NEBRASKA RETIREMENT SYSTEMS COMMITTEE

2020

Report on Political Subdivision Underfunded Defined Benefit Retirement Plans

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Table of Contents

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2020 Summary of Underfunded Political Subdivision Defined Benefit Plan Reports

Background

In 2014, LB 759 was enacted to require reporting by political subdivisions with underfunded 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.

2020 Underfunded Pension Plans

During the past year there has been an increase in the number of defined benefit plans funded below the 80% funding level. Lincoln Police and Fire, which increased its funding level above 80% in 2017 and 2018, once again fell below the reporting level. Below is a list of the eight underfunded political subdivisions and a summary of the 2019/2020 and 2018/2019 funding status for each plan:

- Douglas County Employees
- Eastern Nebraska Health Agency
- Lincoln Police and Fire
- 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	2019/2020 FUNDING STATUS*	2018/2019 FUNDING STATUS*
Douglas County Employees	66.8%	65.6%
Eastern Nebraska Health Agency	73.0%	Not Available – biennial valuation
Lincoln Police and Fire	77.7%	82.2%
Metro Area Transit Hourly Employees	66.7%	67.3%
Omaha Civilian Employees	52.4%	51.8%
Omaha Police and Fire	54.3%	52.4%
Omaha Public Power District	68.9%	67.8%
Omaha Public Schools (OSERS plan)	63.0%	63.0%

*Funding status year varies because some plans are based on calendar year 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 2020. Each entity was asked to submit the information identified on the Form. Reporting materials provided by each governmental entity are included in the Appendices to this Report. A public hearing was conducted by the Committee on November 6, 2020. The following information was presented:

1. Please list the following information for **plan years 2016 through current plan year 2020:**
   a. Funding status
   b. Assumed rate of return
   c. Actual investment return
   d. Member and employer contribution rates -- <u>percentage</u>
   e. Normal cost – <u>percentage</u>
   f. Actuarially required contribution (ARC) – <u>percentage & dollar amount</u>
   g. ARC contribution – <u>dollar amount contributed & percentage of ARC actually contributed</u>

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

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

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.

7. Describe recent or ongoing negotiations with bargaining groups that may impact the plan's funding.

8. Please attach a copy of the most recent Actuarial Experience Study and year of next Study.

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.

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.

11. **NEW QUESTION** – Please describe current or projected revenue and/or budget impacts on your political subdivision due to COVID 19 which have, or may, affect your political subdivision's ability to remit the entire ARC payment as recommended by the actuary.

12. **NEW QUESTION** – Please describe any impacts due to COVID 19 on the plan's actuarial economic or demographic experience that have been identified by the actuary.

Summaries of Plan Funding and Benefit Changes

Douglas County Employees:

The plan's funding ratio is currently 66.8% -- a slight increase from last year's level of 65.6%. The Plan's funding level 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 9 percentage points from its low point in 2010 to its current 66.8%. These plan changes have also materially impacted the plan's forecast of funded percentage. Current forecast by Silverstone projects the funding ratio to reach 85.3% in 2035 if all assumptions are met.

A number of changes have been made to the Plan in the past 5 years to reduce the plan's liability and reduce the funding ratio.
- ➢ In 2015, the Long-Term Disability (LTD) program was removed from the Pension Plan and put into a separate fully insured benefit plan.
- ➢ In 2016, the interest crediting rate on member contributions was changed from 5% to the 10-year Treasury Rates in effect on November 1st of the preceding plan year. The combined impact of these changes was a $3.6 million decrease in the AAL and a 0.6% increase in the Plan's funded ratio.
- ➢ In the 2017, 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.
- ➢ Following a 2019 Experience Analysis, in January 2020, actuarial valuation updates were made again to the mortality table and the salary scale used in the actuarial assumptions was increased. The net impact of these changes was a 1.0% decrease to the funding status.

COVID-19 Impact: The County has remained fiscally healthy. Recurring revenues continue to be collected as expected and in line with the budget. In addition, the County has received a significant amount of federal funds in accordance with the CARES Act. It remains to be seen what the future impact of COVID-19 may be on the plan In the near-term, an area of caution is the uncertainty of investment returns.

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
2020	66.8%	7.5%	19.7%	11.0%	18.2%	8.5%	8.5%	$173,600,000	94.3%
2019	65.6%	7.5%	-2.8%	10.8%	18.1%	8.5%	8.5%	$168,000,000	100.8%
2018	68.0%	7.5%	16.8%	11.2%	18.0%	8.5%	8.5%	$148,540,000	102.2%
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%

3

Eastern Nebraska Human Services Agency:

There was a slight decrease from 74% to 73% in the funding level since the previous biennium valuation report in 2017. The actual investment return for 2019 was 14.0%. The assumed rate of 7.0% has not changed since the inception of the plan. The Agency has consistently paid over 100% of its ARC; last year it paid 104.1%. If all assumptions are met, it is projected the plan will reach 80% funding level in 2034.

For the current actuarial valuation, the mortality table was updated to the PubG-2010(B) mortality table projected with MP 2019 improvement scale. Early retirement rates were added for ages 55 to 61. There were no other changes in the actuarial assumptions or methods.

In 2018, 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 2047 based on the January 1, 2020 census data and assets and projected with assumptions as described in the January 1, 2020 valuation report.

The agency has been increasing employer contributions by one-half percent annually since 2010, reaching 9.5% in 2018. Negotiations are underway to increase employer contributions to 10% and employee contributions to 3%. The majority of the agency's employees are covered under a collective bargaining agreement.

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.

COVID-19 Impact: The Agency reports that it is difficult to project revenue impacts on the political subdivision due too COVID-19. Revenues should remain the same or possibly increase due to an increase in rates. There may be a loss of some revenue due to a loss of people the agency supports, but the rate increase offsets that. Revenue is slightly higher than last fiscal year. CARES funding has been applied for, but no notification of approval has yet been received. Any impact is not expected to change the agency's ability to remit their scheduled contribution to the plan.

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*	73%	7%	14.0%	7.4%	13.46%	2.75%	9.5%		TBD
2018	N.A.	7%	-2.4%	N.A.	12.19%	2.75%	9.5%	N.A.	104.1%
2017	74%	7%	11.7%	7.4%	12.19%	2.75%	9.5%	$14,245,604	107.0%
2016	N.A.	7%	6.8%	N.A.	11.55%	2.75%	9.0%	N.A.	108.7%
2015	71%	7%	6.8%	7.0%	11.55%	2.75%	8.5%	$13,710,422	106.9%

*Eastern Nebraska Human Services Agency Plan year ends December 31. Actuarial Valuations are conducted every other year.

Lincoln Police and Fire

In 2017 and 2018 the Plan's funding levels were 81% and 82% respectfully. In 2019, a 2.2% investment return and new actuarial assumptions were adopted from the new Experience Study. The investment return assumption was reduced from 7.5% to 7.25% over a five-year period in increments of 0.05% per year—with the ultimate rate attained in 2023. Additionally, the mortality assumption was changed. This combination of factors caused the funding level to decrease to 77.7%. As a result, the UAAL increased from $58.7 million to $72.4 million in the 2019 actuarial valuation.

The City of Lincoln continues to consistently contribute at least one hundred percent of the ARC each year as indicated in the chart below. In addition, the City has taken several major steps in the past five years to improve the Plan's funding. It commissioned a pension task force in 2015 with the charge to review the plan and make recommendations for improvements. This led to the adoption of two new ordinances. Ordinance #20343 was adopted in 2016, which merged the assets of the 13th Check COLA Pool Fund with the assets of the regular Police and Fire Pension Plan. Ordinance #20495 adopted in 2017, which implemented a new funding policy to improve the future funding of the Plan -- specifically to address the systematic funding of the Unfunded Accrued Liability.

If all current assumptions are met, the actuary projects the Plan will reach 80% funding level in 2027 and 100% funding in 2043.

COVID-19 Impacts: The City noted that tax payment delinquencies, disruption of the collection or distribution of taxes by the State or Lancaster County or other related factors may pressure the City's budget and cash flows. In addition, the economic downturn could cause reductions in assessed valuations in the City, which could lead to unsustainable levies on taxable property when combined with other levying authorities like the County and school district. The actuaries intend to monitor the developments related to COVID-19 and their impact over the next few years to determine if any changes need to be made to assumptions.

Lincoln Police and Fire Plan Summary

YEAR	FUNDED RATIO	ASSUMED INVEST. RATE	ACTUAL INVESTMENT RETURN	NORMAL COST	TOTAL ARC %	EMPLOYEE RATES	CITY RATES	% OF ARC PAID
2020*	N.A	7.40%	N.A	N.A	N.A	N.A	N.A	N.A
2019	77.7%	7.45%**	2.2%	15.71%	18.76%	7.38%	18.76%	N.A
2018	82.2%	7.5%	7.5%	16.52%	16.52%	7.23%	16.52%	100.8%
2017	80.8%	7.5%	11.2%	16.52%	17.08%	7.20%	17.08%	100.0%
2016	79.9%	7.5%	7.34%	16.47%	17.32%	7.06%	17.32%	100.9%
2015	63.9%	6.4%	-2.8%	16.87%	17.42%	6.88%	17.42%	101.9%

*Lincoln Fire & Police Plan year ends August 31 so the 2020 Valuation Report is not yet available.

**The assumed investment return was reduced to 7.25% -- lowered in increments of 0.05% per year until reaching the ultimate rate of 7.25% in the 2023 valuation

5

Metro Area Transit Hourly Employees:

The the investment return was 20.06% -- up considerably from last year's -4.84%. Since 2009, the assumed rate has been reduced numerous times. In 2009 it was reduced from 8% to 7.5%; in 2015 it was reduced to 7.0%; in 2016 it was reduced from to 6.75%, and in 2020 it was reduced to 6.50% (which is currently the lowest assumed rate among all reporting underfunded plans). Last year the employer paid 93.84% of its ARC payment. The current funding ratio is 66.7% slightly decreased from last year's 67.3% funding level.

Actuarial changes made in 2020 include:

➢ The asset smoothing method was changed from 4-year asymptotic to 5-year non-asymptotic smoothing

➢ Updated the mortality from the RP-2000 table with generational projection of mortality improvements per scale AA to the PUB-2010 base table with generational projection of mortality improvements per the MP Ultimate Scale.

➢ Decreased the interest rate used to value liabilities from 6.75% to 6.5%

The collective bargaining agreement between Metro and the Transport Workers Union was ratified as of January 1, 2020. Pension funding is one of the major components of these negotiations. Past and future negotiations include reopeners in each year to address required matters that might arise prior to expiration of the bargaining agreement. As noted in previous reports, in 2017, primary changes to the plan were renegotiated, which apply to employees hired on or after January 1, 2018 including: (a) changing the normal retirement date from age 65 to the age when the employee reaches full retirement for purposes of receiving Social Security benefits, (b) eliminating the early retirement option, and (c) changing the benefit factor percentage used in the calculation of the monthly benefit 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.

COVID-19 Impact: Metro Area Transit Hourly responded that due to the COVID Pandemic, their hourly employees' working hours have been reduced, thus causing a lower amount that the employees and employers will contribute to the plan in 2020. A resolution is going to be brought before the Hourly Pension Committee members and Metro Board for approval of depositing a lump sum of approximately $350,000 into the Hourly plan trust.

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
2020	66.7%	6.5%	20.06%	8.50%	N.A.	7.0%	7.5%		TBD
2019	67.3%	6.75%	-4.84%	7.36%	N.A.	7.0%	7.5%	N.A.	93.84%
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%

Omaha Civilian Employees:

The funded ratio has increased slightly from 51.8% to 52.4%. Last year's return on investment was 14.7%; this year's investment return is not yet available. The City of Omaha paid 86.8% of the ARC which has declined slightly from the percentage of the ARC paid in the previous year, which was 91.2%. The Unfunded Actuarial Liability decreased slightly from $232.5 million to $230.2 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.

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.

COVID-19 Impact:

The City of Omaha reports that though COVID-19 has had a severe impact on the tax receipts and coupled with the costs associated with the civil unrest in the summer of 2020 -- has had a major budgetary impact, those issues do not have an effect on payments to the System. The COERS System receives it contributions on a substantially equal basis from the City and the employees, which rates are negotiated with the Unions. There is no process where the entire ARC payment is made and as a result, COVID-19 has had no effect on the ability to make the entire ARC payment. We anticipate the recent impact of COVID-19 is likely to affect both economic forecasts and demographic experience. Since the actuaries expect this experience to be more short-term in nature, and assumptions are long-term estimates, they have not made any adjustments to the assumptions at this time. They intend to monitor the developments of COVID-19 and their impact over the next few years to determine if any changes should be made.

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*	52.4%	7.5%	Pending	9.74%	30.954%	10.075%	18.775%	$230,182,264	Pending
2018	51.8%	7.5%	14.7%	9.818%	31.662%	10.075%	18.775%	$232,506,762	86.80%
2017	53.0%	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%

*Omaha Civilian Plan Year ends December 31 so the valuation report based on the 2020 Plan year is not yet available.

Omaha Police and Fire:

The investment return last year was; 17.25%. The funded ratio has increased from 52.4% to 54.3%. Last year the City of Omaha contributed 96.06% of its ARC obligation, which is consistent with the percentage contributed the previous year. This year's ARC payment is pending. The Unfunded Actuarial Liability has decreased slightly from $669 million to $664 million. The most recent projection have the system fully funded in in 2046 if all assumptions are met.

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.

COVID-19 Impact:

The City of Omaha reports that though COVID-19 has had a severe impact on the tax receipts and coupled with the costs associated with the civil unrest in the summer of 2020 -- has had a major budgetary impact, those issues do not have an effect on payments to the System. The Police & Fire System receives it contributions on a substantially equal basis from the City and the employees, which rates are negotiated with the Unions. There is no process where the entire ARC payment is made and as a result, COVID-19 has had no effect on the ability to make the entire ARC payment. We anticipate the recent impact of COVID-19 is likely to affect both economic forecasts and demographic experience. Since the actuaries expect this experience to be more short-term in nature, and assumptions are long-term estimates, they have not made any adjustments to the assumptions at this time. They intend to monitor the developments of COVID-19 and their impact over the next few years to determine if any changes should be made.

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*	54.3%	7.75%	Pending	21.92%	52.955%	16.10%-17.23%	32.97%-34.44%	$663,894,041	Pending
2018	52.4%	7.75%	17.24%	22.03%	53.447%	16.10%-17.23%	32.97%-34.44%	$669,449,659	96.06%
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%

*Omaha Police & Fire Plan Year ends December 31 so the valuation report based on the 2020 Plan year is not yet available.

Omaha Public Power District:

OPPD Plan year is based on the calendar year so the 2020 Valuation Report is not yet available. In 2019 the funding ratio increased slightly to 68.9% from the previous year's funding ratio of 67.8%. The investment return in 2019 was 18.99%, which is up considerably from the previous year.

OPPD has consistently paid 100% of its ARC in each of the previous five reporting years. As a result of the 2016 Experience Study, the assumed rate of return was decreased from 7.75% to 7.0%, which was a significant decrease. The next Experience Study will be conducted next year.

OPPD has been working to address funding and long-term sustainability of the plan. 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%, 7.2% in 2019, 7.7% in 2020, 8.3% in 2021, and 9.0% in 2022 where it will remain. Negotiations with bargaining groups occur on an ongoing basis.

The district updated the mortality table in 2019 to the PUB-2010 General table projected using Scale MP-2018 with generational projection, and again updated its mortality table in 2020. 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 2040, based on the new amortization bases that were effective January 1, 2020.

COVID-19 Impact:

They do not believe that COVID-19 will have an impact on their ability to make their entire ARC payment. The actuary will be reviewing the 2020 plan experience (including the impact of COVID-19) during the study to be completed in mid-2021.

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*	68.9%	7.0%	18.99%	12.1%		7.7%	31.6%	$488,075,940	100%
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%

*Omaha Public Power District Plan year ends December 31 so the 2020 Valuation Report is not yet available.

Omaha Public School (OSERS):

Though the OSERS' Plan funding status remained unchanged at 63%, the unfunded actuarial liability increased from $814 million to $848 million. In 2019 and 2020, OPS exceeded its required contributions to the OSERS Plan. In 2019 it contributed $3.1 million more than the recommended ARC and in 2020, OPS contributed $1.8 million more than the recommended ARC. The projected actuarial required contributions (ARCs), if all assumptions are met, for the next five years are as follows:

Year	Amount of Projected ARC
2021	$21.6 million
2022	$23.2 million
2023	$24.6 million
2024	$25.9 million
2025	$27.0 million

The actuarial contribution rate is computed based on the Board of Trustees' funding policy. At the March 6, 2019 OSERS Board of Trustees meeting, the Trustees modified the system's funding policy to reset the legacy amortization base equal to the UAAL as of January 1, 2019 with payments 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. A new Experience Study will be conducted next year in 2021.

COVID-19 Impact: OPS reports that it does not anticipate that COVID-19 will have any impact on the school district's ability to remit the entire ARC payment as recommended by the actuary in 2020-21.

Omaha School Employees Retirement System Summary

YEAR	FUNDED RATIO	ASSUMED INVEST RATE	ACTUAL INVEST RETURN	NORMAL COST	TOTAL ARC%	EE RATES	OPS RATES	UAL in millions	**STATE 2% PAID in millions	%OF ARC PAID
2020*	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
2019	63%	7.5%	5.2%	12.88%	27.25%	9.78%	9.878%	$848	$7.42	108%
2018	63%	7.5%	-2.4%	12.96%	26.97%	9.78%	9.878%	$814	$7.11	107%
2017	64%	7.5%	13.5%	13.00%.	27.05%	9.78%	9.878%	$771	$6.90	100%
2016	65%	7.5%	-0.70%	13.07%	26.29%	9.78%	9.878%	$713	$6.66	82.2%

*Omaha School Employees Retirement Plan year ends December 31 so the 2020 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.

Summary Charts of 2015/16-2019/20
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
2020	66.8%	7.5%	19.7%	11.0%	18.2%	8.5%	8.5%		94.3%
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%

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*	73%	7%	14.0%	7.4%	13.46%	2.75%	9.5%		
2018	N.A.	7%	-2.4%	N.A.	12.19%	2.75%	9.5%	N.A.	104.1%
2017	74%	7%	11.7%	7.4%	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%

*Eastern Nebraska Human Services Agency Plan year ends December 31. Actuarial Valuations are conducted every other year.

Lincoln Police and Fire Plan Summary

YEAR	FUNDED RATIO	ASSUMED INVEST. RATE	ACTUAL INVESTMENT. RETURN	NORMAL COST	TOTAL ARC %	EMPLOYEE RATES	CITY RATES	% OF ARC PAID
2019*	77.7%	7.45%**	2.2%	15.71%	18.76%	7.38%	18.76%	N.A
2018	82.2%	7.5%	7.5%	16.52%	16.52%	7.23%	16.52%	104.7%
2017	80.8%	7.5%	11.2%	16.52%	17.08%	7.20%	17.08%	100.0%
2016	79.9%	7.5%	7.34%	16.47%	17.32%	7.06%	17.32%	100.9%
2015	63.9%	6.4%^	-2.8%	16.87%	17.42%	6.88%	17.42%	101.9%

*Lincoln Fire & Police Plan year ends August 31 so the 2020 Valuation Report is not yet available.

**The assumed investment return was reduced to 7.25% - lowered in increments of 0.05% per year until reaching the ultimate rate of 7.25% in the 2023 valuation.

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
2020	66.7%	6.50%	20.06%	8.50%	N.A.	7.0%	7.5%		
2019	67.3%	6.75%	-4.84%	7.36%	N.A.	7.0%	7.5%	N.A.	93.84%
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%

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*	52.4%	7.5%	Pending	9.74%	30.954%	10.075%	18.775%	$230,182,264	Pending
2018	51.8%	7.5%	14.7%	9.818%	31.662%	10.075%	18.775%	$232,506,762	86.80%
2017	53.0%	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%

*Omaha Civilian Plan Year ends December 31 so the valuation report based on the 2020 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*	54.3%	7.75%	Pending	21.92%	52.955%	16.10%-17.23%	32.97%-34.44%	$663,894,041	Pending
2018	52.4%	7.75%	17.24%	22.03%	53.447%	16.10%-17.23%	32.97%-34.44%	$669,449,659	96.06%
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%

*Omaha Police & Fire Plan Year ends December 31 so the valuation report based on the 2020 Plan year is not yet available.

Omaha Public Power District

EAR	FUNDED RATIO	ASSUMED INVEST RATE	ACTUAL INVEST RETURN	NORMAL COST	TOTAL ARC %	EE RATES	DISTRICT RATES	UAL	% OF ARC PAID
2019*	68.9%	7.0%	18.99%	12.1%		7.7%	31.6%	$488,075,940	100%
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%

*Omaha Public Power District Plan year ends December 31 so the 2020 Valuation Report is not yet available.

Omaha School Employees Retirement System Summary

YEAR	FUNDED RATIO	ASSUMED INVEST RATE	ACTUAL INVEST RETURN	NORMAL COST	TOTAL ARC %	EE RATES	OPS RATES	UAL in millions	**STATE 2% PAID in millions	% OF ARC PAID
2020*	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
2019	63%	7.5%	5.2%	12.88%	27.25%	9.78%	9.878%	$848	$7.42	108%
2018	63%	7.5%	-2.4%	12.96%	26.97%	9.78%	9.878%	$814	$7.11	107%
2017	64%	7.5%	13.5%	13.00%.	27.05%	9.78%	9.878%	$771	$6.90	100%
2016	65%	7.5%	-0.70%	13.07%	26.29%	9.78%	9.878%	$713	$6.66	82.2%

*Omaha School Employees Retirement Plan year ends December 31 so the 2020 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

Conclusion

Eight underfunded political subdivisions reported this year compared to seven the previous year. Lincoln Police and Fire, which had increased its funding level above 80% in 2017 and 2018, dropped below the 80% threshold after a 2.2% investment return and the adoption of its recent Experience Study, which lowered its assumed rate from 7.5% to 7.25% in incremental stages.

Investment Returns:

Unlike last year when all plans reported negative market investment returns, this year, six of the eight plans reported strong investment returns: Douglas County 19.7%; Eastern Nebraska Human Services Agency 14.0%; Metro Area Transit Hourly 20.06%; City of Omaha Civilian Employees 14.7%; City of Omaha Police and Fire 17.24%; and Omaha Public Power District 18.99%.

The Lincoln Police and Fire plan reported a market investment return of 2.2%, however, unlike other reporting plans, the Lincoln plan year spanned September 1, 2018 through August 31, 2019. The Omaha School Employees Plan reported a market investment return of 5.2%. In January 1, 2017, when the Nebraska Investment Council took over investment authority for the plan, it moved quickly to reposition the liquid portion of the OSERS portfolio, however, the OSERS investment portfolio continues to have over a third of its investments tied up in illiquid private investments.

Funding Levels:

Even with strong market investment returns in six of the eight plans, most funding levels experienced a small increase/decrease from the previous year that ranged between .4% and 1.9%. Douglas County increased to 66.8% from 65.6% -- an increase of 1.2%; Eastern Nebraska Human Services Agency decreased from 74% to 73% -- a 1% decrease; Metro Area Transit Hourly decreased from 67.3% to 66.7% -- a .6% dip; Omaha Civilian increased to 52.4% from 51.8% -- a .4% increase; Omaha Police & Fire increased to 54.3% from 52.4% -- an increase of 1.9%; Omaha Public Power District increased to 68.9% from 67.8% -- a 1.1% increase; OSERS remained unchanged at 63%; and as reported above, Lincoln Police and Fire decreased to 77.7% from 82.2% -- a 4.5% drop.

ARC Contributions:

Four of the eight political subdivisions contributed at least 100% of its ARC payment – Eastern Nebraska Human Services Agency, Lincoln Police and Fire, Omaha Public Power District and Omaha Public Schools. Douglas County paid 94.3% of its ARC, and Metro Area Transit Hourly paid 93.84%. The City of Omaha contributed 96.06% of the Omaha Police and Fire ARC and 86.8% of the Omaha Civilian Employees' ARC – the lowest percent contributed by any of the reporting political subdivisions.

Contribution Increases:

The most common changes to the plans to improve funding levels have been increases in the employee and employer contribution rates.

➤ Eastern Nebraska Human Services Agency has been increasing employer contributions by one-half percent annually since 2010, reaching 9.5% in 2018. Negotiations are underway to increase employer contributions to 10% and employee contributions to 3%.

➤ Metro Area Transit Hourly increased employee rates from 6% to 7% and employer rates from 6.5% to 7.5% in 2018.

➤ In 2017 Omaha Public Power District negotiations with bargaining units resulted in an increase in employee contributions, which gradually increased beginning in 2018 from 6.2% to 6.7%, 7.2% in 2019, 7.7% in 2020, and will continue to increase to 8.3% in 2021, and 9.0% in 2022 where it will remain.

➤ As part of the Police Officers agreement, the City of Omaha and the police officers in the City of Omaha Police and Fire Plan agreed to contribute an additional 0.75% of wages into the system for 2018 to 2020.

Benefit Changes:

Several plans noted that current negotiations with bargaining groups do not include pension changes. For example:

➤ In the City of Omaha Police and Fire Plan -- 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. The City of Omaha does not believe that these negotiations will include any additional pension contributions.

➤ The City of Omaha has reached agreement with all its civilian bargaining groups for a period of either 2018 to 2021 or 2018 to 2020. The City reported that none of these labor agreements addressed pension changes or reform.

There have been very few plan benefit changes to the plans in the past several years with the exception of Metro Area Transit Hourly. Metro noted that pension funding was one of the major components of negotiations between Metro and the Transport Workers Union who ratified their collective bargaining agreement as of January 1, 2020. As reported by Metro, past and future negotiations include reopeners in each year to address required matters that might arise prior to expiration of the bargaining agreement. As noted in previous reports:

➤ In 2017, changes were negotiated, which applied to employees hired on or after January 1, 2018. The primary changes included:

● changing the normal retirement date from age 65 to the age when the employee reaches full retirement for purposes of receiving Social Security benefits

● eliminating the early retirement option, and

- changing the benefit factor percentage used in the calculation of the monthly benefit 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.

COVID-19 Impacts:

This year, two new questions were added to the reporting form seeking information about: (1) the impact of COVID-19 on governmental political subdivisions' ability to pay its full ARC payment; and (2) any impact identified by the actuary on the economic and/or demographic experience. Responses varied:

> **Douglas County** reported that it has remained fiscally healthy. In the near-term, an area of caution noted by the actuary is the uncertainty of investment returns and its impact on their plan.

> **Eastern Nebraska Human Services Agency** reported that their revenues should remain the same or possibly increase due to an increase in rates. They indicated that there may be a loss of some revenue due to a loss of people the agency supports, but the rate increase offsets that. In addition, the Agency reports that revenue is slightly higher than last fiscal year. They do not expect any impact from COVID to change the agency's ability to remit its scheduled contribution to the plan.

> **The City of Lincoln** noted that tax payment delinquencies, disruption of the collection or distribution of taxes by the State or Lancaster County or other related factors may pressure the City's budget and cash flows. In addition, the economic downturn could cause reductions in assessed valuations in the City, which could lead to unsustainable levies on taxable property when combined with other levying authorities like the County and school district. The actuaries intend to monitor the developments related to COVID-19 and their impact over the next few years to determine if any changes need to be made to assumptions.

> **Metro Area Transit Hourly** responded that due to the COVID pandemic, their hourly employees' working hours have been reduced, thus causing a lower amount that the employees and employers will contribute to the plan in 2020. A resolution is going to be brought before the Hourly Pension Committee members and Metro Board for approval of depositing a lump sum of approximately $350,000 into the Hourly plan trust.

> **The City of Omaha** reported similar responses for both the Civilian Employees and the Police and Fire Plans. The City noted that though COVID-19 has had a severe impact on the tax receipts and coupled with the costs associated with the civil unrest in the summer of 2020 -- has had a major budgetary impact, those issues do not have an effect on payments to the Plans. Both the Civilian Employees System and the Police and Fire System receive its contributions on a substantially equal basis from the City and the employees, which rates are negotiated with the Unions. There is no process where the entire ARC payment is made and as a result, COVID-19 has had no effect on the ability to make the entire ARC payment. They anticipate the recent impact of COVID-19 is likely to affect both economic forecasts and demographic experience. They actuaries intend to monitor the developments of COVID-19 and their impact over the next few years to determine if any changes should be made to either plan.

➤ **Omaha Public Power District** does not believe that COVID-19 will have an impact on their ability to make their entire ARC payment. The actuary will be reviewing the 2020 plan experience (including the impact of COVID-19) during the study to be completed in mid-2021.

➤ **Omaha Public Schools** reported that it does not anticipate COVID-19 will have any impact on the school district's ability to remit the entire ARC payment for the OSERS plan as recommended by the actuary in 2020-21.

Final Observations:

Several of the plans are scheduled to conduct an Experience Study in either 2021 or 2022. If investment rate assumptions are lowered (as they have been in plans that have recently conducted an Experience Study), it will most likely further reduce funding levels for those plans.

The Committee will continue to monitor the funding progress and/or decline of each plan and each political subdivision's corrective actions and commitment to meet or exceed the funding needs as recommended by its actuary.

2020 Reporting Form for Underfunded
Political Subdivision Pension Plans

1. Please list the following information for **plan years 2015 through current plan year 2020:**
   a. Funding status
   b. Assumed rate of return
   c. Actual investment return
   d. Member and employer contribution rates -- <u>percentage</u>
   e. Normal cost – <u>percentage</u>
   f. Actuarially required contribution (ARC) – <u>percentage & dollar amount</u>
   g. ARC contribution <u>– actual dollar amount contributed & percentage of ARC actually contributed</u>

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

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

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.

7. Please describe any recent or ongoing negotiations with bargaining groups that may impact the funding of the plan.

8. When was the most recent Actuarial Experience Study conducted on the plan? Please attach a copy of the most recent Actuarial Experience Study.

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.

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.

11. **<u>NEW QUESTION</u>** – Please describe economic, or other impacts due to COVID 19 on your political subdivision which has, or may, impact the ability of the employer to meet plan funding obligations.

12. **<u>NEW QUESTION</u>** – Please describe any impacts due to COVID 19 on the plan's actuarial economic or demographic experience which may have been identified by the actuary.

Submit the information electronically by **October 15, 2020** to: Senator Mark Kolterman Chairman, Nebraska Retirement Systems Committee <u>mkolterman@leg.ne.gov</u> and Kate Allen, Committee Legal Counsel <u>kallen@leg.ne.gov.</u> If you have any questions, please contact Kate at 402-471-2626 or <u>kallen@leg.ne.gov.</u>

Appendix A

Douglas County Employees
Retirement Plan Information

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2020 Pension Plan Reporting Form

1)

	2020	2019	2018	2017	2016
Funding Status	66.8%	65.6%	68.0%	67.2%	67.3%
Assumed Rate of Return	7.5%	7.5%	7.5%	7.5%	7.5%
Actual Investment Return - Actuarial	11.6%	4.1%	11.4%	6.2%	5.6%
Actual Investment Return - Market	19.7%	(2.8%)	16.8%	6.8%	2.3%
Member & Employer Contribution Rates	8.5%	8.5%	8.5%	8.5%	8.5%
Normal Cost	11.0%	10.8%	11.2%	10.9%	10.7%
Actuarial Required Contribution (ARC)	$26.4MM (18.2%)	$24.8MM (18.1%)	$23.1MM (18.0%)	$21.5MM (17.5%)	$19.4MM (16.4%)
ARC - Actual dollars contributed	$24.9MM (expected)	$25.0MM	$23.6MM	$22.5MM	$21.5MM
ARC - Percentage of ARC contributed	94.3% (expected)	100.8%	102.2%	104.7%	110.8%

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.

In the January, 2020 Actuarial Valuation, the following actuarial assumptions were updated:

a) Pub G – 2010 Mortality Table with longer life expectancies was used.
b) Increased salary scales were implemented.

The net impact of these changes was a 1.0% decrease to the funding status and a $7.6 million increase in the actuarial unfunded liability.

4) Based on actuarial projections, the Douglas County Pension Plan is projected to reach 100% funding status in the year 2043.

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 September, 2019 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, 2020 Actuarial Valuation Report is attached.

11) There will be no financial impact due to COVID-19 on Douglas County's ability to pay the entire ARC payment recommended by the County's actuary. Property tax proceeds came in as expected and the County received a significant CARES Act award from the Federal government.

12) The plan's actuary, Silverstone Group-HUB, summary of the potential impact of COVID-19 on the Douglas County Employee's Retirement Plan is attached to this submission.

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, 2020. The report showed the plan was 66.8% funded, had net assets on an actuarial basis of $350.1 million, and had an unfunded actuarial accrued liability of $173.6 million. The plan had 3,858 participants and an equal member and employer contribution rate of 8.5% of pay. The normal cost was $15.9 million and the actuarial required contribution was $26.4 million. The funded ratio has increased from 65.6% on January 1, 2019.

To understand why the Douglas County DB Plan is only 66.8% 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 and Corrections Guards (who account for about 22% 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 9.0 percentage points from its low point in 2010 to 66.8% as of January 1, 2020. 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, 2020:

Estimated Funded Percentage*

2020	66.8%
2025	73.7%
2030	78.7%
2035	85.3%
2040	94.7%

*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.

On January 1, 2020, actuarial valuation updates were made to the mortality table and the salary scale used in the actuarial assumptions was increased. The net impact of these changes was a 1.0% decrease to the funding status and a $7.6 million increase in the actuarial unfunded liability.

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.

Douglas County

Employee's Retirement Plan

Potential COVID 19 Impact - Actuarial

The plan year for the Retirement Plan begins January 1st and ends December 31st. Annual actuarial valuations are performed as of each January 1. As of the date of the most recent actuarial valuation, there was no impact from COVID 19. The next actuarial valuation will be as of January 1, 2021.

No Significant COVID 19 Impact So Far in 2020

In discussion with the County, there has not been any significant COVID 19 impact on the plan, year to date.

- Plan Investment Performance – the plan has returned a positive 4.78% through August 31, 2020. This return is generally in line with the plan's actuarial assumption of an annual 7.50% rate of return.
- Demographic Experience – there have been no significant employment changes due to COVID 19. The County has not had any layoffs or furloughs.
- Participant Disabilities or Deaths – there have not been a significant amount of plan participants who have contracted COVID 19 and we are not aware of any participant deaths associated with COVID 19.

Fiscal Health of the County

The County has remained fiscally healthy. Recurring revenues continue to be collected as expected and in line with budget. In addition, the County has received a significant amount of federal funds in accordance with the CARES Act. Therefore, the County is able to contribute the full amount of its annual funding into the Retirement Plan.

Potential Future COVID 19 Impact

It remains to be seen what the future impact of COVID 19 may be. As medical advances continue to further our understanding of the disease and reports of one or more vaccines becoming widely available yet in 2020, there is reason for some optimism that the Retirement Plan will not be negatively impacted in a material way. However, there are some areas for caution. Especially the near-term economic uncertainty and its impact on investment return. As the Retirement Plan has a long-term focus, we expect there will be some degree of variability in performance from year to year. We will continue to monitor the impact of COVID 19 and more generally, the actual experience compared to assumed experience on an annual basis.

Welcome.

Douglas County

Employees' Retirement Plan

Actuarial Review

as of January 1, 2020

April 30, 2020

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

2

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 and FOP #8 members hired after June 30, 2014 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 benefit 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	FOP #8 Hired After 2014
Normal Retirement Date	65	65	55	55
Rule of 75	50 with Age + Svc > 75	N/A	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
FOP #8 Members Hired After 2014	▪ Age 53

- Other Benefits – may be payable upon death

4

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 30th preceding the Plan Year.
  - 2020   1.78%
  - 2019   3.01%
  - 2018   2.42%
  - 2017   2.37%
  - 2016   2.21%

6

Plan Members

Number of Members	2019	2020
Actives		
• Prior Benefit Formula With Rule 75	1,245	1,181
• Newer, Reduced Benefit Formula [1]	914	1,043
• Total	2,159	2,224
Retirees and Beneficiaries		
• Contract 39G – 12795 (after 2/28/2003)	899	969
• Contract GDA – 6148 (prior to 3/1/2003)	402	373
• Total	1,301	1,342
Vested Terminated	100	113
Terminated Non-Vested	182	155
Disabled[2]	23	24
Total	3,765	3,858
Retirees and Beneficiaries as a Percent of Total	34.6%	34.8%

[1] Includes Sheriffs and FOP #8 members.
[2] 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 – 29	6.5%
30 – 39	6.0%
40 – 44	5.5%
45 – 54	5.0%
55 +	4.5%

- Mortality Table   PubG-2010 set forward two years for males and one year for females and projected with 75% of MP-2019 improvement

- Withdrawal Rates (Sample)

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

- Member Contributions   8.5% of Pay (FOP #8 members hired after 6/30/2014 contribute 10.5% of Pay)

- County Contributions   8.5% of Pay

8

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 and FOP #8 members hired after June 30, 2014

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)

	2019	2020
Actuarial Accrued Liability	$488,372	$523,726
Actuarial Value of Assets	$320,394	$350,081
Funded Percentage	65.6%	66.8%
Unfunded Liability	$167,978	$173,645

Market Value of Assets at 1/1/2020 was $363,054; resulting in a Funded Percentage of 69.3%

Actuarial Measurements (thousands) (cont'd)

2020 Results	Consistent Assumptions	New Provisions [1]	New Assumptions [2]
Actuarial Accrued Liability	$516,180	$516,434	523,726
Actuarial Value of Assets	$350,081	$350,081	350,081
Funded Percentage	67.8%	67.8%	66.8%
Unfunded Liability	$166,099	$166,353	$173,645

[1] New benefit provisions for FOP #8 members hired after June 30, 2014.

[2] Change in assumed mortality table and salary scale.

Actuarial Determined Contribution

	2019	2020
Expected Member Contributions	$11,623	$12,530
Expected County Contributions	$11,623	$12,328
Total	**$23,246**	**$24,858**

Actuarial Determined Contribution	2019	2020
■ Normal Cost (Value Of Benefits Earned In The Year)	$14,732	$15,944
■ 25-Year Amortization of Unfunded Liability	$9,183	$9,489
■ ½ year interest	$897	$954
Total	**$24,812**	**$26,387**

*Actual total for 2019 was $24,956,737

Actuarial Determined Contribution (cont'd)

2020 Results	Consistent Assumptions	New Provisions	New Assumptions
Expected Member Contributions	$12,328	$12,530	$12,530
Expected County Contributions	$12,328	$12,328	$12,328
Total	**$24,656**	**$24,858**	**$24,858**

Actuarial Determined Contribution	Consistent Assumptions	New Provisions	New Assumptions
Normal Cost (Value Of Benefits Earned In The Year)	$15,484	$15,646	$15,944
25-Year Amortization of Unfunded Liability	$9,366	$9,379	$9,489
½ year interest	$932	$938	$954
Total	**$25,782**	**$25,963**	**$26,387**

14

Plan Asset History as of January 1

Year	Market Value of Assets	Rate of Return Prior Year
2020	$363,054,352	19.7%
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%

Note: 15-year geometric average return of 6.9%

Historical Funded Percentage

Year	Actuarial Value of Assets ($1,000s)	Actuarial Accrued Liability ($1,000s)	Funded Ratio
2020	$350,081	$523,726	66.8%
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%

Looking Forward

- Funding Policy

- 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
    - Plus additional 2% of pay for FOP #8 members hired after 2014
    - Except for sheriff deputies hired after 2011 and FOP #8 members hired after 2014, reduced at 33 years of service

- County Contributions:
  - Same Amount as Members, excluding additional 2% of pay for FOP #8 members hired after 2014

18

Risk Measures

- The Actuarial Standards of Practice require the reporting of certain risk disclosures.

- Risk is defined as the potential of <u>actual</u> future measurements deviating from <u>expected</u> 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

19

Risk Measures (cont'd)

	January 1, 2019	January 1, 2020
Market Value of Assets	$309,764,717	$363,054,352
Total Covered Payroll	$139,337,047	$148,185,887
Ratio	2.2	2.4

More risk is associated with plans whose size (assets and liabilities) are significantly larger than annual payroll.

	January 1, 2019	January 1, 2020
Market Value of Assets	$309,764,717	$363,054,352
Actuarial Accrued Liability	$488,371,719	$523,726,196
Ratio	63.4%	69.3%

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

	January 1, 2019	January 1, 2020
Retired Participant Liability	$255,904,624	$277,393,988
Total Actuarial Accrued Liability	$488,371,719	$523,726,196
Ratio	52.4%	53.0%

More risk is associated with plans whose retiree liability is a significant and growing proportion of the plan's total liability.

	January 1, 2019	January 1, 2020
Benefit Payments	$30,801,154*	$30,955,883
Total Contributions	$23,644,213	$24,956,737
Ratio	130.3%	124.0%

More risk is associated with plans whose benefit payments are significantly larger than contributions.

*Included two benefit payments in November 2018.

20

Forecast of Funded Percentage

Forecast Period	Year	Estimated Funded Percentage		
		6.5% Investment Return	7.5% Investment Return	8.5 % Investment Return
Current – Actual	2020	66.8%	66.8%	66.8%
5 Years	2025	70.9%	73.7%	76.7%
10 Years	2030	71.6%	78.7%	86.4%
15 Years	2035	72.8%	85.3%	99.5%
20 Years	2040	75.3%	94.7%	117.9%

Assumptions

- Investment Return — 7.5%, 6.5% or 8.5% per year
- Discount Rate — 7.5% for all scenarios
- Salary Scale — Graded 4.5% – 6.5%
- Mortality Table — PubG-2010 set forward two years for males and one year for females and projected with 75% of MP-2019 improvement scale
- Actuarial Cost Method — Projected Unit Credit
- Member Growth Rate — 0%
- Plan Provisions — Same as Current
- Other Assumptions and Data — Consistent with the January 1, 2020 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.
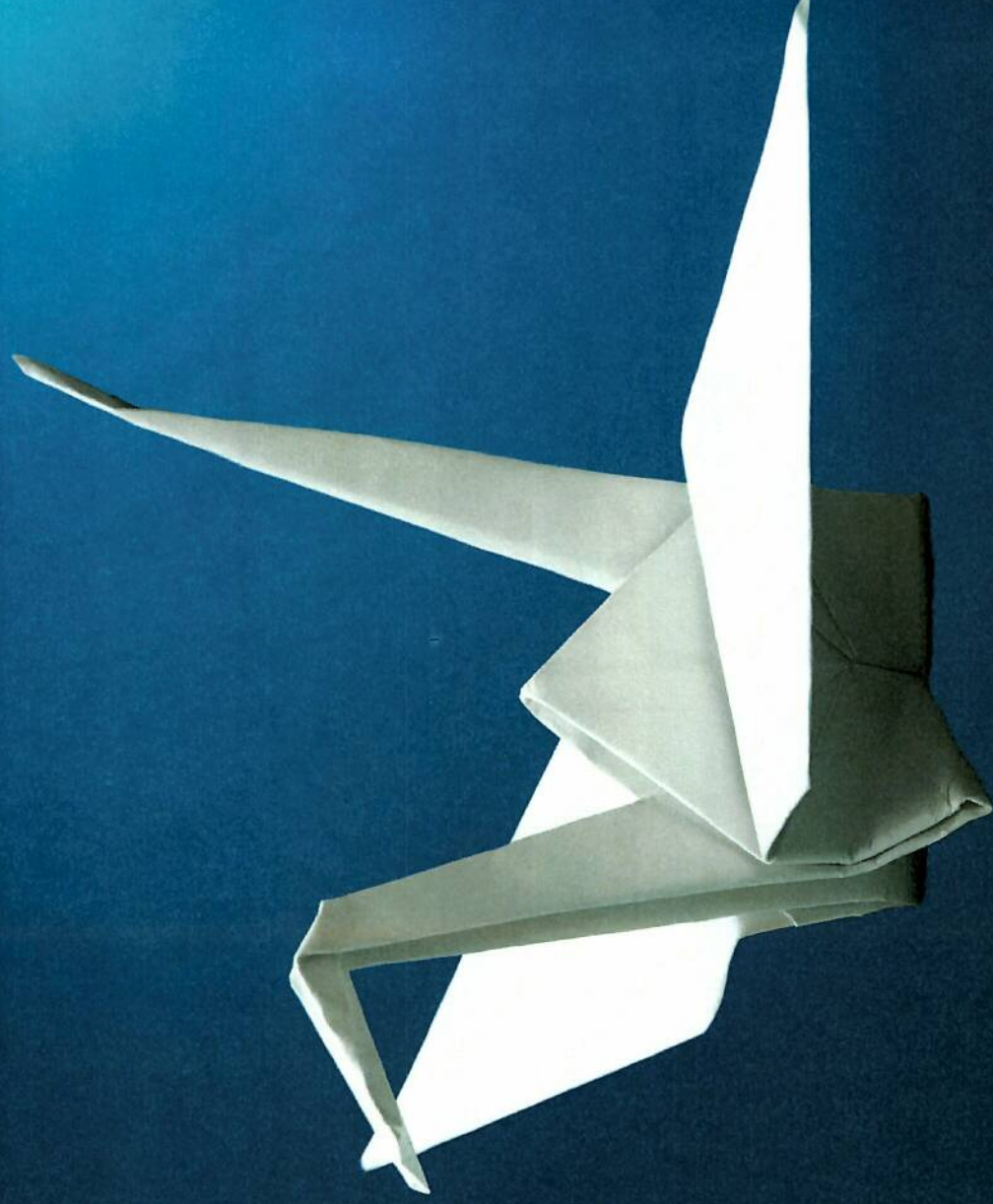
May 5, 2020

PERSONAL AND CONFIDENTIAL

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

RE: 2020 Actuarial Valuation Report

Dear Joe:

Enclosed are 20 copies of the January 1, 2020 Actuarial Valuation Report for the Douglas County Employees' Retirement Plan. The valuation was based on plan provisions and assumptions consistent with those used in the January 1, 2019 valuation except for:

- The salary scale assumption was increased from 5.50% to 6.50% for ages 18 to 29 and from 5.50% to 6.00% for ages 30 to 39.
- The mortality table was changed from the RP-2000 mortality tables projected to 2007 and further projected seven years for annuitants and 15 years for non-annuitants to the PubG-2010 table set forward two years for males and one year for females and projected with 75% of the MP-2019 improvement scale.
- The plan was amended to extend the provisions of sheriffs hired after June 30, 2011 to FOP #8 members hired after June 30, 2014. Their employee contribution rate is the same as the sheriffs plus an additional 2%.

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

Sincerely,

Glen C. Gahan, FSA
Principal

GCG/je

Enclosures

DOUGLAS COUNTY EMPLOYEES' RETIREMENT PLAN

Actuarial Valuation Report

January 1, 2020

SilverStone GROUP | HUB

SilverStone GROUP | O HUB

A HUB International company

11516 Miracle Hills Drive, Suite 100
Omaha, NE 68154
800.288.5501

hubinternational.com

May 5, 2020

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, 2020. 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 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. 20-04875

GCG/je

Enclosure

Table of Contents

Definition of Terms

This section of the report provides a brief description of terms used throughout this report.

Annual Contributions: Anticipated Member Contributions is equal to 8.50% of the covered payroll (certain Sheriff and FOP #8 members contribute less after 32 years of service. These same FOP #8 members contribute an additional 2.00% of covered payroll.) County Contributions are equal to the Anticipated Member Contributions, excluding the additional 2.00% FOP #8 contributions.

Actuarially Determined Contribution: Consists of the annual normal cost plus an amount equal to the 25-year amortization as a level percent of pay of the unfunded actuarial accrued liability, on a closed, layered basis.

Market Value of Plan Assets: Plan assets are amounts that have accumulated and will be used to meet future benefit obligations. In this exhibit, trust fund transactions reported by the trustee are traced from the prior valuation date to the current valuation date.

Actuarial Value of Plan Assets: Plan assets calculated with expected interest and adjusted by one half of the excess of the Market Value over the preliminary Actuarial Value.

Actuarial Accrued Liability: The actuarial accrued liability is equal to the sum of individual accrued liabilities for all participants. Each participant's accrued liability equals the actuarial present value of all future benefits less the present value of all future normal costs.

Unfunded Actuarial Accrued Liability: The unfunded actuarial accrued liability on the valuation date is equal to the excess of the Plan's actuarial accrued liability over the Plan's actuarial value of assets.

Annual Normal Cost: The annual normal cost is the portion of total Plan costs assigned to the current plan year by the actuarial cost method.

Financial Highlights

This section displays a summary of the results of the actuarial valuations performed for the 2018, 2019 and 2020 plan years. Additional supporting detail and history is available in other sections of the report.

	Plan Year Beginning January 1		
	2018	2019	2020
Annual Contributions			
Anticipated Member Contributions	$10,922,473	$11,623,194	$12,529,964
Anticipated County Contributions	10,922,473	11,623,194	12,328,055
Actual Total Contributions	$23,644,213	$24,956,737	N/A
Actuarially Determined Contribution	$23,134,997	$24,812,213	$26,386,713
Value of Plan Assets			
Market Value	326,905,394	309,764,717	363,054,352
(Rate of Return)	16.8%	-2.8%	19.7%
Actuarial Value	315,694,446	320,394,185	350,081,173
(Rate of Return)	11.4%	4.1%	11.6%
Actuarial Accrued Liability	464,233,774	488,371,719	523,726,196
(Funded Ratio)[1]	68.0%	65.6%	66.8%
Annual Covered Payroll	128,499,679	136,743,463	145,035,946
(Under Normal Retirement Age)			
Annual Normal Cost	14,371,624	14,732,152	15,943,752
(As a percent of covered payroll)	11.2%	10.8%	11.0%
Number of Participants			
Active	2,182	2,159	2,224
Retirees and Beneficiaries			
39G 12795 (after 2/28/2003)	830	899	969
GDA 6148 (prior to 3/1/2003)	429	402	373
Vested Terminated	106	100	113
Terminated Non-Vested	91	182	155
Disabled Participants	28	23	24
Total	3,666	3,765	3,858

[1]Funded Ratio - Expressed as the ratio of Actuarial Value of Assets to Actuarial Accrued Liability. Funded ratio is 69.3% based on the Market Value of Assets at January 1, 2020.

Comments on the Valuation

Covered Employees

Ages of Active Participants - The average age of active participants included in the valuation decreased from 45.0 for the prior year to 44.8 for the current year.

Covered Payroll and Participants - Total covered payroll increased from $139,337,047 to 148,185,887, a 6.4% increase. The number of active participants increased from 2,159 in 2019 to 2,224 in 2020.

Average Annual Compensation - The average covered compensation of active participants increased at a rate of 3.2% per year compared to an assumed annual salary increase assumption of 6.5% between ages 18-29, 6.0% between ages 30-39, 5.5% between ages 40-44, 5.0% between 45-54, and 4.5% for ages 55 and greater. The average covered compensation of all active participants was $64,538 for 2019 and $66,630 for 2020.

Investment Return

The plan's investment return was higher than the assumed rate. The approximate annual investment return was 11.6% on the actuarial value of assets for the 2019 plan year, compared to a 7.5% assumption.

Actuarial Assumptions and Methods

The mortality table has been updated from the RP-2000 mortality table projected to 2017 and further projected 7 years for annuitants and 15 years for non-annuitants to the PubG-2010 table set forward 2-years for males and 1-year for females and projected with 75% of the MP-2019 improvement scale. The salary scale assumption was updated for ages 18-29 from 5.50% to 6.50% and for ages 30-39 from 5.50% to 6.00%.

All other actuarial methods and assumptions are consistent with those used in the 2019 valuation except for a change in the interest crediting rate on employee contributions from 3.12% to 1.81%. This rate is indexed to the 10-year Treasury rate for the November preceding the plan year. The actuarial methods and assumptions are described on pages 22-24 of the Report.

Plan Provisions

The plan was amended to extend the provisions of sheriffs hired after June 30, 2011 to FOP #8 members hired after June 30, 2014. Their employee contribution rate is the same as the sheriffs plus an additional 2%.

All other plan provisions are consistent with those used in the 2019 valuation.

Market Value of Plan Assets

Summary of Changes in Value of Plan Assets

Market Value of Plan Assets on January 1, 2019		$309,764,717

Plus Increases

Actual Employee Contributions	12,717,095	
Actual County Contributions	12,239,642	
Investment Experience	60,340,966	
		85,297,703

Less Decreases

Pensions Paid to Retirees	27,919,558	
Refunds to Terminated EEs	3,036,325	
Disability Premiums/Administration	0	
Administrative Expenses	1,052,185	
		32,008,068

Market Value of Plan Assets on January 1, 2020		$363,054,352
Approximate Rate of Return		19.7%

Plan Investments	% of Total	Market Value
US Bank		
Operating Account - Cash and Cash Equivalents	0.6%	$2,166,797
Atlanta Capital	9.9%	35,785,483
State Street - Fixed Income Portfolio	2.5%	9,149,247
JP Morgan	7.2%	25,992,539
Winslow - Capital Management	4.4%	15,845,201
Sanderson International	3.4%	12,335,977
Harding Loevner	5.7%	20,785,875
Aristotle	4.0%	14,682,622
Wells Cap Emerging	6.0%	21,828,624
Macquarie	9.2%	33,577,828
Total		192,150,193
United of Omaha Insurance Company		
General Asset Account GDA 6148	19.3%	69,872,743
Small Company Fund GDA 6148	3.5%	12,707,562
Institutional Index 500 GDA 6148	23.2%	84,252,596
General Asset Account 39G-12795	1.1%	4,071,258
Total		170,904,159
Grand Total	100.0%	$363,054,352

Actuarial Value of Plan Assets

Actuarial Value of Plan Assets on January 1, 2019		$320,394,185
Plus Increases		
Member Contributions	12,717,095	
County Contributions	12,239,642	
Expected Interest	23,765,139	
		48,721,876
Less Decreases		
Pensions Paid to Retirees	27,919,558	
Refunds to Terminated EEs	3,036,325	
Disability Premiums/Administration	0	
Administrative Expenses	1,052,185	
		32,008,068
Adjusted Value on January 1, 2020		337,107,993
Market Value on January 1, 2020		363,054,352
One-Half Excess, Market Value Less Adjusted Value		12,973,180
Actuarial Value of Plan Assets on January 1, 2020		$350,081,173
Approximate Rate of Return		11.6%
Actuarial Value as a % of Market Value		96.4%

Valuation Results

	Plan Year Beginning January 1		
	2018	**2019**	**2020**

Actuarial Accrued Liability

	2018	2019	2020
1. Active	$213,480,553	$220,044,496	$235,727,894
2. Vested Terminated Participants	6,471,917	5,669,146	6,693,827
3. Terminated Non-Vested*	1,317,806	4,295,618	1,208,361
4. Disabled Participants	2,631,437	2,457,835	2,702,126
5. Retirees			
39G 12795 (after 2/28/2003)	200,362,080	218,800,343	242,973,182
GDA 6148 (prior to 3/1/2003)	39,969,981	37,104,281	34,420,806
6. Total (1) + (2) + (3) + (4) + (5)	464,233,774	488,371,719	523,726,196

Unfunded Actuarial Accrued Liability

	2018	2019	2020
1. Actuarial Accrued Liability	464,233,774	488,371,719	523,726,196
2. Actuarial Value of Plan Assets	315,694,446	320,394,185	350,081,173
3. Unfunded Accrued Liability (1) - (2)	148,539,328	167,977,534	173,645,023
4. Ratio of Assets to Accrued Benefits (2) / (1)	68.0%	65.6%	66.8%

Annual Normal Cost

	2018	2019	2020
• Retirement, Death, Termination and Disability	13,390,908	13,802,858	14,854,589
• Immediate Disability Benefit	0	0	0
• Annual Administrative Expense	980,716	929,294	1,089,163
Total	14,371,624	14,732,152	15,943,752

* Amount equal to expected refund of member contributions.

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. 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, based on a closed, layered level percent of pay. 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	2020
Annual Normal Cost	$14,371,624	$14,732,152	$15,943,752
Amortization of the Unfunded Accrued Liability	7,927,168	9,183,234	9,489,224
Interest	836,205	896,827	953,737
Actuarially Determined Contribution	23,134,997	24,812,213	26,386,713

Actuarial Methodology

Actuarial Cost Method	Projected Unit Credit	Projected Unit Credit	Projected Unit Credit
Amortization Method	Level Percent of Pay	Level Percent of Pay	Level Percent of Pay
Amortization Period	25 Years, Close Period	25 Years, Close Period	25 Years, Close Period
Actuarial Assumptions	Same, as described in report	Same, as described in report	Same, as described in report
Actual Contributions	$23,644,213	$24,956,737	N/A

Amortization of Unfunded Accrued Liability

The annual contribution rate to the Employees' Retirement Plan increased from 5.5% of reported earnings to 6.5% in 2006, 7.5% in 2007 and 8.5% in 2008 and thereafter for both Members and the County. Contributions for Members of the Sheriffs department hired after July 1, 2011 will decrease after 32 years of service. FOP #8 members hired after June 30, 2014 contribute the same as the Sheriffs plus an additional 2% of pay.

As valued as of January 1, 2020, the Accrued Liability exceeds the Actuarial Value of Plan Assets by $173,645,023. The amount of expected annual contributions exceeds the Annual Normal Cost by $8,914,267. Favorable plan experience following the valuation date will reduce the UAL. Unfavorable plan experience will increase the UAL.

	Plan Year Beginning January 1		
	2018	2019	2020
Plan Contributions			
Anticipated Member Contributions	$10,922,473	$11,623,194	$12,529,964
Anticipated County Contributions	10,922,473	11,623,194	12,328,055
Contribution Available to Reduce UAL			
Total County and Member Contributions	21,844,946	23,246,388	24,858,019
Annual Normal Cost	14,371,624	14,732,152	15,943,752
Amount Available to Reduce UAL	7,473,322	8,514,236	8,914,267
Unfunded Accrued Liability	148,539,328	167,977,534	173,645,023
Years Required to Amortize the UAL			
• as a level percent of pay	26.0	25.7	24.3
• as a level dollar amount	Unable to Amortize	Unable to Amortize	Unable to Amortize

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
2,033,084	January 1, 2020	Assumption Change, Amendment, Actuarial Gain

Minimum Funding

The Unamortized Balance is based on the methodology 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	22	8,200,907
5,714,314	25	23	317,459
16,456,582	25	24	868,848
2,033,084	25	25	102,010
		Total	$9,489,224

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 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, 2019	January 1, 2020
Retired Participant Liability	255,904,624	277,393,988
Total Plan Liability	488,371,719	523,726,196
Ratio	52.4%	53.0%

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, 2019	January 1, 2020
Contributions in prior year	23,644,213	24,956,737
Benefit Payments in prior year	(30,801,154)	(30,955,883)
Net Cash Flow	(7,156,941)	(5,999,146)

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, 2019	January 1, 2020
Duration of Plan Liability	12.0 years	12.2 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, 2019	January 1, 2020
Market Value of Assets	309,764,717	363,054,352
Total Covered Payroll	139,337,047	148,185,887
Asset Volatility Ratio	2.2	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, 2019	January 1, 2020
Market Value of Assets	309,764,717	363,054,352
Actuarial Accrued Liability	488,371,719	523,726,196
Ratio	63.4%	69.3%

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

	January 1, 2019	January 1, 2020
Actuarial Accrued Liability	488,371,719	523,726,196
Total Covered Payroll	139,337,047	148,185,887
Liability Volatility Ratio	3.5	3.5

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.

Summary of Historical Valuation Results

Annual Normal Cost

Bar chart of Annual Normal Cost by year:
- 2016: $12,627,155
- 2017: $13,486,236
- 2018: $14,371,624
- 2019: $14,732,152
- 2020: $15,943,752

Annual Normal Cost as a Percentage of Covered Payroll

Bar chart of Annual Normal Cost as a Percentage of Covered Payroll by year:
- 2016: 10.7%
- 2017: 10.9%
- 2018: 11.2%
- 2019: 10.8%
- 2020: 11.0%
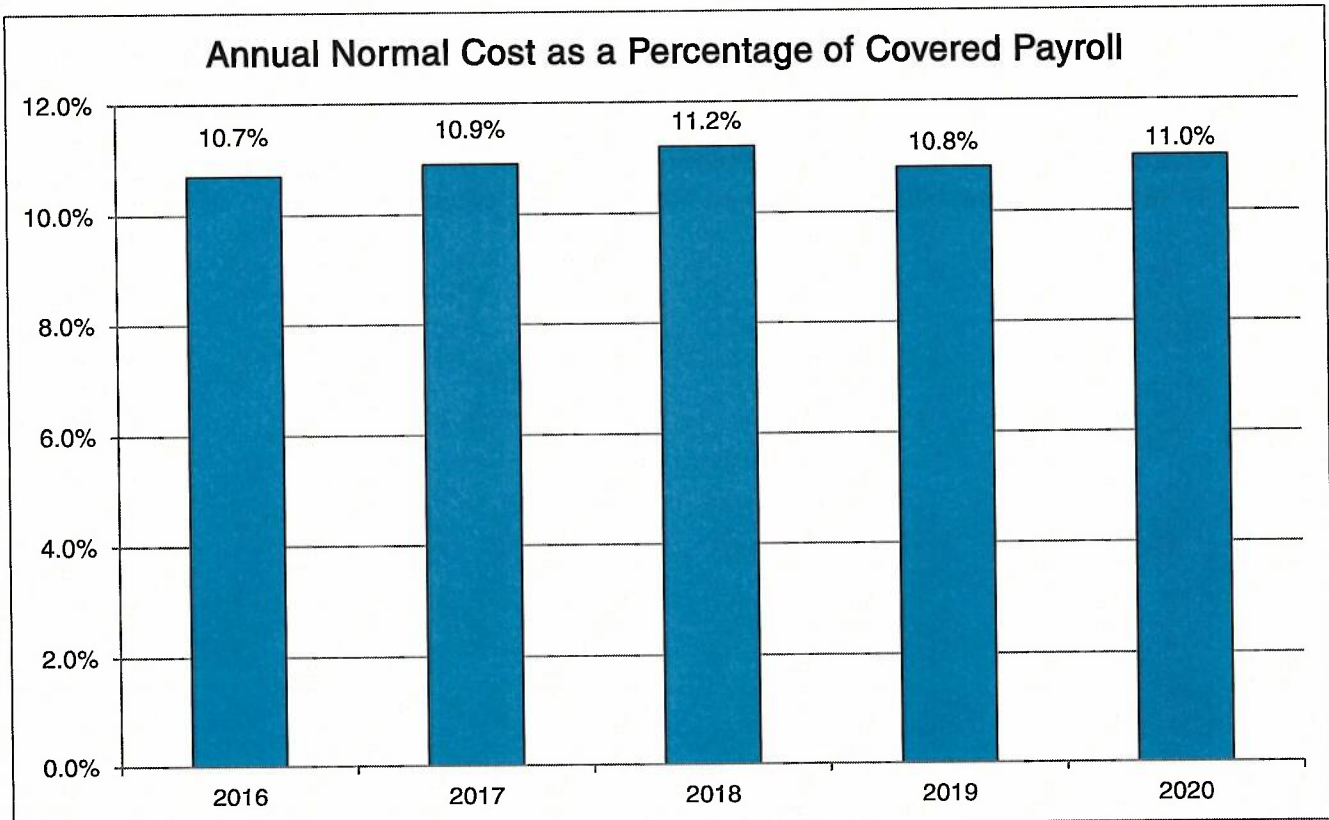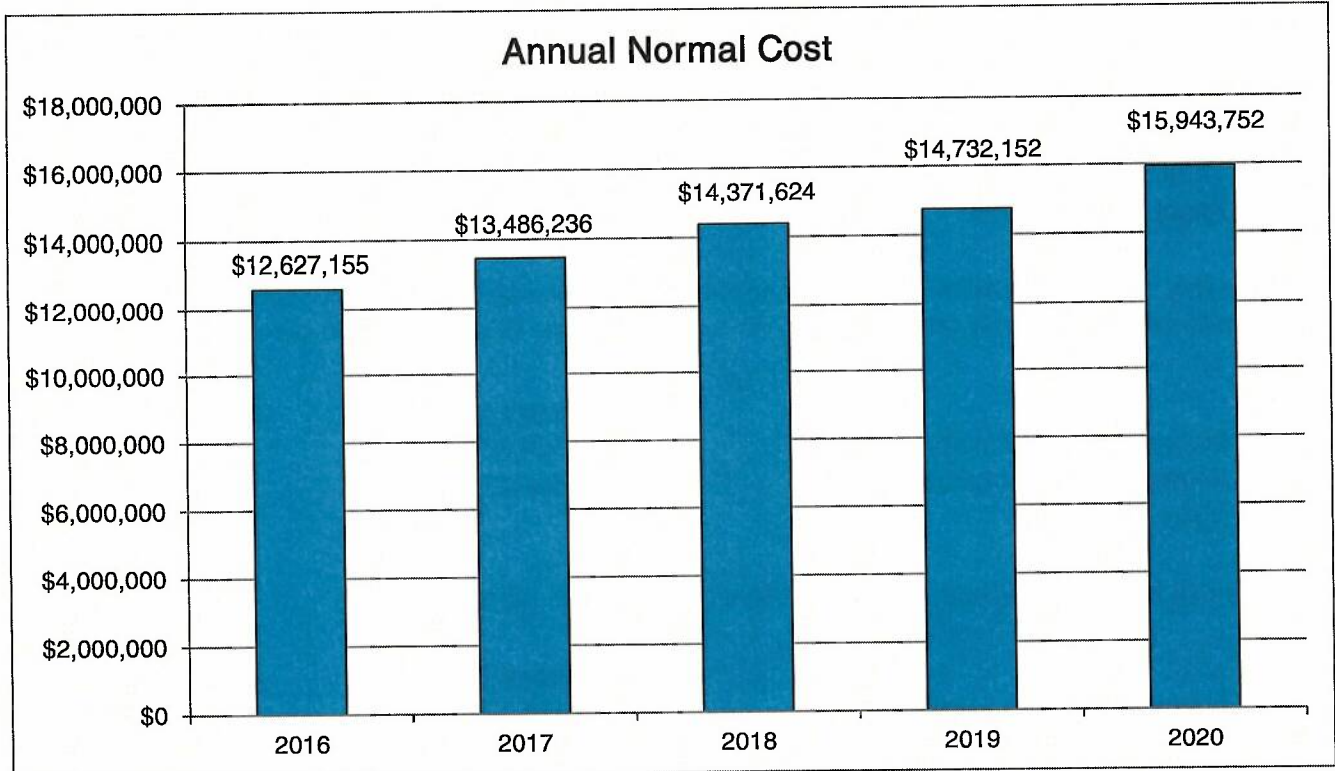
Summary of Historical Valuation Results

(continued)

Year	Annual Return on Market Value of Assets	Annual Return on Actuarial Value of Assets
2019	19.7%	11.6%
2018	-2.8%	4.1%
2017	16.8%	11.4%
2016	6.8%	6.2%
2015	2.3%	5.6%
2014	5.2%	9.0%
2013	18.9%	13.2%
2012	10.3%	7.6%
2011	0.5%	5.0%
2010	11.0%	9.7%
2009	16.0%	3.8%
2008	-18.7%	-6.4%
2007	4.9%	7.2%
2006	12.1%	10.0%
2005	7.1%	7.8%
2004	10.0%	8.7%
2003	15.7%	7.3%
2002	-4.6%	0.0%
2001	1.3%	2.4%
2000	2.3%	6.2%
1999	7.3%	N/A
1998	7.7%	N/A
1997	13.3%	N/A
1996	10.6%	N/A
1995	17.2%	N/A
1994	2.4%	N/A
1993	10.4%	N/A
1992	7.9%	N/A
1991	15.5%	N/A
1990	6.7%	N/A
1989	15.5%	N/A
1988	11.5%	N/A
1987	4.4%	N/A
1986	15.5%	N/A
1985	20.6%	N/A
Average	6.7% (20 yrs) 8.6% (35 yrs)	6.5% (20 yrs)

The Plan's Asset Method was changed to Actuarial Value in 2000. The annual return on the Actuarial Value of Assets was not calculated prior to this change.
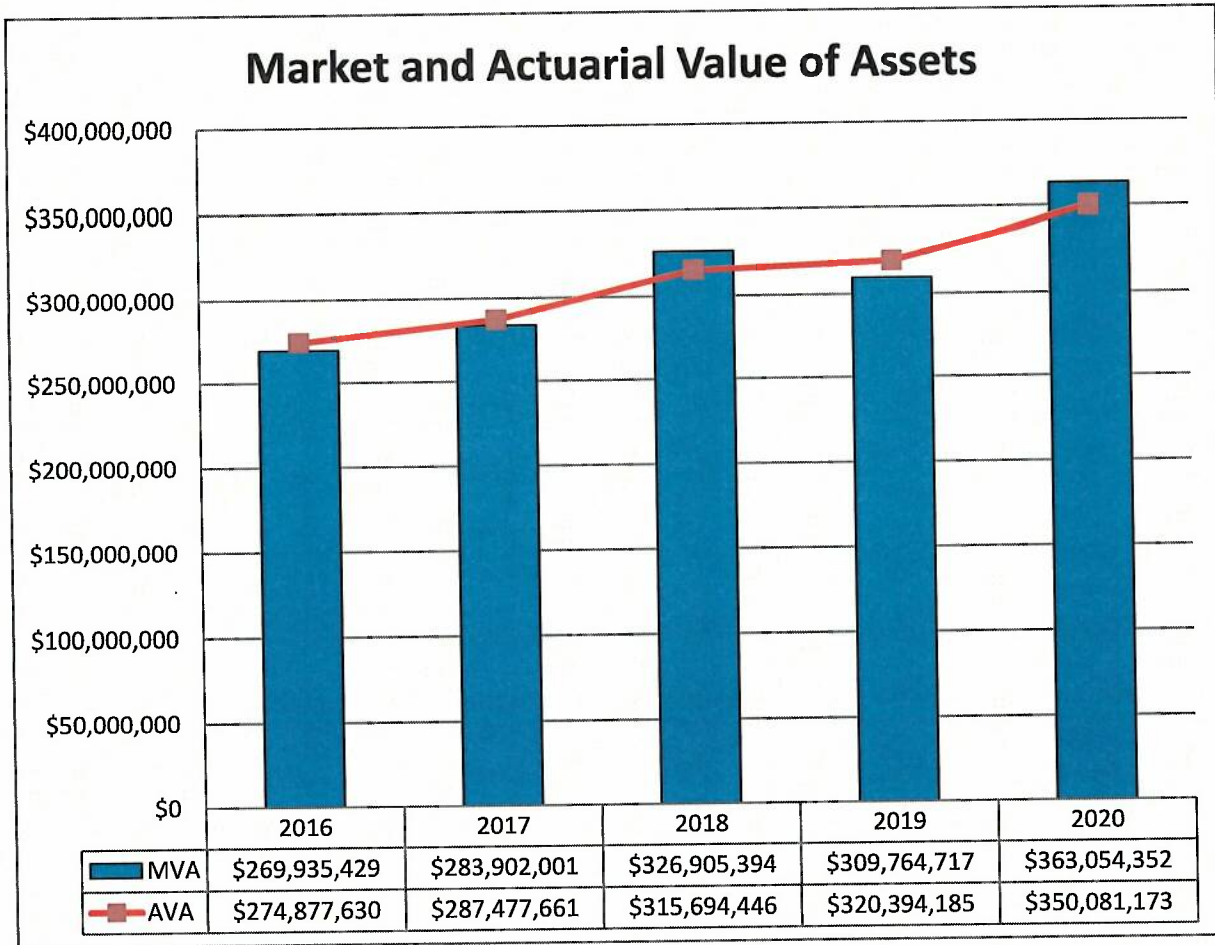
Market and Actuarial Value of Assets

	2016	2017	2018	2019	2020
MVA	$269,935,429	$283,902,001	$326,905,394	$309,764,717	$363,054,352
AVA	$274,877,630	$287,477,661	$315,694,446	$320,394,185	$350,081,173

Summary of Historical Valuation Results
(continued)

Actuarial Accrued Liability vs. Actuarial Value of Assets

	2016	2017	2018	2019	2020
■ AAL	$408,661,878	$427,763,448	$464,233,774	$488,371,719	$523,726,196
■ AVA	$274,877,630	$287,477,661	$315,694,446	$320,394,185	$350,081,173

Funded Ratio

2016	2017	2018	2019	2020
67.3%	67.2%	68.0%	65.6%	66.8%
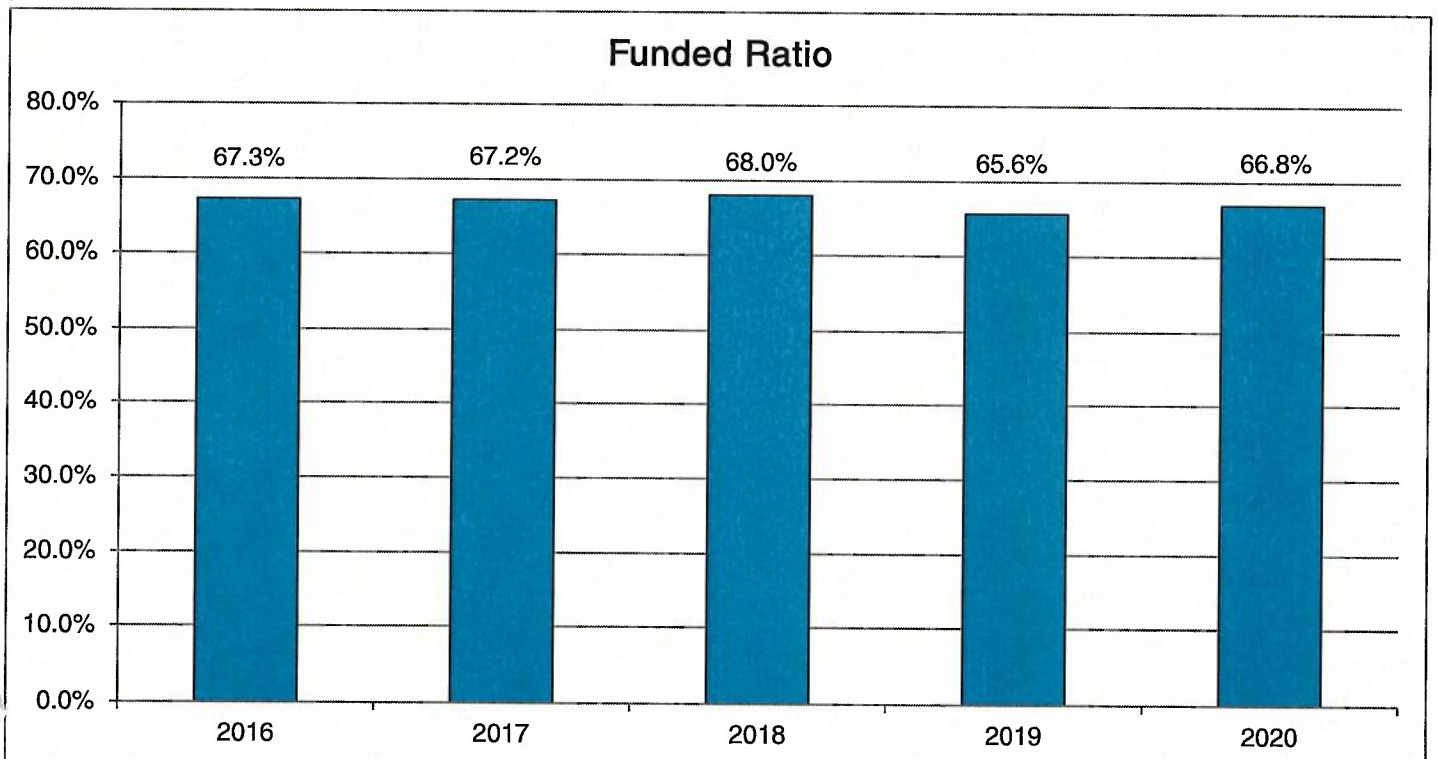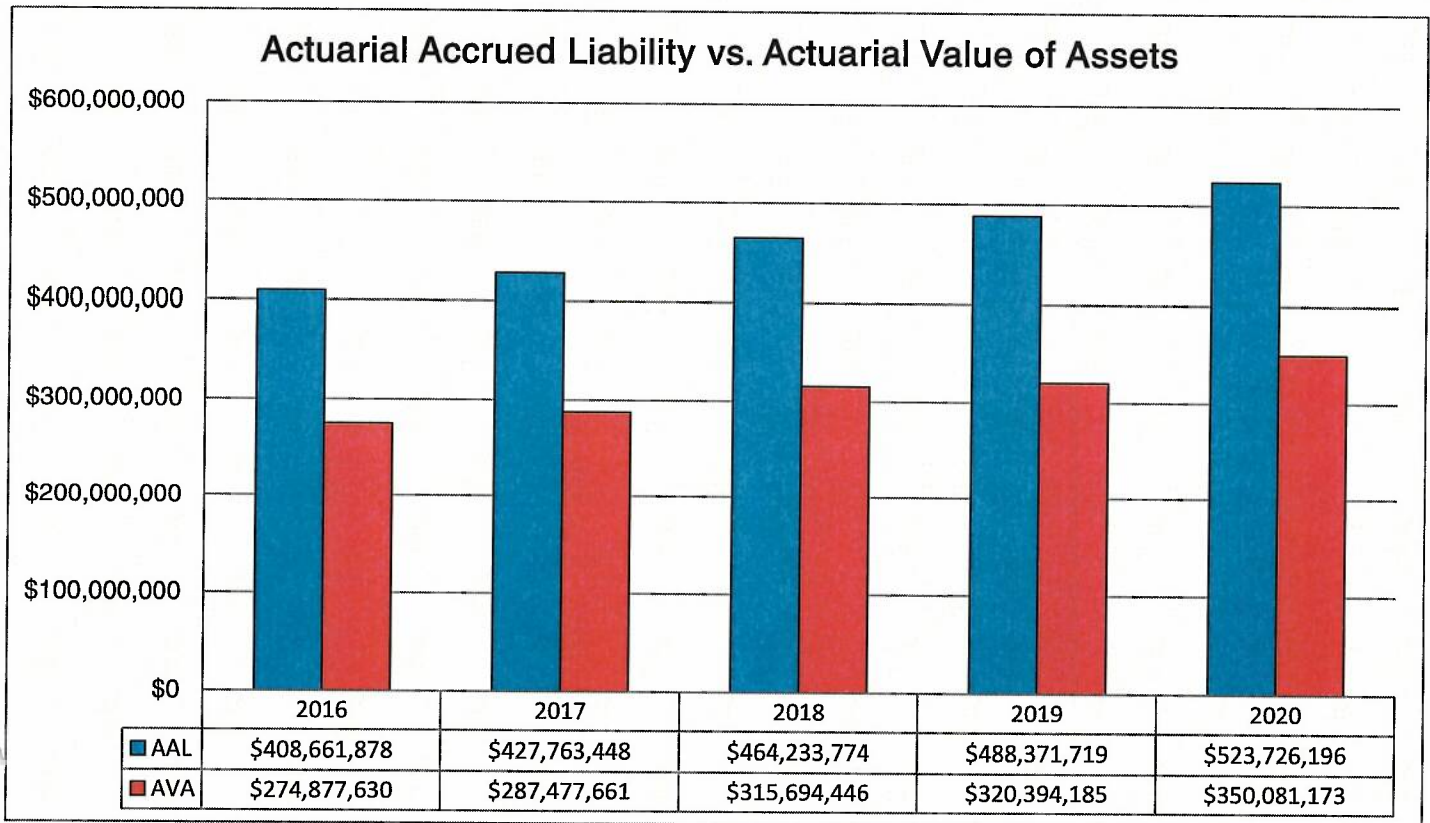
Historical Market and Actuarial Value of Assets

Year	Market Value of Assets	Actuarial Value of Assets	AVA as % of MVA
2020	363,054,352	350,081,173	96.4%
2019	309,764,717	320,394,185	103.4%
2018	326,905,394	315,694,446	96.6%
2017	283,902,001	287,477,661	101.3%
2016	269,935,429	274,877,630	101.8%
2015	267,549,482	263,789,654	98.6%
2014	258,340,593	245,830,308	95.2%
2013	219,605,063	219,494,329	99.9%
2012	200,860,360	205,795,168	102.5%
2011	199,988,291	196,119,468	98.1%
2010	179,166,378	177,797,061	99.2%
2009	151,275,593	167,993,744	111.1%
2008	184,386,700	177,833,982	96.4%
2007	175,115,759	165,309,144	94.4%
2006	157,653,656	151,686,147	96.2%
2005	148,916,100	142,402,678	95.6%
2004	137,080,947	132,768,961	96.9%
2003	119,929,319	125,237,848	104.4%
2002	126,751,547	126,336,366	99.7%
2001	125,752,053	123,971,024	98.6%
2000	123,913,647	117,625,992	94.9%

History of Plan Funding

Year	Actuarial Value Of Assets ($1,000s)	Actuarial Accrued Liability Before Changes ($1,000s)	After Changes ($1,000s)	Funded Ratio Before Changes	After Changes
2020	$350,081	$516,180	$523,727	67.8%	66.8%
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%

History of Plan Changes

2020 FOP #8 members hired after June 30, 2014 benefit under the same plan provisions as Sheriff Deputies hired after June 30, 2011. The employee contribution rate is the same as the Sheriffs plus an additional 2% of pay.

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%

2003 Beginning March 2003 all new retirees have their pension benefit paid from plan assets but not covered under an insurance contract.

History of Plan Changes

(continued)

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

1997
- 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
- Rule of 75 for law enforcement
  Unreduced benefit upon Rule of 75
  2.0% benefit formula after January 1, 1962
  5.5% member contributions
- Participation begins on first day of employment
- Increase retiree pension by 4% but not less than $10 a month

1994
- 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
- Decrease in interest rate on employee contributions to 5% effective July 1, 1994
- Increase retiree pension by 3%

1992
- Early Retirement Incentive Program (112 members elected benefit)
- Early Termination of Employment Incentive Program (188 members elected benefit)
- Increase retiree pension by 3%

1990
- 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
- Increase retiree pension by 4%
- Vesting changed from 25% after 5 graded to 100% after 15 to 25% after 5 increased 15% a year up to 10
- Maximum Disability Benefit increased from $36,000 to $57,600

1988
- Benefit formula change to the following:
    1% of pay for service before January 1, 1962
    1.425% of pay for service after January 1, 1962
- Increase retiree pension by 4%, but no less than $5 a month
- Changed eligibility requirements to include participants hired after age 60

1986
- 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
- Increase retiree pension by 6% but not less than $5 a month

1984
- Increased benefit formula from 1.1% of pay to 1.2% for service after January 1, 1974
- Increase retiree pension by 6%, but not less than $5 a month

1982
- Added Special Early Retirement
- Benefit formula change from 1% of pay to 1.1% of pay for service after January 1, 1972
- Increase retiree pension by 6%, but not less than $10 a month
- Changes in disability retirement provisions
- Changes in actuarial assumptions
- Special provisions for county employees change to state employees

1980
- Special Early Retirement
- Change in service definition – unlimited sick leave
- $10/month increase in pension to retirees
- Added Late Retirement Benefit

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. 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
18-29	6.50%
30-39	6.00%
40-44	5.50%
45-54	5.00%
55+	4.50%

Mortality Rates

PubG-2010 set forward 2-years for males and 1-year for females and projected with 75% of MP-2019 improvement scale.

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 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%

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

Age	Sheriffs hired after June 30, 2011	and	FOP #8 members hired after June 30, 2014
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% at 30 years of service.

Interest Rate on Employee Contributions

1.78% per annum, based on the 10-year treasury rate as of November 30th preceding the valuation date.

Administrative Expenses

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

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 and FOP #8 members hired after June 30, 2014).

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 and FOP #8 members hired after June 30, 2014. 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 and FOP #8 members hired after June 30, 2014, 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 and FOP #8 members hired after June 30, 2014.

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.

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 as of November 30th, 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.

Summary of Plan Provisions
(continued)

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 and FOP #8 members hired after June 30, 2014 contribute according the following schedule:

Years of Service	Sheriff Percentage	FOP #8 Percentage
Less than 33	8.50%	10.50%
33	7.50%	9.50%
34	6.50%	8.50%
35 or more	5.50%	7.50%

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		
	2018	**2019**	**2020**
Active Participants			
Number	2,182	2,159	2,224
Average Attained Age	45.1	45.0	44.8
Average Past Service	10.5	10.6	10.3
Total Covered Payroll	$130,901,112	$139,337,047	$148,185,887
Average Annual Compensation	59,991	64,538	66,630
Actives under old formula	1,332	1,245	1,181
Percent of Total Actives	61.0%	57.7%	53.1%
Actives under reduced formula	850	914	1,043
Percent of Total Actives	39.0%	42.3%	46.9%
Non-Active Participants			
Number	1,484	1,606	1,634
Average Attained Age	67.5	66.4	66.2
Total Annual Benefits	28,191,227	32,605,327	31,508,854
Average Annual Benefit	18,997	20,302	19,283
Retirees under Mutual Contract	429	402	373
Total Retirees	1,259	1,301	1,342
Percent of Total Retirees	34.1%	30.9%	27.8%

Participant Census Statistics

(continued)

January 1, 2020

Active Participants Included in Valuation

Age at Valuation Date	Years of Service								Total	Average Salary
	0-4	5-9	10-14	15-19	20-24	25-29	30-34	35+		
Under 20	3	0	0	0	0	0	0	0	3	19,586
20-24	85	1	0	0	0	0	0	0	86	43,744
25-29	184	17	0	0	0	0	0	0	201	49,261
30-34	141	80	21	0	0	0	0	0	242	58,641
35-39	115	83	73	23	0	0	0	0	294	64,025
40-44	76	50	62	56	21	0	0	0	265	71,763
45-49	69	41	54	65	68	8	2	0	307	73,721
50-54	48	32	47	55	59	32	5	0	278	73,558
55-59	49	32	59	39	26	23	16	5	249	73,525
60-64	29	28	45	24	29	16	8	7	186	67,211
65 & Over	22	17	16	16	19	9	4	10	113	75,566
Total	821	381	377	278	222	88	35	22	2,224 *	66,630
Average Salary	50,749	65,517	75,298	78,464	83,465	86,893	83,343	102,998	66,630	

Average Salary - based on Total Covered Payroll for 2020.

* 1,043 actives (46.9% of all active participants) are under the reduced plan formula.

Douglas County Employees' Retirement Plan

Active Participant Age Distribution
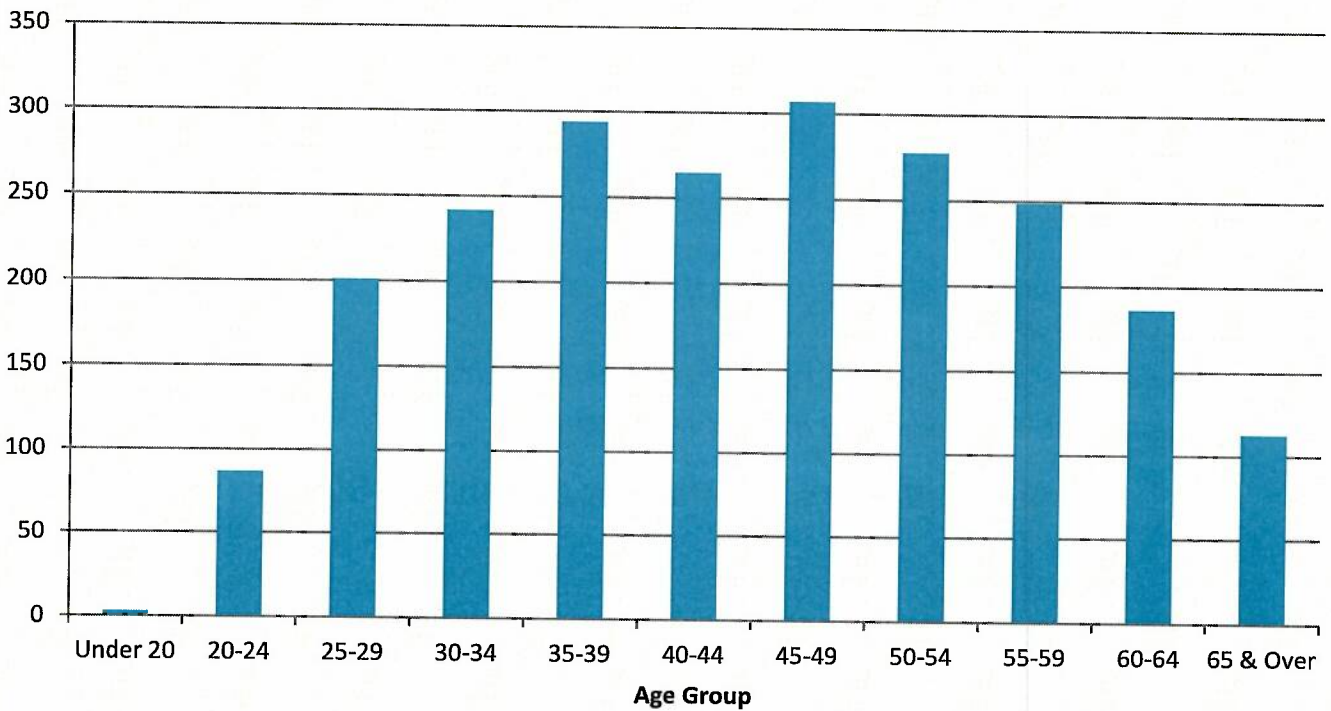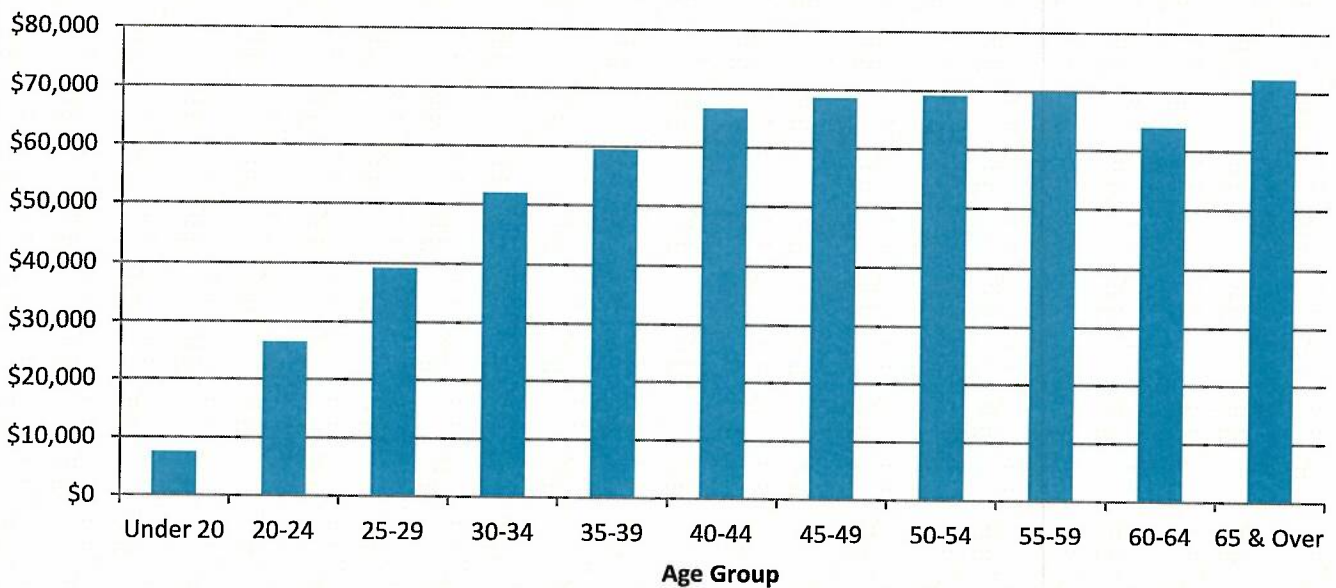
Average Salary by Age

Participant Census Statistics

January 1, 2020
Non-Active Participants Included in Valuation

	Number	Total Annual Benefit	Average Annual Benefit
Retired & Beneficiary			
39G 12795 (after 2/28/2003)	969	$23,600,152	$24,355
GDA 6148 (prior to 3/1/2003)	373	4,873,930	13,067
Vested Terminated	113	1,210,049	10,708
Terminated Non-Vested	155	1,208,361	7,796 *
Disabled Participants	24	616,362	25,682
Total	1,634	31,508,854	19,283

* Amount equal to expected refund of member contributions.

Retired & Beneficiary Participants in Pay Status

Age	Number	Total Annual Benefit	Average Annual Benefit
Under 50	13	$152,286	$11,714
50-54	43	1,663,828	38,694
55-59	105	3,600,819	34,294
60-64	185	5,199,364	28,105
65-69	284	6,387,480	22,491
70-74	261	5,500,309	21,074
75-79	184	3,051,349	16,583
Over 79	267	2,918,647	10,931
Total	1,342	28,474,082	21,218

Disabled Participants in Pay Status**

Age	Number	Total Annual Benefit	Average Annual Benefit
Under 45	0	$0	$0
45-49	0	0	0
50-54	1	9,346	9,346
55-59	1	16,671	16,671
Over 59	0	0	0
Total	2	26,017	13,009

**Disability payments are paid from the Plan for the first 5 years. Payments after five years are paid under the disability insurance contract for eligible disabled participants prior to July 1, 2015.

Participant Census Statistics

(continued)

	Active	Deferred	Disabled	Retired	Beneficiary	Total
		Non-Active				
Number on January 1, 2019	2,159	282	23	1,097	204	3,765
Terminated						
Non-Vested	0	0	0	0	0	0
Vested – Lump Sum	-77	-56	0	0	0	-133
Vested – Deferred	-63	+63	0	0	0	0
Disabled	-3	-2	+5	0	0	0
Deceased						
Vested – Lump Sum	0	0	0	0	0	0
Vested – Beneficiary	-2	-2	0	-12	+12	-4
No Additional Benefit	0	0	0	-23	-13	-36
Retired						
Monthly Benefit	-54	-26	-3	+83	0	0
Lump Sum	0	0	0	0	0	0
Certain Period Expired	0	0	0	0	-5	-5
Return to Active	+7	-5	-1	-1	0	0
New Entrants or Prior Omissions During Plan Year	+257	+14	0	0	0	+271
Number on January 1, 2020	2,224	268	24	1,144	198	3,858

Non-Active Participants	Number	Annual Benefit
Deferred Participants		
Vested Participants	113	$1,210,049
Non-vested Participants	155	1,208,361 *
Disabled Participants	24	616,362
Retired & Beneficiary Participants	1,342	28,474,082

* Amount equal to expected refund of member contributions.

Douglas County
Employees' Retirement Plan

2019 Experience Analysis

September 2019

SilverStone
GROUP

Table of Contents

Overview

A Plan Experience Analysis was performed to compare actual plan experience to the expected experience based on the Plan's actuarial assumptions.

The assumptions analyzed were:

- Rates of Termination

- Rates of Retirement
  - Rule of 75
  - Other than Rule of 75

- Rates of Salary Increases

- Rates of Mortality

- Rates of Investment Return

Actuarial Assumptions Recommendation

Based on a review of actual and expected experience over the past five years, the following revisions to the actuarial assumptions are recommended.

Rates of Termination

No changes recommended

Rates of Retirement

Rule of 75

No changes recommended

Other than Rule of 75

No changes recommended

Rates of Salary Increases

We recommend increasing the assumed rates of salary increases for ages prior to age 40.

Age	Current	Recommended
20-24	5.50%	6.50%
25-29	5.50%	6.50%
30-34	5.50%	6.00%
35-39	5.50%	6.00%

Rates of Mortality

The Society of Actuaries published a new public pension mortality table in 2019. This new table includes a generational mortality improvement scale. We recommend adopting the PubG-2010 mortality table with a 1-year set forward for males and females and projected from 2010 with 75% of the MP-2018 improvement scale.

Rates of Investment Return

No changes recommended, based on direction of the County and investment advisor.

Comparison of Actual and Expected Rates

Terminations

Age Group	2018 Actual	2018 Exp	2018 Ratio	2017 Actual	2017 Exp	2017 Ratio	2016 Actual	2016 Exp	2016 Ratio	2015 Actual	2015 Exp	2015 Ratio	2014 Actual	2014 Exp
20-24	21	17	123%	12	14	88%	16	14	112%	17	13	129%	14	7
25-29	50	24	207%	29	22	133%	25	23	109%	25	23	107%	26	28
30-34	32	24	134%	38	26	145%	26	25	104%	24	24	99%	26	30
35-39	33	24	137%	17	22	77%	23	22	107%	21	20	104%	24	26
40-44	23	15	154%	18	16	115%	17	16	105%	17	17	101%	17	27
45-49	19	12	155%	17	13	135%	13	12	105%	14	12	120%	19	19
50-54	12	7	178%	14	7	209%	6	7	88%	7	7	99%	6	10
55-59	9	4	203%	7	5	153%	5	4	114%	7	4	159%	12	2
60-62	4	3	131%	1	3	36%	2	3	76%	2	2	88%	3	0
Total	203	131	155%	153	126	122%	133	126	105%	134	123	109%	147	149

5-Year Summary

Age	Actual	Exp	Ratio
20-24	80	65	123%
25-29	155	121	129%
30-34	146	130	113%
35-39	118	113	104%
40-44	92	90	102%
45-49	82	68	121%
50-54	45	37	120%
55-59	40	20	199%
60-62	12	11	111%
Total	770	655	118%

Comparison of Actual and Expected Rates
(continued)

Rule of 75 Retirements

Age	5-Year Summary			2018			2017			2016			2015			2014	
	Actual	Exp	Ratio	Actual	Exp	Ratio	Actual	Exp	Ratio	Actual	Exp	Ratio	Actual	Exp	Ratio	Actual	Exp
50	20	15.30	131%	5	2.70	185%	3	2.70	111%	4	1.80	222%	4	5.40	74%	4	2.70
51	10	8.20	122%	1	0.90	111%	2	0.75	267%	1	1.55	65%	5	1.25	400%	1	3.75
52	4	7.55	53%	0	1.05	0%	2	2.30	87%	0	0.85	0%	1	1.25	80%	1	2.10
53	4	6.70	60%	2	1.80	111%	0	1.25	0%	0	1.30	0%	1	0.85	118%	1	1.50
54	8	8.05	99%	2	1.40	143%	2	1.40	143%	2	1.80	111%	0	1.05	0%	2	2.40
55	13	11.20	116%	4	3.10	129%	6	3.30	182%	1	1.40	71%	1	1.90	53%	1	1.50
56	15	12.60	119%	5	1.90	263%	5	3.00	167%	2	2.70	74%	2	2.00	100%	1	3.00
57	13	9.75	133%	4	1.50	267%	2	2.00	100%	2	1.00	200%	3	2.70	111%	2	2.55
58	6	12.95	46%	0	1.80	0%	0	1.00	0%	2	4.50	44%	1	3.10	32%	3	2.55
59	9	13.85	65%	3	2.00	150%	2	3.40	59%	2	3.40	59%	1	2.80	36%	1	2.25
60	18	15.45	117%	5	3.60	139%	4	3.10	129%	5	2.90	172%	2	3.30	61%	2	2.55
61	12	12.85	93%	2	3.00	67%	1	2.00	50%	2	2.50	80%	3	1.90	158%	4	3.45
62	17	23.00	74%	5	3.80	132%	2	4.80	42%	1	2.70	37%	3	2.80	107%	6	8.90
63	18	18.50	97%	8	5.50	145%	5	3.30	152%	1	2.70	37%	2	4.30	47%	2	2.70
64	16	14.90	107%	3	2.60	115%	1	3.00	33%	6	4.00	150%	4	1.70	235%	2	3.60
65	0	0.00		0	0.00		0	0.00		0	0.00		0	0.00		0	0.00
66	0	0.00		0	0.00		0	0.00		0	0.00		0	0.00		0	0.00
67	0	0.00		0	0.00		0	0.00		0	0.00		0	0.00		0	0.00
68	0	0.00		0	0.00		0	0.00		0	0.00		0	0.00		0	0.00
69	0	0.00		0	0.00		0	0.00		0	0.00		0	0.00		0	0.00
Total	183	190.85	96%	49	36.65	134%	37	37.3	99%	31	35.10	88%	33	36.3	91%	33	45.50

Comparison of Actual and Expected Rates

Early and Normal Retirements

Age	5-Year Summary Actual	Exp	Ratio	2018 Actual	Exp	Ratio	2017 Actual	Exp	Ratio	2016 Actual	Exp	Ratio	2015 Actual	Exp	Ratio	2014 Actual	Exp
<=60	5	4.40	114%	1	0.65	154%	1	0.95	105%	0	1.10	0%	2	0.95	211%	1	0.7
61	6	3.95	152%	0	0.75	0%	3	1.10	273%	0	0.70	0%.	1	0.55	182%	2	0.88
62	5	7.70	65%	1	1.90	53%	0	1.10	0%	1	1.00	100%	1	1.30	77%	2	2.40
63	4	3.90	103%	2	0.60	333%	1	0.80	125%	0	1.10	0%	1	0.90	111%	0	0.50
64	5	3.30	152%	2	0.60	333%	1	0.90	111%	0	0.70	0%	2	0.40	500%	0	0.70
65	25	22.50	111%	7	6.30	111%	5	6.30	79%	3	2.10	143%	7	5.10	137%	3	2.70
66	24	18.30	131%	4	4.80	83%	0	1.20	0%	4	3.30	121%	10	7.50	133%	6	1.50
67	12	11.70	103%	2	1.20	167%	1	2.40	42%	4	4.50	89%	2	2.40	83%	3	1.20
68	6	11.30	53%	2	2.40	83%	1	3.30	30%	0	1.80	0%	1	2.70	37%	2	1.10
69	5	10.90	46%	2	3.30	61%	0	1.50	0%	2	2.40	83%	0	2.70	0%	1	1.00
Subtotal	97	97.95	99%	23	22.50	102%	13	19.55	66%	14	18.70	75%	27	24.50	110%	20	12.70
70+	23	125.00	18%	5	28.00	18%	7	30.00	23%	5	29.00	17%	3	22.00	14%	3	16.0
Total	120	222.95	54%	28	50.50	55%	20	49.55	40%	19	47.70	40%	30	46.5	65%	23	28.70

Comparison of Actual and Expected Rates
(continued)

Salary Increases

Age Group	2018 Actual	2018 Exp	2018 Ratio	2017 Actual	2017 Exp	2017 Ratio	2016 Actual	2016 Exp	2016 Ratio	2015 Actual	2015 Exp	2015 Ratio	2014 Actual	2014 Exp	2014 Ratio
20-24	11.28%	5.50%	205%	7.07%	5.50%	129%	8.25%	5.50%	150%	7.35%	5.50%	134%	7.04%	5.50%	128%
25-29	9.78%	5.50%	178%	10.17%	5.50%	185%	4.33%	5.50%	79%	11.96%	5.50%	217%	8.65%	5.50%	157%
30-34	8.77%	5.50%	159%	5.48%	5.50%	100%	4.47%	5.50%	81%	10.37%	5.50%	189%	7.29%	5.50%	133%
35-39	7.96%	5.50%	145%	6.01%	5.50%	109%	2.20%	5.50%	40%	9.77%	5.50%	178%	6.20%	5.50%	113%
40-44	6.77%	5.50%	123%	5.49%	5.50%	100%	1.90%	5.50%	35%	9.02%	5.50%	164%	5.91%	5.50%	107%
45-49	5.42%	5.00%	108%	4.19%	5.00%	84%	1.33%	5.00%	27%	9.22%	5.00%	184%	5.54%	5.00%	111%
50-54	5.61%	5.00%	112%	4.44%	5.00%	89%	1.50%	5.00%	30%	9.03%	5.00%	181%	5.24%	5.00%	105%
55-59	4.38%	4.50%	97%	3.09%	4.50%	69%	1.03%	4.50%	23%	9.40%	4.50%	209%	5.36%	4.50%	119%
60-65	5.08%	4.50%	113%	5.53%	4.50%	123%	0.71%	4.50%	16%	8.79%	4.50%	195%	3.35%	4.50%	74%
65+	4.34%	4.50%	96%	4.44%	4.50%	99%	0.29%	4.50%	6%	8.19%	4.50%	182%	2.79%	4.50%	62%
Totals	6.46%	5.10%	127%	5.16%	5.09%	101%	2.03%	5.12%	40%	9.47%	5.13%	185%	5.73%	5.12%	112%

5-Year Summary

Age	Actual	Exp	Ratio
20-24	8.20%	5.50%	149%
25-29	8.98%	5.50%	163%
30-34	7.28%	5.50%	132%
35-39	6.43%	5.50%	117%
40-44	5.82%	5.50%	106%
45-49	5.14%	5.00%	103%
50-54	5.16%	5.00%	103%
55-59	4.65%	4.50%	103%
60-65	4.69%	4.50%	104%
65+	4.01%	4.50%	89%
Total	6.04%	5.10%	118%

Comparison of Actual and Expected Rates
(continued)

Current Assumption - based on the RP 2000 mortality with projected improvement.

