



# Monroe County Employees Retirement System

December 31, 2018 | Actuarial Valuation Report

Nyhart Actuary & Employee Benefits

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**Actuarial Certification**

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At the request of the plan sponsor, this report summarizes Monroe County Employees Retirement System as of December 31, 2018. The purpose of this report is to communicate the following results of the valuation:

- Determine Funded Status; and
- Determine Recommended Contribution for the fiscal year January 1, 2020 through December 31, 2020;

This report has been prepared in accordance with the applicable Federal and State laws. Consequently, it may not be appropriate for other purposes. Please contact Nyhart prior to disclosing this report to any other party or relying on its content for any purpose other than that explained above. Failure to do so may result in misrepresentation or misinterpretation of this report.

The results in this report were prepared using information provided to us by other parties. The census information has been provided to us by the employer. Asset information has been provided to us by the trustee. We have reviewed the provided data for reasonableness when compared to prior information provided, but have not audited the data. Where relevant data may be missing, we have made assumptions we believe to be reasonable. We are not aware of any significant issues with and have relied on the data provided. Any errors in the data provided may result in a different result than those provided in this report. A summary of the data used in the valuation is included in this report.

The actuarial assumptions and methods were chosen by the Board. In our opinion, all actuarial assumptions and methods are individually reasonable and in combination represent our best estimate of anticipated experience of the plan. Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following:

- plan experience differing from that anticipated by the economic or demographic assumptions;
- changes in economic or demographic assumptions;
- increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period); and
- changes in plan provisions or applicable law.

We did not perform an analysis of the potential range of future measurements due to the limited scope of our engagement. This report has been prepared in accordance with generally accepted actuarial principles and practice.

This actuarial valuation and/or cost determination was prepared and completed by me or under my direct supervision, and I acknowledge responsibility for the results. To the best of my knowledge, the results are complete and accurate, and in my opinion, the techniques and assumptions used are reasonable.

**Actuarial Certification**

Neither Nyhart nor any of its employees have any relationship with the plan or its sponsor which could impair or appear to impair the objectivity of this report. To the extent that this report or any attachment concerns tax matters, it is not intended to be used and cannot be used by a taxpayer for the purpose of avoiding penalties that may be imposed by law.

The undersigned are compliant with the continuing education requirements of the Qualification Standards for Actuaries Issuing Statements of Actuarial Opinion in the United States and are available for any questions.

Nyhart



Nick Meggos, EA, FCA  
Enrolled Actuary No. 17-7406

October 11, 2019  
Date



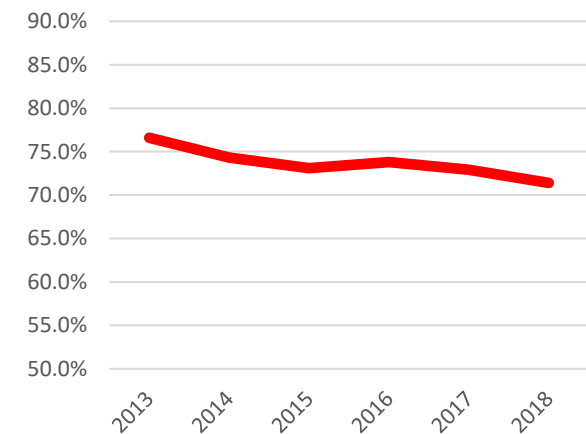
Danielle Winegardner, FSA, EA, MAAA  
Enrolled Actuary No. 17-8260

## Summary Results

The actuarial valuation's primary purpose is to produce a scorecard measure displaying the funding progress of the plan toward the ultimate goal of paying benefits at retirement. The accrued liability is based on an entry age level percentage of pay.

	December 31, 2017	December 31, 2018
<b>Funded Status Measures</b>		
Accrued Liability	\$284,313,525	\$293,602,703
Actuarial Value of Assets	\$207,191,203	\$209,672,672
Unfunded Accrued Liability	\$77,122,322	\$83,930,031
Funded Percentage (AVA)	72.9%	71.4%
Funded percentage (MVA)	72.8%	64.1%
Interest Rate	7.00%	7.00%
<b>Cost Measures</b>		
Recommended Total Contribution	\$9,222,914	\$10,565,680
Recommended Contribution (as a percentage of payroll)	26.6%	28.3%
<b>Asset Performance</b>		
Market Value of Assets	\$206,965,535	\$188,073,094
Actuarial Value of Assets	\$207,191,203	\$209,672,673
Actuarial Value/Market Value	100.1%	111.5%
<b>Member Information</b>		
Active Members	725	707
Terminated Vested Members	143	140
Retirees, Beneficiaries, and Disabled Members	768	798
Total	1,636	1,645
Covered Payroll	\$35,292,710	\$35,344,621

### History of Funded Ratio



### **Changes Since Prior Valuation and Key Notes**

There have been no changes to the plan provisions or assumptions since the last valuation.

Effective December 31, 2018, there was a change in firm and enrolled actuary for the plan. The methods are substantially the same and the accrued liability, normal cost, and plan assets for the prior year are within 5%. Results from December 31, 2017 and prior plan years shown in this report were obtained from valuation results prepared by Buck Global, LLC (Buck).

The Board approved a slight change to the development of the recommended contribution rate calculation. The recommended contribution is now calculated with 1 and ½ years of interest, instead of ½ year. The contribution rate is determined by dividing the recommended contribution by the expected payroll for the year the contributions will be calculated. For the December 31, 2018 valuation, the recommended contribution is divided by expected 2020 payroll.

Historical Valuation Summary

	12/31/2014	12/31/2015	12/31/2016	12/31/2017	12/31/2018
<b>Funding</b>					
Actuarial Accrued Liability	\$262,414,652	\$273,288,937	\$274,544,403	\$284,313,525	\$293,602,703
Actuarial Value of Assets	\$195,099,761	\$199,696,082	\$202,718,040	\$207,191,203	\$209,672,672
Unfunded Actuarial Accrued Liability	\$67,314,891	\$73,592,855	\$71,826,363	\$77,122,322	\$83,930,031
Funded Percentage	74.3%	73.1%	73.8%	72.9%	71.4%
Total Normal Cost	\$4,235,277	\$4,330,058	\$4,152,772	\$4,008,790	\$4,074,075
Expense Load Assumption (% of Pay)	0.50%	0.50%	0.50%	0.50%	0.50%
Actual Contributions	\$8,049,604	\$8,836,515	\$8,895,675	\$9,351,433	\$9,132,452
Recommended Contribution	\$8,813,177	\$9,111,463	\$8,904,406	\$9,589,792	\$9,333,339
Interest Rate	7.00%	7.00%	7.00%	7.00%	7.00%
<b>Rate of Return</b>					
Actuarial Value of Assets	3.2%	5.7%	5.0%	5.6%	5.1%
Market Value of Assets	4.2%	(0.6)%	6.9%	13.3%	(5.5)%
<b>Demographic Information</b>					
Active Participants	713	717	713	725	707
Terminated Vested Participants	142	150	151	143	140
Retired Participants and Beneficiaries	719	736	752	768	798
Total Participants	1,574	1,603	1,616	1,636	1,645
Covered Payroll	\$34,911,801	\$35,914,410	\$34,786,368	\$35,292,710	\$35,344,621
Average Covered Pay	\$48,965	\$50,090	\$48,789	\$48,680	\$48,494

## Identification of Risks

The results presented in this report are shown as single point values. However, these values are derived using assumptions about future markets and demographic behavior. If actual experience deviates from our assumptions, the actual results for the plan will consequently deviate from those presented in this report. Therefore, it is critical to understand the risks facing this pension plan. The following table shows the risks we believe are most relevant to the Monroe County Employees Retirement System. The risks are generally ordered with those we believe to have the most significance at the top. Also shown are possible methods by which a more detailed assessment of the risk can be performed.

