

Buck

Macomb County Employees Retirement System

Actuarial Valuation Report

Plan Year January 1, 2017 – December 31, 2017

August 2018

August 2018

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, 2017.

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.

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 is a Fellow of the Society of Actuaries and a Member of the American Academy of Actuaries and meets 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 he is 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)



Troy Jaros, FSA, EA, MAAA, FCA
Senior Consultant, Retirement Actuary

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, 2017	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	36
Section 5: Summary of Plan Provisions	41
Glossary	46

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, 2017.

Membership

Actives

As of December 31, 2017, there were 1,842 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, 2017	December 31, 2016
Active participants		
Number	1,842	2,020
Average age	45.7 years	44.8 years
Average service	10.9 years	10.1 years
Total annual valuation salary	\$ 112,878,234	\$ 122,480,398
Average annual salary	\$ 61,280	\$ 60,634

The number of active members decreased by 8.8% 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 0.9 years and the average service increased 0.8 years. The total annual valuation salary decreased by 7.8% and the average salary increased by 1.1% from the previous valuation. There were 1,839 active members who were also reported active in the December 31, 2016 actuarial valuation. The total salary for this group increased by 0.9% which was lower than the 5.0% 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.

Inactives

In addition to the active members, there were 668 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, 2017	December 31, 2016
Terminated vested participants		
Number	293	288
Average age	50.3 years	50.2 years
Average annual benefit payments	\$ 11,977	\$ 12,382

The number of inactive vested members increased by 1.7% from the previous valuation. The average age of the inactive vested members increased by 0.1 years. The Average Annual Pension Benefit for these members decreased by 3.3% from the previous valuation.

	December 31, 2017	December 31, 2016
Non-vested participants owed refund		
Number	375	371
Average payoff amount	\$ 1,929	\$ 1,925

The number of inactive non-vested members increased by 1.1% from the previous valuation. The Average Refund Due for these members increased by 0.2% 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 2,269 retired members and 364 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, 2017	December 31, 2016
Retired participants		
Number	2,269	2,233
Average Age	69.1 years	68.8 years
Average annual retirement benefits	\$ 21,687	\$ 21,367

	December 31, 2017	December 31, 2016
Survivors and beneficiaries of participants		
Number	364	367
Average Age	72.6 years	71.7 years
Average annual retirement benefits	\$ 14,108	\$ 13,733

The number of retired members and beneficiaries increased by 1.3% from the previous valuation date. The average age of the retired members and beneficiaries increased by 0.4 years. The average annual benefit payments for these members increased by 1.7% 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 319 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, 2017	December 31, 2016
DROP participants		
Number	319	326
Average Age	58.2 years	57.7 years
Average annual retirement benefits	\$ 28,315	\$ 28,143
Average pay	\$ 58,711	\$ 55,890

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 \$1,037.4 million as of December 31, 2017. This includes an increase of \$108.6 million over the Net Assets Available for Benefits of \$928.8 million as of December 31, 2016. During the prior year, the fair value of assets experienced an investment rate of return of 16.56%.

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, 2017, the assets available for benefits on an actuarial value basis was \$990.8 million. This includes an increase of \$50.3 million over the actuarial value of assets of \$940.5 million as of December 31, 2016. During the prior year, the actuarial value of assets experienced an actuarial rate of return of 10.01%.

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 \$56.1 million during the prior year. This total net gain is about 5.5% 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 \$31.4 million during the year ending December 31, 2017. This gain decreased the unfunded actuarial accrued liability by \$31.4 million and increased the funded ratio by 2.9%.

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, 2017 was approximately 10.01% compared to the assumption of 7.25%, resulting in an asset gain of \$24.7 million. This gain decreased the unfunded actuarial accrued liability by \$24.7 million and increased the funded ratio by 2.4%.

The rate of return on the fair value of assets for the year ending December 31, 2017 was approximately 16.56%, which was higher than the assumed rate of 7.25%. The actuarial value of the assets recognizes only 1/5 of the 2017 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 7.25% 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 16 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 2018 has been determined to be \$13.3 million or 12.01% 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, 2017 is \$22.3 million. This represents a decrease of \$56.3 million in the unfunded actuarial accrued liability from last year's amount of \$78.6 million.

The annual actuarially required employer contribution for 2019 is \$16.1 million, or 14.60% of pay. This represents a decrease of \$6.1 million in the employer contribution amount of \$22.2 million for 2018, or a decrease of 4.02% of pay from last year's employer contribution rate of 18.62%.

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, 2017, the funded ratio of the Plan is 97.8%. This represents an increase of 5.5% from last year's funded ratio of 92.3% as of December 31, 2016.

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, 2016.

Changes in Actuarial Assumptions, Methods, or Procedures

None.

Comparative Summary of Key Actuarial Valuation Results

Actuarial Valuation as of

December 31, 2017

December 31, 2016

Summary of Member Data

Number of Members Included in the Valuation

Active Members	1,842	2,020
Terminated Vested Members	293	288
Non-vested Members Owed Refund	375	371
Retirees and Beneficiaries	2,633	2,600
DROP Participants	319	326
Total	5,462	5,605
Annual Payroll		
Average (actual)	61,280	60,634
Annual Benefit Payments		
Terminated Vested Members (Average)	11,977	12,382
Non-vested Member Refund (Average)	1,929	1,925
Retirees and beneficiaries (Average)	20,639	20,289
DROP Participants (Average)	28,315	28,143

Summary of Assets

Fair Value	1,037,372,865	928,799,618
Rate of Return	16.56%	9.58%
Actuarial Value	990,802,562	940,494,250
Rate of Return	10.01%	8.74%

Summary of Liabilities

Total Actuarial Accrued Liability	1,013,110,113	1,019,137,859
Actuarial Value of Assets	990,802,562	940,494,250
Unfunded Actuarial Accrued Liability	22,307,551	78,643,609
Funded Ratio	97.80%	92.28%
Maturity Ratio	58.91%	57.14%

Section 1: Actuarial Funding Results

Section 1.1 - Actuarial Liabilities and Normal Cost

Actuarial Liabilities Based on December 31, 2017 Valuation	General County	Sheriff's Department	Road Commission	Martha T. Berry	Totals
1. Present Value of Projected Benefits					
Active Members					
Retirement Benefits	191,053,555	125,969,195	44,395,344	9,717,446	371,135,540
Withdrawal Benefits	12,026,740	1,664,735	543,257	888,381	15,123,113
Disability Benefits	18,820,140	8,579,956	2,620,926	1,673,485	31,694,507
Death Benefits	3,052,106	2,421,209	720,913	232,538	6,426,766
Return on Contributions	<u>1,254,691</u>	<u>186,964</u>	<u>106,259</u>	<u>110,153</u>	<u>1,658,067</u>
Total	226,207,232	138,822,059	48,386,699	12,622,003	426,037,993
2. Vested Inactive Members with Deferred Benefits	15,138,035	2,735,074	1,761,500	1,047,377	20,681,986
3. Non-Vested Inactive Members with Deferred Benefits	464,204	37,370	8,043	76,306	585,923
4. Retired Members and Beneficiaries Receiving Benefits	338,378,260	140,291,566	70,983,271	25,852,586	575,505,683
5. DROP Participants Receiving Benefits	90,771,167	33,515,418	13,712,200	2,287,096	140,285,881
6. Total Present Value of Projected Benefits (1 + 2 + 3 + 4 + 5)	670,958,898	315,401,487	134,851,713	41,885,368	1,163,097,466
7. Present Value of Future Normal Costs	<u>78,424,647</u>	<u>51,733,381</u>	<u>13,246,752</u>	<u>6,582,573</u>	<u>149,987,353</u>
8. Total Actuarial Accrued Liability (6 – 7)	592,534,251	263,668,106	121,604,961	35,302,795	1,013,110,113

