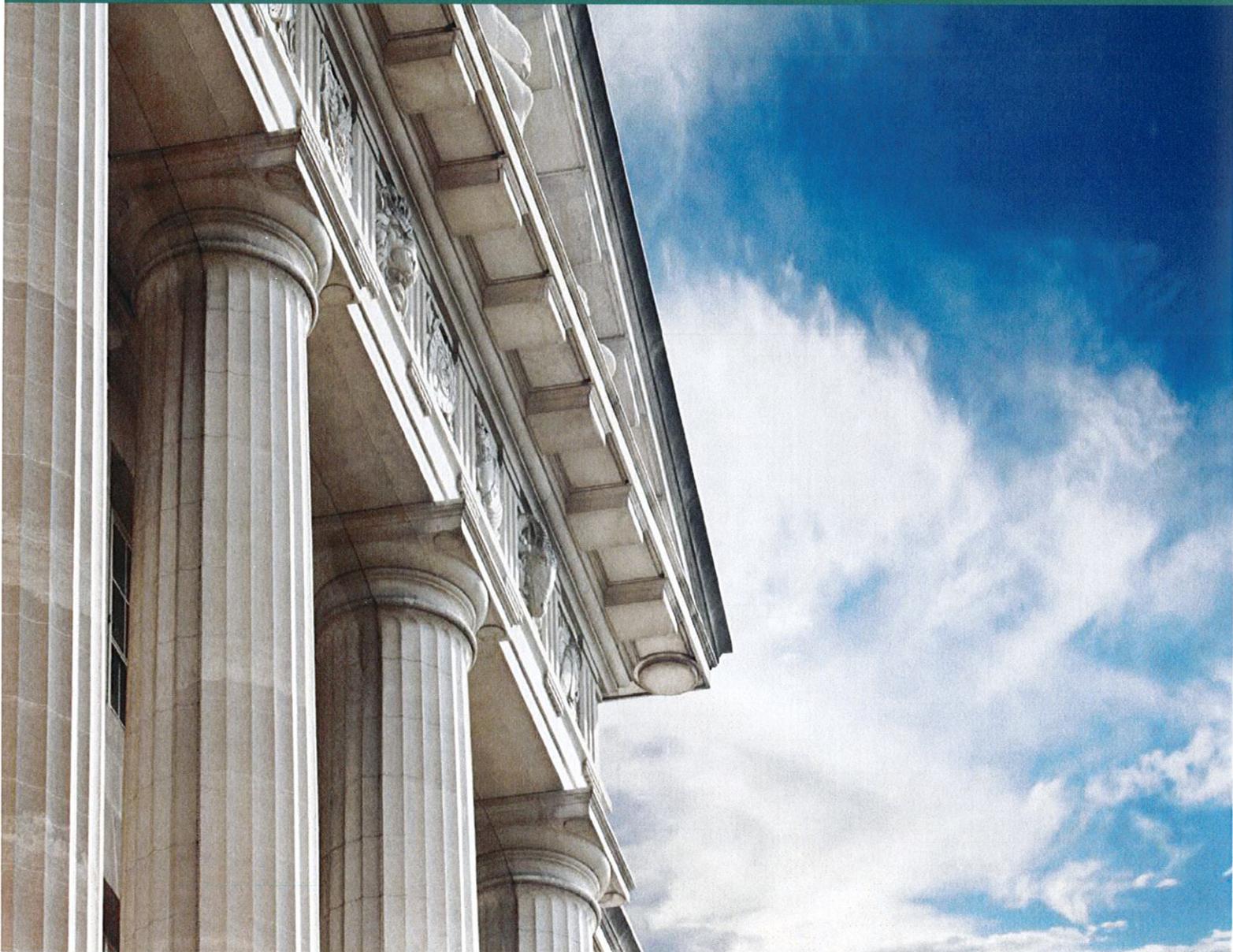




KORN FERRY™  
| HayGroup

# Lancaster County Employees' Retirement System

**Report on 2018 Actuarial Valuation Including  
Determination of County Actuarially Determined  
Contribution for 2018**





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**for**

**Lancaster County Employees' Retirement Board**

Dennis P. Stuckey	Commissioner/Chairman
Joshua G. Parsons	Commissioner
Craig E. Lehman	Commissioner
Brian K. Hurter	Controller/Secretary
Amber L. Martin	Treasurer

