

City of Wyoming
Employees Retirement System
Annual Actuarial Valuation
as of June 30, 2019





December 3, 2019

Retirement Board
City of Wyoming Employees Retirement System
Wyoming, Michigan

Re: City of Wyoming Employees Retirement System Actuarial Valuation as of June 30, 2019

Dear Board Members:

The results of the June 30, 2019 Annual Actuarial Valuation of the City of Wyoming Employees Retirement System are presented in this report.

The computed contributions shown on page A-2 may be considered as minimum contribution amounts that comply with city ordinance. Users of this report should be aware that contributions made at that level do not guarantee benefit security. Given the importance of benefit security to any retirement system, we suggest that contributions to the System in excess of those presented in this report be considered.

This report was prepared at the request of the Board and is intended for use by the Retirement System and those designated or approved by the Board. This report may be provided to parties other than the System only in its entirety and only with the permission of the Board. GRS is not responsible for unauthorized use of this report.

The purposes of the valuation are to measure the System's funding progress and to determine the employer contribution amount for the fiscal year ending June 30, 2021. This report should not be relied on for any purpose other than the purposes described herein. Determinations of financial results, associated with the benefits described in this report, for purposes other than those identified above may be significantly different.

The contribution amount shown in this report is determined using the actuarial assumptions and methods disclosed in Section C of this report. This report includes risk metrics in the Appendix but does not include a more robust assessment of the risks of future experience not meeting the actuarial assumptions. Additional assessment of risks was outside the scope of this assignment.

This valuation assumed the continuing ability of the plan sponsor to make the contributions necessary to fund this plan. A determination regarding whether or not the plan sponsor is actually able to do so is outside our scope of expertise and was not performed.

The findings in this report are based on data and other information through June 30, 2019. The valuation was based upon information furnished by the City of Wyoming, concerning Retirement System benefits, financial transactions, plan provisions and active members, terminated members, retirees and beneficiaries. We checked for internal reasonability and year-to-year consistency, but did not audit the data. We are not responsible for the accuracy or completeness of the information provided by the City of Wyoming.

This report was prepared using assumptions adopted by the Board. All actuarial assumptions used in this report are reasonable for the purposes of this valuation. Additional information about the actuarial assumptions is included in the section of this report entitled Summary of Valuation Methods and Actuarial Assumptions.

This report has been prepared by individuals who have substantial experience valuing public employee retirement systems. To the best of our knowledge, the information contained in this report is accurate and fairly presents the actuarial position of the City of Wyoming Employees Retirement System as of the valuation date. All calculations have been made in conformity with generally accepted actuarial principles and practices, and with the Actuarial Standards of Practice issued by the Actuarial Standards Board.

James D. Anderson and Richard C. Koch Jr. are Members of the American Academy of Actuaries (MAAA) and meet the Academy's Qualification Standards to render the actuarial opinions contained herein.

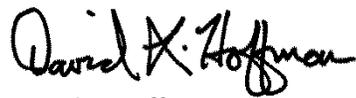
The signing individuals are independent of the plan sponsor.

Gabriel, Roeder, Smith & Company will be pleased to review this valuation and report with the Board of Trustees and to answer any questions pertaining to the valuation.

Respectfully submitted,



James D. Anderson, FSA, EA, FCA, MAAA



David L. Hoffman



Richard C. Koch Jr., ASA, EA, MAAA

JDA/DLH/RCK:sc

SECTION A

VALUATION RESULTS, COMMENTS, CONCLUSIONS AND RECOMMENDATIONS

Funding Objective

Per the plan document, the financial objective of the Defined Benefit Plan is to require Employer contributions to the Defined Benefit Plan each year which shall be sufficient to fully fund the actuarial cost of benefits likely to be paid on account of services rendered by Participants during the current year and finance the unfunded actuarial cost of benefits likely to be paid on account of services rendered by Participants prior to the current year over a period of years. The contributions shall be computed by the Actuary as level percents of Participant payroll in accordance with generally recognized actuarial principles. The contributions shall be appropriated by Employer and paid to the Defined Benefit Plan.

The annual actuarial valuations determine how well the objective is being met.

Actuarially Determined Contributions

The Retirement System is supported by City contributions, the investment income obtained on System assets and employee contributions (for certain groups). The City contributes actuarially determined contributions to provide the amount needed to meet the funding objective.

City contributions cover both (i) normal cost, and (ii) financing of Unfunded Actuarial Accrued Liability over a period of future years. Normal cost is the portion of system costs allocated to the current year by the actuarial cost method described in Section C. The Unfunded Actuarial Accrued Liability (UAAL) is the portion of System costs not covered by present System assets and future normal costs.

The contribution requirements for the fiscal year ending June 30, 2021 are presented on page A-2.

Computed Contributions for the Fiscal Year Ending June 30, 2021

City's Contributions for	Other Funds A	Other Funds B	General	Police	Fire	Total
Normal Cost						
Service pensions	13.37 %	12.71 %	14.15 %	16.32 %	16.61 %	14.79 %
Disability pensions	1.51	1.66	1.64	1.80	1.09	1.63
Survivor pensions	0.40	0.40	0.36	0.27	0.27	0.33
Refunds of Member Contributions	0.11	0.14	0.10	0.26	0.29	0.19
Total Normal Cost	15.39	14.91	16.25	18.65	18.26	16.94
Member Contributions (weighted average)	1.55	1.91	1.76	5.59	6.00	3.53
Total Employer Normal Cost %	13.84 %	13.00 %	14.49 %	13.06 %	12.26 %	13.41 %
Total Employer Normal Cost \$	\$201,246	\$295,845	\$251,926	\$499,054	\$125,969	\$1,374,040
Unfunded Actuarial Accrued Liability						
Retired members and beneficiaries	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0
Active and vested terminated members	227,124	350,156	309,178	601,274	174,427	1,662,159
Total Unf'd. Actuarial Accr. Liab.	\$ 227,124	\$ 350,156	\$ 309,178	\$ 601,274	\$ 174,427	\$ 1,662,159
City's Projected \$ Requirement	\$ 428,370	\$ 646,001	\$ 561,104	\$1,100,328	\$ 300,396	\$ 3,036,199

Unfunded Actuarial Accrued Liabilities were amortized as a level dollar amount over a closed 20-year period.

Determining Dollar Contributions

The City's Projected Dollar Requirement can be used as the only basis for determining contributions throughout the fiscal year. The method of determining dollar contributions should be reviewed periodically for consistency with reporting.

Determination of Unfunded Accrued Liability as of June 30, 2019

	<u>Other Funds A</u>	<u>Other Funds B</u>	<u>General</u>	<u>Police</u>	<u>Fire</u>	<u>Total</u>
A. Accrued Liability						
1. For retirees and beneficiaries	\$ 25,277,473	\$27,137,266	\$24,129,075	\$34,969,324	\$13,933,985	\$125,447,123
2. For vested terminated members	2,324,294	2,781,496	2,297,580	1,747,083	147,429	9,297,882
3. For present active members						
a. Value of expected future benefit payments	10,627,286	14,478,949	11,917,887	28,464,609	6,883,428	72,372,159
b. Value of future normal costs	<u>1,393,561</u>	<u>2,599,607</u>	<u>1,800,996</u>	<u>4,521,214</u>	<u>1,140,722</u>	<u>11,456,100</u>
c. Active member accrued liability: (a) - (b)	<u>9,233,725</u>	<u>11,879,342</u>	<u>10,116,891</u>	<u>23,943,395</u>	<u>5,742,706</u>	<u>60,916,059</u>
4. Total accrued liability	36,835,492	41,798,104	36,543,546	60,659,802	19,824,120	195,661,064
B. Present Assets (Funding Value)	<u>34,353,013</u>	<u>37,911,788</u>	<u>33,149,952</u>	<u>54,021,346</u>	<u>17,913,954</u>	<u>177,350,053</u>
C. Unfunded Accrued Liability: (A.4) - (B)	<u>2,482,479</u>	<u>3,886,316</u>	<u>3,393,594</u>	<u>6,638,456</u>	<u>1,910,166</u>	<u>18,311,011</u>
D. Funding Ratio: (B) / (A.4)	<u>93.3%</u>	<u>90.7%</u>	<u>90.7%</u>	<u>89.1%</u>	<u>90.4%</u>	<u>90.6%</u>
E. Market Value of Assets ⁽¹⁾	<u>34,620,614</u>	<u>38,262,627</u>	<u>33,416,126</u>	<u>54,451,971</u>	<u>18,064,580</u>	<u>178,815,918</u>
F. Funding Ratio: Market Value Basis (E) / (A.4)	<u>94.0%</u>	<u>91.5%</u>	<u>91.4%</u>	<u>89.8%</u>	<u>91.1%</u>	<u>91.4%</u>

⁽¹⁾ Allocation to divisions provided by the City.

Funding Progress Indicators

Testing how well the financial objective is being met can be done in many ways. There is no single all-encompassing test. The following indicators provide measures of funding achievement. **Values related to health insurance premiums are not included in the amounts shown.**

- (1) **The actuarial present value of gains or losses realized in the operation of the Retirement System** - an experience indicator. Gains and losses are expected to cancel each other over a period of years (in the absence of double-digit inflation) but sizable year-to-year fluctuations are common. Further details on the derivation of the gain (loss) are shown on page A-14.

