial loss on liabilities of $0.8 million during the plan year ended December 31, 2018, and an actuarial loss on assets of $14.4 million. The net actuarial loss was $15.2 million. The major components of this net actuarial experience loss are shown below:

Liability Sources		**Gain/(Loss)**
Salary Increases	$	(1,143,000)
Mortality		2,064,000
Terminations		113,000
Retirements/DROP		(2,320,000)
Disability		(38,000)
New Entrants/Rehires		(292,000)
Miscellaneous		850,000
Total Liability Gain/(Loss)	$	(766,000)
Asset Gain/(Loss)	$	(14,391,000)
Net Actuarial Gain/(Loss)	$	(15,157,000)

EXHIBIT 7

SCHEDULE OF AMORTIZATION BASES

The System amortizes the unfunded actuarial liability (UAL) using a "layered" approach for the UAL where the UAL as of January 1, 2018 (legacy UAL) is amortized over a closed amortization period of 26 years (25 years remaining as of January 1, 2019). Changes to the UAL resulting from changes in the set of actuarial assumptions are amortized over an appropriate period, as determined by the Board of Trustees in consultation with the actuary. Changes to the UAL in subsequent years that result from actual experience that is different than expected, based on the actuarial assumptions, are set up as a new amortization base with payments determined as a level-percent of pay over a closed 20-year period beginning on that valuation date. The total UAL payment is the sum of the amortization payments on each of the amortization bases.

Amortization Bases	Original Amount	January 1, 2019 Remaining Years	Year of Last Payment	Outstanding Balance as of January 1, 2019	Annual Contribution (mid-year)
2018 Legacy UAL	$ 638,875,379	25	2043	$ 645,489,460	$ 42,670,346
2019 Experience Base	14,607,954	20	2038	14,607,954	1,103,356
Total				**$ 660,097,414**	**$ 43,773,702**

EXHIBIT 8

DEVELOPMENT OF 2019 ACTUARIAL CONTRIBUTION RATE

The actuarial cost method used to determine the required level of annual contributions to support the expected benefits is the Entry Age Normal Cost Method. Under this method, the total cost is comprised of the normal cost rate and the unfunded actuarial liability (UAL) payment. The System is financed by contributions from the employees and the City.

1. Normal Cost During 2019		
a. Retirement	$	24,826,529
b. Disability		3,391,811
c. Pre-retirement death		746,755
d. Termination		929,536
e. Total	$	29,894,631
2. Expected Payroll in 2019 for Current Actives	$	135,677,910
3. Normal Cost Rate (1e) / (2)		22.034%
4. Unfunded Actuarial Liability Payable from Payroll Related Contributions	$	660,097,414
5. Unfunded Actuarial Liability (UAL) Payment	$	43,773,702
6. Prior Service Payment		1,327,600
7. Total Projected Payroll for 2019, Including DROP Members	$	143,575,171
8. UAL and Prior Service Payment as a Percent of Pay [(5) + (6)] / (7)		31.413%
9. Total Actuarial Contribution Rate (3) + (8)		53.447%
10. Employee Contribution Rate		16.564%
11. City Ordinance Contribution Rate		33.768%
12. City Prior Service Contribution Rate		0.925%
13. Contribution (Shortfall)/Margin (10) + (11) + (12) - (9)		(2.190%)

SECTION II

RISK CONSIDERATIONS

Actuarial Standards of Practice are issued by the Actuarial Standards Board and are binding on credentialed actuaries practicing in the United States. These standards generally identify what the actuary should consider, document and disclose when performing an actuarial assignment. In September, 2017, Actuarial Standard of Practice Number 51, Assessment and Disclosure of Risk in Measuring Pension Obligations, (ASOP 51) was issued as final with application to measurement dates on or after November 1, 2018. This ASOP, which applies to funding valuations, actuarial projections, and actuarial cost studies of proposed plan changes, is first applicable for the January 1, 2019 actuarial valuation for the City of Omaha Police and Fire Retirement System (System).

A typical retirement plan faces many different risks, but the greatest risk is the inability to make benefit payments when due. If plan assets are depleted, benefits may not be paid which could create legal and litigation risk or the plan could become "pay as you go". The term "risk" is most commonly associated with an outcome with undesirable results. However, in the actuarial world, risk can be translated as uncertainty. The actuarial valuation process uses many actuarial assumptions to project how future contributions and investment returns will meet the cash flow needs for future benefit payments. Of course, we know that actual experience will not unfold exactly as anticipated by the assumptions and that uncertainty, whether favorable or unfavorable, creates risk. ASOP 51 defines risk as the potential of actual future measurements to deviate from expected results due to actual experience that is different than the actuarial assumptions.

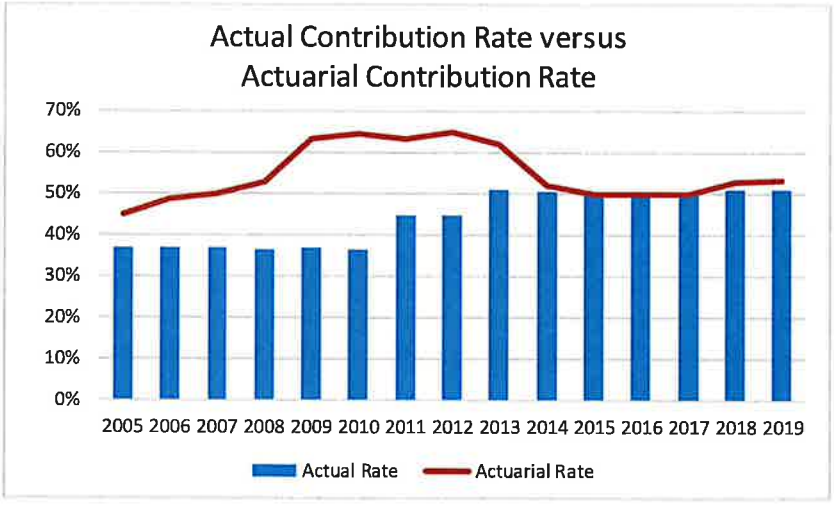
The various risk factors for a given plan can have a significant impact – positive or negative – on the actuarial projection of liability and contribution rates.

There are a number of risks inherent in the funding of a defined benefit plan. These include:

- economic risks, such as investment return and price inflation;
- demographic risks such as mortality, payroll growth, aging population including impact of baby boomers, and retirement ages;
- contribution risk, i.e., the potential for contribution rates to be too high for the plan sponsor to pay;
- external risks such as the regulatory and political environment.

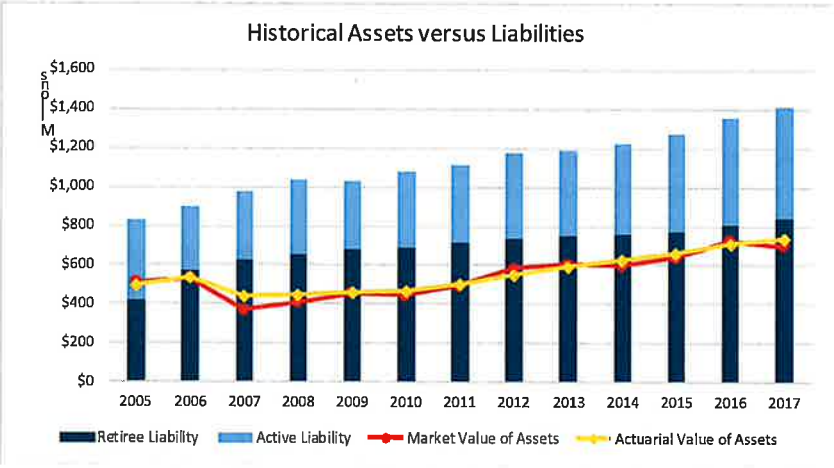
Although the last two are real risks to the retirement system, ASOP 51 does not require the actuary to opine on those risks so no discussion is included here.

There is typically a direct correlation between healthy, well-funded retirement systems and consistent contributions equal to the full actuarial contribution rate each year. The City of Omaha Police and Fire Retirement System is funded by fixed contribution rates made by both the members and the City. This funding approach tends to create more risk than a system whose funding policy requires that the actuarial contribution rate be made each year. Although changes have been made in the past to both the benefits and the contribution rates to address long-term funding concerns, there is typically a lag in implementing such changes. As the following graph illustrates, the fixed contribution rates, which vary by Police, Fire, and the City, have failed to meet the actuarial required contribution amount for 12 of the last 15 years which has restricted the improvement in funded status.



Funding a retirement system with fixed contribution rates creates some unique funding challenges. The most significant risk factor for the City of Omaha Police and Fire' Retirement System is investment return because the inherent volatility of returns due to the asset allocation can produce wide variations in the actual return on the market value of assets from year to year. When the actual experience is lower than expected (based on the assumption), the contributions to the System do not automatically adjust to compensate for the loss of investment income. The delay in responding to adverse economic experience, due to the fact any changes to the benefits or contributions must be resolved in the bargaining process, can result in a significant reduction in funded status before corrective action occurs.

The current funded status of the System, using the market value of assets, is 49%. The market value of assets on January 1, 2019 was $694 million while the retiree liability on the same date was $838 million. Essentially, the current assets are only sufficient to fund about 83% of the retiree liability (and 0% of the active liability), assuming all actuarial assumptions are met, as shown below.



A key demographic risk for all retirement systems, including the City of Omaha Police and Fire Retirement System, is improvements in mortality (longevity) greater than anticipated. While the actuarial assumptions reflect small, continuous improvements in mortality experience over time and these assumptions are refined every experience study, the risk arises because there is a possibility of some sudden shift, perhaps from a significant medical breakthrough that could quickly increase liabilities. Likewise, there is some possibility of a significant public health crisis that could result in a significant number of additional deaths in a short time period, which would also be significant, although more easily absorbed. While either of these events could happen, it represents a small probability and thus represents much less risk to funding the System than the volatility associated with investment returns.

Finally, because the System is funded with fixed contribution rates, there is no adjustment made to the contribution rate when future covered payroll is lower than assumed. This can result from a decrease in the number of active members, lower actual salary increases than assumed, or a combination of the two. If payroll does not grow as expected, fewer contribution dollars are received and funding progress is delayed which means that a decrease in the number of active members will have a negative impact on the funding of the System. Likewise, an increase in the number of active members, as has occurred over the past ten to fifteen years, improves the funding of the System.

The following exhibits summarize some historical information that helps indicate how certain key risk metrics have changed over time. Many are due to the maturing of the retirement system.

EXHIBIT 9

HISTORICAL ASSET VOLATILITY RATIOS

As a retirement system matures, the size of the market value of assets increases relative to the covered payroll of active members, on which the System is funded. The size of the plan assets relative to covered payroll, sometimes referred to as the asset volatility ratio, is an important indicator of the contribution risk for the System. The higher this ratio, the more sensitive a plan's actuarial contribution rate is to investment return volatility. In other words, it will be harder to recover from investment losses with increased contributions. For COPFRS, the ratio has held fairly steady over this period.

Actuarial Valuation Date	Market Value of Assets	Estimated Plan Year Payroll	Asset Volatility Ratio	Increase in ACR with a Return 10% Lower than Assumed*
1/1/2005	$420,348,491	$84,765,936	4.96	3.75%
1/1/2006	453,323,009	91,319,898	4.96	3.75%
1/1/2007	507,608,781	99,029,486	5.13	3.87%
1/1/2008	529,923,390	95,109,680	5.57	4.21%
1/1/2009	365,923,877	100,808,720	3.63	2.74%
1/1/2010	405,390,038	110,963,955	3.65	2.76%
1/1/2011	452,640,303	105,025,610	4.31	3.26%
1/1/2012	440,429,392	110,027,537	4.00	3.02%
1/1/2013	489,800,140	116,056,740	4.22	3.19%
1/1/2014	579,494,652	121,040,325	4.79	3.62%
1/1/2015	599,927,168	126,843,763	4.73	3.57%
1/1/2016	594,178,499	129,633,658	4.58	3.46%
1/1/2017	636,381,482	133,044,481	4.78	3.61%
1/1/2018	723,507,045	137,647,929	5.26	3.97%
1/1/2019	694,210,435	143,575,171	4.84	3.66%

Note: Years prior to 1/1/2011 were provided by the prior actuary.

*The impact of asset smoothing is not reflected in the impact on the Actuarial Contribution Rate (ACR). Current year assumptions are used for all years shown.

The assets at January 1, 2019 are 4.84 times payroll, so underperforming the investment return assumption by 10.00% (i.e., earn -2.25% for one year) is equivalent to 48% of payroll. While the actual impact in the first year is mitigated by the asset smoothing method and amortization of the UAL, this illustrates the significant risk associated with volatile investment returns.

EXHIBIT 10

HISTORICAL CASH FLOWS

Plans with negative cash flows will typically experience increased sensitivity to investment return volatility. Cash flows, for this purpose, are measured as contributions less benefit payments. If the System has negative cash flows and experiences returns below the assumed rate, there are fewer assets to be reinvested to earn the higher returns that typically follow. While any negative cash flow will produce such a result, it is typically a negative cash flow of more than 5% of MVA that may cause significant concerns. Due to increased contributions, the cash flow is less negative in recent years.

Year Begin	Market Value of Assets (MVA)	Contributions	Benefit Payments	Net Cash Flow	Net Cash Flow as a Percent of MVA
1/1/2005	$420,348,491	$27,264,755	$32,526,841	($5,262,086)	(1.25%)
1/1/2006	453,323,009	29,320,239	32,816,158	(3,495,919)	(0.77%)
1/1/2007	507,608,781	33,816,618	34,875,910	(1,059,292)	(0.21%)
1/1/2008	529,923,390	37,023,254	40,439,702	(3,416,448)	(0.64%)
1/1/2009	365,923,877	36,559,759	50,218,091	(13,658,332)	(3.73%)
1/1/2010	405,390,038	38,332,084	53,934,735	(15,602,651)	(3.85%)
1/1/2011	452,640,303	40,455,387	57,582,167	(17,126,780)	(3.78%)
1/1/2012	440,429,392	47,691,935	59,049,363	(11,357,428)	(2.58%)
1/1/2013	489,800,140	54,943,697	60,615,888	(5,672,191)	(1.16%)
1/1/2014	579,494,652	65,498,698	63,124,761	2,373,937	0.41%
1/1/2015	599,927,168	61,475,619	66,558,852	(5,083,233)	(0.85%)
1/1/2016	594,178,499	61,843,394	68,509,652	(6,666,258)	(1.12%)
1/1/2017	636,381,482	63,450,117	71,482,718	(8,032,601)	(1.26%)
1/1/2018	723,507,045	68,366,987	75,783,117	(7,416,130)	(1.03%)
1/1/2019	694,210,435	71,813,169	81,045,023	(9,231,854)	(1.33%)

Note: Years prior to 1/1/2011 were provided by the prior actuary.

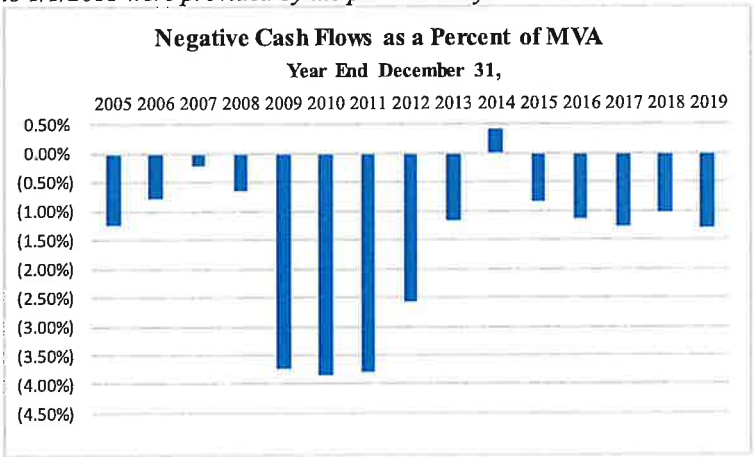


EXHIBIT 11

LIABILITY MATURITY MEASUREMENTS

Most public sector retirement systems have been in operation for many years. As a result, they tend to have aging plan populations, and in some cases declining active populations, resulting in an increasing ratio of retirees to active members and a growing percentage of retiree liability. When more of the total liability resides with retirees, investment volatility has a greater impact on the funding of the system since it is more difficult to restore the system financially after losses occur when there is comparatively less payroll over which to spread costs.

Year End	Retiree Liability (a)	Total Actuarial Liability (b)	Retiree Percentage (a / b)	Covered Payroll (c)	Ratio (b / c)
12/31/2004	N/A	$657,650,175	N/A	$86,800,000	7.58
12/31/2005	N/A	746,490,736	N/A	91,700,000	8.14
12/31/2006	421,211,382	829,097,202	50.8%	99,600,000	8.32
12/31/2007	571,615,718	898,199,279	63.6%	99,500,000	9.03
12/31/2008	628,626,169	971,989,970	64.7%	103,900,000	9.36
12/31/2009	653,663,831	1,034,716,125	63.2%	111,200,000	9.31
12/31/2010	682,671,068	1,028,866,353	66.4%	105,025,610	9.80
12/31/2011	690,568,696	1,077,607,299	64.1%	110,027,537	9.79
12/31/2012	718,209,902	1,108,874,778	64.8%	116,056,740	9.55
12/31/2013	735,256,472	1,170,967,753	62.8%	124,051,668	9.44
12/31/2014	754,837,275	1,189,002,221	63.5%	126,843,763	9.37
12/31/2015	755,079,053	1,223,966,110	61.7%	129,633,658	9.44
12/31/2016	774,112,739	1,267,909,175	61.1%	133,044,481	9.53
12/31/2017	805,195,802	1,355,429,537	59.4%	137,647,929	9.85
12/31/2018	838,270,656	1,406,832,664	59.6%	143,575,171	9.80

Note: Years prior to 1/1/2011 were provided by the prior actuary.

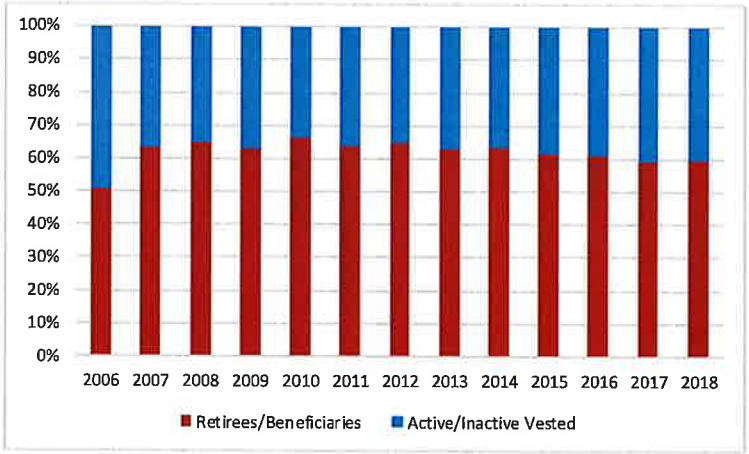


EXHIBIT 12

HISTORICAL MEMBER STATISTICS

Valuation Date January 1,	Number of Active	Number of Retired	Active/ Retired
2005	1,390	1,182	1.18
2006	1,412	1,172	1.20
2007	1,423	1,208	1.18
2008	1,335	1,375	0.97
2009	1,407	1,417	0.99
2010	1,431	1,423	1.01
2011	1,427	1,449	0.98
2012	1,401	1,444	0.97
2013	1,423	1,466	0.97
2014	1,425	1,482	0.96
2015	1,421	1,500	0.95
2016	1,445	1,473	0.98
2017	1,481	1,488	1.00
2018	1,509	1,485	1.02
2019	1,523	1,515	1.01

Note: Years prior to 1/1/2011 were provided by prior actuary.

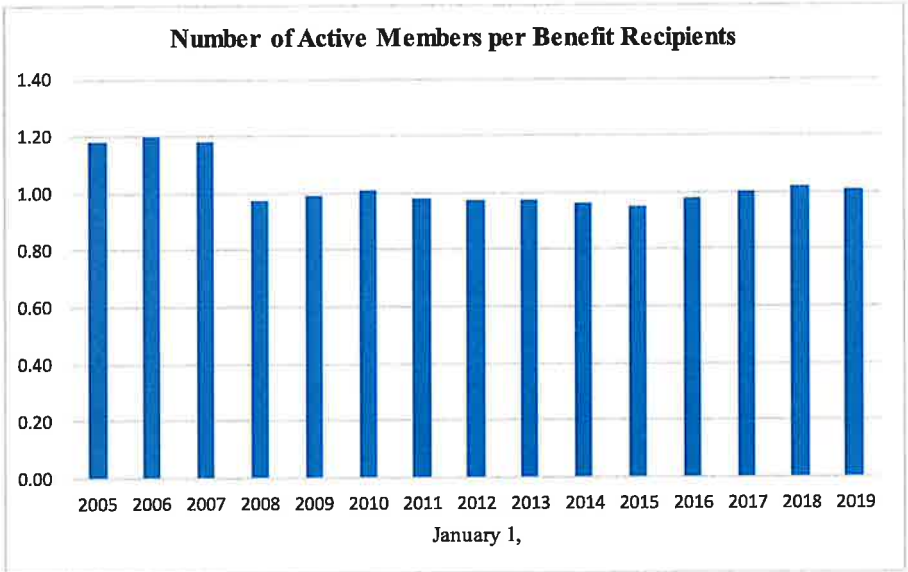


EXHIBIT 13

COMPARISON OF VALUATION RESULTS UNDER ALTERNATE INVESTMENT RETURN ASSUMPTIONS

This exhibit compares the key January 1, 2019 valuation results under five (5) different investment return assumptions to illustrate the impact of different assumptions on the funding of the System. Note that only the investment return assumption is changed, as identified in the heading below. All other assumptions are unchanged for purposes of this analysis.

Investment Return Assumption	**7.25%**	**7.50%**	**7.75%**	**8.00%**	**8.25%**
Contributions					
Total Normal Cost	24.521%	23.238%	22.034%	20.902%	19.838%
UAL Contribution Rate	33.865%	32.631%	31.413%	30.209%	29.018%
Total Actuarial Contribution Rate	58.386%	55.869%	53.447%	51.111%	48.856%
Employee Contribution Rate	16.564%	16.564%	16.564%	16.564%	16.564%
City Contribution Per Ordinance	33.768%	33.768%	33.768%	33.768%	33.768%
City Prior Service Payment	0.925%	0.925%	0.925%	0.925%	0.925%
Contribution (Shortfall)/Margin	(7.129)%	(4.612)%	(2.190)%	0.146%	2.401%
Actuarial Liability ($ in thousands)	$1,483,633	$1,444,394	$1,406,833	$1,370,857	$1,336,382
Actuarial Value of Assets	737,383	737,383	737,383	737,383	737,383
Unfunded Actuarial Liability	$746,250	$707,011	$669,450	$633,474	$598,999
Funded Ratio	49.70%	51.05%	52.41%	53.79%	55.18%

Note: All other assumptions are unchanged for purposes of this sensitivity analysis.

SECTION III

OTHER INFORMATION

In this section, we provide some historical information regarding the funding progress of the System. These exhibits retain some of the information that used to be required for accounting purposes and are included because they provide relevant information on the System's historical funding.

EXHIBIT 14

SCHEDULE OF EMPLOYER CONTRIBUTIONS

Fiscal Year Ending	Annual Required Contribution* (a)	Total Employer Contribution* (b)	Percentage of ARC Contributed (b) / (a)
12/31/2005	$ 26,255,804	$ 17,762,209	67.65%
12/31/2006	31,102,053	20,171,610	64.86%
12/31/2007	34,842,280	20,699,211	59.41%
12/31/2008	38,073,021	21,700,806	57.00%
12/31/2009	50,507,561	22,701,608	44.95%
12/31/2010	55,488,062	24,183,493	43.58%
12/31/2011	49,945,979	30,775,568	61.62%
12/31/2012	54,310,693	35,302,037	65.00%
12/31/2013	52,895,180	43,838,750	82.88%
12/31/2014	43,524,890	41,851,986	96.16%
12/31/2015	41,910,737	42,138,403	100.54%
12/31/2016	42,468,180	43,235,242	101.81%
12/31/2017	45,939,660	46,608,741	101.46%
12/31/2018	50,677,368	48,796,603	96.29%

*Information prior to 2011 was provided by the prior actuary and has not been reviewed or verified by Cavanaugh Macdonald Consulting.

EXHIBIT 15

SCHEDULE OF FUNDING PROGRESS

Actuarial Valuation Date[1]	Actuarial Value of Assets (a)	Actuarial Liability (AL) (b)	Unfunded AL (UAL)[2] (b-a)	Funded Ratio (a / b)	Covered Payroll (P / R)[3] (c)	UAL as a Percentage of Covered P / R [(b-a) / c]
12/31/2005	$453,300,000	$ 703,800,000	$250,500,000	64.4%	$ 86,800,000	288.6%
12/31/2006	507,600,000	801,100,000	293,500,000	63.4%	91,700,000	320.1%
12/31/2007	530,800,000	882,700,000	351,900,000	60.1%	99,600,000	353.3%
12/31/2008	365,900,000	947,600,000	581,700,000	38.6%	99,500,000	584.6%
12/31/2009	405,400,000	1,026,200,000	620,800,000	39.5%	103,900,000	597.5%
12/31/2010	452,600,000	1,093,300,000	640,700,000	41.4%	111,200,000	576.2%
1/1/2011	456,158,774	1,028,866,353	572,707,579	44.3%	105,025,610	545.3%
1/1/2012	467,375,458	1,077,607,299	610,231,841	43.4%	110,027,537	554.6%
1/1/2013	495,847,234	1,108,874,778	613,027,544	44.7%	116,056,740	528.2%
1/1/2014	548,360,223	1,170,967,753	622,607,530	46.8%	124,051,668	501.9%
1/1/2015	590,191,585	1,189,002,221	598,810,636	49.6%	126,843,763	472.1%
1/1/2016	621,403,975	1,223,966,110	602,562,135	50.8%	129,633,658	464.8%
1/1/2017	656,171,797	1,267,909,175	611,737,378	51.8%	133,044,481	459.8%
1/1/2018	706,595,615	1,355,429,537	648,833,922	52.1%	137,647,929	471.4%
1/1/2019	737,383,005	1,406,832,664	669,449,659	52.4%	143,575,171	466.3%

1. Results prior to 2011 were provided by the prior actuary and were reported at the end of the year rather than the valuation date. All information prior to 2011 in this exhibit was provided by the prior actuary and has not been reviewed or verified by Cavanaugh Macdonald Consulting, LLC.
2. As of 1/1/2011, the Unfunded AL is not reduced by the Present Value of Prior Service Payments. For the calculation of the Unfunded AL used for funding purposes, please refer to Exhibit 4 of this report.
3. As of 1/1/2014, covered payroll includes DROP participants' pay.

APPENDIX A

SUMMARY OF PLAN PROVISIONS

Average Final Monthly Compensation: Section 22 - 63	Police: Pensionable pay excludes certain overtime pay. For those hired before January 1, 2010, an adjustment is made to include a career average of overtime pay. For those who were age 45 and had at least 20 years of service as of January 1, 2010, highest average monthly compensation is calculated using the highest consecutive twenty-six (26) pay periods out of the last five years of service as a member of the system for which service credit had been earned. All others use the highest seventy-eight (78) pay periods of the final 130 pay periods of service. Fire: For members who were age 45 and had at least 25 years of service or age 50 with at least 20 years of service as of January 1, 2013, highest average monthly compensation during any consecutive twenty-six (26) pay periods out of the last five years of service as a member of the system for which service credit had been earned. All others use the highest seventy-eight (78) pay periods with the final 130 pay periods of service.
Career Overtime Average (COTA):	All Members: Each hour an employee earns for overtime is computed back to their date of hire or 1991 (whichever is later) and divided by the number of years the employee worked after December 31, 1990. This amount shall be included in the member's pension calculation. COTA is excluded for all Police members hired on or after January 1, 2010 and Fire members hired on or after January 1, 2013.
Member Contributions: Section 22 – 73(a) Section 22 - 68	Police: 16.10% of each member's pensionable earnings for contract years 2018-2020, 15.35% thereafter. Fire: 17.15% of each member's pensionable earnings.
City of Omaha Contributions: Section 22 – 73(b)	Police: 34.420% of each member's pensionable earnings for contract years 2018-2020, 33.670% thereafter. Fire: 32.965% of each member's pensionable earnings. In addition, the City shall make contributions of $1,327,600 annually through the year 2028.

APPENDIX A

SUMMARY OF PLAN PROVISIONS
(continued)

Service Retirement Eligibility
Section 22 - 75

Police: After age 55 and 10 years of service or age 45 and 20 years of service. Members hired after January 1, 2010 must be 50 rather than 45. If retiring with less than 30 years of service a 7% reduction is applied for each year prior to age 55.

Fire: Age 55 and 10 years of service or age 50 and 20 years of service. Members hired before 1/1/2013 can also retire at age 45 if they have at least 25 years of service.

Service Retirement Pension
Section 22 - 76

For Police with at least 20 years of service as of September 19, 2010 and Fire members with at least 15 years of service as of January 2, 2013, the following schedule applies.

Years of Service	Minimum Age	Percentage of Average Final Monthly Compensation
10 but less than 15	55	20%
15 but less than 20	55	30%
20 but less than 25	45**	55%*
25 years	45	75%

*55% at 20 years of service, plus 2% for each additional six months of service after 20 years and before 25 years.

** The minimum retirement age with less than 25 years is 50 for Fire.

For Police who did not have 20 years of service as of September 19, 2010 and Fire who did not have 15 years of service as of January 2, 2013, the following schedule applies:

Years of Service	Minimum Age	Percentage of Average Final Monthly Compensation
10 but less than 15	55	20%
15 but less than 20	55	30%
20 but less than 25	45***	50%*
25 but less than 30	45	70%**
30 years	45	75%

*50% at 20 years of service, plus 2% for each additional six months of service after 20 years and before 25 years.

APPENDIX A

SUMMARY OF PLAN PROVISIONS
(continued)

**70% at 25 years of service, plus 1% for each additional six months of service after 25 years and before 27 years, with an additional 0.5% 29 and 30 years, for a maximum of 75%.

*** The minimum retirement age with less than 25 years is 50 for Fire.

For police hired after January 1, 2010, the following schedule applies:

Years of Service	Minimum Age	Percentage of Average Final Monthly Compensation
10 but less than 15	55	20%
15 but less than 20	55	30%
20 but less than 25	50	50%*
25 but less than 30	50	65%**
30 years	50	75%

*50% at 20 years of service, plus 1.5% for each additional six months of service after 20 years and before 25 years. Early retirement reduction applies if less than 30 years of service.

**65% at 25 years of service, plus 1% for each additional six months of service after 25 years and before 30 years. Early retirement reduction applies if less than 30 years of service.

For Fire hired after January 1, 2013, the following schedule applies:

Years of Service	Minimum Age	Percentage of Average Final Monthly Compensation
10 but less than 15	55	20%
15 but less than 20	55	30%
20 but less than 25	50	45%
25 but less than 30	50	55%*
30 years	50	65%

*55% at 25 years of service, plus 2% for each additional year of service after 25 years and before 30 years. Early retirement reduction applies if under age 55, unless the member has 30 years of service.

APPENDIX A

SUMMARY OF PLAN PROVISIONS
(continued)

Cost of Living Adjustment (COLA): The monthly pension shall be increased by the lesser of 3% or $50 ($65 for Fire retirements after June 30, 2007). The increase will be made annually, beginning in the 13th month of retirement.

Deferred Retirement Option Program (DROP): Members may participate in the DROP for three to five years once they reach retirement eligibility with a minimum of 25 years of service. Members continue to make contributions to the system during the DROP period. During the DROP period, the member is credited with the benefits that would have been paid if the member had retired at the start of the DROP period, along with interest at the end of the year. At the end of the DROP period, the member ends employment, receives the DROP account balance, and begins to receive payments as though retirement had occurred at the beginning of the DROP period.

Disability Retirement

1. In Line of Duty
Section 22 - 78

A member shall become entitled to the following benefits while permanently disabled.

Years of Service	Percentage of Average Final Monthly Compensation
Less than 20	50%
20 or more	Same as Service Retirement Pension, without any reduction for early commencement

2. Not in Line of Duty
Section 22 - 79

A member shall become entitled to the following benefits while permanently disabled.

Years of Service	Percentage of Average Final Monthly Compensation
Up to 10 years	10%
10 but less than 15	20%
15 but less than 20	30%
20 or more	Greater of 45% or the Service Retirement Pension without any reduction for early commencement

Note: Not payable while full salary continues

APPENDIX A

SUMMARY OF PLAN PROVISIONS
(continued)

Spouse's pension:

1. Death of Active member in Line of Duty:

A monthly pension equal to 49% (52% Fire members who were age 45 and had at least 25 years of service or age 50 with at least 20 years of service as of most recent contract date) of the member's average final monthly compensation is paid to the surviving spouse if death occurs while the active member has less than 25 years of service. A monthly pension equal to 69% (72% Fire members who were age 45 and had at least 25 years of service or age 50 with at least 20 years of service as of most recent contract date) of the member's average final monthly compensation is paid to the surviving spouse if death occurs after the active member has 25 years or more of service.

2. Death of Active member Not in Line of Duty:

The following monthly pension is paid to the surviving spouse.

Years of Service at Death	Percentage of Average Final Monthly Compensation*
0-3	0.0%
3-10	35.0%
11	36.4%
12	37.8%
13	39.2%
14	40.6%
15	42.0%
16	43.4%
17	44.8%
18	46.2%
19	47.6%
20-25	49.0%
25+	69.0%

* add 3% to each number for Fire members who were age 45 and had at least 25 years of service or age 50 with at least 20 years of service as of most recent contract date

Note: Benefit terminates upon remarriage of spouse.

APPENDIX A

SUMMARY OF PLAN PROVISIONS
(continued)

3.	**Death of Member Eligible for Retirement or Death of Retired Member:** Section 22 - 82	Police: 75% of the pension the member was receiving or was eligible to receive at the time of death. 50% of the pension the member was receiving or was eligible to receive for Police members hired after January 1, 2010. Upon spouse's remarriage, all benefits cease. Fire: 75% of the pension the member was receiving at the time of death for Fire members who began receiving benefits before July 1, 2007. 90% of the pension the member was receiving or was eligible to receive at the time of death for Fire members who were hired before January 1, 2013 and were not receiving benefits before July 1, 2007. 50% of the pension the member was receiving or was eligible to receive for Fire members hired after January 1, 2013. Upon spouse's remarriage, all benefits cease.

APPENDIX A

SUMMARY OF PLAN PROVISIONS
(continued)

Children's Pension
Section 22 - 82

Upon the death of an active or retired member, the following benefit will be paid to the surviving children until age 18.

Number of Dependent Children	Percentage of Average Final Monthly Compensation
1	15%
2	30%
3	45%
4 or more	50%

Lump Sum Death Benefits

1. **Active Member without Eligible Dependents:**
Section 22 – 84(a)

Accumulated member's contributions, or $500 if greater.

2. **Retired Member without Eligible Dependents:**
Section 22 – 84(b)

Accumulated member's contributions, less previous pension payments made, or $500 if greater.

3. **Active Member with Eligible Dependents:**
Section 22 – 84(c)

An amount payable immediately, equal to one year's salary computed on the basis of the maximum monthly rate for patrolmen and firefighters, plus the decreased member's accumulated contributions less pension payments to his dependents, payable to the dependent who last ceases to receive pension benefits.

4. **Retired Member with Eligible Dependents:**
Section 22 – 84(c)

$1,000 ($5,000 for Fire retirements after June 30, 2005) payable immediately, plus the excess over $1,000 ($5,000 for Fire retirements after June 30, 2005) if any, of the deceased member's accumulated contributions less pension payments to the member and his dependents, payable to the dependent who last ceases to receive pension benefits.

APPENDIX A

SUMMARY OF PLAN PROVISIONS
(continued)

Vesting:

Section 22 - 86

Upon severance of employment by a member with less than 10 years of service and prior to obtaining eligibility under Section 22 – 75, a refund of such member's accumulated contributions.

Section 22 - 86

Upon severance of employment by a member before age 45 with more than 10 years of service and prior to obtaining eligibility under Section 22 – 75, the member may elect, in lieu of receiving a refund of contributions, to receive a monthly pension, according to the table below, commencing at age 55. Such deferred pension shall be based on service credited to the date of severance.

Years of Service	Minimum Age	Percentage of Average Final Monthly Compensation
10 but less than 15	55	20%
15 but less than 20	55	30%
20 but less than 25	50	55%
25 or more	45	75%

For Police members with less than 15 years of service as of September 19, 2010 and Fire members with less than 15 years of service as of January 2, 2013, the schedules shown under service retirement apply as appropriate.

APPENDIX B

ACTUARIAL METHODS AND ASSUMPTIONS

Actuarial Cost Method

Valuations of the plan use the *"entry age-normal"* cost method. Under this actuarial method, the value of future costs attributable to future employment of participants is determined. This is called present value of future normal costs. The following steps indicate how this is determined for benefits expected to be paid upon normal retirement or the end of the Deferred Retirement Option Plan (DROP).

1. The expected pension benefit payable at the end of the employee's period in covered employment (later of normal retirement or the end of the DROP, is applicable) is determined for each participant.

2. A normal cost, as a level percent of pay, is determined for each participant assuming that such level percent is paid from the employee's entry age into employment to the end of his covered employment. This normal cost is determined so that its accumulated value at the end of covered employment is sufficient to provide the expected pension benefits.

3. The sum of the normal costs for all participants for one year determines the total normal cost of the plan for one year.

4. The value of future payments of normal cost in future years is determined for each participant based on his years of service to the end of covered employment.

5. The sum of the value of future payments of normal cost for all participants determines the present value of future normal costs.

The value of future costs attributable to past employment of participants, which is called the actuarial liability, is equal to the present value of benefits less the present value of future normal costs. The unfunded actuarial liability is equal to the excess of the actuarial liability over assets.

As experience develops with the plan, actuarial gains and actuarial losses result. These actuarial gains and losses indicate the extent to which actual experience is deviating from that expected on the basis of the actuarial assumptions. In each year, as they occur, actuarial gains and losses are recognized in the unfunded actuarial liability as of the valuation date.

Actuarial Value of Assets

The actuarial value of assets is equal to the expected asset value (based on last year's actuarial value of assets, net cash flows and a rate of return equal to the actuarial assumed rate of 8.0%) plus 1/4 of the difference between the actual market value and the expected asset value. The actuarial value of assets cannot exceed 120% or fall below 80% of the market value of assets.

Unfunded Actuarial Liability Amortization Method

Beginning with the 2018 valuation, the UAL will be amortized using a "layered" approach. Under this method, the UAL as of January 1, 2018 will continue to be amortized according to the current schedule (25 years remain as of January 1, 2019). Any new UAL generated as a result of actuarial experience in subsequent years will be "layered" and amortized as a level-percent of pay over a closed 20-year period.

APPENDIX B

ACTUARIAL METHODS AND ASSUMPTIONS (continued)

Investment Return:	7.75% per year, (net of investment expenses)
Inflation:	2.50%
Payroll Growth:	3.25%
Salary Increases:	Merit increases based on service plus a general wage increase
Service Retirement Age:	Graduated rates based on service
Mortality:	
Active Members	RP-2000 Employee Table projected with generational improvements using Scale AA, set forward one year
Service Pensioners and Beneficiaries	RP-2000 Healthy Annuitant Table projected with generational improvements using Scale AA, set forward one year
Disabled	RP-2000 Healthy Annuitant Table projected with generational improvements using Scale AA, set forward five years
Disability:	Graduated Rates by age. See table on next page
Percent of Disabilities in Line of Duty:	85%
Medical Expenses for Disabilities in Line of Duty:	5% load on liability for current and future disabled members.
Percent Married at Death or Retirement:	75%
Spouse Age Difference:	Husbands assumed to be 3 years older than wives
Turnover:	Graduated rates by age. See table on next page
COTA Adjustment:	Members are assumed to retire with their current COTA
Decrement Timing:	Middle of year

APPENDIX B

ACTUARIAL METHODS AND ASSUMPTIONS (continued)

SAMPLE RATES Annual Rates		
Age on 1/1/2010	Mortality Males	Females
20	0.03%	0.02%
30	0.05	0.03
40	0.10	0.07
50	0.19	0.15
60	0.46	0.41

SAMPLE RATES Annual Rates	
Current Age	Disability
20	0.17%
30	0.19
40	0.33
50	0.61
60	0.92

SAMPLE RATES Annual Rates		
Years of Service	Turnover Police	Fire
1	3.0%	1.5%
5	1.8	0.5
10	0.8	0.5
15	0.8	0.5
20	0.0	0.0

APPENDIX B

ACTUARIAL METHODS AND ASSUMPTIONS
(continued)

SAMPLE RATES Salary Progression – Police				
Years of Service	Inflation	Productivity	Merit & Longevity	Total Increase
1	2.50%	0.75%	10.00%	13.25%
5	2.50%	0.75%	4.00%	7.25%
10	2.50%	0.75%	1.20%	4.45%
15	2.50%	0.75%	0.50%	3.75%
20	2.50%	0.75%	0.50%	3.75%
25	2.50%	0.75%	0.00%	3.25%

SAMPLE RATES Salary Progression – Fire				
Years of Service	Inflation	Productivity	Merit & Longevity	Total Increase
1	2.50%	0.75%	5.00%	8.25%
5	2.50%	0.75%	4.50%	7.75%
10	2.50%	0.75%	1.00%	4.25%
15	2.50%	0.75%	1.00%	4.25%
20	2.50%	0.75%	0.00%	3.25%

Assumed retirement rates for Police members hired before January 1, 2010 and Fire members hired before January 1, 2013 are as follows:

SAMPLE RATES Annual Rates		
Years of Service	Retirement	
	Police	Fire
20	3%	15%
21	3	15
22	10	15
23	10	15
24	10	15
25	100	100

If a member has years of service listed above, but is age 62 or older, they are assumed to retire immediately.

APPENDIX B

ACTUARIAL METHODS AND ASSUMPTIONS
(continued)

Assumed retirement rates for Police members hired after January 1, 2010 and Fire members hired after January 1, 2013 are the earlier of **Age 50 and 30 Years of Service** or **Age 55 and 10 Years of Service**.

DROP Participation Rate:	75% of retirement-eligible members are assumed to enter DROP
DROP Period:	5 years, but not beyond age 60
Interest Credited to DROP Accounts:	4% annually

MEMBERSHIP DATA FOR VALUATION

The summary of member characteristics presented below covers the member group as of January 1, 2019. The schedules at the end of the report show the distribution of the various member groups by present age along with other pertinent data.

Total number of members in valuation:

(a) Active members	1,454
(b) DROP members	69
(c) Inactive vested members	8
(d) Terminated members due a refund	9
(e) Disabled members	224
(f) Retirees, spouses and children receiving benefits	1,291
(g) Total	3,055

Average age of members in valuation:

(a) Active members	
Attained Age	41.3
Hire Age	28.8
(b) DROP members	53.4
(c) Inactive vested members	45.1
(d) Disabled members	67.6
(e) Retired members	66.3
(f) Spouses and children receiving benefits	72.1

Active members as of January 1, 2019:

(a) Eligible for vested benefits	776
(b) Eligible for early or normal retirement benefits	239
(c) Eligible for refund of contributions only (not vested)	439
(d) Total	1,454

MEMBERSHIP DATA RECONCILIATION

January 1, 2018 to January 1, 2019

The number of members included in the valuation, as summarized in the table below, is in accordance with the data submitted by the City for eligible employees as of the valuation date.

	Active Members	Termination Refund Due	Inactive Vested	Disabled Members	DROP Members	Retirees	Beneficiaries	Total
Total Members 1/1/2018	1,446	11	11	223	63	992	270	3,016
New Members	78	0	0	0	0	0	0	78
Terminations								
Rehired	0	0	0	0	0	0	0	0
Refunded: Paid	(9)	(5)	(1)	0	0	0	0	(15)
Refunded: Due	(3)	3	0	0	0	0	0	0
Inactive Vested	(2)	0	2	0	0	0	0	0
Disabled	(3)	0	0	3	0	0	0	0
Retirements	(27)	0	(2)	0	(20)	49	0	0
Participating in DROP	(26)	0	0	0	26	0	0	0
Benefit Payments Ended	0	0	0	0	0	0	(4)	(4)
Data Adjustments	0	0	(2)	4	0	(2)	0	0
Deaths								
With Beneficiary	0	0	0	(2)	0	(17)	19	0
Without Beneficiary	0	0	0	(4)	0	(8)	(8)	(20)
Total Members 1/1/2019	1,454	9	8	224	69	1,014	277	3,055

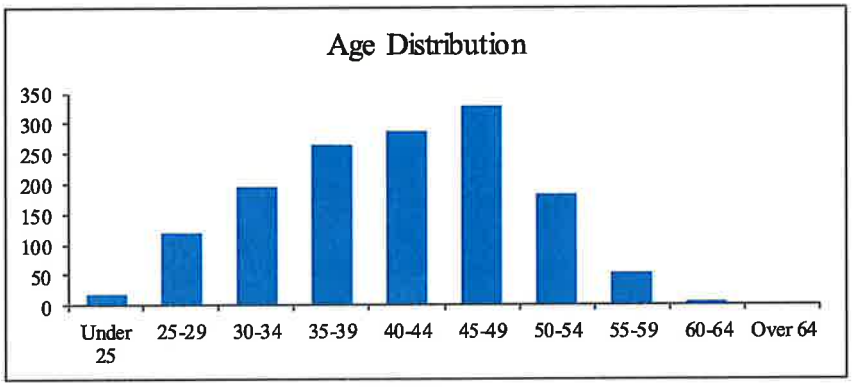
SCHEDULE I

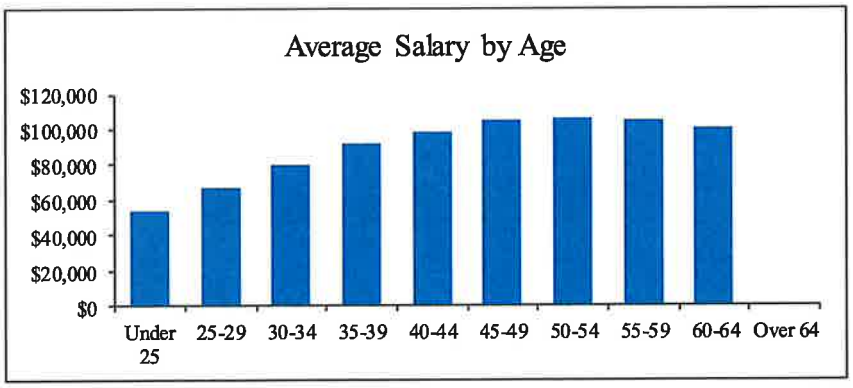
ACTIVE MEMBERS AS OF JANUARY 1, 2019

Total

	Count of Members			Valuation Salaries of Members		
Age	Males	Females	Total	Males	Females	Total
Under 25	16	3	19	$ 874,511	$ 160,372	$ 1,034,883
25-29	107	14	121	7,281,622	880,939	8,162,561
30-34	167	28	195	13,472,262	2,045,155	15,517,417
35-39	236	28	264	21,818,060	2,458,475	24,276,535
40-44	247	39	286	24,315,391	3,742,516	28,057,907
45-49	290	39	329	30,245,591	4,139,233	34,384,824
50-54	162	20	182	17,236,287	2,127,428	19,363,715
55-59	48	4	52	4,991,415	438,189	5,429,604
60-64	6	0	6	603,593	0	603,593
Over 64	0	0	0	0	0	0
Total	1,279	175	1,454	$120,838,732	$15,992,307	$136,831,039

Numbers may not add due to rounding.