Type of Risk	Method to Assess Risk
Investment Return	Scenario Testing; Asset Liability Study
Demographic Risk	Scenario Testing; Stress Testing; Experience Study
Participant Longevity	Stress Testing; Experience Study
Salary Growth	Scenario Testing; Experience Study; Review Future Budgets
Interest Rates	Scenario Testing; Stochastic Modeling

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### Plan Maturity Measures - December 31, 2018

Each pension plan has a distinct life-cycle. New plans promise future benefits to active employees and then accumulate assets to pre-fund those benefits. As the plan matures, benefits are paid and the pre-funded assets begin to decumulate until ultimately, the plan pays out all benefits. A plan's maturity has a dramatic influence on how risks should be viewed. The following maturity measures illustrate where the Monroe County Employees Retirement System falls in its life-cycle.

#### **Duration of Liabilities: 11.0%**

Duration is the most common measure of plan maturity. It is defined as the sensitivity of the liabilities to a change in the interest rate assumption. The metric also approximates the weighted average length of time, in years, until benefits are expected to be paid. A plan with high duration is, by definition, more sensitive to changes in interest rates. A plan with low duration is more susceptible to risk if asset performance deviates from expectations as there would be less time to make up for market losses in adverse market environments while more favorable environments could result in trapped surplus from gains. Conversely, high duration plans can often take on more risk when investing, and low duration plans are less sensitive to interest rate fluctuations.

#### **Demographic Distribution - Ratio of Actively Accruing Participants to All Participants: 43.0%**

A plan with a high ratio is more sensitive to fluctuations in salary (if a salary-based plan) and statutory changes. A plan with a low ratio is at higher risk from demographic experience. Such a plan should pay close attention to valuation assumptions as there will be less opportunity to realize future offsetting gains or losses when current experience deviates from assumptions. Plans with a low ratio also have limited opportunities to make alterations to plan design to affect future funded status.

#### **Asset Leverage - Ratio of Payroll for Plan Participants to Market Value of Assets: 18.8%**

Younger plans typically have a large payroll base from which to draw in order to fund the plan while mature plans often have a large pool of assets dedicated to providing benefits to a population primarily consisting of members no longer on payroll. Plans with low asset leverage will find it more difficult to address underfunding, as the contributions needed to make up the deficit will represent a higher percentage of payroll than for a plan with high asset leverage.

#### **Benefit Payment Percentage - Ratio of Annual Benefit Payments to Market Value of Assets: 8.9%**

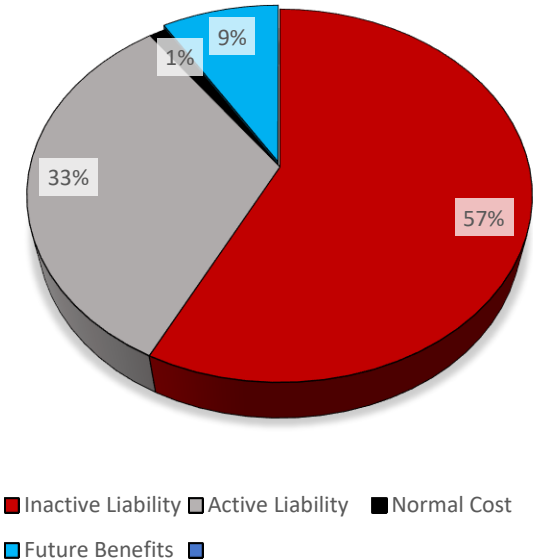
As a plan enters its decumulation phase, a larger percentage of the pre-funded assets are paid out each year to retirees. A high percentage is not cause for alarm as long as the plan is nearly fully funded. However, such a plan is more sensitive to negative asset performance, especially if cash contributions are not an option to make up for losses.

**Present Value of Future Benefits**

The Present Value of Future Benefits represents the discounted value of all future benefits expected to be payable to current members, considering future service and compensation not yet earned.

	<b>December 31, 2018</b>
<b>Present Value of Future Benefits</b>	
Active members	
Retirement	\$115,726,486
Disability	11,163,309
Death	2,689,449
Termination	9,190,992
Total active	\$138,770,236
Inactive members	
Retired and Disabled members	\$165,627,762
Beneficiaries	8,415,805
Terminated vested members	13,205,195
Total inactive	\$187,248,762
 Total	 \$326,018,998
 <b>Present Value of Future Payrolls</b>	 \$295,384,664
<b>Present Value of Future Employee Contributions</b>	<b>\$7,340,430</b>

**Breakdown of Present Value of Future Benefits**



**Accrued Liability**

The Accrued Liability measures the present value of benefits earned as of the valuation date, using a specified set of actuarial assumptions. It is not a long-term snapshot of the liabilities.

**December 31, 2018**

**Accrued Liabilities**

Active members	
Retirement	\$93,080,237
Disability	7,445,522
Death	1,997,180
Termination	3,831,002
Total Active	<u>\$106,353,941</u>
Inactive members	
Retired and Disabled members	\$165,627,762
Beneficiaries	8,415,805
Terminated vested members	<u>13,205,195</u>
Total Inactive	\$187,248,762
Total	\$293,602,703
Total Normal Cost	\$4,074,075

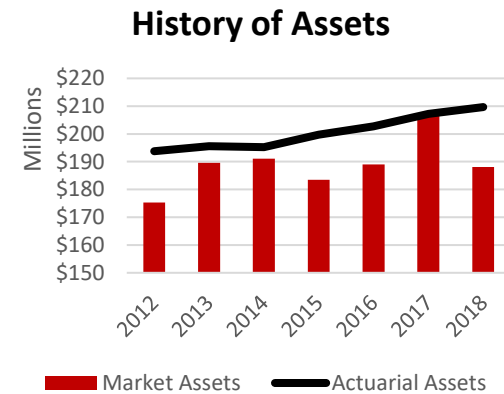
**Asset Information**

The amount of assets backing the pension promise is the most significant driver of volatility and future costs within a pension plan. The investment performance of the assets directly offsets the ultimate cost.

**Market Value  
December 31, 2018**

**Asset Value Reconciliation**

Value of assets, beginning of year	\$206,965,535
Contributions	
Employer	\$8,188,153
Employee	944,299
Total	\$9,132,452
Investment income, net expenses	\$(11,080,239)
Benefit payments and refunds	(16,734,297)
Administrative expenses	(210,357)
Value of assets, end of year	\$188,073,094
Return on Market Value <sup>1</sup>	(5.5)%
<b>Actuarial Value of Plan Assets</b>	<b>\$209,672,672</b>



<sup>1</sup>Return based on mid-year cash flows

**Assets and Liabilities**

**Asset Information (continued)**

Plan Assets are used to develop funded percentages and contribution requirements.

	<b>December 31, 2018</b>
1. Market value of assets, beginning of year	\$206,965,535
2. Contributions	\$9,132,452
3. Admin Expenses	(210,357)
4. Benefit Payments and Refunds	(16,734,297)
5. Expected Total Investment Income	14,229,957
6. Actual Market Value of Assets, end of year	188,073,094
7. Investment Income, net expenses	(11,080,239)
8. Amount of Phased-In Recognition (7 – 5)	(25,310,196)
9. Investment Gain/Loss changes recognized (1/7 over seven years)	
a. From current year $(\$25,310,196) * (6/7)$	(21,694,454)
b. From 1 year prior $(\$10,753,594) * (5/7)$	7,681,139
c. From 2 years prior $(\$1,329,851) * (4/7)$	(759,915)
d. From 3 years prior $(\$14,571,648) * (3/7)$	(6,244,992)
e. From 4 years prior $(\$5,596,234) * (2/7)$	(1,598,924)
f. From 5 years prior $(\$7,122,977) * (1/7)$	1,017,568
g. Total	(21,599,578)
10. Preliminary Actuarial value of assets, end of year (6 – 9(g))	\$209,672,672
11. 80% of Market value of assets	\$150,458,475
12. 120% of Market value of assets	\$225,687,713
13. Final Actuarial value of assets	\$209,672,672
14. Return on Actuarial Value	5.1%

**Assets and Liabilities**

**Reconciliation of Gain/Loss**

**December 31, 2018**

**Liability (gain)/loss**

Actuarial liability (12/31/2017)	\$284,313,525
Normal cost	4,008,790
Benefit payments	(16,734,297)
Expected Interest	19,606,768
Assumption changes	0
Plan provision changes	0
Expected actuarial liability (12/31/2018)	\$291,194,786
Actual actuarial liability	<u>\$293,602,703</u>
Liability (gain)/loss	\$2,407,917

**Asset (gain)/loss**

Actuarial value of assets (12/31/2017)	\$207,191,203
Contributions	9,132,452
Benefit payments and expenses	(16,944,654)
Expected Investment return	14,234,582
Change in actuarial value of assets method	0
Expected actuarial value of assets (12/31/2018)	\$213,613,583
Actual actuarial value of assets (12/31/2018)	<u>\$209,672,672</u>
Asset (gain)/loss	\$3,940,911

**Total (gain)/loss**

\$6,348,828

**Contribution Requirements**

**Development of Recommended Contribution**

The minimum recommended contribution is the annual amount necessary to fund the plan according to funding policies and/or applicable laws. The recommended contribution is composed of the normal cost, administrative expenses, plus an amortization charge.