Valuation Date June 30	Dollar Amounts in Thousands	
	Valuation Assets	Experience Indicator
		Experience Gain or (Loss) for Year
1990 (12)*	\$ 33,499	\$ (47)
1995 (15)*	52,374	2,063
2000 (20)*	103,402	2,208
2005 (27)*	110,582	(2,668)
2006 (28)*	113,663	(5,307)
2007 (29)*	121,400	5,829
2008 (30)*	129,496	1,161
2009 (31)*	129,667	(4,089)
2010 (32)*	129,277	(3,876)
2011	131,248	(999)
2012 (33)*	129,191	(8,336)
2013 (34)*	130,037	(1,288)
2014 (35)*	139,935	3,949
2015 (36)*	149,882	8,086
2016	154,872	(594)
2017 (37)*	164,083	4,931
2018	172,671	4,097
2019	177,350	268

* Refer to notes on pages A-6 through A-10.

Funding Progress Indicators

- (2) **The ratio of valuation assets to the actuarial present value of credited projected benefits** allocated in the proportion accrued service is to projected total service – an ongoing plan indicator. The ratio is expected to increase in the absence of benefit enhancements. Prior to 6/30/98, the APVCPB was computed in accordance with the Pension Benefit obligation information pursuant to GASB Statement No. 5, issued November, 1986. Beginning with the 6/30/98 valuation the accrued liability computed for funding purposes is used in place of the APVCPB, pursuant to GASB Statement No. 25, which supersedes GASB Statement No. 5.
- (3) **The ratio of the unfunded actuarial present value of credited projected benefits to member payroll** – an ongoing plan indicator. In a soundly financed retirement system, the amount of the unfunded actuarial present value of credited projected benefits will be controlled and prevented from increasing in the absence of benefit enhancements. However, in an inflationary environment it is seldom practical to impose this control on dollar amounts which are depreciating in value. The ratio is a relative index of condition where inflation is present in both items. The ratio is expected to decrease in the absence of benefit enhancements.

Valuation Date June 30	Dollar Amounts in Thousands			
	Continuation Tests			
	Actuarial P.V. of Cred. Proj. Benefits**	Funded Ratio	Unf'd. Act. P.V. of Cred. Proj. Benefits	Ratio to Member Payroll
1990 (12)*	\$ 34,003	98.5 %	\$ 504	4.7 %
1995 (15)*	50,585	103.5	(1,789)	-
2000 (20)*	84,081	123	(19,321)	-
2005 (27)*	106,174	104.2	(4,408)	-
2006 (28)*	115,225	98.6	1,563	6.8
2007 (29)*	118,313	102.6	(3,087)	-
2008 (30)*	126,166	102.6	(3,330)	-
2009 (31)*	130,793	99.1	1,126	5.5
2010 (32)*	135,611	95.3	6,333	32.4
2011	138,810	94.6	7,562	41.9
2012 (33)*	150,963	85.6	21,771	129.8
2013 (34)*	153,449	84.7	23,412	147.3
2014 (35)*	158,867	88.1	18,932	120.2
2015 (36)*	182,644	82.1	32,762	230.0
2017	192,260	85.3	28,177	238.7
2017 (37)*	188,930	86.8	24,847	210.5
2018	192,006	89.9	19,335	169.4
2019	195,661	90.6	18,311	169.2

* Refer to notes on pages A-6 through A-10.

** Entry-age Actuarial Accrued Liability beginning with the 1998 valuation.

The funded status measure shown above is not appropriate for assessing the sufficiency of System assets to cover the estimated cost of settling the System's benefit obligations, nor for assessing the need for, or amount of, future contributions.

Notes Relating to Funding Progress Indicators

- (1) Includes amendment to Ordinance effective December 1974 (applicable to Police Officers).
- (2) Includes amendment to Ordinance effective July 1, 1977 providing 10-year vesting for Administrative and Supervisory employees.
- (3) Includes amendment to Ordinance providing non-contributory status for Administrative and Supervisory employees, Police Officers and Firefighters.
- (4) Includes amendment to Ordinance providing 10-year vesting and non-contributory status for General employees and an increase in the benefit formulas for General employees and Police Officers. The maximum number of years in the Police Officer formula will be phased-in to 30 years effective July 1, 1988.
- (5) Includes revision of assumed rate of investment return from 5.5% to 6.5%.
- (6) Includes revision of assumed rate of investment return from 6.5% to 7.5%.
- (7) Includes amendment to Ordinance providing 10-year vesting for Firefighters and changes in the benefit formula for all employees.
- (8) Includes change to 2.0% formula factor (from 1.8%) for General members (excluding Dispatchers and Telephone Operators) and Fire Administrative members.
- (9) Includes change from 5-year Final Average Compensation to 3-year Final Average Compensation for General and Fire Administrative members.
- (10) Includes: a) change from 5-year Final Average Compensation to 3-year Final Average Compensation for General members (excluding Dispatchers and Telephone Operators) and Fire members; and b) change to 2.0% formula factor for Fire members.
- (11) Includes: a) change from 10 to 5-year requirement for regular retirement, deferred retirement, non-duty disability and non-duty death benefits for Administrative members in all divisions; and b) increase in formula factor to 2.2% from 2.0% for all Police members and Administrative members in all divisions; to 2.0% from 1.8% for General Dispatchers and Telephone Operators.
- (12) Includes: a) increase in formula factor to 2.2% from 2.0% for all Fire members; increase to 2.1% from 2.0% for General union members; and b) automatic post-retirement increase provision for all Administrative members.

Notes Relating to Funding Progress Indicators

- (13) Includes: a) early retirement eligibility for Administrative members at age 55 with 5 years of credited service; and b) automatic post-retirement increase provision for Police Command members who retire on or after age 60.
- (14) Includes an increase in formula factor to 2.25% from 2.20% for non-supervisory Police members. The increase in the employer contribution rate for Fire members reflects the retirement of two members whose normal cost had been negligible due to their age and service characteristics.
- (15) Includes an increase in formula factor to 2.2% from 2.1% for General members (excluding Dispatchers and Telephone Operators).
- (16) Includes: a) a change in actuarial cost method from individual attained-age to individual entry-age normal cost; b) an increase in the amortization period for unfunded accrued liability or funding credit to 25 years from 10 years (from 26 years for health); and c) a change in actuarial assumptions, all as recommended in an experience study which covered the period from July 1, 1989 to June 30, 1994. The following benefit provision changes were also included:
- The type of final average salary for General Dispatchers and Telephone Operators changes to the highest 3 consecutive years out of the last 5 years from the highest 5 consecutive years out of the last 10 years; and
 - The Duty Disability benefit for the non-supervisory Police members is now subject to Special Rules as described in an amendment to Schedule D, Section 91.40(6)(c) of the Code of the City of Wyoming.
- (17) Includes the following changes in benefit provisions:
- The formula factor for supervisory Police members increases to 2.25% from 2.20%.
 - The Duty Disability benefit for Police members changes to 50% of final average salary at the time of disability until attaining minimum age for normal retirement. Normal retirement benefit calculations shall include the time the member was receiving disability benefits and will be based on the monthly average the member would have earned during the 36 months preceding normal retirement age if the member was actively employed. The previous Duty Disability benefit for Police members had been computed in the same manner as the regular retirement benefit based on credited service (10-year minimum) and final average salary at time of termination.
- (18) Includes the following changes in benefit provisions:
- The formula factor for all Fire and General members (excluding Dispatchers and Telephone Operators) increases to 2.25% from 2.20%.
 - The early retirement reduction factor for General members changes to .002 from .004.

Notes Relating to Funding Progress Indicators

- (19) Includes the following changes in benefit provisions:
- The formula factor for all Fire and Administrative members increases to 2.35% from 2.25%.
 - The early retirement reduction factor for Administrative members changes to .002 from .004.
- (20) Includes the following changes in benefit provisions:
- The formula factor for General Dispatchers and Telephone Operators increases to 2.25% from 2.00%.
 - The formula factor for all other General members increases to 2.35% from 2.25%.
 - The formula factor for Police members increases to 2.35% from 2.25%.
 - The premium for post-retirement health insurance payable to age 60 for Police Command members increases to \$10 per month times years of credited service, not to exceed 30 years from \$8 per month times years of credited service, not to exceed 30 years.
- (21) Includes revised demographic and economic assumptions. These assumption changes were adopted by the Retirement Board at their January 22, 2001 meeting.
- (22) Includes new amortization policy as adopted by the Retirement Board specifically at 18-year open period for pension and 30-year open period for post-retirement health costs.
- (23) Includes an increase in the formula factor for Police Patrol to 2.5% from 2.35% and an increase in the contribution rate for Police Patrol to 1.59% from 0%.
- (24) Includes a change in the asset derivation method from a 4-year smoothed market value to a 5-year smoothed market value, along with a change in the amortization period from 18 years to 10 years for pension.
- (25) Includes revision of assumed rate of investment return from 7.5% to 7.75% and closing the amortization period for pension.
- (26) Includes the following change in benefit provisions:
- Employer right to rehire retirees (Ordinance No. 7-04).
 - Eliminate the early retirement reduction for benefits payable after age 60 if retired under the 2004 Voluntary Retirement Incentive Plan (Ordinance No. 14-04).
 - Establishment of a Deferred Retirement Option Plan (DROP) (Ordinance No. 15-04).
 - Establish separate trust to provide for the funding of retiree medical benefits (Ordinance No. 16-04).