Normal Cost for Fiscal Year Beginning December 31, 2017	General County	Sheriff's Department	Road Commission	Martha T. Berry	Totals
1. Total Normal Cost	9,464,297	5,125,171	1,696,201	666,419	16,952,088
2. Expected Member Contribution	<u>(1,888,651)</u>	<u>(1,262,701)</u>	<u>(391,990)</u>	<u>(132,228)</u>	<u>(3,675,570)</u>
3. Employer Normal Cost	7,575,646	3,862,470	1,304,211	534,191	13,276,518

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	130,390,587	80,822,572	33,161,339	4,861,819	249,236,317
ii. Withdrawal Benefits	6,245,240	706,107	251,218	416,404	7,618,969
iii. Death Benefits	1,642,040	1,279,717	390,659	97,235	3,409,651
iv. Disability Benefits	9,419,116	4,279,407	1,351,372	658,542	15,708,437
v. Return on Employee Contributions	<u>85,602</u>	<u>875</u>	<u>(14,641)</u>	<u>5,430</u>	<u>77,266</u>
vi. Total	147,782,585	87,088,678	35,139,947	6,039,430	276,050,640
b. Vested Inactive Members with Deferred Benefits	15,138,035	2,735,074	1,761,500	1,047,377	20,681,986
c. Non-Vested Inactive Members with Deferred Benefits	464,204	37,370	8,043	76,306	585,923
d. Retired Members and Beneficiaries Receiving Benefits	338,378,260	140,291,566	70,983,271	25,852,586	575,505,683
e. DROP Participants Receiving Benefits	<u>90,771,167</u>	<u>33,515,418</u>	<u>13,712,200</u>	<u>2,287,096</u>	<u>140,285,881</u>
f. Total (1.a.vi. + 1.b. + 1.c. + 1.d. + 1.e.)	592,534,251	263,668,106	121,604,961	35,302,795	1,013,110,113
2. Actuarial Value of Assets	567,659,409	261,875,404	120,840,728	40,427,021	990,802,562
3. Unfunded Actuarial Accrued Liability (UAAL) (1.f. -2.)	24,874,842	1,792,702	764,233	(5,124,226)	22,307,551
4. Funded Ratio (2. / 1.f.)	95.80%	99.32%	99.37%	114.52%	97.80%
5. Maturity Ratio [(1.b. + 1.c. + 1.d.) / 1.f.]	59.74%	54.26%	59.83%	76.41%	58.91%
6. Employer Contribution for Fiscal 2019					
Total Normal Cost	9,464,297	5,125,171	1,696,201	666,419	16,952,088
Member Contribution	(1,888,651)	(1,262,701)	(391,990)	(132,228)	(3,675,570)
Administrative Expense	399,177	182,277	83,702	28,665	693,821
UAAL Contribution	1,813,961	130,730	55,731	(373,677)	1,626,745
Timing Adjustment	<u>340,373</u>	<u>144,754</u>	<u>49,298</u>	<u>5,819</u>	<u>540,244</u>
Total Employer Contribution Dollar	10,129,157	4,320,231	1,492,942	194,998	16,137,328
Projected Member Pay	65,999,631	29,170,608	10,423,120	4,959,112	110,552,471
Total Employer Contribution (% of Pay)	15.35%	14.81%	14.32%	3.93%	14.60%
7. Discount Rate	7.25%	7.25%	7.25%	7.25%	
8. Amortization payments increase assumption	5.00%	5.00%	5.00%	5.00%	
9. Amortization period for 2019 contribution ¹	16	16	16	16	

¹ 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	Totals
1. Total Actuarial Accrued Liability					
a. Actuarial Accrued Liability at December 31, 2016	585,795	261,908	134,588	36,847	1,019,138
b. Normal Cost at December 31, 2016	10,523	5,248	2,147	847	18,765
c. Interest on a. + b. to End of Year	43,233	19,369	9,913	2,733	75,248
d. Benefit Payments and Refund of Contributions with Interest to End of Year	40,105	16,831	8,815	2,872	68,623
e. Effect of Assumption 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.)	599,446	269,694	137,833	37,555	1,044,528
2. Actuarial Accrued Liability at December 31, 2017	<u>592,534</u>	<u>263,668</u>	<u>121,605</u>	<u>35,303</u>	<u>1,013,110</u>
3. Liability (Gain) / Loss (2. – 1.f.)	(6,912)	(6,026)	(16,228)	(2,252)	(31,418)
4. Expected Actuarial Value of Assets					
a. Actuarial Value of Assets at December 31, 2016	541,097	247,082	113,460	38,856	940,494
b. Interest on a. to End of Year	39,230	17,913	8,226	2,817	68,186
c. Contribution Made	12,789	6,947	4,797	591	25,124
d. Interest on c. to End of Year	464	252	174	21	911
e. Benefit Payments and Refund of Contributions with Interest to End of Year	<u>40,105</u>	<u>16,831</u>	<u>8,815</u>	<u>2,872</u>	<u>68,623</u>
f. Expected Actuarial Value of Assets at December 31, 2017 (a. + b. + c. + d. – e.)	553,475	255,363	117,843	39,413	966,092
5. Actuarial Value of Assets as of December 31, 2017	<u>567,659</u>	<u>261,875</u>	<u>120,841</u>	<u>40,427</u>	<u>990,803</u>
6. Actuarial Asset (Gain) / Loss (4.f. -5.)	(14,184)	(6,512)	(2,998)	(1,014)	(24,710)
7. Actuarial (Gain) / Loss (3. + 6.)	(21,096)	(12,538)	(19,226)	(3,266)	(56,128)

Section 1.4 - Actuarial Balance Sheet

Financial Resources	December 31, 2017
1. Actuarial Value of Assets	990,802,562
2. Present Value of Future Contributions	
a. Expected Member Contributions	31,198,406
b. Employer Normal Cost	118,788,947
c. State Appropriations	<u>0</u>
d. Total	149,987,353
3. Unfunded Actuarial Accrued Liability/(Reserve)	22,307,551
4. Total Assets [1. + 2.(d) + 3.]	1,163,097,466

Benefit Obligations	December 31, 2017
1. Present Value of Future Benefits	
a. Active members	426,037,993
b. Inactive members	21,267,909
c. Retirees, disabilities and beneficiaries	575,505,683
d. DROP members	<u>140,285,881</u>
e. Total	1,163,097,466

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, 2007	847,305	772,650	(74,655)	109.7%	126,696	(58.9)%
December 31, 2008	855,266	805,888	(49,377)	106.1%	121,823	(40.5)%
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%