**May 15, 2018**



## Table of Contents

<b>I. Introduction .....</b>	<b>1</b>
<b>II. Findings .....</b>	<b>2</b>
<b>III. Schedules .....</b>	<b>3</b>
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, 2018.....	9
Schedule C – Unfunded Actuarial Liability and Normal Cost .....	10
Schedule D – Actuarial Gain (Loss) for One Year Period Ending December 31, 2017.....	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 Actuarial Value of Assets .....	14
Schedule H – Approximate Rate of Return for 2017.....	16
Schedule I – Determination of Reserve Balances .....	17
Schedule J – Membership History .....	18
Schedule K – Changes in Plan Participation from January 1, 2017 to January 1, 2018 .....	19
Schedule L – Age, Service and Average Salary Profile .....	20
Schedule M – Actuarial Assumptions and Actuarial Cost Method for Funding Purposes, January 1, 2018.....	21
Schedule N – Summary of Plan Provisions .....	24
Schedule O – Historical Trend Information.....	29



## I. Introduction

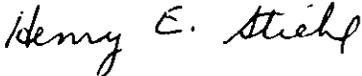
The primary purpose of this report is to investigate and fully and fairly disclose the actuarial position of the Lancaster County Employees' Retirement System as of January 1, 2018 and to establish the proper appropriation for the 2018 plan year, in accordance with the funding standards of Section 6 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,

**Korn Ferry HayGroup, Inc.**

By: 

Henry E. Stiehl  
Senior Principal

By: 

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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 2018 is \$4,399,055. 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	\$ 4,589,503.56	
Retired Members Annuity Reserve Account		\$ 4,589,503.56

### Actuarial Assumptions

Effective January, 2018 the County has elected to change the interest assumption from 7.35% to 7.25% and the salary assumption from 3.75% to 4.0%. The effect of these changes is an increase in the actuarial accrued liability of \$4,712,326 and an increase in the actuarially determined contribution of \$636,953.



### III. Schedules

#### Schedule A

#### LANCASTER COUNTY EMPLOYEES' RETIREMENT SYSTEM

#### CHANGES IN PLAN NET ASSETS FOR THE CALENDAR YEAR 2017 AND 2016

	<b>Additions</b>	
	<b><u>2017 Total</u></b>	<b><u>2016 Total</u></b>
Contributions		
County	\$ 4,424,334.00	\$ 4,580,199.00
Plan Members	\$ 5,401,676.48	\$ 5,110,678.24
Miscellaneous	\$ 64,970.86	\$ 88,836.43
Total Contributions	\$ <u>9,890,981.34</u>	\$ <u>9,779,713.67</u>
Investment Income		
Realized Gain	\$ <u>11,445,212.44</u>	
Unrealized Gain	\$ <u>21,165,097.32</u>	
Net Gain in Fair Value	\$ 32,610,309.76	\$ 13,091,646.02
Interest/Dividends	\$ 7,140,498.23	\$ 6,135,539.81
Net Accrued Interest	\$ 18,162.06	\$ 0.00
Investment Income	\$ <u>39,768,970.05</u>	\$ <u>19,227,185.83</u>
Less Investment Expense	\$ 494,218.91	\$ 591,518.39
Net Investment Income	\$ <u>39,274,751.14</u>	\$ <u>18,635,667.44</u>
Total Additions	\$ <u>49,165,732.48</u>	\$ <u>28,415,381.11</u>
	<b>Deductions</b>	
Benefits	\$ 14,872,092.78	\$ 14,092,700.35
Refunds of Member Contributions	\$ 1,086,291.19	\$ 1,085,031.50
Administrative Expense	\$ 47,598.80	\$ 71,633.00
Miscellaneous	\$ 18,415.84	\$ 24,928.28
Total Deductions	\$ <u>16,024,398.61</u>	\$ <u>15,274,293.13</u>
Net Increase/(Decrease)	\$ <u>33,141,333.87</u>	\$ <u>13,141,087.98</u>
	<b>Net Assets Held In Trust For Pension Benefits</b>	
Beginning of Year	\$ <u>257,889,183.28</u>	\$ <u>244,748,095.30</u>
End of Year	\$ <u>291,030,517.15</u>	\$ <u>257,889,183.28</u>