Notes Relating to Funding Progress Indicators

- (27) Includes the following change in benefit provisions:
- Changing retirement eligibility for Firefighters from age 55 and 10 years of service to age 50 and 10 years of service.
 - Firefighters must make contributions of 1% of pay.
- (28) Includes the following change in benefit provisions:
- General – Administrative members and Firefighters hired after September 6, 2005 will be automatically enrolled in the Defined Contribution plan. They will not participate in this defined benefit plan. As a result, contribution requirements for the General and Fire groups are based on level dollar amortization of unfunded accrued liability. Results for Police continue to be based on level percent of pay amortization.
- (29) Includes the following change in benefit provisions:
- General Non-Administrative members hired after February 6, 2006, Police Command members hired after February 20, 2006, and Police Dispatch members hired after February 7, 2006 will be automatically enrolled in the Defined Contribution plan. They will not participate in this defined benefit plan. Effective July 1, 2007, General Administrative members retiring early after July 1, 2007 will not have their benefit reduced.
- (30) Includes the following change in benefit provisions:
- The formula factor for Police Patrol increases to 2.7% from 2.5% and the contribution rate for Police Patrol increases to 3.59% from 1.59%.
 - The formula factor for Police Command increases to 2.7% from 2.35% and the contribution rate for Police Command increases to 3.59% from 0%.
 - The formula factor for General Dispatchers and Telephone Operators increases to 2.35% from 2.25%.
 - The automatic post-retirement increases provision is removed for Police Command members retiring after July 1, 2008.
 - Maximum DROP account accumulation period for Police Command members has been reduced to 3 years from 5 years.
 - Police Non-Supervisory members hired after September 4, 2007 will be automatically enrolled in the Defined Contribution plan. They will not participate in this defined benefit plan.
- (31) Includes new amortization policy as adopted by the Retirement Board of 30-year amortization over a closed period.
- (32) The formula factor for Fire increases to 2.7% from 2.35% for a maximum of 30 years, and the member contribution rate increases to 4.00% from 1.00%.
- (33) Includes revised mortality assumptions. These assumption changes were adopted by the Retirement Board. Also includes changes to benefit provisions for non-administrative General members. These changes include reduction of the 2.35% multiplier to 1.95% beginning June 30, 2016.

Notes Relating to Funding Progress Indicators

- (34) Includes the following changes in benefit provisions:
- General Union members will receive 1.95% of FAS effective June 30, 2016 for all future accrued service, unless they elect to contribute 2% of base wages to keep the 2.35% multiplier.
 - General Union members will no longer count overtime pay as pensionable earnings for purposes of determining benefit amounts.
- (35) Includes the following changes in benefit provisions:
- General Administrative members will receive 2.15% of FAS effective July 1, 2016 for accrued service through June 30, 2018 unless they elect to contribute 1% of base wages to keep the 2.35% multiplier, and 1.95% of FAS effective July 1, 2018 for all future accrued service thereafter, unless they elect to contribute 2% of base wages to keep the 2.35% multiplier.
- (36) Includes the following changes in benefit provisions and actuarial assumptions:
- The maximum period of accumulation for benefits in a DROP account was decreased from 5 to 3 years.
 - Actuarial assumptions were updated in accordance with the Experience Study for the period July 1, 2010 to June 30, 2014, including:
 - A decrease in the wage inflation assumption from 4.50% to 3.50%;
 - A decrease in the investment rate of return assumption from 7.75% to 7.25%;
 - Updating the mortality tables to the RP-2014 Healthy Annuitant Mortality Table projected to 2020 using the MP-2014 mortality improvement scale; the mortality tables for disabled lives to the RP-2014 Disabled Retirees projected to 2020 using the MP-2014 mortality improvement scale; and the mortality tables for current active employees to the RP-2014 Mortality Tables for Employees projected to 2020 using the MP-2014 mortality improvement scale; and
 - Updating retirement rates for General members.
- (37) Includes the following change in actuarial assumptions:
- The price inflation assumption used was 2.75%. As a result, the COLA rate applied to members eligible for future cost-of-living increases changed from 1.6% annually to 1.1% annually.

Comments, Recommendations, Conclusion

Comment A: Aggregate experience during the year ending June 30, 2019 was more favorable than assumed, generating an overall experience gain of approximately \$0.3 million as indicated on page A-15. The actuarial gain was approximately 0.1% of the beginning of year Actuarial Accrued Liabilities. The primary source of the gain was due to lower than expected pay increases for active members. Additionally, lower than assumed cost-of-living adjustments also contributed to the positive experience during the year. Offsetting these gains were losses due to lower than assumed investment returns and retirees living longer than expected. Computed contribution requirements decreased slightly from the prior valuation from \$3,140,490 to \$3,036,199.

Comment B: The market value of assets and the funding value of assets for each of the employer groups for the June 30, 2019 valuation follow:

	Market Value of Assets	Funding Value of Assets
Other Funds A	\$ 34,620,614	\$ 34,353,013
Other Funds B	38,262,627	37,911,788
General	33,416,126	33,149,952
Police	54,451,971	54,021,346
Fire	18,064,580	17,913,954
Total	178,815,918	177,350,053

Comment C: Under Public Act 202 of the State of Michigan, Michigan municipalities will be required to report liabilities under new uniform assumption guidelines. The recommendations include the following for Fiscal 2020:

- Investment return no higher than 7.0%;
- Assumed wage inflation no lower than 3.5%;
- Mortality assumption that uses a version of the Pub-2010 tables with generational mortality improvement using Scale MP-2018; and
- Amortization period no longer than 19 years for Pension Plans and 29 years for Retiree Health Plans.

We are unable to certify that the current valuation assumptions and/or methods used by the System match or fall in the range of uniform assumptions established by the Treasurer for PA 202 reporting purposes. Therefore, the results in the valuation cannot be suitable for the reporting requirements.

Separate calculations that satisfy PA 202 reporting requirements for Fiscal 2019 were included in the GASB 67/68 valuation provided to the City dated August 30, 2019.

Another Public Act 202 requirement is the performance of an Experience Study every five years. The next scheduled experience study will be performed in early 2020 and cover the period from July 1, 2014 to June 30, 2019.

Comments, Recommendations, Conclusion (Continued)

Comment D: As of June 30, 2019, Actuarial Accrued Liability exceeds valuation assets for all groups. Unfunded Actuarial Accrued Liability (UAAL) was amortized as a level dollar amount over a closed 20 years and added to the computed normal cost.

Comment E: Investment income greater than or less than expected based on the investment return assumption is recognized over a five-year period under the current asset valuation method. Due to favorable investment performance during prior years, small unrecognized investment gains exist that are scheduled to be recognized during three of the next four years. Absent future actuarial losses, this is expected to put slight downward pressure on the required contribution amounts. The System's funded status would be different if based on the Market Value of Assets instead of the Funding Value of Assets. If the City's required contribution shown on page A-2 (\$3,036,199) had been determined using the Market Value of Assets as of June 30, 2019, the result would have been approximately \$2.9 million. In addition, the closure of the System to new hires results in declining valuation payroll which can put upward pressure on the City's contribution rate as a percentage of payroll if the City's projected dollar contributions are unchanged (or even declining at a slower rate than payroll is declining) from year to year.

Comment F: The Retirement System has been closed to new members since 2008 and has matured considerably. As such, cash flow needs to be monitored to ensure benefit payments (which are currently about 6% of the market value of assets) can be met. At some point in the future as the System contracts in size, investments will need to be liquidated to cover cash flow shortages – a natural progression of a closed plan. Such liquidations can hamper the plan's ability to earn the same rate of return an ongoing (open) plan could earn. Eventually, the economic assumptions will need to be modified to reflect this fact.

Comment G: Employer contributions were calculated for each of the following five main groupings (subgroups have been included for informational purposes):

- Other Funds A
 - Motor Pool (MP)
 - Clean Water Plant (CWP)
 - Water Treatment Plan (WTP)
 - Risk
 - Building Inspections (BI)
- Other Funds B
 - Public Works (PW)
 - Parks
 - Housing
- General
- Police
- Fire

Comments, Recommendations, Conclusion (Concluded)

Ordinance Compliance: The June 30, 2019 actuarial present value of retirement allowances exceeds the balance in the Reserve for Retired Benefit Payments in total. The Retirement System Ordinance provides for a transfer from the Reserve for Employer Contributions to the Reserve for Retired Benefit Payments to fully fund the retired life liability. Below are the actuarial present values of retirement allowances for each group as of June 30, 2019. This same amount should be shown as a reserve for Retired Benefit Payments in the Retirement System's accounting.

	Reserve for Retired Benefit Payments as of June 30, 2019	
Other Funds A	\$	25,277,473
Other Funds B		27,137,266
General		24,129,075
Police*		34,969,324
Fire		13,933,985
Total	\$	125,447,123

* The reserve for Police Retired Benefit Payments includes \$117,604 in DROP account balance.

Conclusion: It is the actuary's opinion that the required contribution amounts determined by the most recent actuarial valuation are sufficient to meet the System's funding objective, presuming continued timely receipt of required contributions.

Other Observations

General Implications of Contribution Allocation Procedure or Funding Policy on Future Expected Plan Contributions and Funded Status

Given the plan's contribution allocation procedure, if all actuarial assumptions are met (including the assumption of the plan earning 7.25% on the actuarial value of assets), it is expected that:

- (1) The unfunded actuarial accrued liabilities will be fully amortized after 20 years; and
- (2) The funded status of the plan will increase gradually towards a 100% funded ratio.