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, 2012	45,004	589,270	232,945	795,606	100.00%	100.00%	69.26%
December 31, 2013	45,727	627,384	210,931	837,653	100.00%	100.00%	78.01%
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%

Section 2: Plan Assets

Section 2.1 - Summary of Fair Value of Assets

Asset Category	Fair Value as of Dec. 31, 2017		Fair Value as of Dec. 31, 2016	
	Amount	%	Amount	%
1. Cash and Short-Term Investments				
a. Cash and cash equivalents	32,630,883	3.13%	31,543,531	3.38%
b. Other short-term	<u>1,504</u>	<u>0.00%</u>	<u>1,250</u>	<u>0.00%</u>
c. Total	32,632,387	3.13%	31,544,781	3.38%
2. Investments at Fair Value				
a. U.S. Treasury and agencies	0	0.00%	0	0.00%
b. Fixed Income	68,155,546	6.53%	76,478,452	8.20%
c. Domestic Stocks and Equity	653,997,841	62.69%	545,526,671	58.45%
d. International Equity	22,170,970	2.13%	20,040,217	2.15%
e. Limited Partnership	<u>266,268,346</u>	<u>25.52%</u>	<u>259,619,925</u>	<u>27.82%</u>
f. Total	1,010,592,703	96.87%	901,665,265	96.62%
3. Other Assets	0	0.00%	0	0.00%
4. Total Assets (1.c. + 2.f. + 3.)	1,043,225,090	100.00%	933,210,046	100.00%
5. Receivables				
a. Interest and Dividends	837,471		473,649	
b. Investments Sold	0		0	
c. Other Receivables	<u>172,497</u>		<u>637,948</u>	
d. Total	1,009,968		1,111,597	
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>6,862,193</u>		<u>5,522,025</u>	
d. Total	6,862,193		5,522,025	
7. Net Assets for Pension [4. + 5.d. – 6.d.]	11,037,372,865		928,799,618	

Section 2.2 - Changes in Fair Value of Assets

Transactions

December 31, 2017

December 31, 2016

Additions

1. Contributions		
a. Contributions from Employers	21,672,813	20,925,610
b. Contributions from Plan Members	<u>3,451,637</u>	<u>3,628,768</u>
c. Total	25,124,450	24,554,378
2. Net Investment Income		
a. Interest and Dividends	8,278,371	6,579,557
b. Net Appreciation(Depreciation)	149,198,452	81,258,894
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	157,476,823	87,838,451
h. Investment Expense	<u>(7,132,144)</u>	<u>(4,908,755)</u>
i. Net Investment Income	150,344,679	82,929,696
3. Total Additions	175,469,129	107,484,074

Deductions

4. Benefit Payments and Refunds		
a. Retirement Benefits	65,895,203	62,999,550
b. Refund of Contributions	327,067	380,322
c. Death	0	0
d. Supplemental Payment	0	0
e. Administrative Expenses	<u>673,612</u>	<u>757,087</u>
f. Total Deductions	66,895,882	64,136,959
5. Net Increase	108,573,247	43,347,115
6. Net Assets Held in Trust for Pension Benefits		
a. Beginning of Year	928,799,618	885,452,503
b. End of Year	1,037,372,865	928,799,618

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	541,096,524	247,081,566	113,460,605	38,855,555	940,494,250
2. Employee Contributions	1,835,854	1,111,777	357,498	146,508	3,451,637
3. Employer contributions	10,953,252	5,835,096	4,440,000	444,465	21,672,813
4. Benefits paid	38,567,034	16,186,033	8,494,040	2,648,096	65,895,203
5. Refund of contributions	134,543	55,920	13,014	123,590	327,067
6. Administrative expense allocated on BOY asset value	<u>387,550</u>	<u>176,968</u>	<u>81,264</u>	<u>27,830</u>	<u>673,612</u>
7. Average valuation assets [1. + 0.5 * {2. + 3. - 4. - 5. - 6.}]	527,946,514	242,345,542	111,565,195	37,751,284	919,608,535
8. Investment income allocated on average valuation assets	52,862,906	24,265,886	11,170,943	3,780,009	92,079,744
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.]	567,659,409	261,875,404	120,840,728	40,427,021	990,802,562
11. Total Revenues [2. +3. + 8.]	65,652,012	31,212,759	15,968,441	4,370,982	117,204,194
Percentage of revenue attributable to:					
Employee contributions	2.8%	3.6%	2.2%	3.4%	2.9%
Employer contributions	16.7%	18.7%	27.8%	10.2%	18.5%
Investment income	80.5%	77.7%	70.0%	86.4%	78.6%
12. Total Expenditures [4. + 5. + 6.]	39,089,127	16,418,921	8,588,318	2,799,516	66,895,882
Percentage of expenditures attributable to:					
Benefits paid	98.7%	98.6%	98.9%	94.6%	98.5%
Refund of contributions	0.3%	0.3%	0.2%	4.4%	0.5%
Administrative expenses	1.0%	1.1%	0.9%	1.0%	1.0%

Section 2.4 - Historical Asset Rate of Return

Year Ending December 31	Actuarial Value of Assets	Market Value of Assets
2011	0.15%	(1.42)%
2012	0.11%	11.51%
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%

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

Year Ending December 31	Active Employees	Retired , Disabled, Beneficiary, and Deferred Vested Participants	DROP Participants	Grand Total
2018	359	54,792	16,230	71,381
2019	567	53,679	12,893	67,139
2020	807	53,114	14,007	67,928
2021	1,078	52,514	15,020	68,612
2022	1,430	51,866	14,235	67,531
2023	11,895	51,381	12,655	75,931
2024	11,109	50,722	8,917	70,748
2025	16,259	50,020	8,887	75,166
2026	20,404	49,232	8,856	78,492
2027	24,489	48,373	8,821	81,683
2028	28,944	47,463	8,781	85,188
2029	35,658	46,503	8,723	90,884
2030	38,969	45,456	8,668	93,093
2031	42,461	44,478	8,596	95,535
2032	45,318	43,370	8,522	97,210
2033	53,165	42,273	8,447	103,885
2034	54,202	41,157	8,368	103,727
2035	56,660	39,945	8,280	104,885
2036	60,218	38,578	8,184	106,980
2037	61,478	37,187	8,078	106,743
2038	64,399	35,703	7,961	108,063
2039	65,869	34,193	7,833	107,895
2040	67,851	32,590	7,691	108,132
2041	68,499	30,994	7,536	107,029
2042	74,449	29,332	7,365	111,146
2043	76,126	27,652	7,178	110,956
2044	76,837	25,978	6,975	109,790
2045	75,206	24,297	6,755	106,258
2046	73,977	22,637	6,516	103,130
2047	72,868	20,987	6,261	100,116
2048	71,786	19,369	5,989	97,144

Section 2.6 – Retiree Reserve Balances

The liabilities for all divisions are smaller than the reported assets allocated to the retiree reserve balances as of December 31, 2017. The liabilities and reserves are shown below:

	General County	Sheriff's Department	Road Commission	Martha T. Berry	Total
1. Retiree Liability	429,149,427	173,806,984	84,695,471	28,139,682	715,791,564
2. Retiree Reserve	<u>399,834,975</u>	<u>171,068,005</u>	<u>87,984,480</u>	<u>27,566,867</u>	<u>686,454,327</u>
3. Shortfall	29,314,452	2,738,979	(3,289,009)	572,815	29,337,237

