



Westmoreland County Employees' Retirement System

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





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for

Westmoreland County Employees' Retirement Board

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July 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 Westmoreland 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.

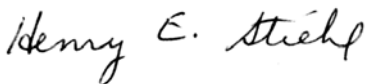
On the basis of the actuarial methods, assumptions and major plan provisions summarized in this report and in reliance on the member data and statement of the Fund's assets furnished by the County, to the best of our knowledge the information in this report is complete and accurate.

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.

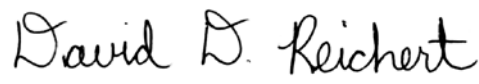
The included measurements are based on a single set of assumptions regarding the future experience of the plan's investments and participants. Future measurements and funding needs of the plan could vary significantly based on the actual experience, including differences in investment performance, and 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: 

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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 \$10,736,826. 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.

Cost-of-Living Funding Requirements

The amount required to fund the cost-of-living increase granted effective January 1, 2019 is \$4,202,082. This funding requirement increases the present value of future benefits for retired lives. The amount may be funded through direct appropriations or will be funded over ten years and will be reflected as an increase in the actuarially determined contribution.

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	\$	8,170,309		
Retired Members Annuity Reserve Account			\$	8,170,309



III. Schedules

Schedule A

WESTMORELAND COUNTY EMPLOYEES' RETIREMENT SYSTEM

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

Additions

	<u>2018 Total</u>	<u>2017 Total</u>
Contributions		
County	\$ 9,378,670	\$ 8,812,561
Plan Members	\$ 8,496,984	\$ 7,655,434
Miscellaneous	\$ 1,254,094	\$ 192,124
Total Contributions	\$ <u>19,129,748</u>	\$ <u>16,660,119</u>
Investment Income		
Realized Gain	\$ <u>9,514,489</u>	
Unrealized Loss	\$ <u>(43,880,788)</u>	
Net Loss in Fair Value	\$ (34,366,299)	\$ 49,786,887
Interest	\$ 3,545,216	\$ 3,598,959
Dividends	\$ 6,356,129	\$ 5,290,179
Net Accrued Interest/Other	\$ 151,634	\$ (92,542)
Investment Income	\$ <u>(24,313,320)</u>	\$ <u>58,583,483</u>
Less Investment Expense	\$ 1,239,206	\$ 1,263,550
Net Investment Income	\$ <u>(25,552,526)</u>	\$ <u>57,319,933</u>
Total Additions	\$ <u>(6,422,778)</u>	\$ <u>73,980,052</u>

Deductions

Benefits	\$ 31,110,992	\$ 29,573,423
Refunds of Member Contributions	\$ 1,820,433	\$ 1,695,982
Administrative Expense	\$ 62,159	\$ 176,751
Miscellaneous	\$ 151,632	\$ 0
Total Deductions	\$ <u>33,145,216</u>	\$ <u>31,446,156</u>
Net Increase/(Decrease)	\$ <u>(39,567,994)</u>	\$ <u>42,533,896</u>

Net Assets Held In Trust For Pension Benefits

Beginning of Year	\$ <u>459,740,911</u>	\$ <u>417,207,015</u>
End of Year	\$ <u><u>420,172,917</u></u>	\$ <u><u>459,740,911</u></u>



