Chester County Employees' Retirement System

Report on 2016 Actuarial Valuation Including Determination of County Actuarially Determined Contribution for 2016

HayGroup®

Prepared by:

Henry E. Stiehl
Hay Group
Suite 2300
1650 Arch Street
Philadelphia, Pennsylvania 19103-2029

for

Chester County Employees' Retirement Board

Terence Farrell	Commissioner
Kathi Cozzone	Commissioner
Michelle Kichline	Commissioner
Norman MacQueen	Controller/Secretary
Ann Duke	Treasurer

April 19, 2016

HayGroup®

Table of Contents

Section	Page
I. Introduction	1
II. Findings	2
III. Schedules	3
• **Schedule A –** Changes in Plan Net Assets, Plan Assets, Plan Description and Contribution Information and Historical Accounting information	3
• **Schedule B** – Allocation of Assets and Liabilities - January 1, 2016	9
• **Schedule C-** Unfunded Actuarial Liability and Normal Cost	10
• **Schedule D –** Actuarial Gain (Loss) for One Year Period Ending December 31, 2015	11
• **Schedule E -** Amortization Schedule	12
• **Schedule F -** Determination of Certified Actuarially Determined Contribution	13
• **Schedule G –** Notes for Schedule B and I and the Adjustment for Market Value Fluctuation	14
• **Schedule H** – Approximate Rate of Return for 2015	16
• **Schedule I –** Determination of Reserve Balances	17
• **Schedule J –** Membership History	18
• **Schedule K –** Changes in Plan Participation from January 1, 2015 to January 1, 2016	19
• **Schedule L –** Age, Service and Average Salary Profile	20

Table of Contents (cont.)

Section | **Page**

- **Schedule M** – Actuarial Assumptions and Actuarial Cost Method for Funding Purposes, January 1, 2016 — 21
- **Schedule N** – Summary of Plan Provisions — 24
- **Schedule O** – Historical Trend Information — 29

I. Introduction

The primary purpose of this report is to investigate and fully and fairly disclose the actuarial position of the Chester County Employees' Retirement System as of January 1, 2016 and to establish the proper appropriation for the 2016 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.

Respectfully submitted,

HayGroup

By: Henry E. Stiehl

Henry E. Stiehl
Principal

By: David D. Reichert

David D. Reichert, EA
Member, American Academy of Actuaries
ERISA Enrolled Actuary No. 14-6461

II. Findings

Certified Actuarially Determined Contribution

Please note that the certified actuarially determined contribution which is reported on page 13 of this report and which must be funded in 2016 is $8,469,935. 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 9 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	$ 6,398,008.64	
Retired Members Annuity Reserve Account		$ 6,398,008.64

Actuarial Assumptions

Effective January, 2016 the mortality table has been changed from GAM83 to RP2013. The effect of this change is an increase in the accrued liability of $6,385,724 and a corresponding increase in the actuarially determined contribution of $723,421.