Limitations of Funded Status Measurements

Unless otherwise indicated, a funded status measurement presented in this report is based upon the actuarial accrued liability and the actuarial value of assets. Unless otherwise indicated, with regard to any funded status measurements presented in this report:

- (1) The measurement is inappropriate for assessing the sufficiency of plan assets to cover the estimated cost of settling the plan's benefit obligations; in other words, of transferring the obligations to an unrelated third party in an arm's length market value type transaction.
- (2) The measurement is dependent upon the actuarial cost method which, in combination with the plan's amortization policy, affects the timing and amounts of future contributions. The amounts of future contributions will most certainly differ from those assumed in this report due to future actual experience differing from assumed experience based upon the actuarial assumptions. A funded status measurement in this report of 100% is not synonymous with no required future contributions. If the funded status were 100%, the plan would still require future normal cost contributions (i.e., contributions to cover the cost of the active membership accruing an additional year of service credit).
- (3) The measurement would produce a different result if the market value of assets were used instead of the actuarial value of assets, unless the market value of assets is used in the measurement.

Limitation of Project Scope

Actuarial standards do not require the actuary to evaluate the ability of the plan sponsor or other contributing entity to make required contributions to the plan when due. Such an evaluation was not within the scope of this project and is not within the actuary's domain of expertise. Consequently, the actuary performed no such evaluation.

Pension Experience Gain (Loss) Comparative Schedule

(\$ amounts in thousands)

	Thousands of Dollars			
	Year Ended June 30			
	2019	2018	2017	2016
(1) UAAL* at start of period	\$ 19,335	\$24,847	\$33,983	\$32,762
(2) + Employer Normal cost	1,534	1,590	1,702	2,125
(3) + Interest accrual	1,328	1,691	2,349	2,451
(4) - Employer Contributions	3,618	4,696	4,925	3,949
(5) Expected UAAL before changes	18,579	23,432	33,109	33,389
(6) +/- Change from amendments	0	0	0	0
(7) +/- Change in assumptions	0	0	(3,331)	0
(8) +/- Change in cost method	0	0	0	0
(9) Expected UAAL after changes	18,579	23,432	29,778	33,389
(10) Actual UAAL	18,311	19,335	24,847	33,983
(11) Gain (loss) (9) - (10)	\$ 268	4,097	\$ 4,931	(594)

* UAAL: *Unfunded Actuarial Accrued Liability.*

Unfunded Actuarial Accrued Liability June 30, 2019

A. Actuarial Accrued Liability	\$	195,661,064
B. Assets allocated to funding		177,350,053
C. Unfunded Actuarial Accrued Liability	\$	18,311,011

City's Computed and Actual Contributions – Comparative Schedule

Fiscal Year	Valuation Date June 30	City Dollar Contributions		City's Recommended % of Payroll Contributions
	Recommended	Actual		
13/14	2012 (33)*	\$4,157,285	\$4,179,682	24.79 %
14/15	2013 (34)*	4,287,998	4,262,117	26.99
15/16	2014 (35)*	3,906,139	3,949,470	24.80
16/17	2015 (36)*	4,917,556	4,924,584	34.52
17/18	2016	4,628,523	4,696,431	39.40
18/19	2017 (37)*	3,628,289	3,618,125	32.04
19/20	2018	3,140,490		29.06
20/21	2019	3,036,199		29.43

* Refer to notes on pages A-6 through A-10.

Actuarial Balance Sheet June 30, 2019 (Excluding Health Insurance Premiums)

Present Resources and Expected Future Resources

A. Actuarial value of System assets:	
1. Net assets from System financial statements (market)	\$178,815,918
2. Funding value adjustment	<u>(1,465,865)</u>
3. Actuarial value of assets	177,350,053
B. Present value of expected future City Contributions:	
1. For normal costs	9,003,678
2. For unfunded actuarial accrued liability	<u>18,311,011</u>
3. Total	27,314,689
C. Present value of expected future member Contributions	
	2,452,422
D. Total Present and Expected Future Resources	<u><u>\$207,117,164</u></u>

Present Value of Expected Future Benefit Payments

A. To retirants and beneficiaries:	
1. Annual pensions	\$ 125,447,123
2. Reserve	<u>none</u>
3. Total	125,447,123
B. To vested terminated members	9,297,882
C. To present active members:	
1. Allocated to service rendered prior to valuation date	60,916,059
2. Allocated to service likely to be rendered after valuation date	<u>11,456,100</u>
3. Total	72,372,159
D. Total Present Value of Expected Future Benefit Payments	<u><u>\$207,117,164</u></u>

SECTION B

SUMMARY OF BENEFIT PROVISIONS AND VALUATION DATA

Summary of Benefit Provisions Evaluated or Considered (June 30, 2019)

Regular Retirement (no reduction factor for age):

Eligibility –

General: *Other General members age 60 with 10 or more years of credited service.*

Administrative and Contract members age 60 with 5 or more years of credited service.

Emergency Communications Operators members age 55 with 10 or more years of credited service.

Police: Age 50 with 10 or more years of credited service.

Fire: Age 50 with 10 or more years of credited service.

Annual Amount –

General: *Other General members 2.35% of FAS times credited service (1.95% of FAS beginning June 30, 2016 if they elect not to contribute 2% of base wages).*

Administrative and Contract members 2.35% of FAS times credited service (2.15% of FAS beginning July 1, 2016 and 1.95% of FAS beginning July 1, 2018 if they elect not to contribute 1% of base wages beginning July 1, 2016 and 2% of base wages beginning July 1, 2018).

Emergency Communications Operators members 2.35% of FAS times credited service.

Police: *Police Command members 2.70% of FAS times credited service up to 30 years.*

Police Patrol members 2.70% of FAS times credited service up to 30 years.

Fire: 2.70% of FAS times credited service up to 30 years.

Final Average Salary (FAS) – Average of annual compensations for the period of 3 consecutive years producing the highest average and contained within the last 5 years immediately preceding retirement. Effective July 1, 2016, FAS for ‘Other General Members’ no longer includes overtime.

DROP

Eligibility – Police Command meeting regular retirement eligibility.

DROP Account – Monthly additions of 100% of regular retirement benefit under option elected at time of DROP accumulated at 4% annual interest. Maximum period of accumulation is 3 years.

Distributions – Lump sum payment of DROP account at time of exit from employment plus direct payment of future monthly retirement benefits under option elected at time of DROP.

Summary of Benefit Provisions Evaluated or Considered (June 30, 2019) (Continued)

Early Retirement (age reduction factor used):

Eligibility –

General: *Other General members* age 55 with 10 or more years of credited service.

Administrative and Contract members age 55 with 5 or more years of credited service.

Annual Amount – Computed in the same manner as regular retirement amount, but for *Other General members* reduced by .002 for each month age at early retirement precedes regular retirement age. For retirements of *Other General members* on or after June 30, 2016 the reduction shall be .001 if the member has 25 or more years of service. For retirements of *Administrative and Contract members* on or after July 1, 2007, there will be no reduction factor unless they became a member of the unit (transferred from another unit) after July 1, 2007 and have less than 25 years of service.

Deferred Retirement (vested benefit):

Eligibility –

General: *Other General members* any age with 10 or more years of credited service.

Administrative and Contract members any age with 5 or more years of credited service.

Emergency Communications Operators members any age with 10 or more years of credited service.

Police: Any age with 10 or more years of credited service.

Fire: Any age with 10 or more years of credited service.

Annual Amount – Accrued regular retirement amount based on credited service and FAS at time of termination, payable beginning at age 60 for General, age 50 for Police and age 50 for Fire.

Duty Disability Retirement:

Eligibility – Total and permanent disability incurred in line of duty with the city for which worker's compensation is being paid.

Annual Amount – Computed in same manner as the regular retirement amount based on credited service and FAS at time of termination. Minimum service credit used is 10 years.

Police and Fire: Normal retirement benefit calculation will be re-adjusted at normal retirement age (50) to include the time the member was receiving disability benefits and will be based on the monthly average the member would have earned during the 36 months preceding normal retirement age if the member was actively employed.

Summary of Benefit Provisions Evaluated or Considered (June 30, 2019) (Continued)

Non-Duty Disability Retirement:

General: *Other General members* total and permanent disability after 10 or more years of credited service.

Administrative and Contract members total and permanent disability after 5 or more years of credited service.

Emergency Communications Operators members total and permanent disability after 10 or more years of credited service. This unit does not have any active members and this no longer applies.

Police: Total and permanent disability after 10 or more years of credited service.

Fire: Total and permanent disability after 10 or more years of credited service.

Annual Amount – Computed in same manner as the regular retirement amount based on credited service and FAS at time of termination.

Duty Death Before Retirement:

Eligibility – Death in line of duty with the city for which worker's compensation is being paid.

Annual Amount – Refund of member's accumulated contributions. Amount to surviving spouse and children computed in same manner as the regular retirement amount based on credited service and FAS at time of death with a minimum of 25% of member's FAS. Additional amount to spouse continues to remarriage or death. Additional amount to children continues to earlier of marriage or attainment of age 18 years.

Non-Duty Death Before Retirement:

Eligibility – Any age with 10 or more years of credited service, 5 or more years of credited service for Administrative members.

Annual Amount – Option A actuarial equivalent of regular retirement amount based on credited service and FAS at time of death for spouse or qualified dependent. Option C for non-spouse benefit, in absence of spouse or with agreement of spouse.