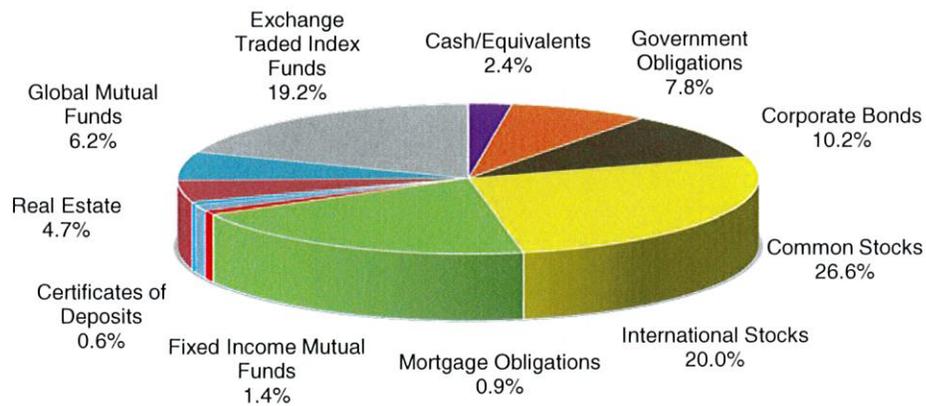


## Schedule A – Continued

### LANCASTER COUNTY EMPLOYEES' RETIREMENT SYSTEM PLAN ASSETS AS OF DECEMBER 31, 2017 AND 2016

		<b>Assets</b>	
		<u>2017 Total</u>	<u>2016 Total</u>
Cash and Short-Term Investments	\$	6,772,089.04	\$ 14,869,746.20
Receivables	\$	157,255.42	\$ 664,517.23
Investments, at fair market value			
Government Obligations	\$	22,899,301.65	\$ 24,615,840.19
Corporate Bonds	\$	29,702,472.83	\$ 25,215,531.65
Common Stocks	\$	77,339,300.59	\$ 78,090,657.09
International Stocks	\$	58,165,624.09	\$ 57,045,640.49
Mortgage Obligations	\$	2,620,341.14	\$ 2,050,676.38
Fixed Income Mutual Funds	\$	4,025,706.94	\$ 4,193,597.96
Certificates of Deposit	\$	1,709,331.91	\$ 1,556,504.89
Real Estate	\$	13,653,774.23	\$ 0.00
Global Mutual Funds	\$	18,000,329.71	\$ 0.00
Exchange Traded Index Funds	\$	55,984,989.60	\$ 49,586,471.20
Total Investments	\$	<u>284,101,172.69</u>	<u>\$ 242,354,919.85</u>
 Total Assets	 \$	 <u>291,030,517.15</u>	 <u>\$ 257,889,183.28</u>
		<b>Liabilities</b>	
Refunds Payable and Other	\$	0.00	\$ 0.00
<b>Net Assets Held In Trust For Pension Benefits</b>			
	\$	<u>291,030,517.15</u>	<u>\$ 257,889,183.28</u>

#### TOTAL ASSETS (MARKET VALUE 12-31-2017)





## Schedule A - Continued

### *Lancaster County Employees' Retirement System*

#### Plan Description and Contribution Information

**Basis of Accounting:** The Lancaster 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, 2018:

Retirees and Beneficiaries Receiving Benefits	1,281
Terminated Plan Members Entitled to but not yet Receiving Benefits	231
Active Plan Members	<u>1,755</u>
Total	<u>3,267</u>
Number of Participating Employers	1



## Schedule A - Continued

### *Lancaster County Employees' Retirement System*

**Plan Description:** The Lancaster 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 Lancaster County Employees' Retirement Board. Act 96 of 1971, as amended cited as the County Pension Law provides for the creation, maintenance and operation of this plan.

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

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#### SCHEDULE OF EMPLOYER CONTRIBUTIONS

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<u>Year</u>	<u>Contribution *</u>	<u>County Contribution</u>
2008	\$ 3,333,575	\$ 4,000,000
2009	\$ 7,171,189	\$ 7,421,189
2010	\$ 7,216,063	\$ 8,000,000
2011	\$ 7,304,873	\$ 7,554,873
2012	\$ 7,142,834	\$ 7,142,834
2013	\$ 7,001,128	\$ 7,001,128
2014	\$ 5,962,997	\$ 5,962,997
2015	\$ 5,228,813	\$ 5,228,813
2016	\$ 4,580,199	\$ 4,580,199
2017	\$ 4,424,334	\$ 4,424,334

*Note:* Effective in 2010 the Entry Age Funding Method was used to determine the annual required contribution. Prior to 2010 the Aggregate Method was used.

