



Macomb County Employees Retirement System

Actuarial Valuation Report

Plan Year January 1, 2020 – December 31, 2020

July 2021



July 2021

The Retirement Commission
Macomb County Employees Retirement System
Mount Clemens, Michigan

Ladies and Gentlemen:

Macomb County retained Buck to complete this actuarial valuation of the Macomb County Employees Retirement System. This report summarizes the actuarial valuation results of Macomb County Employees Retirement System as of December 31, 2020.

Purpose of This Report

Buck has prepared this report for Macomb County for use in review of the operation of the plan, including determining contributions to be made to the plan, and as a source of information for the financial statements of the plan. An actuarial valuation is performed on the retirement plan annually as of the beginning of the fiscal year. The main purposes of the actuarial valuation detailed in this report are:

1. To determine if the funding policy for the Retirement Plan is being met considering current assets and the current employer and member contribution rates; or determine the employer contribution necessary to meet the Commission's funding policy for the Plan;
2. To disclose the funding assets and liability measures as of the valuation date;
3. To review the current funded status of the Plan;
4. To compare actual and expected experience under the Plan during the last fiscal year;
5. And to report trends in contributions, assets, liabilities, and funded status over the last several years.

This actuarial valuation provides a "snapshot" of the funded position of the Retirement Plan based on the plan provisions, membership, assets, and actuarial assumptions as of the valuation date.

Use of this report for any other purpose may not be appropriate and may result in mistaken conclusions due to failure to understand applicable assumptions, methodologies, or inapplicability of the report for that purpose. Because of the risk of misinterpretation of actuarial results, Buck recommends requesting its advance review of any statement, document, or filing to be based on information contained in this report. Buck will accept no liability for any such statement, document or filing made without its prior review.

Future actuarial measurements may differ significantly from current measurements due to plan experience differing from that anticipated by the economic and demographic assumptions, increases or decreases expected as part of the natural operation of the methodology used for these measurements, and changes in plan provisions or applicable law. Because of limited scope, Buck performed no analysis of the potential range of such future differences.

Data Used

The actuarial valuation is based on unaudited financial and member data provided by the staff of the Retirement System and summarized in this report. The benefits considered are those delineated in the plan as amended and restated effective December 31, 2015. The actuary did not verify the data submitted but did perform tests for consistency and reasonableness. Buck was aware of the December 2020 \$1,000 lump sum payout offered to all full time employees, the September 2020 \$1,000 lump sum payout offered to all Sheriff employees, and the Covid Gratuity payout offered to Macomb employees. These three different payouts have been excluded in the calculation of projected valuation pay beyond December 31, 2020.

Use of Models

Actuarial Standard of Practice No. 56 (“ASOP 56”) provides guidance to actuaries when performing actuarial services with respect to designing, developing, selecting, modifying, using, reviewing, or evaluating models. Buck uses the following:

- third-party software in the performance of annual actuarial valuations and projections to calculate the liabilities associated with the provisions of the plan using data and assumptions as of the measurement date under the funding methods specified in this report.
- an internally developed model that applies applicable funding methods and policies to the liabilities derived from the output of the third-party software and other inputs, such as plan assets and contributions, to generate many of the exhibits found in this report

Buck has an extensive review process whereby the results of the liability calculations are checked using detailed sample output, changes from year to year are summarized by source, and significant deviations from expectations are investigated. Other outputs and the internal model are similarly reviewed in detail and at a high level for accuracy, reasonability and consistency with prior results. Buck also reviews the third-party model when significant changes are made to the software or model. The review is performed by experts within the company who are familiar with applicable funding methods as well as the manner in which the model generates its output. If significant changes are made to the internal model, extra checking and review are completed. Significant changes to the internal model that are applicable to multiple clients are generally developed, checked and reviewed by multiple experts within the company who are familiar with the details of the required changes.

Assessment of Risks

Actuarial Standard of Practice No. 51 (“ASOP 51”) applies to funding calculations such as those presented in this report and requires certain disclosures of potential risks. Section 6 of this report presents an assessment of the key risks applicable to this plan, as well as historical information and plan maturity measures.

Assumptions and Methods

All costs, liabilities and other factors under the Plan were determined in accordance with actuarial principles and procedures adopted in accordance with the Actuarial Standards of Practice (ASOPs). An actuarial cost method is used to measure the actuarial liabilities which we believe is reasonable. Buck is solely responsible for the actuarial data and actuarial results presented in this report. This report fully and fairly discloses the actuarial position of the Plan.

In our opinion, the actuarial assumptions used are reasonable, taking into account the experience of the Plan and reasonable long-term expectations, and represent our best estimate of the anticipated long-term experience under the Plan. The actuary performs an analysis of Plan experience periodically and recommends changes if, in the opinion of the actuary, assumption changes are needed to more accurately reflect expected future experience.

Where presented, references to “funded ratio” and “unfunded accrued liability” typically are measured on an actuarial value of assets basis. It should be noted that the same measurements using market value of assets would result in different funded ratios and unfunded accrued liabilities. Moreover, the funded ratio presented is appropriate for evaluating the need and level of future contributions but makes no assessment regarding the funded status of the plan if the plan were to settle (i.e. purchase annuities) for a portion or all of its liabilities.

Actuarial Certification

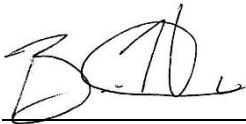
The undersigned are members of the American Academy of Actuaries and meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinions contained in this report. This report has been prepared in accordance with all Applicable Actuarial Standards of Practice and they are available to answer any questions on the material contained in the report, or to provide explanations or further details as may be appropriate.

Respectfully submitted,

Buck Global, LLC (Buck)



Kevin Spanier, ASA, EA, MAAA, FCA
Director, Retirement Consulting



Brett Hunter, ASA, EA, MAAA
Senior Consultant, Retirement Consulting

Table of Contents

Summary of Results	1
Comparative Summary of Key Actuarial Valuation Results	5
Section 1: Actuarial Funding Results	
Section 1.1 - Actuarial Liabilities and Normal Cost	6
Section 1.2 - Actuarial Contributions	7
Section 1.3 - Actuarial (Gain) / Loss	8
Section 1.4 – Actuarial Balance Sheet	9
Section 1.5 - History of UAAL and Funded Ratio	10
Section 1.6 - Solvency Test	11
Section 2: Plan Assets	
Section 2.1 - Summary of Fair Value of Assets	12
Section 2.2 - Changes in Fair Value of Assets	13
Section 2.3 - Actuarial Value of Assets	14
Section 2.4 - Historical Asset Rate of Return	16
Section 2.5 - Forecast of Expected Benefit Payments	17
Section 2.6 - Retiree Reserve Balances	18
Section 3: Member Data	
Section 3.1 - Summary of Members Included	19
Section 3.2 - Age and Service Distribution of Active Members as of December 31, 2020	20
Section 3.3 - Member Data Reconciliation	25
Section 3.4 - Schedule of Active Member Data	30
Section 3.5 - Schedule of Inactive Member Data	30
Section 3.6 - Schedule of Retired Members by Type of Benefit and Option Elected	31
Section 3.6a - Schedule of DROP Participants by Option Elected	32
Section 3.7 - Schedule of Benefit Payments	33
Section 4: Actuarial Assumptions and Methods and Additional Information for Funding	35
Section 5: Summary of Plan Provisions	40
Section 6: ASOP 51 Disclosures	45
Glossary	49

Summary of Results

Overview

The Macomb County Employees Retirement System provides pension and ancillary benefit payments to the terminated and retired employees of Macomb County, Michigan. A Retirement Commission comprised of employer, employee, and appointed representatives is responsible for administering the Plan and making investment decisions. This report presents the results of the actuarial valuation of the Employees Retirement System as of December 31, 2020.

Membership

Actives

As of December 31, 2020, there were 1,440 employees in active service covered under the provisions of the Plan not participating in DROP. The significant age, service, and salary information for these employees is summarized below, along with comparative figures from the last actuarial valuation one year earlier.

	December 31, 2020	December 31, 2019
Active participants		
Number	1,440	1,578
Average age	47.7 years	47.2 years
Average service	13.0 years	12.3 years
Total annual valuation salary	\$ 93,922,408	\$ 101,650,261
Average annual salary	\$ 65,224	\$ 64,417

The number of active members decreased by 8.7% from the previous valuation date as the plan is closed to the entrance of new members. The average age of the active members increased by 0.5 years and the average service increased 0.7 years. The total annual valuation salary decreased by 7.6% and the average salary increased by 1.3% from the previous valuation. There were 1,439 active members who were also reported active in the December 31, 2019 actuarial valuation. The total salary for this group increased by 10.17% which was higher than the 4.18% increase we expected for the group.

Distributions of active members by age, service, and salary are given in Section 3.2. The salaries shown for active members are the actual annualized salaries reported.

A schedule of active member data and reconciliation of the active membership from the previous year is shown in Sections 3.3 and 3.4.

In addition, there are 1,522 active employees (not included above) hired after December 31, 2015 earning vesting service to receive a \$1,000 lump sum benefit upon termination of employment.

Inactives

In addition to the active members, there were 555 inactive members who did not elect to receive their accumulated contributions when they left covered employment. The significant age and annual benefit information for these inactive members are summarized below with comparative figures from the last actuarial valuation one year earlier.

	December 31, 2020	December 31, 2019
Terminated vested participants		
Number	285	286
Average age	51.0 years	50.6 years
Average annual benefit payments	\$ 13,566	\$ 13,495

The number of inactive vested members decreased by 0.3% from the previous valuation. The average age of the inactive vested members increased by 0.4 years. The Average Annual Pension Benefit for these members increased by 0.5% from the previous valuation.

	December 31, 2020	December 31, 2019
Non-vested participants owed refund		
Number	270	280
Average payoff amount	\$ 2,423	\$ 2,542

The number of inactive non-vested members decreased by 3.6% from the previous valuation. The Average Refund Due for these members decreased by 4.7% from the previous valuation.

Distributions of inactive members by age and pension benefit are given in Section 3.6.

Retirees and Beneficiaries

In addition to the active and inactive members, there were 2,407 retired members and 376 beneficiaries who are receiving monthly benefit payments on the valuation date. The significant age and annual benefit information for these members are summarized below with comparative figures from the last actuarial valuation performed one year earlier.

	December 31, 2020	December 31, 2019
Retired participants		
Number	2,407	2,348
Average Age	69.9 years	69.6 years
Average annual retirement benefits	\$ 22,322	\$ 21,959

	December 31, 2020	December 31, 2019
Survivors and beneficiaries of participants		
Number	376	370
Average Age	72.4 years	72.3 years
Average annual retirement benefits	\$ 15,712	\$ 15,201

The number of retired members and beneficiaries increased by 2.4% from the previous valuation date. The average age of the retired members and beneficiaries increased by 0.3 years. The average annual benefit payments for these members increased by 1.9% from the previous valuation date.

Distributions of retired members by age and form of payment are given in Section 3.6 and 3.7.

DROP Participants

In addition to the actives, inactives, and retirees, there were 281 DROP members who are receiving monthly benefit payments on the valuation date. The significant age and annual benefit information for these members are summarized below.

	December 31, 2020	December 31, 2019
DROP participants		
Number	281	304
Average Age	58.1 years	58.2 years
Average annual retirement benefits	\$ 30,749	\$ 30,328
Average pay	\$ 59,119	\$ 62,575

In our opinion, the membership data collected and prepared for use in this actuarial valuation meets the data quality standards required under Actuarial Standards of Practice No. 23.

Plan Assets

The Plan's assets are held in trust and invested for the exclusive benefit of plan members. The trust is funded by member and employer contributions and pays benefits directly to eligible members in accordance with plan provisions. The assets are audited annually and are reported at fair value. On a fair value basis, the Plan has Net Assets Available for Benefits of \$1,153.6 million as of December 31, 2020. This includes an increase of \$71.6 million over the Net Assets Available for Benefits of \$1,082.0 million as of December 31, 2019. During the prior year, the fair value of assets experienced an investment rate of return of 11.95%.

In order to reduce the volatility investment gains and losses can have on the Plan's actuarially required contribution and funded status, the Commission has adopted a five-year smoothing method to determine the actuarial value of assets used for funding purposes. This method recognizes gains and losses, i.e. the difference between actual investment return during the year and the expected return based on the valuation interest rate, on a level basis over a five-year period. In our opinion, this method complies with Actuarial Standards of Practice No. 44.

As of December 31, 2020, the assets available for benefits on an actuarial value basis was \$1,068.6 million. This includes an increase of \$46.0 million over the actuarial value of assets of \$1,022.6 million as of December 31, 2019. During the prior year, the actuarial value of assets experienced an actuarial rate of return of 10.10%.

A summary of the assets held for investment, a summary of changes in assets, and the development of the actuarial value of assets is shown in Section 2.