**December 31, 2018**

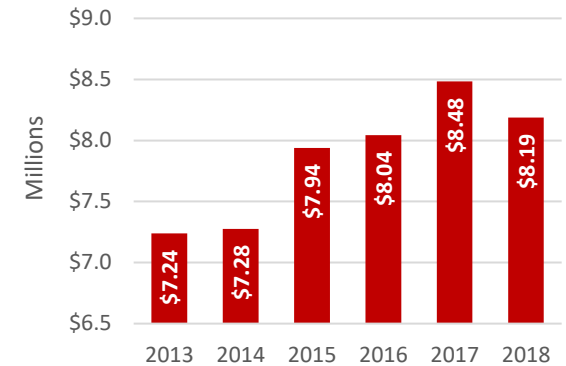
**Funded Position**

1. Entry age accrued liability	\$293,602,703
2. Actuarial value of assets	209,672,672
3. Unfunded actuarial accrued liability (UAAL)	\$83,930,031

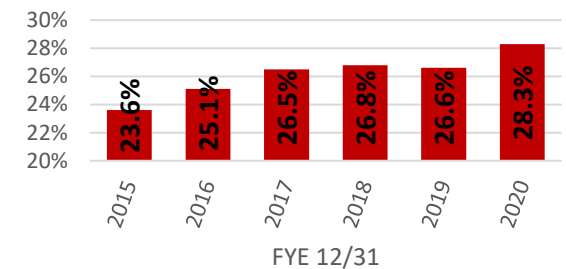
**Employer Contributions<sup>1</sup>**

1. Normal Cost	
(a) Total normal cost	\$4,074,075
(b) Expected participant contributions	872,741
(c) Net normal cost	\$3,201,334
2. Administrative expenses	176,723
3. Amortization of UAAL	6,167,951
4. Interest	1,019,672
5. Total recommended contribution for 2020	\$10,565,680
6. Expected covered payroll	\$37,311,605
As a percentage of covered payroll	28.32%

**History of Contributions**



**History of Recommended Contributions (% of Payroll)**



<sup>1</sup>Contribution by division is shown on page 37

### Michigan PA 202 Reporting Requirements

Under Michigan PA 202 Reporting, the Plan Assumptions fall under the Uniform Assumptions for all categories other than the Amortization of the Unfunded Actuarial Accrued Liability. Therefore the Assets, Liabilities, Unfunded Liability, and Funded Ratio under Uniform Assumptions will be the same as under Plan Assumptions. The only difference will be the Annual Recommended Contribution.

Reporting of Assets and Liabilities under Plan Assumptions follows what is reported in the audited financial statements, and will therefore follow the Proportionate Share required under GASB 67/68.

Funding Assumptions	Plan Assumptions	PA 202 Uniform Assumptions
Interest Rate	7.00%	7.00%
Mortality	RP-2014 Blue Collar with Scale MP 2014 projected generationally	Version of RP-2014
Salary Scale	Ranges from 3.50% to 8.50%	Minimum of 3.00%
Amortization of UAAL	25-year closed	20-year closed

Employer	2018 Employer Contributions	Proportionate Share
General County	\$3,306,681	40.3837%
County Agency	522,456	6.3806%
Sheriff's Office	2,181,897	26.6470%
County Library	608,848	7.4357%
Road Commission	959,805	11.7219%
Mental Health	406,923	4.9697%
Central Dispatch	<u>201,543</u>	<u>2.4614%</u>
Total	\$8,188,153	100.0000%

**Michigan PA 202 Reporting Requirements (continued)**

The following table shows the values that will be reported on the Local Government Retirement System Annual Report (Form 5572).

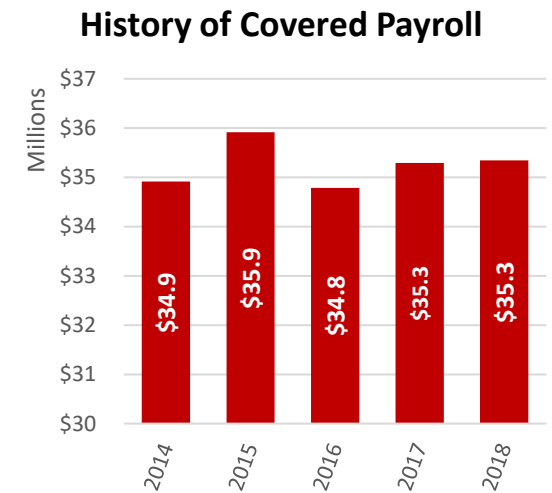
	General, Sheriff, & Central Dispatch	County Agency	County Library	Road Commission	Mental Health	Total
<b>Plan Assumptions: GASB 67/68 Reporting</b>						
Proportionate Share	69.4921%	6.3806%	7.4357%	11.7219%	4.9697%	100.0000%
Assets	\$130,695,943	\$12,000,192	\$13,984,551	\$22,045,740	\$9,346,669	\$188,073,094
Liabilities	<u>201,733,463</u>	<u>18,522,689</u>	<u>21,585,612</u>	<u>34,028,321</u>	<u>14,426,889</u>	<u>290,296,974</u>
Unfunded	\$71,037,520	\$6,522,497	\$7,601,061	\$11,982,581	\$5,080,220	\$102,223,880
Funded Ratio	64.79%	64.79%	64.79%	64.79%	64.79%	64.79%
Annual Required Contribution	\$7,411,166	\$649,233	\$848,423	\$803,208	\$853,650	\$10,565,680
<b>Uniform Assumptions</b>						
Assets	\$130,695,943	\$12,000,192	\$13,984,551	\$22,045,740	\$9,346,669	\$188,073,094
Liabilities	<u>201,733,463</u>	<u>18,522,689</u>	<u>21,585,612</u>	<u>34,028,321</u>	<u>14,426,889</u>	<u>290,296,974</u>
Unfunded	\$71,037,520	\$6,522,497	\$7,601,061	\$11,982,581	\$5,080,220	\$102,223,880
Funded Ratio	64.79%	64.79%	64.79%	64.79%	64.79%	64.79%
Annual Required Contribution	\$7,619,234	\$671,002	\$863,136	\$816,800	\$886,854	\$10,857,026

**Demographic Information**

**Demographic Information**

The foundation of a reliable actuarial report is the participant information provided by the plan sponsor. Monitoring trends in demographic information is crucial for long-term pension planning.