Summary of Benefit Provisions Evaluated or Considered (June 30, 2019) (Concluded)

Member Contributions:

General:	<i>Other General members</i>	2% of base wages to keep 2.35% multiplier (effective June 30, 2016).
	<i>Administrative and Contract members</i>	1% of base wages (effective June 30, 2016) and 2% of base wages (effective June 30, 2018) to keep 2.35% multiplier.
Police:	<i>Police Command</i>	4.59% of gross pay effective July 1, 2015 5.59% gross of pay effective July 1, 2016
	<i>Police Patrol</i>	4.59% of gross pay effective July 1, 2015 5.59% gross of pay effective July 1, 2016
Fire:		4.50% of gross pay effective January 1, 2016 5.00% gross of pay effective July 1, 2016 6.00% gross of pay effective July 1, 2017

City Contributions: Actuarially determined amounts which are sufficient to cover both (i) normal costs of the plan, and (ii) financing of unfunded actuarial accrued liabilities over a selected period of future years.

Automatic Post-Retirement Adjustments: Annual increase for Police Command members (at least 60 years of age who retire after July 1, 1992 and who entered the Police Command Unit on or before July 1, 2008) and Administrative members equal to 40% of the average annual increase in CPI, except in 2007 when contract language specified no increase. Increase is limited to 5% per year.

Defined Contribution Plan: The Defined Benefit plan is closed to new hires. New members are automatically enrolled in the Defined Contribution plan.

Accounting Information Year Ended June 30, 2019

Revenues:

a. Member contributions	\$	397,502
b. City contributions		
1. For pensions		3,618,125
2. For DROP plan contribution		61,132
c. Investment income		
1. Interest and dividends		3,377,407
2. Gain or (loss) on sales (realized and unrealized)		7,823,212
3. Amortization of premiums and discounts		none
4. Other – miscellaneous		21,063
		21,063
d. Total	\$	15,298,441

Expenditures:

a. Benefits paid, including refunds of member contributions	\$	11,036,256
b. DROP plan distributions		152,501
c. Other expenses		596,744
		596,744
d. Total	\$	11,785,501

Reserve Increase:

Total revenues minus total expenditures	\$	3,512,940
---	----	-----------

Assets and Reserves June 30, 2019

Assets: (at market value)

a. Cash	\$	2,359,886
b. Receivables		108,710
c. Government issues		30,021,931
d. Corporate bonds		13,938,689
e. Equities		118,012,407
f. Real estate investments		16,789,691
g. Liabilities		(2,415,395)
		(2,415,395)
Total	\$	178,815,919

Reserve Accounts:

a. Member contributions	\$	2,638,172
b. Reserve for benefits now being paid		116,935,722
c. Pension Reserve		59,124,420
d. Health Insurance Reserve *		0
e. DROP Plan Reserve		117,605
		117,605
Total	\$	178,815,919

* This amount was used in financing accrued liability for post-retirement health insurance.

Derivation of Smoothed Market Value Based on 20% Recognition of the Difference Between the Market Rate of Return and the Projected Rate of Return

	Year Ended June 30								
	2015	2016	2017	2018	2019	2020	2021	2022	2023
Beginning of Year:									
(1) Market Value	\$152,993,444	\$156,337,880	\$153,330,796	\$166,842,164	\$175,302,979				
(2) Valuation Assets	139,935,062	149,881,929	154,872,346	164,082,938	172,670,775				
End of Year:									
(3) Market Value	156,337,880	153,330,796	166,842,164	175,302,979	178,815,918				
(4) Net Additions to Assets, Excluding Investment Income & Admin. Expense	(4,775,656)	(5,765,484)	(4,946,727)	(5,551,804)	(7,111,997)				
(5) Total Investment Income = (3) - (1) - (4)	8,120,092	2,758,400	18,458,095	14,012,619	10,624,936				
(6) Projected Rate of Return	7.75%	7.25%	7.25%	7.25%	7.25%	7.25%			
(7) Projected Investment Income = (6) x [(2) + .5 x (4)]	10,659,911	10,657,441	11,048,926	11,694,760	12,260,821				
(8) Investment Income in Excess of Projected Income = (5)-(7)	(2,539,819)	(7,899,041)	7,409,169	2,317,859	(1,635,885)				
(9) Excess Investment Income Recognized This Year (5-year recognition)									
(9a) From This Year	(507,963)	(1,579,808)	1,481,834	463,572	(327,177)				
(9b) From One Year Ago	2,587,242	(507,963)	(1,579,808)	1,481,834	463,572	\$ (327,177)			
(9c) From Two Years Ago	1,127,086	2,587,242	(507,963)	(1,579,808)	1,481,834	463,572	\$ (327,177)		
(9d) From Three Years Ago	(1,528,095)	1,127,086	2,587,242	(507,963)	(1,579,808)	1,481,834	463,572	\$ (327,177)	
(9e) From Four Years Ago	2,384,342	(1,528,097)	1,127,088	2,587,246	(507,967)	(1,579,809)	1,481,833	463,571	\$ (327,177)
(10) Change in Valuation Assets = (4) + (7) + 9[a..e]	9,946,867	4,990,417	9,210,592	8,587,837	4,679,278				
End of Year:									
(3) Market Value	156,337,880	153,330,796	166,842,164	175,302,979	178,815,918				
(11) Valuation Assets = (2)+(10)	149,881,929	154,872,346	164,082,938	172,670,775	177,350,053				
(12) Valuation Assets Net HI Reserve	149,881,929	154,872,346	164,082,938	172,670,775	177,350,053				
Rate of Return Based on Smoothed Method	10.7%	7.3%	9.3%	8.8%	7.0%				
Ratio of Market Value to Valuation Assets	104.3%	99.0%	101.7%	101.5%	100.8%				
Market Value Rate of Return	5.4%	1.8%	12.2%	8.5%	6.2%				

Retirants and Beneficiaries June 30, 2019 Comparative Schedule

Year Ended June 30	Added to Rolls		Removed from Rolls		Rolls End of Year	
	No.	Annual Pensions	No.	Annual Pensions	No.	Annual Pensions
1985	7	\$ 31,606	1	\$ 1,374	61	\$ 232,207
1990	12	192,440	3	\$ 22,098	98	791,506
1995	23	418,540	6	55,242	154	1,892,941
2000	11	199,220	5	30,242	194	3,023,578
2005	28	657,467	10	153,882	260	4,920,041
2010	22	570,153	11	77,710	295	6,629,097
2011	20	686,316	7	165,129	308	7,150,284
2012	31	1,009,472	7	91,020	332	8,068,736
2013	18	573,312	10	193,959	340	8,448,089
2014	17	490,598	5	84,647	352	8,854,040
2015	24	759,892	12	277,462	364	9,336,470
2016	23	807,589	6	86,335	381	10,057,724
2017	30	691,245	12	231,777	399	10,517,192
2018	16	599,747	13	267,391	402	10,849,548
2019	20	739,196	11	228,443	411	11,360,301

The June 30, 2019 end of year retiree count and total pension amount includes 1 DROP participant with annual benefits of \$58,532.

Retirants and Beneficiaries June 30, 2019 Comparative Schedule

Year Ended June 30	% Incr. in Annual Pensions	No. of Active Per Retired	Pensions as % of Active Payroll	Average Annual Pension	Discounted Value of Pensions	
					Total	Average
1985	15.0 %	5.6	2.7 %	\$ 3,807	\$ 2,134,239	\$ 34,988
1990	27.4	3.6	7.3	8,077	7,943,958	81,061
1995	23.8	2.3	13.9	12,292	19,800,632	128,576
2000	5.9	2.3	15.1	15,585	31,171,607	160,678
2005	16.3	1.5	23.6	18,923	48,061,939	184,854
2010	8.0	1.1	33.9	22,472	64,018,512	217,012
2011	7.9	0.9	39.6	23,215	69,160,462	224,547
2012	12.8	0.8	48.1	24,303	81,377,089	245,112
2013	4.7	0.7	53.2	24,847	84,667,701	249,023
2014	4.8	0.6	56.2	25,154	88,106,433	250,302
2015	5.4	0.6	65.5	25,650	105,648,228	290,242
2016	7.7	0.4	83.3	26,398	114,414,851	300,301
2017	4.6	0.4	89.1	26,359	116,250,580	291,355
2018	3.2	0.4	95.1	26,989	119,492,579	297,245
2019	4.7	0.3	104.9	27,641	125,447,123	305,224

The June 30, 2019 end of year retiree count and total pension amount includes 1 DROP participant with annual benefits of \$58,532.

Retirants and Beneficiaries June 30, 2019

Number	Averages			New Retirants During 18/19	
	Attained Age	Retirement Age	Current Annual Pension	Averages Age	Annual Pension
411	69.7	56.9	\$27,641	55.9	\$38,080

Tabulated by Valuation Divisions

Divisions	No.	Annual Pensions
Other Funds A	82	\$ 2,362,700
Other Funds B	98	2,484,587
General	95	2,143,716
Police	95	3,121,993
Fire	41	1,247,305
Totals	411	\$ 11,360,301

The June 30, 2019 Police retiree count and total pension amount includes 1 DROP participant with annual benefits of \$58,532.

Retirants and Beneficiaries June 30, 2019

Type of Pensions Being Paid	No.	Annual Pensions
Age and Service		
Straight Life Pension - benefit terminating at death of retirant	119	\$ 3,208,354
10-Year Certain	17	460,814
Option A Pension – joint and survivor benefit	141	\$4,211,620
Option B Pension – modified joint and survivor benefit	53	1,896,610
Survivor Beneficiary	<u>42</u>	<u>711,114</u>
Total Age and Service Pensions	372	\$ 10,488,512
Casualty Pensions		
Duty Disability		
Straight Life	2	\$ 57,294
10-Year Certain	3	95,373
Option A	9	205,405
Option B	4	95,977
Survivor	1	2,327
Non Duty Disability		
Straight Life	2	24,376
10-Year Certain	2	60,510
Option A	2	41,659
Option B	2	52,387
Survivor	8	148,924
Non Duty Death - Spouse	<u>4</u>	<u>87,557</u>
Total Casualty Pensions	<u>39</u>	<u>871,789</u>
Total Pensions Being Paid	<u>411</u>	<u>\$ 11,360,301</u>

The June 30, 2019 end of year retiree count and total pension amount includes 1 DROP participant with annual benefits of \$58,532.

