

# Macomb County Employees Retirement System

## Actuarial Valuation Report

Plan Year

January 1, 2016 – December 31, 2016

September 2017

September 2017

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

Ladies and Gentlemen:

Macomb County retained Conduent HR Services (Conduent) 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, 2016.

### **Purpose of This Report**

Conduent 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. Conduent will not accept any liability for any such statement made without prior review by Conduent.

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, Conduent 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. Conduent 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.

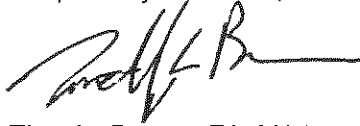
In our opinion, the actuarial assumptions used are reasonable, taking into account the experience of the Plan and reasonable long-term expectations, and represent our best estimate of the anticipated long-term experience under the Plan. The actuary performs an analysis of Plan experience periodically 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 an Enrolled Actuary and 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 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,



Timothy Bowen, EA, MAAA, FCA  
Principal, Retirement Consulting  
Conduent Human Resource Services

TB/em

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cc: James Blydenburgh (Conduent)



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# 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, 2016.

## Membership

### Actives

As of December 31, 2016, there were 2,020 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, 2016	December 31, 2015
Active participants		
Number	2,020	2,223
Average age	44.8 years	44.2 years
Average service	10.1 years	9.3 years
Total annual valuation salary	\$ 122,480,398	\$ 110,557,514
Average annual salary	\$ 60,634	\$ 49,733

The number of active members decreased by 9.1% 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 0.6 years and the average service increased 0.8 years. The total annual valuation salary increased by 10.8% and the average salary increased by 21.9% from the previous valuation. There were 2,006 active members who were also reported active in the December 31, 2015 actuarial valuation. The total salary for this group increased by 20.5%, which was higher 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 659 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, 2016	December 31, 2015
Terminated vested participants		
Number	288	282
Average age	50.2 years	50.8 years
Average annual benefit payments	\$ 12,382	\$ 12,509

The number of inactive vested members increased by 2.1% from the previous valuation. The average age of the inactive vested members decreased by 0.6 years. The Average Monthly Pension Benefit for these members decreased by 1.0% from the previous valuation.

	December 31, 2016	December 31, 2015
Nonvested participants owed refund		
Number	371	370
Average payoff amount	\$ 1,925	\$ 1,409

The number of inactive non-vested members increased by 0.3% from the previous valuation. The Average Refund Due for these members increased by 36.6% 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 2,233 retired members and 367 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, 2016	December 31, 2015
Retired participants		
Number	2,233	2,184
Average Age	68.8 years	68.6 years
Average annual retirement benefits	\$ 21,367	\$ 21,083

	December 31, 2016	December 31, 2015
Survivors and beneficiaries of participants		
Number	367	365
Average Age	71.7 years	71.5 years
Average annual retirement benefits	\$ 13,733	\$ 13,496

The number of retired members and beneficiaries increased by 2.0% from the previous valuation date. The average age of the retired members and beneficiaries increased by 0.2 years. The total annual benefit payments for these members increased by 3.50% 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 326 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, 2016	December 31, 2015
DROP participants		
Number	326	338
Average Age	57.7 years	57.1 years
Average annual retirement benefits	\$ 28,143	\$ 28,014
Average pay	\$ 55,890	\$ 52,630

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 \$928.8 million as of December 31, 2016. This includes an increase of \$43.3 million over the Net Assets Available for Benefits of \$885.5 million as of December 31, 2015. During the prior year, the fair value of assets experienced an investment rate of return of 9.58%.

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, 2016, the assets available for benefits on an actuarial value basis were \$940.5 million. This includes an increase of \$37.6 million over the actuarial value of assets of \$902.9 million as of December 31, 2015. During the prior year, the actuarial value of assets experienced an actuarial rate of return of 8.74%.

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 loss of \$5.6 million during the prior year. This total net loss is about 0.6% 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 loss of \$17.9 million during the year ending December 31, 2016. This loss increased the unfunded actuarial accrued liability by \$17.9 million and decreased the funded ratio by 1.7%.

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, 2016 was approximately 8.74% compared to the assumption of 7.25%, resulting in an asset gain of \$12.3 million. This gain decreased the unfunded actuarial accrued liability by \$12.3 million and increased the funded ratio by 1.2%.

The rate of return on the fair value of assets for the year ending December 31, 2016 was higher than the assumed rate of 7.25%. The actuarial value of the assets recognizes only 1/5 of the 2016 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 and Section 1.4.

### **Actuarial Contributions**

Effective with the December 31, 2013 annual valuation, the Retirement Commission established a closed 20 year amortization policy assuming 5% payment increases. For this valuation, the period is 17 years.

The normal cost represents the cost of the benefits that accrue during the year for active members under the Entry Age 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 2017 has been determined to be \$14.8 million or 12.45% 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, 2016 is \$78.6 million. This represents an increase of \$4.0 million in the unfunded actuarial accrued liability from last year's amount of \$74.6 million.

The annual actuarially required employer contribution for 2018 is \$22.2 million, or 18.6% of pay. This represents an increase of \$2.3 million in the employer contribution amount of \$19.9 million for 2017, or about the same percent of pay from last year's employer contribution rate of 18.6%.

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, 2016 the funded ratio of the Plan is 92.3%. This represents a decrease of 0.1% from last year's funded ratio of 92.4% as of December 31, 2015.

A history of the unfunded actuarial accrued liability and the funded ratio is shown in Section 1.6.

### **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, 2015.

### **Changes in Actuarial Assumptions, Methods, or Procedures**

None.