Actuarial Experience

Differences between the expected experience based on the actuarial assumptions and the actual experience create changes in the actuarial accrued liability, actuarial value of assets, and the unfunded actuarial accrued liability from one year to the next. These changes create an actuarial gain if the experience is favorable and an actuarial loss if the experience is unfavorable. The Plan experienced a total net actuarial gain of \$33.8 million during the prior year. This total net gain is about 3.2% of the plan's prior year actuarial accrued liability.

The demographic experience tracks actual changes in the plan's population compared to the assumptions for decrements such as mortality, turnover, and retirement, as well as pay increases. The Plan experienced a demographic gain of \$3.6 million during the year ending December 31, 2020. This gain decreased the unfunded actuarial accrued liability by \$3.6 million and increased the funded ratio by 0.3%.

Continued tracking of the demographic experience is warranted in order to confirm the appropriateness of the actuarial assumptions. Details of the demographic, economic, and other assumptions used to value the plan liabilities and normal cost can be found in Section 6. In our opinion, the economic assumptions comply with Actuarial Standards of Practice No. 27 and the demographic assumptions comply with Actuarial Standards of Practice No. 35.

On the asset side, the Plan experienced a gain on an actuarial value of assets basis. The actual rate of return on the actuarial value of plan assets for the year ending December 31, 2020 was 10.10% compared to the assumption of 7.00%, resulting in an asset gain of \$30.2 million. This gain decreased the unfunded actuarial accrued liability by \$30.2 million and increased the funded ratio by 2.8%.

The rate of return on the fair value of assets for the year ending December 31, 2020 was consistent with the statement above. It was 11.95%, which was higher than the assumed rate of 7.00%. The actuarial value of the assets recognizes only 1/5 of the 2020 gain on fair value, delaying the recognition of the remaining 4/5 over the next four years. Moreover, the actuarial value of assets also recognizes deferred portions of prior years' gains and losses on fair value. It should be noted that the plan's assumed asset return of 7.00% is a long-term rate and short-term performance is not necessarily indicative of expected long-term future returns.

A summary of the actuarial gains and losses experienced during the prior year is shown in Section 1.3.

Actuarial Contributions

Effective with the December 31, 2013 annual valuation, the Retirement Commission established a closed 20-year amortization policy assuming 5.00% payment increases. For this valuation, the remaining period is 13 years.

The normal cost represents the cost of the benefits that accrue during the year for active members under the Entry Age Normal Actuarial Cost Method. It is determined as a level percentage of pay which, if paid from entry age to the assumed retirement age, assuming all the actuarial assumptions are exactly met by plan experience would accumulate to a fund sufficient to pay all benefits provided by the Plan. The expected member contributions are subtracted from this amount to determine the employer normal cost. The employer normal cost for 2021 has been determined to be \$9.3 million or 9.90% of pay.

The cost method also determines the actuarial accrued liability which represents the value of all accumulated past normal cost payments. This amount is compared to the actuarial value of assets to determine if the Plan is ahead or behind in funding as of the valuation date. The difference between the total actuarial accrued liability and the actuarial value of assets equals the amount of unfunded actuarial accrued liability or surplus (if negative) on the valuation date. This amount is amortized and added to the employer normal cost to determine the annual actuarially required employer contribution for the year.

The unfunded actuarial accrued liability as of December 31, 2020 is (\$4.1) million. This represents a decrease of \$36.2 million in the unfunded actuarial accrued liability from last year's amount of \$32.1 million.

The annual actuarially required employer contribution for 2022 is \$9.9 million, or 10.59% of pay. This represents a decrease of \$3.8 million in the employer contribution amount of \$13.7 million for 2021, or a decrease of 3.02% of pay from last year's employer contribution rate of 13.61%.

The actuarial liabilities and development of the annual actuarial employer contribution is shown in Sections 1.1 and 1.2.

In our opinion, the measurement of the benefit obligations and determination of the actuarial cost of the Plan is performed in compliance with Actuarial Standards of Practice No. 4.

Funded Status

The funded status is a measure of the progress that has been made in funding the plan as of the valuation date. It is determined as a ratio of the actuarial value of assets divided by the total actuarial accrued liability on the valuation date. A ratio of over 100% represents a plan that is ahead in funding, and a ratio of less than 100% represents a plan that is behind in funding on the valuation date.

As of December 31, 2020, the funded ratio of the Plan is 100.4%. This represents an increase of 3.4% from last year's funded ratio of 97.0% as of December 31, 2019.

A history of the unfunded actuarial accrued liability and the funded ratio is shown in Section 1.5.

Changes in Plan Provisions

There have been no changes in benefits or other plan provisions considered in this actuarial valuation since the last valuation performed as of December 31, 2019.

Changes in Actuarial Assumptions, Methods, or Procedures

The actuarial assumptions and methods for funding purposes are the same as those used for the December 31, 2019 valuation report.

Comparative Summary of Key Actuarial Valuation Results

Actuarial Valuation as of

December 31, 2020

December 31, 2019

Summary of Member Data

Number of Members Included in the Valuation

Active Members	1,440	1,578
Terminated Vested Members	285	286
Non-vested Members Owed Refund	270	280
Retirees and Beneficiaries	2,783	2,718
DROP Participants	<u>281</u>	<u>304</u>
Total	5,059	5,166

Annual Payroll

Average (actual)	65,224	64,417
------------------	--------	--------

Annual Benefit Payments

Terminated Vested Members (Average)	13,566	13,495
Non-vested Member Refund (Average)	2,423	2,542
Retirees and beneficiaries (Average)	21,432	21,036
DROP Participants (Average)	30,749	30,328

Summary of Assets

Fair Value	1,153,630,925	1,082,041,799
Rate of Return	11.95%	21.22%
Actuarial Value	1,068,574,127	1,022,559,084
Rate of Return	10.10%	7.35%

Summary of Liabilities

Total Actuarial Accrued Liability	1,064,429,280	1,054,636,606
Actuarial Value of Assets	1,068,574,127	1,022,559,084
Unfunded Actuarial Accrued Liability	(4,144,847)	32,077,522
Funded Ratio	100.39%	96.96%
Maturity Ratio (See section 1.2)	61.22%	59.61%

Section 1: Actuarial Funding Results

Section 1.1 - Actuarial Liabilities and Normal Cost

Actuarial Liabilities Based on December 31, 2020 Valuation	General County	Sheriff's Department	Road Commission	Martha T. Berry	Totals
1. Present Value of Projected Benefits					
Active Members					
Retirement Benefits	139,721,005	126,000,600	40,964,444	6,115,508	312,801,557
Withdrawal Benefits	17,448,154	4,053,335	757,054	1,734,467	23,993,010
Disability Benefits	11,206,398	4,318,289	1,476,595	690,704	17,691,986
Death Benefits	3,151,443	1,646,395	543,028	164,190	5,505,056
Return on Contributions	<u>1,538,475</u>	<u>325,947</u>	<u>152,250</u>	<u>149,040</u>	<u>2,165,712</u>
Total	173,065,475	136,344,566	43,893,371	8,853,909	362,157,321
2. Vested Inactive Members with Deferred Benefits	18,132,532	3,110,325	1,906,609	1,070,342	24,219,808
3. Non-Vested Inactive Members with Deferred Benefits	389,244	71,711	0	55,663	516,618
4. Retired Members and Beneficiaries Receiving Benefits	360,738,375	159,464,780	81,788,329	24,900,695	626,892,179
5. DROP Participants Receiving Benefits	79,173,407	31,003,998	25,864,282	2,049,583	138,091,270
6. Total Present Value of Projected Benefits (1 + 2 + 3 + 4 + 5)	631,499,033	329,995,380	153,452,591	36,930,192	1,151,877,196
7. Present Value of Future Normal Costs	<u>41,483,395</u>	<u>35,917,199</u>	<u>7,722,331</u>	<u>2,324,991</u>	<u>87,447,916</u>
8. Total Actuarial Accrued Liability (6 – 7)	590,015,638	294,078,181	145,730,260	34,605,201	1,064,429,280
Normal Cost for Fiscal Year Ending December 31, 2020					
1. Total Normal Cost	6,183,744	4,571,767	1,259,186	345,274	12,359,971
2. Expected Member Contribution	<u>(1,512,395)</u>	<u>(1,191,514)</u>	<u>(305,261)</u>	<u>(100,458)</u>	<u>(3,109,628)</u>
3. Employer Normal Cost	4,671,349	3,380,253	953,925	244,816	9,250,343

Section 1.2 – Actuarial Contributions

	General County	Sheriff's Department	Road Commission	Martha T. Berry	Totals
1. Total Actuarial Accrued Liability					
a. Active Members					
i. Retirement Benefits	110,200,923	94,858,897	34,326,588	4,626,529	244,012,937
ii. Withdrawal Benefits	11,520,505	2,040,142	457,192	1,278,908	15,296,747
iii. Death Benefits	2,168,320	991,523	373,765	116,801	3,650,409
iv. Disability Benefits	7,187,278	2,487,412	968,647	462,855	11,106,192
v. Return on Employee Contributions	505,054	49,393	44,848	43,825	643,120
vi. Total	131,582,080	100,427,367	36,171,040	6,528,918	274,709,405
b. Vested Inactive Members with Deferred Benefits	18,132,532	3,110,325	1,906,609	1,070,342	24,219,808
c. Non-Vested Inactive Members with Deferred Benefits	389,244	71,711	0	55,663	516,618
d. Retired Members and Beneficiaries Receiving Benefits	360,738,375	159,464,780	81,788,329	24,900,695	626,892,179
e. DROP Participants Receiving Benefits	79,173,407	31,003,998	25,864,282	2,049,583	138,091,270
f. Total (1.a.vi. + 1.b. + 1.c. + 1.d. + 1.e.)	590,015,638	294,078,181	145,730,260	34,605,201	1,064,429,280
2. Actuarial Value of Assets	604,422,737	290,258,834	132,080,617	41,811,939	1,068,574,127
3. Unfunded Actuarial Accrued Liability (UAAL) (1.f. -2.)	(14,407,099)	3,819,347	13,649,643	(7,206,738)	(4,144,847)
4. Funded Ratio (2. / 1.f.)	102.44%	98.70%	90.63%	120.83%	100.39%
5. Maturity Ratio [(1.b. + 1.c. + 1.d.) / 1.f.]	64.28%	55.31%	57.43%	75.21%	61.22%
6. Employer Contribution for Fiscal 2022					
Total Normal Cost	6,183,744	4,571,767	1,259,186	345,274	12,359,971
Member Contribution	(1,512,395)	(1,191,514)	(305,261)	(100,458)	(3,109,628)
Administrative Expense	390,553	184,109	84,789	27,211	686,662
UAAL Contribution	(1,237,993)	328,194	1,172,906	(619,271)	(356,164)
Timing Adjustment	120,167	129,796	74,439	(13,106)	311,296
Total Employer Contribution Dollar (Not less than 0)	3,944,076	4,022,352	2,286,059	0	10,252,487 ¹
Projected Member Pay	53,984,223	26,006,178	9,548,599	3,899,972	93,438,972
Total Employer Contribution (% of Pay)	7.31%	15.47%	23.94%	0.00%	10.97%
7. Discount Rate	7.00%	7.00%	7.00%	7.00%	
8. Amortization payments increase assumption	5.00%	5.00%	5.00%	5.00%	
9. Amortization period for 2022 contribution ²	13	13	13	13	

¹ Total employer contribution is a sum of the individual employer amounts and does not add up to the items above because one group is capped at \$0 rather than negative

² Closed 20-year period beginning with December 31, 2013 Valuation

Section 1.3 - Actuarial (Gain) / Loss (\$'s in 000's)

	General County	Sheriff's Department	Road Commission	Martha T. Berry	Totals¹
1. Expected Actuarial Accrued Liability					
a. Actuarial Accrued Liability at December 31, 2019	587,695	290,300	141,630	35,011	1,054,636
b. Normal Cost at December 31, 2019	6,846	4,825	1,244	379	13,294
c. Interest on a. + b. to End of Year	41,618	20,659	10,001	2,477	74,755
d. Benefit Payments and Refund of Contributions with Interest to End of Year	43,771	17,852	10,186	2,844	74,653
e. Effect of Assumption and Plan Changes	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
f. Expected Actuarial Accrued Liability (a. + b. + c. – d. + e.)	592,388	297,932	142,689	35,023	1,068,032
2. Actuarial Accrued Liability at December 31, 2020	<u>590,016</u>	<u>294,078</u>	<u>145,730</u>	<u>34,605</u>	<u>1,064,429</u>
3. Liability (Gain) / Loss (2. – 1.f.)	(2,372)	(3,854)	3,041	(418)	(3,603)
4. Expected Actuarial Value of Assets					
a. Actuarial Value of Assets at December 31, 2020	581,602	274,171	126,266	40,521	1,022,559
b. Interest on a. to End of Year	40,712	19,192	8,839	2,836	71,579
c. Contribution Made	8,479	6,383	3,320	107	18,289
d. Interest on c. to End of Year	297	223	116	4	640
e. Benefit Payments and Refund of Contributions with Interest to End of Year	<u>43,771</u>	<u>17,852</u>	<u>10,186</u>	<u>2,844</u>	<u>74,653</u>
f. Expected Actuarial Value of Assets at December 31, 2020 (a. + b. + c. + d. – e.)	587,319	282,117	128,355	40,624	1,038,414
5. Actuarial Value of Assets as of December 31, 2020	<u>604,423</u>	<u>290,259</u>	<u>132,081</u>	<u>41,812</u>	<u>1,068,575</u>
6. Actuarial Asset (Gain) / Loss (4.f. -5.)	(17,104)	(8,142)	(3,726)	(1,188)	(30,161)
7. Actuarial (Gain) / Loss (3. + 6.)	(19,476)	(11,996)	(685)	(1,606)	(33,764)

¹ Numbers may not add due to rounding.

