



# York County Employees' Retirement System

**Report on 2019 Actuarial Valuation Including  
Determination of County Actuarially Determined  
Contribution for 2019**





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**for**

**York County Employees' Retirement Board**

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Christopher B. Reilly	Commissioner
Greg Bower	Controller/Secretary
Barbara L. Bair	Treasurer

**May 2, 2019**



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## I. Introduction

The primary purpose of this report is to investigate and fully and fairly disclose the actuarial position of the York County Employees' Retirement System as of January 1, 2019 and to establish the proper appropriation for the 2019 plan year, in accordance with the funding standards of Section 6 of Act 96, 1971 of the Commonwealth of Pennsylvania as amended.

On the basis of the actuarial methods, assumptions and major plan provisions summarized in this report and in reliance on the member data and statement of the Fund's assets furnished by the County, to the best of our knowledge the information in this report is complete and accurate.

To the best of our knowledge, this report is complete and accurate and all costs and liabilities have been determined in conformance with generally accepted actuarial principles and on the basis of actuarial assumptions and methods which are reasonable (taking into account past experience under the plan and reasonable expectations) and which represent our best estimate of anticipated experience under the plan.

The included measurements are based on a single set of assumptions regarding the future experience of the plan's investments and participants. Future measurements and funding needs of the plan could vary significantly based on the actual experience, including differences in investment performance, and any changes in the future expectations. Estimates of the potential impact of changes in the plan's assets and liabilities are included in Schedule O.

Respectfully submitted,

### **Korn Ferry (US)**

By: *Henry E. Stiehl*

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## II. Findings

### Certified Actuarially Determined Contribution

Please note that the certified actuarially determined contribution which is reported on page 12 of this report and which must be funded in 2019 is \$11,982,885. This amount is required to ensure that the fund accumulates sufficient assets to pay future benefits and should be paid by the County from the General Fund.

### Actuarial Adjustments

Also note that the balances in the Reserve Accounts on page 8 reflect the following transfers which are necessary to keep the balance in the Retired Member's Reserve Account equal to the liability for the retired lives and to reflect the difference between the amount of interest credited to the respective reserves and the interest rate assumed in the valuation of the liabilities. Please make these transfers in your records:

	DEBIT		CREDIT	
County Annuity Reserve Account	\$	7,752,197		
Retired Members Annuity Reserve Account			\$	7,752,197



### III. Schedules

#### Schedule A

#### YORK COUNTY EMPLOYEES' RETIREMENT SYSTEM

#### CHANGES IN PLAN NET ASSETS FOR THE CALENDAR YEAR 2018 AND 2017

	<b>Additions</b>	
	<b><u>2018 Total</u></b>	<b><u>2017 Total</u></b>
Contributions		
County	\$ 15,619,704	\$ 12,215,000
Plan Members	\$ 6,347,246	\$ 6,084,625
Total Contributions	\$ <u>21,966,950</u>	\$ <u>18,299,625</u>
Investment Income		
Realized Gain	\$ <u>7,094,036</u>	
Unrealized Loss	\$ <u>(55,893,711)</u>	
Net Loss in Fair Value	\$ (48,799,675)	\$ 51,611,262
Interest	\$ 2,523,439	\$ 2,271,291
Dividends	\$ 1,016,060	\$ 994,898
Net Accrued Interest/Other	\$ 28,493,423	\$ 559,937
Investment Income	\$ <u>(16,766,753)</u>	\$ <u>55,437,388</u>
Less Investment Expense	\$ 0	\$ 0
Net Investment Income	\$ <u>(16,766,753)</u>	\$ <u>55,437,388</u>
Total Additions	\$ <u>5,200,197</u>	\$ <u>73,737,013</u>
	<b>Deductions</b>	
Benefits	\$ 23,033,740	\$ 17,969,476
Refunds of Member Contributions	\$ <u>2,313,581</u>	\$ <u>1,622,409</u>
Total Deductions	\$ <u>25,347,321</u>	\$ <u>19,591,885</u>
Net Increase/(Decrease)	\$ <u>(20,147,124)</u>	\$ <u>54,145,128</u>
	<b>Net Assets Held In Trust For Pension Benefits</b>	
Beginning of Year	\$ <u>391,818,535</u>	\$ <u>337,673,407</u>
End of Year	\$ <u><u>371,671,411</u></u>	\$ <u><u>391,818,535</u></u>