Reserve Accounts	Amount
1. Member Contributions	42,984,740
2. Reserve for benefits now paid	686,454,327
3. Reserve for future benefits	307,933,798
4. Supplemental reserve	<u>0</u>
5. Total	1,037,372,865

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	
	2017	2016	2017	2016	2017	2016	2017	2016	2017	2016
Active Members										
1. Number	1,212	1,322	367	380	163	189	100	129	1,842	2,020
2. Average Age	47.4	46.4	40.5	39.5	45.0	44.4	45.9	44.5	45.7	44.8
3. Average Credited Service	10.2	9.3	12.7	11.7	14.9	14.3	7.5	6.6	10.9	10.1
4. Average Annual Earning	53,594	54,252	75,408	75,260	62,288	62,361	47,093	46,317	58,357	57,710
5. Total Annual Earnings	64,955,709	71,721,476	27,674,691	27,091,749	10,153,004	11,786,239	4,709,328	5,974,925	107,492,731	116,574,389
Retirees, Disableds and Beneficiaries										
1. Number	1,824	1,789	331	321	286	301	192	189	2,633	2,600
2. Average Age	70.2	69.9	64.3	63.9	70.6	69.7	70.8	70.3	69.6	69.2
3. Average Monthly Pension Benefit	1,492	1,474	3,093	3,012	2,009	1,941	1,084	1,094	1,719	1,691
DROP Participants										
1. Number	239	226	43	55	29	37	8	8	319	326
2. Average Age	59.1	58.9	54.0	53.5	57.7	56.7	57.1	56.1	58.2	57.7
3. Average Monthly Pension Benefit	2,039	1,908	4,016	4,023	2,783	2,709	1,491	1,491	2,360	2,345
Vested Terminated Members										
1. Number	236	236	21	19	21	16	15	17	293	288
2. Average Age	50.3	50.0	49.8	49.0	49.6	50.7	52.4	53.7	50.3	50.2
3. Average Monthly Pension Benefit	909	956	1,891	1,997	1,346	1,348	791	760	998	1,032
Non-vested and Owed Refund										
1. Number	237	232	27	28	1	1	110	110	375	371
2. Average Payoff	2,586	2,530	1,150	1,450	10,828	10,828	681	689	1,929	1,925
Total Number of Members	3,748	3,805	789	803	500	544	425	453	5,462	5,605

Section 3.2 - Age and Service Distribution of Active Members as of December 31, 2017 – 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	0	0	0	0	0	0	0	0
	Average Salary	0	0	0	0	0	0	0	0	0
20-24	Number	11	1	0	0	0	0	0	0	12
	Total Salary	N/A	N/A	0	0	0	0	0	0	N/A
	Average Salary	N/A	N/A	0	0	0	0	0	0	N/A
25-29	Number	89	14	0	0	0	0	0	0	103
	Total Salary	4,802,999	N/A	0	0	0	0	0	0	5,678,592
	Average Salary	53,966	N/A	0	0	0	0	0	0	55,142
30-34	Number	110	40	22	2	1	0	0	0	175
	Total Salary	5,615,301	2,383,085	1,631,722	N/A	N/A	0	0	0	9,786,718
	Average Salary	51,048	59,577	74,169	N/A	N/A	0	0	0	55,924
35-39	Number	66	36	73	53	2	0	0	0	230
	Total Salary	3,508,321	2,150,924	4,347,293	3,582,012	N/A	0	0	0	13,729,513
	Average Salary	53,156	59,748	59,552	67,585	N/A	0	0	0	59,694
40-44	Number	64	46	77	107	34	1	0	0	329
	Total Salary	3,230,027	2,535,512	4,729,804	7,296,878	2,317,638	N/A	0	0	20,136,669
	Average Salary	50,469	55,120	61,426	68,195	68,166	N/A	0	0	61,206
45-49	Number	70	45	75	84	84	22	2	0	382
	Total Salary	3,923,054	2,311,419	4,410,337	5,446,187	6,333,445	1,191,438	N/A	0	23,744,435
	Average Salary	56,044	51,365	58,804	64,836	75,398	54,156	N/A	0	62,158
50-54	Number	51	44	70	70	35	11	4	1	286
	Total Salary	2,509,755	2,200,673	3,856,948	4,349,511	2,556,542	N/A	N/A	N/A	16,432,050
	Average Salary	49,211	50,015	55,099	62,136	73,044	N/A	N/A	N/A	57,455
55-59	Number	44	43	66	37	7	4	1	0	202
	Total Salary	2,233,881	2,322,000	3,665,627	2,005,703	N/A	N/A	N/A	0	10,977,716
	Average Salary	50,770	54,000	55,540	54,208	N/A	N/A	N/A	0	54,345
60-64	Number	25	25	26	10	2	3	0	2	93
	Total Salary	1,186,211	1,343,365	1,407,354	N/A	N/A	N/A	0	N/A	5,024,929
	Average Salary	47,448	53,735	54,129	N/A	N/A	N/A	0	N/A	54,031
65-69	Number	2	3	8	2	2	1	1	0	19
	Total Salary	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0	N/A
	Average Salary	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0	N/A
70+	Number	1	2	5	1	1	0	0	1	11
	Total Salary	N/A	N/A	N/A	N/A	N/A	0	0	N/A	N/A
	Average Salary	N/A	N/A	N/A	N/A	N/A	0	0	N/A	N/A
Total	Number	533	299	422	366	168	42	8	4	1,842
	Total Salary	27,662,002	16,363,231	24,697,487	23,430,967	12,022,667	2,514,327	N/A	N/A	107,492,731
	Average Salary	51,899	54,727	58,525	64,019	71,563	59,865	N/A	N/A	58,357