Mortality for Retired and Terminated Vested Participants

Age Group	2018			2017			2016			2015			2014		
	Actual	Exp	Ratio	Actual	Exp	Ratio	Actual	Exp	Ratio	Actual	Exp	Ratio	Actual	Exp	Ratio
<60	1	0.79	127%	0	0.76	0%	0	0.86	0%	1	0.87	115%	2	1.00	201%
60-64	0	1.25	0%	1	1.30	77%	5	1.61	310%	4	1.67	240%	4	1.54	261%
65-69	1	3.44	29%	1	3.45	29%	3	3.50	86%	3	2.88	104%	2	2.47	81%
70-74	6	4.26	141%	2	3.89	51%	2	3.95	51%	4	3.91	102%	4	3.82	105%
75-79	7	4.74	148%	8	4.40	182%	5	4.63	108%	6	4.34	138%	6	4.21	143%
80-84	5	5.73	87%	7	6.43	109%	5	6.67	75%	8	7.56	106%	9	7.67	117%
85-89	5	8.84	57%	8	8.85	90%	12	9.55	126%	8	9.13	88%	7	8.83	79%
90-94	6	7.83	77%	9	6.97	129%	7	8.14	86%	5	8.06	62%	8	7.91	101%
>=95	5	4.78	105%	5	4.39	114%	5	3.59	139%	4	2.31	173%	2	2.20	91%
Total	36	42	86%	41	40	101%	44	42	104%	43	41	106%	44	40	111%

5-Year Summary

Age	Actual	Exp	Ratio
<60	4	4	94%
60-64	14	7	190%
65-69	10	16	64%
70-74	18	20	91%
75-79	32	22	143%
80-84	34	34	100%
85-89	40	45	88%
90-94	35	39	90%
>=95	21	17	122%
Total	208	205	101%

Comparison of Actual and Expected Rates

(continued)

Male   PubG-2010 (+1)

Mortality for Retired and Terminated Vested Participants

Age Group	2018			2017			2016			2015			2014		
	Actual	Exp	Ratio	Actual	Exp	Ratio	Actual	Exp	Ratio	Actual	Exp	Ratio	Actual	Exp	Ratio
<60	0	0.46	0%	0	0.48	0%	0	0.47	0%	1	0.48	208%	2	0.54	369%
60-64	0	0.63	0%	0	0.66	0%	1	0.76	132%	2	0.82	245%	3	0.77	388%
65-69	0	1.71	0%	0	1.67	0%	1	1.49	67%	2	1.24	161%	2	1.01	199%
70-74	1	1.90	53%	1	1.62	62%	1	1.54	65%	3	1.49	201%	2	1.52	131%
75-79	3	2.34	128%	3	2.22	135%	2	1.94	103%	2	1.75	114%	3	1.78	168%
80-84	1	2.28	44%	6	2.75	218%	3	2.71	111%	4	3.13	128%	5	2.96	169%
85-89	2	2.94	68%	2	2.96	68%	6	3.20	187%	1	2.76	36%	6	3.28	183%
90-94	1	2.46	41%	2	1.88	106%	2	1.91	105%	1	2.17	46%	2	2.30	87%
>=95	0	1.05	0%	1	0.80	125%	3	1.26	239%	1	0.57	174%	0	0.31	0%
Total	8	16	51%	15	15	100%	19	15	124%	17	14	118%	25	14	173%

5-Year Summary

Age	Actual	Exp	Ratio
<60	3	2	123%
60-64	6	4	165%
65-69	5	7	70%
70-74	8	8	99%
75-79	13	10	130%
80-84	19	14	137%
85-89	17	15	112%
90-94	8	11	75%
>=95	5	4	126%
Total	84	75	112%

Comparison of Actual and Expected Rates

(continued)

Female PubG-2010 (+1)

Mortality for Retired and Terminated Vested Participants

Age Group	2018 Actual	2018 Exp	2018 Ratio	2017 Actual	2017 Exp	2017 Ratio	2016 Actual	2016 Exp	2016 Ratio	2015 Actual	2015 Exp	2015 Ratio	2014 Actual	2014 Exp	2014 Ratio
<60	1	0.37	274%	0	0.33	0%	0	0.34	0%	0	0.34	0%	0	0.37	0%
60-64	0	0.50	0%	1	0.51	195%	4	0.57	705%	2	0.57	351%	1	0.51	198%
65-69	1	1.39	72%	1	1.43	70%	2	1.36	147%	1	1.09	91%	0	0.99	0%
70-74	5	2.17	231%	1	2.07	48%	1	1.86	54%	1	1.86	54%	2	1.77	113%
75-79	4	2.42	165%	5	2.22	225%	3	2.27	132%	4	2.18	184%	3	2.04	147%
80-84	4	3.61	111%	1	3.86	26%	2	3.65	55%	4	4.07	98%	4	4.35	92%
85-89	3	6.21	48%	6	6.15	98%	6	6.18	97%	7	6.22	113%	1	5.39	19%
90-94	5	5.63	89%	7	5.35	131%	5	6.33	79%	4	5.96	67%	6	5.65	106%
>=95	5	4.38	114%	4	4.15	96%	2	2.64	76%	3	2.06	146%	2	2.18	92%
Total	28	27	105%	26	26	100%	25	25	99%	26	24	107%	19	23	82%

5-Year Summary

Age	Actual	Exp	Ratio
<60	1	2	58%
60-64	8	3	301%
65-69	5	6	80%
70-74	10	10	103%
75-79	19	11	171%
80-84	15	20	77%
85-89	23	30	76%
90-94	27	29	93%
>=95	16	15	104%
Total	124	126	99%

Historical Rates of Investment Return

Year	Annual Return on Market Value of Assets	Annual Return on Actuarial Value of Assets
1984	8.9%	N/A
1985	20.6%	N/A
1986	15.5%	N/A
1987	4.4%	N/A
1988	11.5%	N/A
1989	15.5%	N/A
1990	6.7%	N/A
1991	15.5%	N/A
1992	7.9%	N/A
1993	10.4%	N/A
1994	2.4%	N/A
1995	17.2%	N/A
1996	10.6%	N/A
1997	13.3%	N/A
1998	7.7%	N/A
1999	7.3%	N/A
2000	2.3%	6.2%
2001	1.3%	2.4%
2002	-4.6%	0.0%
2003	15.7%	7.3%
2004	10.0%	8.7%
2005	7.1%	7.8%
2006	12.1%	10.0%
2007	4.9%	7.2%
2008	-18.7%	-6.4%
2009	16.0%	3.8%
2010	11.0%	9.7%
2011	0.5%	5.0%
2012	10.3%	7.6%
2013	18.9%	13.2%
2014	5.2%	9.1%
2015	2.3%	5.6%
2016	6.8%	6.2%
2017	16.8%	11.4%
2018	-2.8%	4.1%
Average	8.3% (35 yrs)	
	6.1% (19 yrs)	6.3% (19 yrs)
	8.5% (10 yrs)	7.6% (10 yrs)

Historical Market and Actuarial Value of Assets

Year	Market Value of Assets	Actuarial Value of Assets	AVA as % of MVA
2000	123,913,647	117,625,992	94.9%
2001	125,752,053	123,971,024	98.6%
2002	126,751,547	126,336,366	99.7%
2003	119,929,319	125,237,848	104.4%
2004	137,080,947	132,768,961	96.9%
2005	148,916,100	142,402,678	95.6%
2006	157,653,656	151,686,147	96.2%
2007	175,115,759	165,309,144	94.4%
2008	184,386,700	177,833,982	96.4%
2009	151,275,593	167,993,744	111.1%
2010	179,166,378	177,797,061	99.2%
2011	199,988,291	196,119,468	98.1%
2012	200,860,360	205,795,168	102.5%
2013	219,605,063	219,494,329	99.9%
2014	258,340,593	245,830,308	95.2%
2015	267,549,482	263,789,654	98.6%
2016	269,935,429	274,877,630	101.8%
2017	283,902,001	287,477,661	101.3%
2018	326,905,394	315,694,446	96.6%
2019	309,764,717	320,394,185	103.4%

Recommended 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
18-29	6.50%*
30-39	6.00%*
40-44	5.50%
45-54	5.00%
55+	4.50%

Mortality Rates	PubG-2010 set forward one year for males and females and projected from 2010 with 75% of the MP 2018 improvement scale.*
Disability Rates	None.
Withdrawal Rates	Based on rates as illustrated below:

Age	Percentage
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.

* Indicates recommended changes in assumptions from those used as of January 1, 2019.

Recommended 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.

Appendix B

Eastern Nebraska Health Agency
Retirement Plan Information

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2020 Report
Eastern Nebraska Human Services Agency Employees Retirement Plan

1. Information for plan years 2016 through 2020*:

	2020	2019	2018	2017	2016
Funding Status	73%	N/A	74%	N/A	71%
Assumed rate of return	7.0%	7.0%	7.0%	7.0%	7.0%
Prior year actual return	14.0%	-2.4%	11.7%	6.8%	0.2%
Member contribution rates: % of pay	2.75%	2.75%	2.75%	2.75%	2.75%
Employer contribution rates: % of pay	9.5%	9.5%	9.5%	9.0%	8.5%
Normal cost: % of pay	7.4%	N/A	7.4%	N/A	7.0%
ARC: % of pay	13.46%	12.19%	12.19%	11.55%	11.55%
ARC ($)	$3,124,606	$2,996,916	$2,923,820	$2,668,776	$2,603,684
Contribution ($)	TBD	$3,120,980	$3,127,775	$2,900,037	$2,783,724
Contribution: % of ARC	TBD	104.1%	107.0%	108.7%	106.9%

* Actuarial Valuations are conducted every other year. Accordingly, the 2019 ARC as a percentage of pay is the same as for 2018.

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.

2020 Report
Eastern Nebraska Human Services Agency Employees Retirement Plan

3. **Changes in the actuarial methods and/or assumptions since the previous actuarial valuation report:** For the 2020 actuarial valuation, the mortality table was updated to the PubG-2010(B) mortality table projected with MP 2019 improvement scale. Early retirement rates were added for ages 55 to 61. There were no other changes in the actuarial assumptions or methods.

4. **Year the plan funding ratio expected to reach 100%:** The Plan is forecasted to attain a 100% funding ratio in 2047 based on the January 1, 2020 census data and assets and projected with assumptions as described in the January 1, 2020 valuation report. It is also based on an increase of employer contributions to 10% and employee contributions to 3% effective in 2021 as the agency has a good amount of confidence in successful negotiations.

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, reaching 9.5% in 2018. Negotiations are underway to increase employer contributions to 10% and employee contributions to 3%. The most recent forecast study was completed in October 2020 (see attached). There are two scenarios, 1) the current contribution schedule of 9.5% employer and 2.75% employee and 2) the expected increase to 10% employer and 3% employee. Each forecast shows steady future annual improvement in the funding status with the increased contribution schedule attaining a funding status exceeding 80% in 10 years, 4 years earlier than with no change to the contribution schedule.

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 in negotiations to increase the employer contribution percentage from 9.5% to 10% and the employee contribution percentage from 2.75% to 3.0%.

8. The most recent Actuarial Experience Study was completed in October 2020 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, 2020 actuarial valuation is attached.

11. **Impact due to COVID 19 on remitting ARC.** It is difficult to project revenue impacts on the political subdivision due to COVID 19. Revenues should remain the same or possibly increase due to an increase in rates. There may be a loss of some revenue due to a loss of people the agency supports, but the rate increase offsets that. Revenue is actually slightly higher than last fiscal year. CARES funding has been applied for, but no notification of approval yet. Any impact is not expected to change the agency's ability to remit their scheduled contribution to the plan.

12. **Impacts due to COVID 19 on plan's economic or demographic experience.** There is no foreseen impact to the plan due to COVID 19. There has not been any significant employee changes. No one has been laid off due to COVID 19. Over-time remains the same, no significant changes. There have been no disabilities or deaths due to COVID 19.

Potential Future COVID 19 Impact - It remains to be seen what the future impact of COVID 19 may be. As medical advances continue to further our understanding of the disease and reports of one or more vaccines becoming widely available yet in 2020, there is reason for some optimism that the plan will not be negatively impacted in a material way. However, there are some areas for caution. Especially the near-term economic uncertainty and its impact on investment return. A prolonged market downturn would negatively impact the plan's funding ratio and increase the actuarially determined contribution. As the plan has a long-term focus, we expect there will be some degree of variability in performance from year to year. We will continue to monitor the impact of COVID 19 and more generally, the actual experience compared to assumed experience on an every other year basis.

October 14, 2020

Ms. Debbie Herbel
Eastern Nebraska Human Services Agency
4715 South 132nd St
Omaha, NE 68137

Re: Employees Retirement Plan Forecast Study

Dear Debbie:

We have estimated future funded ratios for the Retirement Plan. Please note, the values presented are only estimates, as the actual amounts will be based on census data and plan experience, actual asset values and assumptions applied in future years, as well as other variables. Therefore, actual future measures will differ from these estimates as actual future experience differs from assumed experience.

The funded ratio is the ratio of the plan assets to the actuarial accrued liability. For active participants, the latter amount is the actuarial measure of benefits based on service to date and pay projected to retirement. For all other participants, it is the measure of their actual vested benefit.

Forecast Results

We have provided two sets of forecasts. The first forecast applies the current contribution schedule. This assumes the employer contribution of 9.50%, and the employee contribution of 2.75%, will continue each year following. Under the assumptions applied, a funded ratio greater than 100% will be attained in the year 2057. The second forecast applies an increase to the contribution rates for employers, to 10%, and employees, to 3%. A 100% funded ratio will be attained 10 years earlier under this scenario. The results are summarized in the tables on the following pages.

Assumptions
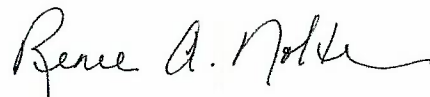
All methods and assumptions are consistent with those applied to complete the 2020 valuation. Please refer to pages 11 through 13 of the January 1, 2020 Actuarial Valuation Report for a complete description of these methods and assumptions. The forecast begins with the census and valuation results as of January 1, 2020. Assets are projected beginning with total assets as of December 31, 2019. Refer to the valuation report for a summary of the census, funding results and asset development.

Please call us at 402.964.5490 or 402.964.5439 to discuss the results or for any alternative assumptions or contribution rates.

Sincerely,

Glen C. Gahan, FSA
Principal

Renee A. Nolte, ASA
Senior Consulting Actuary

Enclosure

Eastern Nebraska Human Services Agency
Employees Retirement Plan
Estimated Funded Ratios

Scenario 1 - No Change to current Contribution Percentage

	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055	2056	2057
Funding Basis	7.00%	7.00%	7.00%	7.00%	7.00%	7.00%	7.00%	7.00%	7.00%	7.00%	7.00%	7.00%	7.00%	7.00%	7.00%	7.00%	7.00%	7.00%	7.00%	7.00%	7.00%	7.00%	7.00%	7.00%	7.00%	7.00%	7.00%	7.00%	7.00%	7.00%	7.00%	7.00%	7.00%	7.00%	7.00%	7.00%	7.00%	7.00%
Employer Contribution Percent	9.50%	9.50%	9.50%	9.50%	9.50%	9.50%	9.50%	9.50%	9.50%	9.50%	9.50%	9.50%	9.50%	9.50%	9.50%	9.50%	9.50%	9.50%	9.50%	9.50%	9.50%	9.50%	9.50%	9.50%	9.50%	9.50%	9.50%	9.50%	9.50%	9.50%	9.50%	9.50%	9.50%	9.50%	9.50%	9.50%	9.50%	9.50%
Employee Contribution Percent	2.75%	2.75%	2.75%	2.75%	2.75%	2.75%	2.75%	2.75%	2.75%	2.75%	2.75%	2.75%	2.75%	2.75%	2.75%	2.75%	2.75%	2.75%	2.75%	2.75%	2.75%	2.75%	2.75%	2.75%	2.75%	2.75%	2.75%	2.75%	2.75%	2.75%	2.75%	2.75%	2.75%	2.75%	2.75%	2.75%	2.75%	2.75%
Total Contribution Percent	12.25%	12.25%	12.25%	12.25%	12.25%	12.25%	12.25%	12.25%	12.25%	12.25%	12.25%	12.25%	12.25%	12.25%	12.25%	12.25%	12.25%	12.25%	12.25%	12.25%	12.25%	12.25%	12.25%	12.25%	12.25%	12.25%	12.25%	12.25%	12.25%	12.25%	12.25%	12.25%	12.25%	12.25%	12.25%	12.25%	12.25%	12.25%
Employer Contribution (000s)	2,205	2,260	2,316	2,374	2,433	2,494	2,557	2,621	2,686	2,753	2,822	2,893	2,965	3,039	3,115	3,193	3,273	3,355	3,438	3,524	3,613	3,703	3,795	3,890	3,988	4,087	4,189	4,294	4,432	4,512	4,624	4,740	4,858	4,980	5,104	5,232	5,363	5,497
Funded Ratio	72.6%	74.1%	74.6%	75.1%	75.7%	76.2%	76.6%	77.0%	77.4%	77.9%	78.4%	78.9%	79.4%	80.0%	80.6%	81.2%	81.9%	82.7%	83.5%	84.3%	85.1%	86.0%	87.0%	87.9%	88.9%	89.9%	90.9%	91.3%	92.3%	92.9%	93.8%	94.8%	95.8%	96.7%	97.6%	98.5%	99.4%	100.2%

Assumptions

Mortality Table	PubG-2010(B) / MP 2019
Salary Scale	2.50%

Other assumptions consistent with the 1/1/2020 valuation report.

Eastern Nebraska Human Services Agency
Employees Retirement Plan
Estimated Funded Ratios

Scenario 2 - Increased ER & EE Contribution Percentage Beginning 2021

	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047
Funding Basis	7.00%	7.00%	7.00%	7.00%	7.00%	7.00%	7.00%	7.00%	7.00%	7.00%	7.00%	7.00%	7.00%	7.00%	7.00%	7.00%	7.00%	7.00%	7.00%	7.00%	7.00%	7.00%	7.00%	7.00%	7.00%	7.00%	7.00%	7.00%
Employer Contribution Percent	9.50%	10.00%	10.00%	10.00%	10.00%	10.00%	10.00%	10.00%	10.00%	10.00%	10.00%	10.00%	10.00%	10.00%	10.00%	10.00%	10.00%	10.00%	10.00%	10.00%	10.00%	10.00%	10.00%	10.00%	10.00%	10.00%	10.00%	10.00%
Employee Contribution Percent	2.75%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%
Total Contribution Percent	12.25%	13.00%	13.00%	13.00%	13.00%	13.00%	13.00%	13.00%	13.00%	13.00%	13.00%	13.00%	13.00%	13.00%	13.00%	13.00%	13.00%	13.00%	13.00%	13.00%	13.00%	13.00%	13.00%	13.00%	13.00%	13.00%	13.00%	13.00%
Employer Contribution (000's)	2,205	2,379	2,438	2,499	2,562	2,626	2,691	2,759	2,827	2,898	2,971	3,045	3,121	3,199	3,279	3,361	3,445	3,531	3,619	3,710	3,803	3,898	3,995	4,095	4,197	4,302	4,410	4,520
Funded Ratio	72.6%	73.4%	74.3%	75.2%	76.0%	76.8%	77.6%	78.4%	79.2%	79.9%	80.8%	81.6%	82.5%	83.5%	84.5%	85.6%	86.7%	87.8%	89.0%	90.3%	91.6%	92.9%	94.3%	95.6%	97.0%	98.4%	99.8%	101.2%

Assumptions
Mortality Table   PubG-2010(B) / MP 2019
Salary Scale   2.50%
Other assumptions consistent with the 1/1/2020 valuation report.

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EASTERN NEBRASKA HUMAN SERVICES AGENCY EMPLOYEES RETIREMENT PLAN

Actuarial Valuation Report

January 1, 2020

SilverStone GROUP

O HUB

October 12, 2020

ACTUARIAL CERTIFICATION

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

Committee Members:

An actuarial valuation was performed for the Eastern Nebraska Human Services Agency Employees Retirement Plan as of January 1, 2020. 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.
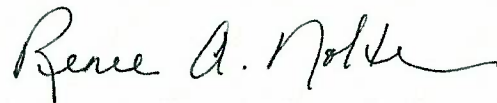
The valuation is based on eligible employees submitted by your office. A statement of plan assets was furnished by United of Omaha, American Funds, and Stichler Wealth Management. We have not made an independent audit of this data, but have relied on the accuracy of the information that was supplied.

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 Gahan, FSA, MAAA
Enrolled Actuary

Renee A. Nolte, ASA, MAAA
Senior Consulting Actuary

Enclosure

Table of Contents

Financial Highlights

	2018	2019	2020
Annual Contributions			
Recommended	2,923,820	2,996,916 *	3,124,606
Actual	3,127,775	3,120,980	N/A
Plan Assets	40,879,777	39,948,715	45,131,959
Prior Year Investment Return	11.7%	-2.4%	14.0%
Funding Basis			
Actuarial Accrued Liability	55,125,381		62,126,732
Plan Assets	40,879,777		45,131,959
Unfunded Actuarial Accrued Liability	14,245,604		16,994,773
Accrued Benefit Basis			
Vested Benefit Value	50,842,736		57,991,394
Accrued Benefit Value	51,902,778		59,099,586
Funded Ratios **			
Funding Basis - AAL	74%		73%
Accrued Benefit Basis	79%		76%
Normal Cost	1,781,369		1,717,500
As a percent of covered payroll	7.4%		7.4%
Interest Rates			
Funding Basis	7.00%		7.00%
Accrued Benefit Basis	7.00%		7.00%
Annual Covered Payroll	23,985,346		23,206,547
Number of Participants			
Active and Disabled	668		620
Retired and Beneficiary	251		302
Vested Terminations and Transfers	76		96
Total	995		1,018

*   Increased from prior year recommended contribution by 2.5% salary scale.
**   Ratio of plan assets to applicable actuarial liability.

1

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, 2020 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, 2018, we note:

- Since the prior valuation, the number of active participants has decreased from 668 to 620. Annual covered payroll for participants under Normal Retirement Age decreased from $23,985,346 to $23,206,547, a 3.2% decrease. The average salary for participants under Normal Retirement Age increased from $37,951 to $39,333, a 3.6% increase.

- For active participants included in the valuation, average age increased from 45.2 to 46.3 years and average service increased from 10.9 to 11.6 years.

- The investment return on plan assets since the prior valuation was lower on average than the assumed 7.0% rate. The approximate investment return rate for 2018 was -2.4%, and for 2019 was 14.0%.

- On the same actuarial basis as used in 2018 and prior to any assumption changes, the Unfunded Accrued Liability (UAL) increased by $1,560,000, from $14,250,000 to $15,810,000. Contributing factors were:

    - Investment return rates less than expected increased the UAL by approximately $1,320,000.

    - Contributions more than the Normal Cost plus interest on the UAL subtracted about $500,000 from the UAL.

    - Net actuarial losses from other sources increased the UAL by approximately $740,000.

Comments on the Valuation

Actuarial Assumptions

Rates of retirement were assumed for ages 55-61 and rates from 62-65 are now assumed for all active participants. The mortality table was updated to the PubG-2010(B) mortality table projected with MP-2019 improvement scale. The effect of these changes increased the UAL by $1,183,891. The corresponding increase in the normal cost was $28,523.

All other assumptions are the same as those used in the 2018 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 $3,124,606 for 2020. Plan contributions include amounts contributed by the employees and by the employer. For 2020, the anticipated employee contributions at the current rate of 2.75% are $638,180 and the anticipated employer contributions at the current rate of 9.5% are $2,204,622 for a total of $2,842,802. The shortfall can be funded by increased contributions by the employees, ENHSA, or both.

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, 2020 | |
	January 1, 2018	Before Assumption Changes	After Assumption Changes*
Recommended Contribution			
Normal Cost	$1,781,369	$1,688,977	$1,717,500
Accrued Liability Payment	1,142,451	1,312,162	1,407,106
Total	2,923,820	3,001,139	3,124,606
Expected Employee Contribution			
Employee Contribution Rate	2.75%	2.75%	2.75%
Covered Payroll	23,985,346	23,206,547	23,206,547
Expected Employee Contribution	659,597	638,180	638,180
Recommended Employer Contribution			
Normal Cost less Employee Contribution	1,121,772	1,050,797	1,079,320
Employer Normal Cost as a Percent of Pay	4.68%	4.53%	4.65%
Total Contribution less Employee Contribution	2,264,223	2,362,959	2,486,426
Employer Contribution as a Percent of Pay	9.44%	10.18%	10.71%

* The rate of retirement and 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, 2018 and January 1, 2020 is displayed below:

	January 1, 2018	January 1, 2020 Before Assumption Changes	January 1, 2020 After Assumption Changes*
Unfunded Accrued Liability			
Accrued Liability	$55,125,381	$60,942,841	$62,126,732
Less: Plan Assets	40,879,777	45,131,959	45,131,959
Unfunded Accrued Liability	$14,245,604	$15,810,882	$16,994,773
Ratio of Assets to Accrued Liability	74%	74%	73%
Annual Normal Cost			
Retirement, Death, Termination and Deferred Disability Benefits	$1,751,893	$1,653,341	$1,681,864
Administrative Expense Load	29,476	35,636	35,636
Total	$1,781,369	$1,688,977	$1,717,500

* The rate of retirement and the mortality table assumption was changed as shown in the Actuarial Assumptions section.

5

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, 2018	$40,879,777
Contribution Receivable	0
Adjusted Plan Assets on January 1, 2018	$40,879,777
Employer Contributions	2,385,984
Employee Contributions	741,791
Investment Income	(940,120)
Monthly Benefit Payments	(2,762,410)
Lump Sum Distributions	(324,087)
Administrative Charges	(32,220)
Market Value of Assets on January 1, 2019	$39,948,715
Contribution Receivable	0
Adjusted Plan Assets on January 1, 2019	$39,948,715
Employer Contributions	2,442,666
Employee Contributions	678,314
Investment Income	5,607,048
Monthly Benefit Payments	(2,977,912)
Lump Sum Distributions	(531,236)
Administrative Charges	(35,636)
Market Value of Assets on January 1, 2020	$45,131,959
Contribution Receivable	0
Adjusted Plan Assets on January 1, 2020	$45,131,959

Asset Allocation

Employee Funds - Annuity Contract	$3,889,772
Employee Funds - Equities	6,492,906
Employer Funds - Annuity Contract	8,485,764
Employer Funds - Equities	26,263,517
	$45,131,959

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, 2018	January 1, 2020
1. Actuarial Present Value of Vested Accrued Benefits		
Retirees and Beneficiaries of Deceased Participants	$23,305,137	$30,601,278
Vested Terminated Participants	1,817,677	2,513,900
Active Participants	25,719,922	24,876,216
Total	$50,842,736	$57,991,394
2. Actuarial Present Value of Non-Vested Accrued Benefits for Active Participants	$1,060,042	$1,108,192
3. Actuarial Present Value of Accrued Benefits (1) + (2)	$51,902,778	$59,099,586
4. Value of Assets	$40,879,777	$45,131,959
5. Funded Ratio*		
Vested Accrued Benefits	80%	78%
Accrued Benefits	79%	76%
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.

Accrued Liability Payment

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, 2018.
- 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
14,245,604	January 1, 2018	Initial Unfunded
3,300,070	January 1, 2020	Assumption Change & Actuarial Loss

Minimum Funding

The Unamortized Balance is based on the methodology 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
14,245,604	25	23	1,142,451
3,300,070	25	25	264,655
		Total	$1,407,106

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 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, 2020
Retired Participant Liability	23,305,137	30,601,278
Total Plan Liability	55,125,381	62,126,732
Ratio	42.3%	49.3%

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, 2020
Contributions in prior year	2,900,037	3,120,980
Benefit Payments in prior year	(2,559,620)	(3,509,148)
Net Cash Flow	340,417	(388,168)

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, 2020
Duration of Plan Liability	12.2 years	11.8 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, 2020
Market Value of Assets	40,879,777	45,131,959
Total Covered Payroll	25,488,533	24,584,038
Asset Volatility Ratio	1.6	1.8

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, 2020
Market Value of Assets	40,879,777	45,131,959
Actuarial Accrued Liability	55,125,381	62,126,732
Ratio	74.2%	72.6%

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

	January 1, 2018	January 1, 2020
Actuarial Accrued Liability	55,125,381	62,126,732
Total Covered Payroll	25,488,533	24,584,038
Liability Volatility Ratio	2.2	2.5

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.

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

PubG-2010(B) / MP 2019 generational improvement scale projected from 2010.

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

Age	Percent Electing	
	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:

Age	Annual Rate of Retirement
55	5%
56	2%
57	2%
58	2%
59	3%
60	4%
61	5%
62	15%
63	5%
64	5%
65	100%

Actuarial Assumptions
(continued)

Normal Retirement Age

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

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.

15

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 is contributing 9.50% of payroll:

Participant Census Statistics

January 1, 2020

Active Participants Included in Valuation

Age at Valuation Date	Years of Service								Total	Average Salary
	0-4	5-9	10-14	15-19	20-24	25-29	30-34	35+		
Under 20	0	0	0	0	0	0	0	0	0	0
20-24	27	1	0	0	0	0	0	0	28	28,578
25-29	42	20	0	0	0	0	0	0	62	31,581
30-34	51	17	10	0	0	0	0	0	78	34,088
35-39	34	20	17	7	1	0	0	0	79	35,268
40-44	27	13	8	16	7	0	0	0	71	37,421
45-49	19	9	6	5	11	3	0	0	53	40,278
50-54	23	8	7	7	12	3	2	0	62	37,945
55-59	19	14	12	10	10	11	7	3	86	43,477
60-64	13	8	9	11	12	7	5	6	71	41,839
65 & Over	6	7	6	1	2	2	1	5	30	43,253
Total	261	117	75	57	55	26	15	14	620	
Average Salary	33,349	37,041	38,083	40,236	42,287	44,971	50,128	65,731		37,669

Average Salary - based on reported compensation for calendar 2019.

Participant Census Statistics

(continued)

January 1, 2020
Non-Active Participants Included in Valuation

	Number	Total Annual Benefit	Average Annual Benefit
Retired & Beneficiary	302	$3,185,239	$10,547
Vested Terminated	96	546,517	5,693
Total	398	3,731,756	9,376

Retired & Beneficiary Participants in Pay Status

Age	Number	Total Annual Benefit	Average Annual Benefit
Under 55	3	$22,635	$7,545
55-59	5	38,435	7,687
60-64	30	230,531	7,684
65-69	86	1,177,468	13,691
70-74	75	820,492	10,940
75-79	50	539,333	10,787
80-84	32	197,164	6,161
85-89	13	109,043	8,388
Over 89	8	50,138	6,267
Total	302	3,185,239	10,547

Participant Census Statistics
(continued)

	Active	Non-Active		Total
		Deferred	Retired	
Number on January 1, 2018	668	76	251	995
Terminated				
Non-Vested	-25	0	0	-25
Vested - Lump Sum	-119	-6	0	-125
Vested - Deferred	-34	+34	0	0
Deceased				
Vested - Lump Sum	0	0	0	0
Vested - Beneficiary	-2	0	-6	-8
No Additional Benefit	-2	0	-12	-14
Retired				
Monthly Benefit	-54	-8	+62	0
Lump Sum	0	0	0	0
Certain Period Expired	0	0	-3	-3
Beneficiary	0	0	+9	+9
Return to Active	+1	-1	0	0
New Entrants or Prior Omissions During Plan Year	+187	+1	+1	+189
Number on January 1, 2020	620	96	302	1,018

<u>Non-Active Participants</u>	<u>Number</u>	<u>Annual Benefit</u>
Deferred Participants	96	$546,517
Retired & Beneficiary Participants	302	$3,185,239

October 8, 2020

Ms. Debbie Herbel
Eastern Nebraska Human Services Agency
4715 S 132nd Street
Omaha, NE 68137

RE: Actuarial Experience Review

Dear Debbie:

This report summarizes salary, turnover, mortality, benefit election and investment return experience of the Employees Retirement Plan.

After a thorough review of the experience contained in this report, the agency has determined to adopt the mortality table reflecting experience of the general population of public pension plans, and more closely reflecting below median pay of actives and below median benefits of annuitants, PubG-2010 (B). The table will advance each valuation with the most current mortality improvement scale, currently MP-2019.
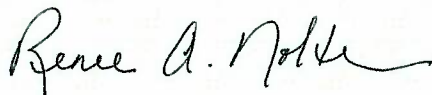
In addition, it was evident that early retirements have consistently exceeded expectations, necessitating an increase to the rates of retirement for ages 55 through 61 as follows:

55	5%
56	2%
57	2%
58	2%
59	3%
60	4%
61	5%

The agency has determined that no other assumptions had enough variance from expected rates to modify at this time. The assumptions will be applied to the funding valuation report and the GASB 67/68 report, as well as the basis for the funding forecast.

Please let me know if you would like paper copies of this experience review. Be sure to call with any questions.

Sincerely,

Renee A. Nolte, ASA, MAAA
Consulting Actuary

RAN/BK

Enclosures

EASTERN NEBRASKA HUMAN SERVICES AGENCY EMPLOYEES RETIREMENT PLAN

Actuarial Experience Review

September 29, 2020

SilverStone GROUP | O HUB

Table of Contents

Discussion of Results

SilverStone Group has conducted an actuarial study of the salary, turnover, mortality, benefit election and investment return experience for the Eastern Nebraska Human Services Agency (ENHSA) Employees Retirement Plan (Plan). The study includes data from the 2016 through 2019 plan years. In addition, the results from previous studies conducted on the 2010 through 2015 plan years have been included for comparison when available.

Experience has been analyzed on annual periods based on the census and asset data provided by ENHSA. An analysis of experience involves:
- Calculation of actual rates of increase (decrease).
- Calculation of expected rates of increase (decrease).
- Comparison of the actual rates to the expected rates (i.e., on absolute terms).
- Comparison of the actual rates divided by the expected rates (i.e., on relative terms).

Salary Experience
The salary change rate was calculated two ways. First, salaries were compared in the aggregate from one year to the next for the last 10 years. This comparison often forms the basis of the assumed rate of salary increase used in an actuarial valuation. These historical annual salary increases were then compared to the current assumed salary rate of 2.5%. Salary rates over the last three years were also analyzed by 5-year age brackets.

Experience indicates that an increase in the salary rate assumption may be considered. The average over the last 10 years is 3.1%; the average over the last five years is 4.2%. If 2018 is considered an unusual year for salary increases, one could consider the average of the most recent 10 years, with the exclusion of 2018. This average is 2.8%. The salary rate assumption was increased from 2.0% to 2.5% effective with the 2016 valuation.

The current state of the economy may decrease pay increases to less than expected for the next few years. The future long-range budget and expected funding of the agency should also be considered when selecting an assumption for expected future salary increases.

Turnover Experience
The current turnover assumption consists of rates that vary by age and service. The turnover rates do not depend on age during the first three years of service. After three years of service, the rates are a function of age only.

Because the turnover rate is dependent upon both years of service and age, the turnover rate was calculated two ways. First, turnover rates were calculated for employees who have less than three years of service with ENHSA. Second, employees were grouped in 5-year age brackets. The turnover rate was calculated based on the number of employees in each age group ending their employment with ENHSA.

The experience from 2014 through 2017 shows overall actual turnover experience less than expected. Experience in 2018 and 2019 shows turnover experience greater than expected. The average of the three grouped periods for all ages and years of service is 94% of expected.

The graphs on page 8 and 9 analyze turnover by years of service. The graphs on page 10 and 11 analyze turnover by five-year age brackets. For the most recent experience, the largest

1

variance from expected is for years of service equal to 2 (198% of expected). The most recent experience based on age groups resulted in turnover greater than expected in 8 of the 10 age groups. Experience showed less turnover for each of these 8 age segments over the prior two periods.

In May of 2019, 16 participants were terminated from the plan when their group transitioned to a private contractor with the State of Nebraska. Excluding these participants from the equation would decrease the total ratio of actual to expected turnover for 2018-2019 from 127% to 118%.

For turnovers with less than 1 year of service, our test results may be less than actual since our data does not track a new hire and termination that occurs within the same plan year, only those that cross over to the next plan year. Likewise, a turnover/retirement age assumption beyond age 65 would be atypical for this size and type of plan.

An increase to the early retirement assumption for retirements beginning at age 55 may be considered. Actual turnover exceeded expected in each of the three measurement periods, with an average combined turnover of 158% of expected. Opposing this view is the potential for the current state of the economy to deter participants from seeking other jobs or retiring over the next few years.

Mortality Experience
The chart displays mortality results of the most recent 4 periods. In each period, actual deaths of actives exceeded expectations. The practice of this plan has been to update the mortality table to the most current table required to be applied for small corporate pension plans with each biannual valuation. Recently, tables have been developed reflecting mortality experience of public pension plans. The recently available PubG-2010 set of tables is based on mortality experience of general employees and retirees of public plans, and is considered a part of the relevant "assumption universe" for such plans. The analysis in developing these tables indicated that salary (for Employees) and benefit amount (for Annuitants) were the most statistically significant predictors of mortality differences within individual gender/job classifications. As a result, the PubG-2010 table is also available for above-median (A) and below-median (B) income levels. For 2019, median pay in the plan is $35,200 and the median retirement benefit is $10,500. These amounts fit the below-median category. In addition, plan mortality experience is best suited to this table when compared to the other public employee mortality tables.

A current mortality improvement scale (MP-2019) is applied to account for expected mortality changes in future years.

This plan is not of sufficient size to reflect its own experience within a mortality table. This experience study only captures active participant data. A separate study would compare the PubG-2010 (B) mortality table to the retiree population.

Form of Benefit Election Experience
For those participants who terminated with a vested deferred annuity option, actual experience was tabulated to determine the percent who elected to forego the annuity option and elect a return of their contributions plus interest.

Actual experience for the most recent two-year periods has been less than the expectation that 75% of those under age 55 elect a return of contributions (60% elected a return of contributions in 2014-2015, 46% in 2016-2017 and 69% in 2018-2019). For those 55 and over, no retiring participant elected a return of contributions in the 2014-2015 period, 10% elected a return of

contributions in the 2016-2017 period and 2% made this election in the 2018-2019 period. The assumption for this age group is that no participants will elect the return of contributions.

Consideration may be given to reducing the 75% assumption for those under age 55. Bearing in mind the current economy, and assuming those terminating in the next few years may have an increased need for immediate spending resources, a decision to adjust this assumption may be deferred.

Investment Return Experience
The investment return rate was calculated on a simplified basis that assumes cash flow occurs evenly throughout each year. Use of a simplified basis is supported by the fact employee and ENHSA contributions are made bi-monthly. For this reason, the calculated rate may not agree with rates of return reported by the investment providers.

The investment return rate has averaged 6.7% on a compound basis over the 10-year period from 2010 through 2019. For the five-year period from 2015 through 2019, the average return rate is 5.9%. The investment return rate exceeded the 7% assumption during 4 of the 10 years displayed. The rate of investment return assumption has been 7.0% since prior to 1997. While the historical returns provide an objective and potentially reasonable level to which the mean return may revert, the future is likely to be different than the past. Considering the target investment mix of 50% equities, 45% fixed income and 5% real estate securities, 7.0% remains an acceptable assumption.

The value of assets is based on the market value. Consideration may be given to a change in the valuation method to an asset smoothing method, in order to cushion fluctuations in the equity market. The asset investments have not experienced significant negative annual returns in the past ten years, with only one year, 2018, experiencing a negative return of -2.4%. The fixed income investment target of 45% helps to minimize more severe fluctuations in the assets.

Overall Experience History
With each 2-year valuation period, we measure the actual liabilities and assets compared to the expected liabilities and assets. When liabilities increase more than expected or asset performance is less than expected, this is an experience loss. Likewise, a decrease in liabilities from expected or asset performance greater than expected is an experience gain. The impact of changes in assumptions on the liabilities is also measured as a gain or loss. Together, these variations from expected results make up the net (gain) or loss on the plan. A net (gain) is a decrease to the unfunded accrued liability whereas a net loss is an increase to the unfunded accrued liability. Changes in magnitude of these gains and losses from one valuation period to another are typical, especially with a relatively smaller plan size. Over time, if assumptions are appropriate, one would expect the cumulative (gain)/loss to converge to near $0.

The results in this report were prepared using information provided to us by other parties. The census information has been provided to us by you, the employer. Asset information has been provided to us by the trustee. We have reviewed the provided data for reasonableness, but have not made an independent audit of this data. We have relied on the accuracy of the information that was supplied.

Salary Experience from 2010 to 2019
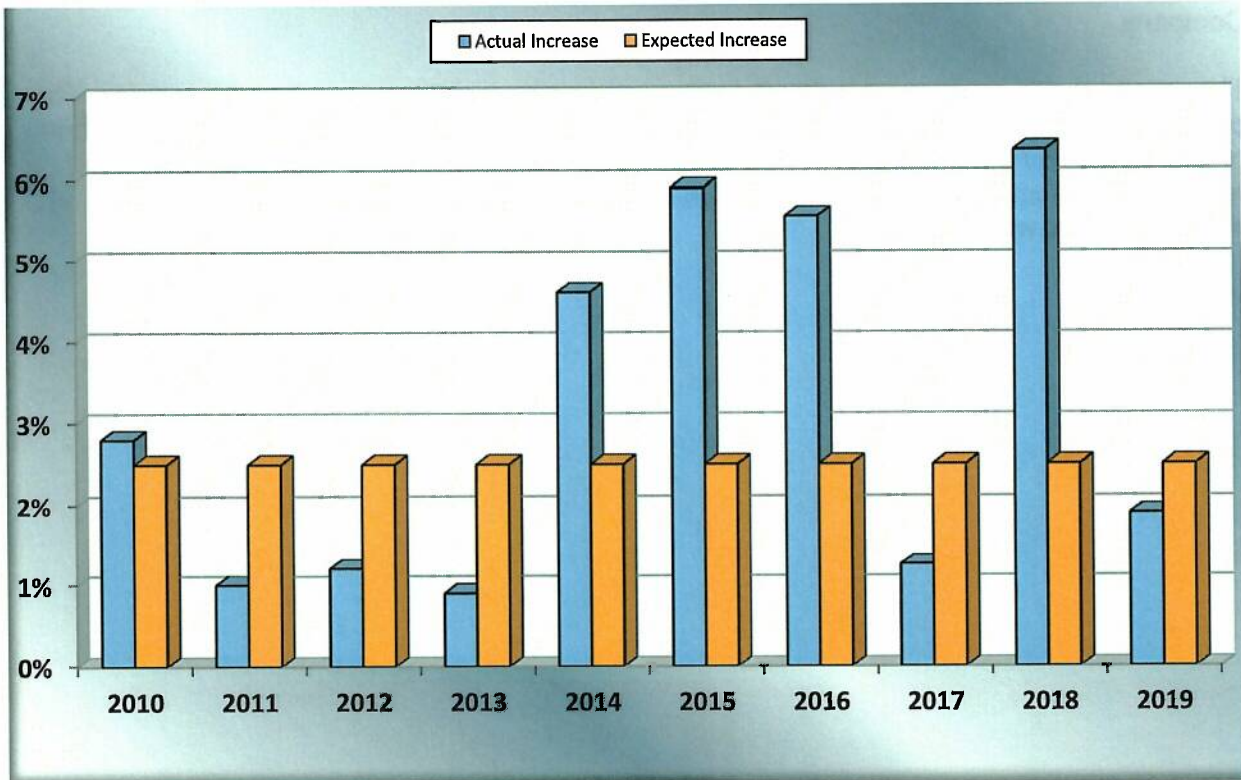
Year	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Actual Increase	2.8%	1.0%	1.2%	0.9%	4.6%	5.9%	5.6%	1.2%	6.3%	1.9%
Expected Increase	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%

Salary Experience from 2010 to 2019
Ratio of Actual vs. Expected Salary Increase
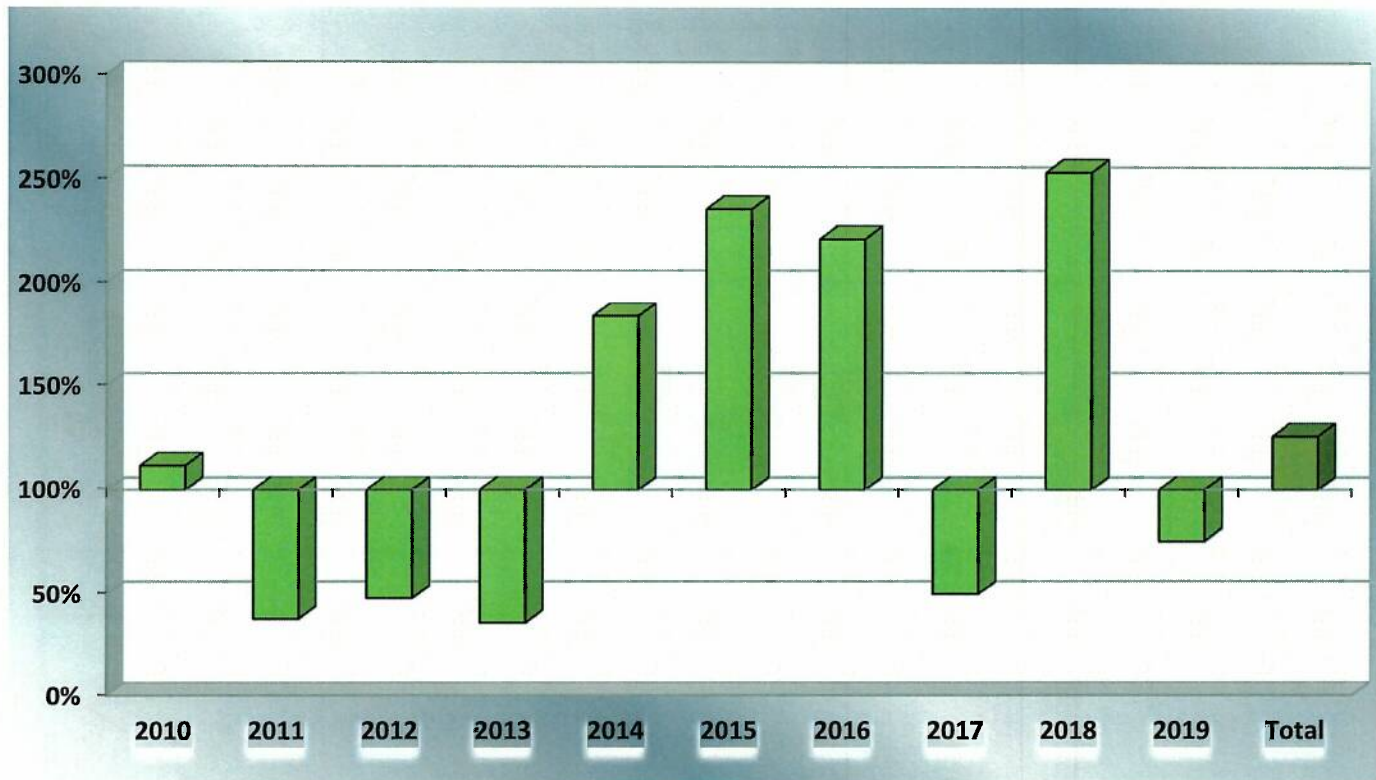
Year	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Total
Actual Increase	2.8%	1.0%	1.2%	0.9%	4.6%	5.9%	5.6%	1.2%	6.3%	1.9%	3.1%
Expected Increase	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%
Actual vs. Expected	111.6%	38.0%	48.0%	36.0%	184.0%	236.0%	222.6%	50.0%	253.4%	76.0%	125.6%

6

Salary Experience from 2017 to 2019
Ratio of Actual to Expected Salary Increase by Age Group
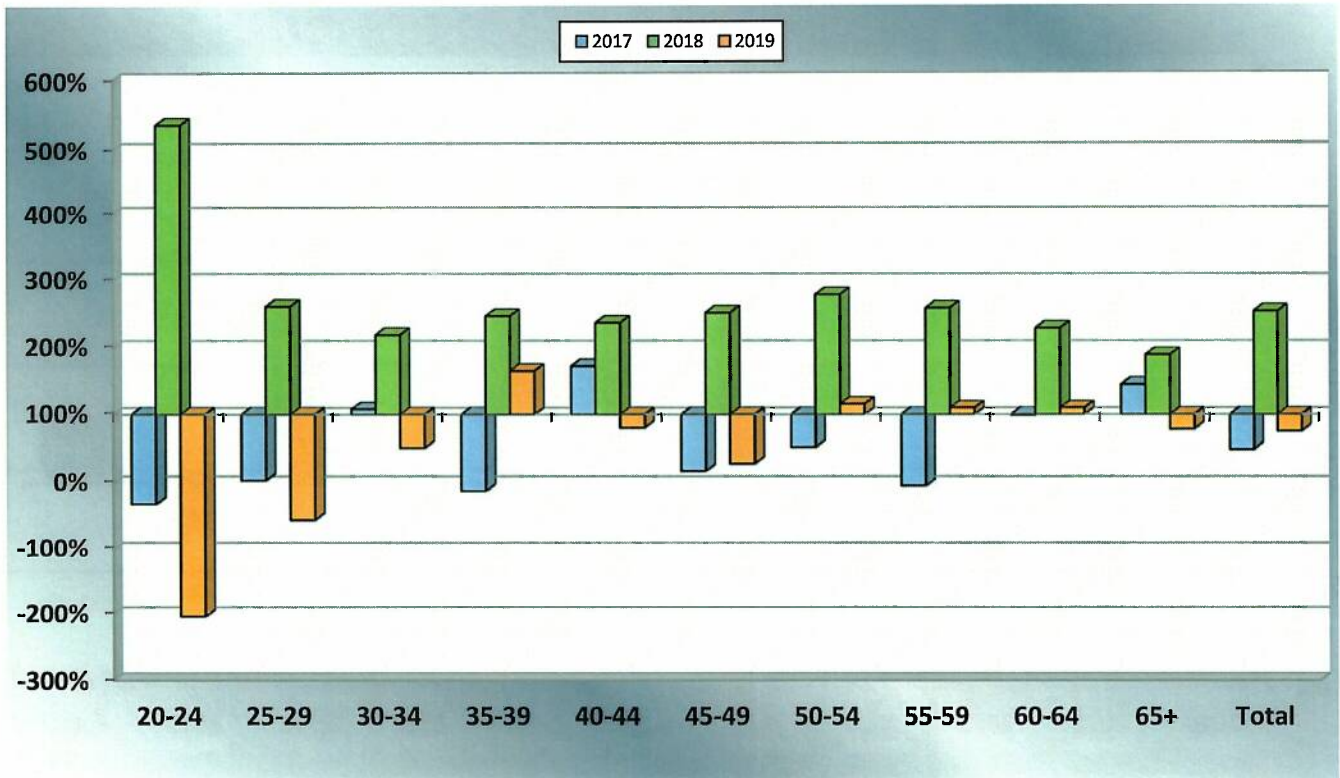
Age	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65+	Total
Actual Increase vs. Expected Increase											
2017	-32%	4%	108%	-12%	172%	18%	53%	-4%	99%	145%	50%
2018	534%	260%	218%	246%	236%	251%	278%	258%	228%	189%	253%
2019	-204%	-56%	52%	165%	81%	29%	116%	110%	110%	79%	76%

7

Turnover Experience from 2014 to 2019
Ratio of Actual to Expected Turnover
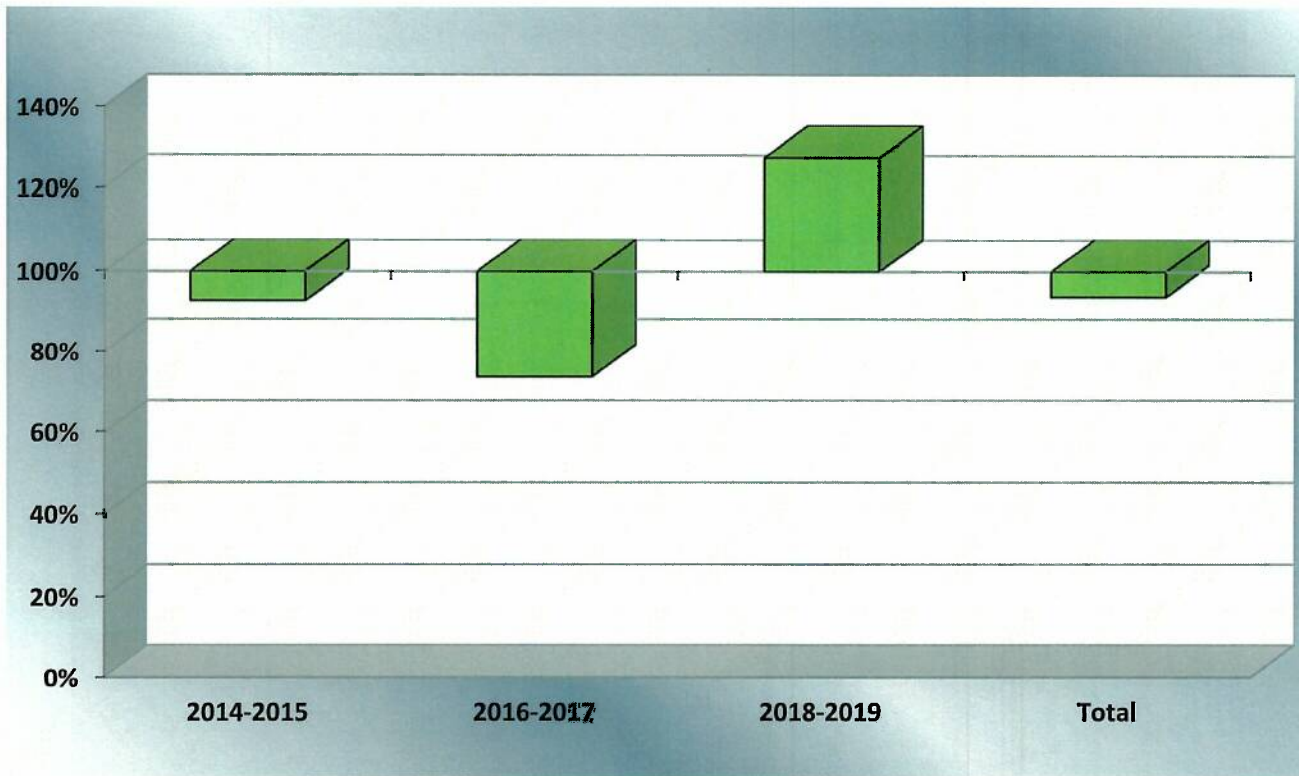
Year	2014-2015	2016-2017	2018-2019	Total
Actual Turnover	165	156	232	723
Expected Turnover	178	211	182	772
Actual vs. Expected	93%	74%	127%	94%

Turnover Experience for 2018 and 2019
Ratio of Actual to Expected Turnover by Years of Service
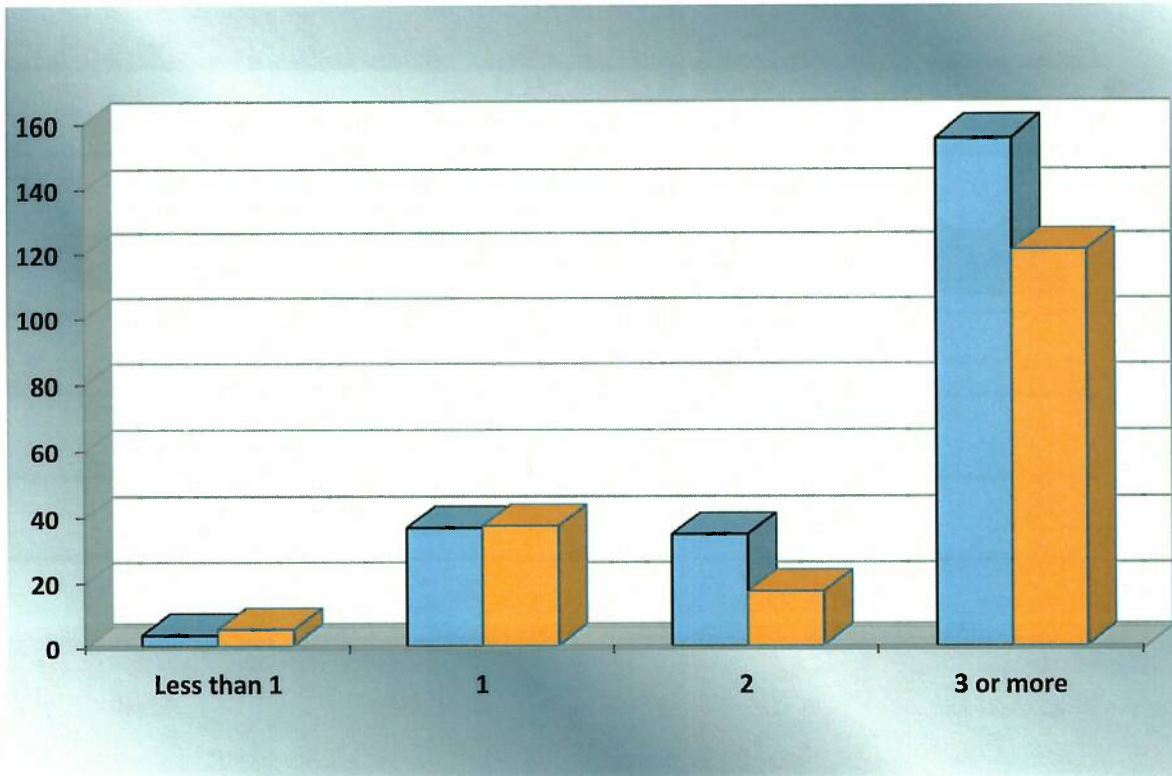
Years of Service	Less than 1	1	2	3 or more	Total
Actual Turnover	4	37	35	156	232
Expected Turnover	6	38	18	121	182
Actual vs. Expected	70%	98%	198%	129%	127%

Turnover Experience from 2014 to 2019
Ratio of Actual to Expected Turnover by Years of Service
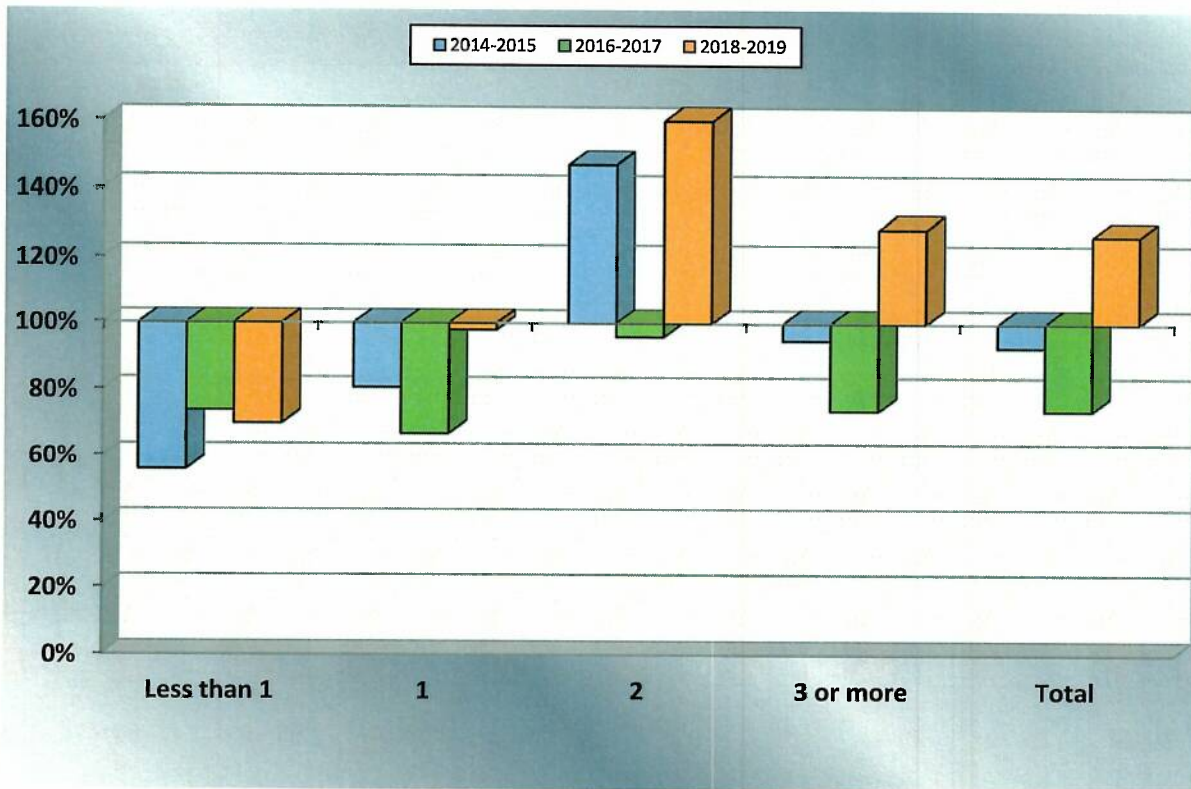
Years of Service	Less than 1	1	2	3 or more	Total
Actual Turnover vs. Expected Turnover					
2014-2015	56%	81%	147%	95%	93%
2016-2017	74%	67%	96%	74%	74%
2018-2019	70%	98%	198%	129%	127%

Turnover Experience for 2018 and 2019
Incidence of Turnover by Age Group
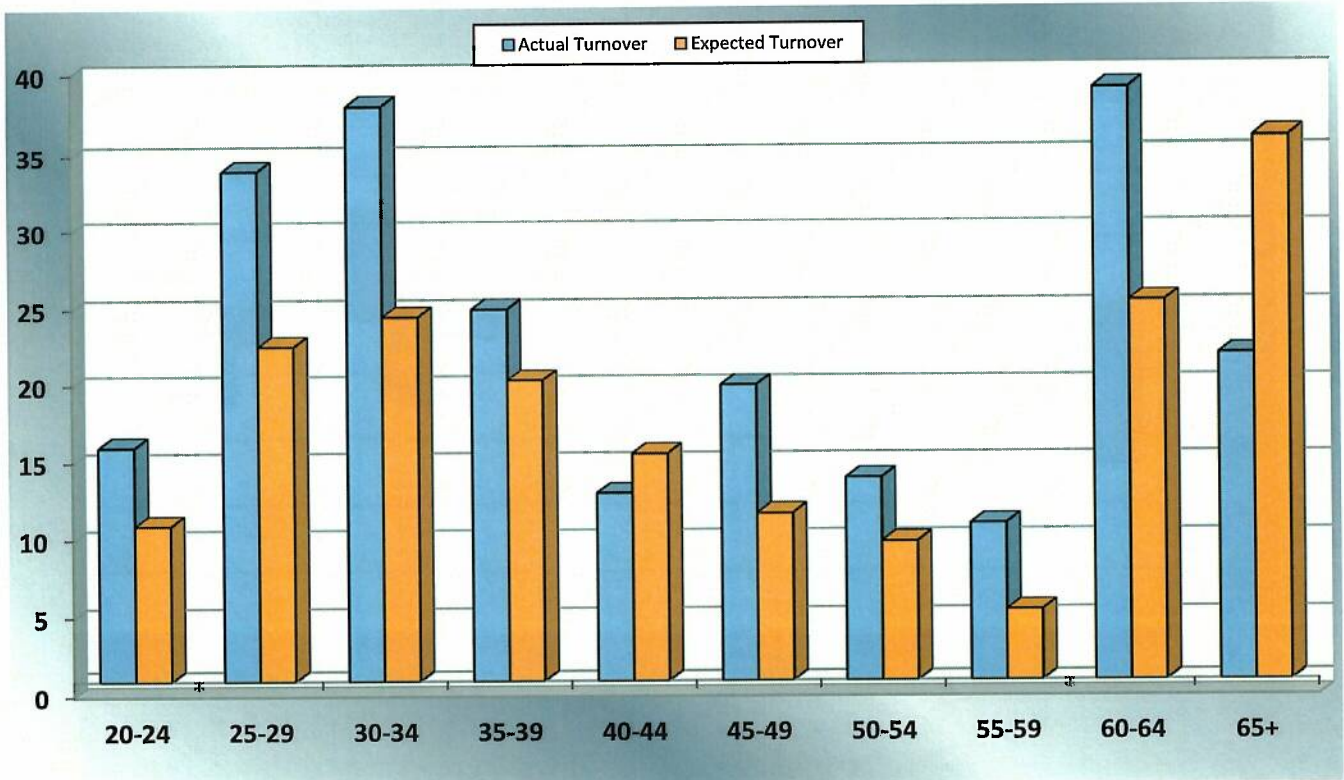
Age	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65+	Total
Actual Turnover	16	34	38	25	13	20	14	11	39	22	232
Expected Turnover	11	23	25	20	16	12	10	5	25	36	182

Turnover Experience from 2014 to 2019
Ratio of Actual to Expected Turnover by Age Group
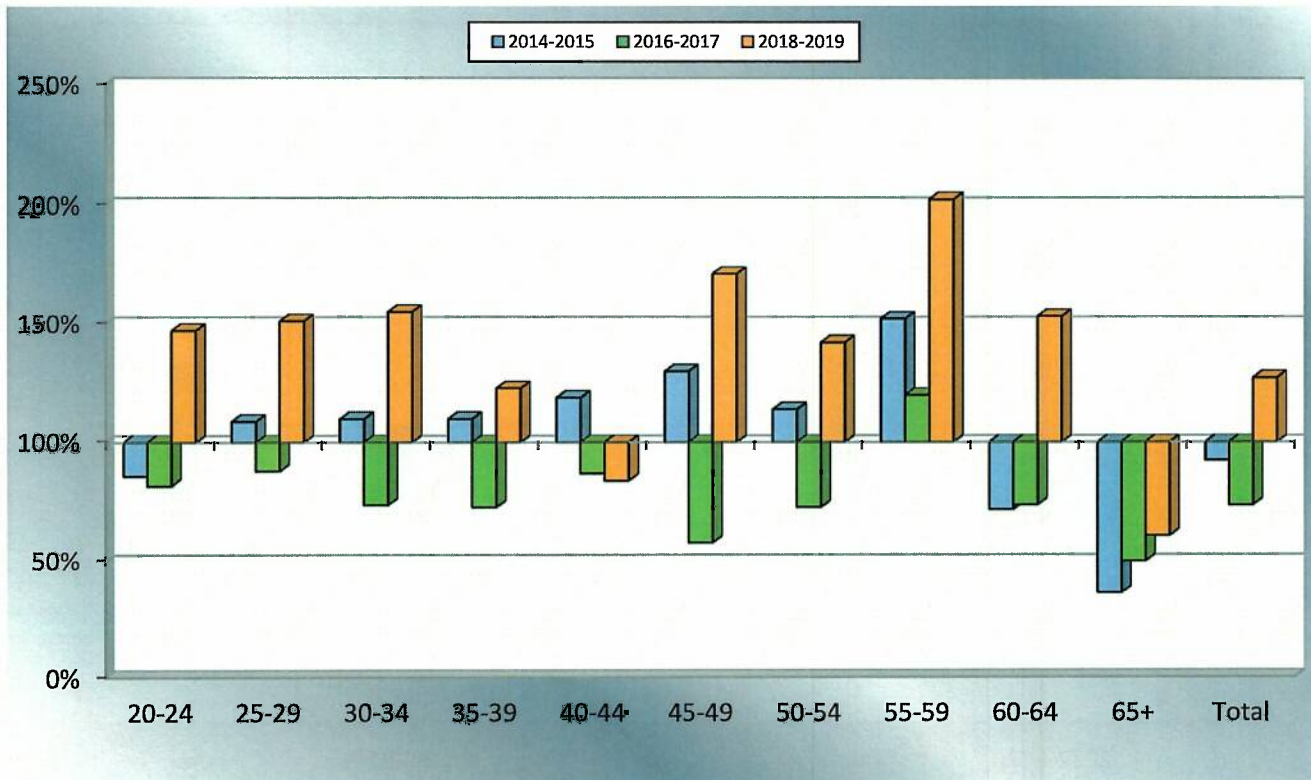
Legend: ■ 2014-2015 ■ 2016-2017 ■ 2018-2019

Age	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65+	Total
Actual Turnover vs. Expected Turnover											
2014-2015	86%	109%	110%	110%	119%	130%	114%	152%	72%	36%	93%
2016-2017	82%	88%	74%	73%	87%	58%	73%	120%	74%	50%	74%
2018-2019	147%	151%	155%	123%	84%	171%	142%	202%	153%	61%	127%

12

Mortality Experience from 2012 to 2019
Ratio of Actual to Expected Deaths of Actives
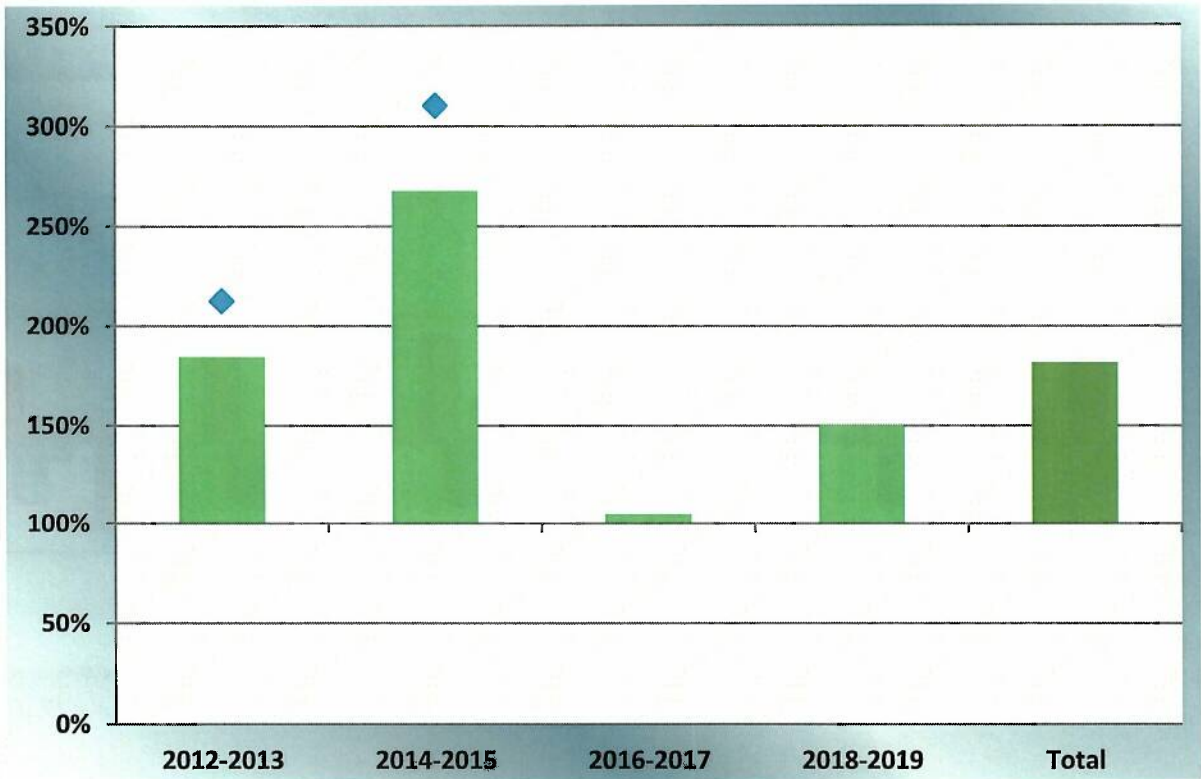
Year	2012-2013	2014-2015	2016-2017	2018-2019	Total
Actual Deaths	7	9	3	4	23
Expected Deaths	3.80	3.36	2.86	2.66	12.68
Actual vs. Expected	184%	268%	105%	150%	181%
Mortality Table Basis	PubG-2010(B)	PubG-2010(B)	PubG-2010(B)	PubG-2010(B)	PubG-2010(B)
Actual vs. Prior Table Expected	213%	310%	N/A	N/A	N/A
Prior Mortality Table Basis	IRS 2016	IRS 2016	N/A	N/A	N/A

In recent years, the mortality table has been advancing to the most current table applied for corporate plan valuation purposes. The recently available PubG-2010 table is based on mortality experience of general employees of public plans, and is considered a part of the relevant "assumption universe" for such plans. The PubG-2010(B) table reflects expected experience of employees and retirees with below-median pay and retirement benefits.

13

Benefit Election Experience for 2018 and 2019
Incidence of Election to Return Contributions
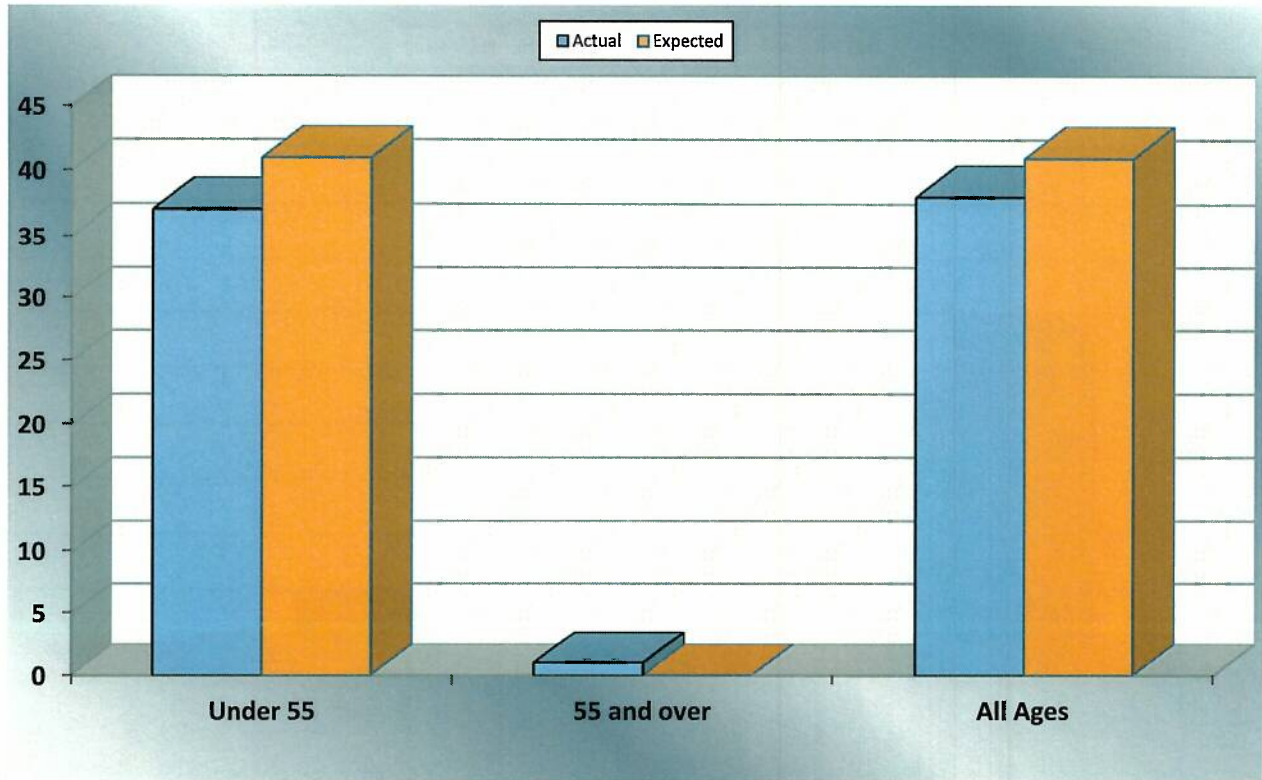
Age	Under 55	55 and over	All Ages
Number Electing Return of Contributions*			
Actual	37	1	38
Expected	41	0	41
Actual vs. Expected	90%	N/A	93%

* Excludes those withdrawing before the opportunity to vest in a deferred annuity.

Benefit Election Experience from 2014 to 2019
Percent Electing Return of Contributions
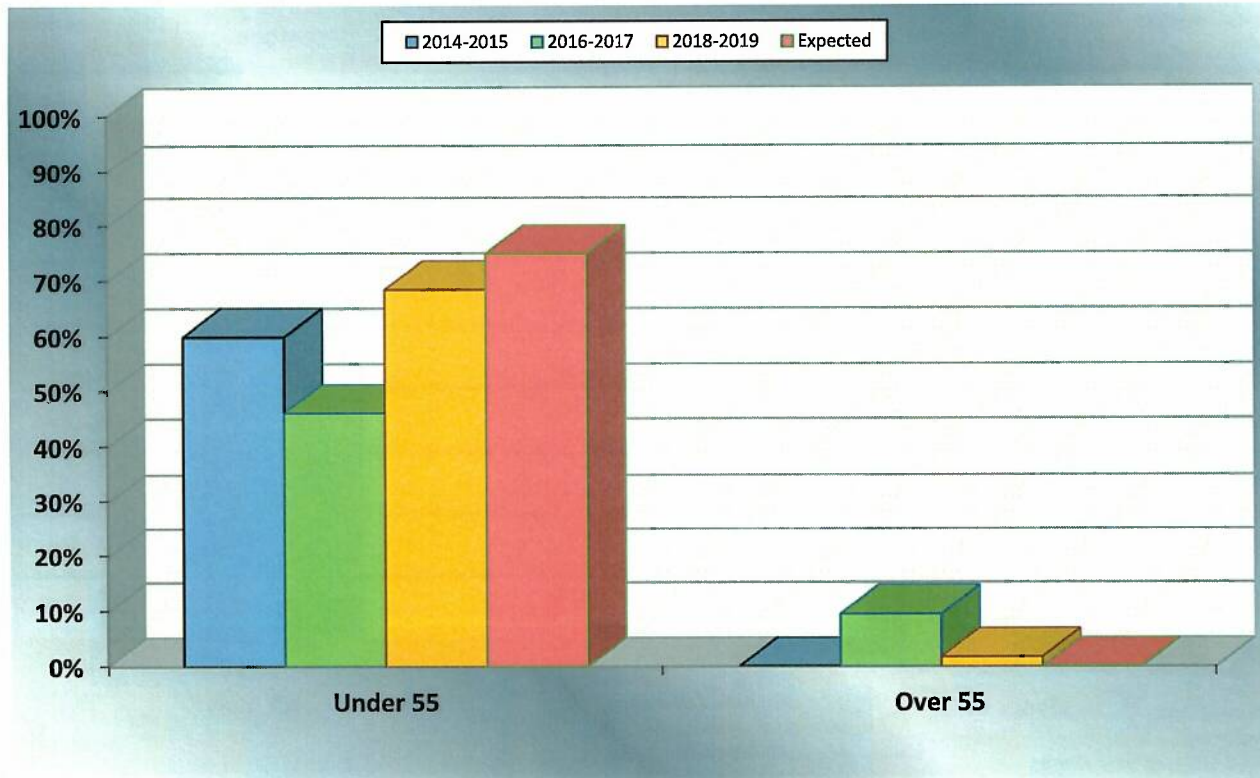
Age	Under 55	Over 55	All Ages
Percent Electing Return of Contributions*			
2014-2015	60%	0%	38%
2016-2017	46%	10%	24%
2018-2019	69%	2%	34%
Expected	75%	0%	N/A

* Excludes those withdrawing before the opportunity to vest in a deferred annuity.

Investment Experience from 2010 to 2019
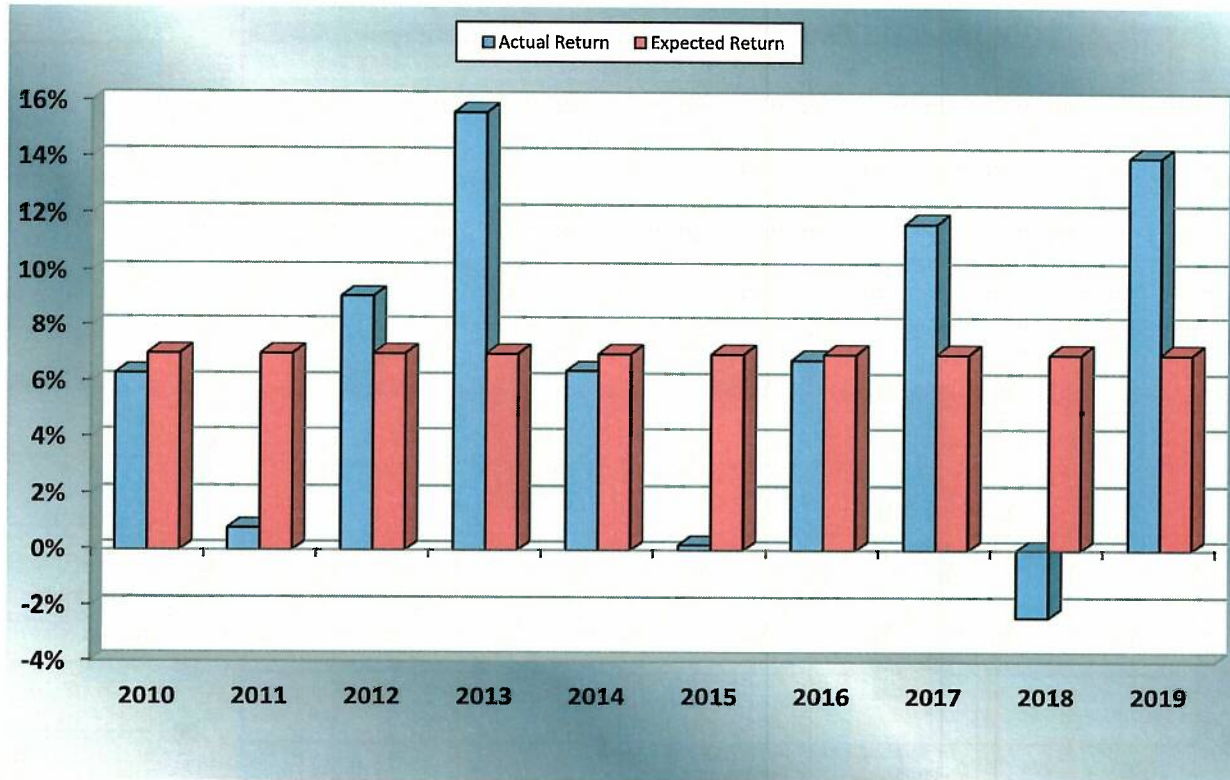
Year	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Actual Return	6.3%	0.8%	9.1%	15.6%	6.4%	0.2%	6.8%	11.7%	-2.4%	14.0%
Expected Return	7.0%	7.0%	7.0%	7.0%	7.0%	7.0%	7.0%	7.0%	7.0%	7.0%

Average returns from historical periods are not, by themselves, strong indicators of future returns.

Experience (Gain)/Loss History

Cumulative (G)/L 2010-2019
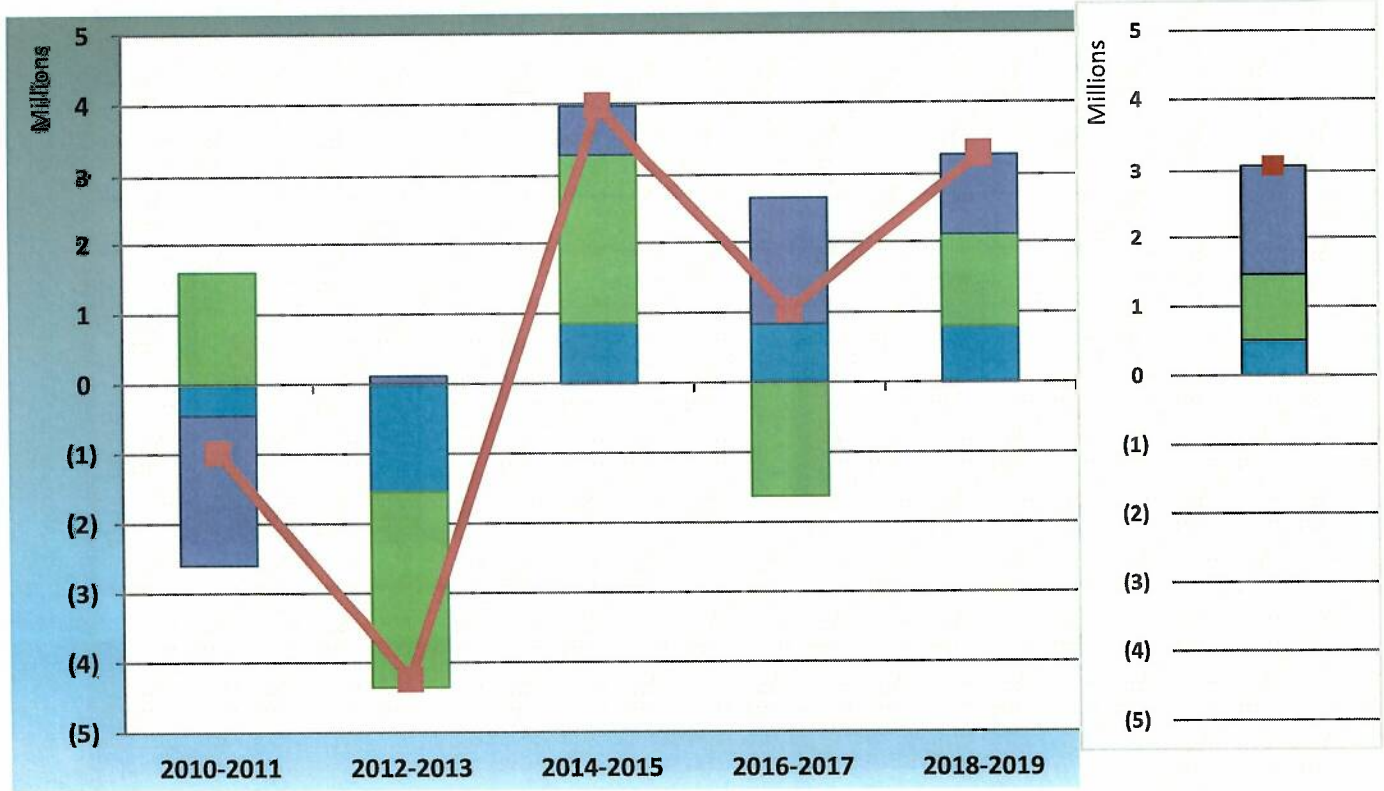
Year	2010-2011	2012-2013	2014-2015	2016-2017	2018-2019	Cumulative (G)/L
Liability (Gain)/Loss	(443,595)	(1,549,029)	859,422	838,735	800,922	506,455
Asset (Gain)/Loss	1,605,409	(2,798,830)	2,464,389	(1,626,017)	1,315,257	960,208
Assumption Changes	(2,153,992)	113,958	648,294	1,822,710	1,183,891	1,614,861
Net (Gain)/Loss	(992,178)	(4,233,901)	3,972,105	1,035,428	3,300,070	3,081,524

Assumption Changes:

2010-2011   Mortality table and decrease to salary scale from 4% to 2%
2012-2013   Mortality table.
2014-2015   Mortality table and increase to salary scale from 2% to 2.5%
2016-2017   Mortality table.
2018-2019   Mortality table and additional early retirement rates. Preliminary amount.

Actuarial Assumptions

The actuarial assumptions included in the experience study are summarized below:

Salary Increase Rate   2.5% compounded annually

Turnover Rates   Rates in the first three years are:

Years of Service	Rate
0	54.0%
1	25.5
2	15.0

After three years, sample rates are as follows:

Age	Rate
25	14.5%
30	14.0
35	13.1
40	11.6
45	9.5
50	6.3
55	2.3
60	0.2

Mortality Table   PubG-2010 (B) / MP 2019 generational improvement scale projected from 2010.

Elected Form of Distribution

Under Age 55   75% Return of Contribution
                 25% Deferred Annuity

Over age 55   100% Deferred Annuity

Retirement Rates

Age	Rate
62	15%
63	5%
64	5%
65+	100%

Investment Return Rate   7.0% compounded annually

Salary Experience Analysis from 2018 to 2019[3]

Age Group	2018 Salary	2019 Salary	Actual Increase[1]	Expected Increase[2]	Actual/ Expected
20-24	35,446	33,637	-5.10%	2.50%	-204%
25-29	34,561	34,075	-1.41%	2.50%	-56%
30-34	37,553	38,042	1.30%	2.50%	52%
35-39	38,612	40,203	4.12%	2.50%	165%
40-44	42,033	42,887	2.03%	2.50%	81%
45-49	40,994	41,290	0.72%	2.50%	29%
50-54	40,807	41,990	2.90%	2.50%	116%
55-59	45,485	46,736	2.75%	2.50%	110%
60-64	47,286	48,586	2.75%	2.50%	110%
65+	45,550	46,455	1.99%	2.50%	79%
Total	41,242	42,026	1.90%	2.50%	76%

Salary Experience Analysis from 2017 to 2018[3]

Age Group	2017 Salary	2018 Salary	Actual Increase[1]	Expected Increase[2]	Actual/ Expected
20-24	31,271	35,446	13.35%	2.50%	534%
25-29	32,450	34,561	6.50%	2.50%	260%
30-34	35,616	37,553	5.44%	2.50%	218%
35-39	36,375	38,612	6.15%	2.50%	246%
40-44	39,690	42,033	5.90%	2.50%	236%
45-49	38,571	40,994	6.28%	2.50%	251%
50-54	38,159	40,807	6.94%	2.50%	278%
55-59	42,725	45,485	6.46%	2.50%	258%
60-64	44,736	47,286	5.70%	2.50%	228%
65+	43,495	45,550	4.72%	2.50%	189%
Total	38,785	41,242	6.34%	2.50%	253%

[1] The percentage is based on the aggregate amounts.

[2] Rate used in actuarial valuations since 2016.

[3] Results derived from 2020 valuation census.

Salary Experience Analysis from 2016 to 2017[3]

Age Group	2016 Salary	2017 Salary	Actual Increase[1]	Expected Increase[2]	Actual/ Expected
20-24	30,401	30,157	-0.80%	2.50%	-32%
25-29	32,298	32,333	0.11%	2.50%	4%
30-34	35,144	36,092	2.70%	2.50%	108%
35-39	36,925	36,812	-0.31%	2.50%	-12%
40-44	39,783	41,494	4.30%	2.50%	172%
45-49	35,780	35,942	0.45%	2.50%	18%
50-54	40,783	41,323	1.32%	2.50%	53%
55-59	42,509	42,463	-0.11%	2.50%	-4%
60-64	40,132	41,130	2.49%	2.50%	99%
65+	35,999	37,307	3.63%	2.50%	145%
Total	37,853	38,327	1.25%	2.50%	50%

Salary Experience Analysis from 2015 to 2016[3]

Age Group	2015 Salary	2016 Salary	Actual Increase[1]	Expected Increase[2]	Actual/ Expected
20-24	29,190	30,401	4.15%	2.50%	166%
25-29	30,669	32,298	5.31%	2.50%	212%
30-34	32,667	35,144	7.58%	2.50%	303%
35-39	35,818	36,925	3.09%	2.50%	124%
40-44	38,041	39,783	4.58%	2.50%	183%
45-49	33,445	35,780	6.98%	2.50%	279%
50-54	38,635	40,783	5.56%	2.50%	222%
55-59	39,641	42,509	7.23%	2.50%	289%
60-64	38,646	40,132	3.84%	2.50%	154%
65+	34,000	35,999	5.88%	2.50%	235%
Total	35,858	37,853	5.56%	2.50%	223%

[1] The percentage is based on the aggregate amounts.
[2] Rate used in actuarial valuations since 2016.
[3] Results derived from 2018 valuation census.

Turnover and Early Retirement Experience

Turnover Experience for 2018 and 2019

Years of Service	Actual Turnover	Expected Turnover	Actual/ Expected
0	4	6	70%
1	37	38	98%
2	35	18	198%
3 or More	156	121	129%
Total	**232**	**182**	**127%**

Age Group	Actual Turnover	Expected Turnover	Actual/ Expected
20-24	16	11	147%
25-29	34	23	151%
30-34	38	25	155%
35-39	25	20	123%
40-44	13	16	84%
45-49	20	12	171%
50-54	14	10	142%
55-59	11	5	202%
60-64	39	25	153%
65+	22	36	61%
Total	**232**	**182**	**127%**

Early Retirement Experience for 2018 and 2019

Age Group	Actual Retirement	Expected Retirement	Actual/ Expected
61 and Under	11	4	306%
62	5	3	173%
63	7	2	449%
64	9	16	56%
65+	22	36	61%
Total	**54**	**60**	**90%**

Turnover and Early Retirement Experience
(continued)

Turnover Experience for 2016 and 2017

Years of Service	Actual Turnover	Expected Turnover	Actual/ Expected
0	24	33	74%
1	33	49	67%
2	13	14	96%
3 or More	86	116	74%
Total	**156**	**211**	**74%**

Age Group	Actual Turnover	Expected Turnover	Actual/ Expected
20-24	15	18	82%
25-29	28	32	88%
30-34	18	24	74%
35-39	17	23	73%
40-44	13	15	87%
45-49	7	12	58%
50-54	9	12	73%
55-59	11	9	120%
60-64	17	23	74%
65+	21	42	50%
Total	**156**	**211**	**74%**

Early Retirement Experience for 2016 and 2017

Age Group	Actual Retirement	Expected Retirement	Actual/ Expected
61 and Under	10	3	303%
62	1	3	32%
63	0	1	0%
64	6	14	43%
65+	20	42	48%
Total	**37**	**63**	**59%**

Mortality Experience

Mortality Experience for 2012 through 2019

Year of Death	Actual Deaths	Expected Deaths	Actual/ Expected	Mortality Table Basis
2018 - 2019	4	2.66	150%	PubG-2010(B)
2016 - 2017	3	2.86	105%	PubG-2010(B)
2014 - 2015	9	3.36	268%	PubG-2010(B)
2012 - 2013	7	3.80	184%	PubG-2010(B)
Total	**23**	**12.68**	**181%**	

Benefit Election Experience

Elected Form of Distribution for 2018 and 2019

Age Group	Participants with Annuity Option	Number Electing Return of Contributions	Expected	Actual/ Expected	Percent Electing Return of Contributions	Percent Expected
Under 55	54	37	41	90%	69%	75%
55 and over	58	1	0	N/A	2%	0%
Total	**112**	**38**	**41**	**93%**	**34%**	**37%**

Elected Form of Distribution for 2016 and 2017

Age Group	Participants with Annuity Option	Number Electing Return of Contributions	Expected	Actual/ Expected	Percent Electing Return of Contributions	Percent Expected
Under 55	26	12	20	60%	46%	75%
55 and over	42	4	0	N/A	10%	0%
Total	**68**	**16**	**20**	**80%**	**24%**	**29%**

24

Appendix C

Lincoln Police and Fire
Retirement Plan Information

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2020 Reporting Form for Underfunded
Political Subdivision Pension Plans

1. Please list the following information for <u>plan years 2016 through current plan year 2020</u>:
    a. Funding status
    b. Assumed rate of return
    c. Actual investment return
    d. Member and employer contribution rates -- <u>percentage</u>
    e. Normal cost – <u>percentage</u>
    f. Actuarially required contribution (ARC) – <u>percentage & dollar amount</u>
    g. ARC contribution – <u>actual dollar amount contributed & percentage of ARC actually contributed</u>

Please see the attached Exhibit A for this information.

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

Many factors impact the funded ratio of a retirement system from year to year. A graph of the long term historical funded ratio, based on the actuarial value of assets, is shown below:

Funded Ratio

Year	Funded Ratio
2001	104.4%
2002	98.0%
2003	96.4%
2004	95.0%
2005	95.9%
2006	97.5%
2007	101.0%
2008	100.0%
2009	94.8%
2010	88.3%
2011	80.7%
2012	76.6%
2013	71.6%
2014	66.4%
2015	63.9%
2016	79.9%
2017	80.8%
2018	82.2%
2019	77.7%
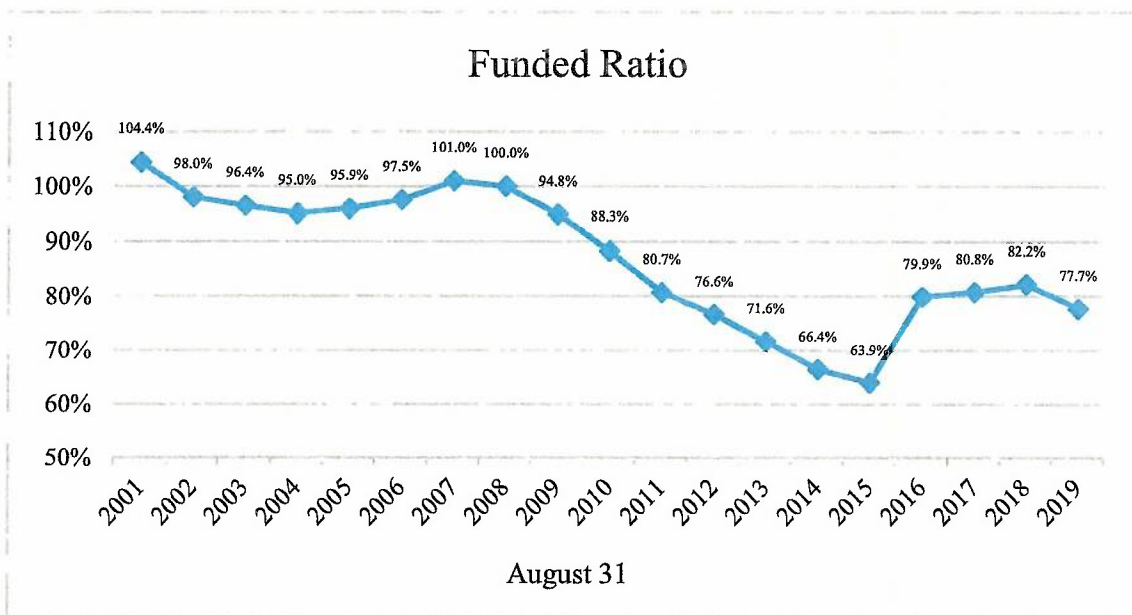
August 31

The following table summarizes the factors impacting the funded ratio between August 31, the 2009 and August 31, 2019:

	Actuarial Value of Assets	Market Value of Assets
Funded Ratio 8/31/2009	94.8%	72.0%
Expected change	5.1%	3.9%
Change due to:		
• Contributions other than actuarial rate	(0.6%)	(0.6%)
• Assumption changes	3.9%	3.4%
• Actual vs expected investment experience	(23.8%)	(1.4%)
• Actual vs expected liability experience	(0.7%)	(0.7%)
• Other	(1.0%)	(0.8%)
Funded Ratio 8/31/2019	77.7%	75.8%

As the table above illustrates, the key reason for the current underfunded status of the Plan is the impact of the financial crisis/Great Recession in 2008 and 2009. The rate of return on Plan assets was -6.6% for the fiscal year ending August 31, 2008 and -16.7% for the fiscal year ending August 31, 2009, compared to the assumed rate of return of 7.5% for those years. Over that two-year period, the value of plan assets declined by 22% instead of increasing with the expected return of 7.5% per year. Plan assets were nearly 40% lower than the expected value of assets (value if the actuarial assumption had been met from August 31, 2007 to August 31, 2009) and that was reflected in the funded ratio of 72% on a market value basis in the August 31, 2009 valuation report. Due to the use of an asset smoothing method, the funded ratio on the actuarial value of assets as of August 31, 2009 was more than 20% higher than the funded ratio on the market value of assets (94.8% vs 72.0%). As the deferred investment experience was recognized in the asset smoothing method over the next four years (2009 to 2013), the funded ratio declined (see graph above). Over the ten-year period from the August 31, 2009 valuation to the August 31, 2019 valuation, the difference between the actual and expected returns represented a decrease in the funded ratio of 23.8% (see table above). While the Plan assets have generally met the expected return of 7.5% since August 31, 2009 (see column labeled "Market Value of Assets"), the "lost earnings" from the Great Recession have not been recovered.

Note that the increase in the funded ratio due to assumption changes of 3.9% reflects the impact of the merger of the 13th Check COLA Pool Fund into the regular trust fund which resulted in a change in the investment return assumption from 6.40% to 7.50%. This is discussed in more detail in our response to later questions.

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

There were several changes to the actuarial assumptions used in the August 31, 2019 actuarial valuation as the result of an experience study prepared in 2019 that covered the four-year period ending August 31, 2018. The key changes include:

- Decrease the inflation assumption from 2.50% to 2.25%;
- Decrease the investment return assumption from 7.50% to 7.25% over a five-year period in increments of 0.05% per year (ultimate rate attained in the 2023 valuation);
- Decrease the general wage increase assumption from 3.00% to 2.75% and move to service-based assumption for individual salary increases;
- Decrease the payroll growth assumption from 3.00% to 2.75%;
- Increase the percentage of disabilities that are assumed to be duty-related;

- Adjust the retirement assumption to service-based rates;
- Change the mortality assumption to use the public safety specific PubS-2010 Mortality Tables, with generational mortality improvements anticipated using the same mortality improvement scale used by the Nebraska Public Employees Retirement System.

As a result of the assumption changes, which reflect an investment return assumption of 7.45%, the actuarial accrued liability (AAL) increased by $13.7 million and the actuarial required contribution rate increased by 1.55% of pay. The impact of the assumption changes on the August 31, 2019 valuation results is summarized in the following table (in millions).

	Prior Assumptions	Current Assumptions	Difference
Actuarial Accrued Liability (AAL)	$311.4	$325.1	$13.7
Actuarial Value of Assets (AVA)	252.7	252.7	0.0
Unfunded AAL (UAAL)	$ 58.7	$ 72.4	$13.7
Funded Ratio	**81.17%**	**77.74%**	**(3.43%)**
Normal Cost Rate	16.56%	15.71%	(0.85%)
UAAL Amortization Rate	8.03%	10.43%	2.40%
Actuarial Determined Contribution Rate	24.59%	26.14%	1.55%
Effective Employee Contribution Rate	(7.38%)	(7.38%)	0.00%
Employer Actuarial Contribution Rate	17.21%	18.76%	1.55%
Employer Contribution Amount for Fiscal Year 2020-2021	$9.0	$9.7	$0.7

Note that absent the impact of the assumption changes, the funded ratio of the System as of August 31, 2019 would have exceeded 80%.

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

If all assumptions are met in the future, the Plan is projected to be 100% funded in the 2043 valuation.

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

The UAAL is amortized with payments determined as a level-percent of payroll, using a layered approach. The August 31, 2016 UAAL serves as the initial amortization base and is amortized over a closed 28-year period (ending August 31, 2044). For each valuation after August 31, 2016, the net annual experience gain/loss is amortized over a new, closed 20-year period. Subsequent plan amendments or changes to actuarial assumptions or methods that create a change in the UAAL will be amortized over a demographically appropriate time period selected by the Plan Administrator at the time the change is reflected in the annual actuarial valuation. The increase in the unfunded actuarial accrued liability due to the assumption changes in the most recent experience study was amortized over a closed 20-year period.

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.

Please see the attached Exhibit B for this information.

Plan Changes: The expected return on plan assets was 7.5% from 1999 through 2017. However, the 13th Check COLA Pool Fund (created in 1991) was funded by a portion of actual investment returns that were above the actuarial assumed rate of return on the market value of assets. As a result, the Plan assets "lost" a portion of any returns above 7.5% but retained the full impact of returns below the expected return of 7.5%, lowering the effective rate of return on the assets to fund the regular plan benefits. In order to reflect the impact of the expected transfer of a portion of any favorable investment experience to the 13th Check COLA Pool Fund, the investment return assumption for the regular Pension Fund was lowered to 6.75% in the 2014 valuation and then to 6.40% in the 2015 valuation. The decrease in the assumed rate of return in those years significantly lowered the funded ratio which was 63.9% in the August 31, 2015 valuation.

The City of Lincoln commissioned a pension task force in the fall of 2015 with the charge to review the Police and Fire Pension Plan and make recommendations for improvements to the City. One of the recommendations resulted in City of Lincoln Ordinance #20343 [06/27/16]. This change merged the assets of the 13th Check COLA Pool Fund with the assets of the regular Police and Fire Pension Plan and provided for the 13th Check benefits to be paid directly from the Police and Fire Pension Plan (rather than from the separate 13th Check COLA Pool Fund), thereby eliminating future transfers of favorable investment experience (returns above the assumed rate) to the 13th Check COLA Pool Fund. As a result, the regular Pension Plan fund retains the entire return earned and the total expected return can be used as the actuarial assumed rate of return. As a result, the investment return assumption, which had been lowered to 6.40% to reflect the impact of the skimming of investment gains to the COLA Pool Fund, was returned to 7.50% in the August 31, 2016 valuation.

Changes to Funding Policy: In addition to the merger of the 13th Check COLA Pool Fund with the regular Pension Fund, additional action has been taken by the City of Lincoln to improve the future funding of the Plan and to specifically address the systematic funding of the Unfunded Accrued Liability. The City of Lincoln Ordinance #20495 [05/26/2017], modified the Plan's funding policy by providing for the amortization of the existing UAL at 08/31/2016 over a 28-year closed period. In each Actuarial Valuation subsequent to August 31, 2016, the annual net experience gains/losses (actual versus expected experience) is amortized over a new, closed 20-year period (referred to as a "layered" amortization approach). Subsequent plan amendments or changes in actuarial assumptions or methods that create a change in the UAAL will be amortized over a demographically appropriate time period, selected by the Plan Administrator at the time that the change is reflected in the annual actuarial valuation.

The funding policy further provides that the Actuarially Determined Employer Contribution (ADEC) Rate shall be the greater of the Employer Normal Cost Rate or the sum of the Employer Normal Cost Rate and the UAL contribution rate. If actuarial assets exceed the actuarial accrued liability, a negative amortization payment shall only be applied if the plan has been at least 115 percent funded for the current and prior two years. Otherwise, the full employer normal cost rate will be contributed, thereby protecting the Plan's "surplus" assets. The dollar amount of the Actuarial Employer Contribution shall be the ADEC rate multiplied by the valuation payroll projected forward to the fiscal year under consideration, plus the actual administrative expenses for the fiscal year ending on the valuation date, projected forward one year with the inflation assumption used in the valuation.

Actuarial projections are not prepared every year, but a projection model was created in conjunction with the August 31, 2019 actuarial valuation. The projected funded ratio, assuming all assumptions are met, is shown below. A table of key valuation results for each year is attached as Exhibit B.

Funded Ratio
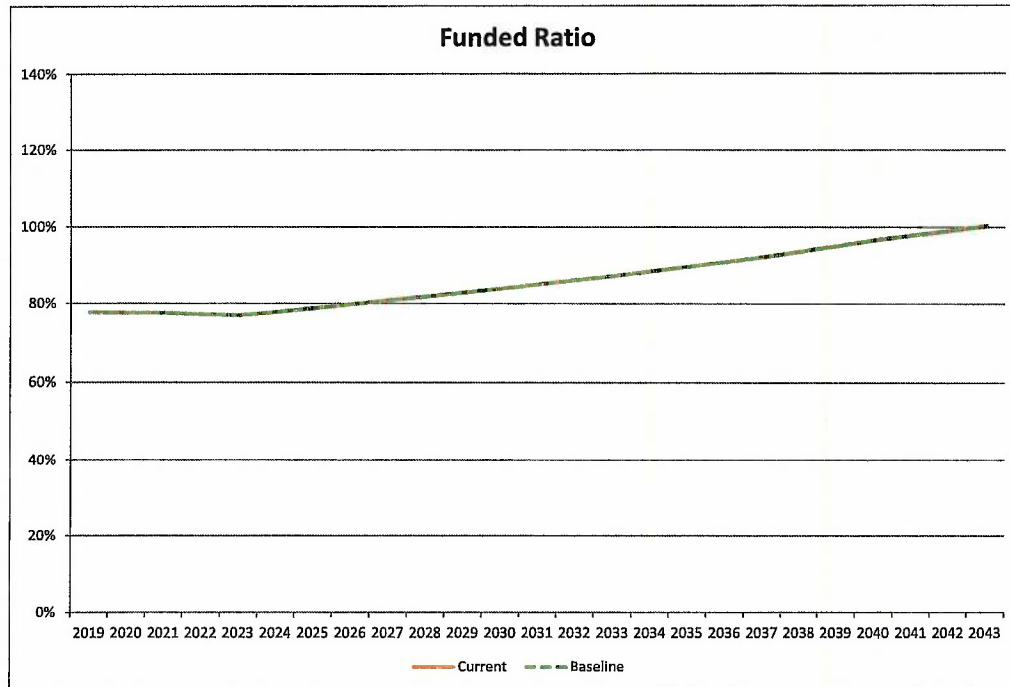
7. **Please describe recent or ongoing negotiations with bargaining groups that may impact the plan's funding.**

There have been no recent or ongoing negotiations with bargaining groups that may impact the funding of the Plan.

8. **Please attach a copy of the most recent Actuarial Experience Study. <u>When will the next Actuarial Experience Study be completed and available for review by the Committee?</u>**

A copy of the most recent Experience Study Report is attached (dated June 1, 2019). The next experience study, covering the four years ending August 31, 2022, will be completed after the August 31, 2022 actuarial valuation report has been completed. We anticipate a draft report in May or June of 2023.

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.**

In the last experience study, the actuary recommended reducing the investment return assumption from 7.50% to 7.25%. This change is being implemented incrementally with decreases of 0.05% in the assumption each year over five years. As a result, the investment return assumption in the August 31, 2019 actuarial valuation was 7.45% and the investment return assumption in the August 31, 2020 valuation will be 7.40%. Based on the current schedule, the investment return assumption will ultimately reach 7.25% in the August 1, 2023 valuation.

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.**

Actuarial valuations are prepared annually, as of August 31, for the Lincoln Police and Fire Retirement System. The most recent valuation report, prepared as of August 31, 2019, is attached.