Section 1.4 - Actuarial Balance Sheet

Financial Resources	December 31, 2020
1. Actuarial Value of Assets	1,068,574,127
2. Present Value of Future Contributions	
a. Expected Member Contributions	21,156,398
b. Employer Normal Cost	66,291,518
c. State Appropriations	<u>0</u>
d. Total	87,447,916
3. Unfunded Actuarial Accrued Liability/(Reserve)	(4,144,847)
4. Total Assets [1. + 2.(d) + 3.]	1,151,877,196

Benefit Obligations	December 31, 2020
1. Present Value of Future Benefits	
a. Active members	362,157,321
b. Inactive members	24,736,426
c. Retirees, disabilities and beneficiaries	626,892,179
d. DROP members	<u>138,091,270</u>
e. Total	1,151,877,196

Section 1.5 - History of UAAL and Funded Ratio (\$'s in 000's)

Valuation Date	Actuarial Value of Assets (AVA) (a)	Actuarial Accrued Liability (AAL) (b)	Unfunded Actuarial Accrued Liability (UAAL) (b-a)	Funded Ratio (AVA as a % of AAL) (a/b)	Covered Payroll (c)	UAAL as a Percentage of Covered Payroll (b-a)/(c)
December 31, 2009	866,357	814,564	(51,793)	106.4%	116,523	(44.4)%
December 31, 2010	862,916	837,168	(25,748)	103.1%	110,795	(23.2)%
December 31, 2011	828,692	854,324	25,632	97.0%	108,900	23.5%
December 31, 2012	795,606	867,219	71,613	91.7%	105,392	67.9%
December 31, 2013	837,653	884,042	46,389	94.8%	102,253	45.4%
December 31, 2014	882,565	911,096	28,531	96.9%	110,159	25.9%
December 31, 2015	902,931	977,566	74,636	92.4%	110,558	67.5%
December 31, 2016	940,494	1,019,138	78,644	92.3%	122,480	64.2%
December 31, 2017	990,803	1,013,110	22,307	97.8%	112,878	19.8%
December 31, 2018	999,604	1,034,282	34,678	96.6%	107,524	32.3%
December 31, 2019	1,022,559	1,054,637	32,078	97.0%	101,650	31.6%
December 31, 2020	1,068,574	1,064,429	(4,145)	100.4%	93,922	(4.4)%

Section 1.6 - Solvency Test (\$'s in 000's)

Valuation Date	Aggregate Accrued Liability For			Valuation Assets	Portion of Accrued Liabilities Covered by Assets		
	(1) Active Member Contributions	(2) Inactive Members	(3) Active Members (Employer- Financed Portion)		(1)	(2)	(3)
December 31, 2014	46,460	640,125	224,511	882,565	100.00%	100.00%	87.29%
December 31, 2015	41,678	709,409	226,479	902,931	100.00%	100.00%	67.05%
December 31, 2016	42,682	723,523	252,933	940,494	100.00%	100.00%	68.91%
December 31, 2017	42,985	737,059	233,066	990,803	100.00%	100.00%	90.43%
December 31, 2018	45,787	755,475	233,020	999,604	100.00%	100.00%	85.12%
December 31, 2019	48,311	776,756	229,570	1,022,559	100.00%	100.00%	86.03%
December 31, 2020	50,944	789,720	223,765	1,068,574	100.00%	100.00%	100.00%

Section 2: Plan Assets

Section 2.1 - Summary of Fair Value of Assets

Asset Category	Fair Value as of December 31, 2020		Fair Value as of December 31, 2019	
	Amount	%	Amount	%
1. Cash and Short-Term Investments				
a. Cash and cash equivalents	60,766,620	5.24%	65,068,650	5.98%
b. Other short-term	<u>16,934</u>	<u>0.00%</u>	<u>3,403</u>	<u>0.00%</u>
c. Total	60,783,554	5.24%	65,072,053	5.98%
2. Investments at Fair Value				
a. U.S. Treasury and agencies	0	0.00%	0	0.00%
b. Fixed Income	110,096,370	9.49%	66,529,144	6.11%
c. Domestic Stocks and Equity	626,721,116	54.00%	642,608,631	59.05%
d. International Equity	85,233,317	7.34%	84,556,480	7.77%
e. Limited Partnership	<u>277,654,404</u>	<u>23.93%</u>	<u>229,544,368</u>	<u>21.09%</u>
f. Total	1,099,705,207	94.76%	1,023,238,623	94.02%
3. Other Assets	0	0.00%	0	0.00%
4. Total Assets (1.c. + 2.f. + 3.)	1,160,488,761	100.00%	1,088,310,676	100.00%
5. Receivables				
a. Interest and Dividends	401,920		465,027	
b. Investments Sold	0		0	
c. Other Receivables	<u>111,841</u>		<u>493,339</u>	
d. Total	513,761		958,366	
6. Payables				
a. Payable for Investments Purchased	0		0	
b. Securities Lending Obligation in Excess of Collateral	0		0	
c. Accounts Payable and Accrued Liabilities	<u>7,371,597</u>		<u>7,227,243</u>	
d. Total	7,371,597		7,227,243	
7. Net Assets for Pension [4. + 5.d. – 6.d.]	1,153,630,925		1,082,041,799	

Section 2.2 - Changes in Fair Value of Assets

Transactions

December 31, 2020

December 31, 2019

Additions

1. Contributions		
a. Contributions from Employers	15,146,875	17,144,386
b. Contributions from Plan Members	<u>3,142,287</u>	<u>3,201,757</u>
c. Total	18,289,162	20,346,143
2. Net Investment Income		
a. Interest and Dividends	8,441,313	8,854,062
b. Net Appreciation(Depreciation)	125,176,117	192,134,982
c. Rental Income	0	0
d. Net Securities Lending Income	0	0
e. Securities Lending Unrealized Gain/(Loss)	0	0
f. Miscellaneous	<u>0</u>	<u>0</u>
g. Total	133,617,430	200,989,044
h. Investment Expense	<u>(7,523,013)</u>	<u>(7,296,158)</u>
i. Net Investment Income	126,094,417	193,692,886
3. Total Additions	144,383,579	214,039,029

Deductions

4. Benefit Payments and Refunds		
a. Retirement Benefits	71,802,977	67,917,452
b. Refund of Contributions	324,814	452,815
c. Death	0	0
d. Supplemental Payment	0	0
e. Administrative Expenses	<u>666,662</u>	<u>714,895</u>
f. Total Deductions	72,794,453	69,085,162
5. Net Increase	71,589,126	144,953,867
6. Net Assets Held in Trust for Pension Benefits		
a. Beginning of Year	1,082,041,799	937,087,932
b. End of Year	1,153,630,925	1,082,041,799

Section 2.3 - Actuarial Value of Assets (cont'd)

Allocation of Retirement Systems Assets

	General County	Sheriff's Department	Road Commission	Martha T. Berry	Total
1. Valuation assets at start of year	581,601,646	274,170,992	126,265,658	40,520,788	1,022,559,084
2. Employee contributions	1,614,460	1,099,968	320,483	107,376	3,142,287
3. Employer contributions	6,864,285	5,282,590	3,000,000	0	15,146,875
4. Benefits paid	42,070,118	17,195,492	9,841,856	2,695,511	71,802,977
5. Refund of contributions	220,301	52,500	0	52,013	324,814
6. Administrative expense allocated on BOY asset value	<u>379,178</u>	<u>178,747</u>	<u>82,319</u>	<u>26,418</u>	<u>666,662</u>
7. Average valuation assets [1. + 0.5 * {2. + 3. - 4. - 5. - 6.}]	564,506,220	268,648,902	122,963,812	39,187,505	995,306,439
8. Investment income allocated on average valuation assets	57,011,943	27,132,023	12,418,651	3,957,717	100,520,334
9. Transfer in	0	0	0	0	0
Transfer out	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
Net transfer of assets	0	0	0	0	0
10. Valuation assets at end of year [1. + 2. +3. - 4. - 5. - 6. + 8. + 9.]	604,422,737	290,258,834	132,080,617	41,811,939	1,068,574,127
11. Total Revenues [2. +3. + 8.]	65,490,688	33,514,581	15,739,134	4,065,093	118,809,496
Percentage of revenue attributable to:					
Employee contributions	2.5%	3.3%	2.0%	2.6%	2.6%
Employer contributions	10.5%	15.8%	19.1%	0.0%	12.7%
Investment income	87.0%	80.9%	78.9%	97.4%	84.7%
12. Total Expenditures [4. + 5. + 6.]	42,669,597	17,426,739	9,924,175	2,773,942	72,794,453
Percentage of expenditures attributable to:					
Benefits paid	98.6%	98.7%	99.2%	97.1%	98.7%
Refund of contributions	0.5%	0.3%	0.0%	1.9%	0.4%
Administrative expenses	0.9%	1.0%	0.8%	1.0%	0.9%

Section 2.4 - Historical Asset Rate of Return

Year Ending December 31	Actuarial Value of Assets	Market Value of Assets
2013	10.55%	20.90%
2014	9.47%	7.22%
2015	6.86%	(1.73)%
2016	8.74%	9.58%
2017	10.01%	16.56%
2018	5.08%	(5.88)%
2019	7.35%	21.22%
2020	10.10%	11.95%

Section 2.5 - Forecast of Expected Benefit Payments (\$000)

Year Ending December 31	Active Employees	Retired, Disabled, Beneficiaries, and Deferred Vested	DROP Participants	Grand Total
2021	678	60,325	24,766	85,769
2022	1,391	59,126	7,696	68,213
2023	2,231	58,512	12,555	73,298
2024	3,109	57,742	15,347	76,198
2025	10,093	56,995	11,452	78,540
2026	13,830	56,128	8,577	78,535
2027	16,566	55,136	8,558	80,260
2028	20,595	54,071	8,527	83,193
2029	22,324	52,958	8,501	83,783
2030	25,671	51,788	8,465	85,924
2031	29,284	50,697	8,420	88,401
2032	34,409	49,596	8,377	92,382
2033	34,394	48,398	8,326	91,118
2034	36,131	47,135	8,272	91,538
2035	39,006	45,863	8,210	93,079
2036	39,669	44,429	8,146	92,244
2037	41,483	42,916	8,073	92,472
2038	42,616	41,320	7,992	91,928
2039	43,945	39,668	7,902	91,515
2040	45,767	37,915	7,801	91,483
2041	49,007	36,139	7,688	92,834
2042	52,638	34,349	7,563	94,550
2043	52,569	32,486	7,424	92,479
2044	51,426	30,632	7,271	89,329
2045	51,073	28,775	7,102	86,950
2046	50,666	26,923	6,918	84,507
2047	49,963	25,072	6,716	81,751
2048	49,299	23,250	6,498	79,047
2049	48,506	21,482	6,264	76,252
2050	47,567	19,753	6,012	73,332
2051	46,575	18,082	5,744	70,401

Section 2.6 – Retiree Reserve Balances

The liabilities for all divisions are greater than the reported assets allocated to the retiree reserve balances as of December 31, 2020. The liabilities and reserves are shown below:

	General County	Sheriff's Department	Road Commission	Martha T. Berry	Total
1. Retiree Liability	439,911,782	190,468,778	107,652,611	26,950,278	764,983,449
2. Retiree Reserve	<u>423,590,887</u>	<u>182,336,425</u>	<u>102,594,032</u>	<u>26,667,431</u>	<u>735,188,775</u>
3. Shortfall	16,320,895	8,132,353	5,058,579	282,847	29,794,674

Reserve Accounts	Amount
1. Member Contributions	50,944,422
2. Reserve for benefits now paid	735,188,775
3. Reserve for future benefits	367,497,728
4. Supplemental reserve	<u>0</u>
5. Total	1,153,630,925