III. Schedules

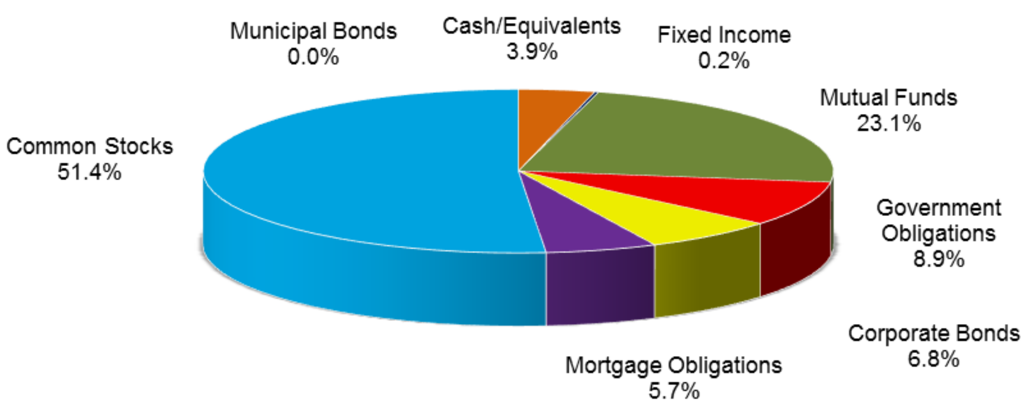
Schedule A

CHESTER COUNTY EMPLOYEES' RETIREMENT SYSTEM				
CHANGES IN PLAN NET ASSETS FOR THE CALENDAR YEAR 2015 AND 2014				
Additions				
		2015 Total		**2014 Total**
Contributions				
County	$	6,025,657.00	$	7,810,793.00
Plan Members	$	7,151,006.68	$	6,703,445.33
Miscellaneous	$	54,127.40	$	40,890.43
Total Contributions	$	13,230,791.08	$	14,555,128.76
Investment Income				
Realized Gain $ 15,488,598.56				
Unrealized Loss $ (28,732,926.00)				
Net Loss in Fair Value	$	(13,244,327.44)	$	14,350,292.90
Interest	$	2,290,474.10	$	2,157,878.49
Dividends	$	4,349,308.96	$	4,522,558.82
Net Accrued Interest	$	758,445.02	$	855,729.54
Investment Income	$	(5,846,099.36)	$	21,886,459.75
Less Investment Expense	$	774,958.03	$	839,784.99
Net Investment Income	$	(6,621,057.39)	$	21,046,674.76
Total Additions	$	6,609,733.69	$	35,601,803.52
Deductions				
Benefits	$	19,702,147.89	$	18,332,761.21
Refunds of Member Contributions	$	1,333,270.27	$	1,350,687.65
Administrative Expense	$	132,597.30	$	127,798.00
Total Deductions	$	21,168,015.46	$	19,811,246.86
Net Increase/(Decrease)	$	(14,558,281.77)	$	15,790,556.66
Net Assets Held In Trust For Pension Benefits				
Beginning of Year	$	378,159,071.99	$	362,368,515.33
End of Year	$	363,600,790.22	$	378,159,071.99

Schedule A—Continued

CHESTER COUNTY EMPLOYEES' RETIREMENT SYSTEM				
PLAN ASSETS AS OF DECEMBER 31, 2015 AND 2014				
Assets				
		2015 Total		**2014 Total**
Cash and Short-Term Investments	$	13,564,156.89	$	10,289,662.27
Receivables	$	758,445.02	$	855,729.54
Investments, at fair market value				
Government Obligations	$	32,309,647.85	$	25,710,069.29
Corporate Bonds	$	24,781,004.89	$	34,656,302.37
Common Stocks	$	186,868,245.91	$	193,409,465.64
Fixed Income	$	621,775.89	$	1,255,671.19
Mutual Funds	$	83,974,799.77	$	92,474,368.12
Mortgage Obligations	$	20,717,020.94	$	19,280,372.82
Municipal Bonds	$	59,423.50	$	265,946.00
Total Investments	$	349,331,918.75	$	367,052,195.43
Total Assets	$	363,654,520.66	$	378,197,587.24
Liabilities				
Refunds Payable and Other	$	53,730.44	$	38,515.25
Net Assets Held In Trust For Pension Benefits				
	$	363,600,790.22	$	378,159,071.99

TOTAL ASSETS (MARKET VALUE 12-31-2015)



Schedule A – Continued

Chester County Employees' Retirement System

Plan Description and Contribution Information

Basis of Accounting: The Chester 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, 2016:

Retirees and Beneficiaries Receiving Benefits	1,233
Terminated Plan Members Entitled to but not yet Receiving Benefits	278
Active Plan Members	2,293
Total	3,804
Number of Participating Employers	1

Schedule A—Continued

Chester County Employees' Retirement System

Plan Description: The Chester 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 Chester 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 who entered the system prior to 1/1/2011 are required to contribute 5% of their annual covered salary. Plan members entering on 1/1/2011 and thereafter are required to contribute 6% 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

Year	Contribution *	County Contribution
2006	$ 8,373,341	$ 8,373,341
2007	$ 7,845,648	$ 7,845,648
2008	$ 7,525,934	$ 7,525,934
2009	$ 12,407,840	$ 12,407,840
2010	$ 12,552,931	$ 15,127,446
2011	$ 10,948,849	$ 10,948,849
2012	$ 11,579,074	$ 11,579,074
2013	$ 9,880,939	$ 9,880,939
2014	$ 7,810,793	$ 7,810,793
2015	$ 6,025,657	$ 6,025,657