11. <u>NEW QUESTION</u> – **Please describe current or projected revenue and/or budget impacts on your political subdivision due to COVID 19 which have, or may, affect your political subdivision's ability to remit the entire ARC payment as recommended by the actuary.**

The City typically conducts a two-year biennial budget process, however with the uncertainty due to COVID-19 the City has proposed an annual budget for the upcoming biennium. The Mayor has proposed a balanced budget for 2020, based on a combination of fee increases and service cuts. The budget has been adopted by the City Council, which occurred in late August. Sales tax makes up approximately 44% of the General Fund budget for 2021, and the budget amount is based off a 2019-2020 decrease of 2.92% and a 2020-2021 increase of 1.82%. The average sales tax increase for the last ten years is 3.77% and the actual increase for 19-20 budget year was 2.27%. The continued proliferation of COVID-19 throughout the State and the City may materially adversely affect the operations and finances of the City due to the economic ramifications of government responses to try to slow the spread of the disease. The pandemic could negatively impact the timely collection of property and sales taxes within the City if taxpayers are unemployed, or their business is closed or suffering due to mandatory closures or other restrictions. Tax payment delinquencies, disruption of the collection or distribution of taxes by the State or Lancaster County (the "County"), or other related factors may pressure the City's budget and cash flows. Significant delays or non-payments of taxes, fees, or other revenues of the City could materially and adversely impact the City's ability to make timely payments on the Bonds.

In addition, the economic downturn may be exacerbated by continued restrictions on businesses and limits on the number of people who can gather in one place, as well as possible changes in social and economic practices of individuals during and after the pandemic. Such a downturn could cause reductions in assessed valuations in the City, which could lead to unsustainable levies on taxable property when combined with other levying authorities, like the County and school district.

Significant developments regarding COVID-19 continue to occur daily and the extent to which COVID19 will impact the City in the future is highly uncertain and cannot be predicted.

12. <u>NEW QUESTION</u> – **Please describe any impacts due to COVID 19 on the plan's actuarial economic or demographic experience that have been identified by the actuary.**

The recent impact of COVID-19 is likely to affect both economic forecasts and demographic experience. Since the actuaries expect this experience to be more short term in nature, and assumptions are long-term estimates, they have not made any adjustments to the assumptions at this time. Based on discussion with the actuaries, they intend to monitor the developments related to COVID-19 and their impact over the next few years to determine if any changes should be made.

Submit the information electronically by **October 15, 2020** to: Senator Mark Kolterman Chairman, Nebrask Retirement Systems Committee mkolterman@leg.ne.gov and Kate Allen, Committee Legal Counsel kallen@leg.ne.gov. If you have any questions, please contact Kate at <u>kallen@leg.ne.gov.</u>

2020 Reporting for Underfunded Political Subdivision Pension Plans
Exhibit B: Response to Question 6
Reporting Date: October 15, 2020

CITY OF LINCOLN POLICE AND FIRE PENSION PLAN
($ in Millions)

Year	Accrued Liability	Market Assets	Actuarial Assets	Unfunded AL	Funded Ratio	Normal Cost	ER Normal Cost	Actuarial ER Rate	Actual ER Rate	Benefit Payments	Contributions	ER Contributions
2019	325.1	246.3	252.7	72.4	77.7%	15.71%	8.33%	18.76%	18.76%	18.7	12.0	8.4
2020	339.3	257.2	263.2	76.1	77.6%	15.93%	8.12%	19.31%	19.31%	19.5	13.5	9.7
2021	353.9	269.5	274.5	79.4	77.6%	16.13%	8.22%	19.90%	19.90%	20.2	14.0	10.1
2022	369.2	282.4	285.0	84.3	77.2%	16.31%	8.37%	20.77%	20.77%	21.0	14.6	10.6
2023	385.0	295.9	295.9	89.0	76.9%	16.50%	8.54%	21.69%	21.69%	21.9	15.5	11.3
2024	399.0	310.2	310.2	88.7	77.8%	16.51%	8.53%	21.75%	21.75%	22.7	16.3	12.1
2025	413.3	325.6	325.6	87.7	78.8%	16.51%	8.51%	21.77%	21.77%	23.9	16.8	12.4
2026	427.5	341.2	341.2	86.3	79.8%	16.52%	8.52%	21.89%	21.89%	25.4	17.1	12.7
2027	441.4	356.8	356.8	84.5	80.8%	16.53%	8.53%	21.98%	21.98%	26.8	17.5	13.0
2028	454.9	372.4	372.4	82.5	81.9%	16.53%	8.53%	22.03%	22.03%	27.7	17.9	13.3
2029	468.9	388.7	388.7	80.2	82.9%	16.54%	8.54%	22.03%	22.03%	28.4	18.3	13.6
2030	483.3	405.8	405.8	77.6	84.0%	16.54%	8.54%	22.03%	22.03%	29.7	18.8	13.9
2031	497.7	423.3	423.3	74.4	85.1%	16.54%	8.54%	22.08%	22.08%	30.7	19.2	14.3
2032	512.3	441.4	441.4	70.8	86.2%	16.54%	8.54%	22.09%	22.09%	31.6	19.6	14.6
2033	527.2	460.4	460.4	66.8	87.3%	16.54%	8.54%	22.08%	22.08%	32.8	20.1	14.9
2034	542.3	480.0	480.0	62.3	88.5%	16.54%	8.54%	22.13%	22.13%	34.2	20.6	15.3
2035	557.3	500.2	500.2	57.1	89.8%	16.55%	8.55%	22.17%	22.17%	35.6	21.1	15.7
2036	572.0	520.7	520.7	51.3	91.0%	16.56%	8.56%	22.22%	22.22%	36.8	21.6	16.1
2037	586.9	542.0	542.0	44.9	92.3%	16.57%	8.57%	22.29%	22.29%	38.1	22.1	16.4
2038	601.7	563.9	563.9	37.8	93.7%	16.58%	8.58%	22.78%	22.78%	39.4	22.7	16.9
2039	616.6	586.8	586.8	29.8	95.2%	16.59%	8.59%	19.49%	19.49%	40.5	23.6	17.6
2040	631.8	611.1	611.1	20.7	96.7%	16.60%	8.60%	18.62%	18.62%	41.5	21.6	15.6
2041	647.3	634.0	634.0	13.3	97.9%	16.61%	8.61%	18.01%	18.01%	42.7	21.5	15.3
2042	663.0	657.2	657.2	5.8	99.1%	16.62%	8.62%	17.15%	17.15%	44.0	21.6	15.2
2043	678.9	680.9	680.9	(1.9)	100.3%	16.63%	8.63%	16.27%	16.27%	45.1	21.4	14.8
2044	695.2	704.9	704.9	(9.7)	101.4%	16.65%	8.65%	8.65%	8.65%	46.2	21.2	14.5
2045	711.8	729.2	729.2	(17.4)	102.4%	16.66%	8.66%	8.66%	8.66%	47.8	15.1	8.3
2046	728.3	747.5	747.5	(19.1)	102.6%	16.67%	8.67%	8.67%	8.67%	49.0	15.5	8.5
2047	745.2	766.1	766.1	(20.9)	102.8%	16.68%	8.68%	8.68%	8.68%	50.2	15.9	8.7
2048	762.5	785.3	785.3	(22.8)	103.0%	16.68%	8.68%	8.68%	8.68%	51.2	16.4	8.9

Note: Projections assume the size of the active population remains constant over the projection period and all actuarial assumptions are met in the future. This includes the assumed return on investments of 7.45% for the August 31, 2019 valuation, 7.40% for 2020, 7.35% for 2021, 7.30% for 2022 and 7.25% for the August 31, 2023 valuation and after.

2020 Reporting for Underfunded Political Subdivision Pension Plan

Exhibit A: Response to Question 1

Reporting Date: October 15, 2020

CITY OF LINCOLN POLICE AND FIRE PENSION PLAN

Valuation Date	Sets Contribution for FYE August 31	(a) Funded status	(b) Assumed Rate of Return	(c) Actual Investment Return (prior year)	(d) Effective Member Contribution Rate	City Contribution Rate	(e) Normal Cost	Actuarially Required Employer Contribution Rate	(f) Actuarially Required Employer Contribution ($)	(g) Actual Employer Amount Contributed	Percent of ARC Actually Contributed
8/31/2014	2016	66.4%	6.75%	16.5%	6.75%	24.44%	18.33%	24.44%	9,666,852	7,170,104	74.2%
8/31/2015	2017	63.9%	6.40%	-2.8%	6.88%	17.42%	16.87%	17.42%	7,829,103	7,974,731	101.9%
8/31/2016	2018	79.9%	7.50%	7.3%	7.06%	17.32%	16.47%	17.32%	8,164,782	8,239,839	100.9%
8/31/2017	2019	80.8%	7.50%	11.2%	7.20%	17.08%	16.52%	17.08%	8,333,901	8,333,901	100.0%
8/31/2018	2020	82.2%	7.50%	7.5%	7.23%	16.52%	16.52%	16.52%	8,422,965	8,490,045	100.8%
8/31/2019	2021	77.7%	7.45%	2.2%	7.38%	18.76%	15.71%	18.76%	9,733,221		

City of Lincoln Police and Fire Pension Fund

Actuarial Valuation Report
as of August 31, 2019

Cavanaugh Macdonald
CONSULTING, LLC
The experience and dedication you deserve

December 23, 2019

The City Council
City of Lincoln
555 South 10th Street, Room 111
Lincoln, NE 68508

Re: City of Lincoln Police and Fire Pension Fund

Dear Council Members:

At your request, we have performed an actuarial valuation of the City of Lincoln Police and Fire Pension Fund as of August 31, 2019 to determine the actuarial contribution rate for the fiscal year ending August 31, 2021. The major findings of the valuation are contained in this report. This report reflects the benefit provisions in effect as of August 31, 2019, which were unchanged from the prior valuation. However, there were several changes to the actuarial assumptions as a result of the completion of an experience study covering the four-year period ending August 31, 2018. All of the recommended assumptions were adopted by the City, with one modification to move the inflation assumption to 2.25%. The new set of assumptions is first used in this valuation. The net impact of the assumption changes was an increase in both the unfunded actuarial accrued liability and the actuarial contribution rate.

In preparing this report, we relied, without audit, on information (some oral and some written) supplied by the Plan's staff. This information includes, but is not limited to, plan provisions, member data and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete, our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the Plan have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the Plan and reasonable expectations); and which, in combination, offer our best estimate of anticipated experience affecting the Plan.

Future actuarial results may differ significantly from the current results presented in this report due to such factors as the following: plan experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the plan's funded status); and changes in the plan provisions or applicable law. Since the potential impact of such factors is outside the scope of a normal annual actuarial valuation, an analysis of the range of results is not present herein.

Actuarial computations presented in this report are for purposes of determining the recommended funding amounts for the Plan. The calculations have been made on a basis consistent with our understanding of the Plan's funding policy and goals and the plan provisions described in Appendix B of this report. Determinations for purposes other than meeting these requirements may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes. Actuarial computations for purposes of fulfilling financial accounting requirements for the Plan under Governmental Account Standards No. 67 and No. 68 are provided in a separate report.

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 Actuarial Standards 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 plan and on actuarial assumptions that are internally consistent and reasonably based on the actual experience of the Plan.

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,

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

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

OVERVIEW

This report presents the results of the August 31, 2019 actuarial valuation of the City of Lincoln Police and Fire Pension Fund (Plan). The primary purposes of performing a valuation are to:

- determine the actuarially determined employer contribution rate required to fund the Plan for the fiscal year ending two years from the valuation date,
- disclose asset and liability measures as of the valuation date,
- assess and disclose the key risks associated with funding the Plan,
- determine the experience of the Plan since the last valuation date, and
- analyze and report on trends in contributions, assets, and liabilities over the past several years.

The plan provisions and actuarial methods remain unchanged since the prior valuation. However, there were several changes to the actuarial assumptions used in this valuation as the result of an experience study prepared in 2019 that covered the four-year period ending August 31, 2018. All of the recommended assumptions were adopted by the City, with one modification to move the inflation assumption to 2.25%. The new set of assumptions is first used in this valuation including:

- Decrease the inflation assumption from 2.50% to 2.25%;
- Decrease the investment return assumption from 7.50% to 7.25% over a five year period in increments of 0.05% per year (ultimate rate attained in the 2023 valuation);
- Decrease the interest on member contributions from 7.50% to 7.25%. in increments of 0.05% per year until reaching the ultimate rate of 7.25% in the 2023 valuation;
- Decrease the general wage increase assumption from 3.00% to 2.75%;
- Decrease the payroll growth assumption from 3.00% to 2.75%;
- Adjust the salary increase assumption to a service-based assumption;
- Increase the percentage of disabilities that are assumed to be duty-related;
- Adjust the retirement assumption to service-based rates;
- Adjust the termination assumption to service-based rates; and
- Change the mortality assumption to use the public safety specific PubS-2010 Mortality Tables, with generational mortality improvements anticipated using the Nebraska Public Employees Retirement System (NPERS) mortality improvement scale.

As a result of the assumption changes, which reflects an investment return assumption of 7.45%, the actuarial accrued liability (AAL) increased by $13.7 million and the actuarial required contribution rate increased by 1.55% of pay. Because the change to the investment return assumption is being reflected incrementally over five year, the changes to the retirement and mortality assumptions had the most significant impact on the 2019 valuation results. The impact of all assumption changes on the August 31, 2019 valuation results is summarized in the following table (in millions).

	Prior Assumptions	Current Assumptions	Difference
Actuarial Accrued Liability (AAL)	$311.4	$325.1	$13.7
Actuarial Value of Assets (AVA)	252.7	252.7	0.0
Unfunded AAL (UAAL)	$ 58.7	$ 72.4	$13.7
Funded Ratio	81.17%	77.74%	(3.43%)
Normal Cost Rate	16.56%	15.71%	(0.85%)
UAAL Amortization Rate	8.03%	10.43%	2.40%
Actuarial Determined Contribution Rate	24.59%	26.14%	1.55%
Effective Employee Contribution Rate	(7.38%)	(7.38%)	0.00%
Employer Actuarial Contribution Rate	17.21%	18.76%	1.55%
Employer Contribution Amount for Fiscal Year 2020-2021	$9.0	$9.7	$0.7

Note: the increase in the UAAL is amortized over a closed 20-year period.

The valuation results provide a "snapshot" view of the Plan's financial condition on August 31, 2019. The UAAL increased from $52.9 million last year to $72.4 million in this year's valuation. The funded ratio (actuarial assets divided by actuarial accrued liability) decreased from 82% in last year's valuation to 78% in the current valuation. In addition, the Actuarial Determined Employer Contribution rate increased by 2.24% from 16.52% in last year's valuation to 18.76% in this year's valuation. As a result, the dollar amount of the city's contribution for fiscal year 2021 is $9,733,221.

After recognizing the impact of the assumption changes, the valuation results reflect aggregate unfavorable experience for the past plan year as demonstrated by an UAAL that was higher than expected. The unfavorable experience was due to the combined impact of an experience loss on both actuarial liabilities and the actuarial value of assets. The rate of return on the market value of assets for the year ending August 31, 2019 was 2.2% which is below the assumed return of 7.5%. Due to the actual experience in fiscal year 2019 and the scheduled recognition of the deferred investment experience from the prior four years, the return on the actuarial value of assets (smoothed value) was about 5.9%. Since this return is lower than the investment return assumption of 7.5%, it generated an experience loss of $3.8 million on the actuarial value of assets. Unfavorable experience on the actuarial liabilities, primarily due to unfavorable mortality experience, resulted in a $1.8 million loss (about 0.6% of the actuarial liability). A detailed analysis of the change in the unfunded actuarial accrued liability from August 31, 2018 to August 31, 2019 can be found on page 5.

ASSETS

As of the valuation date, the Plan had total assets of $246.3 million, when measured on a market value basis. This represents an increase of $0.4 million from the August 31, 2018 amount of $245.9 million. The market value of assets is not used directly in the actuarial valuation. An asset valuation method, which smoothes the effect of market fluctuations, is used to determine the value of assets used in the valuation (called the "actuarial value of assets"). Differences between the actual return on the market value of assets and the assumed return on the actuarial value of assets are recognized equally over a five-year period.

See Table 3 for a detailed development of the actuarial value of assets. The components of the change in the market and actuarial value of assets for the Plan (in millions) are set forth in the following table.

	Market Value ($M)	Actuarial Value ($M)
Assets, August 31, 2018	$245.9	$243.5
• City and Member Contributions	11.7	11.7
• Benefit Payments and Refunds	(16.3)	(16.3)
• Administrative Expenses	(0.4)	(0.4)
• Investment Income, Net of Expenses	5.4	14.2
Assets, August 31, 2019	$246.3	$252.7
Estimated Rate of Return, Net of Expenses	2.2%	5.9%

The annualized dollar-weighted rate of return, measured on the actuarial value of assets, was about 5.9% and, measured on the market value of assets, was about 2.2%. The actuarial value of assets as of August 31, 2019 was $252.7 million, which reflects an actuarial loss of $3.8 million resulting from the net impact of phasing-in the investment returns from the current and preceding four years. Due to the asset smoothing method, the actuarial value of assets exceeds the market value of assets by $6.4 million. This differential of $6.4 million (net deferred investment loss) will flow through the asset smoothing method over the next four years.

System Net Assets

August 31

Market Value — Actuarial Value
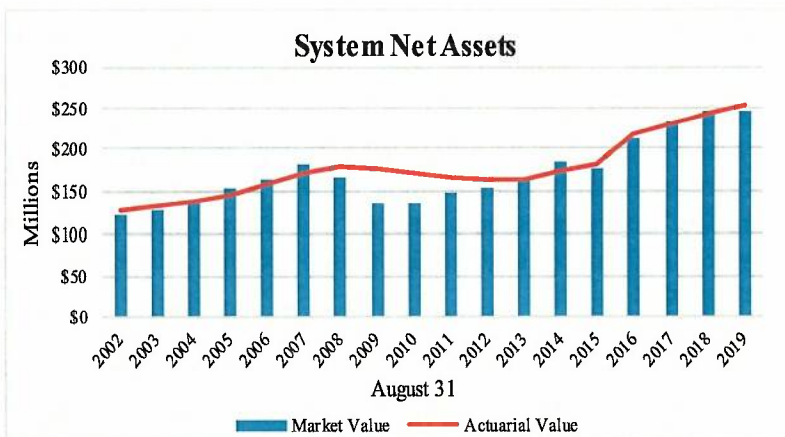
The actuarial value of assets has been both above and below the market value during this period. This is to be expected when using an asset smoothing method.

Note: Results for years before 2015 were prepared by the prior actuary.

Return on Assets

August 31

Market Value — Actuarial Value — Assumed
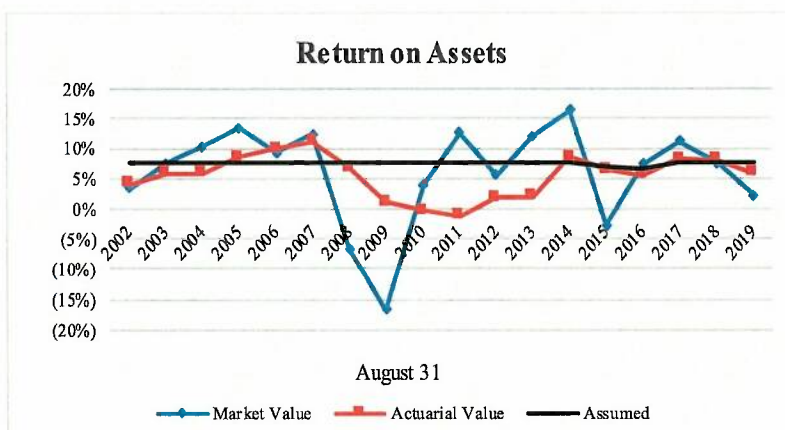
The rate of return on the actuarial value of assets has been less volatile than the market value return, which is the main reason for using an asset smoothing method.

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 the asset value at the same date is referred to as the unfunded actuarial accrued liability, or surplus if the asset value exceeds the actuarial accrued liability. 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 procedures will also impact the total actuarial accrued liability and the unfunded portion thereof.

The Unfunded Actuarial Accrued Liability for the Plan as of August 31, 2019 is:

Actuarial Accrued Liability	$325,109,208
Actuarial Value of Assets	252,739,770
Unfunded Actuarial Accrued Liability	$72,369,438

Between August 31, 2018 and August 31, 2019, the components of the change in the UAAL for the Plan are shown in the following table:

	$ millions
Unfunded Actuarial Accrued Liability, August 31, 2018	$52.9
· Effect of contributions above the actuarial rate	0.0
· Expected increase due to amortization method	0.5
· Investment experience	3.8
· Liability experience*	1.8
· Assumption Changes	13.7
· Other experience	(0.3)
Unfunded Actuarial Accrued Liability, August 31, 2019	$72.4

* Liability loss is about 0.6% of total actuarial accrued liability.

The overall experience loss for the last plan year of $5.6 million was the result of an experience loss of $1.8 million on Plan liabilities as well as a $3.8 million experience loss on Plan assets (actuarial value). The unfavorable experience on Plan liabilities was primarily due to unfavorable mortality experience.

Analysis of the unfunded actuarial accrued liability strictly as a dollar amount can be misleading. 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. This information for recent years is shown in the following table (in millions). Historical information is shown in the graph on the following page. Note that the funded ratio does not indicate whether or not the Plan has sufficient funds to settle all current obligations, nor is it necessarily indicative of the need for future funding.

	8/31/15	8/31/16	8/31/17	8/31/18	8/31/19
Actuarial Accrued Liability ($M)	$286.5	$271.6	$285.0	$296.4	$325.1
Actuarial Value of Assets ($M)	$183.0	$217.0	$230.2	$243.5	$252.7
Unfunded AAL*	$103.5	$54.6	$54.8	$52.9	$72.4
Funded Ratio (Actuarial Assets/AAL)	63.9%	79.9%	80.8%	82.2%	77.7%
Actuarial Accrued Liability ($M)	$286.5	$271.6	$285.0	$296.4	$325.1
Market Value of Assets ($M)	$176.8	$213.9	$233.1	$245.9	$246.3
Unfunded AAL*	$109.7	$57.7	$51.9	$50.6	$78.8
Funded Ratio (MVA/AAL)	61.7%	78.7%	81.8%	82.9%	75.8%

* Numbers may not add due to rounding.
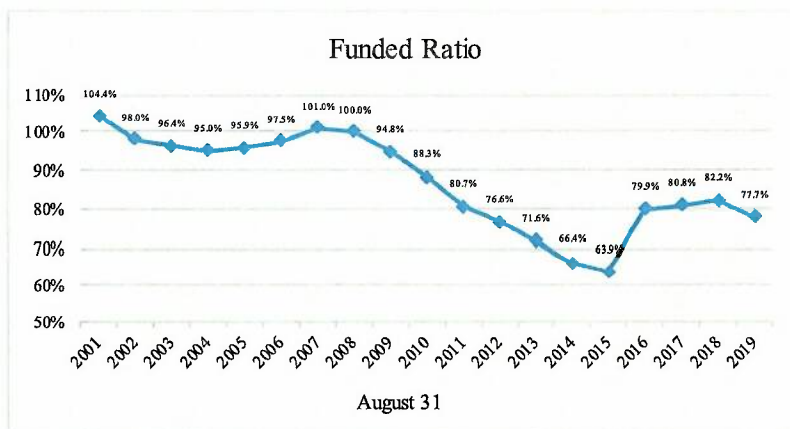
Funded Ratio

From 2007 to 2015, the funded ratio steadily declined due to changes in assumptions, adverse experience, and contributions less than the full actuarial rate. The large improvement in 2016 was due to the merger of the COLA Pool Fund with the general pension fund which resulted in an increase in the investment return assumption.

Note: Results for years prior to 2015 were prepared by prior actuaries.

As mentioned earlier in this report, due to the asset smoothing method there is a $6.4 million difference between the market and actuarial value of assets. This deferred investment loss will flow through the asset smoothing method over the next four years. If all actuarial assumptions are met in the future and favorable investment experience does not occur, the funded ratio will decrease as the asset smoothing method recognizes the deferred investment loss. The Plan's funded status will continue to be heavily dependent on future investment returns.

CONTRIBUTION RATES

Generally, contributions to the Plan consist of:

- a "normal cost" for the portion of projected liabilities allocated by the actuarial cost method to service of members during the current year; and

- 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.

Contribution rates are computed with the objective of developing costs that are level as a percentage of covered payroll. As a result, even if all assumptions are met the dollar amount of contributions is expected to increase as covered payroll increases over time. The contribution rate computed in the August 31, 2019 valuation is used to set the city contribution for the fiscal year ending August 31, 2021.

By ordinance, the City is required to contribute the Actuarially Determined Employer Contribution (ADEC), which is the greater of the employer normal cost rate or the sum of the employer normal cost rate and UAAL contribution rate. The dollar amount of the city contribution is also required to include a component for administrative expenses. Due to a number of factors, the most significant of which was the change in actuarial assumptions, the actuarially determined employer contribution rate increased by 2.24% from the 2018 to the 2019 valuation, as shown in the following table:

Actuarially Determined Contribution Rate	Actuarial Valuation	
	8/31/2019	8/31/2018
1) a. Total Normal Cost	15.71%	16.52%
b. Member Financed	7.38%	7.23%
c. Employer Portion (1a) - (1b)	8.33%	9.29%
2) UAAL Contribution	10.43%	7.23%
3) Employer Contribution Rate	18.76%	16.52%
4) Projected Covered Payroll	$49,454,779	$48,283,886
5) Actuarial Employer Contribution*	9,733,221	8,422,965

* Includes administrative expenses. See Table 11 for details.

COMMENTS

The Lincoln City Council passed Lincoln City Ordinance #20495 in May, 2017 which modified the Plan's funding policy with the intention of strengthening the Plan's long-term funding. It provides for the amortization of the unfunded actuarial accrued liability (UAAL) as of August 31, 2016 over a closed 28-year period (25 years remain as of this valuation). In subsequent valuations, the net experience gains/losses are established as a new base and amortized over new, 20-year closed periods (referred to as "layered" amortization). The funding policy further provides that the actuarially determined employer contribution (ADEC) rate shall be the greater of the employer normal cost rate or the sum of the employer normal cost rate and the UAAL contribution rate. The dollar amount of the employer contribution is the ADEC rate multiplied by the valuation payroll projected forward to the applicable fiscal year plus the actual administration expenses for the fiscal year ending on the valuation date, projected forward one year with the inflation assumption used in the valuation. Prior to this change, the ordinance required a contribution of at least the employer normal cost contribution plus administrative expenses. These changes to the funding policy are intended to strengthen the Plan's long-term funding, with the goal of accumulating sufficient assets over time to fully finance the future benefits payable to members. If all assumptions are met, the funding policy will result in the Plan reaching fully funded status.

As of August 31, 2019, the actuarial accrued liability of the Plan was $325.1 million and the actuarial value of assets was $252.7 million, resulting in a funded ratio of 78%, down from the funded ratio of 82% last year. Using the market value of assets, the funded ratio is 76%.

Retirement plans use several mechanisms to create more stability in the contribution levels. These include an asset valuation method, which smoothes out the volatility in the investment returns, and amortization of any actuarial gains or losses over a period of years. The unfunded actuarial accrued liability, which includes the experience loss in FY 2019, is amortized using a "layered" approach. Under the Plan's funding policy, a new amortization base equal to the difference between the actual and expected UAAL is created each year and amortized over a closed 20-year period. The intent of this methodology is to mitigate the impact of the actuarial experience on the actuarial contribution rate.

The Plan utilizes an asset smoothing method that spreads the difference between expected and actual return over a five-year period. The rate of return on the actuarial value of assets for the plan year ending in 2019 was 5.9% as compared to the 2.2% return on the market value of assets.

As of August 31, 2019, the deferred investment loss (actuarial value less market value of assets) is $6.4 million. This deferred investment loss will flow through the asset smoothing method over the next four years. If all actuarial assumptions are met in the future and favorable investment experience does not occur, the funded ratio will decrease as the asset smoothing method recognizes the deferred investment loss. While the use of an asset smoothing method is a common procedure for 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 August 31, 2019 actuarial valuation using both the actuarial and market value of assets.

	Using Actuarial Value of Assets	Using Market Value of Assets
Actuarial Accrued Liability (AAL)	$325,109,208	$325,109,208
Asset Value	252,739,770	246,294,314
Unfunded Actuarial Accrued Liability (UAAL)	$72,369,438	$78,814,894
Funded Ratio	78%	76%
Normal Cost Rate	15.71%	15.71%
UAAL Contribution Rate	10.43%	11.45%
Total Actuarial Contribution Rate	26.14%	27.16%
Member Contribution Rate	(7.38%)	(7.38%)
Employer Actuarial Contribution Rate	18.76%	19.78%

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 each year 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 VI of this report for an in-depth discussion of the specific risks facing the City of Lincoln Police and Fire Pension Fund.

A summary of key data elements and valuation results as of August 31, 2019 and August 31, 2018 are presented on the following page. More detail on each of these elements can be found in the following sections of this report.

	8/31/2019 Valuation	8/31/2018 Valuation	% Change
1. PARTICIPANT DATA			
Number of:			
Active Members	590	587	0.5%
DROP Members	42	39	7.7%
Retirees, Disabled Members and Beneficiaries	536	519	3.3%
Inactive Vested Members	24	25	(4.0)%
Refund Due	4	2	100.0%
Total Members	1,196	1,172	2.0%
Projected Valuation Salaries of Active Members	$ 48,131,172	$ 46,877,559	2.7%
Average Valuation Salary	$ 81,578	$ 79,860	2.2%
Annual Retirement Payments for DROP Members, Disabled Members, Retirees and Beneficiaries	$ 16,635,457	$ 15,421,795	7.9%
Average Annual Benefit	$ 28,781	$ 27,638	4.1%
2. ASSETS AND LIABILITIES			
a. Total Actuarial Accrued Liability	$325,109,208	$296,440,660	9.7%
b. Market Value of Assets	246,294,314	245,880,530	0.2%
c. Actuarial Value of Assets	252,739,770	243,538,925	3.8%
d. Unfunded Actuarial Accrued Liability (a) - (c)	$ 72,369,438	$ 52,901,735	36.8%
e. Funded Ratio - Actuarial Value (c) / (a)	77.74%	82.15%	(5.4)%
f. Funded Ratio - Market Value (b) / (a)	75.76%	82.94%	(8.7)%
3. ACTUARIAL CONTRIBUTION RATE			
a. Normal Cost	15.71%	16.52%	(4.9)%
b. UAAL Amortization	10.43%	7.23%	44.3%
c. Actuarial Determined Contribution Rate (a) + (b)	26.14%	23.75%	10.1%
d. Effective Employee Contribution Rate	(7.38%)	(7.23%)	2.1%
e. Employer Actuarial Contribution Rate (c) - (d)	18.76%	16.52%	13.6%

This report presents the results of the actuarial valuation of the City of Lincoln Police and Fire Pension Fund as of August 31, 2019. This valuation was prepared at the request of the City.

Please pay particular attention to our actuarial certification letter, where the guidelines employed in the preparation of this report are outlined. We also comment on the sources and reliability of both the data and the actuarial assumptions upon which our findings are based. Those comments are the basis for our certification that this report is complete and accurate to the best of our knowledge and belief.

A summary of the findings which result from this valuation is presented in the previous section. Section III describes the assets and investment experience of the Plan. Sections IV and V describe how the obligations of the Plan are to be met under the actuarial cost method in use. Section VI discloses key maturity measurements and discusses the key risks facing the funding of the Plan. Section VII includes some historical funding and other information.

This report includes several appendices:

- Appendix A   Schedules of valuation data classified by various categories of members.

- Appendix B   A summary of the current benefit structure, as determined by the provisions of governing law on August 31, 2019.

- Appendix C   A summary of the actuarial methods and assumptions used to estimate liabilities and determine contribution rates.

- Appendix D   A glossary of actuarial terms.

In many respects, an actuarial valuation can be thought of as an inventory process. The inventory is taken as of the actuarial valuation date, which for this valuation is August 31, 2019. On that date, the assets available for the payment of benefits are appraised. The assets are compared with the liabilities of the Plan, which are generally in excess of assets. The actuarial process then leads to a method of determining the contributions needed by members and the employer in the future to balance the Plan assets and liabilities.

Market Value of Assets

The current market value represents the "snapshot" or "cash-out" value of Plan assets as of the valuation date. In addition, the market value of assets provides a basis for measuring investment performance from time to time. Table 1 is a comparison, at market values, of Plan assets as of August 31, 2019 and August 31, 2018, in total and by investment category. Table 2 summarizes the change in the market value of assets from August 31, 2018 to August 31, 2019.

Actuarial Value of Assets

Neither the market value of assets, representing a "cash-out" value of Plan assets, nor the book value of assets, representing the cost of investments, may be the best measure of the Plan's ongoing ability to meet its obligations.

To arrive at a suitable value for the actuarial valuation, a technique for determining the actuarial value of assets is used which dampens swings in the market value while still indirectly recognizing market values. Under the asset smoothing methodology, the difference between the actual investment return on the market value of assets and assumed investment return on the actuarial value of assets is recognized evenly over a five-year period.

Table 3 shows the development of the actuarial value of assets (AVA) as of the valuation date.

TABLE 1

STATEMENT OF NET PLAN ASSETS AT MARKET VALUE

	Market Value	
	August 31, 2019	August 31, 2018
Cash & Equivalents	$ 4,253,714	$ 3,020,703
Accrued Interest & Dividends	3,619	1,618
Fixed Income Investments	30,552,046	42,882,794
Equity Investments	122,433,340	138,216,052
Alternate Investments	88,725,241	61,759,363
Total Assets	$ 245,967,960	$ 245,880,530
Contributions Receivable	$ 326,354	$ 0
Net Assets Available for Benefits	$ 246,294,314	$ 245,880,530

TABLE 2

STATEMENT OF CHANGES IN NET ASSETS
DURING YEAR ENDED AUGUST 31, 2019
(Market value)

1. Market Value of Assets as of August 31, 2018	$	245,880,530
2. Contributions:		
a. Members	$	3,366,841
b. City		8,007,547
c. Contributions Receivable		326,354
d. Total	$	11,700,742
3. Investment Income		
a. Interest and Dividends	$	2,546,975
b. Realized Gains/(Losses)		1,118,023
c. Short and Long Term Capital Gains		846,197
d. Unrealized Gains/(Losses)		1,149,287
e. Miscellaneous		0
f. Investment Expenses		(225,703)
g. Net Investment Income	$	5,434,779
4. Expenditures		
a. Refunds of Member Contributions	$	190,379
b. Benefits Paid:		
(1) Pension and Compensation Payments	$	13,782,481
(2) DROP Payments		2,303,396
(3) Temporary Total Disability		0
c. Administrative Expenses		445,481
d. Total	$	16,721,737
5. Changes and Adjustments	$	0
6. Net Change	$	413,784
(2d) + (3g) - (4d) + (5)		
7. Market Value of Assets as of August 31, 2019	$	246,294,314
8. Return on Market Value of Assets, Net of Investment Expenses		2.2%

TABLE 3

DEVELOPMENT OF ACTUARIAL VALUE OF ASSETS

		Year End		
	8/31/2016	8/31/2017	8/31/2018	8/31/2019
1. Actuarial Value of Assets, Beginning of Year	$ 183,011,274	$ 217,003,707	$ 230,159,635	$ 243,538,925
2. Contributions During Year				
a. Members	$ 2,817,102	$ 3,112,583	$ 3,195,658	$ 3,366,841
b. City	7,170,104	7,974,731	8,239,839	8,007,547
c. Contributions Receivable	0	0	0	326,354
d. Total	$ 9,987,206	$ 11,087,314	$ 11,435,497	$ 11,700,742
3. Benefit Payments and Expenses	$ 14,340,221	$ 15,449,711	$ 16,103,135	$ 16,721,737
4. Expected Investment Income on (1), (2) and (3)	$ 11,575,585	$ 16,114,646	$ 17,090,101	$ 18,068,519
5. Actual Return on Market Value, Net of Investment Expenses	$ 13,869,768	$ 23,644,797	$ 17,407,833	$ 5,434,779
6. Return to be Spread, End of Year	$ 2,294,183	$ 7,530,151	$ 317,732	$ (12,633,740)

7. Return to be Spread

	Plan Year Ending	Return to be Spread	Unrecognized Percent	Unrecognized Return
	2019	($12,633,740)	80%	($10,106,992)
	2018	317,732	60%	190,639
	2017	7,530,151	40%	3,012,060
	2016	2,294,183	20%	458,837
				($6,445,456)

8. Total Market Value of Assets as of September 1, 2019	$246,294,314
9. Total Actuarial Value of Assets as of September 1, 2019 (8) - (7)	$252,739,770
10. Asset Ratios	
(a) Actuarial Value to Market Value (9) / (8)	102.62%
(b) Market Value to Actuarial Value (8) / (9)	97.45%
11. Return on Actuarial Value of Assets, Net of Expenses	5.9%

In the previous section, an actuarial valuation was compared with an inventory process, and an analysis was given of the inventory of assets of the City as of the valuation date, August 31, 2019. In this section, the discussion will focus on the commitments (future benefit payments) of the Plan, which are referred to as its liabilities.

Table 4 contains an analysis of the actuarial present value of all future benefits (PVFB) for contributing members, inactive members, retirees and their beneficiaries.

The liabilities summarized in Table 4 include the actuarial present value of all future benefits expected to be paid with respect to each member. For an active member, this value includes measurement of both benefits already earned and future benefits to be earned. For all members, active and retired, the value extends over benefits earnable and payable for the rest of their lives and for the lives of the surviving beneficiaries.

All liabilities reflect the benefit provisions in place as of August 31, 2019.

Actuarial Accrued Liability

A fundamental principle in financing the liabilities of a retirement program is that the cost of its benefits should be related to the period in which benefits are earned, rather than to the period of benefit distribution. An actuarial cost method is a mathematical technique that allocates the present value of future benefits into annual costs. In order to do this allocation, it is necessary for the funding method to "breakdown" the present value of future benefits into two components:

   (1) that which is attributable to the past, and

   (2) that which is attributable to the future.

Actuarial terminology calls the part attributable to the past the "past service liability" or the "actuarial accrued liability". The portion allocated to the future is known as the present value of future normal costs, with the specific piece of it allocated to the current year being called the "normal cost". Table 5 contains the calculation of actuarial accrued liability for the Plan. The Entry Age Normal actuarial cost method is used to develop the actuarial accrued liability.

TABLE 4

PRESENT VALUE OF FUTURE BENEFITS (PVFB)
AS OF AUGUST 31, 2019

1. Active Employees
   a. Retirement Benefits $ 195,611,505
   b. Pre-Retirement Death Benefits   1,874,997
   c. Termination Benefits   6,518,322
   d. Disability Benefits   4,144,760
   e. Total $ 208,149,584

2. Inactive Vested Members $ 5,370,870

3. Refunds Due $ 51,805

4. In Pay Members
   a. Retirees $ 124,523,232
   b. Disabled Members   17,262,004
   c. DROP Members   27,114,291
   d. Beneficiaries   8,964,781
   e. Total $ 177,864,308

5. Total Present Value of Future Benefits $ 391,436,567
   (1e) + (2) + (3) + (4e)

TABLE 5

ACTUARIAL ACCRUED LIABILITY
AS OF AUGUST 31, 2019

1.	Active Employees	
	a. Present Value of Future Benefits	$ 208,149,584
	b. Present Value of Future Normal Costs	66,327,359
	c. Actuarial Accrued Liability (1a) - (1b)	$ 141,822,225
2.	Inactive Members	$ 5,422,675
3.	In Pay Members	
	a. Retirees	$ 124,523,232
	b. Disabled Members	17,262,004
	c. DROP Members	27,114,291
	d. Beneficiaries	8,964,781
	e. Total	$ 177,864,308
4.	Total Actuarial Accrued Liability (1c) + (2) + (3e)	$ 325,109,208
5.	Actuarial Value of Assets	$ 252,739,770
6.	Unfunded Actuarial Accrued Liability (4) - (5)	$ 72,369,438

TABLE 6

ACTUARIAL BALANCE SHEET
AS OF AUGUST 31, 2019

ASSETS

Actuarial Value of Assets	$ 252,739,770
Present Value of Future Normal Costs	$ 66,327,359
Present Value of Future Payments on the Unfunded Actuarial Accrued Liability	$ 72,369,438
Total Assets	$ 391,436,567

LIABILITIES

Active Employees:		
a. Retirement Benefits	$ 195,611,505	
b. Pre-Retirement Death Benefits	1,874,997	
c. Termination Benefits	6,518,322	
d. Disability Benefits	4,144,760	
e. Total		$ 208,149,584
Inactive Members		$ 5,422,675
In Pay Members		
a. Retirees	$ 124,523,232	
b. Disabled Members	17,262,004	
c. DROP Members	27,114,291	
d. Beneficiaries	8,964,781	
e. Total		$ 177,864,308
Total Liabilities		$ 391,436,567

TABLE 7

ACTUARIAL GAIN/(LOSS)

Liabilities

1. Actuarial Accrued Liability as of August 31, 2018	$ 296,440,660
2. Normal Cost for Plan Year Ending August 31, 2019	7,192,244
3. Benefit Payments During Plan Year Ending August 31, 2019	(16,276,256)
4. Interest at 7.50%	22,173,142
5. Assumption Changes	13,739,593
6. Expected Actuarial Accrued Liability as of August 31, 2019	$ 323,269,383
7. Actuarial Accrued Liability as of August 31, 2019	$ 325,109,208

Assets

8. Actuarial Value of Assets as of August 31, 2018	$ 243,538,925
9. Contributions During Plan Year Ending August 31, 2019	11,700,742
10. Benefit Payments and Expenses During Plan Year Ending August 31, 2019	(16,721,737)
11. Interest at 7.50%	18,068,519
12. Expected Actuarial Value of Assets as of August 31, 2019	$ 256,586,449
13. Actuarial Value of Assets as of August 31, 2019	$ 252,739,770

Gain / (Loss)

14. Expected Unfunded Actuarial Accrued Liability (6) – (12)	$ 66,682,934
15. Unfunded Actuarial Accrued Liability (7) – (13)	$ 72,369,438
16. Actuarial Gain / (Loss) (14) – (15)	$ (5,686,504)
17. Actuarial Gain / (Loss) on Actuarial Value of Assets (13) – (12)	$ (3,846,679)
18. Actuarial Gain / (Loss) on Actuarial Accrued Liability (6) – (7)	$ (1,839,825)

TABLE 8

GAIN/(LOSS) BY SOURCE

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 C of this report.

Since the overall results of the valuation will reflect the choice of assumptions made, periodic studies of the various components compromising the plan's experience are conducted in which the experience for each component is analyzed in relation to the assumption used for that component (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 Plan experienced a net actuarial loss on liabilities of $1,840,000 during the plan year ended August 31, 2019, as well as an actuarial loss on assets of $3,847,000. The aggregate actuarial loss was $5,687,000. The major components of this net actuarial experience loss are shown below:

Liability Sources	Gain/(Loss)
Salary Increases	124,000
Mortality	(889,000)
Terminations	(56,000)
Retirements	(394,000)
Disability	(496,000)
New Entrants/Rehires	(323,000)
13th Check	63,000
Miscellaneous	131,000
Total Liability Gain/(Loss)*	(1,840,000)
Asset Gain/(Loss)	(3,847,000)
Net Actuarial Gain/(Loss)	(5,687,000)

* Liability experience was 0.6% of actuarial accrued liability.

The previous two sections were devoted to a discussion of the assets and liabilities of the Plan. A comparison of Tables 3 and 4 indicates that current assets (actuarial value) fall short of meeting the present value of future benefits (total liability). This is expected in all but a completely closed fund, where no further contributions are anticipated. In an active Plan, there will almost always be a difference between the actuarial value of assets and total liabilities. This deficiency has to be made up by future contributions and investment returns. An actuarial valuation sets out a schedule of future contributions that will deal with this deficiency in an orderly fashion.

The method used to determine the incidence of the contributions in various years is called the actuarial cost method. Under an actuarial cost method, the contributions required to meet the difference between current assets and current liabilities are allocated each year between two elements: (1) the normal cost rate and (2) the unfunded actuarial accrued liability contribution rate.

The term "fully funded" is often applied to a Plan in which contributions at the normal cost rate are sufficient to pay for the benefits of existing employees as well as for those of new employees. More often than not, Plans are not fully funded, either because of past benefit improvements that have not been completely funded or because actuarial deficiencies have occurred when experience has not been as favorable as anticipated. Under these circumstances, an unfunded actuarial accrued liability (UAAL) exists. Likewise, when the actuarial value of assets is greater than the actuarial accrued liability, a surplus exists.

Description of Contribution Rate Components

The Entry Age Normal (EAN) actuarial cost method is used for the valuation. Under that method, the normal cost for each year from entry age to assumed exit age is a constant percentage of the member's year by year projected compensation. The portion of the present value of future benefits not provided by the present value of future normal costs in the actuarial accrued liability. The unfunded actuarial accrued liability/(surplus) represents the difference between the actuarial accrued liability and the actuarial value of assets as of the valuation date. The unfunded actuarial accrued liability is calculated each year and reflects experience gains/losses.

In general, contributions are computed in accordance with a level percent-of-payroll funding objective. The funding policy for the Plan, which determines the City's contribution, can be found in Appendix B of Chapter 2.62 in the Lincoln Municipal Code. The contribution rate developed in the August 31, 2019 actuarial valuation will be used to determine the actuarially determined employer contribution rate to the City of Lincoln Police and Fire Pension Fund for fiscal year end 2021. In this context, the term "contribution rate" means the percentage, which is applied to the estimated active member payroll for the applicable plan year to determine the actual employer contribution amount (i.e., in dollars) for the group.

As of August 31, 2019 the actuarial accrued liability was greater than the valuation assets so an unfunded actuarial accrued liability (UAAL) exists. The UAAL is amortized, as a level-percent of payroll, using a layered approach. The existing UAAL as of August 31, 2016 serves as the initial base and is amortized over a closed 30-year period beginning on August 31, 2014 (25 years

remaining in this valuation). For each valuation subsequent to August 31, 2016, annual net experience gains/losses are amortized over a new, closed 20-year period. Subsequent plan amendments or changes in actuarial assumptions or methods that create a change in the UAAL will be amortized over a demographically appropriate time period selected by the Plan Administrator at the time that the change is reflected in the annual actuarial valuation.

Contribution Rate Summary

In Table 9, the amortization payment related to the unfunded actuarial accrued liability, as of August 31, 2019, is developed. Table 10 develops the actuarially determined employer contribution (ADEC) rate.

The actuarial contribution rates shown in this report are based on the actuarial assumptions and cost methods described in Appendix C.

TABLE 9

DEVELOPMENT OF UNFUNDED ACTUARIAL ACCRUED LIABILITY CONTRIBUTION RATE

Amortization Bases	Original Amount	Remaining Payments	Base is Paid Off	Outstanding Balance as of August 31, 2019	Annual Contribution*
2016 UAAL Base	$ 54,590,515	25	8/31/2044	$ 56,119,800	$ 3,780,217
2017 Experience Base	(286,327)	18	8/31/2037	(283,702)	(23,263)
2018 Experience Base	(2,490,622)	19	8/31/2038	(2,482,439)	(196,605)
2019 Experience Base	5,276,186	20	8/31/2039	5,276,186	404,649
2019 Assumption Change Base	13,739,593	20	8/31/2039	13,739,593	1,053,737
Total				$ 72,369,438	$ 5,018,735

* Amounts reflect mid-year timing. Based on level percentage of payroll, assuming payroll increases 2.75% per year.

1. Total UAAL Amortization Payment $ 5,018,735

2. Total Projected Payroll for FY 2019-20 $ 48,131,172

3. UAAL Amortization Payment as a Percent of Payroll   10.43%

TABLE 10

ACTUARIALLY DETERMINED EMPLOYER CONTRIBUTION RATE

	Valuation Date	
	8/31/2019	8/31/2018
Normal Cost		
Retirement benefits	13.09%	13.64%
Pre-retirement death benefits	0.32%	0.48%
Termination benefits	1.57%	1.80%
Disability benefits	0.73%	0.60%
Total Normal Cost	15.71%	16.52%
Total UAAL Amortization Payment	10.43%	7.23%
Actuarial Determined Contribution Rate	26.14%	23.75%
Member portion	7.38%	7.23%
City portion	18.76%	16.52%

TABLE 11

FIVE-YEAR BUDGET REQUEST ESTIMATE

The Employer Contribution Amount, per City Ordinance 20495, requires the City to contribute the Actuarially Determined Employer Contribution Amount plus Administrative Expenses to the Plan.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Fiscal Year	Total Payroll*	Employer Normal Cost Rate	UAAL Contribution Rate	Actuarially Determined Employer Contribution Rate (2) + (3)	Actuarially Determined Employer Contribution Amount (1) * (4)	Admin. Expenses**	Employer Contribution Amount (5) + (6)
2020-21	49,454,779	8.33%	10.43%	18.76%	9,277,717	455,504	9,733,221
2021-22	50,814,785	8.42%	10.71%	19.13%	9,720,868	465,753	10,186,621
2022-23	52,212,192	8.49%	11.22%	19.71%	10,291,023	476,232	10,767,255
2023-24	53,648,027	8.58%	12.03%	20.61%	11,056,858	486,947	11,543,805
2024-25	55,123,348	8.69%	12.88%	21.57%	11,890,106	497,903	12,388,009

Note: Projected employer contribution amounts assume that all actuarial assumptions are met in the future, which includes a varying return over the next five years. The investment return assumption was changed to 7.45% in the August 31, 2019 actuarial valuation and is scheduled to decrease 0.05% per year until reaching the ultimate rate of 7.25% in the August 31, 2023 actuarial valuation. Therefore, it is assumed the actual return on Plan assets in each fiscal year is the investment return assumption in place at the beginning of that fiscal year (so 7.45% for FY 2019-2020, 7.40% for FY 2020-2021, etc.). Note that the valuation results set the employer contribution for the fiscal year ending two years later so the ultimate investment return assumption of 7.25%, used in the August 31, 2023 valuation, is reflected in the estimate results for fiscal year 2024-25 in the table above.

* Total payroll is projected to increase at 2.75% per year for future years.
** Administrative expenses are assumed to increase with price inflation of 2.25% per year.

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 August 31, 2019 actuarial valuation for the City of Lincoln Police and Fire Pension Fund (Plan).

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 higher than expected due to population changes or other factors (note ASOP 51 does not require the actuary to opine on the willingness or ability of the plan sponsor to pay the contribution rate);
- external risks, such as the regulatory and political environment (which are not included in the risks to be assessed under ASOP 51).

Funding Policy

One of the most important factors in the funding of a retirement system is consistently making contributions that are at least equal to the actuarial required contribution. There is a direct correlation between healthy, well-funded retirement plans and consistent contributions at the full actuarial contribution rate each year. For the Lincoln Police and Fire Pension Fund, members contribute a fixed percentage of pay that varies by benefit tier (plan), with most contributing 8.0% under Plan A. The resulting shortfall between the Actuarial Contribution Rate and the effective member contribution rate is the City's obligation. Over the last 16 years, actual City contributions have been less than the full actuarial contribution in 9 years, as shown in the following graph.

Actual Employer Contributions versus Actuarially Determined Contributions
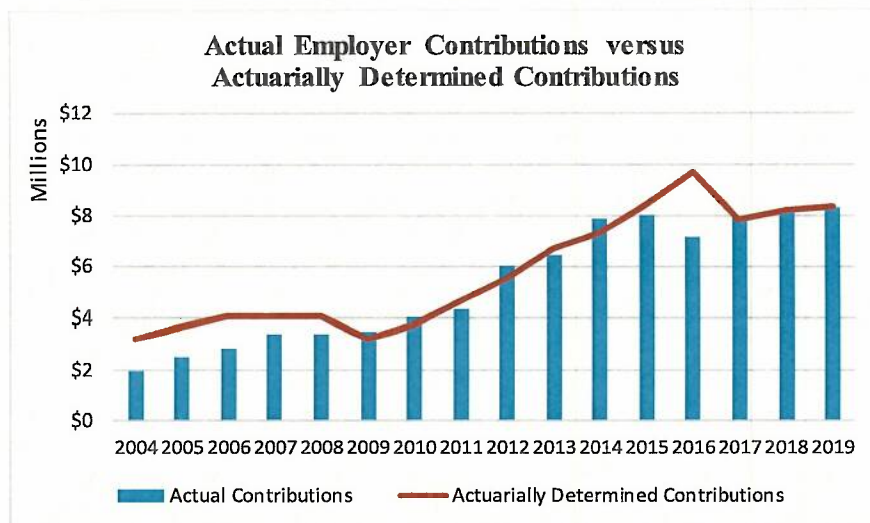
However, in May of 2017, the Plan's funding policy was modified by City ordinance to require the City to contribute the Actuarially Determined Employer Contribution (ADEC), which is defined as the greater of the employer normal cost rate or the sum of the employer normal cost rate and UAAL contribution rate. The dollar amount of the City contribution is also required to include a component for administrative expenses. Prior to this change, the ordinance only required the contribution to be at least the employer normal cost plus administrative expenses, i.e., the full actuarial contribution was not required to be made. The changes to the funding policy in 2017 were implemented to strengthen the Plan's long-term funding and are expected to do so if actual City contributions follow the Policy.

Investment Return Risk

Perhaps the most significant risk factor for most retirement systems, including the City of Lincoln Police and Fire Pension Fund, is investment return because of the volatility of returns associated with the asset allocations (see Table 12). Historically, actual returns each year have varied significantly from the assumed rate of return over the last 18 years (see the graph following this paragraph). This is to be expected, given the underlying capital market assumptions and the Plan's asset allocation and standard deviation, but it does create a high degree of uncertainty, or risk. The effective compound rate of return over this time period was 5.7%, but the range of returns varied from -17% to +16%. When actual investment returns are lower than the assumed rate of return, the actuarial contribution rate increases absent offsetting gains on liabilities. The investment experience of the last decade, which includes the Great Recession, has been much lower than the investment return assumption, resulting in an increasing pattern in the actuarially determined employer contribution rate.

Return on Assets chart — X-axis: August 31 (2002–2019); legend: Market Value, Assumed.
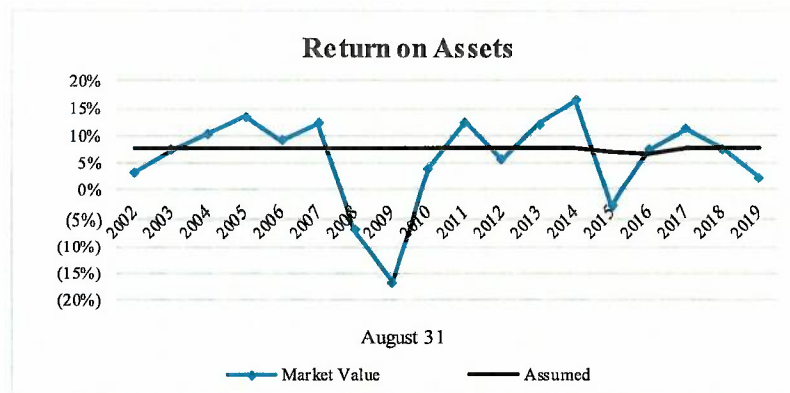
Demographic Risks

A key demographic risk for all retirement systems, including the City of Lincoln Police and Fire Pension Fund, 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 accrued 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). When payroll does not grow as expected, the UAAL contribution rate will be higher than expected even if the dollar amount of the payment is the same as scheduled.

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

TABLE 12

HISTORICAL ASSET VOLATILITY RATIOS

As a retirement system matures, the size of the market value of assets typically 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 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.

Actuarial Valuation Date	Market Value of Assets	Estimated Plan Year Payroll	Asset Volatility Ratio	Increase in ACR with a Return 10% Lower than Assumed*
8/31/2004	$137,781,079	$28,124,862	4.90	3.76%
8/31/2005	153,324,765	29,029,309	5.28	4.05%
8/31/2006	164,696,618	30,724,333	5.36	4.11%
8/31/2007	181,130,654	30,546,235	5.93	4.55%
8/31/2008	165,904,553	32,265,715	5.14	3.94%
8/31/2009	134,932,747	33,449,977	4.03	3.09%
8/31/2010	135,835,077	34,233,197	3.97	3.04%
8/31/2011	148,347,670	35,763,446	4.15	3.18%
8/31/2012	153,546,978	36,310,880	4.23	3.24%
8/31/2013	164,617,759	38,107,652	4.32	3.31%
8/31/2014	184,834,762	37,887,505	4.88	3.74%
8/31/2015	176,828,083	42,381,059	4.17	3.20%
8/31/2016	213,857,935	42,930,194	4.98	3.82%
8/31/2017	233,140,335	44,776,055	5.21	4.00%
8/31/2018	245,880,530	46,877,559	5.25	4.03%
8/31/2019	246,294,314	48,131,172	5.12	3.93%

Note: Years prior to 8/31/2015 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 amount of assets at August 31, 2019 is 5.12 times the covered payroll so underperforming the investment return assumption by 10.00% (i.e., earn -2.55% for one year) is equivalent to an actuarial loss of $24.6 million or 51.2% of payroll. While the actual impact in the first year is mitigated by the asset smoothing method and amortization of the UAAL, the magnitude of the ultimate contribution increase illustrates the risk associated with volatile investment returns.

TABLE 13

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 because 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 Accrued Liability (b)	Retiree Percentage (a) / (b)
8/31/2004	$63,567,028	$144,178,758	44.1%
8/31/2005	65,946,867	151,978,408	43.4%
8/31/2006	67,729,832	161,583,285	41.9%
8/31/2007	76,597,657	169,587,458	45.2%
8/31/2008	81,480,790	179,376,149	45.4%
8/31/2009	88,108,214	187,292,374	47.0%
8/31/2010	94,844,691	195,206,353	48.6%
8/31/2011	96,971,599	204,990,324	47.3%
8/31/2012	106,051,038	214,878,992	49.4%
8/31/2013	113,673,206	229,192,937	49.6%
8/31/2014	139,496,202	262,918,401	53.1%
8/31/2015	147,478,263	286,493,673	51.5%
8/31/2016	150,187,027	271,594,222	55.3%
8/31/2017	157,805,935	285,038,672	55.4%
8/31/2018	159,139,159	296,440,660	53.7%
8/31/2019	177,864,308	325,109,208	54.7%

Note: Years prior to 8/31/2015 were provided by the prior actuary.
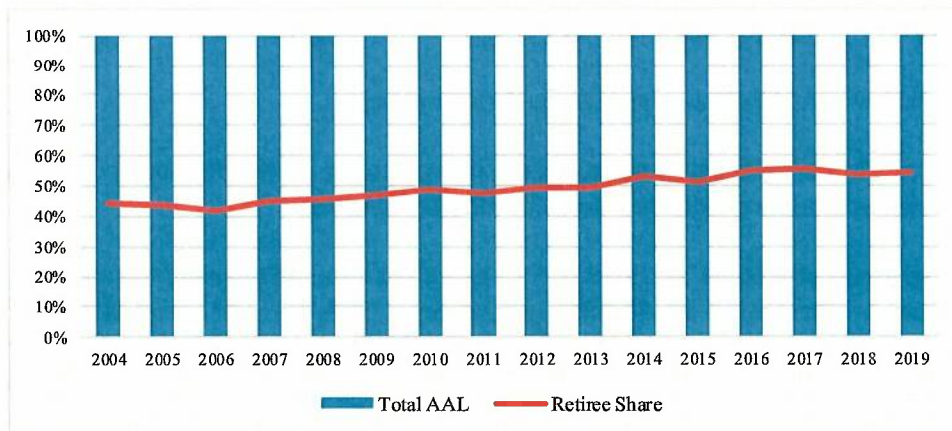
TABLE 14

HISTORICAL MEMBER STATISTICS

The decreasing ratio of active to in-pay members is to be expected as the System matures and the number of retirees grows. It does, however, create contribution risk to funding the System as deviations in actual experience are recovered by higher contributions, which are based on payroll.

Valuation Date August 31,	Number of Active Members	Number of Benefit Recipients*	Active / Benefit Recipients*
2005	533	389	1.37
2006	558	395	1.41
2007	531	417	1.27
2008	549	428	1.28
2009	553	449	1.23
2010	561	463	1.21
2011	562	467	1.20
2012	559	487	1.15
2013	573	496	1.16
2014	555	517	1.07
2015	576	528	1.09
2016	573	546	1.05
2017	576	558	1.03
2018	587	558	1.05
2019	590	578	1.02

Includes members participating in DROP.

Number of Active Members per Benefit Recipients
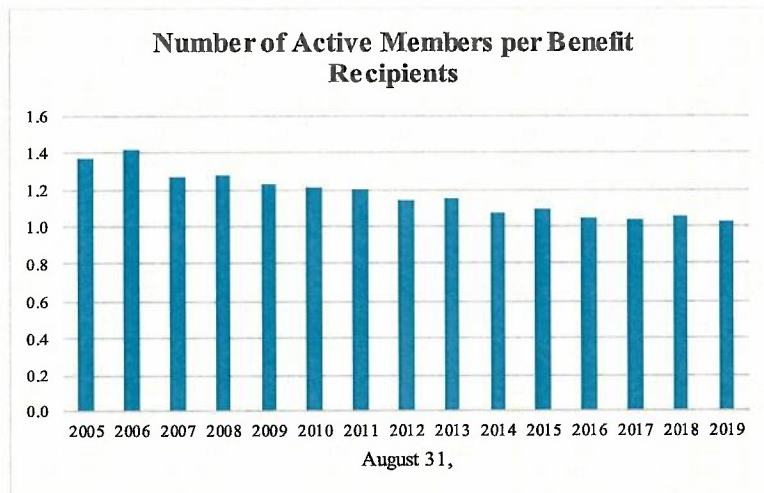
TABLE 15

COMPARISON OF VALUATION RESULTS UNDER
ALTERNATE INVESTMENT RETURN ASSUMPTIONS

($ in thousands)

This exhibit compares the key August 31, 2019 valuation results under five (5) different investment return assumptions to illustrate the impact of different assumptions on the funding of the Plan. 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	6.95%	7.20%	7.45%	7.70%	7.95%
Contributions					
Normal Cost Rate	17.62%	16.63%	15.71%	14.85%	14.04%
UAAL Amortization Rate	12.88%	11.65%	10.43%	9.22%	8.02%
Actuarial Determined Contribution Rate	30.50%	28.28%	26.14%	24.07%	22.06%
Effective Employee Contribution Rate	(7.38%)	(7.38%)	(7.38%)	(7.38%)	(7.38%)
Employer Required Contribution Rate	23.12%	20.90%	18.76%	16.69%	14.68%
Employer Contribution Amount for FY 2020-2021	$11,889	$10,792	$9,733	$8,710	$7,715
Actuarial Value of Assets	$252,740	$252,740	$252,740	$252,740	$252,740
Actuarial Accrued Liability	344,189	334,432	325,109	316,197	307,673
Unfunded Actuarial Accrued Liability*	$91,449	$81,692	$72,369	$63,457	$54,933
Funded Ratio	73.43%	75.57%	77.74%	79.93%	82.15%

Note: All other assumptions are unchanged for purposes of this sensitivity analysis.
*May not add due to rounding.

HISTORICAL FUNDING AND OTHER INFORMATION

In this section, some historical information regarding the funding progress of the Plan is included. These exhibits retain some of the information that was previously required for accounting purposes and which are included because they assist in explaining the Plan's funding history. An exhibit showing the expected benefit payments for current members of the Plan is also included.

TABLE 16

SCHEDULE OF FUNDING PROGRESS

Two tests of funding progress based on the relationship between valuation assets and actuarial accrued liabilities are shown on the following pages. These tests are based upon the actuarial cost method used in the valuation.

The Ratio of Valuation Assets to Actuarial Accrued Liabilities is a traditional measure of a Plan's funding progress. Except in years when the benefit provisions are amended or actuarial assumptions are revised, the ratio can be expected to gradually tend toward 100%, assuming recommended contribution amounts are received by the plan.

The Ratio of Unfunded Actuarial Accrued Liabilities to Valuation Payroll is another relative index of condition. In an inflationary economy, the value of dollars is decreasing. This environment results in employee salaries increasing in dollar amounts, retirement benefits increasing in dollar amounts, and then, unfunded actuarial accrued liabilities increasing in dollar amounts – all at a time when the actual substance of these items may be decreasing. When looking at dollar amounts, the effects of inflation can hide the actual funding progress from year to year. Unfunded actuarial accrued liability dollars divided by active employee payroll dollars provides an index which attempts to eliminate the misleading effects of inflation. The smaller the ratio of unfunded liabilities to active member payroll, the stronger the Plan. Observation of this relative index over a period of years will provide an indication of whether the Plan is becoming financially stronger or weaker.

TABLE 16 (continued)

Actuarial Valuation Date	(1) Actuarial Value of Assets	(2) Actuarial Accrued Liability (AAL)	(3) Percent Funded (1) / (2)	(4) Unfunded AAL (2) - (1)	(5) Total Payroll*	(6) Unfunded AAL as a Percentage of Payroll (4) / (5)
8/31/1991	$68,390,000	$59,149,000	116.00%	($9,241,000)	$15,157,000	(61.00%)
8/31/1992	77,980,000	63,407,000	123.00%	(14,573,000)	15,365,000	(95.00%)
8/31/1993	86,583,000	67,910,000	127.00%	(18,673,000)	16,722,000	(112.00%)
8/31/1994	83,307,827	70,517,314	118.14%	(12,790,513)	17,698,377	(72.27%)
8/31/1995	92,235,349	79,202,449	116.46%	(13,032,900)	18,561,302	(70.22%)
8/31/1996	94,347,990	81,583,068	115.65%	(12,764,922)	19,224,719	(66.40%)
8/31/1997	101,475,648	91,022,617	111.48%	(10,453,031)	20,908,549	(49.99%)
8/31/1998	109,213,474	94,847,667	115.15%	(14,365,807)	21,860,493	(65.72%)
8/31/1999	113,902,477	104,691,766	108.80%	(9,210,711)	23,611,284	(39.01%)
8/31/2000	121,404,314	115,671,249	104.96%	(5,733,065)	25,808,088	(22.21%)
8/31/2001	128,069,831	122,660,542	104.41%	(5,409,289)	28,215,685	(19.17%)
8/31/2002	128,319,145	130,875,473	98.05%	2,556,328	26,606,881	9.61%
8/31/2003	132,577,506	137,507,824	96.41%	4,930,318	27,415,330	17.98%
8/31/2004	136,973,679	144,178,758	95.00%	7,205,079	28,124,862	25.62%
8/31/2005	145,730,474	151,978,408	95.89%	6,247,934	29,029,309	21.52%
8/31/2006	157,527,392	161,583,285	97.49%	4,055,893	30,724,333	13.20%
8/31/2007	171,263,791	169,587,458	100.99%	(1,676,333)	30,546,235	(5.49%)
8/31/2008	179,390,472	179,376,149	100.01%	(14,323)	32,265,715	(0.04%)
8/31/2009	177,526,641	187,292,374	94.79%	9,765,733	33,449,977	29.20%
8/31/2010	172,317,463	195,206,353	88.27%	22,888,890	34,233,197	66.86%
8/31/2011	165,436,361	204,990,324	80.70%	39,553,963	35,763,446	110.60%
8/31/2012	164,500,414	214,878,992	76.55%	50,378,578	36,310,880	138.74%
8/31/2013	164,189,914	229,192,937	71.64%	65,003,023	38,107,652	170.58%
8/31/2014	174,569,411	262,918,401	66.40%	88,348,990	37,887,505	233.19%
8/31/2015	183,011,274	286,493,673	63.88%	103,482,399	42,381,059	244.17%
8/31/2016	217,003,707	271,594,222	79.90%	54,590,515	42,930,194	127.16%
8/31/2017	230,159,635	285,038,672	80.75%	54,879,037	44,776,055	122.56%
8/31/2018	243,538,925	296,440,660	82.15%	52,901,735	46,877,559	112.85%
8/31/2019	252,739,770	325,109,208	77.74%	72,369,438	48,131,172	150.36%

Note: For valuation dates prior to 2015, information shown is from the prior actuary's report.
* Non-DROP Payroll in 2002 and later.

TABLE 17

SCHEDULE OF EMPLOYER CONTRIBUTIONS

Fiscal Year Beginning September 1	Actuarial Valuation Date	Actuarially Determined Employer Contribution*	Actual Contribution	Contribution Deficiency/ (Excess)
2003	8/31/2002	$3,297,577	$1,991,672	$1,305,905
2004	8/31/2003	3,684,264	2,562,850	1,121,414
2005	8/31/2004	4,077,037	2,892,711	1,184,326
2006	8/31/2005	4,056,195	3,494,590	561,605
2007	8/31/2006	4,076,536	3,456,424	620,112
2008	8/31/2007	3,316,464	3,521,858	(205,394)
2009	8/31/2008	3,752,124	4,014,414	(262,290)
2010	8/31/2009	4,651,872	4,333,811	318,061
2011	8/31/2010	5,574,482	6,052,020	(477,538)
2012	8/31/2011	6,718,467	6,446,472	271,995
2013	8/31/2012	7,377,763	7,865,929	(488,166)
2014	8/31/2013	8,418,199	8,045,293	372,906
2015	8/31/2014	9,666,852	7,170,104	2,496,748
2016	8/31/2015	7,829,103 **	7,974,731	(145,628)
2017	8/31/2016	8,164,782	8,239,839	(75,057)
2018	8/31/2017	8,333,901	8,333,901	0
2019	8/31/2018	8,422,965	N/A	N/A
2020	8/31/2019	9,733,221	N/A	N/A

* *Actuarially Determined Employer Contribution is equal to the initial Budget Request amount shown in Table 11 for the appropriate fiscal year. The employer contribution rate from 8/31/02 to 8/31/08 is based on a 10-year amortization of the UAAL/(Surplus). The UAAL was amortized over 30 years from 8/31/09 to 8/31/13. The UAAL is currently amortized using a layered approach, where the initial base is amortized over a closed 30-year period effective 8/31/14. Bases established after 8/31/16 are amortized over closed 20-year periods.*

** *Actuarially Determined Employer Contribution was reduced from $12,065,465 in the 2015 valuation report due to the plan change merging the COLA Pool fund into the general pension fund.*

Note: For valuation dates prior to 2015, information shown is from the prior actuary's report.

TABLE 18

PROJECTED BENEFIT PAYMENTS

The table below shows estimated benefits expected to be paid over the next twenty years, based on the assumptions used in this valuation. The "In-Pay" column shows benefits expected to be paid to members currently receiving benefit payments as of August 31, 2019. The "Not In-Pay" column shows benefits expected to be paid to all other members. This included those who, as of August 31, 2019, are active or have terminated employment and are entitled to a deferred vested benefit. No future members are reflected.

Year Ending August 31	Not In-Pay	In-Pay	Total
2020	$ 1,701,000	$ 16,905,000	$ 18,606,000
2021	2,769,000	16,744,000	19,513,000
2022	3,492,000	16,626,000	20,118,000
2023	4,356,000	16,574,000	20,930,000
2024	5,328,000	16,437,000	21,765,000
2025	6,288,000	16,265,000	22,553,000
2026	7,674,000	16,082,000	23,756,000
2027	9,370,000	15,838,000	25,208,000
2028	10,971,000	15,594,000	26,565,000
2029	12,021,000	15,342,000	27,363,000
2030	13,094,000	15,026,000	28,120,000
2031	14,656,000	14,691,000	29,347,000
2032	16,011,000	14,360,000	30,371,000
2033	17,279,000	13,994,000	31,273,000
2034	18,756,000	13,606,000	32,362,000
2035	20,532,000	13,205,000	33,737,000
2036	22,380,000	12,785,000	35,165,000
2037	24,005,000	12,353,000	36,358,000
2038	25,694,000	11,916,000	37,610,000
2039	27,367,000	11,463,000	38,830,000

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

APPENDIX A
SUMMARY OF MEMBERSHIP DATA
MEMBER DATA RECONCILIATION
August 31, 2018 to August 31, 2019

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

	Active Participants	DROP Members	Service Retirees	Disabled Retirees	Beneficiaries*	Inactive Vested	Refunds Due	Total
Members as of 08/31/18	587	39	414	51	54	25	2	1,172
New Members	43	0	0	0	0	0	0	43
Terminations								
Refunded	(11)	0	0	0	0	0	(2)	(13)
Refund Due	(4)	0	0	0	0	0	4	0
Deferred Vested	(3)	0	0	0	0	3	0	0
Retirements								
Service	(9)	(8)	21	0	0	(4)	0	0
Disability	(2)	0	0	2	0	0	0	0
DROP	(11)	11	0	0	0	0	0	0
Deaths								
Cashed Out	0	0	0	0	0	0	0	0
Refund Due	0	0	0	0	0	0	0	0
With Beneficiary	0	0	(2)	(1)	3	0	0	0
Without Beneficiary	0	0	(3)	0	(3)	0	0	(6)
Data Adjustments	0	0	0	0	0	0	0	0
Members as of 08/31/19	590	42	430	52	54	24	4	1,196

* Includes alternate payees

RETIRANTS AND BENEFICIARIES ADDED TO AND REMOVED FROM ROLLS

Year Ended	Added to Rolls			Removed from Rolls		Rolls End of Year			Average Annual Benefit
	No.*	Annual Benefits**	Post-Ret. Increases	No.	Annual Benefits**	No.	Annual Benefits**	% Incr. Annual Benefits	
Aug. 31, 1991	22#	308,940	42,470	2	7,200	142	1,460,670	30.8%	10,286
Aug. 31, 1992	16	221,944	0	1	3,816	157	1,678,798	14.9%	10,693
Aug. 31, 1993	17	219,974	0	1	10,698	173	1,888,074	12.5%	10,914
Aug. 31, 1994	16	218,777	0	4	17,829	185	2,089,022	10.6%	11,292
Aug. 31, 1995	16	211,219	0	4	37,158	197	2,263,083	8.3%	11,488
Aug. 31, 1996	8	149,099	0	2	16,566	203	2,395,616	5.9%	11,801
Aug. 31, 1997	73##	590,041	0	4	56,890	272	3,042,547	27.0%	11,186
Aug. 31, 1998	10	155,262	0	11	71,670	271	3,126,139	2.7%	11,536
Aug. 31, 1999	23	414,130	0	1	22,889	293	3,517,380	12.5%	12,005
Aug. 31, 2000	17	335,244	0	7	62,014	303	3,790,610	7.8%	12,510
Aug. 31, 2001	14	225,737	0	16	105,022	301	3,911,325	3.2%	12,994
Aug. 31, 2002	18	278,160	0	14	115,340	305	4,074,145	4.2%	13,358
Aug. 31, 2003	15	219,569	0	11	119,499	309	4,174,215	2.5%	13,509
Aug. 31, 2004	12	175,551	0	5	74,835	316	4,274,931	2.4%	13,528
Aug. 31, 2005	30	702,721	0	12	73,072	334	4,904,580	14.7%	14,684
Aug. 31, 2006	10	262,420	0	4	36,362	340	5,130,638	4.6%	15,090
Aug. 31, 2007	38	1,101,713	0	8	55,280	370	6,177,071	20.4%	16,695
Aug. 31, 2008	24	621,708	0	10	128,736	384	6,670,043	8.0%	17,370
Aug. 31, 2009	20	560,105	0	2	28,641	402	7,185,166	7.7%	17,874
Aug. 31, 2010	14	408,351	0	8	66,170	408	7,477,874	4.1%	18,328
Aug. 31, 2011	15	455,866	0	8	84,553	415	7,846,879	4.9%	18,908
Aug. 31, 2012	30	1,083,442	0	7	101,972	438	8,828,349	12.5%	20,156
Aug. 31, 2013	21	700,308	0	11	165,739	448	9,362,919	6.1%	20,899
Aug. 31, 2014	20	771,356	0	3	21,973	465	10,112,391	8.0%	21,747
Aug. 31, 2015	27	1,045,339	0	6	106,230	486	11,051,500	9.3%	22,740
Aug. 31, 2016	24	792,387	0	9	108,466	501	11,735,421	6.2%	23,424
Aug. 31, 2017	23	880,462	0	9	105,124	515	13,098,301	11.6%	25,434
Aug. 31, 2018	16	538,514	0	12	174,596	519	13,462,219	2.8%	25,939
Aug. 31, 2019	26	1,066,538	0	9	101,001	536	14,427,756	7.2%	26,917

* Includes Retirements from DROP
# Includes one member not previously reported
Note. For valuation dates prior to 2015, information shown is from the prior actuary's report.

** Beginning in 2017, includes 13th Check amounts. This increased Annual Benefits by $587,542 on Aug. 31, 2017.
Includes the addition of "Old Plan" members

NOT-IN-PAY MEMBERS INCLUDED IN VALUATION

Valuation Date	Active Members	Inactive Vested Members	Total Payroll*	Average			% Increase
				Age	Service	Pay	
Aug. 31, 1991	490	36	$15,157,150	39.3	14.4	$30,933	5.1%
Aug. 31, 1992	471	37	15,364,976	40.0	15.0	32,622	5.5%
Aug. 31, 1993	516	38	16,721,658	39.3	14.5	32,406	(0.7%)
Aug. 31, 1994	521	42	17,698,377	39.0	13.4	33,970	4.8%
Aug. 31, 1995	526	41	18,561,302	39.1	14.5	35,288	3.9%
Aug. 31, 1996	545	42	19,224,719	39.1	14.3	35,275	0.0%
Aug. 31, 1997	549	43	20,908,549	38.9	13.3	38,085	8.0%
Aug. 31, 1998	561	47	21,860,493	38.8	13.2	38,967	2.3%
Aug. 31, 1999	545	48	23,611,284	39.1	13.5	43,323	11.2%
Aug. 31, 2000	543	45	25,808,088	39.5	13.8	47,529	9.7%
Aug. 31, 2001	584	41	28,215,685	39.3	13.3	48,315	1.7%
Aug. 31, 2002	536	36	26,606,881	38.4	12.3	49,640	2.7%
Aug. 31, 2003	535	31	27,415,330	38.7	12.5	51,244	3.2%
Aug. 31, 2004	533	25	28,124,862	38.8	12.5	52,767	3.0%
Aug. 31, 2005	533	25	29,029,309	39.1	12.9	54,464	3.2%
Aug. 31, 2006	558	25	30,724,333	39.2	12.8	55,062	1.1%
Aug. 31, 2007	531	28	30,546,235	39.5	13.0	57,526	4.5%
Aug. 31, 2008	549	30	32,265,715	39.3	12.7	58,772	2.2%
Aug. 31, 2009	553	27	33,449,977	39.3	12.6	60,488	2.9%
Aug. 31, 2010	561	26	34,233,197	39.4	12.4	61,022	0.9%
Aug. 31, 2011	562	28	35,763,446	39.6	12.7	63,636	4.3%
Aug. 31, 2012	559	26	36,310,880	39.5	12.6	64,957	2.1%
Aug. 31, 2013	573	24	38,107,652	39.4	12.4	66,506	2.4%
Aug. 31, 2014	555	27	37,887,505	39.6	12.5	68,266	2.6%
Aug. 31, 2015	576	28	42,381,059	39.4	12.3	73,578	7.8%
Aug. 31, 2016	573	27	42,930,194	39.5	12.3	74,922	1.8%
Aug. 31, 2017	576	24	44,776,055	39.7	12.4	77,736	3.8%
Aug. 31, 2018	587	25	46,877,559	40.0	12.7	79,860	2.7%
Aug. 31, 2019	590	24	48,131,172	39.7	12.4	81,578	2.2%

* Reflects Non-DROP projected payroll in 2002 and later

Note: For valuation dates prior to 2015, information shown is from the prior actuary's report.

MEMBERSHIP DATA – AUGUST 31, 2019

Active Members (Not Participating in DROP)

Group	Count	Employee Contribution Rate	Effective Employee Contribution Percentage	Projected Annual Payroll	Average Age	Average Service	Average Salary
Police							
- Old Plan**	2	7.60%	0.24%	$ 163,498	50.8	26.6	$ 81,749
- Plan A	296	8.00%	8.00%	22,672,229	37.0	10.9	76,595
- Plan B*	17	7.60%	0.00%	1,640,667	51.6	28.1	96,510
- Plan C*	2	7.00%	0.00%	190,245	66.5	42.7	95,123
Fire							
- Plan A	256	8.00%	8.00%	21,709,174	40.8	11.7	84,801
- Plan B*	17	7.60%	0.00%	1,755,359	53.0	28.3	103,256
Total	590	7.97%	7.38%	$ 48,131,172	39.7	12.4	$ 81,578

* *Employee contributions stop after 21 years of service for this group.*
** *Employee contributions stop after 26 years of service for this group.*

SUMMARY OF ACTIVE MEMBERS
As of August 31, 2019

Fire

Age	Number			Annual Reported Compensation		
	Male	Female	Total	Male	Female	Total
Under 25	6	0	6	$ 340,931	$ 0	$ 340,931
25 to 29	19	5	24	1,242,346	291,431	1,533,777
30 to 34	35	5	40	2,657,601	345,412	3,003,013
35 to 39	48	7	55	3,721,496	565,614	4,287,110
40 to 44	48	2	50	4,138,861	161,462	4,300,323
45 to 49	39	4	43	3,559,615	329,945	3,889,560
50 to 54	31	1	32	2,871,397	93,083	2,964,480
55 to 59	17	0	17	1,639,057	0	1,639,057
60 & Up	6	0	6	591,344	0	591,344
Total	249	24	273	$ 20,762,648	$ 1,786,947	$ 22,549,595

Average Salary by Age
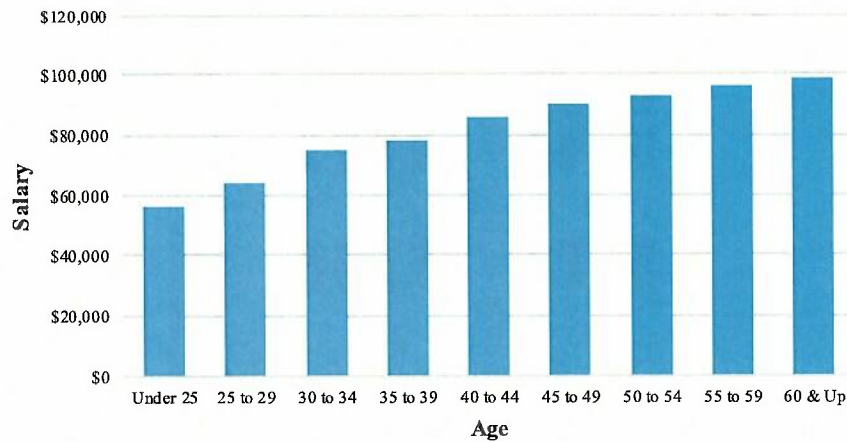
SUMMARY OF ACTIVE MEMBERS
As of August 31, 2019

Police

Age	Number			Annual Reported Compensation		
	Male	Female	Total	Male	Female	Total
Under 25	12	5	17	$ 662,325	$ 272,995	$ 935,320
25 to 29	47	12	59	2,851,928	726,127	3,578,055
30 to 34	49	10	59	3,456,835	680,287	4,137,122
35 to 39	40	9	49	3,193,469	685,868	3,879,337
40 to 44	45	7	52	3,641,862	613,584	4,255,446
45 to 49	38	6	44	3,078,811	503,715	3,582,526
50 to 54	28	2	30	2,526,605	158,310	2,684,915
55 to 59	3	2	5	236,719	190,169	426,888
60 & Up	2	0	2	185,154	0	185,154
Total	264	53	317	$ 19,833,708	$ 3,831,055	$ 23,664,763

Average Salary by Age
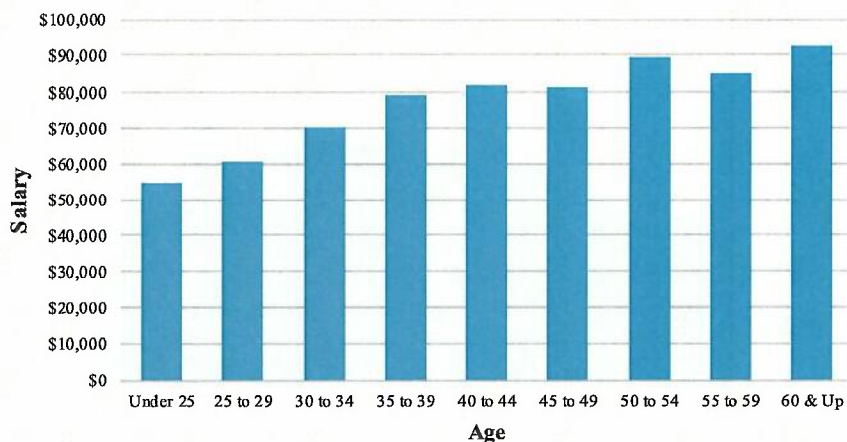
SUMMARY OF ACTIVE MEMBERS
As of August 31, 2019

Total

Age	Number			Annual Reported Compensation		
	Male	Female	Total	Male	Female	Total
Under 25	18	5	23	$ 1,003,256	$ 272,995	$ 1,276,251
25 to 29	66	17	83	4,094,274	1,017,558	5,111,832
30 to 34	84	15	99	6,114,436	1,025,699	7,140,135
35 to 39	88	16	104	6,914,965	1,251,482	8,166,447
40 to 44	93	9	102	7,780,723	775,046	8,555,769
45 to 49	77	10	87	6,638,426	833,660	7,472,086
50 to 54	59	3	62	5,398,002	251,393	5,649,395
55 to 59	20	2	22	1,875,776	190,169	2,065,945
60 & Up	8	0	8	776,498	0	776,498
Total	513	77	590	$ 40,596,356	$ 5,618,002	$ 46,214,358

Average Salary by Age
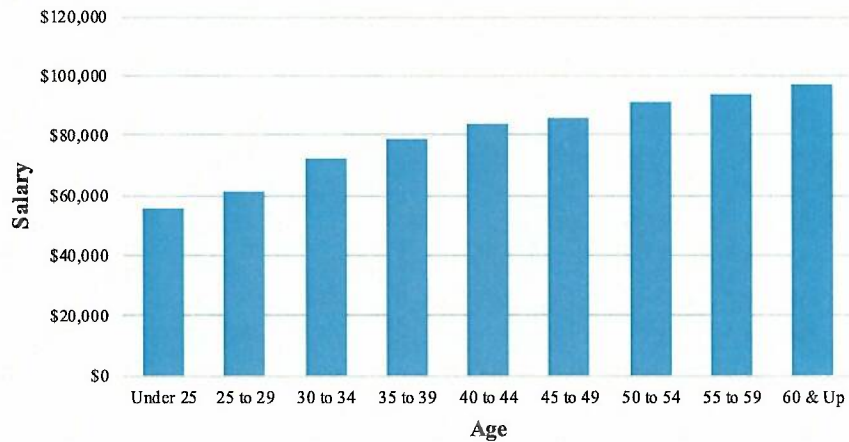
DISTRIBUTION OF ACTIVE MEMBERS
As of August 31, 2019

Fire

Age	0 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 & Up	Total
Under 25	6	0	0	0	0	0	0	6
25 to 29	20	4	0	0	0	0	0	24
30 to 34	13	25	2	0	0	0	0	40
35 to 39	15	17	21	2	0	0	0	55
40 to 44	2	9	19	18	2	0	0	50
45 to 49	1	1	10	10	19	2	0	43
50 to 54	0	2	2	7	10	10	1	32
55 to 59	0	0	1	4	6	3	3	17
60 & Up	0	1	0	1	3	0	1	6
Total	57	59	55	42	40	15	5	273

Age Distribution
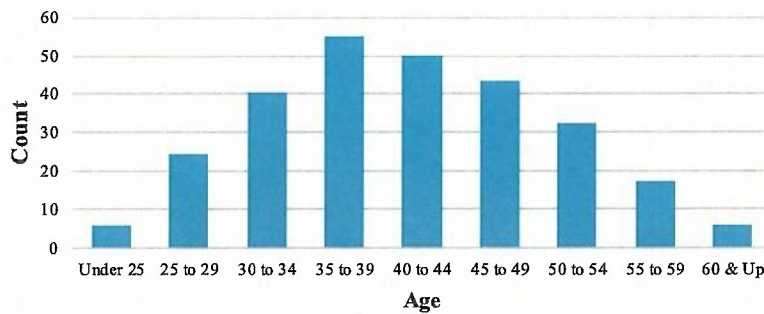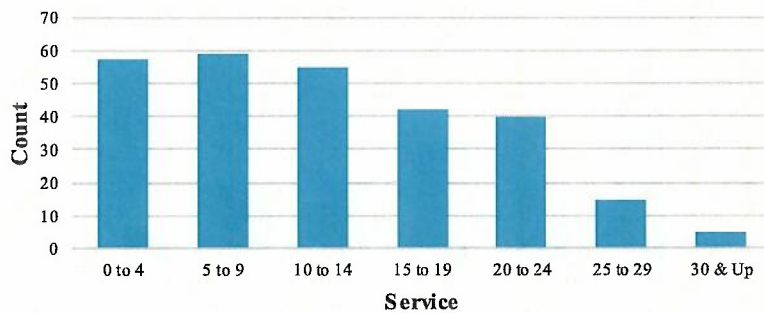
Service Distribution

DISTRIBUTION OF ACTIVE MEMBERS
As of August 31, 2019

Police

Age	0 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 & Up	Total
Under 25	17	0	0	0	0	0	0	17
25 to 29	53	6	0	0	0	0	0	59
30 to 34	20	24	15	0	0	0	0	59
35 to 39	2	10	31	6	0	0	0	49
40 to 44	2	4	13	21	12	0	0	52
45 to 49	1	0	2	14	23	4	0	44
50 to 54	0	0	1	2	6	20	1	30
55 to 59	0	0	0	2	2	0	1	5
60 & Up	0	0	0	0	0	0	2	2
Total	95	44	62	45	43	24	4	317

Age Distribution
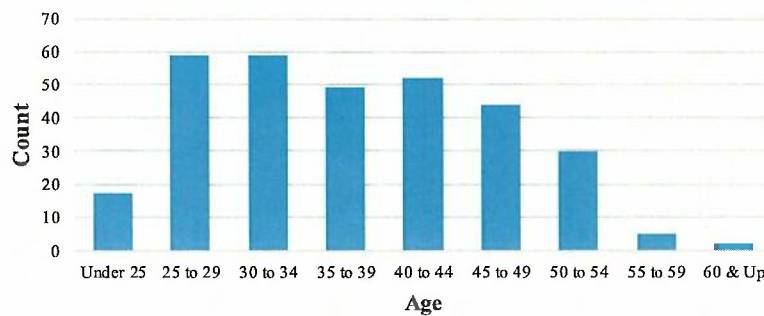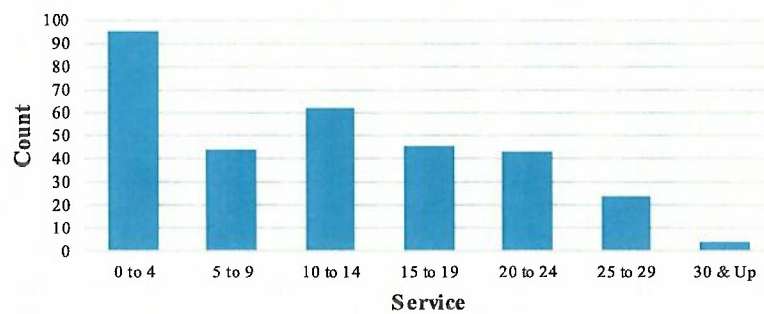
Service Distribution

DISTRIBUTION OF ACTIVE MEMBERS
As of August 31, 2019

Total

Age	0 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 & Up	Total
Under 25	23	0	0	0	0	0	0	23
25 to 29	73	10	0	0	0	0	0	83
30 to 34	33	49	17	0	0	0	0	99
35 to 39	17	27	52	8	0	0	0	104
40 to 44	4	13	32	39	14	0	0	102
45 to 49	2	1	12	24	42	6	0	87
50 to 54	0	2	3	9	16	30	2	62
55 to 59	0	0	1	6	8	3	4	22
60 & Up	0	1	0	1	3	0	3	8
Total	152	103	117	87	83	39	9	590

Age Distribution
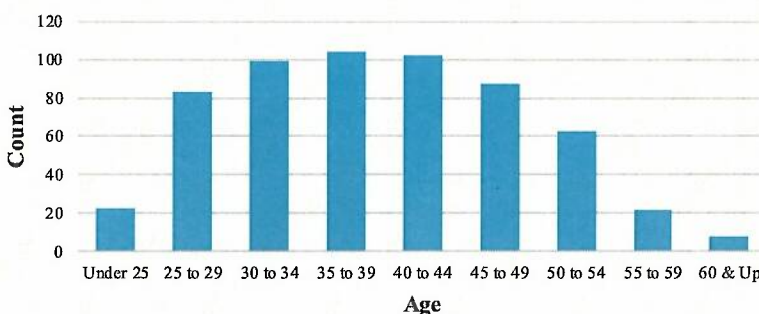
Service Distribution
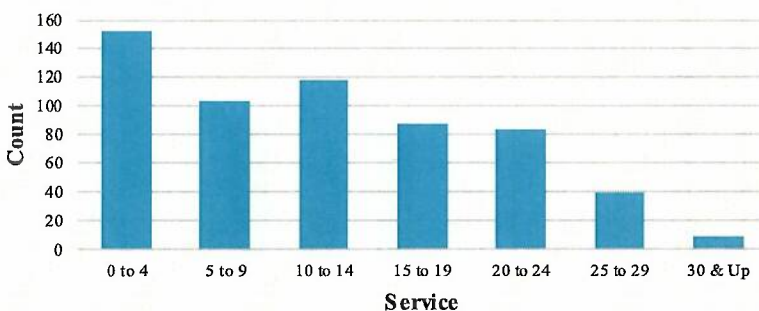
SUMMARY OF INACTIVE VESTED MEMBERS
As of August 31, 2019

Age	Number			Annual Benefit at Retirement*		
	Male	Female	Total	Male	Female	Total
Under 25	0	0	0	$ 0	$ 0	$ 0
25 to 29	0	0	0	0	0	0
30 to 34	0	0	0	0	0	0
35 to 39	0	1	1	0	24,655	24,655
40 to 44	9	1	10	200,251	20,188	220,439
45 to 49	11	2	13	279,600	38,406	318,006
50 to 54	0	0	0	0	0	0
55 to 59	0	0	0	0	0	0
60 & Up	0	0	0	0	0	0
Total	20	4	24	$ 479,851	$ 83,249	$ 563,100

* Includes 13th Check amounts.
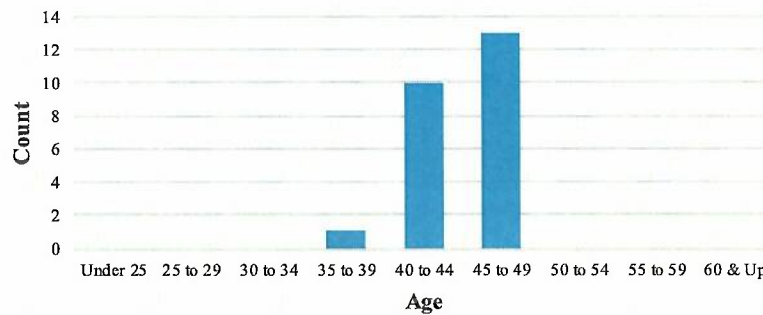
Age Distribution

Average Benefit
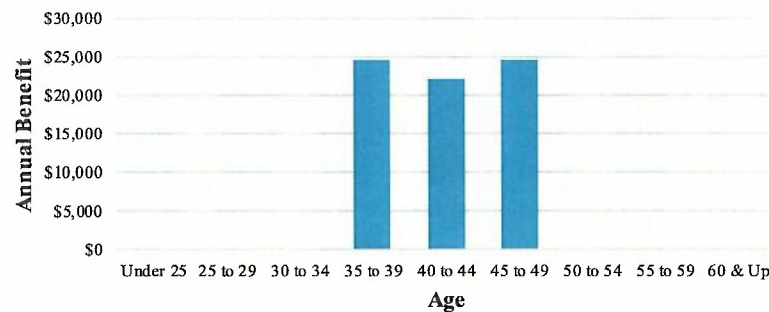
SUMMARY OF RETIRED MEMBERS
As of August 31, 2019

Service Retirees

Age	Number			Annual Benefit*		
	Male	Female	Total	Male	Female	Total
Under 50	0	0	0	$ 0	$ 0	$ 0
50 to 54	13	9	22	406,058	179,711	585,769
55 to 59	38	8	46	1,318,194	233,154	1,551,348
60 to 64	74	5	79	2,867,970	238,262	3,106,232
65 to 69	100	5	105	3,052,130	178,610	3,230,740
70 to 74	69	0	69	1,581,754	0	1,581,754
75 to 79	57	3	60	1,096,285	46,251	1,142,536
80 to 84	34	0	34	593,972	0	593,972
85 to 89	12	0	12	191,863	0	191,863
90 & Up	3	0	3	42,253	0	42,253
Total	400	30	430	$11,150,479	$ 875,988	$12,026,467

* Includes 13th Check amounts.

Age Distribution

Average Benefit
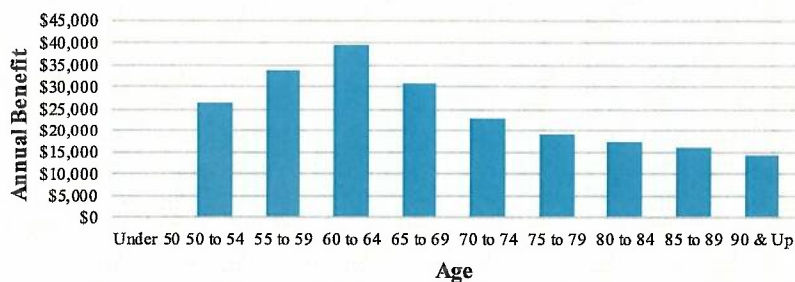
SUMMARY OF RETIRED MEMBERS
As of August 31, 2019

Disabled Retirees

Age	Number			Annual Benefit*		
	Male	Female	Total	Male	Female	Total
Under 50	11	5	16	$ 382,072	$ 178,875	$ 560,947
50 to 54	5	1	6	206,182	11,168	217,350
55 to 59	3	1	4	111,497	19,415	130,912
60 to 64	7	1	8	223,328	10,611	233,939
65 to 69	6	0	6	132,529	0	132,529
70 to 74	3	0	3	34,070	0	34,070
75 to 79	6	0	6	87,731	0	87,731
80 to 84	1	0	1	7,077	0	7,077
85 to 89	2	0	2	28,974	0	28,974
90 & Up	0	0	0	0	0	0
Total	44	8	52	$ 1,213,460	$ 220,069	$ 1,433,529

* Includes 13th Check amounts.

Age Distribution

Average Benefit
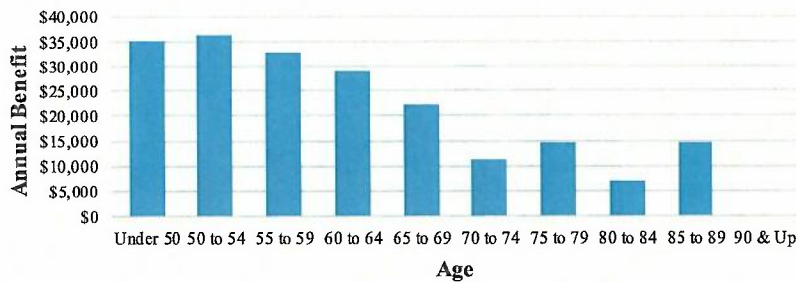
SUMMARY OF RETIRED MEMBERS
As of August 31, 2019

Beneficiaries**

	Number			Annual Benefit*		
Age	Male	Female	Total	Male	Female	Total
Under 50	1	3	4	$ 34,167	$ 113,509	$ 147,676
50 to 54	0	1	1	0	39,321	39,321
55 to 59	0	0	0	0	0	0
60 to 64	0	3	3	0	64,700	64,700
65 to 69	0	8	8	0	172,026	172,026
70 to 74	1	6	7	10,444	125,398	135,842
75 to 79	0	13	13	0	172,773	172,773
80 to 84	2	10	12	29,119	158,365	187,484
85 to 89	0	3	3	0	26,943	26,943
90 & Up	0	3	3	0	20,995	20,995
Total	4	50	54	$ 73,730	$ 894,030	$ 967,760

* Includes 13th Check amounts.
** Includes alternate payees

Age Distribution

Average Benefit
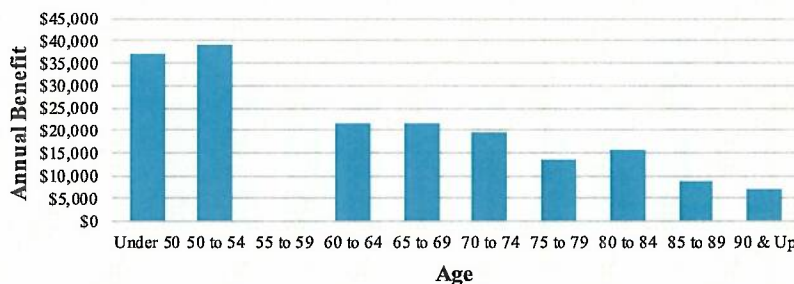
SUMMARY OF RETIRED MEMBERS
As of August 31, 2019

DROP Members

Age	Number			Annual Benefit*		
	Male	Female	Total	Male	Female	Total
Under 51	1	0	1	$ 75,356	$ 0	$ 75,356
51	6	0	6	323,370	0	323,370
52	1	1	2	51,247	49,857	101,104
53	7	1	8	354,504	56,532	411,036
54	3	1	4	153,745	46,478	200,223
55	5	0	5	245,160	0	245,160
56	7	0	7	379,814	0	379,814
57	5	0	5	280,678	0	280,678
58	2	1	3	102,166	49,709	151,875
59	0	0	0	0	0	0
60 & Up	1	0	1	39,085	0	39,085
Total	38	4	42	$ 2,005,125	$ 202,576	$ 2,207,701

* Includes 13th Check amounts.

Age Distribution
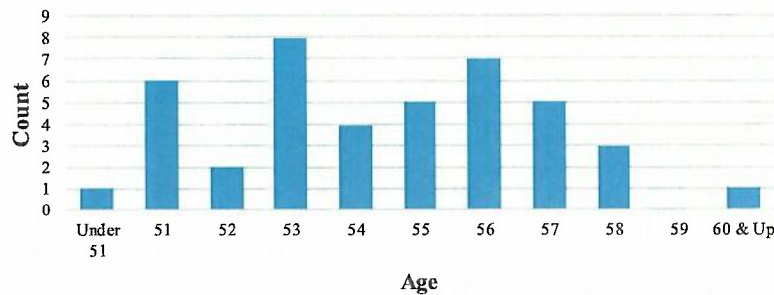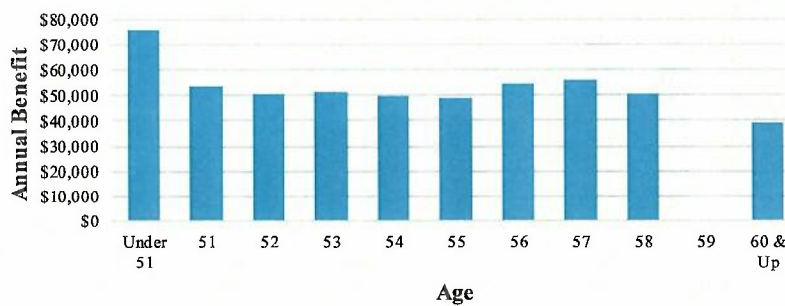
Average Benefit

APPENDIX B

SUMMARY OF BENEFIT PROVISIONS

Plan A is applicable to members who were hired on/after April 1, 1995 or who were hired prior to that date, but elected Plan A coverage.

Plan B is applicable to members who were employed on/after April 11, 1984 or who, prior to April 11, 1984, elected Plan B coverage.

Plan C is applicable to members who were employed before April 11, 1984 and did not elect to move to Plan B or A.

Regular Pay

All plans: Member's base pay and City's contributions to the Post-Employment Health Plan for the last consecutive 26 bi-weekly pay periods. In case of a demotion, or out of class pay, it shall mean the highest consecutive 26 bi-weekly pay periods.

Normal Retirement Age

Plan A: Age 50
Plans B and C: Age 53

Normal Retirement
Eligibility – Plan A: Normal Retirement Age and 25 years of service.
  Plans B and C: Normal Retirement Age and 21 years of service.

Amount of Pension – Plan A: 2.56% of Regular Pay times years of service to a maximum of 64% of Regular Pay.

     Plan B: 58% of Regular Pay with 21 years of service plus 2% of Regular Pay for each year of service rendered after becoming eligible for retirement to a maximum increase of 10%.

     Plan C: 54% of Regular Pay with 21 years of service plus 2% of Regular Pay for each year of service rendered after becoming eligible for retirement to a maximum increase of 10%.

August 31, 2019 Actuarial Valuation   **City of Lincoln Police and Fire Pension Fund**

53

Early Retirement

Eligibility – All Plans: Age 50 and 21 years of service.

Amount of Pension – Plan A: 2.56% of Regular Pay times years of service up to a maximum of 64% of Regular Pay.

    Plan B: 52% of Regular Pay plus 2% of Regular Pay for each year of service rendered after becoming eligible to a maximum increase of 6%.

    Plan C: 48% of Regular Pay plus 2% of Regular Pay for each year of service rendered after becoming eligible to a maximum increase of 6%.

Partial Annuity

Eligibility – all plans: Normal Retirement Age and 10 or more years of service.

Amount of Pension – Plan A: 2.56% of Regular Pay times years of service.

    Plan B: 58% of Regular Pay with 21 years of service. Members with less than 21 years of service receive a ratio of years of service to 21 years of 58% of Regular Pay.

    Plan C: 54% of Regular Pay with 21 years of service. Members with less than 21 years of service receive a ratio of years of service to 21 years of 54% of Regular Pay.

Deferred Annuity (Vested Termination)

Eligibility – all plans: Age less than Normal Retirement Age and 10, or more, years of service. Payments begin at age 50.

Amount of Pension – Plan A: 2.56% of Regular Pay times years of service.

    Plan B: 58% of Regular Pay with 21 years of service. Members with less than 21 years of service receive a ratio of years of service to 21 years of 58% of Regular Pay.

    Plan C: 54% of Regular Pay with 21 years of service. Members with less than 21 years of service receive a ratio of years of service to 21 years of 54% of Regular Pay.

Duty-Related Disability

Eligibility – all plans: Permanent inability to perform the duties of position from a cause occurring while in line of duty.

Amount of Pension – Plan A: 58% of Regular Pay.

        Plan B and C: A pension equal to 58% or 54% of Regular Pay respectively, plus 2% of Regular Pay for each year of service rendered after becoming eligible for retirement, to a maximum increase of 10% of Regular Pay.

Such pension shall continue after the member's death to the member's surviving spouse, until death or remarriage, minor children or designated Option A beneficiary (a reduced amount in this case). The above amounts are subject to deduction of the amount received from worker's compensation.

Non-Duty Disability

Eligibility – all plans: Permanent inability to perform duties of position from a cause not occurring in the line of duty

Amount of Pension: A pension equal to the following percent of Regular Pay:

Years of Service (YOS)	Plan A	Plan B	Plan C
5 ≤ YOS < 10	23%	23%	21%
10 ≤ YOS < 15	39%	39%	36%
YOS ≥15	53%	53%	49%

Duty-Related Death

Eligibility – all plans: Active member dies in the line of duty or as a result of injuries received while in the line of duty.