Section 3: Member Data

Section 3.1 - Summary of Members Included

As of December 31	General County		Sheriff's Department		Road Commission		Martha T. Berry		Total	
	2020	2019	2020	2019	2020	2019	2020	2019	2020	2019
<u>Active Members</u>										
1. Number	922	1,021	316	333	124	134	78	90	1,440	1,578
2. Average Age	49.6	49.1	42.8	42.0	46.7	46.2	47.6	46.5	47.7	47.2
3. Avg. Credited Service	12.2	11.6	14.9	14.3	16.5	15.9	9.5	8.6	13.0	12.3
4. Avg. Annual Earnings	60,630	56,325	86,988	79,956	75,744	68,656	49,062	47,300	67,089	61,844
5. Total Annual Earnings	55,900,456	57,507,766	27,488,233	26,625,297	9,392,278	9,199,857	3,826,859	4,257,005	96,607,825	97,589,925
<u>Active Members (Term. Benefit Only)</u>										
1. Number	923	767	148	133	70	52	381	210	1,522	1,162
<u>Retirees, Disabled and Beneficiaries</u>										
1. Number	1,937	1,897	358	342	306	290	182	189	2,783	2,718
2. Average Age	71.1	70.7	65.0	64.7	70.2	70.6	71.8	71.4	70.3	70.0
3. Avg. Monthly Benefit	1,528	1,514	3,227	3,168	2,120	2,053	1,137	1,130	1,786	1,753
<u>DROP Participants</u>										
1. Number	188	197	38	44	49	59	6	4	281	304
2. Average Age	59.1	59.4	53.9	54.3	57.8	57.2	54.4	55.2	58.1	58.2
3. Avg. Monthly Benefit	2,193	2,086	4,301	4,274	2,714	2,734	1,873	1,974	2,562	2,527
<u>Vested Terminated</u>										
1. Number	228	225	22	21	20	22	15	18	285	286
2. Average Age	51.1	50.6	50.6	50.0	50.0	49.5	52.8	52.2	51.0	50.6
3. Avg. Monthly Benefit	1,065	1,036	1,762	1,945	1,432	1,480	804	840	1,130	1,125
<u>Non-Vested with Refund</u>										
1. Number	178	186	22	22	-	-	70	72	270	280
2. Average Payoff	2,839	2,951	3,872	3,872	-	-	912	1,081	2,423	2,542
Total	4,376	4,293	904	895	569	557	732	583	6,581	6,328

Section 3.2 - Age and Service Distribution of Active Members as of December 31, 2020 – Total

Attained Age		0-4	5-9	10-14	15-19	20-24	25-29	30-34	Over 34	Total
15-19	Number	0	0	0	0	0	0	0	0	0
	Total Salary									\$0
	Average Salary									\$0
20-24	Number	0	0	0	0	0	0	0	0	0
	Total Salary									\$0
	Average Salary									\$0
25-29	Number	4	37	0	0	0	0	0	0	41
	Total Salary									\$2,729,269
	Average Salary									\$66,568
30-34	Number	6	85	8	0	0	0	0	0	99
	Total Salary									\$6,623,758
	Average Salary									\$66,907
35-39	Number	4	97	35	37	1	0	0	0	174
	Total Salary									\$12,017,855
	Average Salary									\$69,068
40-44	Number	7	68	38	92	34	0	0	0	239
	Total Salary									\$16,669,117
	Average Salary									\$69,745
45-49	Number	2	65	31	78	96	17	1	0	290
	Total Salary									\$21,012,599
	Average Salary									\$72,457
50-54	Number	3	69	46	83	53	15	5	1	275
	Total Salary									\$18,198,582
	Average Salary									\$66,177
55-59	Number	1	45	52	68	10	7	5	1	189
	Total Salary									\$11,622,453
	Average Salary									\$61,494
60-64	Number	2	41	21	17	8	4	0	0	93
	Total Salary									\$5,674,189
	Average Salary									\$61,013
65-69	Number	1	15	4	4	0	1	0	1	26
	Total Salary									\$1,526,679
	Average Salary									\$58,718
70+	Number	2	4	4	0	2	2	0	0	14
	Total Salary									\$533,324
	Average Salary									\$38,095
TOTAL	Number	32	526	239	379	204	46	11	3	1,440
	Total Salary	\$1,127,640	\$33,178,882	\$15,148,904	\$26,521,362	\$16,306,436	\$3,333,730	\$719,731	\$271,141	\$96,607,825
	Average Salary	\$35,239	\$63,078	\$63,385	\$69,977	\$79,934	\$72,472	\$65,430	\$90,380	\$67,089

Section 3.2 - Age and Service Distribution of Active Members as of December 31, 2020 – General County (continued)

Attained Age		0-4	5-9	10-14	15-19	20-24	25-29	30-34	Over 34	Total
15-19	Number	0	0	0	0	0	0	0	0	0
	Total Salary									\$0
	Average Salary									\$0
20-24	Number	0	0	0	0	0	0	0	0	0
	Total Salary									\$0
	Average Salary									\$0
25-29	Number	3	9	0	0	0	0	0	0	12
	Total Salary									\$561,643
	Average Salary									\$46,804
30-34	Number	3	39	3	0	0	0	0	0	45
	Total Salary									\$2,535,139
	Average Salary									\$56,336
35-39	Number	3	62	20	10	0	0	0	0	95
	Total Salary									\$5,756,881
	Average Salary									\$60,599
40-44	Number	4	51	33	42	12	0	0	0	142
	Total Salary									\$8,982,620
	Average Salary									\$63,258
45-49	Number	2	52	24	43	41	7	1	0	170
	Total Salary									\$10,740,835
	Average Salary									\$63,181
50-54	Number	2	59	37	65	21	5	4	1	194
	Total Salary									\$12,096,910
	Average Salary									\$62,355
55-59	Number	1	35	45	51	5	7	3	1	148
	Total Salary									\$8,617,811
	Average Salary									\$58,228
60-64	Number	2	33	17	16	8	2	0	0	78
	Total Salary									\$4,575,412
	Average Salary									\$58,659
65-69	Number	0	14	4	4	0	1	0	1	24
	Total Salary									\$1,499,879
	Average Salary									\$62,495
70+	Number	2	4	4	0	2	2	0	0	14
	Total Salary									\$533,324
	Average Salary									\$38,095
TOTAL	Number	22	358	187	231	89	24	8	3	922
	Total Salary	\$1,002,554	\$20,531,099	\$11,438,358	\$14,677,236	\$6,045,175	\$1,472,973	\$461,920	\$271,141	\$55,900,456
	Average Salary	\$45,571	\$57,349	\$61,168	\$63,538	\$67,923	\$61,374	\$57,740	\$90,380	\$60,630

Section 3.2 - Age and Service Distribution of Active Members as of December 31, 2020 – Sheriff’s Department (continued)

Attained Age		0-4	5-9	10-14	15-19	20-24	25-29	30-34	Over 34	Total
15-19	Number	0	0	0	0	0	0	0	0	0
	Total Salary									\$0
	Average Salary									\$0
20-24	Number	0	0	0	0	0	0	0	0	0
	Total Salary									\$0
	Average Salary									\$0
25-29	Number	0	21	0	0	0	0	0	0	21
	Total Salary									\$1,728,877
	Average Salary									\$82,327
30-34	Number	0	43	4	0	0	0	0	0	47
	Total Salary									\$3,840,429
	Average Salary									\$81,711
35-39	Number	0	24	12	19	0	0	0	0	55
	Total Salary									\$4,670,810
	Average Salary									\$84,924
40-44	Number	0	6	3	32	14	0	0	0	55
	Total Salary									\$5,057,132
	Average Salary									\$91,948
45-49	Number	0	6	3	20	39	3	0	0	71
	Total Salary									\$6,551,445
	Average Salary									\$92,274
50-54	Number	0	2	5	10	24	3	1	0	45
	Total Salary									\$3,778,275
	Average Salary									\$83,962
55-59	Number	0	1	2	11	4	0	1	0	19
	Total Salary									\$1,623,456
	Average Salary									\$85,445
60-64	Number	0	1	0	1	0	1	0	0	3
	Total Salary									\$237,810
	Average Salary									\$79,270
65-69	Number	0	0	0	0	0	0	0	0	0
	Total Salary									\$0
	Average Salary									\$0
70+	Number	0	0	0	0	0	0	0	0	0
	Total Salary									\$0
	Average Salary									\$0
TOTAL	Number	0	104	29	93	81	7	2	0	316
	Total Salary	\$0	\$8,498,082	\$2,344,577	\$8,152,257	\$7,651,866	\$657,347	\$184,104	\$0	\$27,488,233
	Average Salary	\$0	\$81,712	\$80,847	\$87,659	\$94,467	\$93,907	\$92,052	\$0	\$86,988

Section 3.2 - Age and Service Distribution of Active Members as of December 31, 2020 – Road Commission (continued)

Attained Age		0-4	5-9	10-14	15-19	20-24	25-29	30-34	Over 34	Total
15-19	Number	0	0	0	0	0	0	0	0	0
	Total Salary									\$0
	Average Salary									\$0
20-24	Number	0	0	0	0	0	0	0	0	0
	Total Salary									\$0
	Average Salary									\$0
25-29	Number	0	4	0	0	0	0	0	0	4
	Total Salary									\$241,477
	Average Salary									\$60,369
30-34	Number	0	1	1	0	0	0	0	0	2
	Total Salary									\$127,604
	Average Salary									\$63,802
35-39	Number	0	6	1	8	1	0	0	0	16
	Total Salary									\$1,172,502
	Average Salary									\$73,281
40-44	Number	1	3	1	12	8	0	0	0	25
	Total Salary									\$1,801,738
	Average Salary									\$72,070
45-49	Number	0	4	1	13	15	6	0	0	39
	Total Salary									\$3,158,837
	Average Salary									\$80,996
50-54	Number	0	4	1	3	8	6	0	0	22
	Total Salary									\$1,696,144
	Average Salary									\$77,097
55-59	Number	0	6	0	4	1	0	1	0	12
	Total Salary									\$846,603
	Average Salary									\$70,550
60-64	Number	0	2	1	0	0	1	0	0	4
	Total Salary									\$347,373
	Average Salary									\$86,843
65-69	Number	0	0	0	0	0	0	0	0	0
	Total Salary									\$0
	Average Salary									\$0
70+	Number	0	0	0	0	0	0	0	0	0
	Total Salary									\$0
	Average Salary									\$0
TOTAL	Number	1	30	6	40	33	13	1	0	124
	Total Salary	\$38,877	\$2,127,297	\$473,867	\$3,000,922	\$2,560,359	\$1,117,248	\$73,707	\$0	\$9,392,278
	Average Salary	\$38,877	\$70,910	\$78,978	\$75,023	\$77,587	\$85,942	\$73,707	\$0	\$75,744

Section 3.2 - Age and Service Distribution of Active Members as of December 31, 2020 – Martha T. Berry (continued)

Attained Age		0-4	5-9	10-14	15-19	20-24	25-29	30-34	Over 34	Total
15-19	Number	0	0	0	0	0	0	0	0	0
	Total Salary									\$0
	Average Salary									\$0
20-24	Number	0	0	0	0	0	0	0	0	0
	Total Salary									\$0
	Average Salary									\$0
25-29	Number	1	3	0	0	0	0	0	0	4
	Total Salary									\$197,272
	Average Salary									\$49,318
30-34	Number	3	2	0	0	0	0	0	0	5
	Total Salary									\$120,585
	Average Salary									\$24,117
35-39	Number	1	5	2	0	0	0	0	0	8
	Total Salary									\$417,663
	Average Salary									\$52,208
40-44	Number	2	8	1	6	0	0	0	0	17
	Total Salary									\$827,627
	Average Salary									\$48,684
45-49	Number	0	3	3	2	1	1	0	0	10
	Total Salary									\$561,482
	Average Salary									\$56,148
50-54	Number	1	4	3	5	0	1	0	0	14
	Total Salary									\$627,253
	Average Salary									\$44,804
55-59	Number	0	3	5	2	0	0	0	0	10
	Total Salary									\$534,584
	Average Salary									\$53,458
60-64	Number	0	5	3	0	0	0	0	0	8
	Total Salary									\$513,594
	Average Salary									\$64,199
65-69	Number	1	1	0	0	0	0	0	0	2
	Total Salary									\$26,800
	Average Salary									\$13,400
70+	Number	0	0	0	0	0	0	0	0	0
	Total Salary									\$0
	Average Salary									\$0
TOTAL	Number	9	34	17	15	1	2	0	0	78
	Total Salary	\$86,209	\$2,022,404	\$892,102	\$690,946	\$49,037	\$86,162	\$0	\$0	\$3,826,859
	Average Salary	\$9,579	\$59,482	\$52,477	\$46,063	\$49,037	\$43,081	\$0	\$0	\$49,062