## Comparative Summary of Key Actuarial Valuation Results

Actuarial Valuation as of	December 31, 2016	December 31, 2015
<b>Summary of Member Data</b>		
Number of Members Included in the Valuation		
Active Members	2,020	2,223
Terminated Vested Members	288	282
Nonvested Members Owed Refund	371	370
Retirees and Beneficiaries	2,600	2,549
DROP Participants	<u>326</u>	<u>338</u>
Total	5,605	5,762
Annual Payroll		
Average (actual)	60,634	47,348
Annual Benefit Payments		
Terminated Vested Members (Average)	12,382	12,509
Nonvested Member Refund (Average)	1,925	1,409
Retirees and beneficiaries (Average)	20,289	23,054
DROP Participants (Average)	28,143	28,014
<b>Summary of Assets</b>		
Fair Value	928,799,618	885,452,503
Rate of Return	9.58%	(1.73)%
Actuarial Value	940,494,250	902,930,628
Rate of Return	8.74%	6.86%
<b>Summary of Liabilities</b>		
Total Actuarial Accrued Liability	1,019,137,859	977,566,461
Actuarial Value of Assets	940,494,250	902,930,628
Unfunded Actuarial Accrued Liability	78,643,609	74,635,833
Funded Ratio	92.28%	92.37%
Maturity Ratio	57.14%	58.14%



## Section 1: Actuarial Funding Results

### Section 1.1 - Actuarial Liabilities and Normal Cost

Actuarial Liabilities based on December 31, 2016 Valuation	General County	Sheriff's Department	Road Commission	Martha T. Berry	Totals
1. Present Value of Projected Benefits					
Active Members					
Retirement Benefits	212,207,430	127,202,362	55,672,588	12,574,272	407,656,652
Withdrawal Benefits	13,109,336	1,701,354	652,629	1,087,827	16,551,146
Disability Benefits	19,698,933	8,442,985	2,943,474	1,957,834	33,043,226
Death Benefits	3,219,254	2,398,117	820,336	278,389	6,716,096
Return on Contributions	<u>1,388,968</u>	<u>207,720</u>	<u>126,065</u>	<u>138,533</u>	<u>1,861,286</u>
Total	249,623,921	139,952,538	60,215,092	16,036,855	465,828,406
2. Vested Inactive Members with Deferred Benefits	16,397,768	2,223,838	1,469,579	1,230,205	21,321,390
3. Non-Vested Inactive Members with Deferred Benefits	456,128	54,416	8,043	65,736	584,323
4. Retired Members and Beneficiaries Receiving Benefits	328,985,721	132,832,711	72,631,085	26,021,329	560,470,846
5. DROP Participants Receiving Benefits	<u>79,902,929</u>	<u>42,198,694</u>	<u>16,914,948</u>	<u>2,129,570</u>	<u>141,146,141</u>
6. Total Present Value of Projected Benefits (1 + 2 + 3 + 4 + 5)	675,366,467	317,262,197	151,238,747	45,483,695	1,189,351,106
7. Present Value of Future Normal Costs	<u>89,571,866</u>	<u>55,353,779</u>	<u>16,650,432</u>	<u>8,637,170</u>	<u>170,213,247</u>
8. Total Actuarial Accrued Liability (6 – 7)	585,794,601	261,908,418	134,588,315	36,846,525	1,019,137,859

Normal Cost for Fiscal year Beginning December 31, 2016	General County	Sheriff's Department	Road Commission	Martha T. Berry	Totals
1. Normal Cost	10,523,365	5,247,558	2,146,637	847,343	18,764,903
2. Expected Member Contribution	<u>(2,059,302)</u>	<u>(1,257,050)</u>	<u>(460,232)</u>	<u>(163,928)</u>	<u>(3,940,512)</u>
3. Employer Normal Cost	8,464,063	3,990,508	1,686,405	683,415	14,824,391

## 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	142,261,328	78,673,690	41,368,595	6,113,451	268,417,064
ii. Withdrawal Benefits	6,567,620	691,322	294,644	473,616	8,027,202
iii. Death Benefits	1,670,481	1,216,495	436,156	105,967	3,429,099
iv. Disability Benefits	9,498,225	4,014,414	1,486,477	697,733	15,696,849
v. Return on Employee Contributions	<u>54,401</u>	<u>2,838</u>	<u>(21,212)</u>	<u>8,918</u>	<u>44,945</u>
vi. Total	160,052,055	84,598,759	43,564,660	7,399,685	295,615,159
b. Vested Inactive Members with Deferred Benefits	16,397,768	2,223,838	1,469,579	1,230,205	21,321,390
c. Non-Vested Inactive Members with Deferred Benefits	456,128	54,416	8,043	65,736	584,323
d. Retired Members and Beneficiaries Receiving Benefits	328,985,721	132,832,711	72,631,085	26,021,329	560,470,846
e. DROP Participants Receiving Benefits	<u>79,902,929</u>	<u>42,198,694</u>	<u>16,914,948</u>	<u>2,129,570</u>	<u>141,146,141</u>
f. Total (1.a.vi. + 1.b. + 1.c. + 1.d. + 1.e.)	585,794,601	261,908,418	134,588,315	36,846,525	1,019,137,859
2. Actuarial Value of Assets	541,096,524	247,081,566	113,460,605	38,855,555	940,494,250
3. Unfunded Actuarial Accrued Liability (UAAL) (1.f. -2.)	44,698,077	14,826,852	21,127,710	(2,009,030)	78,643,609
4. Funded Ratio (2. / 1.f.)	92.37%	94.34%	84.30%	105.45%	92.28%
5. Maturity Ratio [(1.b. + 1.c. + 1.d.) / 1.f.]	59.04%	51.59%	55.06%	74.14%	57.14%
6. Employer Contribution for Fiscal 2018					
Employer Normal Cost	10,523,365	5,247,558	2,146,637	847,343	18,764,903
Member Contribution	(2,059,302)	(1,257,050)	(460,232)	(163,928)	(3,940,512)
Administrative Expense	450,699	203,461	93,101	32,539	779,800
UAAL Contribution	3,131,610	1,038,790	1,480,237	(140,755)	5,509,882
Timing Adjustment	<u>602,319</u>	<u>261,638</u>	<u>162,987</u>	<u>28,760</u>	<u>1,055,704</u>
Total Employer Contribution Dollar	12,648,691	5,494,397	3,422,730	603,959	22,169,777
Projected Fiscal 2018 Pay	71,248,786	29,625,506	12,006,324	6,180,248	119,060,864
Total Employer Contribution (% of Pay)	17.75%	18.55%	28.51%	9.77%	18.62%
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 2018 contribution <sup>1</sup>	17	17	17	17	