Section 3.2 - Age and Service Distribution of Active Members as of December 31, 2017 – 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	0	0	0	0	0	0	0	0
	Average Salary	0	0	0	0	0	0	0	0	0
20-24	Number	3	1	0	0	0	0	0	0	4
	Total Salary	N/A	N/A	0	0	0	0	0	0	N/A
	Average Salary	N/A	N/A	0	0	0	0	0	0	N/A
25-29	Number	32	4	0	0	0	0	0	0	36
	Total Salary	1,553,759	N/A	0	0	0	0	0	0	1,754,609
	Average Salary	48,555	N/A	0	0	0	0	0	0	48,739
30-34	Number	84	22	2	0	1	0	0	0	109
	Total Salary	4,062,936	1,227,927	N/A	0	N/A	0	0	0	5,506,238
	Average Salary	48,368	55,815	N/A	0	N/A	0	0	0	50,516
35-39	Number	45	26	45	18	1	0	0	0	135
	Total Salary	2,258,019	1,467,982	2,546,213	N/A	N/A	0	0	0	7,352,454
	Average Salary	50,178	56,461	56,583	N/A	N/A	0	0	0	54,463
40-44	Number	51	39	55	50	11	1	0	0	207
	Total Salary	2,590,644	2,177,855	3,091,618	2,781,567	N/A	N/A	0	0	11,210,850
	Average Salary	50,797	55,842	56,211	55,631	N/A	N/A	0	0	54,159
45-49	Number	56	35	51	51	27	8	0	0	228
	Total Salary	3,165,917	1,763,305	2,982,728	3,279,279	1,660,568	N/A	0	0	13,229,377
	Average Salary	56,534	50,380	58,485	64,300	61,503	N/A	0	0	58,024
50-54	Number	38	39	61	46	18	10	4	1	217
	Total Salary	1,734,630	1,945,012	3,272,279	2,496,564	N/A	N/A	N/A	N/A	11,425,163
	Average Salary	45,648	49,872	53,644	54,273	N/A	N/A	N/A	N/A	52,651
55-59	Number	34	36	58	28	5	4	1	0	166
	Total Salary	1,713,940	1,937,209	3,153,817	1,353,408	N/A	N/A	N/A	0	8,751,236
	Average Salary	50,410	53,811	54,376	48,336	N/A	N/A	N/A	0	52,718
60-64	Number	20	24	22	7	2	3	0	2	80
	Total Salary	863,091	1,308,073	1,141,050	N/A	N/A	N/A	0	N/A	4,194,042
	Average Salary	43,155	N/A	51,866	N/A	N/A	N/A	0	N/A	52,426
65-69	Number	2	3	8	2	2	1	1	0	19
	Total Salary	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0	N/A
	Average Salary	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0	N/A
70+	Number	1	2	5	1	1	0	0	1	11
	Total Salary	N/A	N/A	N/A	N/A	N/A	0	0	N/A	N/A
	Average Salary	N/A	N/A	N/A	N/A	N/A	0	0	N/A	N/A
Total	Number	366	231	307	203	68	27	6	4	1,212
	Total Salary	18,146,021	12,267,874	17,030,055	11,319,275	3,866,838	1,652,150	N/A	N/A	64,955,709
	Average Salary	49,579	53,108	55,472	55,760	56,865	61,191	N/A	N/A	53,594

Section 3.2 - Age and Service Distribution of Active Members as of December 31, 2017 – 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	0	0	0	0	0	0	0	0
	Average Salary	0	0	0	0	0	0	0	0	0
20-24	Number	7	0	0	0	0	0	0	0	7
	Total Salary	N/A	0	0	0	0	0	0	0	N/A
	Average Salary	N/A	0	0	0	0	0	0	0	N/A
25-29	Number	45	9	0	0	0	0	0	0	54
	Total Salary	2,744,662	N/A	0	0	0	0	0	0	3,344,860
	Average Salary	60,992	N/A	0	0	0	0	0	0	61,942
30-34	Number	20	15	16	1	0	0	0	0	52
	Total Salary	1,254,144	N/A	N/A	N/A	0	0	0	0	3,545,165
	Average Salary	62,707	N/A	N/A	N/A	0	0	0	0	68,176
35-39	Number	7	6	14	21	0	0	0	0	48
	Total Salary	N/A	N/A	N/A	1,755,977	0	0	0	0	3,659,539
	Average Salary	N/A	N/A	N/A	83,618	0	0	0	0	76,240
40-44	Number	4	1	13	47	17	0	0	0	82
	Total Salary	N/A	N/A	N/A	3,893,251	N/A	0	0	0	6,726,635
	Average Salary	N/A	N/A	N/A	78,923	N/A	0	0	0	82,032
45-49	Number	3	3	13	18	37	1	0	0	75
	Total Salary	N/A	N/A	N/A	N/A	3,229,679	N/A	0	0	6,006,477
	Average Salary	N/A	N/A	N/A	N/A	87,289	N/A	0	0	80,086
50-54	Number	2	2	3	14	14	1	0	0	39
	Total Salary	N/A	N/A	N/A	N/A	N/A	N/A	0	0	2,968,527
	Average Salary	N/A	N/A	N/A	N/A	N/A	N/A	0	0	82,459
55-59	Number	0	0	4	6	1	0	0	0	11
	Total Salary	0	0	N/A	N/A	N/A	0	0	0	N/A
	Average Salary	0	0	N/A	N/A	N/A	0	0	0	N/A
60-64	Number	1	0	1	0	0	0	0	0	2
	Total Salary	N/A	0	N/A	0	0	0	0	0	N/A
	Average Salary	N/A	0	N/A	0	0	0	0	0	N/A
65-69	Number	0	0	0	0	0	0	0	0	0
	Total Salary	0	0	0	0	0	0	0	0	0
	Average Salary	0	0	0	0	0	0	0	0	0
70+	Number	0	0	0	0	0	0	0	0	0
	Total Salary	0	0	0	0	0	0	0	0	0
	Average Salary	0	0	0	0	0	0	0	0	0
Total	Number	89	36	64	107	69	2	0	0	367
	Total Salary	5,506,521	2,445,056	4,866,790	8,738,539	6,014,280	N/A	0	0	27,674,691
	Average Salary	61,871	67,918	76,044	81,669	87,163	N/A	0	0	75,408

Section 3.2 - Age and Service Distribution of Active Members as of December 31, 2017 – 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	0	0	0	0	0	0	0	0
	Average Salary	0	0	0	0	0	0	0	0	0
20-24	Number	1	0	0	0	0	0	0	0	1
	Total Salary	N/A	0	0	0	0	0	0	0	N/A
	Average Salary	N/A	0	0	0	0	0	0	0	N/A
25-29	Number	6	0	0	0	0	0	0	0	6
	Total Salary	N/A	0	0	0	0	0	0	0	N/A
	Average Salary	N/A	0	0	0	0	0	0	0	N/A
30-34	Number	3	1	3	1	0	0	0	0	8
	Total Salary	N/A	N/A	N/A	N/A	0	0	0	0	N/A
	Average Salary	N/A	N/A	N/A	N/A	0	0	0	0	N/A
35-39	Number	6	1	10	13	1	0	0	0	31
	Total Salary	N/A	N/A	N/A	N/A	N/A	0	0	0	1,857,010
	Average Salary	N/A	N/A	N/A	N/A	N/A	0	0	0	59,904
40-44	Number	3	1	7	10	6	0	0	0	27
	Total Salary	N/A	N/A	N/A	N/A	N/A	0	0	0	1,634,222
	Average Salary	N/A	N/A	N/A	N/A	N/A	0	0	0	60,527
45-49	Number	5	2	4	11	18	11	2	0	53
	Total Salary	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0	3,471,592
	Average Salary	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0	65,502
50-54	Number	4	0	5	9	3	0	0	0	21
	Total Salary	N/A	0	N/A	N/A	N/A	0	0	0	1,384,701
	Average Salary	N/A	0	N/A	N/A	N/A	0	0	0	65,938
55-59	Number	3	2	3	3	1	0	0	0	12
	Total Salary	N/A	N/A	N/A	N/A	N/A	0	0	0	N/A
	Average Salary	N/A	N/A	N/A	N/A	N/A	0	0	0	N/A
60-64	Number	0	0	1	3	0	0	0	0	4
	Total Salary	0	0	N/A	N/A	0	0	0	0	N/A
	Average Salary	0	0	N/A	N/A	0	0	0	0	N/A
65-69	Number	0	0	0	0	0	0	0	0	0
	Total Salary	0	0	0	0	0	0	0	0	0
	Average Salary	0	0	0	0	0	0	0	0	0
70+	Number	0	0	0	0	0	0	0	0	0
	Total Salary	0	0	0	0	0	0	0	0	0
	Average Salary	0	0	0	0	0	0	0	0	0
Total	Number	31	7	33	50	29	11	2	0	163
	Total Salary	1,644,876	N/A	2,010,341	3,141,559	2,069,622	N/A	N/A	0	10,153,004
	Average Salary	53,061	N/A	60,919	62,831	71,366	N/A	N/A	0	62,288