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



## Schedule A - Continued

### SCHEDULE OF FUNDING PROGRESS

<b>Actuarial Valuation Date</b>	<b>Actuarial Value of Assets (a)</b>	<b>Actuarial Accrued Liability (AAL) - Entry Age (b)</b>	<b>Unfunded AAL (UAAL) (b-a)</b>	<b>Funded Ratio (a/b)</b>	<b>Covered Payroll (c)</b>	<b>UAAL as a Percentage of Covered Payroll (b-a)/c</b>
1/1/2009	159,134,908	199,653,516	40,518,608	79.7%	78,717,769	51.5%
1/1/2010	158,074,015	213,374,965	55,300,950	74.1%	79,444,845	69.6%
1/1/2011	169,788,390	221,658,694	51,870,304	76.6%	78,838,153	65.8%
1/1/2012	189,541,657	239,432,154	49,890,497	79.2%	76,433,494	65.3%
1/1/2013	194,240,337	241,101,765	46,861,428	80.6%	76,305,642	61.4%
1/1/2014	216,918,969	253,533,460	36,614,491	85.6%	77,867,605	47.0%
1/1/2015	236,547,831	265,716,928	29,169,097	89.0%	79,478,129	36.7%
1/1/2016	250,584,482	278,638,967	28,054,485	89.9%	81,355,686	34.5%
1/1/2017	264,742,289	292,274,553	27,532,264	90.6%	80,039,687	34.4%
1/1/2018	281,656,365	308,081,325	26,424,960	91.4%	82,059,110	32.2%



## 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	01/01/2018
Actuarial Cost Method	Entry Age
Asset Valuation Method	Market value adjusted for unrecognized gains and losses from prior years
Actuarial Assumptions:	
Investment Rate of Return *	7.25%
Projected Salary Increases *	4.0%
* 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	7,534,558	314,105	509,148	7,339,515	7,400,000	(60,485)	4,127,578
2006	5,578,535	309,568	493,756	5,394,347	5,578,535	(184,188)	3,943,390
2007	4,859,915	295,754	478,783	4,676,886	4,859,915	(183,029)	3,760,361
2008	3,333,575	282,027	460,275	3,155,327	4,000,000	(844,673)	2,915,688
2009	7,171,189	218,677	358,080	7,031,786	7,421,189	(389,403)	2,526,285
2010	7,216,063	189,471	308,565	7,096,969	8,000,000	(903,031)	1,623,254
2011	7,304,873	121,744	198,939	7,227,678	7,554,873	(327,195)	1,296,059
2012	7,142,834	97,204	154,289	7,085,749	7,142,834	(57,085)	1,238,974
2013	7,001,128	92,923	155,134	6,938,917	7,001,128	(62,211)	1,176,763

\* 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 (7.50% 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, 2018. The liabilities were determined from the actuarial valuation of the System based upon the data submitted by the County.

### ASSETS

Members' Annuity Reserve Account	\$	74,787,609.19
County Annuity Reserve Account	\$	55,821,598.37
Retired Members' Reserve Account	\$	117,005,360.00
Unrealized Appreciation of Assets	\$	43,415,949.59
<i>Total Assets, (Market Value) of the Lancaster County Employees' Retirement Fund</i>	\$	291,030,517.15

### LIABILITIES

Actuarial Present Value of:

Accumulated Plan Benefits		
Vested participants (1,088)	\$	62,590,275
Nonvested participants (667)	\$	621,875
Future Benefit Accruals	\$	61,522,065
Terminated Vested Benefits	\$	10,644,134
Retired Benefits	\$	117,005,360
Member Accumulated Deductions	\$	74,787,609
<i>Total Liabilities of the Lancaster County Employees' Retirement Fund</i>	\$	327,171,318



## Schedule C

### Unfunded Actuarial Liability and Normal Cost

Schedule C shows the development of the unfunded actuarial liability and the normal cost for 2018.

#### I. Unfunded Actuarial Liability January 1, 2018

1. Actuarial Liability:		
(a) Active Participants		
Retirement Benefits	\$	94,959,257
Termination Benefits		7,356,783
Death Benefits		3,328,182
Total	\$	<u>105,644,222</u>
(b) Terminated Vested Participants	\$	10,644,134
(c) Retired Members and Beneficiaries		
Retirement Benefits	\$	111,224,488
Cost-of-Living Benefits		5,780,872
Total	\$	<u>117,005,360</u>
(d) Member Accumulated Deductions	\$	<u>74,787,609</u>
(e) Total (a) + (b) + (c) + (d)	\$	308,081,325
2. Actuarial Value of Plan Assets (see page 15)	\$	281,656,365
3. Unfunded Actuarial Liability as of January 1, 2018: (1e) – (2)	\$	<u>26,424,960</u>

#### II. Normal Cost for 2018

1. Normal Cost for:		
(a) Retirement Benefits	\$	2,118,711
(b) Termination Benefits		373,049
(c) Death Benefits		82,635
(d) Normal Cost as of January 1, 2018	\$	<u>2,574,394</u>
(e) Normal Cost with interest to end of year: (d) x 1.0725	\$	2,761,038



## Schedule D

### Actuarial Gain (Loss) for One Year Period Ending December 31, 2017

Schedule D shows the development of the actuarial gain (loss) for the 2017 plan year.

