

Butler County Employees' Retirement System

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

HayGroup®



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for

Butler County Employees' Retirement Board

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Kimberly Geyer	Commissioner
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Benjamin Holland	Controller/Secretary
Diane R. Marburger	Treasurer

June 20, 2016

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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 Butler 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, Pennsylvania State Law, Act 44 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

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Principal

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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 \$5,474,485. 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	\$ 2,377,661.20	
Retired Members Annuity Reserve Account		\$ 2,377,661.20

III. Schedules

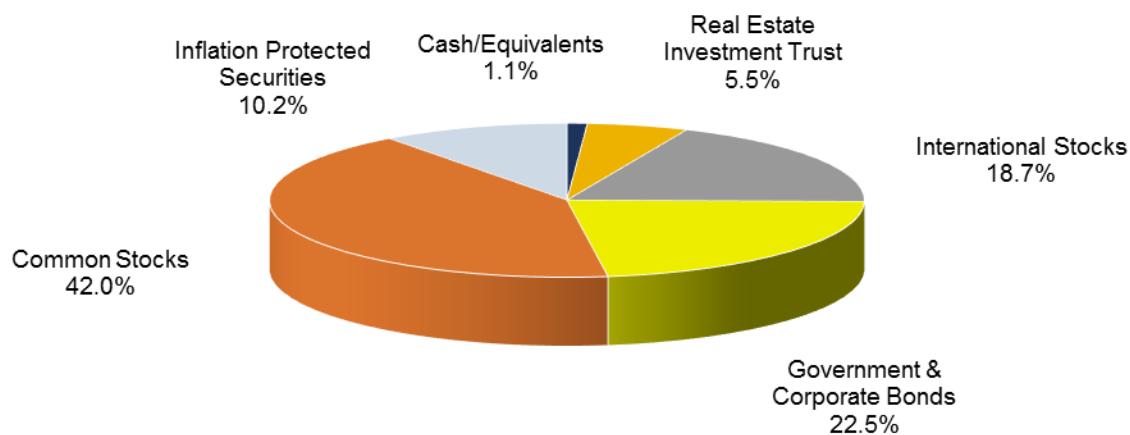
Schedule A

BUTLER COUNTY EMPLOYEES' RETIREMENT SYSTEM			
CHANGES IN PLAN NET ASSETS FOR THE CALENDAR YEAR 2015 AND 2014			
Additions			
	2015 Total		2014 Total
Contributions			
County	\$ 5,052,744.00	\$ 6,152,213.00	
Plan Members	\$ 3,187,124.33	\$ 3,374,588.02	
Miscellaneous	\$ (63,967.40)	\$ 0.00	
Total Contributions	\$ 8,175,900.93	\$ 9,526,801.02	
Investment Income			
Realized Gain	\$ 4,594,971.33		
Unrealized Loss	\$ (9,986,641.03)		
Net Loss in Fair Value	\$ (5,391,669.70)	\$ 10,365,726.58	
Interest	\$ 1,593,144.52	\$ 1,057,760.58	
Dividends	\$ 2,593,470.14	\$ 2,741,739.82	
Net Accrued Interest	\$ 14,890.08	\$ 81,920.36	
Investment Income	\$ (1,190,164.96)	\$ 14,247,147.34	
Less Investment Expense	\$ 199,146.28	\$ 199,569.52	
Net Investment Income	\$ (1,389,311.24)	\$ 14,047,577.82	
Total Additions	\$ 6,786,589.69	\$ 23,574,378.84	
Deductions			
Benefits	\$ 10,628,197.75	\$ 13,660,061.96	
Refunds of Member Contributions	\$ 150,569.08	\$ 1,587,169.18	
Administrative Expense	\$ 139,428.40	\$ 175,962.82	
Total Deductions	\$ 10,918,195.23	\$ 15,423,193.96	
Net Increase/(Decrease)	\$ (4,131,605.54)	\$ 8,151,184.88	
Net Assets Held In Trust For Pension Benefits			
Beginning of Year	\$ 180,054,293.06	\$ 171,903,108.18	
End of Year	\$ 175,922,687.52	\$ 180,054,293.06	