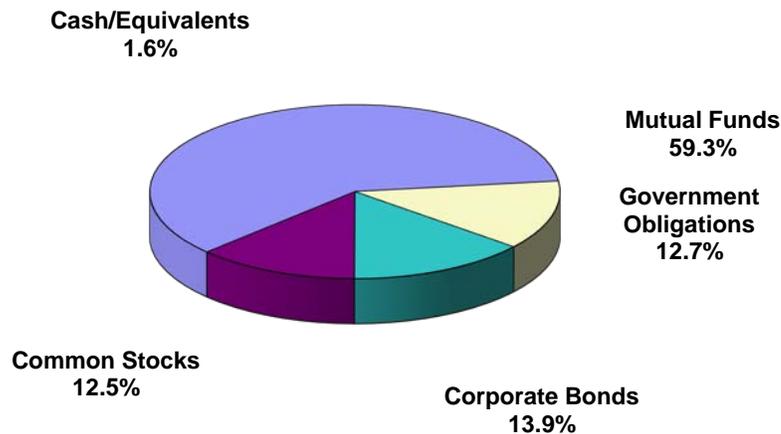


## Schedule A – Continued

### YORK COUNTY EMPLOYEES' RETIREMENT SYSTEM PLAN ASSETS AS OF DECEMBER 31, 2018 AND 2017

		<b>Assets</b>	
		<u>2018 Total</u>	<u>2017 Total</u>
Cash and Short-Term Investments	\$	5,924,404	\$ 8,897,705
Receivables	\$	0	\$ 559,937
Investments, at fair market value			
Government Obligations	\$	47,091,488	\$ 34,013,693
Corporate Bonds	\$	51,596,923	\$ 47,161,544
Common Stocks	\$	46,692,120	\$ 71,628,477
Mutual Funds	\$	220,366,476	\$ 229,557,179
Total Investments	\$	365,747,007	\$ 382,360,893
 Total Assets	 \$	 371,671,411	 \$ 391,818,535
 <b>Liabilities</b>			
Refunds Payable and Other	\$	0	\$ 0
 <b>Net Assets Held In Trust For Pension Benefits</b>			
	\$	371,671,411	\$ 391,818,535

### TOTAL ASSETS (MARKET VALUE 12-31-2018)





## Schedule A - Continued

### *York County Employees' Retirement System*

#### Plan Description and Contribution Information

**Basis of Accounting:** The York County Employees' Retirement System financial statements are prepared using the accrual basis of accounting. Plan member contributions are recognized in the period in which the contributions are due. Employer contributions to each plan are recognized when due and the employer has made a formal commitment to provide the contributions. Benefits and refunds are recognized when due and payable in accordance with the terms of each plan.

**Method Used to Value Investments:** Investments are reported at fair value. Short-term investments are reported at cost, which approximates fair value. Securities traded on a national or international exchange are valued at the last reported sales price at current exchange rates. Investments that do not have an established market are reported at estimated fair value.

Membership of the plan consisted of the following as of January 1, 2019:

Retirees and Beneficiaries Receiving Benefits	1,445
Terminated Plan Members Entitled to but not yet Receiving Benefits	317
Active Plan Members	2,019
Total	<u>3,781</u>
Number of Participating Employers	1



## Schedule A - Continued

### *York County Employees' Retirement System*

**Plan Description:** The York County Employees' Retirement Plan is a single-employer defined benefit pension plan that covers all employees of the County. The plan provides retirement, disability, and death benefits to plan members and their beneficiaries. Cost-of-living adjustments (COLA) are provided at the discretion of the York County Employees' Retirement Board. Act 96 of 1971, as amended cited as the County Pension Law provides for the creation, maintenance and operation of this plan.

**Contributions:** Plan members are required to contribute 5% of their annual covered salary. The County is required to contribute at an actuarially determined rate. Per Act 96 of 1971, as amended, contribution requirements of the plan members and the County are established and may be amended by the General Assembly of the Commonwealth of Pennsylvania. Administrative costs may be financed through investment earnings.

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#### SCHEDULE OF EMPLOYER CONTRIBUTIONS

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<u>Year</u>	<u>Contribution *</u>	<u>County Contribution</u>
2009	\$ 9,332,399	\$ 6,640,000
2010	\$ 10,666,047	\$ 8,000,000
2011	\$ 10,950,633	\$ 10,000,000
2012	\$ 11,484,752	\$ 10,000,000
2013	\$ 11,578,433	\$ 10,000,000
2014	\$ 9,322,239	\$ 10,000,000
2015	\$ 10,624,062	\$ 9,400,000
2016	\$ 11,430,630	\$ 12,035,000
2017	\$ 11,525,795	\$ 12,215,000
2018	\$ 12,066,707	\$ 15,619,704

*Note:* Effective in 2009 the Entry Age Funding Method was used to determine the annual required contribution. Prior to 2009 the Aggregate Method was used.

\*Prior to 2014, contribution was described as Annual Required Contribution (ARC). After 2013, contribution was described as actuarially determined contribution.