	December 31, 2017	December 31, 2018
<b>Participant Counts</b>		
Active Participants	725	707
Retired Participants	632	664
Disabled Participants	51	58
Beneficiaries	85	76
Terminated Vested Participants	143	140
Total Participants	1,636	1,645
<b>Active Participant Demographics</b>		
Average Age	45.6	45.5
Average Service	13.2	13.0
Average Compensation	\$48,680	\$49,992
Covered Payroll (January 1, 2018 – December 31, 2018)	\$35,292,710	\$35,344,621



**Demographic Information**

**Demographic Information (continued)**

	December 31, 2017	December 31, 2018	
<b>Retiree Statistics</b>			Monitoring the average age of the population is important due to the relationship of actuarial cost to age. Generally speaking, an older population generates a higher actuarial cost.
Count	632	664	
Average Age	69.1	69.3	
Average Monthly Benefit	\$1,824	\$1,829	
<b>Disabled Participant Statistics</b>			Changes in the ratio of active to retired participants can be a significant driver of costs in a volatile asset market.
Count	51	58	
Average Age	61.5	61.3	
Average Monthly Benefit	\$1,383	\$1,436	
<b>Beneficiary Statistics</b>			
Count	85	76	
Average Age	73.0	74.9	
Average Monthly Benefit	\$1,000	\$1,046	
<b>Terminated Vested Participant Statistics</b>			
Count	143	140	
Average Age	49.8	50.0	
Average Monthly Benefit	\$1,066	\$1,180	

Participant Reconciliation

	Active	Terminated Vested	Retired	Disabled	Beneficiaries	Totals
<b>Prior Year</b>	725	143	632	51	85	1,636
<b>Active</b>						
To Terminated Vested	(8)	8				0
To Disabled	(6)			6		0
To Retired	(26)		26			0
To Terminated Non-Vested	(16)					(16)
To Lump Sum Cash-Out	(17)					(17)
To Death	(1)					(1)
<b>Terminated Vested</b>						
To Active	1	(1)				0
To Retired		(8)	8			0
<b>Retired</b>						
To Death			(11)			(11)
<b>Survivor</b>						
To Death					(2)	(2)
<b>Additions</b>	55		9	1		65
<b>Removed</b>		(2)			(7)	(9)
<b>Current Year</b>	707	140	664	58	76	1,645

**Active Participant Schedule**

Active participant information grouped based on age and service.

Age Group	Years of Service										Total	Average Pay <sup>1</sup>
	Under 1	1 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 to 34	35 to 39	40 & Up		
Under 25	17	27									44	\$29,184
25 to 29	13	39	7								59	\$35,517
30 to 34	7	12	11	8							38	\$38,946
35 to 39	4	15	15	26	16	2					78	\$50,690
40 to 44	1	8	14	13	41	14					91	\$54,746
45 to 49	6	16	17	13	20	29	17	1			119	\$55,093
50 to 54	6	11	14	6	24	13	26	15	1		116	\$51,263
55 to 59	5	11	15	8	22	16	12	6	3	1	99	\$48,012
60 to 64		8	6	7	8	6	8	2	2		47	\$53,028
65 to 69		3	4			2	1	2			12	\$48,707
70 & up		2	1			1					4	\$57,299
Total	59	152	104	81	131	83	64	26	6	1	707	\$48,494

<sup>1</sup>Part-time employees are excluded from the average pay shown

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**Plan Effective Date**

The plan was effective July 1, 1965.

**Plan Status**

The plan provides ongoing benefit accruals and participation is open to new entrants in all divisions except Mental Health. Mental Health employees hired after 6/1/2012 are not eligible for participation.

**Accrual of Benefits**

A participant shall accumulate a benefit payable at normal retirement date based upon compensation and credited service earned as of the date of determination.

**Benefits**

**Normal Retirement**

Eligibility	See the Plan Provision by Division table for details.
Benefit	Benefit Multiplier (outlined in the Plan Provision by Division table) multiplied by Final Average Compensation multiplied by Credited Service Maximum Benefit: 75% of final average earnings

**Deferred Retirement**

Eligibility	8 or more years of service
Benefit	Computed as a normal retirement but based upon service and final average earnings at termination date.

**Non-Duty Death-In-Service**

Eligibility	15 years of service or age 60 with 10 years of service
Benefit	Computed as a normal retirement but actuarially reduced in accordance with a 100% joint and survivor election.

**Duty Death-In-Service**

Eligibility	No age or service requirements
Benefit	Computed as a normal retirement but computed as if the member had at least 15 years of service.

**Non-Duty Disability**

Eligibility	10 or more years of service
Benefit	Computed as a normal retirement.

**Duty Disability**

Eligibility	No age or service requirements
Benefit	Computed as a normal retirement benefit but computed as if the member had at least 10 years of service.

**Compensation**

Salary or wages paid a member for personal services rendered the County while a member of the retirement system.  
Salary and wages shall include longevity pay, overtime pay, shift differentials, pay for periods of absence from work by reason of employer approved vacation, holiday, and sickness

**Final Average Compensation**

Highest 3 consecutive years out of last 10

**Credited Service**

Exact fractional service

**Employee Contributions**

See the table below for details

**Payment Forms**

Normal Form	Single Life Annuity
Optional Forms	Life Annuity with 5 and 10 years certain, 50% and 100% Joint and Survivor Annuity

The participant may also elect a combination of a Return of Employee Contributions with a residual annuity in any of the forms listed.

**Optional Form Factors and Actuarial Equivalence**

100% Joint and Survivor Annuity	The retired member is paid 80% of the single life annuity pension amount if the retired member and named survivor beneficiary are the same age on the retired member's retirement date. The percent shall be increased by 0.5% for each year the named survivor beneficiary's age is more than the retired member's age, to a maximum of 90%. The percent shall be decreased by 0.5% for each year the named survivor beneficiary's age is less than the retired member's age, to a minimum of 50%.
50% Joint and Survivor Annuity	The retired member is paid 90% of the single life annuity pension amount if the retired member and named survivor beneficiary are the same age on the retired member's retirement date. The percent shall be increased by 0.5% for each year the named survivor beneficiary's age is more than the retired member's age, to a maximum of 95%. The percent shall be decreased by 0.5% for each year the named survivor beneficiary's age is less than the retired member's age, to a minimum of 60%.
Life Annuity with Years Certain	Actuarial Equivalence will be computed using 7% interest and the GAM 71 Mortality table
Annuity Withdrawal Factor	The reduction in the single life annuity amount resulting from a participant electing to receive a return of employee contributions is computed using the interest rate and mortality table with a 50% unisex blend used in the most recent annual actuarial valuation for the year in which the participant's contributions are withdrawn. For contributions earned prior to the date negotiated by each union, the return of employee contributions is computed using 1971 GAM Mortality and the PBGC rate.

**Plan Provisions Not Included**

We are not aware of any plan provisions not included in the valuation

**Adjustments Made for Subsequent Events**

We are not aware of any event following the measurement date and prior to the date of this report that would materially impact the results of this report

Plan Provisions

Plan Provisions by Division

Valuation Group	Union Name	TIER 1					TIER 2				
		Numeric Code	Benefit Multiplier	FAC	EE Contribution	Normal Retirement Eligibility	Effective Date	Benefit Multiplier	FAC	EE Contribution	Normal Retirement Eligibility
General	Non-Union Other	99	2.50%	3 yr.	3.00%	55/30 or 60/8	1/1/2011	1.50%	3 yr.	3.00%	60/8
General	TPOAM Nurses	3	2.50%	3 yr.	3.00%	55/30 or 60/8	1/1/2011	1.50%	3 yr.	3.00%	60/8
General	TPOAM General	4	2.50%	3 yr.	3.00%	55/30 or 60/8	10/26/2010	1.50%	3 yr.	3.00%	60/8
General	UAW/Friend of the Court	6	2.50%	3 yr.	3.00%	55/30 or 60/8	1/1/2011	1.50%	3 yr.	3.00%	60/8
General	POAM/District Court	7	2.50%	3 yr.	3.00%	55/30 or 60/8	1/1/2011	1.50%	3 yr.	3.00%	60/8
General	TPOAM District Court	26	2.50%	3 yr.	3.00%	55/30 or 60/8	1/1/2011	1.50%	3 yr.	3.00%	60/8
General	POAM Youth Center	8	2.50%	3 yr.	3.00%	55/30 or 60/8	1/1/2011	1.50%	3 yr.	3.00%	60/8
General	TPOAM Youth Center Supervisors	28	2.50%	3 yr.	3.00%	55/30 or 60/8	1/1/2011	1.50%	3 yr.	3.00%	60/8
General	POAM/Youth Center	29	2.50%	3 yr.	3.00%	55/30 or 60/8	1/1/2011	1.50%	3 yr.	3.00%	60/8
General	TPOAM Family Court	11	2.50%	3 yr.	3.00%	55/30 or 60/8	1/1/2011	1.50%	3 yr.	3.00%	60/8
General	POAM/Assistant Prosecutor's	14	2.50%	3 yr.	3.00%	55/30 or 60/8	4/3/2012	1.50%	3 yr.	3.00%	60/8
General	Non-Union Management	20	2.50%	3 yr.	3.00%	55/30 or 60/8	1/1/2011	1.50%	3 yr.	3.00%	60/8
General	Elected Officials – Non-Union	22	2.50%	3 yr.	3.00%	55/30 or 60/8	1/1/2011	1.50%	3 yr.	3.00%	60/8
General	County (Non-Union) Part-time	25	2.50%	3 yr.	3.00%	55/30 or 60/8	1/1/2011	1.50%	3 yr.	3.00%	60/8
County Agency	AFLCIO/County Agency	2	2.50%	3 yr.	3.00%	55/30 or 60/8	12/1/2014	1.50%	3 yr.	3.00%	60/8
County Agency	Non-Union/County Agency	15	2.50%	3 yr.	0.00%	55/30 or 60/8					