Section 3.3 - Member Data Reconciliation

	Inactive Members							
	Active ¹	Deferred Benefits	Termination Owed Refund	DROP	Retired Members	Disabled Members	Beneficiaries	Total
As of December 31, 2019	1,578	286	280	304	2,261	87	370	5,166
Changes due to:								
Age/Service Retirements	(30)	(16)	0	(69)	115	0	0	0
Disability Retirements	(1)	0	0	0	0	1	0	0
Deaths Without Beneficiary	(2)	(1)	0	0	(39)	(3)	(16)	(61)
Deaths With Beneficiary	(3)	0	0	0	(16)	0	19	0
Non-Vested Terminations	(18)	0	0	0	0	0	0	(18)
Terminations Owed Refund	0	0	0	0	0	0	0	0
Vested Terminations	(15)	15	0	0	0	0	0	0
Rehires	1	0	0	0	(1)	0	0	0
Cash-Outs	(22)	(2)	(9)	0	0	0	0	(33)
Expiration of Benefits	0	0	0	0	0	0	(1)	(1)
Data Corrections	(2)	3	(1)	0	2	0	4	6
Transfers Out	0	0	0	0	0	0	0	0
DROP	(46)	0	0	46	0	0	0	0
New Entrants	0	0	0	0	0	0	0	0
Net Change	(138)	(1)	(10)	(23)	61	(2)	6	(107)
As of December 31, 2020	1,440	285	270	281	2,322	85	376	5,059

¹ The count as of 12/31/2020 excludes 1,522 active participants who are eligible for Termination Benefit Only

Section 3.3 - Member Data Reconciliation – General County

	Inactive Members							
	Active	Deferred Benefits	Termination Owed Refund	DROP	Retired Members	Disabled Members	Beneficiaries	Total
As of December 31, 2019	1,021	225	186	197	1,634	39	224	3,526
Changes due to:								
Age/Service Retirements	(22)	(11)	0	(40)	73	0	0	0
Disability Retirements	(1)	0	0	0	0	1	0	0
Deaths Without Beneficiary	(2)	(1)	0	0	(26)	(1)	(10)	(40)
Deaths With Beneficiary	(1)	0	0	0	(13)	0	14	0
Non-Vested Terminations	(12)	0	0	0	0	0	0	(12)
Terminations Owed Refund	0	0	0	0	0	0	0	0
Vested Terminations	(14)	14	0	0	0	0	0	0
Rehires	1	0	0	0	(1)	0	0	0
Cash-Outs	(16)	(1)	(7)	0	0	0	0	(24)
Expiration of Benefits	0	0	0	0	0	0	(1)	(1)
Data Corrections	(1)	2	(1)	0	2	0	2	4
Transfers Out	0	0	0	0	0	0	0	0
DROP	(31)	0	0	31	0	0	0	0
New Entrants	0	0	0	0	0	0	0	0
Net Change	(99)	3	(8)	(9)	35	0	5	(73)
As of December 31, 2020	922	228	178	188	1,669	39	229	3,453

Section 3.3 - Member Data Reconciliation – Sheriff’s Department

	Inactive Members							
	Active	Deferred Benefits	Termination Owed Refund	DROP	Retired Members	Disabled Members	Beneficiaries	Total
As of December 31, 2019	333	21	22	44	256	24	62	762
Changes due to:								
Age/Service Retirements	(4)	(1)	0	(15)	20	0	0	0
Disability Retirements	0	0	0	0	0	0	0	0
Deaths Without Beneficiary	0	0	0	0	(3)	(1)	(1)	(5)
Deaths with Beneficiary	0	0	0	0	(1)	0	1	0
Non-Vested Terminations	0	0	0	0	0	0	0	0
Terminations Owed Refund	0	0	0	0	0	0	0	0
Vested Terminations	(1)	1	0	0	0	0	0	0
Rehires	0	0	0	0	0	0	0	0
Cash-Outs	(3)	0	0	0	0	0	0	(3)
Expiration of Benefits	0	0	0	0	0	0	0	0
Data Corrections	0	1	0	0	0	0	1	2
Transfers Out	0	0	0	0	0	0	0	0
DROP	(9)	0	0	9	0	0	0	0
New Entrants	0	0	0	0	0	0	0	0
Net Change	(17)	1	0	(6)	16	(1)	1	(6)
As of December 31, 2020	316	22	22	38	272	23	63	756

Section 3.3 - Member Data Reconciliation – Road Commission

	Inactive Members							
	Active	Deferred Benefits	Termination Owed Refund	DROP	Retired Members	Disabled Members	Beneficiaries	Total
As of December 31, 2019	134	22	0	59	212	13	65	505
Changes due to:								
Age/Service Retirements	(3)	(2)	0	(14)	19	0	0	0
Disability Retirements	0	0	0	0	0	0	0	0
Deaths Without Beneficiary	0	0	0	0	(2)	0	(4)	(6)
Deaths With Beneficiary	(2)	0	0	0	(2)	0	4	0
Non-Vested Terminations	(1)	0	0	0	0	0	0	(1)
Terminations Owed Refund	0	0	0	0	0	0	0	0
Vested Terminations	0	0	0	0	0	0	0	0
Rehires	0	0	0	0	0	0	0	0
Cash-Outs	0	0	0	0	0	0	0	0
Expiration of Benefits	0	0	0	0	0	0	0	0
Data Corrections	0	0	0	0	0	0	1	1
Transfers Out	0	0	0	0	0	0	0	0
DROP	(4)	0	0	4	0	0	0	0
New Entrants	0	0	0	0	0	0	0	0
Net Change	(10)	(2)	0	(10)	15	0	1	(6)
As of December 31, 2020	124	20	0	49	227	13	66	499

Section 3.3 - Member Data Reconciliation – Martha T Berry

	Inactive Members							
	Active	Deferred Benefits	Termination Owed Refund	DROP	Retired Members	Disabled Members	Beneficiaries	Total
As of December 31, 2019	90	18	72	4	159	11	19	373
Changes due to:								
Age/Service Retirements	(1)	(2)	0	0	3	0	0	0
Disability Retirements	0	0	0	0	0	0	0	0
Deaths Without Beneficiary	0	0	0	0	(8)	(1)	(1)	(10)
Deaths With Beneficiary	0	0	0	0	0	0	0	0
Non-Vested Terminations	(5)	0	0	0	0	0	0	(5)
Terminations Owed Refund	0	0	0	0	0	0	0	0
Vested Terminations	0	0	0	0	0	0	0	0
Rehires	0	0	0	0	0	0	0	0
Cash-Outs	(3)	(1)	(2)	0	0	0	0	(6)
Expiration of Benefits	0	0	0	0	0	0	0	0
Data Corrections	(1)	0	0	0	0	0	0	(1)
Transfers Out	0	0	0	0	0	0	0	0
DROP	(2)	0	0	2	0	0	0	0
New Entrants	0	0	0	0	0	0	0	0
Net Change	(12)	(3)	(2)	2	(5)	(1)	(1)	(22)
As of December 31, 2020	78	15	70	6	154	10	18	351

Section 3.4 - Schedule of Active Member Data

Valuation Date	Number					Annual Earnings	Annual Average Earnings	Percent Increase / (Decrease) in Average Earnings
	General County	Sheriff's Department	Road Commission	Martha T. Berry	Total			
December 31, 2012	1,334	376	213	156	2,079	105,391,874	50,694	2.3%
December 31, 2013	1,328	377	207	156	2,068	102,252,875	49,445	(2.5)%
December 31, 2014	1,392	380	214	148	2,134	110,159,044	51,621	4.4%
December 31, 2015	1,448	408	199	168	2,223	105,254,524	47,348	(8.3)%
December 31, 2016	1,322	380	189	129	2,020	116,574,389	57,710	21.9%
December 31, 2017	1,212	367	163	100	1,842	107,492,731	58,357	1.1%
December 31, 2018	1,130	360	150	111	1,751	103,002,972	58,825	0.8%
December 31, 2019	1,021	333	134	90	1,578	97,589,925	61,844	5.1%
December 31, 2020	922	316	124	78	1,440	96,607,825	67,089	8.5%

Section 3.5 - Schedule of Inactive Member Data

Valuation Date	Number					Annual Retirement Benefits	Average Annual Retirement Benefits
	General County	Sheriff's Department	Road Commission	Martha T. Berry	Total		
December 31, 2015	233	26	3	20	282	3,527,398	12,509
December 31, 2016	236	19	16	17	288	3,566,016	12,382
December 31, 2017	236	21	21	15	293	3,509,155	11,977
December 31, 2018	245	24	25	20	314	3,969,425	12,641
December 31, 2019	225	21	22	18	286	3,859,533	13,495
December 31, 2020	228	22	20	15	285	3,866,199	13,566

Section 3.6 - Schedule of Retired Members by Type of Benefit and Option Elected

Amount of Monthly Pension Benefit	Number of Recipients	Type of Pension Benefit			Option Selected			
		1	2	3	1	3	4	5
\$ 1 - \$ 300	92	52	39	1	62	6	19	5
301 - 600	307	236	63	8	155	29	51	72
601 - 900	408	326	69	13	188	39	65	116
901 - 1,200	348	291	39	18	137	41	62	108
1,201 - 1,500	264	218	35	11	108	32	41	83
1,501 - 1,800	225	184	28	13	94	21	38	72
1,801 - 2,100	206	167	30	9	78	32	47	49
2,101 - 2,400	186	165	17	4	52	24	46	64
2,401 - 2,700	146	130	15	1	51	19	30	46
2,701 - 3,000	142	127	14	1	40	12	43	47
3,001 - 3,300	113	96	16	1	33	8	35	37
3,301 - 3,600	88	84	2	2	16	7	24	41
3,601 - 3,900	61	57	3	1	14	6	21	20
3,901 - 4,200	50	48	1	1	8	5	14	23
Over \$4,200	147	141	5	1	33	9	54	51
Totals	2,783	2,322	376	85	1,069	290	590	834

- | Type of Pension Benefit | Option Selected |
|-------------------------|------------------------|
| 1. Regular retirement | 1 = Straight Life |
| 2. Survivor payment | 3 = Years Certain |
| 3. Disability | 4 = Joint and Survivor |
| | 5 = Pop-Up |

Section 3.6a - Schedule of DROP Participants by Option Elected

Amount of Monthly Pension Benefit	Number of Recipients	Option Selected			
		1	3	4	5
\$ 1 - \$ 300	1	1	0	0	0
301 - 600	0	0	0	0	0
601 - 900	8	3	0	0	5
901 - 1,200	28	5	1	8	14
1,201 - 1,500	24	7	2	4	11
1,501 - 1,800	33	9	2	7	15
1,801 - 2,100	31	6	5	9	11
2,101 - 2,400	22	5	1	9	7
2,401 - 2,700	21	3	2	3	13
2,701 - 3,000	23	2	1	4	16
3,001 - 3,300	19	4	2	2	11
3,301 - 3,600	15	1	0	6	8
3,601 - 3,900	11	1	2	1	7
3,901 - 4,200	11	1	0	3	7
Over \$4,200	34	4	1	7	22
Totals	281	52	19	63	147

Option Selected

1 = Straight Life

3 = Years Certain

4 = Joint and Survivor

5 = Pop-Up

Section 3.7 - Schedule of Benefit Payments

Attained Age	Regular Retirement & Survivor Payment		Disability		Total	
	No.	Annual Allowances	No.	Annual Allowances	No.	Annual Allowances
Under 30	5	73,387	0	0	5	73,387
30-34	3	37,449	0	0	3	37,449
35-39	3	63,215	0	0	3	63,215
40-44	5	63,828	6	100,874	11	164,702
45-49	13	326,991	5	82,948	18	409,939
50-54	87	2,552,368	13	319,326	100	2,871,694
55-59	229	7,104,542	16	287,172	245	7,391,713
60-64	468	11,582,357	14	287,971	482	11,870,328
65-69	541	11,971,132	12	184,906	553	12,156,038
70-74	523	10,865,580	7	99,560	530	10,965,140
75	68	1,433,413	1	12,133	69	1,445,546
76	75	1,392,429	1	6,019	76	1,398,447
77	76	1,369,516	2	38,809	78	1,408,324
78	78	1,544,870	0	0	78	1,544,870
79	63	1,253,779	1	5,513	64	1,259,292
80	57	923,190	2	21,166	59	944,356
81	48	826,752	1	6,030	49	832,782
82	52	922,541	0	0	52	922,541
83	39	581,746	0	0	39	581,746
84	36	513,567	0	0	36	513,567
85	21	285,613	1	15,285	22	300,898
86	31	416,737	0	0	31	416,737
87	25	316,486	0	0	25	316,486
88	27	317,012	1	9,667	28	326,679
89	24	242,990	0	0	24	242,990
90	13	160,090	1	1,637	14	161,727
91	26	302,417	0	0	26	302,417
92	16	278,452	1	6,813	17	285,265
93	13	145,274	0	0	13	145,274
94	9	117,882	0	0	9	117,882
95	10	102,422	0	0	10	102,422
96	4	21,888	0	0	4	21,888
97	2	6,133	0	0	2	6,133
98	2	6,729	0	0	2	6,729
99	3	20,219	0	0	3	20,219
100	0	0	0	0	0	0
101	1	2,633	0	0	1	2,633
102	2	6,674	0	0	2	6,674
103+	0	0	0	0	0	0
Total	2,698	58,152,302	85	1,485,829	2,783	59,638,131