Note: Effective in 2005 the Entry Age Funding Method was used to determine the annual required contribution. Prior to 2005 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						
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)**
1/1/2007	222,871,098	265,136,166	42,265,068	84.1%	103,537,753	40.8%
1/1/2008	261,412,287	289,225,588	27,813,301	90.4%	111,960,789	24.8%
1/1/2009	241,341,757	308,742,291	67,400,534	78.2%	116,911,628	57.7%
1/1/2010	235,154,317	318,287,679	83,133,362	73.9%	116,443,020	71.4%
1/1/2011	257,781,217	335,527,874	77,746,657	76.8%	115,580,646	67.3%
1/1/2012	273,290,990	356,428,788	83,137,798	76.7%	115,886,844	71.7%
1/1/2013	302,569,569	368,776,415	66,206,846	82.0%	110,864,248	59.7%
1/1/2014	344,772,839	392,680,874	47,908,035	87.8%	112,704,901	42.5%
1/1/2015	378,750,852	412,238,288	33,487,436	91.9%	111,337,938	30.1%
1/1/2016	385,640,127	438,522,954	52,882,827	87.9%	118,689,818	44.6%

Schedule A--Continued

HISTORICAL ACCOUNTING INFORMATION	
The information was determined as part of the actuarial valuations at the dates indicated. Additional information as of the latest actuarial valuation follows:	
Valuation Date	01/01/2016
Actuarial Cost Method	Entry Age
Asset Valuation Method	5-year smoothed market
Actuarial Assumptions:	
Investment Rate of Return *	7.5%
Projected Salary Increases *	3.5%
* Includes Inflation at	3%

ACCOUNTING PROCEDURES FOR CALCULATING - NET PENSION OBLIGATION (NPO)

Subsequent years Net Pension Liability calculation found in GASB 67 & 68 disclosure report

(1) Year	(2) ARC	(3) Interest on NPO ***	(4) ARC Adjustment **	(5) Pension Cost (2+3-4)	(6) Contribution	(7) Change in NPO (5-6)	(8) NPO Balance* (BB+7)
2005	8,173,783	(993)	(1,631)	8,174,421	8,173,783	638	(12,602)
2006	8,373,341	(945)	(1,552)	8,373,948	8,373,341	607	(11,995)
2007	7,845,648	(900)	(1,467)	7,846,215	7,845,648	567	(11,428)
2008	7,525,934	(857)	(1,407)	7,526,484	7,525,934	550	(10,878)
2009	12,407,840	(816)	(1,358)	12,408,382	12,407,840	542	(10,336)
2010	12,552,931	(775)	(1,372)	12,553,528	15,127,446	(2,573,918)	(2,584,254)
2011	10,948,849	(193,774)	(344,502)	11,099,577	10,948,849	150,728	(2,433,526)
2012	11,579,074	(182,514)	(325,440)	11,722,000	11,579,074	142,926	(2,290,600)
2013	9,880,939	(171,795)	(307,621)	10,016,765	9,880,939	135,826	(2,154,774)

* BB = Beginning balance for the year.

** ARC Adjustment - Amortization factor based upon level percentage of projected payroll.

*** Interest on the balance of the NPO at the beginning of the year using the investment return rate assumed in determining ARC. The interest is an estimate of the investment earnings lost to the plan on any contributions that were not made (7.5% when applicable).

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, 2016. The liabilities were determined from the actuarial valuation of the System based upon the data submitted by the County.

ASSETS		
Members' Annuity Reserve Account	$	106,665,659.56
County Annuity Reserve Account	$	82,756,909.68
Retired Members' Reserve Account	$	158,188,867.00
Unrealized Appreciation of Assets	$	15,989,353.98
Total Assets, (Market Value) of the Chester County Employees' Retirement Fund	$	363,600,790.22
LIABILITIES		
Actuarial Present Value of:		
Accumulated Plan Benefits		
Vested participants (1,546)	$	101,782,889
Nonvested participants (747)	$	977,244
Future Benefit Accruals	$	87,738,828
Terminated Vested Benefits	$	11,920,535
Retired Benefits	$	158,188,867
Member Accumulated Deductions	$	106,665,660
Total Liabilities of the Chester County Employees' Retirement Fund	$	467,274,023

Schedule C

Unfunded Actuarial Liability and Normal Cost

Schedule C shows the development of the unfunded actuarial liability and the normal cost for 2016.