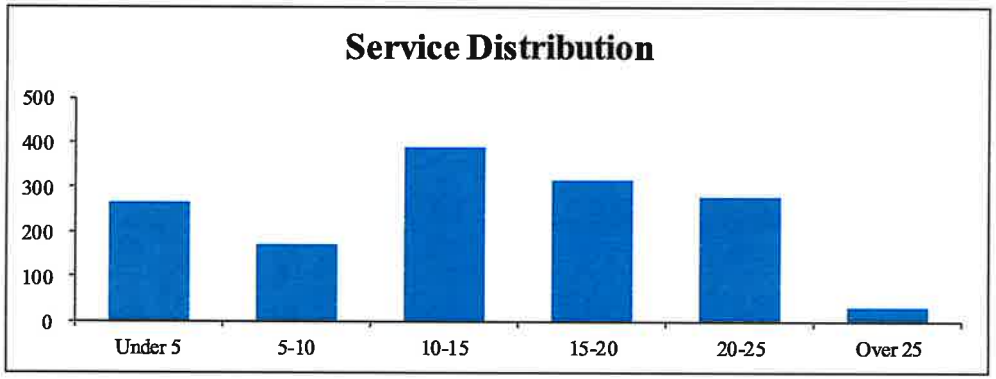


SCHEDULE I (continued)

ACTIVE MEMBERS AS OF JANUARY 1, 2019

Total

Age	Service: Under 5	5-10	10-15	15-20	20-25	25-30	30-35	35-40	Over 40	Total
Under 25	19	0	0	0	0	0	0	0	0	19
25-29	96	25	0	0	0	0	0	0	0	121
30-34	85	58	52	0	0	0	0	0	0	195
35-39	38	50	162	14	0	0	0	0	0	264
40-44	17	30	98	108	33	0	0	0	0	286
45-49	9	9	59	121	120	11	0	0	0	329
50-54	2	1	11	59	92	17	0	0	0	182
55-59	0	0	6	13	29	4	0	0	0	52
60-64	0	0	2	1	3	0	0	0	0	6
Over 64	0	0	0	0	0	0	0	0	0	0
Total	266	173	390	316	277	32	0	0	0	1,454



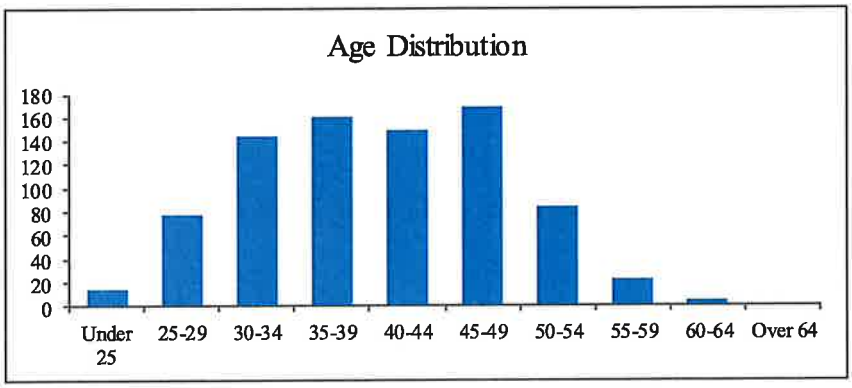
SCHEDULE I (continued)

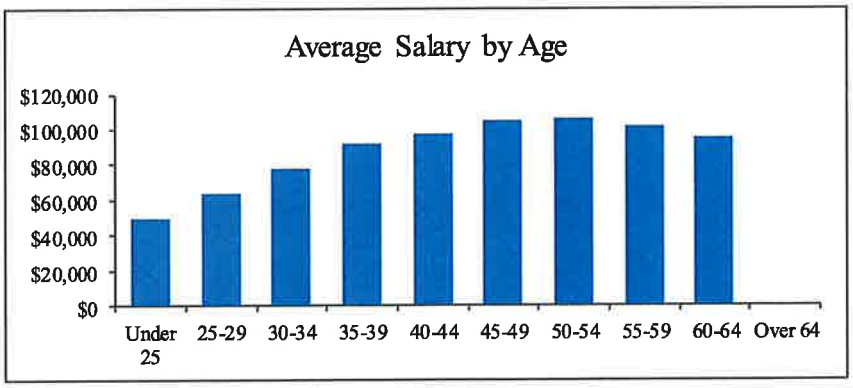
ACTIVE MEMBERS AS OF JANUARY 1, 2019

All Police Members

	Count of Members			Valuation Salaries of Members		
Age	Males	Females	Total	Males	Females	Total
Under 25	12	2	14	$ 592,278	$ 99,414	$ 691,692
25-29	68	10	78	4,323,470	614,743	4,938,213
30-34	120	24	144	9,470,471	1,722,340	11,192,811
35-39	139	21	160	12,861,609	1,813,240	14,674,849
40-44	118	32	150	11,574,395	3,047,890	14,622,285
45-49	137	32	169	14,368,427	3,315,528	17,683,955
50-54	68	17	85	7,127,378	1,842,345	8,969,723
55-59	20	3	23	2,029,945	318,308	2,348,253
60-64	4	0	4	379,955	0	379,955
Over 64	0	0	0	0	0	0
Total	686	141	827	$62,727,928	$12,773,808	$75,501,736

Numbers may not add due to rounding.



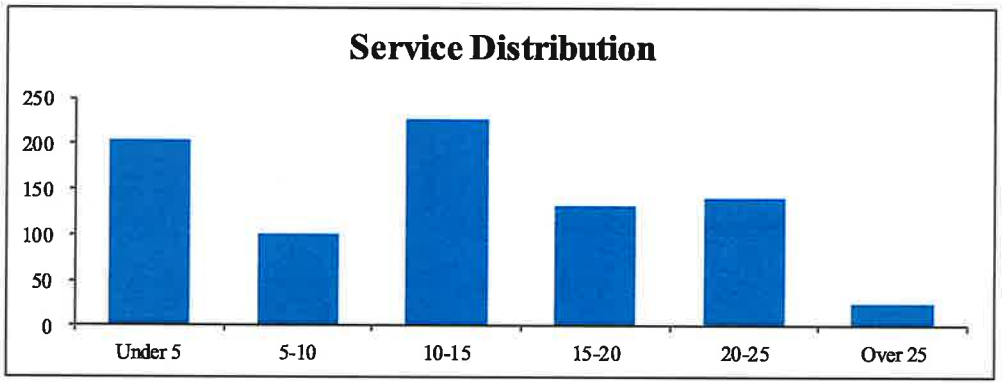


SCHEDULE I (continued)

ACTIVE MEMBERS AS OF JANUARY 1, 2019

All Police Members

	Service									
Age	Under 5	5-10	10-15	15-20	20-25	25-30	30-35	35-40	Over 40	Total
Under 25	14	0	0	0	0	0	0	0	0	14
25-29	70	8	0	0	0	0	0	0	0	78
30-34	72	37	35	0	0	0	0	0	0	144
35-39	27	28	97	8	0	0	0	0	0	160
40-44	12	21	51	44	22	0	0	0	0	150
45-49	6	5	34	53	61	10	0	0	0	169
50-54	2	1	6	20	44	12	0	0	0	85
55-59	0	0	3	6	12	2	0	0	0	23
60-64	0	0	2	1	1	0	0	0	0	4
Over 64	0	0	0	0	0	0	0	0	0	0
Total	203	100	228	132	140	24	0	0	0	827



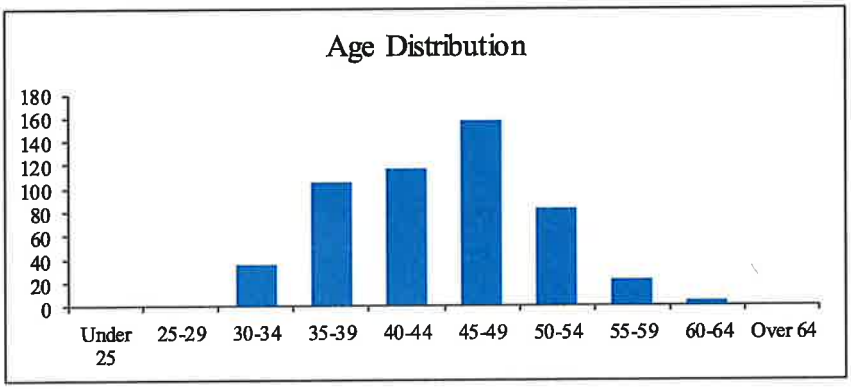
SCHEDULE I (continued)

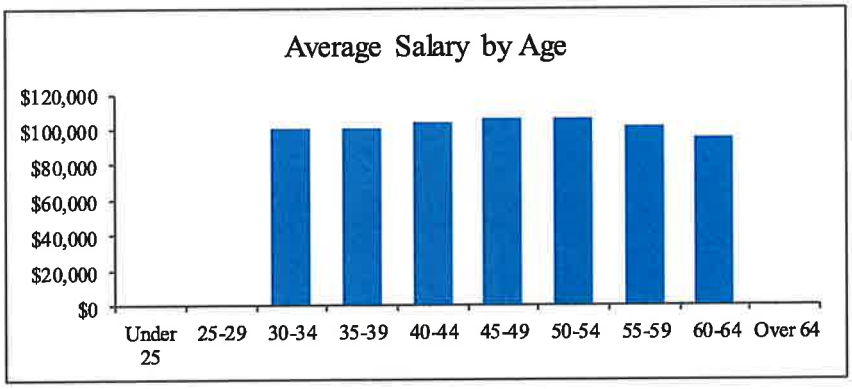
ACTIVE MEMBERS AS OF JANUARY 1, 2019

Police Members Hired Before January 1, 2010

	Count of Members			Valuation Salaries of Members		
Age	Males	Females	Total	Males	Females	Total
Under 25	0	0	0	$ 0	$ 0	$ 0
25-29	0	0	0	0	0	0
30-34	31	4	35	3,133,658	394,135	3,527,793
35-39	92	14	106	9,332,028	1,341,511	10,673,539
40-44	89	28	117	9,372,476	2,719,598	12,092,074
45-49	126	32	158	13,469,767	3,315,527	16,785,294
50-54	66	16	82	6,951,011	1,756,893	8,707,904
55-59	20	3	23	2,029,945	318,308	2,348,253
60-64	4	0	4	379,955	0	379,955
Over 64	0	0	0	0	0	0
Total	428	97	525	$44,668,840	$9,845,972	$54,514,812

Numbers may not add due to rounding.



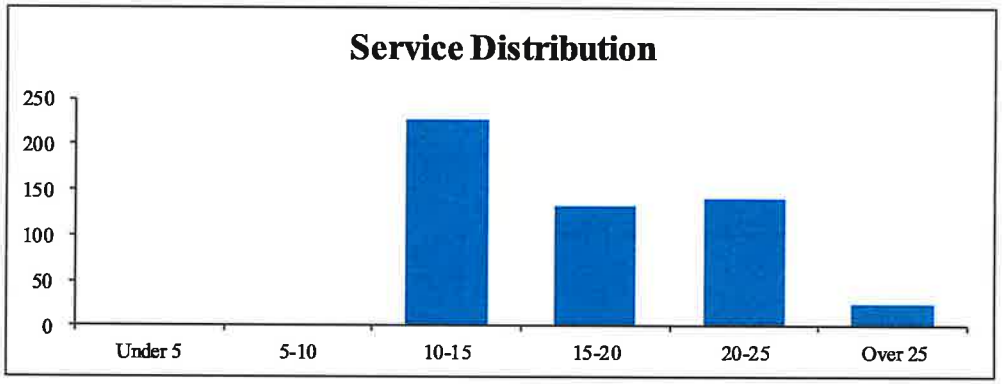


SCHEDULE I (continued)

ACTIVE MEMBERS AS OF JANUARY 1, 2019

Police Members Hired Before January 1, 2010

	Service									
Age	Under 5	5-10	10-15	15-20	20-25	25-30	30-35	35-40	Over 40	Total
Under 25	0	0	0	0	0	0	0	0	0	0
25-29	0	0	0	0	0	0	0	0	0	0
30-34	0	0	35	0	0	0	0	0	0	35
35-39	0	1	97	8	0	0	0	0	0	106
40-44	0	0	51	44	22	0	0	0	0	117
45-49	0	0	34	53	61	10	0	0	0	158
50-54	0	0	6	20	44	12	0	0	0	82
55-59	0	0	3	6	12	2	0	0	0	23
60-64	0	0	2	1	1	0	0	0	0	4
Over 64	0	0	0	0	0	0	0	0	0	0
Total	0	1	228	132	140	24	0	0	0	525



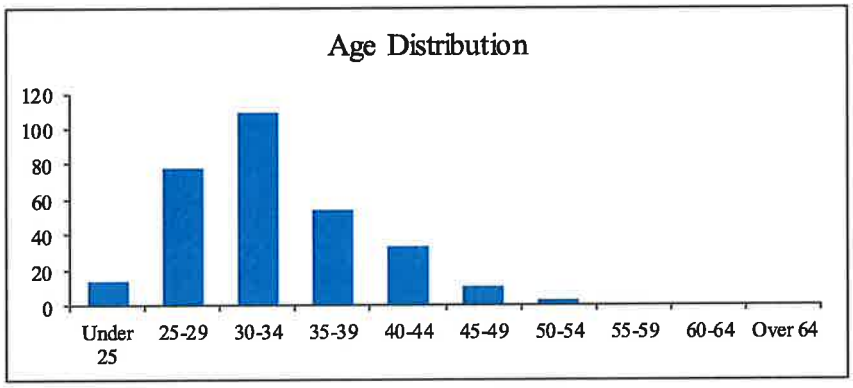
SCHEDULE I (continued)

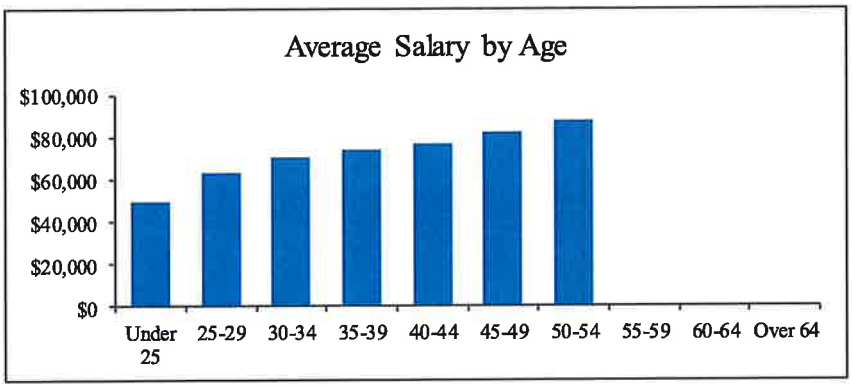
ACTIVE MEMBERS AS OF JANUARY 1, 2019

Police Members Hired On or After January 1, 2010

	Count of Members			Valuation Salaries of Members		
Age	Males	Females	Total	Males	Females	Total
Under 25	12	2	14	$ 592,278	$ 99,414	$ 691,692
25-29	68	10	78	4,323,469	614,744	4,938,213
30-34	89	20	109	6,336,816	1,328,205	7,665,021
35-39	47	7	54	3,529,581	471,729	4,001,310
40-44	29	4	33	2,201,919	328,292	2,530,211
45-49	11	0	11	898,659	0	898,659
50-54	2	1	3	176,367	85,451	261,818
55-59	0	0	0	0	0	0
60-64	0	0	0	0	0	0
Over 64	0	0	0	0	0	0
Total	258	44	302	$18,059,089	$2,927,835	$20,986,924

Numbers may not add due to rounding.



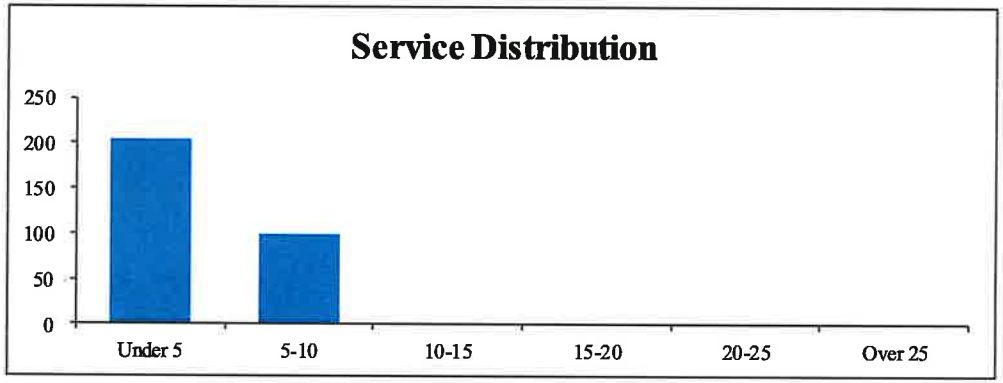


SCHEDULE I (continued)

ACTIVE MEMBERS AS OF JANUARY 1, 2019

Police Members Hired On or After January 1, 2010

	Service									
Age	Under 5	5-10	10-15	15-20	20-25	25-30	30-35	35-40	Over 40	Total
Under 25	14	0	0	0	0	0	0	0	0	14
25-29	70	8	0	0	0	0	0	0	0	78
30-34	72	37	0	0	0	0	0	0	0	109
35-39	27	27	0	0	0	0	0	0	0	54
40-44	12	21	0	0	0	0	0	0	0	33
45-49	6	5	0	0	0	0	0	0	0	11
50-54	2	1	0	0	0	0	0	0	0	3
55-59	0	0	0	0	0	0	0	0	0	0
60-64	0	0	0	0	0	0	0	0	0	0
Over 64	0	0	0	0	0	0	0	0	0	0
Total	203	99	0	0	0	0	0	0	0	302



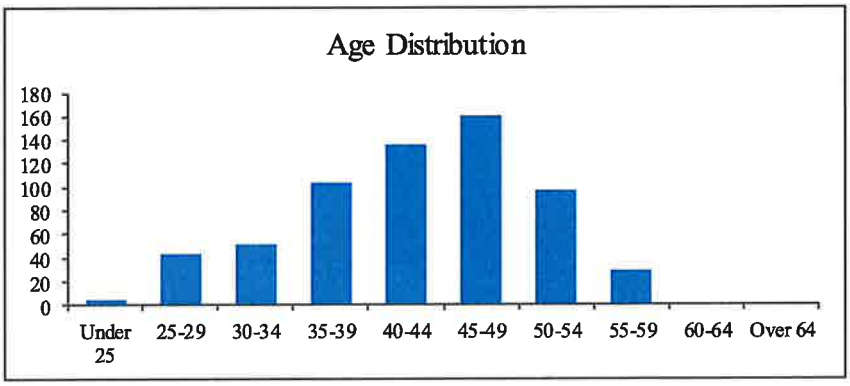
SCHEDULE I (continued)

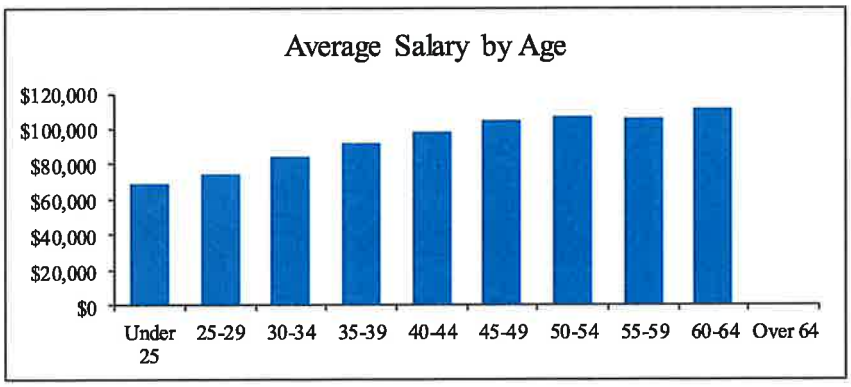
ACTIVE MEMBERS AS OF JANUARY 1, 2019

All Fire Members

	Count of Members			Valuation Salaries of Members		
Age	Males	Females	Total	Males	Females	Total
Under 25	4	1	5	$ 282,233	$ 60,958	$ 343,191
25-29	39	4	43	2,958,152	266,196	3,224,348
30-34	47	4	51	4,001,791	322,815	4,324,606
35-39	97	7	104	8,956,451	645,235	9,601,686
40-44	129	7	136	12,740,996	694,626	13,435,622
45-49	153	7	160	15,877,164	823,705	16,700,869
50-54	94	3	97	10,108,909	285,083	10,393,992
55-59	28	1	29	2,961,470	119,881	3,081,351
60-64	2	0	2	223,638	0	223,638
Over 64	0	0	0	0	0	0
Total	593	34	627	$58,110,804	$3,218,499	$61,329,303

Numbers may not add due to rounding.



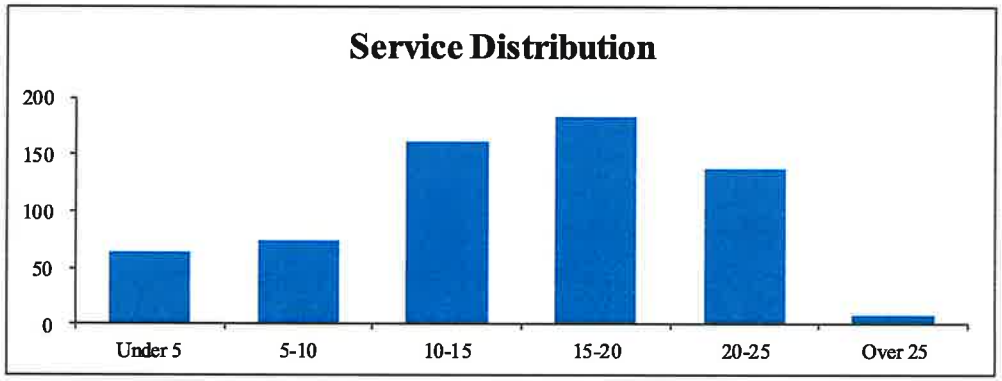


SCHEDULE I (continued)

ACTIVE MEMBERS AS OF JANUARY 1, 2019

All Fire Members

	Service									
Age	Under 5	5-10	10-15	15-20	20-25	25-30	30-35	35-40	Over 40	Total
Under 25	5	0	0	0	0	0	0	0	0	5
25-29	26	17	0	0	0	0	0	0	0	43
30-34	13	21	17	0	0	0	0	0	0	51
35-39	11	22	65	6	0	0	0	0	0	104
40-44	5	9	47	64	11	0	0	0	0	136
45-49	3	4	25	68	59	1	0	0	0	160
50-54	0	0	5	39	48	5	0	0	0	97
55-59	0	0	3	7	17	2	0	0	0	29
60-64	0	0	0	0	2	0	0	0	0	2
Over 64	0	0	0	0	0	0	0	0	0	0
Total	63	73	162	184	137	8	0	0	0	627



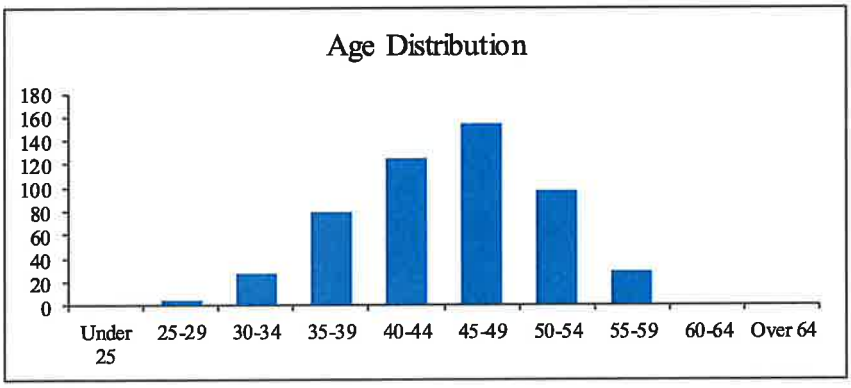
SCHEDULE I (continued)

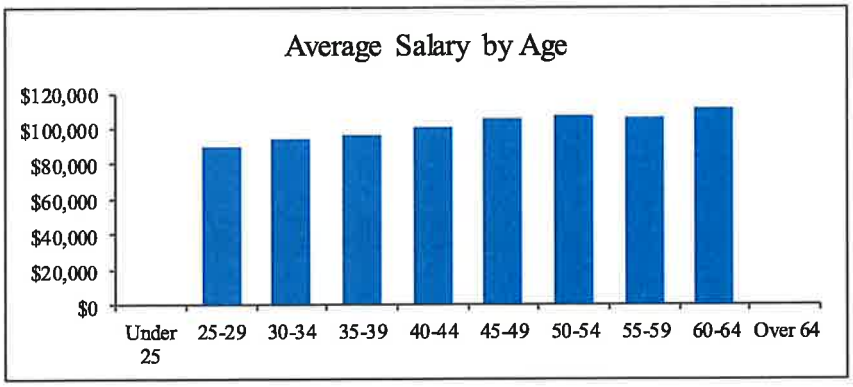
ACTIVE MEMBERS AS OF JANUARY 1, 2019

Fire Members Hired Before January 1, 2013

	Count of Members			Valuation Salaries of Members		
Age	Males	Females	Total	Males	Females	Total
Under 25	0	0	0	$ 0	$ 0	$ 0
25-29	5	0	5	448,985	0	448,985
30-34	26	2	28	2,442,835	196,101	2,638,936
35-39	76	4	80	7,334,907	400,198	7,735,105
40-44	118	7	125	11,899,283	694,626	12,593,909
45-49	147	7	154	15,430,830	823,705	16,254,535
50-54	94	3	97	10,108,909	285,083	10,393,992
55-59	28	1	29	2,961,470	119,881	3,081,351
60-64	2	0	2	223,638	0	223,638
Over 64	0	0	0	0	0	0
Total	496	24	520	$50,850,857	$2,519,594	$53,370,451

Numbers may not add due to rounding.



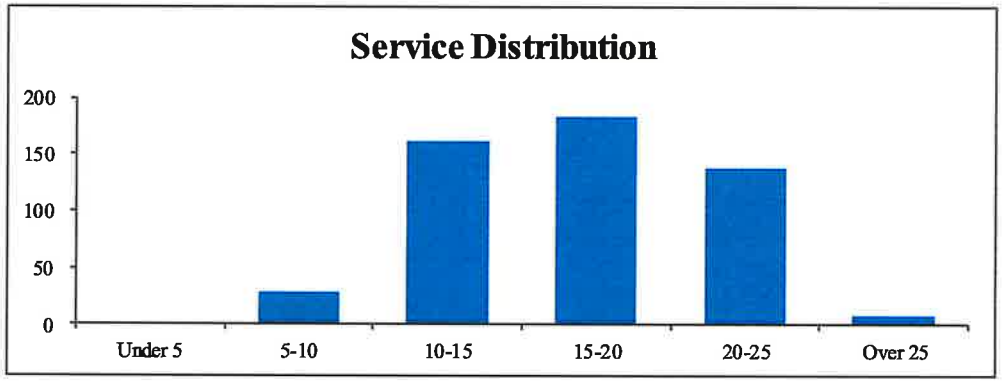


SCHEDULE I (continued)

ACTIVE MEMBERS AS OF JANUARY 1, 2019

Fire Members Hired Before January 1, 2013

	Service									
Age	Under 5	5-10	10-15	15-20	20-25	25-30	30-35	35-40	Over 40	Total
Under 25	0	0	0	0	0	0	0	0	0	0
25-29	0	5	0	0	0	0	0	0	0	5
30-34	0	11	17	0	0	0	0	0	0	28
35-39	0	9	65	6	0	0	0	0	0	80
40-44	0	3	47	64	11	0	0	0	0	125
45-49	0	1	25	68	59	1	0	0	0	154
50-54	0	0	5	39	48	5	0	0	0	97
55-59	0	0	3	7	17	2	0	0	0	29
60-64	0	0	0	0	2	0	0	0	0	2
Over 64	0	0	0	0	0	0	0	0	0	0
Total	0	29	162	184	137	8	0	0	0	520



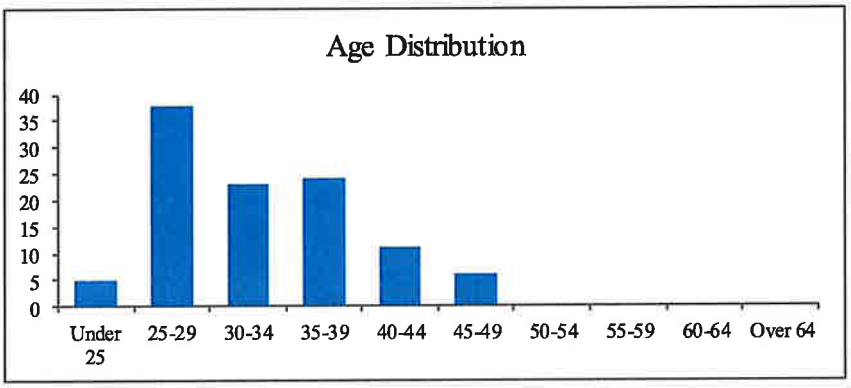
SCHEDULE I (continued)

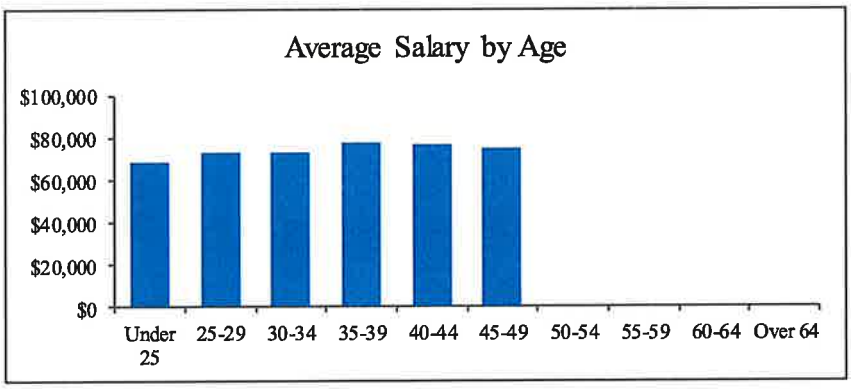
ACTIVE MEMBERS AS OF JANUARY 1, 2019

Fire Members Hired On or After January 1, 2013

	Count of Members			Valuation Salaries of Members		
Age	Males	Females	Total	Males	Females	Total
Under 25	4	1	5	$ 282,233	$ 60,958	$ 343,191
25-29	34	4	38	2,509,167	266,196	2,775,363
30-34	21	2	23	1,558,952	126,715	1,685,667
35-39	21	3	24	1,621,545	245,038	1,866,583
40-44	11	0	11	841,713	0	841,713
45-49	6	0	6	446,335	0	446,335
50-54	0	0	0	0	0	0
55-59	0	0	0	0	0	0
60-64	0	0	0	0	0	0
Over 64	0	0	0	0	0	0
Total	97	10	107	$7,259,945	$698,907	$7,958,852

Numbers may not add due to rounding.



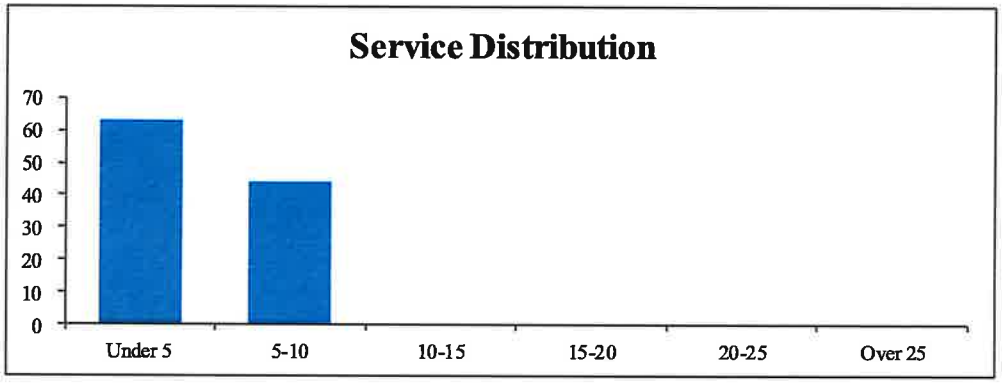


SCHEDULE I (continued)

ACTIVE MEMBERS AS OF JANUARY 1, 2019

Fire Members Hired On or After January 1, 2013

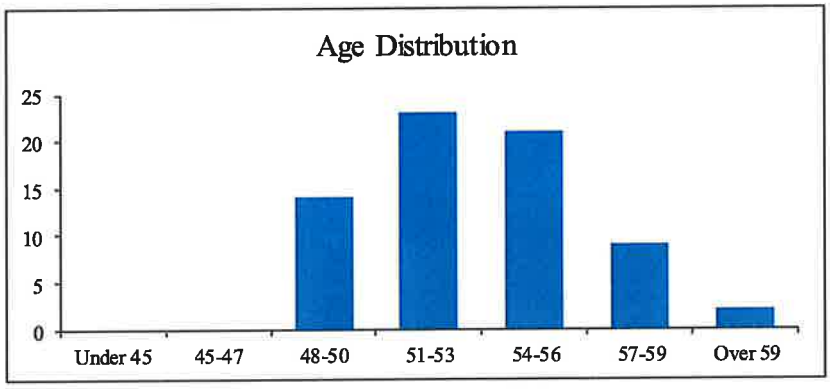
	Service									
Age	Under 5	5-10	10-15	15-20	20-25	25-30	30-35	35-40	Over 40	Total
Under 25	5	0	0	0	0	0	0	0	0	5
25-29	26	12	0	0	0	0	0	0	0	38
30-34	13	10	0	0	0	0	0	0	0	23
35-39	11	13	0	0	0	0	0	0	0	24
40-44	5	6	0	0	0	0	0	0	0	11
45-49	3	3	0	0	0	0	0	0	0	6
50-54	0	0	0	0	0	0	0	0	0	0
55-59	0	0	0	0	0	0	0	0	0	0
60-64	0	0	0	0	0	0	0	0	0	0
Over 64	0	0	0	0	0	0	0	0	0	0
Total	63	44	0	0	0	0	0	0	0	107

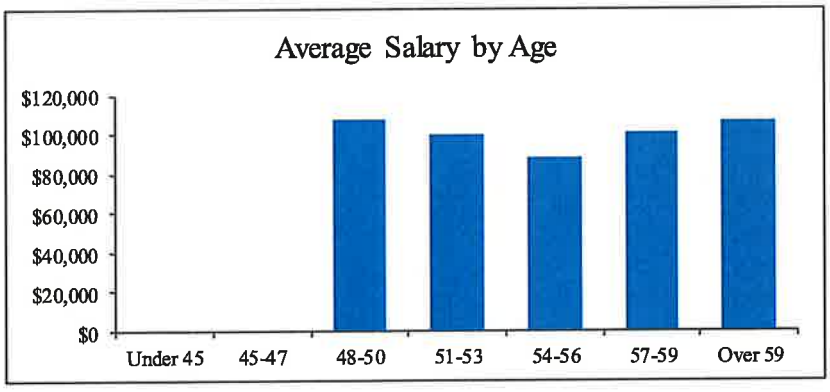


SCHEDULE II

DROP MEMBERS AS OF JANUARY 1, 2019

	Count of Members			Valuation Salaries of Members		
Age	Males	Females	Total	Males	Females	Total
Under 45	0	0	0	$ 0	$ 0	$ 0
45-47	0	0	0	0	0	0
48-50	10	4	14	1,118,921	386,157	1,505,078
51-53	21	2	23	2,079,727	199,544	2,279,271
54-56	18	3	21	1,561,472	281,736	1,843,208
57-59	9	0	9	904,296	0	904,296
Over 59	2	0	2	212,279	0	212,279
Total	60	9	69	$5,876,695	$867,437	$6,744,132

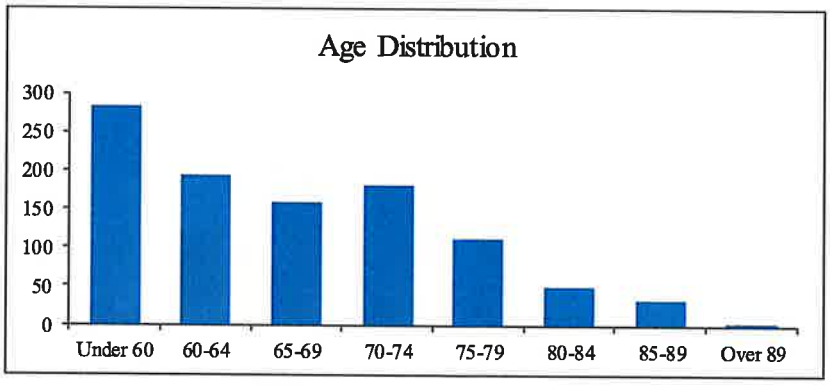


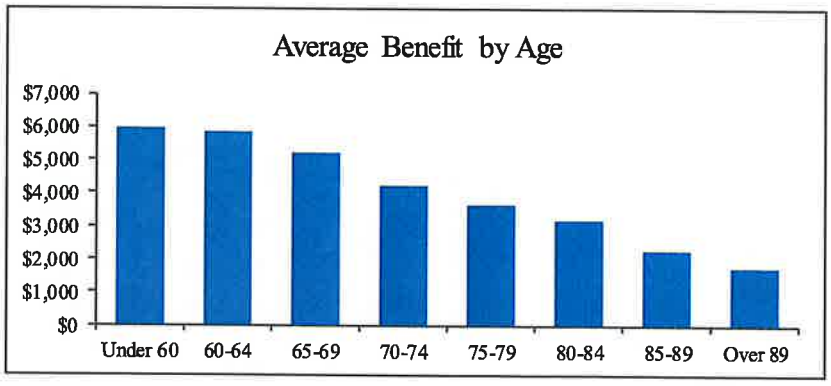


SCHEDULE III

RETIRED MEMBERS AS OF JANUARY 1, 2019

	Count of Retirees			Current Monthly Benefits		
Age	Males	Females	Total	Males	Females	Total
Under 60	240	43	283	$1,466,069	$227,420	$1,693,489
60-64	175	18	193	1,028,980	96,624	1,125,604
65-69	152	6	158	789,665	30,389	820,054
70-74	177	5	182	748,708	18,738	767,446
75-79	111	1	112	402,018	4,665	406,683
80-84	50	0	50	160,519	0	160,519
85-89	32	0	32	73,008	0	73,008
Over 89	4	0	4	6,945	0	6,945
Total	941	73	1,014	$4,675,912	$377,836	$5,053,748

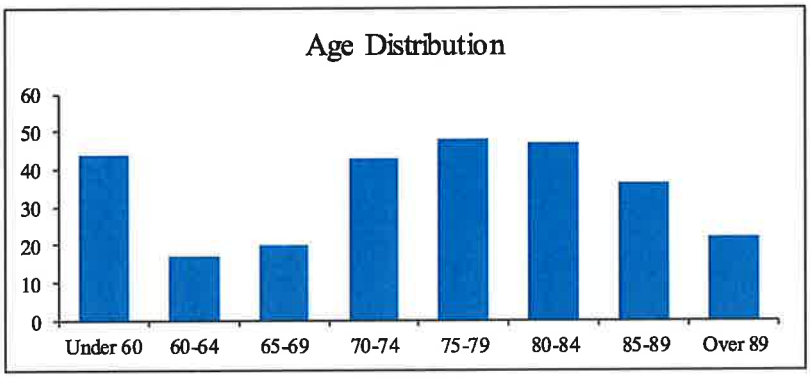


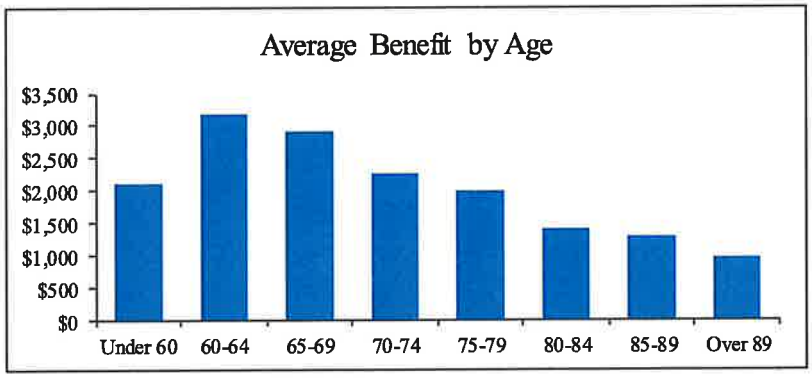


SCHEDULE IV

BENEFICIARIES RECEIVING BENEFITS AS OF JANUARY 1, 2019

	Count of Beneficiaries			Current Monthly Benefits		
Age	Males	Females	Total	Males	Females	Total
Under 60	11	33	44	$16,948	$ 76,474	$93,422
60-64	0	17	17	0	53,751	53,751
65-69	0	20	20	0	58,385	58,385
70-74	0	43	43	0	96,751	96,751
75-79	0	48	48	0	95,171	95,171
80-84	0	47	47	0	66,307	66,307
85-89	0	36	36	0	46,415	46,415
Over 89	0	22	22	0	20,902	20,902
Total	11	266	277	$16,948	$514,156	$531,104





SCHEDULE V

INACTIVE VESTED MEMBERS AS OF JANUARY 1, 2019

	Count of Members			Expected Monthly Benefit		
Age	Males	Females	Total	Males	Females	Total
Under 25	0	0	0	$ 0	$ 0	$ 0
25-29	0	0	0	0	0	0
30-34	1	0	1	1,381	0	1,381
35-39	0	1	1	0	1,349	1,349
40-44	1	0	1	2,091	0	2,091
45-49	2	0	2	3,284	0	3,284
50-54	3	0	3	6,232	0	6,232
55-59	0	0	0	0	0	0
Over 59	0	0	0	0	0	0
Total	7	1	8	$12,988	$1,349	$14,337

SCHEDULE VI

DISABLED MEMBERS AS OF JANUARY 1, 2019

	Count of Members			Current Monthly Benefits		
Age	Males	Females	Total	Males	Females	Total
Under 30	0	0	0	$ 0	$ 0	$ 0
30-34	1	0	1	3,190	0	3,190
35-39	2	0	2	6,629	0	6,629
40-44	4	2	6	12,792	6,446	19,238
45-49	10	2	12	36,099	6,210	42,309
50-54	20	4	24	76,599	14,084	90,683
55-59	12	8	20	42,402	25,775	68,177
60-64	14	5	19	48,524	13,354	61,878
65-69	14	0	14	59,752	0	59,752
70-74	54	0	54	160,951	0	160,951
75-79	40	0	40	103,330	0	103,330
80-84	15	0	15	36,351	0	36,351
85-89	14	0	14	26,843	0	26,843
Over 89	3	0	3	3,410	0	3,410
Total	203	21	224	$616,872	$65,869	$682,741

Appendix F

Omaha Public Power District
Retirement Plan Information

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2019 Reporting Form for Underfunded Political Subdivision Pension Plans

Omaha Public Power District

1. Please list the following information for plan years 2014 through current plan year 2019:

   a. Funding Status – There are currently multiple ways to identify and value funded status. For your consideration, the district is aware of two and they are as follows:

      i. **Present Value of Accrued Plan Benefits:** present value of benefits based on compensation and service to the date of the actuarial valuation.

Funded Ratio	2014	2015	2016	2017	2018	2019
PVAPB (%)	85.2	82.7	76.4	76.0	76.7	74.0

      ii. **Actuarial Accrued Liability:** present value of retirement benefits adjusted for assumptions for future increases in compensation and service attributable to past accounting periods.

Funded Ratio	2014	2015	2016	2017	2018	2019
AAL (%)	73.9	72.4	69.2	69.0	70.0	67.8

   b. Assumed rate of return – The discount rate of return is itemized in the table below:

	2014	2015	2016	2017	2018	2019
Discount Return %	7.75	7.75	7.0	7.0	7.0	7.0

   c. Actual investment return – The actual return is itemized in the table below:

	2014	2015	2016	2017	2018	2019
Actual Return %	3.85	-1.07	6.74	16.49	-6.34	Not Yet Available

d. Member and employer contributions rates - percentage

	2014	2015	2016	2017	2018	2019
Employee Contributions (%)	6.2	6.2	6.2	6.2	6.7	7.2

The OPPD percentage rate is calculated by dividing the Annual Required Contribution into the Valuation Compensation as follows:

	2014	2015	2016	2017	2018	2019
Employer Contributions (%)	27.3	23.7	25.2	28.3	29.8	33.0

e. Normal cost – percentage

	2014	2015	2016	2017	2018	2019
Covered Compensation (%)	11.6	11.8	11.1	11.4	12.1	12.3

f. Actuarial required contribution – percentage & dollar amount

Assumed percentage of covered compensation

	2014	2015	2016	2017	2018	2019
ARC (%)	27.3	23.7	25.2	28.3	29.8	33.0

Dollar amount in millions

	2014	2015	2016	2017	2018	2019
ARC ($)	53.0	46.6	50.7	53.1	53.6	59.2

g. Actuarially required contribution - actual dollars contributed and percentage of actuarial required contribution actually contributed

	2014	2015	2016	2017	2018	2019
ARC ($) actually made	53.0	46.6	50.7	53.1	53.6	59.2
ARC Made (%)	100	100	100	100	100	Not Yet Available

2. Please provide a brief narrative of the circumstances that led to the current underfunding of the retirement plan.

   The primary reasons for the pension's present funding level are lower investment performance from 2000-2008, increase in mortality tables due to longer life expectancy, and reduction of the plan's projected earnings rate (discount rate). All of these items have impacted the funding status for the universe of defined benefit plans.

3. Have there been any changes in the actuarial methods and/or assumptions since the previous actuarial valuation report? If so, please describe.

   The District adopted an updated mortality table in 2019.

4. In what year is the plan's future funding ratio expected to reach 100%?

   The plan's funding ratio is expected to reach 100% in 2039.

5. What is the method used to amortize the unfunded actuarial liability?

   The unfunded liability is amortized over 20 years as a level dollar amount. A new amortization base is established each year for unexpected changes in the unfunded liability (i.e., plan amendments, assumption changes, or gains/losses). Because of the 20-year amortization period, the plan is not projected to be fully funded until the end of the last amortization period, which is 2039 based on the new amortization bases that were effective January 1, 2019.

6. Please provide a description of corrective actions implemented to improve the funding status of the plan including, but not limited to, benefit changes, increased contribution rates and/or employer contributions. Include any actuarial projections based on these changes.

   a. In 2012, the OPPD Board of Directors approved a change in the retirement benefit for employees hired after December 31, 2012. Employees hired on January 1, 2013 and later are no longer eligible for the monthly annuity benefit and are only eligible for a cash balance payment at retirement. In addition to providing more convenience to future employees, there was a decrease in actuarially projected plan costs which is expected to reduce future pension costs.
   b. In 2013, the District changed early retirement eligibility, which generally prevents employees from receiving early retirement benefits before the age of 55.

c. The employee contribution rate increased from 6.2% to 6.7% in 2018, 7.2% in 2019, 7.7% in 2020, 8.3% in 2021 and 9.0% in 2022 and later.

7. Please describe any recent or ongoing negotiations with bargaining groups that may impact the funding of the plan.

   Negotiations occur on an ongoing basis. The current negotiations with the District's unions were completed in 2017. As a result of the negotiations, employee contributions to the retirement plan will gradually increase beginning in 2018 at 6.7% through 2022 at 9.0%.

8. When was the most recent Actuarial Experience Study conducted on the plan? Please attach a copy of the most recent Actuarial Experience Study.

   The most recent Actuarial Experience Study was completed in 2016 and was provided with the submittal on October 14, 2016.

9. What is the current assumed rate of return? If the rate has been changed in the past year, or if there are plans to review the rate for the upcoming year, please describe.

   The discount rate is currently 7.0%.

10. Please attach the most recent actuarial valuation report. If the valuation report is completed biannually (or less often) please include an updated report for the interim year/s, if available.

    The January 1, 2019 actuarial valuation report is attached.

your energy partner®

OPPD

Omaha Public Power District

October 15, 2019

Senator Mark Kolterman, Chairperson
Nebraska Retirement Systems Committee
Nebraska Legislature
State Capitol
P. O. Box 94604
Lincoln, NE 68509-4604

RE: Neb. Rev. Stat. § 13-2402 - Reporting Requirements - Defined Benefit Plans

Dear Senator Kolterman:

I am responding on behalf of the Omaha Public Power District ("OPPD") to your letter of September 4, 2019 regarding reporting requirements pursuant to Section 13-2402 of the Nebraska Revised Statutes. This letter, and the enclosed attachments, provide the information requested in your September 4th letter.

OPPD has provided and will continue to disclose information describing the organization's defined benefit Retirement Plan to the Board of Directors, in annual reports, in bond offering documents, and in annual newsletters provided to plan participants. We are pleased to provide similar information to the Nebraska Retirement Systems Committee.

As requested, OPPD's Chief Financial Officer, L. Javier Fernandez, will appear before the Committee on November 19th to present the information requested by the Committee and answer questions about OPPD's defined benefit plan status.

If you have any further questions, or need additional information, please do not hesitate to contact me.

Thank you for the opportunity to present this information to the Committee.