Schedule A—Continued

BUTLER COUNTY EMPLOYEES' RETIREMENT SYSTEM			
PLAN ASSETS AS OF DECEMBER 31, 2015 AND 2014			
Assets			
		2015 Total	2014 Total
Cash and Short-Term Investments		\$ 1,986,308.89	\$ 1,609,679.94
Receivables		\$ 2,971.20	\$ 2,480.95
Investments, at fair market value			
Government Corporate Bonds		\$ 39,596,732.37	\$ 37,287,921.24
Inflation Protected Securities		\$ 17,936,192.06	\$ 24,656,944.56
Common Stocks		\$ 73,853,070.12	\$ 85,909,620.21
International Stocks		\$ 32,996,635.88	\$ 21,468,163.65
Real Estate Investment Trust		\$ 9,598,456.61	\$ 9,119,482.51
Total Investments		\$ 173,981,087.04	\$ 178,442,132.17
Total Assets		\$ 175,970,367.13	\$ 180,054,293.06
Liabilities			
Refunds Payable and Other		\$ 47,679.61	\$ 0.00
Net Assets Held In Trust For Pension Benefits			
		\$ 175,922,687.52	\$ 180,054,293.06

TOTAL ASSETS (MARKET VALUE 12-31-2015)



Schedule A – Continued

Butler County Employees' Retirement System

Plan Description and Contribution Information

Basis of Accounting: The Butler 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	578
Terminated Plan Members Entitled to but not yet Receiving Benefits	87
Active Plan Members	578
<hr/>	
Total	1,243
<hr/>	
Number of Participating Employers	1

Schedule A—Continued***Butler County Employees' Retirement System***

Plan Description: The Butler 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 Butler 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

Year	Contribution *	County Contribution
2006	\$ 4,572,844	\$ 4,572,844
2007	\$ 4,804,224	\$ 4,804,224
2008	\$ 4,712,669	\$ 4,712,669
2009	\$ 6,486,486	\$ 6,486,486
2010	\$ 6,095,561	\$ 6,095,561
2011	\$ 6,564,903	\$ 6,564,903
2012	\$ 6,860,358	\$ 6,860,358
2013	\$ 7,313,625	\$ 7,313,625
2014	\$ 6,152,213	\$ 6,152,213
2015	\$ 5,052,744	\$ 5,052,744

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	94,282,077	124,861,364	30,579,287	75.5%	29,360,062	104.2%
1/1/2008	106,174,910	134,672,189	28,497,279	78.8%	29,936,923	95.2%
1/1/2009	102,163,256	145,148,259	42,985,003	70.4%	30,575,991	140.6%
1/1/2010	111,030,976	148,852,958	37,821,982	74.6%	31,576,155	119.8%
1/1/2011	120,338,204	160,325,187	39,986,983	75.1%	33,098,062	120.8%
1/1/2012	131,446,907	172,292,041	40,845,134	76.3%	34,891,445	117.1%
1/1/2013	144,118,424	186,098,445	41,980,021	77.4%	36,117,283	116.2%
1/1/2014	171,903,108	200,826,982	28,923,874	85.6%	36,891,238	78.4%
1/1/2015	180,054,293	203,079,020	23,024,727	88.7%	28,933,497	79.6%
1/1/2016	188,485,177	213,698,092	25,212,915	88.2%	30,826,860	81.8%

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	The method that is prescribed by Pennsylvania State Law, Act 44 as described in Schedule M
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	4,293,595	0	0	4,293,595	4,293,595	0	0
2006	4,572,844	0	0	4,572,844	4,572,844	0	0
2007	4,804,224	0	0	4,804,224	4,804,224	0	0
2008	4,712,669	0	0	4,712,669	4,712,669	0	0
2009	6,486,486	0	0	6,486,486	6,486,486	0	0
2010	6,095,561	0	0	6,095,561	6,095,561	0	0
2011	6,564,903	0	0	6,564,903	6,564,903	0	0
2012	6,860,358	0	0	6,860,358	6,860,358	0	0
2013	7,313,625	0	0	7,313,625	7,313,625	0	0