I. Unfunded Actuarial Liability January 1, 2016

1. Actuarial Liability:		
(a) Active Participants		
Retirement Benefits	$	147,951,976
Termination Benefits		8,580,670
Death Benefits		5,215,246
Total	$	161,747,892
(b) Terminated Vested Participants	$	11,920,535
(c) Retired Members and Beneficiaries		
Retirement Benefits	$	154,615,849
Cost-of-Living Benefits		3,573,018
Total	$	158,188,867
(d) Member Accumulated Deductions	$	106,665,660
(e) Total (a) + (b) + (c) + (d)	$	438,522,954
2. Actuarial Value of Plan Assets (see page 15)	$	385,640,127
3. Unfunded Actuarial Liability as of January 1, 2016: (1e) – (2)	$	52,882,827

II. Normal Cost for 2016

1. Normal Cost for:		
(a) Retirement Benefits	$	3,529,442
(b) Termination Benefits		491,002
(c) Death Benefits		135,837
(d) Normal Cost as of January 1, 2016	$	4,156,281
(e) Normal Cost with interest to end of year: (d) x 1.075	$	4,468,002

Schedule D

Actuarial Gain (Loss) for One Year Period Ending December 31, 2015

Schedule D shows the development of the actuarial gain (loss) for the 2015 plan year.

1.	Unfunded Actuarial Liability as of January 1, 2015	$	33,487,436
2.	Normal Cost as of January 1, 2015		3,859,575
3.	Interest at 7.50% Per Year to December 31, 2015 on (1) and (2)		2,801,026
4.	Employer Contributions for the 2015 Plan Year		6,025,657
5.	Change in Unfunded Actuarial Liability Due to Cost of Living Increase to Retireds		0
6.	Change in Unfunded Actuarial Liability Due to Change in Assumptions		6,385,724
7.	Expected Unfunded Actuarial Liability as of January 1, 2016: (1) + (2) + (3) - (4) + (5) + (6)		40,508,104
8.	Unfunded Actuarial Liability as of January 1, 2016		52,882,827
9.	Actuarial Gain (Loss) for 2015 Plan Year: (7) – (8)		(12,374,723)

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 30 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 20 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 2016

				As of January 1, 2016		
		Initial Amount	Effective Date	Remaining Period	Outstanding Balance	Amortization Charge or (Credit)
Amortization of Liability for:						
(a)	Initial UAAL	$ 79,404,679	1/1/2010	24 Years	$ 73,841,698	$ 6,723,292
(b)	Experience gain	(890,081)	1/1/2011	10 Years	(692,138)	(100,835)
(c)	Experience loss	6,182,598	1/1/2012	11 Years	5,123,794	700,409
(d)	Experience gain	(15,843,421)	1/1/2013	12 Years	(13,883,721)	(1,794,857)
(e)	Experience gain	(17,736,315)	1/1/2014	13 Years	(16,327,236)	(2,009,298)
(f)	Experience gain	(14,494,990)	1/1/2015	14 Years	(13,940,017)	(1,642,097)
(g)	Chg. in mort table	6,385,724	1/1/2016	15 Years	6,385,724	723,421
(h)	Experience loss	12,374,723	1/1/2016	15 Years	12,374,723	1,401,898
(i)	Total				$ 52,882,827	$ 4,001,933

Schedule F

Schedule F determines the certified actuarially determined contribution of $8,469,935 for 2016 for the Chester County Employees' Retirement System.

1.	Total Amortization Charge/(Credit) (page 12 (i))	$ 4,001,933
2.	Normal Cost with interest to end of year (page 10 II 1(e))	$ 4,468,002
3.	Total Funding Requirement for 2016 (actuarially determined contribution for 2016): (1) + (2), but not less than 0	$ 8,469,935

Notes:

The actuarially determined contribution for 2016 as a percentage of the estimated 2016 compensation ($118,689,818) for active members is 7.14%.

The equivalent normal cost accrual rate to be applied to actual 2015 salaries to determine reimbursable expenses is 7.39%.

Schedule G

The following are notes to Schedules B and I:

Members' Annuity Reserve Account

The balance of $106,665,659.56 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, 2016. Since these accumulations represent the present value as of January 1, 2016, of future benefits, the reserve balance and liability are identical.