## Schedule A - Continued

### SCHEDULE OF FUNDING PROGRESS

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<b>Actuarial Valuation Date</b>	<b>Actuarial Value of Assets (a)</b>	<b>Actuarial Accrued Liability (AAL) - Entry Age (b)</b>	<b>Unfunded AAL (UAAL) (b-a)</b>	<b>Funded Ratio (a/b)</b>	<b>Covered Payroll (c)</b>	<b>UAAL as a Percentage of Covered Payroll ((b-a)/c)</b>
1/1/2010	210,319,427	269,381,916	59,062,489	78.1%	94,978,984	62.2%
1/1/2011	225,346,700	287,309,457	61,962,757	78.4%	98,095,169	63.2%
1/1/2012	242,460,283	306,718,599	64,258,316	79.0%	101,994,045	63.0%
1/1/2013	260,440,177	321,582,762	61,142,585	81.0%	104,455,415	58.5%
1/1/2014	300,240,867	341,941,645	41,700,778	87.8%	106,720,140	39.1%
1/1/2015	319,247,056	367,518,802	48,271,746	86.9%	113,715,757	42.4%
1/1/2016	324,331,723	383,663,530	59,331,807	84.5%	111,592,771	53.2%
1/1/2017	348,268,061	405,618,333	57,350,272	85.9%	114,628,351	50.0%
1/1/2018	378,565,281	436,401,318	57,836,037	86.7%	114,978,362	50.3%
1/1/2019	395,032,061	458,366,908	63,334,847	86.2%	104,583,476	60.6%



## Schedule B

Schedule B shows the allocation of the assets among the Fund's reserve accounts (see Schedule I for Determination of Reserve Balances) and the Fund's liabilities as of January 1, 2019. The liabilities were determined from the actuarial valuation of the System based upon the data submitted by the County.

### ASSETS

Members' Annuity Reserve Account	\$	69,172,796
County Annuity Reserve Account	\$	56,587,374
Retired Members' Reserve Account	\$	212,539,492
Unrealized Appreciation of Assets	\$	33,371,749
<i>Total Assets, (Market Value) of the York County Employees' Retirement Fund</i>	\$	371,671,411

### LIABILITIES

Actuarial Present Value of:

Accumulated Plan Benefits		
Vested participants (1,218)	\$	85,239,969
Nonvested participants (801)	\$	1,795,348
Future Benefit Accruals	\$	120,019,406
Terminated Vested Benefits	\$	14,672,007
Retired Benefits	\$	212,539,492
Member Accumulated Deductions	\$	69,172,796
<i>Total Liabilities of the York County Employees' Retirement Fund</i>	\$	503,439,018



## Schedule C

### Unfunded Actuarial Liability and Normal Cost

Schedule C shows the development of the unfunded actuarial liability and the normal cost for 2019.

#### I. Unfunded Actuarial Liability January 1, 2019

1. Actuarial Liability:		
(a) Active Participants		
Retirement Benefits	\$	143,208,654
Termination Benefits		13,574,793
Death Benefits		5,199,165
Total	\$	<u>161,982,612</u>
(b) Terminated Vested Participants	\$	14,672,008
(c) Retired Members and Beneficiaries		
Retirement Benefits	\$	208,386,453
Cost-of-Living Benefits		4,153,039
Total	\$	<u>212,539,492</u>
(d) Member Accumulated Deductions	\$	<u>69,172,796</u>
(e) Total (a) + (b) + (c) + (d)	\$	458,366,908
2. Actuarial Value of Plan Assets (see page 14)	\$	395,032,061
3. Unfunded Actuarial Liability as of January 1, 2019: (1e) – (2)	\$	<u><u>63,334,847</u></u>

#### II. Normal Cost for 2019

1. Normal Cost for:		
(a) Retirement Benefits	\$	4,860,909
(b) Termination Benefits		730,475
(c) Death Benefits		185,743
(d) Normal Cost as of January 1, 2019	\$	<u>5,777,127</u>
(e) Normal Cost with interest to end of year: (d) x 1.0725	\$	6,195,969



## Schedule D

### Actuarial Gain (Loss) for One Year Period Ending December 31, 2018

Schedule D shows the development of the actuarial gain (loss) for the 2018 plan year.

1.	Unfunded Actuarial Liability as of January 1, 2018	\$	57,836,037
2.	Normal Cost as of January 1, 2018		6,518,867
3.	Interest at 7.25% Per Year to December 31, 2018 on (1) and (2)		4,665,731
4.	Employer Contributions for the 2018 Plan Year		12,066,707
5.	Change in Unfunded Actuarial Liability Due to Cost of Living Increase to Retirees		0
6.	Change in Unfunded Actuarial Liability Due to Change in Assumptions		<u>0</u>
7.	Expected Unfunded Actuarial Liability as of January 1, 2019: (1) + (2) + (3) - (4) + (5) + (6)		56,953,928
8.	Unfunded Actuarial Liability as of January 1, 2019		63,334,847
9.	Actuarial Gain (Loss) for 2018 Plan Year: (7) – (8)		(6,380,919)