Plan Provisions

Plan Provisions by Division

Valuation Group	Union Name	Numeric Code	Benefit Multiplier	TIER 1			TIER 2				
				FAC	EE Contribution	Normal Retirement Eligibility	Effective Date	Benefit Multiplier	FAC	EE Contribution	Normal Retirement Eligibility
Sheriff	POAM/Sheriff Deputies	1	2.50%	3 yr.	3.00%	50/25 or 60/8	7/1/2013	1.50%	3 yr.	3.00%	50/25 or 60/8
Sheriff	POAM/Correctional Officers	10	2.50%	3 yr.	3.00%	50/25 or 60/8	1/1/2011	1.50%	3 yr.	3.00%	50/25 or 60/8
Sheriff	COAM/Corrections Supv	17	2.50%	3 yr.	3.00%	50/25 or 60/8	1/1/2011	1.50%	3 yr.	3.00%	50/25 or 60/8
Sheriff	COAM/Command Officers	9	2.75%	3 yr.	4.53%	50/25 or 60/8	4/25/2013	Retirement Benefits provided in previous position (Deputies Unit)			
Sheriff	Non-Union Command	30	2.75%	3 yr.	4.53%	50/25 or 60/8	4/25/2013				
Library	Library (Non-Union)	73	2.00%	3 yr.	0.00%	55/30 or 60/8					
Library	Library (Non-Union) Part-Time	74	2.00%	3 yr.	0.00%	55/30 or 60/8					
Road Commission	Local 543 Utility Workers Union of America	44	2.25%	3 yr.	3.25%	55/30 or 60/8	12/1/2014	2.00%	3 yr.	3.25%	55/30 or 60/8
Road Commission	AFSCME Local 839	45	2.25%	3 yr.	3.25%	55/30 or 60/8	12/1/2014	2.00%	3 yr.	3.25%	55/30 or 60/8
Road Commission	Road Commission - Management	46	2.25%	3 yr.	3.25%	55/30 or 60/8					
Mental Health	AFSCME Mental Health	5	2.25%	3 yr.	0.00%	55/30 or 60/8	6/1/2012	None			
Mental Health	Non-Union Mental Health	23	2.25%	3 yr.	0.00%	55/30 or 60/8	6/1/2012	None			
Mental Health	Mental Health Management	24	2.25%	3 yr.	0.00%	55/30 or 60/8	6/1/2012	None			
Dispatchers	COAM/Communication Supervisors	16	2.50%	3 yr.	3% to \$7,800 plus 5% over	50/25 or 60/8	1/1/2011	1.50%	3 yr.	3% to \$7,800 plus 5% over	60/8
Dispatchers	POAM/Communication Spec	50	2.50%	3 yr.	3.00%	50/25 or 60/8	1/1/2011	1.50%	3 yr.	3.00%	60/8

**13th Check Provisions by Division**

	General County	County Agency	Sheriff's Office	County Library	Road Commission*	Mental Health	Central Dispatch
Source of 13th Check Payments	Employer	Employer	Employer	Employer	Employer	N/A	Employer
13th Check Excess Reserve Fund	Closed	Closed	Closed	N/A	Closed	N/A	Closed
Supplemental Pension Benefit Contribution for 2018	\$28,082	\$6,849	\$13,014	\$0	\$50,000	N/A	\$2,055

\*The Road Commission Excess Earnings Reserve Fund is no longer in existence and the Road Commission is now using general funds to fund the distribution of these benefits. Under Policy No. 2016-04, \$50,000 is to be taken each year from the general funds to fund the Post-Retirement Supplemental Benefits Distribution Program and evenly distributed to all Monroe County Road Commission retirees, regardless of the year they retired, their age, or how long they have been retired.

**Actuarial Assumptions**

Except where otherwise indicated, the following assumptions were selected by the plan sponsor with the concurrence of the actuary.

**Actuarial Assumptions, Methods and Additional Information for Funding**

<b>Valuation Date</b>	December 31, 2018
<b>Participant and Asset Information Collected as of</b>	December 31, 2018
<b>Cost Method</b>	Entry Age Normal Cost Method
<b>Amortization Method</b>	Level percent of payroll, closed Effective for the 12/31/2012 valuation, the Mental Health division is closed to new hires. In this case, a level dollar amortization is being used.
<b>Remaining amortization period</b>	25 At the September 21, 2015 Board meeting, the Board adopted a 25-year layered amortization with 2% annual payment increases (except for the Mental Health division for which the payments are level). Future unanticipated unfunded actuarial accrued liability will be amortized over a 25-year period from the point incurred, resulting in a schedule of UAAL payments.
<b>Asset Valuation Method</b>	7-year adjusted market value
<b>Interest Rates</b>	
Investment Rate of Return	7.00%
Amortization payments increase assumption	2.00%
Inflation Assumption	3.00%
<b>Expense Loading</b>	0.5% of Payroll

**Actuarial Assumptions**

**Marital Status and Ages**

100% of males and 100% of females are assumed to be married. Male spouses are assumed to be 3 years older than female spouses.

**Annual Pay Increases**

Salary increases based on inflation component of 3.00% and merit and longevity rates based on age. Representative values of the total annual rates of pay increases:

Years of Service	Merit and Longevity				Total		
	Base (Economic)	General, Library, County Agency, Sheriff's Office, Central Dispatch	Road Commission	Mental Health	General, Library, County Agency, Sheriff's Office, Central Dispatch	Road Commission	Mental Health
1	3.00%	2.50%	2.00%	2.00%	5.50%	5.00%	5.00%
2	3.00%	2.50%	2.00%	2.00%	5.50%	5.00%	5.00%
3	3.00%	2.50%	2.00%	2.00%	5.50%	5.00%	5.00%
4	3.00%	2.50%	2.00%	2.00%	5.50%	5.00%	5.00%
5	3.00%	2.50%	1.50%	2.00%	5.50%	4.50%	5.00%
6	3.00%	2.50%	1.50%	2.00%	5.50%	4.50%	5.00%
7	3.00%	2.50%	1.50%	1.50%	5.50%	4.50%	4.50%
8	3.00%	2.50%	1.50%	1.50%	5.50%	4.50%	4.50%
9+	3.00%	.50%	.50%	.50%	3.50%	3.50%	3.50%

**Mortality Rates**

Healthy

The Fully Generational RP-2014 Blue Collar Mortality Table for males and females, using Projection Scale MP-2014.

Disabled

The Fully Generational RP-2014 Disabled Retiree Mortality Table for males and females, using Projection Scale MP-2014.

It is assumed that all deaths are non-duty related deaths.

As the plan is not large enough to have credible experience, mortality assumptions are set to reflect general population trends

**Actuarial Assumptions**

**Retirement Rates**

Retirement rates vary by age and division. The assumed retirement rates are based on a study of actual experience for the plan during 2010-2014. See the experience study report dated September 2015.