Amount of Pension: Spouse beneficiary paid at Duty Related Disability rate until remarriage or death. Upon spouse's remarriage or death, dependent children paid prorate at the same rate until age 19. Non-spouse beneficiary paid at 100% survivor rate for lifetime.

The above amounts are subject to deduction of the amount received from worker's compensation.

Non-Duty Death

Eligibility – All Plans: 5 years of service.

Amount of Pension: Pension which would have been payable as a Non-Duty Disability awarded the day prior to death and elected Option A (joint & 100% survivor).

Death after Retirement – Remainder Refund

Eligibility – all plans: Employed on January 1, 1992 or hired between January 1, 1992 and March 31, 2010.

Amount of Benefit: Upon retirement, the member's balance of contributions plus accrued interest is reduced each month by a level amount equal to the member's balance divided by the expected number of payments. Once both the member and, if applicable, their joint annuitant have died, the remaining balance is paid as a lump sum to a designated beneficiary.

The expected number of monthly payments is established in the Internal Revenue Code in effect April 1, 2010 and depends on the age of the retiree at retirement, or the combined ages of the retiree and joint annuitant.

Non-Vested Termination

Eligibility – all plans: Termination of employment and no pension is or will become payable.

Amount of Benefit: Refund of member's contributions plus annual interest.

Employee Contributions

Plan A: 8.0% of pay.
Plan B: 7.6% of pay.
Plan C: 7.0% of pay.

Upon reaching 21 years of service, member contributions are discontinued for Plan B and Plan C members. Members participating in Old Plan B or Old Plan C contribute until reaching 26 years of service.

Deferred Retirement Option Plan (DROP)

Eligibility for the DROP:

Members of Plan B and C may join the DROP within 1 year of becoming eligible for normal retirement benefits as described earlier in this section.

Grandfather provision allows members of Plan B and C who were eligible to retire on the date of DROP implementation, a one-time opportunity to join the DROP.

Members of Plan A may join the DROP at any time after meeting the eligibility conditions for normal retirement.

DROP benefits:

100% of the member's accrued benefit at the time of DROP will be contributed to the member's DROP account.

If the member elects annuity withdrawal (available to members of Plans B and C) the lump sum payment and corresponding reduced annuity will be credited to the member's DROP account.

DROP funding Period:

Both the City and the employee will contribute (in accordance with the provisions of each Plan) until the employee enters the DROP. No contributions are made on the payroll of DROP members.

DROP Period:

Maximum of 5 years.

13th Check

For members who have been receiving a pension for at least 12 months, a lump sum payment will be made on each September 1. The base amount of the lump sum payment is $750 effective 9/1/1994. The base amount is increased each year by the lesser of 3.0% and the annual the percentage increase in the CPI-U. Members who retired with at least 21 years of service and members who were granted a duty disability pension will receive the full payment amount. All other members who have been receiving a pension for at least 12 months (and their beneficiaries) will receive a partial payment. The payment for these members is determined on a pro-rata basis according to their service.

APPENDIX C

ACTUARIAL ASSUMPTIONS AND METHODS

Investment Return: 7.45% compounded annually, net of investment expenses, decreasing by 0.05% per year until reaching the ultimate rate of 7.25% in 2023.

Inflation Rate: 2.25% compounded annually

Salary Increases: These assumptions are used to project current salaries to those upon which benefits will be based.

| | Annual Rate of Pay Increase for Sample | | |
Years of Service	Base (Economic)	Merit and Longevity	Total
0	2.75%	5.50%	8.25%
1	2.75%	4.50%	7.25%
2	2.75%	3.50%	6.25%
3-7	2.75%	3.00%	5.75%
8	2.75%	2.00%	4.75%
9	2.75%	1.00%	3.75%
10-14	2.75%	0.50%	3.25%
15+	2.75%	0.00%	2.75%

Payroll Growth: 2.75% per year

Mortality:

Actives and Inactive Vested Members: PubS-2010 Active Mortality Table with generational mortality improvement using the Nebraska Public Retirement System Mortality Improvement Scale.

Healthy Retirees and Beneficiaries: PubS-2010 Healthy Annuitant Mortality Table with generational mortality improvement using the Nebraska Public Retirement System Mortality Improvement Scale.

Disabled Retirees: PubS-2010 Disabled Mortality Table with generational mortality improvement using the Nebraska Public Retirement System Mortality Improvement Scale.

Termination:

	% Separating within Next Year	
Years of Service	**Police**	**Fire**
0	10.00%	4.00%
1	9.00%	3.50%
2	8.00%	3.50%
3	7.00%	3.50%
4	6.00%	3.50%
5	5.00%	3.50%
6	4.00%	2.50%
7	3.00%	1.50%
8	2.00%	1.50%
9-15	1.00%	1.50%
16-19	0.75%	1.50%
20+	0.00%	0.00%

Disability:

Sample Ages	**% Becoming Disabled Within Next Year**
20	0.05%
25	0.05%
30	0.06%
35	0.09%
40	0.14%
45	0.23%
50	0.40%
55	0.60%
60	0.80%

65% of assumed liabilities were assumed to be duty related and 35% were assumed to be non-duty related.

Retirement and DROP Entry:

| | Rates of Retirement and/or DROP Entry | | | |
| | Plan A | | Plan B, C & Old Plan | |
Service	Police	Fire	Police	Fire
21	0%	0%	25%	33%
22	0%	0%	25%	33%
23	0%	0%	25%	33%
24	0%	0%	25%	33%
25	45%	60%	25%	33%
26	45%	25%	85%	40%
27	40%	25%	85%	50%
28	40%	25%	85%	50%
29	40%	25%	85%	50%
30	100%	100%	100%	100%

MISCELLANEOUS AND TECHNICAL ASSUMPTIONS

Marriage Assumption: 90% of both males and females are assumed to be married for purposes of death-in-service benefits. Females are assumed to be three years younger than males.

Decrement Timing: All decrements are assumed to occur mid-year.

Eligibility Testing: Eligibility for benefits is determined based upon the age nearest birthday and years of service on the date the decrement is assumed to occur.

Benefit Service: Exact fractional service on the decrement date is used to determine the amount of benefit payable.

Normal Form of Benefit: The assumed normal form of benefit is the straight life form.

Incidence of Contributions: Contributions are assumed to be received continuously throughout the applicable fiscal year based upon the contribution rate shown in this report, and the actual payroll at the time contributions are made. New entrant normal cost contributions are applied to the funding of new entrant benefits.

**Interest Credited on
Member Contributions:** 7.45% compounded annually, decreasing by 0.05% per year until reaching the ultimate rate of 7.25% in 2023.

Funding Period: Both the City and employee contribute (in accordance with the provisions of each plan) until the employee enters the DROP or otherwise exits the Plan.

13th Check: The 13th Check amount is assumed to increase 2.25% annually.

ACTUARIAL METHODS

Funding Method

Under the Entry Age Normal (EAN) cost method, the actuarial present value of each member's projected benefits is allocated on a level basis over the member's 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 actuarial present value of benefits allocated to prior years of service is called the actuarial accrued liability. The unfunded actuarial accrued liability (UAAL) represents the difference between the actuarial accrued liability and the actuarial value of assets as of the valuation date. The unfunded actuarial accrued liability is calculated each year and reflects experience gains/losses.

The UAAL is amortized, as a level-percent of payroll, using a layered approach. The August 31, 2016 UAAL serves as the initial base and is amortized over a closed 28-year period (closed 30-year period beginning on August 31, 2014). For each valuation subsequent to August 31, 2016, annual net experience gains/losses will be amortized over a new, closed 20-year period. Subsequent plan amendments or changes in actuarial assumptions or methods that create a change in the UAAL will be amortized over a demographically appropriate time period selected by the Plan Administrator at the time that the change is reflected in the annual actuarial valuation.

Asset Valuation Method

The actuarial value of assets is based on a five-year smoothing method and is determined by spreading the effect of each year's investment return in excess of or below the expected return. The Market Value of assets as of the valuation date is reduced by the sum of the following:

i. 80% of the return to be spread during the first year preceding the valuation date,
ii. 60% of the return to be spread during the second year preceding the valuation date,
iii. 40% of the return to be spread during the third year preceding the valuation date, and
iv. 20% of the return to be spread during the fourth year preceding the valuation date.

The return to be spread is the difference between (1) the actual investment return on Market Value and (2) the expected return on Actuarial Value.

APPENDIX D

GLOSSARY OF TERMS

Actuarial Accrued Liability The difference between the actuarial present value of Plan benefits and the actuarial value of future normal costs. Also referred to as "accrued liability" or "actuarial liability".

Actuarial Assumptions Estimates of future experience with respect to rates of mortality, disability, turnover, retirement, rate or rates of investment income and salary increases. Decrement assumptions (rates of mortality, disability, turnover, and retirement) are generally based on past experience, often modified for projected changes in conditions. Economic assumptions (salary increases and investment income) consist of an underlying rate in an inflation-free environment plus a provision for a long-term average rate of inflation.

Accrued Service Service credited under the Plan which was rendered before the date of the actuarial valuation.

Actuarial Equivalent A single amount or series of amounts of equal actuarial value to another single amount or series of amounts, computed on the basis of appropriate assumptions.

Actuarial Cost Method A mathematical budgeting procedure for allocating the dollar amount of the actuarial present value of retirement Plan benefits between future normal cost and actuarial accrued liability. Sometimes referred to as the "actuarial funding method".

Experience Gain (Loss) The difference between actual experience and actuarial assumptions anticipated experience during the period between two actuarial valuation dates.

Actuarial Present Value The amount of funds currently required to provide a payment or series of payments in the future. It is determined by discounting future payments at predetermined rates of interest and by probabilities of payment.

Amortization Paying off an interest-discounted amount with periodic payments of interest and principal, as opposed to paying off with a lump sum payment.

Normal Cost	The portion of the actuarial present value of Plan benefits allocated to the current year by the actuarial cost method.
Unfunded Actuarial Accrued Liability	The difference between actuarial accrued liability and the valuation assets. Sometimes referred to as "unfunded actuarial liability" or "unfunded accrued liability".
	Most retirement Plans have an unfunded actuarial accrued liability. They arise each time new benefits are added and each time an actuarial loss is realized.

I. Introduction

This funding policy pertains to the City of Lincoln, Nebraska ("City") Police and Fire Pension ("Pension") as described in Lincoln Municipal Code § 2.62.010, 2.65.010 and 2.66.010. The Plan Administrator sets the following guiding principles in the development of a comprehensive funding plan to maintain long-term sustainability, if needed:

- Shared responsibility among members and employer;
- Intergenerational equity;
- Preservation of the defined benefit plan.

II. Funding Goals

The objective of funding the Plan is to accumulate sufficient assets during a member's employment with the City to fully finance the benefits the member receives throughout retirement. In meeting this objective, the Pension Plan will strive to meet the following funding goals:

- To maintain a pattern of stable contribution rates as a percentage of member's payroll;
- To maintain an increasing funded ratio absent the impact of any changes to the assumptions or benefit provisions;
- To maintain adequate assets so that benefit payments can be paid to members and their beneficiaries as they become due.

III. Benchmarks

To track progress in achieving the previously outlined funding goals, the following benchmarks will be measured annually as part of the actuarial valuation with recognition that a single year's results may not be indicative of long-term trends.

Funded Ratio: The funded ratio, defined as the actuarial value of assets divided by the actuarial accrued liability, should be increasing over time, before any adjustments for changes in benefits, actuarial methods, or actuarial assumptions.

City's Contribution: An Actuarial Valuation Report shall be prepared annually, as of the City's fiscal year-end date, to calculate the Actuarially Determined Employer Contribution for the fiscal year ending two years after the valuation date. For example, the Actuarially Determined Employer Contribution for the fiscal year September 1, 20XX+1 to August 31, 20XX+2 shall be based on metrics in the August 31, 20XX Actuarial Valuation Report. The Actuarial Valuation Report shall be based on the actuarial assumptions and methods, as approved by the Plan Administrator. The Actuarially Determined Employer Contribution Rate shall be the greater of the Employer Normal Cost Rate or the sum of the Employer Normal Cost rate and the UAAL contribution rate. A negative amortization payment shall only be applied if the plan has been at least 115 percent funded for the current and prior two years. The dollar amount of the Employer Contribution shall be the ADEC rate multiplied by the valuation payroll projected forward to the fiscal year under

consideration, plus the actual administrative expenses for the fiscal year ending on the valuation date projected forward one year with the valuation's inflation assumption.

IV. Actuarial Methods and Assumptions

Actuarial Cost Method: The actuarial cost method is a mathematical budgeting procedure for allocating how the total present value of future benefits for current active and inactive members is allocated to each year of service, including past years. Due to the goal of stable contribution rates, the Plan Administrator has adopted the Entry Age Normal actuarial cost method.

Asset Smoothing Method: The method of valuing assets is intended to recognize a "smoothed" value of assets that is market related. Asset smoothing methods reduce the effect of short term volatility on contributions while still tracking the overall movement of the market value of assets by recognizing the effects of investment gains and losses over a period of years. The asset valuation method used to develop the actuarial value of assets first calculates the expected earnings on the prior year's market value of assets plus net cash flow (contributions minus benefit payments for the year) and then compares it to the actual earnings on the market value of assets. The difference, positive or negative, is recognized equally over a five-year period.

Actuarial Assumptions: The actuarial assumptions used in the actuarial valuation shall be derived and proposed by the Plan's actuary in conformity with the applicable *Actuarial Standards of Practice* issued by the Actuarial Standards Board. The assumptions are intended to represent the best estimate of anticipated experience and are intended to be long-term in nature. In the development of actuarial assumptions, not only past experience but also trends, external economic forces, and future demographic and economic expectations shall be considered. A formal investigation into the actual experience of the Pension Plan shall be conducted by the actuary at least every five years and the results of the investigation used to form the basis of the actuary's recommendations for changes in the assumptions. In addition, the actual experience compared to the actuarial assumptions will be monitored each year in the annual actuarial valuation by including an analysis of the actuarial gain or loss.

Amortization Policy: For the Actuarial Valuation Report prepared as of August 31, 2016, the amortization period of the Unfunded Actuarial Accrued Liability (UAAL) shall be a 28-year closed term. This will be designated as the initial UAAL base for subsequent valuations and will be amortized over the remaining years of the 30-year closed period set on August 31, 2014. For each Actuarial Valuation Report subsequent to August 31, 2016, annual net experience gains/losses will be amortized over a new, closed 20-year period. Subsequent plan amendments or changes in actuarial assumptions or methods that create a change in the UAAL will be amortized over a demographically appropriate time period selected by the Plan Administrator at the time that the change is reflected in the annual actuarial valuation.

If the valuation shows a surplus, i.e., funded ratio above 100%, the prior amortization bases will be eliminated and one base equal to the amount of surplus shall be established. The amortization period of a surplus shall be a 20-year open period.

The amortization payment on each UAAL base will be calculated as a level percent of valuation payroll using the actuarial assumption for future payroll growth. Such calculation is consistent with the development of the normal cost rate and is intended to serve as a method to provide stability to the actuarial contribution rate.

Risk Control: The Plan Administrator will carefully monitor the key risk measures of funding the system and shall consider steps to mitigate risk, particularly as the funded ratio increases. Risk mitigation may involve such things as a reduction in the assumed rate of investment return, review of asset allocation with a goal of reducing the standard deviation of the portfolio return, establishment of a contribution rate stabilization reserve, and other strategies identified by the Plan Administrator.

V. Funding Policy Review

The Plan Administrator may periodically conduct special studies to provide insight into whether the goals and objectives established in this Policy are being met. These special studies may include asset liability studies, projection modeling studies, and sensitivity analysis of key risk factors. These special studies may be performed at the Plan Administrator's discretion.

It is recognized that this funding policy may need to be amended in the future as the funding of the Plan is a dynamic process which is dependent on a number of variables. Therefore, the funding policy will be reviewed by the Plan Administrator not less frequently than every five years following the actuarial experience study. Proposed amendments to the funding policy shall be forwarded to the City Council for their consideration and approval. (Ord. 20495; May 15, 2017).

CM

Cavanaugh Macdonald
CONSULTING, LLC

The experience and dedication you deserve

CITY OF LINCOLN POLICE AND FIRE RETIREMENT SYSTEM

Four Year Experience Study
For Period Ending August 31, 2018

TABLE OF CONTENTS

Cavanaugh Macdonald
CONSULTING, LLC
The experience and dedication you deserve

June 1, 2019

Mr. Doug McDaniel
Human Resources Director
City of Lincoln
555 South 10th Street
Lincoln, NE 68508

Dear Mr. McDaniel:

It is a pleasure to submit this report of our investigation of the experience of the City of Lincoln Police and Fire Retirement System (System) for the period of September 1, 2014 through August 31, 2018.

The purpose of this report is to communicate the results of our review of the actuarial methods and the economic and demographic assumptions to be used in the completion of the next actuarial valuation. We have recommend changes from the prior assumptions that are designed to better anticipate the emerging experience of the Plan. Actual future experience, however, may still differ from these assumptions.

In preparing this report, we relied without audit on information supplied by the City for the annual actuarial valuations. If any data or other information is inaccurate or incomplete, our analysis and recommendation may be impacted and a revised report may need to be issued.

We hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices which are consistent with the principles prescribed by the Actuarial Standards Board (ASB) and the Code of Professional Conduct and Qualification Standards for Public Statements of Actuarial Opinion of the American Academy of Actuaries.

We further certify that the assumptions developed in this report satisfy ASB Standards of Practice, in particular, No. 27, *Selection of Economic Assumptions for Measuring Pension Obligations* and No. 35, *Selection of Demographic and Other Non-economic Assumptions for Measuring Pension Obligations*

We look forward to our discussions and the opportunity to respond to your questions and comments.

We, Patrice A. Beckham and Bryan K. Hoge, are members of the American Academy of Actuaries, Enrolled Actuaries and Fellows of the Society of Actuaries, and meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinion contained herein.

Respectfully submitted,

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

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

The purpose of an actuarial valuation is to provide a timely best estimate of the ultimate costs of a retirement system. Actuarial valuations of the City of Lincoln Police and Fire Retirement System (LPF or the System) are prepared annually to determine the actuarial contribution rate to fund the System on an actuarial reserve basis, i.e. the current assets plus future contributions, along with investment earnings will be sufficient to provide the benefits promised by the System. The valuation requires the use of certain assumptions with respect to the occurrence of future events, such as rates of death, disability, termination of employment, retirement age and salary changes to estimate the obligations of the System.

The basic purpose of an experience study is to determine whether the actuarial assumptions currently in use have accurately anticipated actual emerging experience. This information, along with the professional judgment of the Board, its advisors, and the actuary, is used to evaluate the appropriateness of continued use of the current actuarial assumptions. When analyzing experience and assumptions, it is important to realize that actual experience is reported short term while assumptions are intended to be long term estimates of experience. Therefore, no single experience study period is usually given full credibility in setting actuarial assumptions. If significant differences exist between what is expected from our assumptions and actual experience, our strategy is usually to recommend a change in assumptions that would produce results somewhere between the actual and expected experience.

Our Philosophy

Similar to an actuarial valuation, the calculation of actual and expected experience is a fairly mechanical process. From one actuary to another, there should be very little difference in numerical results. However, the setting of assumptions is a different story, as it is more art than science. In this report, we have recommended a few changes to certain assumptions. To allow a better understanding of our thought process, we offer a brief summary of our philosophy:

- **Don't Overreact**: When we see significant differences in actual versus expected experience, we generally do not adjust our rates to reflect the entire difference. If the experience is credible and we believe it reflects future expectations, we will typically recommend rates somewhere between the old rates and the new experience. If the experience during the next study period shows the same result, we will probably recognize the trend at that point in time or at least move further in the direction of the observed experience. On the other hand, if actual experience in the next study is closer to its prior level, we will not have overreacted, possibly causing volatility in the actuarial contribution rates.

- **Anticipate Trends**: If there is an identified trend that is expected to continue, we believe that this should be recognized. An example is the retiree mortality assumption. It is an established trend that people are living longer. Therefore, we believe the best estimate of liabilities in the valuation should reflect the expected increase in life expectancy.

- **Simplify**: In general, we attempt to identify which factors are significant and eliminate or ignore the ones that do not materially improve the accuracy of the liability projections.

At the request of the city of Lincoln, Cavanaugh Macdonald Consulting, LLC performed a study of the experience of the City of Lincoln Police and Fire Retirement System for the four year study period, September 1, 2014 through August 31, 2018. This report presents the results and recommendations of our study which, if approved, will be implemented in the August 31, 2019 actuarial valuation of the System.

These assumptions have been developed in accordance with generally recognized and accepted actuarial principles and practices that are consistent with the applicable Standards of Practice adopted by the Actuarial Standards Board of the American Academy of Actuaries.

SCOPE OF THIS REPORT

The actuarial valuation utilizes various actuarial methods and two different types of assumptions: economic and demographic. Economic assumptions are related to the general economy and its impact on the System. Demographic assumptions are based on the emergence of the specific experience of the Systems' members.

All of the major actuarial assumptions that will be used in the next actuarial valuation have been reviewed in this study. The remainder of this report is divided as follows:

SECTION 2   EXECUTIVE SUMMARY
SECTION 3   ACTUARIAL METHODS
SECTION 4   ECONOMIC ASSUMPTIONS
SECTION 5   DEMOGRAPHIC ASSUMPTIONS
SECTION 6   MORTALITY
SECTION 7   RETIREMENT
SECTION 8   DISABILITY
SECTION 9   TERMINATION OF EMPLOYMENT (WITHDRAWAL)
SECTION 10   SALARY INCREASES
SECTIOM 11   MISCELLANEOUS ASSUMPTIONS

A brief summary of the results of our findings and recommendations is shown below:

Actuarial Methods

The following table summarizes the current and proposed actuarial methods. **Note that there is no recommended change to the actuarial methods.**

Actuarial Method	Current	Proposed
Actuarial Cost Method	Entry Age Normal	No Change
Asset Valuation Method	5-Year Smoothed Market	No Change
Amortization of Unfunded Actuarial Accrued Liability		
• Number of bases	Layers	No Change
• Amortization period	Legacy at 8/31/18 over 26 years. New bases of actuarial gains/losses are amortized over 20 years.	No Change
• Payment methodology	Level Percent of Payroll	No Change

Economic Assumptions

The following set of economic assumptions is recommended:

	Current	Proposed
• Price Inflation	2.50%	2.50%
• Investment Return	7.50%	7.25%*
• Interest on Member Contributions	7.50%	7.25%*
• General Wage Increase	3.00%	3.00%
• Payroll Growth	3.00%	3.00%

*To be phased in over a period of five years.

While the expected return, using forward-looking analysis, would support an assumption of 7.50% (2.50% inflation and 5.00% real return), we are recommending the City reduce the investment return assumption incrementally over the next five years, given the investment consultant's (Ellwood) expected return of 7.14% in the next ten years and the negative cash flows expected during that period. The impact of those factors will mute the growth of the plan assets so introducing some conservatism into the funding assumption seems prudent.

Demographic Assumptions

The demographic information in this experience study has limited credibility due to the size of the group. As a result, certain recommendations were based on our professional judgment and general trends observed in other public retirement systems. Our specific recommended changes are discussed briefly below:

- During the study period, all of the disabilities that occurred were duty-related. The current assumption is 50% of all disabilities are duty-related. We recommend the duty-related assumption be increased from 50% to 65% to partially reflect the observed experience.
- Given the benefit formula there is a strong incentive for members who reach the maximum benefit (varies by Plan A, B or C) to either retire or elect the DROP. Therefore, we recommend new retirement rates be adopted that are service-based rather than age-based assumptions.
- Separate termination of employment assumptions are currently used for Police and Fire to better reflect the differences observed in termination patterns in the two groups. We recommend separate assumptions continue to be used, but that the termination assumption be changed to a service-based assumption (currently a select (service based) and ultimate (age based) assumption is used). A very strong correlation exists between years of service and termination of employment, particularly for public safety members so a service-based assumption is expected to better model the actual experience.
- The current salary increase assumption is age-based. It is more common for salary increase assumptions to be service-based rather than age-based because there tends to be higher increases due to promotions and longevity increases in the earlier years of a career compared to smaller salary increases later. Therefore, we are recommending the assumption be changed to a service-based assumption.
- There is insufficient data to provide credible results for mortality experience. Because the actual data is so limited, the best approach is to use an "off-the-shelf" mortality table. In early 2019, the Society of Actuaries published a family of new mortality tables, based solely on public plan data, called the Pub-2010 Tables. The new set of tables includes a specific mortality table for public safety members, called the PubS-2010 Table. This table reflects the most current data regarding the mortality experience for retirees who retired from public safety jobs so we recommend it be adopted. In addition, we recommend future mortality improvements be modeled using the mortality improvement scale for the Nebraska Public Employees Retirement System (NPERS).

Financial Impact

The estimated financial impact of the proposed changes, based on results of the August 31, 2018 actuarial valuation, is summarized on the following page. The cost impact is shown assuming the increase in the UAL due to the proposed changes in assumptions is amortized over 20 years. The actual impact, which will be reflected in the August 31, 2019 actuarial valuation, will vary from the numbers shown on the exhibit on the following page, but is expected to be similar when considered as a percentage change.

Estimate of Financial Impact of Assumption Changes
Based on August 31, 2018 Valuation

	Baseline (Current Assumptions)	Demographic Assumptions Only	All Proposed Assumptions/Methods Investment Return Assumption	
			7.45%	7.25%
1. Present Value of Future Benefits	$368,900,408	$375,964,768	$378,704,462	$389,995,234
2. Present Value Future Normal Costs	72,459,748	65,614,529	66,598,256	70,704,155
3. Actuarial Liability (1) – (2)	296,440,660	310,350,239	312,106,206	319,291,079
4. Actuarial Value of Assets	243,538,925	243,538,925	243,538,925	243,538,925
5. Unfunded Actuarial Accrued Liability (UAAL) (3) – (4)	52,901,735	66,811,314	68,567,281	75,752,154
6. Funded Ratio (4) / (3)	82.15%	78.47%	78.03%	76.27%
7. Normal Cost Rate	16.52%	16.02%	16.20%	16.97%
8. UAAL Amortization Rate	7.23%	9.52%	9.76%	10.71%
9. Actuarial Determined Contribution Rate (7) + (8)	23.75%	25.54%	25.96%	27.68%
10. Effective Employee Contribution Rate	(7.23%)	(7.38%)	(7.38%)	(7.38%)
11. Employer Actuarial Contribution Rate (9) + (10)	16.52%	18.16%	18.58%	20.30%

Note: The actual impact of the assumption changes on the August 31, 2019 valuation results will vary from that shown in this table which are based on the August 31, 2018 actuarial valuation. Note that under the "All Proposed Assumptions/Methods" column there are two different investment return assumptions, 7.45%, the first step in the incremental move to and ultimate rate of 7.25%.

ACTUARIAL COST METHOD

The systematic financing of a pension plan requires that contributions be made in an orderly fashion while a member is actively employed, so that the accumulation of these contributions, together with investment earnings should be sufficient to provide promised benefits and cover administration expenses. The actuarial valuation is the process used to determine when money should be contributed; i.e., as part of the budgeting process.

The actuarial valuation will not impact the amount of benefits paid or the actual cost of those benefits. In the long run, actuaries cannot change the costs of the pension plan, regardless of the funding method used or the assumptions selected. However, actuaries will influence the incidence of costs by their choice of methods and assumptions.

The valuation or determination of the present value of all future benefits to be paid by the System reflects the assumptions that best seem to describe anticipated future experience. The choice of a funding method does not impact the determination of the present value of future benefits. The funding method, determines only the incidence of cost. In other words, the purpose of the funding method is to allocate the present value of future benefits determination into annual costs. In order to perform this allocation, it is necessary for the funding method to "break down" the present value of future benefits into two components: (1) that which is attributable to the past (2) and that which is attributable to the future. The excess of that portion attributable to the past over the plan assets is then amortized over a period of years. Actuarial terminology calls the part attributable to the past the "past service liability" or the "actuarial accrued liability". The portion of the present value of future benefits allocated to the future is commonly known as "the present value of future normal costs", with the specific piece of it allocated to the current year being called "the normal cost". The difference between the plan assets and actuarial liability is called the "unfunded actuarial accrued liability".

Two key points should be noted. First, there is no single "correct" funding method. Second, the allocation of the present value of future benefits, and hence cost, to the past for amortization and to the future for annual normal cost payments is not necessarily in a one-to-one relationship with service credits earned in the past and future service credits to be earned.

There are various actuarial cost methods, each of which has different characteristics, advantages and disadvantages. However, Governmental Accounting Standard Board (GASB) Statement Numbers 67 and 68 require that the Entry Age Normal cost method be used for financial reporting. Most systems do not want to use a different actuarial cost method for funding and financial reporting. In addition, the Entry Age Normal method has been the most common funding method for public systems for many years. This is the cost method currently used by LPF.

The rationale of the Entry Age Normal (EAN) cost method is that the cost of each member's benefit is determined to be a level percentage of his salary from date of hire to the end of his employment with the employer. This level percentage multiplied by the member's annual salary is referred to as the normal cost and is that portion of the total cost of the employee's benefit which is allocated to the current year. The portion of the present value of future benefits allocated to the future is determined by multiplying this percentage times the present value of the member's assumed earnings for all future years including the current year. The entry age normal actuarial accrued liability is then developed by subtracting from the present value of future benefits that portion of costs allocated to the future. To determine the unfunded actuarial accrued liability, the value of plan assets is subtracted from the Entry Age Normal actuarial accrued liability. The current year's cost to amortize the unfunded actuarial accrued liability is developed by applying an amortization factor.

It is to be expected that future events will not occur exactly as anticipated by the actuarial assumptions in each year. Actuarial gains/losses from experience under this actuarial cost method can be directly calculated and are reflected as a decrease/increase in the unfunded actuarial accrued liability. Consequently, the gain/loss results in a decrease/increase in the amortization payment, and therefore the contribution rate.

Considering that the Entry Age Normal cost method is the most commonly used cost method by public plans, develops a normal cost rate that tends to be stable and less volatile, and is the required cost method under calculations required by GASB Numbers 67 and 68, **we recommend the Entry Age Normal actuarial cost method be retained.**

ACTUARIAL VALUE OF ASSETS

In preparing an actuarial valuation, the actuary must assign a value to the assets of the fund. An adjusted market value is often used to smooth out the volatility that is reflected in the market value of assets. This is because most employers would rather have annual costs remain relatively smooth, as a percentage of payroll or in actual dollars, as opposed to a cost pattern that is extremely volatile.

The actuary does not have complete freedom in assigning this value. The Actuarial Standards Board also has basic principles regarding the calculation of a smoothed asset value, Actuarial Standard of Practice No. 44 (ASOP 44), *Selection and Use of Asset Valuation Methods for Pension Valuations.*

ASOP 44 provides that the asset valuation method should bear a reasonable relationship to the market value. Furthermore, the asset valuation method should be likely to satisfy both of the following:

- Produce values within a reasonable range around market value, AND
- Recognize differences from market value in a reasonable amount of time.

In lieu of both of the above, the standard will be met if either of the following requirements is satisfied:

- There is a sufficiently narrow range around the market value, OR
- The method recognizes differences from market value in a sufficiently short period.

These rules or principles prevent the asset valuation methodology from being used to distort annual funding patterns. No matter what asset valuation method is used, it is important to note that, like a cost method or actuarial assumptions, the asset valuation method does not affect the true cost of the plan; it only impacts the incidence of cost.

LPF values assets, for actuarial valuation purposes, based on the principle that the difference between actual and expected investment returns should be subject to partial recognition to smooth out fluctuations in the total return achieved by the fund from year to year. This philosophy is consistent with the long-term nature of a retirement system. Under the current method, the difference between the actual investment return on the market value of assets and the assumed investment return on the market value of assets is recognized equally over a five-year period. This methodology is the asset smoothing method most commonly used by public plans and we believe that it meets actuarial standards under ASOP 44. **We recommend the current asset valuation method be retained.**

AMORTIZATION OF UAAL

As described earlier, actuarial accrued liability is the portion of the actuarial present value of future benefits that are not included in future normal costs. Thus it represents the liability that, in theory, should have been funded through normal costs for past service. Unfunded actuarial accrued liability (UAAL) exists when the actuarial accrued liability exceeds the actuarial value of plan assets. These deficiencies can result from:

(i)   plan improvements that have not been completely paid for,
(ii)   experience that is less favorable than expected,
(iii)   assumption changes that increase liabilities, or
(iv)   contributions that are less than the actuarial contribution rate.

There are a variety of different methods that can be used to amortize the UAAL. Each method results in a different payment stream and, therefore, has cost implications. For each methodology, there are three characteristics:

- The period over which the UAAL is amortized,
- The rate at which the amortization payment increases, and
- The number of components of UAAL (separate amortization bases).

Amortization Period: The amortization period can be either closed or open. If it is a closed amortization period, the number of years remaining in the amortization period declines by one in each future valuation. Alternatively, if the amortization period is an open or rolling period, the amortization period does not decline but is reset to the same number each year. This approach essentially "refinances" the System's debt (UAAL) every year.

Amortization Payment: The level dollar amortization method is similar to the method in which a home owner pays off a mortgage. The liability, once calculated, is financed by a constant fixed dollar amount, based on the amortization period until the liability is extinguished. This results in the liability steadily decreasing while the payments, though remaining level in dollar terms, in all probability decrease as a percentage of payroll. (Even if a plan sponsor's population is not growing, inflationary salary increases will usually be sufficient to increase the aggregate covered payroll).

The rationale behind the level percentage of payroll amortization method is that since normal costs are calculated to be a constant percentage of pay, the unfunded actuarial accrued liability should be paid off in the same manner. When this method of amortizing the unfunded actuarial accrued liability is adopted, the initial amortization payments are lower than they would be under a level dollar amortization payment method, but the payments increase at a fixed rate each year so that ultimately the annual payment far exceeds the level dollar payment. The expectation is that total payroll will increase at the same rate so that the amortization payments will remain constant, as a percentage of payroll. In the initial years, the level percentage of payroll amortization payment is often less than the interest accruing on the unfunded actuarial accrued liability meaning that even if there are no experience losses, the dollar amount of the unfunded actuarial accrued liability will grow (called negative amortization). This is particularly true if the plan sponsor is paying off the unfunded actuarial accrued liability over a long period, such as 20 or more years.

Amortization Bases: The UAAL can either be amortized as one single amount or as components or "layers", each with a separate amortization base, payment and period. If the UAAL is amortized as one amount, the UAAL is recalculated each year in the valuation and experience gains/losses or other changes in the UAAL are folded into the single UAAL amortization base. The amortization payment is then the total UAAL divided by an amortization factor for the applicable amortization period.

If separate amortization bases are maintained, the UAAL is composed of multiple amortization bases, each with its own payment schedule and remaining amortization period. In each valuation, the unexpected change in the UAAL is established as a new amortization base over the appropriate amortization period beginning on that valuation date. The UAAL is then the sum of all of the outstanding amortization bases on the valuation date and the UAAL payment is the sum of all of the amortization payments on the existing amortization bases. This approach provides transparency in that the current UAAL is paid off over a fixed period of time and the remaining components of the UAAL are clearly identified. Adjustments to the UAAL in future years are also separately identified in each future year. One downside of this approach is that it can create some discontinuities in contribution rates when UAAL layers/components are fully paid off. If this occurs, it likely would be far in the future, with adequate time to address any adjustments needed.

The amortization policy for LPF was changed to the layered approach with the August 31, 2016 valuation. The UAAL at August 31, 2016 serves as the initial (legacy) base and is amortized over a closed 30-year period beginning on August 31, 2014. For each valuation subsequent to August 31, 2016, annual net experience gains/losses are amortized over a new, closed 20-year period. Change in actuarial assumptions or methods that create a change in the UAAL are amortized over a demographically appropriate time period selected by the Plan Administrator at the time the change occurs. The same applies for any change in the UAAL resulting from plan amendments.

The layered amortization approach is quickly becoming the most commonly used method and it offers advantages that were discussed in 2016 when the current policy was adopted. **We recommend the current amortization policy be retained.**

ECONOMIC ASSUMPTIONS

The economic assumptions used in the LPF valuation include price inflation, long-term investment return, wage growth (the across-the-board portion of individual salary increases) and the increase in the covered payroll assumption. Unlike demographic assumptions, economic assumptions do not lend themselves to analysis merely on the basis of internal historical patterns because economic assumptions are influenced more by external forces in the economy which are difficult to accurately predict over the long term. The investment return and general wage increase assumptions are selected on the basis of expectations in an inflation-free environment and then increased by the long-term expectation for inflation, called the "building block" approach.

Sources of data considered in the analysis and selection of the economic assumptions included:
- 2019 Social Security Trustees Report
- Future expectations of LPF' investment consultant, Ellwood
- Future expectations of other investment consultants (2018 Horizon Survey)
- U.S. Department of the Treasury bond rates
- Assumptions used by other public retirement systems, based on the Public Fund Survey, published by the National Association of State Retirement Administrators (NASRA)
- Historical observations of price and wage inflation statistics and investment returns.

Actuarial Standard of Practice Number 27

Guidance regarding the selection of economic assumptions for measuring pension obligations is provided by Actuarial Standard of Practice (ASOP) No. 27, Selection of Economic Assumptions for Measuring Pension Obligations. Because no one knows what the future holds, the best an actuary can do is to use professional judgment to estimate possible future economic outcomes. These estimates are based on a mixture of past experience, future expectations, and professional judgment.

With respect to relevant data, the standard recommends the actuary review appropriate recent and long-term historical economic data, but advises the actuary not to give undue weight to recent experience. Furthermore, it advises the actuary to consider that some historical economic data may not be appropriate for use in developing assumptions for future periods due to changes in the underlying environment. In addition, with respect to any particular valuation, the standard requires that each economic assumption be consistent with all other economic assumptions over the measurement period.

ASOP 27 recognizes that economic data and analyses are available from a variety of sources, including representatives of the plan sponsor, investment advisors, economists, and other professionals. The actuary is permitted to incorporate the views of experts, but the selection or advice must reflect the actuary's professional judgment. ASOP 27 requires the actuary to select a "reasonable" assumption. For this purpose, an assumption is reasonable if it has the following characteristics:

- it is appropriate for the purpose of the measurement;

- it reflects the actuary's professional judgment;

- it takes into account historical and current economic data that is relevant as of the measurement date;

- it reflects the actuary's estimate of future experience, the actuary's observation of the estimates inherent in market data, or a combination thereof; and

- it has no significant bias (i.e., it is neither significantly optimistic nor pessimistic) except when provisions for adverse deviation or plan provisions that are difficult to measure are included.

The standard also discusses a "range of reasonable assumptions" which in part states "the actuary should also recognize that different actuaries will apply professional judgment and may choose different reasonable assumptions. As a result, a range of reasonable assumptions may develop both for an individual actuary and across actuarial practice."

The remaining section of this report will address the relevant types of economic assumptions used in the actuarial valuation to determine the obligations of the LPF. In our opinion, the economic assumptions recommended in this report have been developed in accordance with ASOP No. 27. The following table summarizes the recommendations for economic assumptions:

	Current Assumptions	Recommended Assumptions
A. Consumer Price Inflation	2.50%	2.50%
B. Investment Return	7.50%	7.25%*
C. General Wage Growth	3.00%	3.00%
D. Covered Payroll Increase	3.00%	3.00%

* To be phased in over five years.

Price Inflation

Use in the Valuation: Future price inflation has an indirect impact on the results of the actuarial valuation through the development of the assumptions for investment return, general wage growth (which then impacts individual salary increases), and payroll growth.

The long-term relationship between price inflation and investment return, recognized by economists, is that the investor demands a more or less level "real return" – the excess of actual investment return over price inflation. If inflation rates are expected to be high, investment return rates are also expected to be high, while lower inflation rates are expected to result in lower expected investment returns, at least in the long run.

The current assumption for price inflation is 2.50% per year which was recommended and adopted in the last experience study.

Past Experience: Although economic activities, in general, and inflation in particular, do not lend themselves to prediction solely on the basis of historical analysis, historical patterns and long-term trends are factors to be considered in developing the inflation assumption. The Consumer Price Index, All Urban Consumers, CPI (U), has been used as the basis for reviewing historical levels of price inflation. The

following table provides historical annualized rates and annual standard deviations of the CPI-U over periods ending December 31st.

Period	Number of Years	Annualized Rate of Inflation	Annual Standard Deviation
1928 – 2018	90	3.03%	3.79%
1958 – 2018	60	3.67	2.75
1968 – 2018	50	4.03	2.82
1978 – 2018	40	3.43	2.77
1988 – 2018	30	2.54	1.20
1998 – 2018	20	2.18	1.04
2008 - 2018	10	1.55	1.15

The following graph illustrates the historical annual change in price inflation, measured as of December 31 for each of the last 70 years, as well as the thirty year rolling average.
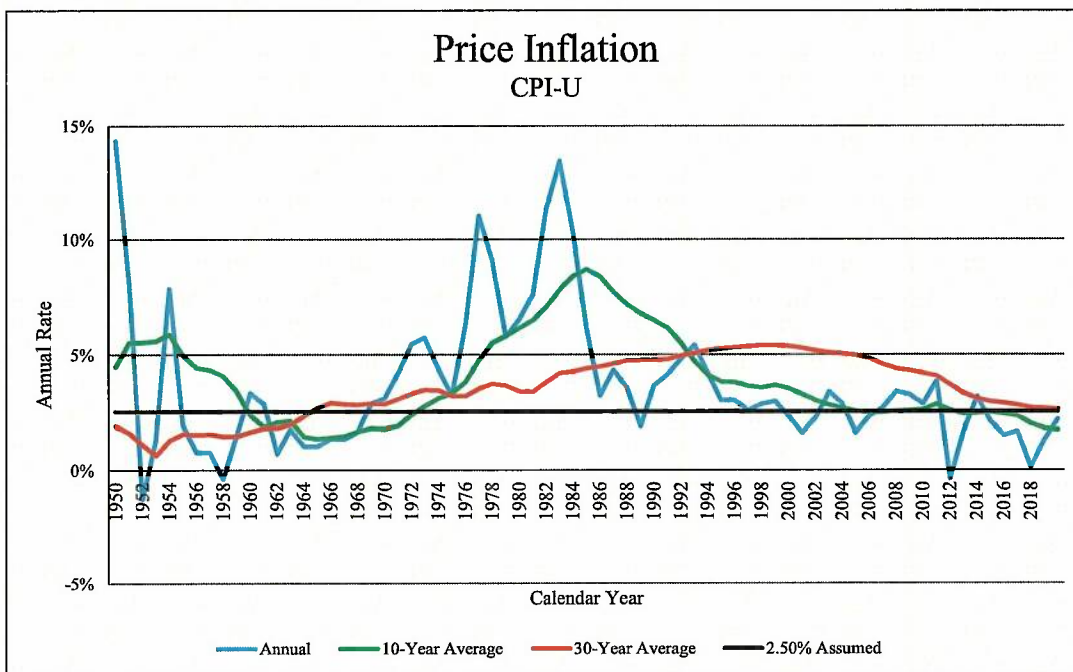
Over more recent periods, measured from December 31, 2018, the average annual rate of increase in the CPI-U has been 2.5% or lower. Over longer periods which include the period of high inflation from 1973 to 1982, inflation is higher. However, the decline in inflation over more recent periods is clear in the data above.

Forecasts from the Social Security Administration

Although many economists forecast lower inflation than the assumptions used by most retirement plans, they are generally looking at a shorter time horizon than is appropriate for a pension valuation. To consider a longer, similar time frame, we looked at the expected increase in the CPI by the Office of the Chief Actuary for the Social Security Administration. In the most recent report (April 2019), the projected average annual increase in the CPI over the next 75 years was estimated to be 2.6%, under the intermediate cost assumption. The range of inflation assumptions used in the Social Security 75-year modeling, which includes a low and high cost scenario, in addition to the intermediate cost projection, was 2.0% to 3.2%.

Forecasts from Investment Consulting Firms and Other Professionals

In setting their capital market assumptions, most investment consulting firms use an inflation assumption. Horizon Actuarial Services, LLC publishes a survey of capital market assumptions obtained from various investment consultants. The 2018 Horizon Survey includes the assumptions, including the expected rate of inflation, for thirteen advisors who develop longer-term assumptions (20 years or more). The Survey showed a range of expected inflation for the next 20 years, for these thirteen consultants, of 2.2% to 2.8%, with a median of 2.5%.

Ellwood's current inflation assumption is 2.0%.

Another source to consider in setting this assumption is a quarterly survey of the Society of Professional Forecasters that is conducted by the Philadelphia Federal Reserve of economists. Their most recent forecast (second quarter of 2019) was for inflation over the next ten years (2019 to 2028) to average 2.20%.

Peer System Comparison

While we do not recommend the selection of any assumption based on what other systems use, it does provide another set of relevant information to consider. Based on the Public Plan Database (a survey of over 125+ state and local retirement systems maintained by a collaboration between the Center for Retirement Research at Boston College, the Center for State and Local Government Excellence, and the National Association of State Retirement Administrators), the average inflation assumption for governmental plans has been steadily declining. Based on the current data, both the average and median inflation assumption is 2.75%. This data is largely based on actuarial valuations prepared with measurement dates in 2018. Based on our experience, we believe that further declines in the inflation assumption have occurred for some systems over the last year.

Public Plans Data,
St. Louis Federal Reserve
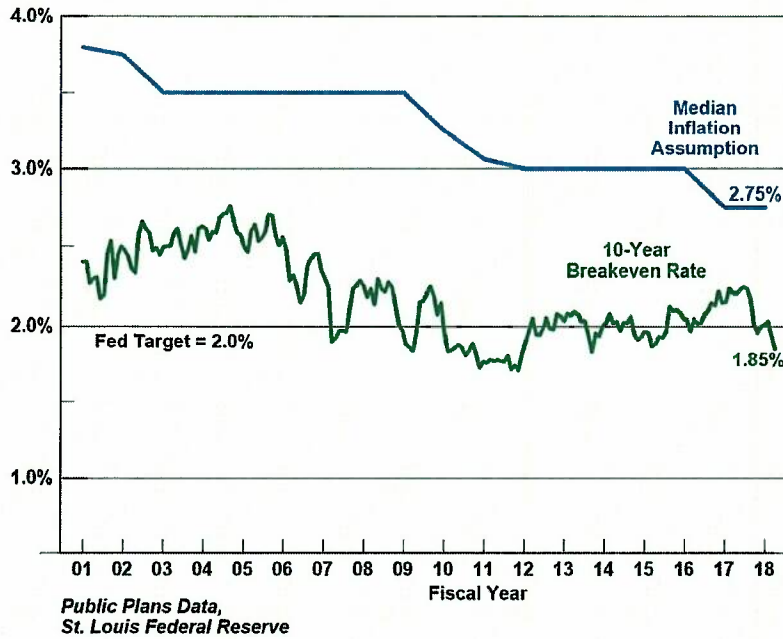
Comparison of Inflation Expectations

The following table provides a comparison of the current levels of expected inflation.

Source	Expected Inflation
LPF Investment Consultant	2.00%*
Horizon Survey (Median)	2.50%
Bond Market	2.10%
2019 Social Security Report	2.60%
Survey of Professional Forecasters	2.20%*

*Ten year outlook.

Conclusion

The lower inflation over the last 10, 20 and even 30 years, coupled with the low future inflation anticipated by the bond markets, investment consultants, and professional economic forecasters suggests that there may have been a fundamental change away from the longer term historical norms of inflation. Based on the information presented above, **we believe the current assumption of 2.50% is reasonable and we recommend it be retained.**

Consumer Price Inflation	
Current Assumption	2.50%
Recommended Assumption	2.50%

15

INVESTMENT RETURN

Use In The Valuation: The investment return assumption reflects the anticipated returns on the current and future assets. It is one of the primary determinants in the allocation of the expected cost of the System's benefits, providing a discount of the estimated future benefit payments to reflect the time value of money. It is also the most powerful assumption used in the valuation process with small changes producing significant changes to the liabilities and contribution rates. Generally, the investment return assumption is set with consideration of the asset allocation policy, expected long-term real rates of return on the specific asset classes, the underlying inflation assumption and any expenses paid from plan assets.

The current investment return assumption is 7.50% per year, net of all investment-related expenses (administrative expenses are paid directly as part of the actuarial contribution). The 7.50% rate of return is referred to as the nominal rate of return and is composed of two components. The first component is price inflation (previously discussed). Any additional return over price inflation is referred to as the real rate of return. The real rate of return, based on the current set of assumptions, is 5.00% (7.50% nominal return less 2.50% inflation).

Because the economy is constantly changing, assumptions about what may occur in the near term are volatile. Asset managers and investment consultants usually focus on this near-term horizon in order to make prudent choices regarding the investment of the trust funds, i.e., asset allocation. For actuarial calculations, we typically consider very long periods of time as some current employees will be receiving benefit payments more than 65 years from now. For example, a newly-hired employee who is 25 years old may work for 30 years, to age 55, retire and live another 35 years, to age 90. The retirement system would receive contributions for the first 30 years and then pay out benefits for the next 35 years. During the entire 65-year period, the system is investing assets on behalf of the member's liability. For such a typical career employee, more than one-half of the investment income earned on assets accumulated to pay benefits is received after the employee retires. In addition, in an open plan like LPF, the stream of benefit payments is continually increasing as new hires replace current members who leave covered employment due to death, termination of employment, and retirement. This difference in time horizon between investment consultants and actuaries is frequently a source of debate and confusion when setting economic assumptions.

Actuarial Standards of Practice Number 27 (ASOP 27) provides guidance to actuaries on the selection of economic assumptions used for measuring pension obligations. The current version of ASOP 27 calls for the actuary to select a "reasonable" assumption. It goes on to say an assumption is "reasonable" if it has no significant bias (i.e. it is neither significantly optimistic nor pessimistic). The standard also describes a "range of reasonable assumptions". In part, this definition states, "the actuary should also recognize that different actuaries will apply different professional judgment and may choose different, reasonable assumptions". As a result, a range of reasonable assumptions may develop both for an individual actuary and across actuarial practice.

Historical Perspective: One of the inherent problems with analyzing historical data is that the results can look significantly different depending on the time frame used if the year-to-year results vary widely, as they do. Even though history provides a valuable perspective, the economy of the past is not necessarily the economy of the future. In addition, asset allocations may have changed over the period so returns are most likely not directly comparable.

The System's actual investment return on the market value of assets is shown in the graph below:

Return on Market Value of Assets
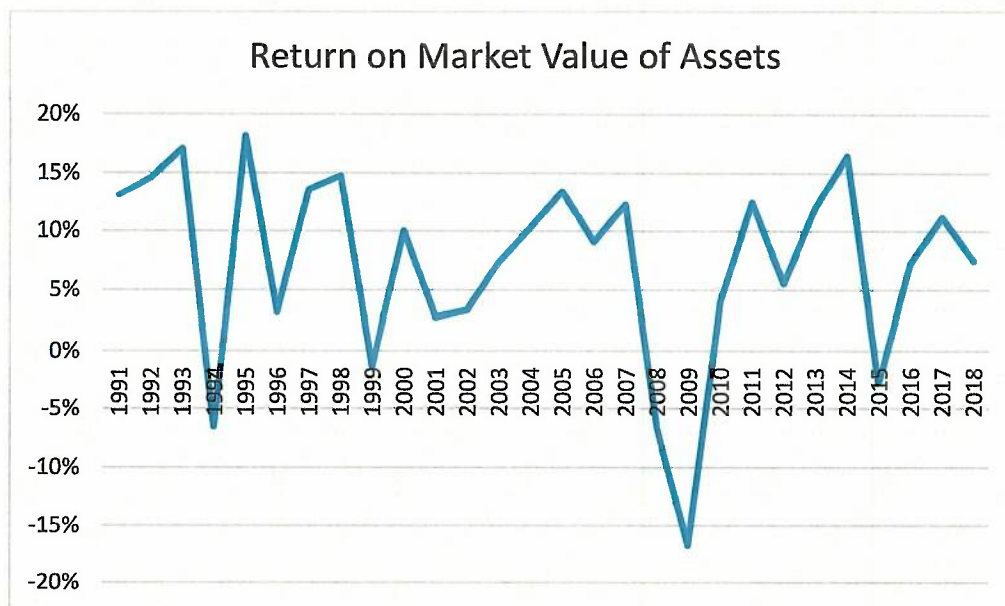
The compound return has varied significantly when viewed over different time periods. For example, the rate of return over the ten-year period ending August 31, 2018 was 5.3%%, over the 20-year period ending August 31, 2018 was 5.6% and over the full 28-year period ending August 31, 2018 was 7.0%.

However, past performance in the market is not necessarily indicative of future performance. The following graph shows the change in return expectations for various asset classes over the last nine years. The change in expected returns has contributed to the general trend of reductions in the investment return assumption for public retirement systems.

Horizon Actuarial Services

17
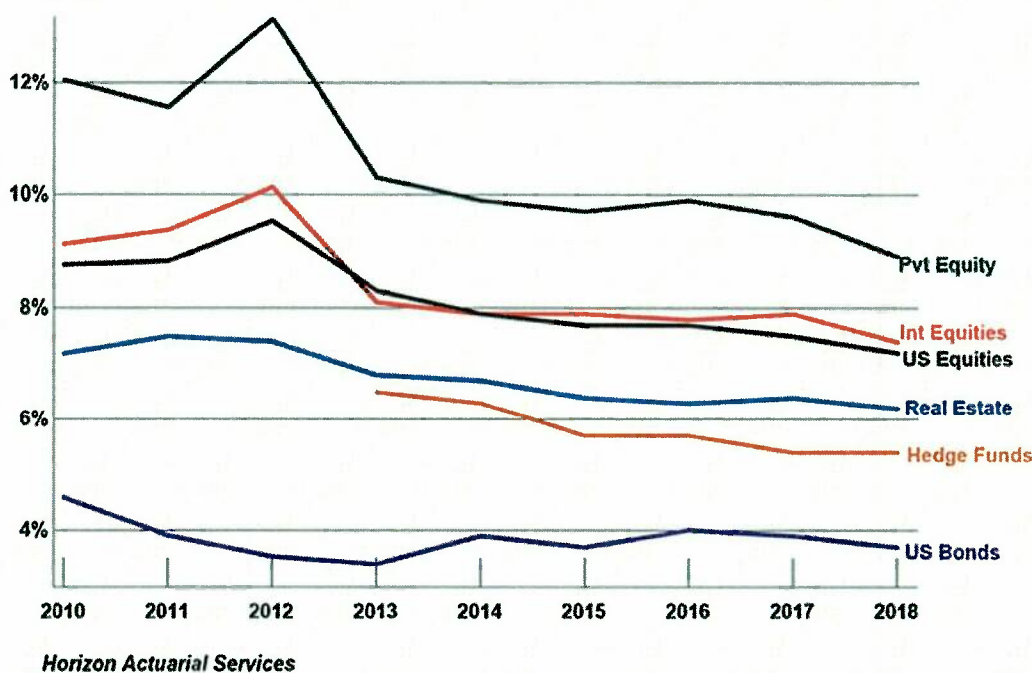
Forward Looking Analysis

We believe the most appropriate analysis to consider in setting the investment return assumption is to model the expected returns, given the system's target asset allocation and forward-looking capital market assumptions. However, we are trained as actuaries and not as investment professionals. Since ASOP 27 provides that the actuary may rely on outside experts, we believe it is appropriate to heavily weigh the market outlook and expectations provided by the LPF investment consultant, Ellwood Associates.

LPF's current target asset allocation, along with their investment consultant's (Ellwood Associates) capital market assumptions, are shown in the following table:

Asset Category	Asset Allocation	Expected Rate of Return (Geometric)	Standard Deviation
Developed Equity	40%	7.0%	17.4%
Emerging Markets Equity	5%	7.9	25.2
Private Equity	10%	10.0	22.9
Fixed Rate Debt (Intermediate)	10%	3.4	4.5
Floating Rate Public Debt	5%	5.3	5.6
Private Credit	5%	6.2	10.0
Low Volatility Hedge Funds	10%	4.9	6.0
Private Real Estate	15%	6.9	13.6
Total	100%		

Based on the Asset Allocation Study completed by Ellwood in May, 2019, the 10-year expected rate of return for the portfolio is 7.14% and the probability of earning 7.5% or more is about 46%. Based on conversations with Ellwood, the expected inflation assumption underlying the capital market assumptions used in this analysis is 2.0% which implies the asset allocation is expected to produce a real return of slightly more than 5.0%.

We performed our own independent, high level analysis of the expected return to verify the reasonableness of Ellwood's results. We used the "building block" approach that considers the target asset allocation and the median of the capital market forecasts from various investment professionals, as published in the 2018 Horizon Actuarial Survey. The median inflation assumption was subtracted from the nominal expected return developed to arrive at an estimate of the real rate of return, given the portfolio asset allocation. Our findings were consistent with Ellwood's, i.e., a real rate of return around 5.00%. When coupled with the recommendation to retain the price inflation assumption of 2.50%, the resulting nominal return is 7.50% (current investment return assumption).

Peer System Comparison

Public retirement systems have historically compared their investment performance to their peer group. While we believe there is some merit in assessing the general movement in the assumed rate of return for other systems, in our opinion this is not an appropriate basis for setting this assumption on its own. For example, different plans have different asset allocations which impact the assumed rate of return. In addition, the plan dynamics of each system may also impact the Board's choice of the assumed investment return. This peer group information merely provides another set of relevant data to consider, as long as we recognize that asset allocation and Board risk tolerance varies from system to system.

The graph below shows the change in the distribution of the investment return assumption from fiscal year 2001 through June, 2019 for the 120+ large public retirement systems included in the NASRA Public Fund Survey. As it indicates, the investment return assumptions used by public plans have decreased over the last fifteen years. It is worth noting that the median investment return assumption when the last experience study was performed was above 7.5%. In fiscal year 2012, the median dropped from 8.00% to 7.75% and has declined further to 7.25% in 2019. There were 58 systems that reduced their investment return assumption in 2018 and 44 that have reduced it so far in 2019. We believe some additional movement to lower investment return assumptions will continue to occur as future experience studies are completed in the next few years.

Public Fund Survey, NASRA June-19

Fiscal Year
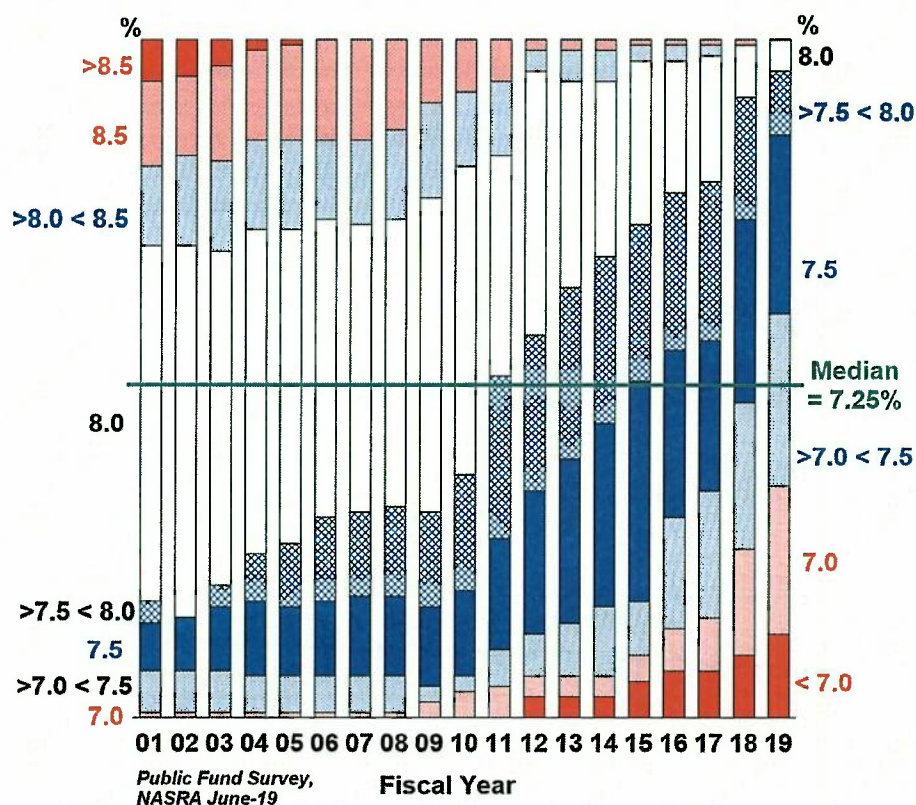
Another view of the same data is shown in the following graph, a comparison of both the average and median investment return assumption over the last 18 years. The downward trend is very evident.

19

NASRA
Jun-19
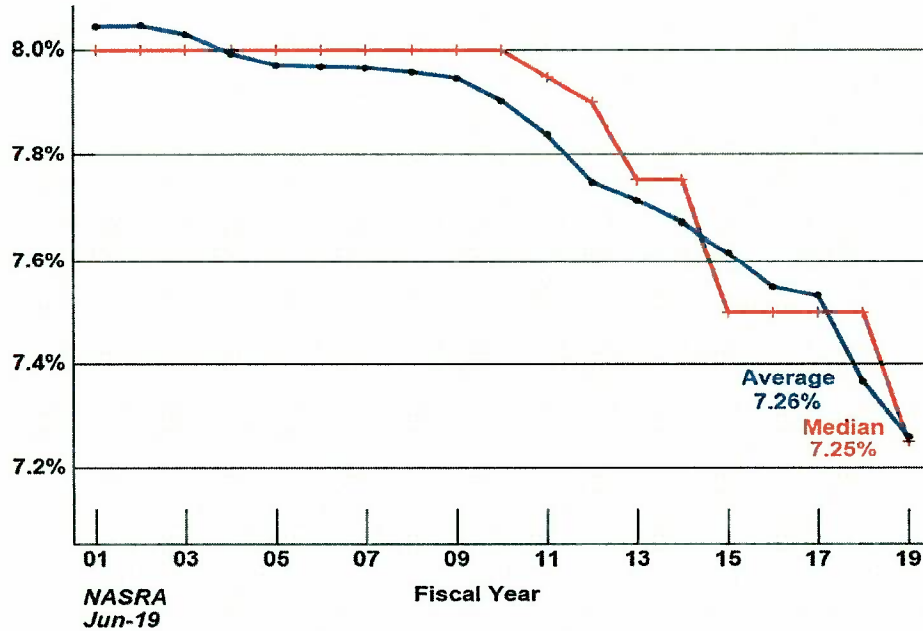
Additional insight can be obtained by observing the change in the components of the investment return assumption, i.e., inflation assumption and real rate of return. The real return reflects the return produced from the level of risk taken in the asset allocation. As the following chart shows, although the nominal investment return has been declining, the inflation assumption has declined more rapidly so the real rate of return has actually increased over this period. One factor that may contribute to the higher real rate of return is an increase in the asset allocation to alternative investments, particularly private equity, which generally has a higher expected return than other asset classes.

20
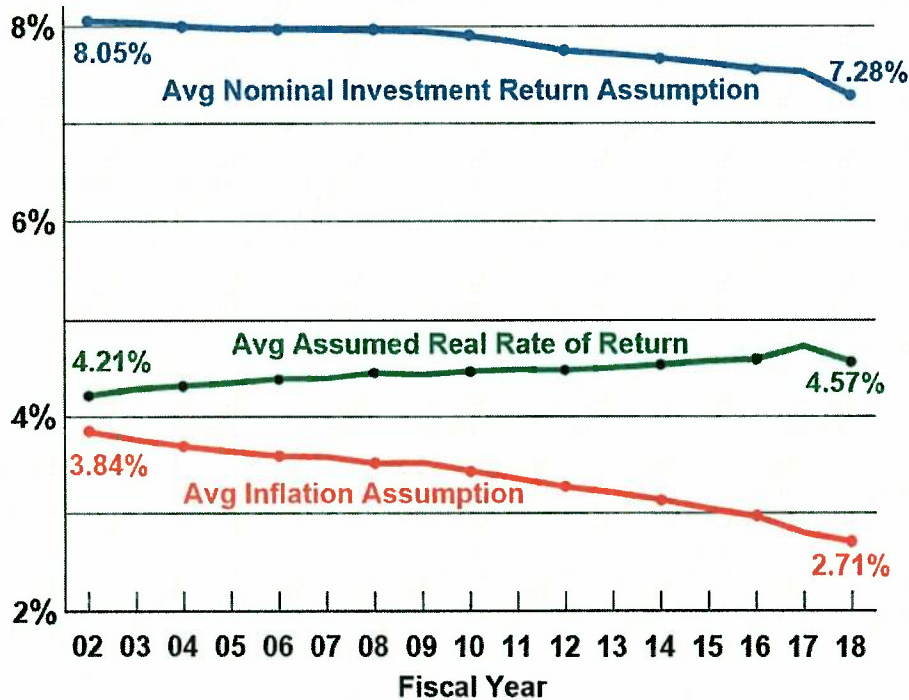
Administrative Expense Assumption

All administrative expenses are accounted for directly in the valuation. The current practice is to include a specific component for administrative expenses in the actuarial contribution that is equal to the actual expenses from the prior fiscal year increased with the assumed rate of price inflation. Therefore, the investment return assumption for LP&F does not need to be adjusted to reflect the impact of payment of administrative expenses from investment earnings. **This approach is very common and reasonable. We recommend it be retained.**

Considerations

While the System is expected to have an indefinite life span, it is a mature retirement system with a significant portion of its total liability attributable to current retirees and beneficiaries. The August 31, 2018 valuation indicated that 54% of the actuarial accrued liability of $296 million was attributable to members who are currently receiving a benefit from the System, including members in DROP. Due to the Plan's maturity, we believe the investment return assumption should not ignore the short-term forecast for investment returns.

LPF currently has a relatively small negative cash flow (benefit payments and expenses exceed the amount of contributions each year), but the amount is expected to increase over the next ten years. This is to be expected in a mature plan since the whole reason assets were accumulated in prior years was to pay benefits to retirees. For the year ended August 31, 2018, the negative cash flow was $4.7 million, about 2% of assets, and the gap between contributions (inflows) and benefit payments and expenses (outflows) over the next twenty years is expected to grow. This situation (negative cash flow) is more of a concern when the return expectations are considerably lower in the short term than the longer term, as is currently the case. Essentially, the negative cash flow means there are fewer assets to be reinvested to earn the higher returns that occur in later years. Thus, the impact on the accumulation of the trust fund assets can be significant, and the short-term assumptions need to be given more weight because of the plan demographics and funding dynamics.

Recommendation:

Because investment earnings account for the majority of revenue for most public plans (about 60%), the choice of an investment return assumption has a major impact on a system's financing and actuarial funded status. An investment return assumption that is too low will overstate liabilities and costs, causing current members/taxpayers to be overcharged and future members/taxpayers to be undercharged. An investment return assumption that is too high will understate liabilities and undercharge current members/taxpayers at the expense of future members/taxpayers. An assumption that is significantly wrong in either direction will cause a misallocation of resources and inequitable distribution of costs among generations of members/taxpayers. Because of this, setting the investment return assumption requires a balancing act with an attempt to not be overly conservative nor aggressive, although some margin for adverse deviation is acceptable under actuarial standards of practice.

After reviewing all of the available information and taking the factors discussed above into consideration, we think it would be prudent to lower the investment return assumption to 7.25%. This could be phased-in incrementally over a period of years, like five basis point per year, or the reduction could occur with the 2019 valuation and the contribution impact could be phased in, if necessary. **We recommend that an implementation plan be developed to reach an investment return of 7.25% (real return of 4.75%).**

The components of the nominal return are shown in the following table:

	Current Assumption	Proposed Assumption
Real rate of return	5.00%	4.75%*
Price inflation	2.50%	2.50%
Nominal return	7.50%	7.25%*

* Phased in over a five-year period.

GENERAL WAGE GROWTH

Background: General wage growth, thought of as the "across the board" rate of salary increases, is composed of the price inflation assumption and an assumption for the real rate of wage increases/real wage growth. The excess of wage growth over price inflation represents the increase in the standard of living, also called productivity growth.

In constructing the salary increase assumption used to project future salary increases for individual members, the wage growth assumption is combined with an assumption for service-based salary increases (called a merit scale). The service-based salary increase assumption will be addressed when the demographic assumptions are studied. Given the current price inflation assumption of 2.50%, the current wage growth assumption of 3.00% implies an assumed real rate of wage increase or real wage growth assumption of 0.50%.

Historical Perspective: Wage statistics are found in the Social Security System database on the National Average Wage data. This information goes back to 1955 and is the most comprehensive database available. Because the National Average Wage is based on all wage earners in the country who are covered by Social Security, it can be influenced by the mix of jobs (full-time vs. part-time, manufacturing vs. service, etc.) as well as by changes in some segments of the workforce that are not seen in all segments (e.g. regional changes or growth in computer technology). Furthermore, if compensation is shifted between wages and benefits, the wage index would not accurately reflect increases in total compensation.

The excess of wage growth over price inflation represents the real wage growth rate. We have used statistics from the Social Security System on the National Average Wage back to 1951. Because the National Average Wage is based on all wage earners in the country, it can be influenced by the mix of jobs (full-time vs. part-time, manufacturing vs. service, etc.) as well as by changes in some segments of the workforce that are not seen in all segments (e.g. regional changes or growth in computer technology). Further, if compensation is shifted between wages and benefits, the wage index would not accurately reflect increases in total compensation. LPF's membership is composed exclusively of public safety employees working in Lincoln, Nebraska, whose wages and benefits are linked as a result of the state and local economy, funding

allocations, and governing policies. Because the competition for workers can, in the long term, extend across industries and geography, the broad national earnings growth will have some impact on LPF members, however, less so than for general civilian employee jobs. In the shorter term, however, the wage growth of LPF and the nation may be less correlated.

There are numerous ways to review this data. For consistency with our observations of CPI, the table below shows the compound annual rates of wage growth for various 10-year periods, and for longer periods ended in 2017 (most recent available data).

Decade	Wages
2007-2017	2.2%
1997-2007	4.0%
1987-1997	4.1%
1977-1987	6.5%
1967-1977	6.5%
1957-1967	3.7%

Period	Years	Wages
2007-2017	10	2.2%
1997-2017	20	3.1%
1987-2017	30	3.4%
1977-2017	40	4.2%
1967-2017	50	4.6%
1957-2017	60	4.5%

The excess of wage growth over price inflation represents the real wage inflation rate. Although real wage inflation has been low in recent years, likely due to the recovery from the 2008 financial crisis, our focus must remain on the long term. The following table shows the compounded wage growth over various periods, along with the comparable price inflation rate for the same period. The differences represent the real wage inflation rate.

Decade	General Wage Growth	CPI Incr.	Real Wage Inflation
2007-2017	2.2%	1.7%	0.5%
1997-2007	4.0%	2.6%	1.4%
1987-1997	4.1%	3.5%	0.6%
1977-1987	6.5%	6.4%	0.1%
1967-1977	6.5%	6.1%	0.4%
1957-1967	3.7%	1.7%	2.0%

Period	General Wage Growth	CPI Incr.	Real Wage Inflation
2007-2017	2.2%	1.7%	0.5%
1997-2017	3.1%	2.1%	1.0%
1987-2017	3.4%	2.6%	0.8%
1977-2017	4.2%	3.6%	0.6%
1967-2017	4.6%	4.1%	0.5%
1957-2017	4.5%	3.7%	0.8%

Similar information over rolling thirty year periods is shown in the following graph:

23

Wage Inflation vs. CPI-U
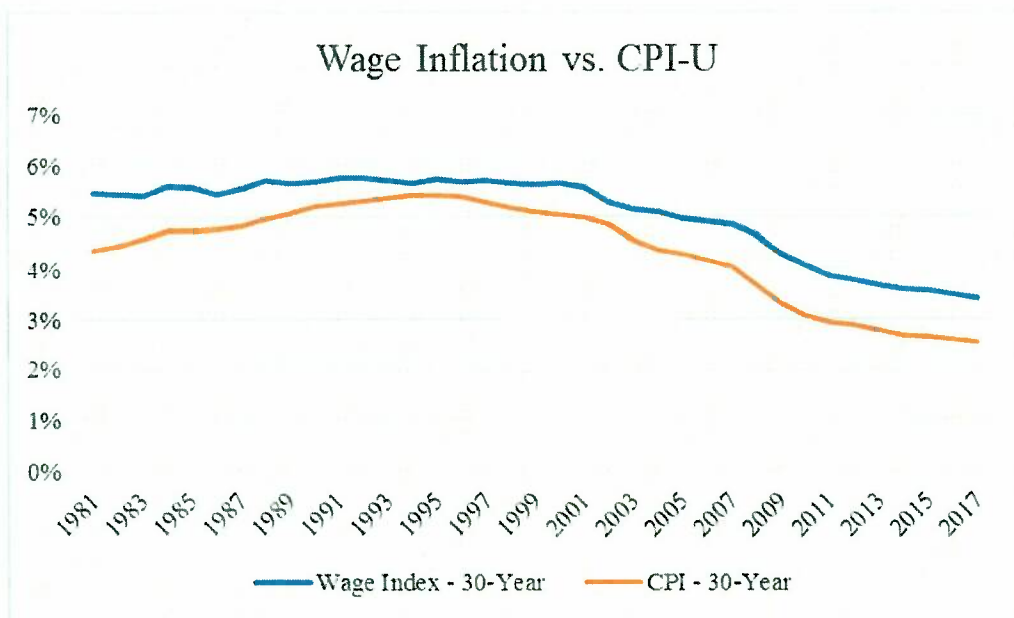
Over the last 30 years, the real wage increase, as measured by the increase in the National Average Wage Index, has been 0.8% per year on average. A somewhat similar, but slight different set of data is available from the Bureau of Labor Statistics, which reports the median weekly wage for full-time employees. Over the last 30 years, this amount (adjusted for inflation) has had an average increase of around 0.2% per year. Part of the difference in these results arises from the difference between using an average and a median. There are also technical differences arising from which workers are included in each measure. The applicability of this general wage data to public safety employees is uncertain. However, wages for public safety employees will generally have to increase at least as rapidly as the general economy if the City wishes to remain competitive in attracting new employees in the Lincoln job market.

The following graph compares the change in the Annualized Quarterly Change in Wage and Salary Costs for Private and State & Local Government Employees from 2001 to 2019. Since the Great Recession, wages for government employees have lagged those of private companies significantly. The real question is what the trend lines will look like in the future. Part of the lag in wages for governmental employees could be due to higher benefit costs over the last ten year along with budgets that have not fully recovered from the recession. Over the longer term, governmental employers will have to increase wages to compete for resources in the labor market.

Data final as of Q2 2019

Social Security Forecast

The wage index we used for the historical analysis is projected forward by the Office of the Chief Actuary of the Social Security Administration in their projection analysis. In a report in 2019, the annual increase in the National Average Wage Index over the next 30 years under the intermediate cost assumption was 1.2% over price inflation. The range of the assumed real wage inflation in the 2019 Trustees report was 0.58% to 1.82% per year. While we give this some consideration, we also recognize that the Index reflects not only wage growth, but also such things as increased hours worked (which would not be applicable to public safety employees) and changes in the types of jobs worked in the United States (again, not applicable to public safety members). In our opinion, the Social Security assumptions are less applicable to the specific increases in the wages of public safety members.

Analysis and Conclusion: Over the last 30 years, the actual experience on a national basis has been higher than the current assumption and over the last 10 years, actual experience has been about the same as the current assumption. However, this is based on Social Security data which uses the average wages of all U.S. workers. As mentioned earlier, the median real wage increase has been significantly lower. We believe that wages will continue to grow at a greater rate than prices over the long term, although not necessarily at the level projected by Social Security.

Based on the available data and our professional judgment, **we recommend that the long-term assumed real wage growth remain 0.50% per year. When coupled with the price inflation assumption of 2.50%, the resulting general wage growth assumption remains at 3.00%.**

PAYROLL GROWTH ASSUMPTION

Amortization payments on the unfunded actuarial accrued liability are currently determined as a level percent of payroll. Therefore, the valuation requires an assumption regarding future annual increases in covered payroll in order to determine the payment on the unfunded actuarial accrued liability. The wage growth assumption is typically used for this purpose. The current payroll growth assumption is 3.00%, the same as the current wage growth assumption.

For purposes of this assumption, a longer term historical analysis is preferable. Total covered payroll over the last 10 years has grown at an annual rate of 3.8%. However, an important part of that increase is due to an increase in the number of actives over this period. There were 549 active members in the August 31, 2008 valuation and 587 in the 2018 valuation, an increase of nearly 7%. Due to the change in the number of active members, we reviewed the increase in the average salary which adjusts for the number of active members. On that basis, the increase in average pay over this period has been 3.1%.

Historically, LPF has experienced a stable or growing number of active members so, in our opinion, no adjustment to the payroll growth assumption is needed to anticipate a future decrease in the number of active members. We propose continuing the current assumption that no future increase or decrease in the number of active members will occur. With a stable active population, the covered payroll is expected to increase with the general wage growth assumption. If increases should occur not only because of wage increases, but also because of additional active members, there will be a larger pool of salaries over which to spread the payment on the unfunded actuarial accrued liability, which would result in lower UAAL payments, as a percent of payroll.

Based on our analysis and the recommended general wage increase assumption of 3.00%, **we recommend the payroll growth assumption remain at 3.00%.**

DEMOGRAPHIC ASSUMPTIONS

Actuarial Standard of Practice (ASOP) No. 35 provides guidance to actuaries regarding the selection of demographic and other non-economic assumptions for measuring pension obligations.

ASOP 35 General Considerations and Application

Each individual demographic assumption should satisfy the criteria of ASOP 35. In selecting demographic assumptions the actuary should also consider: the internal consistency between the assumptions, materiality, cost effectiveness, and the combined effect of all assumptions. At each measurement date the actuary should consider whether the selected assumptions continue to be reasonable, but the actuary is not required to do a complete assumption study at each measurement date. In our opinion, the demographic assumptions recommended in this report have been developed in accordance with ASOP 35.

Overview of Analysis

The purpose of a study of demographic experience is to compare what actually happened to the individual members of the System during the study period (September 1, 2014 through August 31, 2018) with what was expected to happen based on the actuarial assumptions. A single four-year period is a relatively short observation period, particularly given the size of the group. Therefore, some of the experience observed in the study may not be representative of long term trends. In addition, the System's size limits the credibility of the findings. Our recommendations were made after taking these factors into account.

Studies of demographic experience generally involve three steps:

- First, the number of members changing membership status, called decrements, during the study is tabulated by age, duration, gender, group, and membership class (active, retired, etc.).

- Next, the number of members expected to change status is calculated by multiplying certain membership statistics, called exposures, by the expected rates of decrement.

- Finally, the number of actual decrements is compared with the number of expected decrements. The comparison is called the actual to expected ratio (A/E Ratio), and is expressed as a percentage.

In general, if the actual experience differs significantly from the overall expected results, or if the pattern of actual decrements, or rates of decrement, by age, sex, or duration deviates significantly from the expected pattern, new assumptions are considered. Recommended revisions are normally not an exact representation of the experience during the observation period. Judgment is required to anticipate future experience from past trends and current evidence, including a determination of the amount of weight to assign to the most recent experience.

It takes a fair amount of data to provide experience study results that are fully credible for demographic assumptions. Because the LPF membership or certain subsets of the membership are relatively small, some assumptions have been selected based more on our professional judgment of reasonable future outcomes than actual experience.

ASOP 35 states that the actuary should use professional judgment to estimate possible future outcomes based on past experience and future expectations, and select assumptions based upon application of that professional judgment. The actuary should select reasonable demographic assumptions in light of the particular characteristics of the defined benefit plan that is the subject of the measurement. A reasonable assumption is one that is expected to appropriately model the contingency being measured and is not anticipated to produce significant cumulative actuarial gains or losses over the measurement period.

Pursuant to ASOP 35 the actuary should follow the following steps in selecting the demographic assumptions:

1. Identify the types of assumptions. Types of demographic assumptions include, but are not limited to, retirement, mortality, termination of employment, disability, election of optional forms of payment, administrative expenses, family composition, and treatment of missing or incomplete data. The actuary should consider the purpose and nature of the measurement, the materiality of each assumption, and the characteristics of the covered group in determining which types of assumptions should be incorporated into the actuarial model.

2. Consider the relevant assumption universe. The relevant assumption universe includes experience studies or published tables based on the experience of other representative populations, the experience of the plan sponsor, the effects of plan design, and general trends.

3. Consider the assumption format. The assumption format includes whether assumptions are based on parameters such as gender, age or service. The actuary should consider the impact the format may have on the results, the availability of relevant information, the potential to model anticipated plan experience, and the size of the covered population.

4. Select the specific assumptions. In selecting an assumption the actuary should consider the potential impact of future plan design as well as the factors listed above.

5. Evaluate the reasonableness of the selected assumption. The assumption should be expected to appropriately model the contingency being measured. The assumption should not be anticipated to produce significant cumulative actuarial gains or losses over the measurement period.

MORTALITY

One of the most important demographic assumptions in the valuation is mortality because it projects the duration of retirement benefit payments. Because benefit payments are made for the members' lifetime, if members live longer than expected the true cost of future benefit obligations will be understated.

Rates of mortality declined throughout the 20th century and have continued to decline, which means that, in general, people are living longer. Consequently, we anticipate that mortality tables will need to be updated periodically to reflect actual mortality trends, even if we are anticipating some increase in longevity. Because of potential differences in mortality, we break down our study by gender (males and females) and by status (healthy retirees, disabled retirees, and active members).

Because of the substantial amount of data required to construct a mortality table, actuaries usually rely on standard tables published by the Society of Actuaries. Actuaries then use various adjustments to these standard, published mortality tables in order to better match the observed mortality rates of a specific group, including:

(1) Age adjustments
(2) Scaling of rates

The first of these adjustments is an age adjustment that can be either a "set back" or a "set forward". A one-year age set forward treats members as if they were one year older than they truly are when applying the rates in the mortality table. So, a one year set forward would treat a 61 year old retiree as if he will exhibit the mortality of a 62 year old in the standard mortality table.

A second adjustment, which requires a significant amount of data, that can be used to adjust the mortality rates in a standard table to better fit actual experience is to "scale" a mortality table by multiplying the probabilities of death by factors less than one (to reflect better mortality) or factors greater than one (to reflect poorer mortality). Scaling factors can be applied to an entire table or a portion of the table. Of course, if needed, actuaries may use two or even all three of these methods to develop an appropriate table to model the mortality of the specific plan population.

The issue of future mortality improvement is one that the actuarial profession is very focused on and continues to study and monitor trends. This has resulted in changes to the relevant Actuarial Standard of Practice, ASOP 35, *Selection of Demographic and Other Noneconomic Assumptions for Measuring Pension Obligations*. This ASOP requires the pension actuary to make and disclose a specific recommendation with respect to future improvements in mortality after the valuation date, although it does not require that an actuary assume there will be future improvements. There have been significant improvements in longevity in the past, although there are different opinions about future expectations, and thus there is a subjective component in the estimation of future mortality improvements.

There are two widely-used ways to reflect future improvements in mortality:
(1) Static table with "margin"
(2) Generational mortality

Static Tables with Margin

The first approach to reflect mortality improvements is through the use of a static mortality table with "margin." Under this approach, the Actual to Expected Ratio is intentionally targeted to be over 100% so that mortality can improve without creating actuarial losses. This approach is mandated by the Internal Revenue Service for determining minimum funding amounts for corporate pension plans as mortality improvements are projected seven years for retirees and 15 years for actives. While there is no formal guideline for the amount of margin required (how far above 100% is appropriate for the Actual to Expected Ratio), typically actuaries prefer to have a margin of around 10% at the core retirement ages. The goal is still for the general shape of the curve to be a reasonable fit to the observed experience. Depending on the magnitude and duration of mortality improvement, the margin would decrease and eventually may become insufficient. When that occurs, the assumption would need to be updated.

Generational Mortality

Another approach, referred to as generational mortality (currently used in the LPF valuation), directly anticipates future improvements in mortality by using a different set of mortality rates based on each year of birth, with the rates for later years of birth generally assuming lower mortality than the rates for earlier years of birth. The varying mortality rates by year of birth create a series of mortality tables that contain "built-in" mortality improvements, e.g., a member who turns age 65 in 2050 has a longer life expectancy than a member who turns age 65 in 2020. When using generational mortality, the Actual to Expected Ratios for the observed experience are set near 100% as future mortality improvements will be taken into account directly in the actuarial valuation process by applying lower probabilities of death in future years. The generational approach is our preferred method for recognizing future mortality improvements in the valuation process because it is more direct and results in longer life expectancy for members who are younger, consistent with what we believe is more likely to occur. **This is the method currently used in the LPF valuation and we recommend it continue to be used.**

Healthy Retirees: The valuation currently uses separate mortality assumptions for male and female members. The RP-2000 Healthy Annuitant Mortality Table for Males and Females, with generational mortality using Projection Scale AA to anticipate mortality improvements in future years is currently used to predict the post-retirement probability of death.

In examining the results of the Experience Study, if the A/E Ratio is greater than 100%, the assumptions have predicted fewer deaths than actually occurred and with an A/E Ratio less than 100%, the assumptions have predicted more deaths than have actually occurred.

Due to the size of the group, there is insufficient data to provide reliably consistent and credible experience. For example, there were 3 deaths for male retirees below age 65 and only 5 more deaths between ages 65 and 74 in the five year study period. Including this data in any analysis of retiree mortality will distort the results (A/E ratio was 71% for ages 55 to 85 on a count basis) and could potentially lead to a recommended mortality assumption that is overly conservative. In order to better evaluate the current mortality assumption, given the limited data, we considered only the actual and expected deaths from ages 75 to 85 where there was more data. Even this data is quite limited and cannot be relied upon totally in setting the mortality assumption. The aggregate observed experience for healthy (not disabled) male retirees, ages 75 to 85, during the study period indicated 12 deaths compared to 15 expected using the current assumption.

Because the actual data is so limited, the best approach is to use an "off-the-shelf" mortality table. In early 2019, the Society of Actuaries published a new family of mortality tables, based solely on public plan data, called the Pub-2010 Tables. (The RP-2000 and RP-2014 tables intentionally excluded public plan data when they were created). We examined the PubS-2010 mortality table, the table produced specifically for use by public safety retirement systems. This table produced a better fit for the actual experience from ages 75 to 85 (A/E ratio of 92%) and reflects the most current information regarding the mortality experience for retirees who retired from public safety jobs. In order to use generational mortality, a projection scale must be used to anticipate future mortality improvements. We recommend LPF use the same mortality improvement scale as is used for the Nebraska Public Employees Retirement System (NPERS). Given the mortality assumption is moving from the RP-2000 Mortality Table to the PubS-2010 Table, and a newer projection scale is being used, the cost implications of the change are significant. **However, we believe moving to the PubS-2010 mortality table, with the NPERS mortality improvement scale, will provide a better estimate of the System's future liabilities.**

Beneficiaries: The mortality of beneficiaries applies to the survivors of members who received benefits under a joint and survivor form of payment. There is typically little data on the mortality experience of beneficiaries prior to the death of the member because there is no requirement that the death be reported. **Therefore, we recommend that standard convention be followed and mortality for beneficiaries be set on the same basis as is used for retired members.**

Disabled Members: The valuation assumes that disabled members, in general, will not live as long as retired members who met the regular service retirement eligibility. The current assumption is the RP-2000 Disabled Retiree Mortality Tables for males and females, with generational mortality improvements anticipated by Projection Scale AA. There is an insufficient number of disabled retirees to provide fully credible results, therefore, **we recommend the mortality table for disabled members from the same family of mortality tables, PubS-2010, be adopted so the disabled mortality assumption is on a consistent basis with the healthy retiree assumption. To be consistent with the mortality assumption for healthy retirees, we recommend the NPERS mortality improvement scale be used to project future improvements.**

Active Members: This assumption predicts eligibility for active member death benefits prior to retirement, rather than the expected lifetime for pension payments. In smaller groups, the mortality rates for active members are often set based on the same assumption as is used for healthy retirees. Given the low probability of death while active, the results cannot be credible on their own without much larger numbers of active employees than are in LPF. We prefer to keep the mortality assumption for active and retired members on a consistent basis. **Therefore, we recommend the PubS-2010 mortality table for active members be adopted with the NPERS mortality improvement scale.**

SERVICE RETIREMENT

Service retirement measures the change in status from active membership directly to retirement. This assumption does not include the retirement patterns of members who terminated from active membership years prior to their retirement. A separate assumption addresses that situation.

There are currently three different benefit structures for current active members, although more than 90% of the current actives are now covered by Plan A. A summary of the retirement eligibility and benefit formulas for current Police members are summarized below:

	Plan A	Plan B	Plan C
Normal Retirement Age (NRA)	Age 50	Age 53	Age 53
Eligibility	NRA and 25 YOS	NRA and 21 YOS	NRA and 21 YOS
Benefit formula	2.56% of Regular Pay times YOS, max 64%	58% of Regular Pay with 21 YOS plus 2% for each additional year, max 68%	54% of Regular Pay with 21 YOS plus 2% for each additional YOS, max 64%

Essentially, Plan A members hit the maximum benefit with 25 years of service. Plans B and C hit the maximum benefit with 26 years of service, but the accrual of additional benefits is lower after 21 years. In addition, active members of Plan A are eligible to participate in a Deferred Retirement Option Plan (DROP) any time after meeting the eligibility conditions for normal retirement. Members of Plan B and C may join the DROP within one year of becoming eligible for normal retirement benefits. Both the City and the member stop contributions to the Plan when the member enters the DROP, so for funding purposes, a member electing into DROP has the same impact as a member who retires, i.e., the benefit must be fully funded at that point in time. Therefore, the "retirement" assumption reflects the combined probability of retiring (leaving employment) and entering DROP. There are currently separate retirement assumptions for each Plan, as well as for Police members and Fire members.

In the August 31, 2018 valuation, there were only 41 active members in Plan B and 5 in Plan C. Due to the small number of remaining exposure for Plan C, the retirement experience was not studied. The number of exposures for Plan B over the five year study period was also very small, only 61. While the actual experience is limited and subject to volatility, it does provide some insight that is helpful as we develop a service-based assumption for this group.

The current assumption is age-based, but given the plan design which includes a maximum benefit based on years of service and the availability of the DROP, we expect the actual retirement pattern to be strongly correlated to years of service. The following graphs show the actual service retirement/DROP experience for the study period, separately for Plans A and B as well as for Police and Fire members.
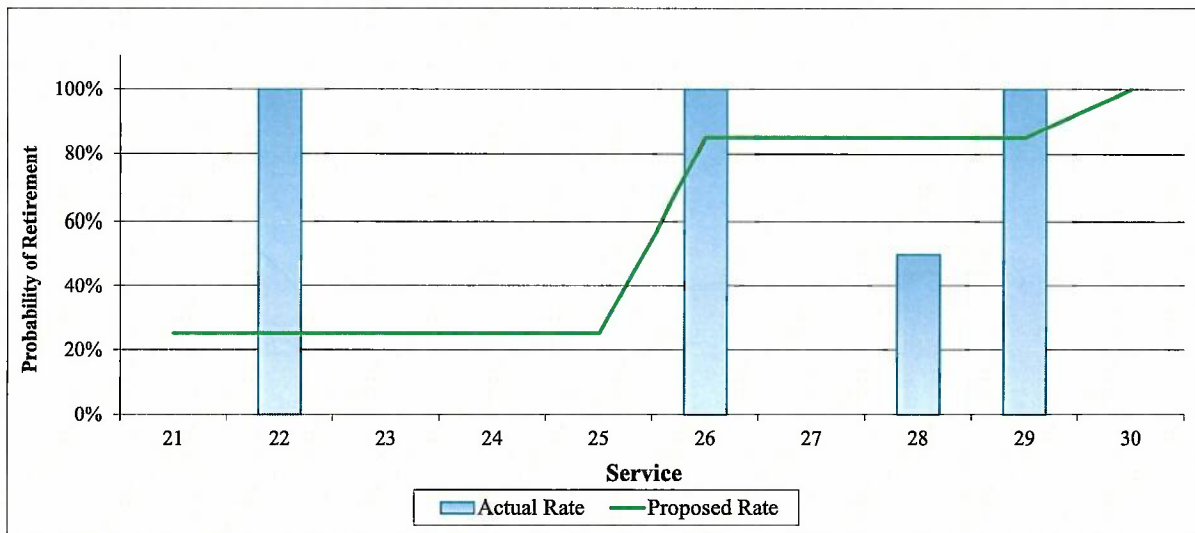
Plan B Retirement Experience
Police

Plan B Retirement Experience
Fire
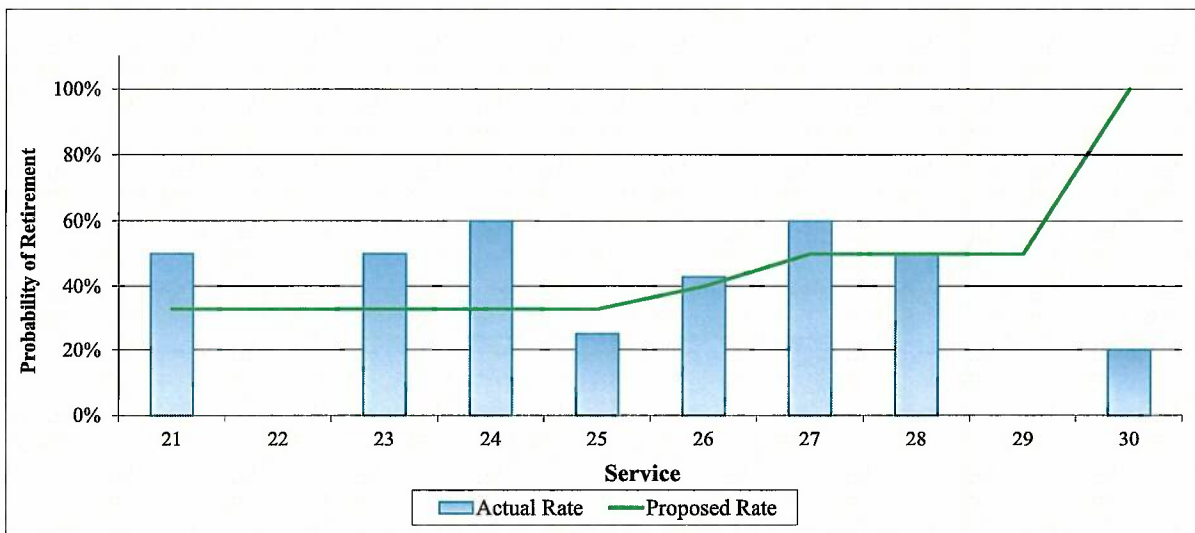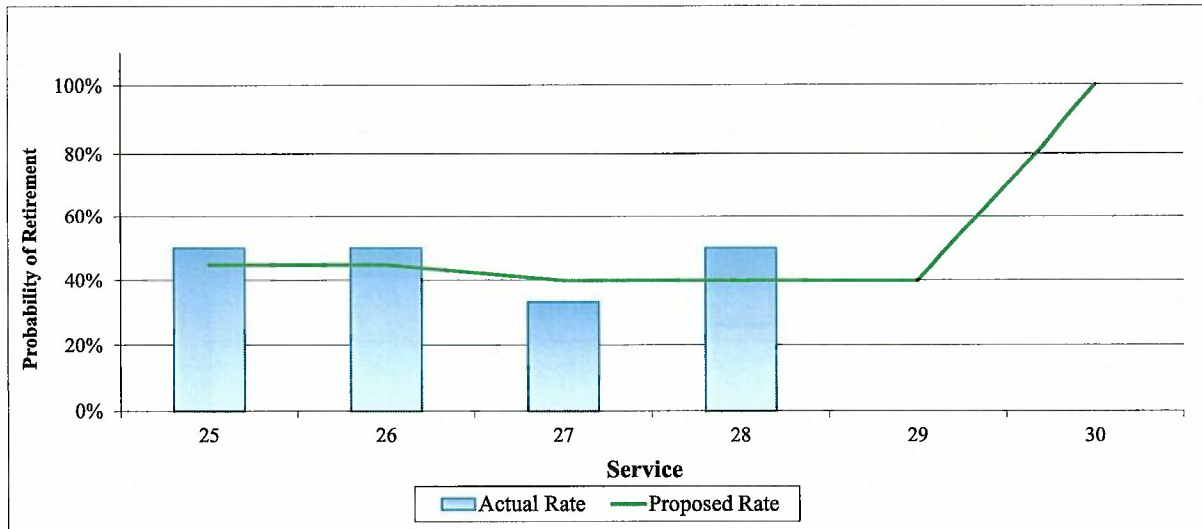
Plan A Retirement Experience
Police

Plan A Retirement Experience
Fire
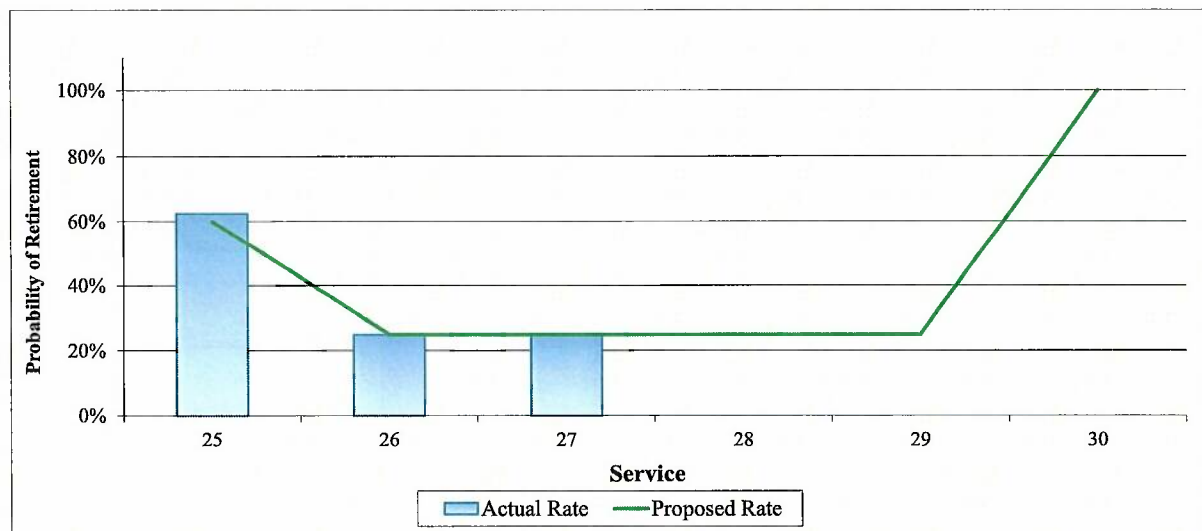
Given the plan design, we believe the retirement assumption should be service-based rather than the current age-based assumption. The experience indicates that not all members wait to reach the maximum benefit percentage and not all members leave once the maximum is attained. Based on the data available, we recommend the retirement rates shown in the earlier graphs be adopted, with Plan C rates matching Plan B rates. Since this is the first experience study to develop a retirement assumption based on service, we expect additional refinement may be needed in future studies.

Inactive Vested Members: The current assumption is that inactive vested members will retire at their first eligible retirement date, age 50 for all Plans. There are few such members so no reliable data is available to evaluate this assumption. However, it is reasonable to expect most, if not all, of these members to retire at their earliest retirement date. **We recommend keeping the current assumption that benefits for inactive vested members will commencement at the earliest retirement date. It is a reasonable assumption and provides a conservative estimate of the liability for inactive vested members.**

DISABILITY

The size of the System, coupled with the small probability of disablement at most ages, does not permit credible derivation of disability rates based solely on the System's experience. There were six disabilities in the five year study period and the expected number was four. There was no analysis of the disability assumption in the last experience study so we do not know if a similar pattern existed in past years. **We recommend the current disability assumption be retained but closely reviewed in the next experience study to see if there continue to be more disabilities than anticipated by the assumption.**

Based on data reported to us by the City, all disabilities (6) that occurred in the study period were service related. This information was not analyzed in the prior study. Given the small number of disabilities, some variability in the percentage that are service-related is not unusual. We believe the current assumption of 50% of liabilities are assumed to be duty related should be increased. **We recommend the duty disability assumption be increased from 50% to 65%.**

TERMINATION OF EMPLOYMENT

This section of the report summarizes the results of our study of terminations of employment for reasons other than death, retirement, or disability. Rates of termination can vary by both age and years of service. In general, rates of termination tend to have a stronger correlation to service than age, particularly for police and fire employment.

The current termination of employment assumption is age-based. The prior experience study did not include an analysis of actual and expected termination experience so our analysis is limited to data observed in the current study period. As illustrated by the following graphs, while the total actual versus expected experience (33 actual and 30 expected for Police and 12 actual versus 8 expected for Fire) indicates the current assumption might be a reasonable fit, the pattern of actual versus expected indicates some improvement is possible.

Police Termination Experience
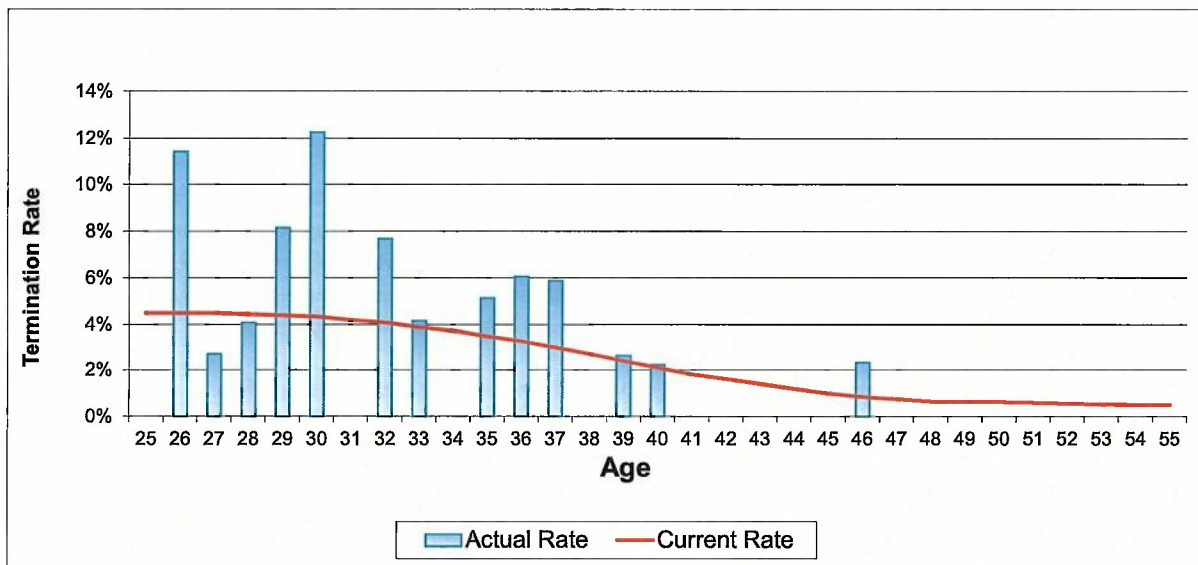
Fire Termination Experience
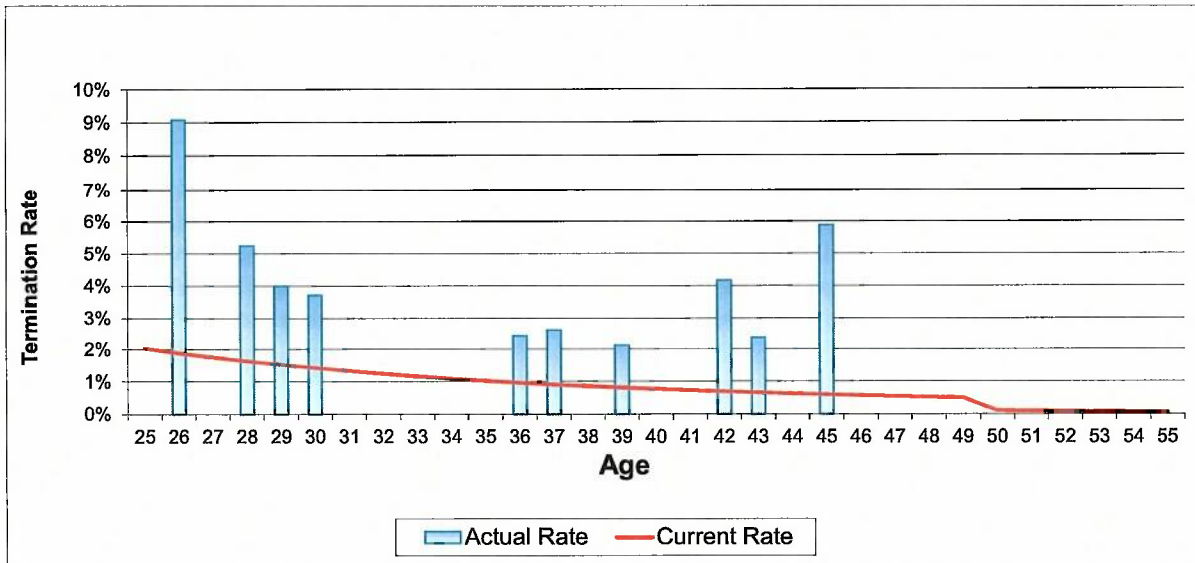
Given some change to the assumption is necessary, we also studied the actual experience on a duration basis (years of service). As stated earlier, there tends to be a strong correlation to continued employment and years of service, particularly for public safety employees. Given the small amount of data, a smooth pattern is not expected. However, the low probability of termination at higher durations of service is evident and we recommend the service-based assumption shown in these graphs be adopted.

Police - Termination of Employment Recommended Assumption
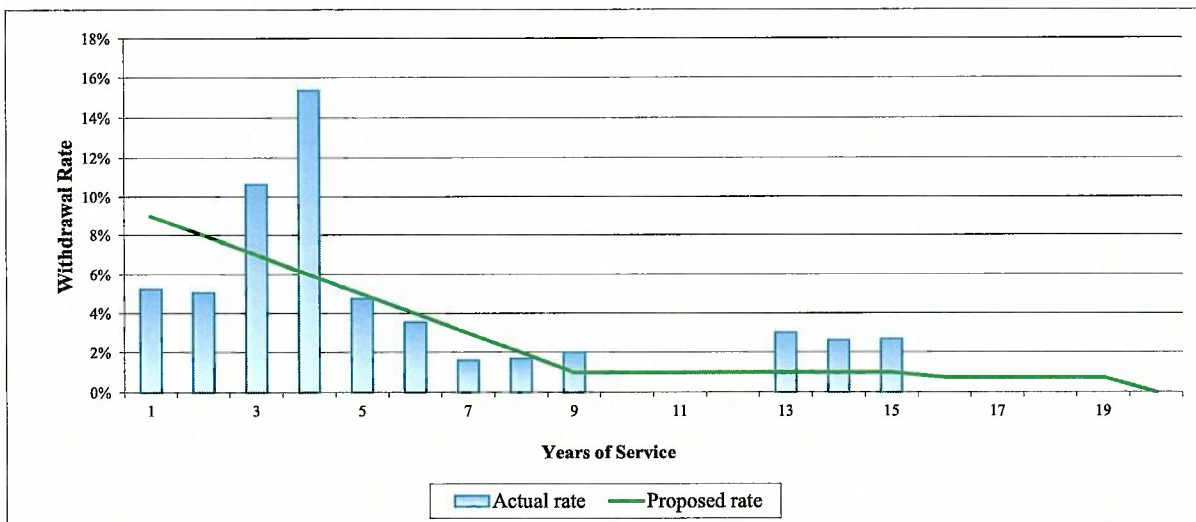
Overall, the recommended assumption produces an A/E ratio of 102% indicating a close fit to the actual experience. For durations one through nine, the recommended assumption anticipated 27 terminations and there were 26 actual terminations. For durations 10 through 20, the actual and expected terminations were both three with a resulting A/E ratio of 100%.