1.	Unfunded Actuarial Liability as of January 1, 2017	\$	27,532,264
2.	Normal Cost as of January 1, 2017		2,435,806
3.	Interest at 7.35% Per Year to December 31, 2017 on (1) and (2)		2,202,653
4.	Employer Contributions for the 2017 Plan Year		4,424,334
5.	Change in Unfunded Actuarial Liability Due to Cost of Living Increase to Retirees		0
6.	Change in Unfunded Actuarial Liability Due to Change in Assumptions		<u>4,712,326</u>
7.	Expected Unfunded Actuarial Liability as of January 1, 2018: (1) + (2) + (3) - (4) + (5) + (6)		32,458,715
8.	Unfunded Actuarial Liability as of January 1, 2018		26,424,960
9.	Actuarial Gain (Loss) for 2017 Plan Year: (7) – (8)		6,033,755



## 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 2018

As of January 1, 2018					
	<u>Initial Amount</u>	<u>Effective Date</u>	<u>Remaining Period</u>	<u>Outstanding Balance</u>	<u>Amortization Charge or (Credit)</u>
Amortization of Liability for:					
(a) Initial UAAL	\$ 55,300,950	1/1/2010	22 Years	\$49,696,391	\$4,586,388
(b) Experience gain	(4,579,291)	1/1/2011	8 Years	(3,036,928)	(513,526)
(c) Experience loss	7,917,254	1/1/2012	9 Years	5,718,273	887,035
(d) Mort. tbl. chg.	4,026,526	1/1/2012	9 Years	2,908,177	451,125
(e) Asset val. method chg.	(12,790,377)	1/1/2012	9 Years	(9,237,915)	(1,433,011)
(f) Sal. assump. chg.	(5,699,929)	1/1/2013	10 Years	(4,430,006)	(638,042)
(g) Experience loss	3,606,647	1/1/2013	10 Years	2,803,099	403,723
(h) Experience gain	(9,321,112)	1/1/2014	11 Years	(7,720,873)	(1,042,491)
(i) Experience gain	(6,807,012)	1/1/2015	12 Years	(5,962,087)	(760,671)
(j) Experience gain	(688,973)	1/1/2016	13 Years	(633,933)	(76,929)
(k) Experience gain	(4,419,512)	1/1/2017	14 Years	(4,248,326)	(493,083)
(l) Int. assump. chg.	3,718,617	1/1/2017	14 Years	3,574,579	414,884
(m) Experience gain	(6,033,755)	1/1/2018	15 Years	(6,033,755)	(672,973)
(n) Int. assump. chg.	2,606,055	1/1/2018	15 Years	2,606,055	290,666
(o) Sal. assump. chg.	2,106,271	1/1/2018	15 Years	<u>2,106,271</u>	<u>234,922</u>
(p) Total				<u>\$28,109,022</u>	<u>\$1,638,017</u>



## Schedule F

Schedule F determines the certified actuarially determined contribution of \$4,399,055 for 2018 for the Lancaster County Employees' Retirement System.

1.	Total Amortization Charge/(Credit) (page 12 (p))	\$ 1,638,017
2.	Normal Cost with interest to end of year (page 10 II 1(e))	\$ 2,761,038
3.	Total Funding Requirement for 2018 (actuarially determined contribution for 2018): (1) + (2), but not less than 0	\$ 4,399,055

### Notes:

The actuarially determined contribution for 2018 as a percentage of the estimated 2018 compensation (\$82,059,110) for active members is 5.36%.

The equivalent normal cost accrual rate to be applied to actual 2017 salaries to determine reimbursable expenses is 5.57%.



## Schedule G

The following are notes to Schedules B and I:

**Members' Annuity Reserve Account:** The balance of \$74,787,609.19 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, 2018. Since these accumulations represent the present value as of January 1, 2018, of future benefits, the reserve balance and liability are identical.

