



Montgomery County Employees' Retirement System

**Report on 2020 Actuarial Valuation Including
Determination of County Actuarially Determined
Contribution for 2020**





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for

Montgomery County Employees' Retirement Board

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August 20, 2020



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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 Montgomery County Employees' Retirement System as of January 1, 2020 and to establish the proper appropriation for the 2020 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 2020 is \$16,917,319. 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	\$	10,409,639		
Retired Members Annuity Reserve Account			\$	10,409,639

Actuarial Assumptions

Effective January, 2020, the asset valuation method has been changed. The effect of this change is an increase in the unfunded actuarial accrued liability of \$31,873,442 and an increase in the actuarially determined contribution of \$3,610,854.



III. Schedules

Schedule A

MONTGOMERY COUNTY EMPLOYEES' RETIREMENT SYSTEM

CHANGES IN PLAN NET ASSETS FOR THE CALENDAR YEAR 2019 AND 2018

Additions

	<u>2019 Total</u>	<u>2018 Total</u>
Contributions		
County	\$ 10,813,939	\$ 9,040,723
Plan Members	\$ 8,453,035	\$ 8,175,000
Miscellaneous	\$ 8,215	\$ 26,168
Total Contributions	\$ <u>19,275,189</u>	\$ <u>17,241,891</u>
Investment Income		
Realized Gain	\$ <u>10,921,256</u>	
Unrealized Gain	\$ <u>79,933</u>	
Net Gain in Fair Value	\$ 11,001,189	\$ 6,425,470
Interest	\$ 4,196	\$ 3,492
Dividends	\$ 14,151,469	\$ 13,482,875
Net Accrued Interest	\$ 70,814,568	\$ (48,457,422)
Investment Income	\$ <u>95,971,422</u>	\$ <u>(28,545,585)</u>
Less Investment Expense	\$ 373,841	\$ 371,383
Net Investment Income	\$ <u>95,597,581</u>	\$ <u>(28,916,968)</u>
Total Additions	\$ <u>114,872,770</u>	\$ <u>(11,675,077)</u>

Deductions

Benefits	\$ 40,106,197	\$ 39,988,510
Refunds of Member Contributions	\$ 1,162,611	\$ 1,850,282
Administrative Expense	\$ 288,665	\$ 286,991
Total Deductions	\$ <u>41,557,473</u>	\$ <u>42,125,783</u>
Net Increase/(Decrease)	\$ <u>73,315,297</u>	\$ <u>(53,800,860)</u>

Net Assets Held In Trust For Pension Benefits

Beginning of Year	\$ <u>485,748,892</u>	\$ <u>539,549,752</u>
End of Year	\$ <u>559,064,189</u>	\$ <u>485,748,892</u>

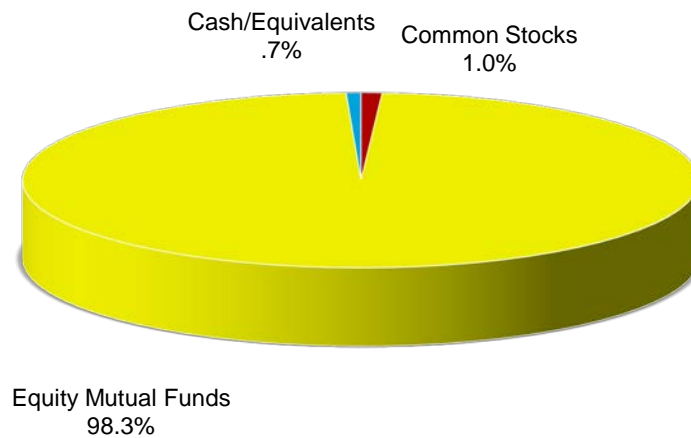


Schedule A – Continued

MONTGOMERY COUNTY EMPLOYEES' RETIREMENT SYSTEM PLAN ASSETS AS OF DECEMBER 31, 2019 AND 2018

		Assets	
		<u>2019 Total</u>	<u>2018 Total</u>
Cash and Short-Term Investments	\$	3,710,032	\$ 3,446,646
Receivables	\$	594	\$ 2,719
Investments, at fair market value			
Common Stocks	\$	5,856,502	\$ 5,726,886
Equity Mutual Funds	\$	549,497,061	\$ 476,572,641
Total Investments	\$	555,353,563	\$ 482,299,527
 Total Assets	 \$	 559,064,189	 \$ 485,748,892
 Liabilities			
Refunds Payable and Other	\$	0	\$ 0
 Net Assets Held In Trust For Pension Benefits			
	\$	559,064,189	\$ 485,748,892

TOTAL ASSETS (MARKET VALUE 12-31-2019)





Schedule A - Continued

Montgomery County Employees' Retirement System

Plan Description and Contribution Information

Basis of Accounting: The Montgomery 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, 2020:

Retirees and Beneficiaries Receiving Benefits	2,439
Terminated Plan Members Entitled to but not yet Receiving Benefits	467
Active Plan Members	2,554
Total	<u>5,460</u>
Number of Participating Employers	1



Schedule A - Continued

Montgomery County Employees' Retirement System

Plan Description: The Montgomery 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 Montgomery 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.