Sincerely,

Timothy J. Burke
President and Chief Executive Officer

Actuarial Report

Omaha Public Power District

Retirement Plan

As of January 1, 2019

AON
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Contents

Introduction

This report documents the results of the January 1, 2019 actuarial valuation of the Omaha Public Power District Retirement Plan for the plan sponsor and for Omaha Public Power District (OPPD). The information provided in this report is intended strictly for documenting information relating to contribution and funding requirements for the 2019 plan year.

Determinations for purposes other than the funding valuation may be significantly different from the results in this report. Thus, the use of this report for purposes other than those expressed here may not be appropriate.

This valuation has been conducted in accordance with generally accepted actuarial principles and practices, including the applicable Actuarial Standards of Practice as issued by the Actuarial Standards Board. This plan is a governmental plan as defined in IRC section 414(d), and as such the plan is not subject to the ERISA minimum funding requirements.

Future actuarial measurements may differ significantly from the current measurements presented in this report due (but not limited to) to such factors as the following:

- Plan experience differing from that anticipated by the economic or demographic assumptions;
- Changes in actuarial methods or 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); and
- Changes in plan provisions or applicable law;
- Issuance of additional regulatory guidance.

Due to the limited scope of our assignment, we did not perform an analysis of the potential range of such future measurements.

Funded status measurements shown in this report are determined based on various measures of plan assets and liabilities. Plan assets are measured based on the asset valuation method described in the Actuarial Assumptions and Methods section of this report. Plan liabilities are measured based on the interest rates and other assumptions summarized in the Actuarial Assumptions and Methods section of this report. These funded status measurements may not be appropriate for assessing the sufficiency of plan assets to cover the estimated cost of settling the plan's benefit obligations.

In determining contribution requirement for the Plan, Aon may be assisting the appropriate plan fiduciary as it performs tasks that are required for the administration for an employee benefit plan. Aon may be consulting with the employer/plan sponsor (OPPD) as it considers alternative strategies for funding the plan. Thus, Aon potentially will be providing assistance to OPPD (and/or certain of its employees) acting in a fiduciary capacity (for the benefit of plan participants and beneficiaries) and to OPPD (and/or its executives) acting in a settlor capacity (for the benefit of the employer sponsoring the Plan).

In conducting the valuation, we have relied on personnel, plan design, and asset information supplied by OPPD as of the valuation date. While we cannot verify the accuracy of all the information, the supplied information was reviewed for consistency and reasonableness. As a result of this review, we have no reason to doubt the substantial accuracy or completeness of the information and believe that it has produced appropriate results.

The actuarial assumptions and methods used in this valuation are described in the Actuarial Assumptions and Methods section of this report. OPPD selected the economic and demographic assumptions. Aon provided guidance with respect to these assumptions, and it is our belief that the assumptions represent reasonable expectations of anticipated plan experience.

The undersigned are familiar with the near-term and long-term aspects of pension valuations and collectively meet the Qualification Standards of the American Academy of Actuaries necessary to render the actuarial opinions contained herein. The information provided in this report is dependent upon various factors as documented throughout this report, which may be subject to change. Each section of this report is considered to be an integral part of the actuarial opinions.

Certain aspects of the funding results included in this report are subject to Actuarial Standard of Practice No. 51 (ASOP 51) on risk assessments for pension funding calculations. The January 1, 2019 ASOP 51 risk assessment analysis for the OPPD Retirement Plan is contained in a separate report.

To our knowledge, no colleague of Aon providing services to OPPD has any material direct or indirect financial interest in OPPD. Thus, we believe there is no relationship existing that might affect our capacity to prepare and certify this actuarial report for OPPD.

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September 2019

Summary

The following page summarizes the results of the January 1, 2019 actuarial valuation. For comparison purposes, the results of the January 1, 2018 and January 1, 2017 actuarial valuations are also shown.

This plan is a governmental plan as defined in IRC section 414(d), and as such the Plan is not subject to the ERISA minimum funding requirements.

Plan Changes

There have been no plan changes since the prior valuation.

Assumption Changes

The January 1, 2019 valuation results reflect the following assumption changes:

- The mortality table for healthy participants was updated from the RP-2014 Aggregate table projected back to 2006 using Scale MP-2014 and projected forward using Scale MP-2017 with generational projection to the PUB-2010 General table projected using Scale MP-2018 with generational projection.
- The mortality table for disabled participants was updated from the RP-2014 Disabled Retiree table projected back to 2006 using Scale MP-2014 and projected forward using Scale MP-2017 with generational projection to the PUB-2010 General Disabled Retiree table projected using Scale MP-2018 with generational projection.
- The retirement rates and withdrawal rates applicable to Fort Calhoun participants were updated to reflect current "decommissioning" forecasts.

Method Changes

There have been no method changes since the prior valuation.

Summary

	January 1, 2017	January 1, 2018	January 1, 2019
Interest Rate	7.00%	7.00%	7.00%
Present Value of Future Benefits (PVB)	$ 1,628,055,120	$ 1,661,954,554	$ 1,736,377,868
Accrued Liability (EAN)	$ 1,443,717,502	$ 1,476,147,956	$ 1,537,959,944
Actuarial Value of Assets	995,616,705	1,033,752,901	1,042,187,515
Unfunded Accrued Liability	$ 448,100,797	$ 442,395,055	$ 495,772,429
Gross Normal Cost	$ 21,416,629	$ 21,651,698	$ 22,036,419
As Percentage of Covered Compensation	11.42%	12.06%	12.29%
Annual Required Contribution (ARC)[1]	$ 53,072,549	$ 53,562,735	$ 59,201,071
As Percentage of Covered Compensation	28.29%	29.82%	33.01%
Number of Participants			
Retired and Beneficiaries	2,086	2,154	2,219
Terminated and Vested	400	466	482
Disabled	32	28	34
Active	1,968	1,828	1,762
Total	4,486	4,476	4,497
Valuation Compensation[2]	$ 187,605,084	$ 179,607,099	$ 179,363,501

[1] Adjusted to reflect timing of contributions.
[2] Expected compensation during the plan year for active participants under the 100% assumed retirement age.

Funding Requirements

The Funding Requirements section presents the results of the ongoing plan valuation, which determines the contribution levels.

Included in the Funding Requirements are the following sections:

- *Assets and Liabilities*—This section develops the basic quantities upon which the actual contributions are based
- *Contributions*—This section shows the development of the contribution amount for the year
- *Experience*—This section develops and analyzes the actuarial gain or loss during the past year

This plan is a governmental plan as defined in IRC section 414(d), and as such the plan is not subject to the ERISA minimum funding requirements.

Assets and Liabilities

The Asset and Liabilities section includes the following:

- Unfunded Accrued Liability and Normal Cost—The actuarial valuation determines the unfunded accrued liability and the normal cost of the plan for the current year. The contribution then consists of the normal cost plus a payment on the unfunded accrued liability, if any.
- For employees already retired or terminated with a vested pension, the benefits to be paid have been determined. For other employees, future benefit payments based on service and projected pay must be estimated. As of the current valuation date, these liabilities have been valued as shown on the following pages.
- Development of the Actuarial Value of Assets—The actuarial valuation determines an actuarial value of assets, which has been adjusted to smooth out any significant annual changes in the market value of assets.

Valuation Results

The following table shows the basic valuation results as of January 1, 2019, both before and after changes.

	Before Changes	After Changes
Accrued Liability		
Retirees and Beneficiaries	$ 990,526,239	$ 1,009,781,002
Terminated Vested	37,706,518	38,674,094
Active and Disabled Employees	476,562,956	489,504,848
Total	$ 1,504,795,713	$ 1,537,959,944
Actuarial Value of Assets	1,042,187,515	1,042,187,515
Unfunded Accrued Liability	$ 462,608,198	$ 495,772,429
Funded Ratio	69.3%	67.8%
Gross Normal Cost	$ 21,505,453	$ 22,036,419
Number of Participants		
Retired and Beneficiaries		2,219
Terminated Vested		482
Disabled		34
Active		1,762
Total		4,497
Valuation Compensation[1]		$ 179,363,501

[1] Expected compensation during the plan year for active participants under the 100% assumed retirement age.

Market Value of Assets

Market Value, 12/31/2018	$	919,804,594
Receivable for 2018 Plan Year		0
Market Value of Assets, 1/1/2019	$	919,804,594

Actuarial Value of Assets

The actuarial value of assets is determined assuming the prior year's value grew at the valuation interest rate and then adjusted 20% toward the market value of assets on the valuation date.

Actuarial Value, 1/1/2018	$	1,033,752,901
OPPD Contributions for 2018		53,562,735
Employee Contributions for 2018		11,417,074
Benefit Payments in 2018		(97,375,419)
Interest on Above at 7.00% to 12/31/2018		71,425,954
Expected Value of Assets, 1/1/2019	$	1,072,783,245
Adjustment 20% Toward Market Value		(30,595,730)
Actuarial Value of Assets, 1/1/2019	$	1,042,187,515

A loss of $30,595,730 was realized from the plan's asset experience. The return on the market value of assets during the 2018 Plan Year was approximately (6.79%). The return on the actuarial value (which smooths prior years' gains and losses) was 4.01%, compared to the 7.00% assumed in 2018.

Contributions

This section includes the calculation of the Annual Required Contribution (ARC) applicable to the 2019 Plan Year. The ARC is determined based on OPPD's funding policy. The funding policy is based on the following:

- Entry age normal cost method
- 20-year fresh start of the unfunded accrued liability as of January 1, 2015
- One-year amortization of the increase in accrued liability due to certain plan amendments, including single-year ad hoc retiree cost-of-living adjustments
- 20-year amortization of other plan or assumption changes and actual gains or losses
- Amortizations are closed group amortizations based on level amounts

Annual Required Contribution for 2019

Gross Normal Cost, 1/1/2019	$	22,036,419
Expected Employee Contributions during 2019		(12,914,172)
Net Amortization Charges, 1/1/2019		47,881,288
Interest at 7.00% to 12/31/2019		4,442,243
Total Charges at 12/31/2019	$	61,445,778
Discount for Monthly Contributions		(2,244,707)
Annual Required Contribution for 2019 Plan Year— Adjusted for Assumed Monthly Contributions	$	59,201,071

Schedule of Amortization Payments to be Recognized in the Annual Required Contribution

OPPD has elected to amortize all future gains/losses and plan amendments over a period of 20 years.

Source	Date Established	Original Amount	Remaining Years	Present Value 1/1/2019	Payment Due 1/1/2019
2015 Fresh Start	1/1/2015	$ 361,570,248	16	$ 323,048,249	$ 31,959,932
2016 Plan Amendment	1/1/2016	1,268,369	17	1,168,901	111,892
2016 Assumption Changes	1/1/2016	50,292,679	17	46,348,685	4,436,704
2016 (Gain)/Loss	1/1/2016	28,105,800	17	25,901,719	2,479,429
2017 Assumption Changes	1/1/2017	(1,501,900)	18	(1,426,064)	(132,494)
2017 (Gain)/Loss	1/1/2017	27,887,279	18	26,479,157	2,460,151
2018 Plan Amendment	1/1/2018	949,609	19	926,446	83,772
2018 Assumption Changes	1/1/2018	(14,359,293)	19	(14,009,027)	(1,266,744)
2018 (Gain)/Loss	1/1/2018	20,544,594	19	20,043,451	1,812,397
2019 Assumption Changes	1/1/2019	33,164,231	20	33,164,231	2,925,672
2019 (Gain)/Loss	1/1/2019	34,126,681	20	34,126,681	3,010,577
Total				$ 495,772,429	$ 47,881,288

Experience

This section presents the development and analysis of the actuarial gain/loss during the past year. Gains or losses result when actual plan experience over the prior year differs from the Actuarial Assumptions.

Development of Actuarial Gain or Loss for 2018

Unfunded Accrued Liability (Surplus), 1/1/2018		$	442,395,055
Plus:	Interest to 12/31/2018 at 7.00%		30,967,654
Plus:	2018 Total Normal Cost		21,651,698
Plus:	Interest to 12/31/2018 at 7.00%		1,515,619
Less:	2018 OPPD Contributions		(53,562,735)
Less:	Interest to 12/31/2018 at 7.00%		(2,071,793)
Less:	2018 Employee Contributions		(11,417,074)
Less:	Interest to 12/31/2018 at 7.00%		(399,598)
Equals:	Expected Unfunded Accrued Liability (Surplus), 1/1/2019	$	429,078,826
Less:	Actual Unfunded Accrued Liability (Surplus) Before Changes, 1/1/2019		462,608,198
Equals:	Actuarial Gain (Loss) for 2019 plan year	$	(33,529,372)

Reconciliation of Unfunded Accrued Liability (Surplus)

Unfunded Accrued Liability (Surplus) Before Changes, 1/1/2019	$	462,608,198
Change in Unfunded Due to Plan Amendment		0
Change in Unfunded Due to Assumption Change		33,164,231
Change Due to Retiree Cost of Living Adjustment (COLA)		0
Actual Unfunded Accrued Liability (Surplus), 1/1/2019	$	495,772,429

Accrued Benefit Values

This section presents the results of a separate valuation of the plan's obligations, based only on benefits accrued as of the valuation date of January 1, 2019. The focus of this valuation differs from the calculation of ongoing funding requirements, which anticipates benefits to be earned by future service and salary increases. This accrued benefit valuation assumes an ongoing plan and, therefore, differs from a calculation of termination liabilities which would be based on the benefits and assumptions appropriate for a terminating plan.

The American Academy of Actuaries, in Actuarial Standards of Practice Number 4, has provided recommended procedures for the calculation of the Present Value of Vested Accrued Benefits and the Present Value of Accrued Benefits. The results under both illustrations include the sum of the present value of:

- All benefits expected to be paid to former participants and their beneficiaries; and
- Benefits expected to be paid at a future date to present active participants, based on only service and pay prior to the date of calculation.

The *Present Value of Vested Accrued Benefits* recognizes only the benefits in which an active participant retains a right, independent of continuation of employment, beyond the calculation date. It does not include any additional benefits which might arise because of future death or disability that would not become payable if the participant had terminated employment before the occurrence of the death or disability.

The *Present Value of All Accrued Benefits* recognizes All Accrued Benefits expected to become payable at future dates, including the accrued portion of disability and preretirement death benefits. Thus, the accrued benefit of a non-vested participant is included in this calculation to the extent it will become payable (i.e., vest) upon the occurrence of a future event such as termination, death, disability, or retirement.

The accrued benefit used in these calculations is based on the personnel data supplied by OPPD.

The interest rate used in these calculations is the same as the funding interest rate.

Vested Accrued Benefits, 1/1/2019

Retired and Beneficiaries	$ 1,009,781,002
Terminated Vested	38,674,094
Active and Disabled Employees	287,183,513
Total Vested	$ 1,335,638,609
Non-vested Benefits, 1/1/2019	73,164,069
Total Accrued Benefits, 1/1/2019	$ 1,408,802,678
Interest Rate Used for These Calculations	7.00%

Historical Accrued Benefit Values and Funded Ratios

Valuation Date	Interest Rate	Accrued Benefit Value	Actuarial Assets	Funded Ratio	Market Assets	Funded Ratio
1/1/2019	7.00%	$ 1,408,802,678	$ 1,042,187,515	74.0%	$ 919,804,594	65.3%
1/1/2018	7.00%	$ 1,347,839,267	$ 1,033,752,901	76.7%	$ 1,020,385,607	75.7%
1/1/2017	7.00%	$ 1,309,514,839	$ 995,616,705	76.0%	$ 904,819,988	69.1%
1/1/2016	7.00%	$ 1,274,917,795	$ 973,844,079	76.4%	$ 869,489,088	68.2%
1/1/2015	7.75%	$ 1,147,857,404	$ 949,166,647	82.7%	$ 903,563,000	78.7%
1/1/2014	7.75%	$ 1,063,458,429	$ 905,699,590	85.2%	$ 886,689,000	83.4%
1/1/2013	7.75%	$ 1,027,634,931	$ 852,552,291	83.0%	$ 800,941,000	77.9%
1/1/2012	7.75%	$ 985,638,320	$ 805,762,548	81.8%	$ 711,973,000	72.2%
1/1/2011	7.75%	$ 929,439,034	$ 771,588,331	83.0%	$ 707,943,000	76.2%
1/1/2010	8.00%	$ 854,121,013	$ 733,227,289	85.8%	$ 636,262,350	74.5%
1/1/2009	8.00%	$ 782,059,197	$ 698,111,470	89.3%	$ 505,449,000	64.6%
1/1/2008	8.20%	$ 702,387,775	$ 695,741,868	99.1%	$ 659,737,600	93.9%
1/1/2007	8.20%	$ 653,802,476	$ 656,473,880	100.4%	$ 635,020,300	97.1%
1/1/2006	8.20%	$ 609,284,807	$ 611,924,676	100.4%	$ 574,286,900	94.3%
1/1/2005	8.40%	$ 553,591,549	$ 577,885,164	104.4%	$ 549,264,200	99.2%
1/1/2004	8.40%	$ 515,350,617	$ 545,565,278	105.9%	$ 508,132,200	98.6%
1/1/2003	8.50%	$ 476,951,308	$ 519,723,240	109.0%	$ 433,102,700	90.8%
1/1/2002	8.75%	$ 425,266,689	$ 544,184,070	128.0%	$ 494,471,300	116.3%

Historical Actuarial Accrued Liabilities and Funded Ratios

Valuation Date	Interest Rate	Actuarial Accrued Liability	Actuarial Assets	Funded Ratio	Market Assets	Funded Ratio
1/1/2019	7.00%	$ 1,537,959,944	$ 1,042,187,515	67.8%	$ 919,804,594	59.8%
1/1/2018	7.00%	$ 1,476,147,956	$ 1,033,752,901	70.0%	$ 1,020,385,607	69.1%
1/1/2017	7.00%	$ 1,443,717,502	$ 995,616,705	69.0%	$ 904,819,988	62.7%
1/1/2016	7.00%	$ 1,406,958,596	$ 973,844,079	69.2%	$ 869,489,088	61.8%
1/1/2015	7.75%	$ 1,310,736,895	$ 949,166,647	72.4%	$ 903,563,000	68.9%
1/1/2014	7.75%	$ 1,224,899,093	$ 905,699,590	73.9%	$ 886,689,000	72.4%
1/1/2013	7.75%	$ 1,184,996,831	$ 852,552,291	71.9%	$ 800,941,000	67.6%
1/1/2012	7.75%	$ 1,155,410,379	$ 805,762,548	69.7%	$ 711,973,000	61.6%
1/1/2011	7.75%	$ 1,094,908,920	$ 771,588,331	70.5%	$ 707,943,000	64.7%
1/1/2010	8.00%	$ 1,018,913,896	$ 733,227,289	72.0%	$ 636,262,350	62.4%
1/1/2009	8.00%	$ 963,324,892	$ 698,111,470	72.5%	$ 505,449,000	52.5%
1/1/2008	8.20%	$ 868,897,940	$ 695,741,868	80.1%	$ 659,737,600	75.9%
1/1/2007	8.20%	$ 819,314,262	$ 656,473,880	80.1%	$ 635,020,300	77.5%
1/1/2006	8.20%	$ 771,906,685	$ 611,924,676	79.3%	$ 574,286,900	74.4%
1/1/2005	8.40%	$ 702,300,052	$ 577,885,164	82.3%	$ 549,264,200	78.2%
1/1/2004	8.40%	$ 658,260,260	$ 545,565,278	82.9%	$ 508,132,200	77.2%
1/1/2003	8.50%	$ 614,382,408	$ 519,723,240	84.6%	$ 433,102,700	70.5%
1/1/2002	8.75%	$ 548,292,461	$ 544,184,070	99.3%	$ 494,471,300	90.2%

Personnel Information

The actuarial valuation was based on personnel data supplied by OPPD. The first of the following tables contains a summary of the total participant group as of January 1, 2019. For comparison purposes, the January 1, 2018 figures are also shown.

Age and service have been determined for each participant in years and completed months as of the valuation date.

Number of Participants

	January 1, 2018	January 1, 2019
Retired and Beneficiaries	2,154	2,219
Terminated Vested	466	482
Disabled	28	34
Active	1,828	1,762
Total	4,476	4,497

Personnel Characteristics of Active Participants as of January 1, 2019

	Number	Average Age	Average Years of Service	Average Entry Age	Average Pay
Male	1,408	45.3	14.3	31.0	—
Female	354	47.5	13.7	33.8	—
Total	1,762	45.8	14.2	31.6	$ 96,314

Characteristics for Inactive Participants

	Number	Average Age	Average Annual Benefit[1]
Retired and Beneficiaries	2,219	70.4	$ 43,597
Terminated Vested	482	50.7	$ 31,038

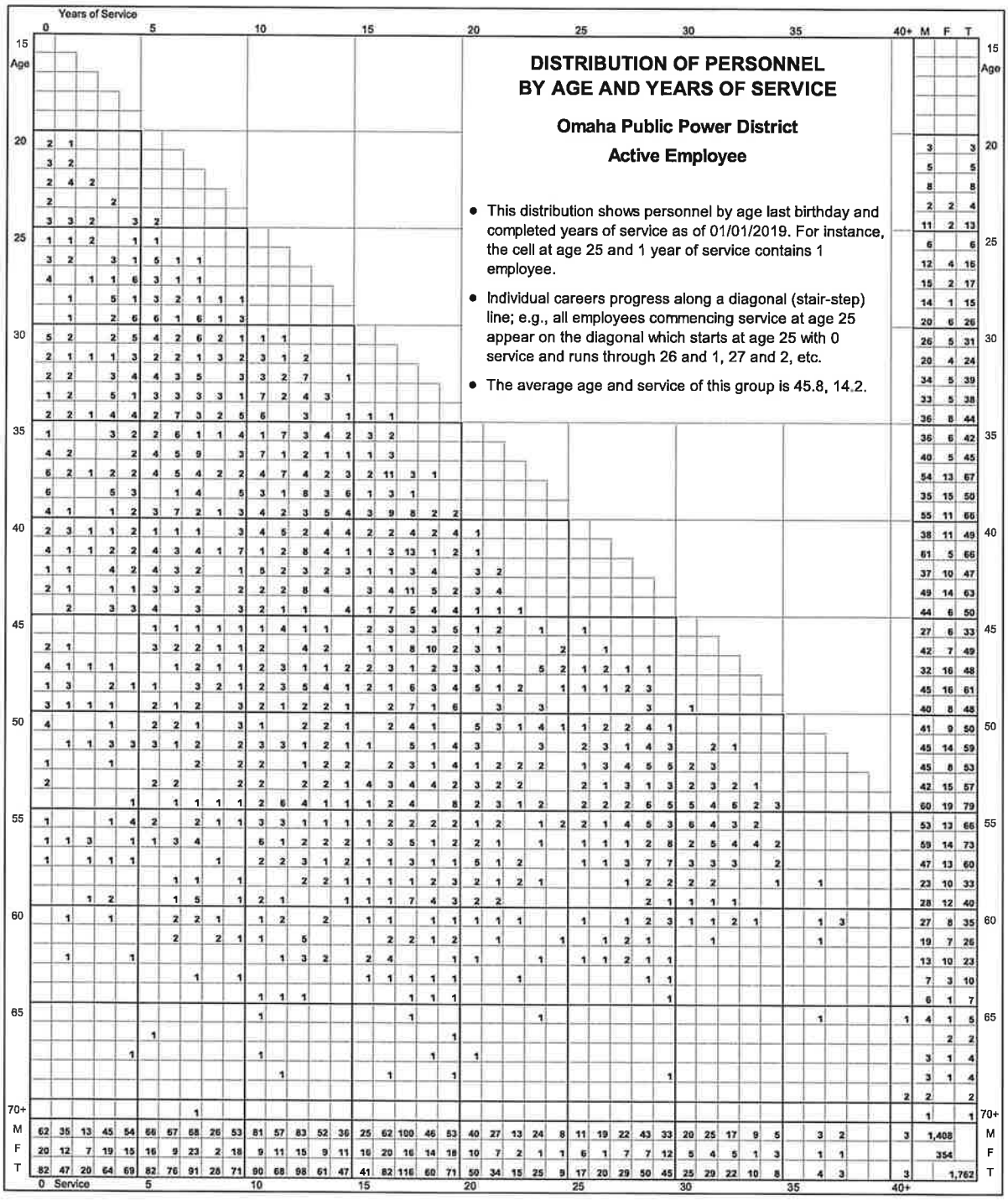
[1] Does not include terminated vested participants under the cash balance formula.

Distribution of Personnel

The following pages provide graphical and statistical summaries of the personnel data. Included are the following:

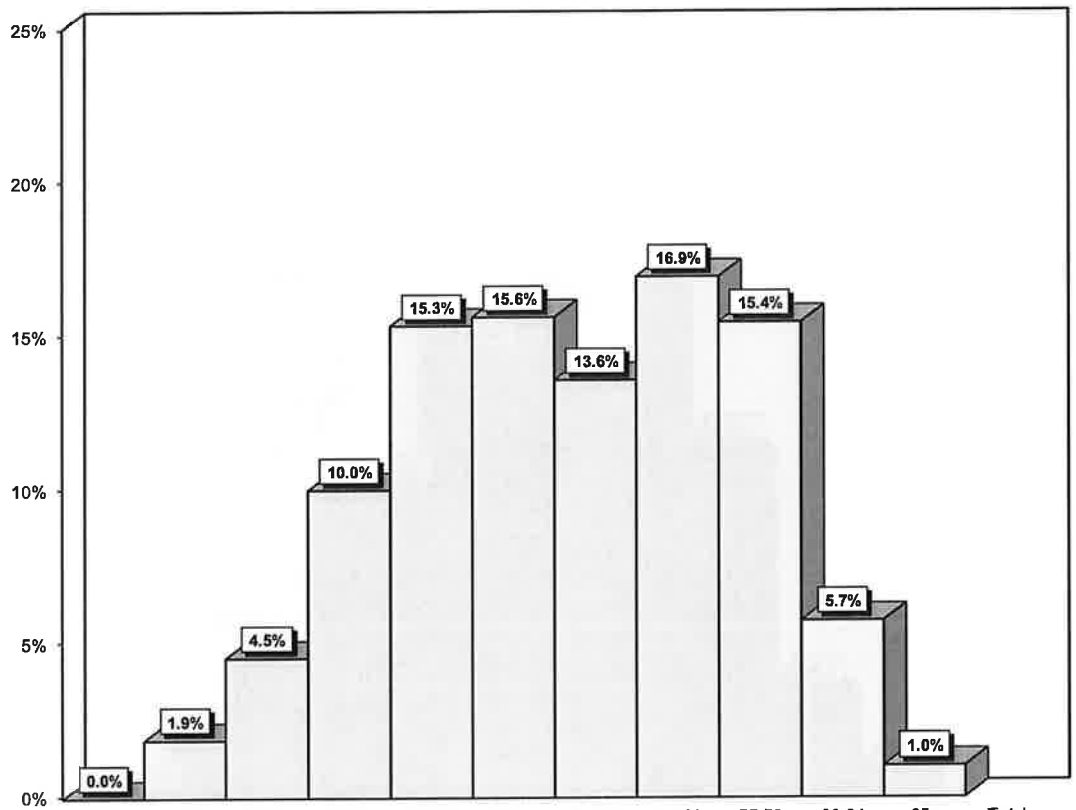
- A grid which presents the distribution of active participants by age and service.
- A bar chart which presents the distribution of active participants by five-year age groupings.
- A bar chart which presents the distribution of active participants currently age 55 or older by five-year groupings of expected service at age 65.

These charts and graphs are useful tools for analyzing many different characteristics of the current participants of the plan. When compared to prior years' valuations, trends in the active participant population can also be observed.


DISTRIBUTION OF PERSONNEL
BY AGE AND YEARS OF SERVICE
Omaha Public Power District
Active Employee
• This distribution shows personnel by age last birthday and completed years of service as of 01/01/2019. For instance, the cell at age 25 and 1 year of service contains 1 employee.
• Individual careers progress along a diagonal (stair-step) line; e.g., all employees commencing service at age 25 appear on the diagonal which starts at age 25 with 0 service and runs through 26 and 1, 27 and 2, etc.
• The average age and service of this group is 45.8, 14.2.
Years of Service
Age
Service
M
F
T

Distribution of Personnel by Age

Omaha Public Power District
Active Employee



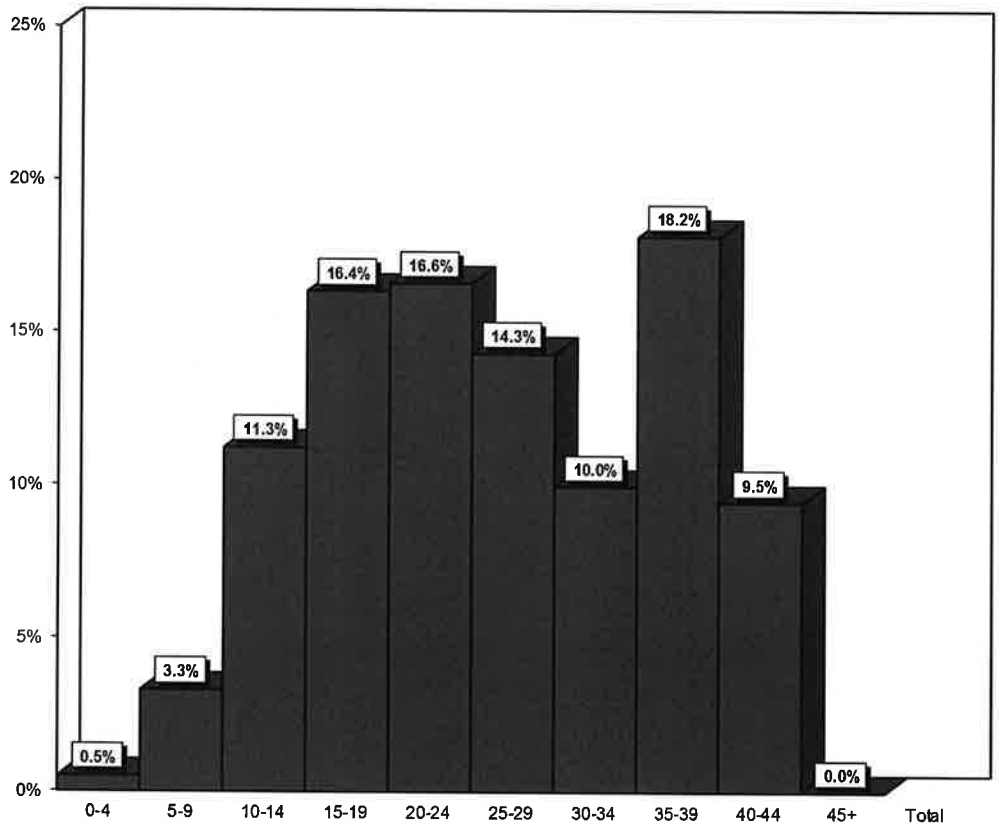
Age:												
Number	0	33	80	176	270	275	239	298	272	101	18	1,762
Average Service	0.0	1.7	4.7	7.1	9.9	12.1	15.1	19.6	20.2	18.9	21.0	14.2

Detail of Employees 55 & Over

Age	55	56	57	58	59	60	61	62	63	64	65	66+
Number	66	73	60	33	40	35	26	23	10	7	5	13
Average Service	20.6	19.8	22.0	21.2	16.5	21.2	17.7	17.6	18.4	17.2	26.0	19.1

Distribution of Personnel
By Expected Service At Age 65
(Based Upon Personnel Age 55 And Over)

Omaha Public Power District
Active Employee



Service:

	0-4	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40-44	45+	Total
Number	2	13	44	64	65	56	39	71	37	0	391
Average Service At Age 65*	4.0	8.0	12.5	17.7	22.4	27.2	32.6	37.6	41.4	0.0	26.2

* Or Current Age if Older

Plan Provisions

Plan Name	Omaha Public Power District Retirement Plan.
Effective Date	The original Plan became effective December 31, 1945. The plan was restated effective January 1, 1997, and last amended during 2017.
Plan Year	Calendar year.
Eligibility	Full-time employees become eligible upon date of employment.
Participation	Each eligible employee shall immediately become a participant. A part-time employee may elect not to become a member. As of January 1, 2013 for non-union 763 employees and May 31, 2013 for union 763 employees, all new hires receive cash balance benefits.

Final Average Pay Formula Provisions

Normal Retirement	
Eligibility	Age 65.
Benefit	A normal retiree shall receive a monthly benefit equal to 2.25% of the participant's average monthly compensation per year of credited service. Participants who were participants in certain other prior pension plans will have their benefits reduced by prior plan benefits. Certain participants may have additional accrual rates apply by special provisions. A minimum benefit of the actuarial equivalent of a participant's contributions accumulated with interest at 5.5% to date of retirement exists for all participants.
Unreduced Early Retirement	
Eligibility	Ninety age/service points.
Benefit	An early retiree shall receive a monthly benefit computed in the same manner as a normal retirement benefit but based on the participant's average monthly compensation and credited service at the time of termination. This benefit is unreduced for early commencement.

Early Retirement

Eligibility	Some grandfathered at age 50 with 10 years of service and 70 age/service points. Else, Union 763 is age 50 with 25 years of service, and all others are age 55 with 20 years of service, or age 62 with 10 years of service.
Benefit	An early retiree shall receive a monthly benefit computed in the same manner as a normal retirement benefit but based on the participant's average monthly compensation and credited service at the time of termination. Further, this benefit will be reduced by the lesser of 3% per year from age 62, or 3% per point from 90 age/service points.

Deferred With Vesting

Eligibility	Five years of continuous service.
Benefit	A vested participant who terminates shall be entitled to receive an accrued benefit computed in the same manner as a normal retirement benefit, but based on the participant's average monthly compensation and credited service at the time of termination. Benefits may commence for early retirement. This benefit will be reduced 6% for each year the commencement date precedes age 65.

Preretirement Surviving Spouse Benefit

Eligibility	Five years of continuous service.
Benefit	A spouse who survives a vested participant who has not yet retired shall receive one-half of the benefit to which the participant would have been entitled had the participant retired on the day immediately preceding death. The benefit is reduced by 2% for each year that the surviving spouse is more than five years younger than the participant. The benefit continues during the lifetime of the spouse and begins upon the participant's death.

Preretirement Dependent Survivor Benefit

Eligibility	Actively employed full-time district employees.
Benefit	The percent of base pay at time of death paid as a survivor benefit will be 20% for one dependent, 40% for two dependents, and 50% for three or more dependents. The survivor benefit is offset by amounts payable from the preretirement surviving spouse benefit, workers' compensation survivor payments, and payments from other district-sponsored sources.

Return of Contributions

Eligibility	Plan participants not eligible for vested, death, early or normal retirement benefits. Terminated vested participants have the option to receive this benefit in lieu of their accrued benefit.
Benefit	Participant contributions accumulated with 5.5% interest will be returned.

Normal Form of Benefits	An unmarried participant shall receive a Life Annuity. Married participants will receive an unreduced 50% Joint and Survivor Annuity.

Definitions

Continuous Service	Years of employment with the district during which an employee is compensated for 1,000 or more hours.
Credited Service	One-twelfth of a year of credited service for each calendar month of Service to the district as a full-time employee or as a member by a part-time employee. For union 763 employees attaining 90 points after May 31, 2013, credited service is frozen upon attaining 90 points.
Compensation	Regular wages for services rendered to the District, including base pay, shift differentials and pay for service as an acting crew leader, but excluding any bonuses, pay for overtime and special pay.
Average Monthly Compensation	Average of compensation for the highest 18 consecutive months.
Employee Contributions	See table below. Rate may be adjusted based on the plan's funded status. For union 763 employees attaining 90 points after May 31, 2013, contributions are stopped upon attaining 90 points.

Year	Rate
2017	6.2%
2018	6.7%
2019	7.2%
2020	7.7%
2021	8.3%
2022	9.0%

Cash Balance Formula Provisions

Accrued Benefit

Pay Credits

A participant shall receive annual pay credits equal to a percentage of salary based on points (age plus service) as shown in the table below:

Points	2017	2018	2019	2020	2021	2022
<30	7.0%	8.0%	9.0%	10.0%	10.0%	10.0%
30–39	8.0%	9.0%	10.0%	10.5%	10.5%	10.5%
40–49	9.0%	10.0%	11.0%	11.5%	11.5%	11.5%
50-59	10.0%	10.5%	11.0%	11.5%	11.5%	12.0%
60-69	11.0%	11.5%	12.0%	12.5%	12.5%	12.5%
70-79	13.0%	13.0%	13.0%	13.0%	13.0%	13.0%
80+	16.0%	16.0%	16.0%	16.0%	16.0%	16.0%

Interest Credits

A participant's account will increase annually at an interest crediting rate of 6.00%.

Normal Retirement

Eligibility	Age 65.
Benefit	Lump sum or an actuarial equivalent monthly benefit of their cash balance account.

Early Retirement

Eligibility	Some grandfathered at age 50 with 10 years of service and 70 age/service points. Else, Union 763 is age 50 with 25 years of service, and all others are age 55 with 20 years of service, or age 62 with 10 years of service.
Benefit	Lump sum or an actuarial equivalent monthly benefit of their cash balance account.

Deferred With Vesting

Eligibility	Five years of continuous service.
Benefit	Lump sum or an actuarial equivalent monthly benefit of their cash balance account.

Preretirement Surviving Spouse Benefit

Eligibility	Five years of continuous service.
Benefit	Lump sum or an actuarial equivalent monthly benefit of their cash balance account.

Preretirement Dependent Survivor Benefit

Eligibility	Actively employed full-time district employees.
Benefit	The percent of base pay at time of death paid as a survivor benefit will be 20% for one dependent, 40% for two dependents, and 50% for three or more dependents. The survivor benefit is offset by amounts payable from the preretirement surviving spouse benefit, workers' compensation survivor payments, and payments from other district-sponsored sources.

Return of Contributions

Eligibility	Plan participants not eligible for vested, death, early, or normal retirement benefits.
Benefit	Participant contributions accumulated with 5.5% interest will be returned.

Definitions

Continuous Service	Years of employment with the district during which an employee is compensated for 1,000 or more hours.
Credited Service	One-twelfth of a year of credited service for each calendar month of Service to the district as a full-time employee or as a member by a part-time employee.
Compensation	Regular wages for services rendered to the District, including base pay, shift differentials and pay for service as an acting crew leader, but excluding any bonuses, pay for overtime and special pay.
Employee Contributions	See table below. Rate may be adjusted based on the plans funded status.

Year	Rate
2017	6.2%
2018	6.7%
2019	7.2%
2020	7.7%
2021	8.3%
2022	9.0%

Actuarial Assumptions and Methods

The actuarial assumptions and methods used in the January 1, 2019 valuation are stated below.

Interest Rate

7.00% per year compounded annually (net of 0.1% reduction for anticipated administration expenses paid from the trust).

Salary Scale

Rates based on age.

Age	Annual Rate of Salary Increase
25	13.00%
30	9.50%
35	7.00%
40	5.30%
45	4.80%
50	4.35%
55	4.10%
60	3.00%
64	3.00%

Retirement Rates

- Actives: See Table A.
- Terminated Vesteds: Age 63.

Healthy Mortality

PUB-2010 General table projected using Scale MP-2018 with generational projection.

Disabled Mortality

PUB-2010 General Disabled Retiree table projected using Scale MP-2018 with generational projection.

Withdrawal Rates

Select and ultimate table (see Table B).

Disability Rates

See Table C.

Spousal Benefits

80% of males and 80% of females are assumed to be married. Males are assumed to be two years older than their spouses; females two years younger.

Form of Payment

- Final Average Pay Formula: 50% Joint and Survivor if married, else Single Life Annuity. 60% of terminated vested participants are assumed to elect the lump sum return of their contributions with interest.
- Cash Balance Formula: 100% lump sum.

Asset Valuation Method

The prior year asset value is assumed to have earnings equal to the valuation interest rate. The resulting assets are then adjusted by 20% of the difference between this value and the market value. Assets were restated to market value January 1, 1996.

Expenses

Included in net investment return assumption.

Actuarial Method

Entry Age Normal (Level Percent of Pay) Cost Method.

Section 415 Limits

All applicable IRC section 415 limits have been taken into account. The annual benefit payable at Social Security normal retirement age has been limited to $225,000, based on the provisions of IRC section 415(b).

Table A

Retirement Rates[1]

	Service								
Age	19	20	21	22	23	24	25	26	27
50	0.05000	0.05000	0.05000	0.05000	0.05000	0.05000	0.05000	0.05000	0.05000
51	0.05000	0.05000	0.05000	0.05000	0.05000	0.05000	0.05000	0.05000	0.05000
52	0.05000	0.05000	0.05000	0.05000	0.05000	0.05000	0.05000	0.05000	0.05000
53	0.05000	0.05000	0.05000	0.05000	0.05000	0.05000	0.05000	0.05000	0.05000
54	0.05000	0.05000	0.05000	0.05000	0.05000	0.05000	0.05000	0.05000	0.05000
55	0.07500	0.07500	0.07500	0.07500	0.07500	0.07500	0.07500	0.07500	0.07500
56	0.07500	0.07500	0.07500	0.07500	0.07500	0.07500	0.07500	0.07500	0.07500
57	0.10000	0.10000	0.10000	0.10000	0.10000	0.10000	0.10000	0.10000	0.10000
58	0.10000	0.10000	0.10000	0.10000	0.10000	0.10000	0.10000	0.10000	0.10000
59	0.12500	0.12500	0.12500	0.12500	0.12500	0.12500	0.12500	0.12500	0.12500
60	0.12500	0.12500	0.12500	0.12500	0.12500	0.12500	0.12500	0.12500	0.12500
61	0.15000	0.15000	0.15000	0.15000	0.15000	0.15000	0.15000	0.15000	0.15000
62	0.25000	0.25000	0.25000	0.25000	0.25000	0.25000	0.25000	0.25000	0.25000
63	0.25000	0.25000	0.25000	0.25000	0.25000	0.25000	0.25000	0.25000	0.50000
64	0.15000	0.15000	0.15000	0.15000	0.15000	0.15000	0.15000	0.50000	0.50000
65	0.40000	0.40000	0.40000	0.40000	0.40000	0.40000	0.50000	0.50000	0.50000
66	0.20000	0.20000	0.20000	0.20000	0.20000	0.50000	0.50000	0.50000	0.50000
67	0.40000	0.40000	0.40000	0.40000	0.50000	0.50000	0.50000	0.50000	0.50000
68	0.40000	0.40000	0.40000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000
69	0.40000	0.40000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000

	Service							
Age	28	29	30	31	32	33	34	35
50	0.05000	0.05000	0.05000	0.05000	0.05000	0.05000	0.05000	0.05000
51	0.05000	0.05000	0.05000	0.05000	0.05000	0.05000	0.05000	0.05000
52	0.05000	0.05000	0.05000	0.05000	0.05000	0.05000	0.05000	0.05000
53	0.05000	0.05000	0.05000	0.05000	0.05000	0.05000	0.05000	0.05000
54	0.05000	0.05000	0.05000	0.05000	0.05000	0.05000	0.05000	0.05000
55	0.07500	0.07500	0.07500	0.07500	0.07500	0.07500	0.07500	0.50000
56	0.07500	0.07500	0.07500	0.07500	0.07500	0.07500	0.50000	0.50000
57	0.10000	0.10000	0.10000	0.10000	0.10000	0.50000	0.50000	0.30000
58	0.10000	0.10000	0.10000	0.10000	0.50000	0.50000	0.30000	0.30000
59	0.12500	0.12500	0.12500	0.50000	0.50000	0.30000	0.30000	0.30000
60	0.12500	0.12500	0.50000	0.50000	0.30000	0.30000	0.30000	0.30000
61	0.15000	0.50000	0.50000	0.35000	0.35000	0.35000	0.35000	0.35000
62	0.50000	0.50000	0.35000	0.35000	0.35000	0.35000	0.35000	0.35000
63	0.50000	0.35000	0.35000	0.35000	0.35000	0.35000	0.35000	0.35000
64	0.35000	0.35000	0.35000	0.35000	0.35000	0.35000	0.35000	0.35000
65	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000
66	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000
67	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000
68	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000
69	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000	0.50000

[1] Rates assume early retirement eligibility requirement is met.

Table B

Withdrawal Rates (prior to Eligibility for Early Retirement)

Age	Total	Age	Total
20	.043500	45	.026500
21	.043000	46	.025750
22	.042500	47	.025000
23	.042000	48	.025000
24	.041500	49	.025000
25	.041000	50	.025000
26	.040500	51	.025000
27	.040000	52	.025000
28	.039250	53	.025000
29	.038500	54	.025000
			.025000
30	.037750	55	.025000
31	.037000	56	.025000
32	.036250	57	.025000
33	.035500	58	.025000
34	.034750	59	.025000
			.025000
35	.034000	60	.025000
36	.033250	61	.025000
37	.032500	62	.025000
38	.031750	63	.025000
39	.031000	64	.025000
40	.030250		
41	.029500		
42	.028750		
43	.028000		
44	.027250		

Select turnover rates shown below are used for the first three years of employment.

	Service		
	1	2	3
All	.0750	.0750	.0750

Table C

Disability Rates

Age	Male	Female	Age	Male	Female
20	.00030	.00030	45	.00160	.00240
21	.00030	.00030	46	.00180	.00270
22	.00030	.00030	47	.00210	.00300
23	.00030	.00030	48	.00250	.00330
24	.00030	.00030	49	.00280	.00360
25	.00030	.00030	50	.00330	.00400
26	.00030	.00030	51	.00390	.00440
27	.00030	.00040	52	.00460	.00490
28	.00030	.00040	53	.00530	.00540
29	.00030	.00040	54	.00610	.00590
30	.00030	.00040	55	.00690	.00640
31	.00030	.00050	56	.00770	.00690
32	.00030	.00050	57	.00860	.00740
33	.00030	.00060	58	.00950	.00800
34	.00030	.00060	59	.01050	.00850
35	.00040	.00070	60	.01150	.00900
36	.00040	.00080	61	.01260	.00960
37	.00050	.00090	62	.01380	.01010
38	.00060	.00100	63	.01510	.01050
39	.00070	.00120	64	.01640	.01090
40	.00080	.00130			
41	.00090	.00150			
42	.00100	.00170			
43	.00120	.00190			
44	.00140	.00220			

Appendix G

Omaha Public School District for Omaha School Employees Retirement (OSERS) Retirement Plan Information

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OMAHA Public Schools
SUPERINTENDENT'S OFFICE

Dr. Cheryl J. Logan
Superintendent

P 531-299-9822
F 531-299-0415

3215 Cuming Street
Omaha, NE 68131

district.ops.org

Senator Mark Kolterman
District 24
State Capitol
PO Box 94604
Lincoln, NE 68509-4604

October 15, 2019

Senator Kolterman;

As requested in your letter dated September 4, 2019, included herein is the information required for the Reporting Form for Underfunded Defined Benefit Plans.

1. **Please list the following information for Omaha School Employees' Retirement System (OSERS) plan years 2014 through current plan year 2019.**

   a) **Funding status**; information for OSERS is shown below (in millions):

	9/1/14	9/1/15	1/1/17	1/1/18	1/1/19
Actuarial Value of Assets:					
Funded Ratio (AVA/AAL)	74%	73%	65%	64%	63%
Unfunded ALL (ALL-AVA)	$446	$486	$713	$771	$814
Market Value of Assets:					
Funded Ratio (AVA/AAL)	75%	67%	56%	58%	54%
Unfunded ALL (ALL-AVA)	$429	$588	$902	$902	$999

   b) **Assumed Rate of Return**:
   Since 2017 the assumed rate of return was 7.5%. Prior to 2017 the assumed rate of return was 8.0%.

   c) **Actual Investment Return**:
   The dollar-weighted annualized rate of return, net of investment and administrative expenses, measured on the actuarial value of assets.