* 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	\$	43,112,525.04
County Annuity Reserve Account	\$	17,423,084.52
Retired Members' Reserve Account	\$	101,032,817.00
Unrealized Appreciation of Assets	\$	14,354,260.96
<i>Total Assets, (Market Value) of the Butler County Employees' Retirement Fund</i>	\$	175,922,687.52
LIABILITIES		
Actuarial Present Value of:		
Accumulated Plan Benefits		
Vested participants (400)	\$	36,251,552
Nonvested participants (178)	\$	403,472
Future Benefit Accruals	\$	40,125,813
Terminated Vested Benefits	\$	5,845,287
Retired Benefits	\$	101,032,817
Member Accumulated Deductions	\$	43,112,525
<i>Total Liabilities of the Butler County Employees' Retirement Fund</i>	\$	226,771,466

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	\$ 57,001,102
Termination Benefits	4,603,651
Death Benefits	2,102,710
Total	\$ 63,707,463
(b) Terminated Vested Participants	\$ 5,845,287
(c) Retired Members and Beneficiaries	
Retirement Benefits	\$ 98,498,235
Cost-of-Living Benefits	2,534,582
Total	\$ 101,032,817
(d) Member Accumulated Deductions	\$ 43,112,525
(e) Total (a) + (b) + (c) + (d)	\$ 213,698,092
2. Actuarial Value of Plan Assets (see page 15)	\$ 188,485,177
3. Unfunded Actuarial Liability as of January 1, 2016: (1e) - (2)	\$ 25,212,915

II. Normal Cost for 2016

1. Normal Cost for:	
(a) Retirement Benefits	\$ 1,409,281
(b) Termination Benefits	227,446
(c) Death Benefits	56,268
(d) Normal Cost as of January 1, 2016	\$ 1,692,995
(e) Normal Cost with interest to end of year: (d) x 1.075	\$ 1,819,970

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	\$ 23,024,727
2. Normal Cost as of January 1, 2015	1,638,370
3. Interest at 7.50% Per Year to December 31, 2015 on (1) and (2)	1,849,732
4. Employer Contributions for the 2015 Plan Year	5,052,744
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	0
7. Expected Unfunded Actuarial Liability as of January 1, 2016: (1) + (2) + (3) - (4) + (5) + (6)	21,460,085
8. Unfunded Actuarial Liability as of January 1, 2016	25,212,915
9. Actuarial Gain (Loss) for 2015 Plan Year: (7) - (8)	(3,752,830)

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
	<u>Initial Amount</u>	<u>Effective Date</u>	<u>Remaining Period</u>	<u>Outstanding Balance</u>	Amortization Charge or (Credit)	
Amortization of Liability for:						
(a) Initial UAAL	\$ 28,229,305	1/1/2005	19 Years	\$23,804,291	\$2,390,210	
(b) Ret. COLA inc.	782,507	1/1/2007	1 Years	106,047	114,000	
(c) Ret. COLA inc.	787,778	1/1/2008	2 Years	206,074	114,768	
(d) Ret. COLA inc.	734,747	1/1/2009	3 Years	278,366	107,042	
(e) Experience loss	1,745,327	1/1/2006	5 Years	799,965	197,723	
(f) Experience loss	59,174	1/1/2007	6 Years	31,469	6,704	
(g) Experience gain	(2,392,470)	1/1/2008	7 Years	(1,435,570)	(271,036)	
(h) Experience loss	14,230,176	1/1/2009	8 Years	9,442,540	1,612,097	
(i) Experience loss	9,249,636	1/1/2010	9 Years	6,684,219	1,047,866	
(j) Experience loss	3,404,942	1/1/2011	10 Years	2,647,730	385,736	
(k) Experience loss	2,321,453	1/1/2012	11 Years	1,923,891	262,991	
(l) Experience loss	931,198	1/1/2013	12 Years	816,017	105,493	
(m) Salary assump chg.	(5,905,887)	1/1/2010	14 Years	(4,917,944)	(579,321)	
(n) Asset val method chg.	(7,397,011)	1/1/2010	14 Years	(6,159,636)	(725,589)	
(o) Mortality table chg.	1,865,621	1/1/2013	12 Years	1,634,859	211,351	
(p) Experience gain	(11,162,488)	1/1/2014	13 Years	(10,275,673)	(1,264,567)	
(q) Experience gain	(4,290,844)	1/1/2015	14 Years	(4,126,560)	(486,098)	
(r) Experience loss	3,752,830	1/1/2016	15 Years	3,752,830	425,148	
(s) Total				\$25,212,915	\$3,654,518	

Schedule F

Schedule F determines the certified actuarially determined contribution of \$5,474,488 for 2016 for the Butler County Employees' Retirement System.