<sup>1</sup> Closed 20-year period beginning with December 31, 2014 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, 2015	561,004	248,967	131,681	35,914	977,566
b. Normal Cost at December 31, 2015	9,330	4,897	2,168	800	17,195
c. Interest on a. + b. to End of Year	41,349	18,405	9,704	2,662	72,120
d. Benefit Payments and Refund of Contributions with Interest to End of Year	39,135	15,955	7,851	2,676	65,677
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.)	572,488	256,314	135,702	36,700	1,001,204
2. Actuarial Accrued Liability at December 31, 2016	<u>585,795</u>	<u>261,908</u>	<u>134,588</u>	<u>36,847</u>	<u>1,019,138</u>
3. Liability (Gain) / Loss (2. - 1.f.)	13,307	5,594	(1,114)	147	17,934
4. Expected Actuarial Value of Assets					
a. Actuarial Value of Assets at December 31, 2015	521,865	235,588	107,802	37,676	902,931
b. Interest on a. to End of Year	37,835	17,080	7,816	2,732	65,463
c. Contribution Made	13,009	6,889	4,066	590	24,554
d. Interest on c. to End of Year	472	250	147	21	890
e. Benefit Payments and Refund of Contributions with Interest to End of Year	<u>39,135</u>	<u>15,955</u>	<u>7,851</u>	<u>2,676</u>	<u>65,677</u>
f. Expected Actuarial Value of Assets at December 31, 2016 (a. + b. + c. + d. - e.)	533,986	243,852	111,980	38,343	928,161
5. Actuarial Value of Assets as of December 31, 2016	<u>541,097</u>	<u>247,082</u>	<u>113,460</u>	<u>38,856</u>	<u>940,495</u>
6. Actuarial Asset (Gain) / Loss (4.f. -5.)	(7,111)	(3,230)	(1,480)	(513)	(12,334)
7. Actuarial (Gain) / Loss (3. + 6.)	6,196	2,364	(2,594)	(366)	5,600

## Section 1.4 - Analysis of Financial Experience

### Analysis of Actuarial (Gains) and Losses Resulting from Differences Between Assumed Experience and Actual Experience (\$'s in 000's)

Type of (Gain) or Loss	Year End December 31, 2016	Last Year's AAL
COLA Experience	0	0.00%
Salary Experience	16,840	1.72%
Investment Experience	(12,334)	(1.26)%
Retirement Experience	(2,791)	(0.29)%
Turnover Experience	(93)	(0.01)%
Deaths among active Experience	19	0.00%
Disability retirements Experience	(143)	(0.01)%
Change in service accrual rate	0	0.00%
Inactive mortality Experience	(1,852)	(0.19)%
Return to Work	182	0.02%
New Entrants	18	0.00%
Contribution Shortfall	0	0.00%
Data Corrections	5,539	0.57%
Other	<u>215</u>	<u>0.02%</u>
(Gain) or Loss During Year From Experience	5,600	0.57%

## Section 1.5 - Actuarial Balance Sheet

Financial Resources	December 31, 2016
1. Actuarial Value of Assets	940,494,250
2. Present Value of Future Contributions	
a. Expected Member Contributions	37,791,098
b. Employer Normal Cost	132,422,149
c. State Appropriations	0
d. Total	170,213,247
3. Unfunded Actuarial Accrued Liability/(Reserve)	78,643,609
4. Total Assets [1. + 2.(d) + 3.]	1,189,351,106

Benefit Obligations	December 31, 2016
1. Present Value of Future Benefits	
a. Active members	465,828,406
b. Inactive members	21,905,713
c. Retirees, disabilities and beneficiaries	560,470,846
d. DROP members	<u>141,146,141</u>
e. Total	1,189,351,106

### Section 1.6 - 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%

**Section 1.7 - Solvency Test (\$'s in 000's)**

Valuation Date	Aggregate Accrued Liability For				Portion of Accrued Liabilities Covered by Assets		
	(1) Active Member Contributions	(2) Inactive Members	(3) Active Members (Employer- Financed Portion)	Valuation Assets	(1)	(2)	(3)
December 31, 2012	3,569	589,270	274,380	795,606	100.00%	100.00%	73.90%
December 31, 2013	3,720	627,384	252,938	937,653	100.00%	100.00%	81.66%
December 31, 2014	3,597	640,125	267,374	882,565	100.00%	100.00%	89.33%
December 31, 2015	3,668	709,409	264,489	902,931	100.00%	100.00%	71.78%
December 31, 2016	3,629	723,523	291,986	940,494	100.00%	100.00%	73.07%



## Section 2: Plan Assets

### Section 2.1 - Summary of Fair Value of Assets

Asset Category	Fair Value as of Dec. 31, 2016		Fair Value as of Dec. 31, 2015	
	Amount	%	Amount	%
1. Cash and Short-Term Investments				
a. Cash and cash equivalents	31,543,531	3.38%	36,050,277	4.05%
b. Other short-term	<u>1,250</u>	<u>0.00%</u>	<u>1,945</u>	<u>0.00%</u>
c. Total	31,544,781	3.38%	36,052,222	4.05%
2. Investments at Fair Value				
a. U.S. Treasury and agencies	0	0.00%	0	0.00%
b. Fixed Income	76,478,452	8.20%	61,890,245	6.95%
c. Domestic Stocks and Equity	565,566,888	60.60%	551,380,141	61.88%
d. International Equity	0	0.00%	0	0.00%
e. Real Estate	0	0.00%	0	0.00%
f. Hedge Funds	<u>259,619,925</u>	<u>27.82%</u>	<u>241,730,630</u>	<u>27.13%</u>
g. Total	901,665,265	96.62%	855,001,016	95.96%
3. Other Assets	0	0.00%	0	0.00%
4. Total Assets (1.c. + 2.g. + 3.)	933,210,046	100.00%	891,053,238	100.00%
5. Receivables				
a. Interest and Dividends	473,649		456,316	
b. Investments Sold	0		995,094	
c. Other Receivables	<u>637,948</u>		<u>0</u>	
d. Total	1,111,597		1,451,410	
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>5,522,025</u>		<u>7,052,145</u>	
d. Total	5,522,025		7,052,145	
7. Net Assets for Pension [4. + 5.d. – 6.d.]	928,799,618		885,452,503	

## Section 2.2 - Changes in Fair Value of Assets

Transactions	December 31, 2016	December 31, 2015
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### Additions

#### 1. Contributions

a. Contributions from Employers	20,925,610	21,281,612
b. Contributions from Plan Members	<u>3,628,768</u>	<u>3,667,705</u>
c. Total	24,554,378	24,949,317