2014	13.3%
2015	-4.0%
2016	0.9%
2017	4.2%
2018	2.9%

   d) **Member and employer contribution rates (percentage)**:
   From 2014 forward, member and employer contribution rates are 9.78% and 9.878%, respectively.

   e) **Normal cost (percentage)** (from September 1, 2014 through August 31, 2018) is as follows:

2014	12.02%
2015	11.96%
2017	13.07%
2018	13.00%
2019	12.96%

f) **Actuarially required contribution (ARC) - percentage and dollar amount:**
See table below

g) **ARC Contribution - actual dollars contributed and percentage of ARC actually contributed**

Reporting Period Ending	Annual Required Contribution (ARC)	Total Employer Contribution (Includes State and School District Contrib.)	Employer Contribution as Pct. of ARC Contribution	Total Employer Contribution as a Pct. of Covered Payroll
8/31/14	$34,225,147	$38,198,000	111.61%	11.82%
8/31/15	$34,614,093	$39,562,000	114.29%	11.87%
8/31/16	$37,665,061	$40,564,000	107.70%	11.75%
12/31/16	$12,836,281	$13,861,000	107.98%	11.82%
12/31/17	$57,941,493	$55,145,000	95.17% (1)	15.35%
12/31/18	$63,111,681	$63,112,000	100.00%	16.80%

(1) Based on the Board of Trustees' funding policy, not state statute. If state statute were used, this would be at or above 100%

2. **Please provide a brief narrative of the circumstances that led to the current underfunding of the retirement plan.**

As of January 1, 2019, the System had a market value of assets of $1.194 billion, a decrease of $40.2 million from the prior valuation. This represents an annualized rate of return of -1.2%, net of expenses. There is currently $185.0 million of deferred (unrecognized) investment loss (approximately 15% of the asset market value). Absent favorable investment experience in future years to offset the recognition of this significant deferred loss, the System's funded ratio will decrease, and the actuarial contribution rate will increase as it is reflected through the asset smoothing method. If this occurs, the System's funded status would be expected to decrease while the contribution shortfall would be expected to increase.

The valuation results reflect net unfavorable experience for the 2018 plan year as demonstrated by an unfunded actuarial accrued liability that was higher than expected. The largest source of unfavorable experience (approximately $62 million) resulted from not meeting the expected return of 7.5% on actuarial value of assets.

3. **Have there been any changes in the actuarial methods and / or assumptions since the previous actuarial valuation report? If so, please describe.**

At the March 6, 2019 meeting, the Board of Trustees modified the method for amortizing the Unfunded Actuarial Accrued Liability (UAAL). While the amortization policy continues to use the layered amortization methodology, the Board reset the initial amortization base to the UAAL as of January 1, 2019. This base is now the "legacy" base and is amortized over a closed 30-year period, beginning January 1, 2019, with payments as a level-percent of payroll. New amortization bases in the future will also be amortized over closed 30-year periods, with payments as a level-percent of payroll.

4. **In what year is the plan's funding ratio expected to reach 100%?**

Depending on investment returns, the plan's funding ratio is expected to reach 100% in 2048.

5. **What is the method used to amortize the unfunded actuarial liability?**

The actuarial contribution rate for the System consists of:

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

The actuarial contribution rate is computed based on the Board of Trustees' funding policy. On that basis, the actuarial contribution rate is equal to the normal cost rate plus the amortization payment on the UAAL. Effective with the January 1, 2017 valuation, OSERS began to amortize the UAAL using a "layered" approach. Under this method, the UAAL is split into pieces or "layers"; the initial or legacy UAAL was amortized, as a level-percent of payroll, over a closed 30-year period that began with the September 1, 2013 valuation. All ensuring UAAL bases, were to be amortized, as a level-percent of payroll, over a new 25-year period commencing on the respective valuation date.

At the March 6, 2019 meeting, the Board of Trustees modified the system's funding policy to reset the legacy amortization base to the unfunded actuarial accrued liability (UAAL) as of January 1, 2019. Payments are calculated as a level percentage of payroll over a closed 30-year period. New layers of UAAL that occur in the future will be amortized over new 30-year periods.

6. **Please provide a description of corrective actions implemented to improve the funding status of the plan including, but not limited to, benefit changes, increased contribution rates and / or employer contributions. Please include any actuarial projections based on these changes and attach a copy of the actuarial projections.**
   - On August 8, 2019, Omaha Public Schools (OPS) transferred $21.3 million to OSERS to fund the 2019 actuarial required contribution amortized over a 30-year period. This payment was $3.1 million more than the actuarial required contribution of $18.2 million.
   - Projected five-year actuarial required contribution using the OSERS Board of Trustees' policy:

2020	$21.4 million
2021	$24.2 million
2022	$26.5 million
2023	$28.6 million
2024	$30.4 million

   - The above projections are in addition to the statutorily required contributions attributable to the employee / employer (currently 9.78% employee and 101% of employee contribution for the employer). The projected numbers are meant to provide a trend and may not be relied upon as an absolute projection of the actuarially required contributions for future years.

7. **Please describe any recent or ongoing negotiations with bargaining groups that may impact the funding plan.**
   - Employees of the District are affiliated with several unions.
     - Omaha Education Association (OEA) is the bargaining unit that represents the District's teachers. The OEA recently approved a 2-year contract covering the 2019-20 and 2020-21 fiscal years. The total package (i.e. salaries and benefits) will increase 1.81% for the 2019-20 fiscal year, and 3.18% for the 2020-21 fiscal year.
     - The District has other bargaining units that represent the following workers: paraprofessionals, office personnel, maintenance workers, nutrition workers, psychologists, transportation workers, security, operations, sign language interpreters, and OSSA. The total package (i.e. salaries and benefits) will increase an average of 4.11% for the 2019-20 fiscal year for these groups. Excluding office personnel, individual bargaining units range from 1.87% to 4.58% for 2019-20.

8. **When was the most recent Actuarial Experience Study conducted on the Plan? Please attach a copy of the most recent Actuarial Experience Study.**

   The most recent five-year experience study (i.e. September 1, 2012 to August 31, 2016) was originally submitted on April 5, 2017. A copy of the report is attached herein.

9. **What is the current assumed rate of return? If the rate has been changed in the past year, or if there are plans to review the rate in the upcoming year, please describe.**

   The current assumed rate of return is 7.5%. We are not aware of any plans to change the assumed rate of return.

10. **Please attach the most recent actuarial valuation report. If the valuation report is completed biannually (or less often) please include an updated report for the interim year/s, if available.**

    A copy of the current report (as of January 1, 2019) is attached herein.

Sincerely,

Cheryl J. Logan Ed.D., Superintendent
Omaha Public Schools

Enclosures:

- 67th Annual Actuarial Report – Omaha School Employees Retirement System (January 1, 2019)
- Omaha School Employees Retirement System – 5 Year Experience Study (September 1, 2012 to August 31, 2016)

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OMAHA SCHOOL EMPLOYEES' RETIREMENT SYSTEM

Sixty-Seventh
Annual Actuarial Report

OMAHA SCHOOL EMPLOYEES' RETIREMENT SYSTEM

as of January 1, 2019

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May 21, 2019

Board of Trustees
Omaha School Employees' Retirement System
3215 Cuming Street
Omaha, Nebraska 68131

Re: Sixty-Seventh Annual Actuarial Report

Members of the Board:

At your request, we have performed an actuarial valuation of the Omaha School Employees' Retirement System (OSERS) as of January 1, 2019. The major findings of the valuation are contained in this report, including the actuarial contribution rate and the additional School District contribution for the year ending December 31, 2019. There have been no changes to the System's actuarial assumptions or benefit provisions since the prior valuation. However, legislation passed in the 2017 session modified the benefit provisions for members hired on or after July 1, 2018, creating a new benefit tier. This is the first valuation that includes members covered by the new tier.

At their March 6, 2019 meeting, the Board modified the method for amortizing the unfunded actuarial accrued liability (UAAL). While the amortization policy continues to use the layered amortization methodology, the Board reset the initial amortization base to the UAAL as of January 1, 2019. This base is now the "legacy" base and is amortized over a closed 30-year period, beginning January 1, 2019, with payments as a level-percent of payroll. New amortization bases in the future will also be amortized over closed 30-year periods, with payments as a level-percent of payroll. The change to the UAAL amortization method, which reduced the actuarial required contribution rate, is discussed further in the Executive Summary of this report.

In preparing this report, we relied, without audit, on information (some oral and some written) supplied by the System's staff. This information includes, but is not limited to, statutory provisions, member data and financial information. While we found this information to be reasonably consistent and comparable with information used in prior years, we did not audit the data. 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.

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Offices in Kennesaw, GA • Bellevue, NE

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 System'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 Board of Trustees has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in Appendix C.

The actuarial computations presented in this report are for purposes of determining the actuarial contribution rate for the System, as set out in the Nebraska State Statutes. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals. Determinations for purposes other than meeting these requirements may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes. For example, actuarial computations for purposes of fulfilling financial accounting requirements for the System under Governmental Accounting Standards No. 67 and No. 68 are presented in separate reports.

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

This is to certify that the independent consulting actuaries have experience in performing valuations for public retirement systems, that the valuation was prepared in accordance with principles of practice prescribed by the Actuarial Standards Board, and that the actuarial calculations were performed by qualified actuaries in accordance with accepted actuarial procedures, based on the current provisions of the retirement system and on actuarial assumptions that are internally consistent and reasonably based on the actual experience of the System. We, Patrice A. Beckham, FSA and Bryan K. Hoge, FSA, 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 this report or to provide explanations or further details as may be appropriate.

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

Respectfully Submitted,

Cavanaugh Macdonald Consulting, LLC

Patrice Beckham

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

Bryan K. Hoge, FSA, EA, FCA, MAAA
Senior Actuary

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The primary purposes of performing the actuarial valuation are as follows:

- to calculate the actuarial required contribution (ARC) rate necessary to maintain the solvency of the System, as set out in the Board of Trustees' Funding Policy,
- to determine the additional contribution amount, if any, from the School District given the fixed statutory contribution rates for members, the School District (101% of members' contributions), and the State of Nebraska;
- to evaluate the funded status of the System and disclose various asset and liability measures as of the valuation date;
- to evaluate and disclose the key risks to funding the System pursuant to Actuarial Standard of Practice Number 51;
- to determine the experience of the System since the last valuation; and
- to analyze and report on trends in System contributions, assets, and liabilities over the past several years.

This report presents the results of the January 1, 2019 actuarial valuation of the Omaha School Employees' Retirement System (OSERS). The actuarial valuation results provide a "snapshot" view of the System's financial condition on January 1, 2019 based on the System's membership, benefit structure, and assets on that date. The valuation results reflect net unfavorable experience for the 2018 plan year as demonstrated by an unfunded actuarial accrued liability that was higher than expected, based on the results of the prior valuation. The largest source of unfavorable experience ($62 million) resulted from not meeting the expected return of 7.50% on the actuarial value of assets. This experience was partially offset by a net liability gain of $18 million.

At the March 6, 2019 meeting, the Board of Trustees modified the System's Funding Policy to reset the legacy amortization base to the unfunded actuarial accrued liability (UAAL) as of January 1, 2019. Payments are calculated as a level percentage of payroll over a closed 30-year period. New layers of UAAL that occur in the future will be amortized over new 30-year periods. This change reduced the actuarial contribution rate in the current valuation by 1.62%. The contribution shortfall in the 2019 valuation is 5.31% which results in an additional District contribution of $18.2 million for 2019.

Membership

The table on the following page summarizes the System's membership, by group, in the current and prior valuation. The active member count decreased from 7,569 to 7,177 (5.2%) and the number of members receiving a benefit increased from 4,678 to 4,826 (3.2%). Total projected payroll decreased by 3.0% from $349.9 million in the January 1, 2018 valuation to $339.5 million in the current valuation, partially due to the decrease in the number of active members.

The 2017 session of the Nebraska Legislature created a new benefit structure for members hired on or after July 1, 2018 (referred to as Tier 4). The key change was a change to the minimum age for retirement under Rule of 85 from age 55 to 60. As a result, the cost of the Tier 4 benefit structure is somewhat lower than the cost of the prior benefit structures. Due to the effective date, this is the first valuation that includes Tier 4 members. Over time, as current active members covered by the other benefit tiers leave covered employment and are replaced by Tier 4 members the cost of the System is expected to decrease slightly. However, it will likely take ten to fifteen years before the impact on the valuation is material.

SYSTEM MEMBERSHIP	Jan. 1, 2019	Jan. 1, 2018	% Chg
1. Active Members			
a. Certificated			
(1) Tier 1	3,021	3,247	(7.0)
(2) Tier 2	842	988	(14.8)
(3) Tier 3	633	637	(0.6)
(4) Tier 4	233	0	NA
(5) Total	**4,729**	**4,872**	**(2.9)**
b. Classified			
(1) Tier 1	1,363	1,589	(14.2)
(2) Tier 2	504	701	(28.1)
(3) Tier 3	414	407	1.7
(4) Tier 4	167	0	NA
(5) Total	**2,448**	**2,697**	**(9.2)**
c. Total			
(1) Tier 1	4,384	4,836	(9.3)
(2) Tier 2	1,346	1,689	(20.3)
(3) Tier 3	1,047	1,044	0.3
(4) Tier 4	400	0	NA
(5) Total	**7,177**	**7,569**	**(5.2)**
2. Retirees and Disabled Members	4,570	4,426	3.3
3. Beneficiaries	256	252	1.6
4. Inactive Vested Members			
(1) Tier 1	1,089	1,043	4.4
(2) Tier 2	25	0	NA
(3) Total	**1,114**	**1,043**	**6.8**
5. Nonvested Terminations			
(1) Tier 1	302	198	52.5
(2) Tier 2	130	133	(2.3)
(3) Tier 3	163	82	98.8
(4) Tier 4	76	0	NA
(5) Total	**671**	**413**	**62.5**
6. Total	13,788	13,703	0.6

Assets

As of January 1, 2019, the System had total assets of $1.194 billion measured on a market value basis. This was a decrease of $40.2 million from the prior valuation and represents an annualized rate of return of -1.2%, net of all expenses. The components of this change are shown in the following table:

	Market Value ($M)
Net Assets, January 1, 2018	$ 1,234
• District, State and Member Contributions	+ 102
• Benefit Payments and Refunds	– 128
• Administrative Expenses	– 1
• Investment Return	– 13
Net Assets, January 1, 2019	$ 1,194

The market value of assets is not used directly in the calculation of the unfunded actuarial accrued liability (UAAL) and actuarial contribution rate. An asset valuation method, which smoothes the effect of market fluctuations, is used to determine the value of assets used in the valuation. This amount, called the "actuarial value of assets", is equal to the expected asset value, based on the actuarial value in the prior valuation and the assumed investment return in the prior valuation of 7.5%, plus 25% of the difference between the actual market value and the expected asset value. The resulting value must be no less than 80% of market value and no more than 120% of market value (referred to as a "corridor"). The corridor did not apply this year as the actuarial value of assets was 115% of market value. The actuarial value of assets as of January 1, 2019 was $1.379 billion, an increase of $14 million from the prior year. The components of change in the actuarial value of assets from January 1, 2018 to January 1, 2019 are shown in the following table.

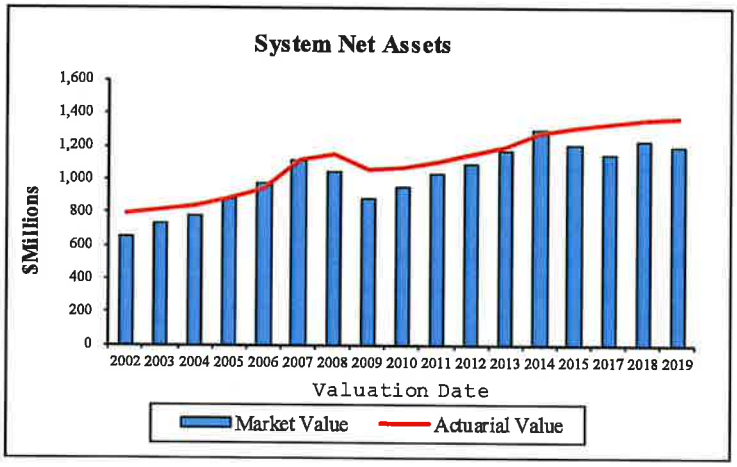
	Actuarial Value ($M)
Actuarial Assets, January 1, 2018	$ 1,365
• District, State and Member Contributions	+ 102
• Benefit Payments and Refunds	– 128
• Expected Investment Income (based on 7.5% assumption)	+ 102
• Actuarial Investment Gain/(Loss)	– 62
Preliminary Actuarial Assets, January 1, 2019	$ 1,379
• Application of Corridor	N/A
Final Actuarial Assets, January 1, 2019	$ 1,379

The dollar-weighted annualized rate of return, net of investment and administrative expenses, measured on the actuarial value of assets was approximately 2.9%. A comparison of asset values on both the market and actuarial basis is shown below:

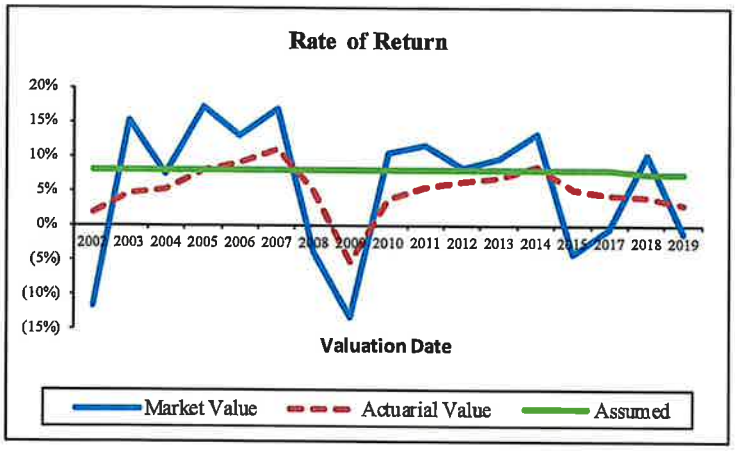
	9/1/2014	9/1/2015	1/1/2017	1/1/2018	1/1/2019
Market Value of Assets	$ 1,295	$ 1,211	$ 1,149	$ 1,234	$ 1,194
Actuarial Value of Assets	1,278	1,313	1,338	1,365	1,379
Actuarial Value/Market Value	99%	108%	116%	111%	115%

The actuarial value of assets continues to be higher than the market value of assets. However, the difference has increased and the deferred (or unrecognized) investment loss is now $185 million, about 15% of the market value of assets. Absent favorable investment experience in future years to offset the recognition of this significant deferred loss, it will decrease the System's funded ratio and increase the actuarial contribution rate as it is reflected through the asset smoothing method. The recognition of the deferred

investment loss in future years is expected to cause the amount of any additional School District contributions to increase as well (see Exhibit 7).



With the use of an asset smoothing method, the actuarial value is expected to be both above and below the market value of assets over a long period of time. However, for most of this period, the actuarial value of assets has exceeded the market value of assets.



The estimated rate of return on both the actuarial and market value of assets for the last decade is shown in this graph. The asset smoothing method mitigates the volatility of market value returns as shown in the rates of return on the actuarial versus market value of assets.

Liabilities

The actuarial accrued liability is that portion of the present value of future benefits that will not be paid by future employer normal costs or member contributions. The difference between this liability and asset values at the same date is referred to as the unfunded actuarial accrued liability (UAAL). The unfunded actuarial accrued liability will be reduced if the employer's contributions exceed the employer's normal cost for the year, after allowing for interest earned on the previous balance of the unfunded actuarial accrued liability. Benefit improvements, experience gains and losses, and changes in actuarial assumptions and methods will also impact the total actuarial accrued liability (AAL) and the unfunded portion thereof.

The unfunded actuarial accrued liability as of January 1, 2019 is shown below:

Actuarial Accrued Liability	$ 2,192,893,000
Actuarial Value of Assets	1,378,824,000
Unfunded Actuarial Accrued Liability	$ 814,069,000

Numerous factors contributed to the change in the System's UAAL during the 2018 plan year. The components are examined in the following discussion.

Actuarial gains (or losses) result from actual experience that is more (or less) favorable than anticipated based on the actuarial assumptions. These "experience" (or actuarial) gains or losses are reflected in the UAAL and are measured as the difference between the expected unfunded actuarial accrued liability and the actual unfunded actuarial accrued liability, taking into account any changes due to assumption, method or benefit provision changes. Overall, the System experienced an actuarial loss of $43 million. The investment return on the actuarial value of assets was lower than assumed during the 2018 plan year, resulting in an actuarial loss of $62 million. There was an actuarial gain of $18 million on the actuarial accrued liability, largely due to actual salary increases that were lower than expected.

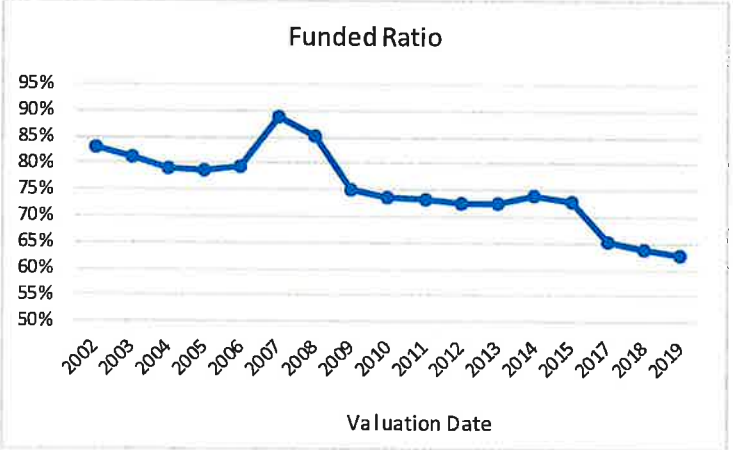
The change in the unfunded actuarial accrued liability between January 1, 2018 and January 1, 2019 is shown in the following table (in millions):

Unfunded Actuarial Accrued Liability, January 1, 2018	$	771
• Expected change in UAAL		
– Amortization method	+	7
– Contributions less than the actuarial required contribution	+	0
• Investment experience	+	62
• Liability experience	–	18
• Other experience	–	8
Unfunded Actuarial Accrued Liability, January 1, 2019	$	814

An evaluation of the unfunded actuarial accrued liability on a pure-dollar basis may not provide a complete analysis since only the difference between the assets and liabilities (which are both large numbers) is reflected. Another way to evaluate the unfunded actuarial accrued liability and the progress made in its funding is to track the funded status, the ratio of the actuarial value of assets to the actuarial accrued liability. Note that the funded ratio does not necessarily indicate whether or not additional funding is needed, nor does it indicate whether or not the plan has sufficient funds to settle all current obligations.

The funded status information for OSERS is shown below (in millions):

	9/1/13	9/1/14	9/1/15	1/1/17	1/1/18	1/1/19
Using Actuarial Value of Assets:						
Funded Ratio (AVA/AAL)	73%	74%	73%	65%	64%	63%
Unfunded AAL (AAL - AVA)	$454	$446	$486	$713	$771	$814
Using Market Value of Assets:						
Funded Ratio (MVA/AAL)	70%	75%	67%	56%	58%	54%
Unfunded AAL (AAL - MVA)	$490	$429	$588	$902	$902	$999



Changes in actuarial assumptions and methods, coupled with investment returns below the assumed rate and contributions below the actuarial rate significantly reduced the funded ratio over much of this period. However, with the adoption of the Board's current funding policy, the funded ratio is expected to increase in the future, assuming all assumptions are met and the full actuarial contribution amounts are made as required in state statute.

Contributions

The actuarial contribution rate for the System consists of:

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

The actuarial contribution rate is computed based on the Board of Trustees' Funding Policy. On that basis, the actuarial contribution rate (item 3 below) is equal to the normal cost rate plus the amortization payment on the UAAL. Effective with the January 1, 2017 valuation, OSERS began to amortize the UAAL using a "layered" approach. Under this method, the UAAL is split into pieces or "layers"; the initial or legacy UAAL was amortized, as a level-percent of payroll, over a closed 30-year period that began with the September 1, 2013 valuation (27 years remained as of the January 1, 2017 valuation). All ensuing UAAL bases were to be amortized, as a level-percent of payroll, over a new 25-year period commencing on the respective valuation date. At the March 6, 2019 meeting, the Board of Trustees modified the System's Funding Policy to reset the legacy amortization base to the unfunded actuarial accrued liability (UAAL) as of January 1, 2019. Payments continue to be calculated as a level percentage of payroll, but over a

closed 30-year period. New layers of UAAL that occur in the future are also amortized over new 30-year periods. This change reduced the actuarial contribution rate in the January 1, 2019 valuation by 1.62%.

The actuarial contribution rate for the plan year ending December 31, 2019, and any resulting additional School District contribution, is computed based on the January 1, 2019 actuarial valuation. The ongoing, fixed contributions to the System are set by state statute and are shown below in item 4, "Statutory Contribution Rate". They include the member contribution rate of 9.78%, the State contribution rate of 2%, and the School District contribution rate which is 101% of the member contribution rate.

Based on the results of the valuation, there is a contribution shortfall for the 2019 plan year of 5.31%, or $18.2 million, as shown in the table below:

	Actuarial Valuation	
Contribution Rate	**1/1/2019**	**1/1/2018**
1. Normal Cost	12.96%	13.00%
2. UAAL Contribution	14.01%	14.05%
3. Total Actuarial Contribution Rate	26.97%	27.05%
4. Statutory Contribution Rate	21.66%	21.66%
5. Contribution Shortfall/(Margin) (3) – (4)	5.31%	5.39%
6. Additional District Contribution ($M)	$18.2	$18.9

The unfavorable experience on the actuarial value of assets during 2018, along with partial recognition of the deferred investment experience from the 2018 valuation, resulted in an increase in the actuarial contribution rate from the prior valuation. The actual increase in covered payroll was lower than assumed which also increased the contribution rate. Without the change in Funding Policy that reset the amortization of the UAAL, as of January 1, 2019 over 30 years, the actuarial contribution rate would have increased to 28.59% and the additional District contribution would have been $23.8 million. Overall, there was a decrease of 0.08% in the actuarial contribution rate from the January 1, 2018 valuation to the January 1, 2019 valuation, as shown below.

Total Actuarial Contribution Rate	
January 1, 2018	27.05%
Contributions Different Than Actuarial Rate	0.00%
Investment Experience	1.06%
Liability Experience	(0.31%)
Change in Normal Cost Rate	(0.04%)
Payroll Growth Different Than Expected	0.85%
Change in Actuarial Methods	(1.62%)
Other Experience	(0.02%)
January 1, 2019	26.97%

The difference in the actuarial contribution rate and the statutory contribution rate results in a contribution shortfall for 2019 of 5.31% of covered payroll, or $18.2 million. Due to the investment experience for the 2018 plan year, a $185 million deferred investment loss exists (market value is lower than actuarial value of assets). Absent favorable investment experience in future years to offset the recognition of the deferred investment loss, the actuarial contribution rate is expected to increase as the deferred investment experience is reflected through the asset smoothing method. If this occurs, the System's funded status is expected to decrease and the contribution shortfall is expected to increase. The following table illustrates the impact of the deferred investment experience on the District's additional contribution, if all assumptions are met in the future:

Year Ended December 31,	Total Payroll	Actuarial Recommended Contribution	Member and State Statutory	District Statutory	District Additional	District Additional (August 31)
2019	$339,468,617	26.97%	11.78%	9.88%	5.31%	$18,244,371
2020	350,603,394	27.70%	11.78%	9.88%	6.04%	21,433,239
2021	362,758,636	28.24%	11.78%	9.88%	6.58%	24,158,969
2022	374,989,720	28.65%	11.78%	9.88%	6.99%	26,529,635
2023	387,960,751	28.94%	11.78%	9.88%	7.28%	28,586,035
2024	401,247,012	29.14%	11.78%	9.88%	7.48%	30,377,229
2025	414,762,969	29.30%	11.78%	9.88%	7.64%	32,072,150

Comments

The System's unfunded actuarial accrued liability increased from $771 million in the January 1, 2018 valuation to $814 million in the January 1, 2019 actuarial valuation, and the funded ratio declined slightly from 64% to 63%. Net unfavorable experience occurred during the 2018 plan year, the result of a $62 million actuarial loss on assets and an $18 million gain on liabilities. This experience increased the unfunded actuarial accrued liability and the payment thereon. However, the Board of Trustees modified the amortization policy effective with the January 1, 2019 valuation by resetting the legacy UAAL over a closed 30-year period. New layers of UAAL will also be amortized over closed 30-year amortization periods, with payments as a level percentage of payroll. This change in the amortization policy reduced the actuarial contribution rate by 1.62%, which more than offset the increase due to the higher UAAL. The net impact was a reduction in the actuarial contribution rate from 27.05% in the January 1, 2018 valuation to 26.97% in the January 1, 2019 valuation.

The Nebraska statutes provide that the School District shall contribute the greater of (a) one hundred and one percent of the contributions made by the employees or (b) such amount as may be necessary to maintain the solvency of the System, as determined annually by the Board of Education upon recommendation of the actuary retained by the Board of Trustees. The Trustees have adopted a Funding Policy that sets the criteria for determining the contribution amount necessary to maintain the solvency of the System. On this basis, the Actuarial Contribution Rate for the plan year ending December 31, 2019 is 26.97% of payroll. The total of contributions made by members, the State, and the School District for plan year ending December 31, 2019 is 21.66% of payroll, so the actuarial contribution rate exceeds the statutory contribution rates by 5.31%. This contribution shortfall of $18.2 million represents the additional required contribution by the School District needed for the 2019 plan year. With the amount

of unrecognized investment losses, the additional District contribution is expected to be needed for many years in the future.

The deferred investment loss (actuarial value less market value of assets) is $185 million as of January 1, 2019, up from $131 million as of January 1, 2018. Absent favorable investment experience in future years, the deferred investment loss of $185 million will eventually be reflected in the actuarial value of assets in future years. While the use of an asset smoothing method is a common method used by public retirement systems, it is important to identify the potential impact of the deferred investment experience. This is accomplished by comparing the key valuation results from the January 1, 2019 actuarial valuation using both the actuarial and market value of assets (see following table).

	Using Actuarial Value of Assets	Using Market Value of Assets
Actuarial Accrued Liability	$2,192,893,000	$2,192,893,000
Asset Value	1,378,824,000	1,193,800,000
Unfunded Actuarial Accrued Liability	$814,069,000	$999,093,000
Funded Ratio	62.88%	54.44%
Normal Cost Rate	12.96%	12.96%
UAAL Contribution Rate	14.01%	17.19%
Actuarial Contribution Rate	26.97%	30.15%
Total Statutory Contribution Rate	(21.66%)	(21.66%)
Contribution Shortfall	5.31%	8.49%
Additional District Contribution	$18,244,371	$29,170,379

A typical retirement plan faces many different risks. The term "risk" is most commonly associated with an outcome with undesirable results. However, in the actuarial world risk can be translated as uncertainty. The actuarial valuation process uses many actuarial assumptions to project how future contributions and investment returns will meet the cash flow needs for future benefit payments. Of course, we know that actual experience will not unfold exactly as anticipated by the assumptions and that uncertainty, whether favorable or unfavorable, creates risk. Actuarial Standard of Practice Number 51 defines risk as the potential of actual future measurements to deviate from expected results due to actual experience that is different than the actuarial assumptions. Risk evaluation is an important part of managing a defined benefit plan. Please see the Risk Considerations section of this report for an in-depth discussion of the specific risks facing OSERS.

We conclude this executive summary by presenting comparative statistics and actuarial information from both the January 1, 2018 and January 1, 2019 valuations.

	Jan. 1, 2019	Jan. 1, 2018	% Chg
SYSTEM MEMBERSHIP			
1. Active Membership			
- Number of Members	7,177	7,569	(5.2)
- Projected Payroll for Upcoming Fiscal Year	$339.5M	$349.9M	(3.0)
- Average Salary	47,300	46,233	2.3
2. Inactive Membership			
- Number Not in Pay Status	1,785	1,456	22.6
- Number of Retirees/Beneficiaries/Disableds	4,826	4,678	3.2
- Total Annual Benefits in Pay	$126.0M	$120.9M	4.2
ASSETS AND LIABILITIES			
1. Net Assets			
- Market Value	$1,194M	$1,234M	(3.2)
- Actuarial Value	1,379M	1,365M	1.0
2. Projected Liabilities			
- Retired Members	$1,311M	$1,275M	2.8
- Inactive Members	45M	37M	21.6
- Active Members	1,223M	1,221M	0.2
- Total Liability	2,580M	2,533M	1.9
3. Actuarial Accrued Liability (AAL)	$2,193M	$2,136M	2.7
4. Unfunded Actuarial Accrued Liability	$814M	$771M	5.6
5. Funded Ratio			
a. Actuarial Value Assets/AAL	62.88%	63.89%	(1.6)
b. Market Value Assets/AAL	54.44%	57.76%	(5.7)
SYSTEM CONTRIBUTIONS			
1. Total Actuarial Contribution Rate	26.97%	27.05%	(0.3)
2. Statutory Contribution Rate			
a. Member Contribution Rate	9.78%	9.78%	0.0
b. Employer Contribution Rate	9.88%	9.88%	0.0
c. State Contribution Rate	2.00%	2.00%	0.0
d. Total	21.66%	21.66%	0.0
3. Contribution Shortfall/(Margin) (1.) - (2.d.)	5.31%	5.39%	(1.5)
4. Additional District Contribution*	$18,244,371	$18,861,681	(3.3)

M = ($)Millions

Note: Numbers may not add due to rounding

* Contribution amount is calculated as of August 31

HISTORICAL CHANGES IN THE OSERS UNFUNDED ACTUARIAL ACCRUED LIABILITY

(dollars in millions)

	Valuation Date																
	9/1/03	9/1/04	9/1/05	9/1/06	9/1/07	9/1/08	9/1/09	9/1/10	9/1/11	9/1/12	9/1/13	9/1/14	9/1/15	1/1/17	1/1/18	1/1/19	Total
Prior Valuation UAAL	163	191	223	240	246	138	198	349	390	406	437	455	446	486	713	771	
Amortization Method	4	5	6	7	5	3	4	6	2	8	9	10	9	12	7	7	104
Actual Contributions																	
Less than ARC	0	0	2	0	3	0	0	2	4	0	2	0	0	0	3	0	16
More than ARC	0	0	0	(2)	0	(7)	(2)	0	0	(4)	0	(4)	(5)	(4)	0	0	(28)
Actual vs Expected Experience																	
Investment	27	23	1	(10)	(29)	33	151	42	26	20	12	(6)	34	63	44	62	493
Salary	(5)	(6)	(1)	4	1	1	0	(13)	(15)	(12)	(6)	(8)	(3)	*	3	(29)	(89)
Retirement	3	0	3	2	2	3	(2)	(4)	(1)	4	4	6	9	*	7	6	42
Mortality	2	5	4	3	3	1	(2)	0	(2)	2	(2)	(1)	2	*	(1)	6	20
Termination of Employment	(4)	(1)	2	3	1	7	2	3	2	0	1	(1)	(2)	*	(1)	(6)	6
Other	1	3	0	(1)	(3)	(1)	0	0	0	13	(8)	(5)	(4)	(6)	(4)	(3)	(18)
Benefit Changes	0	0	0	0	(3)[2]	0	0	0	0	0	(4)	0	0	0	0	0	(7)
Assumption Changes	0	0	0	0	0	20	0	0	0	0	10	0	0	138	0	0	168
Change to Actuarial Methods	0	3[1]	0	0	(88)[3]	0	0	5	0	0	0	0	0	0	0	0	(80)
Total Change for Year End	28	32	17	6	(108)	60	151	41	16	31	18	(9)	40	227*	58	43	
UAAL on Valuation Date	**191**	**223**	**240**	**246**	**138**	**198**	**349**	**390**	**406**	**437**	**455**	**446**	**486**	**713**	**771**	**814**	

[1]Included part-time members who are vested
[2]Increase in member contribution rate
[3]Actuarial asset value reset to market value
* Not calculated. Total liability experience was a $24 million loss, which is included in the total change at year end.

Note: Although a total column is shown, the amounts in each year are not additive because they are calculated on each valuation date and, therefore, represent a value at a different point in time.

SUMMARY OF FUND ACTIVITY
(Market Value Basis)

For Period Ended December 31, 2018

NET ASSETS ON JANUARY 1, 2018	**$**	**1,234,040,000**
ADDITIONS		
Salary deductions	$	36,734,000
School District contributions		56,001,000
Purchases of service		328,000
State service annuity receipts		1,530,000
Sec. 79-916 deposits		7,111,000
Income from investments, including realized and unrealized gains		(13,454,000)
Total additions	**$**	**88,250,000**
DEDUCTIONS		
Retirement benefits	$	(120,620,000)
Refunds to employees		(6,958,000)
Professional fees		(406,000)
Other		(42,000)
Personnel costs		(464,000)
Total deductions	**$**	**(128,490,000)**
NET ASSETS ON JANUARY 1, 2019	**$**	**1,193,800,000**

Note: Starting with the January 1, 2018 valuation, the asset balance is calculated on a Cash Basis. In prior valuations, the market value of assets was calculated on an Accrual Basis.

ACTUARIAL VALUE OF NET ASSETS

As of January 1, 2019

1. Actuarial Value of Assets as of January 1, 2018	$	1,365,013,000
2. Actual Contributions/Disbursements		
a. Contributions		101,704,000
b. Benefit payments		(127,578,000)
c. Net change		(25,874,000)
3. Expected Value of Assets as of January 1, 2019		1,440,499,000
4. Market Value of Assets as of January 1, 2019		1,193,800,000
5. Difference between Market and Expected Values (4) – (3)		(246,699,000)
6. Initial Actuarial Value of Assets as of January 1, 2019 (3) + [(5) x 25%]		1,378,824,000
7. Corridor as of January 1, 2019		
a. 120% of Market Value of Assets as of January 1, 2019		1,432,560,000
b. 80% of Market Value of Assets as of January 1, 2019		955,040,000
8. Final Actuarial Value of Assets as of January 1, 2019* (6), but not greater than (7a), nor less than (7b)		1,378,824,000
9. Actuarial value divided by market value (8) / (4)		115.5%
10. Market value less actuarial value	$	(185,024,000)

** The estimated annualized rate of return on the actuarial value of assets for the period ended December 31, 2018 is about 2.9%*

ACTUARIAL BALANCE SHEET

As of January 1, 2019

ASSETS

Actuarial Value of Assets		$ 1,378,824,000
Present Value of Contributions for Unfunded Actuarial Accrued Liability		814,069,000
Present Value of Future Normal Costs		386,734,000
Total Assets		**$ 2,579,627,000**

LIABILITIES

Present Value of Future Benefits		
Retirees, Beneficiaries, and Disableds		$ 1,311,452,000
Inactive Vesteds		41,762,000
Nonvested Terminations		3,401,000
Active Members		
Retirement benefits	$ 1,156,625,000	
Termination benefits	56,112,000	
Death benefits	10,275,000	
		1,223,012,000
Total Liabilities		**$ 2,579,627,000**

UNFUNDED ACTUARIAL ACCRUED LIABILITY

As of January 1, 2019

1. Present Value of Future Benefits	$	2,579,627,000
2. Present Value of Future Normal Costs		386,734,000
3. Actuarial Accrued Liability (1) – (2)		2,192,893,000
4. Actuarial Value of Assets	$	1,378,824,000
5. Unfunded Actuarial Accrued Liability (3) – (4)		814,069,000

AMORTIZATION OF THE UNFUNDED ACTUARIAL ACCRUED LIABILITY (UAAL)

Effective with the January 1, 2017 valuation, OSERS began to amortize the UAAL using a "layered" approach. Under this method, the UAAL is split into pieces or layers; the initial or legacy UAAL was amortized, as a level-percent of payroll, over a closed 30-year period that began with the September 1, 2013 valuation (27 years remaining as of the January 1, 2017 valuation). All ensuing UAAL bases were to be amortized, as a level-percent of payroll, over a new 25-year period commencing on the respective valuation date. At the March 6, 2019 meeting, the Board of Trustees modified the System's Funding Policy to reset the legacy amortization base to the unfunded actuarial accrued liability (UAAL) as of January 1, 2019. Payments continue to be calculated as a level percentage of payroll over a closed 30 year period. New layers of UAAL that occur in the future will also be amortized over new thirty-year periods.

Amortization Bases	Original Amount	1/1/2019 Remaining Payments	Date of Last Payment	Outstanding Balance as of 1/1/2019	Annual Contribution*
2019 UAAL Base	$ 814,069,000	30	1/1/2048	$ 814,069,000	$ 47,545,253
Total				**$ 814,069,000**	**$ 47,545,253**

* Contribution amount reflects mid-year timing.

1. Total UAAL Amortization Payments	$ 47,545,253
2. Projected Payroll for plan year ending December 31, 2019	$ 339,468,617
3. UAAL Amortization Payment Rate	14.01%

ANALYSIS OF CONTRIBUTION RATE

The System is financed by contributions from the members, the School District and the State. Effective September 1, 2013, the members contribute 9.78% of pay. The District is obligated to pay the greater of (a) one hundred and one percent of the member contributions or (b) such amount as may be necessary to maintain the solvency of the System. Under the Funding Policy adopted by the Board in May, 2013, the Actuarial Recommended Contribution rate (ARC) is the normal cost rate plus the contribution necessary to amortize the UAAL. Effective July 1, 2014, the State of Nebraska contributes 2.0% of pay.

1. Normal Cost	$	40,360,760
2. a. Expected Payroll for Current Actives for Year End December 31, 2019		311,456,960
b. Total Expected Payroll for Year End December 31, 2019		339,468,617
3. Normal Cost Rate (1)/(2a)		12.96%
4. Unfunded Actuarial Accrued Liability at Valuation Date		814,069,000
5. UAAL Contribution at Mid-Year		47,545,253
6. UAAL Contribution Rate (5)/(2b)		14.01%
7. Actuarial Recommended Contribution Rate (3) + (6)		26.97%
8. Statutory Contribution Rate:		
(a) Member		9.78%
(b) District		9.88%
(c) State		2.00%
(d) Total		21.66%
9. Contribution Shortfall (7) - (8d)		5.31%
10. Additional District Contribution at August 31, 2019 (9) * (2b) * (1.075 ^ (2/12))	$	18,244,371

PROJECTION OF ADDITIONAL DISTRICT CONTRIBUTIONS

The projections below are based on the open group projection model prepared in conjunction with the January 1, 2019 actuarial valuation. It is assumed that all actuarial assumptions are met each year in the future, including a 7.5% assumed rate of return on the market value of assets. The projections also assume the number of active members remains constant in the future. To the extent actual experience differs from that assumed, the actual valuation results in future years will also differ and the additional contribution required by the District will vary from the amounts shown below. The projections are not intended to predict the amount of the additional District contributions in the future, but rather to indicate the general trend and magnitude of such contributions if the actuarial assumptions are met.

Year Ended December 31,	Total Payroll	Actuarial Recommended Contribution	Member and State Statutory	District Statutory	District Additional	District Additional (August 31)
2019	$339,468,617	26.97%	11.78%	9.88%	5.31%	$18,244,371
2020	350,603,394	27.70%	11.78%	9.88%	6.04%	21,433,239
2021	362,758,636	28.24%	11.78%	9.88%	6.58%	24,158,969
2022	374,989,720	28.65%	11.78%	9.88%	6.99%	26,529,635
2023	387,960,751	28.94%	11.78%	9.88%	7.28%	28,586,035
2024	401,247,012	29.14%	11.78%	9.88%	7.48%	30,377,229
2025	414,762,969	29.30%	11.78%	9.88%	7.64%	32,072,150

CALCULATION OF ACTUARIAL GAIN/(LOSS)

The overall actuarial gain/(loss) is comprised of both a liability gain/(loss) and an actuarial asset gain/(loss). Each of these represents the difference between the expected and actual values as of January 1, 2019.

1.	Expected Actuarial Accrued Liability		
	a. Actuarial Accrued Liability as of January 1, 2018	$	2,136,385,000
	b. Normal cost for plan year ending December 31, 2018		41,703,000
	c. Benefit payments for plan year ending December 31, 2018		(127,578,000)
	d. Additional liability for state service annuities and service purchases		1,858,000
	e. Interest on a., b., c., and d. to end of year		158,727,000
	f. Expected Actuarial Accrued Liability	$	2,211,095,000
2.	Actuarial Accrued Liability as of January 1, 2019	$	2,192,893,000
3.	Liability Gain/(Loss) (1.f.) – (2)	$	18,202,000
4.	Liability Gain/(Loss) as a Percent of Actuarial Accrued Liability		0.83%
5.	Expected Actuarial Value of Assets		
	a. Actuarial value of assets as of January 1, 2018	$	1,365,013,000
	b. Contributions for plan year ending December 31, 2018 (including state service annuities and service purchases)		101,704,000
	c. Benefit payments for plan year ending December 31, 2018		(127,578,000)
	d. Interest on a., b., and c. to end of year		101,360,000
	e. Expected actuarial value of assets	$	1,440,499,000
6.	Actuarial Value of Assets as of January 1, 2019	$	1,378,824,000
7.	Asset Gain/(Loss) (6) – (5.e.)	$	(61,675,000)
8.	Asset Gain/(Loss) as a Percent of Actuarial Value of Assets		(4.47%)
9.	Overall Actuarial Gain/(Loss) (3) + (7)	$	(43,473,000)

Gain/(Loss) By Source

The System experienced a net actuarial gain on liabilities of about $18.2 million during the plan year ended December 31, 2018. The major components of this overall loss are shown below:

Liability Sources	$Millions
Salary Increases	$ 28.9
Mortality	(5.7)
Terminations	5.8
Retirements	(5.9)
Disability	0.0
New Entrants/Rehires	(3.0)
Miscellaneous	(1.9)
Total Liability Gain/(Loss)	**$ 18.2**
Asset Gain/(Loss)	**$ (61.7)**
Net Actuarial Gain/(Loss)	**$ (43.5)**

Comments

The purpose of conducting an actuarial valuation of a retirement system is to determine the costs and liabilities for the benefits under the system, to determine the annual level of contribution required to support these benefits and, finally, to analyze the system's overall experience as it compares with the actuarial assumptions used in the valuation. The costs and liabilities of a retirement system reported in the valuation depend not only upon the level of benefits provided, but also upon factors such as investment return on invested funds, mortality rates for active and retired members, withdrawal rates among active members, rates at which salaries increase, and rates of retirement for ages at which members retire. The actuarial assumptions employed as to these and other contingencies in the current valuation are set forth in Appendix C of this report.

Net demographic actuarial experience for the year was a gain of $18.2 million, about 0.8% of actuarial accrued liability. The largest source of favorable experience was a $28.9 million gain due to lower salary increases than expected.

Another significant component of the experience for the year ending December 31, 2018 was the investment experience. Due to unfavorable asset experience on a market value basis, there was a loss on the actuarial value of assets of $61.7 million. As of January 1, 2019, there is a deferred investment loss of $185 million. Absent favorable investment experience, the deferred loss will flow through the valuation over the next few years and increase both the UAAL and the actuarial contribution rate.

SCHEDULE OF CONTRIBUTIONS FROM THE EMPLOYER AND OTHER CONTRIBUTING ENTITIES

HISTORICAL FUNDING INFORMATION

Year Ending	Annual Required Contribution (a)	Total Employer Contribution* (b)	Percentage of ARC Contribution (b) / (a)
8/31/2005	$22,459,221	$20,210,403	89.99%
8/31/2006	24,311,628	26,766,000	110.10%
8/31/2007	28,143,388	24,981,000	88.76%
8/31/2008	19,491,557	26,162,000	134.22%
8/31/2009	24,103,114	25,918,000	107.53%
8/31/2010	30,900,224	29,182,000	94.44%
8/31/2011	34,180,566	30,255,000	88.52%
8/31/2012	32,957,547	37,109,000	112.60%
8/31/2013	35,032,074	33,623,000	95.98%
8/31/2014	34,225,147	38,198,000	111.61%
8/31/2015	34,614,093	39,562,000	114.29%
8/31/2016	37,665,061	40,564,000	107.70%
12/31/2016**	12,836,281	13,861,000	107.98%
12/31/2017	57,941,493	55,145,000	95.17%
12/31/2018	63,111,681	63,112,000	100.00%

* Includes State and School District contributions.

** For the short Plan Year from September 1, 2016 through December 31, 2016.

Note: The Total Employer Contribution for fiscal year ending 8/31/2014 was changed because during our work on the GASB reports, we discovered the Service Annuity contribution was different from what was initially reported to us. This figure now matches the number found in the GASB reports.