Section 3.2 - Age and Service Distribution of Active Members as of December 31, 2017 – 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	0	0	0	0	0	0	0	0
	Average Salary	0	0	0	0	0	0	0	0	0
20-24	Number	0	0	0	0	0	0	0	0	0
	Total Salary	0	0	0	0	0	0	0	0	0
	Average Salary	0	0	0	0	0	0	0	0	0
25-29	Number	6	1	0	0	0	0	0	0	7
	Total Salary	N/A	N/A	0	0	0	0	0	0	N/A
	Average Salary	N/A	N/A	0	0	0	0	0	0	N/A
30-34	Number	3	2	1	0	0	0	0	0	6
	Total Salary	N/A	N/A	N/A	0	0	0	0	0	N/A
	Average Salary	N/A	N/A	N/A	0	0	0	0	0	N/A
35-39	Number	8	3	4	1	0	0	0	0	16
	Total Salary	N/A	N/A	N/A	N/A	0	0	0	0	N/A
	Average Salary	N/A	N/A	N/A	N/A	0	0	0	0	N/A
40-44	Number	6	5	2	0	0	0	0	0	13
	Total Salary	N/A	N/A	N/A	0	0	0	0	0	N/A
	Average Salary	N/A	N/A	N/A	0	0	0	0	0	N/A
45-49	Number	6	5	7	4	2	2	0	0	26
	Total Salary	N/A	N/A	N/A	N/A	N/A	N/A	0	0	1,052,875
	Average Salary	N/A	N/A	N/A	N/A	N/A	N/A	0	0	42,115
50-54	Number	7	3	1	1	0	0	0	0	12
	Total Salary	N/A	N/A	N/A	N/A	0	0	0	0	N/A
	Average Salary	N/A	N/A	N/A	N/A	0	0	0	0	N/A
55-59	Number	7	5	1	0	0	0	0	0	13
	Total Salary	N/A	N/A	N/A	0	0	0	0	0	N/A
	Average Salary	N/A	N/A	N/A	0	0	0	0	0	N/A
60-64	Number	4	1	2	0	0	0	0	0	7
	Total Salary	N/A	N/A	N/A	0	0	0	0	0	N/A
	Average Salary	N/A	N/A	N/A	0	0	0	0	0	N/A
65-69	Number	0	0	0	0	0	0	0	0	0
	Total Salary	0	0	0	0	0	0	0	0	0
	Average Salary	0	0	0	0	0	0	0	0	0
70+	Number	0	0	0	0	0	0	0	0	1
	Total Salary	0	0	0	0	0	0	0	0	N/A
	Average Salary	0	0	0	0	0	0	0	0	N/A
Total	Number	47	25	18	6	2	2	0	0	100
	Total Salary	2,364,583	1,180,988	N/A	N/A	N/A	N/A	0	0	4,709,328
	Average Salary	50,310	47,240	N/A	N/A	N/A	N/A	0	0	47,093

Section 3.3 - Member Data Reconciliation

	Inactive Members							
	Active	Deferred Benefits	Termination Owed Refund	DROP	Retired Members	Disabled Members	Beneficiaries	Total
As of December 31, 2016	2,020	288	371	326	2,142	91	367	5,605
Changes due to:								
Age/Service Retirements	(25)	(18)	0	(51)	94	0	0	0
Disability Retirements	(1)	0	0	0	0	1	0	0
Deaths Without Beneficiary	0	0	0	0	(29)	(3)	(25)	(57)
Deaths With Beneficiary	(2)	0	0	0	(23)	(4)	31	2
Non-Vested Terminations	(2)	0	0	0	0	0	0	(2)
Terminations Owed Refund	(22)	0	22	0	0	0	0	0
Vested Terminations	(30)	30	0	0	0	0	0	0
Rehires	2	(1)	(1)	0	0	0	0	0
Cash-Outs	(55)	(7)	(18)	0	0	0	0	(80)
Expiration of Benefits	0	0	0	0	0	0	(9)	(9)
Data Corrections	0	1	1	0	(3)	3	0	2
Transfers Out	0	0	0	0	0	0	0	0
DROP	(44)	0	0	44	0	0	0	0
New Entrants	1	0	0	0	0	0	0	1
Net Change	(178)	5	4	(7)	39	(3)	(3)	(143)
As of December 31, 2017	1,842	293	375	319	2,181	88	364	5,462

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, 2016	1,322	236	232	226	1,529	38	222	3,805
Changes due to:								
Age/Service Retirements	(17)	(15)	0	(36)	68	0	0	0
Disability Retirements	0	0	0	0	0	0	0	0
Deaths Without Beneficiary	0	0	0	0	(22)	(1)	(11)	(34)
Deaths With Beneficiary	(1)	0	0	0	(13)	(2)	18	2
Non-Vested Terminations	(2)	0	0	0	0	0	0	(2)
Terminations Owed Refund	(17)	0	17	0	0	0	0	0
Vested Terminations	(23)	23	0	0	0	0	0	0
Rehires	1	(1)	0	0	0	0	0	0
Cash-Outs	(24)	(5)	(13)	0	0	0	0	(42)
Expiration of Benefits	0	0	0	0	0	0	(5)	(5)
Data Corrections	(2)	(2)	1	23	1	2	0	23
Transfers Out	0	0	0	0	0	0	0	0
DROP	(26)	0	0	26	0	0	0	0
New Entrants	1	0	0	0	0	0	0	1
Net Change	(110)	0	5	13	34	(1)	2	(57)
As of December 31, 2017	1,212	236	237	239	1,563	37	224	3,748

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, 2016	380	19	28	55	242	25	54	803
Changes due to:								
Age/Service Retirements	(1)	0	0	(15)	16	0	0	0
Disability Retirements	(1)	0	0	0	0	1	0	0
Deaths Without Beneficiary	0	0	0	0	(4)	(2)	(1)	(7)
Deaths with Beneficiary	0	0	0	0	(4)	(1)	5	0
Non-Vested Terminations	0	0	0	0	0	0	0	0
Terminations Owed Refund	(1)	0	1	0	0	0	0	0
Vested Terminations	(3)	3	0	0	0	0	0	0
Rehires	0	0	0	0	0	0	0	0
Cash-Outs	(5)	(1)	(2)	0	0	0	0	(8)
Expiration of Benefits	0	0	0	0	0	0	0	0
Data Corrections	1	0	0	0	(1)	1	0	1
Transfers Out	0	0	0	0	0	0	0	0
DROP	(3)	0	0	3	0	0	0	0
New Entrants	0	0	0	0	0	0	0	0
Net Change	(13)	2	(1)	(12)	7	(1)	4	(14)
As of December 31, 2017	367	21	27	43	249	24	58	789