Retirement Ages	General County, County Agency,		
	Mental Health, and County Library	Sheriff's Office County Dispatch	Road Commission
50		23.50%	
51		23.50%	
52		23.50%	
53		31.25%	
54		31.25%	
55	37.50%	31.25%	12.50%
56	12.50%	31.25%	12.50%
57	12.50%	15.63%	25.00%
58	12.50%	7.88%	25.00%
59	12.50%	7.88%	25.00%
60	20.00%	7.88%	50.00%
61	20.00%	7.88%	50.00%
62	20.00%	7.88%	50.00%
63	25.00%	7.88%	50.00%
64	25.00%	7.88%	50.00%
65	25.00%	100.00%	100.00%
66	30.00%		
67	30.00%		
68	30.00%		
69	30.00%		
70	100.00%		

**Actuarial Assumptions**

**Disability Rates**

Disability rates vary by age and gender. The assumed disability rates are based on a study of actual experience for the plan during 2010-2014. See the experience study report dated September 2015. Sample rates are shown below.

For the Sheriffs Office and Road Commission, 50% of disability incidence is assumed to be duty-related. For all other divisions, 85% of disability incidence is assumed to be non-duty related.

Age	Male	Female
20	0.1170%	0.1020%
25	0.1170%	0.1020%
30	0.1170%	0.1020%
35	0.1170%	0.1020%
40	0.3015%	0.6560%
45	0.3975%	0.4050%
50	0.7380%	0.5970%
55	1.3395%	0.7660%
60	2.1210%	1.0170%

**Withdrawal Rates**

Withdrawal rates vary by both age and service. Service related rates for the first five years of employment. Once participants earn five years of service, age-related rates apply. The assumed termination rates are based on a study of actual experience for the plan during 2010-2014. See the experience study report dated September 2015. Sample rates of termination are shown below for each division.

Member Ages	Service	General County, County Agency, Mental Health and County Library		
		Sheriff's Office Central Dispatch	Road Commission	
ALL	0	2.00%	22.50%	15.00%
	1	13.00%	13.50%	12.00%
	2	12.00%	10.50%	10.50%
	3	10.00%	10.50%	9.00%
	4	8.00%	10.50%	9.00%
25	5+	6.12%	3.00%	6.00%
30		6.12%	3.00%	3.00%
35		5.44%	2.00%	3.00%
40		5.10%	2.00%	3.00%
45		3.40%	1.75%	2.00%
50		3.40%	1.00%	2.00%
55		0.85%	0.50%	1.00%
60		0.85%	0.00%	1.00%

The actuarial report also shows the necessary items required for plan reporting by division.

- ✓ Actuarial Liabilities and Normal Cost by Division
- ✓ Asset Allocation by Division
- ✓ Unfunded Actuarial Accrued Liability by Division
- ✓ Reconciliation of Gain/Loss by Division
- ✓ Schedule of Amortization Bases by Division
- ✓ Development of Recommended Contribution by Division
- ✓ Demographic Information by Division
- ✓ Active Participant Schedules by Division

**Actuarial Liabilities and Normal Cost by Division**

	General County	County Agency	Sheriff's Office	County Library	Road Commission	Mental Health	Central Dispatch	Total
<b>Present Value of Future Benefits</b>	<b>\$125,830,468</b>	<b>\$14,750,210</b>	<b>\$86,548,522</b>	<b>\$23,630,653</b>	<b>\$33,930,302</b>	<b>\$34,841,223</b>	<b>\$6,487,620</b>	<b>\$326,018,998</b>
<b>Actuarial Accrued Liability</b>								
Active Members	\$37,346,605	\$5,328,362	\$29,825,950	\$8,299,015	\$15,165,580	\$7,870,360	\$2,518,069	\$106,353,941
Terminated Vested	5,228,068	202,696	1,931,721	92,590	1,301,849	4,429,440	18,831	13,205,195
Retired and Disabled	69,626,139	7,303,265	42,981,003	11,513,824	12,232,456	19,438,724	2,532,351	165,627,762
Beneficiaries	<u>3,034,689</u>	<u>614,743</u>	<u>2,345,990</u>	<u>113,944</u>	<u>1,758,296</u>	<u>407,606</u>	<u>140,537</u>	<u>8,415,805</u>
<b>Total Actuarial Accrued Liability</b>	<b>\$115,235,501</b>	<b>\$13,449,066</b>	<b>\$77,084,664</b>	<b>\$20,019,373</b>	<b>\$30,458,181</b>	<b>\$32,146,130</b>	<b>\$5,209,788</b>	<b>\$293,602,703</b>
<b>Total Normal Cost</b>	<b>\$1,386,078</b>	<b>\$163,716</b>	<b>\$1,079,747</b>	<b>\$484,030</b>	<b>\$507,160</b>	<b>\$327,346</b>	<b>\$125,998</b>	<b>\$4,074,075</b>

**Asset Allocation by Division**

The table below shows how the assets changed by division since the last valuation. Employer contributions, employee contributions, and benefit payments are tracked by division. The expenses and investment income are allocated by the Actuarial Value of Assets at the beginning of the year and the Average Valuation Assets, respectively.

	General County	County Agency	Sheriff's Office	County Library	Road Commission	Mental Health	Central Dispatch	Total
1 <b>Actuarial Value of Assets, 12/31/2017 (BOY)</b>	<b>\$77,918,802</b>	<b>\$6,934,562</b>	<b>\$50,708,555</b>	<b>\$16,168,942</b>	<b>\$25,223,012</b>	<b>\$26,819,678</b>	<b>\$3,417,652</b>	<b>\$207,191,203</b>
2 Employer Contributions	3,306,681	522,456	2,181,897	608,848	959,805	406,923	201,543	8,188,153
3 Employee Contributions	400,861	51,987	311,881	0	139,707	0	39,863	944,299
4 Benefit Payments	6,950,892	710,131	3,985,671	1,161,184	1,499,642	1,574,543	297,696	16,179,759
5 Refund of Contributions	105,783	0	250,120	0	172,690	15,618	10,327	554,538
6 Administrative Expenses <sup>1</sup>	79,110	7,041	51,483	16,416	25,608	27,229	3,470	210,357
7 Average Valuation Assets {(1)+0.5x[(2)+(3)-(4)-(5)-(6)]}	76,204,681	6,863,198	49,811,807	15,884,566	24,923,798	26,214,445	3,382,609	203,285,104
8 Investment Income Allocation <sup>2</sup>	3,858,747	347,529	2,522,302	804,341	1,262,057	1,327,411	171,284	10,293,671
<b>Actuarial Value of Assets, 12/31/2018 (EOY) (1)+(2)+(3)-(4)-(5)-(6)+(8)</b>	<b>\$78,349,306</b>	<b>\$7,139,362</b>	<b>\$51,437,361</b>	<b>\$16,404,531</b>	<b>\$25,886,641</b>	<b>\$26,936,622</b>	<b>\$3,518,849</b>	<b>\$209,672,672</b>

<sup>1</sup>Administrative expenses allocation based on BOY Asset Value

<sup>2</sup>Investment income allocation based on average valuation assets

**Unfunded Actuarial Accrued Liability by Division**

	General County	County Agency	Sheriff's Office	County Library	Road Commission	Mental Health	Central Dispatch	Total
Actuarial Accrued Liability	\$115,235,501	\$13,449,066	\$77,084,664	\$20,019,373	\$30,458,181	\$32,146,130	\$5,209,788	\$293,602,703
Actuarial Value of Assets	<u>78,349,306</u>	<u>7,139,362</u>	<u>51,437,361</u>	<u>16,404,531</u>	<u>25,886,641</u>	<u>26,936,622</u>	<u>3,518,849</u>	<u>209,672,672</u>
<b>Unfunded Actuarial Accrued Liabilities</b>	<b>\$36,886,195</b>	<b>\$6,309,704</b>	<b>\$25,647,303</b>	<b>\$3,614,842</b>	<b>\$4,571,540</b>	<b>\$5,209,508</b>	<b>\$1,690,939</b>	<b>\$83,930,031</b>
<b>Funded Ratio</b>	<b>68.0%</b>	<b>53.1%</b>	<b>66.7%</b>	<b>81.9%</b>	<b>85.0%</b>	<b>83.8%</b>	<b>67.5%</b>	<b>71.4%</b>