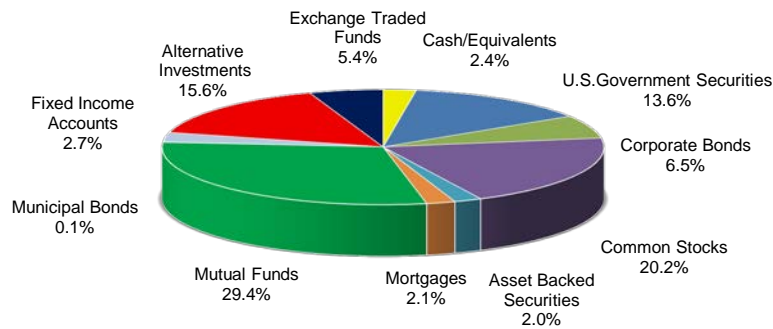
Schedule A – Continued

WESTMORELAND COUNTY EMPLOYEES' RETIREMENT SYSTEM

PLAN ASSETS AS OF DECEMBER 31, 2018 AND 2017

		Assets	
		<u>2018 Total</u>	<u>2017 Total</u>
Cash and Short-Term Investments	\$	8,670,684	\$ 12,355,590
Receivables	\$	1,659,752	\$ 1,812,833
Investments, at fair market value			
US Government Securities	\$	57,070,838	\$ 53,706,095
Corporate Bonds	\$	27,418,611	\$ 27,061,631
Common Stocks	\$	84,810,523	\$ 98,275,134
Asset Backed Securities	\$	8,544,424	\$ 9,676,595
Mortgages	\$	8,782,861	\$ 10,133,081
Mutual Funds	\$	123,402,152	\$ 144,036,695
Municipal Bonds	\$	517,980	\$ 1,012,224
Fixed Income Accounts	\$	11,238,949	\$ 9,393,288
Alternative Investments	\$	65,586,862	\$ 67,099,963
Exchanged Traded Funds	\$	22,819,294	\$ 25,679,429
Total Investments	\$	410,192,494	\$ 446,074,135
Total Assets	\$	420,522,930	\$ 460,242,558
Liabilities			
Refunds Payable and Other	\$	350,013	\$ 501,647
Net Assets Held In Trust For Pension Benefits			
	\$	420,172,917	\$ 459,740,911

TOTAL ASSETS (MARKET VALUE 12-31-2018)





Schedule A - Continued

Westmoreland County Employees' Retirement System

Plan Description and Contribution Information

Basis of Accounting: The Westmoreland 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	1,329
Terminated Plan Members Entitled to but not yet Receiving Benefits	156
Active Plan Members	1,835
Total	<u>3,320</u>
Number of Participating Employers	1



Schedule A - Continued

Westmoreland County Employees' Retirement System

Plan Description: The Westmoreland 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 Westmoreland 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 9% 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.

SCHEDULE OF EMPLOYER CONTRIBUTIONS

<u>Year</u>	<u>Contribution *</u>	<u>County Contribution</u>
2009	\$ 8,275,610	\$ 8,275,610
2010	\$ 7,533,685	\$ 6,194,962
2011	\$ 7,955,926	\$ 7,955,926
2012	\$ 8,796,356	\$ 8,796,356
2013	\$ 9,964,570	\$ 9,964,570
2014	\$ 5,466,886	\$ 5,466,886
2015	\$ 6,418,453	\$ 6,418,453
2016	\$ 7,674,463	\$ 7,952,232
2017	\$ 7,605,122	\$ 8,812,561
2018	\$ 8,210,625	\$ 9,378,670

Note: Effective in 2010 the Entry Age Funding Method was used to determine the annual required contribution. Prior to 2010 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 (ADC).



Schedule A - Continued

SCHEDULE OF FUNDING PROGRESS

Actuarial Valuation Date	Actuarial Value of Assets (a)	Actuarial Accrued Liability (AAL) - Entry Age (b)	Unfunded AAL (UAAL) (b-a)	Funded Ratio (a/b)	Covered Payroll (c)	UAAL as a Percentage of Covered Payroll ((b-a)/c)
1/1/2010	296,022,678	349,024,545	53,001,867	84.8%	76,147,376	69.6%
1/1/2011	312,113,726	369,072,999	56,959,273	84.6%	77,360,215	73.6%
1/1/2012	326,861,795	389,814,931	62,953,136	83.9%	79,578,330	79.1%
1/1/2013	339,251,435	410,324,610	71,073,175	82.7%	80,398,838	88.4%
1/1/2014	414,104,725	438,103,949	23,999,224	94.5%	80,665,059	29.8%
1/1/2015	428,804,426	461,514,144	32,709,718	92.9%	80,148,609	40.8%
1/1/2016	440,427,678	482,828,392	42,400,714	91.2%	82,150,103	51.6%
1/1/2017	454,298,156	496,437,135	42,138,979	91.5%	79,046,928	53.3%
1/1/2018	456,139,030	525,225,687	69,086,657	86.8%	81,180,852	85.1%
1/1/2019	457,300,194	546,096,710	88,796,516	83.7%	81,773,181	108.6%