Section 3.7 - Schedule of Benefit Payments (Continued)

Attained Age	Deferred Vested Members		DROP Members	
	No.	Estimated Annual Allowances	No.	Estimated Annual Allowances
Under 30	0	0	0	0
30	0	0	0	0
31	1	14,160	0	0
32	0	0	0	0
33	0	0	0	0
34	0	0	0	0
35	4	48,613	0	0
36	1	6,843	0	0
37	4	44,725	0	0
38	1	13,516	0	0
39	5	97,778	0	0
40	6	80,178	0	0
41	5	76,929	0	0
42	9	176,237	0	0
43	5	86,437	0	0
44	13	170,759	0	0
45	20	303,028	0	0
46	17	282,740	0	0
47	11	225,493	1	33,026
48	14	271,777	3	191,565
49	17	334,491	2	104,143
50	8	108,089	13	538,692
51	12	147,560	23	872,870
52	9	77,456	12	408,072
53	7	63,319	20	854,264
54	12	134,197	21	706,810
55	19	213,848	18	572,616
56	19	222,416	18	616,332
57	18	159,058	23	607,235
58	22	287,018	21	662,879
59	11	118,934	10	308,419
60	2	12,289	13	265,785
61	3	21,182	11	335,162
62	3	11,992	19	372,171
63	2	15,872	10	282,916
64	2	12,375	11	178,786
65	0	0	10	251,007
66	3	26,890	6	90,542
67	0	0	3	56,720
68	0	0	13	330,539
Total	285	3,866,199	281	8,640,551

Section 4 - Actuarial Assumptions, Methods and Additional Information for Funding

Valuation Date

December 31, 2020

Actuarial Methods

Actuarial Cost Method

Entry Age Normal

Amortization Method

Period

13 years remaining. Initially established as 20 years with the December 31, 2013 actuarial valuation

Open or Closed

Closed - each year the amortization period is reduced by 1 year

Aggregate or Layered basis

Aggregate - the total unfunded actuarial accrued liability (UAAL) as of the valuation date is amortized over the remaining period

UAAL Payment Increase

The UAAL payments are developed such that they would increase by 5.00% per year

Asset Valuation Method

The Actuarial Value of Assets is based on a 5 year smoothing method and is determined by spreading each year's investment return in excess of or below the expected return.

Interest Rate and Inflation

Investment Rate of Return	7.00%
Inflation Assumption	3.00%

Marriage Assumption

100% of males and 100% of females are married, with males three years older than their female spouse.

Expense Load for Contribution Amount

Previous year's administrative expense increased by the inflation assumption of 3.00% and allocated by employer payroll. Administrative expenses are allocated based on the ratio of beginning of year actuarial value of assets for the asset allocation between groups in Section 2.3.

Participant Data

All census data used in these calculations was supplied by the employer.

Section 4 - Actuarial Assumptions, Methods and Additional Information for Funding (continued)

Retirement Rates

According to the following rates upon the attainment of retirement eligibility.

Age	General County	Martha T. Berry	Road Commission	Sheriff's Department					
	All Employees	All Employees	All Employees	<25 Years of Service	25 Years of Service	26 - 30 Years of Service	31 Years of Service	32 - 34 Years of Service	>=35 Years of Service
40	-	-	-	-	75%	40%	35%	25%	100%
41	-	-	-	-	75%	40%	35%	25%	100%
42	-	-	-	-	75%	40%	35%	25%	100%
43	-	-	-	-	75%	50%	50%	50%	100%
44	-	-	-	-	75%	50%	50%	50%	100%
45	-	-	-	-	75%	50%	50%	50%	100%
46	-	-	-	-	75%	50%	50%	50%	100%
47	-	-	-	-	75%	50%	50%	50%	100%
48	-	-	-	-	75%	50%	50%	50%	100%
49	-	-	-	-	75%	50%	50%	50%	100%
50	30%	30%	30%	-	75%	50%	50%	50%	100%
51	30%	30%	30%	-	75%	50%	50%	50%	100%
52	30%	30%	30%	-	75%	50%	50%	50%	100%
53	30%	30%	30%	-	75%	50%	50%	50%	100%
54	30%	30%	30%	-	75%	50%	50%	50%	100%
55	25%	25%	30%	-	75%	50%	50%	50%	100%
56	25%	25%	30%	-	75%	50%	50%	50%	100%
57	25%	25%	30%	-	75%	50%	50%	50%	100%
58	25%	25%	30%	-	75%	50%	50%	50%	100%
59	25%	25%	30%	-	75%	50%	50%	50%	100%
60	25%	25%	35%	25%	75%	50%	50%	50%	100%
61	25%	25%	35%	25%	75%	50%	50%	50%	100%
62	25%	25%	50%	25%	75%	50%	50%	50%	100%
63	25%	25%	50%	25%	75%	50%	50%	50%	100%
64	25%	25%	50%	25%	75%	50%	50%	50%	100%
65	25%	25%	100%	100%	100%	100%	100%	100%	100%
66	25%	25%	100%	100%	100%	100%	100%	100%	100%
67	25%	25%	100%	100%	100%	100%	100%	100%	100%
68	25%	25%	100%	100%	100%	100%	100%	100%	100%
69	25%	25%	100%	100%	100%	100%	100%	100%	100%
70	100%	100%	100%	100%	100%	100%	100%	100%	100%

Section 4 - Actuarial Assumptions, Methods and Additional Information for Funding (continued)

Disability Incidence

Sample rates of disability are shown in the following table:

Disability Rates	
Age	% of Active Members Becoming Disabled within Next Year
25	0.0675%
30	0.0825%
35	0.1125%
40	0.1650%
45	0.2700%
50	0.4575%
55	0.7575%
60	1.2450%

No disability rates are assumed before participants have attained 5 years of service.

Termination Rates

Sample rates of active members separating service are shown in the following table:

% of Active Members Separating within Next Year					
Sample Age	Years of Service	General County	Sheriff's Department	Road Commission	Martha T Berry MCF
ALL	0	11.00%	8.00%	6.50%	24.00%
	1	11.00%	8.00%	6.00%	18.00%
	2	8.00%	6.00%	5.50%	16.00%
	3	7.00%	3.00%	5.00%	12.00%
	4	6.00%	3.00%	4.50%	12.00%
25	5 & Over	11.60%	4.80%	5.00%	17.40%
30		10.60%	3.30%	4.00%	15.90%
35		8.60%	3.00%	4.00%	12.90%
40		6.60%	2.25%	3.00%	9.90%
45		4.60%	1.50%	2.00%	6.90%
50		3.60%	0.75%	1.00%	5.40%
55		3.50%	0.75%	1.00%	5.25%
60		3.00%	0.75%	1.00%	4.50%

Section 4 - Actuarial Assumptions, Methods and Additional Information for Funding (continued)

Mortality

RP-2014 (Base 2006) Mortality Tables adjusted by 105% for males and 110% for females, projected with Scale MP-2018 on a fully generational basis was used for Retired and Survivor members.

RP-2014 (Base 2006) Mortality Tables projected with Scale MP-2018 on a fully generational basis was used for Active and Deferred Vested members.

RP-2014 (Base 2006) Disabled Mortality Tables adjusted by 106% for males and 114% for females, projected with Scale MP-2018 on a fully generational basis was used for Disabled members.

The tables mentioned above were first used for the December 31, 2018 valuation. Sample values for retired participants are shown in the following table:

Single Life Retirement Values				
Sample Ages	Values at Retirement of \$1 Monthly for Life		Future Life Expectancy (years)	
	Men	Women	Men	Women
	50	\$150.95	\$154.86	33.78
55	143.46	147.81	29.09	31.09
60	134.17	139.01	24.58	26.39
65	122.99	128.32	20.32	21.94
70	109.67	115.18	16.33	17.71
75	94.04	99.49	12.63	13.75
80	76.73	81.90	9.33	10.22

Section 4 - Actuarial Assumptions, Methods and Additional Information for Funding (continued)

DROP Assumptions

75% of eligible participants are assumed to enter DROP and remain in DROP for 4 years.

Salary Increase

Rates of salary increases are shown in the following table:

Years of Service	General County	Sheriff's Department	Road Commission	Martha T Berry MCF
0	12.00%	18.00%	15.00%	12.00%
1	8.00%	11.00%	9.00%	5.00%
2	6.00%	11.00%	6.00%	5.00%
3	6.00%	10.00%	6.00%	5.00%
4	6.00%	7.00%	3.00%	5.00%
5	6.00%	7.00%	3.00%	5.00%
6	4.00%	4.00%	3.00%	5.00%
7	4.00%	4.00%	3.00%	5.00%
8	3.00%	4.00%	3.00%	3.00%
9	3.00%	4.00%	3.00%	3.00%
10	3.00%	4.00%	3.00%	3.00%
11+	3.00%	4.00%	3.00%	3.00%

Final Average Compensation Loads

General County & Martha T Berry	4.50%
Road Commission	6.00%
Sheriff's Department	
Command (hired before 11/1/1996)	11.00%
Correction Officers	1.00%
Dispatchers	1.00%
Others	0.00%

This load on pay is to approximate the accumulated sick time leave that gets factored into final benefit calculations.

Changes Since the Prior Valuation

The actuarial assumptions and methods for funding purposes are the same as those used for the December 31, 2019 valuation report.

Section 5 – Summary of Plan Provisions

Summary of DROP Provisions

Please refer to the Benefit Provision Summary for DROP eligibility provisions. The other provisions of the DROP are listed below:

- The DROP is a forward DROP.
- Members can DROP when they first become eligible for an unreduced benefit.
- Upon entering the DROP, 100% of the member's monthly retirement benefit will be credited to the DROP account.
- The DROP account will be credited with the same interest rate used to accumulate member contributions.
- The maximum DROP period is five years. Members may continue to work past the maximum DROP period, but no additional retirement benefits will be credited to the member's DROP account. Interest on the DROP account will continue to accrue for members working past the maximum DROP period.
- Member contributions to the Retirement System will cease upon entering the DROP.
- Upon actual retirement, the member would receive a monthly annuity equal to the accrued benefit credited to the DROP account under any form of payment available from the plan, and the lump sum amount accumulated in the DROP account. Members elect their form of payment at time of DROP.
- The monthly annuity as of the DROP date is calculated based on service, final average compensation and benefit provisions as of the DROP date less the annuity withdrawal reduction, if applicable; this amount is not changed for any subsequent changes in pay or benefit provisions. The annuity withdrawal is paid at the time of DROP.
- For POLC (Union 1 & 20) and MCDPSA (Union 26), interest is earned on the DROP account balance at the end of each month and shall be paid to the employee's DROP account no later than the last day of the following month.
- For POLC (Union 1), effective August 20, 2010, for new entries into DROP, upon reaching the five-year maximum DROP participation period, the DROP participant shall terminate his/her employment.
- For POAM (Union 7), effective August 6, 2010, an employee of Macomb County who is a member of the POAM-Deputies and Dispatchers, may voluntarily elect to participate in the DROP, upon obtaining the minimum age and service requirements for a normal service retirement.