SCHEDULE OF FUNDING PROGRESS

Actuarial Valuation Date	Actuarial Value of Assets (a)	Actuarial Accrued Liability (AAL) (b)	Unfunded AAL (UAAL) (b - a)	Funded Ratio (a / b)	Covered Payroll (c)	UAAL as a Percentage of Covered Payroll [(b - a)/c]
9/1/2005	$ 887,165,000	$ 1,126,967,000	$ 239,802,000	78.72%	$ 231,708,783	103.49%
9/1/2006	948,938,000	1,195,354,000	246,416,000	79.39%	248,759,070	99.06%
9/1/2007	1,117,628,000 *	1,255,527,000	137,899,000	89.02%	272,844,149	50.54%
9/1/2008	1,149,289,000	1,346,999,000	197,710,000	85.32%	272,720,007	72.50%
9/1/2009	1,061,326,000	1,410,318,000	348,992,000	75.25%	287,770,291	121.27%
9/1/2010	1,078,269,000	1,467,850,000	389,581,000	73.46%	302,229,282	128.90%
9/1/2011	1,110,033,000	1,516,284,000	406,251,000	73.21%	310,228,916	130.95%
9/1/2012	1,155,495,000	1,592,738,000	437,243,000	72.55%	307,258,065	142.30%
9/1/2013	1,205,265,000	1,660,287,000	455,022,000	72.59%	313,946,237	144.94%
9/1/2014	1,277,546,000	1,723,970,000	446,424,000	74.10%	323,077,710	138.18%
9/1/2015	1,312,905,000	1,798,706,000	485,801,000	72.99%	333,166,135	145.81%
1/1/2017	1,337,983,000	2,050,581,000	712,598,000	65.25%	351,940,122 **	202.48%
1/1/2018	1,365,013,000	2,136,385,000	771,372,000	63.89%	359,359,507	214.65%
1/1/2019	1,378,824,000	2,192,893,000	814,069,000	62.88%	375,598,301	216.74%

* The actuarial value of assets was reset to market value as of 9/1/2007.
** Covered Payroll was annualized for the short Plan Year in 2016.

SOLVENCY TEST

A short-term solvency test, which is one method of determining a system's progress under its funding program, compares the plan's present assets with: 1) the liability for active member contributions on deposit; 2) the liability for future benefits to present retirees; and (3) the liability for service already rendered by active members. In a system that has been following the level-percent of payroll financing discipline, the obligation for active member contributions on deposit (Item 1) and the liabilities for future benefits to present retired lives (Item 2) will be fully covered by present assets with the exception of rare circumstances. The obligation for service already rendered by active members (Item 3) will be partially covered by the remainder of present assets. Absent any significant benefit changes, if the system has been using level cost financing, the funded portion of Item 3 usually will increase over a period of time.

Actuarial Valuation*	Active Member Contributions (1)	Retirees, Beneficiaries, and Inactives (2)	Active Members Employer Financed Portion (3)	Actuarial Value of Assets	Portion of Liabilities Covered by Assets (1)	(2)	(3)
2012	$249,903,000	$955,399,000	$387,436,000	$1,155,495,000	100%	95%	0%
2013	272,347,000	1,001,953,000	385,987,000	1,205,265,000	100%	93%	0%
2014	281,672,000	1,058,156,000	384,142,000	1,277,546,000	100%	94%	0%
2015	292,731,000	1,129,399,000	376,576,000	1,312,905,000	100%	90%	0%
2017	306,276,000	1,266,557,000	477,748,000	1,337,983,000	100%	81%	0%
2018	316,337,000	1,311,949,000	508,099,000	1,365,013,000	100%	80%	0%
2019	326,524,000	1,356,615,000	509,754,000	1,378,824,000	100%	78%	0%

* The actuarial valuation date for years prior to 2017 was September 1.

ESTIMATED BENEFIT PAYMENTS*

Year End	Currently In-Pay	Currently Not-In-Pay	Total
2019	$122,947,000	$ 7,193,000	$130,140,000
2020	122,810,000	11,745,000	134,555,000
2021	122,412,000	16,506,000	138,918,000
2022	121,753,000	21,431,000	143,184,000
2023	120,960,000	26,496,000	147,456,000
2024	120,094,000	32,028,000	152,122,000
2025	119,107,000	37,824,000	156,931,000
2026	118,009,000	44,056,000	162,065,000
2027	116,674,000	50,662,000	167,336,000
2028	115,226,000	57,388,000	172,614,000
2029	113,419,000	64,823,000	178,242,000
2030	111,291,000	72,915,000	184,206,000
2031	108,933,000	81,141,000	190,074,000
2032	106,400,000	89,785,000	196,185,000
2033	103,466,000	98,798,000	202,264,000

*Amounts shown are the cash flows for current members only, based on the current benefit structure and assuming that all actuarial assumptions are met in each future year. To the extent that actual experience deviates from that expected, results will vary. Amounts are shown in future nominal dollars and have not been discounted to the valuation date.

RISK CONSIDERATIONS

Actuarial Standards of Practice are issued by the Actuarial Standards Board and are binding on credentialed actuaries practicing in the United States. These standards generally identify what the actuary should consider, document and disclose when performing an actuarial assignment. In September, 2017, Actuarial Standard of Practice Number 51, *Assessment and Disclosure of Risk in Measuring Pension Obligations*, (ASOP 51) was issued as final with application to measurement dates on or after November 1, 2018. This ASOP, which applies to funding valuations, actuarial projections, and actuarial cost studies of proposed plan changes, is first applicable for the January 1, 2019 actuarial valuation for the Omaha School Employees' Retirement System (System).

A typical retirement plan faces many different risks. The term "risk" is most commonly associated with an outcome with undesirable results. However, in the actuarial world, risk can be translated as uncertainty. The actuarial valuation process uses many actuarial assumptions to project how future contributions and investment returns will meet the cash flow needs for future benefit payments. Of course, we know that actual experience will not unfold exactly as anticipated by the assumptions and that uncertainty, whether favorable or unfavorable, creates risk. ASOP 51 defines risk as the potential of actual future measurements to deviate from expected results due to actual experience that is different than the actuarial assumptions.

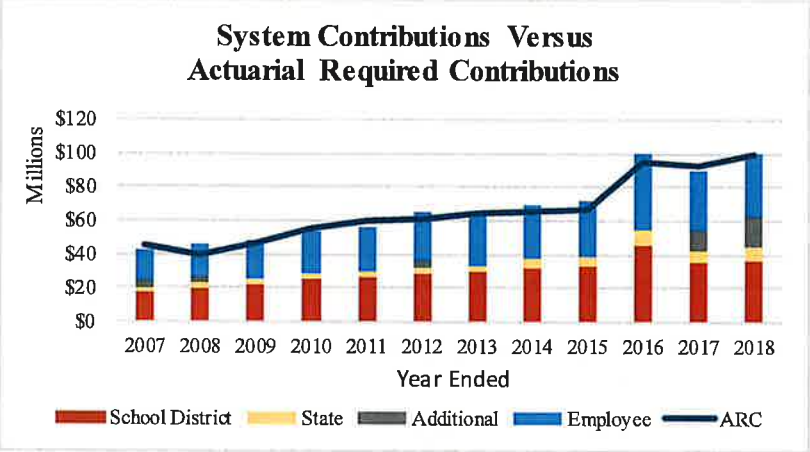
The various risk factors for a given plan can have a significant impact – positive or negative – on the actuarial projection of liability and contribution rates.

There are a number of risks inherent in the funding of any defined benefit plan. These include:

- economic risks, such as investment return and price inflation;
- demographic risks such as mortality, active membership size, payroll growth, aging population including impact of baby boomers, and retirement ages;
- contribution risk, i.e., the potential for contribution rates to be too high for the plan sponsor/employer to pay; and
- external risks such as the regulatory and political environment.

In assessing the risks associated with funding a pension plan, it is important to realize that each retirement system is unique and may have different risks. This discussion is intended to identify and disclose the more significant risks to the funding of OSERS'.

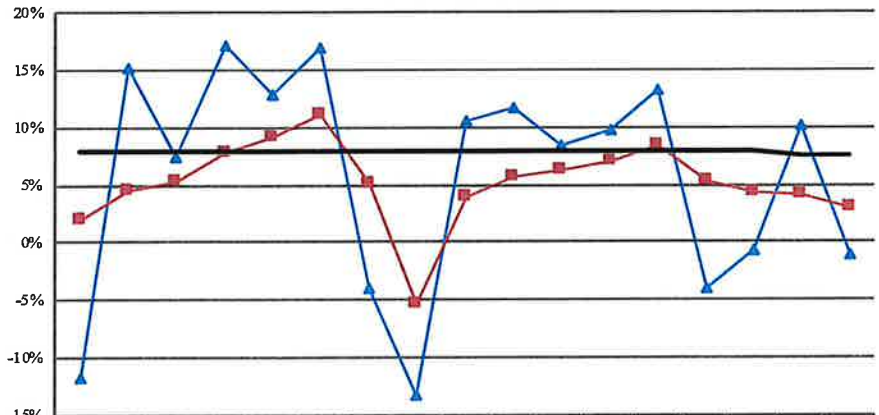
The biggest risk to any retirement system is the inability to pay benefits when they are due. That risk is minimized by the accumulation of assets in the System's trust. There is generally a direct correlation between healthy, well-funded retirement plans and consistent contributions equal to the full actuarial contribution each year. As the following graph illustrates, the School District has contributed at least the full actuarial required contribution in seven of the past twelve years and has contributed and amount very close to the actuarial contribution in the other years.



Current state statutes require the School District to contribute any shortfall between the actuarial required contribution rate and the statutory contributions by members, the State of Nebraska and the School District on or before August 31. As a result, the full actuarial contribution rate can be expected to be contributed in future years and the funded status of OSERS should improve over time, if actuarial assumptions are met.

The System's funding policy, as modified in 2019, amortizes each amortization layer, including the legacy UAAL, over a closed 30-year period, with payments calculated as a level-percent of pay. This is a relatively long amortization period and will thus tend to improve the System's funded status relatively slowly. The payment pattern which develops a payment schedule that is level as a percent of payroll is the most common method used by public plans, but it is less conservative than the level-dollar amortization method because the dollar amount of the unfunded actuarial accrued liability increases for many years before finally starting to decline, even if all assumptions are met. In addition, amortization as a level percent of pay requires the use of an assumption regarding the growth of covered payroll in future years (currently 3.25% per year). This introduces another possible source of variation between actual and expected experience, thus increasing the funding risk for the System. If actual payroll does not increase as assumed, which could be due to a decline in the number of active members or actual salary increases that are less than expected, the UAAL contribution rate will increase. The dollar payment on the UAAL is the same, but the higher UAAL contribution rate ultimately pushes more of the UAAL funding to the District's additional contribution.

Perhaps the most significant risk factor for most Systems, including OSERS, is investment return because of the volatility of returns associated with the asset allocations. Historically, actual returns each year have varied significantly from the assumed rate of return (see following graph). This is to be expected, given the underlying capital market assumptions and the System's asset allocation and standard deviation, but it does create a high degree of uncertainty or risk. The compound rate of return over this time period was about 5.3%, but the range of returns varied from +17% to -13%. When actual investment returns are lower than the assumed rate of return, the actuarial contribution rate increases absent offsetting gains on liabilities or changes in actuarial methods. The investment experience of the last decade has been much lower than the assumption, resulting in an increase in the actuarial contribution rate.



	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2017	2018	2019
MVA	-11.7%	15.2%	7.5%	17.1%	12.9%	16.9%	-3.9%	-13.3%	10.5%	11.7%	8.3%	9.7%	13.3%	-4.1%	-0.7%	10.1%	-1.2%
AVA	2.0%	4.6%	5.2%	7.9%	9.1%	11.2%	5.0%	-5.3%	4.0%	5.6%	6.2%	7.0%	8.5%	5.3%	4.4%	4.2%	2.9%
Assumption	8.0%	8.0%	8.0%	8.0%	8.0%	8.0%	8.0%	8.0%	8.0%	8.0%	8.0%	8.0%	8.0%	8.0%	8.0%	7.5%	7.5%

The System is currently 63% funded, using the actuarial value of assets and 54% funded on a market value basis. The low funded ratio has increased the actuarial required contribution rate and the School District now has an obligation to make an additional contribution of around 5% of covered payroll. As the District's obligation to make the additional contributions is statutory, some risk of unmanageable contribution levels exists. The risk associated with investment returns has the potential to create significant volatility in the amount of additional District contributions. Given the asset allocation of the portfolio and the associated volatility of returns in any one year, it would not be unexpected to have returns that are more than 10% lower than the assumed return of 7.50%. In that case, the District's additional contribution could increase significantly (around 0.50% of pay or $1.7 million in the first year alone) because the full impact of the "miss" on investments would flow through to the District's additional contribution rate.

A key demographic risk for all retirement systems, including OSERS, is improvements in mortality (longevity) greater than anticipated. While the actuarial assumptions reflect small, continuous improvements in mortality experience over time and these assumptions are refined in every experience study, the risk arises because there is a possibility of some sudden shift, perhaps from a significant medical breakthrough that could quickly increase liabilities. Likewise, there is some possibility of a significant public health crisis that could result in a significant number of additional deaths in a short time period, which would also be significant, although more easily absorbed. While either of these events could happen, it represents a relatively small probability and thus represents much less risk than the volatility associated with investment returns.

The following exhibits in this section summarize certain historical information that helps indicate how certain key risk metrics may have changed over time. Many of the changes are due to the maturing of the retirement plan.

EXHIBIT 13 – HISTORICAL ASSET VOLATILITY RATIOS

As a retirement plan matures, the size of the market value of assets usually increases relative to the covered payroll of active members, on which the Plan is funded. The size of the plan assets relative to covered payroll, sometimes referred to as the asset volatility ratio, is an important indicator of the contribution risk for the plan. The higher this ratio, the more sensitive a plan's contribution rate is to investment return volatility. In other words, it will be harder to recover from investment losses with increased contributions (contribution rates will be higher).

OSERS' historical trends are somewhat different than those observed in most public plans. This is due both to the length of time the System has been in existence (since 1909) and the slow growth of assets over this period compared to payroll. The result is a stable or decreasing asset volatility ratio rather than an increasing trend which is more typical. As the System's funding improves over the long term, the asset volatility ratio is expected to increase.

Actuarial Valuation Date	Market Value of Assets	Covered Payroll	Asset Volatility Ratio	Increase in ACR with a Return 10% Lower than Assumed*
9/1/2006	$978,431,000	$248,759,070	3.93	2.30%
9/1/2007	1,117,628,000	272,844,149	4.10	2.39%
9/1/2008	1,050,281,000	272,720,007	3.85	2.25%
9/1/2009	884,438,000	287,770,291	3.07	1.79%
9/1/2010	951,214,000	302,229,282	3.15	1.84%
9/1/2011	1,033,128,000	310,228,916	3.33	1.94%
9/1/2012	1,095,565,000	307,258,065	3.57	2.09%
9/1/2013	1,170,347,000	313,946,237	3.73	2.18%
9/1/2014	1,294,722,000	323,077,710	4.01	2.34%
9/1/2015	1,211,107,000	333,166,135	3.64	2.13%
1/1/2017	1,148,582,000	351,940,122	3.26	1.90%
1/1/2018	1,234,040,000	359,359,507	3.43	2.00%
1/1/2019	1,193,800,000	375,598,301	3.18	1.86%

Note: Years prior to the 9/1/2010 valuation were provided by the prior actuary.

*The impact of asset smoothing is not reflected in the increase in the Actuarial Contribution Rate (ACR). Current year assumptions and methods are used for all years shown. With asset smoothing, the first year impact on contributions would be about 25% of the amount shown.

The assets at January 1, 2019 are 318% of payroll, so underperforming the investment return assumption by 10.00% (i.e., earning -2.50% for one year) is equivalent to a loss of about 31.8% of payroll. The impact on the actuarial contribution rate would be 1.86% once the full amount of actuarial loss worked through the asset smoothing method. While the impact in the first year is mitigated by the asset smoothing method, this illustrates the contribution risk associated with volatile investment returns.

EXHIBIT 14 – HISTORICAL CASH FLOWS

Plans with negative cash flows will experience increased sensitivity to investment return volatility. Cash flows, for this purpose, are measured as contributions less benefit payments. If the System has negative cash flows and experiences returns below the assumed rate, there are fewer assets to be reinvested to earn the higher returns that typically follow. While any negative cash flow will produce such a result, it is typically a negative cash flow of more than 4% to 5% of MVA that may cause significant concerns. In general, large negative cash flow is not a major risk for OSERS at this time.

Year End	Market Value of Assets (MVA)	Contributions*	Benefit Payments	Net Cash Flow	Net Cash Flow as a Percent of MVA
8/31/2007	$1,117,628,000	$44,037,000	$68,286,000	($24,249,000)	(2.17%)
8/31/2008	1,050,281,000	49,099,000	72,912,000	(23,813,000)	(2.27%)
8/31/2009	884,438,000	49,943,000	77,503,000	(27,560,000)	(3.12%)
8/31/2010	951,214,000	56,616,000	81,260,000	(24,644,000)	(2.59%)
8/31/2011	1,033,128,000	58,242,000	86,015,000	(27,773,000)	(2.69%)
8/31/2012	1,095,565,000	68,139,000	90,621,000	(22,482,000)	(2.05%)
8/31/2013	1,170,347,000	65,248,000	95,107,000	(29,859,000)	(2.55%)
8/31/2014	1,294,722,000	72,072,000	100,810,000	(28,738,000)	(2.22%)
8/31/2015	1,211,107,000	75,065,000	106,735,000	(31,670,000)	(2.61%)
12/31/2016	1,148,582,000	101,826,000	152,808,000	(50,982,000)	(4.44%)
12/31/2017	1,234,040,000	92,397,000	121,005,000	(28,608,000)	(2.32%)
12/31/2018	1,193,800,000	101,704,000	127,578,000	(25,874,000)	(2.17%)

Note: Years prior to Year End 8/31/2010 were provided by the prior actuary.

** Contributions include additional revenue coming into the System such as Purchases of Service and State Service Annuity receipts.*

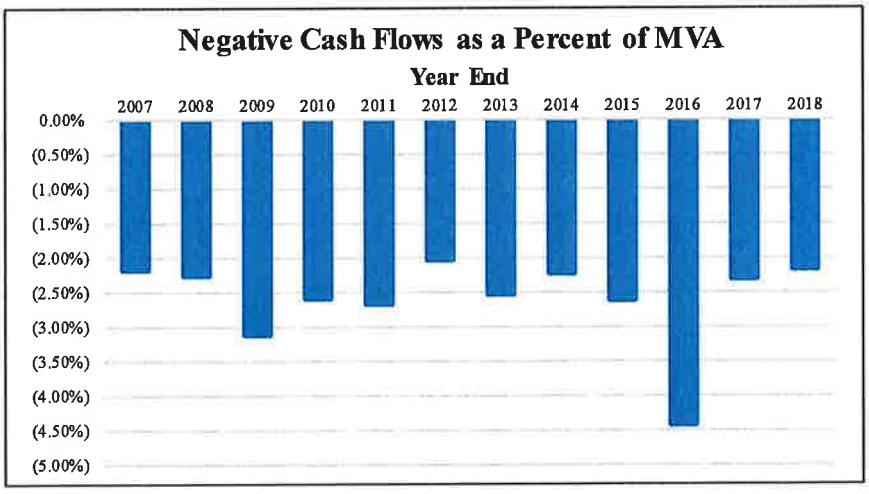


EXHIBIT 15 – LIABILITY MATURITY MEASUREMENTS

Like OSERS (which was created in its current form in 1951), most public sector retirement systems have been in operation for many years. As a result, they have aging plan populations, and in some cases declining active populations, resulting in an increasing ratio of retirees to active members and a growing percentage of retiree liability. With more of the total liability residing with retirees, investment volatility has a greater impact on the funding of the plan since it is more difficult to restore the system financially after losses occur when there is comparatively less payroll over which to spread costs. Because OSERS has been in existence for a very long time (prior systems dating back to 1909 were consolidated to create OSERS), there has been no significant change in the percent of liability attributable to retirees over the last 12 years. The ratio of retiree liability to covered payroll has increased over this time period, however, which indicates an increase in contribution risk.

Actuarial Valuation Date	Retiree Liability (a)	Total Actuarial Accrued Liability (b)	Retiree Percentage (a) / (b)	Covered Payroll (c)	Ratio (b) / (c)
9/1/2007	$725,838,000	$1,255,527,000	57.8%	$272,844,149	4.60
9/1/2008	783,518,000	1,346,999,000	58.2%	272,720,007	4.94
9/1/2009	818,000,000	1,410,318,000	58.0%	287,770,291	4.90
9/1/2010	850,325,000	1,467,850,000	57.9%	302,229,282	4.86
9/1/2011	874,656,000	1,516,284,000	57.7%	310,228,916	4.89
9/1/2012	935,442,000	1,592,738,000	58.7%	307,258,065	5.18
9/1/2013	978,397,000	1,660,287,000	58.9%	313,946,237	5.29
9/1/2014	1,028,802,000	1,723,970,000	59.7%	323,077,710	5.34
9/1/2015	1,099,161,000	1,798,706,000	61.1%	333,166,135	5.40
1/1/2017	1,230,588,000	2,050,581,000	60.0%	351,940,122	5.83
1/1/2018	1,274,528,000	2,136,385,000	59.7%	359,359,507	5.94
1/1/2019	1,311,452,000	2,192,893,000	59.8%	375,598,301	5.84

Note: Years prior to the 9/1/2010 valuation were provided by the prior actuary.

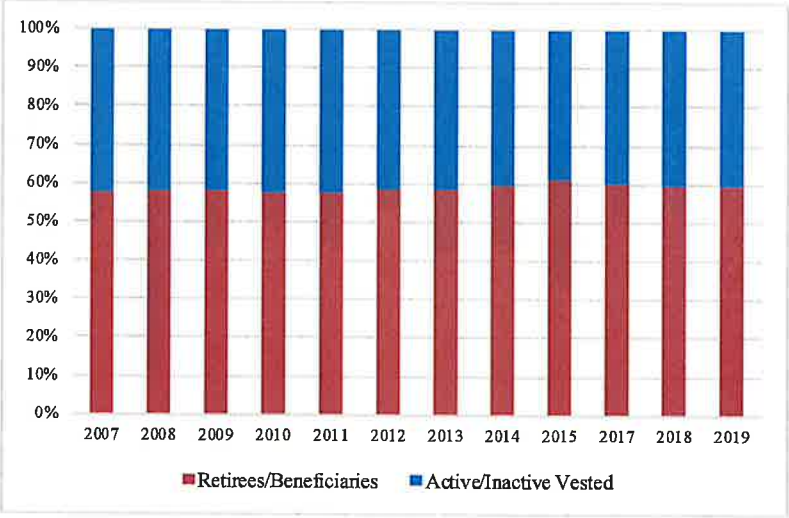


EXHIBIT 16 – COMPARISON OF VALUATION RESULTS UNDER ALTERNATE INVESTMENT RETURN ASSUMPTIONS

This exhibit is a sensitivity analysis that compares the key January 1, 2019 valuation results under the current investment return assumption and four (4) alternate investment return assumptions, both higher and lower than the current assumption. This information is intended to illustrate the impact of the investment return assumption on the funding of the System. Note that only the investment return assumption is changed for this purpose, as identified in the heading below. This may not result in a set of economic actuarial assumptions that complies with Actuarial Standard of Practice Number 27. The alternate return assumptions are only for purposes of identifying the impact of different investment return assumptions on the funding results. All other actuarial assumptions are unchanged for purposes of this analysis.

Investment Return Assumption	**7.00%**	**7.25%**	**7.50%**	**7.75%**	**8.00%**
Contributions					
Normal Cost Rate	14.61%	13.75%	12.96%	12.22%	11.54%
UAAL Contribution	15.39%	14.70%	14.01%	13.30%	12.60%
Total Actuarial Contribution Rate	30.00%	28.45%	26.97%	25.52%	24.14%
Statutory Contribution Rate	21.66%	21.66%	21.66%	21.66%	21.66%
Contribution Shortfall/(Margin)	8.34%	6.79%	5.31%	3.86%	2.48%
Additional District Contribution	$28,632,745	$23,320,380	$18,244,371	$13,267,522	$8,527,504
Actuarial Value of Assets ($ in millions)	$1,378.8	$1,378.8	$1,378.8	$1,378.8	$1,378.8
Actuarial Liability ($ in millions)	$2,326.0	$2,257.9	$2,192.9	$2,130.9	$2,071.6
Funded Ratio	59.3%	61.1%	62.9%	64.7%	66.6%

APPENDIX A

HISTORICAL BACKGROUND

Historical Background

Since 1909, the Omaha School District has maintained a retirement system for its teachers. Since then, systems covering other employees were added. In 1951, the Nebraska Legislature consolidated the existing systems into one new System. Amendments of significance in the Nebraska statutes and federal Social Security Act have occurred from time to time. These changes in order of their occurrence are outlined briefly below:

1951 - New System

Prior to 1951, three separate retirement systems existed. In 1951 the Nebraska Legislature repealed these three separate systems and created the present single System covering all employees. This act provided, however, that a member of a pre-existing system might elect to retain his benefit and contribution rights under one of the former systems in lieu of the new System benefits and contributions. The members who so elected then became known by the following titles for retirement purposes:

(1) Employees covered by the former Omaha Teachers Retirement System were known as "Teachers,"

(2) Employees covered by the former Non-Teaching Employee Retirement System were known as "Non-Teachers,"

(3) Employees covered by the former Cafeteria Employee Retirement System were known as "Cafeteria."

All other employees became members of the new System and received credit for membership service starting September 1, 1951. Benefits as well as contributions under the new System became directly related to a member's compensation by formula. The maximum covered annual compensation under the new System became $5,000, but the maximum for Teachers, Non-Teachers and Cafeteria remained $3,000.

1955 Amendments

On September 24, 1955, Omaha School employees voted to become participants in the federal Social Security program. All Social Security benefits are payable in addition to the System benefits. As a result of Social Security coverage, changes were made in the benefit and contribution formulas of the System effective August 31, 1955. In general, the changes reduced contributions and benefits to 60% of the rates formerly in effect. In addition, the maximum covered compensation was increased from $5,000 to $6,000 except for Teachers, Non-Teachers and Cafeteria which remained at $3,000.

The amount contributed by the School District was also reduced to 60% of the rates in effect prior to the change and the School District's contributions, matching the refunds paid upon the withdrawal or death of employees, were retained in the retirement fund rather than being returned to the School District.

1963 Amendments

Effective September 1, 1963, several changes were made in the new System. The limit on covered compensation for contributions and benefits of members was removed.

The service retirement annuity credit was increased in order to integrate with the modifications in federal Social Security between 1955 and 1963. The disability annuity for members was increased to 100% of the service retirement annuity accrued to date of disability and the restriction as to the number of years for which it was payable was removed. The offset in the benefit formula for the Nebraska State Service Annuity credit was placed on a year-to-year basis for all members, increasing the annuity credit for service after September 1, 1951 for active and retired alike.

The employees who were participating as Teachers, Non-Teachers and Cafeteria began to make contributions and receive benefit credits at the same rates as other members of the System. It should be noted that any employee who retained rights under a pre-existing system still receives credit in accordance with the provisions of the former system if this is more than the credit, after the State service annuity offset, would be under the 1963 amendments.

The contribution rate for employees was changed to integrate with the modifications in Social Security and was no longer subject to revision depending upon the degree of actuarial soundness of the System as had been provided in 1962. The School District became solely responsible for maintaining the solvency of the System on the basis of annual actuarial valuations. The School District again became entitled to refunds equal to the refunds paid upon withdrawal or death of employees.

The restriction prohibiting the crediting of interest on refunds to employees who withdraw from employment during the first ten years of service was removed. Thus, all employees who withdraw after one year or more of service receive interest on their contributions made since September 1, 1951.

1965 Amendments

Effective September 1, 1965, a pre-retirement survivor's annuity was added to the System for long-service employees. This change gave an employee with 25 or more years of service protection at death approximately equivalent in value to the vesting which already existed at termination of employment for an employee with the same period of service.

Effective January 1, 1966, the Social Security tax base was increased from $4,800 to $6,600 per year. This change became effective in the System's contribution and benefit formulas as of September 1, 1966.

1967 Amendments

The 77th Session of the Nebraska Legislature enacted LB 494 which amended the Nebraska School Retirement System, effective October 23, 1967. A major change was the increase in the State service annuity credit from $1.50 to $3.00 per month for each year of credited service after July 1, 1968 and the removal of the 35 year limitation on credited State service. For the purpose of determining the new State service annuity offset in calculating the net Omaha annuity, the additional $1.50 per month for each year of service after July 1, 1968 is not applicable, but removal of the 35 year limitation does apply. This means that the State service annuity offset is still determined on the basis of $1.50 per month for each year of service. The increase in the State service annuity offset by virtue of eliminating the 35 year limitation represents a lower cost to the Omaha System for those members having more than 35 years of State service by age 65.

Another change with regard to the State service annuity was the manner in which the funds are transferred from the State to the Omaha System to pay these annuities. For retirements occurring after the effective date of the amendments (October 23, 1967), the State transfers the commuted value (equivalent single sum) of the individual State service annuity to the Omaha System and then the payment of the monthly annuity to the retired member is the School District's responsibility.

In 1967 the eligibility provisions for the pre-retirement survivors' annuity and the vested retirement rights were changed, reducing the service required from 25 years to 20 years and thereby granting these options to a larger number of employees.

Effective January 1, 1968, the federal Social Security taxable wage base was increased from $6,600 to $7,800 per year. This change became effective in the System's contribution and benefit formulas as of September 1, 1968.

1969 Amendments

The 80th Session of the Nebraska Legislature enacted LB 530 which amended the System effective August 11, 1969. The provisions of this bill improved the benefit structure of the System in two ways. The membership annuity credits (credits after 9/1/51) were increased approximately 10% and the Social Security wage base was "frozen" at the $7,800 level for purposes of calculating benefit credits and employee contributions.

By freezing the Social Security base, benefit credits and employee contributions for service after September 1, 1969 will not be reduced by virtue of future increases in the Social Security wage base. The System benefits will remain integrated with the Social Security program at the level provided by the $7,800 base.

1972 Amendments

During 1972, the Nebraska Legislature enacted LB 1116 which amended the System. These amendments were to become effective for retirements occurring on or after September 1, 1972. The provisions of this bill improved the benefit structure of the System and liberalized the eligibility condition for qualification upon termination for the deferred vested retirement benefit.

The benefits of the System were improved by increasing the membership annuity credits (credits after 9/1/51) by approximately 20% over those in existence on September 1, 1971.

In order to be eligible upon resignation to elect a deferred vested service annuity, the years of creditable service was reduced from 20 years to 15 years.

1973 Amendments

The 1973 Session of the Nebraska Legislature enacted LB 445 which created increases in the State service annuity of the Nebraska School Retirement System. LB 445 provides for (a) a State service annuity credit of $3.00 per month for each year of creditable service for all emeritus members and for all full time school employees who retire on or after July 1, 1973 and (b) for increases in the State service annuity for members who retired prior to July 1, 1973 based upon the difference between the Consumers Price Index on the date of retirement and July 1, 1973.

1976 Amendments

The 1976 Session of the Nebraska Legislature enacted LB 994 which increased the membership annuity credits (credits after 9/1/51) by 20%.
The members' contributions were increased to 2.90% of compensation up to $7,800 per year plus 5.25% of salary in excess of that amount.

1979 Amendments

The 1979 Session of the Nebraska Legislature changed the mandatory retirement date from age 65 to age 70. Late retirement benefits are actuarially increased from what would have been payable at the normal retirement date.

1982 Amendments

The 1982 Session of the Nebraska Legislature enacted LB 131 which made considerable changes to the System. LB 131 was approved by the Governor on February 19, 1982.

The most major revision in the System was to change the previous primary benefit formula from the step rate formula based on each year of salary to a final average compensation formula. The primary benefit formula became 1.5% of final average compensation for each year of creditable service not in excess of 30. Final average compensation was then defined to be 1/36 of the total compensation received during the three fiscal years of highest compensation. Also, the creditable service not in excess of 30 years was allowed to continue to accrue after the fiscal year in which the employee attains age 65. In addition, the State service annuity offset of $1.50 per year of creditable service was removed with respect to the final average compensation formula. The prior provisions of the System were retained as a minimum benefit, recognizing creditable service for those provisions through the earlier of the date of retirement or August 31, 1983.

Another major revision in the System was to change the step rate formula for employee contributions to a level 4.90% of compensation. In addition, the provision entitling the School District to receive refunds of its own contributions equal to the contributions refunded to employees was removed.

The early retirement date was liberalized. Previously an employee needed to have either 35 years of creditable service or to have attained age 60 with 25 years of creditable service. Now an employee can retire early if he has at least 10 years of creditable service and has attained age 55.

The actuarial equivalent of the annuity payable at the end of the fiscal year in which the employee attains age 65 was changed in the following two ways:

1. For employees retiring before age 62, the monthly formula retirement annuity is a reduced amount based on the actuarial equivalent of the annuity deferred to the employee's 62nd birthday. If retirement is at age 62 or later, there is no actuarial reduction. Previously there was an actuarial reduction, based on the benefit deferred to age 65, for any retirement before age 65.

2. For employees retiring on or after age 65, the monthly formula retirement annuity is to be based on total years of creditable service (not in excess of 30) and the employee's entire compensation history at date of retirement. Consequently, for retirements after the fiscal year in which the employee attains age 65 there is no longer an actuarial increase from the benefit available at the normal retirement date.

The eligibility provision to elect a deferred vested service annuity upon resignation was changed from 15 years of creditable service to 10 years.

1983 Amendments

The 1983 Session of the Nebraska Legislature enacted LB 488 which created benefit increases effective September 1, 1983 for members having retired before February 21, 1982. The amount of benefit increase was limited to the smaller of:

1. The percentage increase in the Consumer Price Index for all Urban consumers from the effective date of retirement to June 30, 1983 applied to benefits being paid and

2. The sum of $1.50 per month for each year of creditable service and $1.00 per month for each completed year of retirement from the effective date of retirement to June 30, 1983, actuarially adjusted for joint and survivor elections.

1985 Amendments

The 1985 Session of the Nebraska Legislature enacted LB 215 which removed the 30 year limit on years of service used in the benefit formula, provided for vesting after five years of service rather than ten years, and reduced the eligibility period for disability from ten years of service to five years of service.

LP215 also provided for the employer "pick up" of employee contribution under IRC 414(h), thereby allowing employee contributions to be made on a pre-tax basis.

Unisex factors are now being used for determining early retirement reductions and actuarial equivalents for joint and survivor optional benefits.

1986 Amendments

The 1985 Session of the Nebraska Legislature enacted LB 1048 which granted increases in benefits for most retirees to reflect cost-of-living increases over the last several years. The increases ranged up to a maximum of 10.5%.

1987 Amendments

A "window of opportunity" was created for the buy-in or buy-back of service credits for participants qualifying for that right.

1989 Amendments

LB 237 was enacted by the 1989 Session of the Nebraska Legislature and provided: annual benefit accruals of 1.65% of final average compensation (up from 1.50%), unreduced benefits if a member retires with 35 or more years of service, a five year certain and life thereafter annuity as the normal form of benefit (instead of just a life annuity), employee contributions of 5.8% of pay (up from 4.9%), and increased benefits to retirees (the increases ranged up to 9.0%). There were some other changes as a result of this bill, but none that had a direct actuarial cost impact.

1992 Amendments

The 1992 Session of the Nebraska Legislature enacted LB 1001 which increased annual benefit accruals from 1.65% of final average compensation to 1.70%, and increased benefits to retirees (3% increase per year of retirement, not exceeding 9% total increase), a change in the preretirement joint and survivor option to allow it to become effective automatically after 20 years of service, and allowed employees to "buy-in" their time with other public school systems by means of a tax-deferred rollover of their refund from that System.

1995 Amendments

The 1995 Session of the Nebraska Legislature enacted LB 505 which increased annual benefit accruals from 1.70% to 1.80% of final average compensation. It also provided for unreduced retirement benefits when the sum of age and service equals or exceeds 85 (still maintaining the age 55 minimum), and reduced early retirement reductions to .25% per month prior to age 62. Early retirement at 84, 83, or 82 points is also allowed with a maximum reduction of 3%, 6% and 9% respectively. Employee contributions were increased to 6.3% of pay. The bill also provided for a one time increase to current retirees of 3% per year since retirement (not to exceed 9%), or if larger, 90% restoration of the purchasing power of their original pension. There are other changes resulting from this bill, which are not included since they did not have a direct actuarial impact. One change with no actuarial impact but worth noting is the provision for employer "pick up" of employee contributions to the System used to buy in outside service, pursuant to Section 414(h) of the Internal Revenue Code.

1998 Amendments

The 1998 Session of the Nebraska Legislature enacted LB 497 which increased annual benefit accruals from 1.80% to 1.85% of final average compensation. The bill also provided for a one time increase to current retirees of 3% per year since retirement (not to exceed 9%) and provides an annual automatic cost of living adjustment, not greater than 1.5%, beginning January 1, 2000.

2000 Amendments and Cost of Living Adjustment

The 2000 session of the Nebraska Legislature enacted LB 155 which increased accruals from 1.85% to 2.00% of final average compensation.

Pursuant to LB 497, the OSERS Board and the Omaha School District Board authorized a 1.5% discretionary COLA beginning January 1, 2000 in addition to the automatic COLA.

2001 Amendments and Cost of Living Adjustment

The 2001 session of the Nebraska Legislature enacted LB 711 which provided that certain members who previously left employment due to pregnancy could purchase their "lost" service. It also provided a post-retirement supplemental benefit to assist with medical costs. The supplement commences 10 years after retirement, beginning at $10 per month for each year retired and increasing by $10 each year to a maximum of $250 per month. For retirees with less than twenty years of service, the benefit is reduced proportionately.

Additionally, the OSERS Board and the Omaha School Board authorized a discretionary COLA to restore full purchasing power, beginning January 1, 2001, in addition to the automatic COLA.

2002 Cost of Living Adjustment

The automatic 1.5% COLA was granted beginning January 1, 2002.

2003 Cost of Living Adjustment

The automatic 1.5% COLA was granted beginning January 1, 2003.

2004 Cost of Living Adjustment

The automatic 1.5% COLA was granted beginning January 1, 2004.

2005 Cost of Living Adjustment

The automatic 1.5% COLA was granted beginning January 1, 2005.

2006 Cost of Living Adjustment

The automatic 1.5% COLA was granted beginning January 1, 2006.

2007 Amendment and Cost of Living Adjustment

The 2007 session of the Nebraska Legislature enacted Section 79-9, 113 which changed the employee contribution rate from 6.30% of compensation to 7.30% and provided for an employer contribution equal to 101% of the employee contribution rate.

The automatic 1.5% COLA was granted beginning January 1, 2007.

2008 Cost of Living Adjustment

The automatic 1.5% COLA was granted beginning January 1, 2008.

2009 Amendment and Cost of Living Adjustment

The 2009 session of the Nebraska Legislature enacted Legislative Bill 187 (LB 187), which increased the State's contribution from 0.7% to 1.0% of covered pay from July 1, 2009 to July 1, 2014. On July 1, 2014 the State's contribution returns to 0.7%. LB 187 also increased the employee contribution rate from 7.30% of compensation to 8.30%. The School District's contribution is equal to 101% of the employee contribution rate so the District's contribution rate increased from 7.373% of compensation to 8.383% as a result of the increase in the member contribution rate.

The automatic 1.5% COLA was granted beginning January 1, 2009.

2010 Amendment and Cost of Living Adjustment

The automatic 1.5% COLA was granted beginning January 1, 2010.

2011 Amendment and Cost of Living Adjustment

The 2011 session of the Nebraska Legislature enacted Legislative Bill 382 (LB 382), which increased the Member's contribution from 8.30% of compensation to 9.30%. The School District's contribution is equal to 101% of the employee contribution rate so the District's contribution rate increased from 8.383% of compensation to 9.393% as a result of the increase in the member contribution rate. LB 382 also extended the 1% of payroll contribution by the State from July 1, 2014 to July 1, 2017.

The automatic 1.5% COLA was granted beginning January 1, 2011.

2012 Cost of Living Adjustment

The automatic 1.5% COLA was granted beginning January 1, 2012.

2013 Amendments and Cost of Living Adjustment

The 2013 session of the Nebraska Legislature enacted Legislative Bill 553 (LB 553), which increased the Member contribution rate from 9.30% of pay to 9.78% of pay. The School District's contribution is equal to 101% of the employee contribution rate so the District's contribution rate increased from 9.393% of pay to 9.878% of pay as a result of the increase in the member contribution rate. LB 553 also ended the scheduled decrease in the State contribution rate and instead increased the State contribution from 1.0% of pay to 2.0% of pay, effective July 1, 2014. LB 553 also created a new benefit structure for members hired on or after July 1, 2013. For these members, annual cost of living adjustments will be the lesser of 1.0% or CPI, and the final average compensation is defined as 1/60 of the total compensation received during the five fiscal years of highest compensation.

The automatic 1.5% COLA was granted beginning January 1, 2013.

2014 Cost of Living Adjustment

The automatic 1.5% COLA was granted beginning January 1, 2014.

2015 Cost of Living Adjustment

The automatic 1.5% COLA was granted beginning January 1, 2015.

2016 Amendments and Cost of Living Adjustment

The 2016 session of the Nebraska Legislature enacted Legislative Bill 447 (LB 447), which created a new benefit structure for members hired on or after July 1, 2016. The changes result in the same benefit structure for new OSERS members as for new members of the Nebraska School Retirement System. These members will not receive the supplemental medical COLA offered to employees hired before July 1, 2016. Other changes for these employees include a revised early retirement benefit reduction schedule and different retirement eligibility requirements.

The automatic 1.5% COLA was granted beginning January 1, 2016.

2017 Cost of Living Adjustment

The automatic 1.5% COLA was granted beginning January 1, 2017.

2018 Amendments and Cost of Living Adjustment

The 2017 session of the Nebraska Legislature enacted Legislative Bill 415 (LB 415), which created a new benefit structure for members hired on or after July 1, 2018. The changes result in the same benefit structure for new OSERS members as for new members of the Nebraska School Retirement System. The changes for these employees include a revised early retirement benefit reduction schedule and different retirement eligibility requirements.

The 2018 session of the Nebraska Legislature enacted Legislative Bill 1005 (LB 1005), which also affects the benefit provisions for members hired on or after July 1, 2018. As a result of LB 1005, the Board has the authority to set the actuarial assumptions used to determine the benefit amounts payable under optional forms of payment for members hired on or after July 1, 2018.

The automatic 1.5% COLA was granted beginning January 1, 2018.

2019 Cost of Living Adjustment

The automatic 1.5% COLA for members hired before July 1, 2013 was granted beginning January 1, 2019.

APPENDIX B

SUMMARY OF PLAN PROVISIONS

Contributions

Employee Contributions: Employees contribute 9.78% of compensation, effective September 1, 2013. Such contributions are payable each year while employed. Contributions accumulated with interest are refundable at resignation unless the vested retirement benefit has been elected and at death unless the pre-retirement survivor's benefit has been elected.

State Contribution: The State contributes annually an amount equal to 2.0% of the members' compensation, effective July 1, 2014.

School District Contribution: The School District contributes the greater of (a) one hundred and one percent of the contributions by the employees or (b) such amount as may be necessary to maintain the solvency of the system, as determined annually by the board upon recommendation of the actuary and the trustees.

Interest Credited on Refunds: Contributions made prior to September 1, 1951 and refunded at withdrawal or death are not credited with interest. Contributions after September 1, 1951 are credited with interest at the rate declared annually by the Board of Education upon the recommendation of the Board of Trustees.

Benefits

General: The System provides annuities upon retirement from service or disability and upon death to designated survivors.

The service retirement formula is 2.0% per year of creditable service times the final average compensation.

Final average compensation is defined as 1/36 of the total compensation received during the three fiscal years of highest compensation for members hired before July 1, 2013. For members hired on or after July 1, 2013, final average compensation is defined as 1/60 of the total compensation received during the five fiscal years of highest compensation.

Annuities are paid for life, with 5 years guaranteed. Optional forms of payment are available.

The disability annuity, the pre-retirement survivor annuity and the vested retirement right are summarized in the following sections.

Benefits in pay status are subject to an annual cost of living adjustment equal to the lesser of 1.5% or CPI for members hired before July 1, 2013. There is an additional COLA if surplus assets exist beginning January 1, 2000. Effective October 3, 2001, a medical cost of living adjustment is payable to retired members. Such amount will commence 10 years after retirement and shall be an amount equal to $10 per month for each year retired (subject to a maximum of $250 per month), prorated for years of service less than 20. For members hired on or after July 1, 2013, the annual cost of living adjustment is capped at 1.0%.

Members hired on or after July 1, 2016 are not eligible to receive the medical COLA benefit.

Retirement Annuities: An employee hired before July 1, 2016 may begin receiving a retirement benefit once the employee has left the employment of the School district, selected a retirement date and

(a) has completed 35 years of creditable service,

or

(b) has 10 years of creditable service (with at least five of those years being creditable Omaha service) and attained age 55,

or

(c) remained employed until his or her 65th birthday and completed at least five years of creditable Omaha service.

If an employee who was hired before July 1, 2016 begins receiving an annuity after age 62, or when age and service equals or exceeds 85, there is no adjustment for the retirement annuity. If, however, such employee begins receiving an annuity before age 62, the annuity shall be reduced by 0.25% for each month prior to age 62, but if 84 points have been achieved then the reduction is limited to 3%, if 83 points, 6%, and 82 points, 9%.

An employee hired on or after July 1, 2016 and before July 1, 2018 may begin receiving a retirement benefit once the employee has left the employment of the School district, selected a retirement date and

(a) has attained age 55 and the sum of the member's attained age and creditable service totals 85,

or

(b) has 5 years of creditable service and attained age 60.

For employees who were hired on or after July 1, 2016 and before July 1, 2018, if an employee begins receiving an annuity before age 65, such annuity shall be reduced by 0.25% for each month prior to age 65. If, however, the employee has achieved 85 points and is at least age 55, then there is no reduction to the annuity.

An employee hired on or after July 1, 2018 may begin receiving a retirement benefit once the employee has left the employment of the School district, selected a retirement date and

(a) has attained age 60 and the sum of the member's attained age and creditable service totals 85,

or

(b) has 5 years of creditable service and attained age 60.

For employees who were hired on or after July 1, 2018, if an employee begins receiving an annuity before age 65, such annuity shall be reduced by 0.25% for each month prior to age 65. If, however, the employee has achieved 85 points and is at least age 60, then there is no reduction to the annuity.

Disability Retirement Annuities: Each employee who becomes totally disabled and who has completed five or more years of creditable Omaha service is entitled to a disability retirement annuity equal to the amount of service annuity earned to date of disability. Alternatively, the employee may defer the disability retirement and accrue service and compensation increases in the interim. The disability retirement annuity is payable each month until disability ceases, if before unreduced retirement, or death.

Pre-Retirement Survivor Annuities: Upon the death of a member who has completed 20 or more years of creditable service and who has not retired, a pre-retirement survivor annuity shall be paid to the member's primary beneficiary. The survivor must be a spouse or one other person whose attained age in the calendar year of the member's death is no more than 10 years less than the attained age of the member in such calendar year. The survivor annuity is the actuarial equivalent of the member's annuity accrued to the date of death, determined on the basis of the member's and beneficiary's attained ages on said date. The survivor annuity is payable in lieu of a refund of the member's accumulated contributions. However, a member may elect out of the survivor annuity and specify that such a refund be paid in lieu of the annuity. An election out of the pre-retirement survivor annuity is entirely independent of the election of a joint and survivor option at retirement. Within 60 days after the member's death, the beneficiary may request a refund of the member's accumulated contributions instead of the annuity; provided, however, that the member may direct the System to pay only an annuity.

If the member (not retired) has less than 20 years of creditable service, or the beneficiary does not meet the requirements stated above, a refund of the member's accumulated contributions shall be paid.

Vested Retirement Right: Each employee who has completed five or more years of creditable Omaha service is eligible upon resignation to elect a deferred vested benefit, first payable as an unreduced amount at age 65, in lieu of a refund of his accumulated contributions. With ten or more years of total creditable service (including at least five years of creditable Omaha service), the deferred vested benefit could commence, unreduced, at age 62 for employees who were hired before July 1, 2016. If benefits start before age 62 (but not earlier than attained age 55), the benefit shall then be reduced as described above.

For employees who were hired on or after July 1, 2016 and before July 1, 2018, the deferred vested benefit could commence, unreduced, at age 65. If benefits start before age 65 (but not earlier than attained age 55), the benefit shall then be reduced as described above.

For employees who were hired on or after July 1, 2018, the deferred vested benefit could commence, unreduced, at age 65. If benefits start before age 65 (but not earlier than attained age 60), the benefit shall then be reduced as described above.