Retirants and Beneficiaries June 30, 2019 Tabulated by Attained Age

Attained Age	No.	Annual Pensions
35 - 39	1	\$ 19,256
40 - 44	2	53,628
45 - 49	3	50,100
50 - 54	20	749,618
55 - 59	29	1,010,412
60 - 64	84	2,690,700
65	18	756,548
66	17	384,052
67	22	669,522
68	15	467,791
69	17	468,666
70	25	633,482
71	13	339,251
72	17	391,097
73	4	116,728
74	10	158,505
75	7	152,799
76	11	279,674
77	6	222,630
78	14	290,262
79	9	249,562
80	6	134,622
81	6	101,548
82	9	172,866
83	7	160,759
84	6	97,347
85	3	28,909
86	11	236,921
87	6	102,008
88	2	45,056
89	2	7,056
90	1	12,065
91	1	7,943
92	2	37,909
93	1	23,635
95	1	15,026
96	3	22,349
Totals	411	\$ 11,360,301

The June 30, 2019 end of year retiree count and total pension amount includes 1 DROP participant with annual benefits of \$58,532.

Inactive Vested Members Included in Valuation June 30, 2019

Inactive vested members included in the valuation totaled 58 with estimated deferred pensions of \$1,286,710. The table below includes 12 active members who elected to freeze their defined benefit as of June 30, 2016 and enter the defined contribution plan beginning July 1, 2016.

Attained Age	No.	Estimated Deferred Annual Pensions
41	2	\$ 37,309
42	1	12,509
44	1	12,763
45	5	81,255
46	6	95,713
47	2	45,475
48	5	100,896
49	7	134,389
50	2	95,093
51	6	140,378
52	6	138,747
53	2	68,990
54	3	77,089
55	4	98,027
56	1	36,838
58	1	39,198
59	2	55,173
61	1	14,015
64	1	2,853
Totals	58	\$ 1,286,710

Active Members June 30, 2019 Tabulated by Valuation Divisions

Valuation Divisions	No.	Annual Payroll
Other Funds A	23	\$ 1,641,212
Other Funds B	32	2,230,851
General	25	1,840,732
Police Officers	44	4,068,457
Fire	12	1,043,896
Total Active Members	136	\$10,825,148

Number Added to and Removed from Active Membership

Year Ended June 30	Number Added During Year		Terminations During Year								Active Members End of Year
	A	E	Retirement		Disabled		Died-in- Service		Other Withdrawal		
			A	E	A	E	A	E	A	E	
2000	21	17	6	6.8	1	0.9	0	0.9	10	17.6	441
2001	34	27	12	5.2	4	0.9	0	1.0	11	11.0	448
2002	21	23	13	6.9	2	1.5	0	1.0	8	13.5	446
2003	20	20	9	6.7	1	1.5	0	0.9	10	12.7	446
2004	6	14	6	8.3	0	1.4	1	1.0	7	12.0	438
2005	5	45	17	8.7	1	1.5	0	1.0	27	10.3	398
2006	11	14	4	9.1	1	1.5	1	1.0	8	7.9	395
2007	6	13	8	10.4	0	1.6	1	1.1	4	7.0	388
2008	0	31	13	11.2	1	1.6	1	1.2	16	5.9	357
2009	0	0	11	11.5	1	1.7	1	1.2	11	4.5	333
2010	0	0	15	10.4	0	1.6	0	1.2	6	3.6	312
2011	1	0	14	9.5	3	1.5	0	1.2	14	2.8	282
2012	0	0	24	10.8	0	1.3	0	1.1	5	2.2	253
2013	0	0	8	7.8	1	1.2	0	0.6	10	1.9	234
2014	0	0	9	9.8	1	1.2	0	0.6	2	1.6	222
2015	0	0	11	11.5	2	1.2	0	0.6	4	1.4	205
2016	1	0	17	12.0	1	1.2	0	0.3	22	1.2	166
2017	0	0	6	9.5	1	1.2	0	0.2	1	1.0	158
2018	0	0	7	10.5	1	1.0	0	0.2	2	0.8	148
2019	0	0	11	11.6	1	0.9	0	0.2	0	0.7	136
Last 10 Years	2	0.0	122	103.1	11	12.3	0	6.2	66	17.2	

Active Members June 30, 2019 Comparative Schedule

Valuation Date	Active Members					Total	Valuation Payroll	Average		
	Other Funds A ⁽²⁾	Other Funds B ⁽³⁾	General	Police	Fire			Age	Service	Pay
1990			248	74	27	349	\$ 10,828,357	42.0 yrs.	13.9 yrs.	\$31,027
1995			257	79	25	361	13,630,668	41.2	12.9	37,758
2000			302	100	39	441	20,073,442	41.1	11.8	45,518
2005			280	88	30	398	20,881,320	43.1	13.6	52,466
2010			217	70	25	312	19,554,838	46.2	17.0	62,676
2011			193	66	23	282	18,038,609	46.9	17.5	63,967
2012			167	63	23	253	16,768,082	47.0	17.6	66,277
2013			155	58	21	234	15,889,933	47.8	18.3	67,906
2014			146	55	21	222	15,749,774	48.4	19.2	70,945
2015	34		101	52	18	205	14,244,381	⁽¹⁾ 48.9	19.9	69,485
2016	25		74	49	18	166	12,075,663	⁽¹⁾ 48.3	20.3	72,745
2017	25	37	32	48	16	158	11,805,804	49.0	21.2	74,720
2018	22	37	30	46	13	148	11,413,503	49.6	21.9	77,118
2019	23	32	25	44	12	136	10,825,148	50.1	22.6	79,597

⁽¹⁾ Valuation payroll was adjusted by a factor of 26/27 due to an extra pay period.

⁽²⁾ Prior to the June 30, 2015 valuation, MP, CWP, and WTP were combined with the General group. For the June 30, 2015 and June 30, 2016 valuations, MP, CWP, and WTP were summarized as three separate groups. Starting with the June 30, 2017 valuation, MP, CWP, WTP, and the Risk groups combined to form the Other Funds A group. Starting with the June 30, 2019 valuation, Building Inspectors were transferred from Other Funds B to Others Funds A.

⁽³⁾ Prior to the June 30, 2017 valuation, Other Funds B was combined with the General group.

Other Funds A Members June 30, 2019 by Nearest Age and Years of Service

Nearest Age	Years of Service to Valuation Date							Totals	
	0-4	5-9	10-14	15-19	20-24	25-29	30 Plus	No.	Valuation Payroll
35-39			1					1	\$ 67,569
40-44					1			1	81,064
45-49				1		2		3	181,748
50-54				1	3		2	6	433,067
55-59				1	1	3	1	6	471,021
61					1			1	67,881
62					1	2		3	171,804
64							1	1	102,162
65				1				1	64,896
Totals			1	4	7	7	4	23	\$ 1,641,212

While not used in the financial computations, the following group averages are computed and shown because of their general interest.

Age: 54.5 years
Service: 24.0 years
Annual Pay: \$71,357

Other Funds B Members June 30, 2019 by Nearest Age and Years of Service

Nearest Age	Years of Service to Valuation Date							Totals	
	0-4	5-9	10-14	15-19	20-24	25-29	30 Plus	No.	Valuation Payroll
35-39					1			1	\$ 54,909
40-44				3	1			4	276,748
45-49			2	2	6	1		11	593,728
50-54				3	5	2	2	12	921,189
55-59						1	1	2	182,406
62				1			1	2	201,871
Totals			2	9	13	4	4	32	\$ 2,230,851

While not used in the financial computations, the following group averages are computed and shown because of their general interest.

Age: 49.5 years

Service: 22.6 years

Annual Pay: \$69,714

General Members June 30, 2019 by Nearest Age and Years of Service

Nearest Age	Years of Service to Valuation Date							Totals	
	0-4	5-9	10-14	15-19	20-24	25-29	30 Plus	No.	Valuation Payroll
40-44					1			1	\$ 89,802
45-49				2	2			4	315,719
50-54				3	3	2		8	561,594
55-59				1	5		4	10	749,882
60					1			1	64,974
63					1			1	58,761
Totals				6	13	2	4	25	\$ 1,840,732

While not used in the financial computations, the following group averages are computed and shown because of their general interest.

Age: 53.6 years
Service: 23.2 years
Annual Pay: \$73,629

Police Officers June 30, 2019 by Nearest Age and Years of Service

Nearest Age	Years of Service to Valuation Date							Totals	
	0-4	5-9	10-14	15-19	20-24	25-29	30 Plus	No.	Valuation Payroll
35-39			1					1	74,491
40-44			1	8	3			12	1,100,109
45-49				1	14	1		16	1,464,518
50-54				1	4	7		12	1,171,631
55-59					2			2	173,861
62					1			1	83,847
Totals			2	10	23	8		44	\$ 4,068,457

While not used in the financial computations, the following group averages are computed and shown because of their general interest.