County Annuity Reserve Account

The balance of $82,756,909.68 in this account as of January 1, 2016 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, 2016 amount to $158,188,867.00. The corresponding liability for those annuitants on the roll is identical.

Schedule G—Continued

Adjustment for Market Value Fluctuation

In order to reduce the fluctuations in the County normal cost which can result from full recognition of the unrealized appreciation or depreciation of the Fund's securities each year, the value of assets used to determine costs was determined by adjusting the cost value of the assets by the average ratio of market to cost value for the past five years:

RATIO OF MARKET VALUE TO COST VALUE OF ASSETS

January 1	(1) Cost Value of Assets	(2) Market Value of Assets	Ratio (2) / (1)
2012	$ 250,266,474	$ 273,416,470	1.0925
2013	$ 281,407,710	$ 305,290,199	1.0849
2014	$ 304,623,466	$ 362,368,515	1.1896
2015	$ 333,436,792	$ 378,159,072	1.1341
2016	$ 347,611,436	$ 363,600,790	1.0460
Average			1.1094

ACTUARIAL VALUE OF ASSETS JANUARY 1, 2016

(1) Cost Value of Assets	$	347,611,436.24
(2) Average Ratio		1.1094
(3) Actuarial Value of Assets	$	385,640,127.36

Schedule H

APPROXIMATE RATE OF RETURN FOR 2015 PLAN YEAR				
		Actuarial Value		Market Value
1. Value as of December 31, 2014	$	378,750,852.04	$	378,159,071.99
2. Contributions Received During Year	$	13,230,791.08	$	13,230,791.08
3. Benefits and Expenses Paid During Year	$	21,942,973.49	$	21,942,973.49
4. Value as of December 31, 2015	$	385,640,127.36	$	363,600,790.22
5. Non-Investment Increment: (2) - (3)	$	(8,712,182.41)	$	(8,712,182.41)
6. Investment Increment: (4) - (1) - (5)	$	15,601,457.73	$	(5,846,099.36)
7. Time Weighted Value of Assets: (1) + .5 x (5)	$	374,394,760.84	$	373,802,980.79
8. Approximate Rate of Return for 2015: (6) / (7)		4.17%		(1.56%)

HISTORY OF RATE OF RETURNS		
Plan Year	**Actuarial Value Rate of Return**	**Market Value Rate of Return**
2014	11.73%	6.09%
2013	14.25%	19.00%
2012	10.40%	11.34%
2011	5.08%	(0.15%)
2010	6.16%	11.87%
2009	(4.80%)	17.31%
2008	(7.61%)	(25.87%)
2007	17.23%	6.97%
2006	8.84%	11.70%
Five Year Average (2011 - 2015):	9.06%	6.68%
Ten Year Average (2006 - 2015):	6.27%	4.85%

Schedule I

Determination of Reserve Balances

	M.A.R.A.	C.A.R.A.	R.M.R.A.	TOTAL
Balance 1/1/2015	$ 103,456,795.78	$ 83,407,269.23	$ 146,572,727.00	$ 333,436,792.01
County Appropriations		6,025,657.00		6,025,657.00
Member Contributions	7,149,614.84			7,149,614.84
Member Purchases		1,391.84		1,391.84
Net Investment Income		22,886,826.64		22,886,826.64
Investment Expenses		(774,958.03)		(774,958.03)
Member Contributions Refunded	(1,333,270.27)			(1,333,270.27)
Pension Payments			(18,345,413.03)	(18,345,413.03)
Death Benefits			(1,356,734.86)	(1,356,734.86)
Retiree and Death Benefit Transfers	(6,469,452.27)	(11,907,185.06)	18,376,637.33	0.00
Cost of Living Funding Requirement				0.00
Administrative Expenses		(132,597.30)		(132,597.30)
Miscellaneous		54,127.40		54,127.40
Adjustments	(252,282.26)	(440,830.46)	693,112.72	0.00
Balance Before Interest	102,551,405.82	99,119,701.26	145,940,329.16	347,611,436.24
Interest Allocated in 2015	4,114,253.74	(9,964,782.94)	5,850,529.20	
Balance Before Actuarial Adjustments	106,665,659.56	89,154,918.32	151,790,858.36	347,611,436.24
Actuarial Adjustments		(6,398,008.64)	6,398,008.64	
Ending Balance 12/31/2015	106,665,659.56	82,756,909.68	158,188,867.00	347,611,436.24
Unrealized Appreciation				15,989,353.98
Total Assets (12/31/2015) (Market Value)				363,600,790.22