Fire - Termination of Employment Recommended Assumption
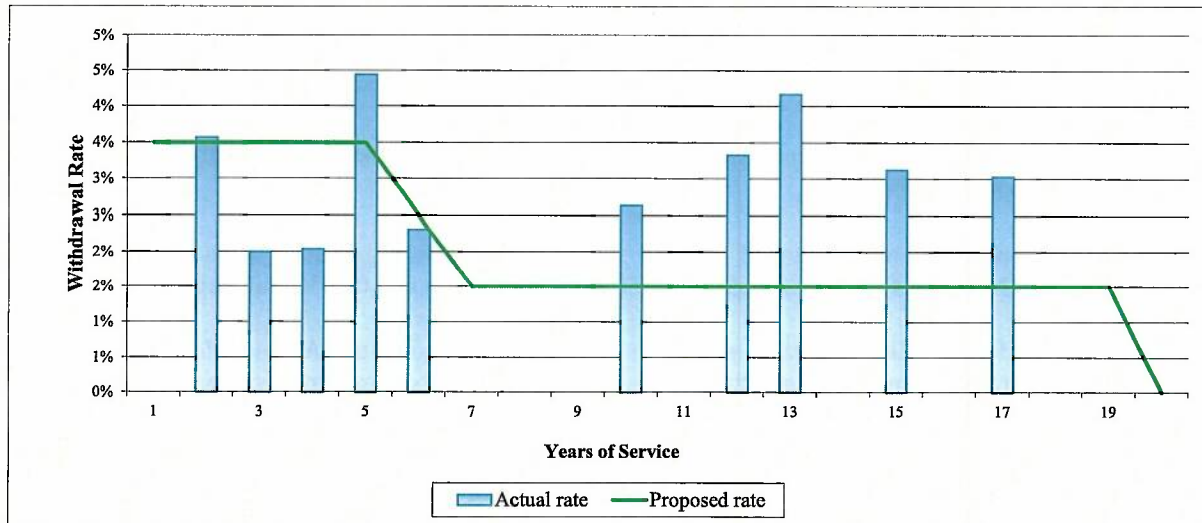
There is less data for Fire members so there tends to be more volatility in the rates and less of an obvious pattern. Although the recommended service-based assumption for Fire members reflects an overall A/E ratio of 73% from 1 to 20 years of service, the A/E ratio at durations one through nine was 59% (7 actual versus 12 expected – just 5 different over 5 years). For durations 10 through 20, the proposed assumption anticipated 5 terminations and actual terminations were also 5. The actuarial liability we are attempting to model with this assumption is higher for members with more years of service so it is important to closely model the behavior of that group, particularly given the limited data.

As additional experience studies are performed in the future and more data becomes available, it is likely these assumptions will need to be refined. This should be expected as the recommended assumptions are a reasonable fit to the actual experience observed in this study period, but no data was available about the experience in the prior study period. With such limited data, the findings of new experience studies may reflect somewhat different patterns and require some modifications to the recommended assumptions.

Our recommendation is to adopt the recommended termination of employment assumptions which are service-based and vary by group (Police vs Fire). The revised A/E ratios using the recommended assumptions are 102% for Police and 73% for Fire.

SALARY INCREASE ASSUMPTION

Estimates of future salaries are based on assumptions for two types of increases:

1.   Increases in each individual's salary due to promotion or longevity (often called merit scale), and

2.   Increases in the general wage level of the membership, which are directly related to price and wage inflation.

Earlier in this report, we recommended that the second of these rates, general wage inflation remain unchanged from the current 3.00% assumption (2.50% price inflation and 0.50% real wage growth).

As noted above, future salary increases are the result of two components. Actual salary experience is reported in total, rather than by components, so the experience study reviews total salary increases during the study period. The economic environment during this study period continued to exhibit considerable pressure on government budgets to reduce expenses as revenues have not totally rebounded from the Great Recession. As a result, salary increases for many public employees have continued to be very low. In our study, we compared individual salary increases for any members active in any two consecutive periods (e.g. FY 2014 and FY 2015, FY 2015 and FY 2016, etc.).

The current merit salary increase assumption is age-based. The assumption was developed in the last experience study, based on the experience at that time (FY 2010 through FY 2014), and resulted in a relatively large reduction in the salary increase assumption. Most of the decrease was the result of a lower general wage growth assumption, but the merit scale was also modified. The actual increase over the current study period was 4.68% compared to an expected increase of 4.78%. Note, however, that the fit of the current assumption to the actual experience is not very close. As a result, we believe some adjustment is necessary.
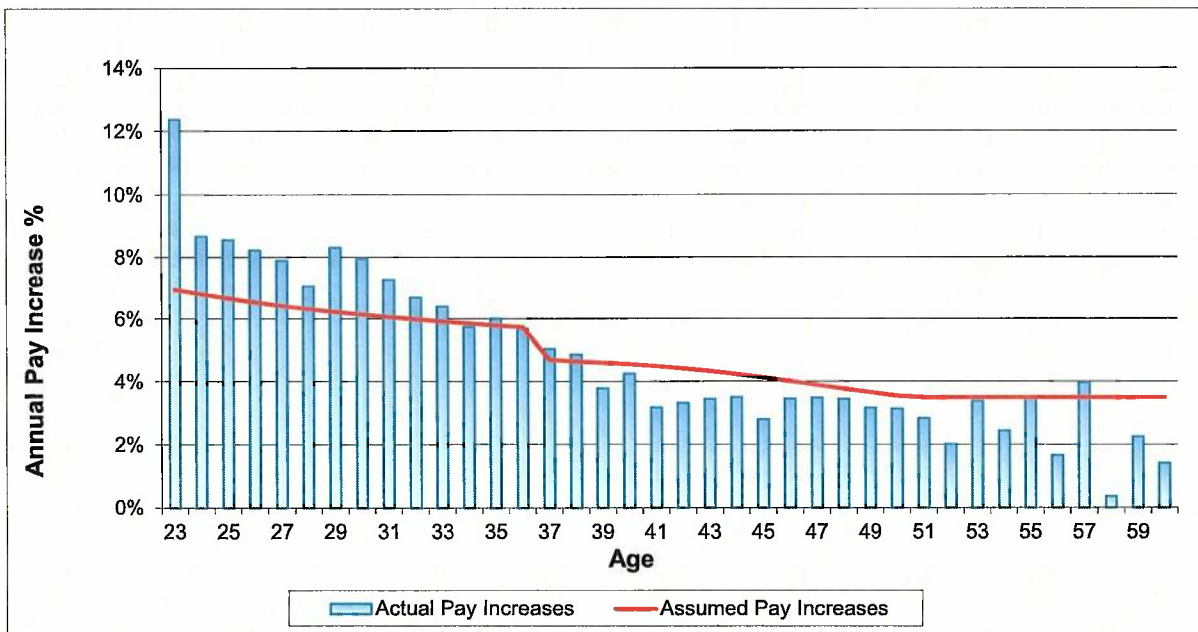
It is more common for salary increase assumptions to be service-based instead of age-based because there tends to be higher increases due to promotions and longevity increases in the earlier years of a career compared to smaller salary increases later. In order to evaluate the use of a service-based assumption, we studied the pattern exhibited during this study period (shown below).
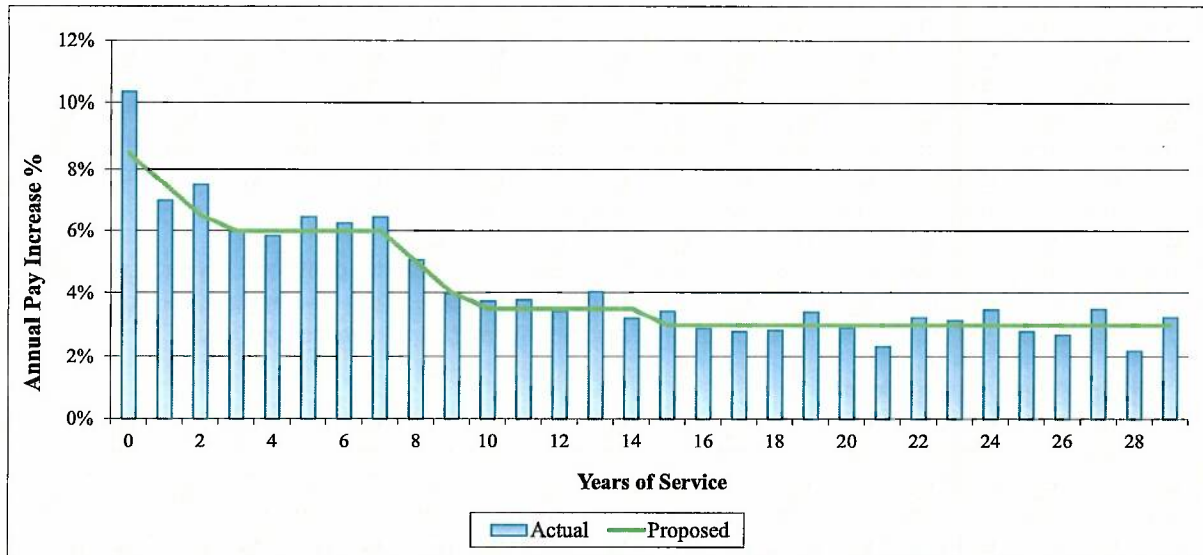
We believe the use of a service-based salary increase assumption will produce better estimated liabilities and we recommend the proposed assumption, shown in the graph above, be adopted. This assumption reflects the current general wage increase assumption of 3.00% and a service-based merit salary scale.

MISCELLANEOUS ASSUMPTIONS

Interest Credited on Member Contributions

The plan provision regarding the crediting of interest on members' accumulated contributions states that *"the rate of interest earned each calendar month, as determined by the City in conformity with the actual earnings on investments of the Police and Fire Pension Fund. Whenever such interest is required to be credited to any member under the provision of this title, such interest during any calendar month shall be based on upon his or her accumulated contributions, plus regular interest thereon, on the first day of the month."* Essentially, the actual rate of return for the Fund is credited to the members' account balances.

The current assumption regarding the interest rate credited on member contributions each year is 7.50%, the expected investment return. If the investment return assumption is lowered incrementally, we recommend this assumption also be lowered so the two remain equal.

Other Minor Assumptions

While we did not specifically collect data to review the following assumptions, we believe some small tweaks to the current assumptions should be made. These would not have a material impact.

	Current Assumption	Proposed Assumption
• % married at death	100%	90%
• Age difference, if unknown	Females are assumed to be same age as males	Females are assumed to be 3 years younger than males

13th Check

The 13th check amount is assumed to increase 2.50% annually, consistent with the inflation assumption. **Given there is no recommendation to lower the inflation assumption, we recommend the assumption regarding the increase in the 13th check amount remain 2.50%.**

To the extent there are other minor assumptions used in the valuation that were not included in our review of actual experience in the study period, we believe the current assumptions are reasonable and should continue to be used. Changes in these assumptions would have a relatively minor impact of the liabilities and costs of the System.

Investment Return:	7.50% compounded annually, net of investment expenses. (effective August 31, 2016)	
Inflation Rate:	2.50% compounded annually	
Salary Increases:	These assumptions are used to project current salaries to those upon which benefits will be based.	

	Annual Rate of Pay Increase for Sample		
Sample Ages	Base (Economic)	Merit and Longevity	Total
20	3.0%	4.3%	7.3%
25	3.0%	3.6%	6.6%
30	3.0%	3.1%	6.1%
35	3.0%	2.8%	5.8%
40	3.0%	1.5%	4.5%
45	3.0%	1.1%	4.1%
50	3.0%	0.5%	3.5%
55	3.0%	0.5%	3.5%

Payroll Growth: 3.0% per year

Mortality:

Actives and Inactive Vested Members:	RP-2000 Employees mortality table with generational mortality improvement using Scale AA.
Healthy Retirees and Beneficiaries:	RP-2000 Healthy Annuitant mortality table with generational mortality improvement using Scale AA.
Disabled Retirees:	RP-2000 Disabled Retiree mortality table with generational mortality improvement using Scale AA.

Termination:

Sample Ages	Years of Service	% Separating within Next Year	
		Police	**Fire**
ALL	0	12.00%	8.00%
	1	8.00%	6.00%
	2	7.00%	4.50%
	3	6.00%	3.00%
	4	5.00%	2.00%
25	5 & Over	4.50%	2.00%
30		4.35%	1.40%
35		3.50%	1.00%
40		2.10%	0.80%
45		1.00%	0.60%
50		0.62%	0.10%
55		0.50%	0.10%

Disability:

Sample Ages	% Becoming Disabled Within Next Year
20	0.05%
25	0.05%
30	0.06%
35	0.09%
40	0.14%
45	0.23%
50	0.40%
55	0.60%
60	0.80%

50% of assumed liabilities were assumed to be duty related and 50% were assumed to be non-duty related.

Retirement and DROP Entry:

| | Old Plan | Rates of Retirement and/or DROP Entry | | | |
| | | Plan A | | Plan B & C | |
Ages		Police	Fire	Police	Fire
50	35%	15%	10%	5%	6%
51	15%	15%	10%	5%	6%
52	15%	15%	10%	5%	6%
53	15%	25%	20%	25%	24%
54	15%	35%	20%	35%	35%
55	40%	35%	20%	35%	35%
56	15%	25%	20%	25%	18%
57	15%	10%	20%	10%	30%
58	15%	10%	20%	10%	42%
59	15%	10%	15%	10%	15%
60	100%	10%	15%	10%	15%
61	100%	10%	15%	10%	15%
62	100%	35%	35%	35%	35%
63	100%	20%	25%	20%	15%
64	100%	20%	25%	20%	15%
65	100%	100%	100%	100%	100%

MISCELLANEOUS AND TECHNICAL ASSUMPTIONS

Marriage Assumption: 100% of both males and females are assumed to be married for purposes of death-in-service benefits.

Decrement Timing: All decrements are assumed to occur mid-year.

Eligibility Testing: Eligibility for benefits is determined based upon the age nearest birthday and years of service on the date the decrement is assumed to occur.

Benefit Service: Exact fractional service on the decrement date is used to determine the amount of benefit payable.

Decrement Operation: Disability decrements to not operate during the first five years of service. They also do not operate during retirement eligibility.

Normal Form of Benefit: The assumed normal form of benefit is the straight life form.

Incidence of Contributions: Contributions are assumed to be received continuously throughout the applicable fiscal year based upon the contribution rate shown in this report, and the actual payroll at the time contributions are made. New entrant normal cost contributions are applied to the funding of new entrant benefits.

Interest Credited on Member Contributions: 7.50% compounded annually.

Funding Period: Both the City and employee contribute (in accordance with the provisions of each plan) until the employee enters the DROP or otherwise exits the Plan.

DROP Period: Members are assumed to remain in DROP for five years.

13th Check: The 13th Check amount is assumed to increase 2.50% annually.

ACTUARIAL METHODS

Funding Method

Under the Entry Age Normal (EAN) cost method, the actuarial present value of each member's projected benefits is allocated on a level basis over the member's 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 actuarial present value of benefits allocated to prior years of service is called the actuarial accrued liability. The unfunded actuarial accrued liability (UAAL) represents the difference between the actuarial accrued liability and the actuarial value of assets as of the valuation date. The unfunded actuarial accrued liability is calculated each year and reflects experience gains/losses.

The UAAL is amortized, as a level-percent of payroll, using a layered approach. The August 31, 2016 UAAL serves as the initial base and is amortized over a closed 28-year period (closed 30-year period beginning on August 31, 2014). For each valuation subsequent to August 31, 2016, annual net experience gains/losses will be amortized over a new, closed 20-year period. Subsequent plan amendments or changes in actuarial assumptions or methods that create a change in the UAAL will be amortized over a demographically appropriate time period selected by the Plan Administrator at the time that the change is reflected in the annual actuarial valuation.

Asset Valuation Method

The actuarial value of assets is based on a five-year smoothing method and is determined by spreading the effect of each year's investment return in excess of or below the expected return. The Market Value of assets as of the valuation date is reduced by the sum of the following:

i.   80% of the return to be spread during the first year preceding the valuation date,

ii.   60% of the return to be spread during the second year preceding the valuation date,

iii.   40% of the return to be spread during the third year preceding the valuation date, and

iv.   20% of the return to be spread during the fourth year preceding the valuation date.

The return to be spread is the difference between (1) the actual investment return on Market Value and (2) the expected return on Actuarial Value.

Investment Return: 7.45% compounded annually, net of investment expenses.
(Phased in 0.05% per year, beginning with August 31, 2019 valuation)

Inflation Rate: 2.50% compounded annually

Salary Increases: These assumptions are used to project current salaries to those upon which benefits will be based.

	Sample Annual Rate of Pay Increase		
Years of Service	**Base (Economic)**	**Merit and Longevity**	**Total**
0	3.0%	5.5%	8.5%
1	3.0%	4.5%	7.5%
2	3.0%	3.5%	6.5%
3-7	3.0%	3.0%	6.0%
8	3.0%	2.0%	5.0%
9	3.0%	1.0%	4.0%
10-14	3.0%	0.5%	3.5%
15+	3.0%	0.0%	3.0%

Payroll Growth: 3.0% per year

Mortality:

Actives and Inactive
Vested Members: PubS-2010 Active Mortality Table with generational mortality improvement using the Nebraska Public Retirement System Mortality Improvement Scale.

Healthy Retirees
and Beneficiaries: PubS-2010 Healthy Annuitant Mortality Table with generational mortality improvement using the Nebraska Public Retirement System Mortality Improvement Scale

Disabled Retirees: PubS-2010 Disabled Mortality Table with generational mortality improvement using the Nebraska Public Retirement System Mortality Improvement Scale.

Termination:

Years of Service	% Separating within Next Year	
	Police	Fire
0	10.00%	4.00%
1	9.00%	3.50%
2	8.00%	3.50%
3	7.00%	3.50%
4	6.00%	3.50%
5	5.00%	3.50%
6	4.00%	2.50%
7	3.00%	1.50%
8	2.00%	1.50%
9-15	1.00%	1.50%
16-19	0.75%	1.50%
20+	0.00%	0.00%

Disability:

Sample Ages	% Becoming Disabled Within Next Year
20	0.05%
25	0.05%
30	0.06%
35	0.09%
40	0.14%
45	0.23%
50	0.40%
55	0.60%
60	0.80%

65% of assumed liabilities were assumed to be duty related and 35% were assumed to be non-duty related.

Retirement and DROP Entry:

	Rates of Retirement and/or DROP Entry			
	Plan A		**Plan B, C & Old Plan**	
Service	**Police**	**Fire**	**Police**	**Fire**
21	0%	0%	25%	33%
22	0%	0%	25%	33%
23	0%	0%	25%	33%
24	0%	0%	25%	33%
25	45%	60%	25%	33%
26	45%	25%	85%	40%
27	40%	25%	85%	50%
28	40%	25%	85%	50%
29	40%	25%	85%	50%
30	100%	100%	100%	100%

MISCELLANEOUS AND TECHNICAL ASSUMPTIONS

Marriage Assumption: 90% of both males and females are assumed to be married for purposes of death-in-service benefits. Females are assumed to be three years younger than males.

Decrement Timing: All decrements are assumed to occur mid-year.

Eligibility Testing: Eligibility for benefits is determined based upon the age nearest birthday and years of service on the date the decrement is assumed to occur.

Benefit Service: Exact fractional service on the decrement date is used to determine the amount of benefit payable.

Normal Form of Benefit: The assumed normal form of benefit is a straight life form.

Incidence of Contributions: Contributions are assumed to be received continuously throughout the applicable fiscal year based upon the contribution rate shown in this report, and the actual payroll at the time contributions are made. New entrant normal cost contributions are applied to the funding of new entrant benefits.

Interest Credited on Member Contributions: 7.25% compounded annually, phased-in from 7.50% over five years with a 0.05% decrease each year.

Funding Period: Both the City and employee contribute (in accordance with the provisions of each plan) until the employee enters the DROP or otherwise exits the Plan.

13th Check: The 13th Check amount is assumed to increase 2.50% annually.

ACTUARIAL METHODS

Funding Method

Under the Entry Age Normal (EAN) cost method, the actuarial present value of each member's projected benefits is allocated on a level basis over the member's 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 actuarial present value of benefits allocated to prior years of service is called the actuarial accrued liability. The unfunded actuarial accrued liability (UAAL) represents the difference between the actuarial accrued liability and the actuarial value of assets as of the valuation date. The unfunded actuarial accrued liability is calculated each year and reflects experience gains/losses.

The UAAL is amortized, as a level-percent of payroll, using a layered approach. The August 31, 2016 UAAL serves as the initial base and is amortized over a closed 28-year period (closed 30-year period beginning on August 31, 2014). For each valuation subsequent to August 31, 2016, annual net experience gains/losses will be amortized over a new, closed 20-year period. Subsequent plan amendments or changes in actuarial assumptions or methods that create a change in the UAAL will be amortized over a demographically appropriate time period selected by the Plan Administrator at the time that the change is reflected in the annual actuarial valuation.

Asset Valuation Method

The actuarial value of assets is based on a five-year smoothing method and is determined by spreading the effect of each year's investment return in excess of or below the expected return. The Market Value of assets as of the valuation date is reduced by the sum of the following:

i.   80% of the return to be spread during the first year preceding the valuation date,

ii. 60% of the return to be spread during the second year preceding the valuation date,

iii. 40% of the return to be spread during the third year preceding the valuation date, and

iv. 20% of the return to be spread during the fourth year preceding the valuation date.

The return to be spread is the difference between (1) the actual investment return on Market Value and (2) the expected return on Actuarial Value.

	Baseline (Current Assumptions)	All Demographic Assumptions	Investment Return Assumption (7.25%)
1. Present Value of Future Benefits	$368,900,408	$375,964,768	$389,995,234
2. Present Value Future Normal Costs	72,459,748	65,614,529	70,704,155
3. Actuarial Liability (1) – (2)	296,440,660	310,350,239	319,291,079
4. Actuarial Value of Assets	243,538,925	243,538,925	243,538,925
5. Unfunded Actuarial Accrued Liability (UAAL) (3) – (4)	52,901,735	66,811,314	75,752,154
6. Funded Ratio (4) / (3)	82.15%	78.47%	76.27%
7. Normal Cost Rate	16.52%	16.02%	16.97%
8. UAAL Amortization Rate	7.23%	9.52%	10.71%
9. Actuarial Determined Contribution Rate (7) + (8)	23.75%	25.54%	27.68%
10. Effective Employee Contribution Rate	(7.23%)	(7.38%)	(7.38%)
11. Employer Actuarial Contribution Rate (9) + (10)	16.52%	18.16%	20.30%

Notes: Financial impact is based on the August 31, 2018 actuarial valuation results. Actual impact on the August 31, 2019 actuarial valuation will be different than shown above, but should be comparable on a percent change basis.

Impact of assumption changes amortized over 20 years.

Lowering of investment return assumption can be phased-in, if desired.

EXHIBIT D-1
Retiree Mortality – Males
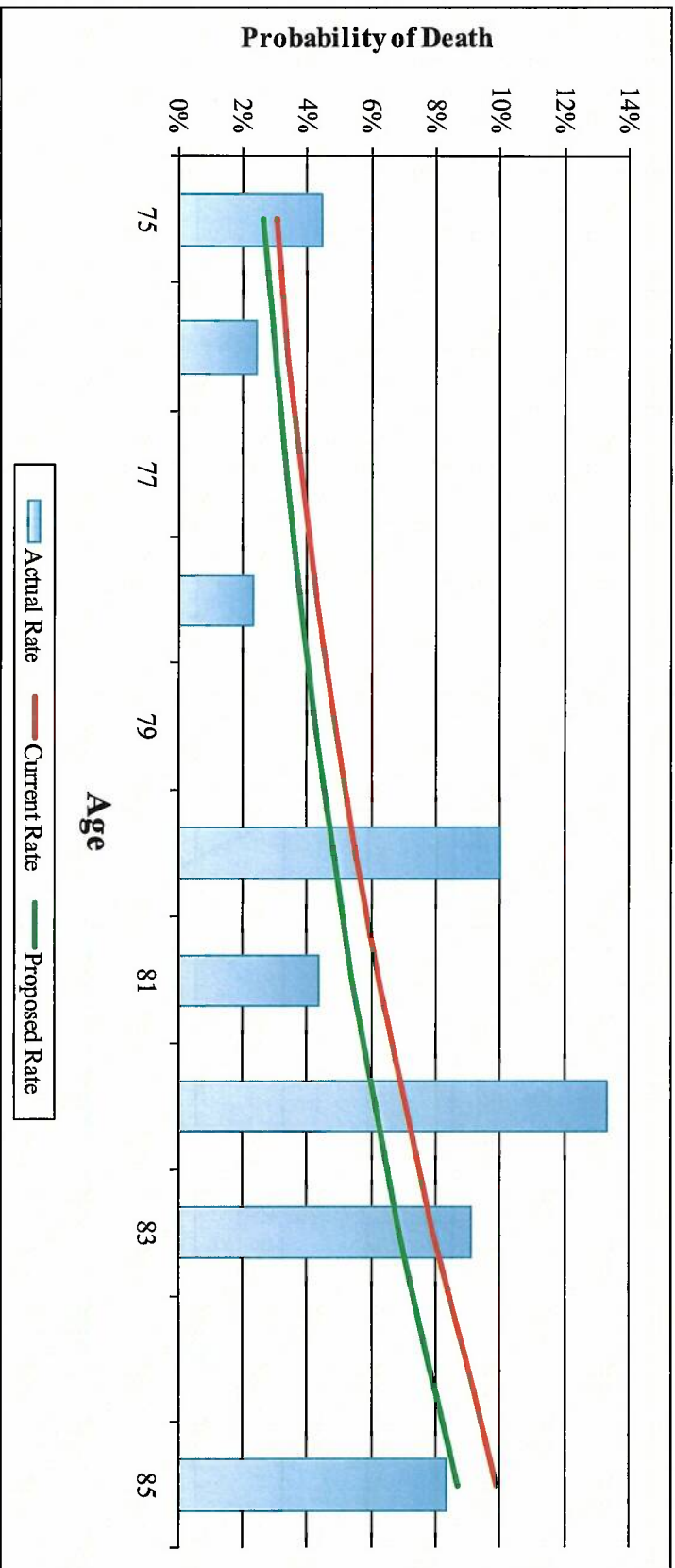
	Actual	Expected - Current Assumptions	Expected - Proposed Assumptions
Weighted Count	12	15	13
Actual/Expected		80%	92%

EXHIBIT D-2
Retirement – Plan B Police

Probability of Retirement

Service

Legend: Actual Rate — Proposed Rate
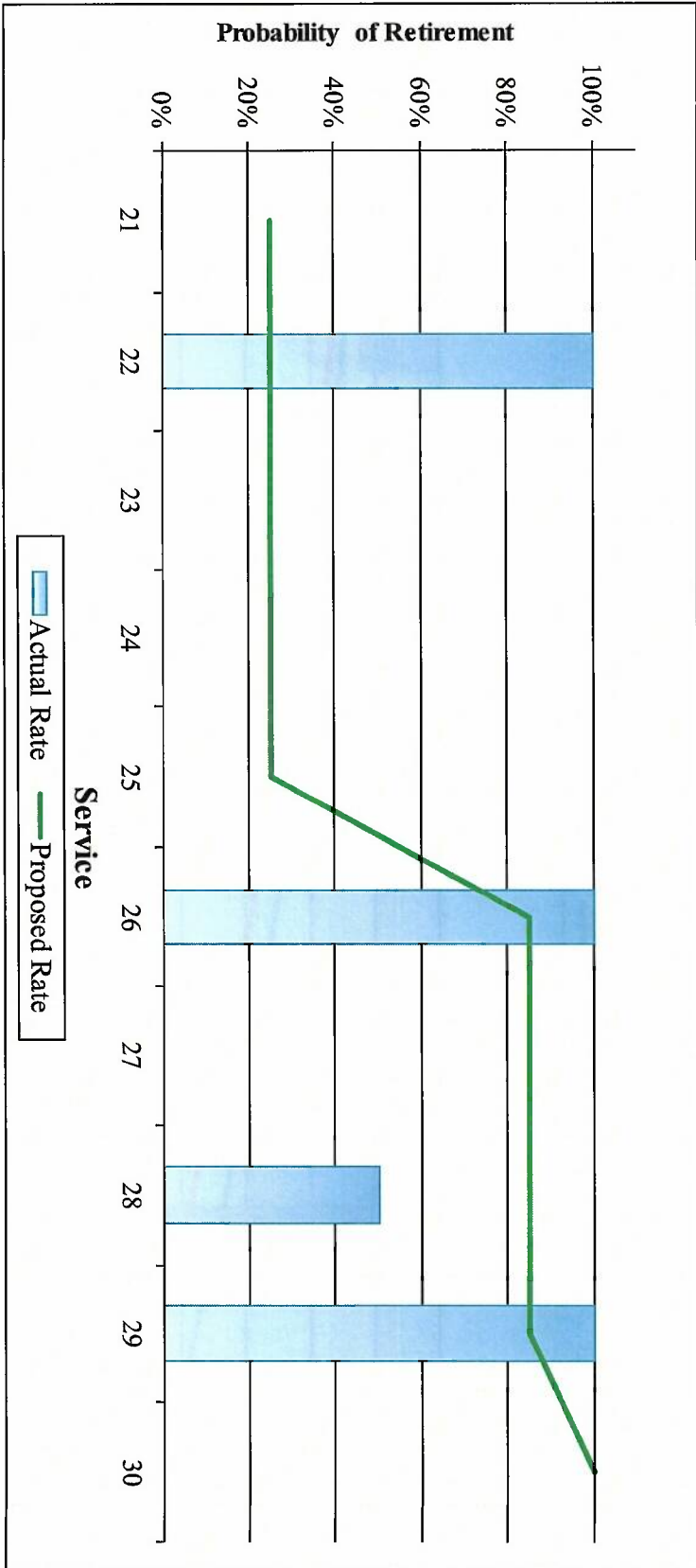
	Actual	Expected - Proposed Assumptions
Total Count	6	6
Actual/Expected		100%

EXHIBIT D-3
Retirement – Plan B Fire

	Actual	Expected - Proposed Assumptions
Total Count	15	17
Actual/Expected		88%

EXHIBIT D-4
Retirement – Plan A Police
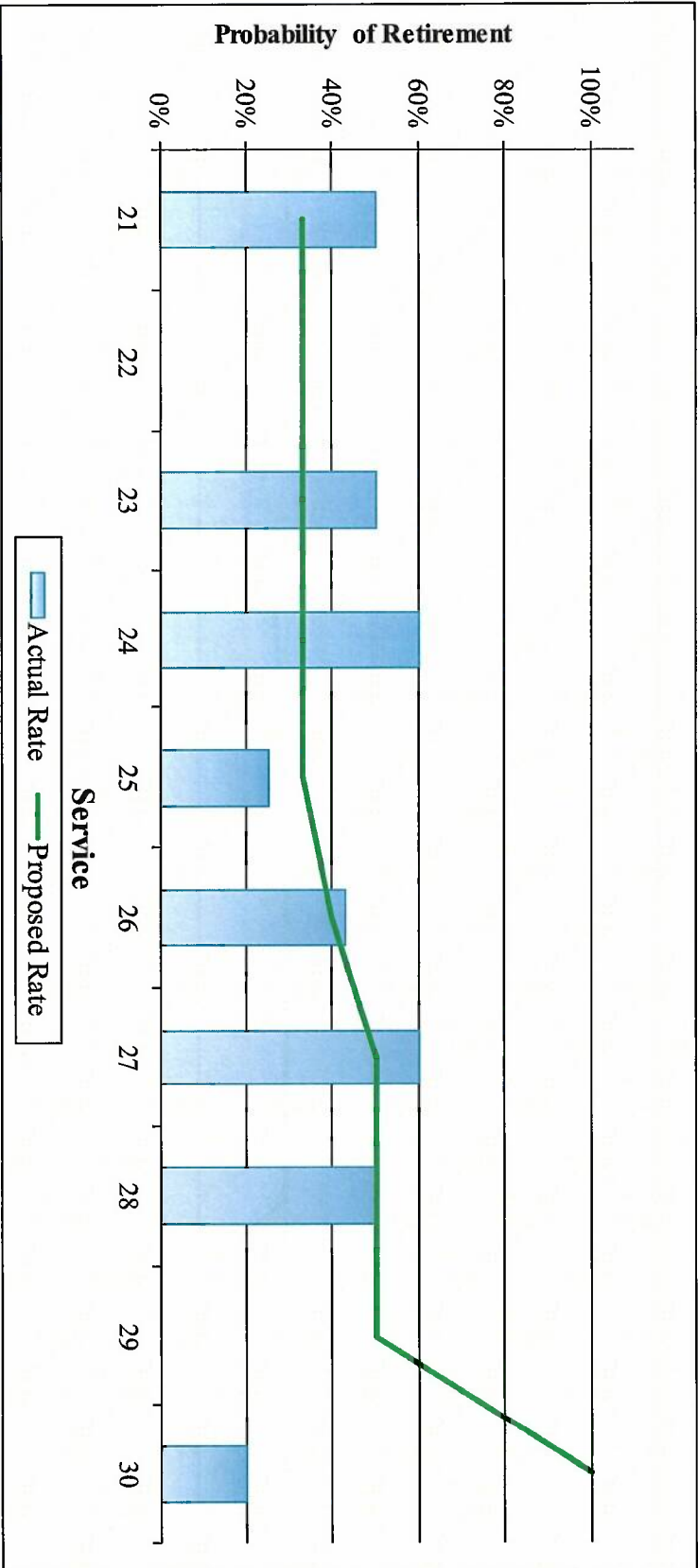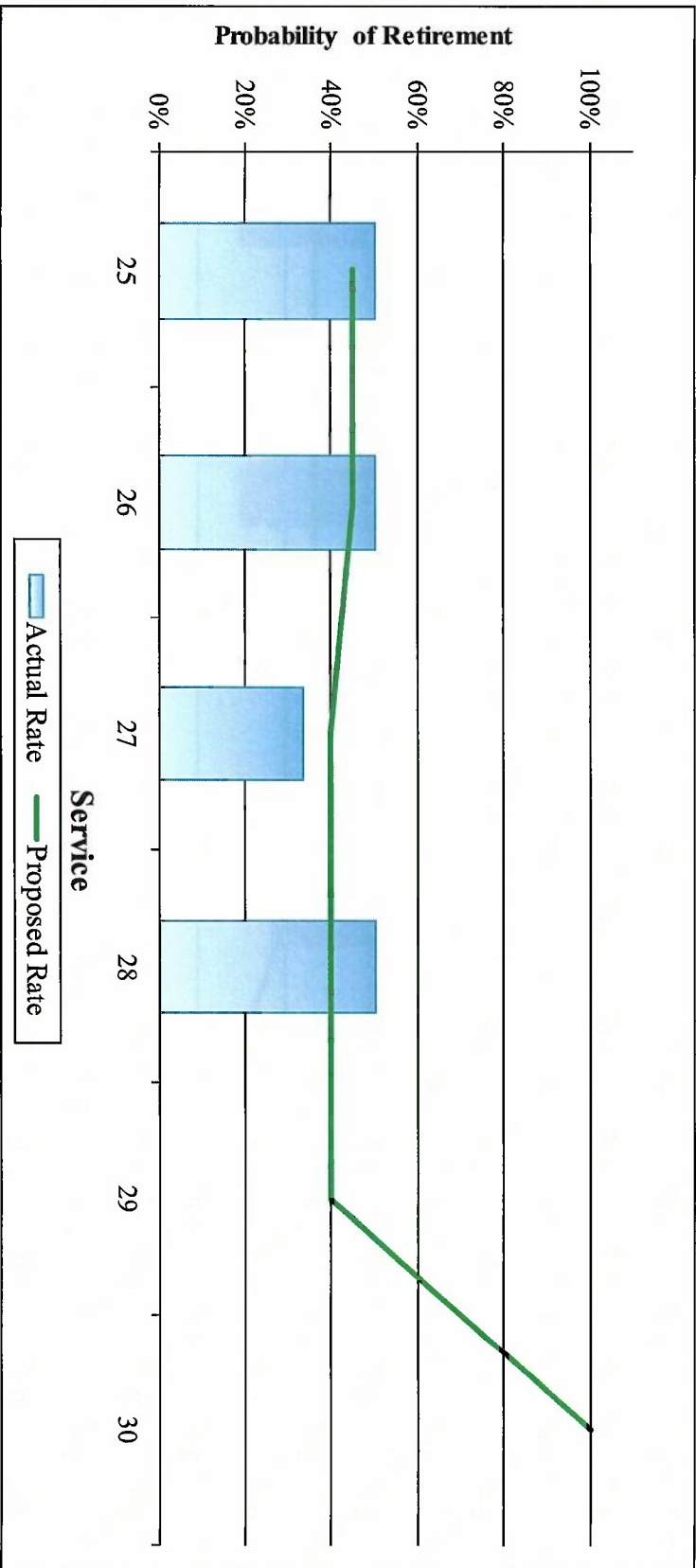
Probability of Retirement

	Actual	Expected - Proposed Assumptions	Actual/Expected
Total Count	10	12	83%

Legend: Actual Rate ▬▬ Proposed Rate

Service: 25, 26, 27, 28, 29, 30

EXHIBIT D-5
Retirement – Plan A Fire

Probability of Retirement

Legend: Actual Rate — Proposed Rate

Service

	Actual	Expected – Proposed Assumptions
Total Count	7	9
Actual/Expected		78%

EXHIBIT D-6
Termination of Employment – Police

Withdrawal Rate

Years of Service

Legend:
- Actual rate
- Proposed rate
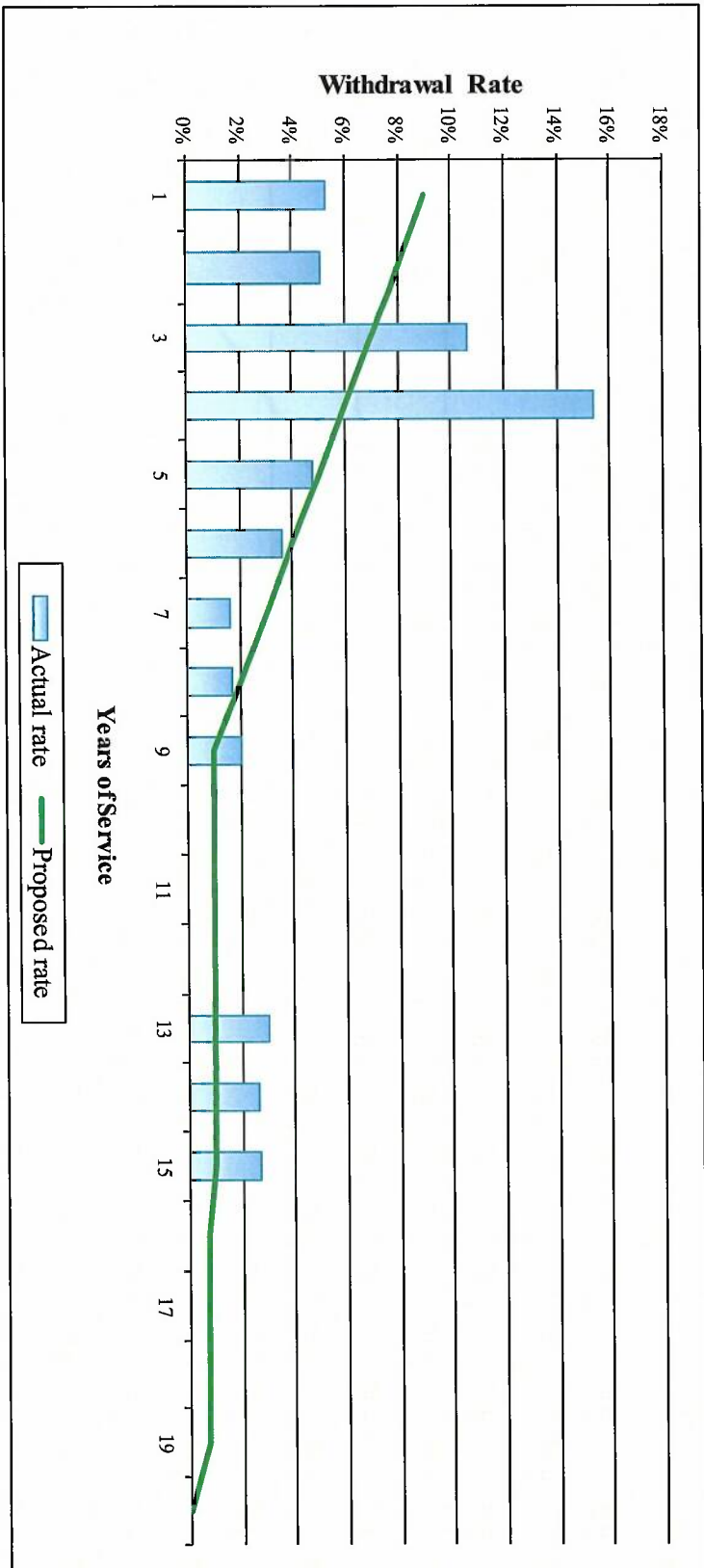
	Actual	Expected - Proposed Assumptions
Total Count	30	29
Actual/Expected		102%

EXHIBIT D-7
Termination of Employment – Fire

Withdrawal Rate

Years of Service

Actual rate —— Proposed rate
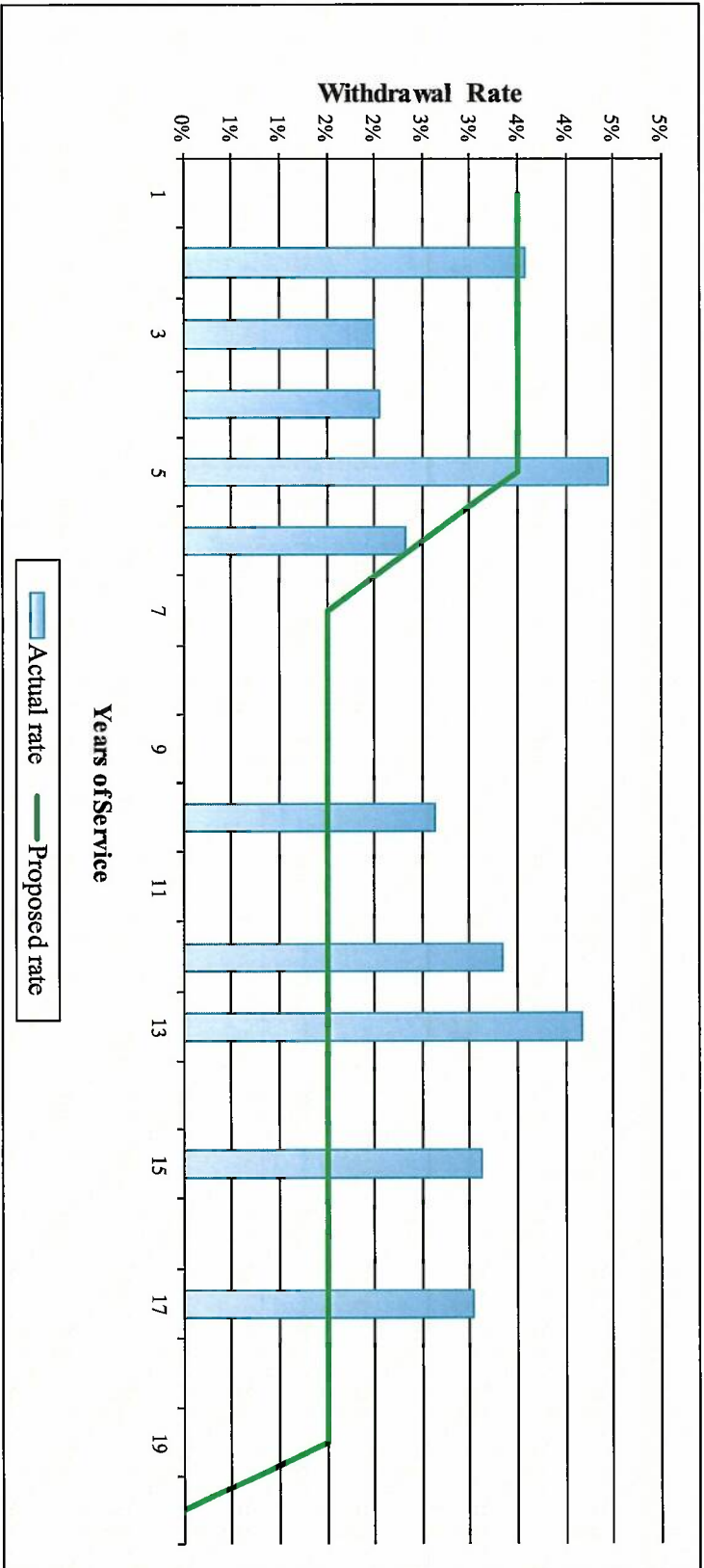
	Actual	Expected - Proposed Assumptions
Total Count	12	16
Actual/Expected		73%

EXHIBIT D-8
Salary Scale

Annual Pay Increase %

Years of Service

Legend: ■ Actual ── Proposed
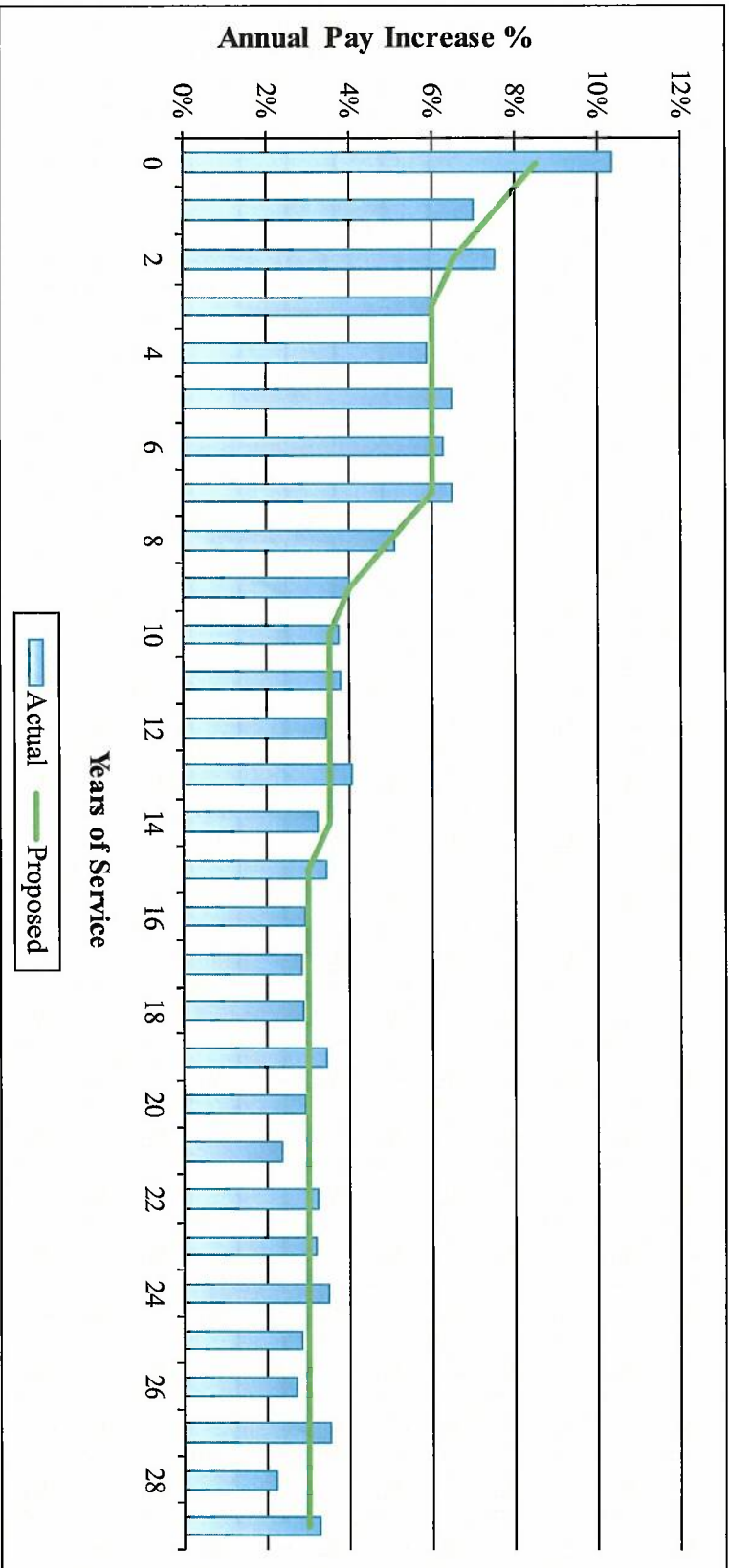
	Actual	Expected - Proposed Assumptions
Average Increase	4.70%	4.23%
Actual/Expected		111%

EXHIBIT E-1
Retiree Mortality - Males

Age	Exposure	Actual Deaths	Actual Rate	Current Expected	Current Rate	Proposed Expected	Proposed Rate
75	45	2	4.444%	1.4	3.019%	1.2	2.647%
76	41	1	2.439%	1.4	3.365%	1.2	2.979%
77	40	–	0.000%	1.5	3.805%	1.3	3.353%
78	43	1	2.326%	1.8	4.297%	1.6	3.777%
79	36	–	0.000%	1.7	4.853%	1.5	4.257%
80	30	3	10.000%	1.6	5.481%	1.4	4.799%
81	23	1	4.348%	1.4	6.234%	1.2	5.410%
82	15	2	13.333%	1.1	7.078%	0.9	6.097%
83	11	1	9.091%	0.9	7.890%	0.8	6.863%
84	11	–	0.000%	1.0	8.917%	0.8	7.720%
85	12	1	8.333%	1.2	9.898%	1.0	8.671%
	307	12	3.909%	15.0	4.896%	13.2	4.285%

EXHIBIT E-2
Retirement – Plan B Police

Duration	Exposure	Actual Retirements	Actual Rate	Proposed Expected	Proposed Rate
21	-	-	0.000%	-	25.000%
22	1	1	100.000%	0.3	25.000%
23	-	-	0.000%	-	25.000%
24	-	-	0.000%	-	25.000%
25	-	-	0.000%	-	25.000%
26	2	2	100.000%	1.7	85.000%
27	1	-	0.000%	0.9	85.000%
28	2	1	50.000%	1.7	85.000%
29	2	2	100.000%	1.7	85.000%
30	-	-	0.000%	-	100.000%
	8	6	75.000%	6.2	77.500%

EXHIBIT E-3
Retirement – Plan B Fire

Duration	Exposure	Actual Retirements	Actual Rate	Proposed Expected	Proposed Rate
21	2	1	50.000%	0.7	33.000%
22	2	-	0.000%	0.7	33.000%
23	4	2	50.000%	1.3	33.000%
24	5	3	60.000%	1.7	33.000%
25	4	1	25.000%	1.3	33.000%
26	7	3	42.857%	2.8	40.000%
27	5	3	60.000%	2.5	50.000%
28	2	1	50.000%	1.0	50.000%
29	1	-	0.000%	0.5	50.000%
30	5	1	20.000%	5.0	100.000%
	37	15	40.541%	17.4	47.054%

EXHIBIT E-4
Retirement – Plan A Police

Duration	Exposure	Actual Retirements	Actual Rate	Proposed Expected	Proposed Rate
25	2	1	50.000%	0.9	45.000%
26	6	3	50.000%	2.7	45.000%
27	6	2	33.333%	2.4	40.000%
28	8	4	50.000%	3.2	40.000%
29	2	-	0.000%	0.8	40.000%
30	2	-	0.000%	2.0	100.000%
	26	10	38.462%	12.0	46.154%

EXHIBIT E-5
Retirement – Plan A Fire

Duration	Exposure	Actual Retirements	Actual Rate	Proposed Expected	Proposed Rate
25	8	5	62.500%	4.8	60.000%
26	4	1	25.000%	1.0	25.000%
27	4	1	25.000%	1.0	25.000%
28	3	-	0.000%	0.8	25.000%
29	1	-	0.000%	0.3	25.000%
30	1	-	0.000%	1.0	100.000%
	21	7	33.333%	8.8	41.905%

EXHIBIT E-6
Termination of Employment – Police

Duration	Exposure	Actual Terminations	Actual Rate	Proposed Expected	Proposed Rate
1	76	4	5.263%	6.8	9.000%
2	59	3	5.085%	4.7	8.000%
3	47	5	10.638%	3.3	7.000%
4	52	8	15.385%	3.1	6.000%
5	42	2	4.762%	2.1	5.000%
6	56	2	3.571%	2.2	4.000%
7	62	1	1.613%	1.9	3.000%
8	59	1	1.695%	1.2	2.000%
9	50	1	2.000%	0.5	1.000%
10	45	-	0.000%	0.5	1.000%
11	34	-	0.000%	0.3	1.000%
12	30	-	0.000%	0.3	1.000%
13	33	1	3.030%	0.3	1.000%
14	38	1	2.632%	0.4	1.000%
15	37	1	2.703%	0.4	1.000%
16	40	-	0.000%	0.3	0.750%
17	52	-	0.000%	0.4	0.750%
18	41	-	0.000%	0.3	0.750%
19	39	-	0.000%	0.3	0.750%
20	31	-	0.000%	-	0.000%
	923	30	3.250%	29.3	3.176%

EXHIBIT E-7
Termination of Employment – Fire

Duration	Exposure	Actual Terminations	Actual Rate	Proposed Expected	Proposed Rate
1	50	-	0.000%	1.8	3.500%
2	56	2	3.571%	2.0	3.500%
3	50	1	2.000%	1.8	3.500%
4	49	1	2.041%	1.7	3.500%
5	45	2	4.444%	1.6	3.500%
6	43	1	2.326%	1.1	2.500%
7	41	-	0.000%	0.6	1.500%
8	43	-	0.000%	0.6	1.500%
9	48	-	0.000%	0.7	1.500%
10	38	1	2.632%	0.6	1.500%
11	34	-	0.000%	0.5	1.500%
12	30	1	3.333%	0.5	1.500%
13	24	1	4.167%	0.4	1.500%
14	35	-	0.000%	0.5	1.500%
15	32	1	3.125%	0.5	1.500%
16	25	-	0.000%	0.4	1.500%
17	33	1	3.030%	0.5	1.500%
18	26	-	0.000%	0.4	1.500%
19	27	-	0.000%	0.4	1.500%
20	25	-	0.000%	-	0.000%
	754	12	1.592%	16.4	2.170%

EXHIBIT E-8
Salary Scale

Duration	Initial Salary (Millions)	Subsequent Salary (Millions)	Actual Rate	Proposed Expected (Millions)	Proposed Rate
0	3.5	3.9	12.2%	3.7	8.5%
1	6.3	6.9	10.3%	6.8	7.5%
2	6.0	6.5	7.0%	6.4	6.5%
3	5.2	5.6	7.5%	5.5	6.0%
4	5.5	5.8	6.0%	5.8	6.0%
5	5.2	5.5	5.8%	5.5	6.0%
6	6.1	6.5	6.4%	6.5	6.0%
7	6.6	7.0	6.2%	7.0	6.0%
8	6.8	7.3	6.4%	7.2	5.0%
9	7.0	7.4	5.1%	7.3	4.0%
10	6.0	6.2	4.0%	6.2	3.5%
11	5.2	5.4	3.7%	5.4	3.5%
12	4.6	4.8	3.8%	4.8	3.5%
13	4.4	4.6	3.4%	4.6	3.5%
14	6.1	6.4	4.0%	6.3	3.5%
15	6.0	6.2	3.2%	6.2	3.0%
16	6.5	6.7	3.4%	6.7	3.0%
17	7.7	7.9	2.9%	7.9	3.0%
18	6.2	6.3	2.8%	6.4	3.0%
19	6.4	6.6	2.8%	6.6	3.0%
20	6.0	6.2	3.4%	6.1	3.0%
21	4.1	4.2	2.9%	4.2	3.0%
22	3.6	3.7	2.3%	3.7	3.0%
23	3.5	3.6	3.2%	3.6	3.0%
24	4.0	4.1	3.1%	4.1	3.0%
25	3.8	3.9	3.5%	3.9	3.0%
26	3.2	3.3	2.8%	3.3	3.0%
27	2.3	2.4	2.7%	2.4	3.0%
28	1.7	1.7	3.5%	1.7	3.0%
29	0.9	0.9	2.2%	0.9	3.0%
30	0.7	0.7	3.2%	0.7	3.0%
	151.0	158.1	4.7%	157.4	4.2%

Appendix D

Metro Area Transit Hourly Employees
Retirement Plan Information

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metro

Operated by Transit Authority of the City of Omaha

November 6, 2020

Testimony of Lauren Cencic, CEO, Transit Authority of the City of Omaha
In the matter of LR 317
Nebraska Retirement Systems Committee

TO: Senator Kolterman and Members of the Nebraska Retirement Systems Committee

My name is Lauren Cencic and I'm the CEO for the Transit Authority of the City of Omaha, dba Metro. With me today, is Curt Simon, the former Executive Director for Metro who is here to help assist with any questions the Committee may have for us.

Metro is the public transit provider for the Omaha Metropolitan area, providing fixed, paratransit, and express services. Metro also provides service to the cities of Council Bluffs, Bellevue, La Vista, Papillion and Ralston by virtue of agreed upon service contracts with those municipalities.

Attached to my testimony, is a Revised 2020 Reporting Form for Underfunded Political Subdivision Pension Plans. My initial submission of this form inadvertently omitted additional corrective actions we have implemented to improve the funding status of the Metro Area Transit Hourly Employee's Pension Plan since 2019. These include contribution increases by both the employer and employee of .25%. for years 2020, 2021 and 2022.

Since 2016, we have increased the employee contribution from 6% to 7.25%; increased the employer contribution from 6.5% to 7.75% as well as changed the normal retirement age from 65 to the age when the employee reaches full retirement for the purposes of receiving Social Security benefits. We eliminated an early retirement option and changed the benefit factor percentage used in the calculation of the monthly benefits for employees hired after January 1, 2018. In addition, a one-time lump sum contribution to the Plan in an amount equal to 1% of the total wages of active Plan participants' was made for the period beginning on July 1, 2016 and ending on August 31st, 2017, making the effective employer contribution rate 7.5% since July 1, 2016.

Additionally, in our 2020 Actuarial Valuation Report, we have reduced our assumed rate of return from 6.75% to 6.5% and updated the mortality table from the RP-2000 table to the PUB-2010 base table per the MP Ultimate Scale. These assumptions were reviewed and adopted by Metro's Pension Committee yesterday, November 5, 2020.

We have 195 active members in our Plan, 201 Members in Pay Status and 39 terminated members as of January 1, 2020. The Funding Status of the Plan is 66.7%. This Funding Status reflects the changes in

assumptions in our 2020 Actuarial Valuation Report. Without the revised assumptions for the rate of return and mortality table, the Funding Status of the Plan would have been 69.6% which would have been an improvement over our 2019 Funding Status. However, we feel the adopted changes are prudent and realistic.

In 2020, due to the COVID-19 pandemic, our hourly employees' working hours have been reduced, thus causing a lower amount that the employees and employer will contribute to the Plan in 2020. A resolution will be brought to the Metro Board of Directors later this month to approve a lump sum payment of $350,000 in the Hourly Plan Trust. This $350,000 represents the estimated difference in calculated employer contribution attributed to the reduction in working hours for the year. This lump sum payment is subject to approval of the Board and is not accounted for in the Funding Status reported above.

Thank you for giving me this opportunity to address the Committee. I'd be happy to answer any questions you might have.

Respectfully Submitted,

Lauren A. Cencic
Chief Executive Officer

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

1. Plan Information for Years 2016 through Current Plan Year 2020

	2016	2017	2018	2019	2020
1a Funding Status*	72%	71%	77%	67.3%	66.7%
1b Assumed Rate of Return ***	6.75%	6.75%	6.75%	6.75%	6.50%
1c Actual Investment Return	-1.50%	5.80%	13.35%	-4.84%	20.06%
1d Member Contribution Rate	6.00%	6.00%	7.00%	7.00%	7.25%
Employer Contribution Rate**	6.50%	6.50%	7.50%	7.50%	7.75%
1e Normal Cost Percentage	7.35%	7.39%	7.21%	7.36%	8.58%
1f Actuarially Determined Contribution (ADC)					
Percentage	78.30%	N/A	N/A	N/A	N/A
Dollar Amount	$901,256	$958,333	$835,474	$891,105	$1,165,834
1g Actuarially Determined Contribution (ADC)					
Actual Dollars Contributed	$705,467	$904,824	$855,109	$836,227	TBD
Actual Percentage Contributed	78.28%	94.42%	102.35%	93.84%	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.

*** 2020 Rate of Return and mortality table are subject to consideration and adoption by Metro's Pension Committee and Board.

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%
> 2020 reduced from 6.75% to 6.50%***

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

We changed the asset smoothing method from 4-year asymptotic smoothing to 5-year non-asymptotic smoothing. In addition to the method change above, we updated the mortality from the RP-2000 table with generational projection of mortality improvements per scale AA to the PUB-2010 base table with generaltional projection of mortality improvements per the MP Ultimate Scale. We also decreased the Interest rate from 6.75% to 6.50% in the draft actuarial report which will be considered at the next Metro Pension Committee for approval. ***

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. The amortization period will decrease each year until it reaches 10 years, after which it remains at 10 years.

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 7.75%. The employee contribution rate increased from 6% to 7.25%. 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 ratified as of January 1, 2020. 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 2017 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. The primary changes to the Plan resulting from 2020 negotiations were increases in the employer and employee contribution rates.

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 6.50%. ***

10. **Most Recent Actuarial Valuation Report**

Attached please find the most recent valuation dated January 1, 2020. The valuations are completed every year with the next one due January 1, 2021.

11. Budget Impact of COVID 19

Due to the COVID Pandemic, our hourly employees' working hours have been reduced, thus causing a lower amount that the employees and the employer will contribute to the plan in 2020. A resolution is going to be brought before the Hourly Pension Committee members and Metro Board for approval of depositing a lump sum of approximately $350,000.00 into the Hourly plan trust.

12. Economic/Demographic Impact of COVID 19

We are not currently aware of any economic impact of COVID 19 on the economic or demographic experience of the plan.

SENATOR MARK KOLTERMAN

District 24
State Capitol
PO Box 94604
Lincoln, Nebraska 68509-4604
(402) 471-2756
mkolterman@leg.ne.gov

COMMITTEES

Chairperson - Nebraska Retirement Systems
Banking, Commerce and Insurance
Revenue
Executive Board

September 1st, 2020

Dear Director Simon,

Pursuant to Neb. Rev. Stat. 13-2402, each political subdivision with a defined benefit plan is required to annually file the most recent annual actuarial valuation report with the Nebraska Retirement Systems Committee. If the defined benefit plan is funded below 80% according to the most recent actuarial valuation report, then the Reporting Form for Underfunded Defined Benefit Plans must be completed. The Reporting Form, which is attached, outlines the information the Committee would like to receive in order to understand the circumstances that created the underfunding of the plan and to monitor corrective actions taken to improve the funding of the plan. Please note that several new questions have been added to the Reporting Form related to possible economic and budgetary impacts from COVID 19.

Please electronically submit the required reports by October 15, 2020 to Senator Mark Kolterman Retirement Committee Chairman at mkolterman@leg.ne.gov and copy Kate Allen, Retirement Committee Legal Counsel at kallen@leg.ne.gov.

A **public hearing (listed on the Unicameral hearing schedule as LR 317)** has been scheduled for **Friday, November 6th in Room 1525.** A brief hearing on LR 315 will begin at 1:30 followed by the hearing on underfunded plans which I estimate will begin about **2:15 or 2:30.**

Due to COVID 19 safety precautions, the hearing room has been set up for socially distanced seating. As a result, seating is available for only 27 attendees. Please keep this limitation in mind when you consider how many people will attend from your political subdivision. It is requested that masks are worn while in the State Capitol. Construction on the capitol continues so parking availability may be impacted somewhat.

At least one week prior to the hearing date, please provide Kate Allen with the name and title of the person/s who will present the information at the hearing.

If you have any questions, please e-mail Kate at kallen@leg.ne.gov. The Committee looks forward to receiving the required actuarial reports and completed Reporting Form **by October 15.**

Sincerely,

Senator Mark Kolterman
District 24

. Denise Finken

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Metro Area Transit Hourly Employees' Pension Plan

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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.

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The collective bargaining agreement between Metro and the Transport Workers Union was ratified as of January 1, 2020. 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 2017 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.

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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 6.50%. ***

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Attached please find the most recent valuation dated January 1, 2020. The valuations are completed every year with the next one due January 1, 2021.

11. Budget Impact of COVID 19

Due to the COVID Pandemic, our hourly employees' working hours have been reduced, thus causing a lower amount that the employees and the employer will contribute to the plan in 2020. A resolution is going to be brought before the Hourly Pension Committee members and Metro Board for approval of depositing a lump sum of approximately $350,000.00 into the Hourly plan trust.

12. Economic/Demographic Impact of COVID 19

We are not currently aware of any economic impact of COVID 19 on the economic or demographic experience of the plan.

Milliman

METRO AREA TRANSIT
HOURLY EMPLOYEES' PENSION PLAN

Actuarial Valuation as of January 1, 2020
To Determine Funding for Fiscal Year 2020

Prepared by

Rebecca A. Sielman, FSA
Consulting Actuary

Kerry Forrester, FSA
Consulting Actuary

80 Lamberton Road
Windsor, CT 06095 USA
(860) 687-2110
milliman.com

Table of Contents

Certification

We have performed an actuarial valuation of the Plan as of January 1, 2020 to determine funding for fiscal year 2020. 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.
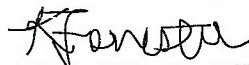
I further certify that, in my opinion, each actuarial assumption, method and technique used is reasonable taking into account the experience of the Plan and reasonable expectations or would, in the aggregate, result in a total contribution equivalent to that which would be determined if each such assumption, 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

Kerry Forrester, FSA
Consulting Actuary

Section I - Executive Summary
Changes Since the Prior Valuation

Plan Changes

None.

Changes in Actuarial Methods and Assumptions

We changed the asset smoothing method from 4-year asymptotic smoothing to 5-year non-asymptotic smoothing.

In addition to the method change above, we updated the mortality from the RP-2000 table with generational projection of mortality improvements per scale AA to the PUB-2010 base table with generaltional projection of mortality improvements per the MP Ultimate Scale. We also decreased the Interest rate from 6.75% to 6.50%.

The combined impact of these actuarial method and assumption changes was an increase in the Unfunded Accrued Liability of about $1.9 million and an increase in the Actuarially Determined Contribution of about $195,000.

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 non-asymptotically over five years. The asset smoothing method was changed from 4-year asymptotic smoothing method to 5-year non-asymptotic amoothing in 2020 by implementing a "fresh start" where the Actuarial Value of Assets equals the Market Value of Assets at January 1, 2020. Any future market gains or losses will be recognized in equal installments over a 5-year period going forward.

	Market	Actuarial
Value as of January 1, 2019	$22,391,497	$24,167,487
Metro and Member Contributions	1,617,125	1,617,125
Investment Income	4,406,294	2,630,304
Benefit Payments and Administrative Expenses	(2,464,012)	(2,464,012)
Value as of January 1, 2020	25,950,904	25,950,904

For fiscal year 2019, the plan's assets earned 20.06% on a Market Value basis and 11.08% on an Actuarial Value basis. The actuarial assumption for this period was 6.75%; the result is an asset gain of about $2.9 million on a Market Value basis and a gain of about $1.0 million on an Actuarial Value basis. Historical rates of return are shown in the graph below.


■ Market Value
■ Actuarial Value

	2015	2016	2017	2018	2019
Market Value	-1.48%	5.79%	13.35%	-4.84%	20.06%
Actuarial Value	5.65%	5.66%	7.31%	4.23%	11.08%
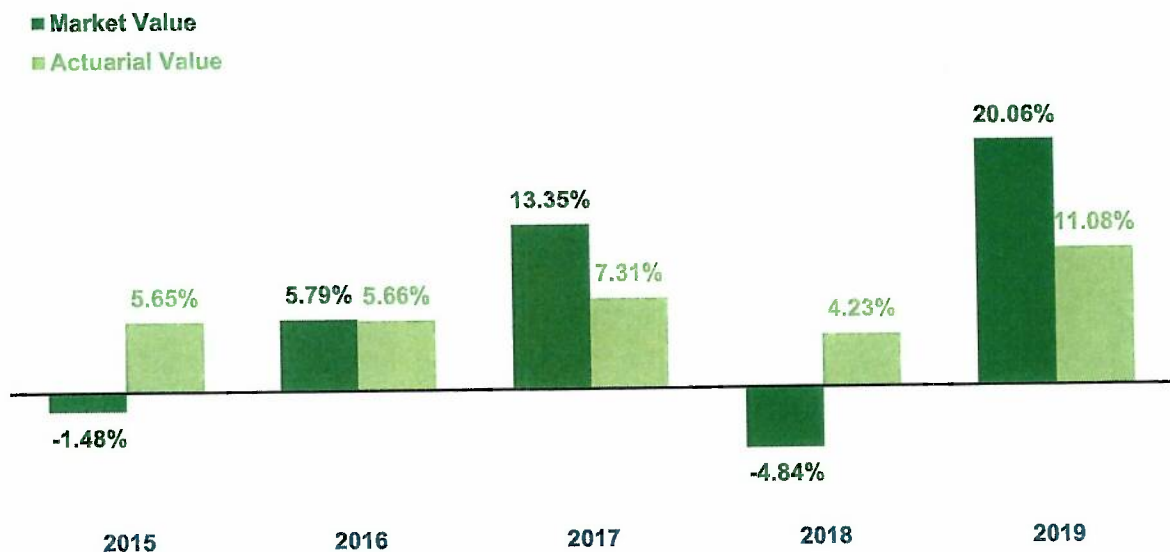
Section I - Executive Summary
Assets (continued)

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.
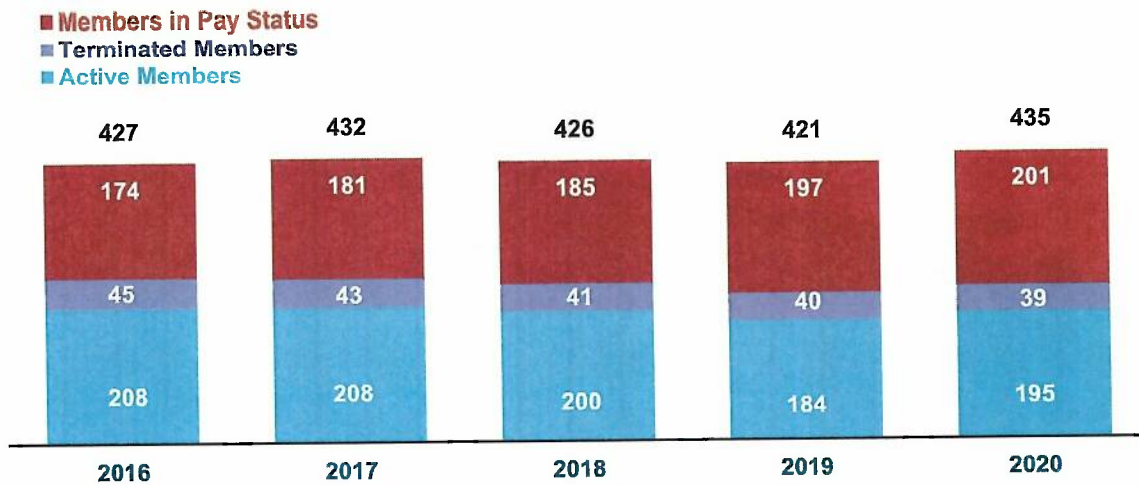
□ **Market Value ($ millions)**
□ Actuarial Value ($ millions)
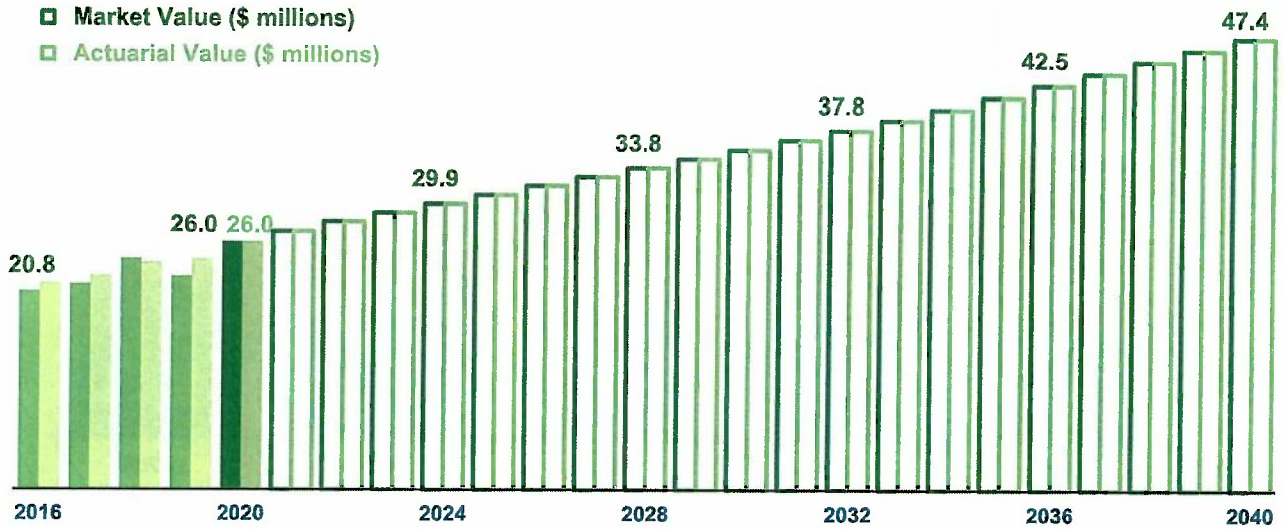
In 2019, the plan paid out $2,397,440 in benefits to members. Over the next 20 years, the plan is projected to pay out a total of $65.5 million in benefits to members.

Benefit Payments ($ millions)
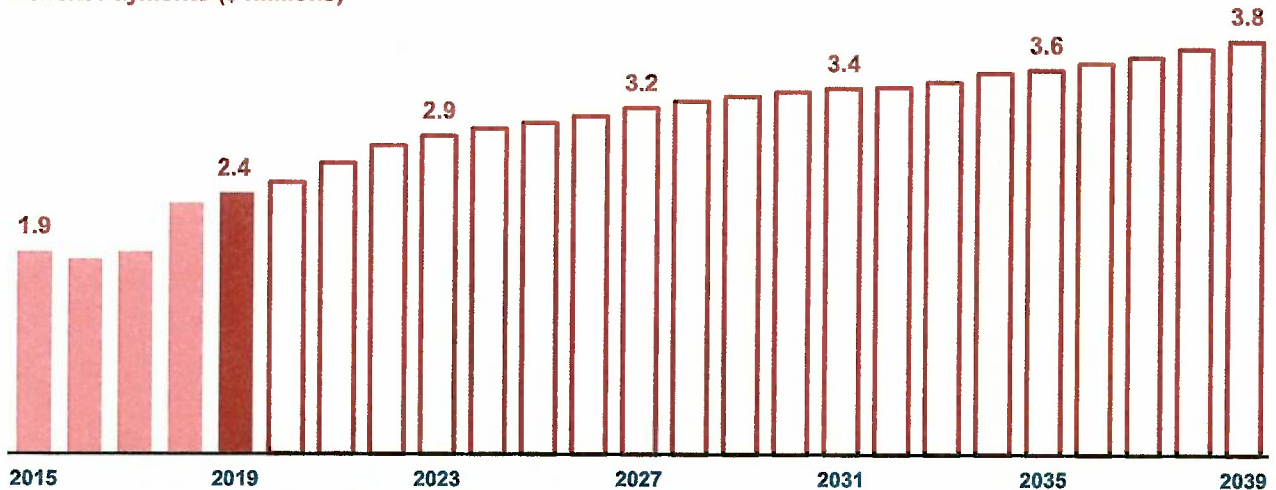
Section I - Executive Summary
Membership

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
■ Terminated Members
■ Active Members

	2016	2017	2018	2019	2020
Total	427	432	426	421	435
Members in Pay Status	174	181	185	197	201
Terminated Members	45	43	41	40	39
Active Members	208	208	200	184	195

Members in Pay Status on January 1, 2020

Service Retirees	175	Average Age	74.2
Disabled Retirees	0	Total Annual Benefit	$2,149,083
Beneficiaries	26	Average Annual Benefit	10,692
Total	201		

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

■ Service Retirees
■ Disabled Retirees
■ Beneficiaries

< 50	50-59	60-69	70-79	80-89	90 +
0	5	62	90	31	13

This work product was prepared solely for Metro for the purposes described herein and may not be appropriate to use for other purposes. Milliman does not intend to benefit and assumes no duty or liability to other parties who receive this work. Milliman recommends that third parties be aided by their own actuary or other qualified professional when reviewing the Milliman work product.

Section I - Executive Summary
Membership (continued)

Terminated Vested Members on January 1, 2020

Count	38
Average Age	59.4
Total Annual Benefit	$204,601
Average Annual Benefit	5,384

Deferred Beneficiaries on January 1, 2020

Count	1

Active Members on January 1, 2020

Count	195
Average Age	53.6
Average Service	10.4
Payroll	$11,605,482
Average Payroll	59,515

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

Age			Years of Service					
	0-4	5-9	10-14	15-19	20-24	25-29	30+	Total
< 25	1							1
25-29	2							2
30-34	4		1					5
35-39	1	4	3					8
40-44	12	4	3	2				21
45-49	12	11	5	1	1			30
50-54	16	5	5	3	2			31
55-59	11	7	11	6	4	1	1	41
60-64	3	12	9	5	7	1	3	40
65+		1	2	5	4	1	3	16
Total	62	44	39	22	18	3	7	195

Section I - Executive Summary
Accrued Liability

The Accrued Liability as of January 1, 2020 equals $38,889,416, which consists of the following pieces (in $ millions):

16.7	1.9	18.6	0.0	1.7
Active Members	**Terminated Vested Members**	**Service Retirees**	**Disabled Retirees**	**Beneficiaries**
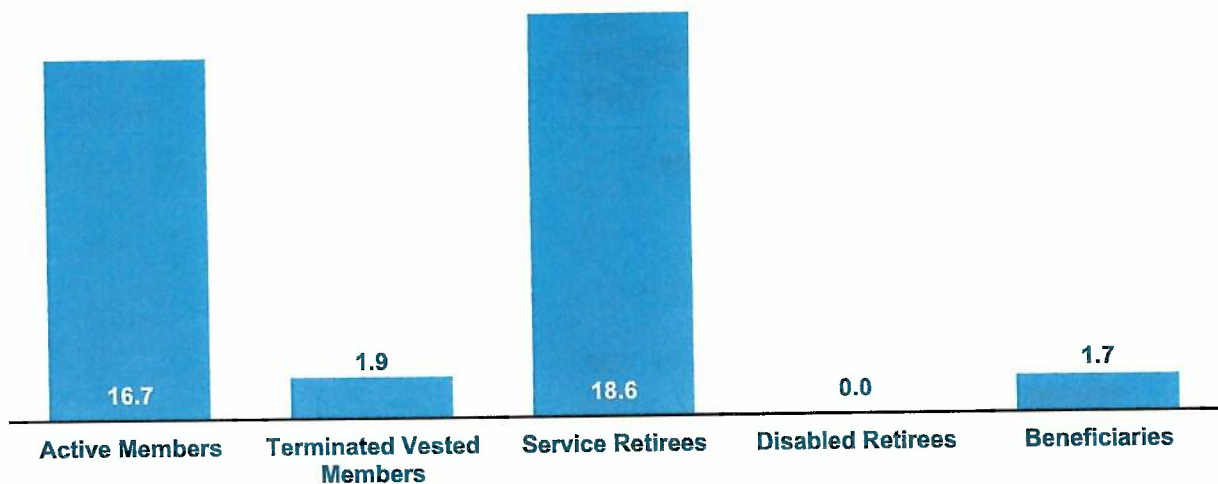
The Accrued Liability for active members can be broken down further by the different types of benefits provided by the plan:

0.1	15.9	0.6	0.1
Termination	**Retirement**	**Disability**	**Preretirement Death**
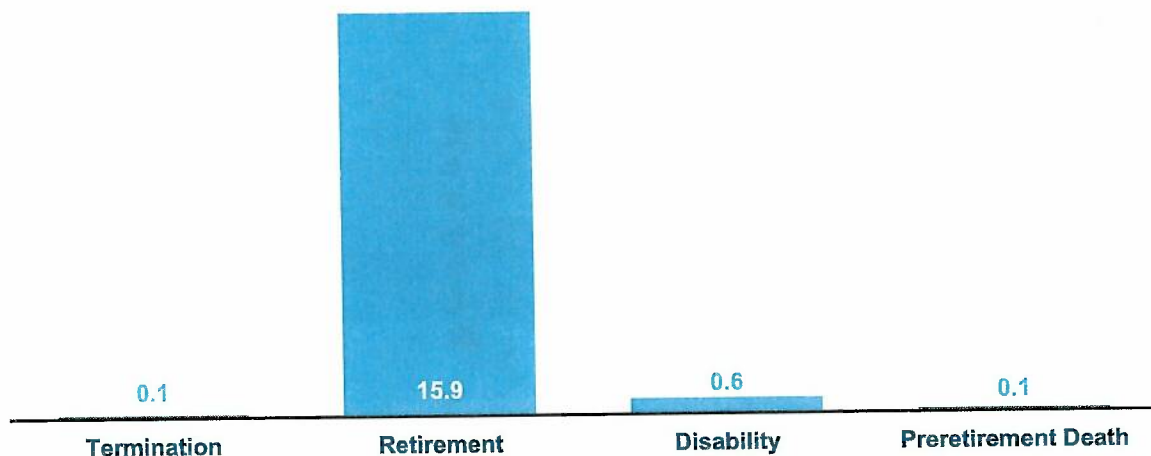
Section I - Executive Summary
Funded Status

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.

Accrued Liability ($ millions)

2016	2017	2018	2019	2020
32.5	33.9	35.2	35.9	38.9

Unfunded Accrued Liability ($ millions)

2016	2017	2018	2019	2020
10.9	11.5	11.4	11.7	12.9

Funded Ratio

	2016	2017	2018	2019	2020
100%					
	66.6%	66.2%	67.6%	67.3%	66.7%
50%					
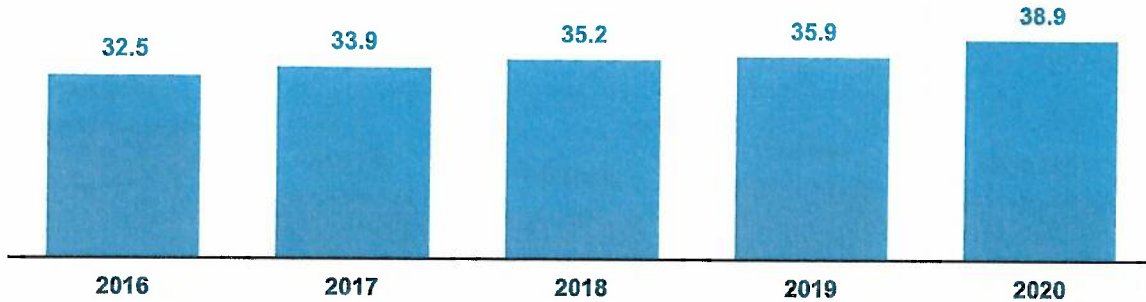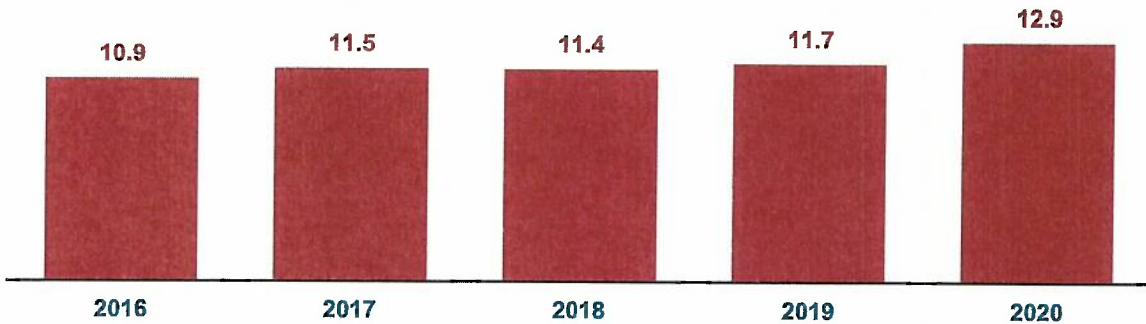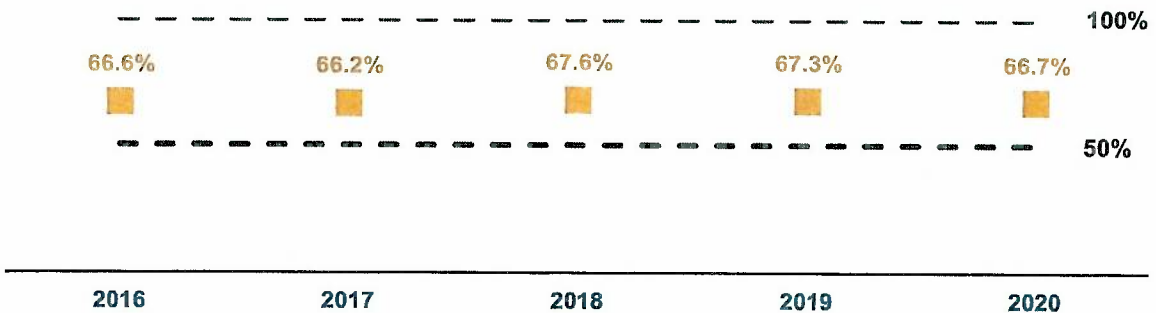
Section I - Executive Summary
Actuarially Determined Contribution

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 2020 is $1,165,834. This is shown below, along with the comparable figures for the prior four years.

■ Interest
■ Past Service Cost
■ Normal Cost

	2016	2017	2018	2019	2020
Total	901,256	958,333	835,474	891,105	1,165,834
Past Service Cost	664,434	714,879	730,260	769,692	853,686
Normal Cost	207,398	212,166	77,938	92,320	275,451
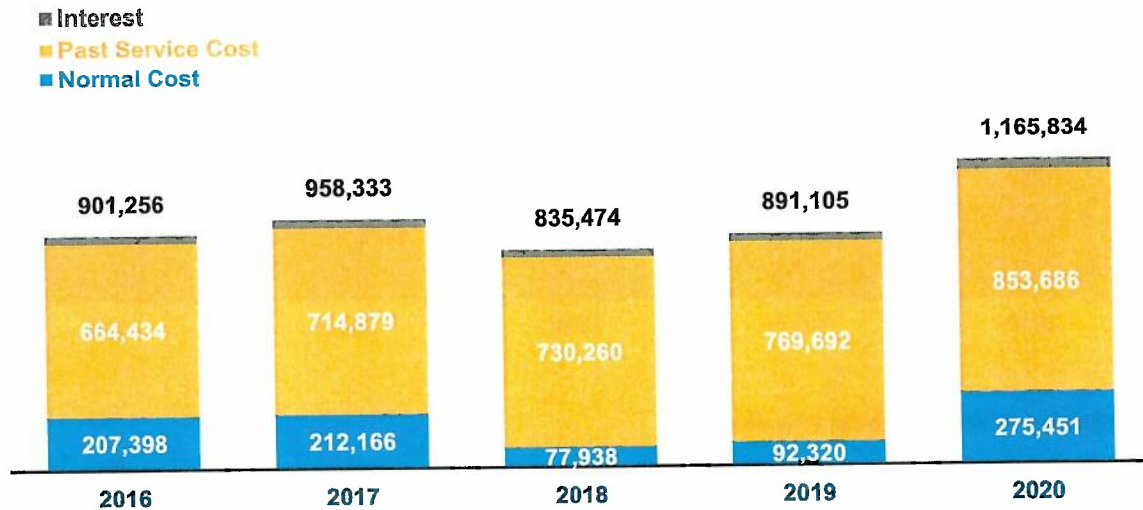
Section I - Executive Summary
Long-Range Forecast

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:

Funded Ratio

100%

97.0%

88.0%

79.8%

72.9%

66.7%

50%

| 2020 | 2025 | 2030 | 2035 | 2040 |

Actuarially Determined Contribution ($ millions)

1.3   1.3

1.3

1.2   1.2

| 2020 | 2025 | 2030 | 2035 | 2040 |
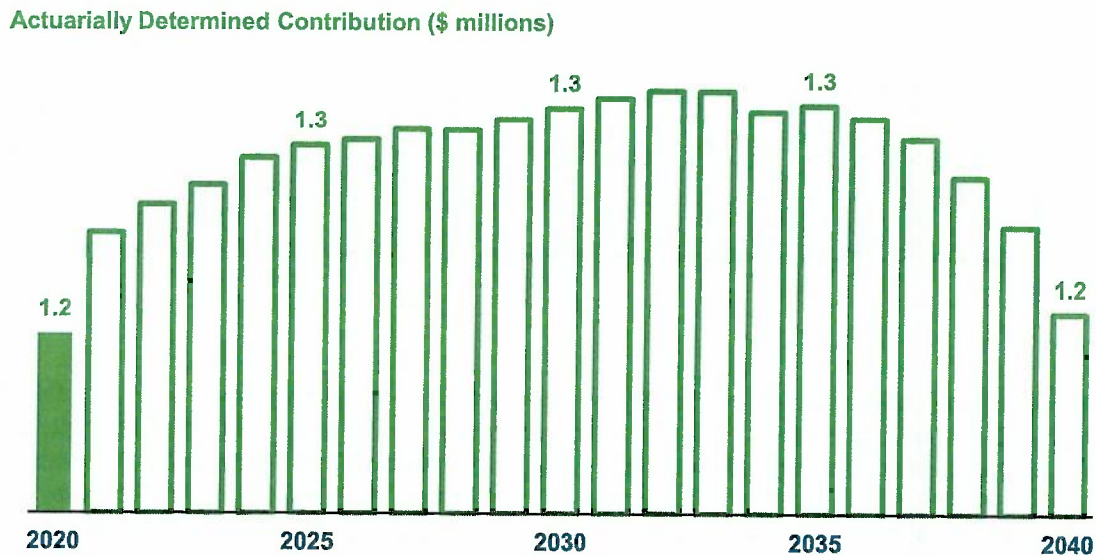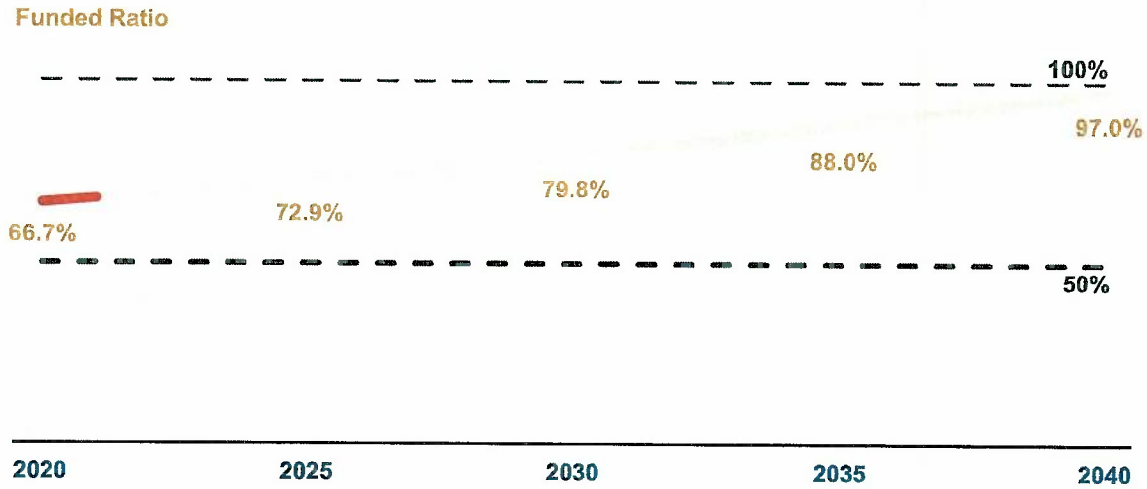
To the extent that there are future investment or liability gains or losses, changes in the actuarial assumptions or methods, or plan changes, the actual valuation results will differ from these forecasts. Please see Section III C for more details of the long range forecast.

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:
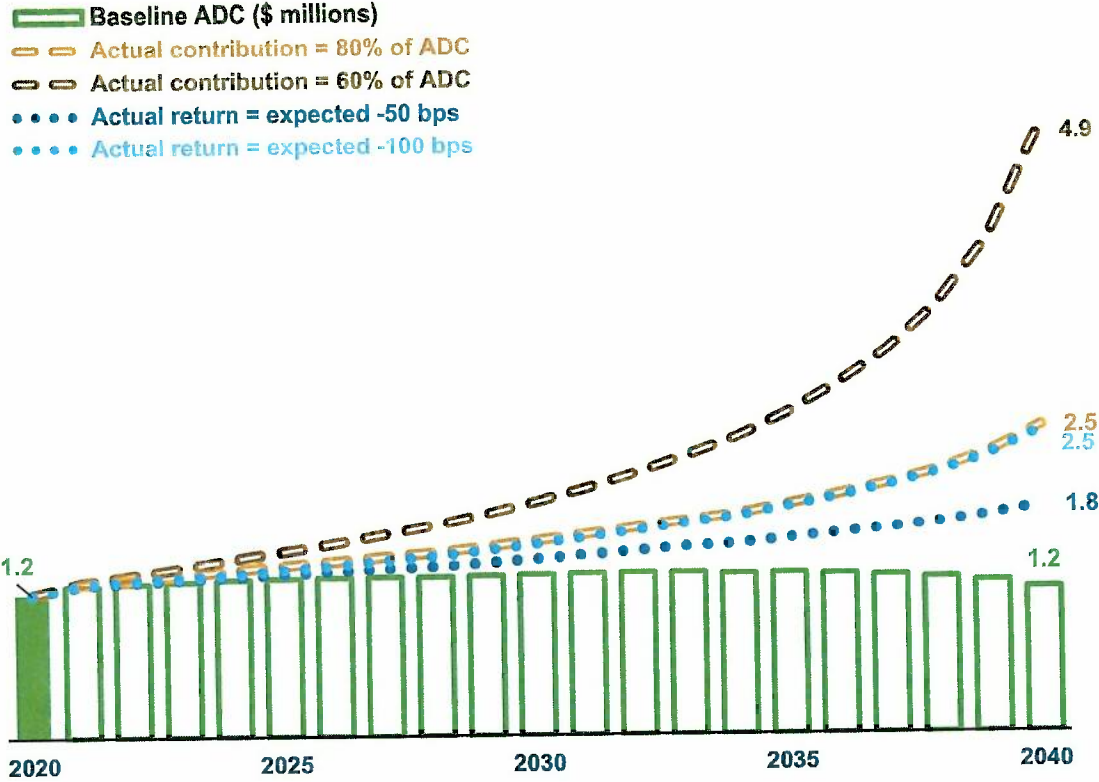
The scenarios illustrated above are based on deterministic projections that assume emerging plan experience always exactly matches the actuarial assumptions; in particular that actual asset returns will be constant in every year of the projection period. Variation in asset returns, contribution amounts, 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, 2019	January 1, 2020
Active Members	184	195
Terminated Members	40	39
Members in Pay Status	<u>197</u>	<u>201</u>
Total Count	421	435
Payroll	$11,485,056	$11,605,482

Assets and Liabilities as of	January 1, 2019	January 1, 2020
Market Value of Assets	$22,391,497	$25,950,904
Actuarial Value of Assets	24,167,487	25,950,904
Accrued Liabiilty for Active Members	15,649,759	16,745,748
Accrued Liabiilty for Terminated Members	1,299,840	1,778,322
Accrued Liabiilty for Members in Pay Status	<u>18,956,517</u>	<u>20,365,346</u>
Total Accrued Liability	35,906,116	38,889,416
Unfunded Accrued Liability	11,738,629	12,938,512
Funded Ratio	67.3%	66.7%

Actuarially Determined Contribution for Fiscal Year	2019	2020
Normal Cost	$92,320	$275,451
Past Service Cost	769,692	853,686
Interest	<u>29,093</u>	<u>36,697</u>
Actuarially Determined Contribution	891,105	1,165,834

Section II - Plan Assets
A. Summary of Fund Transactions

Market Value as of January 1, 2019	$22,391,497
Metro Contributions	836,227
Member Contributions	780,898
Net Investment Income	4,406,294
Benefit Payments	(2,397,440)
Administrative Expenses	(66,572)
Market Value as of December 31, 2019	25,950,904
Expected Return on Market Value of Assets	1,482,676
Market Value (Gain)/Loss	(2,923,618)
Approximate Rate of Return *	20.06%

* 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, 2019

- ■ Equity
- ■ Fixed Income
- ■ Cash

US Equity Market	55.0%
US Core Fixed Income	38.0%
Non-US Equity	5.0%
US Cash	2.0%
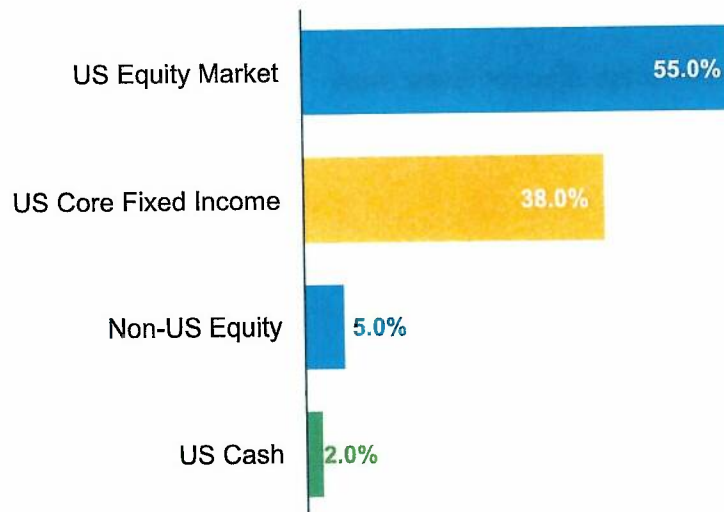
Section II - Plan Assets
B. Development of Actuarial Value of Assets

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 in equal installments ('non-asymptotically') over a five year period. The asset smoothing method was changed from 4-year asymptotic smoothing method to 5-year non-asymptotic amoothing in 2020 by implementing a "fresh start" where the Actuarial Value of Assets equals the Market Value of Assets at January 1, 2020. Any future market gains or losses will be recognized in equal installments over a 5-year period going forward.

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, 2019	January 1, 2020
1.	Accrued Liability		
	Active Members	$15,649,759	$16,745,748
	Terminated Members	1,299,840	1,778,322
	Service Retirees	17,280,188	18,629,536
	Disabled Retirees	0	0
	Beneficiaries	1,676,329	1,735,810
	Total Accrued Liability	35,906,116	38,889,416
2.	Actuarial Value of Assets (see Section IIB)	24,167,487	25,950,904
3.	Unfunded Accrued Liability: (1) - (2)	11,738,629	12,938,512
4.	Funded Ratio: (2) / (1)	67.3%	66.7%
5.	Amortization Period	23	22
6.	Amortization Growth Rate	2.50%	2.50%
7.	Past Service Cost: (3) amortized over (5)	769,692	853,686

Section III - Development of Contribution
B. Actuarially Determined Contribution

		2019	2020
1.	Total Normal Cost	$845,600	$996,316
2.	Expected Member Contributions	803,954	774,031
3.	Expected Administrative Expenses	35,000	35,000
4.	Expected Investment Expenses	15,674	18,166
5.	Net Normal Cost: (1) - (2) + (3) +(4)	92,320	275,451
6.	Past Service Cost (see Section IIIA)	769,692	853,686
7.	Interest on (5) + (6) Reflecting Payment on Average Halfway Through the Year	29,093	36,697
8.	Actuarially Determined Contribution: (5) + (6) + (7)	891,105	1,165,834

Section III - Development of Contribution
C. Long Range Forecast

This forecast is based on the results of the January 1, 2020 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. For purposes of this forecast the amortization period declines to 1 year to illustrate the progress of the plan towards becoming fully funded; in actual practice the amortization period will not be less than 10 years in order to shield Metro from contribution volatility. Actual results at each point in time will yield different values, reflecting the actual experience of the plan membership and assets.