Age: 47.0 years
Service: 21.8 years
Annual Pay: \$92,465

Firefighters June 30, 2019 by Nearest Age and Years of Service

Nearest Age	Years of Service to Valuation Date							Totals	
	0-4	5-9	10-14	15-19	20-24	25-29	30 Plus	No.	Valuation Payroll
35-39			1					1	\$ 87,470
40-44				1	1			2	178,757
45-49				2	4			6	516,306
50-54					2			2	186,509
55-59					1			1	74,854
Totals			1	3	8			12	\$ 1,043,896

While not used in the financial computations, the following group averages are computed and shown because of their general interest.

Age: 47.4 years
Service: 20.9 years
Annual Pay: \$86,991

SECTION C

SUMMARY OF VALUATION METHODS AND ACTUARIAL ASSUMPTIONS

Valuation Methods

Entry Age Normal Actuarial Cost Method. Normal cost and the allocation of benefit values between service rendered before and after the valuation date was determined using an individual **entry-age normal cost** valuation method having the following characteristics:

- (i) The annual normal costs for each individual active member, payable from the date of employment to the date of retirement, are sufficient to accumulate the value of the member's benefit at the time of retirement; and
- (ii) Each annual normal cost is a constant percentage of the member's year-by-year projected covered pay.

Financing of Unfunded Actuarial Accrued Liability. Unfunded Actuarial Accrued Liability (UAAL) was amortized as a level dollar amount over a closed period of 20 years.

Asset Valuation Method. The valuation assets are developed using a 5-year smoothing technique. The difference between the expected return on assets (using the valuation interest rate assumption) and the actual return on assets is phased-in over a 5-year period.

Actuarial Assumptions Used for the Valuation

The actuary calculates the contribution requirements and benefit values of the Retirement System by applying actuarial assumptions to the benefit provisions and people information furnished, using the valuation methods described on page C-1. All actuarial assumptions are based on future expectations, not market measures.

The principal areas of economic and risk assumptions are:

- (i) Long-term rates of investment income likely to be generated by the assets of the Retirement System;
- (ii) Patterns of salary increases to be experienced by members;
- (iii) Rate of mortality among members, retirees and beneficiaries;
- (iv) Rates of withdrawal of active members without entitlement to a deferred retirement benefit;
- (v) Rates of disability among members and their subsequent rates of recovery; and
- (vi) The age and service distribution of actual retirements.

In making a valuation the actuary must project the monetary effect of each assumption, for each distinct experience group, for the next year and for each year over the next half-century or longer.

Once actual experience has occurred and been observed it is unlikely that it will coincide exactly with assumed experience. Each valuation provides a complete recalculation of assumed future experience and takes into account all past differences between assumed and actual experience. The result is a continual series of small adjustments of the computed contribution rate.

From time-to-time it becomes necessary to adjust the package of risk measurements to reflect basic experience trends – but not random year-to-year fluctuations. We will recommend changes whenever we feel they are appropriate.

Assumptions were reviewed and updated based on the 2010-2014 Experience Study, which includes the rationale for these assumptions. It is anticipated that an experience study covering the period July 1, 2014 through June 30, 2019 will be performed and any revised actuarial assumptions adopted by the Board as a result of this experience study will be reflected beginning with the June 30, 2020 valuation.

The rate of investment return (an economic assumption) used was 7.25% a year, compounded annually. This assumption was first used for the June 30, 2015 valuation. The assumption consists of 3.75% for assuming maturity and principal risks (real return) and 3.50% in recognition of wage inflation. This assumption is used to discount the value of future payments. Actual recognized investment return for purposes of the actuarial valuation, based on the mean actuarial value of assets, has been as follows:

Year Ended June 30					5-Year Average
2019	2018	2017	2016	2015	
7.0%	8.8%	9.3%	7.3%	10.7%	8.6%

The rate of price inflation -- a rate of price inflation of 2.75% is consistent with other economic assumptions in this report.

The rates of salary increase (an economic assumption) used are in accordance with the following graded table. These assumptions were first used for the June 30, 2015 valuation. The assumption consists of 3.50% in recognition of wage inflation and a graded allowance for promotion and longevity.

The assumption is used to project current salaries to those upon which pension amounts will be based.

Sample Ages	Present Salary Resulting in Salary of \$1,000		Percent Increase in Salary During Next Year	
	At Age 65 General*	At Age 60 Police-Fire	General*	Police-Fire
	20	\$ 98	\$ 164	7.3 %
25	138	224	6.6	6.5
30	188	305	6.2	6.1
35	253	401	5.9	4.6
40	335	489	5.6	3.7
45	437	586	5.2	3.7
50	557	703	4.6	3.7
55	692	840	4.2	3.6
60	840	1,000	3.7	3.5
65	1,000	---	3.5	3.5

* Includes General, Other Funds A, and Other Funds B members.

Actual valuation payroll has increased at the following rates.

	Year Ended June 30					5-Year Average
	2019	2018	2017	2016	2015	
Increase in pay for members active at both beginning and end of year	2.6 %	2.8 %	1.7 %	4.1 %	2.1 %	2.7 %

The mortality table (a risk assumption) used was the RP-2014 Healthy Annuitant Mortality Table projected to 2020 using the MP-2014 mortality improvement scale. This assumption is used to measure the probabilities of each pension payment being made after retirement. This table was first used for the June 30, 2015 valuation. The provision for future improvements in mortality is built into the projection to 2020. Sample values follow:

Sample Ages	Single Life Retirement Values			
	Present Value of \$1 Monthly for Life		Future Life Expectancy (Years)	
	Men	Women	Men	Women
50	\$149.16	\$153.03	34.78	37.43
55	142.94	147.51	30.37	32.87
60	135.28	140.37	26.10	28.39
65	125.73	131.33	21.97	24.04
70	114.04	120.19	18.02	19.87
75	100.16	106.86	14.31	15.96
80	84.33	91.54	10.92	12.36

For disabled retirees, the mortality table used to measure the probabilities of each pension payment being made after retirement was the RP-2014 Mortality Table for Disabled Retirees projected to 2020 using the MP-2014 mortality improvement scale.

For active employees, the mortality table used to measure the probabilities of dying before retirement was the RP-2014 Mortality Tables for Employees projected to 2020 using the MP-2014 mortality improvement scale.

The rates of retirement (a risk assumption) used to measure the probability of eligible members retiring during the year following attainment of the indicated age were as follows:

Age	Number Retiring Per 100 Eligible		
	General*	Police	Fire
50	-	30	30
51	-	20	20
52	-	15	15
53	-	15	15
54	-	15	15
55	20	10	10
56	10	10	10
57	10	15	15
58	10	25	25
59	10	30	30
60	30	100	100
61	20	100	100
62	30	100	100
63	20	100	100
64	20	100	100
65	30	100	100
66	30	100	100
67	40	100	100
68	50	100	100
69	60	100	100
70	100	100	100

** Includes General, Other Funds A, and Other Funds B members.*

The General rates were first used for the June 30, 2015 valuation; Police and Fire rates were first used for the June 30, 2001 valuation.

Rates of separation from active membership (a risk assumption) were as follows (rates do not apply to members eligible to retire and do not include separation on account of death or disability). This assumption measures the probabilities of members remaining in employment.

Sample Ages	Years of Service	Number Separating Within Next Year (Per 100 Members)		
		General*	Police	Fire
ALL	0	15.00	8.00	8.00
	1	10.00	6.00	6.00
	2	8.00	4.50	4.50
	3	7.00	3.00	3.00
	4	6.00	2.00	2.00
25	5 & Over	5.00	2.50	2.50
30		4.50	2.00	2.00
35		3.55	1.10	1.10
40		1.45	0.40	0.40
45		0.75	0.40	0.40
50		0.75	0.40	0.40
55		0.75	0.40	0.40
60		0.75	0.40	0.40
65		0.75	0.40	0.40

* Includes General, Other Funds A, and Other Funds B members.

Rates for General and Police were revised effective June 30, 2001.

Rates of disability (a risk assumption) measure the probabilities of active members retiring with a disability benefit.

Sample Ages	% of Active Members Becoming Disabled Within Next Year		
	General *	Police	Fire
20	0.15 %	0.10 %	0.10 %
25	0.18	0.15	0.15
30	0.20	0.25	0.20
35	0.29	0.30	0.25
40	0.42	0.70	0.50
45	0.65	0.80	0.65
50	1.05	0.95	0.80
55	1.84	1.10	0.95
60	3.06	1.20	1.00

* Includes General, Other Funds A, and Other Funds B members.

Rates for General and Police were revised effective June 30, 2001.

Summary of Assumptions Used

June 30, 2019

Miscellaneous and Technical Assumptions

Marriage Assumption:	100% of males and 100% of females are assumed to be married for purposes of death-in-service benefits.
Pay Increase Timing:	Beginning of (Fiscal) year. This is equivalent to assuming that reported pays represent amounts paid to members during the year ended on the valuation date.
Decrement Timing:	Decrements of all types are assumed to occur mid-year.
Eligibility Testing:	Eligibility for benefits is determined based upon the age nearest birthday and service nearest whole year on the date the decrement is assumed to occur.
Benefit Service:	Exact fractional service is used to determine the amount of benefit payable.
Decrement Relativity:	Decrement rates are used directly from the experience study, without adjustment for multiple decrement table effects.
Decrement Operation:	Disability and mortality decrements do not operate during the first 5 years of service. Disability and withdrawal do not operate during retirement eligibility.
Normal Form of Benefit:	The assumed normal form of benefit is the straight life form.
Cost-of-Living Adjustment:	Annual increase for those eligible assumed to be 1.1% annually.