1.	Total Amortization Charge/(Credit) (page 12 (s))	\$ 3,654,518
2.	Normal Cost with interest to end of year (page 10 II 1(e))	\$ 1,819,970
3.	Total Funding Requirement for 2016 (actuarially determined contribution for 2016): (1) + (2), but not less than 0	\$ 5,474,488

Notes:

The actuarially determined contribution for 2016 as a percentage of the estimated 2016 compensation (\$30,826,860) for active members is 17.76%.

The equivalent normal cost accrual rate to be applied to actual 2015 salaries to determine reimbursable expenses is 18.38%.

Schedule G

The following are notes to Schedules B and I:

Members' Annuity Reserve Account

The balance of \$43,112,525.04 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 \$17,423,084.52 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 \$101,032,817.00. 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 as prescribed by the Pennsylvania State Law, Act 44 by using the greater of the market value of assets as of the valuation date and adjusting the actuarial value of assets as of the prior valuation date: increased by contributions and other deposits except investment income; decreased by benefit payments and administrative expenses or other payments; and credited with interest at 1% less than the plan's assumed rate to the valuation date. The actuarial value of assets will be limited to a maximum of 120% and a minimum of 80% of the market value of assets as of the valuation date.

1. Actuarial Value of Assets as of 1/1/2015	\$ 180,054,293.06
2. Contributions and Other Deposits Except Investment Income	\$ 8,175,900.93
3. Benefit Payments and Administrative Expenses or Other Payments	\$ 11,117,341.51
4. Interest at 1% less than the plan's assumed rate to the valuation date 2015: $0.065 \times [(1) + 0 \times (2) - 11/24 \times (3)]$	\$ 11,372,324.92
5. Preliminary Actuarial Value of Assets: (1) + (2) - (3) + (4)	\$ 188,485,177.40
6. Market Value of Assets as of 1/1/2016	\$ 175,922,687.52
7. 80% of Market Value: $.8 \times (6)$	\$ 140,738,150.02
8. 120% of Market Value: $1.2 \times (6)$	\$ 211,107,225.02
9. Actuarial Value of Assets as of 1/1/2016: Greater of (5) and (6) but not less than (7) nor more than (8)	\$ 188,485,177.40

Schedule H

APPROXIMATE RATE OF RETURN FOR 2015 PLAN YEAR			
		<u>Actuarial Value</u>	<u>Market Value</u>
1. Value as of December 31, 2014	\$	180,054,293.06	\$ 180,054,293.06
2. Contributions Received During Year	\$	8,175,900.93	\$ 8,175,900.93
3. Benefits and Expenses Paid During Year	\$	11,117,341.51	\$ 11,117,341.51
4. Value as of December 31, 2015	\$	188,485,177.40	\$ 175,922,687.52
5. Non-Investment Increment: (2) - (3)	\$	(2,941,440.58)	\$ (2,941,440.58)
6. Investment Increment: (4) - (1) - (5)	\$	11,372,324.92	\$ (1,190,164.96)
7. Time Weighted Value of Assets: (1) + .5 x (5)	\$	178,583,572.77	\$ 178,583,572.77
8. Approximate Rate of Return for 2015: (6) / (7)		6.37%	(0.67%)

HISTORY OF RATE OF RETURNS			
<u>Plan Year</u>	<u>Actuarial Value</u>	<u>Market Value</u>	
	<u>Rate of Return</u>	<u>Rate of Return</u>	
2014	8.44%	8.44%	
2013	17.25%	17.25%	
2012	7.99%	13.53%	
2011	6.25%	0.95%	
2010	6.32%	13.29%	
2009	6.22%	20.12%	
2008	(5.44%)	(23.54%)	
2007	11.10%	9.34%	
2006	8.92%	11.29%	
Five Year Average (2011 - 2015):	7.68%	9.19%	
Ten Year Average (2006 - 2015):	6.24%	7.21%	