Section 5 – Summary of Plan Provisions (continued)

Benefit Provision Summary For General Employees									
Division Code	Division Name	Benefit Tier	Service Needed to Vest	DROP Eligible?	Retirement Eligibility (Age/Service)	Multiplier	Employer Maximum	FAC Period	Employee Contribution
0	General Non Union	Hired on or before 12/31/2001 or vested by 2/26/2009	8 years	Yes*	60/8, Rule of 70**	2.4% / 1% (26 yrs)	65% of FAC	4 years	3.5%
		Hired on or after 1/1/2002 & before 1/1/2012	8 years	Yes*	55/25, 60/8	2.20%	66% of FAC	5 years	2.5%
		Hired on or after 1/1/2012	15 years	No	55/25, 60/15	2.20%	66% of FAC	5 years	2.5%
2	UAW Animal Shelter	Hired on or before 12/31/2001 or vested by 2/27/2009	8 years	Yes*	60/8, Rule of 70**	2.4% / 1% (26 yrs)	65% of FAC	4 years	3.5%
		Hired on or after 1/1/2002 & before 1/1/2012	8 years	Yes*	55/25, 60/8	2.20%	66% of FAC	5 years	2.5%
		Hired on or after 1/1/2012	15 years	No	55/25, 60/15	2.20%	66% of FAC	5 years	2.5%
3	AFSCME Local 411	Hired on or before 12/31/2001 or vested by 2/27/2009	8 years	Yes*	60/8, Rule of 70**	2.4% / 1% (26 yrs)	65% of FAC	4 years	3.5%
		Hired on or after 1/1/2002 & before 1/1/2012	8 years	Yes*	55/25, 60/8	2.20%	66% of FAC	5 years	2.5%
		Hired on or after 1/1/2012	15 years	No	55/25, 60/15	2.20%	66% of FAC	5 years	2.5%
6	Macomb County Environmental Health Association	Hired on or before 12/31/2001 or vested by 5/1/2009	8 years	Yes*	60/8, Rule of 70**	2.4% / 1% (26 yrs)	65% of FAC	4 years	3.5%
		Hired on or after 1/1/2002 & before 1/1/2012	8 years	Yes*	55/25, 60/8	2.20%	66% of FAC	5 years	2.5%
		Hired on or after 1/1/2012	15 years	No	55/25, 60/15	2.20%	66% of FAC	5 years	2.5%
8	Teamsters 214 Court Reporters	Hired on or before 12/31/2001 or vested by 2/27/2009	8 years	Yes*	60/8, Rule of 70**	2.4% / 1% (26 yrs)	65% of FAC	4 years	3.5%
		Hired on or after 1/1/2002 & before 1/1/2012	8 years	Yes*	55/25, 60/8	2.20%	66% of FAC	5 years	2.5%
		Hired on or after 1/1/2012	15 years	No	55/25, 60/15	2.20%	66% of FAC	5 years	2.5%
9	International Union of Operating Engineers (Boiler Operators)	Hired on or before 12/31/2001 or vested by 5/1/2009	8 years	Yes*	60/8, Rule of 70**	2.4% / 1% (26 yrs)	65% of FAC	4 years	3.5%
		Hired on or after 1/1/2002 & before 1/1/2012	8 years	Yes*	55/25, 60/8	2.20%	66% of FAC	5 years	2.5%
		Hired on or after 1/1/2012	15 years	No	55/25, 60/15	2.20%	66% of FAC	5 years	2.5%
10	TPOAM Circuit Court Officers	Hired on or before 12/31/2001 or vested by 7/24/2009	8 years	Yes*	60/8, Rule of 70**	2.4% / 1% (26 yrs)	65% of FAC	4 years	3.5%
		Hired on or after 1/1/2002 & before 1/1/2012	8 years	Yes*	55/25, 60/8	2.20%	66% of FAC	5 years	2.5%
		Hired on or after 1/1/2012	15 years	No	55/25, 60/15	2.20%	66% of FAC	5 years	2.5%
11	MNA Unit I Health Dept.	Hired on or before 12/31/2001 or vested by 5/1/2009	8 years	Yes*	60/8, Rule of 70**	2.4% / 1% (26 yrs)	65% of FAC	4 years	3.5%
		Hired on or after 1/1/2002 & before 1/1/2012	8 years	Yes*	55/25, 60/8	2.20%	66% of FAC	5 years	2.5%
		Hired on or after 1/1/2012	15 years	No	55/25, 60/15	2.20%	66% of FAC	5 years	2.5%
12	UAW Local 412 Unit 49 Information Technology	Hired on or before 12/31/2001 or vested by 2/27/2009	8 years	Yes*	60/8, Rule of 70**	2.4% / 1% (26 yrs)	65% of FAC	4 years	3.5%
		Hired on or after 1/1/2002 & before 1/1/2012	8 years	Yes*	55/25, 60/8	2.20%	66% of FAC	5 years	2.5%
		Hired on or after 1/1/2012	15 years	No	55/25, 60/15	2.20%	66% of FAC	5 years	2.5%
13	UAW Local 889 Specialized Offices	Hired on or before 12/31/2001 or vested by 2/27/2009	8 years	Yes*	60/8, Rule of 70**	2.4% / 1% (26 yrs)	65% of FAC	4 years	3.5%
		Hired on or after 1/1/2002 & before 1/1/2012	8 years	Yes*	55/25, 60/8	2.20%	66% of FAC	5 years	2.5%
		Hired on or after 1/1/2012	15 years	No	55/25, 60/15	2.20%	66% of FAC	5 years	2.5%
15	Building Trades Association	Hired on or before 12/31/2001 or vested by 5/1/2009	8 years	Yes*	60/8, Rule of 70**	2.4% / 1% (26 yrs)	65% of FAC	4 years	3.5%
		Hired on or after 1/1/2002 & before 1/1/2012	8 years	Yes*	55/25, 60/8	2.20%	66% of FAC	5 years	2.5%
		Hired on or after 1/1/2012	15 years	No	55/25, 60/15	2.20%	66% of FAC	5 years	2.5%

* Must be vested on 12/31/2012, otherwise not eligible for DROP.

** Minimum Age 50

Section 5 – Summary of Plan Provisions (continued)

Benefit Provision Summary For General Employees									
Division Code	Division Name	Benefit Tier	Service Needed to Vest	DROP Eligible?	Retirement Eligibility (Age/Service)	Multiplier	Employer Maximum	FAC Period	Employee Contribution
16	UAW Local 412 Unity 46 Assistant Prosecutors	Hired on or before 12/31/2001 or vested by 9/14/2009	8 years	Yes*	60/8, Rule of 70**	2.4% / 1% (26 yrs)	65% of FAC	4 years	3.5%
		Hired on or after 1/1/2002 & before 1/1/2012	8 years	Yes*	55/25, 60/8	2.20%	66% of FAC	5 years	2.5%
		Hired on or after 1/1/2012	15 years	No	55/25, 60/15	2.20%	66% of FAC	5 years	2.5%
18	Teamsters Local 214 FOC/Circuit Court	Hired on or before 12/31/2001 or vested by 7/24/2009	8 years	Yes*	60/8, Rule of 70**	2.4% / 1% (26 yrs)	65% of FAC	4 years	3.5%
		Hired on or after 1/1/2002 & before 1/1/2012	8 years	Yes*	55/25, 60/8	2.20%	66% of FAC	5 years	2.5%
		Hired on or after 1/1/2012	15 years	No	55/25, 60/15	2.20%	66% of FAC	5 years	2.5%
19	General	Hired on or before 12/31/2001 or vested by 2/27/2009	8 years	Yes*	60/8, Rule of 70**	2.4% / 1% (26 yrs)	65% of FAC	4 years	3.5%
		Hired on or after 1/1/2002 & before 1/1/2012	8 years	Yes*	55/25, 60/8	2.20%	66% of FAC	5 years	2.5%
		Hired on or after 1/1/2012	15 years	No	55/25, 60/15	2.20%	66% of FAC	5 years	2.5%
21	POAM JJC	Hired on or before 12/31/2001 or vested by 5/1/2009	8 years	Yes*	60/8, Rule of 70**	2.4% / 1% (26 yrs)	65% of FAC	4 years	3.5%
		Hired on or after 1/1/2002 & before 1/1/2012	8 years	Yes*	55/25, 60/8	2.20%	66% of FAC	5 years	2.5%
		Hired on or after 1/1/2012	15 years	No	55/25, 60/15	2.20%	66% of FAC	5 years	2.5%
24	UAW Local 889 MCCSA	Hired on or before 12/31/2001 or vested by 2/27/2009	8 years	Yes*	60/8, Rule of 70**	2.4% / 1% (26 yrs)	65% of FAC	4 years	3.5%
		Hired on or after 1/1/2002 & before 1/1/2012	8 years	Yes*	55/25, 60/8	2.20%	66% of FAC	5 years	2.5%
		Hired on or after 1/1/2012	15 years	No	55/25, 60/15	2.20%	66% of FAC	5 years	2.5%
25	UAW Local 412 Unit 75 Supervisors	Hired on or before 12/31/2001 or vested by 2/27/2009	8 years	Yes*	60/8, Rule of 70**	2.4% / 1% (26 yrs)	65% of FAC	4 years	3.5%
		Hired on or after 1/1/2002 & before 1/1/2012	8 years	Yes*	55/25, 60/8	2.20%	66% of FAC	5 years	2.5%
		Hired on or after 1/1/2012	15 years	No	55/25, 60/15	2.20%	66% of FAC	5 years	2.5%
27	TPOAM Macomb Co. Senior Service Employees Association	Hired on or before 12/31/2001 or vested by 2/27/2009	8 years	Yes*	60/8, Rule of 70**	2.4% / 1% (26 yrs)	65% of FAC	4 years	3.5%
		Hired on or after 1/1/2002 & before 1/1/2012	8 years	Yes*	55/25, 60/8	2.20%	66% of FAC	5 years	2.5%
		Hired on or after 1/1/2012	15 years	No	55/25, 60/15	2.20%	66% of FAC	5 years	2.5%
28	TPOAM Juvenile Court & Justice Center Employees	Hired on or before 12/31/2001 or vested by 6/19/2009	8 years	Yes*	60/8, Rule of 70**	2.4% / 1% (26 yrs)	65% of FAC	4 years	3.5%
		Hired on or after 1/1/2002 & before 1/1/2012	8 years	Yes*	55/25, 60/8	2.20%	66% of FAC	5 years	2.5%
		Hired on or after 1/1/2012	15 years	No	55/25, 60/15	2.20%	66% of FAC	5 years	2.5%
30	UAW Local 412 Unit 95 Assistant Corporation Counsel	Hired on or before 12/31/2001 or vested by 2/27/2009	8 years	Yes*	60/8, Rule of 70**	2.4% / 1% (26 yrs)	65% of FAC	4 years	3.5%
		Hired on or after 1/1/2002 & before 1/1/2012	8 years	Yes*	55/25, 60/8	2.20%	66% of FAC	5 years	2.5%
		Hired on or after 1/1/2012	15 years	No	55/25, 60/15	2.20%	66% of FAC	5 years	2.5%
43	UAW Local 889 Probate Court/ Corporation Counsel	Hired on or before 12/31/2001 or vested by 6/19/2009	8 years	Yes*	60/8, Rule of 70**	2.4% / 1% (26 yrs)	65% of FAC	4 years	3.5%
		Hired on or after 1/1/2002 & before 1/1/2012	8 years	Yes*	55/25, 60/8	2.20%	66% of FAC	5 years	2.5%
		Hired on or after 1/1/2012	15 years	No	55/25, 60/15	2.20%	66% of FAC	5 years	2.5%
44	UAW Local 412 - Unit 98 MCCSA Professionals	Hired on or before 12/31/2001 or vested by 2/26/2009	8 years	Yes*	60/8, Rule of 70**	2.4% / 1% (26 yrs)	65% of FAC	4 years	3.5%
		Hired on or after 1/1/2002 & before 1/1/2012	8 years	Yes*	55/25, 60/8	2.20%	66% of FAC	5 years	2.5%
		Hired on or after 1/1/2012	15 years	No	55/25, 60/15	2.20%	66% of FAC	5 years	2.5%

* Must be vested on 12/31/2012, otherwise not eligible for DROP.

** Minimum Age 50

Section 5 – Summary of Plan Provisions (continued)

Benefit Provision Summary For Sheriff Employees									
Division Code	Division Name	Benefit Tier	Service Needed to Vest	DROP Eligible?	Retirement Eligibility (Age/Service)	Multiplier	Employer Maximum	FAC Period	Employee Contribution
1	COAM - Command	Hired before 11/1/1996	8 years	Yes*	60/8, 25 & out	2.4% / 1% (26 yrs)	66% of FAC	3 years	4%
		Hired on or after 11/1/1996 & before 6/1/2013	8 years	Yes*	60/8, 25 & out	2.64% for 25 yrs	66% of FAC	3 years	4%
		Hired on or after 6/1/2013 & before 12/31/2015	15 years	No	60/15, 25 & out	2.64% for 25 yrs	66% of FAC	3 years	4%
7	FOP Deputies	Hired before 6/1/2013	8 years	Yes*	60/8, 25 & out	2.64% for 25 yrs	66% of FAC	3 years	4%
		Hired on or after 6/1/2013 & before 12/31/2015	15 years	No	60/15, 25 & out	2.64% for 25 yrs	66% of FAC	3 years	4%
7	FOP Dispatchers	Hired before 6/1/2013	8 years	Yes*	60/8, 25 & out	2.64% for 25 yrs	66% of FAC	3 years	4%
		Hired on or after 6/1/2013 & before 12/31/2015	15 years	No	60/15, 25 & out	2.64% for 25 yrs	66% of FAC	3 years	4%
20	POLC Captains	Hired before 6/1/2013	8 years	Yes*	60/8, 25 & out	2.4% / 1% (26 yrs)	65% of FAC	3 years	4%
		Hired on or after 6/1/2013 & before 12/31/2015	15 years	No	60/15, 25 & out	2.4% / 1% (26 yrs)	65% of FAC	3 years	4%
26	MCPDSA Corrections Officers	Hired before 6/1/2013	8 years	Yes*	60/8, 25 & out	2.4% / 1% (26 yrs)	66% of FAC	3 years	4%
		Hired on or after 6/1/2013 & before 12/31/2015	15 years	No	60/15, 25 & out	2.4% / 1% (26 yrs)	66% of FAC	3 years	4%

* Must be vested on 12/31/2012, otherwise not eligible for DROP.