Valuation Date	Values as of the Valuation Date				Fiscal Year	Cash Flows Projected to the Following Fiscal Year			
	Accrued Liability	Actuarial Value of Assets	Unfunded Accrued Liability	Funded Ratio		Metro Contributions	Member Contributions	Benefit Payments	Net Cash Flows
1/1/2020	$38,889,416	$25,950,904	$12,938,512	66.7%	2020	$1,165,834	$774,031	($2,494,807)	($554,942)
1/1/2021	39,786,000	27,029,000	12,757,000	67.9%	2021	1,231,000	786,000	(2,675,000)	(658,000)
1/1/2022	40,591,000	28,071,000	12,520,000	69.2%	2022	1,249,000	782,000	(2,849,000)	(818,000)
1/1/2023	41,240,000	29,016,000	12,224,000	70.4%	2023	1,262,000	781,000	(2,942,000)	(899,000)
1/1/2024	41,823,000	29,938,000	11,885,000	71.6%	2024	1,279,000	794,000	(3,010,000)	(937,000)
1/1/2025	42,381,000	30,881,000	11,500,000	72.9%	2025	1,287,000	796,000	(3,065,000)	(982,000)
1/1/2026	42,918,000	31,839,000	11,079,000	74.2%	2026	1,291,000	795,000	(3,127,000)	(1,041,000)
1/1/2027	43,440,000	32,798,000	10,642,000	75.5%	2027	1,297,000	806,000	(3,203,000)	(1,100,000)
1/1/2028	43,912,000	33,759,000	10,153,000	76.9%	2028	1,297,000	805,000	(3,265,000)	(1,163,000)
1/1/2029	44,343,000	34,718,000	9,625,000	78.3%	2029	1,304,000	812,000	(3,313,000)	(1,197,000)
1/1/2030	44,765,000	35,703,000	9,062,000	79.8%	2030	1,311,000	822,000	(3,358,000)	(1,225,000)
1/1/2031	45,174,000	36,725,000	8,449,000	81.3%	2031	1,318,000	833,000	(3,389,000)	(1,238,000)
1/1/2032	45,590,000	37,798,000	7,792,000	82.9%	2032	1,323,000	844,000	(3,401,000)	(1,234,000)
1/1/2033	46,045,000	38,945,000	7,100,000	84.6%	2033	1,322,000	851,000	(3,448,000)	(1,275,000)
1/1/2034	46,503,000	40,124,000	6,379,000	86.3%	2034	1,309,000	843,000	(3,535,000)	(1,383,000)
1/1/2035	46,909,000	41,269,000	5,640,000	88.0%	2035	1,313,000	868,000	(3,562,000)	(1,381,000)
1/1/2036	47,334,000	42,490,000	4,844,000	89.8%	2036	1,305,000	879,000	(3,627,000)	(1,443,000)
1/1/2037	47,752,000	43,727,000	4,025,000	91.6%	2037	1,292,000	888,000	(3,684,000)	(1,504,000)
1/1/2038	48,159,000	44,980,000	3,179,000	93.4%	2038	1,267,000	893,000	(3,760,000)	(1,600,000)
1/1/2039	48,536,000	46,216,000	2,320,000	95.2%	2039	1,236,000	906,000	(3,827,000)	(1,685,000)

January 1, 2020 Actuarial Valuation
Metro Area Transit Hourly Employees' Pension Plan

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%
January 1, 2020	25,950,904	38,889,416	12,938,512	66.7%

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	836,227	11,485,056	7.3%
2020	1,165,834	TBD	11,605,482	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	Deferred Beneficiaries	Service Retirees	Disabled Retirees	Beneficiaries	Total
January 1, 2019	184	40	0	172	0	25	421
Terminated							
- no benefits due	-	-	-	-	-	-	0
- paid refund	(7)	-	-	-	-	-	(7)
- vested benefits due	(2)	1	1	-	-	-	0
Retired	(6)	(3)	-	9	-	-	0
Died							
- with beneficiary	-	-	-	(1)	-	1	0
- no beneficiary	-	-	-	(5)	-	-	(5)
Benefits expired	-	-	-	-	-	-	0
New member	27	-	-	-	-	-	27
Rehired/ Eligible	-	-	-	-	-	-	0
Transfer to Salaried Plan	(1)	-	-	-	-	-	(1)
Correction	-	-	-	-	-	-	0
January 1, 2020	195	38	1	175	0	26	435

Section IV - Membership Data
B. Statistics of Active Membership

	As of January 1, 2019	As of January 1, 2020
Number of Active Members	184	195
Average Age	53.5	53.6
Average Service	11.2	10.4
Total Payroll	$11,485,056	$11,605,482
Average Payroll	62,419	59,515

Section IV - Membership Data
C. Statistics of Inactive Membership

	As of January 1, 2019	As of January 1, 2020
Terminated Vested Members		
Number	40	38
Total Annual Benefit	$184,824	$204,601
Average Annual Benefit	4,621	5,384
Average Age	53.1	59.4
Deferred Beneficiaries		
Number	0	1
Service Retirees		
Number	172	175
Total Annual Benefit	$1,929,480	$1,954,968
Average Annual Benefit	11,218	11,171
Average Age	73.6	74.0
Disabled Retirees		
Number	0	0
Total Annual Benefit	$0	$0
Average Annual Benefit	0	0
Average Age	0.0	0.0
Beneficiaries		
Number	25	26
Total Annual Benefit	$186,324	$194,115
Average Annual Benefit	7,453	7,466
Average Age	74.2	75.4

Section IV - Membership Data
D. Distribution of Inactive Members as of January 1, 2020

	Age	Number	Annual Benefits
Terminated Vested Members	< 50	0	$0
	50 - 59	20	76,793
	60 - 69	19	127,808
	70 - 79	0	0
	80 - 89	0	0
	90 +	0	0
	Total	39	204,601
Service Retirees	< 50	0	$0
	50 - 59	4	70,037
	60 - 69	58	749,403
	70 - 79	81	843,590
	80 - 89	23	228,476
	90 +	9	63,462
	Total	175	1,954,968
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	4	34,011
	70 - 79	9	85,608
	80 - 89	8	48,223
	90 +	4	23,874
	Total	26	194,115

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:
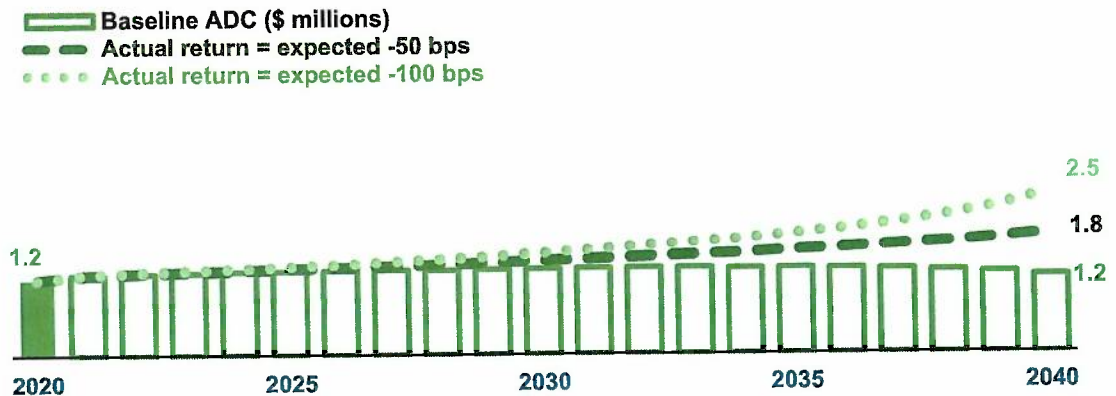
Contribution Risk

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

Identification: Over the past 7 years, actual contributions have been 89.6% of the Actuarially Determined Contribution in total. The consequences of persistent underfunding on future Actuarially Determined Contribution levels are illustrated below:
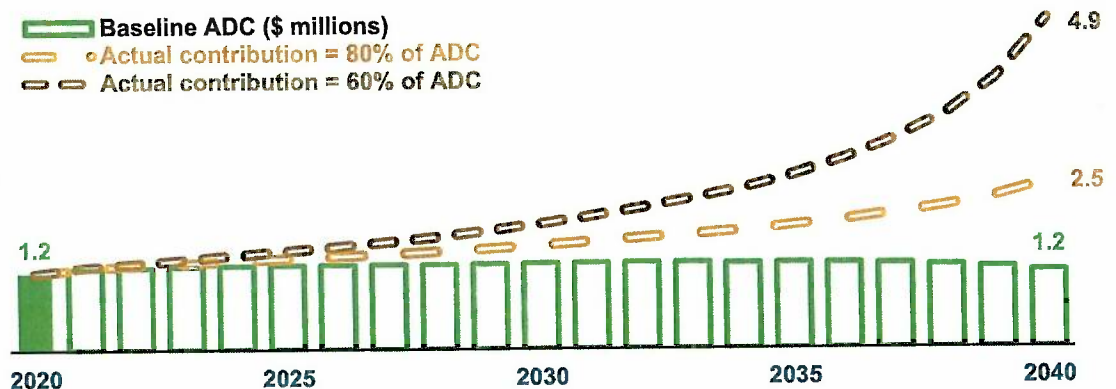
Section V - Analysis of Risk
B. Risk Identification and Assessment

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 2019, the plan had negative cash flow, with Metro and member contributions to the plan of $1,617,125 compared to $2,464,012 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, 2020, the plan's Asset Voliatility Ratio (the ratio of the market value of plan assets to payroll) is 2.2. According to Milliman's 2018 Public Pension Funding Study, the 100 largest US public pension plans have the following range of Asset Volatility Ratios:

Range	Count
Under 2.0	3
2.0-3.0	8
3.0-4.0	20
4.0-5.0	24
5.0-6.0	14
6.0-7.0	18
7.0 and above	13
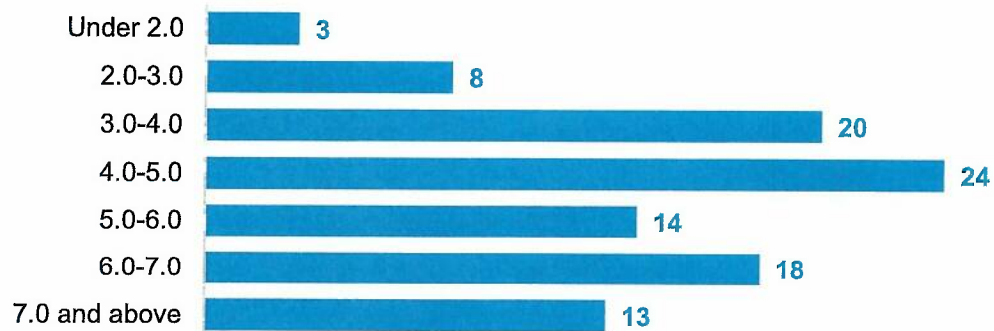
Inflation Risk

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

2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
1.8	1.9	2.0	1.9	2.2	2.4	2.5	2.6	2.6	2.7
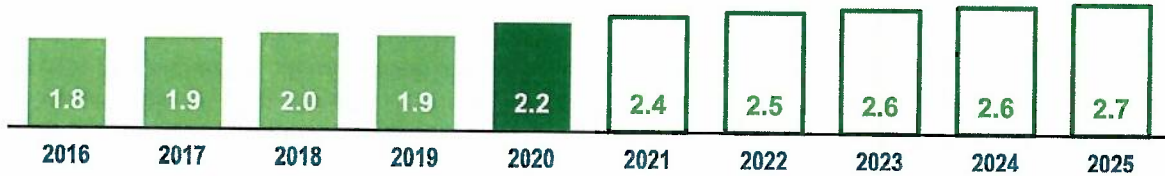
Accrued Liability for members in pay status compared to total Accrued Liability

2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
49%	50%	48%	53%	52%	60%	62%	62%	62%	62%

Benefit Payments compared to Market Value of Assets

2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
8.9%	8.3%	7.7%	10.3%	9.2%	9.2%	9.5%	9.8%	9.8%	9.7%
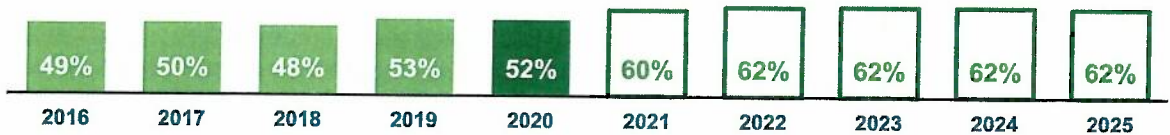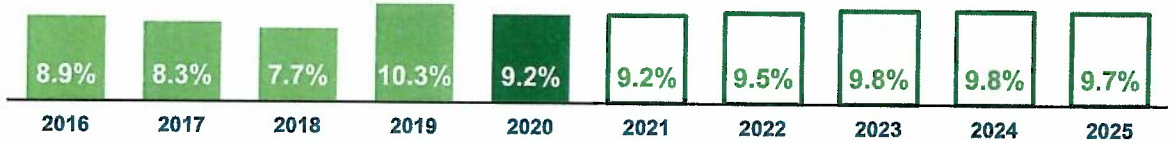
Net Cash Flows compared to Market Value of Assets

2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
3.3%	3.6%	1.3%	2.9%	3.3%	2.2%	2.5%	2.9%	3.1%	3.1%
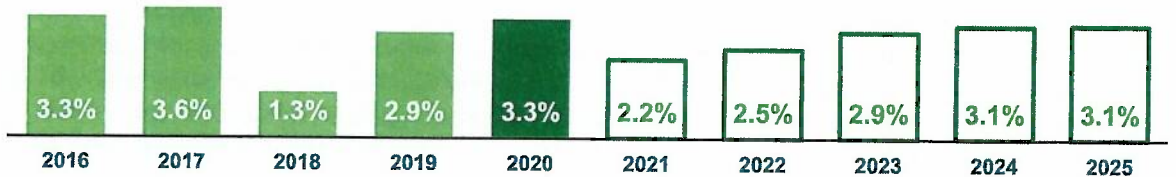
Benefit Payments compared to Metro Contributions

2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
2.5	2.5	2.1	2.7	2.9	2.1	2.2	2.3	2.3	2.4
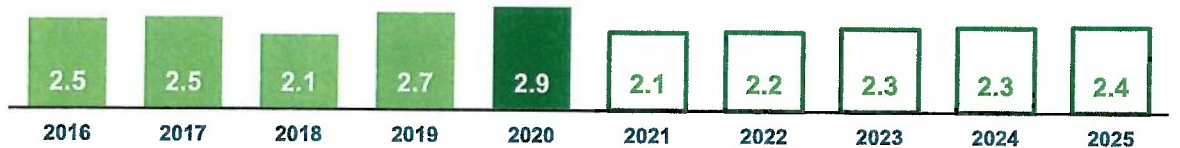
Duration of Accrued Liability (based on GASB 68 sensitivity disclosures)

2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
9.3	9.4	9.7	9.5	9.7	9.6	9.5	9.5	9.4	9.4

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 amortization period will decrease each year until it reaches 10 years, after which it remains at 10 years.

The Actuarial Value of Assets is determined by recognizing market gains and losses non-asymptotically over a five 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	Current: 6.50% (net of all expenses) Prior: 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

Current: PubG-2010 Mortality Table with generational mortality improvement per the MP Ultimate Scale. This assumption includes a margin for mortality improvements after the valuation date.

Prior: 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 E

Omaha Civilian Employees
Retirement Plan Information

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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

City of Omaha
Jean Stothert, Mayor

October 8, 2020

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 groups 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 2016 through current plan year 2020.

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. It is anticipated that the next Experience Study will performed in 2021.

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 done as part of the Actuarial Valuation as of January 1, 2020 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. The City is in the process of commencing negotiations with its largest civilian bargaining group, but the negotiation priorities have not yet been established.

As of January 1, 2020, the system had a market value of $255 million in assets and a funded ratio of 52%. It had a funded ratio of 52% in 2019 and 53% in 2018. The actuarial contribution to the system had improved for a number of years, but as a result of the change in assumptions in 2018, there is a shortfall in the actuarial required contribution of 2.104%. This is a slight improvement from 2019. 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 28 years. The assumed rate of return for the system is 7.5%,. a 1/2% decrease from years prior to 2018.

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.
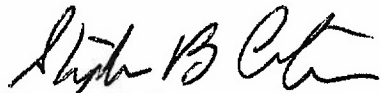
Senator Mark Kolterman
October 8, 2020
Page 3

As requested, we enclose the most recent Actuarial Experience Study which was submitted in February, 2018 and the most recent Actuarial Valuation Report effective January 1, 2020.

The Committee asked some additional questions concerning the impact of COVID 19. Though COVID 19 has had a severe impact on tax receipts and coupled with the costs associated with the civil unrest in the summer of 2020, has had a major budgetary impact, those issues do not have an effect on payments to the System. The COERS System receives its contributions on a substantially equal basis from the City and the employee, which rates are negotiated with the Unions. There is no process where the entire ARC payment is made and as a result, COVID 19 has had no effect on the ability to make the ARC payment. We anticipate the recent impact of COVID 19 is likely to affect both economic forecasts and demographic experience. Since the actuaries expect this experience to be more short term in nature, and assumptions are long-term estimates, they have not made any adjustments to the assumptions at this time. From talking to the System's actuaries, they intend to monitor the developments related to COVID 19 and their impact over the next few years to determine if any changes should be made.

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

Sincerely,

Stephen Curtiss
Acting City Comptroller

Enclosures

COERS EXHIBIT 1

ITEM	2016		2017		2018		2019		2020	
Net Assets (actuarial value)	1/1/16	$ 244,543,841	1/1/17	$ 246,234,597	1/1/18	$ 251,320,837	1/1/19	$ 249,518,547	1/1/20	$ 253,722,439
Unfunded Actuarial Accrued Liability	1/1/16	$ 192,589,171	1/1/17	$ 197,537,024	1/1/18	$ 223,286,679	1/1/19	$ 232,506,762	1/1/20	$ 230,182,264
1a Funding Status	1/1/16	55.9%	1/1/17	55.5%	1/1/18	53.0%	1/1/19	51.76%	1/1/20	52.43%
1b Assumed Rate of Return	1/1/16	8.0%	1/1/17	8.0%	1/1/18	7.5%	1/1/19	7.5%	1/1/20	7.5%
1c Actual Investment Return	FYE 12/31/16	10.2%	FYE 12/31/17	13.1%	FYE 12/31/18	-0.3%	FYE 12/31/19	14.720%	FYE 12/31/20	Pending
Normal Cost ($)	1/1/16	$ 6,149,062	1/1/17	$ 6,229,103	1/1/18	$ 6,578,160	1/1/19	$ 6,749,691	1/1/20	$ 7,014,480
1e Normal Cost (%)	1/1/16	9.843%	1/1/17	9.721%	1/1/18	9.923%	1/1/19	9.818%	1/1/20	9.747%
1f Actuarial Rate of Contribution (ARC)	1/1/16	27.526%	1/1/17	27.740%	1/1/18	31.056%	1/1/19	31.662%	1/1/20	30.954%
1d Member Contribution Rate	1/1/16	10.075%	1/1/17	10.075%	1/1/18	10.075%	1/1/19	10.075%	1/1/20	10.075%
1d Employer Contribution Rate	1/1/16	18.775%	1/1/17	18.775%	1/1/18	18.775%	1/1/19	18.775%	1/1/20	18.775%
Contribution Margin (Shortfall)	1/1/16	1.324%	1/1/17	1.110%	1/1/18	-2.206%	1/1/19	-2.812%	1/1/20	-2.104%
1f Actuarial Required Contribution	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	$ 17,313,632	FYE 12/31/20	Pending
1g Employer Actual Dollars Contributed	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	$ 15,028,329	FYE 12/31/20	Pending
1g % of ARC by Employer Contribution	FYE 12/31/16	108.36%	FYE 12/31/17	106.81%	FYE 12/31/18	91.02%	FYE 12/31/19	86.80%	FYE 12/31/20	Pending

CM

Cavanaugh Macdonald
CONSULTING, LLC

The experience and dedication you deserve

The City of Omaha
Employees' Retirement System

Actuarial Valuation as of
January 1, 2020

Cavanaugh Macdonald
CONSULTING, LLC
The experience and dedication you deserve

July 27, 2020

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

RE: January 1, 2020 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, 2020 for the plan year ending December 31, 2020. 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.

As this report was being prepared, the world was in the midst of a pandemic that has led to some degree of disruption in financial markets, public activity, and governmental activities. While the full extent of this event is still unknown, it is our professional judgment that the actuarial assumptions and methods used in this report are still the best available assumptions and methods for use in this valuation.

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

This report presents the results of the January 1, 2020 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, 2020. The unfunded actuarial liability (UAL) in the current valuation is $230.2 million, a decrease of $2.3 million from last year's UAL of $232.5 million. The valuation results reflect net favorable experience for the past plan year as demonstrated by a lower UAL than expected, based on the actuarial assumptions used in the January 1, 2019 actuarial valuation. Favorable experience on the actuarial value of assets resulted in an experience gain of $0.6 million. There was also a net experience gain on liabilities of $2.5 million. Based on the contribution rates in the bargaining agreements, the actual contributions received during 2019 were lower than the expected actuarial contributions by $2.3 million. The lower contributions mean the unfunded actuarial liability at January 1, 2020 was higher than expected.

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 2019 was 14.5%. The favorable investment experience during 2019 resulted in a rate of return on the actuarial value of assets of 7.7% for 2019, which is above the assumed return of 7.5%. As a result, it generated an actuarial experience gain of $0.6 million. The market value of assets now exceeds the actuarial value of assets by $1.7 million or 0.7% of the market value. Actual market returns over the next few years will determine the rate at which the deferred investment gain is actually recognized. With the current deferred gain, a return of about 7% on the market value of assets in 2020 would be required to meet the assumed 7.5% return on the actuarial value of assets and avoid an experience loss on assets in the 2021 valuation.

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 1,239 active members in the 2020 valuation compared to 1,201 in the 2019 valuation, an increase of 3.2%. The following graph shows the number of active members in the valuation over the last 14 years, which has fluctuated. When the number of active members increases, it has a positive influence on the System's funding because more contributions are paid into the system than expected. 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 grow at 3.0% per year. If total actual payroll grows more than the assumed rate of 3.0%, the UAL payment will be divided by larger covered payroll, 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 2020 valuation, there were 478 members covered by the Cash Balance Plan, about 39% of the total active membership compared to 34% in the January 1, 2019 valuation.

ASSETS

As of January 1, 2020, the System had total funds of $255.5 million, when measured on a market value basis. This was an increase of $18.8 million from the prior year's value of $236.7 million, and represents an approximate rate of return, net of expenses, of 14.5%.

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, 2020. The rate of return on the actuarial value of assets was 7.7%, resulting in an actuarial gain of $0.6 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, 2019	$ 236.7	$ 249.5
City and Member Contributions	+ 23.1	+ 23.1
Benefit Payments and Refunds	- 37.7	- 37.7
Investment Gain/(Loss)	+ 33.4	+ 18.8
Net Assets, January 1, 2020	255.5	253.7
Estimated Rate of Return	14.5%	7.7%

The deferred investment gain (difference between the actuarial value of assets and market value of assets) as of January 1, 2020 is $1.7 million, compared with $12.8 million of deferred investment loss in last year's

valuation. The unrecognized investment gain of $1.7 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 losses. This means that earning the assumed rate of investment return of 7.5% per year (net of investment expenses) <u>on a market value basis</u> will result in small actuarial gains on the actuarial value of assets in the future.

The deferred investment gain represents about 0.7% of the market value of assets (compared to a deferred investment loss of 5.4% of the market value in the 2019 valuation). If the deferred gain was recognized immediately in the actuarial value assets, the UAL would decrease by $1.7 million to $228.4 million, the funded ratio would increase to 52.8%, the actuarial contribution rate would decrease from 30.954% to 30.788%, and the contribution shortfall would decrease from 2.104% to 1.938% 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)					
	2015	**2016**	**2017**	**2018**	**2019**	**2020**
Actuarial Value of Assets	$242	$244	$246	$251	$250	$254
Market Value of Assets	$239	$232	$240	$255	$237	$255
Actuarial Value/Market Value	101%	105%	103%	99%	105%	99%
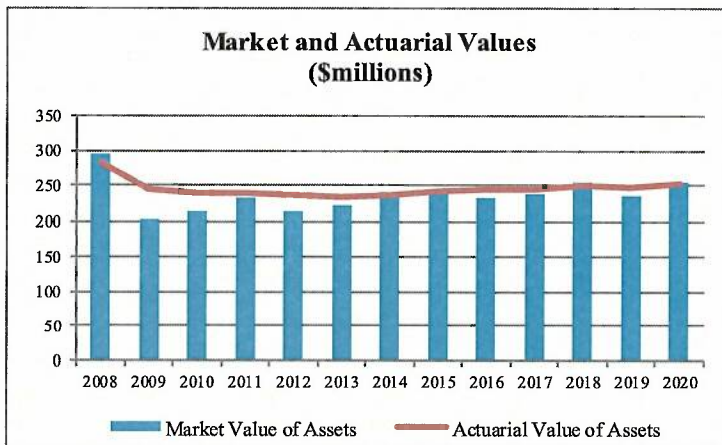
An asset smoothing method is used to mitigate the volatility in the market value of assets. By using a smoothing method, the actuarial (or smoothed) value can be either above or below the pure market value.

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, 2020, the AL for the System is $483.9 million.

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

	As of January 1	
	2020	**2019**
Actuarial Liability (AL)	$483,904,703	$482,025,309
Assets at Actuarial Value	$253,722,439	$249,518,547
Unfunded Actuarial Liability (AVA)	$230,182,264	$232,506,762
Funded Ratio (Actuarial Value)	52%	52%
Assets at Market Value	$255,460,062	$236,701,312
Unfunded Actuarial Liability (MVA)	$228,444,641	$245,323,997
Funded Ratio (Market Value)	53%	49%

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 2019 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 2019, the net experience was favorable (a lower UAL than expected), including an actuarial gain of $0.6 million on the actuarial value of assets and an actuarial gain of $2.5 million on liabilities. The largest sources of gain on the System's liabilities were salary increases that were lower than expected and more deaths than expected.

The change in the UAL between January 1, 2019 and January 1, 2020 is shown below (in millions):

Unfunded Actuarial Liability, January 1, 2019	232.5
· Expected change in UAL	0.4
· Contributions below actuarial rate	2.4
· Investment experience	(0.6)
· Demographic experience	(2.5)
· Other experience	(2.0)
Unfunded Actuarial Liability, January 1, 2020	230.2

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 9.747% of pay, or $7.0 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) decreased by 0.708% of pay, from 31.662% in the January 1, 2019 valuation to 30.954% in the January 1, 2020 valuation. The primary components of the change in the actuarial contribution rate are shown in the following table:

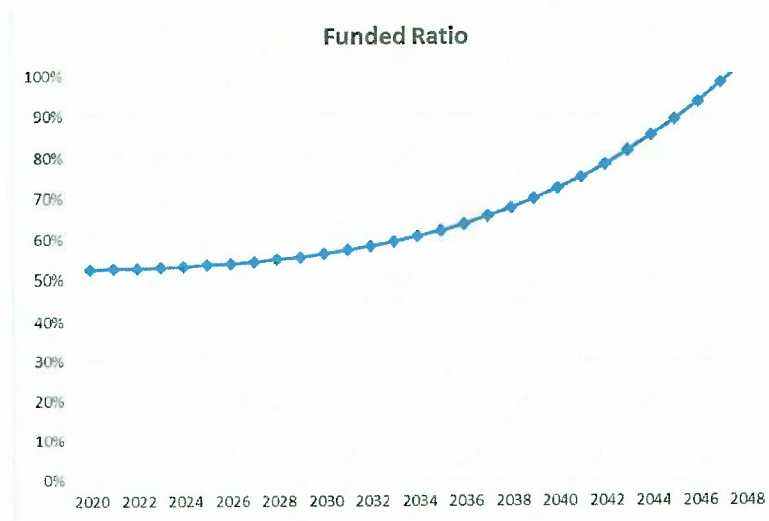|	Rate	
Total Actuarial Contribution Rate, January 1, 2019	31.662	%
· Actuarial (Gain) / Loss - Investment Experience	(0.055)	
· Actuarial (Gain) / Loss - Demographic Experience	(0.238)	
· Contributions Below the Actuarial Rate	0.218	
· Change in Normal Cost Rate	(0.071)	
· Payroll Growth Higher than Expected	(0.376)	
· Other Experience	(0.186)	
Total Actuarial Contribution Rate, January 1, 2020	30.954	%

As the table above shows, the actuarial contribution rate decreased from 31.662% to 30.954%, mainly due to favorable experience and payroll growth that was higher than expected. For the current valuation, the total actuarial contribution rate is 30.954% of pay (9.747% normal cost + 21.207% UAL payment). The scheduled contributions for the year are 28.850%, resulting in a contribution shortfall of 2.104%. This shortfall will slow the rate of funding the System and (if all assumptions are met) means full funding will not be reached by the end of the current amortization period.

FUNDED STATUS PROJECTIONS

While the January 1, 2020 valuation results show the System's financial status at a single point in time, projections are used to identify trends and to compare various scenarios rather than predicting some future state of events. The projections model a change in one key variable to provide insight into the longer term trend of the (1) actuarial contributions; (2) projected System funded status (ratio of actuarial assets over liabilities); and (3) unfunded actuarial liability (actuarial liability minus actuarial assets). Because the City of Omaha Employees' Retirement System is funded with fixed contribution rates, the last two actuarial measurements are most relevant for this analysis. If all actuarial assumptions are met in the future the current contribution rates are expected to move the System to full funding in 28 years or 2048, as shown in the following graph.

Funded Ratio

It is highly unlikely the investment return every year in the future will be exactly 7.50% so additional analysis is required to understand the funding risks involved. The projection model is useful to demonstrate how sensitive future valuation results are to the key funding variable of actual investment returns.

The following alternate scenarios reflect actual investment returns that are different than the assumption of 7.50%. The results are then compared to the baseline projection (all assumptions are met each year):
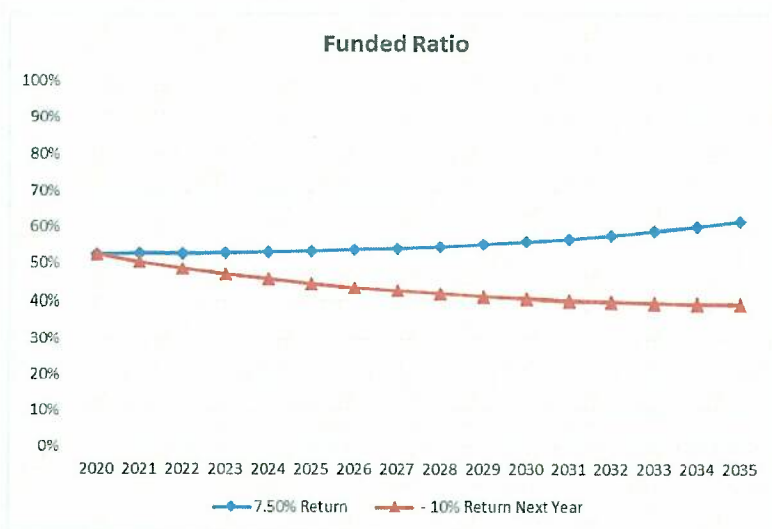 (1) Returns of 6.50% for the next 15 years (a return more in line with current expectations),
  (2) Returns of -10.00% for 2020, followed by returns of 7.50% for the next 14 years, and
  (3) Returns at the 50th, 25th and 5th percentiles, as disclosed in the experience study report.
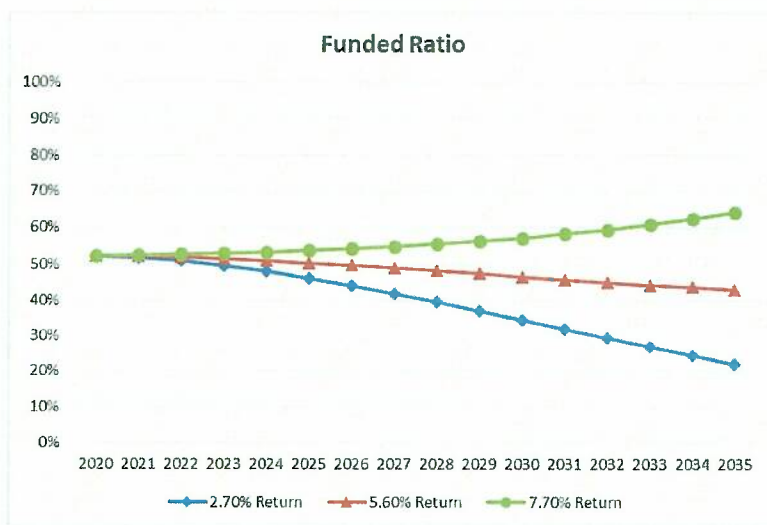
Scenario 1: 6.5% Return for Next 15 years

Funded Ratio
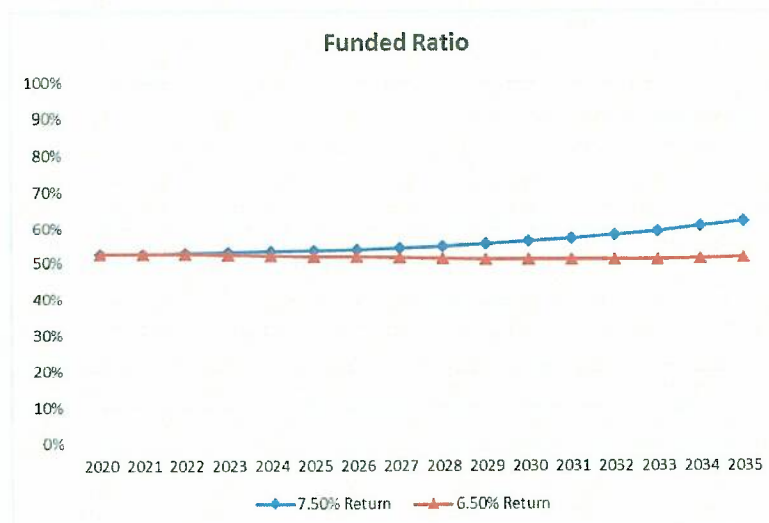
Scenario 2: -10.0% in 2020 , 7.5% Thereafter

Funded Ratio

Scenario 3: 2.7%, 5.6% or 7.7% Each Year Over Next 15 Years

Funded Ratio

As evidenced by the various projections shown above, the actual investment return on the assets has a dramatic impact on the System's funding, particularly since the contribution rates are fixed. Given the volatility in returns from year to year, and the probability of returns that are very different than expected, it is important to monitor both the System's current and projected funded status. The projections assume that all actuarial assumptions, other than investment return, are met in all future years and that contributions at the current rates in the bargaining agreements continue unchanged. Under certain scenarios, it is likely there would be additional changes to benefits and/or contributions if these scenarios were to actually occur.

These projections include estimates of future valuation results, including the unfunded actuarial accrued liability and funded ratio. It should be noted that these actuarial measurements do not indicate the

sufficiency of plan assets to settle the plan's obligations nor do they, on their own, indicate future funding requirements. Furthermore, the projections do not 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, 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 the projections were prepared. Because not all of the assumptions will unfold exactly as expected, actual results in the future will differ from the projections shown and the difference could be significant.

COMMENTS

As of January 1, 2020, 478 out of 1,239 active members are covered under the Cash Balance benefit structure, or about 39%. Although nearly 40% 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). Furthermore, about 70% of the System's actuarial liability is attributable to members and beneficiaries currently receiving benefits, all of whom participated in the legacy 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 2.104% 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. As discussed earlier, if all actuarial assumptions are met in the future the current contribution rates are expected to move the System to full funding in 28 years or 2048.

The return on the market value of assets in 2019 was 14.5%. As a result, the deferred investment loss of $12.8 million that existed on January 1, 2019 has been eliminated and there is now a deferred investment gain of $1.7 million. The funded ratio of the system, <u>on a market value basis,</u> is 52% in the January 1, 2020 actuarial valuation.

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 for all stakeholders to be aware of the potential impact of the unrecognized investment experience. The System currently has a deferred investment gain of $1.7 million. It is valuable to compare the key valuation results from the 2020 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	$483.9	$483.9
Asset Value	(253.7)	(255.5)
Unfunded Actuarial Liability	$230.2	$228.4
Funded Ratio	52.4%	52.8%
Normal Cost Rate	9.747%	9.747%
UAL Contribution Rate	21.207%	21.041%
Total Actuarial Contribution Rate	30.954%	30.788%
Employee Contribution Rate	(10.075%)	(10.075%)
City Contribution Rate	(18.775%)	(18.775%)
Contribution Shortfall/(Margin)	2.104%	1.938%

Note: Numbers may not add due to rounding.

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 No. 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, 2020	January 1, 2019	% Chg
MEMBERSHIP			
1. Active Membership			
- Number of Members:			
Hired before March 1, 2015	761	797	(4.5)
Hired on or after March 1, 2015	478	404	18.3
Total	1,239	1,201	3.2
- Projected Payroll for Upcoming Fiscal Year	$79,047,555	$75,407,531	4.8
- Average Projected Pay	$63,799	$62,787	1.6
- Average Attained Age	45.6	45.6	0.0
- Average Entry Age	36.5	36.7	(0.5)
2. Inactive Membership			
- Number of Retirees / Beneficiaries	1,382	1,391	(0.6)
- Number of Disabled Members	91	96	(5.2)
- Number of Deferred Vested Members	96	96	0.0
- Average Annual Benefit	$24,341	$23,997	1.4
- Number of Participants Due a Refund	61	62	(1.6)
ASSETS AND LIABILITIES			
1. Net Assets			
- Market Value	$255,460,062	$236,701,312	7.9
- Actuarial Value	253,722,439	249,518,547	1.7
2. Projected Liabilities	$544,130,713	$539,115,182	0.9
3. Actuarial Liability	483,904,703	482,025,309	0.4
4. Unfunded Actuarial Liability	$230,182,264	$232,506,762	(1.0)
5. Funded Ratios			
Actuarial Value Assets / Actuarial Liability	52.43%	51.76%	1.3
Market Value Assets / Actuarial Liability	52.79%	49.11%	7.5
CONTRIBUTIONS			
1. Normal Cost Rate	9.747%	9.818%	(0.7)
2. UAL Contribution Rate	21.207%	21.844%	(2.9)
3. Total Actuarial Contribution Rate (1) + (2)	30.954%	31.662%	(2.2)
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) (3) - (4) - (5)	2.104%	2.812%	(25.2)

EXHIBIT 1

SUMMARY OF FUND ACTIVITY
(Market Value Basis)

For Year Ended December 31, 2019

Assets at January 1, 2019	$	236,701,312
Receipts:		
City Contributions		15,028,329
Employee Contributions		8,073,053
Investment Earnings, Net of Expenses		33,312,932
Total Receipts		56,414,314
Disbursements:		
Benefit Payments		36,679,363
Refund of Contributions		975,343
Administrative Expenses		858
Total Disbursements		37,655,564
Assets as of December 31, 2019	$	255,460,062
Estimated Net Rate of Return		14.5%

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 actuarial contribution rate and funded ratio. 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, 2019	$	249,518,547
2.	Actual Receipts / Disbursements		
	a. Total Contributions		23,101,382
	b. Benefit Payments/Other		(37,654,706)
	c. Net Change		(14,553,324)
3.	Expected Actuarial Value of Assets as of January 1, 2020 $[(1) * 1.075] + [(2c) * 1.075^{\frac{1}{2}}]$		253,143,231
4.	Market Value of Assets as of January 1, 2020		255,460,062
5.	Excess of Market Value over Expected Actuarial Value as of January 1, 2020		2,316,831
6.	Preliminary Actuarial Value of Assets as of January 1, 2020 $[(3) + 25\% \text{ of } (5)]$		253,722,439
7.	20% Calculation of Corridor		
	a. 80% of (4)		204,368,050
	b. 120% of (4)		306,552,074
8.	Final Actuarial Value of Assets as of January 1, 2020 (6) but not < (7a) nor > (7b)	$	253,722,439
9.	Rate of Return on Actuarial Value of Assets		7.7%

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	$283,243,750	96.13%
1/1/2009	204,452,506	245,343,007	120.00%
1/1/2010	213,219,632	240,109,413	112.61%
1/1/2011	232,346,583	240,291,310	103.42%
1/1/2012	215,434,784	236,741,347	109.89%
1/1/2013	223,233,088	235,591,941	105.54%
1/1/2014	240,342,815	237,579,690	98.85%
1/1/2015	238,730,446	242,248,074	101.47%
1/1/2016	232,157,235	243,516,453	104.89%
1/1/2017	239,825,244	246,234,597	102.67%
1/1/2018	254,532,138	251,320,837	98.74%
1/1/2019	236,701,312	249,518,547	105.41%
1/1/2020	255,460,062	253,722,439	99.32%
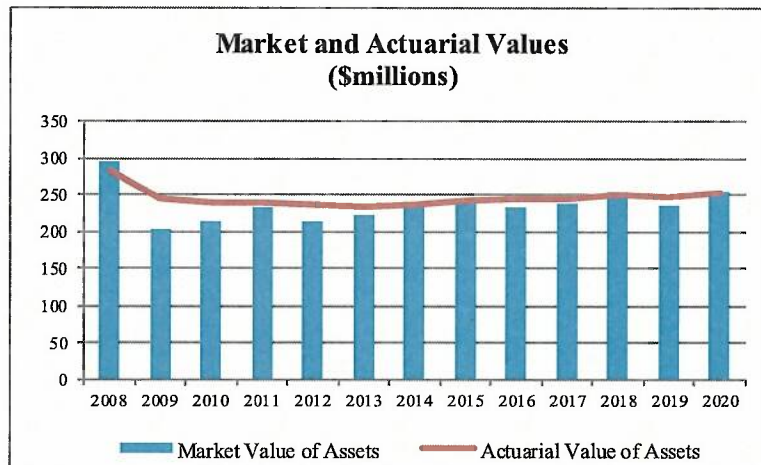
Market and Actuarial Values ($millions)

EXHIBIT 3

ACTUARIAL BALANCE SHEET

An actuarial statement of the status of the System in balance sheet form as of January 1, 2020 is as follows:

Assets

Current assets (actuarial value)	$	253,722,439
Present value of future normal costs		60,226,010
Present value of future employer contributions to fund unfunded actuarial liability		230,182,264
Total Assets	$	544,130,713

Liabilities

Present value of future retirement benefits for:

Active employees	$	148,709,152	
Retired employees, contingent annuitants and spouses receiving benefits		336,186,265	
Deferred vested employees		7,955,765	
Inactive employees due refunds		404,562	
Inactive employees – disabled		18,499,203	
Total			$ 511,754,947
Present value of future death benefits payable upon death of active members			3,827,730
Present value of future benefits payable upon termination of active members			17,605,007
Present value of future benefits payable upon disability of active members			10,943,029
Total Liabilities			$ 544,130,713

EXHIBIT 4

UNFUNDED ACTUARIAL LIABILITY

As of January 1, 2020

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	$	544,130,713
2.	Present Value of Future Normal Costs		60,226,010
3.	Actuarial Liability (1) – (2)		483,904,703
4.	Actuarial Value of Assets		253,722,439
5.	Unfunded Actuarial Liability (3) – (4)	$	230,182,264
6.	Funded Ratio (4) / (3)		52.43%

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, 2020 Remaining Years	Year of Last Payment	Outstanding Balance as of January 1, 2020	Annual Contribution (mid-year)
2016 Initial UAL Base	$ 193,616,559	21	2040	$ 199,808,421	$ 14,633,516
2017 Experience Base	1,111,921	17	2036	1,100,555	92,459
2018 Assumption Changes	27,470,165	23	2042	27,782,588	1,926,197
2018 Experience Base	(4,251,525)	18	2037	(4,212,554)	(340,563)
2019 Experience Base	8,414,988	19	2038	8,387,339	654,439
2020 Experience Base	(2,684,085)	20	2039	(2,684,085)	(202,663)
Total				$ 230,182,264	$ 16,763,385

EXHIBIT 6

DEVELOPMENT OF

2020 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	$	7,014,480	
(b)	Expected Payroll in 2020 for Current Actives	$	71,962,791	
(c)	Normal Cost Rate			
	(a) / (b)			9.747%
2.	Unfunded Actuarial Liability at Valuation Date	$	230,182,264	
3.	Unfunded Actuarial Liability Payment	$	16,763,385	
4.	Total Projected Payroll for 2020	$	79,047,555	
5.	Unfunded Actuarial Liability Payment as Percent of Pay (3) / (4)			21.207%
6.	Total Actuarial Contribution Rate (1c) + (5)			30.954%
7.	Employee Contribution Rate			10.075%
8.	City Contribution Rate			18.775%
9.	Contribution Shortfall/(Margin)* (6) - (7) - (8)			2.104%

*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, 2019

Liabilities

1.	Actuarial liability as of January 1, 2019	$	482,025,309
2.	Normal cost for 2019		6,749,691
3.	Interest at 7.50% on (1) and (2) to December 31, 2019		36,658,125
4.	Benefit payments during 2019		(37,654,706)
5.	Interest on benefit payments		(1,386,524)
6.	Expected actuarial liability as of December 31, 2019	$	486,391,895
7.	Actuarial liability as of December 31, 2019	$	483,904,703

Assets

8.	Actuarial value of assets as of January 1, 2019	$	249,518,547
9.	Contributions during 2019		23,101,382
10.	Benefit payments during 2019		(37,654,706)
11.	Interest at 7.50% on (8), (9) and (10) to December 31, 2019		18,178,008
12.	Expected actuarial value of assets as of December 31, 2019	$	253,143,231
13.	Actual actuarial value of assets as of December 31, 2019	$	253,722,439

Gain / (Loss)

14.	Expected unfunded actuarial liability (6) – (12)	$	233,248,664
15.	Actual unfunded actuarial liability (7) – (13)		230,182,264
16.	Actuarial Gain / (Loss) (14) – (15)		3,066,400
17.	Actuarial Gain / (Loss) on Actuarial Assets (13) – (12)		579,208
18.	Actuarial Gain / (Loss) on Actuarial Liability (6) – (7)	$	2,487,192

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 gain on liabilities of $2,487,000 during the plan year ended December 31, 2019, and an actuarial gain on assets of $579,000. The total actuarial gain was $3,066,000. The major components of this aggregate actuarial experience are shown below:

Liability Sources		Gain/(Loss)
Salary Increases	$	2,891,000
Mortality		2,339,000
Terminations		(1,656,000)
Retirements		170,000
Disability		(126,000)
New Entrants/Rehires		(187,000)
Disabled Retiree Conversions*		68,000
Miscellaneous		(1,012,000)
Total Liability Gain/(Loss)	$	2,487,000
Asset Gain/(Loss)	$	579,000
Total Actuarial Gain/(Loss)	$	3,066,000

*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, was 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 consistently making 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 changes. The following graph illustrates that the fixed contribution rates have failed to meet the actuarial required contribution amount for 12 of the last 14 years.
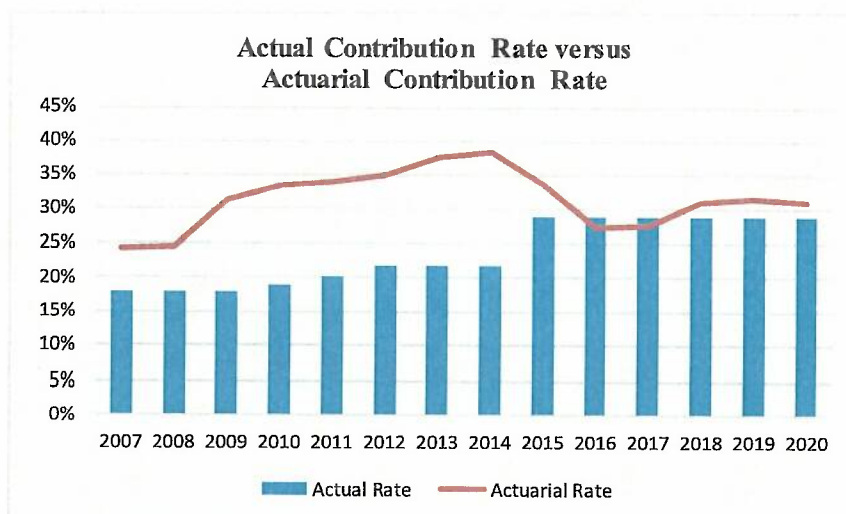
**Actual Contribution Rate versus
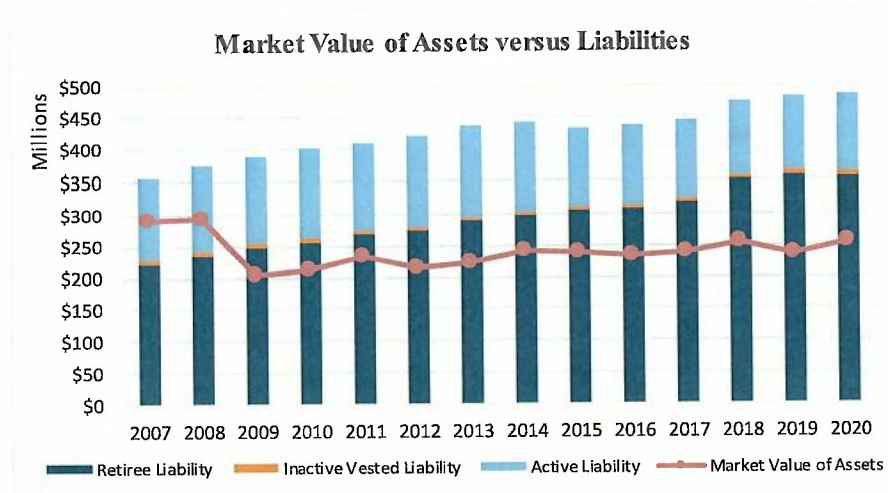Actuarial Contribution Rate**

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 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. Similarly, a portion of returns higher than expected are shared with the members as well. 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 53%. The market value of assets on January 1, 2020 was $255 million while the retiree liability on the same date was $355 million. Essentially, the current assets are only sufficient to fund about 72% of the retiree liability, assuming all actuarial assumptions are met in the future. As the following graph illustrates, the actuarial liabilities have increased steadily over this time period, but the market value of assets has held relatively steady since 2011. In fact, the System's assets have yet to return to their pre-recession levels in 2008. As a result, there has been an increasing amount of unfunded actuarial liability over this period.

Market Value of Assets versus Liabilities

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 14 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%
1/1/2020	255,460,062	79,047,555	3.23	2.44%

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, 2020 are 323% of payroll, so underperforming the investment return assumption by 10% (i.e., earn -2.50% for one year) is equivalent to 32.3% of payroll and moves the ACR by 2.44%. While the actual impact in the first year is mitigated by the asset smoothing method, this illustrates the risk associated with volatile investment returns.
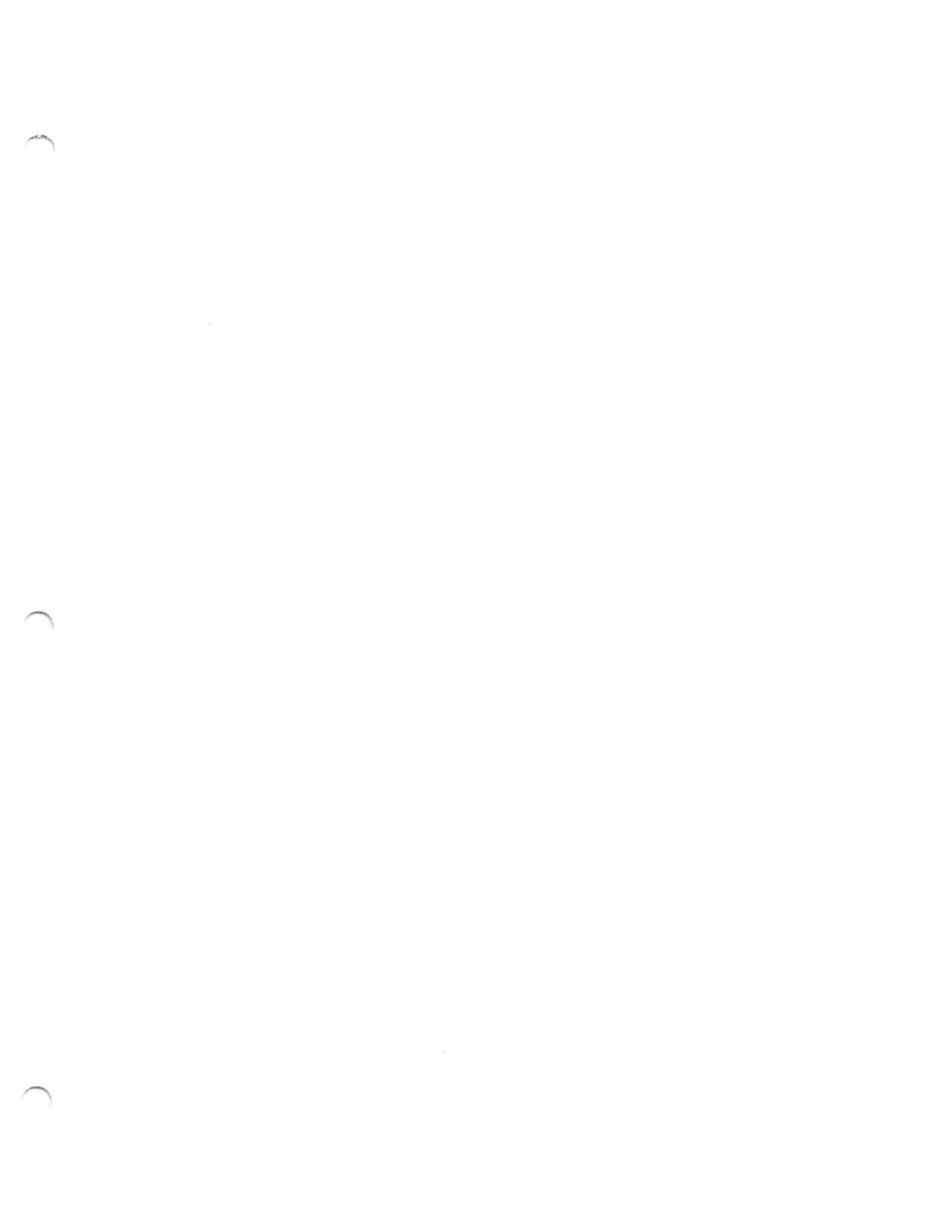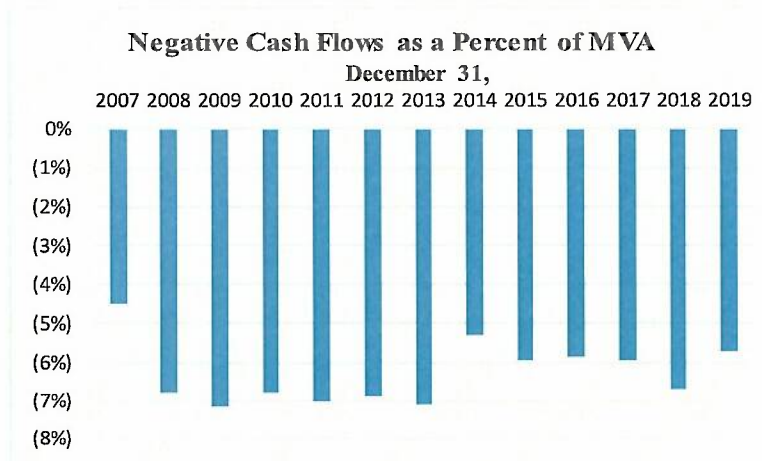
EXHIBIT 10

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 a significant degree of negative cash flow for the last 13 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%)
12/31/2019	255,460,062	23,101,382	37,654,706	(14,553,324)	(5.70%)

Note: Years prior to 12/31/2010 were provided by the prior actuary.

Negative Cash Flows as a Percent of MVA
December 31,

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)
1/1/2007	$220,955,272	$357,060,698	61.9%
1/1/2008	233,841,457	374,918,443	62.4%
1/1/2009	248,744,279	389,986,183	63.8%
1/1/2010	254,677,923	401,416,694	63.4%
1/1/2011	267,983,708	409,442,601	65.5%
1/1/2012	273,287,125	420,810,359	64.9%
1/1/2013	291,595,687	436,270,409	66.8%
1/1/2014	298,858,244	442,754,113	67.5%
1/1/2015	305,515,709	431,160,038	70.9%
1/1/2016	308,712,233	437,133,012	70.6%
1/1/2017	320,526,759	443,771,621	72.2%
1/1/2018	351,551,713	474,607,516	74.1%
1/1/2019	357,677,930	482,025,309	74.2%
1/1/2020	354,685,468	483,904,703	73.3%

Note: Years prior to 1/1/2011 were provided by the prior actuary.
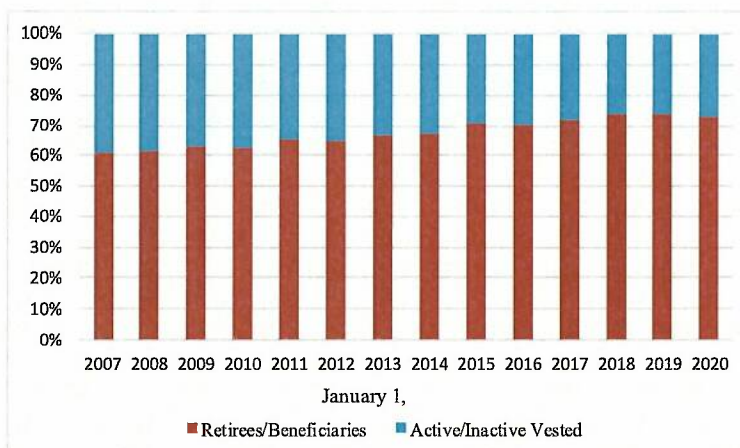
EXHIBIT 12

HISTORICAL MEMBER STATISTICS

Valuation Date January 1,	Number of		Active/ 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
2020	1,239	1,473	0.84

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

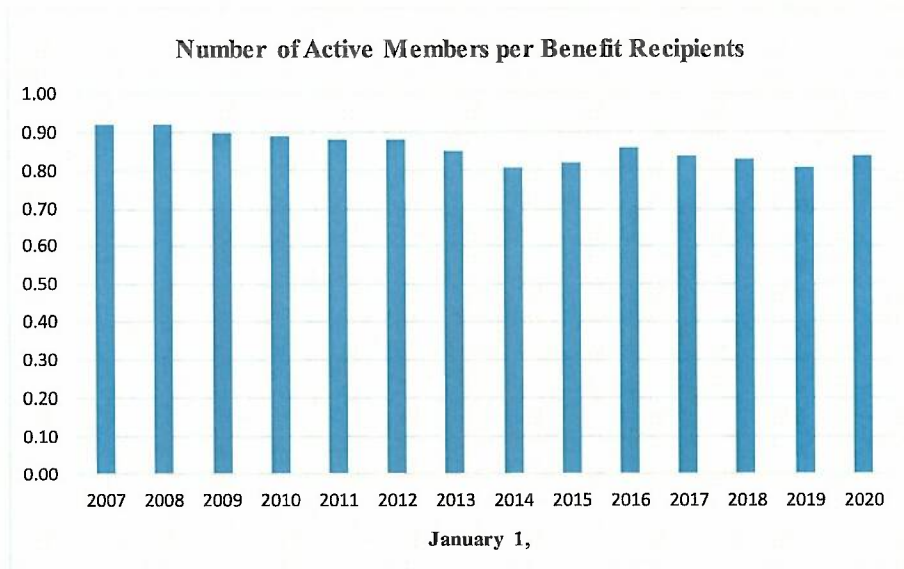Number of Active Members per Benefit Recipients

EXHIBIT 13

COMPARISON OF VALUATION RESULTS UNDER ALTERNATE
INVESTMENT RETURN ASSUMPTIONS

This exhibit compares the key January 1, 2020 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	10.722%	10.218%	9.747%	9.307%	8.894%
UAL Contribution Rate	22.537%	21.869%	21.207%	20.550%	19.899%
Total Actuarial Contribution Rate	33.259%	32.087%	30.954%	29.857%	28.793%
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)	**4.409%**	**3.237%**	**2.104%**	**1.007%**	**(0.057%)**
Actuarial Liability ($ in thousands)	$508,017	$495,708	$483,905	$472,580	$461,711
Actuarial Value of Assets	253,722	253,722	253,722	253,722	253,722
Unfunded Actuarial Liability	$254,294	$241,986	$230,182	$218,858	$207,988
Funded Ratio	49.94%	51.18%	52.43%	53.69%	54.95%

Note: All other assumptions are unchanged for purposes of this sensitivity analysis.
Numbers may not add due to rounding.

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%
12/31/2019	17,313,632	15,028,329	86.80%

* 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%
1/1/2020	253,722,439	483,904,703	230,182,264	52.4%	79,047,555	291.2%

[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 from 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.
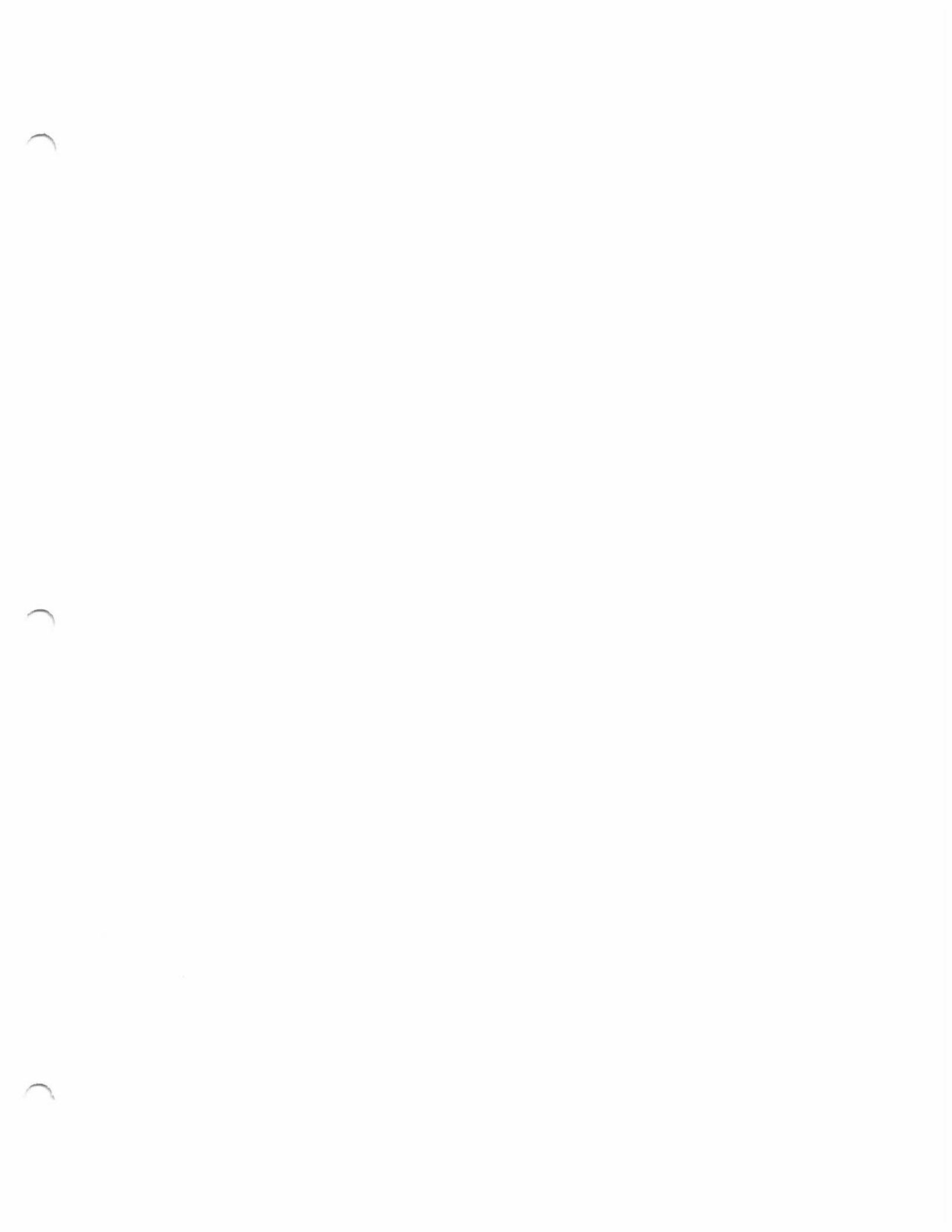
APPENDIX A

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 $5,000.

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 <u>before</u> 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 <u>on or after</u> 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 <u>present value of future normal costs</u>. 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 <u>normal cost</u>, 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:

	Annual Rate of Increase For Sample Years			
Years of Service	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**

	Eligible for Unreduced Retirement	
Age	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:

| | Annual Rate | |
Years of Service	Male	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
2020	2,869	1,239	45.6	36.5	9.1	58,913	5.32%	91	61	96	1,382

* 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, 2020. 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	761
(b) Deferred vested members	96
(c) Terminated members due a refund	10
(d) Disabled members	91
(e) Retired members, spouses and children receiving benefits	1,382
(f) Total members in valuation	2,340

Average age of members in valuation:

(a) Active members	
Attained Age	49.4
Hire Age	36.0
(b) Deferred vested members	48.4
(c) Disabled members	64.9
(d) Retired members	70.6
(e) Spouses and children receiving benefits	73.7

Active members eligible for vested benefits as of January 1, 2020:

(a) Members under age 55 with 5 or more years of service – eligible for deferred vested benefits	490
(b) Members age 55 and over with 5 or more years of service – eligible for early or normal retirement benefits	263
(c) Members eligible for refund of contributions only	8
(d) Total	761
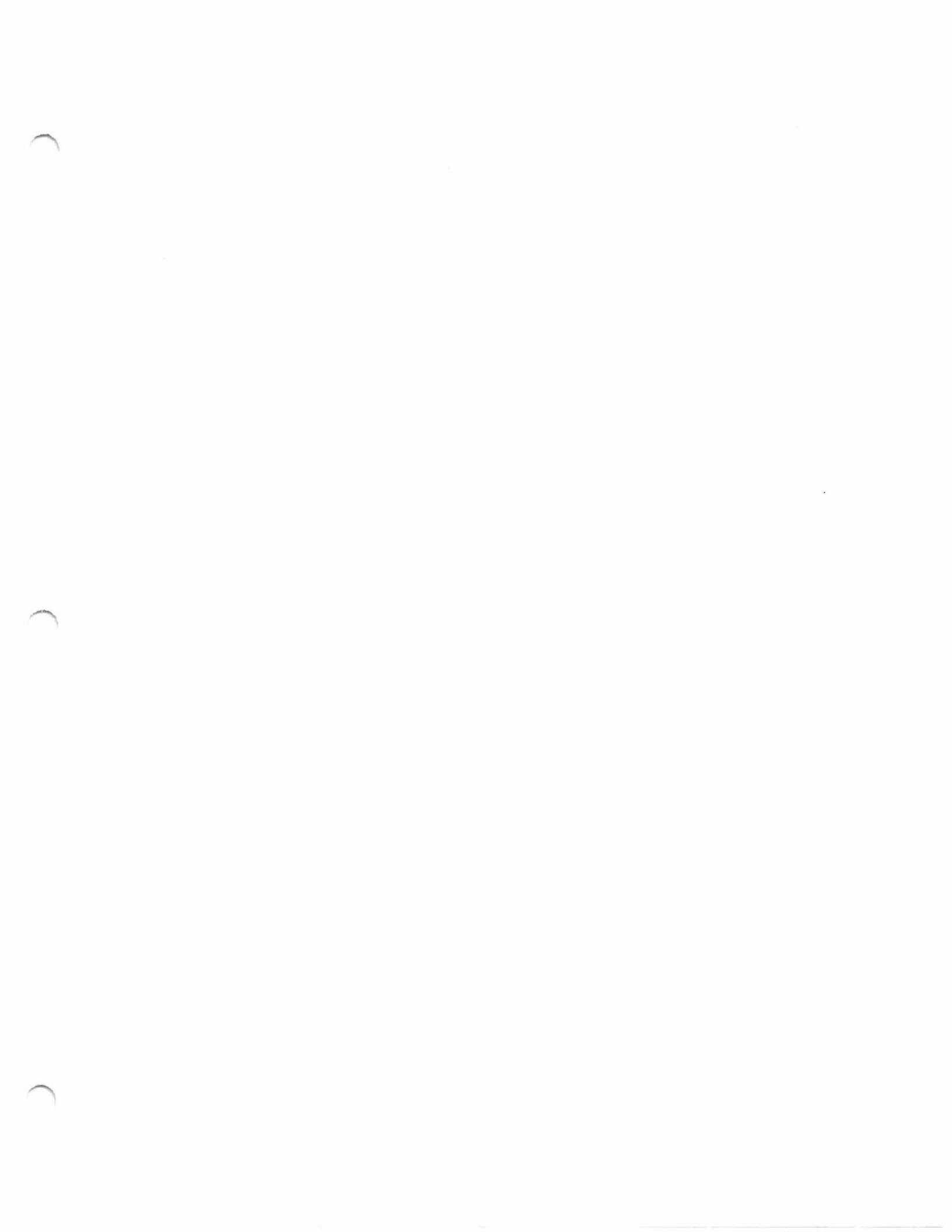
MEMBERSHIP DATA FOR VALUATION
(Hired on or after March 1, 2015)

The summary of member characteristics presented below covers the membership as of January 1, 2020. 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	478
(b) Deferred vested members	0
(c) Terminated members due a refund	51
(d) Disabled members	0
(e) Retired members, spouses and children receiving benefits	0
(f) Total members in valuation	529

Average age of members in valuation:

(a) Active members	
Attained Age	39.5
Hire Age	37.3
(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, 2020:

(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	478
(d) Total	478

MEMBERSHIP DATA RECONCILIATION

January 1, 2019 to January 1, 2020

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.
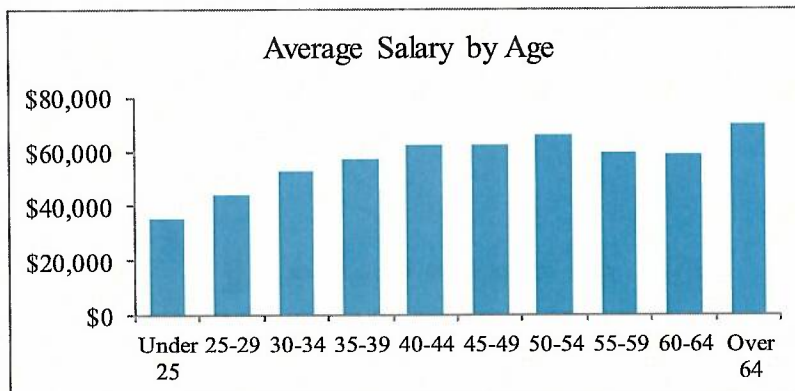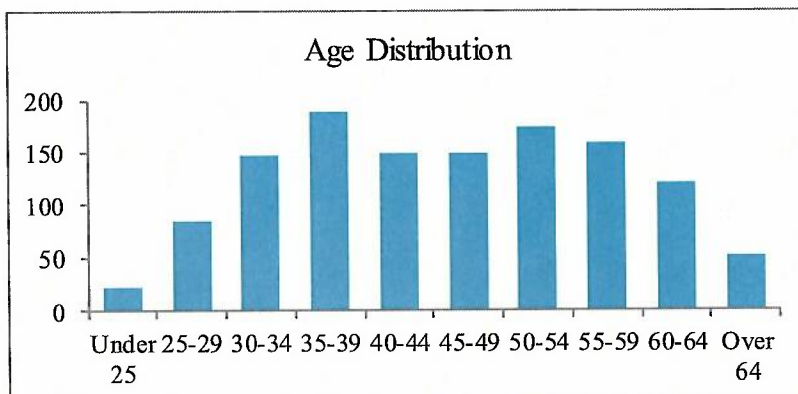
	Active Members	Termination Refund Due	Deferred Vested	Disabled	Retirees	Beneficiaries	Total
Total Members as of 1/1/2019	1,201	62	96	96	1,131	260	2,846
New Members	122	8	0	0	0	0	130
Terminations							
Retired	4	(1)	(2)	0	(1)	0	0
Refunded: Paid	(31)	(31)	(2)	0	0	0	(64)
Refunded: Due	(23)	23	0	0	0	0	0
Deferred Vested	(7)	0	7	0	0	0	0
LTD	(1)	0	0	1	0	0	0
Retirements	(25)	0	(3)	0	28	0	0
Benefits Expired	0	0	0	0	0	(2)	(2)
Data Corrections	0	0	0	0	0	0	0
Deaths							
With Beneficiary	(1)	0	0	(2)	(21)	24	0
Without Beneficiary	0	0	0	(4)	(19)	(18)	(41)
Total Members as of 1/1/2020	1,239	61	96	91	1,118	264	2,869

SCHEDULE I

ACTIVE MEMBERS AS OF JANUARY 1, 2020
(Total)

Age	Count of Members			Pensionable Compensation for 2019		
	Males	Females	Total	Males	Females	Total
Under 25	15	7	22	$ 508,050	$ 261,886	$ 769,936
25-29	53	31	84	2,348,458	1,371,563	3,720,021
30-34	94	53	147	4,928,380	2,837,813	7,766,193
35-39	121	67	188	7,058,320	3,696,299	10,754,619
40-44	102	46	148	6,504,689	2,779,649	9,284,338
45-49	107	42	149	7,118,128	2,238,087	9,356,215
50-54	131	42	173	8,850,528	2,552,501	11,403,029
55-59	122	36	158	7,563,877	1,831,777	9,395,654
60-64	75	45	120	4,612,339	2,454,957	7,067,296
Over 64	31	19	50	2,312,854	1,162,606	3,475,460
Total	851	388	1,239	$51,805,623	$21,187,138	$72,992,761

Age Distribution

Average Salary by Age

SCHEDULE I (continued)

ACTIVE MEMBERS AS OF JANUARY 1, 2020
(Total)

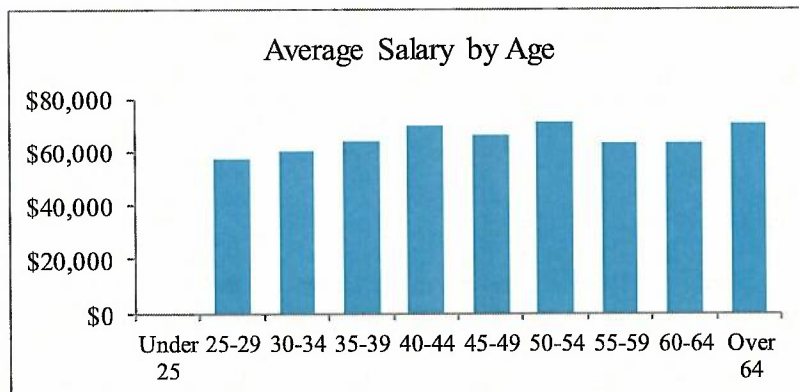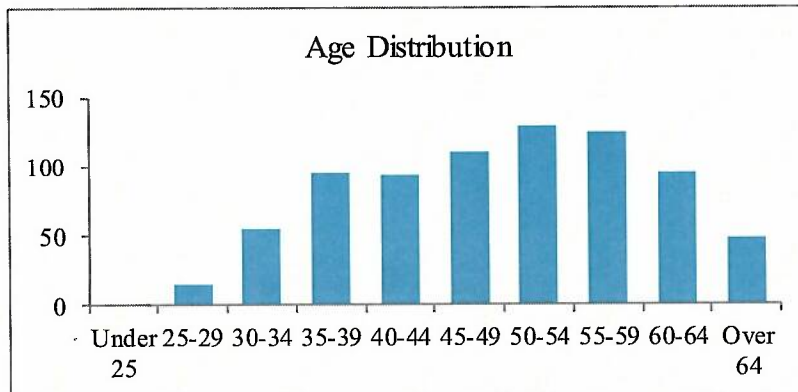| Age	Under 5	5-10	10-15	15-20	Service 20-25	25-30	30-35	35-40	Over 40	Total
Under 25	22	0	0	0	0	0	0	0	0	22
25-29	71	13	0	0	0	0	0	0	0	84
30-34	93	50	4	0	0	0	0	0	0	147
35-39	95	56	33	4	0	0	0	0	0	188
40-44	55	42	39	8	4	0	0	0	0	148
45-49	41	37	39	13	18	1	0	0	0	149
50-54	44	26	41	26	25	9	2	0	0	173
55-59	35	28	39	15	20	13	7	1	0	158
60-64	25	24	37	15	7	6	4	2	0	120
Over 64	4	7	13	5	11	7	2	1	0	50
Total	485	283	245	86	85	36	15	4	0	1,239

Service Distribution

SCHEDULE I (continued)

ACTIVE MEMBERS AS OF JANUARY 1, 2020
(Hired before March 1, 2015)

	Count of Members			Pensionable Compensation for 2019		
Age	Males	Females	Total	Males	Females	Total
Under 25	0	0	0	$ 0	$ 0	$ 0
25-29	12	2	14	678,824	118,447	797,271
30-34	36	18	54	2,187,121	1,074,945	3,262,066
35-39	62	33	95	4,031,047	2,031,509	6,062,556
40-44	64	29	93	4,427,599	2,071,424	6,499,023
45-49	83	27	110	5,780,490	1,498,029	7,278,519
50-54	102	27	129	7,404,380	1,767,882	9,172,262
55-59	95	29	124	6,306,174	1,545,292	7,851,466
60-64	61	34	95	3,952,587	2,083,362	6,035,949
Over 64	28	19	47	2,160,458	1,162,606	3,323,064
Total	543	218	761	$36,928,680	$13,353,496	$50,282,176

Age Distribution

Average Salary by Age

SCHEDULE I (continued)

ACTIVE MEMBERS AS OF JANUARY 1, 2020
(Hired before March 1, 2015)

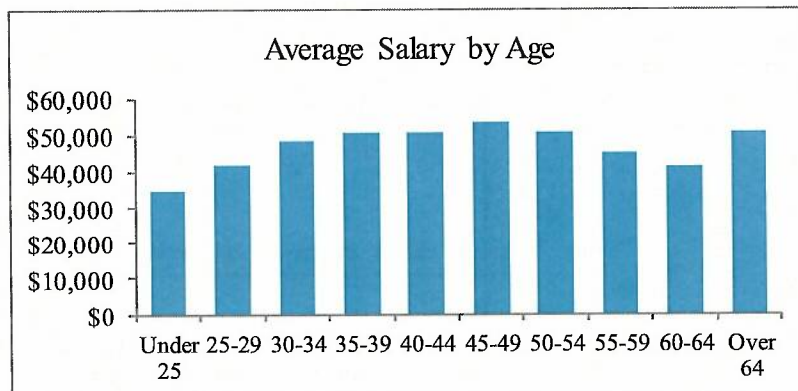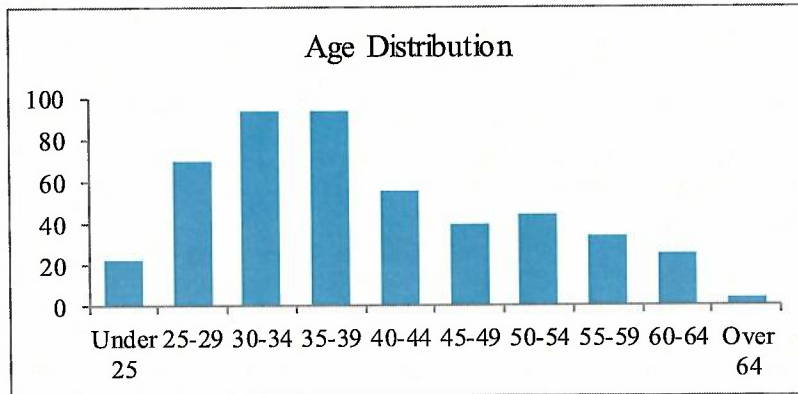| Age	Under 5	5-10	10-15	15-20	Service 20-25	25-30	30-35	35-40	Over 40	Total
Under 25	0	0	0	0	0	0	0	0	0	0
25-29	1	13	0	0	0	0	0	0	0	14
30-34	0	50	4	0	0	0	0	0	0	54
35-39	2	56	33	4	0	0	0	0	0	95
40-44	0	42	39	8	4	0	0	0	0	93
45-49	2	37	39	13	18	1	0	0	0	110
50-54	0	26	41	26	25	9	2	0	0	129
55-59	2	27	39	15	20	13	7	1	0	124
60-64	0	24	37	15	7	6	4	2	0	95
Over 64	1	7	13	5	11	7	2	1	0	47
Total	8	282	245	86	85	36	15	4	0	761

Service Distribution
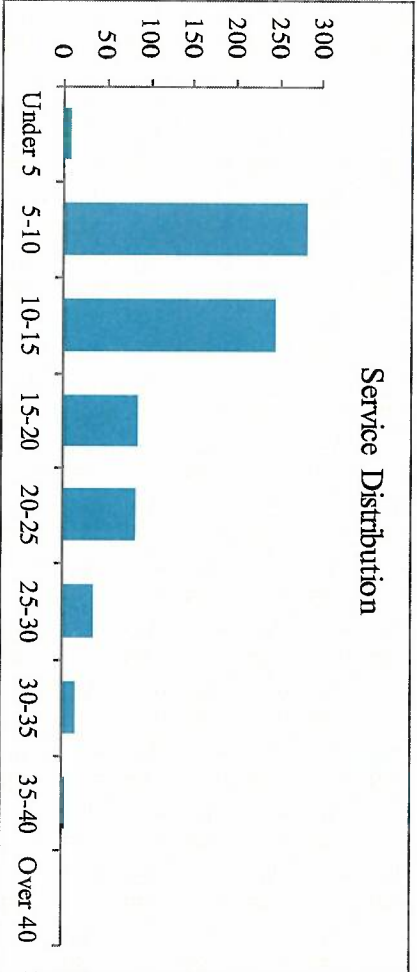
SCHEDULE I (continued)

ACTIVE MEMBERS AS OF JANUARY 1, 2020
(Hired on or after March 1, 2015)

Age	Count of Members			Pensionable Compensation for 2019		
	Males	Females	Total	Males	Females	Total
Under 25	15	7	22	$ 508,050	$ 261,886	$ 769,936
25-29	41	29	70	1,669,634	1,253,116	2,922,750
30-34	58	35	93	2,741,259	1,762,868	4,504,127
35-39	59	34	93	3,027,273	1,664,790	4,692,063
40-44	38	17	55	2,077,090	708,225	2,785,315
45-49	24	15	39	1,337,638	740,058	2,077,696
50-54	29	15	44	1,446,148	784,619	2,230,767
55-59	27	7	34	1,257,703	286,485	1,544,188
60-64	14	11	25	659,752	371,595	1,031,347
Over 64	3	0	3	152,396	0	152,396
Total	308	170	478	$14,876,943	$7,833,642	$22,710,585

Age Distribution

Average Salary by Age

SCHEDULE I (continued)

ACTIVE MEMBERS AS OF JANUARY 1, 2020
(Hired on or after March 1, 2015)

Age	Under 5	5-10	10-15	15-20	Service 20-25	25-30	30-35	35-40	Over 40	Total
Under 25	22	0	0	0	0	0	0	0	0	22
25-29	70	0	0	0	0	0	0	0	0	70
30-34	93	0	0	0	0	0	0	0	0	93
35-39	93	0	0	0	0	0	0	0	0	93
40-44	55	0	0	0	0	0	0	0	0	55
45-49	39	0	0	0	0	0	0	0	0	39
50-54	44	0	0	0	0	0	0	0	0	44
55-59	33	1	0	0	0	0	0	0	0	34
60-64	25	0	0	0	0	0	0	0	0	25
Over 64	3	0	0	0	0	0	0	0	0	3
Total	477	1	0	0	0	0	0	0	0	478

Service Distribution
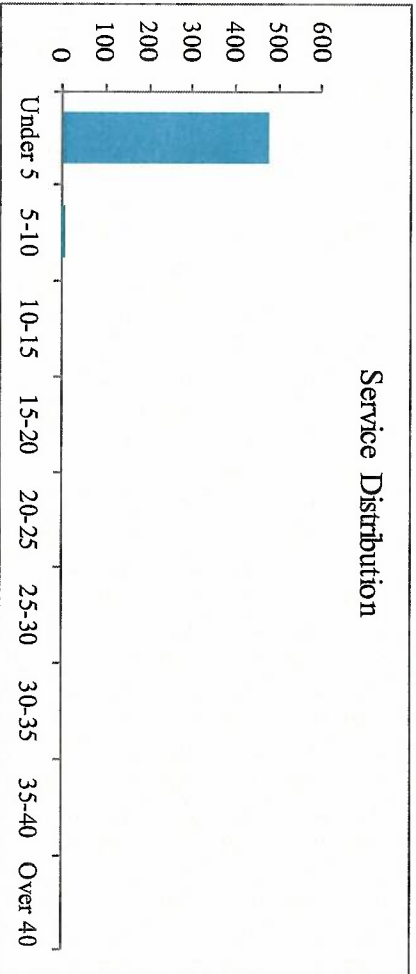
SCHEDULE II

RETIRED MEMBERS AS OF JANUARY 1, 2020

	Count of Retirees			Current Monthly Benefits		
Age	Males	Females	Total	Males	Females	Total
Under 60	43	24	67	$ 137,619	$79,535	$ 217,154
60-64	96	66	162	253,263	160,681	413,944
65-69	193	101	294	493,753	224,989	718,742
70-74	209	100	309	506,049	200,753	706,802
75-79	102	42	144	204,407	63,961	268,368
80-84	61	23	84	109,127	33,549	142,676
85-89	22	12	34	40,254	12,758	53,012
Over 89	16	8	24	26,758	8,938	35,696
Total	742	376	1,118	$1,771,230	$785,164	$2,556,394

Age Distribution

Age	Count
Under 60	~67
60-64	~162
65-69	~294
70-74	~309
75-79	~144
80-84	~84
85-89	~34
Over 89	~24

Average Benefit by Age

Age	Average Benefit
Under 60	~$3,250
60-64	~$2,550
65-69	~$2,450
70-74	~$2,300
75-79	~$1,900
80-84	~$1,700
85-89	~$1,550
Over 89	~$1,500
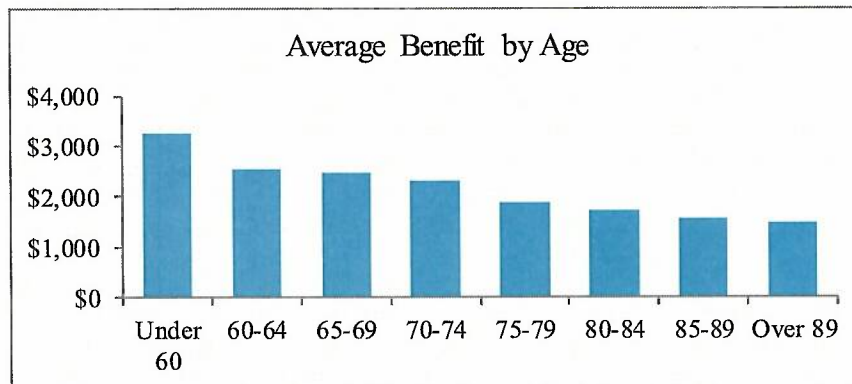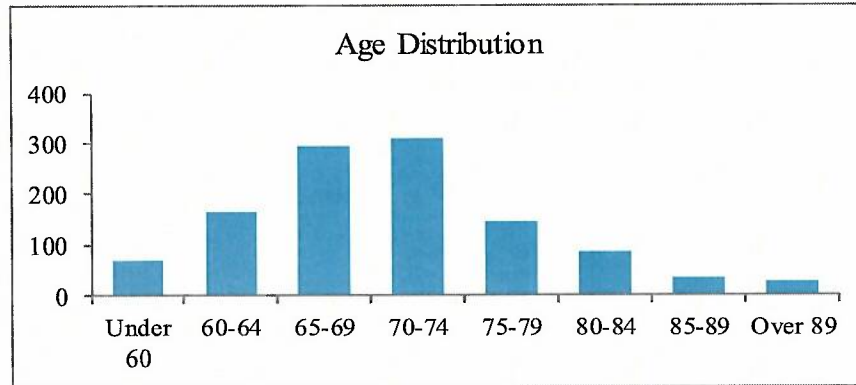
SCHEDULE III

BENEFICIARIES RECEIVING BENEFITS AS OF JANUARY 1, 2020

	Count of Beneficiaries			Current Monthly Benefits		
Age	Males	Females	Total	Males	Females	Total
Under 60	4	16	20	$ 1,602	$ 13,763	$ 15,365
60-64	2	25	27	699	31,532	32,231
65-69	5	25	30	4,886	37,828	42,714
70-74	6	39	45	5,877	60,026	65,903
75-79	0	41	41	0	64,494	64,494
80-84	3	42	45	3,607	62,328	65,935
85-89	2	33	35	2,907	50,136	53,043
Over 89	2	19	21	1,936	23,938	25,874
Total	24	240	264	$21,514	$344,045	$365,559

Age Distribution

Average Benefit by Age
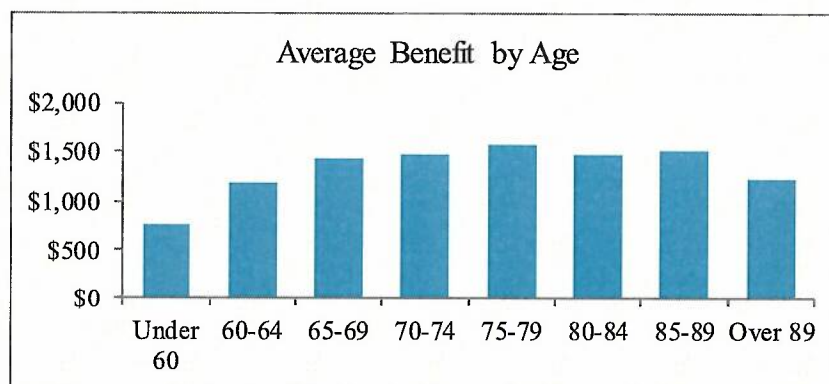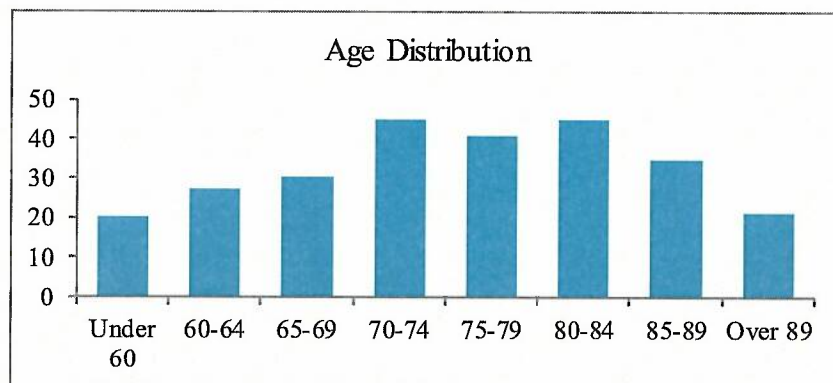
SCHEDULE IV
DEFERRED VESTED MEMBERS AS OF JANUARY 1, 2020

Age	Count of Members			Expected Monthly Benefit		
	Males	Females	Total	Males	Females	Total
Under 25	0	0	0	$ 0	$ 0	$ 0
25-29	0	0	0	0	0	0
30-34	2	2	4	1,215	1,150	2,365
35-39	5	6	11	4,007	4,940	8,947
40-44	7	6	13	7,630	4,907	12,537
45-49	9	12	21	11,892	11,868	23,760
50-54	13	7	20	15,861	8,437	24,298
55-59	16	9	25	29,800	10,929	40,729
Over 59	0	2	2	0	1,908	1,908
Total	52	44	96	$70,405	$44,139	$114,544

SCHEDULE V

DISABLED MEMBERS RECEIVING BENEFITS AS OF JANUARY 1, 2020

Age	Count of Members			Current Monthly Benefit		
	Males	Females	Total	Males	Females	Total
Under 45	0	1	1	$ 0	$ 2,052	$ 2,052
45-49	3	0	3	5,639	0	5,639
50-54	7	0	7	11,052	0	11,052
55-59	13	1	14	24,482	1,319	25,801
60-64	17	4	21	33,222	8,147	41,369
65-69	17	3	20	26,542	4,974	31,516
70-74	9	1	10	10,751	925	11,676
75-79	7	3	10	8,366	2,320	10,686
Over 79	4	1	5	5,572	740	6,312
Total	77	14	91	$125,626	$20,477	$146,103

Appendix F

Omaha Police and Fire
Retirement Plan Information

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City of Omaha
Jean Stothert, Mayor

October 8, 2020

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 groups 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 2016 through current plan year 2020.

In 2015, the Actuarial Committee of COPFRS elected to change the valuation methodology for the members who were participating or were expected to participate in the Deferred Retirement Option Plan (DROP). 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 effective and starting with the January 1, 2018 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. It is anticipated that the next Experience Study will be performed in 2021.

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 the 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 from 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. The City is involved in ongoing negotiations with the Omaha Police Officers Association. Police Management has a collective bargaining agreement for 2020 which does not include any additional pension contributions.

The City entered into a new collective bargaining agreements with the Professional Firefighters' Association for a term of 2019 through 2023 late in 2019. That agreement did not include any additional pension contributions or any changes to the pension system. The City entered into a new collective bargaining agreement with the Fire Management group for a term of 2019 through 2022 late in 2019. That agreement did not include any additional pension contributions or any changes to the pension system.

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, 2020, the system had market assets of approximately $801 million and a funded ratio of 54%. The system had a funded ratio of 52% in 2019. The actuarial contribution rate needed for the system on 1/1/2020 was 52.955% and the total amount being contributed was 51.236%. This contribution shortfall was a change from recent years, not surprising due to the change of assumptions effective in 2018. The unfunded actuarial liability is amortized, as a level percentage of payroll, over a closed 30-year period that began on January 1, 2014.
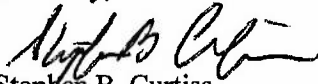
The most recent projection included in the Actuarial Report effective January 1, 2020 shows the system fully funded in 2046.

As requested, we enclose the most recent Actuarial Experience Study which was submitted in March, 2018 and the Actuarial Valuation Report effective January 1, 2020.

The Committee asked some additional questions concerning the impact of COVID 19. Though COVID 19 has had a severe impact on tax receipts and coupled with the costs associated with the civil unrest in the summer of 2020, has had a major budgetary impact, those issues do not have an effect on payments to the System. The COPFRS System receives its contributions on a substantially equal basis from the City and the employee, which rates are negotiated with the Unions. There is no process where the entire ARC payment is made and as a result, COVID 19 has had no effect on the ability to make the ARC payment. We anticipate the recent impact of COVID 19 is likely to affect both economic forecasts and demographic experience. Since the actuaries expect this experience to be more short term in nature, and assumptions are long-term estimates, they have not made any adjustments to the assumptions at this time. From talking to the System's actuaries, they intend to monitor the developments related to COVID 19 and their impact over the next few years to determine if any changes should be made.

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

Sincerely,

Stephen B. Curtiss
Finance Director

Enclosures

COPFRS EXHIBIT 1

ITEM	2016 Date	2016	2017 Date	2017	2018 Date	2018	2019 Date	2019	2020 Date	2020
Net Assets (actuarial value)	1/1/16	$ 621,403,975	1/1/17	$ 656,171,797	1/1/18	$ 706,595,615	1/1/19	$ 737,383,005	1/1/20	$ 787,558,791
Unfunded Actuarial Accrued Liability	1/1/16	$ 602,562,135	1/1/17	$ 611,737,378	1/1/18	$ 648,833,922	1/1/19	$ 669,449,659	1/1/20	$ 663,894,041
1a Funding Status	1/1/16	50.8%	1/1/17	51.8%	1/1/18	52.1%	1/1/19	52.41%	1/1/20	54.26%
1b Assumed Rate of Return	1/1/16	8.00%	1/1/17	8.00%	1/1/18	7.75%	1/1/19	7.75%	1/1/20	7.75%
1c Actual Investment Return	FYE 12/31/16	9.10%	FYE 12/31/17	15.00%	FYE 12/31/18	-2.33%	FYE 12/31/19	17.236%	FYE 12/31/20	Pending
Normal Cost ($)	1/1/16	$ 27,426,921	1/1/17	$ 27,892,194	1/1/18	$ 28,859,311	1/1/19	$ 29,894,631	1/1/20	$ 30,643,540
1e Normal Cost (%)	1/1/16	22.146%	1/1/17	21.991%	1/1/18	22.21%	1/1/19	22.034%	1/1/20	21.915%
1f Actuarial Rate of Contribution (ARC)	1/1/16	50.097%	1/1/17	50.212%	1/1/18	53.199%	1/1/19	53.447%	1/1/20	52.955%
1d Member Contribution Rate	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%	1/1/20	16.10%-17.23%
1d Employer Contribution Rate	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%	1/1/20	32.97%-34.42%
Contribution Margin (Shortfall)	1/1/16	0.446%	1/1/17	0.297%	1/1/18	-1.912%	1/1/19	-2.190%	1/1/20	-1.719%
1f Actuarial Required Contribution	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	$ 51,822,865	FYE 12/31/20	Pending
1g Employer Actual Dollars Contributed	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	$ 49,779,284	FYE 12/31/20	Pending
1g % of ARC by Employer Contribution	FYE 12/31/16	101.81%	FYE 12/31/17	101.46%	FYE 12/31/18	96.29%	FYE 12/31/19	96.06%	FYE 12/31/20	Pending

CM

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The City of Omaha
Police & Fire Retirement System

Actuarial Valuation as of
January 1, 2020

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CONSULTING, LLC
The experience and dedication you deserve

August 4, 2020

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

RE: January 1, 2020 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, 2020 for the plan year ending December 31, 2020. 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
Consulting Actuary

This report presents the results of the January 1, 2020 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;
- 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, 2020. The unfunded actuarial liability (UAL) in the current valuation is $664 million, a decrease of $5 million from last year's UAL of $669 million. The valuation results reflect net favorable experience for the past plan year as determined by the fact the actual UAL was lower than expected, based on the actuarial assumptions used in the January 1, 2019 actuarial valuation. Favorable experience on the actuarial value of assets resulted in an actuarial gain of $4 million and favorable demographic experience produced an actuarial gain on liabilities of $8 million. The favorable demographic experience was primarily due to actual salary increases that were lower 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 2019 was 17.1%, but due to deferred investment losses from prior years, the rate of return on the actuarial value of assets for the 2019 plan year was 8.4%. This return is higher than the expected return of 7.75%, so the System experienced an actuarial gain on assets. In addition, the net deferred investment experience changed from a $43 million deferred loss in last year's valuation to a $13 million deferred gain in the current valuation (market value of assets is about 2% higher than actuarial value). Actual returns over the next few years will determine if, as well as when, the deferred investment gain of $13 million will be recognized. Given the current deferred investment gains, a return of 5% on the market value of assets in 2020 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, 2021 valuation.

A summary of the key results from the January 1, 2020 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, 2020	January 1, 2019
Unfunded Actuarial Liability ($M)	$663.9	$669.4
Funded Ratio (Actuarial Assets)	54.26%	52.41%
Employee Contribution Rate	16.554%	16.564%
Total City Contribution Rate	34.682%	34.693%
Normal Cost Rate	21.915%	22.034%
UAL Amortization Rate	31.040%	31.413%
Total Contribution Rate	52.955%	53.447%
Contribution Shortfall/(Margin)	1.719%	2.190%

MEMBERSHIP

There was a total of 1,550 contributing members (active and DROP) in the 2020 valuation compared to 1,523 in the 2019 valuation, an increase of 1.8%. The number of non-DROP members was 1,480 in the 2020 valuation compared to 1,454 in the 2019 valuation. The graph below shows the number of contributing members in the valuation over the last 14 years. The size of the active group has varied somewhat over this period, but remained fairly stable until recently. The current count of 1,550 actively contributing members is the highest over the last 14 years. An increase in the number of actively contributing members has a positive impact on the System's funding as it creates higher covered payroll, and therefore, higher contributions. In addition, the UAL is amortized assuming covered payroll will grow at 3.25% per year. If total payroll grows more than 3.25%, the dollar amount of 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 2020 valuation, there were 483 Tier 2 members, about 33% of the total active membership. In the January 1, 2019 valuation, the about 28% of the total active group were Tier 2 members.

Active Membership

ASSETS

As of January 1, 2020, the System had total funds of $800.9 million, when measured on a market value basis. This was an increase of $106.7 million from the prior year and represents an approximate net rate of return of around 17.1%.

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 2019 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, 2020. The rate of return on the actuarial value of assets was 8.4% which is above the assumed return of 7.75% for 2019, producing an actuarial gain.

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, 2019	$ 694.2	$ 737.4
• City and Member Contributions	+ 73.2	+ 73.2
• Benefit Payments and Refunds	– 84.2	– 84.2
• Investment Gain/(Loss)	+ 117.7	+ 61.2
Net Assets, January 1, 2020	$ 800.9	$ 787.6
Estimated Net Rate of Return	17.1%	8.4%

The deferred investment gain that is not recognized as of January 1, 2020 is $13.3 million, compared with a deferred investment loss of $43.2 million in last year's valuation. The unrecognized gain will be reflected in the determination of the actuarial value of assets for funding purposes over time, to the extent there are no future losses to offset the deferred gain. 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 gain on the actuarial value of assets in the future. As mentioned earlier, a return of 5% on the market value of assets in 2020 would be necessary for the actuarial value of assets to earn 7.75% for calendar year 2020.

The unrecognized investment gain is 1.7% of the market value of assets at January 1, 2020. If the deferred gain was recognized immediately in the actuarial value of assets, the unfunded actuarial liability would decrease by $13.3 million to $650.6 million, the funded percentage would increase from 54% to 55%, the actuarially determined contribution rate would decrease from 52.955% to 52.272%, and the contribution shortfall of 1.719% would decrease to 1.036%.

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

	January 1 ($M)					
	2020	2019	2018	2017	2016	2015
Actuarial Value of Assets	$788	$737	$707	$656	$621	$590
Market Value of Assets	$801	$694	$724	$636	$594	$600
Actuarial Value/Market Value	98%	106%	98%	103%	105%	98%
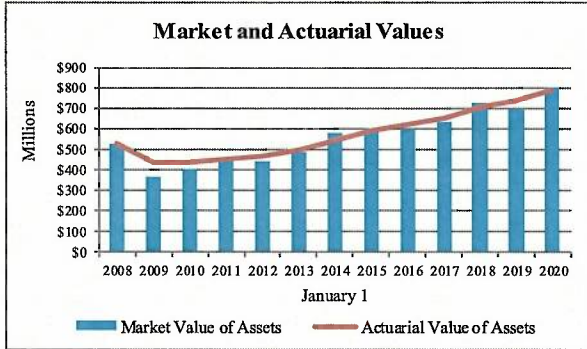
An asset smoothing method is used to mitigate the volatility in the market value of assets. By using a smoothing method, the actuarial (or smoothed) value is expected to be both above and below the pure market value at different points in time. The significant investment losses in 2008 resulted in the actuarial value of assets exceeding the market value from 2009 through 2013. Since 2014, the actuarial and market values have been relatively close.
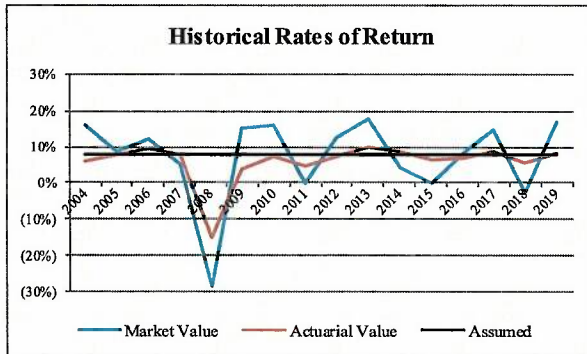
The rate of return on the actuarial value of assets has been less volatile than the rate of return on the market value of assets, which is the purpose for using a smoothing method. However, during this time period, the rate of return on the actuarial value of assets has been at or below the assumed rate 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	
	2020	2019
Actuarial Liability	$ 1,451,452,832	$ 1,406,832,664
Assets at Actuarial Value	(787,558,791)	(737,383,005)
Unfunded Actuarial Liability (Actuarial Value)	$ 663,894,041	$ 669,449,659
Funded Ratio (Actuarial Value)	54%	52%
Actuarial Liability	$ 1,451,452,832	$ 1,406,832,664
Assets at Market Value	(800,871,242)	(694,210,435)
Unfunded Actuarial Liability (Market Value)	$ 650,581,590	$ 712,622,229
Funded Ratio (Market Value)	55%	49%

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 2019 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 2019, in total, was favorable. There was an actuarial gain of $4 million on the actuarial value of assets and an actuarial gain of $8 million on actuarial liabilities. The largest source of gain on the liabilities was due to actual salary increases lower than expected based on the actuarial assumptions.

The change in the unfunded actuarial liability between January 1, 2019 and January 1, 2020 is shown below (in millions):

Unfunded Actuarial Liability, January 1, 2019	$669
· Expected change in UAL	5
· Contribution shortfall in 2019	2
· Investment experience	(4)
· Demographic experience	(8)
· Other experience	0
Unfunded Actuarial Liability, January 1, 2020	$664

CONTRIBUTION LEVELS

The System is funded with member and city contribution rates that are fixed rates which are specified in the respective bargaining agreements. Therefore, the actuarial contribution rate does not directly impact the System's funding, but instead is used to evaluate the sufficiency of the current fixed contribution rates.

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 2019 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 (24 years remain as of January 1, 2020). 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, 2020	January 1, 2019	Change
1.	Normal Cost Rate	21.915%	22.034%	(0.119%)
2.	UAL Contribution Rate	31.040%	31.413%	(0.373%)
3.	Total Contribution Rate (1) + (2)	52.955%	53.447%	(0.492%)
4.	Employee Contribution Rate	16.554%	16.564%	(0.010%)
5.	City Contribution Per Ordinance	33.781%	33.768%	0.013%
6.	City Prior Service Payment	0.901%	0.925%	(0.024%)
7.	Contribution Shortfall/(Margin) (3) - (4) - (5) - (6)	1.719%	2.190%	(0.471%)

The total normal cost for the System is 21.915% of payroll. When offset by the expected employee contributions for 2020, the employer portion of the normal cost is 5.361% of payroll. 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 members leave in the future and are replaced by new hires who are covered by the lower cost benefit structure, the normal cost rate is expected to decline.

The System's total actuarial contribution rate (payable as a percent of member payroll) decreased by 0.492% of pay, from 53.477% in the January 1, 2019 valuation to 52.955% in the January 1, 2020 valuation. As a result, while there is still a contribution shortfall of 1.719% (actual contribution rates are less than the actuarial contribution rate), the amount of the shortfall has declined since the prior valuation. The primary components of the change in the total actuarial contribution rate are shown in the following table:
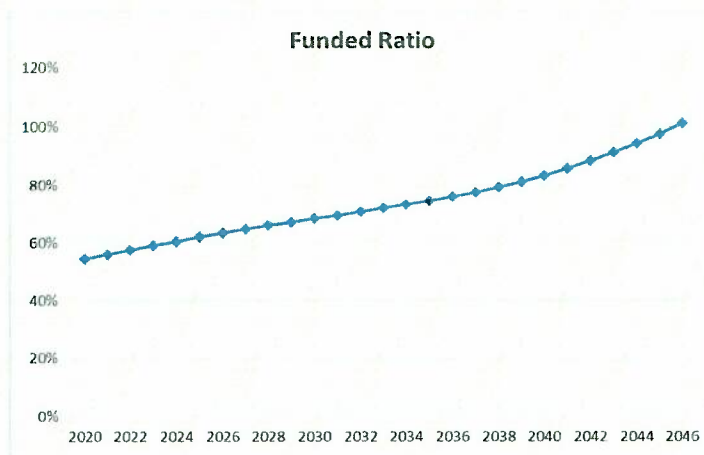
	Rate	
Total Actuarial Contribution Rate, January 1, 2019	53.447	%
• Actuarial (Gain) / Loss - Investment Experience	(0.219)	
• Actuarial (Gain) / Loss - Demographic Experience	(0.389)	
• Other Experience	(0.067)	
• Contributions Below the Actuarial Rate	0.105	
• Change in Normal Cost Rate	(0.119)	
• Payroll Growth Lower than Expected	0.197	
Total Actuarial Contribution Rate, January 1, 2020	52.955	%

As the table above illustrates, the most significant factors in the decrease in the actuarial contribution rate were the actuarial gains (on both assets and liabilities), which decreased the actuarial contribution rate by 0.608%. Payroll growth lower than expected offset part of the positive impact of the actuarial gains. Due to the decrease in the actuarial contribution rate, last year's contribution shortfall of 2.190% of payroll declined to 1.719% of payroll in the current valuation.

FUNDED STATUS PROJECTIONS

While the January 1, 2020 valuation results indicate the System's financial status at a single point in time, projections are used to identify trends and to compare various scenarios. They are not intended to predict some future state of events. The projections model a change in one key variable to provide insight into the longer term trend of (1) the actuarial contributions; (2) the projected System funded status (ratio of actuarial assets over liabilities); and (3) the unfunded actuarial accrued liability (actuarial accrued liability minus actuarial assets). Because the City of Omaha Police and Fire Retirement System is funded with fixed contribution rates, the last two actuarial measurements are most relevant. If all actuarial assumptions are met each year in the future, the funded ratio is projected to reach full funding in 2046, as shown in the graph below:


It is highly unlikely the investment return every year in the future will be exactly 7.75% so additional analysis is required to understand the funding risks involved. The projection model is useful to demonstrate how sensitive future valuation results are to the key funding variable of actual investment return.

The following alternate scenarios reflect actual investment returns that are different than the assumption. The results are then compared to the baseline projection (all assumption are met each year):
    (1) Returns of 6.50% for the next 15 years (a return more in line with current expectations), and
    (2) Returns of -10.00% for 2020, followed by 7.75% for the next 14 years.

Funded Ratio

Funded Ratio
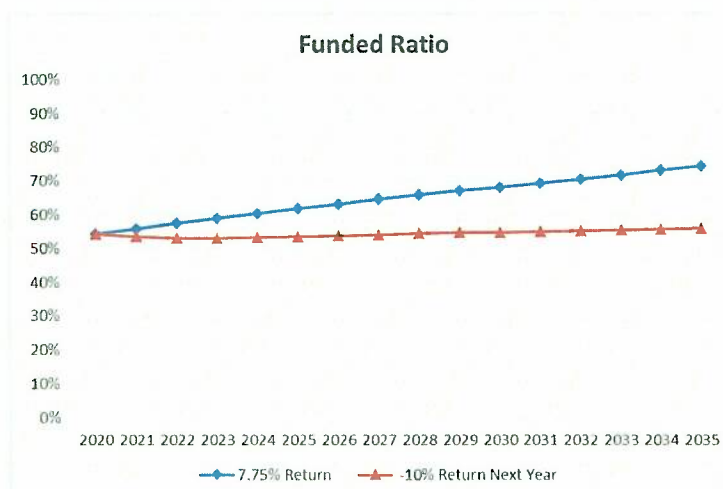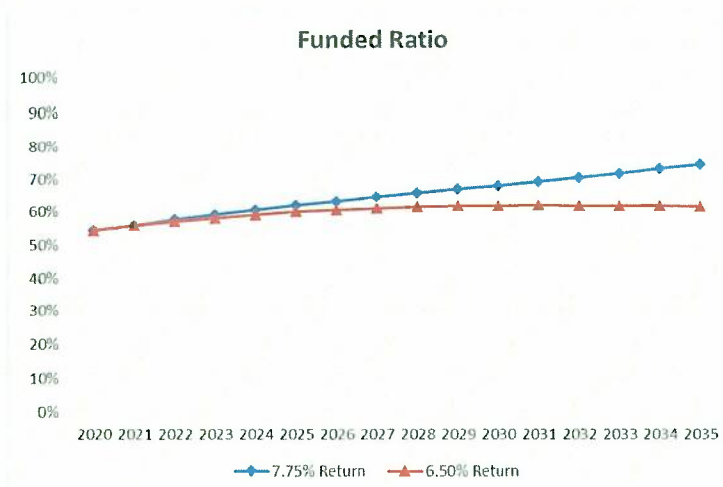
As evidenced by the projections above, the actual investment return on the assets has a dramatic impact on the System's long term funding, particularly since the contribution rates are fixed. Given the volatility in returns from year to year, it is important to monitor the System's current and projected funded status. The projections assume that all actuarial assumptions, other than investment return, are met in all future years and that contributions at the current rates in the bargaining agreements continue unchanged. These projections include estimates of future valuation results, including the unfunded actuarial accrued liability and funded ratio. It should be noted that these actuarial measurements do not indicate the sufficiency of plan assets to settle the plan's obligations nor do they, on their own, indicate future funding requirements.

Furthermore, the projections do not 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, 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 the projections were prepared. Because not all of the assumptions will unfold exactly as expected, actual results in the future will differ from the projections shown and the difference could be significant.

COMMENTS

On January 1, 2020, the actuarial value of assets was $788 million and the market value of assets was $801 million. Due to the return on the market value of assets of 17.1% in calendar year 2019, the deferred investment loss of $43 million that existed in the prior valuation is now a $13 million deferred investment gain in the current valuation. The return on the actuarial value of assets of 8.4% was above the assumed rate of return (7.75%) which resulted in a $4 million actuarial gain. There was also a liability gain of $8 million during 2019, primarily due to actual salary increases that were smaller than expected based on the actuarial assumptions. The funded ratio, based on the actuarial value of assets, remains low, but increased slightly from 52% to 54%. On a market value of assets basis, the funded ratio improved more dramatically from 49% to 55%.

As of January 1, 2020, there were 483 active members covered by the Tier 2 benefit structure, about 33% of the total active membership. This represents an increase, up from 28% in the January 1, 2019 valuation. As a higher portion of total actives become covered by Tier 2 benefit provisions, the normal cost of the System will continue to decline. However, the majority of the actuarial liability will remain with the Tier 1 members, including retirees, for many years.