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, 2016	189	16	1	37	214	15	72	544
Changes due to:								
Age/Service Retirements	(4)	0	0	0	4	0	0	0
Disability Retirements	0	0	0	0	0	0	0	0
Deaths Without Beneficiary	0	0	0	0	(5)	0	(12)	(12)
Deaths With Beneficiary	0	0	0	0	0	(1)	6	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	(3)	3	0	0	0	0	0	0
Rehires	0	0	0	0	0	0	0	0
Cash-Outs	(5)	0	0	0	0	0	0	(5)
Expiration of Benefits	0	0	0	0	0	0	(4)	(4)
Data Corrections	1	2	0	(23)	(3)	0	0	(23)
Transfers Out	0	0	0	0	0	0	0	0
DROP	(15)	0	0	15	0	0	0	0
New Entrants	0	0	0	0	0	0	0	0
Net Change	(26)	5	0	(8)	(4)	(1)	(10)	(44)
As of December 31, 2017	163	21	1	29	210	14	62	500

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, 2016	129	17	110	8	157	13	19	453
Changes due to:								
Age/Service Retirements	(3)	(3)	0	0	6	0	0	0
Disability Retirements	0	0	0	0	0	0	0	0
Deaths Without Beneficiary	0	0	0	0	(3)	0	(1)	(4)
Deaths With Beneficiary	(1)	0	0	0	(1)	0	2	0
Non-Vested Terminations	0	0	0	0	0	0	0	0
Terminations Owed Refund	(4)	0	4	0	0	0	0	0
Vested Terminations	(1)	1	0	0	0	0	0	0
Rehires	1	(0	(1)	0	0	0	0	0
Cash-Outs	(21)	(1)	(3)	0	0	0	0	(25)
Expiration of Benefits	0	0	0	0	0	0	0	0
Data Corrections	0	1	0	0	0	0	0	1
Transfers Out	0	0	0	0	0	0	0	0
DROP	0	0	0	0	0	0	0	0
New Entrants	0	0	0	0	0	0	0	1
Net Change	(29)	(2)	0	0	2	0	1	(28)
As of December 31, 2017	100	15	110	8	159	13	20	425

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, 2010	1,452	401	230	174	2,257	110,795,240	49,090	
December 31, 2011	1,422	390	216	170	2,198	108,900,180	49,545	0.9%
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	110,159,004	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%

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, 2013	185	18	14	19	236	2,795,885	11,847
December 31, 2014	179	18	13	16	226	2,610,266	11,550
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

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	102	54	47	1	74	5	19	4
301 - 600	341	253	77	11	179	30	60	72
601 - 900	390	308	65	17	166	46	70	108
901 - 1,200	320	266	38	16	123	38	66	93
1,201 - 1,500	236	202	25	9	91	32	42	71
1,501 - 1,800	213	173	28	12	89	24	33	67
1,801 - 2,100	193	156	27	10	64	29	52	48
2,101 - 2,400	170	151	16	3	49	22	46	53
2,401 - 2,700	142	129	12	1	43	21	33	45
2,701 - 3,000	129	119	9	1	31	13	42	43
3,001 - 3,300	100	88	11	1	24	8	33	35
3,301 - 3,600	77	73	2	2	14	6	22	35
3,601 - 3,900	56	52	2	2	13	6	21	16
3,901 - 4,200	40	38	1	1	6	4	13	17
Over \$4,200	124	119	4	1	27	9	49	39
Totals	2,633	2,181	364	88	993	293	601	746

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	0	0	0	0	0
301 - 600	1	1	0	0	0
601 - 900	25	7	1	1	16
901 - 1,200	37	7	4	8	18
1,201 - 1,500	33	9	1	5	18
1,501 - 1,800	34	8	2	6	18
1,801 - 2,100	27	9	6	6	6
2,101 - 2,400	29	6	2	8	13
2,401 - 2,700	21	5	1	4	11
2,701 - 3,000	25	5	1	4	15
3,001 - 3,300	15	7	1	2	5
3,301 - 3,600	15	1	1	4	9
3,601 - 3,900	15	1	2	2	10
3,901 - 4,200	8	1	0	4	3
Over \$4,200	34	6	2	10	16
Totals	319	73	24	64	158

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	58,214	0	0	5	58,214
30-34	2	28,915	0	0	2	28,915
35-39	6	86,186	2	28,941	8	115,127
40-44	4	61,834	2	51,257	6	113,091
45-49	13	222,319	9	209,273	22	431,591
50-54	102	3,171,119	17	311,991	119	3,483,110
55-59	249	7,457,928	13	239,024	262	7,696,952
60-64	472	11,503,758	14	286,617	486	11,790,375
65-69	564	12,038,951	11	169,705	575	12,208,656
70-74	393	7,534,065	9	115,727	402	7,649,792
75	86	1,608,927	0	0	86	1,608,927
76	66	1,221,175	2	14,854	68	1,236,030
77	58	937,206	2	21,166	60	958,372
78	47	799,829	1	6,030	48	805,860
79	53	976,507	0	0	53	976,507
80	45	626,761	1	4,744	46	631,505
81	40	590,579	0	0	40	590,579
82	30	412,758	1	15,285	31	428,043
83	36	519,747	0	0	36	519,747
84	30	392,749	0	0	30	392,749
85	40	457,425	1	9,667	41	467,093
86	33	322,890	1	10,525	34	333,415
87	19	239,650	1	1,637	20	241,287
88	37	415,796	0	0	37	415,796
89	24	326,053	1	6,813	25	332,866
90	21	262,375	0	0	21	262,375
91	14	169,423	0	0	14	169,423
92	20	192,362	0	0	20	192,362
93	8	64,321	0	0	8	64,321
94	7	39,102	0	0	7	39,102
95	5	17,967	0	0	5	17,967
96	3	20,219	0	0	3	20,219
97	1	2,031	0	0	1	2,031
98	7	21,218	0	0	7	21,218
99	3	29,453	0	0	3	29,453
100	1	4,796	0	0	1	4,796
101	0	0	0	0	0	0
102	0	0	0	0	0	0
106	1	4,685	0	0	1	4,685
Total	2,545	52,839,294	88	1,503,255	2,633	54,342,549

Section 3.7a - Schedule of Benefit Payments

Deferred Vested Members		
Attained Age	No.	Estimated Annual Allowances
Under 30	0	0
30	0	0
31	0	0
32	2	19,304
33	2	11,909
34	2	17,212
35	0	0
36	4	36,835
37	5	52,337
38	5	48,344
39	7	107,766
40	3	41,507
41	12	146,023
42	15	198,353
43	11	186,500
44	10	176,625
45	11	177,385
46	11	228,154
47	6	85,141
48	12	135,621
49	11	143,265
50	8	124,551
51	11	118,472
52	15	128,103
53	19	222,397
54	19	194,366
55	26	348,305
56	9	84,026
57	14	138,138
58	13	119,072
59	17	122,735
60	5	48,940
61	4	16,855
62	1	4,024
63	3	26,890
64	0	0
65	0	0
66	0	0
67	0	0
68	0	0
Total	293	3,509,155