SCHEDULE OF EMPLOYER CONTRIBUTIONS

<u>Year</u>	<u>Contribution *</u>	<u>County Contribution</u>
2010	\$ 7,857,028	\$ 0
2011	\$ 9,318,649	\$ 0
2012	\$ 11,798,202	\$ 0
2013	\$ 11,000,294	\$ 3,382,872
2014	\$ 10,736,127	\$ 3,777,950
2015	\$ 9,689,879	\$ 3,588,805
2016	\$ 10,880,062	\$ 8,703,065
2017	\$ 10,745,106	\$ 8,982,753
2018	\$ 10,588,820	\$ 9,040,723
2019	\$ 12,078,161	\$ 10,813,939

Note: Effective in 2013 the Entry Age Funding Method was used to determine the annual required contribution. Prior to 2013 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
1/1/2011	504,064,625	516,305,160	12,240,535	97.6%	148,777,159	8.2%
1/1/2012	509,707,776	537,579,876	27,872,100	94.8%	150,976,368	18.5%
1/1/2013	520,848,719	564,498,672	43,649,953	92.3%	149,732,619	29.2%
1/1/2014	534,971,616	585,643,405	50,671,789	91.3%	147,264,187	34.4%
1/1/2015	538,197,535	597,069,930	58,872,395	90.1%	123,413,778	47.7%
1/1/2016	544,414,672	618,968,045	74,553,373	88.0%	128,329,597	58.1%
1/1/2017	556,027,998	633,487,037	77,459,039	87.8%	127,928,574	60.5%
1/1/2018	566,984,666	630,300,738	63,316,072	90.0%	131,718,476	48.1%
1/1/2019	577,317,333	650,485,451	73,168,118	88.8%	137,324,650	53.3%
1/1/2020	559,064,189	672,201,622	113,137,433	83.2%	141,494,468	80.0%



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, 2020. The liabilities were determined from the actuarial valuation of the System based upon the data submitted by the County.

ASSETS

Members' Annuity Reserve Account	\$	119,009,722
County Annuity Reserve Account	\$	65,111,150
Retired Members' Reserve Account	\$	344,018,247
Unrealized Appreciation of Assets	\$	30,925,070
<i>Total Assets, (Market Value) of the Montgomery County Employees' Retirement Fund</i>	\$	559,064,189

LIABILITIES

Actuarial Present Value of:

Accumulated Plan Benefits		
Vested participants (1,619)	\$	129,293,451
Nonvested participants (935)	\$	2,082,870
Future Benefit Accruals	\$	116,525,130
Terminated Vested Benefits	\$	27,173,871
Retired Benefits	\$	344,018,247
Member Accumulated Deductions	\$	119,009,722
<i>Total Liabilities of the Montgomery County Employees' Retirement Fund</i>	\$	738,103,291



Schedule C

Unfunded Actuarial Liability and Normal Cost

Schedule C shows the development of the unfunded actuarial liability and the normal cost for 2020.

I. Unfunded Actuarial Liability January 1, 2020

1. Actuarial Liability:		
(a) Active Participants		
Retirement Benefits	\$	186,857,490
Termination Benefits		12,274,816
Death Benefits		6,669,420
Total	\$	<u>205,801,726</u>
(b) Terminated Vested Participants	\$	27,173,871
(c) Retired Members and Beneficiaries		
Retirement Benefits	\$	335,238,602
Cost-of-Living Benefits		8,779,645
Total	\$	<u>344,018,247</u>
(d) Actuarial Present Value of Member Accumulated Deductions	\$	<u>95,207,778</u>
(e) Total (a) + (b) + (c) + (d)	\$	672,201,622
2. Actuarial Value of Plan Assets (see page 14)	\$	559,064,189
3. Unfunded Actuarial Liability as of January 1, 2020: (1e) – (2)	\$	<u><u>113,137,433</u></u>

II. Normal Cost for 2020

1. Normal Cost for:		
(a) Retirement Benefits	\$	5,194,996
(b) Termination Benefits		729,030
(c) Death Benefits		199,796
(d) Member Accumulated Deductions		<u>5,659,779</u>
(e) Normal Cost as of January 1, 2020	\$	11,783,601
(f) Normal Cost with interest to end of year: (e) x 1.075	\$	12,667,371



Schedule D

Actuarial Gain (Loss) for One Year Period Ending December 31, 2019

Schedule D shows the development of the actuarial gain (loss) for the 2019 plan year.