The actuarial contribution rate for calendar year 2020 exceeds the current contribution rates for the members and the City, producing a contribution shortfall of 1.719% of payroll. This contribution shortfall is based on the actuarial valuation performed on January 1, 2020, a snapshot measurement on that date 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. Cavanaugh Macdonald Consulting was retained by the Board to perform such a projection in connection with the January 1, 2020 valuation. This type of open group projection model is the most useful tool to assist the Board and other interested parties in evaluating the long-term financial health of the System. The model can also be used to perform important analysis related to various risks related to funding the System. As discussed earlier, if all actuarial assumptions are met in the future the current contribution rates are expected to move the System to full funding in 26 years or 2046. This date is very fluid and can be expected to change every year as actual experience, both assets and liability, is captured in the most recent valuation.

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 2020 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	$1,451.5	$1,451.5
Asset Value	787.6	800.9
Unfunded Actuarial Liability	663.9	650.6
Funded Ratio	54.3%	55.2%
Normal Cost Rate	21.915%	21.915%
UAL Contribution Rate	31.040%	30.357%
Actuarial Contribution Rate	52.955%	52.272%
Employee Contribution Rate	16.554%	16.554%
City Contribution Rate	34.682%	34.682%
Contribution Shortfall/(Margin)	1.719%	1.036%

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 along with 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, 2020	January 1, 2019	% Chg
MEMBERSHIP			
1. Active Membership			
- Police Active Members			
- Tier 1	497	525	(5.3)
- Tier 2	351	302	16.2
- Total	848	827	2.5
- Fire Active Members			
- Tier 1	500	520	(3.8)
- Tier 2	132	107	23.4
- Total	632	627	0.8
- Total Active Members	1,480	1,454	1.8
- Number of DROP Participants	70	69	1.4
- Total Employees	1,550	1,523	1.8
- Projected Payroll for Upcoming Fiscal Year	$147,301,421	$143,575,171	2.6
- Average Projected Pay	$95,033	$94,271	0.8
2. Inactive Membership			
- Number of Retirees / Beneficiaries	1,312	1,291	1.6
- Number of Disabled Members	224	224	0.0
- Number of Inactive Vesteds	8	8	0.0
- Average Annual Benefit	$50,753	$49,496	2.5
- Number of Participants Due a Refund	6	9	(33.3)
ASSETS AND LIABILITIES			
1. Net Assets			
- Market Value	$800,871,242	$694,210,435	15.4
- Actuarial Value	$787,558,791	$737,383,005	6.8
2. Actuarial Liability	$1,451,452,832	$1,406,832,664	3.2
3. Unfunded Actuarial Liability	$663,894,041	$669,449,659	(0.8)
4. Funded Ratios			
Actuarial Value Assets / Actuarial Liability	54.26%	52.41%	3.5
Market Value Assets / Actuarial Liability	55.18%	49.35%	11.8
CONTRIBUTIONS			
1. Normal Cost Rate	21.915%	22.034%	(0.5)
2. UAL Rate	31.040%	31.413%	(1.2)
3. Total Contribution Rate (1) + (2)	52.955%	53.447%	(0.9)
4. Employee Contribution Rate	16.554%	16.564%	(0.1)
5. City Contribution Per Ordinance	33.781%	33.768%	0.0
6. City Prior Service Payment	0.901%	0.925%	(2.6)
7. Contribution Shortfall/(Margin) (3) - (4) - (5) - (6)	1.719%	2.190%	(21.5)

EXHIBIT 1
SUMMARY OF FUND ACTIVITY

(Market Value Basis)

For Year Ended December 31, 2019

Assets at January 1, 2019	$	694,210,435
Receipts:		
City Contributions		49,779,284
Employee Contributions		23,392,711
Investment Earnings, Net of Expenses		117,666,959
Total Receipts		190,838,954
Disbursements:		
Benefits Payments		77,124,566
Refund of Contributions		7,038,358
Administrative Expenses		15,223
Total Disbursements		84,178,147
Assets as of December 31, 2019	$	800,871,242
Annualized Net Yield		17.1%

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, 2019 $ 737,383,005

2. Actual Receipts / Disbursements
   a. Total Contributions   73,171,995
   b. Benefit Payments/Other   (84,162,924)
   c. Net Change   (10,990,929)

3. Expected Actuarial Value of Assets as of January 1, 2020   783,121,307
   $[(1) * 1.0775] + [(2c) * 1.0775^{\frac{1}{2}}]$

4. Market Value of Assets as of January 1, 2020   800,871,242

5. Excess of Market Value over Expected Actuarial   17,749,935
   Value as of January 1, 2020

6. Preliminary Actuarial Value of Assets as of January 1, 2020   787,558,791
   $[(3) + 25\% \text{ of } (5)]$

7. Calculation of 20% Corridor
   a. 80% of (4)   640,696,994
   b. 120% of (4)   961,045,490

8. Final Actuarial Value of Assets as of January 1, 2020
   (6), but not < (7a), nor > (7b) $ 787,558,791

9. Rate of Return on Actuarial Value of Assets   8.4%

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%
1/1/2020	800,871,242	787,558,791	98.3%
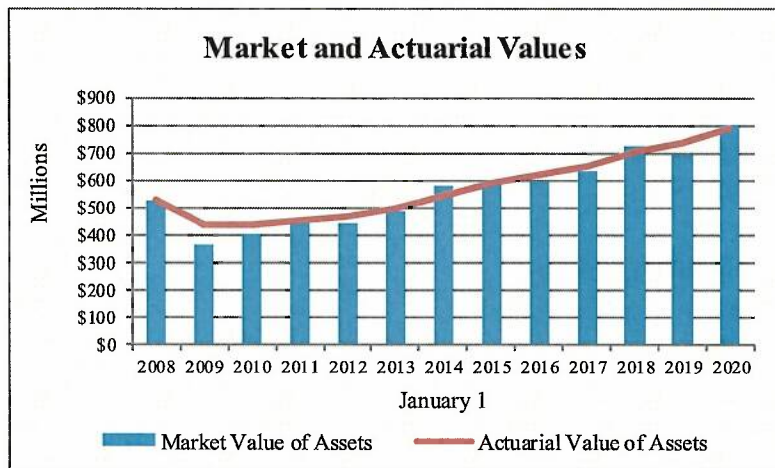
Market and Actuarial Values

EXHIBIT 3

ACTUARIAL BALANCE SHEET

An actuarial statement of the status of the plan in balance sheet form as of January 1, 2020 is as follows:

Assets

Current assets (actuarial value)	$	787,558,791
Present value of future normal costs		270,158,253
Present value of future contributions to fund unfunded actuarial liability		663,894,041
Total Assets	$	1,721,611,085

Liabilities

Present value of future retirement benefits for:

Active employees	$	760,382,128		
DROP participants - account balances		9,648,484		
DROP participants - annuities		69,675,313		
Retired employees, contingent annuitants and spouses receiving benefits		770,988,001		
Disabled members		93,101,683		
Inactive vested employees		2,035,463		
Inactive employees due refunds		32,677		
Total			$	1,705,863,749

Present value of future death benefits payable upon death of active members		9,280,505
Present value of future benefits payable upon termination of active members		6,466,831
Total Liabilities	$	1,721,611,085

EXHIBIT 4

UNFUNDED ACTUARIAL LIABILITY

As of January 1, 2020

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	$ 1,721,611,085
2.	Present Value of Future Normal Costs	270,158,253
3.	Actuarial Liability (1) – (2)	1,451,452,832
4.	Actuarial Value of Assets	787,558,791
5.	Unfunded Actuarial Liability (3) – (4)	663,894,041
6.	Present Value of Prior Service Payments	8,698,960
7.	Adjusted Unfunded Actuarial Liability (Payable from Payroll Related Contributions) (5) – (6)	$ 655,195,081

EXHIBIT 5

CALCULATION OF ACTUARIAL GAIN / (LOSS)
For Plan Year Ending December 31, 2019

Liabilities

1.	Actuarial liability less prior service payments as of January 1, 2019	$	1,397,480,419
2.	Normal cost for 2019		29,894,631
3.	Interest at 7.75% on (1) and (2) to December 31, 2019		110,621,566
4.	Benefit payments during 2019		(84,162,924)
5.	Interest on benefit payments		(3,200,461)
6.	Expected actuarial liability as of December 31, 2019	$	1,450,633,231
7.	Actuarial liability less prior service payments as of December 31, 2019	$	1,442,753,872

Assets

8.	Actuarial value of assets as of January 1, 2019	$	737,383,005
9.	Contributions during 2019		73,171,995
10.	Benefit payments during 2019		(84,162,924)
11.	Interest on items (8), (9) and (10)		56,729,231
12.	Expected actuarial value of assets as of December 31, 2019	$	783,121,307
13.	Actual actuarial value of assets as of December 31, 2019	$	787,558,791

Gain / (Loss)

14.	Expected unfunded actuarial liability (6) – (12)	$	667,511,924
15.	Actual unfunded actuarial liability (7) – (13)	$	655,195,081
16.	Actuarial Gain / (Loss) (14) – (15)	$	12,316,843
17.	Actuarial Gain / (Loss) on Actuarial Assets (13) – (12)	$	4,437,484
18.	Actuarial Gain / (Loss) on Actuarial Liability (6) – (7)	$	7,879,359

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 gain on liabilities of $7.9 million during the plan year ended December 31, 2019, and an actuarial gain on assets of $4.4 million. The net actuarial gain was $12.3 million. The major components of this net actuarial experience gain are shown below:

Liability Sources	Gain/(Loss)	
Salary Increases	$	6,940,000
Mortality		1,979,000
Terminations		441,000
Retirements/DROP		(673,000)
Disability		1,374,000
New Entrants/Rehires		(1,562,000)
Miscellaneous		(620,000)
Total Liability Gain/(Loss)	$	7,879,000
Asset Gain/(Loss)	$	4,438,000
Net Actuarial Gain/(Loss)	$	12,317,000

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 (24 years remaining as of January 1, 2020). 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, 2020 Remaining Years	Year of Last Payment	Outstanding Balance as of January 1, 2020	Annual Contribution (mid-year)
2018 Legacy UAL	$ 638,875,379	24	2043	$ 651,221,923	$ 44,057,133
2019 Experience Base	14,607,954	19	2038	14,594,757	1,139,215
2020 Experience Base	(10,621,599)	20	2039	(10,621,599)	(802,262)
Total				**$ 655,195,081**	**$ 44,394,086**

EXHIBIT 8

DEVELOPMENT OF
2020 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 2020	
	a. Retirement	$ 25,449,213
	b. Disability	3,472,542
	c. Pre-retirement death	760,476
	d. Termination	961,309
	e. Total	$ 30,643,540
2.	Expected Payroll in 2020 for Current Actives	$ 139,827,256
3.	Normal Cost Rate (1e) / (2)	21.915%
4.	Unfunded Actuarial Liability Payable from Payroll Related Contributions	$ 655,195,081
5.	Unfunded Actuarial Liability (UAL) Payment	$ 44,394,086
6.	Prior Service Payment	1,327,600
7.	Total Projected Payroll for 2020, Including DROP Members	$ 147,301,421
8.	UAL and Prior Service Payment as a Percent of Pay [(5) + (6)] / (7)	31.040%
9.	Total Actuarial Contribution Rate (3) + (8)	52.955%
10.	Employee Contribution Rate	16.554%
11.	City Ordinance Contribution Rate	33.781%
12.	City Prior Service Contribution Rate	0.901%
13.	Contribution Shortfall/(Margin) (9) - (10) - (11) - (12)	1.719%

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 because any modifications must be bargained with the various membership groups. 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 13 of the last 16 years which has restricted the improvement in funded status.
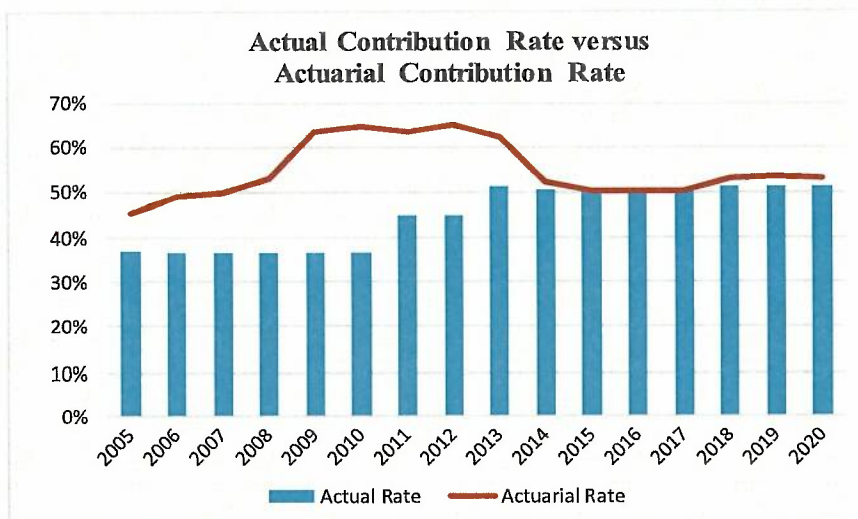
Actual Contribution Rate versus Actuarial Contribution Rate

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, given 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 (such as the Great Recession in 2008) can result in a significant reduction in funded status before corrective action occurs due to the fact any changes to the benefits or contributions must be resolved in the bargaining process.

The current funded status of the System, using the market value of assets, is 55%. The market value of assets on January 1, 2020 was $801 million while the retiree liability on the same date was $864 million. Essentially, the current assets are only sufficient to fund about 93% of the retiree liability (and 0% of the active liability), assuming all actuarial assumptions are met, as shown below. Although the situation has improved since 2009, the assets are still less than the retiree liability.

Historical Assets versus Liabilities

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 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%
1/1/2020	800,871,242	147,301,421	5.44	4.11%

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, 2020 are 5.44 times payroll, so underperforming the investment return assumption by 10.00% (i.e., earn -2.25% for one year) is equivalent to 54% 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.
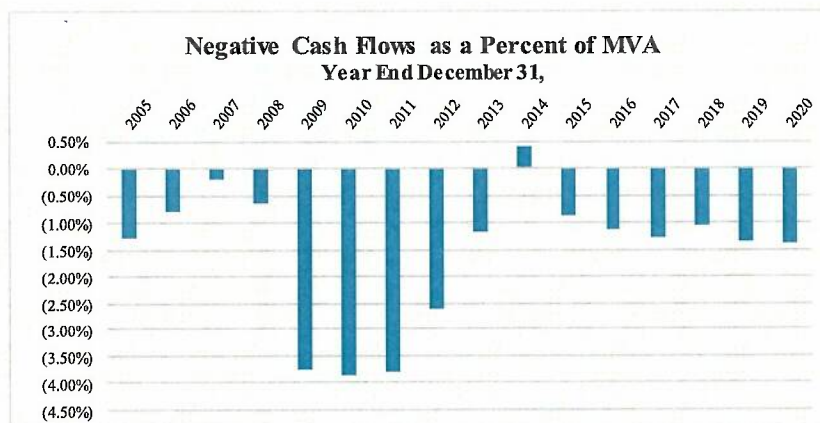
EXHIBIT 10

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%)
1/1/2020	800,871,242	73,171,995	84,162,924	(10,990,929)	(1.37%)

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

Negative Cash Flows as a Percent of MVA
Year End December 31,

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.

Valuation Date	Retiree Liability (a)	Total Actuarial Liability (b)	Retiree Percentage (a / b)
1/1/2005	N/A	$657,650,175	N/A
1/1/2006	N/A	746,490,736	N/A
1/1/2007	421,211,382	829,097,202	50.8%
1/1/2008	571,615,718	898,199,279	63.6%
1/1/2009	628,626,169	971,989,970	64.7%
1/1/2010	653,663,831	1,034,716,125	63.2%
1/1/2011	682,671,068	1,028,866,353	66.4%
1/1/2012	690,568,696	1,077,607,299	64.1%
1/1/2013	718,209,902	1,108,874,778	64.8%
1/1/2014	735,256,472	1,170,967,753	62.8%
1/1/2015	754,837,275	1,189,002,221	63.5%
1/1/2016	755,079,053	1,223,966,110	61.7%
1/1/2017	774,112,739	1,267,909,175	61.1%
1/1/2018	805,195,802	1,355,429,537	59.4%
1/1/2019	838,270,656	1,406,832,664	59.6%
1/1/2020	864,089,684	1,451,452,832	59.5%

Note: Years prior to 1/1/2011 were provided by the prior actuary.
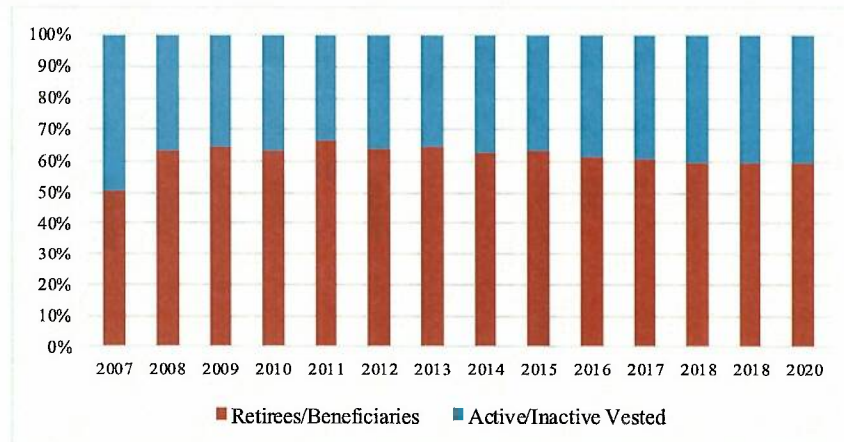
Retirees/Beneficiaries   Active/Inactive Vested

EXHIBIT 12

HISTORICAL MEMBER STATISTICS

Valuation Date January 1,	Number of		Active/ 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
2020	1,550	1,536	1.01

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

*Counts include members currently participating in DROP.
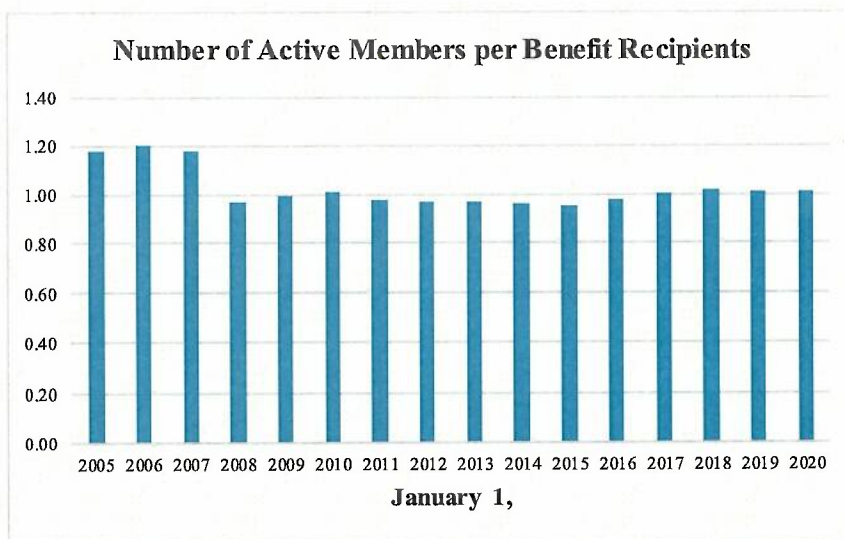
Number of Active Members per Benefit Recipients

January 1,

EXHIBIT 13

COMPARISON OF VALUATION RESULTS UNDER ALTERNATE
INVESTMENT RETURN ASSUMPTIONS

This exhibit compares the key January 1, 2020 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	24.388%	23.113%	21.915%	20.790%	19.733%
UAL Contribution Rate	33.523%	32.274%	31.040%	29.818%	28.608%
Total Actuarial Contribution Rate	57.911%	55.387%	52.955%	50.608%	48.341%
Employee Contribution Rate	16.554%	16.554%	16.554%	16.554%	16.554%
City Contribution Per Ordinance	33.781%	33.781%	33.781%	33.781%	33.781%
City Prior Service Payment	0.901%	0.901%	0.901%	0.901%	0.901%
Contribution Shortfall/(Margin)	6.675%	4.151%	1.719%	(0.628)%	(2.895)%
Actuarial Liability ($ in thousands)	$1,530,072	$1,489,907	$1,451,453	$1,414,615	$1,379,306
Actuarial Value of Assets ($ in thousands)	787,559	787,559	787,559	787,559	787,559
Unfunded Actuarial Liability ($ in thousands)	$742,514	$702,349	$663,894	$627,056	$591,747
Funded Ratio	51.47%	52.86%	54.26%	55.67%	57.10%

Note: All other assumptions are unchanged for purposes of this sensitivity analysis. Numbers may not add due to rounding.

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%
12/31/2019	51,822,865	49,779,284	96.06%

*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%
1/1/2020	787,558,791	1,451,452,832	663,894,041	54.3%	147,301,421	450.7%

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.
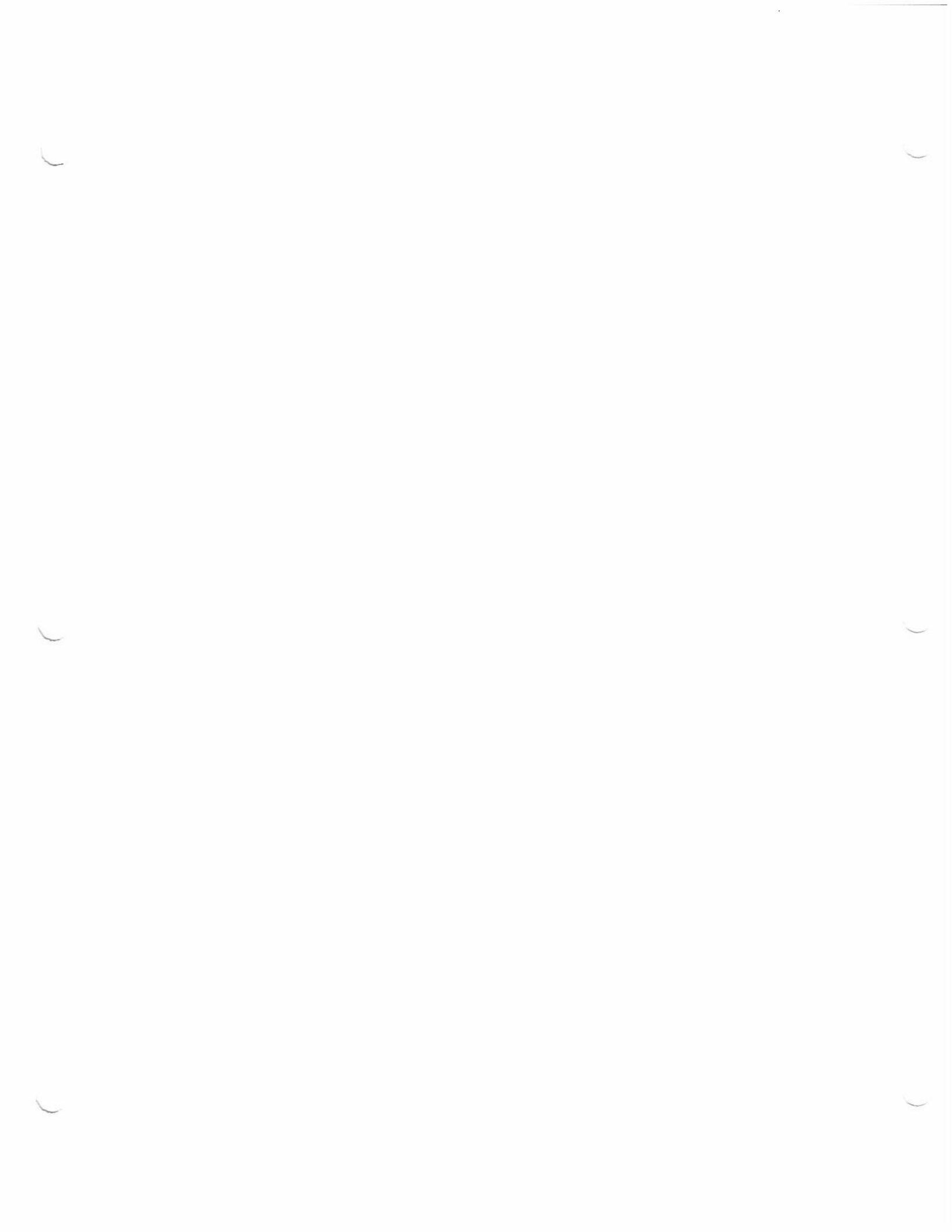
APPENDIX A

SUMMARY OF PLAN PROVISIONS
(continued)

Service Retirement Eligibility
Section 22 - 75

<u>Police:</u> 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.

<u>Fire:</u> 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 (24 years remain as of January 1, 2020). 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 <u>after</u> January 1, 2010 and Fire members hired <u>after</u> 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, 2020. 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	1,480
(b)	DROP members	70
(c)	Inactive vested members	8
(d)	Terminated members due a refund	6
(e)	Disabled members	224
(f)	Retirees, spouses and children receiving benefits	<u>1,312</u>
(g)	Total	3,100

Average age of members in valuation:

(a)	Active members	
	Attained Age	41.4
	Hire Age	28.8
(b)	DROP members	53.7
(c)	Inactive vested members	49.1
(d)	Disabled members	67.9
(e)	Retired members	66.5
(f)	Spouses and children receiving benefits	72.6

Active members as of January 1, 2020:

(a)	Eligible for vested benefits	760
(b)	Eligible for early or normal retirement benefits	254
(c)	Eligible for refund of contributions only (not vested)	<u>466</u>
(d)	Total	1,480

MEMBERSHIP DATA RECONCILIATION
January 1, 2019 to January 1, 2020

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 1/1/2019	1,454	9	8	224	69	1,014	277	3,055
New Members	77	1	0	0	0	0	0	78
Terminations								
Rehired	2	(1)	(1)	0	0	0	0	0
Refunded: Paid	(4)	(4)	(1)	0	0	0	0	(9)
Refunded: Due	(1)	1	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	(21)	0	0	0	(20)	41	0	0
Participating in DROP	(21)	0	0	0	21	0	0	0
Benefit Payments Ended	0	0	0	0	0	0	0	0
Data Adjustments	0	0	0	3	0	(3)	(2)	(2)
Deaths								
With Beneficiary	(1)	0	0	(1)	0	(18)	21	1
Without Beneficiary	0	0	0	(5)	0	(7)	(11)	(23)
Total Members 1/1/2020	1,480	6	8	224	70	1,027	285	3,100

SCHEDULE I

ACTIVE MEMBERS AS OF JANUARY 1, 2020

Total

	Count of Members			Valuation Salaries of Members		
Age	Males	Females	Total	Males	Females	Total
Under 25	14	2	16	$ 676,249	$ 84,951	$ 761,200
25-29	119	18	137	8,249,996	1,028,267	9,278,263
30-34	170	24	194	13,446,699	1,884,632	15,331,331
35-39	236	31	267	22,049,306	2,741,078	24,790,384
40-44	247	33	280	24,591,923	3,277,184	27,869,107
45-49	282	38	320	29,819,648	3,930,254	33,749,902
50-54	181	17	198	19,454,881	1,803,921	21,258,802
55-59	48	7	55	5,139,455	780,355	5,919,810
60-64	13	0	13	1,319,152	0	1,319,152
Over 64	0	0	0	0	0	0
Total	1,310	170	1,480	$124,747,309	$15,530,642	$140,277,951

Numbers may not add due to rounding.

Age Distribution

Average Salary by Age

SCHEDULE I (continued)

ACTIVE MEMBERS AS OF JANUARY 1, 2020

Total

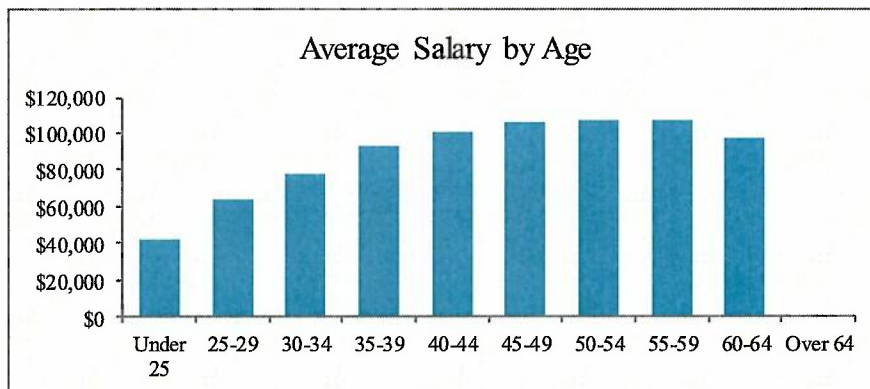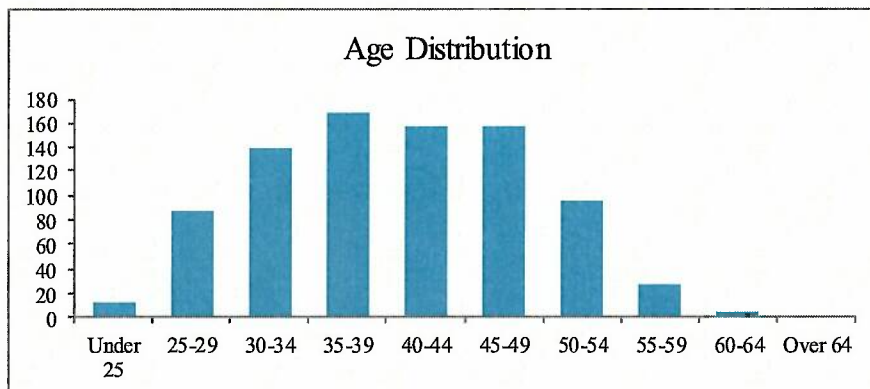| Age	Under 5	5-10	10-15	15-20	Service 20-25	25-30	30-35	35-40	Over 40	Total
Under 25	16	0	0	0	0	0	0	0	0	16
25-29	119	18	0	0	0	0	0	0	0	137
30-34	113	43	38	0	0	0	0	0	0	194
35-39	50	39	152	26	0	0	0	0	0	267
40-44	25	19	100	112	24	0	0	0	0	280
45-49	13	4	59	128	102	14	0	0	0	320
50-54	5	2	15	56	94	26	0	0	0	198
55-59	0	0	6	13	31	5	0	0	0	55
60-64	0	0	2	3	8	0	0	0	0	13
Over 64	0	0	0	0	0	0	0	0	0	0
Total	341	125	372	338	259	45	0	0	0	1,480

Service Distribution

SCHEDULE I (continued)

ACTIVE MEMBERS AS OF JANUARY 1, 2020

All Police Members

	Count of Members			Valuation Salaries of Members		
Age	Males	Females	Total	Males	Females	Total
Under 25	10	2	12	$ 424,600	$ 84,951	$ 509,551
25-29	72	15	87	4,728,292	835,144	5,563,436
30-34	120	19	139	9,311,274	1,504,204	10,815,478
35-39	145	23	168	13,629,814	2,066,822	15,696,636
40-44	131	27	158	13,134,073	2,673,723	15,807,796
45-49	127	30	157	13,641,302	3,033,837	16,675,139
50-54	81	14	95	8,708,977	1,467,205	10,176,182
55-59	21	6	27	2,213,735	690,342	2,904,077
60-64	5	0	5	484,832	0	484,832
Over 64	0	0	0	0	0	0
Total	712	136	848	$66,276,899	$12,356,228	$78,633,127

Numbers may not add due to rounding.

Age Distribution

Average Salary by Age

SCHEDULE I (continued)

ACTIVE MEMBERS AS OF JANUARY 1, 2020

All Police Members

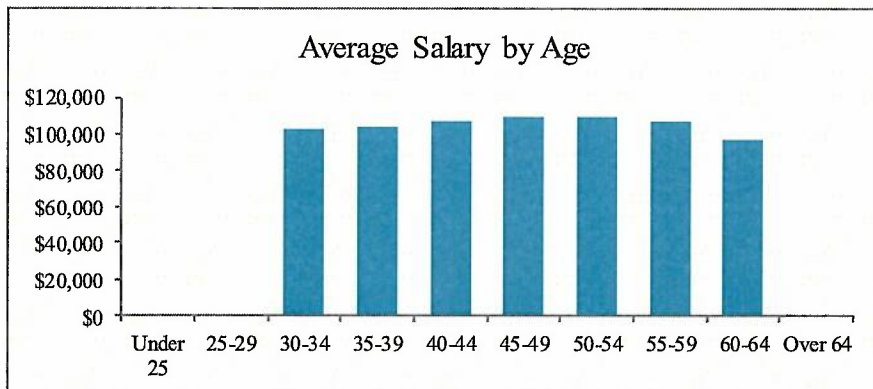| Age	Under 5	5-10	10-15	15-20	Service 20-25	25-30	30-35	35-40	Over 40	Total
Under 25	12	0	0	0	0	0	0	0	0	12
25-29	80	7	0	0	0	0	0	0	0	87
30-34	92	18	29	0	0	0	0	0	0	139
35-39	36	16	90	26	0	0	0	0	0	168
40-44	19	10	51	67	11	0	0	0	0	158
45-49	10	0	28	58	52	9	0	0	0	157
50-54	4	1	9	24	44	13	0	0	0	95
55-59	0	0	3	7	15	2	0	0	0	27
60-64	0	0	2	2	1	0	0	0	0	5
Over 64	0	0	0	0	0	0	0	0	0	0
Total	253	52	212	184	123	24	0	0	0	848

Service Distribution

SCHEDULE I (continued)

ACTIVE MEMBERS AS OF JANUARY 1, 2020

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	16	1	17	1,646,888	97,112	1,744,000
35-39	87	13	100	9,033,482	1,302,261	10,335,743
40-44	93	24	117	10,098,211	2,403,174	12,501,385
45-49	113	29	142	12,523,231	2,954,643	15,477,874
50-54	76	13	89	8,315,425	1,376,976	9,692,401
55-59	21	6	27	2,213,735	690,342	2,904,077
60-64	5	0	5	484,832	0	484,832
Over 64	0	0	0	0	0	0
Total	411	86	497	$44,315,804	$8,824,508	$53,140,312

Numbers may not add due to rounding.
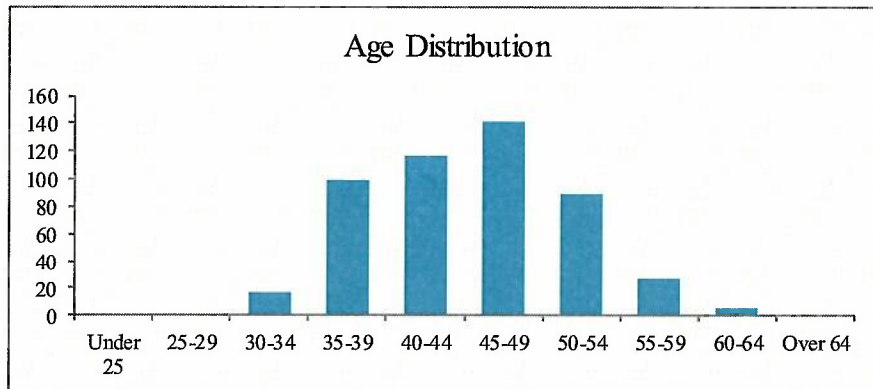
Age Distribution

Average Salary by Age

SCHEDULE I (continued)

ACTIVE MEMBERS AS OF JANUARY 1, 2020

Police Members Hired Before January 1, 2010

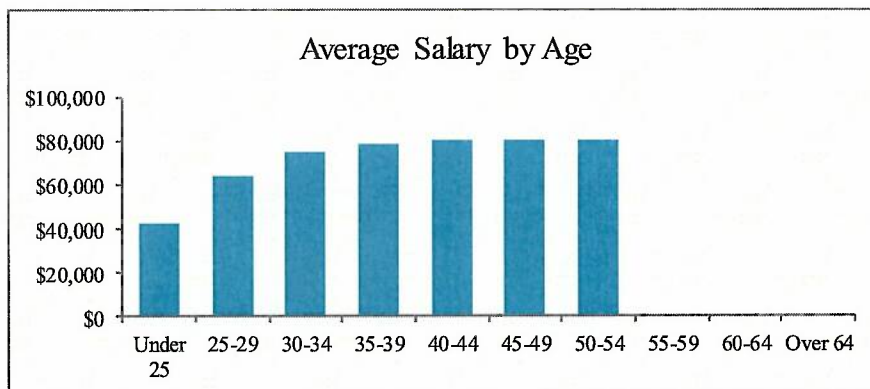| Age	Under 5	5-10	10-15	15-20	Service 20-25	25-30	30-35	35-40	Over 40	Total
Under 25	0	0	0	0	0	0	0	0	0	0
25-29	0	0	0	0	0	0	0	0	0	0
30-34	0	0	17	0	0	0	0	0	0	17
35-39	0	0	74	26	0	0	0	0	0	100
40-44	0	0	39	67	11	0	0	0	0	117
45-49	0	0	23	58	52	9	0	0	0	142
50-54	0	0	8	24	44	13	0	0	0	89
55-59	0	0	3	7	15	2	0	0	0	27
60-64	0	0	2	2	1	0	0	0	0	5
Over 64	0	0	0	0	0	0	0	0	0	0
Total	0	0	166	184	123	24	0	0	0	497

Service Distribution

SCHEDULE I (continued)

ACTIVE MEMBERS AS OF JANUARY 1, 2020

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	10	2	12	$ 424,600	$ 84,951	$ 509,551
25-29	72	15	87	4,728,292	835,144	5,563,436
30-34	104	18	122	7,664,386	1,407,092	9,071,478
35-39	58	10	68	4,596,332	764,561	5,360,893
40-44	38	3	41	3,035,862	270,549	3,306,411
45-49	14	1	15	1,118,071	79,194	1,197,265
50-54	5	1	6	393,552	90,229	483,781
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	301	50	351	$21,961,095	$3,531,720	$25,492,815

Numbers may not add due to rounding.

Age Distribution

Average Salary by Age
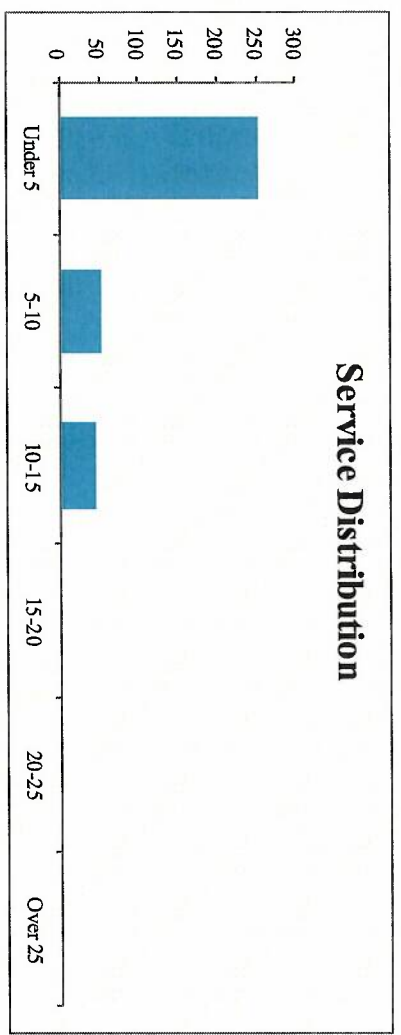
SCHEDULE I (continued)

ACTIVE MEMBERS AS OF JANUARY 1, 2020

Police Members Hired On or After January 1, 2010

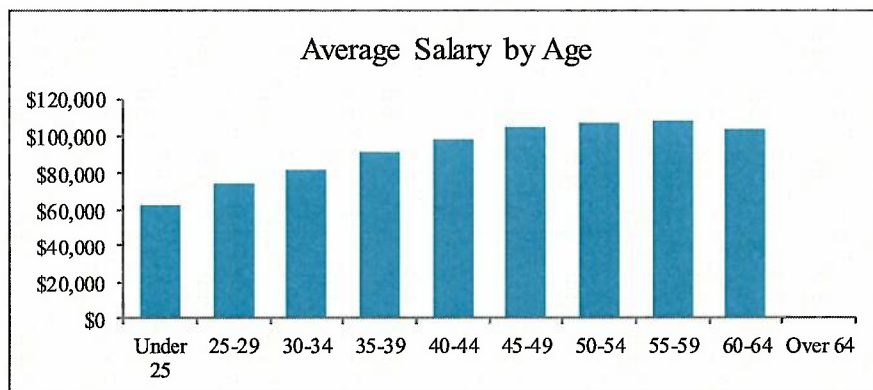| Age	Under 5	5-10	10-15	15-20	Service 20-25	25-30	30-35	35-40	Over 40	Total
Under 25	12	0	0	0	0	0	0	0	0	12
25-29	80	7	0	0	0	0	0	0	0	87
30-34	92	18	12	0	0	0	0	0	0	122
35-39	36	16	16	0	0	0	0	0	0	68
40-44	19	10	12	0	0	0	0	0	0	41
45-49	10	0	5	0	0	0	0	0	0	15
50-54	4	1	1	0	0	0	0	0	0	6
55-59	0	0	0	0	0	0	0	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	253	52	46	0	0	0	0	0	0	351

Service Distribution

SCHEDULE I (continued)

ACTIVE MEMBERS AS OF JANUARY 1, 2020

All Fire Members

Age	Count of Members			Valuation Salaries of Members		
	Males	Females	Total	Males	Females	Total
Under 25	4	0	4	$ 251,649	$ 0	$ 251,649
25-29	47	3	50	3,521,704	193,123	3,714,827
30-34	50	5	55	4,135,425	380,428	4,515,853
35-39	91	8	99	8,419,492	674,256	9,093,748
40-44	116	6	122	11,457,850	603,461	12,061,311
45-49	155	8	163	16,178,346	896,417	17,074,763
50-54	100	3	103	10,745,904	336,716	11,082,620
55-59	27	1	28	2,925,720	90,013	3,015,733
60-64	8	0	8	834,320	0	834,320
Over 64	0	0	0	0	0	0
Total	598	34	632	$58,470,410	$3,174,414	$61,644,824

Numbers may not add due to rounding.

Age Distribution

Average Salary by Age
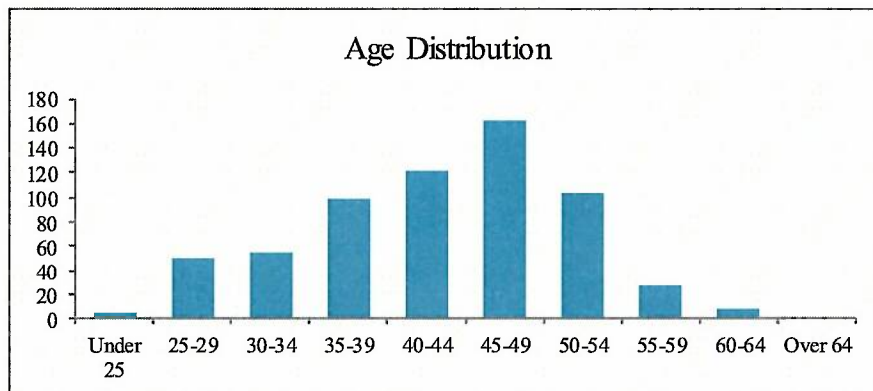
SCHEDULE I (continued)

ACTIVE MEMBERS AS OF JANUARY 1, 2020

All Fire Members

Age					Service					Total
	Under 5	5-10	10-15	15-20	20-25	25-30	30-35	35-40	Over 40	
Under 25	4	0	0	0	0	0	0	0	0	4
25-29	39	11	0	0	0	0	0	0	0	50
30-34	21	25	9	0	0	0	0	0	0	55
35-39	14	23	62	0	0	0	0	0	0	99
40-44	6	9	49	45	13	0	0	0	0	122
45-49	3	4	31	70	50	5	0	0	0	163
50-54	1	1	6	32	50	13	0	0	0	103
55-59	0	0	3	6	16	3	0	0	0	28
60-64	0	0	0	1	7	0	0	0	0	8
Over 64	0	0	0	0	0	0	0	0	0	0
Total	88	73	160	154	136	21	0	0	0	632

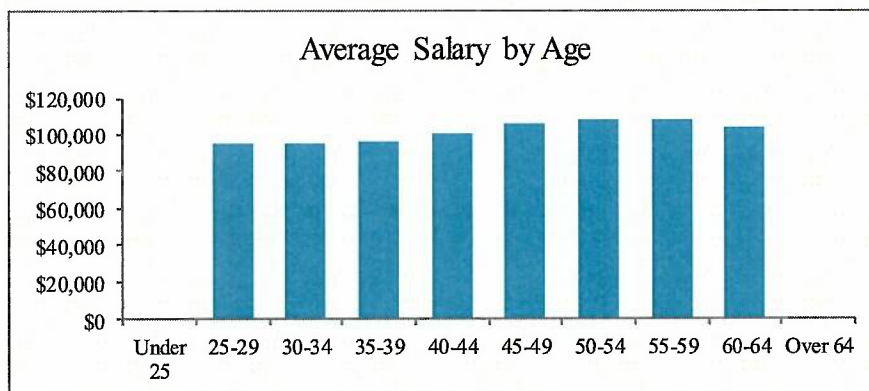### Service Distribution

SCHEDULE I (continued)

ACTIVE MEMBERS AS OF JANUARY 1, 2020

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	4	0	4	378,918	0	378,918
30-34	18	1	19	1,728,842	88,351	1,817,193
35-39	70	3	73	6,762,212	300,049	7,062,261
40-44	104	6	110	10,479,450	603,461	11,082,911
45-49	149	8	157	15,701,518	896,417	16,597,935
50-54	98	3	101	10,591,472	336,716	10,928,188
55-59	27	1	28	2,925,720	90,013	3,015,733
60-64	8	0	8	834,320	0	834,320
Over 64	0	0	0	0	0	0
Total	478	22	500	$49,402,452	$2,315,007	$51,717,459

Numbers may not add due to rounding.
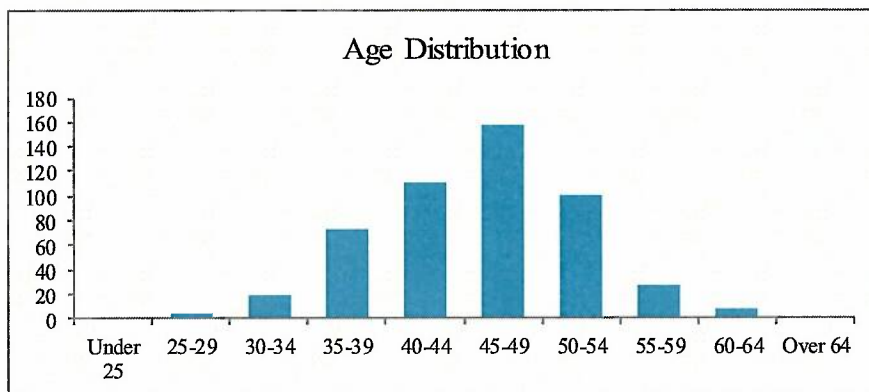
Age Distribution

Average Salary by Age

SCHEDULE I (continued)

ACTIVE MEMBERS AS OF JANUARY 1, 2020

Fire Members Hired Before January 1, 2013

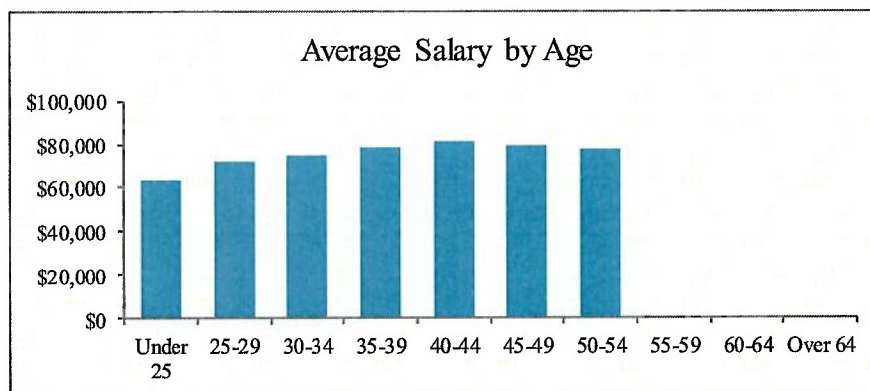| Age	Service									Total
	Under 5	5-10	10-15	15-20	20-25	25-30	30-35	35-40	Over 40	
Under 25	0	0	0	0	0	0	0	0	0	0
25-29	0	4	0	0	0	0	0	0	0	4
30-34	0	10	9	0	0	0	0	0	0	19
35-39	0	11	62	0	0	0	0	0	0	73
40-44	0	3	49	45	13	0	0	0	0	110
45-49	0	1	31	70	50	5	0	0	0	157
50-54	0	0	6	32	50	13	0	0	0	101
55-59	0	0	3	6	16	3	0	0	0	28
60-64	0	0	0	1	7	0	0	0	0	8
Over 64	0	0	0	0	0	0	0	0	0	0
Total	0	29	160	154	136	21	0	0	0	500

Service Distribution

SCHEDULE I (continued)

ACTIVE MEMBERS AS OF JANUARY 1, 2020

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	0	4	$ 251,649	$ 0	$ 251,649
25-29	43	3	46	3,142,786	193,123	3,335,909
30-34	32	4	36	2,406,583	292,077	2,698,660
35-39	21	5	26	1,657,280	374,207	2,031,487
40-44	12	0	12	978,400	0	978,400
45-49	6	0	6	476,828	0	476,828
50-54	2	0	2	154,432	0	154,432
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	120	12	132	$9,067,958	$859,407	$9,927,365

Numbers may not add due to rounding.
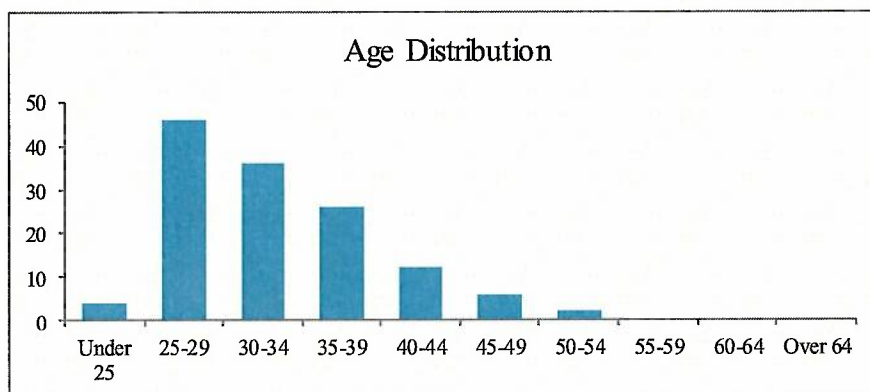
Age Distribution

Average Salary by Age

SCHEDULE I (continued)

ACTIVE MEMBERS AS OF JANUARY 1, 2020

Fire Members Hired On or After January 1, 2013

Age	Under 5	5-10	10-15	15-20	Service 20-25	25-30	30-35	35-40	Over 40	Total
Under 25	4	0	0	0	0	0	0	0	0	4
25-29	39	7	0	0	0	0	0	0	0	46
30-34	21	15	0	0	0	0	0	0	0	36
35-39	14	12	0	0	0	0	0	0	0	26
40-44	6	6	0	0	0	0	0	0	0	12
45-49	3	3	0	0	0	0	0	0	0	6
50-54	1	1	0	0	0	0	0	0	0	2
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	88	44	0	0	0	0	0	0	0	132

Service Distribution

SCHEDULE II

DROP MEMBERS AS OF JANUARY 1, 2020

	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	4	5	9	404,710	551,505	956,215
51-53	20	7	27	2,041,083	740,873	2,781,956
54-56	20	3	23	1,930,388	275,585	2,205,973
57-59	9	0	9	886,958	0	886,958
Over 59	2	0	2	192,368	0	192,368
Total	55	15	70	$5,455,507	$1,567,963	$7,023,470

Age Distribution

Average Salary by Age
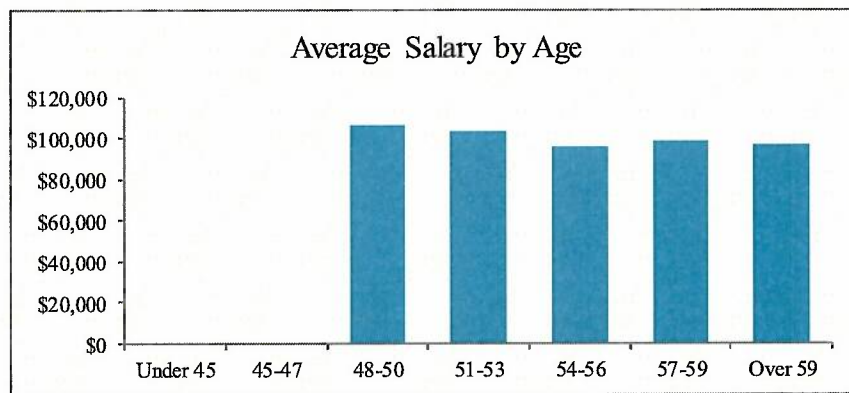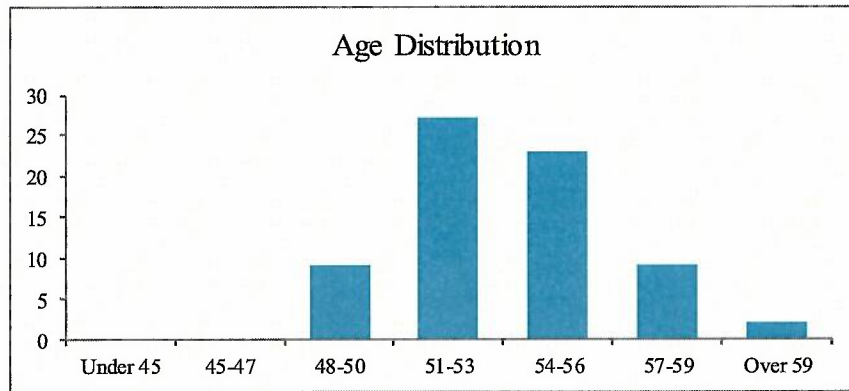
SCHEDULE II (continued)

DROP MEMBERS AS OF JANUARY 1, 2020

	Count of Members			Valuation Salaries of Members		
Age	Police	Fire	Total	Police	Fire	Total
Under 45	0	0	0	$ 0	$ 0	$ 0
45-47	0	0	0	0	0	0
48-50	7	2	9	728,870	227,345	956,215
51-53	22	5	27	2,166,140	615,816	2,781,956
54-56	16	7	23	1,435,551	770,422	2,205,973
57-59	6	3	9	573,312	313,646	886,958
Over 59	1	1	2	89,222	103,146	192,368
Total	52	18	70	$4,993,095	$2,030,375	$7,023,470

SCHEDULE III

RETIRED MEMBERS AS OF JANUARY 1, 2020

Age	Count of Retirees			Current Monthly Benefits		
	Males	Females	Total	Males	Females	Total
Under 60	232	44	276	$1,420,110	$236,089	$1,656,199
60-64	186	22	208	1,120,863	115,581	1,236,444
65-69	146	7	153	781,098	37,593	818,691
70-74	174	5	179	779,193	19,003	798,196
75-79	110	1	111	418,954	4,715	423,669
80-84	63	0	63	207,512	0	207,512
85-89	28	0	28	69,199	0	69,199
Over 89	9	0	9	20,203	0	20,203
Total	948	79	1,027	$4,817,132	$412,981	$5,230,113

Age Distribution

Average Benefit by Age
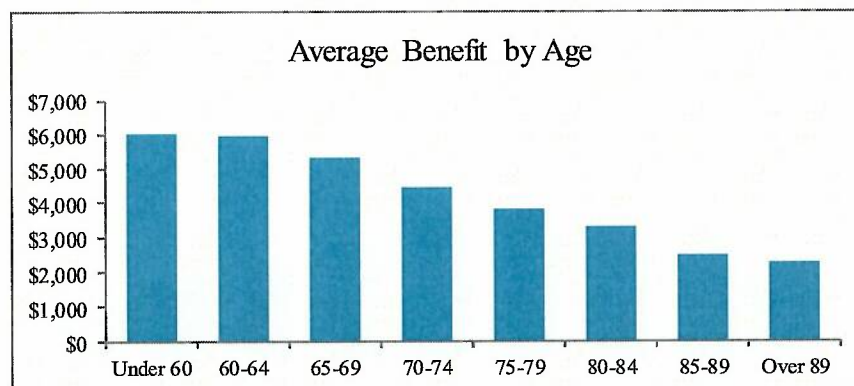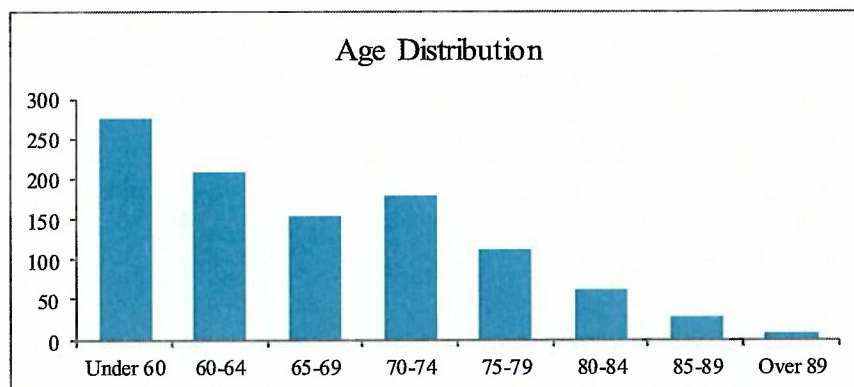
SCHEDULE IV

BENEFICIARIES RECEIVING BENEFITS AS OF JANUARY 1, 2020

	Count of Beneficiaries			Current Monthly Benefits		
Age	Males	Females	Total	Males	Females	Total
Under 60	10	31	41	$15,900	$ 76,549	$92,449
60-64	0	16	16	0	49,169	49,169
65-69	0	23	23	0	77,767	77,767
70-74	0	41	41	0	100,504	100,504
75-79	0	55	55	0	110,908	110,908
80-84	0	39	39	0	62,748	62,748
85-89	0	45	45	0	60,766	60,766
Over 89	0	25	25	0	23,229	23,229
Total	10	275	285	$15,900	$561,640	$577,540

Age Distribution

Average Benefit by Age
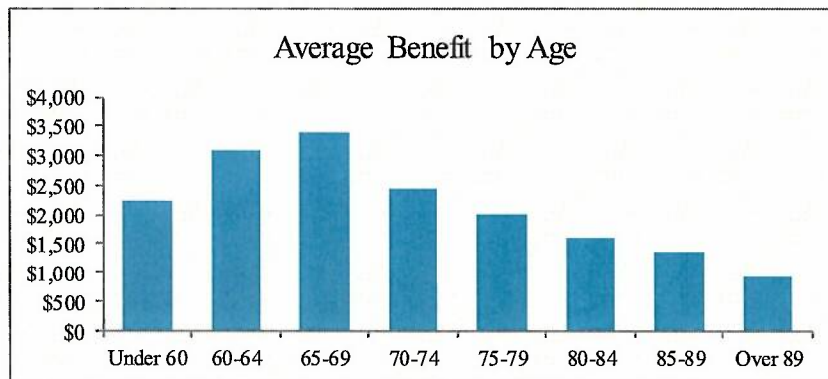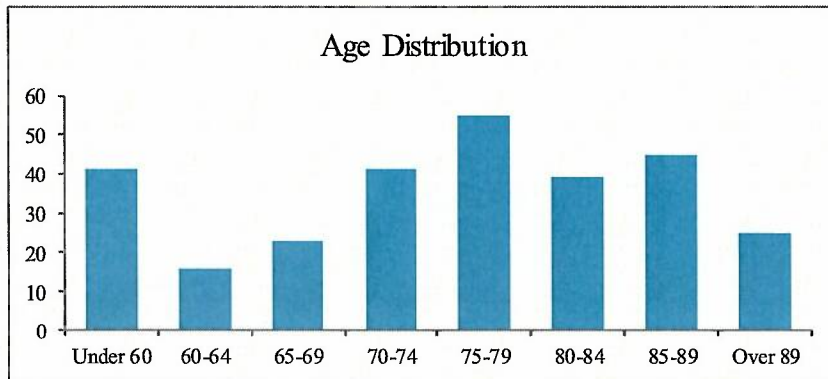
SCHEDULE V

INACTIVE VESTED MEMBERS AS OF JANUARY 1, 2020

	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	0	0	0	0	0	0
35-39	0	1	1	0	1,349	1,349
40-44	1	0	1	2,091	0	2,091
45-49	1	0	1	1,990	0	1,990
50-54	3	0	3	4,682	0	4,682
55-59	2	0	2	4,964	0	4,964
Over 59	0	0	0	0	0	0
Total	7	1	8	$13,727	$1,349	$15,076

SCHEDULE VI

DISABLED MEMBERS AS OF JANUARY 1, 2020

Age	Count of Members			Current Monthly Benefits		
	Males	Females	Total	Males	Females	Total
Under 30	0	0	0	$ 0	$ 0	$ 0
30-34	1	0	1	3,240	0	3,240
35-39	2	0	2	6,762	0	6,762
40-44	2	0	2	6,193	0	6,193
45-49	12	5	17	40,586	16,580	57,166
50-54	16	3	19	66,140	12,180	78,320
55-59	19	7	26	72,086	22,481	94,567
60-64	12	6	18	48,939	17,922	66,861
65-69	11	1	12	41,936	1,489	43,425
70-74	45	0	45	149,659	0	149,659
75-79	44	0	44	117,412	0	117,412
80-84	21	0	21	56,462	0	56,462
85-89	14	0	14	23,846	0	23,846
Over 89	3	0	3	3,559	0	3,559
Total	202	22	224	$636,820	$70,652	$707,472

Appendix G

Omaha Public Power District
Retirement Plan Information

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October 15, 2020

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 1, 2020 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 1st 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 6th 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

2020 Reporting Form for Underfunded

Political Subdivision Pension Plans

Omaha Public Power District

1. Please list the following information for plan years 2016 through current plan year 2020:

    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	2016	2017	2018	2019	2020
PVAPB (%)	76.4	76.0	76.7	74.0	75.1

        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	2016	2017	2018	2019	2020
AAL (%)	69.2	69.0	70.0	67.8	68.9

    b. Assumed rate of return – The discount rate of return is itemized in the table below:

	2016	2017	2018	2019	2020
Discount Return %	7.0	7.0	7.0	7.0	7.0

    c. Actual investment return – The actual return is itemized in the table below:

	2016	2017	2018	2019	2020
Actual Return %	6.74	16.49	-6.34	18.99	Not Yet Available

d. <u>Member and employer contributions rates</u> - percentage

	2016	2017	2018	2019	2020
Employee Contributions (%)	6.2	6.2	6.7	7.2	7.7

The OPPD percentage rate is calculated by dividing the Annual Required Contribution into the Valuation Compensation as follows:

	2016	2017	2018	2019	2020
Employer Contributions (%)	25.2	28.3	29.8	33.0	31.6

e. <u>Normal cost</u> – percentage

	2016	2017	2018	2019	2020
Covered Compensation (%)	11.1	11.4	12.1	12.3	12.1

f. <u>Actuarial required contribution</u> – percentage & dollar amount

Assumed percentage of covered compensation

	2016	2017	2018	2019	2020
ARC (%)	25.2	28.3	29.8	33.0	31.6

Dollar amount in millions

	2016	2017	2018	2019	2020
ARC ($)	50.7	53.1	53.6	59.2	59.1

g. <u>Actuarially required contribution</u> - actual dollars contributed and percentage of actuarial required contribution actually contributed

	2016	2017	2018	2019	2020
ARC ($) actually made	50.7	53.1	53.6	59.2	59.1
ARC Made (%)	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 2020.

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 2040.

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 2040 based on the new amortization bases that were effective January 1, 2020.

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.

   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. Please attach a copy of the most recent Actuarial Experience Study. <u>When will the next Actuarial Experience Study be completed and available for review by the Committee?</u>

> The most recent Actuarial Experience Study was completed in 2016 and was provided with the submittal on October 14, 2016. An updated Actuarial Experience Study will be completed and submitted in 2021.

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%. The District will be reviewing its discount rate during an asset/liability study in 2021.

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, 2020 actuarial valuation report is attached.

11. **NEW QUESTION** – Please describe current or projected revenue and/or budget impacts on your political subdivision due to COVID 19 which have, or may, affect your political subdivision's ability to remit the entire ARC payment as recommended by the actuary.

> We do not believe that COVID 19 will have an impact on our ability to remit the entire ARC payment in 2020.

12. **NEW QUESTION** – Please describe any impacts due to COVID 19 on the plan's actuarial economic or demographic experience that have been identified by the actuary.

> The District's actuary has not been able to determine the impact of COVID 19 on the plan's actuarial economic or demographic experience. The actuary will be reviewing the 2020 plan experience (including the impact of COVID 19) during their study to be completed in mid-2021.

Actuarial Report

Omaha Public Power District

Retirement Plan

As of January 1, 2020

Contents

Introduction

This report documents the results of the January 1, 2020 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 2020 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).
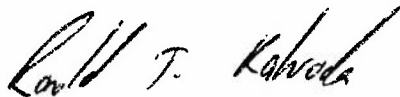
In conducting the valuation, we have relied on personnel, plan design, and asset information supplied by OPPD as of the valuation date. While we cannot verify the accuracy of all the information, the supplied information was reviewed for consistency and reasonableness. As a result of this review, we 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.
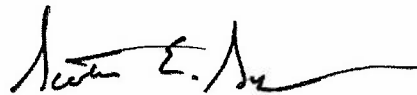
The undersigned are familiar with the near-term and long-term aspects of pension valuations and collectively meet the Qualification Standards of the American Academy of Actuaries necessary to render the actuarial opinions contained herein. The information provided in this report is dependent upon various 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, 2020 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 2020

Summary

The following page summarizes the results of the January 1, 2020 actuarial valuation. For comparison purposes, the results of the January 1, 2019 and January 1, 2018 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, 2020 valuation results reflect the following assumption changes:

- The mortality table for healthy participants was updated from the PUB-2010 General table projected using Scale MP-2018 with generational projection to the PUB-2010 General table projected using Scale MP-2019 with generational projection.

- The mortality table for disabled participants was updated from the PUB-2010 General Disabled Retiree table projected using Scale MP-2018 with generational projection to the PUB-2010 General Disabled Retiree table projected using Scale MP-2019 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, 2018	January 1, 2019	January 1, 2020
Interest Rate	7.00%	7.00%	7.00%
Present Value of Future Benefits (PVB)	$ 1,661,954,554	$ 1,736,377,868	$ 1,777,229,220
Accrued Liability (EAN)	$ 1,476,147,956	$ 1,537,959,944	$ 1,567,265,214
Actuarial Value of Assets	1,033,752,901	1,042,187,515	1,079,189,274
Unfunded Accrued Liability	$ 442,395,055	$ 495,772,429	$ 488,075,940
Gross Normal Cost	$ 21,651,698	$ 22,036,419	$ 22,596,426
As Percentage of Covered Compensation	12.06%	12.29%	12.08%
Annual Required Contribution (ARC)[1]	$ 53,562,735	$ 59,201,071	$ 59,093,356
As Percentage of Covered Compensation	29.82%	33.01%	31.58%
Number of Participants			
Retired and Beneficiaries	2,154	2,219	2,258
Terminated and Vested	466	482	490
Disabled	28	34	32
Active	1,828	1,762	1,796
Total	4,476	4,497	4,576
Valuation Compensation[2]	$ 179,607,099	$ 179,363,501	$ 187,099,498

[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, 2020, both before and after changes.

	Before Changes	After Changes
Accrued Liability		
Retirees and Beneficiaries	$ 1,037,158,505	$ 1,034,630,514
Terminated Vested	40,837,193	40,761,158
Active and Disabled Employees	494,757,718	491,873,542
Total	$ 1,572,753,416	$ 1,567,265,214
Actuarial Value of Assets	1,079,189,274	1,079,189,274
Unfunded Accrued Liability	$ 493,564,142	$ 488,075,940
Funded Ratio	68.6%	68.9%
Gross Normal Cost	$ 22,716,748	$ 22,596,426
Number of Participants		
Retired and Beneficiaries		2,258
Terminated Vested		490
Disabled		32
Active		1,796
Total		4,576
Valuation Compensation[1]		$ 187,099,498

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[1] Expected compensation during the plan year for active participants under the 100% assumed retirement age.

Market Value of Assets

Market Value, 12/31/2019	$ 1,055,344,216
Receivable for 2019 Plan Year	0
Market Value of Assets, 1/1/2020	$ 1,055,344,216

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, 1/1/2019	$ 1,042,187,515
OPPD Contributions for 2019	59,201,071
Employee Contributions for 2019	12,506,113
Benefit Payments in 2019	(100,723,691)
Interest on Above at 7.00% to 12/31/2019	71,979,530
Expected Value of Assets, 1/1/2020	$ 1,085,150,538
Adjustment 20% Toward Market Value	(5,961,264)
Actuarial Value of Assets, 1/1/2020	$ 1,079,189,274

A loss of $5,961,264 was realized from the plan's asset experience. The return on the market value of assets during the 2019 Plan Year was approximately 18.18%. The return on the actuarial value (which smooths prior years' gains and losses) was 6.42%, compared to the 7.00% assumed in 2019.

Contributions

This section includes the calculation of the Annual Required Contribution (ARC) applicable to the 2020 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 2020

Gross Normal Cost, 1/1/2020	$	22,596,426
Expected Employee Contributions during 2020		(14,406,661)
Net Amortization Charges, 1/1/2020		48,660,465
Interest at 7.00% to 12/31/2020		4,483,749
Total Charges at 12/31/2020	$	61,333,979
Discount for Monthly Contributions		(2,240,623)
Annual Required Contribution for 2020 Plan Year— Adjusted for Assumed Monthly Contributions	$	59,093,356

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 1/1/2020	Payment Due 1/1/2020
2015 Fresh Start	01/01/2015	$361,570,248	15	$311,464,499	$31,959,933
2016 Plan Amendment	01/01/2016	1,268,369	16	1,131,000	111,893
2016 Assumption Changes	01/01/2016	50,292,679	16	44,845,820	4,436,704
2016 (Gain)/Loss	01/01/2016	28,105,800	16	25,061,850	2,479,428
2017 Assumption Changes	01/01/2017	(1,501,900)	17	(1,384,120)	(132,494)
2017 (Gain)/Loss	01/01/2017	27,887,279	17	25,700,336	2,460,151
2018 Plan Amendment	01/01/2018	949,609	18	901,661	83,772
2018 Assumption Changes	01/01/2018	(14,359,293)	18	(13,634,243)	(1,266,744)
2018 (Gain)/Loss	01/01/2018	20,544,594	18	19,507,228	1,812,397
2019 Assumption Changes	01/01/2019	33,164,231	19	32,355,258	2,925,672
2019 (Gain)/Loss	01/01/2019	34,126,681	19	33,294,231	3,010,577
2020 Assumption Changes	01/01/2020	(5,488,202)	20	(5,488,202)	(484,156)
2020 (Gain)/Loss	01/01/2020	14,320,622	20	14,320,622	1,263,332
Total				$488,075,940	$48,660,465

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 2019

Unfunded Accrued Liability (Surplus), 1/1/2019		$ 495,772,429
Plus:	Interest to 12/31/2019 at 7.00%	34,704,070
Plus:	2019 Total Normal Cost	22,036,419
Plus:	Interest to 12/31/2019 at 7.00%	1,542,549
Less:	2019 OPPD Contributions	(59,201,071)
Less:	Interest to 12/31/2019 at 7.00%	(2,114,019)
Less:	2019 Employee Contributions	(12,506,113)
Less:	Interest to 12/31/2019 at 7.00%	(437,714)
Equals: Expected Unfunded Accrued Liability (Surplus), 1/1/2020		$ 479,796,550
Less:	Actual Unfunded Accrued Liability (Surplus) Before Changes, 1/1/2020	493,564,142
Equals: Actuarial Gain (Loss) for 2020 plan year		$ (13,767,592)

Reconciliation of Unfunded Accrued Liability (Surplus)

Unfunded Accrued Liability (Surplus) Before Changes, 1/1/2020	$ 493,564,142
Change in Unfunded Due to Plan Amendment	0
Change in Unfunded Due to Assumption Change	(5,488,202)
Change Due to Retiree Cost of Living Adjustment (COLA)	0
Actual Unfunded Accrued Liability (Surplus), 1/1/2020	$ 488,075,940

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, 2020. 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, 1/1/2020

Retired and Beneficiaries	$ 1,034,630,514
Terminated Vested	40,761,158
Active and Disabled Employees	289,064,443
Total Vested	$ 1,364,456,115
Non-vested Benefits, 1/1/2020	72,274,722
Total Accrued Benefits, 1/1/2020	$ 1,436,730,837
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
1/1/2020	7.00%	$	1,436,730,837	$1,079,189,274	75.1%	$	1,055,344,216	73.5%
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
1/1/2020	7.00%	$ 1,567,265,214	$1,079,189,274	68.9%	$1,055,344,216	67.3%
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, 2020. For comparison purposes, the January 1, 2019 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, 2019	January 1, 2020
Retired and Beneficiaries	2,219	2,258
Terminated Vested	482	490
Disabled	34	32
Active	1,762	1,796
Total	4,497	4,576

Personnel Characteristics of Active Participants as of January 1, 2020

	Number	Average Age	Average Years of Service	Average Entry Age	Average Pay
Male	1,432	45.0	13.7	31.3	—
Female	364	47.4	13.2	34.2	—
Total	1,796	45.5	13.6	31.9	$ 98,609

Characteristics for Inactive Participants

	Number	Average Age	Average Annual Benefit[1]
Retired and Beneficiaries	2,258	70.7	$ 44,192
Terminated Vested	490	51.2	$ 17,391

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[1] Does not include terminated vested participants under the cash balance formula.
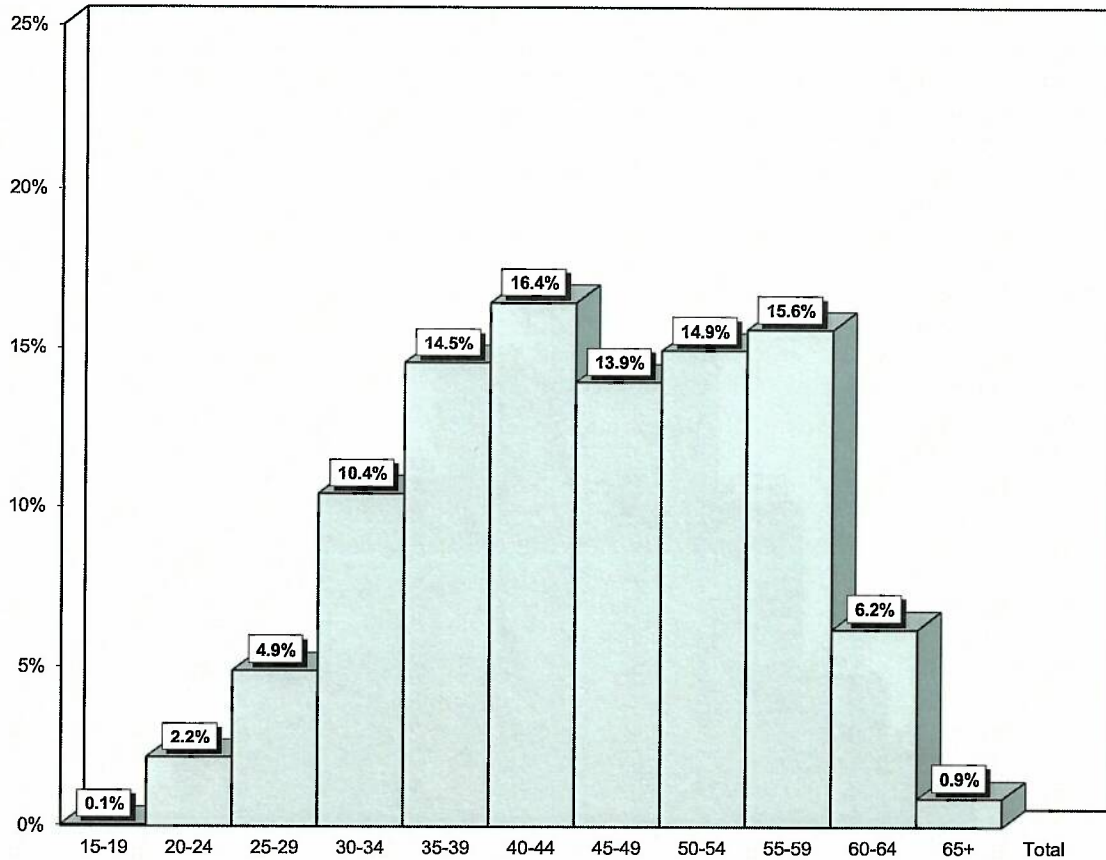
Distribution of Personnel

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 01/01/2020. For instance, the cell at age 25 and 1 year of Service contains 3 employees.

- 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 45.5, 13.6.

Distribution of Personnel by Age and Years of Service — Omaha Public Power District, Active Employee. Age shown on vertical axis (15 to 70+), Years of Service on horizontal axis (0 to 40+). Right-hand columns show M / F / T totals by age row; bottom rows show M / F / T totals by service column.

Age-row totals (M, F, T):

Age	M	F	T
15		1	1
20	2		2
	7		7
	8	1	9
	12		12
	7	2	9
25	15	2	17
	7		7
	17	5	22
	21	2	23
	17	2	19
30	28	9	37
	31	7	38
	19	4	23
	42	5	47
	38	4	42
35	39	9	48
	37	5	42
	42	8	50
	60	12	72
	34	15	49
40	56	11	67
	37	11	48
	63	4	67
	37	12	49
	49	15	64
45	42	7	49
	26	12	38
	42	8	50
	34	18	52
	45	16	61
50	42	10	52
	40	9	49
	44	14	58
	43	7	50
	43	16	59
55	58	18	76
	48	11	59
	51	14	65
	42	11	53
	17	10	27
60	25	10	35
	22	8	30
	16	4	20
	10	9	19
	4	3	7
65	3	1	4
	4	1	5
		1	1
	3		3
	3		3

Service-column totals (bottom):

	0					5					10					15					20					25					30					35					40+	Total
M	107	60	31	11	45	53	63	63	63	24	52	78	58	83	51	35	24	63	95	46	51	38	28	13	23	7	10	18	20	40	24	17	16	11	3	3		2	2		1	1,432
F	36	18	11	5	18	14	15	9	22	2	17	9	10	15	8	11	15	18	15	14	17	9	6	2	1	1	6	1	6	7	11	4	4	4	1	1			1			364
T	143	78	42	16	63	67	78	72	85	26	69	87	68	98	59	46	39	81	110	60	68	47	34	15	24	8	16	19	26	47	35	21	20	15	4	4		2	3		1	1,796

Distribution of Personnel by Age

Omaha Public Power District
Active Employee

Bar chart "Distribution of Personnel by Age" showing percentages by age group:
15-19: 0.1%, 20-24: 2.2%, 25-29: 4.9%, 30-34: 10.4%, 35-39: 14.5%, 40-44: 16.4%, 45-49: 13.9%, 50-54: 14.9%, 55-59: 15.6%, 60-64: 6.2%, 65+: 0.9%

Age:

	15-19	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65+	Total
Number	1	39	88	187	261	295	250	268	280	111	16	1,796
Average Service	1.5	1.3	3.9	6.6	9.5	12.6	15.0	18.5	20.7	16.9	17.9	13.6

Detail of Employees 55 & Over

Age	55	56	57	58	59	60	61	62	63	64	65	66+
Number	76	59	65	53	27	35	30	20	19	7	4	12
Average Service	22.1	20.2	19.6	20.6	20.2	15.4	19.1	17.3	15.4	17.8	16.1	18.6

Distribution of Personnel
By Expected Service At Age 65
(Based Upon Personnel Age 55 And Over)

Omaha Public Power District
Active Employee

Service:
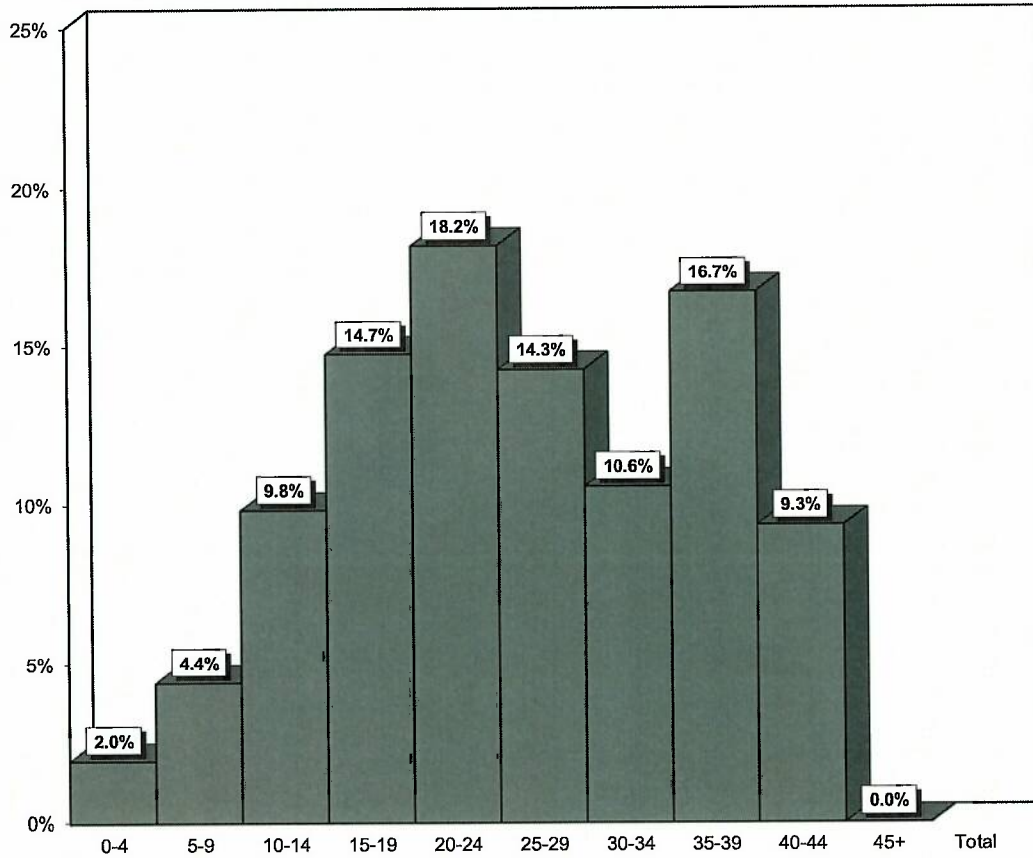
	0-4	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40-44	45+	Total
Number	8	18	40	60	74	58	43	68	38	0	407
Average Service At Age 65*	3.1	7.9	12.8	17.5	22.4	27.2	32.2	37.7	41.8	0.0	25.8

* 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, 2020 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-2019 with generational projection.
Disabled Mortality	PUB-2010 General Disabled Retiree table projected using Scale MP-2019 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 $230,000, based on the provisions of IRC section 415(b).

Table A

Retirement Rates[1]

Age	Service								
	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

Age	Service							
	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 H

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

Board of Education

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Matt Scanlan
Ricky Smith

Senator Mark Kolterman
District 24
State Capitol
PO Box 94604
Lincoln, NE 68509-4604

October 15, 2020

Senator Kolterman,

As requested in your letter dated September 1, 2020, included herein is the information required for the *Reporting Form for Underfunded Political Subdivision Pension Plans.*

1. **Please list the following information for Omaha School Employees' Retirement System (OSERS) plan years 2015 through current plan year 2020.**

a) **Funding status**
   Information for OSERS is shown below. Dollar amounts are shown in millions.

	9/1/15	1/1/17	1/1/18	1/1/19	1/1/20
Actuarial Value of Assets:					
Funded Ratio (AVA/AAL)	73%	65%	64%	63%	63%
Unfunded AAL (AAL-AVA)	$486	$713	$771	$814	$848
Market Value of Assets:					
Funded Ratio (MVA/AAL)	67%	56%	58%	54%	58%
Unfunded AAL (AAL-MVA)	$588	$902	$902	$999	$942

Abbreviations: Actuarial Value of Assets (AVA); Market Value of Assets (MVA); Actuarial Accrued Liability (AAL)

b) **Assumed Rate of Return**:
   Since the January 1, 2017 valuation, the assumed rate of return has been 7.5%. Prior to the January 1, 2017 valuation, 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.

2015	-4.0%
2016	0.9%
2017	4.2%
2018	2.9%
2019	5.2%

d) **Member and employer contribution rates (percentage)**:
   From 2014 forward, the statutory member and employer contribution rates are 9.78% and 9.878%, respectively. The District also makes an additional contribution if the statutory rates are less than the full actuarial contribution rate.

e) **Normal cost (percentage)** (from the September 1, 2015 actuarial valuation through the January 1, 2020 valuation) is as follows:

9/1/2015	11.96%
1/1/2017	13.07%
1/1/2018	13.00%
1/1/2019	12.96%
1/1/2020	12.88%

f) **Actuarially required contribution (ARC) - percentage and dollar amount:**

See response to 1(g)

g) **ARC Contribution - <u>actual dollars contributed and percentage of ARC actually contributed</u>**

Reporting Period Ending	Actuarial Required Contribution (ARC)	Total Employer Contribution (Includes State and School District Contrib.)	Employer Contribution as Pct. of ARC Contribution	Employer Contribution. as a Pct. of Covered Payroll
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%
12/31/19	$40,399,371	$43,455,000	107.56%	11.91%

[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, 2020, the System had a market value of assets of $1.324 billion, an increase of $129.9 million from the prior valuation. This represents an annualized rate of return of 13.8%, net of expenses. There is currently $94.3 million of deferred (unrecognized) investment loss (approximately 7% of the market value of assets). 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 likely increase.

The valuation results reflect net unfavorable experience for the 2020 plan year. The largest source of unfavorable experience ($31.4 million) resulted from the return on actuarial value of assets (about 5.2%) being less than the expected return of 7.5%.

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

No.

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 (UAAL) 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 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. 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 equal to the UAAL as of January 1, 2019 with payments 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 18, 2020, Omaha Public Schools (OPS) transferred $21.4 million to OSERS to fund the full 2020 actuarial required contribution amortized over a 30-year period. This payment was $1.6 million more than the statutorily required contribution of $19.8 million. This was the 2nd consecutive year OPS transferred more to OSERS to fund the plan than required. On August 8, 2019, OPS transferred $21.3m to OSERS to fund the 2019 actuarial required contribution while only $18.2m was required.

- Projected additional District contributions over the next five years, base on the OSERS Board of Trustees' policy, and assuming all assumptions are met in calendar years 2020 through 2024 are:

August 31, 2021	$21.6 million
August 31, 2022	$23.2 million
August 31, 2023	$24.6 million
August 31, 2024	$25.9 million
August 31, 2025	$27.0 million

- The above projections are in addition to the statutorily required contributions attributable to the employee / employer (9.78% for employee and 9.878% for employer (or 101% of the employee contribution)). The projected numbers are meant to provide a trend and may not be relied upon as an absolute projection of the additional District contributions for future years. The actual investment returns on the trust assets in the future will heavily impact the amount of any additional District contributions in the future.

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 District and OEA are currently in year 2 of a 2-year contract covering the 2019-20 and 2020-21 fiscal years. The total package (i.e. salaries and benefits) increased 3.18% for the 2020-21 fiscal year.
  - Service Employees Local 226 (Local 226) is the bargaining unit that represents the District's paraprofessionals, office personnel, nutrition workers, transportation workers, and operations.
    - The District and Local 226 paraprofessionals are currently in a one-year contract covering the 2020-21 fiscal year. The total package (i.e. salaries and benefits) increased 3.32%.
    - The District and Local 226 office personnel are currently in a one-year contract covering the 2020-21 fiscal year. The total package (i.e. salaries and benefits) increased 4.0%.
    - The District and Local 226 nutrition workers are currently in a one-year contract covering the 2020-21 fiscal year. The total package (i.e. salaries and benefits) increased 3.09%.
    - The District and Local 226 transportation workers are currently in a one-year contract covering the 2020-21 fiscal year. The total package (i.e. salaries and benefits) increased 3.5%.
    - The District and Local 226 operations are currently in the one-year contract covering the 2020-21 fiscal year. The total package (i.e. salaries and benefits) increased 3.5%.
  - The District and the OPS Maintenance and Crafts Group are currently in year 1 of a 2-year contract covering the 2020-21 and 2021-22 fiscal years. The total package (i.e. salaries and benefits) increased 2.47% for the 2020-21 fiscal year, and 3.53% for the 2021-22 fiscal year.

o The District and the Omaha School Administrators Association are currently in year 2 of a 2-year contract covering the 2019-20 and 2020-21 fiscal years. The total package (i.e. salaries and benefits) increased 1.81% for the 2020-21 fiscal year.

o The District and the Omaha School Psychologist Association are currently in negotiations for a one-year contract for the 2020-21 fiscal year.

o The District and Eastern Nebraska School Security Union Local #28 are currently in year 3 of a 3-year contract covering the 2018-19, 2019-20, and 2020-21 fiscal years. The total package (i.e. salaries and benefits) increased 3.0% for the 2020-21 fiscal year.

o The District and the Educational Interpreters/Transliterators are currently in year 2 of a 2-year contract covering the 2019-20 and 2020-21 fiscal years. The total package (i.e. salaries and benefits) increased 1.81% for the 2020-21 fiscal year.

8. **Please attach a copy of the most recent Actuarial Experience Study. When will the next Actuarial Experience Study be completed and available for review by the Committee.**

The most recent five-year Actuarial Experience Study covering the period September 1, 2012 through August 31, 2016 was originally submitted on April 5, 2017. A copy of that report is attached herein. The next Actuarial Experience Study will be for the period January 1, 2017 through December 31, 2020 and will be completed in 2021 and made available to the Committee by June / July 2021.

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, 2020) is attached herein.
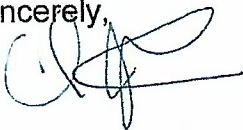
11. **Please describe current or projected revenue and/or budget impacts on your political subdivision due to COVID 19 which have, or may, affect your political subdivision's ability to remit the entire ARC payment as recommended by the actuary.**

We do not anticipate that COVID-19 will have any impact on the District's ability to remit the entire ARC payment as recommended by the actuary in 2020-21.

12. **Please describe any impacts due to COVID-19 on the plan's actuarial economic or demographic experience that have been identified by the actuary.**

The most recent study prepared by the actuary was completed before COVID-19 significantly impacted the United States. Accordingly, there is no impact of COVID-19 in the actuary's assumptions or work performed this year.

Sincerely,

Cheryl J. Logan Ed.D., Superintendent
Omaha Public Schools

Enclosures:

- 68th Annual Actuarial Report – Omaha School Employees Retirement System (January 1, 2020)
- Omaha School Employees Retirement System – 5 Year Experience Study (September 1, 2012 to August 31, 2016)

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The experience and dedication you deserve

OMAHA SCHOOL EMPLOYEES' RETIREMENT SYSTEM

Sixty-Eighth
Annual Actuarial Report

OMAHA SCHOOL EMPLOYEES' RETIREMENT SYSTEM

as of January 1, 2020

Cavanaugh Macdonald

CONSULTING, LLC

The experience and dedication you deserve

May 7, 2020

Board of Trustees
Omaha School Employees' Retirement System
3215 Cuming Street
Omaha, Nebraska 68131

Re: Sixty-Eighth 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, 2020. The major findings of the valuation are contained in this report, including the actuarial contribution rate and the additional School District contribution for the plan year ending December 31, 2020. There have been no changes to the System's actuarial assumptions and methods or benefit provisions since the prior valuation.

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.

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

Bryan K. Hoge, FSA, EA, FCA, MAAA
Consulting Actuary

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 School District contribution amount, if any, 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, 2020 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, 2020 based on the System's membership, benefit structure, and assets on that date. The valuation results reflect net unfavorable actuarial experience for the 2019 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 ($31.4 million) resulted from the return on the actuarial value of assets (about 5.2%) being less than the expected return of 7.50%. In addition, there was also a small net liability actuarial loss of $1.5 million. During calendar year 2019, the additional contribution by the School District was $21.3 million compared to the additional actuarial contribution of $18.2 million. The higher contribution by the District resulted in a reduction in the unfunded actuarial liability compared to that expected.

Membership

The table on the following page summarizes the System's membership, by group, in the current and prior valuation. The active member count increased from 7,177 to 7,366 (2.6%) and the number of members receiving a benefit increased from 4,826 to 4,980 (3.2%). Total projected payroll increased by 3.2% from $339.5 million in the January 1, 2019 valuation to $350.4 million in the current valuation, partially due to the increase in the number of active members. The increase in payroll was very close to the assumed increase of 3.25%.

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 moving the minimum age for retirement under Rule of 85 from age 55 to age 60. As a result, the cost of the Tier 4 benefit structure is somewhat lower than the cost of the prior benefit structures. 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, 2020	Jan. 1, 2019	% Chg
1. Active Members			
a. Certificated			
(1) Tier 1	2,823	3,021	(6.6)
(2) Tier 2	778	842	(7.6)
(3) Tier 3	584	633	(7.7)
(4) Tier 4	670	233	187.6
(5) Total	4,855	4,729	2.7
b. Classified			
(1) Tier 1	1,183	1,363	(13.2)
(2) Tier 2	435	504	(13.7)
(3) Tier 3	304	414	(26.6)
(4) Tier 4	589	167	252.7
(5) Total	2,511	2,448	2.6
c. Total			
(1) Tier 1	4,006	4,384	(8.6)
(2) Tier 2	1,213	1,346	(9.9)
(3) Tier 3	888	1,047	(15.2)
(4) Tier 4	1,259	400	214.8
(5) Total	7,366	7,177	2.6
2. Retirees and Disabled Members	4,711	4,570	3.1
3. Beneficiaries	269	256	5.1
4. Inactive Vested Members			
(1) Tier 1	1,097	1,089	0.7
(2) Tier 2	66	25	164.0
(3) Total	1,163	1,114	4.4
5. Nonvested Terminations			
(1) Tier 1	278	302	(7.9)
(2) Tier 2	120	130	(7.7)
(3) Tier 3	198	163	21.5
(4) Tier 4	113	76	48.7
(5) Total	709	671	5.7
6. Total	14,218	13,788	3.1

Assets

As of January 1, 2020, the System had total assets of $1.324 billion measured on a market value basis. This was an increase of $129.9 million from the prior valuation and represents an annualized rate of return, as provided by the Nebraska Investment Council (NIC) of 13.8%, net of all expenses. The components of this change are shown in the following table:

Market Value Assets ($M)	
Net Assets, as of January 1, 2019	**$1,193.8**
• Adjustment for Late Reporting	(0.5)
Adjusted Net Assets, as of January 1, 2019	**$1,193.3**
• District, State and Member Contributions	102.5
• Benefits Payments and Refunds	(133.8)
• Administrative Expenses	(1.1)
• Investment Return	162.8
Net Assets, as of January 1, 2020	**$1,323.7**

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 107% of market value. The actuarial value of assets as of January 1, 2020 was $1.418 billion, an increase of $39.2 million from the prior year. The components of change in the actuarial value of assets from January 1, 2019 to January 1, 2020 are shown in the following table.

Actuarial Value of Assets ($M)	
Actuarial Assets, as of January 1, 2019	**$1,378.8**
• Adjustment for Late Reporting	(0.1)
Adjusted Actuarial Assets, as of January 1, 2019	**$1,378.7**
• District, State and Member Contributions	102.5
• Benefits Payments and Refunds	(133.8)
• Expected Investment Income (Based on 7.5% assumption)	102.0
• Actuarial Investment (Gain/Loss)	(31.4)
Preliminary Actuarial Assets, January 1, 2020	**$1,418.0**
• Application of Corridor	N/A
Final Actuarial Assets, as of January 1, 2020	**$1,418.0**

The dollar-weighted annualized rate of return, net of investment and administrative expenses, measured on the actuarial value of assets was approximately 5.2%. A comparison of asset values on both the market and actuarial basis is shown below:

	9/1/2015	1/1/2017	1/1/2018	1/1/2019	1/1/2020
Market Value of Assets	$1,211	$1,149	$1,234	$1,194	$1,324
Actuarial Value of Assets	1,313	1,338	1,365	1,379	1,418
Actuarial Value/ Market Value	108%	116%	111%	115%	107%

The actuarial value of assets continues to be higher than the market value of assets. However, the difference has decreased during 2019 and the deferred (or unrecognized) investment loss is now $94.3 million, about 7% 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).
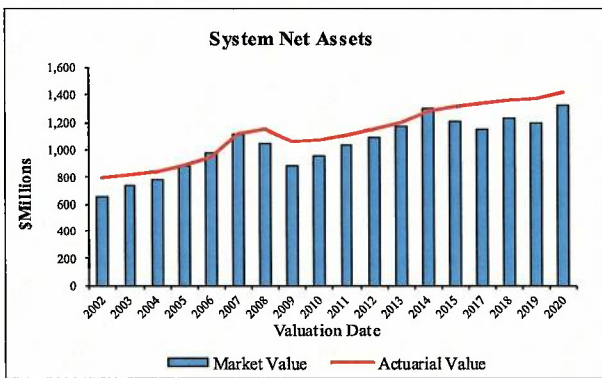
With the use of an asset smoothing method, the actuarial value is expected to be both above and below the market value of assets over a long period of time. However, for most of this period, the actuarial value of assets has exceeded the market value of assets.
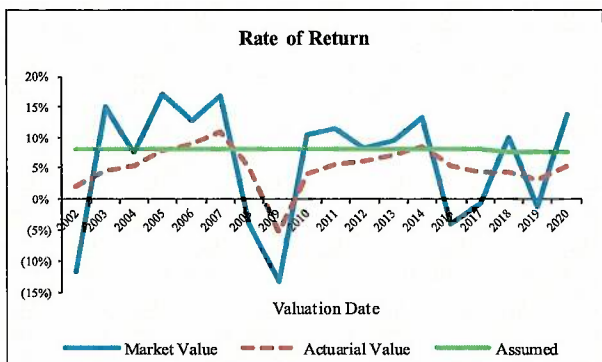
The estimated rate of return on both the actuarial and market value of assets for the last decade is shown in this graph. The asset smoothing method mitigates the volatility of market value returns as shown in the rates of return on the actuarial versus market value of assets.

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, 2020 is shown below:

Actuarial Accrued Liability	$	2,265,653,000
Actuarial Value of Assets		1,417,961,000
Unfunded Actuarial Accrued Liability	$	847,692,000

Numerous factors contributed to the change in the System's UAAL during the 2019 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 $33.0 million. The investment return on the actuarial value of assets of 5.2% was lower than assumed return of 7.5%, resulting in an actuarial loss of $31.4 million. There was also a small net actuarial loss of $1.5 million on the actuarial accrued liability. Exhibit 8 shows a breakdown of the sources of liability experience during the 2019 plan year.

The change in the unfunded actuarial accrued liability between January 1, 2019 and January 1, 2020 is shown in the following table (in millions):

| Change in Unfunded Actuarial Accrued Liability ($M)	
Unfunded Actuarial Accrued Liability, January 1, 2019	**$814**
• Expected Change in UAAL	
- Amortization Method	12
- Contributions greater than the actuarial required contribution	(3)
• Investment Experience	31
• Liability Experience	2
• Other Experience	(8)
Unfunded Actuarial Accrued Liability, January 1, 2020	**$848**

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):

	9/1/14	9/1/15	1/1/17	1/1/18	1/1/19	1/1/20
Using Actuarial Value of Assets:						
Funded Ratio (AVA/AAL)	74%	73%	65%	64%	63%	63%
Unfunded AAL (AAL - AVA)	$446	$486	$713	$771	$814	$848
Using Market Value of Assets:						
Funded Ratio (MVA/AAL)	75%	67%	56%	58%	54%	58%
Unfunded AAL (AAL - MVA)	$429	$588	$902	$902	$999	$942
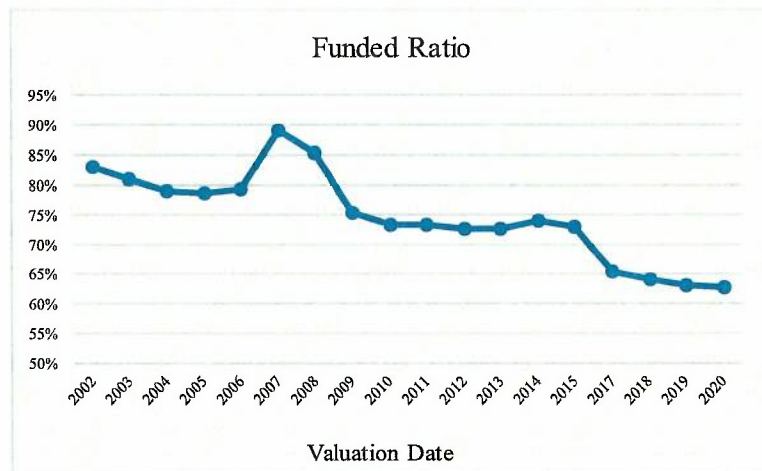
Funded Ratio

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 in the table 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 with payments calculated as a level percentage of payroll, over a closed 30-year period. New layers of UAAL that occur in the future are also amortized over new 30-year periods.

The actuarial contribution rate for the plan year ending December 31, 2020, and any resulting additional School District contribution, is computed based on the January 1, 2020 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 2020 plan year of 5.59%, or $19.8 million, as shown in the table below:

	Actuarial Valuation	
Contribution Rate	1/1/2020	1/1/2019
1. Normal Cost	12.88%	12.96%
2. UAAL Contribution	14.37%	14.01%
3. Total Actuarial Contribution Rate	27.25%	26.97%
4. Statutory Contribution Rate	21.66%	21.66%
5. Contribution Shortfall / (Margin) (3)-(4)	5.59%	5.31%
6. Additional District Contribution ($M)	$19.8	$18.2

The unfavorable experience on the actuarial value of assets during 2019, along with partial recognition of the deferred investment experience from the 2019 valuation, resulted in an increase in the actuarial contribution rate from the prior valuation. Overall, there was an increase of 0.28% in the actuarial contribution rate from the January 1, 2019 valuation to the January 1, 2020 valuation, as shown in the following table.

Total Actuarial Contribution Rate	
Total Contribution Rate as of January 1, 2019	26.97%
• Contributions Different Than Actuarial Rate	(0.05%)
• Investment Experience	0.52%
• Liability Experience	0.03%
• Change in Normal Cost Rate	(0.08%)
• Payroll Growth Different Than Expected	0.00%
• Other Experience	(0.14%)
Total Contribution Rate as of January 1, 2020	27.25%

The difference in the actuarial contribution rate and the statutory contribution rate results in a contribution shortfall for 2020 of 5.59% of covered payroll, or $19.8 million. Note that the expected contribution shortfall for 2020 estimated in the 2019 valuation assuming all assumptions would be met, was 6.04% or $21.4 million. Due to the favorable investment experience on the market value of assets for the 2019 plan year, about half of the $185.1 million deferred investment loss in the prior valuation has been recognized and $94.3 million of deferred investment loss currently 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)
2020	$350,406,483	27.25%	11.78%	9.88%	5.59%	$19,825,251
2021	362,435,316	27.56%	11.78%	9.88%	5.90%	21,642,990
2022	374,726,106	27.78%	11.78%	9.88%	6.12%	23,211,335
2023	387,903,344	27.92%	11.78%	9.88%	6.26%	24,577,211
2024	401,264,074	28.03%	11.78%	9.88%	6.37%	25,870,478
2025	414,868,090	28.09%	11.78%	9.88%	6.43%	26,999,502
2026	428,816,919	28.13%	11.78%	9.88%	6.47%	28,080,894

Comments

The System's unfunded actuarial accrued liability increased from $814.1 million in the January 1, 2019 valuation to $847.7 million in the January 1, 2020 actuarial valuation, and the funded ratio held steady at 63%. Net unfavorable experience occurred during the 2019 plan year, the result of a $31.4 million actuarial loss on assets and a $1.5 million loss on liabilities. This experience increased the unfunded actuarial accrued liability and the payment thereon. In addition, during calendar year 2019, the additional contribution by the School District was $21.3 million compared to the additional actuarial contribution of $18.2 million. The higher contribution by the District resulted in a reduction in the unfunded actuarial liability compared to that expected

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, 2020 is 27.25% of payroll. The total of contributions made by members, the State, and the School District for plan year ending December 31, 2020 is 21.66% of payroll, so the actuarial contribution rate exceeds the statutory contribution rates by 5.59% of payroll, or $19.8 million. This contribution shortfall of $19.8 million represents the additional required contribution by the School District needed for the 2020 plan year. With the current funded status and 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 $94.3 million as of January 1, 2020. Absent favorable investment experience in future years, the deferred investment loss 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 using both the actuarial and market value of assets:

	Using Actuarial Value of Assets	Using Market Value of Assets
Actuarial Accrued Liability	$2,265,653,000	$2,265,653,000
Asset Value	1,417,961,000	1,323,663,000
Unfunded Actuarial Accrued Liability	$847,692,000	$941,990,000
Funded Ratio	62.59%	58.42%
Normal Cost Rate	12.88%	12.88%
UAAL Contribution Rate	14.37%	15.95%
Actuarial Contribution Rate	27.25%	28.83%
Total Statutory Contribution Rate	(21.66%)	(21.66%)
Contribution Shortfall	5.59%	7.17%
Additional District Contribution	$19,825,251	$25,428,810

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, 2019 and January 1, 2020 valuations.

	Jan. 1, 2020	Jan. 1, 2019	% Chg
SYSTEM MEMBERSHIP			
1. Active Membership			
- Number of Members	7,366	7,177	2.6
- Projected Payroll for Upcoming Fiscal Year	$350.4M	$339.5M	3.2
- Average Salary	47,571	47,300	0.6
2. Inactive Membership			
- Number Not in Pay Status	1,872	1,785	4.9
- Number of Retirees/Beneficiaries/Disableds	4,980	4,826	3.2
- Total Annual Benefits in Pay	$132.2M	$126.0M	4.9
ASSETS AND LIABILITIES			
1. Net Assets			
- Market Value	$1,324M	$1,194M	10.9
- Actuarial Value	1,418M	1,379M	2.8
2. Projected Liabilities			
- Retired Members	$1,364M	$1,311M	4.0
- Inactive Members	50M	45M	11.1
- Active Members	1,246M	1,223M	1.9
- Total Liability	2,660M	2,580M	3.1
3. Actuarial Accrued Liability (AAL)	$2,266M	$2,193M	3.3
4. Unfunded Actuarial Accrued Liability	$848M	$814M	4.2
5. Funded Ratio			
a. Actuarial Value Assets/AAL	62.59%	62.88%	(0.5)
b. Market Value Assets/AAL	58.42%	54.44%	7.3
SYSTEM CONTRIBUTIONS			
1. Total Actuarial Contribution Rate	27.25%	26.97%	1.0
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.)	5.59%	5.31%	5.3
4. Additional District Contribution*	$19,825,251	$18,244,371	8.7

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
Prior Valuation UAAL	163	191	223	240	246	138	198	349	390	406	437	455
Amortization Method	4	5	6	7	5	3	4	6	2	8	9	10
Actual Contributions												
Less than ARC	0	0	2	0	3	0	0	2	4	0	2	0
More than ARC	0	0	0	(2)	0	(7)	(2)	0	0	(4)	0	(4)
Actual vs Expected Experience												
Investment	27	23	1	(10)	(29)	33	151	42	26	20	12	(6)
Salary	(5)	(6)	(1)	4	1	1	0	(13)	(15)	(12)	(6)	(8)
Retirement	3	0	3	2	2	3	(2)	(4)	(1)	4	4	6
Mortality	2	5	4	3	3	1	(2)	0	(2)	2	(2)	(1)
Termination of Employment	(4)	(1)	2	3	1	7	2	3	2	0	1	(1)
Other	1	3	0	(1)	(3)	(1)	0	3	2	13	(8)	(5)
Benefit Changes	0	0	0	0	(3)[2]	0	0	0	0	0	(4)	0
Assumption Changes	0	0	0	0	0	20	0	0	0	0	10	0
Change to Actuarial Methods	0	3[1]	0	0	(88)[3]	0	0	5	0	0	0	0
Total Change for Year End	28	32	17	6	(108)	60	151	41	16	31	18	(9)
UAAL on Valuation Date	191	223	240	246	138	198	349	390	406	437	455	446

[1] Included part-time members who are vested
[2] Increase in member contribution rate
[3] Actuarial asset value reset to market value

HISTORICAL CHANGES IN THE OSERS UNFUNDED ACTUARIAL ACCRUED LIABILITY (CONT.)