#### 2. Net Investment Income

a. Interest and Dividends	6,579,557	6,834,437
b. Net Appreciation(Depreciation)	81,258,894	(16,974,183)
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	87,838,451	(10,139,746)
h. Investment Expense	<u>4,908,755</u>	<u>5,809,052</u>
i. Net Investment Income	82,929,696	(15,948,798)

3. Total Additions	107,484,074	9,000,519
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### Deductions

#### 4. Total Additions

a. Retirement Benefits	62,999,550	62,808,671
b. Refund of Contributions	380,322	467,958
c. Death	0	0
d. Supplemental Payment	0	0
e. Administrative Expenses	<u>757,087</u>	<u>527,547</u>

5. Total Deductions	64,136,959	63,804,176
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6. Net Increase	43,347,115	(54,803,657)
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#### 7. Net Assets Held in Trust for Pension Benefits

a. Beginning of Year	885,452,503	940,256,160
b. End of Year	928,799,618	885,452,503

## Section 2.3 - Actuarial Value of Assets

Development of Actuarial Value of Assets	Amount																												
1. Actuarial Value of Assets as of December 31, 2015	902,930,628																												
2. Unrecognized Return as of December 31, 2015	<u>(17,478,125)</u>																												
3. Fair Value of Assets as of December 31, 2015 (1. + 2.)	885,452,503																												
4. Contribution																													
a. Member (includes purchased service)	3,628,768																												
b. Employer	20,925,610																												
c. State appropriations	<u>0</u>																												
d. Total	24,554,378																												
5. Distributions																													
a. Benefit payments	62,999,550																												
b. Refund of contributions	380,322																												
c. Administrative Expenses	<u>757,087</u>																												
d. Total	64,136,959																												
6. Expected Return at 7.25% on																													
a. Item 1	65,462,471																												
b. Item 4 (d.)	890,096																												
c. Item 5 (d.)	<u>2,324,965</u>																												
d. Total [a. + b. - c.]	64,027,602																												
7. Actual Return on Fair Value for Fiscal Year	82,929,696																												
8. Return to be Spread for Fiscal year [(7. - 6(d))]	18,902,094																												
9. Total Fair Value of Assets as of December 31, 2016	928,799,618																												
10. Return to be Spread																													
	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="background-color: #555; color: white;">Fiscal Year</th> <th style="background-color: #555; color: white;">Return to be Spread</th> <th style="background-color: #555; color: white;">Unrecognized Percent</th> <th style="background-color: #555; color: white;">Unrecognized Return</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">2016</td> <td style="text-align: right;">18,902,094)</td> <td style="text-align: center;">80%</td> <td style="text-align: right;">15,121,675</td> </tr> <tr> <td style="text-align: center;">2015</td> <td style="text-align: right;">(80,684,125)</td> <td style="text-align: center;">60%</td> <td style="text-align: right;">(48,410,475)</td> </tr> <tr> <td style="text-align: center;">2014</td> <td style="text-align: right;">2,821,240</td> <td style="text-align: center;">40%</td> <td style="text-align: right;">1,128,496</td> </tr> <tr> <td style="text-align: center;">2013</td> <td style="text-align: right;">102,328,360</td> <td style="text-align: center;">20%</td> <td style="text-align: right;">20,465,672</td> </tr> <tr> <td style="text-align: center;">2012</td> <td style="text-align: right;">22,225,435</td> <td style="text-align: center;">0%</td> <td style="text-align: right;"><u>0</u></td> </tr> <tr> <td></td> <td style="text-align: center;">Total</td> <td></td> <td style="text-align: right;">(11,694,632)</td> </tr> </tbody> </table>	Fiscal Year	Return to be Spread	Unrecognized Percent	Unrecognized Return	2016	18,902,094)	80%	15,121,675	2015	(80,684,125)	60%	(48,410,475)	2014	2,821,240	40%	1,128,496	2013	102,328,360	20%	20,465,672	2012	22,225,435	0%	<u>0</u>		Total		(11,694,632)
Fiscal Year	Return to be Spread	Unrecognized Percent	Unrecognized Return																										
2016	18,902,094)	80%	15,121,675																										
2015	(80,684,125)	60%	(48,410,475)																										
2014	2,821,240	40%	1,128,496																										
2013	102,328,360	20%	20,465,672																										
2012	22,225,435	0%	<u>0</u>																										
	Total		(11,694,632)																										
11. Preliminary Actuarial Value of Assets (9. - 10.)	940,494,250																												
12. Corridor																													
a. Lower Limit: 80% x 9.	743,039,695																												
b. Upper Limit: 120% x 9.	1,114,559,541																												
c. Adjustment to 11. to fit limits	0																												
13. Actuarial Value of Assets (11. + 12.c.)	940,494,250																												
14. Recognized Rate of Return for the Year on Actuarial Value of Assets <sup>1</sup>	8.74%																												
15. Rate of Return for the Year on Market Value of Assets (2. x 7. / [3. + 9. - 7.])	9.58%																												

<sup>1</sup> The rate of return is based on the change in the actuarial value of assets from last year to this year. The rate of return is calculated assuming contributions and disbursements occur halfway through the year.



## 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	521,864,679	235,587,948	107,801,706	37,676,295	902,930,628
2. Employee Contributions	2,039,719	1,053,581	389,500	145,968	3,628,768
3. Employer contributions	10,969,331	5,835,096	3,676,718	444,465	20,925,610
4. Benefits paid	37,604,096	15,327,389	7,576,330	2,491,735	62,999,550
5. Refund of contributions	219,813	69,559	292	90,658	380,322
6. Administrative expense allocated on BOY asset value	<u>437,572</u>	<u>197,535</u>	<u>90,389</u>	<u>31,591</u>	<u>757,087</u>
7. Average valuation assets [1. + 0.5 * {2. + 3. - 4. - 5. - 6.}]	509,238,464	231,235,045	106,001,310	36,664,520	883,139,339
8. Investment income allocated on average valuation assets	44,484,276	20,199,424	9,259,692	3,202,811	77,146,203
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.]	541,096,524	247,081,566	113,460,605	38,855,555	940,494,250
11. Total Revenues [2. +3. + 8.]	57,493,326	27,088,101	13,325,910	3,793,244	101,700,581
Percentage of revenue attributable to:					
Employee contributions	3.5%	3.9%	2.9%	3.8%	3.6%
Employer contributions	19.1%	21.5%	27.6%	11.7%	20.6%
Investment income	77.3%	74.6%	69.6%	84.4%	75.9%
12. Total Expenditures [4. + 5. + 6.]	38,261,481	15,594,483	7,667,011	2,613,984	64,136,959
Percentage of expenditures attributable to:					
Benefits paid	98.3%	98.3%	98.8%	95.3%	98.2%
Refund of contributions	0.6%	0.4%	0.0%	3.5%	0.6%
Investment income	1.1%	1.3%	1.2%	1.2%	1.2%