SECTION D

SUPPLEMENTARY INFORMATION

NOTE: GASB Statements No. 67 and No. 68 are effective for Governmental Retirement Plans for the fiscal year beginning after June 15, 2013 (GASB Statement No. 67) and the fiscal year beginning after June 15, 2014 (GASB Statement No. 68). These statements replace GASB Statements No. 25, No. 27 and No. 50. Please see the corresponding GASB 67/68 reports for relevant accounting figures.

Supplementary Information (\$ Amounts in Thousands)

Schedule of Funding Progress (Excluding Health Insurance)

Actuarial Valuation Date June 30	Actuarial Value of Assets (a)	Actuarial Accrued Liability (AAL) Entry Age (b)	Unfunded AAL (b)-(a)	Funded Ratio (a)/(b)	Covered Payroll (c)	UAAL as a % of Covered Payroll ((b-a)/c)
2010 *	\$ 129,277	\$ 135,611	\$ 6,333	95.3 %	\$ 19,555	32.4 %
2011	131,248	138,810	7,562	94.6	18,039	41.9
2012 *	129,191	150,963	21,771	85.6	16,768	129.8
2013 *	130,037	153,449	23,412	84.7	15,890	147.3
2014 *	139,935	158,867	18,932	88.1	15,750	120.2
2015 *	149,882	182,644	32,762	82.1	14,244	230.0
2016	154,872	188,855	33,983	82.0	12,076	281.4
2017 *	164,083	188,930	24,847	86.8	11,806	210.5
2018	172,671	192,006	19,335	89.9	11,414	169.4
2019	177,350	195,661	18,311	90.6	10,825	169.2

* Revised actuarial assumptions and/or methods and/or changes in benefit provisions.

Supplementary Information (\$ Amounts in Thousands)

Schedule of Employer Contributions (Excluding Health Insurance)

Fiscal Year Ending June 30	Actuarial Valuation Date June 30	Contribution Rates as Percents of Valuation Payroll	Computed Dollar Contribution Based on Projected Valuation Payroll	Actual Required Contribution Based on Actual Payroll	Percentage Contributed
2006	2004	8.72 %	\$2,139	\$2,048	100 %
2007	2005	10.89	2,483	2,538	100
2008	2006	15.37	3,597	3,488	100
2009	2007	10.87	2,494	2,466	100
2010	2008	10.15	2,188	2,280	100
2011	2009	14.27	2,936	3,062	100
2012	2010	16.52	3,230	3,050	100
2013	2011	17.38	3,135	3,298	100
2014	2012	24.79	4,157	4,180	100
2015	2013	26.99	4,288	4,262	100
2016	2014	24.80	3,906	3,949	100
2017	2015	34.52	4,918	4,925	100
2018	2016	39.40	4,629	4,696	100
2019	2017	32.04	3,628	3,618	100
2020	2018	29.06	3,140	-	-
2021	2019	29.43	3,036	-	-

The Retirement System's financial objective provides for periodic employer contributions at actuarially determined rates that are designed to accumulate sufficient assets to pay benefits when due. The normal cost and amortization payment for the year ended June 30, 2019 were determined using an entry age actuarial funding method. Unfunded Actuarial Accrued Liabilities (UAAL) were amortized as a level dollar over a closed period of 20 years.

Supplementary Information

The information presented in the required supplementary schedules was determined as part of the actuarial valuations at the dates indicated. Additional information as of the latest actuarial valuation follows:

Valuation date	June 30, 2019
Actuarial cost method	Entry Age
Amortization method	Level dollar
Remaining amortization period	20 years closed
Asset valuation method	Open 5-year smoothed market
Actuarial assumptions:	
Investment rate of return	7.25%
Projected salary increases*	3.5% - 7.3%
*Includes wage inflation at	3.5%
Cost-of-living adjustments	Annual increase for those eligible assumed to be 1.1% compounded annually.

Membership of the plan consisted of the following at June 30, 2019, the date of the latest actuarial valuation:

Retirees and beneficiaries receiving benefits	411
Terminated plan members entitled to but not yet receiving benefits	58
Active plan members	<u>136</u>
Total	605

APPENDIX

RISK MEASURES

Risk Commentary

The determination of the accrued liability and the actuarially determined contribution requires the use of assumptions regarding future economic and demographic experience. Risk measures, as illustrated in this report, are intended to aid in the understanding of the effects of future experience differing from the assumptions used in the course of the actuarial valuation. Risk measures may also help with illustrating the potential volatility in the accrued liability and the actuarially determined contribution that result from the differences between actual experience and the actuarial assumptions.

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 due to changing conditions; 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. The scope of an actuarial valuation does not include an analysis of the potential range of such future measurements.

Examples of risk that may reasonably be anticipated to significantly affect the plan's future financial condition include:

1. **Investment risk** – actual investment returns may differ from the expected returns;
2. **Asset/Liability mismatch** – changes in asset values may not match changes in liabilities, thereby altering the gap between the accrued liability and assets and consequently altering the funded status and contribution requirements;
3. **Contribution risk** – actual contributions may differ from expected future contributions. For example, actual contributions may not be made in accordance with the plan's funding policy or material changes may occur in the anticipated number of covered employees, covered payroll, or other relevant contribution base;
4. **Salary and Payroll risk** – actual salaries and total payroll may differ from expected, resulting in actual future accrued liability and contributions differing from expected;
5. **Longevity risk** – members may live longer or shorter than expected and receive pensions for a period of time other than assumed; and
6. **Other demographic risks** – members may terminate, retire or become disabled at times or with benefits other than assumed resulting in actual future accrued liability and contributions differing from expected.

The effects of certain trends in experience can generally be anticipated. For example, if the investment return since the most recent actuarial valuation is less (or more) than the assumed rate, the cost of the plan can be expected to increase (or decrease). Likewise, if longevity is improving (or worsening), increases (or decreases) in cost can be anticipated.

The computed contribution amount in this report may be considered as a minimum contribution rate that complies with the Board's funding policy. The timely receipt of the actuarially determined contributions is critical to support the financial health of the plan. Users of this report should be aware that contributions made at the actuarially determined amounts do not necessarily guarantee benefit security.

Risk Commentary (Concluded)

Plan Maturity Measures

Risks facing a pension plan evolve over time. A young plan with virtually no investments and paying few benefits may experience little investment risk. An older plan with a large number of members in pay status and a significant trust may be much more exposed to investment risk. Generally accepted plan maturity measures include the following:

	<u>2019</u>	<u>2018</u>
Ratio of the market value of assets to payroll	16.52	15.36
Ratio of actuarial accrued liability to payroll	18.07	16.82
Ratio of actives to retirees and beneficiaries	0.33	0.37
Ratio of net cash flow to market value of assets	-4.0%	-3.2%

Ratio of Market Value of Assets to Payroll

The relationship between assets and payroll is a useful indicator of the potential volatility of contributions. For example, if the market value of assets is 10.0 times the payroll, a return on assets 5% different than assumed would equal 50% of payroll. A higher (lower) or increasing (decreasing) level of this maturity measure generally indicates a higher (lower) or increasing (decreasing) volatility in plan sponsor contributions as a percentage of payroll.

Ratio of Actuarial Accrued Liability to Payroll

The relationship between actuarial accrued liability and payroll is a useful indicator of the potential volatility of contributions for a fully funded plan. A funding policy that targets a funded ratio of 100% is expected to result in the ratio of assets to payroll and the ratio of liability to payroll converging over time. The ratio of liability to payroll may also be used as a measure of sensitivity of the liability itself. For example, if the actuarial accrued liability is 2.5 times the payroll, a change in liability 2% other than assumed would equal 5% of payroll. A higher (lower) or increasing (decreasing) level of this maturity measure generally indicates a higher (lower) or increasing (decreasing) volatility in liability (and also plan sponsor contributions) as a percentage of payroll.

Ratio of Actives to Retirees and Beneficiaries

A young plan with many active members and few retirees will have a high ratio of active to retirees. A mature open plan may have close to the same number of actives to retirees resulting in a ratio near 1.0. A super-mature or closed plan may have significantly more retirees than actives resulting in a ratio below 1.0.

Ratio of Net Cash Flow to Market Value of Assets

A positive net cash flow means contributions exceed benefits and expenses. A negative cash flow means existing funds are being used to make payments. A certain amount of negative net cash flow is generally expected to occur when benefits are prefunded through a qualified trust. Large negative net cash flows as a percent of assets may indicate a super-mature plan or a need for additional contributions.

Additional Risk Assessment

Additional risk assessment is outside the scope of the annual actuarial valuation. Additional assessment may include scenario tests, sensitivity tests, stochastic modeling, stress tests, and a comparison of the present value of accrued benefits at low-risk discount rates with the actuarial accrued liability.



December 3, 2019

Ms. Kate Balfourt
Finance Director
City of Wyoming
1155 28th Street, S.W. – City Hall
Wyoming, Michigan 49509

Dear Kate:

Enclosed are 15 copies of the June 30, 2019 Annual Actuarial Valuation of the City of Wyoming Employees Retirement System.

Respectfully submitted,

A handwritten signature in black ink that reads "James D. Anderson". The signature is written in a cursive style with a large, looping initial "J".

James D. Anderson, FSA, EA, FCA, MAAA

JDA:sc
Enclosures

cc: Mr. Peter Woldman (1 report copy)
Rehmann Robson