Section 3.7b - Schedule of Benefit Payments

Attained Age	No.	DROP Members
		Estimated Annual Allowances
Under 30	0	0
30	0	0
31	0	0
32	0	0
33	0	0
34	0	0
35	0	0
36	0	0
37	0	0
38	0	0
39	0	0
40	0	0
41	0	0
42	0	0
43	0	0
44	0	0
45	0	0
46	0	0
47	0	0
48	4	166,186
49	2	113,537
50	12	502,419
51	14	541,007
52	23	754,010
53	26	985,831
54	27	812,396
55	28	867,478
56	17	592,417
57	18	440,664
58	17	465,545
59	17	404,560
60	19	448,201
61	20	341,284
62	17	403,216
63	18	285,428
64	11	204,345
65	9	216,810
66	7	150,206
67	3	117,934
68	10	219,165
Total	319	9,032,639

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

Valuation Date

December 31, 2017

Actuarial Methods

Actuarial Cost Method

Entry Age Normal

Amortization Method

Period

16 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	7.25%
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:

Normal Retirement Age Category (see Section 4)						
Age	General	Sheriff's	Road	MTB	Retirement Service	Sheriff's Department
50	15%	-	-	15%	25	50%
51	15%	-	-	15%	26	40%
52	15%	-	-	15%	27	40%
53	15%	-	-	15%	28	40%
54	15%	-	-	15%	29	40%
55	15%	-	25%	15%	30	40%
56	15%	-	25%	15%	31	35%
57	15%	-	25%	15%	32	35%
58	15%	-	25%	15%	33	35%
59	25%	-	25%	25%	34	35%
60	25%	25%	25%	25%	35 & Up	100%
61	25%	25%	30%	25%	-	-
62	25%	25%	30%	25%	-	-
63	25%	25%	30%	25%	-	-
64	25%	25%	30%	25%	-	-
65	25%	100%	100%	25%	-	-
66	25%	-	-	25%	-	-
67	25%	-	-	25%	-	-
68	25%	-	-	25%	-	-
69	25%	-	-	25%	-	-
70 & Up	100%	-	-	100%	-	-

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

Retirement Rates (Continued)

For all General County and Martha T. Berry MCF members hired on or after January 1, 2002 the following retirement rates will apply:

Retirement Ages	Retirement Rates	
	General County	Martha T. Berry MCF
55	10%	10%
56	10%	10%
57	10%	10%
58	10%	10%
59	20%	20%
60	20%	20%
61	20%	20%
62	25%	25%
63	25%	25%
64	25%	25%
65	25%	25%
66	25%	25%
67	25%	25%
68	25%	25%
69	25%	25%
70 & Up	100%	100%

DROP Assumptions

100% of eligible participants are assumed to enter DROP and remain in DROP for 5 years.

Disability Incidence

Sample rates of disability are shown in the following table:

Age	Disability Rates
	% of Active Members Becoming Disabled within Next Year
25	0.09%
30	0.11%
35	0.15%
40	0.22%
45	0.36%
50	0.61%
55	1.01%
60	1.66%

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

Mortality Assumptions

The RP-2014 Blue Collar Mortality Tables for Road Commission and Sheriff members and the RP-2014 Total Dataset Mortality Tables for all other members. Both tables are rolled back to 2006 and projected generationally with the MP-2016 Mortality Improvement Scale. Sample rates of mortality are shown in the following tables:

Sample Ages	RP-2014 Blue Collar Mortality Rates				RP-2014 Total Dataset Mortality Rates			
	Pre-Commencement		Post-Commencement		Pre-Commencement		Post-Commencement	
	Male	Female	Male	Female	Male	Female	Male	Female
20	0.000659	0.000227	0.000659	0.000227	0.000510	0.000202	0.000510	0.000202
25	0.000706	0.000209	0.000706	0.000209	0.000545	0.000186	0.000545	0.000186
30	0.000608	0.000234	0.000608	0.000234	0.000470	0.000209	0.000470	0.000209
35	0.000721	0.000337	0.000721	0.000337	0.000557	0.000301	0.000557	0.000301
40	0.000970	0.000528	0.000970	0.000528	0.000750	0.000471	0.000750	0.000471
45	0.001562	0.000851	0.001562	0.000851	0.001207	0.000758	0.001207	0.000758
50	0.002561	0.001291	0.004771	0.002948	0.001979	0.001151	0.004771	0.002891
55	0.003839	0.001945	0.006383	0.004173	0.002967	0.001735	0.006102	0.003755
60	0.006411	0.003135	0.008935	0.006565	0.004954	0.002795	0.008211	0.005942
65	0.012275	0.005027	0.014457	0.010582	0.009486	0.004482	0.012621	0.009760
70	0.020907	0.008472	0.023818	0.016962	0.016761	0.007662	0.020288	0.015628
75	0.034417	0.014047	0.038891	0.027490	0.028623	0.012887	0.033113	0.025057
80	0.055349	0.023494	0.063803	0.045389	0.047750	0.021859	0.055022	0.041440
85	0.105069	0.078009	0.105069	0.078009	0.093775	0.072601	0.093775	0.072601

Termination Rates

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

Sample Age	Years of Service	Termination Rates			
		General County	Sheriff's Department	Road Commission	Martha T Berry MCF
ALL	0	12.00%	4.00%	6.50%	12.00%
	1	9.00%	4.00%	6.00%	9.00%
	2	8.00%	3.00%	5.50%	8.00%
	3	6.00%	3.00%	5.00%	6.00%
	4	6.00%	3.00%	4.50%	6.00%
25	5 & Over	5.80%	1.60%	2.50%	5.80%
30		5.30%	1.10%	2.00%	5.30%
35		4.30%	1.00%	2.00%	4.30%
40		3.30%	0.75%	1.50%	3.30%
45		2.30%	0.50%	1.00%	2.30%
50		1.80%	0.25%	0.50%	1.80%
55		1.75%	0.25%	0.50%	1.75%
60		1.50%	0.25%	0.50%	1.50%

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

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	6.00%	10.00%	9.00%	6.00%
1	6.00%	10.00%	9.00%	6.00%
2	6.00%	10.00%	9.00%	6.00%
3	6.00%	10.00%	9.00%	6.00%
4	6.00%	7.00%	9.00%	6.00%
5	6.00%	7.00%	9.00%	6.00%
6	6.00%	7.00%	9.00%	6.00%
7	4.00%	7.00%	5.00%	4.00%
8	4.00%	4.00%	5.00%	4.00%
9	4.00%	4.00%	5.00%	4.00%
10	4.00%	4.00%	5.00%	4.00%
11 and up	4.00%	4.00%	4.00%	4.00%

Final Average Compensation Loads

General County & Martha T Berry	4.50%
Road Commission	6.00%
Sheriff Department	
Command	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

- None

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		Retirement Eligibility (Age/Service)	Multiplier	Employer Maximum	FAC Period	Employee Contribution
			Needed to Vest	DROP Eligible?					
1	COAM - Command	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%
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	2.4% / 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%
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		Retirement Eligibility (Age/Service)	Multiplier	Employer Maximum	FAC Period	Employee Contribution
			Needed to Vest	DROP Eligible?					
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.

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.