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	\$	125,747,234
County Annuity Reserve Account	\$	(36,627,423)
Retired Members' Reserve Account	\$	283,772,410
Unrealized Appreciation of Assets	\$	47,280,696
<i>Total Assets, (Market Value) of the Westmoreland County Employees' Retirement Fund</i>	\$	420,172,917

LIABILITIES

Actuarial Present Value of:

Accumulated Plan Benefits		
Vested participants (1,182)	\$	86,116,486
Nonvested participants (653)	\$	1,489,074
Future Benefit Accruals	\$	80,417,786
Terminated Vested Benefits	\$	8,345,752
Retired Benefits	\$	283,772,410
Member Accumulated Deductions	\$	125,747,234
<i>Total Liabilities of the Westmoreland County Employees' Retirement Fund</i>	\$	585,888,742



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	\$ 126,270,541
Termination Benefits	7,578,836
Death Benefits	4,308,019
Total	<u>\$ 138,157,396</u>
(b) Terminated Vested Participants	\$ 8,345,752
(c) Retired Members and Beneficiaries	
Retirement Benefits	\$ 263,561,535
Cost-of-Living Benefits	20,210,875
Total	<u>\$ 283,772,410</u>
(d) Present Value of Member Accumulated Deductions	<u>\$ 115,821,152</u>
(e) Total (a) + (b) + (c) + (d)	\$ 546,096,710
2. Actuarial Value of Plan Assets (see page 14)	\$ 457,300,194
3. Unfunded Actuarial Liability as of January 1, 2019: (1e) – (2)	<u><u>\$ 88,796,516</u></u>

II. Normal Cost for 2019

1. Normal Cost for:	
(a) Retirement Benefits	\$ 3,437,186
(b) Termination Benefits	492,256
(c) Death Benefits	126,036
(d) Members Accumulated Deductions	5,294,760
(e) Normal Cost as of January 1, 2019	<u>\$ 9,350,238</u>
(f) Normal Cost with interest to end of year: (e) x 1.07	\$ 10,004,755



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	\$ 69,086,657
2.	Normal Cost as of January 1, 2018	9,200,242
3.	Interest at 7.0% Per Year to December 31, 2018 on (1) and (2)	5,480,083
4.	Employer Contributions for the 2018 Plan Year	8,210,625
5.	Expected Employee Contributions for 2018 with interest	7,561,996
6.	Change in Unfunded Actuarial Liability Due to Cost of Living Increase to Retirees	<u>4,202,082</u>
7.	Expected Unfunded Actuarial Liability as of January 1, 2019: (1) + (2) + (3) - (4) - (5) + (6)	72,196,443
8.	Unfunded Actuarial Liability as of January 1, 2019	88,796,516
9.	Actuarial Gain (Loss) for 2018 Plan Year: (7) – (8)	(16,600,073)



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)	Reset UAAL	\$ 69,086,657	1/1/2018	24 Years	\$67,994,361	\$5,928,362
(b)	Retiree COLA increase	4,202,082	1/1/2019	10 Years	4,202,082	598,282
(c)	Experience loss	16,600,073	1/1/2019	15 Years	<u>16,600,073</u>	<u>1,822,599</u>
(d)	Total				\$88,796,516	\$8,349,243



Schedule F

Schedule F determines the certified actuarially determined contribution of \$10,736,826 for 2019 for the Westmoreland County Employees' Retirement System.