Schedule I

Determination of Reserve Balances

	M.A.R.A.	C.A.R.A.	R.M.R.A.	TOTAL
Balance 1/1/2015	\$ 40,205,390.02	\$ 17,500,582.05	\$ 98,007,419.00	\$ 155,713,391.07
Adj. to beg. bal.		(63,967.40)		(63,967.40)
County Appropriations		5,052,744.00		5,052,744.00
Member Contributions	3,183,884.01	3,240.32		3,187,124.33
Net Investment Income		8,796,476.07		8,796,476.07
Investment Expenses		(199,146.28)		(199,146.28)
Member Contributions Refunded	(150,569.08)			(150,569.08)
Pension Payments			(10,426,742.54)	(10,426,742.54)
Death Benefits			(201,455.21)	(201,455.21)
Retiree and Death Benefit Transfers	(2,340,232.83)	(5,079,572.80)	7,419,805.63	0.00
Cost of Living Funding Requirement		0.00	0.00	0.00
Administrative Expenses		(139,428.40)		(139,428.40)
Balance Before Interest	40,898,472.12	25,870,927.56	94,799,026.88	161,568,426.56
Interest Allocated in 2015	2,214,052.92	(6,070,181.84)	3,856,128.92	
Balance Before Actuarial Adjustments	43,112,525.04	19,800,745.72	98,655,155.80	161,568,426.56
Actuarial Adjustments		(2,377,661.20)	2,377,661.20	
Ending Balance 12/31/2015	43,112,525.04	17,423,084.52	101,032,817.00	161,568,426.56
Unrealized Appreciation				14,354,260.96
Total Assets (12/31/2015) (Market Value)				175,922,687.52

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
2016	280	385	665	150	428	578
2015	269	381	650	150	424	574
2014	299	538	837	131	344	475
2013	298	544	842	120	327	447
2012	294	544	838	113	307	420
2011	273	541	814	113	299	412
2010	264	547	811	103	279	382
2009	240	542	782	97	268	365
2008	244	538	782	93	259	352
2007	247	548	795	90	245	335

Schedule K

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

ACTIVE PARTICIPANTS		
Number as of January 1, 2015		568
Changes During Plan Year:		
Retired	(-)	16
Terminated and Vested	(-)	8
Terminated	(-)	15
Died	(-)	0
New Participants	(+)	49
Number as of January 1, 2016		578

RETIRED PARTICIPANTS		
Number as of January 1, 2015		574
Changes During Plan Year:		
Returned to Active Service	(-)	0
Died	(-)	19
New Retirements from Active Service	(+)	16
New Surviving Annuitants	(+)	3
Vested Terminated Participants Whose Benefits Commenced	(+)	3
Additions	(+)	1
Number as of January 1, 2016		578

TERMINATED VESTED PARTICIPANTS		
Number as of January 1, 2015		82
Changes During Plan Year:		
Returned to Active Service	(-)	0
Benefits Commenced	(-)	3
Died	(-)	0
New Termination's with Vesting	(+)	8
Number as of January 1, 2016		87

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	5	0	0	0	0	0	0	5	\$ 37,043
25-29	25	10	0	0	0	0	0	35	\$ 48,099
30-34	12	25	5	0	0	0	0	42	\$ 53,815
35-39	5	12	12	6	0	0	0	35	\$ 58,358
40-44	4	7	8	9	1	0	0	29	\$ 60,517
45-49	4	8	8	12	6	6	0	44	\$ 64,880
50-54	2	5	2	3	5	6	1	24	\$ 62,707
55-59	2	5	5	6	2	6	1	27	\$ 59,659
60-64	0	2	2	3	3	1	3	14	\$ 62,890
65 +	1	1	1	1	1	0	0	6	\$ 60,547
Total	60	75	43	40	18	20	5	261	\$ 58,010

Average Age: 42.26
 Average Service: 11.33

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	7	0	0	0	0	0	0	7	\$ 39,439
25-29	17	3	0	0	0	0	0	20	\$ 45,075
30-34	17	14	6	0	0	0	0	37	\$ 46,098
35-39	11	7	5	4	0	0	0	27	\$ 47,132
40-44	7	3	7	10	6	0	0	33	\$ 52,177
45-49	9	12	6	16	11	5	0	59	\$ 51,030
50-54	3	10	9	12	6	5	3	48	\$ 51,052
55-59	3	9	12	9	3	10	6	52	\$ 51,269
60-64	1	1	8	2	2	3	5	22	\$ 51,020
65 +	0	3	2	2	3	1	1	12	\$ 46,864
Total	75	62	55	55	31	24	15	317	\$ 49,494