**County Annuity Reserve Account:** The balance of \$55,821,598.37 in this account as of January 1, 2018 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, 2018 amount to \$117,005,360.00. 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 1/1/2017		\$	257,889,183
2.	Contributions for 2017		\$	9,890,981
3.	Disbursements during 2017		\$	16,518,618
4.	Expected Return at 7.35% Interest		\$	18,711,289
5.	Actual Return for 2017		\$	39,768,971
6.	Gain/(Loss) for 2017		\$	21,057,682
7.	Amount Unrecognized for 2017: 21,057,682 x .8		\$	16,846,146
8.	Gain/(Loss) Unrecognized for Prior Years:			
	(a) 2016	1,099,308 x .6	\$	659,585
	(b) 2015	(18,816,910) x .4	\$	(7,526,764)
	(c) 2014	(3,024,075) x .2	\$	(604,815)
	(d) Total of (a) + (b) + (c)		\$	(7,471,994)
9.	Market Value of Assets as of January 1, 2018		\$	291,030,517
10.	Actuarial Value of Assets as of January 1, 2018 equals (9) – (7) – (8d)		\$	281,656,365
11.	Value must be not less than 80% and not greater than 120% of Market Value		\$	281,656,365



## Schedule H

### APPROXIMATE RATE OF RETURN FOR 2017 PLAN YEAR

		<u>Actuarial Value</u>	<u>Market Value</u>
1.	Value as of December 31, 2016	\$ 264,742,289.00	\$ 257,889,183.28
2.	Contributions Received During Year	\$ 9,890,981.34	\$ 9,890,981.34
3.	Benefits and Expenses Paid During Year	\$ 16,518,617.52	\$ 16,518,617.52
4.	Value as of December 31, 2017	\$ 281,656,365.00	\$ 291,030,517.15
5.	Non-Investment Increment: (2) - (3)	\$ (6,627,636.18)	\$ (6,627,636.18)
6.	Investment Increment: (4) - (1) - (5)	\$ 23,541,712.18	\$ 39,768,970.05
7.	Time Weighted Value of Assets: (1) + .5 x (5)	\$ 261,428,470.91	\$ 254,575,365.19
8.	Approximate Rate of Return for 2017: (6) / (7)	9.01%	15.62%

### HISTORY OF RATE OF RETURNS

<u>Plan Year</u>	<u>Actuarial Value Rate of Return</u>	<u>Market Value Rate of Return</u>
2016	8.18%	7.95%
2015	7.64%	(0.12%)
2014	10.35%	6.22%
2013	12.16%	19.50%
2012	3.21%	11.68%
2011	13.08%	0.54%
2010	5.29%	12.17%
2009	(2.07%)	20.56%
2008	(8.65%)	(25.02%)
Five Year Average (2013 - 2017):	9.46%	9.61%
Ten Year Average (2008 - 2017):	5.62%	6.06%



## 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 1/1/2017	\$ 71,603,168.90	\$ 51,531,501.11	\$ 112,503,661.00	\$ 235,638,331.01
County Appropriations		4,424,334.00		4,424,334.00
Member Contributions	5,398,328.68			5,398,328.68
Member Purchases		3,347.80		3,347.80
Net Investment Income		18,603,872.73		18,603,872.73
Investment Expenses		(494,218.91)		(494,218.91)
Member Contributions Refunded	(1,086,291.19)			(1,086,291.19)
Pension Payments			(13,245,868.47)	(13,245,868.47)
Death Benefits			(1,626,224.31)	(1,626,224.31)
Retiree and Death Benefit Transfers	(3,714,484.49)	(6,481,199.23)	10,195,683.72	0.00
Cost of Living Funding Requirement				0.00
Administrative Expenses		(47,598.80)		(47,598.80)
Miscellaneous		64,970.86		64,970.86
Miscellaneous		(18,415.84)		(18,415.84)
Miscellaneous	(214,079.09)	35,661.21	178,417.88	0.00
Balance Before Interest	71,968,973.97	67,639,923.77	108,005,669.82	247,614,567.56
Interest Allocated in 2017	2,818,635.22	(7,228,821.84)	4,410,186.62	
Balance Before Actuarial Adjustments	74,787,609.19	60,411,101.93	112,415,856.44	247,614,567.56
Actuarial Adjustments		(4,589,503.56)	4,589,503.56	
Ending Balance 12/31/2017	74,787,609.19	55,821,598.37	117,005,360.00	247,614,567.56
Unrealized Appreciation				43,415,949.59
Total Assets (12/31/2017) (Market Value)				291,030,517.15