1.	Total Amortization Charge/(Credit) (page 11 (d))	\$ 8,349,243
2.	Normal Cost with interest to end of year (page 9 II 1(f))	\$ 10,004,755
3.	Expected Member Contributions with interest	\$ 7,617,172
4.	Total Funding Requirement for 2019 (actuarially determined contribution for 2019): (1) + (2) - (3), but not less than 0	\$ 10,736,836

Notes:

The actuarially determined contribution for 2019 as a percentage of the estimated 2019 compensation (\$81,773,181) for active members is 13.13%.

The equivalent normal cost accrual rate to be applied to actual 2018 salaries to determine reimbursable expenses is 13.59%.



Schedule G

The following are notes to Schedules B and I:

Members' Annuity Reserve Account: The balance of \$125,747,234 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 \$(36,627,423) 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 \$283,772,410. 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		\$	459,740,911
2.	Contributions for 2018		\$	19,129,748
3.	Disbursements during 2018		\$	34,384,422
4.	Expected Return at 7.0% Interest		\$	31,647,950
5.	Actual Return for 2018		\$	(24,313,320)
6.	Gain/(Loss) for 2018		\$	55,961,270)
7.	Amount Unrecognized for 2018: (55,961,270) x .8		\$	(44,769,016)
8.	Gain/(Loss) Unrecognized for Prior Years:			
(a)	2017	27,894,816 x .6	\$	16,736,890
(b)	2016	(8,611,975) x .4	\$	(3,444,790)
(c)	2015	(28,251,805) x .2	\$	(5,650,361)
(d)	Total of (a) + (b) + (c)		\$	7,641,739
9.	Market Value of Assets as of January 1, 2019		\$	420,172,917
10.	Actuarial Value of Assets as of January 1, 2019 equals (9) – (7) – (8d)		\$	457,300,194
11.	Value must be not less than 80% and not greater than 120% of Market Value		\$	457,300,194



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	\$	456,139,030	\$	459,740,911
2. Contributions Received During Year	\$	19,129,748	\$	19,129,748
3. Benefits and Expenses Paid During Year	\$	34,384,422	\$	34,384,422
4. Value as of December 31, 2018	\$	457,300,194	\$	420,172,917
5. Non-Investment Increment: (2) - (3)	\$	(15,254,674)	\$	(15,254,674)
6. Investment Increment: (4) - (1) - (5)	\$	16,415,838	\$	(24,313,320)
7. Time Weighted Value of Assets: (1) + .5 x (5)	\$	448,511,693	\$	452,113,574
8. Approximate Rate of Return for 2018: (6) / (7)		3.66%		(5.38%)

HISTORY OF RATE OF RETURNS

<u>Plan Year</u>	<u>Actuarial Value Rate of Return</u>	<u>Market Value Rate of Return</u>
2018	4.06%	(5.38%)
2017	4.01%	14.32%
2016	6.40%	5.36%
2015	6.41%	0.68%
2014	6.41%	4.75%
2013	23.87%	15.95%
2012	5.42%	11.63%
2011	5.75%	0.75%
2010	7.04%	11.95%
2009	1.49%	22.08%
Five Year Average (2014 - 2018):	5.37%	3.75%
Ten Year Average (2009 - 2018):	6.90%	7.92%



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	\$ 122,679,262	\$ (21,704,806)	\$ 267,604,971	\$ 368,579,427
County Appropriations		9,378,670		9,378,670
Member Contributions	8,496,984	0		8,496,984
Member Purchases		0		0
Net Investment Income		19,567,468		19,567,468
Investment Expenses		(1,239,206)		(1,239,206)
Member Contributions Refunded	(1,820,433)			(1,820,433)
Pension Payments			(30,134,504)	(30,134,504)
Death Benefits			(976,488)	(976,488)
Retiree and Death Benefit Transfers	(10,181,684)	(14,073,237)	24,254,921	0
Cost of Living Funding Requirement		(4,202,082)	4,202,082	0
Administrative Expenses		(62,159)		(62,159)
Miscellaneous		1,254,094		1,254,094
Miscellaneous		(151,632)		(151,632)
Balance Before Interest	119,174,129	(11,232,890)	264,950,982	372,892,221
Interest Allocated in 2018	6,573,105	(17,224,224)	10,651,119	
Balance Before Actuarial Adjustments	125,747,234	(28,457,114)	275,602,101	372,892,221
Actuarial Adjustments		(8,170,309)	8,170,309	
Ending Balance 12/31/2018	125,747,234	(36,627,423)	283,772,410	372,892,221
Unrealized Appreciation				47,280,696
Total Assets (12/31/2018) (Market Value)				420,172,917