Reconciliation of Gain/Loss by Division

	General County	County Agency	Sheriff's Office	County Library	Road Commission	Mental Health	Central Dispatch	Total
<b>Liability (gain)/loss</b>								
Actuarial liability, 12/31/2017	\$113,657,090	\$12,702,795	\$73,930,960	\$19,694,318	\$28,830,798	\$30,207,649	\$5,289,915	\$284,313,525
Normal cost	1,323,121	140,132	1,032,172	552,311	444,571	390,076	126,407	4,008,790
Benefit payments	(7,056,675)	(710,131)	(4,235,791)	(1,161,184)	(1,672,332)	(1,590,161)	(308,023)	(16,734,297)
Expected Interest	7,805,809	874,571	5,101,674	1,377,310	1,991,734	2,087,126	368,544	19,606,768
Assumption Changes	0	0	0	0	0	0	0	0
Plan Provision Changes	0	0	0	0	0	0	0	0
Expected actuarial liability, 12/31/2018	\$115,729,345	\$13,007,367	\$75,829,015	\$20,462,755	\$29,594,771	\$31,094,690	\$5,476,843	\$291,194,786
Actual actuarial liability, 12/31/2018	<u>\$115,235,501</u>	<u>\$13,449,066</u>	<u>\$77,084,664</u>	<u>\$20,019,373</u>	<u>\$30,458,181</u>	<u>\$32,146,130</u>	<u>\$5,209,788</u>	<u>\$293,602,703</u>
<b>Liability (gain)/loss</b>	<b>\$(493,844)</b>	<b>\$441,699</b>	<b>\$1,255,649</b>	<b>\$(443,382)</b>	<b>\$863,410</b>	<b>\$1,051,440</b>	<b>\$(267,055)</b>	<b>\$2,407,917</b>
<b>Asset (gain)/loss</b>								
Actuarial value of assets, 12/31/2017	\$77,918,802	\$6,934,562	\$50,708,555	\$16,168,942	\$25,223,012	\$26,819,678	\$3,417,652	\$207,191,203
Contributions	3,707,542	574,443	2,493,778	608,848	1,099,512	406,923	241,406	9,132,452
Benefit payments and expenses	(7,135,785)	(717,172)	(4,287,274)	(1,177,600)	(1,697,940)	(1,617,390)	(311,493)	(16,944,654)
Expected Investment return	<u>5,336,358</u>	<u>480,508</u>	<u>3,487,888</u>	<u>1,112,256</u>	<u>1,745,020</u>	<u>1,835,728</u>	<u>236,824</u>	<u>14,234,582</u>
Expected actuarial value of assets	\$79,826,917	\$7,272,341	\$52,402,947	\$16,712,446	\$26,369,604	\$27,444,939	\$3,584,389	\$213,613,583
Actual actuarial value of assets	<u>\$78,349,306</u>	<u>\$7,139,362</u>	<u>\$51,437,361</u>	<u>\$16,404,531</u>	<u>\$25,886,641</u>	<u>\$26,936,622</u>	<u>\$3,518,849</u>	<u>\$209,672,672</u>
<b>Asset (gain)/loss</b>	<b>\$1,477,611</b>	<b>\$132,979</b>	<b>\$965,586</b>	<b>\$307,915</b>	<b>\$482,963</b>	<b>\$508,317</b>	<b>\$65,540</b>	<b>\$3,940,911</b>
<b>Total (gain)/loss</b>	<b>\$983,767</b>	<b>\$574,678</b>	<b>\$2,221,235</b>	<b>\$(135,467)</b>	<b>\$1,346,373</b>	<b>\$1,559,757</b>	<b>\$(201,515)</b>	<b>\$6,348,828</b>

**Schedule of Amortization Bases by Division**

		General County	County Agency	Sheriff's Office	County Library	Road Commission	Mental Health	Central Dispatch
<b>Remaining Balances:</b>								
<b><u>Date</u></b>	<b><u>Remaining</u></b>							
<b><u>Established</u></b>	<b><u>Period</u></b>							
12/31/2014	21	\$32,178,585	\$5,131,934	\$19,613,998	\$1,965,359	\$4,698,549	\$974,825	\$1,497,800
12/31/2015	22	\$2,078,875	\$323,200	\$2,191,373	\$875,953	\$94,189	\$935,208	\$405,485
12/31/2016	23	\$(462,279)	\$(86,361)	\$(827,433)	\$256,954	\$(1,260,099)	\$29,236	\$(257,834)
12/31/2017	24	\$1,711,192	\$362,407	\$2,098,540	\$407,817	\$46,508	\$1,387,751	\$215,027
12/31/2018	25	\$1,379,822	\$578,524	\$2,570,825	\$108,759	\$992,393	\$1,882,488	\$(169,539)
<b>Amortization Payments:</b>								
<b><u>Date</u></b>								
<b><u>Established</u></b>								
12/31/2014		\$2,371,922	\$378,281	\$1,445,771	\$144,869	\$346,336	\$84,080	\$110,405
12/31/2015		\$149,210	\$23,198	\$157,285	\$62,871	\$6,760	\$79,017	\$29,103
12/31/2016		\$(32,369)	\$(6,047)	\$(57,938)	\$17,992	\$(88,233)	\$2,424	\$(18,054)
12/31/2017		\$117,092	\$24,798	\$143,597	\$27,906	\$3,182	\$113,081	\$14,714
12/31/2018		\$92,412	\$38,746	\$172,178	\$7,284	\$66,464	\$150,969	\$(11,355)
<b>Total</b>		\$2,698,267	\$458,976	\$1,860,893	\$260,922	\$334,509	\$429,571	\$124,813
<b>Payments</b>								

**Development of Recommended Contribution by Division**

Contributions are expected to be made throughout 2020 as a percentage of payroll. The interest adjustment includes 1 and ½ years of interest from January 1, 2019 to Mid-2020. However, if divisions contribute early on January 1, 2020, their contribution requirement would be reduced by ½ year of interest. The adjusted contribution rates and value are shown at the bottom of the chart below.

	General County	County Agency	Sheriff's Office	County Library	Road Commission	Mental Health	Central Dispatch	Total
<b>Expected 2020 Payroll</b>	\$13,693,198	\$1,699,744	\$9,044,433	\$4,557,114	\$4,489,738	\$2,758,141	\$1,069,237	\$37,311,605
<b>Normal Cost</b>								
(a) Total normal cost	\$1,386,078	\$163,716	\$1,079,747	\$484,030	\$507,160	\$327,346	\$125,998	\$4,074,075
(b) Expected member contributions	<u>(382,046)</u>	<u>(44,209)</u>	<u>(271,152)</u>	<u>(0)</u>	<u>(137,064)</u>	<u>(0)</u>	<u>(38,270)</u>	<u>(872,741)</u>
(c) Net normal cost	\$1,004,032	\$119,507	\$808,595	\$484,030	\$370,096	\$327,346	\$87,728	\$3,201,334
Administrative Expenses	64,131	8,094	42,351	21,591	21,087	14,349	5,120	176,723
Amortization of UAAL	2,698,267	458,976	1,860,893	260,922	334,509	429,571	124,813	6,167,951
Interest	<u>402,317</u>	<u>62,656</u>	<u>289,669</u>	<u>81,880</u>	<u>77,516</u>	<u>82,384</u>	<u>23,250</u>	<u>1,019,672</u>
<b>Total Employer Recommended Contribution FY 2020</b>	<b>\$4,168,747</b>	<b>\$649,233</b>	<b>\$3,001,508</b>	<b>\$848,423</b>	<b>\$803,208</b>	<b>\$853,650</b>	<b>\$240,911</b>	<b>\$10,565,680</b>
<b>As a percentage of Payroll</b>	<b>30.44%</b>	<b>38.20%</b>	<b>33.19%</b>	<b>18.62%</b>	<b>17.89%</b>	<b>30.95%</b>	<b>22.53%</b>	<b>28.32%</b>