Average Age: 46.22
 Average Service: 13.02

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 $(age - 30) \times 3 \frac{1}{3}\%$. 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%

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 asset method that is prescribed by Pennsylvania State Law, Act 44, which is the greater of the market value of assets as of the valuation date and the actuarial value of assets as of the prior valuation date plus contributions and other deposits except investment income minus benefit payments and administrative expenses or other payments plus credited interest at 1% less than the plan's assumed rate to the valuation date. The actuarial value of assets will be limited to a maximum of 120% and a minimum of 80% of the market value of assets as of the valuation date.

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.

Schedule N

Summary of Plan Provisions

1. Effective Date

The effective date of this plan is January 1, 1971.

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:

<u>CLASS</u>	<u>PERCENTAGE</u>	<u>EFFECTIVE</u>
1/40	2.500%	01/01/1971
1/60	1.667%	04/01/2009

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) 2.500% of 1/12th of Final Average Salary multiplied by years of credited service on the 1/40 Class,
- (b) 1.667% of 1/12th of Final Average Salary multiplied by years of credited service on the 1/60th Class for all participants hired on or after 04/01/2009,

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 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 1/40 Class must contribute between 9% and 19% of salary.
Employees on the 1/60 Class must contribute between 9% and 19% of salary.

15. Deposit Administrator

Investment Managers:
Vanguard Group
Twin Capital Management, Inc.

Custodian:
PNC Institutional Investments

Investment Consultant:
Bogdahn Consulting

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, 1997 and since then as follows:

PERCENTAGE CHANGE IN C.P.I.	EFFECTIVE DATE OF INCREASE
85%	1/1/1998
85%	1/1/1999
85%	1/1/2000
100%	1/1/2001
100%	1/1/2003
100%	1/1/2004
100%	1/1/2005
100%	1/1/2006
100%	1/1/2007
100%	1/1/2008

**18. Early Retirement
Provision**

The Retirement Board has authorized the following Early Retirement Provisions:

Percent of <u>Additional Service</u>	Early <u>Retirement Period</u>
20%	1/1/95 - 12/31/95

Schedule O

Historical Trend Information

REVENUES BY SOURCE						
Fiscal Year	Employee Contributions	Employer Contributions	Investment Income	Miscellaneous	Total	
2006	\$ 2,727,612	\$ 4,572,844	\$ 5,467,095	\$ 0	\$ 12,767,551	
2007	2,837,111	4,804,224	6,894,495	1,907	14,537,737	
2008	2,915,351	4,712,669	(556,398)	0	7,071,622	
2009	3,008,531	6,486,486	(657,790)	0	8,837,227	
2010	3,215,066	6,095,561	8,375,059	0	17,685,686	
2011	3,377,203	6,564,903	3,242,320	0	13,184,426	
2012	3,574,018	6,860,358	7,828,492	0	18,262,868	
2013	3,681,528	7,313,625	16,115,506	0	27,110,659	
2014	3,374,588	6,152,213	15,762,233	0	25,289,034	
2015	3,187,124	5,052,744	8,796,476	(63,967)	16,972,377	

EXPENSES BY TYPE						
Fiscal Year	Benefits	Refunds	Administrative/ Miscellaneous	Total		
2006	\$ 3,449,849	\$ 311,006	\$ 592,257	\$ 4,353,112		
2007	5,077,901	534,100	680,708	6,292,709		
2008	4,715,178	376,774	726,871	5,818,823		
2009	6,068,085	319,928	669,637	7,057,650		
2010	6,076,804	448,877	570,335	7,096,016		
2011	5,803,804	171,311	487,732	6,462,847		
2012	7,515,368	340,963	491,756	8,348,087		
2013	7,685,968	284,710	332,365	8,303,043		
2014	13,660,062	1,587,169	375,532	15,622,763		
2015	10,628,198	150,569	338,575	11,117,342		