## 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%

## 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
2017	7,034	53,302	14,338	74,674
2018	5,249	52,168	10,615	68,032
2019	6,382	51,740	15,074	73,196
2020	9,303	51,155	16,130	76,588
2021	12,739	50,561	17,316	80,616
2022	15,980	49,946	11,432	77,358
2023	19,604	49,463	9,072	78,139
2024	23,293	48,784	9,040	81,117
2025	26,776	48,014	9,008	83,798
2026	29,354	47,256	8,971	85,581
2027	31,801	46,430	8,930	87,161
2028	36,053	45,474	8,887	90,414
2029	39,900	44,492	8,826	93,218
2030	43,076	43,457	8,767	95,300
2031	46,515	42,438	8,689	97,642
2032	49,367	41,346	8,616	99,329
2033	51,888	40,186	8,539	100,613
2034	54,539	38,950	8,455	101,944
2035	56,237	37,694	8,361	102,292
2036	56,956	36,327	8,259	101,542
2037	58,642	34,895	8,145	101,682
2038	60,267	33,435	8,021	101,723
2039	62,616	31,920	7,883	102,419
2040	65,138	30,359	7,731	103,228
2041	67,665	28,790	7,565	104,020
2042	70,053	27,177	7,383	104,613
2043	71,359	25,551	7,183	104,093
2044	71,616	23,937	6,966	102,519
2045	71,737	22,318	6,731	100,786
2046	71,401	20,723	6,479	98,603
2047	70,918	19,143	6,208	96,269

## 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, 2016. The liabilities and reserves are shown below:

	General County	Sheriff's Department	Road Commission	Martha T. Berry	Total
1. Retiree Liability	408,888,650	175,031,405	89,546,033	28,150,899	701,616,987
2. Retiree Reserve	<u>391,379,785</u>	<u>166,216,231</u>	<u>86,668,367</u>	<u>27,801,018</u>	<u>672,065,401</u>
3. Shortfall	17,508,865	8,815,174	2,877,666	349,881	29,551,586

As of the valuation date, there is no shortfall in the retiree reserve balances for all groups.

Reserve Accounts	Amount
1. Member Contributions	42,681,937
2. Reserve for benefits now paid	672,065,401
3. Reserve for future benefits	214,052,280
4. Supplemental reserve	<u>0</u>
5. Total	928,799,618



## 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	
	2016	2015	2016	2015	2016	2015	2016	2015	2016	2015
Active Members										
1. Number	1,322	1,448	380	408	189	199	129	168	2,020	2,223
2. Average Age	46.4	45.8	39.5	39.0	44.4	43.8	44.5	42.7	44.8	44.2
3. Average Credited Service	9.3	8.7	11.7	11.0	14.3	13.7	6.6	5.1	10.1	9.3
4. Average Annual Earning	54,252	43,215	75,260	61,041	62,361	59,889	46,317	34,867	57,710	47,348
5. Total Annual Earnings	71,721,476	62,574,982	27,091,749	24,904,616	11,786,239	11,917,815	5,974,925	5,857,665	116,574,389	105,254,524
Retirees, Disableds and Beneficiaries										
1. Number	1,789	1,758	321	293	301	307	189	191	2,600	2,549
2. Average Age	69.9	69.7	63.9	64.6	69.7	69.1	70.3	69.0	69.2	69.0
3. Average Monthly Pension Benefit	1,474	1,688	3,012	3,807	1,941	2,188	1,094	1,132	1,691	1,950
DROP Participants										
1. Number	226	233	55	65	37	31	8	9	326	338
2. Average Age	58.9	58.3	53.5	53.2	56.7	56.9	56.1	57.5	57.7	57.1
3. Average Monthly Pension Benefit	1,908	1,873	4,023	3,961	2,709	2,637	1,491	1,498	2,345	2,334
Vested Terminations										
1. Number	236	233	19	26	16	3	17	20	288	282
2. Average Age	50.0	50.7	49.0	50.3	50.7	48.7	53.7	51.9	50.2	50.8
3. Average Monthly Pension Benefit	956	974	1,997	1,775	1,348	1,892	760	759	1,032	1,042
Nonvested, Owed Refund										
1. Number	232	242	28	25	1	0	110	103	371	370
2. Average Payoff	2,530	1,841	1,450	759	10,828	0	689	550	1,925	1,409
Total Number of Members	3,805	3,914	803	817	544	540	453	491	5,605	5,762