Schedule J

Membership History

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

	ACTIVE MEMBERS AND VESTED TERMINATED MEMBERS			RETIRED MEMBERS AND BENEFICIARIES		
January 1	**Male**	**Female**	**Total**	**Male**	**Female**	**Total**
2016	972	1,599	2,571	420	813	1,233
2015	982	1,601	2,583	408	811	1,219
2014	1,005	1,614	2,619	370	774	1,144
2013	990	1,616	2,606	366	724	1,090
2012	997	1,646	2,643	342	680	1,022
2011	1,010	1,634	2,644	316	641	957
2010	1,011	1,663	2,674	300	610	910
2009	1,012	1,683	2,695	296	600	896
2008	967	1,659	2,626	292	585	877
2007	920	1,595	2,515	278	547	825

Schedule K

Changes in Plan Participation From January 1, 2015 to January 1, 2016

ACTIVE PARTICIPANTS		
Number as of January 1, 2015		2,278
Changes During Plan Year:		
Retired	(-)	76
Terminated and Vested	(-)	33
Terminated	(-)	125
Died	(-)	6
New Participants	(+)	255
Number as of January 1, 2016		2,293

RETIRED PARTICIPANTS		
Number as of January 1, 2015		1,219
Changes During Plan Year:		
Returned to Active Service	(-)	0
Died	(-)	76
New Retirements from Active Service	(+)	76
New Surviving Annuitants	(+)	4
Vested Terminated Participants Whose Benefits Commenced	(+)	7
Additions	(+)	3
Number as of January 1, 2016		1,233

TERMINATED VESTED PARTICIPANTS		
Number as of January 1, 2015		305
Changes During Plan Year:		
Returned to Active Service	(-)	1
Benefits Commenced	(-)	7
Terminated	(-)	54
Died	(-)	1
New Termination’s with Vesting	(+)	33
Additions	(+)	3
Number as of January 1, 2016		278

Schedule L

Age, Service and Average Salary Profile of the Active Members on January 1, 2016.

MALES -- FULL YEARS OF SERVICE TO JANUARY 1, 2016									
Age	**0-4**	**5-9**	**10-14**	**15-19**	**20-24**	**25-29**	**30+**	**Total**	**Average Salary**
0-19	0	0	0	0	0	0	0	0	$ 0
20-24	26	0	0	0	0	0	0	26	$ 36,145
25-29	68	28	0	0	0	0	0	96	$ 43,772
30-34	42	56	21	0	0	0	0	119	$ 49,108
35-39	29	22	18	15	0	0	0	84	$ 51,872
40-44	14	16	16	33	12	3	0	94	$ 58,717
45-49	17	21	21	22	20	14	0	115	$ 60,565
50-54	10	13	11	19	18	21	12	104	$ 64,115
55-59	9	12	21	13	9	8	29	101	$ 67,497
60-64	3	18	17	14	5	9	22	88	$ 74,256
65 +	1	3	15	8	7	6	4	44	$ 55,723
Total	219	189	140	124	71	61	67	871	$ 57,749

Average Age: 45.00
Average Service: 12.78

FEMALES -- FULL YEARS OF SERVICE TO JANUARY 1, 2016									
Age	**0-4**	**5-9**	**10-14**	**15-19**	**20-24**	**25-29**	**30+**	**Total**	**Average Salary**
0-19	0	0	0	0	0	0	0	0	$ 0
20-24	43	0	0	0	0	0	0	43	$ 32,849
25-29	114	39	2	0	0	0	0	155	$ 38,240
30-34	64	51	25	1	0	0	0	141	$ 40,519
35-39	40	29	33	27	3	0	0	132	$ 46,813
40-44	28	32	31	26	18	4	0	139	$ 48,607
45-49	33	30	18	30	23	25	6	165	$ 53,694
50-54	31	32	28	34	21	33	18	197	$ 53,580
55-59	21	38	18	42	33	28	27	207	$ 52,518
60-64	10	20	26	26	20	21	21	144	$ 51,741
65 +	4	8	20	23	13	14	17	99	$ 48,534
Total	388	279	201	209	131	125	89	1,422	$ 48,193

Average Age: 46.38
Average Service: 12.60

Schedule M

Actuarial Assumptions and Actuarial Cost Method for Funding Purposes, January 1, 2016.