1.	Unfunded Actuarial Liability as of January 1, 2019	\$	73,168,118
2.	Normal Cost as of January 1, 2019		11,441,973
3.	Interest at 7.5% Per Year to December 31, 2019 on (1) and (2)		6,345,757
4.	Employer Contributions for the 2019 Plan Year		12,078,161
5.	Expected Employee Contributions for the 2019 Plan Year		7,123,716
6.	Change in Unfunded Actuarial Liability Due to Change in Asset Valuation Method		31,873,442
7.	Change in Unfunded Actuarial Liability Due to Change in Assumptions		<u>0</u>
8.	Expected Unfunded Actuarial Liability as of January 1, 2020: (1) + (2) + (3) - (4) - (5) + (6) + (7)		103,627,413
9.	Unfunded Actuarial Liability as of January 1, 2020		113,137,433
10.	Actuarial Gain (Loss) for 2019 Plan Year: (8) – (9)		(9,510,020)



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 2020

		As of January 1, 2020				
		<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)	Resetting of UAAL	\$ 63,316,072	1/1/2018	23 Years	\$61,383,372	\$5,680,127
(b)	Experience G/L	10,783,468	1/1/2019	14 Years	10,370,599	1,221,629
(c)	Chg in asset val method	31,873,442	1/1/2020	15 Years	31,873,442	3,610,854
(d)	Experience loss	9,510,020	1/1/2020	15 Years	<u>9,510,020</u>	<u>1,077,364</u>
(e)	Total				113,137,433	11,589,974



Schedule F

Schedule F determines the certified actuarially determined contribution of \$16,917,319 for 2020 for the Montgomery County Employees' Retirement System.

1.	Total Amortization Charge/(Credit) (page 11 (e))	\$ 11,589,974
2.	Normal Cost with interest to end of year (page 9 II 1(f))	\$ 12,667,371
3.	Expected member contributions with interest	\$ 7,340,026
4.	Total Funding Requirement for 2020 (actuarially determined contribution for 2020): (1) + (2) - (3), but not less than 0	\$ 16,917,319

Notes:

The actuarially determined contribution for 2020 as a percentage of the estimated 2020 compensation (\$141,494,468) for active members is 11.96%.

The equivalent normal cost accrual rate to be applied to actual 2019 salaries to determine reimbursable expenses is 12.38%.



Schedule G

The following are notes to Schedules B and I:

Members' Annuity Reserve Account: The balance of \$119,009,722 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, 2020. Since these accumulations represent the present value as of January 1, 2020, of future benefits, the reserve balance and liability are identical.

County Annuity Reserve Account: The balance of \$65,111,150 in this account as of January 1, 2020 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, 2020 amount to \$344,018,247. 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 1/1/2019		\$	485,748,892
2.	Contributions for 2019		\$	19,275,189
3.	Disbursements during 2019		\$	41,931,314
4.	Expected Return at 7.5% Interest		\$	35,581,562
5.	Actual Return for 2019		\$	95,971,422
6.	Gain/(Loss) for 2019		\$	60,389,860
7.	Amount Unrecognized for 2019: 0 x .8		\$	0
8.	Gain/(Loss) Unrecognized for Prior Years:			
	(a) 2018	0 x .6	\$	0
	(b) 2017	0 x .4	\$	0
	(c) 2016	0 x .2	\$	0
	(d) Total of (a) + (b) + (c)		\$	0
9.	Market Value of Assets as of January 1, 2020		\$	559,064,189
10.	Actuarial Value of Assets as of January 1, 2020 equals (9) – (7) – (8d)		\$	559,064,189
11.	Value must be not less than 80% and not greater than 120% of Market Value		\$	559,064,189