**Section 3.2 - Age and Service Distribution of Active Members as of December 31, 2016 – 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	28	0	0	0	0	0	0	0	28
	Total Salary	1,286,560	0	0	0	0	0	0	0	1,286,560
	Average Salary	45,949	0	0	0	0	0	0	0	45,949
25-29	Number	126	10	1	0	0	0	0	0	137
	Total Salary	6,290,778	N/A	N/A	0	0	0	0	0	6,949,634
	Average Salary	49,927	N/A	N/A	0	0	0	0	0	50,727
30-34	Number	131	35	27	2	1	0	0	0	196
	Total Salary	6,591,198	2,090,249	1,718,234	N/A	N/A	0	0	0	10,563,913
	Average Salary	50,314	59,721	63,638	N/A	N/A	0	0	0	53,898
35-39	Number	90	44	94	40	0	0	0	0	268
	Total Salary	4,659,915	2,455,325	6,173,589	2,640,153	0	0	0	0	15,928,982
	Average Salary	51,777	55,803	65,676	66,004	0	0	0	0	59,437
40-44	Number	78	51	97	109	23	0	0	0	358
	Total Salary	3,856,403	2,793,903	5,949,406	7,214,782	1,636,654	0	0	0	21,451,148
	Average Salary	49,441	54,782	61,334	66,191	71,159	0	0	0	59,919
45-49	Number	90	38	94	91	79	27	2	1	422
	Total Salary	4,926,811	2,149,257	5,567,857	6,231,420	5,622,077	1,619,717	N/A	N/A	26,353,688
	Average Salary	54,742	56,559	59,233	68,477	71,166	59,990	N/A	N/A	62,449
50-54	Number	63	45	87	48	26	14	3	1	287
	Total Salary	3,013,089	2,379,280	4,966,318	2,883,862	2,028,224	N/A	N/A	N/A	16,422,817
	Average Salary	47,827	52,873	57,084	60,080	78,009	N/A	N/A	N/A	57,222
55-59	Number	56	39	73	24	10	2	0	1	205
	Total Salary	2,886,248	2,125,783	3,918,566	1,465,493	N/A	N/A	0	N/A	11,241,317
	Average Salary	51,540	54,507	53,679	61,062	N/A	N/A	0	N/A	54,836
60-64	Number	29	16	32	8	2	0	0	0	87
	Total Salary	1,555,543	N/A	1,857,321	N/A	N/A	0	0	0	4,777,381
	Average Salary	53,639	N/A	58,041	N/A	N/A	0	0	0	54,912
65-59	Number	1	6	6	6	2	0	1	0	22
	Total Salary	N/A	N/A	N/A	N/A	N/A	0	N/A	0	1,091,293
	Average Salary	N/A	N/A	N/A	N/A	N/A	0	N/A	0	49,604
70+	Number	2	1	4	2	0	0	0	1	10
	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
<b>Total</b>	Number	694	285	515	330	143	43	6	4	2,020
	Total Salary	35,117,023	15,686,570	30,751,776	21,421,387	10,206,604	2,656,522	N/A	N/A	116,574,389
	Average Salary	50,601	55,041	59,712	64,913	71,375	61,780	N/A	N/A	57,710



Section 3.2 - Age and Service Distribution of Active Members as of December 31, 2016 – 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	10	0	0	0	0	0	0	0	10
	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	57	3	0	0	0	0	0	0	60
	Total Salary	2,626,824	N/A	0	0	0	0	0	0	2,741,980
	Average Salary	46,085	N/A	0	0	0	0	0	0	45,700
30-34	Number	89	20	6	0	1	0	0	0	116
	Total Salary	4,239,333	1,127,656	N/A	0	N/A	0	0	0	5,673,225
	Average Salary	47,633	56,383	N/A	0	N/A	0	0	0	48,907
35-39	Number	69	35	51	14	0	0	0	0	169
	Total Salary	3,486,774	1,950,093	3,250,143	N/A	0	0	0	0	9,408,639
	Average Salary	50,533	55,717	63,728	N/A	0	0	0	0	55,672
40-44	Number	61	38	56	58	5	0	0	0	218
	Total Salary	3,037,264	2,094,716	3,180,121	3,410,173	N/A	0	0	0	11,958,416
	Average Salary	49,791	55,124	56,788	58,796	N/A	0	0	0	54,855
45-49	Number	70	30	69	55	27	10	0	1	262
	Total Salary	3,822,177	1,661,510	4,044,139	3,537,659	1,667,087	N/A	0	N/A	15,435,673
	Average Salary	54,603	55,384	58,611	64,321	61,744	N/A	0	N/A	58,915
50-54	Number	44	39	67	36	14	11	1	1	213
	Total Salary	1,984,950	2,026,623	3,612,096	1,921,422	N/A	N/A	N/A	N/A	11,489,255
	Average Salary	45,113	51,965	53,912	53,373	N/A	N/A	N/A	N/A	53,940
55-59	Number	46	32	61	18	7	2	0	1	167
	Total Salary	2,400,412	1,789,847	3,145,217	N/A	N/A	N/A	0	N/A	8,996,710
	Average Salary	52,183	55,933	51,561	N/A	N/A	N/A	0	N/A	53,873
60-64	Number	26	15	27	6	2	0	0	0	76
	Total Salary	1,358,655	N/A	1,508,599	N/A	N/A	0	0	0	4,080,134
	Average Salary	52,256	N/A	55,874	N/A	N/A	0	0	0	53,686
65-69	Number	1	6	6	6	2	0	1	0	22
	Total Salary	N/A	N/A	N/A	N/A	N/A	0	N/A	0	1,091,293
	Average Salary	N/A	N/A	N/A	N/A	N/A	0	N/A	0	49,604
70+	Number	1	1	4	2	0	0	0	1	9
	Total Salary	N/A	N/A	N/A	N/A	0	0	0	N/A	N/A
	Average Salary	N/A	N/A	N/A	N/A	0	0	0	N/A	N/A
Total	Number	474	219	347	195	58	23	2	4	1,322
	Total Salary	23,345,364	11,827,069	19,552,270	11,358,926	3,702,816	1,479,036	N/A	N/A	71,721,476
	Average Salary	49,252	54,005	56,347	58,251	63,842	64,306	N/A	N/A	54,252

**Section 3.2 - Age and Service Distribution of Active Members as of December 31, 2016 – 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	14	0	0	0	0	0	0	0	14
	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	53	5	1	0	0	0	0	0	59
	Total Salary	2,987,180	N/A	N/A	0	0	0	0	0	3,420,980
	Average Salary	56,362	N/A	N/A	0	0	0	0	0	57,983
30-34	Number	27	12	16	1	0	0	0	0	56
	Total Salary	1,598,290	N/A	N/A	N/A	0	0	0	0	3,654,870
	Average Salary	59,196	N/A	N/A	N/A	0	0	0	0	65,266
35-39	Number	6	3	27	14	0	0	0	0	50
	Total Salary	N/A	N/A	1,934,519	N/A	0	0	0	0	3,742,703
	Average Salary	N/A	N/A	71,649	N/A	0	0	0	0	74,854
40-44	Number	4	2	27	37	13	0	0	0	83
	Total Salary	N/A	N/A	1,965,692	2,920,137	N/A	0	0	0	6,379,712
	Average Salary	N/A	N/A	72,803	78,923	N/A	0	0	0	76,864
45-49	Number	4	5	14	21	32	1	0	0	77
	Total Salary	N/A	N/A	N/A	1,701,831	2,696,999	N/A	0	0	6,060,082
	Average Salary	N/A	N/A	N/A	81,040	84,281	N/A	0	0	78,702
50-54	Number	3	2	9	6	8	1	0	0	29
	Total Salary	N/A	N/A	N/A	N/A	N/A	N/A	0	0	2,209,245
	Average Salary	N/A	N/A	N/A	N/A	N/A	N/A	0	0	76,181
55-59	Number	1	0	7	2	1	0	0	0	11
	Total Salary	N/A	0	N/A	N/A	N/A	0	0	0	N/A
	Average Salary	N/A	0	N/A	N/A	N/A	0	0	0	N/A
60-64	Number	0	0	1	0	0	0	0	0	1
	Total Salary	0	0	N/A	0	0	0	0	0	N/A
	Average Salary	0	0	N/A	0	0	0	0	0	N/A
65-59	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
<b>Total</b>	Number	112	29	102	81	54	2	0	0	380
	Total Salary	6,435,387	1,978,783	7,404,307	6,606,744	4,538,077	N/A	0	0	27,091,749
	Average Salary	57,459	68,234	72,591	81,565	84,038	N/A	0	0	71,294