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%
5 but less than 6	175%
6 or more	100%

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) x 3 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%

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 Year:

LESS THAN FIVE YEARS OF SERVICE					
Age at Hire	**Years of Service**				
	0	**1**	**2**	**3**	**4**
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		
Age at Beginning of Year	**Probability of Withdrawing and Forfeiting County Pension**	**Probability of Withdrawing and Retaining County Pension**
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:

AGE AT BEGINNING OF YEAR	PROBABILITY OF RETIRING DURING YEAR
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 The assets at cost value adjusted by the past five-year average of the market to cost ratio of assets.

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 Effective January 1, 2016 the mortality table has been changed from GAM83 to RP2013. There were no other changes.

Schedule N

Summary of Plan Provisions

1. Effective Date

The effective date of this plan is January 1, 1943.

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%	01/01/1943
1/80	1.250%	01/01/1972
1/70	1.429%	01/01/2001
1/100	1.000%	01/01/2011*

*Effective for new county employees hired on or after this date.

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,

1.250% 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,

1.000% of 1/12th of Final Average Salary multiplied by years of credited service on the 1/100 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 Super-annuation (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 <u>or</u> 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 salary.

The Retirement Board has authorized each member hired on or after 1/1/2011 to contribute between 6% and 16% of salary.

15. Deposit Administrator

Investment Managers:

Chester County Mutual Funds
Eagle Asset
Emerald Advisors
Fisher Investments
International Investments
Met West Capital Management
Pacer Advisors
Philadelphia Trust Company
Ryan Labs
Swarthmore Group
Valley Forge

Custodian:
Wells Fargo Bank, NA

Investment Consultant:
RBC Wealth Management

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. The Board has granted cost-of-living increases ten times in the past from January, 1972 through January, 1989 and since then as follows:

PERCENTAGE CHANGE IN C.P.I.	EFFECTIVE DATE OF INCREASE
70%	1/1/1991
70%	1/1/1993
70%	1/1/1995
70%	1/1/1997
70%	1/1/1999
70%	1/1/2001
70%	1/1/2003
70%	1/1/2005
70%	1/1/2007

Schedule N--Continued

18. Early Retirement Provision

The Retirement Board has authorized the following Early Retirement Provisions:

Percent of Additional Service	Early Retirement Period
20%	3/2/95 - 6/30/95
20%	8/1/00 - 1/31/01
25%	7/1/06 - 1/05/07

Schedule O

Historical Trend Information

REVENUES BY SOURCE					
Fiscal Year	Employee Contributions	Employer Contributions	Investment Income	Miscellaneous	Total
2006	$ 5,921,416	$ 8,373,341	$ 8,304,697	$ 36,754	$ 22,636,208
2007	6,034,203	7,845,648	24,856,980	110,642	38,847,473
2008	6,323,257	7,525,934	(9,718,625)	396,700	4,527,266
2009	6,569,172	12,407,840	(9,856,821)	96,068	9,216,259
2010	6,531,430	15,127,446	11,263,621	81,138	33,003,635
2011	6,604,509	10,948,849	17,553,519	442,657	35,549,534
2012	6,521,604	11,579,074	30,317,405	64,192	48,482,275
2013	6,497,708	9,880,939	24,074,498	68,451	40,521,596
2014	6,703,445	7,810,793	34,909,229	40,891	49,464,358
2015	7,151,007	6,025,657	22,886,827	54,127	36,117,618

EXPENSES BY TYPE				
Fiscal Year	Benefits	Refunds	Administrative/ Miscellaneous	Total
2006	$ 8,605,122	$ 1,395,783	$ 1,077,416	$ 11,078,321
2007	11,685,331	1,193,843	978,233	13,857,407
2008	11,829,121	1,275,680	1,313,985	14,418,786
2009	11,293,340	1,129,652	1,130,627	13,553,619
2010	11,731,686	1,169,794	940,092	13,841,572
2011	13,104,208	1,253,190	1,272,564	15,629,962
2012	15,041,115	1,174,248	1,125,677	17,341,040
2013	15,892,598	1,238,336	174,905	17,305,839
2014	18,332,761	1,350,688	967,583	20,651,032
2015	19,702,148	1,333,270	907,555	21,942,973