(dollars in millions)

	Valuation Date					
	9/1/15	1/1/17	1/1/18	1/1/19	1/1/20	Total
Prior Valuation UAAL	446	486	713	771	814	
Amortization Method	9	12	7	7	12	116
Actual Contributions						
Less than ARC	0	0	3	0	0	16
More than ARC	(5)	(4)	0	0	(3)	(31)
Actual vs Expected Experience						
Investment	34	63	44	62	31	524
Salary	(3)	*	3	(29)	(12)	(101)
Retirement	9	*	7	6	8	50
Mortality	2	*	(1)	6	6	26
Termination of Employment	(2)	*	(1)	(6)	(8)	(2)
Other	(4)	(6)	(4)	(3)	0	(18)
Benefit Changes	0	0	0	0	0	(7)
Assumption Changes	0	138	0	0	0	168
Change to Actuarial Methods	0	0	0	0	0	(80)
Total Change for Year End	40	227*	58	43	34	
UAAL on Valuation Date	**486**	**713**	**771**	**814**	**848**	

* 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.

Exhibit 1 – Summary of Fund Activity (Market Value of Assets)

SUMMARY OF FUND ACTIVITY
(Market Value Basis)

For Period Ended December 31, 2019

NET ASSETS ON JANUARY 1, 2019	$	**1,193,800,000**
ADJUSTMENT FOR LATE REPORTING*		**(464,000)**
ADJUSTED NET ASSETS ON JANUARY 1, 2019	$	**1,193,336,000**

ADDITIONS

Salary deductions	$	35,677,000
School District payroll-related contributions		36,035,000
School District additional contributions		21,300,000
Purchases of service		319,000
State service annuity receipts		1,717,000
Sec. 79-916 deposits		7,420,000
Income from investments, including realized and unrealized gains		162,795,000
Total additions	$	**265,263,000**

DEDUCTIONS

Retirement benefits	$	(125,573,000)
Refunds to employees		(8,251,000)
Professional fees		(587,000)
Other		(54,000)
Personnel costs		(471,000)
Total deductions	$	**(134,936,000)**

NET ASSETS ON JANUARY 1, 2020*	$	**1,323,663,000**

* As provided by the Nebraska Investment Council (NIC). Please note that December 31 statements are typically not available when the NIC investment reports are prepared for a few of OSERS' investment managers. As a result, it is necessary for the NIC to subsequently adjust the market values in their reports to account for the late data. These adjustments are shown as an "adjustment for late reporting" in this exhibit.

EXHIBIT 2 – ACTUARIAL VALUE OF NET ASSETS

ACTUARIAL VALUE OF NET ASSETS

As of January 1, 2020

1.	Actuarial Value of Assets as of January 1, 2019	$ 1,378,824,000
2.	Adjustment for Late Reporting	(116,000)
3.	Adjusted Actuarial Value of Assets as of January 1, 2019	$ 1,378,708,000
4.	Actual Contributions/Disbursements	
	a. Contributions	102,468,000
	b. Benefit payments	(133,824,000)
	c. Net change	(31,356,000)
5.	Expected Value of Assets as of January 1, 2020	1,449,393,000
6.	Market Value of Assets as of January 1, 2020	1,323,663,000
7.	Difference between Market and Expected Values (6) – (5)	(125,730,000)
8.	Initial Actuarial Value of Assets as of January 1, 2020 (5) + [(7) x 25%]	1,417,961,000
9.	Corridor as of January 1, 2020	
	a. 120% of Market Value of Assets as of January 1, 2020	1,588,396,000
	b. 80% of Market Value of Assets as of January 1, 2020	1,058,930,000
10.	Final Actuarial Value of Assets as of January 1, 2020* (8), but not greater than (9a), nor less than (9b)	1,417,961,000
11.	Actuarial value divided by market value (10) / (6)	107.1%
12.	Market value less actuarial value	$ (94,298,000)

The estimated annualized rate of return on the actuarial value of assets for the period ended December 31, 2019 is about 5.2%

EXHIBIT 3 – ACTUARIAL BALANCE SHEET

ACTUARIAL BALANCE SHEET

As of January 1, 2020

A S S E T S

Actuarial Value of Assets	$ 1,417,961,000
Present Value of Contributions for Unfunded Actuarial Accrued Liability	847,692,000
Present Value of Future Normal Costs	394,719,000
Total Assets	$ **2,660,372,000**

L I A B I L I T I E S

Present Value of Future Benefits

Retirees, Beneficiaries, and Disableds		$ 1,364,109,000
Inactive Vesteds		46,252,000
Nonvested Terminations		4,080,000
Active Members		
Retirement benefits	$ 1,177,660,000	
Termination benefits	58,036,000	
Death benefits	10,235,000	
		1,245,931,000
Total Liabilities		$ **2,660,372,000**

EXHIBIT 4 – UNFUNDED ACTUARIAL ACCRUED LIABILITY

UNFUNDED ACTUARIAL ACCRUED LIABILITY

As of January 1, 2020

1. Present Value of Future Benefits	$	2,660,372,000
2. Present Value of Future Normal Costs	$	394,719,000
3. Actuarial Accrued Liability (1) – (2)	$	2,265,653,000
4. Actuarial Value of Assets	$	1,417,961,000
5. Unfunded Actuarial Accrued Liability (3) – (4)	$	847,692,000

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 with payments calculated as a level percentage of payroll over a closed 30-year period. New layers of UAAL that occur in the future are also amortized over new 30-year periods.

Amortization Bases	Original Amount	1/1/2020 Remaining Payments	Date of Last Payment	Outstanding Balance as of 1/1/2020	Annual Contribution*
2019 UAAL Base	$ 814,069,000	29	1/1/2048	$ 825,828,207	$ 49,090,474
2020 Experience Base	21,863,793	30	1/1/2049	21,863,793	1,276,943
Total				$ 847,692,000	$ 50,367,417

* Contribution amount reflects mid-year timing.

1. Total UAAL Amortization Payments	$	50,367,417
2. Projected Payroll for plan year ending December 31, 2020	$	350,406,483
3. UAAL Amortization Payment Rate		14.37%

EXHIBIT 6 – ANALYSIS OF CONTRIBUTION RATE

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	$	41,443,490
2. a. Expected Payroll for Current Actives for Year End December 31, 2020		321,664,300
b. Total Expected Payroll for Year End December 31, 2020		350,406,483
3. Normal Cost Rate (1)/(2a)		12.88%
4. Unfunded Actuarial Accrued Liability at Valuation Date		847,692,000
5. UAAL Contribution at Mid-Year		50,367,417
6. UAAL Contribution Rate (5)/(2b)		14.37%
7. Actuarial Recommended Contribution Rate (3) + (6)		27.25%
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)		5.59%
10. Additional District Contribution at August 31, 2020 (9) * (2b) * (1.075 ^ (2/12))	$	19,825,251

EXHIBIT 7 – PROJECTION OF ADDITIONAL DISTRICT CONTRIBUTIONS

PROJECTION OF ADDITIONAL DISTRICT CONTRIBUTIONS

The projections below are based on the open group projection model prepared in conjunction with the January 1, 2020 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 specific 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)
2020	$350,406,483	27.25%	11.78%	9.88%	5.59%	$19,825,251
2021	362,435,316	27.56%	11.78%	9.88%	5.90%	21,642,990
2022	374,726,106	27.78%	11.78%	9.88%	6.12%	23,211,335
2023	387,903,344	27.92%	11.78%	9.88%	6.26%	24,577,211
2024	401,264,074	28.03%	11.78%	9.88%	6.37%	25,870,478
2025	414,868,090	28.09%	11.78%	9.88%	6.43%	26,999,502
2026	428,816,919	28.13%	11.78%	9.88%	6.47%	28,080,894

EXHIBIT 8 – CALCULATION OF ACTUARIAL GAIN/(LOSS)

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, 2020.

1. Expected Actuarial Accrued Liability
   a. Actuarial Accrued Liability as of January 1, 2019 $ 2,192,893,000
   b. Normal Cost for plan year ending December 31, 2019   40,361,000
   c. Benefit payments for plan year ending December 31, 2019   (133,824,000)
   d. Additional liability for state service annuities
      and service purchases   2,036,000
   e. Interest on a., b., c., and d. to end of year   162,641,000
   f. Expected Actuarial Accrued Liability $ 2,264,107,000

2. Actuarial Accrued Liability as of January 1, 2020 $ 2,265,653,000

3. Liability Gain/(Loss) $ (1,546,000)
   (1.f.) – (2)

4. Liability Gain/(Loss) as a Percent of Actuarial Accrued Liability   (0.07%)

5. Expected Actuarial Value of Assets
   a. Adjusted actuarial value of assets as of January 1, 2019 $ 1,378,708,000
   b. Contributions for plan year ending December 31, 2019   102,468,000
      (including state service annuities and service purchases)
   c. Benefit payments for plan year ending December 31, 2019   (133,824,000)
   d. Interest on a., b., and c. to end of year   102,041,000
   e. Expected actuarial value of assets $ 1,449,393,000

6. Actuarial Value of Assets as of January 1, 2020 $ 1,417,961,000

7. Asset Gain/(Loss) $ (31,432,000)
   (6) – (5.e.)

8. Asset Gain/(Loss) as a Percent of Actuarial Value of Assets   (2.22%)

9. Overall Actuarial Gain/(Loss) $ (32,978,000)
   (3) + (7)

EXHIBIT 8 – CALCULATION OF ACTUARIAL GAIN/(LOSS)

Gain/(Loss) By Source

The System experienced a net actuarial loss on liabilities of about $1.5 million during the plan year ended December 31, 2019. The major components of this overall loss are shown below:

Liability Sources	$Millions
Salary Increases	$ 11.7
Mortality	(6.0)
Terminations	7.5
Retirements	(7.5)
Disability	0.0
New Entrants/Rehires	(7.3)
Miscellaneous	0.1
Total Liability Gain/(Loss)	$ (1.5)
Asset Gain/(Loss)	$ (31.4)
Net Actuarial Gain/(Loss)	$ (33.0)

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 loss of $1.5 million, about 0.1% of actuarial accrued liability. The largest sources of unfavorable experience were a $7.5 million loss due to unfavorable retirement experience, a $6.0 million loss from mortality, and a $7.3 million loss due to new active and rehired members.

Another significant component of the experience for the year ending December 31, 2019 was the investment experience. Due to the deferred investment loss in last year's valuation of $185.1 million, there was a loss on the actuarial value of assets of $31.4 million despite favorable experience on the market value of assets. As of January 1, 2020, there remains a deferred investment loss of $94.3 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.

EXHIBIT 9 – SCHEDULE OF CONTRIBUTIONS

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%
12/31/2019	40,399,371	43,455,000	107.56%

* 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.

EXHIBIT 10 – SCHEDULE OF FUNDING PROGRESS

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%
1/1/2020	1,417,961,000	2,265,653,000	847,692,000	62.59%	364,799,331	232.37%

* 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.

EXHIBIT 11 – SOLVENCY TEST

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%
2020	334,253,000	1,414,441,000	516,959,000	1,417,961,000	100%	77%	0%

* The actuarial valuation date for years prior to 2017 was September 1.

EXHIBIT 12 – ESTIMATED BENEFIT PAYMENTS

ESTIMATED BENEFIT PAYMENTS*

Year End	Currently In-Pay	Currently Not-In-Pay	Total
2020	$129,067,000	$ 7,039,000	$136,106,000
2021	128,787,000	11,893,000	140,680,000
2022	128,297,000	16,734,000	145,031,000
2023	127,573,000	21,626,000	149,199,000
2024	126,650,000	26,756,000	153,406,000
2025	125,623,000	32,271,000	157,894,000
2026	124,427,000	38,478,000	162,905,000
2027	123,118,000	45,060,000	168,178,000
2028	121,742,000	51,705,000	173,447,000
2029	119,979,000	58,773,000	178,752,000
2030	118,016,000	66,588,000	184,604,000
2031	115,768,000	74,693,000	190,461,000
2032	113,311,000	83,249,000	196,560,000
2033	110,404,000	92,047,000	202,451,000
2034	107,352,000	101,532,000	208,884,000

*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.

The last two risk are not required to be assessed by the actuary under ASOP 51.

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 eight of the past thirteen years and has contributed an amount very close to the actuarial contribution in the other years.

System Contributions Versus Actuarial Required Contributions
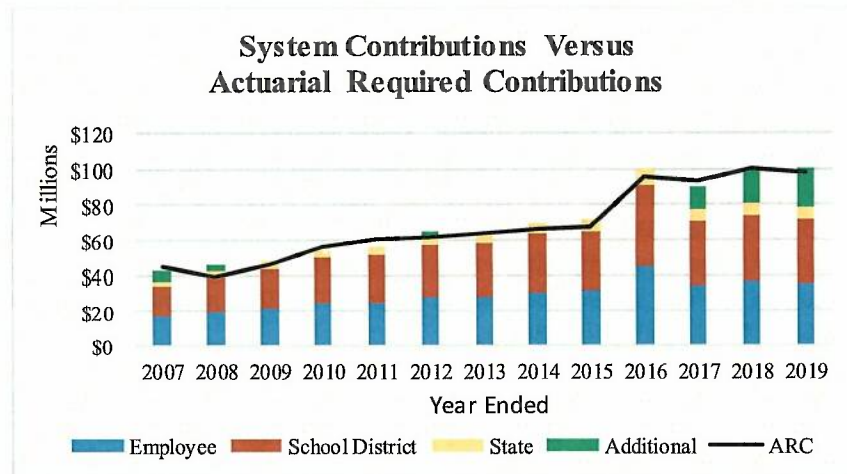
Current state statutes require the School District to contribute any shortfall between the actuarial required contribution rate and the statutory contributions by members, the State of Nebraska and the School District on or before August 31. As a result, the full actuarial contribution rate can be expected 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, particularly over long periods like 30 years 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 5.8%, but the range of returns varied from +17% to -13%. When actual investment returns are lower than the assumed rate of return, there is an increasing trend in the actuarial contribution rate absent offsetting gains on liabilities or changes in actuarial methods. The investment experience of the last decade has been significantly lower than the assumption, resulting in a higher actuarial contribution rate.

	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2017	2018	2019	2020
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%	13.8%
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%	5.2%
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%	7.5%
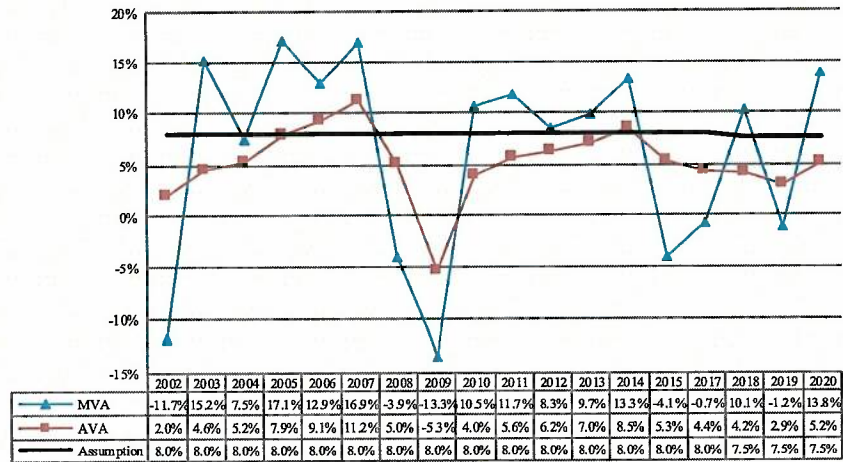
The System is currently 63% funded using the actuarial value of assets and 58% funded on a market value basis. The low funded ratio has increased the actuarial required contribution rate and the School District now has an obligation to make an additional contribution of around 6% of covered payroll. 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 $1.8 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	Actual 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%
1/1/2020	1,323,663,000	364,799,331	3.63	2.12%

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, 2020 are 363% 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 36.3% of payroll. The impact on the actuarial contribution rate would be 2.12% 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%)
12/31/2019	1,323,663,000	102,468,000	133,824,000	(31,356,000)	(2.37%)

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.

Negative Cash Flows as a Percent of MVA
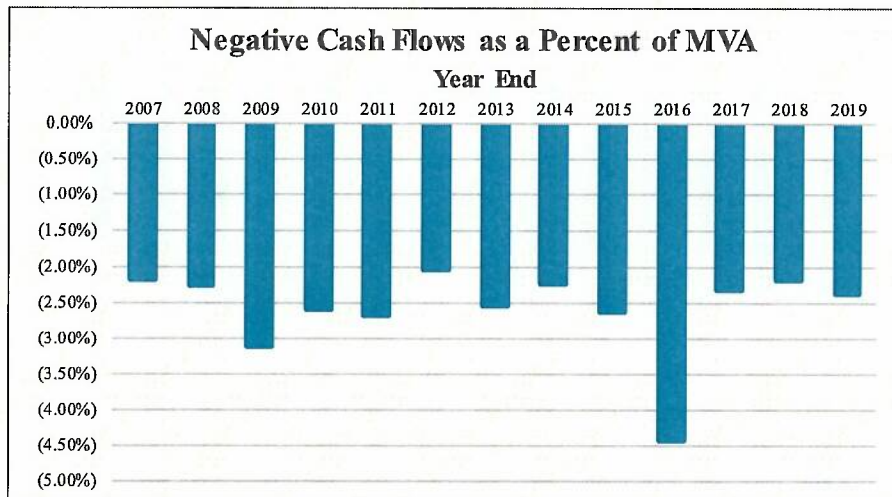
EXHIBIT 15 – LIABILITY MATURITY MEASUREMENTS

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 13 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
1/1/2020	1,364,109,000	2,265,653,000	60.2%	364,799,331	6.21

Note: Years prior to the 9/1/2010 valuation were provided by the prior actuary.
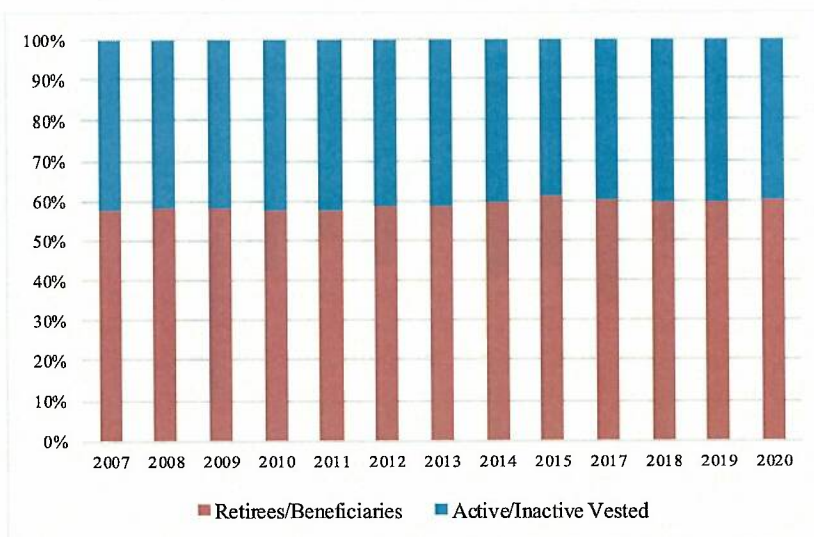
This exhibit is a sensitivity analysis that compares the key January 1, 2020 valuation results under the current investment return assumption and four (4) alternate investment return assumptions, both higher and lower than the current assumption. This information is intended to illustrate the impact 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	14.52%	13.67%	12.88%	12.15%	11.47%
UAAL Contribution	15.75%	15.06%	14.37%	13.68%	12.98%
Total Actuarial Contribution Rate	30.27%	28.73%	27.25%	25.83%	24.45%
Statutory Contribution Rate	21.66%	21.66%	21.66%	21.66%	21.66%
Contribution Shortfall/(Margin)	8.61%	7.07%	5.59%	4.17%	2.79%
Additional District Contribution	$30,512,134	$25,064,426	$19,825,251	$14,794,867	$9,902,548
Actuarial Accrued Liability ($ in millions)	$2,402.2	$2,332.3	$2,265.7	$2,202.0	$2,141.2
Actuarial Value of Assets ($ in millions)	$1,418.0	$1,418.0	$1,418.0	$1,418.0	$1,418.0
Unfunded Actuarial Accrued Liability ($ in millions)	$984.3	$914.4	$847.7	$784.0	$723.2
Funded Ratio	59.0%	60.8%	62.6%	64.4%	66.2%

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.

2020 Cost of Living Adjustment

The automatic 1.5% COLA for members hired before July 1, 2013 was granted beginning January 1, 2020.

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 engaged by 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 beginning September 1, 2016 at the rate equal to the daily treasury yield curve for one-year treasury securities, as published by the secretary of the treasury of the United States, that applies on September 1 of each year.

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 those who became members before July 1, 2013. For those who became members 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 those who became members 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 after the 10th year of 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 those who became members on or after July 1, 2013, the annual cost of living adjustment is capped at 1.0%.

Those who became members on or after July 1, 2016 are not eligible to receive the medical COLA benefit.

Retirement Annuities: An employee who becomes a member 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 a member before July 1, 2016 begins receiving an annuity at or 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 who became a member 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 became members 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. If there is no beneficiary form on file with OSERS, the member's spouse at the time of death is deemed to be the beneficiary and eligible for a pre-retirement survivor annuity. 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 became members 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 became members 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:

Percent Terminating	
Duration	Rate
1	11.25%
5	8.00
10	4.50
15	2.25
20	1.00
25	1.00

Classified:

	Percent Terminating	
Duration	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:

Became members 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

Became members 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:

Became members 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% if became member before 7/1/2013
1.0% if became member 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 balances are 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 29 years remain as of the January 1, 2020 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 1/1/2019	7,177	1,114	671	4,550	256	20	13,788
Terminated – vested	(178)	178	0	0	0	0	0
Terminated – refund due	(177)	0	177	0	0	0	0
Terminated – refunded	(295)	(53)	(97)	0	0	0	(445)
Retired	(217)	(25)	0	242	0	0	0
Disability retirement	(1)	(5)	0	0	0	6	0
Death	(7)	(2)	(2)	(106)	(6)	(2)	(125)
Payments ended	0	0	0	0	(10)	(1)	(11)
New beneficiaries	0	0	0	0	29	0	29
New Alternate Payees	0	0	0	0	0	0	0
New members	925	0	54	2	0	0	981
Rehires	139	(46)	(93)	0	0	0	0
Corrections/adjustments	0	2	(1)	0	0	0	1
Members on 1/1/2020	7,366	1,163	709	4,688	269	23	14,218

* Includes QDROs

HISTORICAL SUMMARY OF MEMBERS

The following table displays selected historical data that was used in the actuarial valuation for the System.

| Valuation Date January 1* | Active Members | | | | | | | Number | | | Act/Ret Ratio |
	Total Count	Number	Average Age	Entry Age	Service	Annual Pay ($)	Pay Increase	Inactive Vested	Inactive Nonvested	Retired	
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
2020	14,218	7,366	44.5	33.9	10.6	47,571	0.57%	1,163	709	4,980	1.48

* Years prior to 2017 have a valuation date of September 1.

OMAHA SCHOOL EMPLOYEES' RETIREMENT SYSTEM
DISTRIBUTION OF ACTIVE MEMBERS

as of January 1, 2020

Total

Age	0 to 4	5 to 9	10 to 14	15 to 19	Service 20 to 24	25 to 29	30 to 34	35 & Up	Total
Under 25	277	0	0	0	0	0	0	0	277
25 to 29	708	105	0	0	0	0	0	0	813
30 to 34	410	360	58	0	0	0	0	0	828
35 to 39	281	222	363	60	0	0	0	0	926
40 to 44	242	138	211	295	43	0	0	0	929
45 to 49	192	121	150	160	199	26	0	0	848
50 to 54	157	141	147	138	145	120	29	0	877
55 to 59	173	103	145	138	101	70	58	10	798
60 to 64	157	122	126	111	95	56	22	11	700
65 & Up	87	54	77	64	34	33	12	9	370
Total	2,684	1,366	1,277	966	617	305	121	30	7,366

Age Distribution

Service Distribution

OMAHA SCHOOL EMPLOYEES' RETIREMENT SYSTEM
SALARY DISTRIBUTION OF ACTIVE MEMBERS

as of January 1, 2020

Total

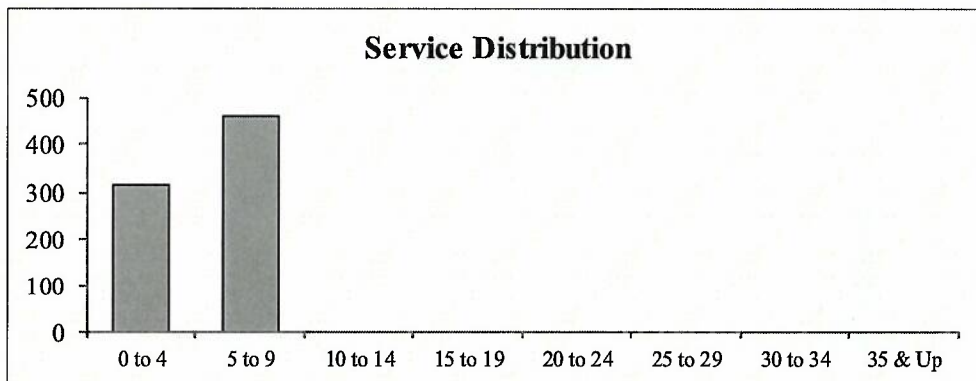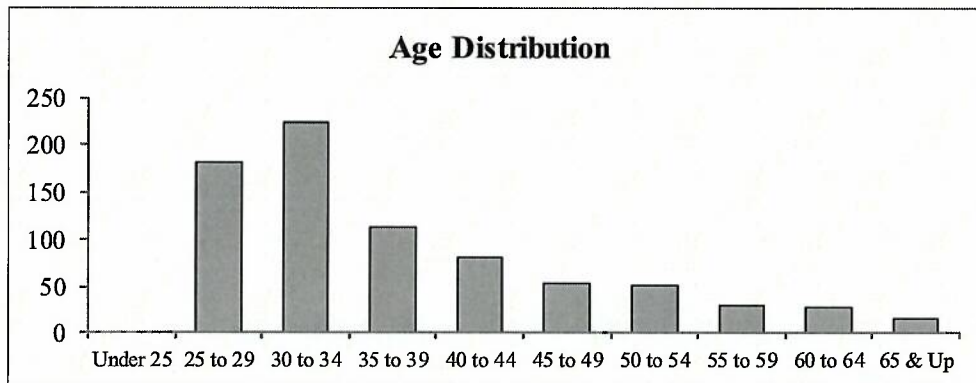| Age	0 to 4	5 to 9	10 to 14	15 to 19	Service 20 to 24	25 to 29	30 to 34	35 & Up	Total
Under 25	9,174,264	0	0	0	0	0	0	0	9,174,264
25 to 29	27,759,941	4,484,866	0	0	0	0	0	0	32,244,807
30 to 34	16,480,104	17,251,678	2,840,999	0	0	0	0	0	36,572,781
35 to 39	10,730,767	10,608,850	20,401,541	3,457,221	0	0	0	0	45,198,379
40 to 44	9,647,353	6,507,763	11,406,951	19,496,953	2,633,050	0	0	0	49,692,070
45 to 49	7,550,104	5,330,185	8,101,080	9,771,154	14,265,694	2,087,798	0	0	47,106,015
50 to 54	6,539,817	5,816,714	6,998,355	7,123,196	9,576,919	9,170,546	2,257,507	0	47,483,054
55 to 59	6,131,782	3,721,673	6,453,925	6,591,094	5,469,230	4,556,175	4,348,158	701,883	37,973,920
60 to 64	5,574,790	4,556,968	5,104,167	5,446,441	4,709,341	2,849,905	1,372,547	835,539	30,449,698
65 & Up	2,721,834	1,950,095	2,669,575	2,777,639	1,519,970	1,323,343	812,709	736,330	14,511,495
Total	102,310,756	60,228,792	63,976,593	54,663,698	38,174,204	19,987,767	8,790,921	2,273,752	350,406,483

OMAHA SCHOOL EMPLOYEES' RETIREMENT SYSTEM
DISTRIBUTION OF ACTIVE MEMBERS

as of January 1, 2020

Certificated - Total

Age	Service 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	162	0	0	0	0	0	0	0	162
25 to 29	532	81	0	0	0	0	0	0	613
30 to 34	282	314	43	0	0	0	0	0	639
35 to 39	165	185	333	51	0	0	0	0	734
40 to 44	129	99	180	273	32	0	0	0	713
45 to 49	101	75	116	131	187	24	0	0	634
50 to 54	75	75	85	81	118	115	26	0	575
55 to 59	55	35	70	69	58	47	49	6	389
60 to 64	51	36	45	59	44	22	12	7	276
65 & Up	23	18	21	22	13	9	8	6	120
Total	1,575	918	893	686	452	217	95	19	4,855

Age Distribution

Service Distribution

OMAHA SCHOOL EMPLOYEES' RETIREMENT SYSTEM
SALARY DISTRIBUTION OF ACTIVE MEMBERS

as of January 1, 2020

Certificated - Total

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
					Service				
Under 25	6,711,379	0	0	0	0	0	0	0	6,711,379
25 to 29	23,916,537	3,891,568	0	0	0	0	0	0	27,808,105
30 to 34	13,631,993	15,992,069	2,381,964	0	0	0	0	0	32,006,026
35 to 39	8,135,928	9,498,978	19,516,374	3,177,017	0	0	0	0	40,328,297
40 to 44	6,967,218	5,491,942	10,553,734	18,715,297	2,183,365	0	0	0	43,911,556
45 to 49	5,444,658	4,079,837	7,068,752	8,743,947	13,796,233	1,986,423	0	0	41,119,850
50 to 54	4,400,350	4,041,603	5,062,802	5,280,864	8,440,518	9,016,673	2,109,219	0	38,352,029
55 to 59	3,273,966	1,887,919	4,038,706	4,492,300	3,963,639	3,526,813	3,892,793	477,995	25,554,131
60 to 64	3,002,435	2,184,679	2,616,084	3,854,558	3,133,245	1,556,148	932,922	657,686	17,937,757
65 & Up	1,310,725	1,068,880	1,271,209	1,471,825	877,305	627,133	575,813	638,270	7,841,160
Total	76,795,189	48,137,475	52,509,625	45,735,808	32,394,305	16,713,190	7,510,747	1,773,951	281,570,290

OMAHA SCHOOL EMPLOYEES' RETIREMENT SYSTEM
DISTRIBUTION OF ACTIVE MEMBERS

as of January 1, 2020

Certificated - Tier 1

Age	Service 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	3	0	0	0	0	0	0	3
30 to 34	3	156	43	0	0	0	0	0	202
35 to 39	1	115	333	51	0	0	0	0	500
40 to 44	0	51	180	273	32	0	0	0	536
45 to 49	0	42	116	131	187	24	0	0	500
50 to 54	0	40	85	81	118	115	26	0	465
55 to 59	0	20	70	69	58	47	49	6	319
60 to 64	0	23	45	59	44	22	12	7	212
65 & Up	0	7	21	22	13	9	8	6	86
Total	4	457	893	686	452	217	95	19	2,823

Age Distribution

Service Distribution

OMAHA SCHOOL EMPLOYEES' RETIREMENT SYSTEM
DISTRIBUTION OF ACTIVE MEMBERS

as of January 1, 2020

Certificated - Tier 2

Age	Service 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	103	78	0	0	0	0	0	0	181
30 to 34	66	158	0	0	0	0	0	0	224
35 to 39	42	70	0	0	0	0	0	0	112
40 to 44	34	48	0	0	0	0	0	0	82
45 to 49	20	33	0	0	0	0	0	0	53
50 to 54	16	35	0	0	0	0	0	0	51
55 to 59	15	15	0	0	0	0	0	0	30
60 to 64	16	13	0	0	0	0	0	0	29
65 & Up	5	11	0	0	0	0	0	0	16
Total	317	461	0	0	0	0	0	0	778

Age Distribution

Service Distribution

OMAHA SCHOOL EMPLOYEES' RETIREMENT SYSTEM
DISTRIBUTION OF ACTIVE MEMBERS

as of January 1, 2020

Certificated - Tier 3

Age	Service 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	10	0	0	0	0	0	0	0	10
25 to 29	226	0	0	0	0	0	0	0	226
30 to 34	121	0	0	0	0	0	0	0	121
35 to 39	56	0	0	0	0	0	0	0	56
40 to 44	47	0	0	0	0	0	0	0	47
45 to 49	41	0	0	0	0	0	0	0	41
50 to 54	35	0	0	0	0	0	0	0	35
55 to 59	18	0	0	0	0	0	0	0	18
60 to 64	19	0	0	0	0	0	0	0	19
65 & Up	11	0	0	0	0	0	0	0	11
Total	584	0	0	0	0	0	0	0	584
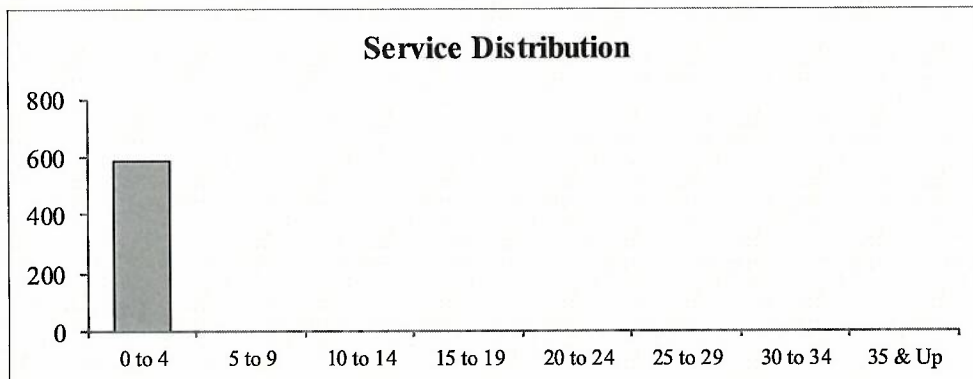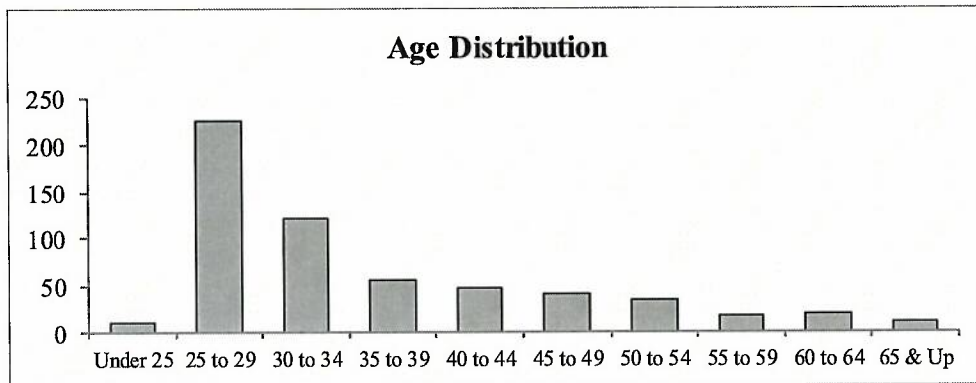
Age Distribution

Service Distribution

OMAHA SCHOOL EMPLOYEES' RETIREMENT SYSTEM
DISTRIBUTION OF ACTIVE MEMBERS

as of January 1, 2020

Certificated - Tier 4

Age	Service 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	152	0	0	0	0	0	0	0	152
25 to 29	203	0	0	0	0	0	0	0	203
30 to 34	92	0	0	0	0	0	0	0	92
35 to 39	66	0	0	0	0	0	0	0	66
40 to 44	48	0	0	0	0	0	0	0	48
45 to 49	40	0	0	0	0	0	0	0	40
50 to 54	24	0	0	0	0	0	0	0	24
55 to 59	22	0	0	0	0	0	0	0	22
60 to 64	16	0	0	0	0	0	0	0	16
65 & Up	7	0	0	0	0	0	0	0	7
Total	670	0	0	0	0	0	0	0	670

Age Distribution

Service Distribution

OMAHA SCHOOL EMPLOYEES' RETIREMENT SYSTEM
DISTRIBUTION OF ACTIVE MEMBERS

as of January 1, 2020

Classified - Total

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	115	0	0	0	0	0	0	0	115
25 to 29	176	24	0	0	0	0	0	0	200
30 to 34	128	46	15	0	0	0	0	0	189
35 to 39	116	37	30	9	0	0	0	0	192
40 to 44	113	39	31	22	11	0	0	0	216
45 to 49	91	46	34	29	12	2	0	0	214
50 to 54	82	66	62	57	27	5	3	0	302
55 to 59	118	68	75	69	43	23	9	4	409
60 to 64	106	86	81	52	51	34	10	4	424
65 & Up	64	36	56	42	21	24	4	3	250
Total	1,109	448	384	280	165	88	26	11	2,511

Age Distribution

Service Distribution

OMAHA SCHOOL EMPLOYEES' RETIREMENT SYSTEM
SALARY DISTRIBUTION OF ACTIVE MEMBERS

as of January 1, 2020

Classified - Total

Age	0 to 4	5 to 9	10 to 14	15 to 19	Service 20 to 24	25 to 29	30 to 34	35 & Up	Total
Under 25	2,462,885	0	0	0	0	0	0	0	2,462,885
25 to 29	3,843,404	593,298	0	0	0	0	0	0	4,436,702
30 to 34	2,848,111	1,259,609	459,035	0	0	0	0	0	4,566,755
35 to 39	2,594,839	1,109,872	885,167	280,204	0	0	0	0	4,870,082
40 to 44	2,680,135	1,015,821	853,217	781,656	449,685	0	0	0	5,780,514
45 to 49	2,105,445	1,250,348	1,032,328	1,027,207	469,461	101,376	0	0	5,986,165
50 to 54	2,139,469	1,775,111	1,935,552	1,842,332	1,136,401	153,873	148,287	0	9,131,025
55 to 59	2,857,814	1,833,754	2,415,219	2,098,794	1,505,591	1,029,363	455,366	223,888	12,419,789
60 to 64	2,572,356	2,372,288	2,488,083	1,591,883	1,576,096	1,293,756	439,626	177,853	12,511,941
65 & Up	1,411,108	881,216	1,398,366	1,305,814	642,665	696,210	236,896	98,060	6,670,335
Total	25,515,566	12,091,317	11,466,967	8,927,890	5,779,899	3,274,578	1,280,175	499,801	68,836,193

OMAHA SCHOOL EMPLOYEES' RETIREMENT SYSTEM
DISTRIBUTION OF ACTIVE MEMBERS

as of January 1, 2020

Classified - Tier 1

Age	0 to 4	5 to 9	10 to 14	15 to 19	Service 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	4	0	0	0	0	0	0	4
30 to 34	0	27	15	0	0	0	0	0	42
35 to 39	0	19	30	9	0	0	0	0	58
40 to 44	1	16	31	22	11	0	0	0	81
45 to 49	0	28	34	29	12	2	0	0	105
50 to 54	0	38	62	57	27	5	3	0	192
55 to 59	2	36	75	69	43	23	9	4	261
60 to 64	0	41	81	52	51	34	10	4	273
65 & Up	0	17	56	42	21	24	4	3	167
Total	3	226	384	280	165	88	26	11	1,183
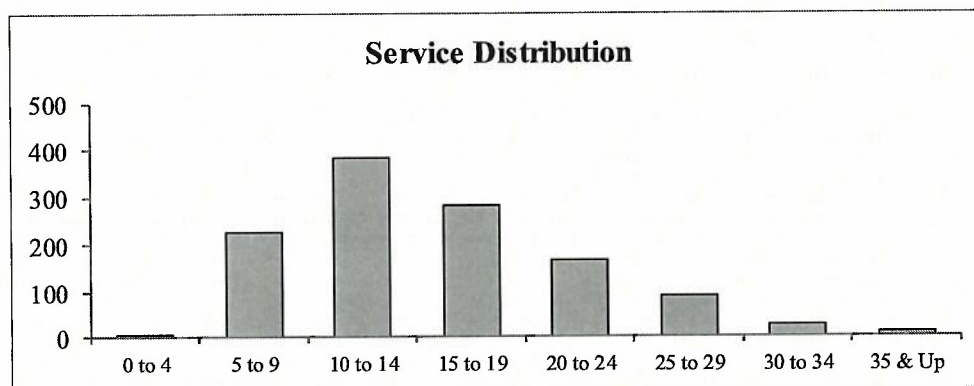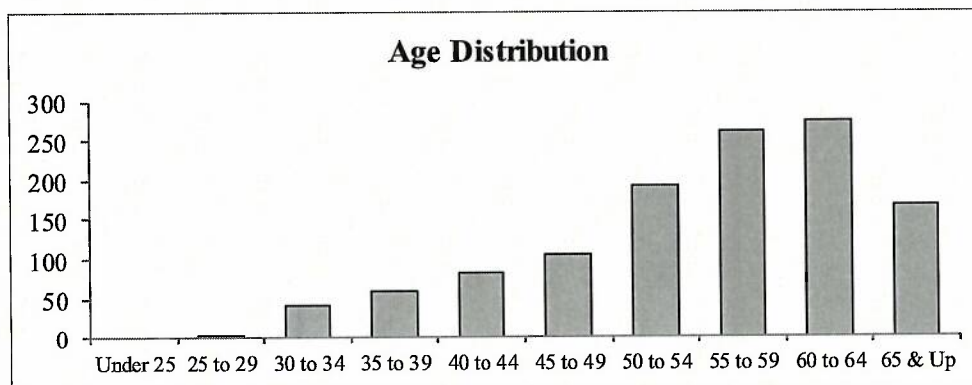
Age Distribution

Service Distribution

OMAHA SCHOOL EMPLOYEES' RETIREMENT SYSTEM
DISTRIBUTION OF ACTIVE MEMBERS

as of January 1, 2020

Classified - Tier 2

Age	Service								Total
	0 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 to 34	35 & Up	
Under 25	2	0	0	0	0	0	0	0	2
25 to 29	20	20	0	0	0	0	0	0	40
30 to 34	27	19	0	0	0	0	0	0	46
35 to 39	23	18	0	0	0	0	0	0	41
40 to 44	18	23	0	0	0	0	0	0	41
45 to 49	23	18	0	0	0	0	0	0	41
50 to 54	18	27	0	0	0	0	0	0	45
55 to 59	27	32	0	0	0	0	0	0	59
60 to 64	35	45	0	0	0	0	0	0	80
65 & Up	21	19	0	0	0	0	0	0	40
Total	214	221	0	0	0	0	0	0	435
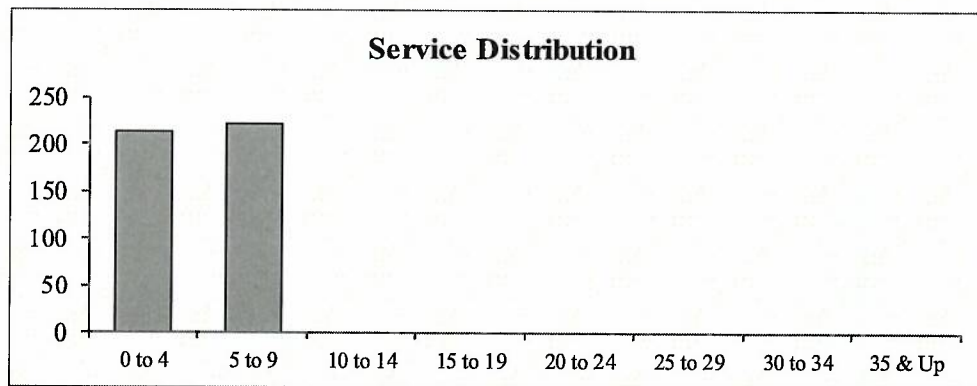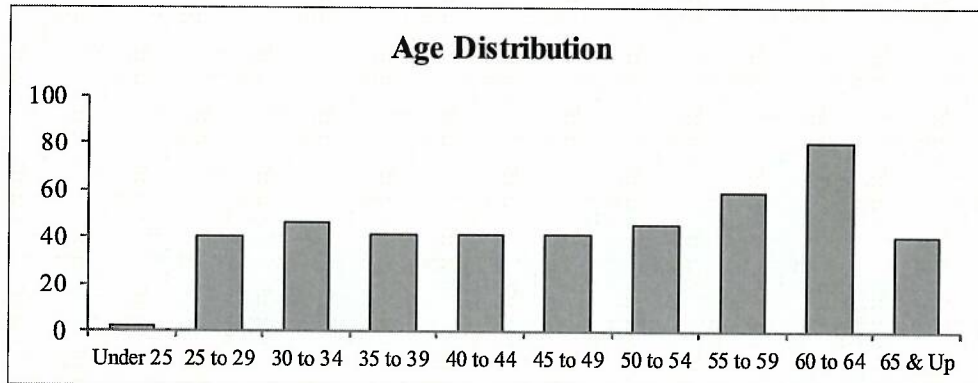
Age Distribution

Service Distribution

OMAHA SCHOOL EMPLOYEES' RETIREMENT SYSTEM
DISTRIBUTION OF ACTIVE MEMBERS

as of January 1, 2020

Classified - Tier 3

Age	0 to 4	5 to 9	10 to 14	15 to 19	Service 20 to 24	25 to 29	30 to 34	35 & Up	Total
Under 25	16	0	0	0	0	0	0	0	16
25 to 29	49	0	0	0	0	0	0	0	49
30 to 34	35	0	0	0	0	0	0	0	35
35 to 39	38	0	0	0	0	0	0	0	38
40 to 44	26	0	0	0	0	0	0	0	26
45 to 49	27	0	0	0	0	0	0	0	27
50 to 54	25	0	0	0	0	0	0	0	25
55 to 59	32	0	0	0	0	0	0	0	32
60 to 64	31	0	0	0	0	0	0	0	31
65 & Up	25	0	0	0	0	0	0	0	25
Total	304	0	0	0	0	0	0	0	304
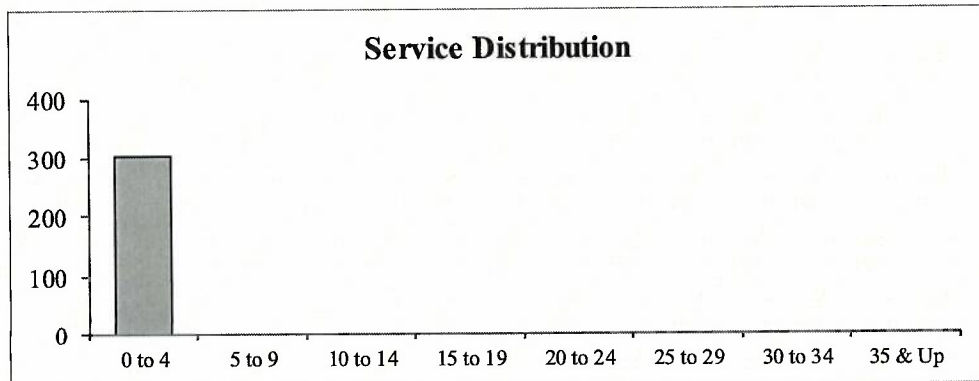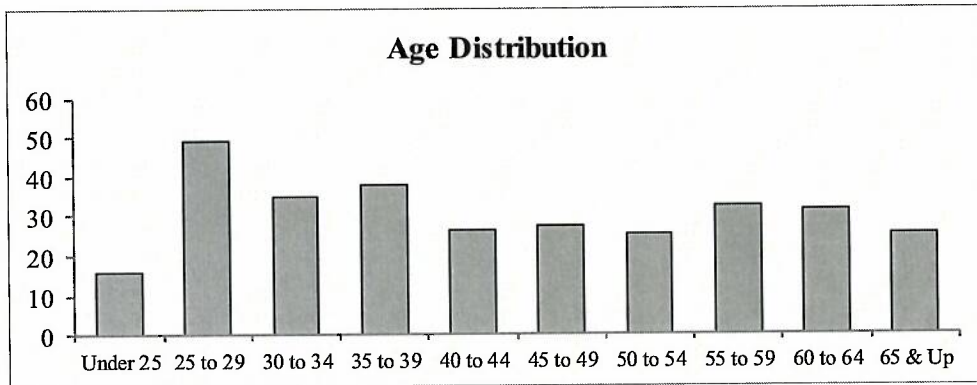
Age Distribution

Service Distribution

OMAHA SCHOOL EMPLOYEES' RETIREMENT SYSTEM
DISTRIBUTION OF ACTIVE MEMBERS

as of January 1, 2020

Classified - Tier 4

Age	0 to 4	5 to 9	10 to 14	15 to 19	Service 20 to 24	25 to 29	30 to 34	35 & Up	Total
Under 25	97	0	0	0	0	0	0	0	97
25 to 29	107	0	0	0	0	0	0	0	107
30 to 34	66	0	0	0	0	0	0	0	66
35 to 39	55	0	0	0	0	0	0	0	55
40 to 44	68	0	0	0	0	0	0	0	68
45 to 49	41	0	0	0	0	0	0	0	41
50 to 54	39	1	0	0	0	0	0	0	40
55 to 59	57	0	0	0	0	0	0	0	57
60 to 64	40	0	0	0	0	0	0	0	40
65 & Up	18	0	0	0	0	0	0	0	18
Total	588	1	0	0	0	0	0	0	589
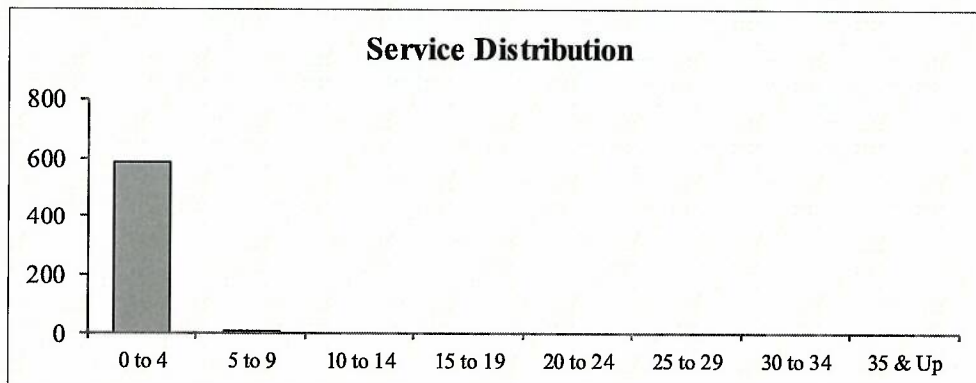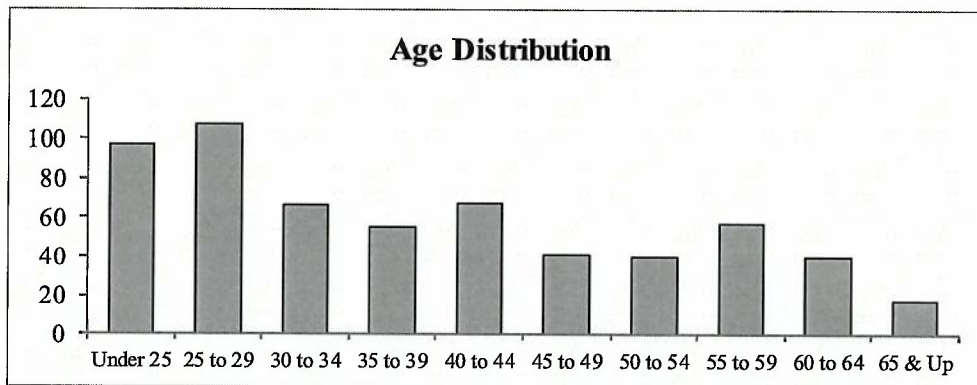
Age Distribution

Service Distribution

OMAHA SCHOOL EMPLOYEES' RETIREMENT SYSTEM
SUMMARY OF ACTIVE MEMBERS

as of January 1, 2020

Total

Age	Number			Salaries		
	Males	Females	Total	Males	Females	Total
Under 25	69	208	277	$ 2,400,250	$ 6,774,014	$ 9,174,264
25 to 29	173	640	813	6,788,492	25,456,315	32,244,807
30 to 34	201	627	828	8,835,650	27,737,131	36,572,781
35 to 39	242	684	926	12,067,213	33,131,166	45,198,379
40 to 44	247	682	929	14,079,069	35,613,001	49,692,070
45 to 49	206	642	848	12,501,678	34,604,337	47,106,015
50 to 54	218	659	877	12,980,333	34,502,721	47,483,054
55 to 59	230	568	798	11,470,576	26,503,344	37,973,920
60 to 64	201	499	700	9,205,686	21,244,012	30,449,698
65 & Up	135	235	370	5,820,597	8,690,898	14,511,495
Total	1,922	5,444	7,366	$ 96,149,544	$ 254,256,939	$ 350,406,483
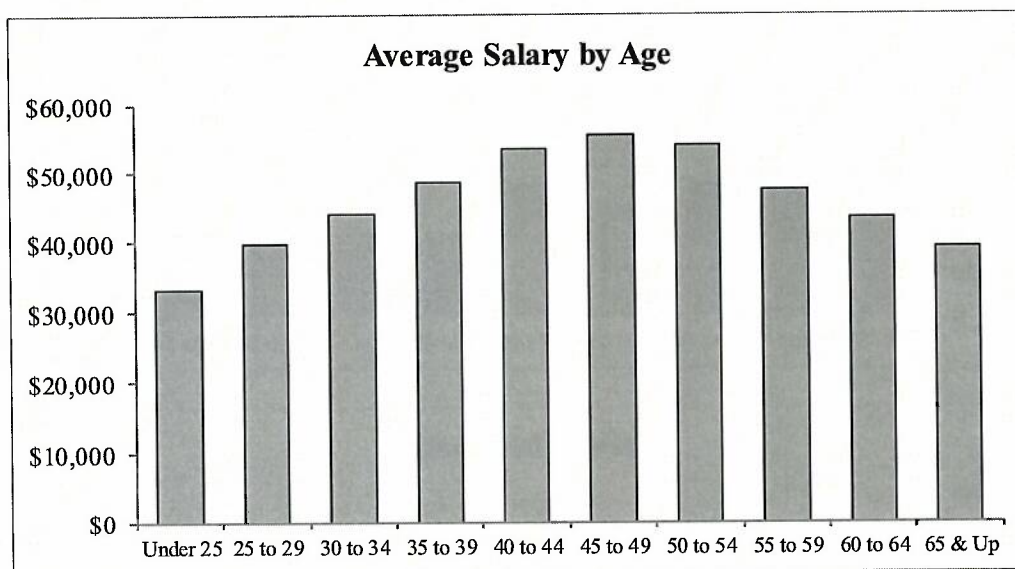
Average Salary by Age

OMAHA SCHOOL EMPLOYEES' RETIREMENT SYSTEM
SUMMARY OF ACTIVE MEMBERS

as of January 1, 2020

Certificated

Age	Number			Salaries		
	Males	Females	Total	Males	Females	Total
Under 25	32	130	162	$ 1,361,139	$ 5,350,240	$ 6,711,379
25 to 29	118	495	613	5,274,412	22,533,693	27,808,105
30 to 34	134	505	639	6,785,445	25,220,581	32,006,026
35 to 39	183	551	734	10,107,178	30,221,119	40,328,297
40 to 44	180	533	713	11,685,175	32,226,381	43,911,556
45 to 49	149	485	634	10,256,799	30,863,051	41,119,850
50 to 54	129	446	575	9,061,995	29,290,034	38,352,029
55 to 59	87	302	389	5,676,834	19,877,297	25,554,131
60 to 64	56	220	276	3,520,658	14,417,099	17,937,757
65 & Up	42	78	120	2,831,831	5,009,329	7,841,160
Total	1,110	3,745	4,855	$ 66,561,466	$ 215,008,824	$ 281,570,290
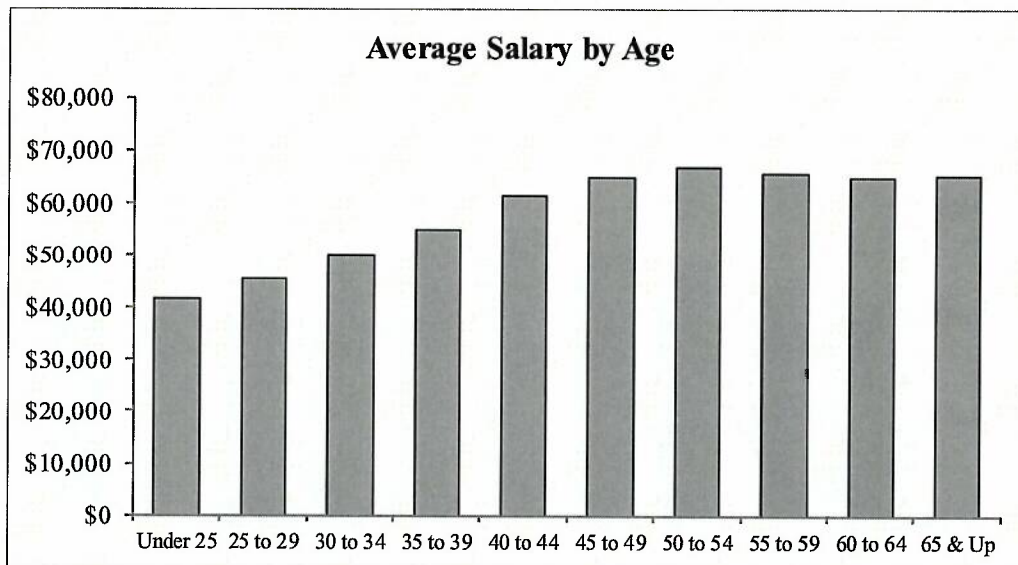
Average Salary by Age

OMAHA SCHOOL EMPLOYEES' RETIREMENT SYSTEM
SUMMARY OF ACTIVE MEMBERS

as of January 1, 2020

Classified

Age	Number				Salaries		
	Males	Females	Total		Males	Females	Total
Under 25	37	78	115	$	1,039,111	$ 1,423,774	$ 2,462,885
25 to 29	55	145	200		1,514,080	2,922,622	4,436,702
30 to 34	67	122	189		2,050,205	2,516,550	4,566,755
35 to 39	59	133	192		1,960,035	2,910,047	4,870,082
40 to 44	67	149	216		2,393,894	3,386,620	5,780,514
45 to 49	57	157	214		2,244,879	3,741,286	5,986,165
50 to 54	89	213	302		3,918,338	5,212,687	9,131,025
55 to 59	143	266	409		5,793,742	6,626,047	12,419,789
60 to 64	145	279	424		5,685,028	6,826,913	12,511,941
65 & Up	93	157	250		2,988,766	3,681,569	6,670,335
Total	812	1,699	2,511		$ 29,588,078	$ 39,248,115	$ 68,836,193
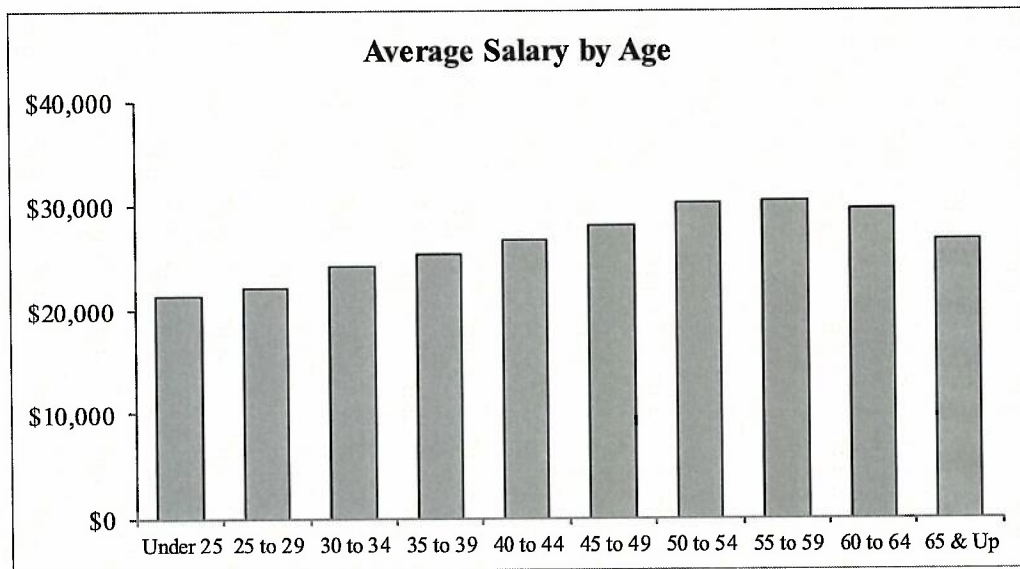
Average Salary by Age

OMAHA SCHOOL EMPLOYEES' RETIREMENT SYSTEM
SUMMARY OF INACTIVE VESTED MEMBERS

as of January 1, 2020

Total

Age	Number			Monthly Benefit at Unreduced Retirement		
	Males	Females	Total	Males	Females	Total
Under 25	0	0	0	$ 0	$ 0	$ 0
25 to 29	3	8	11	1,391	2,854	4,245
30 to 34	28	89	117	14,192	40,626	54,818
35 to 39	51	157	208	33,689	102,008	135,697
40 to 44	51	171	222	44,007	121,345	165,352
45 to 49	29	124	153	28,560	95,537	124,097
50 to 54	45	140	185	59,899	92,546	152,445
55 to 59	24	106	130	20,682	70,912	91,594
60 to 64	18	86	104	12,121	38,190	50,311
65 & Up	2	31	33	702	11,430	12,132
Total	251	912	1,163	$ 215,243	$ 575,448	$ 790,691

Age Distribution

OMAHA SCHOOL EMPLOYEES' RETIREMENT SYSTEM
SUMMARY OF INACTIVE VESTED MEMBERS

as of January 1, 2020

Tier 1

Age	Number			Monthly Benefit at Unreduced Retirement		
	Males	Females	Total	Males	Females	Total
Under 25	0	0	0	$ 0	$ 0	$ 0
25 to 29	0	2	2	0	410	410
30 to 34	20	75	95	10,991	35,033	46,024
35 to 39	49	153	202	32,743	100,243	132,986
40 to 44	48	169	217	41,792	120,857	162,649
45 to 49	27	118	145	27,314	93,564	120,878
50 to 54	44	132	176	59,314	89,371	148,685
55 to 59	23	106	129	20,224	70,912	91,136
60 to 64	16	83	99	9,173	37,086	46,259
65 & Up	1	31	32	330	11,430	11,760
Total	228	869	1,097	$ 201,881	$ 558,906	$ 760,787

Age Distribution

OMAHA SCHOOL EMPLOYEES' RETIREMENT SYSTEM
SUMMARY OF INACTIVE VESTED MEMBERS

as of January 1, 2020

Tier 2

Age	Number			Monthly Benefit at Unreduced Retirement		
	Males	Females	Total	Males	Females	Total
Under 25	0	0	0	$ 0	$ 0	$ 0
25 to 29	3	6	9	1,391	2,444	3,835
30 to 34	8	14	22	3,201	5,593	8,794
35 to 39	2	4	6	946	1,765	2,711
40 to 44	3	2	5	2,215	488	2,703
45 to 49	2	6	8	1,246	1,973	3,219
50 to 54	1	8	9	585	3,175	3,760
55 to 59	1	0	1	458	0	458
60 to 64	2	3	5	2,948	1,104	4,052
65 & Up	1	0	1	372	0	372
Total	23	43	66	$ 13,362	$ 16,542	$ 29,904

Age Distribution

OMAHA SCHOOL EMPLOYEES' RETIREMENT SYSTEM
SUMMARY OF RETIREES, BENEFICIARIES AND DISABLED MEMBERS

as of January 1, 2020

Total

Age	Number			Total Monthly Benefit		
	Males	Females	Total	Males	Females	Total
Under 55	4	12	16	$ 1,640	$ 21,929	$ 23,569
55 to 59	50	143	193	140,324	369,160	509,484
60 to 64	120	399	519	290,615	1,009,487	1,300,102
65 to 69	295	855	1,150	734,168	1,856,384	2,590,552
70 to 74	345	892	1,237	877,379	1,967,215	2,844,594
75 to 79	288	555	843	707,440	1,121,544	1,828,984
80 to 84	171	374	545	375,667	684,285	1,059,952
85 to 89	68	233	301	171,918	382,527	554,445
90 to 94	31	99	130	63,132	158,145	221,277
95 & Up	8	38	46	17,872	67,819	85,691
Total	1,380	3,600	4,980	$3,380,155	$7,638,495	$11,018,650

Age Distribution

Average Benefit

OMAHA SCHOOL EMPLOYEES' RETIREMENT SYSTEM
SUMMARY OF RETIREES, BENEFICIARIES AND DISABLED MEMBERS

as of January 1, 2020

Tier 1

Age	Number			Total Monthly Benefit		
	Males	Females	Total	Males	Females	Total
Under 55	4	12	16	$ 1,640	$ 21,929	$ 23,569
55 to 59	50	143	193	140,324	369,160	509,484
60 to 64	120	399	519	290,615	1,009,487	1,300,102
65 to 69	290	853	1,143	732,270	1,854,666	2,586,936
70 to 74	344	891	1,235	877,210	1,967,043	2,844,253
75 to 79	288	555	843	707,440	1,121,544	1,828,984
80 to 84	171	374	545	375,667	684,285	1,059,952
85 to 89	68	233	301	171,918	382,527	554,445
90 to 94	31	99	130	63,132	158,145	221,277
95 & Up	8	38	46	17,872	67,819	85,691
Total	1,374	3,597	4,971	$3,378,088	$7,636,605	$11,014,693
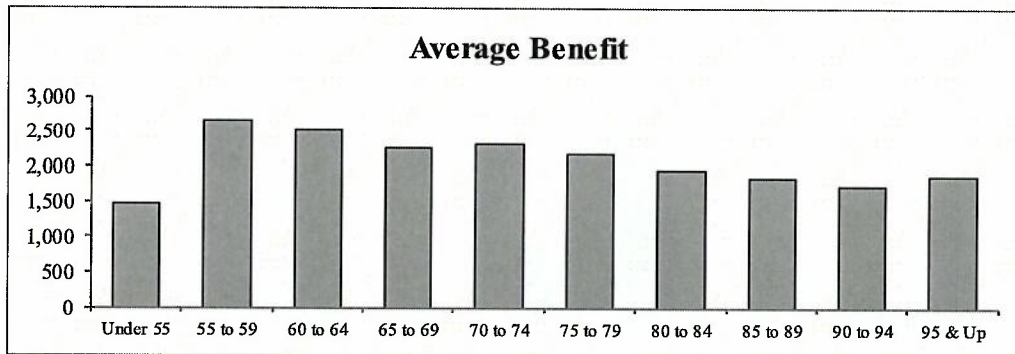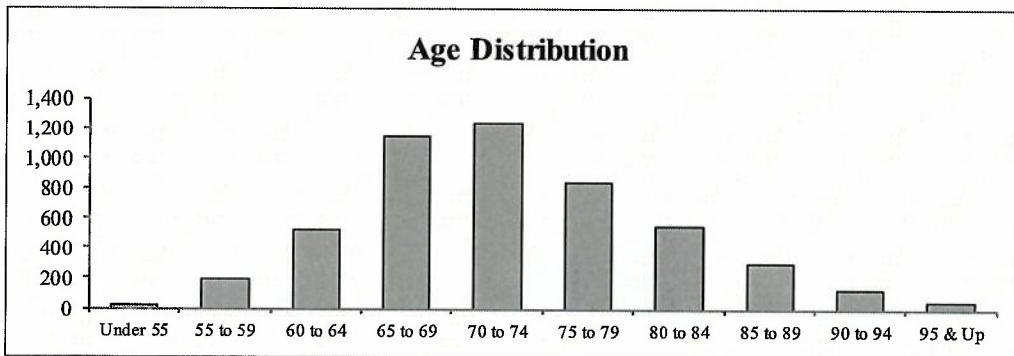
Age Distribution

Average Benefit

OMAHA SCHOOL EMPLOYEES' RETIREMENT SYSTEM
SUMMARY OF RETIREES, BENEFICIARIES AND DISABLED MEMBERS

as of January 1, 2020

Tier 2

Age	Number			Total Monthly Benefit		
	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	5	2	7	1,898	1,718	3,616
70 to 74	1	1	2	169	172	341
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	6	3	9	$ 2,067	$1,890	$3,957
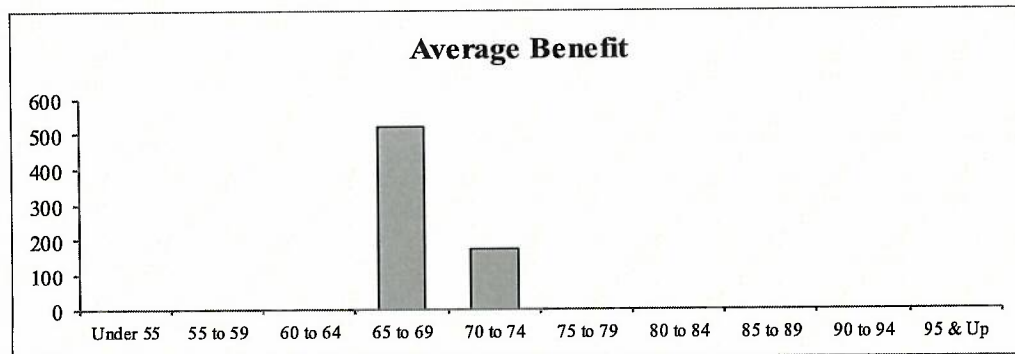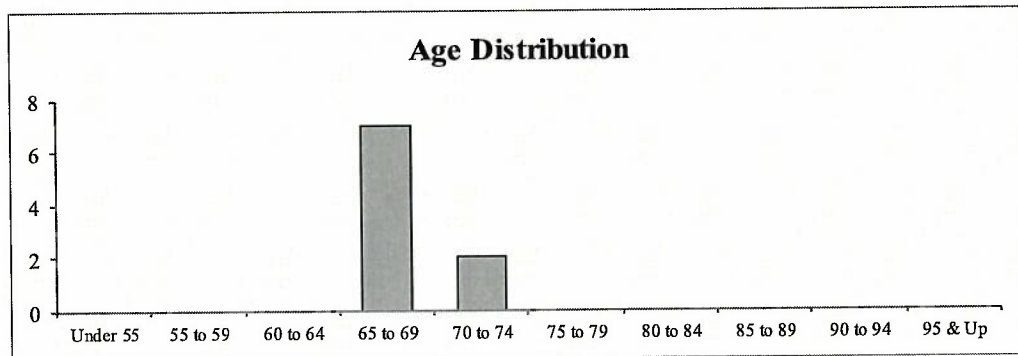
Age Distribution

Average Benefit

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we would really want to talk to the actuaries and make sure we've got a very good study put together, because I would hate there to be any sort of unexpected, actuarially required contribution that would come about due to any change on that point. So we will need to, to consider that piece as far as our discussions on that point. As stated in our written comments, many of the points that they have brought up, we have already taken steps to address either by drafting or preparing revisions to the plan document for the DCP or updating the regulations in response to the guidance that we have been given. A couple of very specific things that we have done as far as the certified mailing goes, we immediately instituted the practice of requiring at least one certified mailing attempt and we are adjusting the regulation to make that mandatory. In addition, what we've also done is as far as the suspension of deferrals to the unforeseeable emergency distribution, we amended the DCP plan document in May to correct that issue after it had been brought to our attention. And then we also did some research into·the point on the DCP about the specific dollar amount versus the percentage. And admittedly, I think that when we were responding to the interview questions, we may have been confused by the question. And that was our mistake, certainly not the auditor's. And we actually do not allow specific dollar amounts under section 6.2 of the DCP, but do under 6.3. So there is a distinction there. So we think that issue has been addressed and I apologize for any confusion that may have been there. Lastly, on all of the other points, we are going to continue to work with the stakeholders, whether that be the Legislature, Governor's Office, other policymakers, the unions, the employers, the employees to continue educating them on any of the difficult areas that may exist or challenging areas that exist. And that would include if there is a desire by the Legislature to consider any of the alternatives to the state unclaimed property fund. Subject to your question, Senator, I will end my comments there, since you have everything else in writing, unless there are specific questions by you or the other members of the Legislature.

KOLTERMAN: Thank you, Orron. Any questions? We have no questions on this end. So we're going to close down the hearing. I would like to thank Orron Hill and Randy Gerke for being on the line. Also David Powell and Melanie Walker. And I will just say for the record that Senator John Stinner from out west in Scottsbluff-Gering was on the line. We have Senator Lindstrom and Senator Clements. And that, that will conclude the hearing for this LR315. Thank you, everyone. I think we're going to move right into LR317, unless I see anybody that wants-- so we're going to move forward. We have with us today, Lauren Cencic and Curt Simon. So if the two of you would come forward and

make your presentation. They represent Metro Area [SIC] Transit hourly
employees. You want to-- we can pull another chair up there. You good?
All right.

LAUREN CENCIC: He'll make me do it.

KOLTERMAN: Welcome. Would you say your name and spell your name and go
ahead and testify?

LAUREN CENCIC: Thank you very much. Good afternoon. My name is Lauren
Cencic, last name is C-e-n-c-i-c, and I'm the CEO for the transit
authority of the city of Omaha, doing business as Metro. With me today
is Curt Simon, the former executive director for Metro, who is here to
help assist with any questions the committee may have for us. Metro is
the public transit provider for the Omaha metropolitan area, providing
fixed paratransit and express services. Metro also provides services
to the cities of Council Bluffs, Bellevue, La Vista, Papillion and
Ralston, by virtue of agreed upon service contracts with those
municipalities. Attached to my testimony is a revised 2020 reporting
form for underfunded political subdivision pension plans. My initial
submission of this form inadvertently omitted the additional
corrective actions that we have implemented to improve the funding
status of the Metro Area Transit--

_____: The caller has left the conference.

LAUREN CENCIC: -- hourly employees pension plan since 2019. These
include contribution increases--

_____: The caller--

MELANIE WALKER: Melanie Walker.

_____: -- has left the conference.

LAUREN CENCIC: -- by both the employer and employee of 0.25 percent
for years 2020, 2021 and 2022.

_____: The caller has left the conference.

LAUREN CENCIC: Since 2016, we have increased the employee contribution
from 6 percent to 7.25 percent, increased the employer contribution
from 6.5 to 7.75 percent, as well as changed the normal retirement age
from 65 to the age when the employee reaches full retirement for the
purposes of receiving Social Security benefits. We eliminated an early
retirement option and changed the benefit factor percentage used in

the calculation of the monthly benefits for employees hired after January 1, 2018. In addition, a one-time lump sum contribution to the plan in an amount equal to 1 percent of the total wages of active plan participants was made for the period beginning July 1, 2016, and ending on August 31, 2017, making the effective employer contribution rate 7.5 percent since July 1, 2016. Additionally, in our 2020 actuarial valuation report, we have reduced our assumed rate of return from 6.75 percent to 6.5 percent and updated the mortality table from RP-2000 table to the Pub-2010 base table for the MP ultimate scale. These assumptions were reviewed by Metro's pension committee yesterday, November 5, 2020. We have 195 active members in our plan, 201 members in pay status and 39 terminated members as of January 1, 2020. The funding status of the plan is 66.7 percent. This funding status reflects the changes in assumptions in our 2020 actuarial valuation report. Without the revised assumptions for the rate of return and mortality table, the funding status of the plan would have been 69.6 percent, which would have been an improvement over our 2019 funding status. However, we felt the adopted changes are prudent and realistic. In 2020, due to the COVID-19 pandemic, our hourly employees' working hours have been reduced, thus causing a lower amount that the employees and employer will contribute to the plan in 2020. A resolution will be brought to the Metro board of directors later this month to approve a one-time lump sum payment of $350,000 in the hourly plan trust. This $350,000 represents the estimated difference in calculated employer contribution attributed to the reduction in working hours for the year. This lump sum payment is subject to approval of the board and is not accounted for in the funding status reported above. Please, I thank you for giving me the opportunity to address the committee, and with that, I'd be happy to answer any questions you may have.

KOLTERMAN: Are there any, are there any questions from the committee? Just a general comment. It looks to me like you're doing everything you possibly can to improve your plan. I'd like to thank you for your attention to all-- and the report that you have here. You're going in the right direction and you should be commended for lowering your assumed rate as low as you have. With that, I see no. Thank you for your report.

LAUREN CENCIC: Thank you.

KOLTERMAN: One of these days, we'll get you over that 80 percent mark.

LAUREN CENCIC: We're working on it.

KOLTERMAN: You are working on it. Thank you. OK, so next we have Javier Hernandez from OPPD. Is Javier here? We'll move past and come back to that when he shows up. Dr. Logan from OPS and OSERS. Welcome, Dr. Logan.

CHERYL LOGAN: Thank you. Back in the principal's office. Good--

KOLTERMAN: OK.

CHERYL LOGAN: It's the same joke I use every year--

KOLTERMAN: I get that.

CHERYL LOGAN: -- so I apologize.

KOLTERMAN: I get that.

CHERYL LOGAN: I can't. I couldn't resist.

KOLTERMAN: Believe me, I've been to the principal's office a lot more than you ever have.

CHERYL LOGAN: You probably have. Good afternoon. Thank you for a moment of levity, I appreciate it. Senator Kolterman and members of the Retirement Committee, my name is Cheryl Logan, C-h-e-r-y-l L-o-g-a-n. I am superintendent of Omaha Public Schools. We continue to be a growing district that educates approximately 53,000 students. In my time 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 publicly for your support of OSERS and its members. As you know, I appeared before this committee in September to voice the Board of Education's support for the findings of the LB31 report and to encourage the introduction of legislation transferring management of OSERS to the PERB. The Board of Education and I are incredibly appreciative of Senator Kolterman's willingness to work with us in drafting legislation during this interim to prepare a bill for introduction in 2021 to transition the management of the OSERS plan to the state. This is not a decision we come to lightly. The LB31 study outlines the transition will carry significant cost. The Board of Education is prepared to cover these costs and work with the PERB to ensure a successful transition over the next two years. We are only asking for transfer of management essentially the day-to-day operations of OSERS. We understand that the OSERS plans would remain a separate and distinct retirement plan from the other NPERS plans. To be clear, the Omaha Public Schools will remain fiscally responsible

for the unfunded liability. Since 2016, OSERS has benefited from the experience of the Nebraska Investment Council as they took over the investment authority for OSERS. That was part of our recognition that we were not well-equipped to manage the investments for retirement systems, system of OSERS's magnitude. As a logical next step, we believe that OSERS will benefit from the experience of the PERB, which manages multiple retirement plans spanning our entire state. The LB31 report projects that OSERS will realize cost savings with the transfer of management to the PERB. Those savings, while modest in the short-term, will have an impact on the system with the passage of time. As I shared with you in September, the district continues to make its additional actuarially required contribution on a timely basis. Moreover, in a year which, where we have budgeted for a larger ARC contribution than was required, our board authorized contributing the full budgeted amount to OSERS. The district made its ARC payment of $21,356,991 in August. That's $1,531,740 in excess of what was required of the district to pay this year. Payment of the ARC is our obligation as a district. We all understand that also comes with difficult decisions affecting every employee in our workforce and every student in our care. The ARC payments have a significant impact on our budget. We continue to seek ways to mitigate that impact while managing the budget of the state's largest school district. Sound financial management and fiscal prudence will be essential to our ability to manage both our responsibility to educate students and our duty to OSERS and its members. We continue to meet with our Better Together Coalition stakeholders, which include representatives from Omaha School Employees' Retirement System, OSERS; Omaha Education Association, OEA; Nebraska State Education Association, NSEA; Service Employees International Union, SEIU; retirees; and the Omaha School Administrators Association, OSAA. We look forward to the completion of the ongoing drafting of LB31 so that we can share and discuss it with our partners. I would like to thank Senator Kolterman for his continued support and participation in discussions with the Better Together Coalition. We're very hopeful that the transfer of management becomes a reality with the passage of a bill next session. We look forward to possible changes for the OSERS plan as we look ahead and as we seek consensus on other steps that will aid in the stabilization of OSERS long-term. As the process continues, we will keep Senator Kolterman and this committee apprised of our progress. Thank you for the opportunity to speak with you today. I'd be happy to answer any questions you might have.

KOLTERMAN: Thank you, Dr. Logan. Are there any questions? Senator Clements.

CLEMENTS: Thank you, Dr. Logan.

CHERYL LOGAN: No problem.

CLEMENTS: On the-- this letter that we have, it talks about the actuarial value of assets and the market value of the assets.

CHERYL LOGAN: Yes.

CLEMENTS: And the market value being lower. How do you account for that difference?

CHERYL LOGAN: You know, I don't, I didn't, I didn't bring the answer to that today, but I certainly will get it to you.

CLEMENTS: I assume the actuarial value is more of a cost basis than the market value.

CHERYL LOGAN: That--

CLEMENTS: Unless it just decreased.

CHERYL LOGAN: It did. It actually has-- it did decrease, yes.

CLEMENTS: Thank you.

CHERYL LOGAN: OK.

CLEMENTS: That would be good to just see what the difference came from.

CHERYL LOGAN: OK, I'll send an email on Monday morning.

CLEMENTS: OK, thank you, Doctor.

CHERYL LOGAN: Sure. My pleasure.

KOLTERMAN: Anything else? Seeing no other questions, I'd just like to make a comment. I would like to thank Dr. Logan, but more importantly, also the Omaha Public School Board, as well as OSERS. Together, we've worked through a lot of challenges here over the last couple of years. And when this, when this legislation was passed that we had this hearing once a year, I don't think anybody thought of the value of it. But since we've been doing this, I think I've been involved now for six years. We've seen most of our plans working with us more closely and going in the right direction. And I'd just like to compliment you

on that. So thank you. We'll continue to work on a bill that we're working on. And I appreciate you coming today.

CHERYL LOGAN: Thank you. I'll pass along the thanks to the school board. Thank you very much. Appreciate it. And get the answer to Senator Clements on Monday morning.

KOLTERMAN: Now, is Javier here yet? If he's not, then we're going to move to Omaha Civilian Plan, Bernard in den Bosch and Pat Beckham. No strangers to the committee.

BERNARD in den BOSCH: Unfortunately.

KOLTERMAN: How are you, Bernard?

BERNARD in den BOSCH: Oh, thank you. Hopefully, everybody is healthy.

KOLTERMAN: Welcome, Pat.

PATRICE BECKHAM: Thank you. Good to see you.

BERNARD in den BOSCH: Good afternoon. Good afternoon, Senator Kolterman, members of the committee. Bernard in den Bosch, first name, B-e-r-n-a-r-d, last name, three words, first word, lowercase i-n, second word, lowercase d-, as in David, e-n, third word capital B-, as in boy, o-s-c-h. I'm sorry. I'm here Pat Beckham, I'm gonna let her do that part.

PATRICE BECKHAM: Patrice Beckham with Cavanaugh Macdonald. P-a-t-r-i-c-e Beckham, B-e-c-k-h-a-m.

BERNARD in den BOSCH: Members of the committee, we provided by mail on October 8, the letter, which included the report, as well as a table with the information requested, a copy of the actual report prepared by Cavanaugh Macdonald effective January 1 of 2020, and the most recent experience study, which, as you'll see in this case, was completed in February of 2018. We do anticipate that a new experience study will be done next year, the first part of the year. As this-- unfortunately, as Senator Kolterman recognized, we've been here more than once. We did ask Ms. Beckham to make one significant change to the actuary report, at least as far as people's understanding. And we asked her to include a funds, funded status progression as part of that annual requirement. I'll highlight that briefly. I'm not going to regurgitate what I've put in our report, but we're obviously available to answer questions. That particular item estimated the fund would be fully funded in 2048. As I think the report indicates, we made

significant changes approximately five years ago, starting a cash balance plan effective March 1 of 2015 for any employees that were hired after that date. The fully funded ratio was-- time to fully fund it has stayed the same, and I certainly understand it's a long way away. We've attempted, we've followed the actuarial advice and we seem to be, we're moving in the direction, though obviously we understand with the level of funding, there's always that risk. I will point out that at this point in time, approximately between 38 and 39 percent of our employees as of January 1 of 2020 had started their employment after March 1 of 2015 and were in the cash balance plan. So we've had a significant turnover. And that's, frankly, I think Ms. Beckham will be able to answer questions if there are any, certainly a benefit to the plan and a benefit to as we move to more and more people in the cash balance plan, it will help move us towards getting to an appropriate level of funding. So both-- either of us are happy to answer any questions, certainly. Ms. Beckham has a lot more knowledge and can answer a lot better, a lot more careful questions than I can, so.

KOLTERMAN: Go ahead. Senator Clements has a question.

CLEMENTS: Thank you, sir. Either, whichever one you want to answer this, seeing that you're having people move to the cash balance plan, they will not contribute to the defined benefit plan in the future. Is that right?

BERNARD in den BOSCH: The, the answer is that's incorrect. They're actually defined benefit-- the cash fund is a type of defined benefit plan and they contribute to the same corpus.

CLEMENTS: OK, so the funding, you know, they're still helping the funding of the previous defined benefit? Good.

BERNARD in den BOSCH: And that's why I brought it up, because their, their funding probably helps the plan more because of the differential than the funding for somebody who was in the previously established plan.

CLEMENTS: It looks like your interest rate or investment returns have been exceeding your assumed rate, but your unfunded liability is still growing. Can you account for that? Well, especially the printout I got, 2018, you only paid 86.8 percent of the ARC. Do you have a 2019 percentage that you're paying?

BERNARD in den BOSCH: Senator, I can say that I know the, the shortfall is 2.8 percent. It's in the report.

CLEMENTS: A hundred minus 2.8, 97.2.

PATRICE BECKHAM: Actually on exhibit 14, on page 29 of the valuation report, it shows both the actuarial contribution and the total employer contribution. So for the year ending 1231, 2019, the actuarial contribution was $17.3 million and the actual employer contribution was $15 million. That shortfall is $2.3 million. Just a reminder, this plan is funded with fixed contribution rates. So the actuarial rate moves around, but the actual money coming into the plan is fixed in the bargaining agreements. So we do see that variation from year to year. I would also point out that assumptions were changed-- help me, Bernard, 2017 for the--

BERNARD in den BOSCH: They went back to the 2019-- actually 2018.

PATRICE BECKHAM: 2018 valuation, we changed both the investment return assumption and the mortality assumption and the investment return assumption changed from 8 percent to 7.5, which is a significant change. And the mortality change was also fairly significant. So strengthening those assumptions actually increases the liability. So it looks worse, but actually you're on the more conservative path in recognizing your liabilities and funding them. So it's a positive.

CLEMENTS: And is there a period of time that you're trying to fund this unfunded liability? Is there a plan for that?

PATRICE BECKHAM: Again, with fixed contribution rates, the, the real question is, given the current contributions and expected payroll, when do we think the plan will reach full funding? And on that vein, it's in 2048, expected to reach 100 percent funded.

CLEMENTS: Thank you.

PATRICE BECKHAM: You're welcome.

KOLTERMAN: Any other questions? I have a question or just an observation. First of all, you are moving, I mean, you've done some things right here. You, you moved your assumed rate down to 7.5 percent. I mean, some of them are even going lower than that anymore. But you're moving in the right direction. The question has been over the years, and what you're talking about is a fixed rate, the amount of money you can put into this plan. Your limit, you're limited to how

much the city can put in other than above and beyond the employers'-- employees' contribution by city charter. Is that not correct?

BERNARD in den BOSCH: Yeah, there's a city charter provision that requires that the employer and employee rates be substantially equal. Now, obviously, if we see the rates here, you'll see different numbers. But what happens prior to the time we attempted to do pension reform, they were roughly equal. And when the, the effort to try to get the system fully funded resulted in the city putting in additional funds percentages, and then there was a reduction in benefits for existing employees. And those were actuarially calculated by Ms. Beckham and then the intention was to offset those. But you're correct, there is a, there is that limitation in the city of Omaha charter that they should, they need to be substantially equal, I think is the correct terminology.

KOLTERMAN: So my, my question is, and I've asked this every year, so I'm pretty consistent, have you given any more thought to changing your charter so that the city, the employer can actually put more money in? I mean, it's an obligation to the taxpayers. They're the ones that set this plan up. And I hate to say it that way, but a promise has been made to these employees. Some way, we've got to get this plan funded before 2048.

BERNARD in den BOSCH: I will make--

KOLTERMAN: Just a question.

BERNARD in den BOSCH: I'll make this pledge as we sit here today. The charter convention occurs every ten years. The last one was in 2013. I would antici--

KOLTERMAN: 2023.

BERNARD in den BOSCH: So there will be one in the next year or two. And I anticipate the mayor has some flexibility as when she does it. My expectation is that I wouldn't be surprised if maybe the spring of 2022, once the election has occurred and that, that's done, that that will be something she's interested in moving forward. We've had some discussions about having the charter convention earlier. I will make the pledge to you that I will ask them to consider that question.

KOLTERMAN: All right. Well, thank you. Other than that, are there any other questions? I won't be here, so I won't have to worry about it. But you're going to be coming back for a few years, so you're going to have to deal with Senator Clements over here because Lindstrom and I

are gonna be gone. Thank you. Let's move on to the Omaha police and fire--

BERNARD in den BOSCH: Thank you.

KOLTERMAN: -- pension plan.

BERNARD in den BOSCH: Again, thank you, Senator Kolterman, members of the committee. Bernard in den Bosch, first name, B-e-r-n-a-r-d, last name, lowercase i-n, second word, lowercase d-, as in David, e-n, third word, capital B-, as a boy, o-s-c-h. I'm here with the systems actuary Patricia [SIC] Beckham. I'll let her spell her name.

PATRICE BECKHAM: It's actually Patrice Beckham, P-a-t-r-i-c-e, Beckham, B-e-c-k-h-a-m. Thank you.

BERNARD in den BOSCH: And much like I indicated previously, on October 8, we provided a report through a letter and a table containing the requested information. There was an actuarial report done effective January 1 of 2020 and an experience study done on March 15 of 2018. And as, as with our previous plan, we do anticipate having an experience study done next spring as well. Again, much like we did with the civilian plan, we did ask Ms. Beckham to make one addition to our actuarial report, and that was to include a funded, funding status projection. That always gives us an idea of kind of where we are and if we're still going in the direction that we hope to, especially when, with the dramatic changes that were made here, we want to make sure that we are. The projection prepared, effective January 1 of 2020, indicated full funding in 2046. We are roughly 10 years into the pension changes that occurred. The first changes were done by the police union in October of 2010 and by the fire union in December of 2012. And that year has frankly remained consistent as we've gone through the time. And frankly, that's kind of what you hope for. That means, even though we've certainly had some ups and downs, we seem to be, the progression seems to be going in the right direction. And that is with some changes to the actuarial assumptions that occurred two years ago. Didn't reduce the investment quite as much as we did for civilian, went from 8 to 7.75, but also made some other changes as well that all have a tendency to kind of lower that trajectory a little bit. I want to point out one number, because it struck me as I reviewed the report, because I know as we sit here today being 54 percent, 54.3 percent funded is certainly not something that you want to brag or go home about. On the other hand, I do want to point out, as you look at the report, on December 31 of 2008, the system was 38.6 percent funded. As of January 1 of 2020, we're 54.3 percent funded.

Obviously 54.3, as I said, is not something you necessarily want to write home about. But even with the change of assumptions, we had significant changes in pension benefits. We have seen the slow and steady increase in the fund that was anticipated based on the advice of the actuaries. So and we have a 10-year window to look at and to say, hey, this is, we're actually seeing things acting out as we, as we hoped they would. And frankly, we hope they continue to do so. Obviously, a lot of that is going to be based on investment returns and the ability to stay within a reasonable line of the bogey that's established. So I wanted to point that out because just, just to understand how long the process is. And even though I know it's, as you look at us and you see the number, it's a little bit scary, but we do feel like progress is occurring just as was anticipated and we hope that continues. So I'm happy to answer any questions.

KOLTERMAN: Thank you, Bernard. Any, any questions for either one of them? Just again, general observation in this plan as well. The ARCs are important. And if you can't fund the ARCs 100 percent because of your, because of your charter, that needs to be looked at. I just make the same comment here that I had on the last plan. I agree, you're moving in the right direction, Bernard.

BERNARD in den BOSCH: It's been slow.

KOLTERMAN: And I appreciate the fact that it's been a, it's been a negotiated process for the last, at least since I've been around, for the last five years, even longer than that. But you realize you have a problem and you're working towards trying to fix it. And I appreciate that. With that, I don't have any other questions. Does anybody?

BERNARD in den BOSCH: Thank you.

KOLTERMAN: Thank you.

BERNARD in den BOSCH: Much nicer to me this year than last year.

KOLTERMAN: Thank you.

BERNARD in den BOSCH: Last year I think I went away with some welts. Take care.

KOLTERMAN: OK. Now we're going to move to Lincoln police and fire, Paul Lutomski and Pat Beckham again. Appreciate you coming. This, this, again, is a plan that I would say has taken seriously the intent of this legislation, has done a good job of managing their plan. And I appreciate the efforts that you made. We had a meeting a week or so

ago and it went really well, just so the committee knows. They met with me. And, and it will be down a little bit from a year ago. That's why they're back. A year ago, they didn't have to come, but they, they changed their assumed rates. And I'll let them talk a little bit about that. So, Pat, go ahead.

PATRICE BECKHAM: All right. Thank you.

KOLTERMAN: Paul, welcome.

PAUL LUTOMSKI: Thank you. Shall I say my name and spell it?

KOLTERMAN: Yes.

PAUL LUTOMSKI: My name is Paul Lutomski, spelled P-a-u-l, last name is L-u-t-o-m-s-k-i. I'm the city of Lincoln police and fire pension officer. Thank you for inviting us today. Pat is going to present our pension survey.

PATRICE BECKHAM: Thank you. Is it OK if I take this down?

KOLTERMAN: Yeah.

PATRICE BECKHAM: My glasses are steaming up.

KOLTERMAN: Mine are too.

PATRICE BECKHAM: It just proves I'm full of hot air, I think. Yeah, Patrice Beckham, P-a-t-r-i-c-e B-e-c-k-h-a-m, I work for Cavanaugh Macdonald in the service of retained actuary for the city of Lincoln police and fire pension plan. It's our pleasure to be with you today. Thank you for the opportunity to answer any questions you might have. As all of the systems, we submitted information to the committee in October using the questionnaire that you sent out. And in the interest of time, I'm just going to highlight one thing. And Senator Kolterman kind of stole my thunder. The regular quadrennial experience study for the plan was performed in 2019, and the recommended changes to the assumptions, which included lowering the investment return assumption from 7.5 to 7.25 percent incrementally over five years so five basis points a year, as well as updating the mortality table and retirement rates were first reflected in the August 31, 2019, valuation. As a result of those assumption changes, the funded ratio decreased. It would have been 81 percent on the old assumptions and we would not be sitting here. And it was decreased to 78 percent. But again, those are difficult decisions. But they're the right decisions to make because the assumptions are critical for giving us a best estimate for the

liabilities that targeted benefit payments in the future. So we, we
know how much money should be put away each year to, to pay for those
benefits. If all assumptions are met in the future, the plan is
projected to be fully funded in the 2043 valuation. The city does
contribute the full actuarial contribution. That change happened in,
was it 2017? 2016 or 2017, the ordinance changed and--

PAUL LUTOMSKI: It was changed in 2016.

PATRICE BECKHAM: 2016. And, and so now the city contributes the full
actuarial rate. So when the assumptions changed, the costs went up,
the city contributed that additional amount. With that, we would be
happy to answer any questions the committee might have.

KOLTERMAN: Any questions, Senator Clements or Senator Lindstrom?
Again, thank you for your hard work. I, the statute is there for a
reason. Pretty much today just to put it on the record. But the
reality is you are working in the right direction. Thank you very
much.

PATRICE BECKHAM: You're welcome.

KOLTERMAN: Appreciate your efforts. OK, we're going to move on to
Douglas County, Joe, Joseph Lorenz. Welcome.

JOE LORENZ: Hi. Good afternoon, Senators. My name is Joe, J-o-e,
Lorenz, L-o-r-e-n-z. I am the finance director for Douglas County. In
terms of our plan this year, what I can tell you is that we continue
to make slow but steady progress in increasing our funding. This year,
the funding status came in at 66.8, which was 1.2 points higher than a
year ago. Our assumed rate of return is 7.5 percent, which you say may
seem high. But in terms of what we've actually been able to
accomplish, our average return over the last five years has been 8.9
percent and over the last 10 years has been 8.3 percent. And we do
that keeping a, our money in 55 percent equity, 35 percent fixed
income, and 10 percent real estate. We don't invest in alternatives.
We don't do private equity or hedge funds. And we don't-- we don't
really chase yield. So but at the same time, we, we do things like for
the majority of our large cap money, we put it in index funds which
have lower fees. And so, like I say, our returns have exceeded our 7.5
percent assumption over the, you know, the recent past. The next point
is on our ARC. Every year for the past five years, we've been
contributing over 100 percent of that payment. We anticipate doing the
same for this year. We-- our, ours is an employer-employee
contribution at 8.5 percent of salary. And that seems to be working

enough that it generates the required amounts to make the contribution for ARC. You know, I've talked to you about this over the years, that we really made our big change about eight or nine years ago when we got rid of the rule of 75 and changed the benefit formula from 2 percent of pay to a percent and a half of pay and changed the maximum retirement income from 60 percent of the participants' final average compensation to 45 percent. And so we really did that eight or nine years ago. And we've seen the results from that. We've been able to increase our funded ratio by 9, 9 percentage points. But as I tell you every year, turning around a mature, defined benefit pension plan takes time. So we're, we're doing it, but it's a gradual process. The only real significant change we made this year was we changed our mortality table to a public employee G2010 table with longer life expectancies and we increased our salary scales. And the impact of doing that cost us 1 percent in funding. So whenever you change mortality tables, I'll say you kind of move the goalpost. I don't know how you can really compensate for it. It happens. It cost us a percent. But if it's more reflective of what the actual mortality experience will be, then it's a good thing to do. The other thing, our plan, we're 58 percent active employees. So on a mature plan, that's a good thing, that you always want to have over 50 percent of your employees contributing and in an active status. And just one other point I like to make about our commitment, really trying to manage this plan, is in union negotiations with our correction guards. They wanted a early retirement plan similar to that, that we offer our sheriff's deputies. And what we came back to them and said, yeah, we can do that, but we can't give you anything that will impact the funding of the plan. We worked with Silverstone, our actuary, who determined that if they would increase the employee contribution from 8.5 to 10.5 percent of their pay, it would be neutral to the plan funding. So we offered that to the union. They accepted it and that's what we did. So, you know, we're always, they're coming to us for things like DROP and things like that. And we tell them, when our status of our plan is, when we're at this level of funding, we can't really do anything like a DROP plan. We haven't done a COLA since 2002. So we're continuing to really try and manage our plan and to get the funding up to a fully funded level. One last point on COVID, in terms of the county, our tax proceeds are really still tracking where they should be, so we have funding that way. And we were fortunate enough that Douglas County received $166 million of CARES Act money, which I've been charged with administering. But we did do some things working a lot, you know, we've been working a lot with the Governor and his staff on that since we're the only two entities in the state of Nebraska who received money. And one of the things we did was use a

presumptive clause for public health and public safety salaries, which gave the county about $25 million that we were able to put in our general fund. So we've actually, during this crisis, been able to strengthen our balance sheet, which was fortunate. And then, you know, I attached a page from our actuary, Silverstone, and they said there's been no significant COVID-19 impact on the plan. And so I think we're pretty solid from that perspective. And so that's my brief summary and I'd be glad to take any questions.

KOLTERMAN: Thank you, Mr. Lorenz. Go ahead, Senator Clements.

CLEMENTS: Thank you, sir. I am reading the summary of your plan. I'm new to this, but it says in 2016, the interest crediting rate on member contribution was changed from 5 percent to a 10-year treasury. Did that lower the rate?

JOE LORENZ: Oh, yes, significantly, and probably by about 250 to 300 basis points. So because it's a contributory plan, if the employee would leave when they were not fully vested, they would get their money back plus 5 percent. So that not only changed it, all of a sudden they were earning more like 2 percent interest because that's the Treasury rate. So that was something that helped, helped the plan. Yes.

CLEMENTS: OK, I was curious as to why you even worked with an interest crediting rate with it's a defined benefit plan. But that's for--

JOE LORENZ: Because it's an employee contribution plan so that when they, they leave, they, they're allowed to earn a return on the money that they've had with us.

CLEMENTS: If they leave with a lump sum, you're talking about.

JOE LORENZ: Yes. Yes.

CLEMENTS: Rather than taking the retirement plan.

JOE LORENZ: Right. And it's their option. Yes.

CLEMENTS: All right. That explains what's going on there. And I was assuming it probably did drop the rate quite a bit.

JOE LORENZ: Yes.

CLEMENTS: And then it says here that the salary scale in the actuarial assumption was increased. Does that mean that employee contributions increased?

JOE LORENZ: Yeah, because it's a percentage of salaries, but it's also because it's based on now either 60 or 45 percent of total compensation. So if you're increasing what the average compensation is, that amount will be higher too.

CLEMENTS: All right. And I think that's it. I think your investment returns do look very positive. That's good. Do you have 100 percent funding deadline or target?

JOE LORENZ: It's projected for, I think, 2042 or 2043? Hopefully we'll be able to beat that. One thing that's been interesting this year as we've been seeing more early retirements under the rule of 75, and I was talking to HR and looking at this, and we really think it's kind of driven by the pandemic. I don't know if you want to call it fatigue or what, but a lot of people who are in their mid 50s and under the old rule of 75 who are eligible for early retirement are taking it. So in some ways, that's more expensive for the plan. But the other thing is that it's really moving the active members of the plan to the point now where we made this change in funding about nine years ago. And I would say starting next year, more than 50 percent of the participants, active participants will be under the new, the new lower funding requirements.

CLEMENTS: Thank you.

KOLTERMAN: Thank you very much. Any other questions? Appreciate you coming.

JOE LORENZ: Thank you.

KOLTERMAN: See you next year.

JOE LORENZ: OK.

CLEMENTS: See you next year.

KOLTERMAN: Eastern Nebraska health agency, last one. Glen Gahan, is that correct?

GLEN GAHAN: That's correct.

KOLTERMAN: Good. Welcome, Mr. Gahan.

GLEN GAHAN: Good afternoon, Senators. My name is Glen Gahan, G-l-e-n G-a-h-a-n. I'm an actuary working with the Silvertone Group representing Eastern Nebraska Human Services Agency and their pension plan. And I believe you have a copy of the state form for the report for the pension plan. And also we had submitted the most recent actuary report experiential study and funding forecast. I'll just make a few comments about the report and welcome all questions. The pension plan itself covers just over a thousand participants, 620 are actives and 302 were retirees in pay status as of January 1 of this year. The current funded status is 73 percent. It's a slight drop from the last actual valuation, which was in 2018, because we do formal valuations every other year. It was 74 percent two years ago. The initial funding status this year would have been also 74 percent, but they updated the mortality table to the PubG mortality table with improvement scale, so it dropped down to 73 percent. The assumed investment return is 7 percent. And currently the members contribute 2.75 percent of pay and the employer contributes 9.5 percent of pay. And as we've discussed and is noted in the report, the employer contribution has increased in the past. From 2010, it was 5.5 percent, increased a half percent per year. It reached 9.5 percent in 2018. And while that's where it is as we speak today, there are current negotiations with the union to increase the member's contribution to 3 percent. And once that is agreed to, the employer is going to increase their contribution from 9.5 percent to 10 percent. And when I talked to the executive director just this week asking about the status of that, she said she was hoping it would occur by January 1, which is more, more, more than likely it may not actually happen until March 1. But it's, it's an ongoing negotiation, so I can't tell you that it's a 100 percent done deal as we speak today. In the past, as you see, they contri-- have contributed more than the ARC. This year, however, the calculated ARC was 13.46 percent. So even with the increase in the member and the employer contribution, we would be at 13 percent this year. And of course, those are, you know, actual pays are going to determine how much money comes in to compare to the ARC. And that's yet to be seen. But when we did our projections with these increased contributions, in five-- I'll double-check that. By year, by year 2030, we're projected to be over 80 percent, so in 10 years. And then, you know, it's a fairly slow increase on, as you see with other kinds [INAUDIBLE] to year 2047 we're forecasted to get over 100 percent. With that, I'll stop and just ask for questions and clarifications.

KOLTERMAN: Do we have any questions? Senator Clements.

CLEMENTS: These two charts, the one goes to 2057, the other 2047.

GLEN GAHAN: Yes.

CLEMENTS: And is that because the 2047 is assuming that you're going to increase those contribution amounts?

GLEN GAHAN: Yes. Yes, sir, that's correct. They would, if they, if those decreased contributions didn't materialize, then we actually forecast that it would take another 10 years to get to 100 percent funded.

CLEMENTS: Well, I think it's important that you implement those, 2057 is really a long ways away.

GLEN GAHAN: Right. Agreed.

CLEMENTS: The employee contribution is significantly below the agency's shares. Is that a negotiated--

GLEN GAHAN: It is a negotiated item, and as I sat here last year, that question came up. So I'm pleased, I'm happy to report that it's under negotiation to increase it now. It's been at 2.75 for a number of years.

CLEMENTS: But what you said was you're raising the employee a quarter of a percent but the employer half a percent?

GLEN GAHAN: Yes.

CLEMENTS: All right, let's see here. And currently at about 73 percent funded, is that it?

GLEN GAHAN: That's right.

CLEMENTS: OK, thank you.

KOLTERMAN: Any additional questions? Thank you for coming.

GLEN GAHAN: Thank you very much.

KOLTERMAN: And we close this hearing. I failed my duties to introduce our pages. [INAUDIBLE]. Claudia Fricker from Midland, Texas. She's a student at UNL. She's, she's majoring in international economics. Welcome. And Kennedy Zuroff from North Dakota, correct? She's, she's going to UNL and majoring in political science and psychology. Thank you for the wonderful day, appreciate everybody being here. I'll see most of you next year. And with that, I'm going to close the hearing. Thank you.