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	756	1,235	1,991	429	900	1,329
2018	769	1,229	1,998	416	879	1,295
2017	755	1,222	1,977	399	856	1,255
2016	765	1,236	2,001	372	841	1,213
2015	782	1,248	2,030	351	822	1,173
2014	781	1,265	2,046	326	739	1,065
2013	773	1,300	2,073	305	688	993
2012	779	1,313	2,092	288	652	940
2011	742	1,324	2,066	275	618	893
2010	736	1,344	2,080	261	580	841



Schedule K

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

ACTIVE PARTICIPANTS

Number as of January 1, 2018		1,859
Changes During Plan Year:		
Retired	(-)	69
Terminated and Vested	(-)	25
Terminated	(-)	139
Died	(-)	1
New Participants	(+)	210
Number as of January 1, 2019		1,835

RETIRED PARTICIPANTS

Number as of January 1, 2018		1,295
Changes During Plan Year:		
Returned to Active Service	(-)	0
Died	(-)	50
New Retirements from Active Service	(+)	69
New Surviving Annuitants	(+)	8
Vested Terminated Participants Whose Benefits Commenced	(+)	7
Number as of January 1, 2019		1,329

TERMINATED VESTED PARTICIPANTS

Number as of January 1, 2018		139
Changes During Plan Year:		
Returned to Active Service	(-)	0
Benefits Commenced	(-)	7
Terminated	(-)	2
Died	(-)	0
New Termination's with Vesting	(+)	25
Additions	(+)	1
Number as of January 1, 2019		156



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	1	0	0	0	0	0	0	1	\$ 16,895
20-24	23	1	0	0	0	0	0	24	\$ 29,062
25-29	54	26	0	0	0	0	0	80	\$ 38,452
30-34	21	34	19	0	0	0	0	74	\$ 45,061
35-39	27	23	23	9	0	0	0	82	\$ 45,619
40-44	12	25	15	14	8	1	0	75	\$ 48,122
45-49	8	14	10	16	20	9	0	77	\$ 52,288
50-54	12	17	10	8	7	38	8	100	\$ 56,783
55-59	13	10	12	10	9	15	14	83	\$ 55,570
60-64	10	12	11	3	3	7	11	57	\$ 54,922
65 +	6	4	8	6	3	4	8	39	\$ 53,590
Total	187	166	108	66	50	74	41	692	\$ 49,151

Average Age: 44.98
Average Service: 12.24

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	1	0	0	0	0	0	0	1	\$ 36,598
20-24	43	1	0	0	0	0	0	44	\$ 25,008
25-29	72	42	3	0	0	0	0	117	\$ 36,115
30-34	58	44	29	1	0	0	0	132	\$ 40,718
35-39	41	43	24	11	0	0	0	119	\$ 41,800
40-44	33	13	18	19	8	0	0	91	\$ 41,915
45-49	27	28	23	14	27	16	0	135	\$ 46,769
50-54	30	25	19	20	13	32	21	160	\$ 46,223
55-59	25	35	30	24	18	10	30	172	\$ 42,006
60-64	14	23	24	22	18	15	16	132	\$ 42,177
65 +	4	7	9	3	5	3	9	40	\$ 43,336
Total	348	261	179	114	89	76	76	1,143	\$ 41,786

Average Age: 45.43
Average Service: 11.75



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 $(age - 30) \times 3 \frac{1}{3}\%$. 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: 7.0% per annum, compounded annually.