## Schedule E

### Amortization Schedule

Schedule E provides a record of the amortization amounts. Actuarial gains (losses) will be amortized over 15 years from the date determined; increases or decreases created by pension plan establishing an unfunded actuarial accrued liability will be amortized over 25 years from the effective establishment date; increases or decreases created by a modification in the benefit plan applicable to active members will be amortized over 15 years beginning with the January 1st coinciding with or next following the effective date of change; increases or decreases created by a modification in the benefit plan applicable to retired members will be amortized over 10 years beginning with the January 1st coinciding with or next following the effective date of change; increases in actuarial accrued liability attributable to the special early retirement provision will be amortized over 5 years beginning with the January 1st coinciding with or next following the end of the early retirement period; and increases or decreases created by changes in actuarial assumptions will be amortized over 15 years from the effective date of change; resetting the unfunded actuarial liability (UAL) due to outstanding balance becoming negative will be amortized over 15 years beginning with the January 1st coinciding with or next following when the outstanding balance becomes negative. When resetting, any previous charges or credits will be considered paid off and eliminated.

### Amortization Record for 2019

		As of January 1, 2019				
		<u>Initial Amount</u>	<u>Effective Date</u>	<u>Remaining Period</u>	<u>Outstanding Balance</u>	<u>Amortization Charge or (Credit)</u>
Amortization of Liability for:						
(a)	Initial UAAL	\$ 57,836,037	1/1/2018	24 Years	\$56,953,928	\$5,075,222
(b)	Experience loss	6,380,919	1/1/2019	15 Years	<u>6,380,919</u>	<u>711,694</u>
(c)	Total				\$63,334,847	\$5,786,916



## Schedule F

Schedule F determines the certified actuarially determined contribution of \$11,982,885 for 2019 for the York County Employees' Retirement System.

1.	Total Amortization Charge/(Credit) (page 11 (c))	\$ 5,786,916
2.	Normal Cost with interest to end of year (page 9 II 1(e))	\$ 6,195,969
3.	Total Funding Requirement for 2019 (actuarially determined contribution for 2019): (1) + (2), but not less than 0	\$ 11,982,885

### Notes:

The actuarially determined contribution for 2019 as a percentage of the estimated 2019 compensation (\$104,583,476) for active members is 11.46%.

The equivalent normal cost accrual rate to be applied to actual 2018 salaries to determine reimbursable expenses is 11.92%.



## Schedule G

The following are notes to Schedules B and I:

**Members' Annuity Reserve Account:** The balance of \$69,172,796 in this account is the total of the contributions deducted from the salaries of the active and terminated vested members of the retirement system and the IRC 414(h)(2) pickup contributions together with the interest additions as of January 1, 2019. Since these accumulations represent the present value as of January 1, 2019, of future benefits, the reserve balance and liability are identical.

**County Annuity Reserve Account:** The balance of \$56,587,374 in this account as of January 1, 2019 and the amounts expected to be credited in the future, plus investment earnings, represent the reserves set aside for the payment of the county's share of the retirement allowances.

This is the account out of which regular interest is credited to the member's annuity and retired members' reserve account, administrative expenses may be paid and the pension obligations of the County are funded.

When a County Annuity is scheduled to commence for a particular member, sufficient monies are transferred from the County Annuity Reserve Account to the Retired Members' Reserve Account to provide for such County Annuities actually entered upon.

**Retired Members' Reserve Account:** This is the account out of which monthly retirement allowances including cost-of-living increases and death benefits are paid.

The assets allocated to this reserve account as of January 1, 2019 amount to \$212,539,492. The corresponding liability for those annuitants on the roll is identical.



## Schedule G - Continued

**Actuarial Value of Assets:** The Actuarial Value of Assets equals the Market Value of Assets adjusted for unrecognized gains and losses from prior years. Gains and losses are determined by calculating the expected asset return based on Plan assumptions and subtracting the actual Plan return. Gains and losses are phased in 20% per year over a 5-year period. The Actuarial Value of Assets is adjusted, if necessary, to fall within a corridor of 80% to 120% of Market Value of Assets.

1.	Market Value of Assets as of 1/1/2018		\$	391,818,535
2.	Contributions for 2018		\$	21,966,950
3.	Disbursements during 2018		\$	25,347,321
4.	Expected Return at 7.3% Interest		\$	28,284,305
5.	Actual Return for 2018		\$	(16,766,753)
6.	Gain/(Loss) for 2018		\$	(45,051,058)
7.	Amount Unrecognized for 2018: (45,051,058) x .8		\$	(36,040,846)
8.	Gain/(Loss) Unrecognized for Prior Years:			
(a)	2017	30,160,342 x .6	\$	18,096,205
(b)	2016	(2,921,131) x .4	\$	(1,168,452)
(c)	2015	(21,237,783) x .2	\$	(4,247,557)
(d)	Total of (a) + (b) + (c)		\$	12,680,196
9.	Market Value of Assets as of January 1, 2019		\$	371,671,411
10.	Actuarial Value of Assets as of January 1, 2019 equals (9) – (7) – (8d)		\$	395,032,061
11.	Value must be not less than 80% and not greater than 120% of Market Value		\$	395,032,061