Section 3.2 - Age and Service Distribution of Active Members as of December 31, 2016 – 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	4	0	0	0	0	0	0	0	4
	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	7	0	5	1	0	0	0	0	13
	Total Salary	N/A	0	N/A	N/A	0	0	0	0	N/A
	Average Salary	N/A	0	N/A	N/A	0	0	0	0	N/A
35-39	Number	7	0	12	11	0	0	0	0	30
	Total Salary	N/A	0	N/A	N/A	0	0	0	0	1,818,545
	Average Salary	N/A	0	N/A	N/A	0	0	0	0	60,618
40-44	Number	3	2	10	14	4	0	0	0	33
	Total Salary	N/A	N/A	N/A	N/A	N/A	0	0	0	2,074,419
	Average Salary	N/A	N/A	N/A	N/A	N/A	0	0	0	62,861
45-49	Number	8	0	6	13	16	13	2	0	58
	Total Salary	N/A	0	N/A	N/A	N/A	N/A	N/A	0	3,805,059
	Average Salary	N/A	0	N/A	N/A	N/A	N/A	N/A	0	65,604
50-54	Number	3	1	8	6	4	2	2	0	26
	Total Salary	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0	1,772,442
	Average Salary	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0	68,171
55-59	Number	3	3	4	4	2	0	0	0	16
	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	2	0	0	0	0	3
	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
<b>Total</b>	Number	41	6	46	51	26	15	4	0	189
	Total Salary	2,143,118	N/A	2,861,308	3,330,168	1,782,286	N/A	N/A	0	11,786,239
	Average Salary	52,271	N/A	62,202	65,297	68,549	N/A	N/A	0	62,361

**Section 3.2 - Age and Service Distribution of Active Members as of December 31, 2016 – 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	10	2	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
30-34	Number	8	3	0	0	0	0	0	0	11
	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
35-39	Number	8	6	4	1	0	0	0	0	19
	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	10	9	4	0	1	0	0	0	24
	Total Salary	N/A	N/A	N/A	0	N/A	0	0	0	1,038,600
	Average Salary	N/A	N/A	N/A	0	N/A	0	0	0	43,275
45-49	Number	8	3	5	2	4	3	0	0	25
	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	13	3	3	0	0	0	0	0	19
	Total Salary	N/A	N/A	N/A	0	0	0	0	0	951,876
	Average Salary	N/A	N/A	N/A	0	0	0	0	0	50,099
55-59	Number	6	4	1	0	0	0	0	0	11
	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	3	1	3	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
65-59	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	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
<b>Total</b>	Number	67	31	20	3	5	3	0	0	129
	Total Salary	3,193,153	1,425,560	933,891	N/A	N/A	N/A	0	0	5,974,925
	Average Salary	47,659	45,986	46,695	N/A	N/A	N/A	0	0	46,317

### Section 3.3 - Member Data Reconciliation

	Inactive Members						
	Active	Deferred Benefits	DROP	Retired Members	Disabled Members	Beneficiaries	Total
As of December 31, 2015	2,223	652	338	2,090	94	365	5,762
Changes due to:							
Age/Service Retirements	(37)	(26)	(45)	104	0	4	0
Disability Retirements	(2)	(1)	0	0	3	0	0
Deaths Without Beneficiary	0	0	0	(25)	(2)	(15)	(42)
Deaths With Beneficiary	0	(2)	0	(25)	(4)	0	(31)
Non-Vested Terminations	(5)	0	0	0	0	0	(5)
Vested Terminations	(78)	78	0	0	0	0	0
Rehires	6	(6)	0	0	0	0	0
Cash-Outs	(52)	(33)	0	0	0	0	(85)
Expiration of Benefits	0	0	0	0	0	(6)	(6)
Data Corrections	(3)	(3)	1	(2)	0	19	12
Transfers Out	0	0	0	0	0	0	0
DROP	(32)	0	32	0	0	0	0
New Entrants	0	0	0	0	0	0	0
Net Change	(203)	7	(12)	52	(3)	2	(157)
As of December 31, 2016	2,020	659	326	2,142	91	367	5,605



### 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%

### 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	475	51	3	123	652	3,527,398	5,410
December 31, 2016	468	47	17	127	659	3,241,220	4,918

### 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	105	56	48	1	77	5	19	4
301 - 600	351	259	80	12	181	33	63	74
601 - 900	385	305	64	16	166	47	65	107
901 - 1,200	326	264	45	17	129	39	63	95
1,201 - 1,500	227	191	26	10	85	32	44	66
1,501 - 1,800	215	177	28	10	88	24	36	67
1,801 - 2,100	187	152	23	12	57	28	53	49
2,101 - 2,400	165	149	13	3	45	21	47	52
2,401 - 2,700	137	124	11	2	39	20	33	45
2,701 - 3,000	123	113	9	1	28	13	42	40
3,001 - 3,300	98	86	11	1	22	8	33	35
3,301 - 3,600	73	69	2	2	13	6	22	32
3,601 - 3,900	56	52	2	2	13	6	21	16
3,901 - 4,200	39	37	1	1	6	4	13	16
Over \$4,200	113	108	4	1	25	8	45	35
<b>Totals</b>	<b>2,600</b>	<b>2,142</b>	<b>367</b>	<b>91</b>	<b>974</b>	<b>294</b>	<b>599</b>	<b>733</b>