APPENDIX C

ACTUARIAL ASSUMPTIONS AND METHODS

The valuation assumptions and methods used in conducting the current actuarial valuation are as follows:

Actuarial Assumptions

Investment Return Assumption: 7.50% per annum, compounded annually, net of expenses.

Mortality Rates: RP-2014 Mortality Table for males, set forward one year. RP-2014 Mortality Table for females, set back one year.

Future mortality rates are projected on a generational basis using Scale MP-2016, which reflects the expectation that mortality rates will decline over time.

Disabled retirees use the RP-2014 Disabled Retiree Mortality Table, without generational improvement.

Disability: None assumed.

Termination of Employment: (prior to retirement eligibility) Illustrative rates of termination are as follows:

Certificated:

Duration	Percent Terminating Rate
1	11.25%
5	8.00
10	4.50
15	2.25
20	1.00
25	1.00

Classified:

Duration	Percent Terminating Male	Female
1	11.00%	15.00%
5	6.00	9.00
10	2.40	4.00
15	1.00	1.75
20	1.00	1.00
25	1.00	1.00

Retirement Rates:

Early retirement rates are assumed to occur according to the schedule illustrated below:

Members hired before July 1, 2016

Certificated:		Classified:	
Age	Early	Age	Early
55	10%	55	3%
56	6	56	3
57	6	57	3
58	6	58	3
59	8	59	3
60	12	60	5
61	12	61	10

Members hired on or after July 1, 2016

Certificated:		Classified:	
Age	Early	Age	Early
60	12%	60	5%
61	12	61	10
62	12	62	10
63	12	63	10
64	12	64	10

Unreduced retirement rates are assumed to occur according to the schedule illustrated below:

Members hired before July 1, 2018

Certificated:

Age	1st Year Eligible	Ultimate
55	60%	
56	50	35%
57	45	35
58	45	35
59	45	25
60	35	25
61	25	25
62	25	25
63	25	25
64	30	30
65	35	35
66	35	35
67	35	35
68	35	35
69	100	35
70	100	100

Classified:

Age	1st Year Eligible	Ultimate
55	20%	
56	10	12%
57	10	12
58	10	12
59	15	12
60	15	12
61	15	20
62	20	20
63	20	20
64	20	20
65	25	35
66	20	23
67	20	23
68	20	23
69	20	23
70	100	100

Members hired on or after July 1, 2018

Certificated:

Age	1st Year Eligible	Ultimate
60	65%	
61	25	25%
62	25	25
63	25	25
64	30	30
65	35	35
66	35	35
67	35	35
68	35	35
69	100	35
70	100	100

Classified:

Age	1st Year Eligible	Ultimate
60	40%	
61	15	20%
62	20	20
63	20	20
64	20	20
65	25	35
66	20	23
67	20	23
68	20	23
69	20	23
70	100	100

Deferred vested members are assumed to retire at first unreduced retirement age.

Salary Scale:

Salaries are assumed to increase according to the schedule illustrated below:

	Annual Salary Increase	
Duration	Certificated	Classified
0	5.75%	6.25%
1	5.75	5.75
2	5.75	5.25
3	5.75	5.00
4-6	5.75	4.75
7-11	5.75	4.25
12-14	5.75	3.75
15-21	5.25	3.75
22+	4.25	3.75

Note: Salaries are assumed to increase by 2.0% for members who have not yet finalized their contract negotiations as of the valuation date.

Pre-Retirement Survivor Annuity:

It is assumed that females are three years younger than males, and that all members are married.

Probability of Electing a Refund:

The proportion of terminating vested members electing a refund of member contributions:

20% for Certificated members
40% for Classified members

Assumed Interest Rate Credited on Employee Contributions:

2.75% compounded annually.

Inflation (CPI):

2.75% compounded annually.

Total Payroll Growth:

3.25% compounded annually.

Decrement Timing:

Middle of year

Cost of Living Adjustments:

1.5% for members hired before 7/1/2013
1.0% for members hired on or after 7/1/2013

Inactive Vested Load

A 5% load on deferred monthly benefits is included to reflect that some inactive vested members' account balance is greater than the present value of their deferred benefit.

Actuarial Cost Method

The actuarial cost method is a procedure for allocating the actuarial present value of pension plan benefits and expenses to time periods. The method used for the valuation is known as the individual entry-age actuarial cost method, and has the following characteristics.

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

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

The portion of the actuarial present value allocated to the valuation year is called the normal cost. The portion of the actuarial present value not provided for by the actuarial present value of future normal costs is called the actuarial accrued liability. Deducting accrued assets from the actuarial accrued liability determines the unfunded actuarial accrued liability (UAAL).

Asset Valuation Method

Assets are valued at expected value at the valuation date plus 25% of the difference between the market value and expected value. As a starting point for implementation of this asset valuation method, the actuarial value of assets as of September 1, 1996 was set equal to the market value. As of September 1, 2007, the actuarial value was again reset to market value. The smoothing method was again implemented in the 2008 valuation. Effective September 1, 2008, the actuarial value must fall within a corridor of 80% to 120% of market value.

UAAL Amortization Method

Effective with the January 1, 2019 valuation, OSERS amortizes the UAAL using a "layered" approach. Under this method, the UAAL is split into pieces; the first piece is amortized, as a level-percent of pay, over a closed 30-year period beginning with the January 1, 2019 valuation (so 30 years remain as of the January 1, 2019 valuation). All ensuing UAAL bases that result from future actuarial experience will be amortized, as a level-percent of pay, over a new 30-year closed period commencing on the respective valuation date.

APPENDIX D

MEMBERSHIP DATA

SUMMARY OF MEMBERSHIP DATA

	Active	Inactive Vesteds	Nonvested Terminations	Retirees*	Beneficiaries	Disabled Members	Total
Members on 1/1/2018	7,569	1,043	413	4,406	252	20	13,703
Terminated – vested	(167)	167	0	0	0	0	0
Terminated – refund due	(274)	0	274	0	0	0	0
Terminated – refunded	(313)	(56)	(104)	0	0	0	(473)
Retired	(213)	(29)	0	242	0	0	0
Disability retirement	0	0	0	0	0	0	0
Death	(8)	(2)	0	(100)	(18)	0	(128)
Payments ended	0	0	0	0	(1)	0	(1)
New beneficiaries	0	0	0	0	23	0	23
New Alternate Payees	0	0	0	0	0	0	0
New members	555	0	105	1	0	0	661
Rehires	28	(11)	(17)	0	0	0	0
Corrections/adjustments	0	2	0	1	0	0	3
Members on 1/1/2019	7,177	1,114	671	4,550	256	20	13,788

* Includes QDROs

HISTORICAL SUMMARY OF MEMBERS

The following table displays selected historical data that was used in the actuarial valuation for the System.

Valuation		Active Members						Number			
			Average								
Date January 1*	Total Count	Number	Age	Entry Age	Service	Annual Pay ($)	Pay Increase	Inactive Vested	Inactive Nonvested	Retired	Act/Ret Ratio
1998	8,204	5,680	44.2	33.7	10.5	28,912		330		2,194	2.59
1999	8,564	5,864	43.9	34.0	9.9	29,493	2.01%	386		2,314	2.53
2000	8,885	6,057	43.8	34.1	9.7	30,544	3.56%	380		2,448	2.47
2001	9,156	6,259	44.0	34.4	9.6	32,091	5.06%	368		2,529	2.47
2002	9,409	6,383	43.9	34.5	9.4	33,406	4.10%	384		2,642	2.42
2003	9,425	6,279	44.0	34.5	9.5	33,877	1.41%	385		2,761	2.27
2004	9,711	6,399	44.2	34.6	9.6	34,698	2.42%	473		2,839	2.25
2005	10,124	6,623	44.1	34.8	9.3	35,234	1.54%	485		3,016	2.20
2006	10,522	6,972	44.1	34.9	9.2	35,732	1.41%	442		3,108	2.24
2007	10,769	7,041	44.2	35.1	9.1	36,720	2.77%	483		3,245	2.17
2008	11,228	7,313	44.2	35.2	9.0	37,725	2.74%	515		3,400	2.15
2009	11,480	7,438	44.5	35.5	9.0	38,686	2.55%	553		3,489	2.13
2010	11,644	7,491	44.7	35.4	9.3	39,152	1.20%	566		3,587	2.09
2011	11,602	7,215	45.1	35.2	9.9	40,394	3.17%	680		3,707	1.95
2012	11,881	7,315	44.9	35.0	9.9	40,793	0.99%	723		3,843	1.90
2013	12,152	7,372	44.9	34.9	10.0	41,731	2.30%	813		3,967	1.86
2014	12,477	7,415	44.7	34.8	9.9	42,427	1.67%	937		4,125	1.80
2015	12,938	7,393	44.5	34.7	9.8	44,050	3.83%	984	210	4,351	1.70
2017	13,386	7,462	44.5	34.1	10.4	44,998	2.15%	1,035	347	4,542	1.64
2018	13,703	7,569	44.5	34.1	10.4	46,233	2.74%	1,043	413	4,678	1.62
2019	13,788	7,177	44.8	33.8	11.0	47,300	2.31%	1,114	671	4,826	1.49

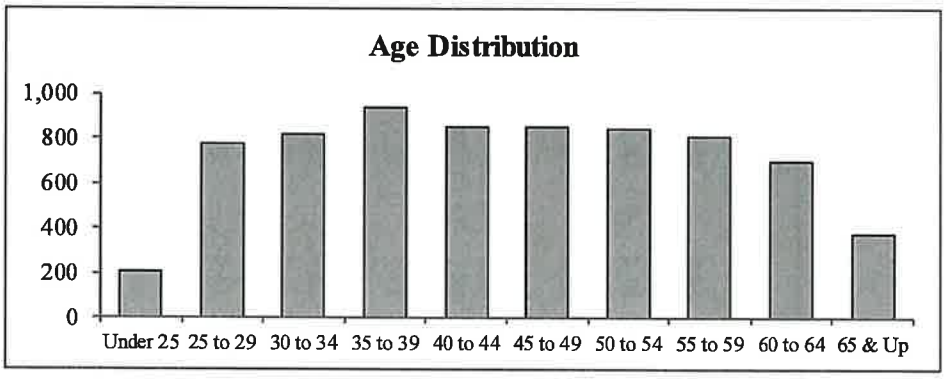
* Years prior to 2017 have a valuation date of September 1.

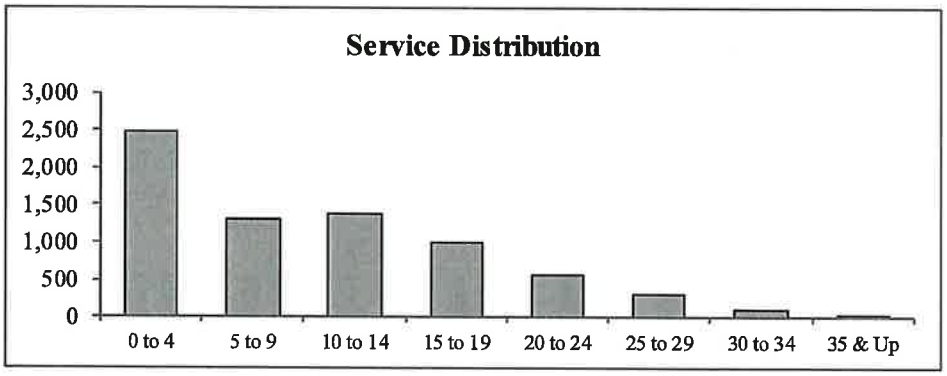
OMAHA SCHOOL EMPLOYEES' RETIREMENT SYSTEM
DISTRIBUTION OF ACTIVE MEMBERS

as of January 1, 2019

Total

	Service								
Age	0 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 to 34	35 & Up	Total
Under 25	203	1	0	0	0	0	0	0	204
25 to 29	683	95	0	0	0	0	0	0	778
30 to 34	397	340	83	0	0	0	0	0	820
35 to 39	272	210	397	55	1	0	0	0	935
40 to 44	214	120	206	278	37	0	0	0	855
45 to 49	171	125	174	190	164	30	0	0	854
50 to 54	146	132	146	143	144	114	20	0	845
55 to 59	148	105	172	147	98	79	50	10	809
60 to 64	154	117	139	111	93	52	18	14	698
65 & Up	82	54	73	72	38	33	14	13	379
Total	2,470	1,299	1,390	996	575	308	102	37	7,177





OMAHA SCHOOL EMPLOYEES' RETIREMENT SYSTEM
SALARY DISTRIBUTION OF ACTIVE MEMBERS

as of January 1, 2019

Total

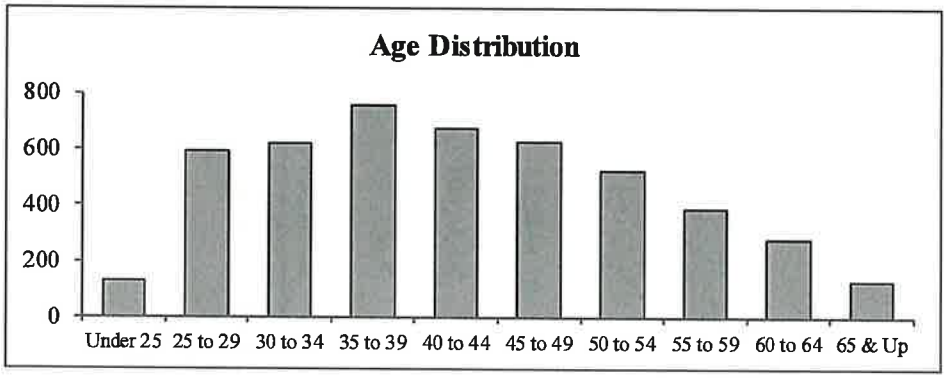
	Service								
Age	0 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 to 34	35 & Up	Total
Under 25	6,968,715	16,058	0	0	0	0	0	0	6,984,773
25 to 29	26,816,162	4,070,955	0	0	0	0	0	0	30,887,117
30 to 34	15,987,211	15,791,047	4,098,654	0	0	0	0	0	35,876,912
35 to 39	10,960,597	9,942,506	21,858,225	3,364,162	45,032	0	0	0	46,170,522
40 to 44	8,524,460	5,894,167	11,306,209	17,550,866	2,481,597	0	0	0	45,757,299
45 to 49	6,791,557	5,430,408	8,664,608	11,704,570	11,525,999	2,415,568	0	0	46,532,710
50 to 54	5,400,517	5,375,327	6,701,808	7,638,275	8,925,978	8,396,460	1,450,623	0	43,888,988
55 to 59	5,012,504	3,917,001	7,283,569	6,759,075	5,032,964	5,260,981	3,768,381	682,022	37,716,497
60 to 64	5,531,278	4,359,210	5,338,172	5,326,802	4,367,265	2,696,851	1,201,200	879,418	29,700,196
65 & Up	2,845,347	2,032,734	2,579,209	3,147,664	1,827,950	1,428,654	842,701	1,249,344	15,953,603
Total	94,838,348	56,829,413	67,830,454	55,491,414	34,206,785	20,198,514	7,262,905	2,810,784	339,468,617

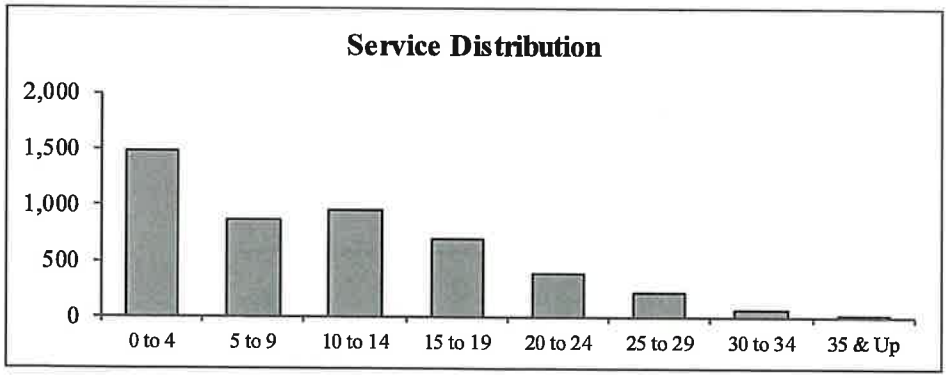
OMAHA SCHOOL EMPLOYEES' RETIREMENT SYSTEM
DISTRIBUTION OF ACTIVE MEMBERS

as of January 1, 2019

Certificated - Total

	Service								
Age	0 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 to 34	35 & Up	Total
Under 25	130	0	0	0	0	0	0	0	130
25 to 29	517	75	0	0	0	0	0	0	592
30 to 34	272	284	65	0	0	0	0	0	621
35 to 39	172	178	360	45	0	0	0	0	755
40 to 44	121	91	180	254	30	0	0	0	676
45 to 49	93	77	117	161	150	28	0	0	626
50 to 54	63	65	78	87	111	104	17	0	525
55 to 59	44	38	82	71	46	59	43	5	388
60 to 64	50	38	55	62	39	22	10	7	283
65 & Up	24	20	17	25	17	11	9	10	133
Total	1,486	866	954	705	393	224	79	22	4,729





OMAHA SCHOOL EMPLOYEES' RETIREMENT SYSTEM
SALARY DISTRIBUTION OF ACTIVE MEMBERS

as of January 1, 2019

Certificated - Total

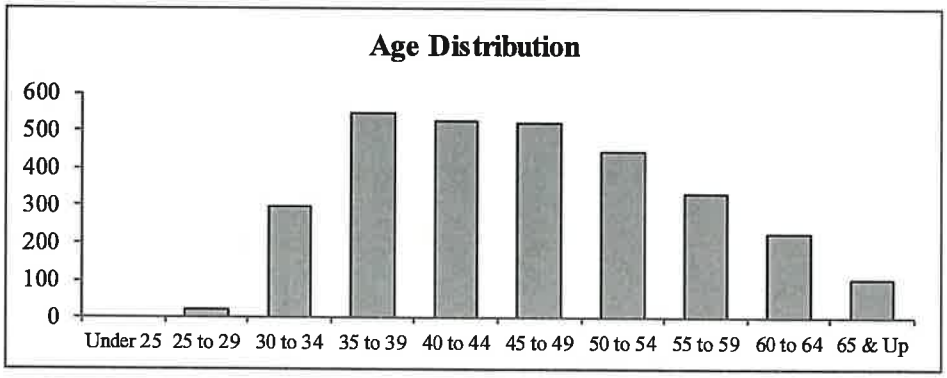
	Service								
Age	0 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 to 34	35 & Up	Total
Under 25	5,441,624	0	0	0	0	0	0	0	5,441,624
25 to 29	23,289,643	3,614,608	0	0	0	0	0	0	26,904,251
30 to 34	13,193,691	14,277,976	3,558,402	0	0	0	0	0	31,030,069
35 to 39	8,628,900	9,038,149	20,890,222	3,058,985	0	0	0	0	41,616,256
40 to 44	6,473,781	5,070,047	10,554,739	16,791,601	2,160,856	0	0	0	41,051,024
45 to 49	4,940,403	4,163,130	7,026,733	10,763,715	11,038,357	2,316,535	0	0	40,248,873
50 to 54	3,329,645	3,506,817	4,549,115	5,827,714	7,634,066	8,015,457	1,297,061	0	34,159,875
55 to 59	2,553,396	2,020,288	4,619,335	4,609,991	3,074,468	4,414,124	3,425,838	417,653	25,135,093
60 to 64	3,044,666	2,232,533	3,154,312	3,915,637	2,633,774	1,575,552	750,542	579,032	17,886,048
65 & Up	1,479,920	1,185,734	1,106,797	1,744,609	1,118,336	796,680	657,590	1,153,376	9,243,042
Total	72,375,669	45,109,282	55,459,655	46,712,252	27,659,857	17,118,348	6,131,031	2,150,061	272,716,155

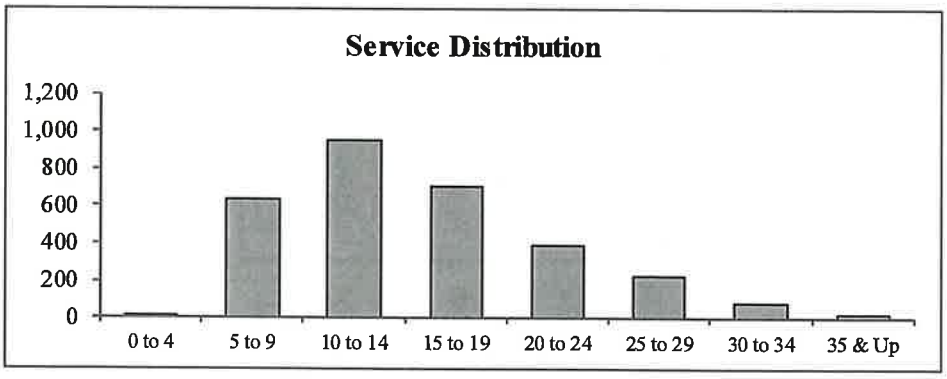
OMAHA SCHOOL EMPLOYEES' RETIREMENT SYSTEM
DISTRIBUTION OF ACTIVE MEMBERS

as of January 1, 2019

Certificated - Tier 1

	Service								
Age	0 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 to 34	35 & Up	Total
Under 25	0	0	0	0	0	0	0	0	0
25 to 29	2	21	0	0	0	0	0	0	23
30 to 34	2	228	65	0	0	0	0	0	295
35 to 39	1	141	360	45	0	0	0	0	547
40 to 44	0	63	180	254	30	0	0	0	527
45 to 49	0	66	117	161	150	28	0	0	522
50 to 54	0	50	78	87	111	104	17	0	447
55 to 59	0	27	82	71	46	59	43	5	333
60 to 64	0	28	55	62	39	22	10	7	223
65 & Up	0	15	17	25	17	11	9	10	104
Total	5	639	954	705	393	224	79	22	3,021



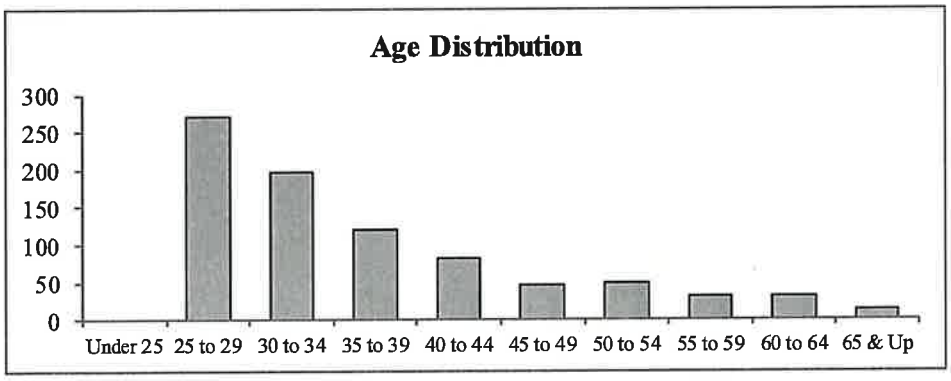


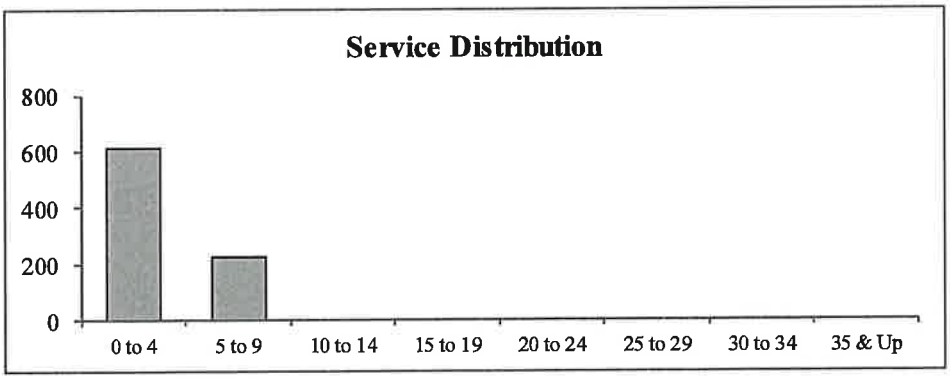
OMAHA SCHOOL EMPLOYEES' RETIREMENT SYSTEM
DISTRIBUTION OF ACTIVE MEMBERS

as of January 1, 2019

Certificated - Tier 2

	Service								
Age	0 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 to 34	35 & Up	Total
Under 25	0	0	0	0	0	0	0	0	0
25 to 29	216	54	0	0	0	0	0	0	270
30 to 34	142	56	0	0	0	0	0	0	198
35 to 39	83	37	0	0	0	0	0	0	120
40 to 44	54	28	0	0	0	0	0	0	82
45 to 49	35	11	0	0	0	0	0	0	46
50 to 54	35	15	0	0	0	0	0	0	50
55 to 59	20	11	0	0	0	0	0	0	31
60 to 64	21	10	0	0	0	0	0	0	31
65 & Up	9	5	0	0	0	0	0	0	14
Total	615	227	0	0	0	0	0	0	842



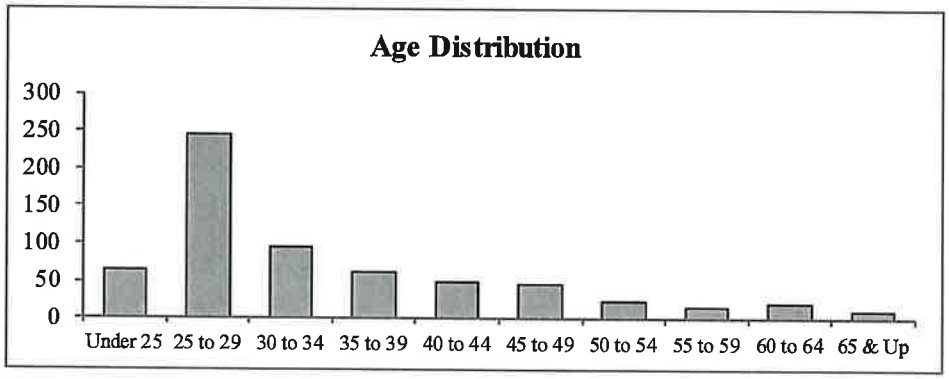


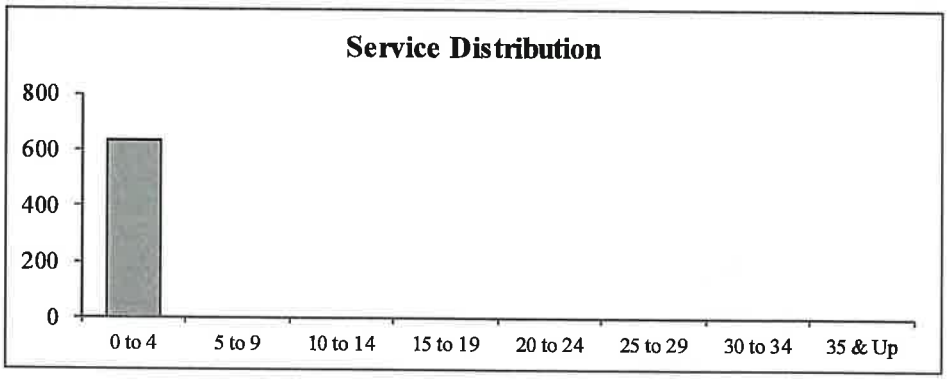
OMAHA SCHOOL EMPLOYEES' RETIREMENT SYSTEM
DISTRIBUTION OF ACTIVE MEMBERS

as of January 1, 2019

Certificated - Tier 3

	Service								
Age	0 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 to 34	35 & Up	Total
Under 25	64	0	0	0	0	0	0	0	64
25 to 29	246	0	0	0	0	0	0	0	246
30 to 34	96	0	0	0	0	0	0	0	96
35 to 39	61	0	0	0	0	0	0	0	61
40 to 44	49	0	0	0	0	0	0	0	49
45 to 49	46	0	0	0	0	0	0	0	46
50 to 54	23	0	0	0	0	0	0	0	23
55 to 59	17	0	0	0	0	0	0	0	17
60 to 64	21	0	0	0	0	0	0	0	21
65 & Up	10	0	0	0	0	0	0	0	10
Total	633	0	0	0	0	0	0	0	633



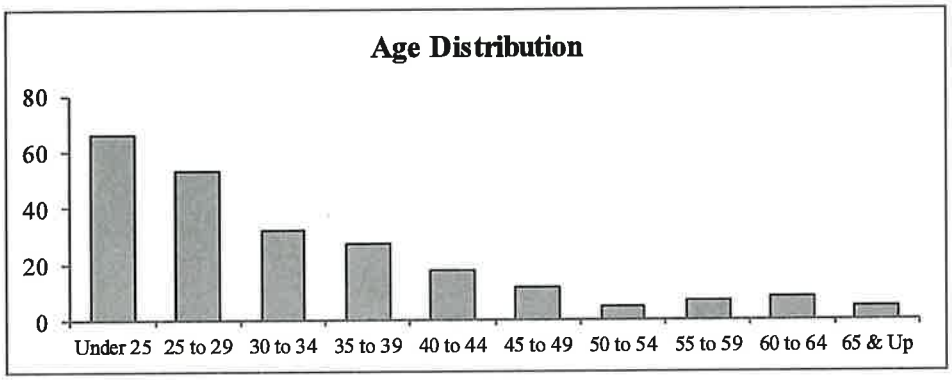


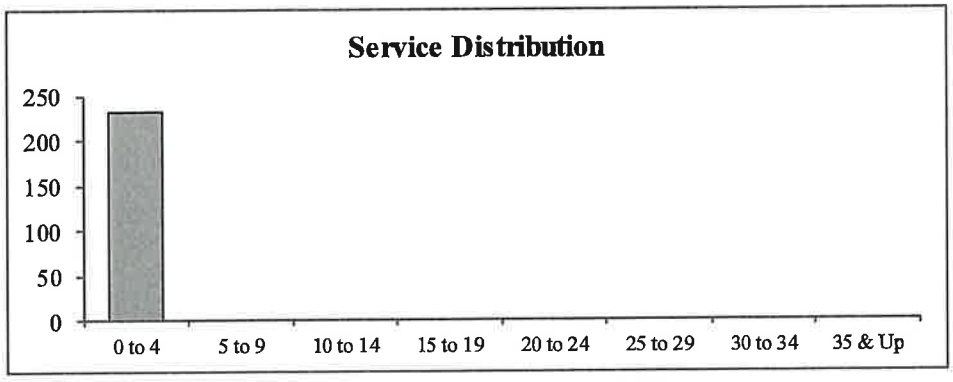
OMAHA SCHOOL EMPLOYEES' RETIREMENT SYSTEM
DISTRIBUTION OF ACTIVE MEMBERS

as of January 1, 2019

Certificated - Tier 4

	Service								
Age	0 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 to 34	35 & Up	Total
Under 25	66	0	0	0	0	0	0	0	66
25 to 29	53	0	0	0	0	0	0	0	53
30 to 34	32	0	0	0	0	0	0	0	32
35 to 39	27	0	0	0	0	0	0	0	27
40 to 44	18	0	0	0	0	0	0	0	18
45 to 49	12	0	0	0	0	0	0	0	12
50 to 54	5	0	0	0	0	0	0	0	5
55 to 59	7	0	0	0	0	0	0	0	7
60 to 64	8	0	0	0	0	0	0	0	8
65 & Up	5	0	0	0	0	0	0	0	5
Total	233	0	0	0	0	0	0	0	233



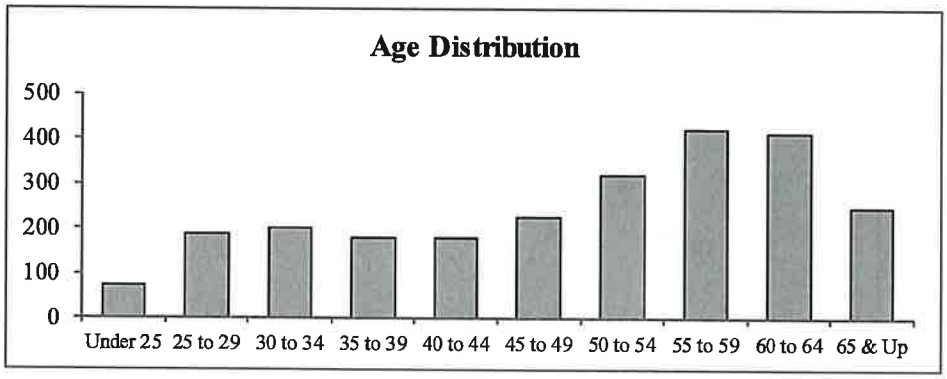


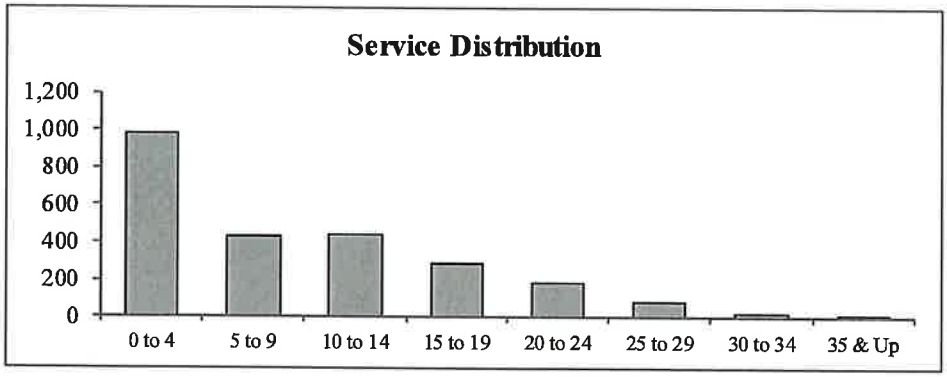
OMAHA SCHOOL EMPLOYEES' RETIREMENT SYSTEM
DISTRIBUTION OF ACTIVE MEMBERS

as of January 1, 2019

Classified - Total

	Service								
Age	0 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 to 34	35 & Up	Total
Under 25	73	1	0	0	0	0	0	0	74
25 to 29	166	20	0	0	0	0	0	0	186
30 to 34	125	56	18	0	0	0	0	0	199
35 to 39	100	32	37	10	1	0	0	0	180
40 to 44	93	29	26	24	7	0	0	0	179
45 to 49	78	48	57	29	14	2	0	0	228
50 to 54	83	67	68	56	33	10	3	0	320
55 to 59	104	67	90	76	52	20	7	5	421
60 to 64	104	79	84	49	54	30	8	7	415
65 & Up	58	34	56	47	21	22	5	3	246
Total	984	433	436	291	182	84	23	15	2,448





OMAHA SCHOOL EMPLOYEES' RETIREMENT SYSTEM
SALARY DISTRIBUTION OF ACTIVE MEMBERS

as of January 1, 2019

Classified - Total

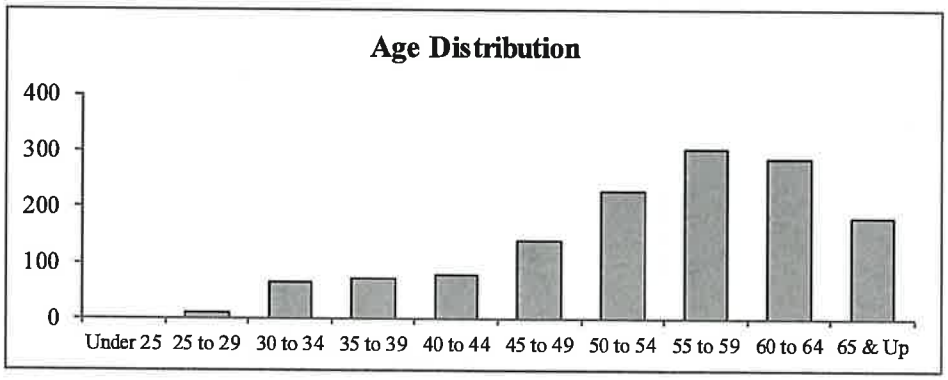
	Service								
Age	0 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 to 34	35 & Up	Total
Under 25	1,527,091	16,058	0	0	0	0	0	0	1,543,149
25 to 29	3,526,519	456,347	0	0	0	0	0	0	3,982,866
30 to 34	2,793,521	1,513,070	540,252	0	0	0	0	0	4,846,843
35 to 39	2,331,698	904,356	968,003	305,177	45,032	0	0	0	4,554,266
40 to 44	2,050,678	824,121	751,470	759,265	320,741	0	0	0	4,706,275
45 to 49	1,851,155	1,267,278	1,637,875	940,854	487,642	99,033	0	0	6,283,837
50 to 54	2,070,871	1,868,510	2,152,693	1,810,562	1,291,912	381,003	153,562	0	9,729,113
55 to 59	2,459,109	1,896,713	2,664,234	2,149,083	1,958,496	846,857	342,543	264,369	12,581,404
60 to 64	2,486,612	2,126,677	2,183,860	1,411,165	1,733,491	1,121,299	450,658	300,386	11,814,148
65 & Up	1,365,427	847,000	1,472,412	1,403,055	709,614	631,973	185,111	95,969	6,710,561
Total	22,462,681	11,720,130	12,370,799	8,779,161	6,546,928	3,080,165	1,131,874	660,724	66,752,462

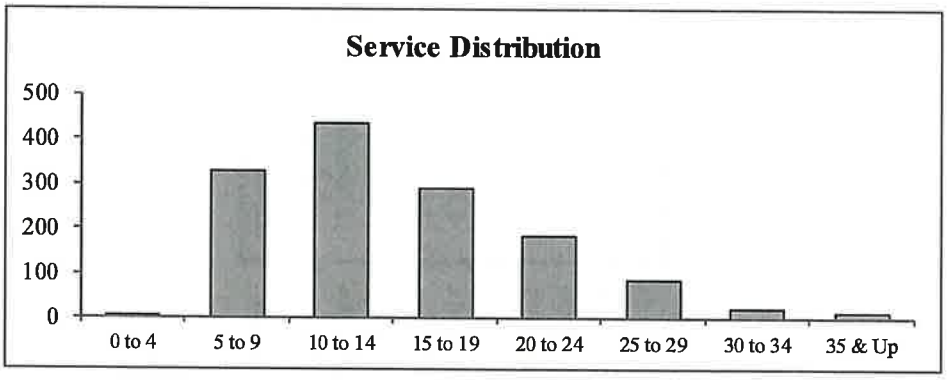
OMAHA SCHOOL EMPLOYEES' RETIREMENT SYSTEM
DISTRIBUTION OF ACTIVE MEMBERS

as of January 1, 2019

Classified - Tier 1

	Service								
Age	0 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 to 34	35 & Up	Total
Under 25	0	0	0	0	0	0	0	0	0
25 to 29	0	12	0	0	0	0	0	0	12
30 to 34	1	45	18	0	0	0	0	0	64
35 to 39	1	24	37	10	1	0	0	0	73
40 to 44	0	23	26	24	7	0	0	0	80
45 to 49	1	36	57	29	14	2	0	0	139
50 to 54	1	56	68	56	33	10	3	0	227
55 to 59	1	51	90	76	52	20	7	5	302
60 to 64	0	53	84	49	54	30	8	7	285
65 & Up	0	27	56	47	21	22	5	3	181
Total	5	327	436	291	182	84	23	15	1,363



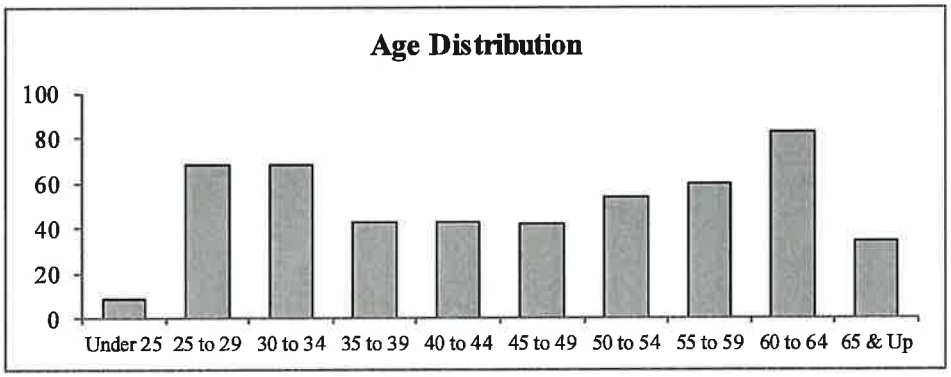


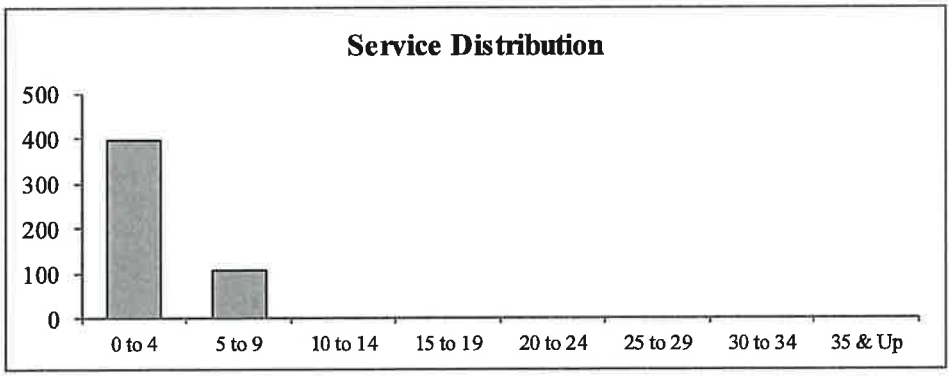
OMAHA SCHOOL EMPLOYEES' RETIREMENT SYSTEM
DISTRIBUTION OF ACTIVE MEMBERS

as of January 1, 2019

Classified - Tier 2

	Service								
Age	0 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 to 34	35 & Up	Total
Under 25	8	1	0	0	0	0	0	0	9
25 to 29	60	8	0	0	0	0	0	0	68
30 to 34	57	11	0	0	0	0	0	0	68
35 to 39	35	8	0	0	0	0	0	0	43
40 to 44	37	6	0	0	0	0	0	0	43
45 to 49	30	12	0	0	0	0	0	0	42
50 to 54	43	11	0	0	0	0	0	0	54
55 to 59	44	16	0	0	0	0	0	0	60
60 to 64	57	26	0	0	0	0	0	0	83
65 & Up	27	7	0	0	0	0	0	0	34
Total	398	106	0	0	0	0	0	0	504



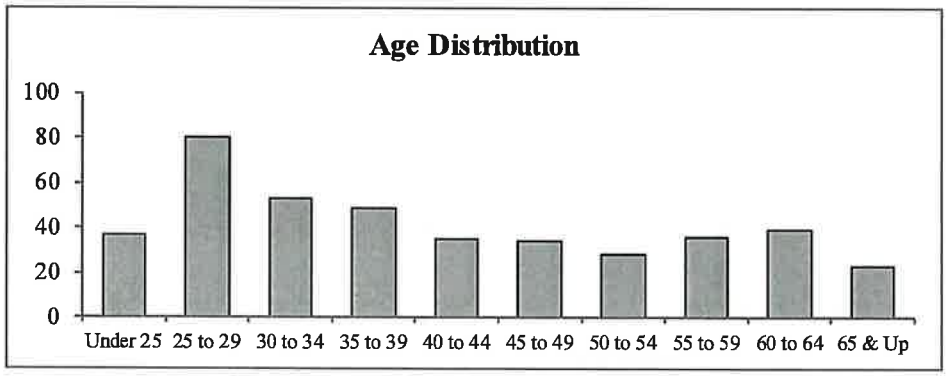


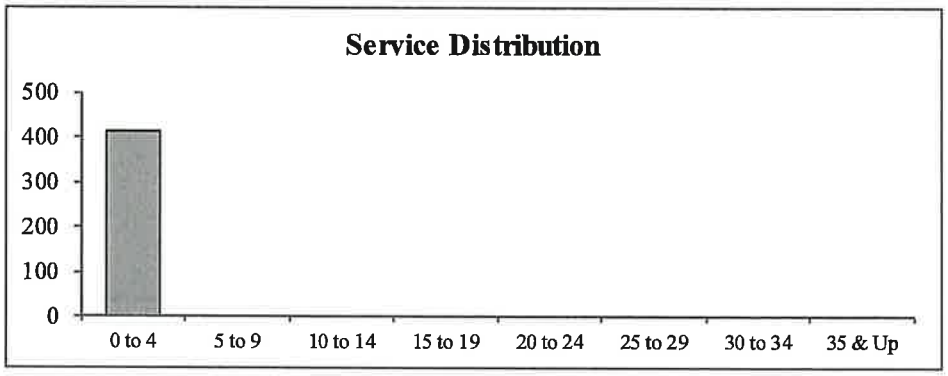
OMAHA SCHOOL EMPLOYEES' RETIREMENT SYSTEM
DISTRIBUTION OF ACTIVE MEMBERS

as of January 1, 2019

Classified - Tier 3

	Service								
Age	0 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 to 34	35 & Up	Total
Under 25	37	0	0	0	0	0	0	0	37
25 to 29	80	0	0	0	0	0	0	0	80
30 to 34	53	0	0	0	0	0	0	0	53
35 to 39	49	0	0	0	0	0	0	0	49
40 to 44	35	0	0	0	0	0	0	0	35
45 to 49	34	0	0	0	0	0	0	0	34
50 to 54	28	0	0	0	0	0	0	0	28
55 to 59	36	0	0	0	0	0	0	0	36
60 to 64	39	0	0	0	0	0	0	0	39
65 & Up	23	0	0	0	0	0	0	0	23
Total	414	0	0	0	0	0	0	0	414



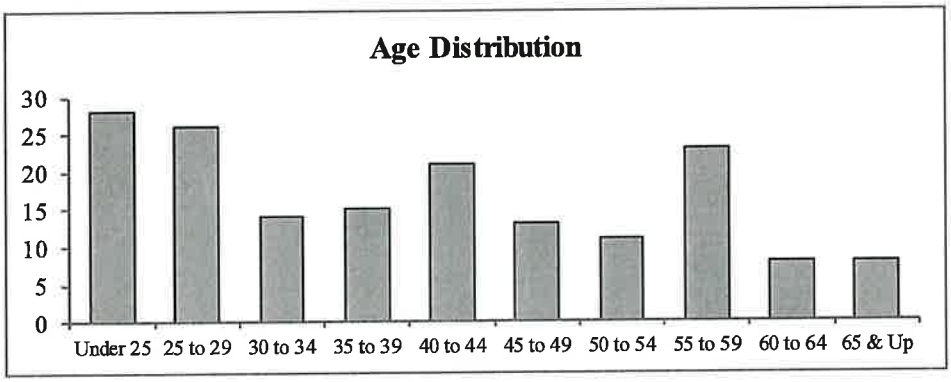


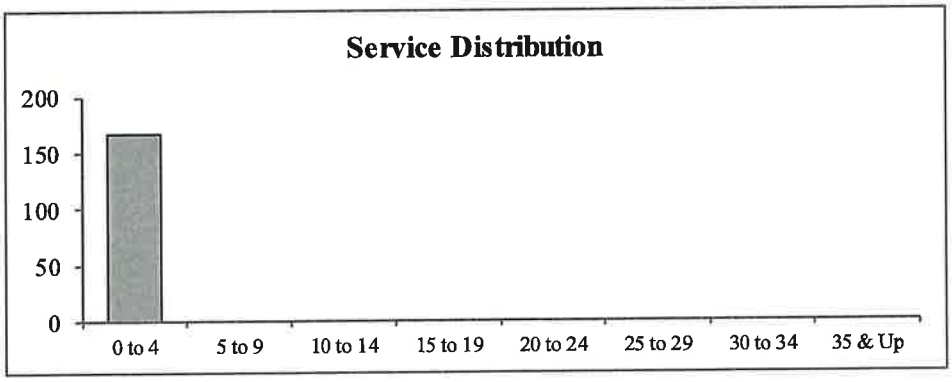
OMAHA SCHOOL EMPLOYEES' RETIREMENT SYSTEM
DISTRIBUTION OF ACTIVE MEMBERS

as of January 1, 2019

Classified - Tier 4

	Service								
Age	0 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 to 34	35 & Up	Total
Under 25	28	0	0	0	0	0	0	0	28
25 to 29	26	0	0	0	0	0	0	0	26
30 to 34	14	0	0	0	0	0	0	0	14
35 to 39	15	0	0	0	0	0	0	0	15
40 to 44	21	0	0	0	0	0	0	0	21
45 to 49	13	0	0	0	0	0	0	0	13
50 to 54	11	0	0	0	0	0	0	0	11
55 to 59	23	0	0	0	0	0	0	0	23
60 to 64	8	0	0	0	0	0	0	0	8
65 & Up	8	0	0	0	0	0	0	0	8
Total	167	0	0	0	0	0	0	0	167