## Schedule H

### APPROXIMATE RATE OF RETURN FOR 2018 PLAN YEAR

		<u>Actuarial Value</u>		<u>Market Value</u>
1. Value as of December 31, 2017	\$	378,565,281	\$	391,818,535
2. Contributions Received During Year	\$	21,966,950	\$	21,966,950
3. Benefits and Expenses Paid During Year	\$	25,347,321	\$	25,347,321
4. Value as of December 31, 2018	\$	395,032,061	\$	371,671,411
5. Non-Investment Increment: (2) - (3)	\$	(3,380,371)	\$	(3,380,371)
6. Investment Increment: (4) - (1) - (5)	\$	19,847,151	\$	(16,766,753)
7. Time Weighted Value of Assets: (1) + .5 x (5)	\$	376,875,096	\$	390,128,350
8. Approximate Rate of Return for 2018: (6) / (7)		5.27%		(4.30%)

### HISTORY OF RATE OF RETURNS

<u>Plan Year</u>	<u>Actuarial Value Rate of Return</u>	<u>Market Value Rate of Return</u>
2018	5.27%	(4.30%)
2017	9.09%	16.45%
2016	8.08%	6.58%
2015	2.51%	0.82%
2014	6.45%	6.45%
2013	15.09%	18.87%
2012	6.31%	11.97%
2011	6.30%	1.62%
2010	6.31%	12.55%
2009	6.32%	26.76%
Five Year Average (2014 - 2018):	6.25%	4.97%
Ten Year Average (2009 - 2018):	7.13%	9.42%



## Schedule I

### Determination of Reserve Balances

	<u>M.A.R.A.</u>	<u>C.A.R.A.</u>	<u>R.M.R.A.</u>	<u>TOTAL</u>
Balance 1/1/2018	\$ 71,737,608	\$ 53,875,959	\$ 176,939,508	\$ 302,553,075
County Appropriations		15,619,704		15,619,704
Member Contributions	6,347,246			6,347,246
Member Purchases		0		0
Net Investment Income		39,126,958		39,126,958
Investment Expenses		0		0
Member Contributions Refunded	(2,313,581)			(2,313,581)
Pension Payments			(22,742,439)	(22,742,439)
Death Benefits			(291,301)	(291,301)
Retiree and Death Benefit Transfers	(10,933,299)	(33,821,311)	44,754,610	0
Cost of Living Funding Requirement		0	0	0
Administrative Expenses		0		0
Adjustment to balances	260,496	542,594	(803,090)	0
Balance Before Interest	65,098,470	75,343,904	197,857,288	338,299,662
Interest Allocated in 2018	4,074,326	(11,004,333)	6,930,007	
Balance Before Actuarial Adjustments	69,172,796	64,339,571	204,787,295	338,299,662
Actuarial Adjustments		(7,752,197)	7,752,197	
Ending Balance 12/31/2018	69,172,796	56,587,374	212,539,492	338,299,662
Unrealized Appreciation				33,371,749
Total Assets (12/31/2018) (Market Value)				371,671,411



## Schedule J

### Membership History

Below is a ten-year history of the Retirement System's membership.

January 1	ACTIVE MEMBERS AND VESTED TERMINATED MEMBERS			RETIRED MEMBERS AND BENEFICIARIES		
	Male	Female	Total	Male	Female	Total
2019	976	1,360	2,336	442	1,003	1,445
2018	998	1,646	2,644	397	845	1,242
2017	972	1,673	2,645	372	813	1,185
2016	968	1,662	2,630	352	785	1,137
2015	959	1,694	2,653	345	752	1,097
2014	948	1,650	2,598	333	716	1,049
2013	940	1,640	2,580	313	672	985
2012	931	1,613	2,544	291	635	926
2011	930	1,602	2,532	278	614	892
2010	912	1,584	2,496	267	591	858



## Schedule K

### Changes in Plan Participation From January 1, 2018 to January 1, 2019

#### ACTIVE PARTICIPANTS

Number as of January 1, 2018		2,405
Changes During Plan Year:		
Retired	(-)	205
Terminated and Vested	(-)	93
Terminated	(-)	347
Died	(-)	3
New Participants	(+)	262
Number as of January 1, 2019		2,019

#### RETIRED PARTICIPANTS

Number as of January 1, 2018		1,242
Changes During Plan Year:		
Returned to Active Service	(-)	0
Died	(-)	24
New Retirements from Active Service	(+)	205
New Surviving Annuitants	(+)	4
Vested Terminated Participants Whose Benefits Commenced	(+)	10
Additions	(+)	8
Number as of January 1, 2019		1,445

#### TERMINATED VESTED PARTICIPANTS

Number as of January 1, 2018		239
Changes During Plan Year:		
Returned to Active Service	(-)	4
Benefits Commenced	(-)	10
Terminated	(-)	2
New Termination's with Vesting	(+)	93
Additions	(+)	1
Number as of January 1, 2019		317