- | 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	2	1	0	0	1
601 - 900	29	7	1	4	17
901 - 1,200	40	8	6	8	18
1,201 - 1,500	35	10	2	7	16
1,501 - 1,800	31	8	1	6	16
1,801 - 2,100	25	10	4	6	5
2,101 - 2,400	31	4	4	8	15
2,401 - 2,700	19	4	1	5	9
2,701 - 3,000	28	5	1	5	17
3,001 - 3,300	15	5	2	2	6
3,301 - 3,600	15	2	1	2	10
3,601 - 3,900	11	1	1	2	7
3,901 - 4,200	8	1	0	3	4
Over \$4,200	37	5	2	12	18
<b>Totals</b>	<b>326</b>	<b>71</b>	<b>26</b>	<b>70</b>	<b>159</b>

### 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	9	99,066	0	0	9	99,066
30-34	8	113,718	0	0	8	113,718
35-39	6	82,095	2	32,503	8	114,598
40-44	2	14,891	2	43,858	4	58,749
45-49	18	403,343	11	253,482	29	656,826
50-54	98	2,918,169	19	365,829	117	3,283,998
55-59	253	7,507,676	10	217,027	263	7,724,703
60-64	493	11,697,755	14	262,893	507	11,960,648
65-69	549	11,619,550	12	170,623	561	11,790,173
70-74	381	7,210,994	8	95,401	389	7,306,395
75	66	1,219,394	2	14,854	68	1,234,248
76	59	942,810	2	21,166	61	963,975
77	49	856,643	1	6,030	50	862,674
78	52	972,451	0	0	52	972,451
79	45	624,837	2	29,527	47	654,364
80	41	604,090	0	0	41	604,090
81	33	441,616	1	15,285	34	456,902
82	36	513,891	1	12,733	37	526,623
83	32	422,341	0	0	32	422,341
84	41	474,643	1	9,667	42	484,311
85	38	385,224	1	10,525	39	395,748
86	19	255,750	1	1,637	20	257,387
87	44	484,402	0	0	44	484,402
88	27	345,775	1	6,813	28	352,588
89	22	269,571	0	0	22	269,571
90	19	208,971	0	0	19	208,971
91	24	237,215	0	0	24	237,215
92	10	74,546	0	0	10	74,546
93	12	82,414	0	0	12	82,414
94	5	17,967	0	0	5	17,967
95	4	23,665	0	0	4	23,665
96	1	2,031	0	0	1	2,031
97	8	22,565	0	0	8	22,565
98	3	29,453	0	0	3	29,453
99	0	0	0	0	0	0
100	0	0	0	0	0	0
101	0	0	0	0	0	0
102	1	2,417	0	0	1	2,417
103	1	4,685	0	0	1	4,685
<b>Total</b>	<b>2,509</b>	<b>51,186,624</b>	<b>91</b>	<b>1,569,855</b>	<b>2,600</b>	<b>52,756,478</b>



## Section 3.7a - Schedule of Benefit Payments

Deferred Vested Members		
Attained Age	No.	Estimated Annual Allowances
Under 30	34	0
30	13	0
31	8	19,304
32	12	11,909
33	11	17,212
34	12	0
35	15	17,220
36	19	52,337
37	14	26,875
38	21	72,986
39	14	15,312
40	16	71,733
41	23	170,830
42	17	103,963
43	16	117,359
44	20	159,697
45	25	170,423
46	20	85,141
47	20	118,030
48	16	143,265
49	10	108,594
50	22	147,673
51	26	151,029
52	25	222,397
53	39	203,910
54	37	360,964
55	19	84,026
56	22	163,589
57	20	103,557
58	21	113,351
59	17	138,377
60	10	20,403
61	8	4,024
62	5	26,890
63	4	18,840
64	3	0
65	8	0
66	5	0
67	1	0
68	11	0
<b>Total</b>	<b>659</b>	<b>3,241,220</b>

## Section 3.7b - Schedule of Benefit Payments

Attained Age	DROP Members	
	No.	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	3	98,493
48	2	113,537
49	4	171,401
50	11	482,068
51	25	885,464
52	24	900,852
53	28	850,267
54	25	846,149
55	24	834,904
56	19	481,932
57	18	496,885
58	18	516,461
59	19	403,263
60	24	415,074
61	16	400,744
62	19	300,916
63	12	211,922
64	12	247,551
65	7	150,206
66	5	138,220
67	1	8,247
68	10	219,930
<b>Total</b>	<b>326</b>	<b>9,174,486</b>

## Section 4: Actuarial Assumptions and Methods and Additional Information for Funding

### Valuation Date

12/31/2016

### Actuarial Methods

#### Actuarial Cost Method

Entry Age

#### Amortization Method

##### Period

17 years. Initially established as 20 years with the December 31, 2013 annual actuarial valuation

##### Open or Closed

Closed - each year the period is expected to reduce by 1 year

##### Aggregate or Layered basis

Aggregate - the entire UAAL as of the valuation date is amortized

##### UAAL Payment Increase

The UAAL payments are developed such that they increase by 5% per year

#### Assets Valuation Method

5-year adjusted market value

### Actuarial Assumptions

Investment Rate of Return	7.25%
Payroll Increases	4.0%-10.0% Vary by Employee Group
Inflation Assumption	3.00%

### Marriage Assumption

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

### Expenses

Previous year's administrative expense increased by the inflation assumption and allocated by employer payroll.

### Participant Data

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

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

### Retirement age:

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

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

Retirement Rates		
Retirement Ages	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%

### Healthy Mortality

RP2014 Blue Collar for Road Commission and Sheriffs and RP2014 for all others, both with MP2016 mortality improvement scale

### Disability Incidence

Disability Rates	
Age	% 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

### Turnover

% 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	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%

### Changes Since the Prior Valuation

- None

## Section 5: Summary of Plan Provisions

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

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

### 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 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 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

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 hires effective December 31, 2015

### Termination Benefit

At termination, participants are eligible for a \$1,000 lump sum payment.



## Section 5 – Summary of Plan Provisions

### Summary of DROP Provisions

Please refer to the Appendix 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 (currently 3.5%).
- 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.

## 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.