FY 2020 Contribution Rates as a Percentage of Expected Payroll

Total Contribution Rate	33.44%	40.93%	36.39%	18.62%	21.14%	30.95%	26.27%	30.79%
Employee Contribution Rate	3.00%	2.73%	3.20%	0.00%	3.25%	0.00%	3.74%	2.47%
<b>Employer Contribution Rate</b>	<b>30.44%</b>	<b>38.20%</b>	<b>33.19%</b>	<b>18.62%</b>	<b>17.89%</b>	<b>30.95%</b>	<b>22.53%</b>	<b>28.32%</b>
<i>Employer Normal Cost</i>	8.63%	8.31%	10.41%	12.28%	9.64%	13.71%	9.61%	10.02%
<i>Amortization of UAAL</i>	21.81%	29.89%	22.78%	6.34%	8.25%	17.24%	12.92%	18.30%
Total Employer Recommended Contribution if Made January 1, 2020	\$4,030,080	\$627,638	\$2,901,667	\$820,201	\$776,490	\$825,255	\$232,897	\$10,214,228
As a percentage of Payroll	29.43%	36.93%	32.08%	18.00%	17.29%	29.92%	21.78%	27.38%
Value of Contributing Early	\$138,667	\$21,595	\$99,841	\$28,222	\$26,718	\$28,395	\$8,014	\$351,452

**Demographic Information by Division**

	General County	County Agency	Sheriff's Office	County Library	Road Commission	Mental Health	Central Dispatch	Total
<b>Active Participants</b>								
Number accruing benefits	290	32	138	106	79	42	20	707
Average age	46.3	43.6	39.7	49.0	47.7	48.4	41.7	45.5
Average years of employment	12.7	15.8	13.7	8.9	16.2	15.0	11.1	13.0
Average pay (January 1, 2018 - December 31, 2018)	\$42,398	\$47,732	\$58,983	\$41,073	\$51,427	\$65,880	\$49,040	\$48,494
<b>Terminated Vested</b>								
Number of Terminated Vested	53	4	14	3	11	54	1	140
Average age	50.8	41.1	46.6	46.8	52.3	51.0	31.5	50.0
Total deferred annual benefits	\$798,862	\$59,773	\$285,682	\$19,540	\$189,943	\$617,466	\$11,055	\$1,982,321
Average deferred monthly benefit	\$1,256	\$1,245	\$1,700	\$543	\$1,439	\$953	\$921	\$1,180
<b>Participants Receiving Benefits</b>								
Number Receiving Benefits	366	29	138	61	81	111	12	798
Average age	70.1	69.7	65.2	71.1	74.3	67.3	64.4	69.3
Total annual benefits	\$7,024,354	\$730,490	\$4,039,499	\$1,148,357	\$1,489,613	\$1,836,912	\$254,406	\$16,523,631
Average monthly benefit	\$1,599	\$2,099	\$2,439	\$1,569	\$1,533	\$1,379	\$1,767	\$1,726

**Active Participant Schedules by Division**

Active participant information grouped based on age and service.

**General County**

Age Group	Years of Service										Total	Average Pay
	Under 1	1 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 to 34	35 to 39	40 & Up		
Under 25	7	10									17	\$24,570
25 to 29	7	15	2								24	\$27,535
30 to 34	3	5	3	4							15	\$37,410
35 to 39	2	7	6	7	5	1					28	\$40,227
40 to 44		6	8	5	14	4					37	\$47,764
45 to 49	5	6	9	6	4	7	5	1			43	\$43,602
50 to 54	3	7	6	2	8	4	10	7	1		48	\$45,520
55 to 59	1	3	7	5	10	9	5	3	2	1	46	\$47,577
60 to 64		4	3	3	5	5	1	2	1		24	\$46,429
65 to 69			2			2		1			5	\$46,116
70 & up		1	1			1					3	\$57,299
Total	28	64	47	32	46	33	21	14	4	1	290	\$42,398

**Active Participant Schedules by Division**

Active participant information grouped based on age and service.

**County Agency**

Age Group	Years of Service										Total	Average Pay
	Under 1	1 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 to 34	35 to 39	40 & Up		
Under 25		3									3	\$38,813
25 to 29	1	2	1								4	\$37,594
30 to 34	1		2	1							4	\$45,990
35 to 39												
40 to 44		1			1	1					3	\$53,869
45 to 49		1	1		1	1					4	\$44,958
50 to 54					1		3	2			6	\$53,071
55 to 59					2	2	3	1			8	\$52,099
60 to 64												
65 to 69												
70 & up												
Total	2	7	4	1	5	4	6	3			32	\$47,732

**Active Participant Schedules by Division**

Active participant information grouped based on age and service.

**Sheriff's Office**

Age Group	Years of Service										Total	Average Pay
	Under 1	1 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 to 34	35 to 39	40 & Up		
Under 25	8	9									17	\$32,919
25 to 29	3	9	4								16	\$46,484
30 to 34		2	2								4	\$48,192
35 to 39		5	2	8	9						24	\$64,582
40 to 44			4	1	18	8					31	\$66,149
45 to 49			2	2	4	15	6				29	\$69,475
50 to 54					4	5	3				12	\$66,619
55 to 59					2	1	1				4	\$43,108
60 to 64							1				1	\$56,373
65 to 69												
70 & up												
<b>Total</b>	11	25	14	11	37	29	11				138	\$58,983

**Active Participant Schedules by Division**

Active participant information grouped based on age and service.

**County Library**

Age Group	Years of Service										Total	Average Pay <sup>1</sup>
	Under 1	1 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 to 34	35 to 39	40 & Up		
Under 25		3									3	\$28,038
25 to 29	2	5									7	\$28,194
30 to 34	2	3	1	3							9	\$33,221
35 to 39	1	1	4	4	1						11	\$50,451
40 to 44			1	1	1						3	\$49,385
45 to 49		7	2	2	2	1					14	\$40,574
50 to 54	2	4	5		2	1	2	1			17	\$42,221
55 to 59	3	6	7	1	2		1	2	1		23	\$42,078
60 to 64		4	3	2	1		1		1		12	\$42,495
65 to 69		3	2				1				6	\$48,890
70 & up		1									1	\$0
<b>Total</b>	<b>10</b>	<b>37</b>	<b>25</b>	<b>13</b>	<b>9</b>	<b>2</b>	<b>5</b>	<b>3</b>	<b>2</b>		<b>106</b>	<b>\$41,073</b>

<sup>1</sup>Part-time employees are excluded from the average pay shown

**Active Participant Schedules by Division**

Active participant information grouped based on age and service.

**Road Commission**

Age Group	Years of Service										Total	Average Pay
	Under 1	1 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 to 34	35 to 39	40 & Up		
Under 25	2	2									4	\$26,557
25 to 29		7									7	\$42,417
30 to 34	1										1	\$14,515
35 to 39	1				1						2	\$32,325
40 to 44	1	1		2	3						7	\$50,607
45 to 49	1	1	2	1	5	2	6				18	\$56,468
50 to 54	1			1	4	3	7	5			21	\$53,086
55 to 59	1	2		1	5	3	1				13	\$50,873
60 to 64					2	1	3				6	\$72,266
65 to 69												
70 & up												
<b>Total</b>	8	13	2	5	20	9	17	5			79	\$51,427

**Active Participant Schedules by Division**

Active participant information grouped based on age and service.

**Mental Health**

Age Group	Years of Service										Total	Average Pay
	Under 1	1 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 to 34	35 to 39	40 & Up		
Under 25												
25 to 29												
30 to 34			1								1	\$60,045
35 to 39			2	5		1					8	\$52,259
40 to 44				4	3	1					8	\$50,770
45 to 49			1	2	2	1					6	\$93,998
50 to 54			2	3	4		1				10	\$63,987
55 to 59			1	1	1		1				4	\$67,745
60 to 64				2			2				4	\$86,634
65 to 69								1			1	\$61,300
70 & up												
<b>Total</b>			7	17	10	3	4	1			42	\$65,880

**Active Participant Schedules by Division**

Active participant information grouped based on age and service.

**Central Dispatch**

Age Group	Years of Service										Total	Average Pay	
	Under 1	1 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 to 34	35 to 39	40 & Up			
Under 25													
25 to 29		1										1	\$38,952
30 to 34		2	2									4	\$42,126
35 to 39		2	1	2								5	\$47,962
40 to 44			1		1							2	\$46,915
45 to 49		1			2	2						5	\$56,595
50 to 54			1		1							2	\$52,598
55 to 59						1						1	\$51,527
60 to 64													
65 to 69													
70 & up													
<b>Total</b>		6	5	2	4	3						20	\$49,040