## Schedule L

### Age, Service and Average Salary Profile of the Active Members on January 1, 2019.

#### MALES -- FULL YEARS OF SERVICE TO JANUARY 1, 2019

<u>Age</u>	<u>0-4</u>	<u>5-9</u>	<u>10-14</u>	<u>15-19</u>	<u>20-24</u>	<u>25-29</u>	<u>30+</u>	<u>Total</u>	<u>Average Salary</u>
0-19	0	0	0	0	0	0	0	0	\$ 0
20-24	47	0	0	0	0	0	0	47	\$ 45,449
25-29	98	24	0	0	0	0	0	122	\$ 51,860
30-34	41	44	18	1	0	0	0	104	\$ 55,028
35-39	18	38	45	8	0	0	0	109	\$ 58,056
40-44	15	24	25	31	18	0	0	113	\$ 65,503
45-49	17	22	19	15	37	6	1	117	\$ 69,058
50-54	13	22	23	11	13	13	3	98	\$ 68,078
55-59	11	10	11	18	17	3	8	78	\$ 66,066
60-64	12	12	13	9	9	2	2	59	\$ 55,407
65 +	3	3	6	7	5	0	3	27	\$ 66,585
<b>Total</b>	<b>275</b>	<b>199</b>	<b>160</b>	<b>100</b>	<b>99</b>	<b>24</b>	<b>17</b>	<b>874</b>	<b>\$ 60,512</b>

Average Age: 42.35  
Average Service: 10.32

#### FEMALES -- FULL YEARS OF SERVICE TO JANUARY 1, 2019

<u>Age</u>	<u>0-4</u>	<u>5-9</u>	<u>10-14</u>	<u>15-19</u>	<u>20-24</u>	<u>25-29</u>	<u>30+</u>	<u>Total</u>	<u>Average Salary</u>
0-19	0	0	0	0	0	0	0	0	\$ 0
20-24	43	2	0	0	0	0	0	45	\$ 32,497
25-29	105	45	1	0	0	0	0	151	\$ 40,523
30-34	69	69	29	1	0	0	0	168	\$ 43,604
35-39	37	34	48	21	1	0	0	141	\$ 47,314
40-44	31	29	24	24	21	0	0	129	\$ 49,237
45-49	35	21	23	18	22	12	1	132	\$ 46,957
50-54	27	25	14	23	17	16	16	138	\$ 48,902
55-59	22	29	21	14	12	4	8	110	\$ 44,098
60-64	5	18	22	19	8	11	9	92	\$ 48,071
65 +	2	12	7	6	6	4	2	39	\$ 42,105
<b>Total</b>	<b>376</b>	<b>284</b>	<b>189</b>	<b>126</b>	<b>87</b>	<b>47</b>	<b>36</b>	<b>1,145</b>	<b>\$ 45,233</b>

Average Age: 42.90  
Average Service: 10.04



## Schedule M

### Actuarial Assumptions and Actuarial Cost Method for Funding Purposes, January 1, 2019.

#### Actuarial Assumptions

**Mortality Rates:** 2013 RP Annuitant and Non-Annuitant Mortality Tables for males and females with no projected improvement.

**Withdrawal Rates:** Members not eligible to retire are assumed to terminate employment in accordance with a percentage of the withdrawal rates set forth in Table T-7 of the Actuary's Handbook. The applicable percentage depends on the member's years of service as follows:

YEARS OF SERVICE	PERCENTAGE
Less than 1	300%
1 but less than 2	275%
2 but less than 3	250%
3 but less than 4	225%
4 but less than 5	200%

It is further assumed that a percentage of members who terminate after having met the Plan's five year vesting requirement will elect an immediate refund of their own contributions with interest thus forfeiting the County -- provided pension. The applicable percentage is 100% for termination ages up to age 30. After age 30 the applicable percentage is determined as 100% less  $(\text{age} - 30) \times 3 \frac{1}{3}\%$ . Illustrative percentages are as follows:

AGE	PERCENTAGE
30 or less	100.0%
35	83.3%
40	66.7%
45	50.0%
50	33.3%
55	16.7%

Once member reaches retirement eligibility, a withdrawal rate of zero is assumed.



## Schedule M - Continued

The following tables set forth illustrative withdrawal rates as determined in accordance with the methodology described on the previous page.