Schedule H

APPROXIMATE RATE OF RETURN FOR 2019 PLAN YEAR

	<u>Actuarial Value</u>	<u>Market Value</u>
1. Value as of December 31, 2018	\$ 577,317,333	\$ 485,748,892
2. Contributions Received During Year	\$ 19,275,189	\$ 19,275,189
3. Benefits and Expenses Paid During Year	\$ 41,931,314	\$ 41,931,314
4. Value as of December 31, 2019	\$ 559,064,189	\$ 559,064,189
5. Non-Investment Increment: (2) - (3)	\$ (22,656,125)	\$ (22,656,125)
6. Investment Increment: (4) - (1) - (5)	\$ 4,402,981	\$ 95,971,422
7. Time Weighted Value of Assets: (1) + .5 x (5)	\$ 565,989,271	\$ 474,420,830
8. Approximate Rate of Return for 2019: (6) / (7)	0.78%	20.23%

HISTORY OF RATE OF RETURNS

<u>Plan Year</u>	<u>Actuarial Value Rate of Return</u>	<u>Market Value Rate of Return</u>
2019	0.78%	20.23%
2018	6.42%	(5.42%)
2017	6.42%	14.64%
2016	6.42%	7.69%
2015	6.45%	0.35%
2014	6.45%	8.05%
2013	6.44%	16.19%
2012	6.46%	10.08%
2011	5.14%	1.38%
2010	6.46%	10.43%
Five Year Average (2015 - 2019):	5.27%	7.09%
Ten Year Average (2010 - 2019):	5.73%	8.10%



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 1/1/2019	\$ 115,763,665	\$ 6,423,635	\$ 332,716,455	\$ 454,903,755
County Appropriations		10,813,939		10,813,939
Member Contributions	8,429,565			8,429,565
Member Purchases		23,470		23,470
Net Investment Income		95,891,489		95,891,489
Investment Expenses		(373,841)		(373,841)
Member Contributions Refunded	(1,162,611)			(1,162,611)
Pension Payments			(38,871,553)	(38,871,553)
Death Benefits			(1,234,644)	(1,234,644)
Retiree and Death Benefit Transfers	(8,637,476)	(19,295,677)	27,933,153	0
Cost of Living Funding Requirement				0
Administrative Expenses		(288,665)		(288,665)
Miscellaneous		8,215		8,215
Balance Before Interest	114,393,143	93,202,565	320,543,411	528,139,119
Interest Allocated in 2019	4,616,579	(17,681,776)	13,065,197	
Balance Before Actuarial Adjustments	119,009,722	75,520,789	333,608,608	528,139,119
Actuarial Adjustments		(10,409,639)	10,409,639	
Ending Balance 12/31/2019	119,009,722	65,111,150	344,018,247	528,139,119
Unrealized Appreciation				30,925,070
Total Assets (12/31/2019) (Market Value)				559,064,189



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
2020	1,285	1,736	3,021	893	1,546	2,439
2019	1,261	1,719	2,980	881	1,523	2,404
2018	1,269	1,709	2,978	867	1,484	2,351
2017	1,279	1,709	2,988	843	1,449	2,292
2016	1,270	1,686	2,956	814	1,412	2,226
2015	1,290	1,717	3,007	790	1,347	2,137
2014	1,410	2,084	3,494	699	1,120	1,819
2013	1,420	2,136	3,556	664	1,066	1,730
2012	1,417	2,150	3,567	629	1,031	1,660
2011	1,375	2,137	3,512	629	1,001	1,630



Schedule K

Changes in Plan Participation From January 1, 2019 to January 1, 2020

ACTIVE PARTICIPANTS

Number as of January 1, 2019		2,525
Changes During Plan Year:		
Retired	(-)	73
Terminated and Vested	(-)	38
Terminated	(-)	145
Died	(-)	3
New Participants	(+)	288
Number as of January 1, 2020		2,554

RETIRED PARTICIPANTS

Number as of January 1, 2019		2,404
Changes During Plan Year:		
Returned to Active Service	(-)	0
Died	(-)	66
New Retirements from Active Service	(+)	73
New Surviving Annuitants	(+)	6
Vested Terminated Participants Whose Benefits Commenced	(+)	24
Deletions	(-)	2
Number as of January 1, 2020		2,439

TERMINATED VESTED PARTICIPANTS

Number as of January 1, 2019		455
Changes During Plan Year:		
Terminated	(-)	1
Benefits Commenced	(-)	24
Died	(-)	1
New Termination's with Vesting	(+)	38
Number as of January 1, 2020		467



Schedule L

Age, Service and Average Salary Profile of the Active Members on January 1, 2020.