## 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
2018	743	1,243	1,986	415	866	1,281
2017	748	1,224	1,972	403	854	1,257
2016	747	1,198	1,945	398	823	1,221
2015	750	1,214	1,964	373	809	1,182
2014	745	1,206	1,951	358	777	1,135
2013	731	1,214	1,945	346	770	1,116
2012	731	1,205	1,936	345	753	1,098
2011	756	1,272	2,028	300	682	982
2010	754	1,281	2,035	297	666	963
2009	765	1,295	2,060	291	662	953



## Schedule K

### Changes in Plan Participation From January 1, 2017 to January 1, 2018

#### ACTIVE PARTICIPANTS

Number as of January 1, 2017		1,748
Changes During Plan Year:		
Retired	(-)	44
Terminated and Vested	(-)	20
Terminated	(-)	160
Died	(-)	4
New Participants	(+)	235
Number as of January 1, 2018		1,755

#### RETIRED PARTICIPANTS

Number as of January 1, 2017		1,257
Changes During Plan Year:		
Returned to Active Service	(-)	0
Died	(-)	39
New Retirements from Active Service	(+)	44
New Surviving Annuitants	(+)	8
Vested Terminated Participants Whose Benefits Commenced	(+)	10
Additions	(+)	1
Number as of January 1, 2018		1,281

#### TERMINATED VESTED PARTICIPANTS

Number as of January 1, 2017		224
Changes During Plan Year:		
Terminated	(-)	2
Returned to Active Service	(-)	1
Benefits Commenced	(-)	10
Died	(-)	0
New Termination's with Vesting	(+)	20
Number as of January 1, 2018		231



## Schedule L

### Age, Service and Average Salary Profile of the Active Members on January 1, 2018.

#### MALES -- FULL YEARS OF SERVICE TO JANUARY 1, 2018

<u>Age</u>	<u>0-4</u>	<u>5-9</u>	<u>10-14</u>	<u>15-19</u>	<u>20-24</u>	<u>25-29</u>	<u>30+</u>	<u>Total</u>	<u>Average Salary</u>
0-19	1	0	0	0	0	0	0	1	\$ 41,722
20-24	47	1	0	0	0	0	0	48	\$ 33,754
25-29	64	41	1	0	0	0	0	106	\$ 42,178
30-34	28	35	11	2	0	0	0	76	\$ 46,518
35-39	16	13	23	10	0	0	0	62	\$ 49,775
40-44	7	8	15	27	10	0	0	67	\$ 56,223
45-49	13	8	15	11	19	8	1	75	\$ 60,087
50-54	10	11	6	15	16	24	11	93	\$ 65,687
55-59	6	9	7	7	9	10	13	61	\$ 62,588
60-64	4	5	10	9	3	2	15	48	\$ 66,352
65 +	5	8	9	6	2	1	6	37	\$ 49,018
<b>Total</b>	<b>201</b>	<b>139</b>	<b>97</b>	<b>87</b>	<b>59</b>	<b>45</b>	<b>46</b>	<b>674</b>	<b>\$ 53,343</b>

Average Age: 42.82  
Average Service: 11.93

#### FEMALES -- FULL YEARS OF SERVICE TO JANUARY 1, 2018

<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	2	0	0	0	0	0	0	2	\$ 29,263
20-24	82	0	0	0	0	0	0	82	\$ 29,081
25-29	113	27	0	0	0	0	0	140	\$ 34,732
30-34	54	38	34	2	0	0	0	128	\$ 39,071
35-39	31	16	39	29	2	0	0	117	\$ 43,722
40-44	25	17	23	36	27	2	0	130	\$ 44,687
45-49	21	12	12	27	37	23	3	135	\$ 46,299
50-54	15	15	20	12	13	24	10	109	\$ 48,023
55-59	14	10	14	16	13	11	21	99	\$ 49,935
60-64	14	7	12	13	10	15	15	86	\$ 47,914
65 +	4	7	11	6	14	5	6	53	\$ 41,911
<b>Total</b>	<b>375</b>	<b>149</b>	<b>165</b>	<b>141</b>	<b>116</b>	<b>80</b>	<b>55</b>	<b>1,081</b>	<b>\$ 42,555</b>

Average Age: 42.67  
Average Service: 11.84



## Schedule M

### Actuarial Assumptions and Actuarial Cost Method for Funding Purposes, January 1, 2018.

#### Actuarial Assumptions

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

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

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

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

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



## Schedule M - Continued

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

### Probability of Withdrawing During the Year:

#### LESS THAN FIVE YEARS OF SERVICE

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

#### FIVE OR MORE YEARS OF SERVICE

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



## Schedule M - Continued

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

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

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

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

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

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

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

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

**Changes Since Prior Valuation:** The investment return assumption was lowered from 7.35% to 7.25%. The salary assumption was increased from 3.75% to 4.0%. There were no other changes.