### Probability of Withdrawing During the Year:

#### LESS THAN FIVE YEARS OF SERVICE

<u>Age at Hire</u>	<u>Years of Service</u>				
	<u>0</u>	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>
20	.2982	.2720	.2460	.2202	.1947
30	.2791	.2532	.2275	.2021	.1770
40	.2326	.2067	.1814	.1570	.1335
50	.1267	.1013	.0781	.0577	.0407
59	.0086	-	-	-	-

#### FIVE OR MORE YEARS OF SERVICE

<u>Age at Beginning of Year</u>	<u>Probability of Withdrawing and Forfeiting County Pension</u>	<u>Probability of Withdrawing and Retaining County Pension</u>
30	.0930	.0000
40	.0517	.0258
50	.0141	.0281
59	.0001	.0028



## Schedule M - Continued

**Retirement Rates:** Members eligible to retire are assumed to retire in accordance with the following rates:

<u>AGE AT BEGINNING OF YEAR</u>	<u>PROBABILITY OF RETIRING DURING YEAR</u>
55-59	.07
60-61	.08
62-64	.15
65	.34
66-70	.23
71-79	.21
80	1.00

**Disability Rates:** Disability rates are not used.

**Investment Return:** 7.25% per annum, compounded annually.

**Salary Increases:** 4.0% per annum.

**Valuation Assets:** Market value adjusted for unrecognized gains and losses from prior years.

**Administrative Expenses:** Assumed to be paid from the County's general fund and not from plan assets. However, administrative expenses may from year to year be paid from the fund unless it is determined by the actuary that such payment will impair the actuarial soundness of the fund.

**Actuarial Cost Method:** The actuarial cost method used to determine the plan's funding requirements is the entry age normal method. Under this method, an actuarial accrued liability is determined as the actuarial present value of projected benefits for all participants minus the actuarial present value of future normal costs. The normal cost is determined as the annual amount required to fund between entry age and assumed exit age the actuarial present value of projected benefits for each active participant under the assumed retirement age.

**Changes Since Prior Valuation:** None.



## Schedule N

### Summary of Plan Provisions

- 1. Effective Date** - The effective date of this plan is January 1, 1960.
- 2. Eligibility for Plan Membership** - An employee shall be eligible to become a participant immediately upon becoming an employee.
- 3. Accrued Benefit** - The Retirement Board has authorized benefits equal to a percentage of the members Final Average Salary for each year of service the member has participated in the following Classes:

Class	Percentage	Effective
1/50	2.000%	01/01/1960
1/80	1.250%	1/1/2017*

\* applies to all non-union new hires and AFSCME union, IAMAW union and Teamster nursing home union new hires

#### 4. Normal Retirement (Superannuation)

**Eligibility:** Retirement occurs at age 60 or at age 55 if the participant has completed 20 years of service.

**Pension:** A monthly pension equal to (a) and (b), as follows:

- 2.000% of 1/12th of Final Average Salary multiplied by years of credited service on the 1/50 Class,
- 1.250% of 1/12th of Final Average Salary multiplied by years of credited service on the 1/80 Class,

PLUS

- a monthly annuity based on the actuarial equivalent of the member's accumulated contributions with credited interest.



## Schedule N - Continued

5. **Final Average Salary** - The average of the member's annual compensation received for the three years which produce the highest such average.
6. **Compensation** - Pick-up contributions plus remuneration received as a county employee excluding refunds for expenses, contingency and accountable expense allowances and excluding severance payments or payments for unused vacation or sick leave.
7. **Early Retirement**
  - Eligibility:**
    - Voluntary:** Upon completion of 20 years of service.
    - Involuntary:** Upon completion of 8 years of service.
  - Pension:** (a) a monthly pension equal to the actuarial equivalent of the benefits calculated in 4(a),  
  
PLUS  
  
(b) a monthly annuity based on the actuarial equivalent of the member's accumulated contributions with credited interest.
8. **Vesting** - One Hundred Percent (100%) upon completion of five years of credited service. A member who terminates employment after five years of credited service will receive a deferred annuity commencing at age 60 (or at age 55 if the member has at least 20 years of service at termination). The deferred benefit shall be calculated using the normal retirement pension formula but based on credited service, final average salary and accumulated contributions at termination.  
  
If a member terminates employment prior to entitlement to Plan benefits, he will receive his accumulated contributions with interest.
9. **Postponed Retirement** - A member may work past normal retirement age and continue to accrue pension credits.



## Schedule N - Continued

### 10. Disability Retirement

**Eligibility:** Total and permanent disability prior to Superannuation (Normal Retirement) age and after completion of five years of credited service.

**Pension:** A total monthly pension commencing on the last day of the month following disability retirement equal to 25% of the 1/12th of Final Average Salary at time of retirement. Such total monthly pension shall include the monthly disability that is actuarially equivalent to the member's accumulated contributions at retirement.

**11. Normal Form of Pension** - Benefits are payable in the form of a modified cash refund life annuity, that is for the member's lifetime only, except that disability benefits shall cease upon cessation of disability.

**12. Optional Retirement Benefits** - A member may elect to receive the actuarial equivalent of his retirement benefit as a full cash refund annuity (Option One) or a reduced joint and survivor pension payable for the remainder of his life, with either 100% or 50% of the member's pension continuing after death to the designated beneficiary. A member may also elect to receive, in one payment, the full amount of his accumulated deductions and continue to receive the annuity provided by the county.