Salary Increases: 3.5% 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, 1945.
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
1/120	0.833%	01/01/1945
1/100	1.000%	01/01/1952
1/80	1.250%	03/01/1965
1/70	1.429%	01/01/1972
1/60	1.667%	01/01/1975

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:

- (a) 0.833% of 1/12th of Final Average Salary multiplied by years of credited service on the 1/120 Class,
1.000% of 1/12th of Final Average Salary multiplied by years of credited service on the 1/100 Class,
1.250% of 1/12th of Final Average Salary multiplied by years of credited service on the 1/80 Class,
1.429% of 1/12th of Final Average Salary multiplied by years of credited service on the 1/70 Class,
1.667% of 1/12th of Final Average Salary multiplied by years of credited service on the 1/60 Class,

PLUS

- (b) 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

Employees on the 1/70 Class must contribute between 8% and 18% of salary.

Employees on the 1/60 Class must contribute between 9% and 19% of salary.

15. Deposit Administrator

Investment Managers:

Corry Capital Advisers	C.S. McKee and Company Inc.
Emerald Advisers	Fusion Investment Advisers
Grosvenor Institutional Partners	
Metropolitan West	SIT Investment
Stewart Capital	TWIN Capital
Victory Gradison Capital	Wellington Management

Custodian:

PNC Institutional Asset Management

Investment Consultant:

Gallagher Fiduciary Advisors

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 thirty times in the past from January, 1972 through January, 2007 and since then as follows:

PERCENTAGE/ANNUAL CHANGE IN C.P.I.	EFFECTIVE DATE OF INCREASE
70%	1/1/2008
70%	1/1/2009
70%	1/1/2011
70%	1/1/2012
70%	1/1/2013
70%	1/1/2014
70%	1/1/2015
0.3%	1/1/2017
1.4%	1/1/2018
1.7%	1/1/2019



Schedule N - Continued

18. Early Retirement Provision - The Retirement Board has authorized the following Early Retirement Provisions:

Percent of
Additional Service
15%

Early
Retirement Period
4/1/01 - 4/30/01



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	\$ 7,033,493	\$ 8,275,610	\$ 5,938,025	\$ 0	\$ 21,247,128
2010	7,122,087	6,194,962	17,920,992	0	31,238,041
2011	7,387,713	7,955,926	19,591,156	0	34,934,795
2012	7,574,642	8,796,356	15,568,504	0	31,939,502
2013	7,634,296	9,964,570	22,851,226	49,408	40,499,500
2014	7,942,978	5,466,886	40,719,372	245,027	54,374,263
2015	7,724,552	6,418,453	24,773,662	133,907	39,050,574
2016	7,869,126	7,952,232	18,085,944	262,719	34,170,021
2017	7,655,434	8,812,561	14,564,186	192,124	31,224,305
2018	8,496,984	9,378,670	19,567,468	1,254,094	38,697,216

EXPENSES BY TYPE

<u>Fiscal Year</u>	<u>Benefits</u>	<u>Refunds</u>	<u>Administrative/ Miscellaneous</u>	<u>Total</u>
2009	\$ 13,498,597	\$ 1,145,285	\$ 1,190,051	\$ 15,833,933
2010	15,495,558	1,059,431	1,342,394	17,897,383
2011	16,056,150	1,007,683	1,379,659	18,443,492
2012	18,830,639	1,211,628	1,512,244	21,554,511
2013	20,757,907	780,619	1,594,140	23,132,666
2014	22,309,107	1,219,695	1,594,723	25,123,525
2015	27,126,621	1,136,735	1,379,482	29,642,838
2016	27,442,084	1,152,082	1,354,997	29,949,163
2017	29,573,423	1,695,982	1,440,301	32,709,706
2018	31,110,992	1,820,433	1,452,997	34,384,422



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	5.1	\$ 461,000	6.7	\$ 600,000

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 \$3,500,000.