Benefit Provision Summary For Road Commission Employees									
Division Code	Division Name	Benefit Tier	Service Needed to Vest	DROP Eligible?	Retirement Eligibility (Age/Service)	Multiplier	Employer Maximum	FAC Period	Employee Contribution
31	Road Non-Union	Hired on or before 7/31/2007 or vested by 1/29/2015	8 years	Yes*	60/8, Rule of 70**	2.4% / 1% (26 yrs)	65% of FAC	4 years	3.5%
		Hired on or after 8/1/2007 & before 12/17/2013	8 years	Yes*	55/25, 60/8	2.20%	66% of FAC	5 years	2.5%
		Hired on or after 12/17/2013 & before 12/31/2015	15 years	No	55/25, 60/15	2.20%	66% of FAC	5 years	2.5%
32	Road ADTECH	Hired on or before 7/31/2007 or vested by 1/29/2015	8 years	Yes*	60/8, Rule of 70**	2.4% / 1% (26 yrs)	65% of FAC	4 years	3.5%
		Hired on or after 8/1/2007 & before 12/17/2013	8 years	Yes*	55/25, 60/8	2.20%	66% of FAC	5 years	2.5%
		Hired on or after 12/17/2013 & before 12/31/2015	15 years	No	55/25, 60/15	2.20%	66% of FAC	5 years	2.5%
33	Road ROADTECH	Hired on or before 7/31/2007 or vested by 1/29/2015	8 years	Yes*	60/8, Rule of 70**	2.4% / 1% (26 yrs)	65% of FAC	4 years	3.5%
		Hired on or after 8/1/2007 & before 6/1/2013	8 years	Yes*	55/25, 60/8	2.20%	66% of FAC	5 years	2.5%
		Hired on or after 6/1/2013 & before 12/31/2015	15 years	No	55/25, 60/15	2.20%	66% of FAC	5 years	2.5%

* Must be vested on 12/31/2012, otherwise not eligible for DROP.

** Minimum Age 50

Section 5 – Summary of Plan Provisions (continued)

Benefit Provision Summary For Martha T. Berry Employees									
Division Code	Division Name	Benefit Tier	Service Needed to Vest	DROP Eligible?	Retirement Eligibility (Age/Service)	Multiplier	Employer Maximum	FAC Period	Employee Contribution
4	MNA (RNs at MTB)	Hired on or before 12/31/2001 or vested by 7/17/2009	8 years	Yes*	60/8, Rule of 70**	2.4% / 1% (26 yrs)	65% of FAC	4 years	3.5%
		Hired on or after 1/1/2002 & before 1/1/2012	8 years	Yes*	55/25, 60/8	2.20%	66% of FAC	5 years	2.5%
		Hired on or after 1/1/2012 & before 12/31/2015	15 years	No	55/25, 60/15	2.20%	66% of FAC	5 years	2.5%
5	Service Employees International Union (LPNs at MTB)	Hired on or before 12/31/2001 or vested by 7/17/2009	8 years	Yes*	60/8, Rule of 70**	2.4% / 1% (26 yrs)	65% of FAC	4 years	3.5%
		Hired on or after 1/1/2002 & before 1/1/2012	8 years	Yes*	55/25, 60/8	2.20%	66% of FAC	5 years	2.5%
		Hired on or after 1/1/2012 & before 12/31/2015	15 years	No	55/25, 60/15	2.20%	66% of FAC	5 years	2.5%
14	AFSCME 411 MTB	Hired on or before 12/31/2001 or vested by 6/26/2009	8 years	Yes*	60/8, Rule of 70**	2.4% / 1% (26 yrs)	65% of FAC	4 years	3.5%
		Hired on or after 1/1/2002 & before 1/1/2012	8 years	Yes*	55/25, 60/8	2.20%	66% of FAC	5 years	2.5%
		Hired on or after 1/1/2012 & before 12/31/2015	15 years	No	55/25, 60/15	2.20%	66% of FAC	5 years	2.5%
40	MTB Non Union Employees	Hired on or before 12/31/2001 or vested by 2/26/2009	8 years	Yes*	60/8, Rule of 70**	2.4% / 1% (26 yrs)	65% of FAC	4 years	3.5%
		Hired on or after 1/1/2002 & before 1/1/2012	8 years	Yes*	55/25, 60/8	2.20%	66% of FAC	5 years	2.5%
		Hired on or after 1/1/2012 & before 12/31/2015	15 years	No	55/25, 60/15	2.20%	66% of FAC	5 years	2.5%
42	MTB UAW Supervisors	Hired on or before 12/31/2001 or vested by 6/26/2009	8 years	Yes*	60/8, Rule of 70**	2.4% / 1% (26 yrs)	65% of FAC	4 years	3.5%
		Hired on or after 1/1/2002 & before 1/1/2012	8 years	Yes*	55/25, 60/8	2.20%	66% of FAC	5 years	2.5%
		Hired on or after 1/1/2012 & before 12/31/2015	15 years	No	55/25, 60/15	2.20%	66% of FAC	5 years	2.5%

* Must be vested on 12/31/2012, otherwise not eligible for DROP.

** Minimum Age 50

Participation in the Plan

The Retirement System is closed to new entrants, effective December 31, 2015.

Lump Sum Termination Benefit

At termination, participants hired on or after January 1, 2016 and have 5 years of service are eligible for a \$1,000 lump sum payment.

Death Benefit

No age or service requirements:

Refund of accumulated contributions.

10 or more years of service:

Computed as laid out in the Benefit Provision Summary but actuarially reduced in accordance with a 100% joint and survivor election.

Disability Benefit

Computed as laid out in the Benefit Provision Summary with a minimum benefit of \$400 per month.

Employee Contributions

Employee contributions are accumulated at an annual interest rate of 3.50%.

Section 6 – ASOP 51 Disclosures

Funding future retirement benefits prior to when those benefits become due involves assumptions regarding future economic and demographic experience. These assumptions are applied to calculate actuarial liabilities, current contribution requirements and the funded status of the plan. However, to the extent future experience deviates from the assumptions used, variations will occur in these calculated values. These variations create risk to the plan. Understanding the risks to the funding of the plan is important. Actuarial Standard of Practice No. 51 (“ASOP 51”) requires certain disclosures of potential risks to the plan and provides useful information for intended users of actuarial reports that determine plan contributions or evaluate the adequacy of specified contribution levels to support benefit provisions.

Under ASOP 51, risk is defined as the potential of actual future measurements deviating from expected future measurements resulting from actual future experience deviating from actuarially assumed experience.

It is important to note that not all risk is negative, but all risk should be understood and accepted based on knowledge, judgement and educated decisions. Future measurements may deviate in ways that produce positive or negative financial impacts to the plan.

In the actuary’s professional judgment, the following risks may reasonably be anticipated to significantly affect the plan’s future financial condition.

- Investment risk – potential that the investment return will be different than the 7.00% expected in the actuarial valuation
- Longevity risk – potential that participants live longer than expected from the valuation mortality assumptions
- Contribution risk – potential that the contribution will be different than the recommended contribution in the actuarial valuation

The following information is provided to comply with ASOP 51 and furnish beneficial information on potential risks to the plan. This list is not all-inclusive; it is an attempt to identify the most significant risks and how those risks might affect the results shown in this report.

Section 6 – ASOP 51 Disclosures (continued)

Note that ASOP 51 does not require the actuary to evaluate the ability or willingness of the plan sponsor to make contributions to the plan when due, or to assess the likelihood or consequences of potential future changes in law. In addition, this valuation report is not intended to provide investment advice or to provide guidance on the management or reduction of risk. Buck welcomes the opportunity to assist in such matters as part of a separate project or projects utilizing the appropriate staff and resources for those objectives.

Investment Risk

Plan costs are very sensitive to the market return. Any lower than assumed return on assets will increase costs:

- The lower market return will cause the market value of assets to be lower than expected.
- The plan uses an actuarial value of assets that smooths gains and losses on market returns over a five-year period to help control some of the volatility in costs due to investment risk.
- Past volatility of asset returns can be seen in Section 2.4 of this report.

Longevity Risk

Plan costs will be increased as participants are expected to live longer. This is because:

- Benefits are paid over a longer lifetime when life expectancy is expected to increase. The longer duration of payments leads to higher liabilities.
- Health care has been improving which increases the life expectancy of participants. As health care improves, costs to the plan will increase.
- The mortality assumption for the Plan does assume future improvement in mortality. Any improvement in future mortality greater than that expected by the current mortality assumption would lead to increased costs for the Plan.

Contribution Risk

There is a risk associated with the employer's contribution when the actual amount and recommended amount differ. This is because:

- When the actual contribution is lower than the recommended contribution the Plan may not be sustainable in the long term.
- Any underpayment of the contribution will increase future contribution amounts to help pay off the additional Unfunded Actuarial Accrued Liability associated with any lower than recommended contribution amounts.

Section 6 – ASOP 51 Disclosures (continued)

Plan Maturity Measures:

There are certain measures that may aid in understanding the significant risks to the plan.

Ratio of Retired Liability to Total Liability	December 31, 2020	December 31, 2019	December 31, 2018	December 31, 2017
1. Retirees and Beneficiaries	626,892,179	604,423,772	598,252,717	575,505,683
2. Total Present Value of Future Benefits	1,151,877,196	1,151,877,767	1,139,594,415	1,163,097,466
3. Ratio [(1) / (2)]	54.4%	52.5%	52.5%	49.5%

A mature plan will often have a ratio above 60 - 65 percent. An increasing percentage may indicate a need for a less risky asset allocation which may lead to a lower long-term return on assets assumption and increased costs. Due to the plan being closed to new entrants, this ratio is expected to grow over time and eventually equal 100%.

Ratio of Cash Flow to Assets	December 31, 2020	December 31, 2019	December 31, 2018	December 31, 2017
1. Contributions	18,289,162	20,346,143	26,999,720	25,124,450
2. Benefit Payments	71,802,977	67,917,452	66,297,751	65,895,203
3. Cash Flow [(1) – (2)]	(53,513,815)	(47,571,309)	(39,298,031)	(40,770,753)
4. Market Value of Assets	1,153,630,925	1,082,041,799	937,087,932	1,037,372,865
5. Ratio [(3) / (4)]	(4.64%)	(4.40%)	(4.19%)	(3.93%)

When this cash flow ratio is negative more cash is being paid out than deposited in the fund. Negative cash flow means the fund needs to rely on investment returns to cover benefit payments and at the same time may need to invest in more liquid assets to cover the benefit payments. More liquid assets may not garner the same returns as less liquid assets and therefore increase the investment risk. However, the low magnitude of the ratio implies there may already be enough liquid assets to cover the benefit payments, less investment return is needed to cover the shortfall, or only a small portion of assets will need to be converted to cash. Therefore, the investment risk is likely not amplified at this time. Due to the plan being closed to new entrants, this measure will grow increasingly negative as the plan moves toward wind down in the distant future.

Section 6 – ASOP 51 Disclosures (continued)

Contribution Volatility	December 31, 2020	December 31, 2019	December 31, 2018	December 31, 2017
1. Market Value of Assets	1,153,630,925	1,082,041,799	937,087,932	1,037,372,865
2. Payroll	93,922,408	101,650,261	107,524,311	112,878,234
3. Asset Volatility Ratio (AVR) [(1) / (2)]	12.28	10.64	8.72	9.19
4. Accrued Liability	1,064,429,280	1,054,636,606	1,034,282,157	1,013,110,113
5. Liability Volatility Ratio (LVR) [(4) / (2)]	11.33	10.38	9.62	8.98

Plans that have higher asset-to-payroll ratios experience more volatile employer contributions (as a percentage of payroll) due to investment return. For example, a plan with an asset-to-payroll ratio of 10 may experience twice the contribution volatility due to investment return volatility than a plan with an asset-to-payroll ratio of 5. Plans that have higher liability-to-payroll ratios experience more volatile employer contributions (as a percentage of payroll) due to changes in liability. For example, if an assumption change increases the liability of two plans by the same percent the plan with a liability-to-payroll ratio of 10 may experience twice the contribution volatility than a plan with a liability-to-payroll ratio of 5.

Glossary

Actuarial Accrued Liability

Total accumulated cost to fund pension benefits arising from service in all prior years.

Actuarial Cost Method

Technique used to assign or allocate, in a systematic and consistent manner, the expected cost of a pension plan for a group of plan members to the years of service that give rise to that cost.

Actuarial Present Value of Future Benefits

Amount which, together with future interest, is expected to be sufficient to pay all future benefits.

Actuarial Valuation

Study of probable amounts of future pension benefits and the necessary amount of contributions to fund those benefits.

Actuary

Person who performs mathematical calculations pertaining to pension and insurance benefits based on specific procedures and assumptions.

GASB 67

Governmental Accounting Standards Board Statement Number 67.

Maturity Ratio

The ratio of the actuarial accrued liability for members who are no longer active to the total actuarial accrued liability. A ratio of over 50% indicates a mature plan. The higher the maturity ratio, the more volatile the contribution rate will be from year to year given actuarial gains and losses.

Normal Cost

That portion of the actuarial present value of benefits assigned to a particular year in respect to an individual participant or the plan as a whole.

Unfunded Actuarial Accrued Liability (UAAL)

The portion of the actuarial accrued liability not offset by plan assets.