## Schedule N

### Summary of Plan Provisions

- 1. Effective Date** - The effective date of this plan is January 1, 1961.
- 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%	01/01/1961
1/100	1.000%	01/01/1973
1/80	1.250%	01/01/1977

**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:

- 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,

PLUS

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



## Schedule N - Continued

5. **Final Average Salary** - The average of the member's annual compensation received for the three years which produce the highest such average.
6. **Compensation** - Pick-up contributions plus remuneration received as a county employee excluding refunds for expenses, contingency and accountable expense allowances and excluding severance payments or payments for unused vacation or sick leave.

### 7. **Early Retirement**

**Eligibility:**

**Voluntary:** Upon completion of 20 years of service.

**Involuntary:** Upon completion of 8 years of service.

**Pension:** (a) a monthly pension equal to the actuarial equivalent of the benefits calculated in 4(a),

PLUS

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

8. **Vesting** - One Hundred Percent (100%) upon completion of five years of credited service. A member who terminates employment after five years of credited service will receive a deferred annuity commencing at age 60 (or at age 55 if the member has at least 20 years of service at termination). The deferred benefit shall be calculated using the normal retirement pension formula but based on credited service, final average salary and accumulated contributions at termination.

If a member terminates employment prior to entitlement to Plan benefits, he will receive his accumulated contributions with interest.

9. **Postponed Retirement** - A member may work past normal retirement age and continue to accrue pension credits.



## Schedule N - Continued

### 10. Disability Retirement

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

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

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

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

### 13. Death Benefits

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

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



## Schedule N - Continued

### 14. Employee Contributions

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

### 15. Deposit Administrator

Investment Managers:

Acadian Asset Management	StoneRidge Investment Partners
C.S. McKee	JP Morgan
Emerald Advisers	Morgan Stanley
Federated Investors	

Custodian:

Fulton Financial Advisors

Investment Consultant:

Marquette Associates

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

**17. Cost-of-Living** - The cost-of-living increase shall be reviewed at least once in every three years by the Retirement Board. Prior to 2017, a percentage of the CPI could be granted. After 2016, the annual CPI could be granted. The Board has granted cost-of-living increases twenty-four 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

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

<u>Percent of Additional Service</u>	<u>Early Retirement Period</u>
15%	07/1/95-12/31/95
15%	07/1/00-12/31/00
15%	11/1/10-12/20/10



## 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>
2008	\$ 4,393,000	\$ 4,000,000	\$ (9,217,404)	\$ 127,771	\$ (696,633)
2009	4,531,248	7,421,189	(1,462,817)	72,880	10,562,500
2010	4,599,397	8,000,000	7,366,685	9,687	19,975,769
2011	4,392,243	7,554,873	12,364,395	3,963	24,315,474
2012	4,699,968	7,142,834	7,152,224	3,006	18,998,032
2013	4,800,503	7,001,128	12,541,365	3,119	24,346,115
2014	5,034,095	5,962,997	21,872,509	4,345	32,873,946
2015	4,973,865	5,228,813	25,324,460	3,098	35,530,236
2016	5,110,678	4,580,199	9,317,840	88,836	19,097,553
2017	5,401,676	4,424,334	18,603,873	64,971	28,494,854

#### EXPENSES BY TYPE

<u>Fiscal Year</u>	<u>Benefits</u>	<u>Refunds</u>	<u>Administrative/ Miscellaneous</u>	<u>Total</u>
2008	\$ 8,260,950	\$ 721,727	\$ 687,282	\$ 9,669,959
2009	8,614,456	592,483	559,551	9,766,490
2010	7,858,725	819,402	662,681	9,340,808
2011	12,478,620	1,031,011	746,676	14,256,307
2012	11,840,410	684,001	678,940	13,203,351
2013	10,980,918	987,404	716,898	12,685,220
2014	11,792,083	1,163,160	739,201	13,694,444
2015	12,168,438	1,187,981	730,425	14,086,844
2016	14,092,700	1,085,032	688,080	15,865,812
2017	14,872,093	1,086,291	560,234	16,518,618