### 13. Death Benefits

(a) **Pre-Retirement.** If a member dies after having attained age 60 or having completed ten years of credited service, his beneficiary will receive a lump sum equal to the actuarially determined present value of the benefits calculated in (7a) based on the member's Final Average Salary and credited service at time of death plus the member's accumulated contributions with interest at time of death.

(b) **Post-Retirement.** Upon the death of a terminated or retired member, his beneficiary will receive survivor benefits, if any, in accordance with the form under which benefits were being paid to the member. In any event, the total amount of benefits paid to the deceased member and beneficiary must, at least, equal the member's accumulated contributions with interest.



## Schedule N - Continued

### 14. Employee Contributions

The Retirement Board has authorized each member of the retirement system to individually elect to contribute between 5% and 15% of his salary.

### 15. Deposit Administrator

Investment Managers:

C.S. McKee  
GMO  
Earnest Partners  
Vanguard Funds  
American Funds  
Emerald Advisors  
Blackrock Global  
Acadian  
Twin Capital Management

Custodian:

M&T Bank

Investment Consultant:

Marquette Associates

**16. Administration** - Retirement Board as designated in Act 96 of 1971, the County Pension Law.

**17. Cost-of-Living** - The cost-of-living increase shall be reviewed at least once in every three years by the Retirement Board. Prior to 2017, a percentage of the CPI could be granted. After 2016, the annual CPI could be granted. The Board has granted cost-of-living increases nineteen times in the past from January, 1972 through January, 1998 and since then as follows:

PERCENTAGE/ANNUAL CHANGE IN C.P.I.	EFFECTIVE DATE OF INCREASE
100%	1/1/1999
100%	1/1/2000
100%	1/1/2001
100%	1/1/2002
100%	1/1/2003
100%	1/1/2004
100%	1/1/2005
100%	1/1/2006
100%	1/1/2007
100%	1/1/2008



## Schedule O

### Historical Trend Information

#### REVENUES BY SOURCE

<u>Fiscal Year</u>	<u>Employee Contributions</u>	<u>Employer Contributions</u>	<u>Investment Income</u>	<u>Miscellaneous</u>	<u>Total</u>
2009	\$ 4,962,683	\$ 6,640,000	\$ 2,669,192	\$ 0	\$ 14,271,875
2010	4,958,084	8,000,000	8,222,869	17,107	21,198,060
2011	5,219,125	10,000,000	15,032,868	883	30,252,876
2012	5,310,335	10,000,000	13,717,441	0	29,027,776
2013	5,388,580	10,000,000	13,088,665	0	28,477,245
2014	5,760,524	10,000,000	20,232,472	0	35,992,996
2015	5,817,678	9,400,000	16,557,292	0	31,774,970
2016	5,965,399	12,035,000	7,797,518	3,250	25,801,167
2017	6,084,625	12,215,000	13,866,483	0	32,166,108
2018	6,347,246	15,619,704	39,126,958	0	61,093,908

#### EXPENSES BY TYPE

<u>Fiscal Year</u>	<u>Benefits</u>	<u>Refunds</u>	<u>Administrative/ Miscellaneous</u>	<u>Total</u>
2009	\$ 9,664,232	\$ 755,609	\$ 301,052	\$ 10,720,893
2010	9,961,254	1,321,300	0	11,282,554
2011	11,125,862	1,259,129	0	12,384,991
2012	11,488,410	1,223,248	0	12,711,658
2013	13,657,277	1,263,589	0	14,920,866
2014	14,719,276	1,403,402	0	16,122,678
2015	16,306,392	1,812,175	0	18,118,567
2016	18,367,399	1,823,553	0	20,190,952
2017	17,969,476	1,622,409	0	19,591,885
2018	23,033,740	2,313,581	0	25,347,321



## Schedule O - Continued

### Plan Maturity Measures

Assets are accumulated over participants' careers to pay future benefits. The natural growth of liabilities and assets is referred to as plan maturity. As the plan matures, the size of the plan grows relative to the active members' payroll and will cause changes in the assets or liabilities to have a larger effect on the Actuarially Determined Contribution (ADC). The following table shows a history of the plan's maturity and the effect of a 1% change in plan assets or liabilities on the ADC.

<u>Fiscal Year</u>	<u>Actives Per Retirees</u>	<u>Ratio of Assets to Payroll</u>	<u>Effect on ADC of a 1% Change in Assets</u>	<u>Ratio of Actuarial Liability to Payroll</u>	<u>Effect on ADC of a 1% Change in Liability</u>
2018	1.4	3.6	\$ 415,000	4.4	\$ 511,000

The Society of Actuaries' Retirement Plans Experience Committee (RPEC) has released the final report of the Pub-2010 Public Retirement Plans Mortality Tables. The primary focus of this study was a comprehensive review of recent mortality experience of public retirement plans in the United States. There are separate tables for teachers, safety employees, and general employees. The effect of changing to the Pub-2010 for General on the ADC is an increase of \$3,200,000.