MALES -- FULL YEARS OF SERVICE TO JANUARY 1, 2020

<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	50	3	0	0	0	0	0	53	\$ 41,300
25-29	99	46	0	0	0	0	0	145	\$ 45,905
30-34	60	77	34	0	0	0	0	171	\$ 54,371
35-39	31	38	45	19	2	0	0	135	\$ 59,074
40-44	16	15	14	28	22	0	0	95	\$ 67,711
45-49	24	23	11	13	30	10	3	114	\$ 70,421
50-54	14	21	18	25	15	23	24	140	\$ 73,427
55-59	10	18	10	9	13	14	24	98	\$ 68,795
60-64	10	23	16	13	5	10	25	102	\$ 64,983
65 +	2	15	16	17	9	3	10	72	\$ 54,969
Total	316	279	164	124	96	60	86	1,125	\$ 60,610

Average Age: 43.84
Average Service: 11.90

FEMALES -- FULL YEARS OF SERVICE TO JANUARY 1, 2020

<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	1	0	0	0	0	0	44	\$ 36,752
25-29	129	46	0	0	0	0	0	175	\$ 43,608
30-34	85	78	24	0	0	0	0	187	\$ 48,541
35-39	38	46	34	21	2	0	0	141	\$ 54,142
40-44	37	27	22	17	35	0	0	138	\$ 53,456
45-49	44	23	15	26	30	15	3	156	\$ 54,812
50-54	22	18	19	15	16	19	23	132	\$ 55,722
55-59	21	36	31	33	18	13	32	184	\$ 54,409
60-64	11	27	26	35	21	19	27	166	\$ 54,596
65 +	6	12	18	25	20	16	9	106	\$ 50,303
Total	436	314	189	172	142	82	94	1,429	\$ 51,539

Average Age: 45.51
Average Service: 11.80



Schedule M

Actuarial Assumptions and Actuarial Cost Method for Funding Purposes, January 1, 2020.

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: 7.5% 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: The asset valuation method was changed. There were no other changes.



Schedule N

Summary of Plan Provisions

1. **Effective Date** - The effective date of this plan is January 1, 1938.
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%	01/01/1938
1/100	1.000%	01/01/1953
1/80	1.250%	01/01/1963
1/60	1.667%	07/01/1993

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,
1.667% 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

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:
SEI Private Trust
Vanguard Advisors

Custodian:
Wells Fargo Bank

Investment Consultants:
SEI Private Trust

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 eighteen times in the past from January, 1972 through January, 1999 and since then as follows:

PERCENTAGE/ANNUAL CHANGE IN C.P.I.	EFFECTIVE DATE OF INCREASE
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
95%	1/1/2009



Schedule N - Continued

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

<u>Percent of Additional Service</u>	<u>Early Retirement Period</u>
15%	2/1/95 - 12/31/95
20%	2/1/00 - 12/31/00
20%	1/1/08 - 06/30/08



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>
2010	\$ 8,041,279	\$ 0	\$ 20,985,355	\$ 0	\$ 29,026,634
2011	8,148,652	0	28,383,823	0	36,532,475
2012	8,222,897	0	38,956,525	0	47,179,422
2013	8,055,410	3,382,872	60,966,194	0	72,404,476
2014	7,506,732	3,777,950	41,351,574	0	52,636,256
2015	6,902,496	3,588,805	1,440,899	23,125	11,955,325
2016	7,144,335	8,703,065	36,078,991	12,127	51,938,518
2017	7,658,122	8,982,753	70,324,233	45,607	87,010,715
2018	8,175,000	9,040,723	(28,187,176)	26,168	(10,945,285)
2019	8,453,035	10,813,939	95,891,489	8,215	115,166,678

EXPENSES BY TYPE

<u>Fiscal Year</u>	<u>Benefits</u>	<u>Refunds</u>	<u>Administrative/ Miscellaneous</u>	<u>Total</u>
2010	\$ 24,869,935	\$ 1,499,868	\$ 2,083,812	\$ 28,453,615
2011	24,589,236	1,318,192	2,007,772	27,915,200
2012	25,785,069	1,452,225	2,101,611	29,338,905
2013	27,130,944	1,886,508	1,251,342	30,268,794
2014	38,008,385	2,914,827	669,587	41,592,799
2015	35,852,019	1,642,800	648,944	38,143,763
2016	36,519,223	1,369,065	598,287	38,486,575
2017	38,664,700	1,361,885	633,711	40,660,296
2018	39,988,510	1,850,282	658,374	42,497,166
2019	40,106,197	1,162,611	662,506	41,931,314



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	1.1	3.5	\$ 550,000	4.7	\$ 740,000
2019	1.0	4.0	\$ 633,000	4.8	\$ 762,000

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 \$4,445,000.