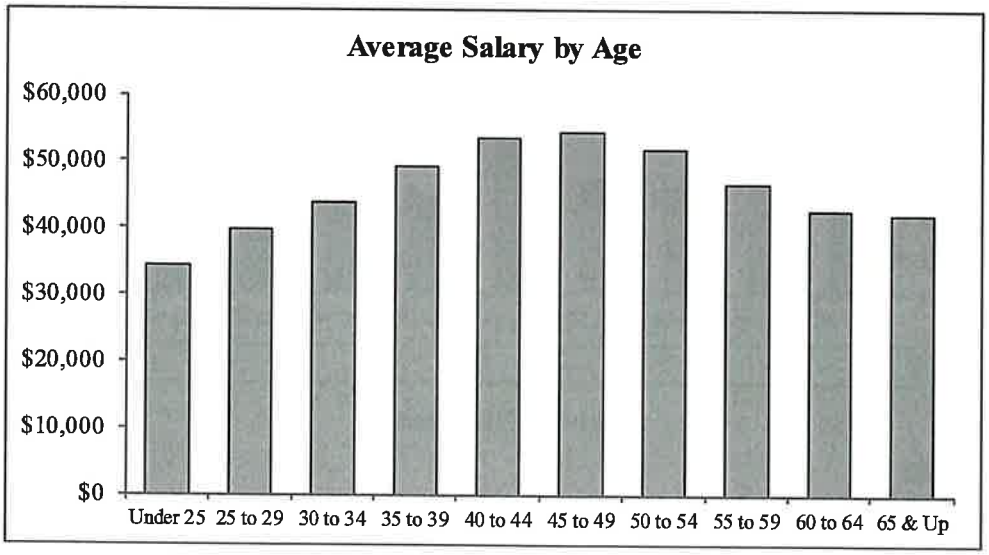


OMAHA SCHOOL EMPLOYEES' RETIREMENT SYSTEM
SUMMARY OF ACTIVE MEMBERS

as of January 1, 2019

Total

Age	Number			Salaries		
	Males	Females	Total	Males	Females	Total
Under 25	46	158	204	$ 1,704,063	$ 5,280,710	$ 6,984,773
25 to 29	157	621	778	6,318,823	24,568,294	30,887,117
30 to 34	206	614	820	8,965,933	26,910,979	35,876,912
35 to 39	254	681	935	12,821,461	33,349,061	46,170,522
40 to 44	226	629	855	12,890,582	32,866,717	45,757,299
45 to 49	209	645	854	12,690,358	33,842,352	46,532,710
50 to 54	209	636	845	11,754,101	32,134,887	43,888,988
55 to 59	230	579	809	11,672,260	26,044,237	37,716,497
60 to 64	200	498	698	9,118,447	20,581,749	29,700,196
65 & Up	141	238	379	6,311,095	9,642,508	15,953,603
Total	1,878	5,299	7,177	$ 94,247,123	$ 245,221,494	$ 339,468,617

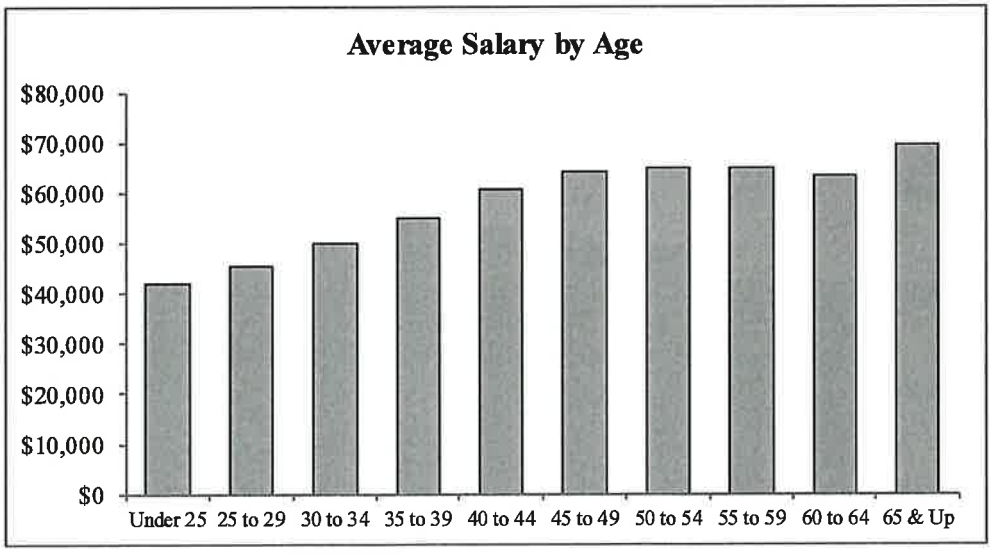


OMAHA SCHOOL EMPLOYEES' RETIREMENT SYSTEM
SUMMARY OF ACTIVE MEMBERS

as of January 1, 2019

Certificated

	Number			Salaries		
Age	Males	Females	Total	Males	Females	Total
Under 25	26	104	130	$ 1,086,269	$ 4,355,355	$ 5,441,624
25 to 29	114	478	592	5,124,211	21,780,040	26,904,251
30 to 34	137	484	621	6,799,789	24,230,280	31,030,069
35 to 39	196	559	755	11,016,180	30,600,076	41,616,256
40 to 44	173	503	676	10,983,809	30,067,215	41,051,024
45 to 49	151	475	626	10,476,540	29,772,333	40,248,873
50 to 54	105	420	525	7,083,525	27,076,350	34,159,875
55 to 59	91	297	388	5,855,547	19,279,546	25,135,093
60 to 64	64	219	283	3,955,395	13,930,653	17,886,048
65 & Up	44	89	133	3,203,928	6,039,114	9,243,042
Total	1,101	3,628	4,729	$ 65,585,193	$ 207,130,962	$ 272,716,155



OMAHA SCHOOL EMPLOYEES' RETIREMENT SYSTEM
SUMMARY OF ACTIVE MEMBERS

as of January 1, 2019

Classified

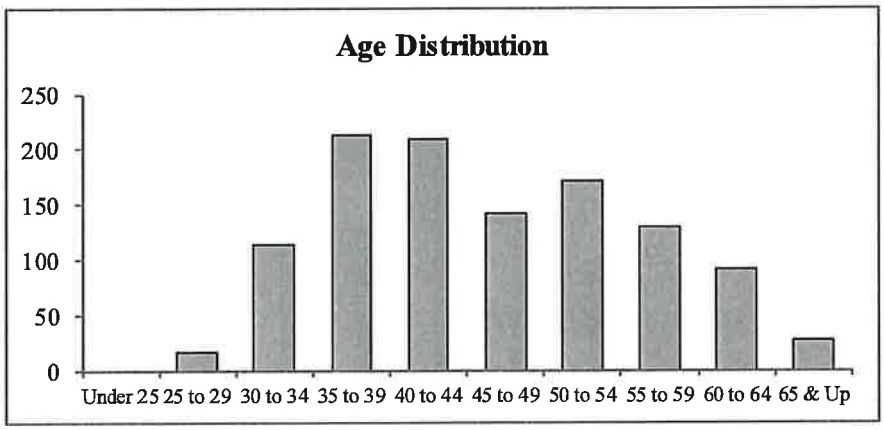
	Number			Salaries		
Age	Males	Females	Total	Males	Females	Total
Under 25	20	54	74	$ 617,794	$ 925,355	$ 1,543,149
25 to 29	43	143	186	1,194,612	2,788,254	3,982,866
30 to 34	69	130	199	2,166,144	2,680,699	4,846,843
35 to 39	58	122	180	1,805,281	2,748,985	4,554,266
40 to 44	53	126	179	1,906,773	2,799,502	4,706,275
45 to 49	58	170	228	2,213,818	4,070,019	6,283,837
50 to 54	104	216	320	4,670,576	5,058,537	9,729,113
55 to 59	139	282	421	5,816,713	6,764,691	12,581,404
60 to 64	136	279	415	5,163,052	6,651,096	11,814,148
65 & Up	97	149	246	3,107,167	3,603,394	6,710,561
Total	777	1,671	2,448	$ 28,661,930	$ 38,090,532	$ 66,752,462

OMAHA SCHOOL EMPLOYEES' RETIREMENT SYSTEM
SUMMARY OF INACTIVE VESTED MEMBERS

as of January 1, 2019

Total

	Number			Monthly Benefit at Unreduced Retirement		
Age	Males	Females	Total	Males	Females	Total
Under 25	0	0	0	$ 0	$ 0	$ 0
25 to 29	4	12	16	1,534	4,449	5,983
30 to 34	26	88	114	12,458	42,796	55,254
35 to 39	43	170	213	28,176	109,065	137,241
40 to 44	49	160	209	38,747	108,148	146,895
45 to 49	24	118	142	24,725	80,653	105,378
50 to 54	42	129	171	41,582	83,147	124,729
55 to 59	20	110	130	19,120	69,902	89,022
60 to 64	14	77	91	9,606	35,339	44,945
65 & Up	4	24	28	2,903	8,929	11,832
Total	226	888	1,114	$ 178,851	$ 542,428	$ 721,279

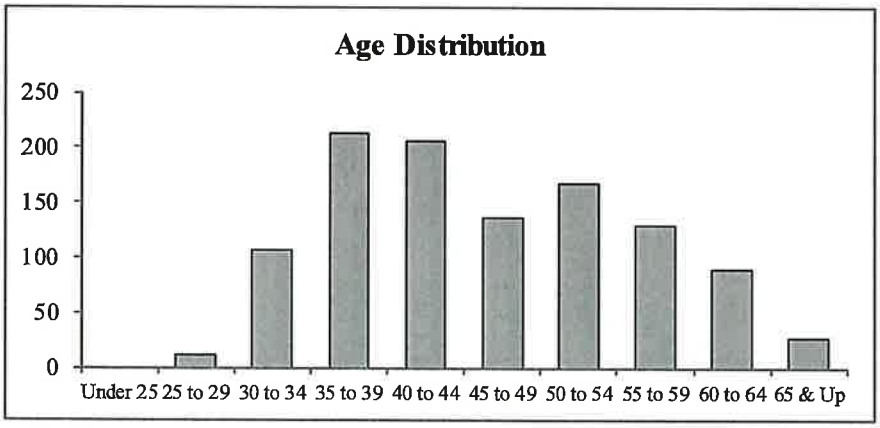


OMAHA SCHOOL EMPLOYEES' RETIREMENT SYSTEM
SUMMARY OF INACTIVE VESTED MEMBERS

as of January 1, 2019

Tier 1

	Number			Monthly Benefit at Unreduced Retirement		
Age	Males	Females	Total	Males	Females	Total
Under 25	0	0	0	$ 0	$ 0	$ 0
25 to 29	2	10	12	870	3,681	4,551
30 to 34	25	82	107	12,040	40,776	52,816
35 to 39	43	170	213	28,176	109,065	137,241
40 to 44	49	157	206	38,747	107,008	145,755
45 to 49	24	112	136	24,725	78,871	103,596
50 to 54	41	127	168	40,997	82,718	123,715
55 to 59	20	110	130	19,120	69,902	89,022
60 to 64	13	77	90	7,214	35,339	42,553
65 & Up	3	24	27	2,542	8,929	11,471
Total	220	869	1,089	$ 174,431	$ 536,289	$ 710,720

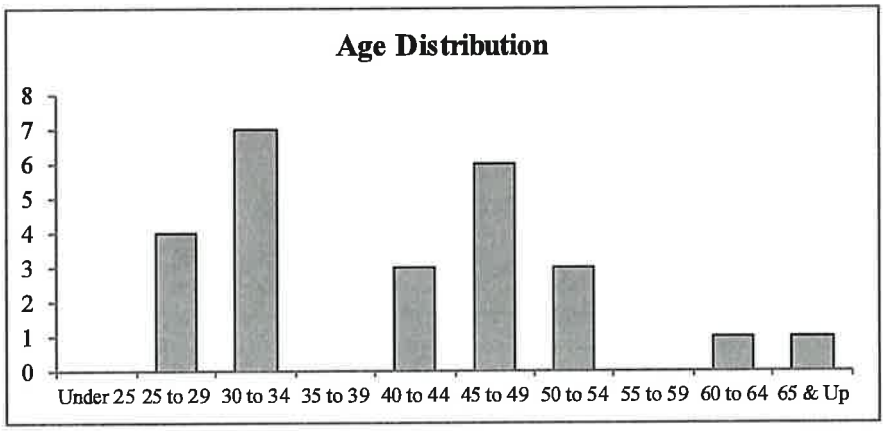


OMAHA SCHOOL EMPLOYEES' RETIREMENT SYSTEM
SUMMARY OF INACTIVE VESTED MEMBERS

as of January 1, 2019

Tier 2

	Number			Monthly Benefit at Unreduced Retirement		
Age	Males	Females	Total	Males	Females	Total
Under 25	0	0	0	$ 0	$ 0	$ 0
25 to 29	2	2	4	664	768	1,432
30 to 34	1	6	7	418	2,020	2,438
35 to 39	0	0	0	0	0	0
40 to 44	0	3	3	0	1,140	1,140
45 to 49	0	6	6	0	1,782	1,782
50 to 54	1	2	3	585	429	1,014
55 to 59	0	0	0	0	0	0
60 to 64	1	0	1	2,392	0	2,392
65 & Up	1	0	1	361	0	361
Total	6	19	25	$ 4,420	$ 6,139	$ 10,559

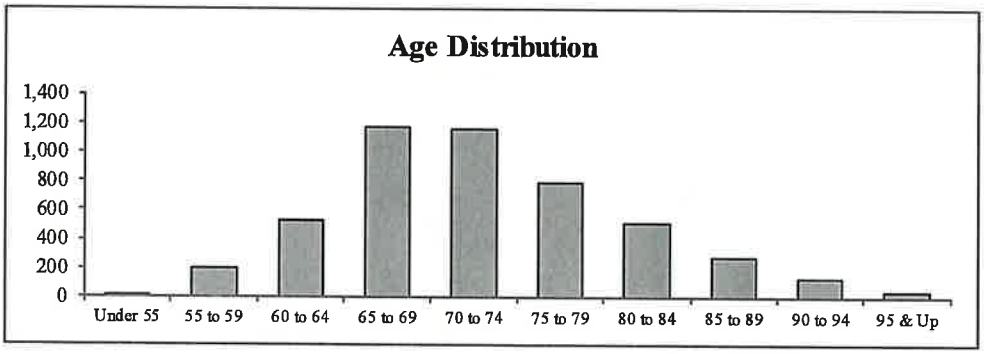


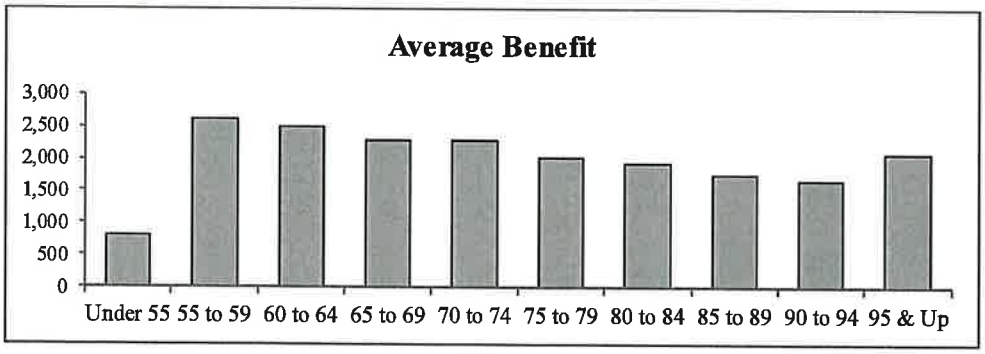
OMAHA SCHOOL EMPLOYEES' RETIREMENT SYSTEM
SUMMARY OF RETIREES, BENEFICIARIES AND DISABLED MEMBERS

as of January 1, 2019

Total

Age	Number			Total Monthly Benefit		
	Males	Females	Total	Males	Females	Total
Under 55	4	13	17	$ 1,629	$ 12,067	$ 13,696
55 to 59	55	148	203	132,685	395,397	528,082
60 to 64	122	402	524	295,655	1,006,565	1,302,220
65 to 69	290	883	1,173	728,473	1,930,190	2,658,663
70 to 74	349	810	1,159	865,165	1,767,736	2,632,901
75 to 79	259	531	790	627,982	966,959	1,594,941
80 to 84	161	357	518	344,505	650,629	995,134
85 to 89	67	210	277	148,357	335,696	484,053
90 to 94	28	99	127	65,251	144,822	210,073
95 & Up	8	30	38	17,226	61,184	78,410
Total	1,343	3,483	4,826	$3,226,928	$7,271,245	$10,498,173



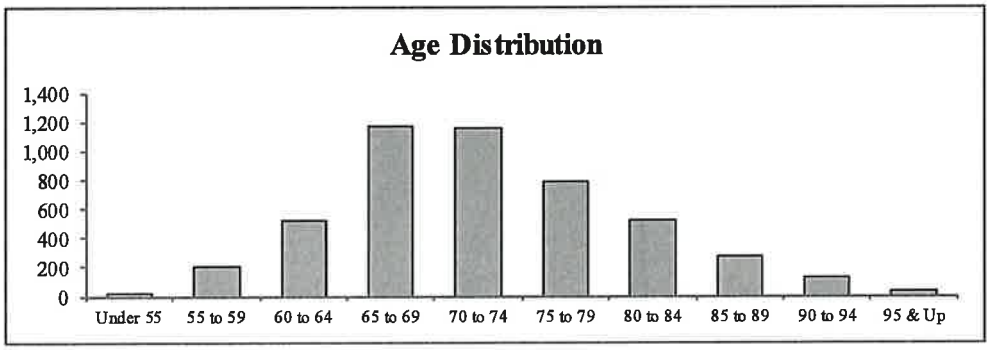


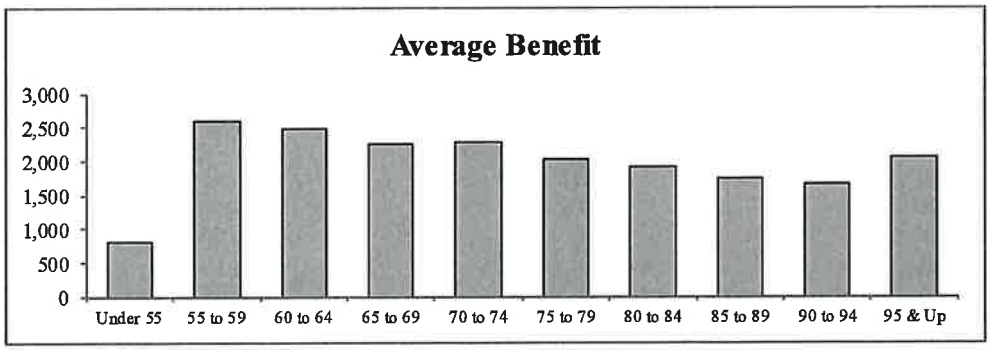
OMAHA SCHOOL EMPLOYEES' RETIREMENT SYSTEM
SUMMARY OF RETIREES, BENEFICIARIES AND DISABLED MEMBERS

as of January 1, 2019

Tier 1

	Number			Total Monthly Benefit		
Age	Males	Females	Total	Males	Females	Total
Under 55	4	13	17	$ 1,629	$ 12,067	$ 13,696
55 to 59	55	148	203	132,685	395,397	528,082
60 to 64	122	402	524	295,655	1,006,565	1,302,220
65 to 69	290	881	1,171	728,473	1,923,774	2,652,247
70 to 74	349	810	1,159	865,165	1,767,736	2,632,901
75 to 79	259	531	790	627,982	966,959	1,594,941
80 to 84	161	357	518	344,505	650,629	995,134
85 to 89	67	210	277	148,357	335,696	484,053
90 to 94	28	99	127	65,251	144,822	210,073
95 & Up	8	30	38	17,226	61,184	78,410
Total	1,343	3,481	4,824	$3,226,928	$7,264,829	$10,491,757



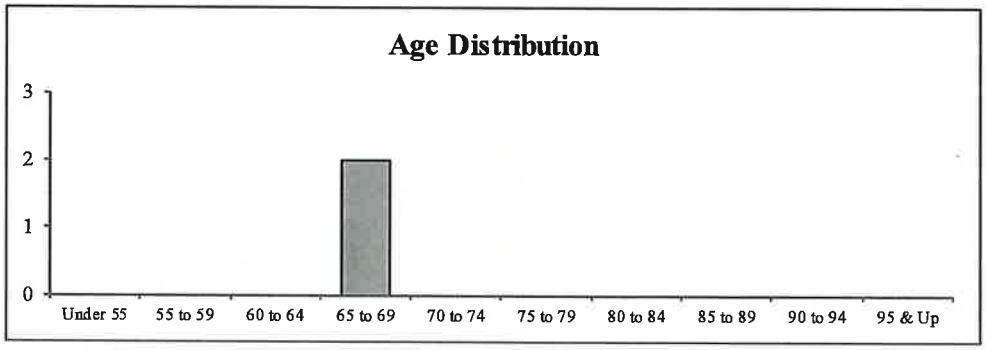


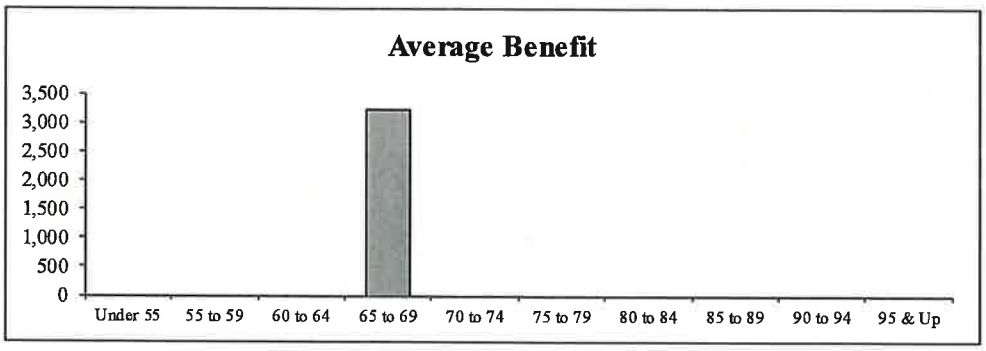
OMAHA SCHOOL EMPLOYEES' RETIREMENT SYSTEM
SUMMARY OF RETIREES, BENEFICIARIES AND DISABLED MEMBERS

as of January 1, 2019

Tier 2

	Number			Total Monthly Benefit		
Age	Males	Females	Total	Males	Females	Total
Under 55	0	0	0	$ 0	$ 0	$ 0
55 to 59	0	0	0	0	0	0
60 to 64	0	0	0	0	0	0
65 to 69	0	2	2	0	6,416	6,416
70 to 74	0	0	0	0	0	0
75 to 79	0	0	0	0	0	0
80 to 84	0	0	0	0	0	0
85 to 89	0	0	0	0	0	0
90 to 94	0	0	0	0	0	0
95 & Up	0	0	0	0	0	0
Total	0	2	2	$ 0	$6,416	$6,416





Appendix H

November 19, 2019
Retirement Committee
Hearing Transcript

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KATE ALLEN: It started at .7.

KOLTERMAN: -- or .7 going back to-- was that in the '90s? And then it's gradually moved up. But it's all in statute. It's-- and-- and that's-- that's accounted for separately.

CLEMENTS: OK. Um-hum.

KOLTERMAN: We also do the 2 percent for Omaha Public Schools, which you see in the report.

CLEMENTS: All right. That explains the difference between those two.

KOLTERMAN: Yeah.

CLEMENTS: Thank you.

PATRICE BECKHAM: You're welcome.

KOLTERMAN: Having-- seeing no other questions, Pat, thank you.

PATRICE BECKHAM: You're welcome.

KOLTERMAN: I assume you're going to stick around for the rest of the afternoon.

PATRICE BECKHAM: Absolutely. Yeah. Thank you, Senator.

KOLTERMAN: Thank you very much. So with that, LR66 will be closed, and we're going to move into LR65. Before we get started on LR65, I want to read a little bit of background of why we do what we do here so everybody has an understanding. In 2014, LB759 was enacted to re-- to require reporting by political subdivisions with defined benefit plans in order to provide oversight to these entities by the Nebraska Public Employees Retirement Committee. The bill was codified as-- as statute 13-2402, and it requires any governing entity that offers a defined benefit plan which was open to new employees on January of 2004 to file a report with the Nebraska Retirement System Committee if the most recent actuarial valuation report indicates that the contribution-- the contributions do not equal the actuarial requirement for funding or two, the funded ratio of the plan is less than 80 percent. The report must include a minimum-- at minimum, an analysis of the future benefit changes, contribution changes, or other proposed corrective action to improve the plan's funding conditions. So that's why we're here today. These-- these reports are required by

October 15 of each year. We've accumulated all of the reports; you'll be hearing from the people today. And the order in which we will take these is we're going to start out with Metro Transit Hourly. Then we're going to move to OPPD, OPS presenting the OSERS plan, the Omaha civilian plan, Omaha Police and Fire, Douglas County's plan, and then East Nebraska-- Eastern Nebraska Human Services Agency. That's the order that we'll follow. I don't think we published that, but we're going to start in that order. So at this time, I would ask that Metro Transit Hourly please come forward and make their presentation.

CURT SIMON: Good afternoon, my name is Curt Simon, C-u-r-t S-i-m-o-n. I'm the executive director at Metro Transit here to report on our actuarial study, which was completed January 1 of this year. The report was provided prior to Kate as well as the actuarial study. I'll be working off the report itself if you have this report there. I'll be working off of this and referring to this. The funding status dropped rather dramatically in this last year, primarily as a result of the poor fourth-quarter earnings that many pension plans and many of us individually succumbed to. The assumed rate of return on this particular plan is 6.75 percent and has been such since 2016 when we took it downward from 7. And there was a point in time when it was a 7.5 prior to that. The contribution rate is split between the employee and the employer. The plan represents about 200 active members and about 426 liability members that are on the plan. We are currently in labor contract negotiations, and it looks very favorable that we'll be increasing the contribution rate by at least .5 percent going forward into 2020, effective January 1 of 2020. Other than that, there have been not very-- been very many changes to the plan since the last time I was in front of this committee. The only changes that we made was one-- one was due to the fact that this is a very mature plan. For example, the average participant in this plan is 53.9 years of age. We did change some asset allocation to try and reduce some of the volatility to the plan by moving some-- some assets out of equities and into the fixed account in order to reduce some of that-- that volatility. The contribution rates, as I mentioned before, as you will see, they've increased over time. They've increased 2 percent back in 2018, and they'll keep going up from there. I don't have any pages out of my actuarial report to refer to for you, just a couple other things of note. A few years ago, and this is reflected on the second page, we changed the method of which we invested to go to the index funds, and rather dramatically decreased the amount of expenses that we pay. For example, it dropped from 71 basis points to about 9. And it's-- it's--

has seemed to be working very well. We did that in conference with a pension. Our pension analyst that took us through that, it's their job, but again, I don't know, you probably should know Mr. Maginn, who was very helpful in helping us shape those investments in those index funds.

KOLTERMAN: So are there any questions? I have-- I just have a couple questions.

CURT SIMON: Sure.

KOLTERMAN: In the past, you've increased your actuarial required contribution. Since 2014, you moved from 84 percent paying to-- up to 102 last year. What do you anticipate that to be this year?

CURT SIMON: I don't really know what it's going to be this year. It'll probably be around the same ratio as it was last-- last year.

KOLTERMAN: So your-- your-- your intent is to make the ARC payment--

CURT SIMON: Yes.

KOLTERMAN: -- as you have the last couple years?

CURT SIMON: That's correct.

KOLTERMAN: And then you've gone from 77 percent funded to 67 percent funded. How do you plan to turn that around?

CURT SIMON: Well, as of September of this year, it already gained back 12 percent of the loss that it had. This is a calendar year. So this is out-- at the end of 2018, for example, as opposed to the middle of July. It would look more favorably if it was a fiscal plan that ended June 30. But as of September report, September 30 report, it had already gained back 12-- 12 percent, so.

KOLTERMAN: OK.

CURT SIMON: Hopefully we don't have a fourth quarter like we had last year.

KOLTERMAN: We don't have much time left.

CURT SIMON: We don't.

KOLTERMAN: Any-- any questions? Senator Stinner, do you have any questions?

STINNER: I do not. I had to think which phone I could use. I do not have any question.

KOLTERMAN: Thank you. All right. Hearing none, appreciate it.

CURT SIMON: Thank you.

KOLTERMAN: Now we'll move to OPPD, Omaha Public Power District.

LUIS JAVIER FERNANDEZ: Good afternoon, Senators. My name is Luis Javier Fernandez, L-u-i-s J-a-v-i-e-r F-e-r-n-a-n-d-e-z, and I'm the chief financial officer with the Omaha Public Power District. I'm here to present the status of the pension plan for OPPD as of 2019. Our funded ratio, which is probably the one-- one number that we'll focus on, it went down from 70 percent to 67.8 percent. And the reason for that is one-- well, actually there's two reasons for that. One is the one that the previous speaker talked about, was the 2018 returns on the market, the-- that catastrophic fourth quarter of 2018. But probably the biggest reason for this is one that-- it's bittersweet where our employees and our retirees are living longer. And we had a-- the actuary recommended an update on the mortality table to better reflect really what our true liabilities are. So bad news for the plan because obviously dropping brings the funding down lower. But it's all good news because we're all really reflective of the expected longevity of our retirees and our active employees. So those two factors are really what brought the funding down. Very proud to report that we have made 100 percent of the required contribution every single year and we plan to do so again. Our required contribution increased by $5.6 million this year. And we have already made budget adjustments to make that additional contribution in 2019, and have included the additional contributions in 2020 to again continue to fund 100 percent of the required contribution. In 2017 we negotiated with our unions an-- an agreement where our employee contributions are increasing from 6 percent all the way to 9 percent by 2022. We're-- we're in a-- in a ramp-up phase. Right now we're at 7.2 percent in 2019. That's going to go up to 7.8 percent in 2020, 8.3 percent in 2021, all the way to 9 percent in 2022. So our own employees are-- the employees are contributing more to the plan. And we are also, at the same time, increasing our required contribution. So all-- again, in-- in-- in-- in an-- in an effort to continue to fund our 100 percent of

the required contribution. We have-- as of January 1, we have 40--4,476 participants. About 2,200 of them are retirees and beneficiaries. About 500 of them are-- are separate and invested. And we have about 1,800 active employees in the plant. That's-- everything else is part of the-- part of the report. I would be happy to answer any questions you may have.

KOLTERMAN: Are there any questions? Senator Stinner, any questions?

STINNER: I'm still working, Mark, and I do not have questions.

KOLTERMAN: Thank you. I would like to compliment you on the fact that you have been proactive. We get your reports and you are paying ahead and you're increasing your contributions, making an effort. But the fact remains you're still going in the wrong direction.

LUIS JAVIER FERNANDEZ: That's right.

KOLTERMAN: And so we'd like to encourage you to continue to try and figure out how you can turn that around. Obviously, you're still away from 80 percent. So we'd like to see that change, but--

LUIS JAVIER FERNANDEZ: We'll continue to do our best. The-- one-- one-- one other thing that I failed to report, and I mentioned this last year. As you all may or may not know, we have a large nuclear decommissioning project going on. We took-- our board decided to decommission our focus on nuclear station by 2016. We established a decommissioning and benefits reserve account at OPPD, and we started funding that two years ago where we're setting aside money whenever we have a relatively positive financial year. We have been setting aside monies to-- that can only be used to either boost funding for our decommissioning project or benefits. We-- we-- we are making a lot of really good progress on the decommissioning of-- of-- of the nuclear station. Really, it's going really well, on budget, on schedule. As work continues progressing on the decommissioning, the risk of funding on decommissioning projects will go down. And then our board may have an opportunity then to use the additional-- currently we have about $77 million sitting in that account. That could be used then to give a boost to the pension fund, hopefully bringing us closer, if not above the 80 percent here in the next few years.

KOLTERMAN: Thank you. That's-- that's important for us to know because, as-- as maybe you do or don't know, several years ago Lincoln-- the city of Lincoln was in that same position. And I believe

they dumped $42 million into their plan, and they're-- they're above the 80 percent mark now.

LUIS JAVIER FERNANDEZ: Right.

KOLTERMAN: So I appreciate knowing that. Thank you very much.

LUIS JAVIER FERNANDEZ: Well, a healthy competition with-- with LES, we'll-- we'll get there.

KOLTERMAN: Yeah. All right. Any other questions? Thank you very much.

LUIS JAVIER FERNANDEZ: Thank you.

KOLTERMAN: Next, we have Dr. Logan from OPS. Welcome.

CHERYL LOGAN: Thank you. Hi, Senator Kolterman. Senator Kolterman and members of the Retirement Committee, my name is Cheryl Logan, C-h-e-r-y-l L-o-g-a-n, superintendent of Omaha Public Schools. We are-- we continue to be a growing district. We now serve over 54,000 students. In my 18 months as superintendent, I have had the opportunity to work with almost all of you as we continue to do all we can to solidify the Omaha School Employees Retirement System. I want to thank each of you for your support of OSERS. OSERS continues to be a top priority for me and for the Board of Education. As I shared with you a year ago, we have invited OSERS stakeholders to participate in the Better Together coalition. Our coalition includes representatives from the Omaha School Employees Retirement System, OSERS, Omaha Education Association, Nebraska State Education Association, Service Employees International Union, retirees, and the Omaha School Administrators Association. We meet regularly with the help of an outside facilitator, Ms. Linda Richards, to consider options which we hope will strengthen OS-- OSERS. Senator Kolterman has been a guest at our meetings. I'd like to thank him for his continued support and participation in the discussions of the coalition. And we are also thankful that we've been able to utilize-- utilize the services of the system's actuaries to assess the options available to us. I believe it worth noting that as a group, we have coalesced around the shared values of transparency, sacrifice, equity, and integrity. We are committed to sustainability with a focus on providing security for current and our retirees. To those ends, we are hopeful that we'll be able to put forward a number of options for your consideration in the very near future. On my arrival at OPS, one of my first tasks was to deep dive into the district's financial. As a result of that analysis,

I challenged our leadership team to evaluate every dollar we spend at OPS to make sure it is necessary to spend it. I am very proud of the progress we are making in that regard, and I understand this will be an ongoing process. We take seriously our responsibility to be good fiscal stewards of the taxpayer dollar. Sound financial management and fiscal prudence will be essential to our ability to manage both our responsibility to educate 54,000 students and our duty to OSERS. Through our discussions in the Better Together coalition, OPS and the OSERS trustees have agreed to move forward with changes to the amortization schedule. The table will change from a 27-year closed amortization to a 30-year layered table. This change will now align our amortization schedule with the state plans. This fiscal year, OPS paid our additional actuarial required contribution on a timely basis, as is our obligation as a district. OPS and the Board of Education made difficult cuts to the budget to accommodate the growing ARC. The change in the amortization table had the positive effect of lowering the projected ARC payment for this year. Although the ARC was lowered from $23-- $21.3 million to $18.2 million, the district chose to pay the higher amount of $21.2 million rather than the adjusted amount. While the ARC payments have significant impacts on our budget, we understand that it is our duty to pay them. We will continue to work with our stakeholders as the process continues. Thank you for the opportunity to speak with you today. I have a few more data points. The OSERS plan was funded 62.88 percent on January 1 of 2019, a decrease of 1.01 percent from 63.89 funded figure for January 1 of 2018. The number of members in the OSERS plan was 13,788 on January 1, 200-- 2019. That's about 75 more folks than there were in the previous year. The OSERS for actuarial purposes assumes a rate of return of 7.5 percent. The actual rate of return for the valuation January 1, 2019 was 2.9 percent and 4.2 percent for the valuation January 1. The Nebraska Investment Council's capital market assumption for rate of return over the next ten years is 6.2 percent and for 30 years is 6.7 percent. Be happy to take questions.

KOLTERMAN: Thank you, Dr. Logan. Questions? So I just have a couple of questions.

CHERYL LOGAN: Sure.

KOLTERMAN: First of all, thank you for coming. We have worked closely with you.

CHERYL LOGAN: Um-hum.

KOLTERMAN: We dialogue. The report wouldn't think that we're making any progress, but I think we are making progress.

CHERYL LOGAN: Yeah.

KOLTERMAN: So the Better Together coalition, are you coming in with any recommendations or where are you at with your recommendations on how you're going to try and turn it around?

CHERYL LOGAN: We met-- we met yesterday, and we will be meeting again on December 2. And after that meeting, we'll be sending you a recommendation for your consideration.

KOLTERMAN: OK.

CHERYL LOGAN: Yeah.

KOLTERMAN: Thank you.

CHERYL LOGAN: We were-- we were almost ready yesterday. We had one more thing we wanted to look at before we send it to you, probably the evening of December 2.

KOLTERMAN: And you are working with the actuary?

CHERYL LOGAN: Yes, absolutely. [INAUDIBLE]

KOLTERMAN: And one final question, do you-- do you have any-- can you give me any update on-- on where we are on our study from last year that we requested? Is OSERS working with NPERS to--

CHERYL LOGAN: Yes.

KOLTERMAN: --where-- is that study at?

CHERYL LOGAN: Yeah. The study continues to move forward. Ms. Cecelia Carter, who is the executive director for OSERS is here today, works with our staff to gain the information that's needed in a timely manner to get to NPERS so that we can conclude the study. But it's still ongoing.

KOLTERMAN: And I believe it's our intent to have that study ready by June of next--

CHERYL LOGAN: That is correct.

KOLTERMAN: --2020, is that it?

CHERYL LOGAN: Yes, sir. That's correct.

KOLTERMAN: OK. Thank you. Any-- any additional questions? All right.

CHERYL LOGAN: OK. Thank you.

KOLTERMAN: Thank you, Dr. Logan, appreciate you coming.

CHERYL LOGAN: No problem. Thank you.

KOLTERMAN: Omaha-Papillion plan.

BERNARD IN DEN BOSCH: Just pull up a chair.

KOLTERMAN: Yeah, pull that around there.

PATRICE BECKHAM: Person with all the paper. So Patrice Beckham, P-a-t-r-i-c-e B-e-c-k-h-a-m with Cavanaugh Macdonald, a retained actuary for the retirement system.

BERNARD IN DEN BOSCH: Bernard in den Bosch, first name B-e-r-n-a-r-d, last name three words, first word i-n, second word d-e-n , third word B-o-s-c-h, deputy city attorney, and attorney for both pension systems.

PATRICE BECKHAM: So what--

KOLTERMAN: Go ahead.

BERNARD IN DEN BOSCH: Thank you.

PATRICE BECKHAM: What we intended, Chairman Kolterman, was to kind of walk through the presentation that you have in front of you. It's a lot of moving parts and some things that are different for the city of Omaha plan. So it's a little easier to put together a presentation then to walk you through the valuation report. So I will kick that off, and Bernard has promised to answer all the hard questions. So we'll move forward. So page 2, just a little bit about the Omaha

Employees Retirement System and, again, some of the unique features. So the the city ordinance requires substantially equal commitments for pension costs, so kind of a 50-50 general split. And I know at times, over the years, I've heard conversations, and people say, well, why doesn't the city just fund it? Well, by ordinance, the city can't just put money in because it's supposed to be substantially equal. So the members either have to contribute or the benefits have to be cut. So there's that-- always that kind of framework that we have to work within. The second part is, it's somewhat unique, is that the benefit provisions and the contribution rates are set in the-- in the labor contracts. So when we walk through the issue, we'll see-- and again, I think this is a little bit-- certainly different than the State Retirement System with some-- probably different than a lot of systems where the-- the actuarial rate is contributed each year even if it requires an additional contribution by the employer. Here the rates are set. And so you'll hear us talk about a contribution shortfall which means that the amounts that are scheduled to be contributed in the bargaining agreements are less than what the actuarial rate is in the 2019 valuation. We've had years where it's been more than the actuarial rate. And that's sort of the nature of the beast, the way when you're funding with kind of that fixed contribution rate. The employees-- the-- the civilian employees are covered by Social Security. I think it's worth noting that their contribution to this plan is 10.075 percent of pay, which is quite a bit higher. Again, if you go to that NASRA Public Fund survey, you know, the median most common employee contribution is about 6 percent. So this is considerably higher, and if you add Social Security to that, you know, it's over 16 percent of pay for a retirement benefit. On page 3--

KOLTERMAN: Before--

PATRICE BECKHAM: Yep.

KOLTERMAN: --before you go there-- could somebody grab the door for me, please? Before you go there, Ms. Beckham, the city ordinance requires 50-50. Is that part of the charter that you--

BERNARD IN DEN BOSCH: Yes.

KOLTERMAN: --is that the charter that we keep hearing about, doesn't allow the city to make more contributions?

BERNARD IN DEN BOSCH: Both the charter and the city code, which was obviously ordinances to adopt the charter, both contemplate-- have the same language about being substantially equal contributions by the city and the employees.

KOLTERMAN: Can that be changed?

BERNARD IN DEN BOSCH: It can be. The charter could be changed by a vote of the people. So it was adopted in 1956. There have been a series of amendments on different matters over the years. There's a requirement to have a charter convention at least every ten years. The last charter convention was in 2013. But you can have them more frequently. That's absolutely-- that is something that can occur during a [INAUDIBLE].

KOLTERMAN: OK.

BERNARD IN DEN BOSCH: And the charter would have to recommend it. Then it goes to the council for-- see-- either recommendation one way or the other, and then obviously would go to a vote of the people.

KOLTERMAN: I'll delay the rest of my questions about that till later on. I just wanted to make sure we're talking about the charter versus an ordinance. I think they're one and the same, is what I hear you saying.

BERNARD IN DEN BOSCH: Yeah. They both have it, but the charter is the one that's more difficult to change because that requires--

KOLTERMAN: Vote of the people.

BERNARD IN DEN BOSCH: --a vote of the people whereas the ordinance is the city council could do anytime they wanted it.

KOLTERMAN: OK. Thank you.

PATRICE BECKHAM: All right. So page 3, there have certainly been a number of factors that have led to the current-- current funded status. I just want to hit on a couple more significant. Certainly the impact of the financial crisis, the Great Recession in 2008 had a significant impact on the funding of this system. At that point in time, expected return was 8 percent. Actual return was more like -26 percent. Projections at that point were that the funds would be-- the fund would be deleted in 20 years, which in an actuarial perspective

is short term. So there were a lot of discussions. The city and the unions really pulled together to address the long-term funding of the system. There were changes made. Basically, the city increased contributions and the members decreased benefits. We talked about the contribution was already over 10 percent of pay, so it's difficult for the members to-- to contribute more. So there were benefit decreases, including for current members. As you see, some of those there are basically pushing retirement age out. They would have to retire later. They actually took a pretty good haircut on the benefit formula for years of service going forward. It had been 2.25 percent. That dropped to 1.9 percent. Lengthening the amount, the years of salary that are figured in and the calculation, the state has made some of those changes in final average salary. It had been a one-year average, and it moved to five. All those things essentially lower the benefits side of that equation. Remember earlier I said, it's contributions plus investment income have to pay benefits. So the-- the city upped the C part of that equation, and the employees lowered the B part of that to try to bring it back into balance. Perhaps one of the more significant changes was the implementation of a cash balance plan for employees that were hired on or after March 1 of 2015. State is well aware of-- of the benefits of cash balance plans. This worked well for the state of Nebraska and for the county retirement system. This one shares that preretirement risk very directly with employees, where they get kind of a minimal amount of a guaranteed interest credit and then a variable credit that depends on actual performance. So again, kind of keeping the benefit side of that equation reacting to what's happening on the investment side. The other significant change, first reflected in the 2018 valuation, is a change in the investment return assumption. That had been 8 percent, was lowered to 7.5 percent. Inflation assumption is also lowered, touched the other economic assumptions like the general wage increase. They also strengthened their mortality assumption. I think one of your previous speakers alluded to the good news/bad news. So it's good news for the members that they're living longer, but when you're a pension system, you pay in benefits as long as people are alive. That means your liabilities become higher when you recognize that. So we moved, at that time, to the most current table, strengthened mortality. The net impact of that was an increase in the unfunded liability of $27 million. Of course, a decrease in the funded ratio, your liabilities go up. The assets didn't change. And I think this is insightful to the impact that, that had on the system. It actually moved the actuarial contribution rate 3.85 percent of pay. It was a pretty-- pretty big hit at one time

because of the change in the investment return and the mortality assumption. On page 5, for the 2019 valuation-- again, this is a calendar-year plan. So the same pain that everybody else felt at the end of 2018, this plan did as well. Return on the market value was not quite -1 percent for calendar year '18. That gets smoothed. So that entire impact is not reflected in the January 1, 2019, valuation. But it certainly had a negative impact. And you'll see kind of a summary on page 6, kind of looking back at the last three valuations. So for the '19 valuation, on the far, left-hand column of numbers, the actuarial liability went up. That's fairly typical in an ongoing open plan. The assets did not. So it's a bad combination. It means the unfunded actuarial liability increased, in this case, $9 million. Funded ratio held relatively steady, 52 percent compared to 53 on a smoothed value basis. But the reality is, if we look at market value and what happened at the end of 2018, the funded ratio on market value dropped from 54 in the prior valuation to 49 in this valuation. You can see the scheduled contributions. Again, the employee contribution rate is 10.075 percent. The city is contributing 18.775, so together almost 29 percent of pay is going into the plan. The actuarial contribution rate, which is based on the-- the board's funding policy, would-- would require a contribution of 31.662 percent. So we have again a shortfall of about 2.8 percent of payroll, which doesn't mean the plan will never be fully funded. But it's not going to make it on the amortization schedule that-- that the board had set. You'll notice back in the '17 valuation, there was actually a contribution margin of 1.11 percent. And then when the assumptions were changed in the '18 valuation, you could see that-- that impact was dramatic and flipped it from a margin to a shortfall. That's a little bit on the funding history. Page 7, again, we mentioned the cash balance plan for members hired after March 1, 2015, where in the '19 valuation reflected, you know, 34 percent of the active members are actually in the cash balance plan, which is pretty quick over a relatively short time period. That has kind of two positives. One is the cost of that plan is a little bit lower than the-- than the legacy plan, but more importantly, again, that risk-sharing feature, that if returns don't pan out as expected, the benefits will actually be lower and kind of help balance that funding equation. Page 8, Actuarial Liabilities by Membership Group, so the dark blue portion of the pie chart here is retirees and beneficiaries. And the red slice of pie is disabled members. Those are people that are receiving benefits right now. And it's-- you know, it's close to 75 percent of the pie. Again, it's a very mature plan. There-- there isn't a lot of active-member

liability. So when you consider trying to improve the funding, 75 percent of it doesn't change. They're already receiving benefits. It gets very difficult to really move the dial on a funded ratio by-- by reducing benefits. And that's really one of the challenges, I think for this plan, is it's-- it's kind of at a place where a lot of changes have been made. And we're really kind of waiting for that to play out over time, and it just-- just takes a long time to improve the funded status. And then we got the wild ride on the investment return that's not helping. Page 9 is just looking at the change in unfunded liabilities. Just a couple things to highlight. Again, in the column where the heading is 2017, which is how the unfunded changed from July 1-- or July 1-- January 1, '17, to January 1, '18, you can see that $27 million due to the assumption change. That's been the big change over this three-year period. Again, this year we had an investment experience, was the actuarial loss of $4 million on top of a liability loss of $3 million. It's nicer when we have liability gains to offset the-- the investment loss, but it didn't happen this year. So again, we're at $233 million for the unfunded liability. Page 10, looking back, a funded history of this system, you can see the impact that the-- you know, the 2008 return had. As that kind of worked its way through smoothing, it drew-- drew the funded ratio down. And then, again, when we changed assumptions in the '18 valuation, it pushed the funded ratio down. We're kind of at a point now where the contribution-- so remember, this is like most of the systems. The-- the unfunded liability is financed with increasing dollars of payment. They're level as a percent of payroll, but we expect payroll to grow over time. So when you have a long period of time, that means you're not putting as much money in now. And it's going to in-- increase every year. But what's going in now isn't covering the interest on the unfunded liability. That's why we're kind of in a holding pattern until the cost of the ongoing benefits goes down and gives us a bigger piece of the contribution to pay off the unfunded liability and the payroll growth, which gives us even more dollars. Eventually we're throwing a lot of dollars at it, but right now we're kind of treading water. Page 11, the change in the actuarial contribution rate, again just looking at what drove that change. In the '18 valuation, we were just over 31 percent, in the '19 valuation, 31.66 percent. And you can see, you know, the investment experience and the demographic experience increase that rate about .7 percent. We had a little bit of gain. Again, the change in the normal cost rates, the new tier coming in at a lower cost, it's very gradual. Over time it's more material, but from year to year, it's not very exciting. And

then again, you can see the employee and the city contribution rates, and that difference is what creates that contribution shortfall. So again, the amortization policy the board is using, that drives that actuarial contribution, basically says we want to be fully funded in 24 years. This report says, based on January 1, 2019, you won't make it in 24 years. Whether you make it eventually or not, we can't tell without doing a projection model. We don't do those every year for these plans, usually every couple of years. And based on conversation with the board last week, I think there's an interest in doing that in connection with the 2020 valuation so we would have a projection to share with you next year.

KOLTERMAN: Question? Yes, Senator Clements.

CLEMENTS: Thank you. On the employee and city contribution rate, I thought it was a 50-50 split. And these are not the same numbers. How-- why is the difference?

BERNARD IN DEN BOSCH: I was going to almost interrupt before and-- and explain. So it was a rough-- when you go back to 2015, they were roughly the same. One was at 10; one was at 11. But what happened when the-- during the pension and the efforts to try to reform the pension system, the city put in more money. So as a result, the city's pension contribution went up. The employees gave up benefits. So the amount of the benefits that were actual-- that were given up were actually determined by-- by Cavanaugh Macdonald. And so the city put in an additional 7 percent, and the employees gave up 7 percent in benefits. And that's-- the that's-- that's the-- at least the explanation of how they were-- both parties contributed-- attempted to contribute to the solution.

CLEMENTS: All right. So it wasn't-- the pension cost is not just determined in dollars, but in benefit dollars also.

PATRICE BECKHAM: Right. Right. That was actually a great question. But as Bernard said, it's because, at that point, the employee contribution rate in 2015 was already very high. And so, you know, again, that funding equation, C plus I equal B, you don't want to change the C side of it. You change the B side of the equation.

CLEMENTS: Um-hum.

PATRICE BECKHAM: And so those changes that were made that impacted current members lowered the liabilities immediately and lowered the

ongoing costs of the plan. And it was that savings that we-- we quantified and sort of converted into a percent of payroll to get to that substantially equal for the city and employees.

CLEMENTS: Will that change year to year or is it agreed upon?

KOLTERMAN: That's in-- that's in your negotiated agreement.

BERNARD IN DEN BOSCH: It has to be negotiated, and so at least as of now, most of the civilian groups have a contract through the end of 2020. I think there's one through the end of 2021. There are some clauses in those contracts that allow us to request to go back to the table. And you know because-- quite frankly, until the assumption changes were made last year, you were starting to see-- I was-- there were positives as a result of the budget changes. And I think everybody was kind of optimistic. The assumption changes obviously had a negative effect. And then obviously with the negative return that occurred in 2018, that has exacerbated the negatives. So I think this actual report, which was made public last Friday, was presented to the pension board and became public last Friday, has already stirred some concern that it-- that the changes that were in effect a couple of years ago, that we may need to do something more. And that's-- you know, that's just the beginning of the process. It's not a fast-moving process, and it is something that we would have to-- that would have to be negotiated with the [INAUDIBLE] civilian unions.

KOLTERMAN: But-- but you are equaling-- in other words, you're monetizing the benefits so it still maintains that 1-to-1 ratio, is that correct?

BERNARD IN DEN BOSCH: Yeah.

KOLTERMAN: OK. You want to finish your report?

PATRICE BECKHAM: Absolutely.

KOLTERMAN: Before you go there, let me ask you a question. On page 6 of the report that you sent out to us, you talked about the actual report that recommended performing that projection that you just talked about, Pat. Bernard, does the city of Omaha plan to request that analysis? Are you going to move forward with that or are you just going to say, well, we know it's not good? We'll just leave it the way it is.

BERNARD IN DEN BOSCH: I think the discussions that Pat had last week, which included the projection model and also included that, so I would anticipate that both those things will occur in-- next year as part of the work that she does, so. I think she-- Pat did have some conversations with the folks in the finance department and I think it seemed like everybody was on board to go in that direction.

KOLTERMAN: Yeah. If you-- if you don't know what your problem is, you can't deal with the problem. I appreciate-- I appreciate the recommendation, and I hope you'll accept that recommendation.

BERNARD IN DEN BOSCH: Yes. I think that's the intention.

PATRICE BECKHAM: OK. So we'll wrap this up rather quickly. Slide twelve, just to kind of put things in perspective. We've had a couple of years of the contribution shortfall. What we want to avoid is what happened in the first part of this period where we had significant shortfalls for a sustained period of time. Again, the projections will be helpful to indicate what the trend lines are. There are a lot of moving parts, and when you have new tiers in particular, fixed contribution rates, a lot of that dynamic can't be anticipated with just a snapshot valuation report. So just to wrap up on Slide 13, again, you know, 2018 was a difficult year on the investment return side. We talked earlier, you know, what happens on the investment return is the single most important in driving kind of the funded status and the contribution. Again, the important part of this is the contributions don't automatically react to what actual experience is versus expected. And that's the challenge with-- with funding, with fixed contribution rates. And then I spoke earlier that the fact we're a little bit in this holding pattern. When we did the projections last year in the '18 valuation,--

BERNARD IN DEN BOSCH: Um-hum.

PATRICE BECKHAM: --that trend is for the funded ratio to actually remain relatively low, I mean to improve, but still be like below 70 percent for almost 20 years. And it's just a process of waiting for the unfunded actuarial liability payment, the dollars of that to get big enough to really start drawing down and paying off the unfunded liability. So it's a-- it's a long term proposition.

BERNARD IN DEN BOSCH: [INAUDIBLE] 2048 at that point in time, but obviously that can change year to year.

PATRICE BECKHAM: Right. Yeah. And does change year to year.

BERNARD IN DEN BOSCH: And does change.

KOLTERMAN: Any questions? I just have a couple of questions. The information that we received showed that you had an experience report that ended December 31 of 2015, but it wasn't submitted until February of 2018. Why-- why is there a multiyear delay in the submittal of that report? That's the first question. And then when is the next experience study scheduled?

PATRICE BECKHAM: Right. So it's through December 31, 2015, which means we have to finish the 1/1/16 valuation to have that end point for data, which didn't happen until late into '16. And then it just takes some time to actually do all the work, schedule meetings. We meet with the actuarial committee. Sometimes they ask for additional analysis. We do that. Then it goes back ultimately to the board, and that process just takes a lot of time. But there is over a six-month delay just to have the data to start the work. So it might have been a little extra delay last time. There were some pretty substantial changes that I think needed to be discussed and, this isn't an official word but, noodled on, as far as I'm concerned, for the board and the actuarial committee to really kind of wrestle with it and decide what they thought was the right thing to do.

KOLTERMAN: OK. And then when's your next experience study scheduled?

PATRICE BECKHAM: Once we do the 1/1/2020 valuation, every four years, so it would be the four-year period ending December 31, '19, which is coming up. So we-- just kind of normal and this is not unusual. But typically we-- we get the data for the-- like the January 2020 valuation, we would normally get that data end of April, middle of May. And so by the time we do our work, it's almost the end of summer. So you-- you know, you've lost eight or nine months before we even have all the data we need to do the analysis.

KOLTERMAN: OK.

PATRICE BECKHAM: It sort of just takes time.

KOLTERMAN: My next-- I have one more question for Mr. in den Bosch. This is the fifth time I've sat in on these hearings, and I look back at 2014. In 2014 you were funded at 53.7 percent. And you've continued to put millions of dollars into this plan. And today you're-- you're

still only funded at 51.8 percent. And I look at your retirees and your beneficiaries on this graph, and I see that a high percentage, 74 percent, are getting paid. I know your charter doesn't allow the city to put any more money in there without increasing the contributions, the employees. I guess my question to the city of Omaha is, when is enough enough? I mean if I was an employee of the city of Omaha and I was collecting benefits, I'd be scared to death you're going to go under with this plan.

BERNARD IN DEN BOSCH: Well, I think if you go back to 2014, that's exactly what the actual projections contemplated, even though we were 53 percent funded, there wasn't anticipated to be funds for 20 years. That's not the case today, even though we're only 51.8 percent funded. And of course, that-- part of that is math that only people who are actuaries understand because obviously there-- I can only-- I think short term, much shorter term than they do. And-- and-- and we have to-- and you're abso-- you're absolutely right. There's nothing about-- it-- there is a certain element that's scary. We can't-- I can't change that. On the other hand, I guess we rely on the professional advice and guidance we-- we have, that at least when we made the revisions in 20-- that went into effect on March 1 of 2015, we had a plan in place, assuming that everything worked, that would have-- that will resolve the problem. Now, I appreciate the-- the-- changing the assumption had a 3.8 percent effect. So absent the change of assumption, our number might be 56, 57 percent. I don't know that, that would be anything to call-- to call home about anyway. I appreciate-- appreciate that.

KOLTERMAN: Well, when you--

BERNARD IN DEN BOSCH: There's no question that-- that there's-- there's that concern. It has to continue to be a concern.

KOLTERMAN: So-- so let me ask you this about your charter because I think that's kind of key to this whole situation. In 2014 your-- your percent of ARC that you paid was 70-- 72 percent-- 71.82 percent. Then it went to 84.5. Is that because you can't put any more in unless-- you can't make your ARC contributions unless the employees put more money in as well?

BERNARD IN DEN BOSCH: That's-- that's the concept of it being substantially correct [INAUDIBLE].

KOLTERMAN: And then-- and then we-- then for a couple of years, right after 2014-15, you made 100 percent.

BERNARD IN DEN BOSCH: Um-hum.

KOLTERMAN: But then now it's at 91 percent last year. And-- and this year, we don't know where it's going to be yet because it's-- it's still pending.

BERNARD IN DEN BOSCH: Correct.

KOLTERMAN: If you don't change, my question, does the city-- do the people in the city of Omaha, the taxpayers understand the challenges that exist today with your pension plan to the degree that we see it here at the Legislature? I know that's speculation on your part, but I got to--

BERNARD IN DEN BOSCH: Sure.

KOLTERMAN: --I got to have somebody tell me that you've got this figured out.

BERNARD IN DEN BOSCH: I don't know that-- I don't know that the citizens-- the citizens understand. I mean, I think it's-- at least short term, for the purposes of any change, the people who have to understand are the people who are the mayor of the city council, finance director, the people-- the people in the unions who are part of the discussions.

KOLTERMAN: Well, but my point-- my point is, you understand it. I know you understand it because you've been here for the last four years, and it hasn't changed.

BERNARD IN DEN BOSCH: I-- I--

KOLTERMAN: But if you want to change-- but nobody seems to want to look at the charter provisions and make a change so that the city can put more in and take care of the retirees. That's a concern of mine because those people are expecting-- they're not only expect, they deserve to get paid for what they were promised. And at-- and at this rate, I don't see how this thing is sustainable. I mean we had one already here today that's at 63 percent, and we're giving them the

dickens. We're at 51 percent here. I mean-- and I'm not trying to be a bad guy about this.

BERNARD IN DEN BOSCH: You're not.

KOLTERMAN: But the reality is, somebody's got to take a look at this in a hard way and say, we're going to turn this around because the next thing that will happen, your bond-- I mean your bond ratios-- your bonds have already dropped as a result of this, I believe, or they haven't improved. I just hope and pray that you can turn this around. I don't know what else to tell you.

BERNARD IN DEN BOSCH: No. I sure-- I'm going to say-- I mean I appreciate if you look just at the percentage of ratio, the feeling is nothing has changed. I guess from the perspective of somebody who's probably too involved in it, there have been changes that have made-- they're-- they're not quick-acting changes. We-- we knew they wouldn't be. But I mean I see the numbers that we got this last Friday. Obviously, I have to be concerned because the hope is that things are going to get better. But when you have a negative year, it exacerbates the stuff that's already there. But I appreciate your point, though. The longer term point is when we talk-- when you look at the charter and you're looking at making potential changes, I-- I-- the suggestion obviously is-- is one that, that would be something that's looked in-- people that the-- the political folks within the city have to evaluate whether the potential need for an infusion of cash because that's the only way you can-- you can make a dramatic change.

KOLTERMAN: When-- and obviously, it's not fair to ask employees to continue to increase their contribution. They're already at high-- higher than normal rate for most employees. That's just observation.

BERNARD IN DEN BOSCH: That's right.

KOLTERMAN: Any other questions?

KOLOWSKI: Just to join in with that same comment, we seem to have sat here seven, eight years now, and hearing the same kind of discussion taking place. And I wonder if all the players are at the table. Are all the people that are being impacted by what's taking place having a voice on what's going on? Omaha, again, we have discussions with our out-of-state folks with this. But Omaha is backfilling so many places in that had expanded, and they've taken in new-- new subdivisions. But there's-- there are so many changes taking place. And I think there is

tremendous potential to-- to do things the correct way. And I-- it's disappointing to see the-- the Omaha track record just be spinning its wheels, as it seems to be, to me, as I sit here listen-- listening to this. And I don't know why it's not being addressed. Are all the players at the table?

BERNARD IN DEN BOSCH: The-- the-- the-- because of the process involving substantial legal contributions, that means the unions and the city have to be at the table. They're obviously on the table.

KOLOWSKI: Um-hum.

BERNARD IN DEN BOSCH: The employees are represented by unions. And I appreciate the numbers, and I know that the-- the percentages are the same. I guess-- and I don't know what the expectation was when the substantial changes were negotiated four or five years ago. And maybe the expectations here were that we were going to see a dramatic turnaround and see it. The expectations from, I think, the administration and the city employee union perspective was the-- the picture that was drawn-- drawn for us by Cavanaugh Macdonald was no different than what was here. We're not going to get to 70 percent for another 20 to 25-- 25 years. They knew that when they made those changes. What they-- but what they also were told, and again this is all going to be based on making sure we receive return rate of-- our assumed rate of return, is that if we make the rate of return and we meet the assumptions as opposed to being in a position six years ago where there wasn't going to be money in 20 years and ie. we're going to be 0 percent funded, in 20 years we'd be getting close to 70 percent funded. But it was at the very tail end, the last four or five or six years. And if you look at the projects-- all the projection modeling that we've given, won't have one this year, but we've given, I think, two or three years in the past, all the projection modeling shows that it goes from 70 to 100 percent very quickly once we get to that point in time that the people who are in the cash balance plan get to the point where they're retiring. And that's more than 20 years down the road. And that was-- it doesn't look good, and I understand that. And I-- and I-- all I can say is, the hole was deep. And in order to get out of the hole, we had to come up with some pretty extensive changes. We relied on the professional expertise. And I say we, I mean I think the city administration as well as the union. The meetings during negotiations weren't city meeting with Cavanaugh Macdonald and the union not being part of it. No. The union was meeting with with Pat and Cavanaugh Macdonald, as was the city,

sometimes together, sometimes separately. The information that everybody had was exactly the same. And the-- the dire circumstance was exactly the same. And the plan was put in place. And honestly, and I know it's tough because we all want to see a dramatic increase, there was no expectation that we were going to go from 48, 50, 49, 50, 51 percent to 60 percent in 2 or 3 years. The expectation is, we were going to stay pretty level for six, seven, eight, nine, ten years, and then it would slightly creep up. But we wouldn't get to 70 percent, which, obviously, I-- I'd much rather be-- I'd much rather be at 80 percent and not have to come here every year. Much rather be at 70 percent because that's far better than where we are. But there's a solution that was put in place and it was based on professional advice that we received. We moved forward with the solution. The hope is it still works. Obviously, we can't sit by and ignore the fact that it might not be-- that it might not work. We still have to do it, and we still have to rely on it. But I guess I-- to the extent that there's a feeling of hopelessness that's coming out, I think that's also not particularly fair because I think the process that was put in place, quite frankly, is-- is pretty similar to what we're seeing. It would have been nice to have a 10 percent return last year. That would have helped a little bit. It certainly helped some. And hopefully the return this year, we don't have a fourth-quarter collapse because the anticipated return this year, I think, is-- is-- is pretty decent.

KOLTERMAN: Well, we're not going to solve--

BERNARD IN DEN BOSCH: So anyway, I apologize for--

KOLTERMAN: --we're not going to solve the problem,--

BERNARD IN DEN BOSCH: No.

KOLTERMAN: -- but the reality is you've got a problem you've got to deal with.

BERNARD IN DEN BOSCH: We do.

KOLOWSKI: But I think questioning the charter question, everything that makes this up needs to be on the table.

BERNARD IN DEN BOSCH: Absolutely. Absolutely.

KOLOWSKI: And I just have a feeling that that's not being done.

KOLTERMAN: Senator Clements.

CLEMENTS: I just wanted to--

STINNER: Senator Kolterman.

KOLTERMAN: Just a minute, Senator Stinner.

STINNER: Senator Kolterman, could I speak?

CLEMENTS: Go ahead.

KOLTERMAN: Go ahead.

STINNER: Oh, OK. First of all, you know, I'm surprised this hasn't played out in the bond rating yet. But is there-- since it's restricted to the amount that you pay employees, isn't there something to be said that you could true this up a little bit by one-time bonus, two-time-- you know, maybe a couple-year bonus that is contributed to that and matched by the city. That might be something that you would have to negotiate, I would presume, with the unions. But that short-term bonus situation might be appropriate here to rectify what appears to be something that's going the wrong way.

KOLTERMAN: Thank you, John.

STINNER: Just an observation.

KOLTERMAN: Yeah. Senator Clements, you have a question?

CLEMENTS: I was just curious on the number of active employees and the total number of members in the plan.

PATRICE BECKHAM: The total number of active members at January 1, 2019, was 1,201, number of retirees is 1,391, 96 disabled members, 96 are the inactive, vested members due-- due a benefit in the future. Is that what you were looking for, Senator?

CLEMENTS: Then why-- where's the 75-25 split?

PATRICE BECKHAM: That's liability. That's the liability for those members.

CLEMENTS: OK.

BERNARD IN DEN BOSCH: And part of the reason the liability is down compared to what it was is we're 34 percent on the cash balance when that-- that's showed in that particular chart.

KOLTERMAN: So one-- one final question. Then we need to move on to your next proposal. Seven-- 7.5 percent, is it assume we're 8?

BERNARD IN DEN BOSCH: Correct.

KOLTERMAN: Do you-- I know if we lower that, it creates more costs. They-- do you have-- I mean, obviously, that request sheet came earlier, that's-- that's high in an assumed rate, but it hasn't been historically. Do you see any changes in that coming in the next year or two or?

BERNARD IN DEN BOSCH: I'll-- I'll speak for the board even though it's probably not-- I probably shouldn't. But I don't anticipate it. I mean honestly, that's one of the ironies here. If we would've kept it at an 8 percent return and as opposed to 7.5 percent, I probably wouldn't have been criticize-- I probably wouldn't have had to deal with those tougher questions from you because the percentages would have looked better. But the reality was that, based on the analysis that-- that Cavanaugh Macdonald did and looking at-- at-- at what was the best assumed rate of return, the recommendation that they made was 7.5 percent. The board went along with it because they thought that was fair based on systems of this size. And I know the-- I know if I were here with the investment people, they would point out that the-- over the last 30 years, the system has averaged over 9-- over 9 percent per year. And even over shorter periods, it's that. And I appreciate that the investment environment is certainly-- is more likely different today than what it was which is why you're seeing systems remove their-- lower their assumed rate of return. And this system has as well. Obviously, with the next experience study that we would receive from Cavanaugh Macdonald, which we-- we talked a little bit about the timing, if there were additional recommendations at that point, we would-- would have to look at them. And I assume that will be in part based on the other analysis that-- that she will be doing as far as the- the risk in the fund allocation that they have.

KOLTERMAN: All right. Thank you very much. Any-- any further questions?

PATRICE BECKHAM: Senator Kolterman, might I just add one thing to that on investment return?

KOLTERMAN: Yes.

PATRICE BECKHAM: Just looking back at the experience study, you know, we rely on the investment professionals because we're actuaries, not investment people. But the-- the board's investment consultant is DeMarche. Their ten-year expected return was about 6.8 percent, but their long-term, 30-year expected return is 8.4. So the 7.5--

KOLTERMAN: So moving it half-- to 7.5 is not out of line.

PATRICE BECKHAM: --reflects a blend of those two.

KOLTERMAN: Yeah.

PATRICE BECKHAM: Just that--

KOLTERMAN: Appreciate that. All right. With that, we're going to close that hearing, and we're going to move into the Omaha Police and Fire pension plan.

PATRICE BECKHAM: We have a presentation coming your way very similar to the one you just saw, and we will try to move through it a little faster.

KOLTERMAN: Take your time.

PATRICE BECKHAM: I know the afternoon is slipping away. And you'll see some similarities in themes, I'm sure. So just on-- on page 2 of the presentation, again, a little bit of background. So the city charter requires that 50-50 split here as well. Similar to the employees retirement system, the benefit provisions, contribution rates are negotiated, and they're in the labor contracts. So again, they're essentially fixed contribution rates until new rates are negotiated. So there's no immediate reaction to experience that's better or worse than anticipated by the assumptions. This plan covers Police and Fire members. It's actually four different bargaining units. My understanding is that there is no current agreement for fire and fire management, is that right, Bernard?

BERNARD IN DEN BOSCH: Yes. This is our first reading today, so yes.

PATRICE BECKHAM: OK, so but for police and the police management, they actually have a bargaining agreement that expires at the end of 2020. Just an important note to remember, pretty common with public safety, they are not covered by Social Security. The contribution rates for police members in 2019, 16.10 percent, for fire, 17.15 percent. So pretty significant contributions on the member side. Slide 3, 2008, the actual return was a -28 percent. Again, projections at that point in time-- Cavanaugh Macdonald was not the retained actuary at that point in time, but I've seen the projections when I was actually working for the firm that was the retained actuary at that time. Same story, it was projected to run out of money in 20 years. That's part of the dilemma, I think Bernard explained that well, is when the line is going down steeply, even to stabilize it takes a lot. And I know it's not-- doesn't make any of us feel great, but it's way better than a line that crashes in 20 years. Same thing, police made changes in 2010. Fire, again, because of the contract delay was in 2013. Impacted benefits for current members, which is really unusual just looking around the country. It's very common to change benefits for new hires, not so common to change them for current members. But there's a lot of activity in that period. You might have remembered some little bit about the Bates Commission and were lots of different interested parties on that commission. And some of that work led to the agreements and discussions with the union for changes. Again, you know, typical, you make people wait longer for their benefits. You kind of lower the rate at which they're earning those benefits. They move to this career average over time, which-- you know, there was this problem with the hours bank. And people could cash their bank account right before they retired, and it spiked their pension. And that got-- that got fixed. And there were increases in contribution for the members. And of course, the city's 50 percent can only come from contributions. But same thing will be evident here. When you look at the contribution rates, they won't look substantially equal because the benefit reductions were taken into account as far as a value and equated to a percent of payroll. Same story that was for the civilians' plan. On slide 4, again, the 2018 valuation reflected changes as a result of the last experience study. There is a different asset allocation for this plan, and they moved from 8 to 7.75, which was similar. Again, their short-term outlook was lower. Their long-term outlook was pretty high. If I remember right, it was right around 8.8 percent. So the 7.75 is sort of reflecting we expect lower returns for the next ten years. But then, you know, eventually things kind of go back to somewhat of a-- of a standard norm. You can see the

impact of that. There was a $41 million increase in the unfunded liability, about a 1.6 percent decrease in funded ratio, and an increase in the actuarial contribution rate of 3.76. So you know, these changes in actuarial assumptions kind of rock the boat, you know. So back in 2013 for this plan, 2015 for the civilians' plan, you have this long-term plan, assuming this set of assumptions and then 3, 4, 5 years out, you basically change the-- the bench-- benchmark for the ruler. And so, you know, that's going to change the whole projection of when it gets to fully funded. Slide 6, same story as you saw in the civilians' plan. The return here was actually almost a -3 percent for calendar year '18. Again, that's going to flow through the smoothing process, but not have a positive impact. It's going to have a negative impact on the funding. Slide 6, you can see that the unfunded actuarial liability was $649 million in the 2018 valuation. Twenty-nineteen, it had increased to $669 million. Funded ratio held steady at 52 on a market value basis. Obviously, with what happened with that return, the funded ratio was-- was down from 53 percent in '18 to 49 percent in the '19 valuation. You can see pretty clearly from 2017 to 2018, the actuarial contribution rate increased significantly. That's that change in assumptions that played out there. It held fairly steady in 2019. It's up a little bit because the unfunded liability is up. The contribution shortfall is 2.19 percent, up from 1.91. Again, you know, given the experience and the change in the assumptions, it's not particularly unexpected that there would be a contribution shortfall. Page 7, a little bit of a look here at the-- at the active membership by tier. So remember, the police made changes first in 2010 and then fire in 2013. So 37 percent of the current active police members are in Tier 2. About 17 percent of the fire members are in their Tier 2. Why is that important, and why do we care? Well, remember, we have fixed contribution rates that lower-- tier 2 is a lower cost. So as that forces the ongoing costs down, we have more contributions to pay off the unfunded liability. Over a 20-, 25-year period, that will be significant. From year to year in the short term, it's not so much. But we like to see that, you know, almost 30 percent of the total membership is in the lower-cost tier. Well, that will continue to increase over time, and then have a positive impact on the funding. Slide 8, the pie chart you saw in the other presentation that looks different in this presentation, we have between-- the dark blue again are retirees and beneficiaries, the disabled members are kind of the Texas orange color there, and then the green is the people that are in DROP. And if we look at that, that's about 65 percent of the total actuarial liability is sort of

already has the benefit amount set. Also means it doesn't-- there's not a lot of variables there. You know the benefits you're paying people. It's just really how long you're going to pay them. So it's proof-- that part's pretty predictable. The active-member actuarial liability is affected by a lot of things like when people retire, whether they terminate, what salary increases are. And so the red piece of that pie chart is for fire and the blue for police. And again, that-- the-- the assets, actuarial, smoothed value of assets, $737 million. So the unfunded liability is $669. So this plan is not quite as mature, as heavy in the kind of in-pay liability as the civilians' plan. Slide 9, again, the change in unfunded liability really from 1/1/16 to 1/1/19. So we were at $603 million in the 2016 valuation. In the 2019 valuation, $669 million. Big part of that is the $41 million from the assumption change in the 2018 valuation. And then you can see, the investment experience this year was $14 million. And that-- that ebbs and flows depending on what's happened. You can see, last year there was actually a gain on the actu-- on the investment experience. Page 10, funded ratio, again, the-- the-- the decline. Stock market crash in 2008 was difficult for this plan, for all plans, pushed the funded ratio down. I know we're, you know, not super happy with-- with funded ratios at 52 percent, but it beats the heck out of 44 percent. And we-- we should remember that because of the size of these liabilities, while it doesn't seem like a big deal to move 8 percent funded ratio, it really is. But it just takes so long. Extra contributions going in, it takes a long period of time for those to go in and accumulate with earnings to make a difference. And then again, for the new tier, it just takes-- you know, we have to wait for people to leave the current tier structure, and then they're replaced with a lower-cost benefit structure. Over time those two together have a big impact. But Bernard pointed out-- I was looking at the projections while he was talking. He was spot on. It just holds very, very steady for a long time. And then, boy, it just-- it's kind of like a fire that just gets hotter and hotter. And towards the end, you move from 80 percent funded to 100 percent funded in like five years. It's-- it's super crazy, the way the-- the math on that works. But we're in the period where it's not very much fun, where it's-- it's fairly steady. And of course, when we have it-- investment returns that are not as expected, that has a negative impact. Actuarial contribution rate on slide 11, prior valuation, we were at 53.2 essentially, and in the '19 valuation, we were at 53.45. Again, that's based on a plan that would get you to 100 percent funded in 25 years. You know, the million-dollar question is, given the current

contributions, when would the plan be projected to be fully funded? We don't have that information based on the '19 valuation, but we should for the 2020 valuation. And you can see, there was over 51 percent of payroll going into this plan, and it's-- it's a lot. It's a lot. But the interest on that unfunded liability is a pretty big number as well. So right now, we have the contribution shortfall. That changes every year when we do the valuation because the investment return will influence it and so will all the other experience, whether people retire on time, what salary increases are granted. Again, slide 12, the difficult time for this plan was the early part of this period when there were significant differences between the actuarial contribution rate and the actual money going in. Those contributions have increased, and the cost of the benefits have come down. We have a shortfall this year, and we had one last year. That's what we want to keep an eye on. That's where the modeling is-- is particularly helpful, and that's why there was a recommendation that the board consider that. So slide 13, really same story, you know, we've got this sort of hold it steady on the funded ratio while we tread water until, you know, we get closer to shore. And then all of a sudden we-- we-- we make it, and we get to full funding. And it's-- it's kind of an odd dynamic, but it's really because so much of the contributions to pay off the unfunded liability are coming in the later years in terms of dollars, really just by design, because payroll grows and the amount that we have available out of the contributions to-- to put towards that unfunded liability grow. So it's-- it's super backend loaded. Any questions we can answer for the committee?

KOLTERMAN: I have-- go ahead. Senator Clements is ready with a question.

CLEMENTS: I'm just curious about the number of participants in this plan. Thinking of number 8, I was surprised the dark blue wasn't bigger. Are they retiring younger than the city employees and be claiming benefits longer?

PATRICE BECKHAM: Well, sort of yes and no. The city of Omaha employees actually has-- for long service people, they can retire-- could, it's all changed too, but under rule of 80. So if your age plus service was eighty points, you could retire. So theoretically, you could retire at 50 or 55 if you were-- if you started in service with the city. Police and Fire, they had retirement as early as 45 at one point, at least for police--

BERNARD IN DEN BOSCH: with 25 years of service.

PATRICE BECKHAM: --with 25 years of service. I'm not sure that too many people actually had 25 years of service at 45. But one important difference, which is another great question that you're asking, is that the civilian group has seen a decrease in the active membership and the Police and Fire plan has not. It's-- it's been stable or even growing a little bit. So when the, you know, the number of actives was going down, the liability is down and the payroll is down. So that's quite a maturing. That plan is-- is really a risk that needs to be discussed. And we've talked about that with the board, and we'll continue to raise those issues as part of the new kind of Actuarial Standard of Practice No. 51. It talks about funding risk.

CLEMENTS: Did you have the number of participants?

PATRICE BECKHAM: I certainly do, sir. All right. Total actives for Police and Fire, 1,454. There are 69 members in DROP. You never really know where the-- where to put them. They're contributing members, but their benefits have already been--

CLEMENTS: That's OK. Yeah.

PATRICE BECKHAM: And one-- let's see.

BERNARD IN DEN BOSCH: The total is 1,523.

PATRICE BECKHAM: Oh, yeah, yeah, yeah, yeah. Yeah. Total actively contributing 1,523, number of retirees and beneficiaries 1,291, disabled members 224, 8 inactive. That's-- don't worry about that.

CLEMENTS: And I like Senator Stinner's comment about paying a short-term bonus to the plan and matching it-- to the people which would go to the plan and matching it by the city. Is that something that you might bring up?

BERNARD IN DEN BOSCH: I wrote down-- and I was going to pledge at the end to discuss with Senator Kolterman discuss which was the charter amendment, but I also wrote down that particular note. That will be one of the things that I will share with the-- the-- the mayor and the city council when I return. I have a cell. I was going to pledge at the end, based on our conversations, Senator Kolterman, that I would

share the concerns of the committee, and I will share that particular suggestion as well. I wrote a little note down so that I would do it.

CLEMENTS: All right. But the funding level being similar here, it looks like some extra measures need to be done.

KOLTERMAN: Any-- any additional questions? I just have one question, Bernard, on page 3 of this report, we-- we talk about changes Police and Fire made in 2010 and 2013. And they actually negotiated their benefits down--

BERNARD IN DEN BOSCH: Correct.

KOLTERMAN: --to the equivalent of pay, really. My question is, there is a line in there, retiree spouse death benefit was decreased to 50 percent of the member's.

BERNARD IN DEN BOSCH: Yes.

KOLTERMAN: They don't get a choice in that? They don't-- when they-- when they retire, you just tell them what they're going to get. Is that how this plan is set up?

BERNARD IN DEN BOSCH: The-- the pension is set up so that when-- when-- when a person dies, their widow would be entitled to a certain percentage of their-- of their pension. And that's negotiated, again, between the parties.

KOLTERMAN: So that's just a flat-- that's it. What they get there is the spouse gets 50 percent. You can't negotiate to 100 percent when you set up your final benefits?

BERNARD IN DEN BOSCH: Yep. That's something that's negotiated between the union and the city as to what percentage their spouse would receive.

KOLTERMAN: Do you know, did you offer anything back into that like life insurance options as an employee?

BERNARD IN DEN BOSCH: I wasn't-- I wasn't part of the negotiations. I don't believe that was the case. Certainly, if the unions wanted to discuss that, we would. We-- we have-- we do have life insurance that we-- a certain amount of life insurance that we provide our employees as a matter of course.

KOLTERMAN: OK.

BERNARD IN DEN BOSCH: We also allow for employees to secure from our vendor voluntary life, additional amounts of life insurance if they want. We also offer some other disability and other particular policies through the city--

KOLTERMAN: Sure.

BERNARD IN DEN BOSCH: --that an employee could choose to enroll in, but they'd have to pay a premium for those.

KOLTERMAN: And the only reason I ask that is, you could start taking benefits, tomorrow, if you die, your spouse all of a sudden gets only half of what you've been promised? That's a-- that seems like a huge-- that's a-- that's a big benefit.

BERNARD IN DEN BOSCH: Now-- it is, and then appreciate the fact that, that's not necess-- if-- if a public safety-- member of public safety personnel would happen to die during the course and scope of their duty, there are other protections. This is purely based on somebody who retires at the end of a career. Just-- just in case, I don't want anybody to misunderstand, we do have some other--

KOLTERMAN: No. I-- I know there's some other options, but--

BERNARD IN DEN BOSCH: Well, we have some other benefits, too. For example, you get a full-year salary as a benefit to the spouse, and there's some other things like that but--

KOLTERMAN: OK. I just-- to me-- I took a look at that. When I retired a couple of years ago, I had five or six options I could choose from.

BERNARD IN DEN BOSCH: Sure.

KOLTERMAN: And I-- and each one of them cost me more or less. I got [INAUDIBLE].

BERNARD IN DEN BOSCH: Yeah. Well, the cash balance plan that we now have for civilians does-- similarly has a menu of things we can choose.

KOLTERMAN: Sure.

BERNARD IN DEN BOSCH: But our traditional defined benefit plan, everybody seems-- everyone gets the same thing.

KOLTERMAN: Is-- is-- is that primarily because these are all negotiated benefits?

BERNARD IN DEN BOSCH: Correct.

KOLTERMAN: OK. Thank you. Any other questions?

BERNARD IN DEN BOSCH: Thank you.

KOLTERMAN: I didn't mean to be so hard on you.

BERNARD IN DEN BOSCH: You're-- that's fine.

KOLTERMAN: But the reality is we've got to get this fixed.

BERNARD IN DEN BOSCH: No. You were nice to me last year, so about every two years, I can expect it. [LAUGHTER]

KOLTERMAN: I know-- I know I was pretty hard on you the year before. I think I introduced a bill to take you to a cash balance plan.

BERNARD IN DEN BOSCH: Thank you for your time. I'll make those-- I will pass along your concerns.

KOLTERMAN: Yeah. Thank you. Thank you, Pat. Are you done now too?

PATRICE BECKHAM: I think I am.

KOLTERMAN: All right. See you next year.

BERNARD IN DEN BOSCH: I make sure I have her here to protect me.

KOLTERMAN: OK, now we're going to move to Douglas County. I have two left. Welcome. Haven't seen you, sir, in a year.

JOE LORENZ: Yeah. It's been a year. Hopefully this will go quickly. I'm Joe Lorenz. I'm the Douglas County finance director, and I'd like to give you a quick update on what's going on with our defined benefit pension plan. And if you look at your material, I'll start out first kind of going through the table on the 2-- 2019 results. Our funding bases at January 1, 2019, was 65.6 percent, which was a 2.4 percent drop from 2018. And that was all due to investment risk and what

happened in the fourth quarter. I had-- I had our actuary, SilverStone, run what the funding would have been at March 31, in the first quarter when the market came back, and it was at 67.8 percent. So it almost recaptured it all in the first quarter. And then through the first nine months of the year, our plan is up 13 percent. So other things being equal, the funding status should go up. So even though it was a-- went down last year and just about everybody's plan here went down, I think it was really fully driven by investment and what happened in the fourth quarter. Second, you look at our assumed rate of return, we've been consistent at 7.5 percent, which we think is reasonable given that over the last ten years, our average rate of return on this plan has been 8.25 percent. As-- and our plan, we've been in the top quartile of publicly held plans in terms of investment performance. So for us, we feel that the 7.5 percent is appropriate. Actuarial return, the blending was 4.1 percent helped us, whereas the market return was down 2.8 percent for the reasons we just discussed. Another thing I would like to mention is that within our plan, we have-- how we do the allocation is our plan has 57 percent equity, 35 percent fixed income, and 8 percent real estate. We don't invest in any alternative investments or any private equity, and we don't chase yield. So I think we have a-- given the nature of-- it's a pension plan. We keep a pretty conservative portfolio. The member and employer contribution rates are 8.5 percent. Normal cost is about 11 percent. If you look at our ARC this year, it's $24.8 million. If you look at our history, we've always contributed slightly more than the ARC. And this-- and every year it happens where our expected is behind the actuarial. But by the time we have the actual dollars contributed-- we make our last contribution in December. I'm-- I was just looking at it this morning. I think we'll be at or slightly above the ARC contribution again. So we'll-- we have been meeting our ARC contributions. Next, I want to go to page 3 and bring you quickly through what's going on with the plan. You know, our actuarial valuation was performed by SilverStone.

The caller has left the conference.

KOLTERMAN: See you, John. Keep going.

JOE LORENZ: The report showed, you know, I said we were 65.6 percent funded. We had a actuarial asset basis of $320 million and a unfunded actuarial accrual liability of $168 million. The plan has 3,765 participants, of which 58 percent are active. So it's a mature plan, but we still have much-- we have more active than nonactive, which is

a good thing for the plan. And our equal member and employer contribution rate of 8.5 percent of pay and I think for the county's plan, that's by statute that the county can contribute no more than 50 percent of the planned contributions. I feel like I said, I think that's by statute. We talked about the funded ratio. And like I said, based on, you know, the first nine months of this year, we're looking at a pretty strong performance. And a little bit about why we're at 65 and a -- yeah, 65.6 percent funded, why that really happened is what happened 22 years ago. In 1997 they made changes to the benefit-- to the pension plan where they went to unreduced benefit upon a rule of 75. The benefit formula increased from 1.5 percent of pay per year to 2 percent per pay. And they were giving COLAs every other year. So that happened in 1997 when the plan was 97.8 percent funded. By 2004, after they implemented this, the funding ratio had fallen to 64.8 percent. In retrospect, not a very good decision for the pension plan. Well, it was done. So and also during-- so the county started to realize it. And so they increased the contribution of pay. It went from 5.5 percent for each, the county and the employees, to 8.5 percent by 2008. And then you throw in the Great Recession, and the funding bottomed out at 57.8 percent in the year 2010. So that's kind of when we realized that we had some issues. And it was eight years ago that we went and made the hard choices and changes. And this kind of really shows that in a mature DB plan, it takes a long time to fix things once they've gone bad. So we made these changes eight years ago. For-- and because of statute, we can't change it for current employees. You only can change it for new employees. So for all new employees, starting January 1, 2012, there was no rule of 75, the benefits formula was reduced from 2.5-- 2 percent of pay to 1.5 percent, and the maximum retirement income was reduced from 60 percent of our participants final average to 45 percent. We also haven't given a COLA. So those were the changes we made eight years ago. And since we made those changes, we kind of have been trending upward. It's slow, but sure. But those are what we did to change the direction of our plan. And that's really what I believe has to be done if you want to change a traject-- trajectory of a plan. You can't count just on investment returns to bail you out. That-- you know, you have to go back and see what the drivers are. The other thing is that sheriff deputies have a slightly different plan provisions which provide for increased benefits with ret-- early retirement. And this year we had negotiations with the jail guards, and they wanted the same provision as the sheriff deputies. So within the contract negotiations, again, we worked with SilverStone and said what we'd have to do if we want to

move these fellows over into this other plan to make sure that it doesn't impact to the funding of the plan. And so SilverStone did the actuarial work and said they have to increase their contribution 2 percent to 10.5 percent. And so the union agreed to do that. So they-- they're going to fund the whole thing. And by increasing that contribution by 2 percent like that, it will be neutral to the funding of the plan. So like I said, so if you look at the projections now, we're trending up, whereas we think by-- you know, like I say, these DB plans take a long time to fix. But the projection is, within 20 years, we should be at over 87 percent funding. And so like we're on this gradual path. And so in the past few years, we haven't done much. In 2015 we pulled the long term disability part out of the pension plan, made it a separate, fully insured plan which helped the pension plan. We changed the interest crediting rate to a-- to a market rate. In 2017 we made some actuarial valuation updates to the mortality table that hurt. The other thing that we did that was final-- fairly conservative is, we changed our amortization period. We went from 30 years down to 25 years, which kind of is a more conservative thing to do. But that's what we did. And that had a-- had a small impact. In terms of labor, I think last year I talked to you that we were in potential negotiations with the jail guards, and they wanted a DROP program. I think the commissioners agreed with me that when our plan is, you know, 70 percent funded, we can't be putting in DROP programs. And so we stood firm on that, and they dropped or eliminated that. And that was never put into their contract and seems to be an issue that we moved on before. And the last point I'd like to make is in terms of risk to our plan and our funding. Besides investment, risk is always there. We've been talking a little bit about mortality tables today. And I was talking with our actuary. We're going to do new-- a new experience study is that-- mortality tables are interesting in that when you update them, they kind of take the mortality table assumptions and they take them out forever into the future, which means that if people have gradually been living longer, they're going to assume that those people are going to keep on living longer. And the average rate is going to continue to creep up. So what that does is, it really has the impact of like you couldn't be funding your plan on a basis that, you know, on average, people are going to live to be age 80. And then you put the new mortality table in, and all of a sudden, the plan-- the assumption is people are going to live to be 82. So you have two years in additional life that you've never funded. So it's a little bit like what I call moving the goalposts on you. But it-- it-- that's something you have to deal with. And it's been a

topic today that everyone's been talking a little bit about, what-- the impact of the mortality table. And that does hurt your funding ratio. But I really don't have an answer on how you can-- can adapt to that because you never know until you see the mortality table and what the actual experience is. And with that, I'd take any questions.

KOLTERMAN: Any questions? Thank you.

JOE LORENZ: OK. Thank you. See you next year.

KOLTERMAN: Yeah, unless you have a miraculous turn again. All right. So now we have Eastern Nebraska Human Services Agency. Welcome, Glen.

GLEN GAHAN: Thank you. Good afternoon, senators.

KOLTERMAN: Could you spell your name and state your name.

GLEN GAHAN: Yeah. Glen Gahan, G-l-e-n G-a-h-a-n, I'm with-- I'm an actuary with SilverStone Group here today to represent Eastern Nebraska Health Services Agency. This plan has a formal actuary-- actuarial evaluation completed every other year. So the most recent completed report is January 1, 2018. We've updated a couple data points for 2019 on the form that the state had asked us to complete. And so we don't have an update of the funded status, which was 74 percent in 2018, which had increased from 71 percent in 2016. That's based on an assumed rate of return of 7 percent. The actual rate of return for the 2018 calendar year was a -2.4 percent. It was 11.7 percent the year prior to that. This plan has fixed rate contributions. The active members contribute 2.75 percent of pay, and that has been constant for many years. The employer is currently contributing 9.5 percent of pay, and that has increased .5 percent per year since 2010 when it was at 5.5 percent. So it's increased 72 percent since 2010, the employer provided contribution. The plan has 668 active members, 251 retirees, and 76 vested terminated participants with the deferred benefit, for a total of 995 participants. Beginning of 2018, the accrued liability was at $55 million. The market value plan assets is $41 million. So there's a shortfall of $14 million and the-- yeah, 74 percent funded ratio. Because it's a flat contribution rate primarily, they don't have a smoothed or actuarial value of assets. We value the mark-to-market asset value on a year-to-year basis. The normal cost is about 7.4 percent of pay, and the combined member and employer contribution is 12.25 percent. The ARC was 12.19 percent. So the actual contributions

to the plan have exceeded the ARC for at least the last five years that we looked back on. The circumstances that led to the under-- underfunded, kind of similar to stories you've heard, but a lot of it was the financial crisis in 2008 and 2009. The main reaction was to increase employer contributions. There have been some updated assumptions along the way. In 2018 we changed the mortality table to a much more current table with projected improvement. We've done some projections of funded status, again, based in the work done in 2018. At that point, there was a 24-year period in which the plan was projected to reach 100 percent in the year 2042. And after eight years, it-- I'm sorry, it was after-- after six years, it was projected to get to 80 percent. The plan amortizes the unfunded accrued liability on a 25-year, fixed, level dollar, closed layer basis. So with that, if assumptions are met, after 25 years, the-- the-- that amortization piece anyway would be fully funded. There's no current negotiations with unions to increase benefits. The most recent experience study was performed July of 2016. Since then, there was a increase to the salary scale and an update to the mortality table, the asset mix of the 50 percent equity allocation and again, a 7 percent assumed investment return. That goes through my prepared remarks, and I'd ask if there are any questions to respond to.

KOLTERMAN: Are there any questions? I-- I-- I have just a couple questions, Glen.

GLEN GAHAN: Yeah.

KOLTERMAN: So you've been making your ARC payments. Actually you've been at 7 or 8 percent above your ARC payments in the last--

GLEN GAHAN: Yes.

KOLTERMAN: --well actually since 2014. Do you project that you'll make your-- 100 percent of your ARC payment this coming year?

GLEN GAHAN: Well, yeah-- Yes, based on the most recent valuation. The ARC-- the 2.20-- the 12.25 percent exceeded the ARC payments, which was 12.19. You know, we had the asset loss in 2018, expected asset gains in 2019. So going forward, it's-- there's not a lot of margin there. So it's-- it's going to be-- it certainly could be close. There could be years where the ARC payment is not fully-- fully made, you know, depending on other experience of the plan.

KOLTERMAN: And then the employer contribution is 9.5 percent, but the member contribution is only 2.75 percent.

GLEN GAHAN: Yeah.

KOLTERMAN: Why-- why is there such a huge discrepancy?

GLEN GAHAN: Yeah.

KOLTERMAN: Can that be-- could that be negotiated so the employee could put more in?

GLEN GAHAN: It could be.

KOLTERMAN: Don't-- are you all labor driven?

GLEN GAHAN: Yeah. There-- there-- it's-- it's heavily--

KOLTERMAN: Unionized?

GLEN GAHAN: --heavily union driven, so it's negotiated rates. And kind of interestingly, even with this relatively modest employee contributions, the plan has a ten-year graded vesting schedule. So up to five years, they're not vested, and their employer-provided benefit grades in over the next five years. It has a history of a pretty high return of employee contributions when they do term-- terminate employment. That's one of the reason why the--

KOLTERMAN: So you're using fortune-- forfeitures to pay for those contributions?

GLEN GAHAN: Yeah, that-- that's true. Even with just the 2.75 percent employee contribution rate, many of the participants sitting at seven-- six or seven years of service that are partially vested in their total benefit, they tend to take out their employee contributions rather than a deferred monthly benefit. So those-- you're right, those forfeitures go to fund the unfunded liabilities.

KOLTERMAN: OK. Any other questions? Thank you.

GLEN GAHAN: All right. Thank you, sir.

KOLTERMAN: See you next year. Maybe-- maybe you won't be. You're getting close. It's not long before Christmas.

GLEN GAHAN: Yeah, we-- that would be nice.

KOLTERMAN: Can't you find a pot of gold by the weekend?

GLEN GAHAN: That would be great.

KOLTERMAN: Seeing no other questions and no other testifiers, I think I'm going to close this hearing down. I appreciate everybody coming today. Thank you very much. We are dismissed.