YORK COUNTY
PENNSYLVANIA

Employees' Retirement System

Actuarial Valuation Information for Financial Reporting under Governmental Accounting Standards Board Statements 67 and 68

as of December 31, 2019 (Fiscal Year 2019)

May, 2020

BOOMERSHINE CONSULTING GROUP, L.L.C.
ACTUARIAL & RETIREMENT PLAN SOLUTIONS

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Executive Summary

The purpose of this report is to provide the information needed for financial reporting and accounting for the York County (the County) Employee's Retirement System (the System, the Plan), in accordance with Governmental Accounting Standards Board (GASB) Statements 67 and 68.

The funding reports for the System are sent under separate cover, and serve a separate purpose. All the figures presented in this report are to be used for accounting purposes only.

GASB Statements 67 and 68 replaced Statements 25 and 27, respectively. For fiscal year 2014, the System and County implemented Statement 67. Statement 68 was implemented by the County in fiscal year 2015. All information in this report pertaining to years prior to 2019 was produced by the prior actuary.

This report is prepared in accordance with generally accepted actuarial principles and practices. In the opinion of the System and its actuaries, the actuarial assumptions used are reasonable related to Retirement System experience and expectations, and represent the best estimate of Retirement System experience.

The System's (and County's) Net Pension Liability as of December 31, 2019 is $25,380,817. The ratio of the Plan's Fiduciary Net Position to the Total Pension Liability is 94.5%, a 9.3% increase since the prior year. The County's pension expense for fiscal year 2019 is $12,964,663, and the net amount of deferred (inflows)/outflows of resources is ($8,302,383).

The undersigned are members of the American Academy of Actuaries, and are qualified to render the actuarial opinions presented in this report.

Respectfully Submitted,

BOOMERSHINE CONSULTING GROUP, L.L.C.

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GASB 67: Plan Reporting

The measurement date for GASB 67 is the System's fiscal year end, December 31, 2019. Plan assets (Fiduciary Net Position) are measured as of this date. The Total Pension Liability (TPL) as of this date is based on an actuarial valuation as of January 1, 2019*, with adjustments made for the one-year difference. Adjustments include Service Cost, Interest on Total Pension Liability, and expected benefit payments during the year.

Under GASB 67, the Net Pension Liability (NPL) is established as the difference between the Total Pension Liability and the Plan Fiduciary Net Position. The NPL is very much like the unfunded actuarial accrued liability that is developed for the System's funding valuation, with adjustments as follows:

1. Time lapsed from valuation date to measurement date (twelve months)
2. Assets at fair market value (at measurement date), without any smoothing of gains or losses

Key Dates

Actuarial Valuation Date: January 1, 2019

Measurement Date: December 31, 2019

Reporting Date: December 31, 2019

* 2019 valuation report was done by the prior actuary; however, BCG did confirm and reproduce the results with our own valuation system.

Plan Asset Information

NET POSITION AS OF JANUARY 1, 2019			$371,671,411
Receipts			
+			
Employee Contributions	5,925,325		
Employer Contributions	12,400,000		
Net Investment Income	68,874,439		
Total Receipts		87,199,764	
Disbursements			
-			
Benefit Payments, including refunds	24,220,150		
Administrative Expenses	0		
Total Disbursements		24,220,150	
Excess of Receipts Over Disbursements			62,979,614
NET POSITION AS OF DECEMBER 31, 2019			**$434,651,025**

Money Weighted Investment Return

For the year ended December 31, 2019, the annual money-weighted rate of return on pension plan investments, net of pension plan investment expense, was 18.7%. The money weighted rate of return expresses investment performance, net of investment expense, adjusted for the changing amounts actually invested.

History of Money Weighted Returns

Fiscal Year	Return
2019	18.7%
2018	(4.12%)
2017	16.19%
2016	6.70%
2015	1.00%
2014	6.67%

Net Pension Liability

The components of the net pension liability of the System are as follows:

	12/31/2019	12/31/2018
Total Pension Liability	$460,031,842	$436,414,430
Plan Fiduciary Net Position	$434,651,025	371,671,411
Net Pension Liability	$25,380,817	64,743,019
Plan Fiduciary Net Position as a percentage of Total Pension Liability	94.5%	85.2%

Sensitivity of the net pension liability to changes in the discount rate

The following presents the net pension liability of the System, calculated using the discount rate of 7.25%, as well as what the System's net pension liability would be if it were calculated using a discount rate that is 1.00% lower or 1.00% higher than the current rate:

As of 12/31/2019	1% Decrease	Current Discount Rate	1% Increase
Discount Rate	*6.25%*	*7.25%*	*8.25%*
Total Pension Liability	$517,426,046	$460,031,842	$411,840,371
Plan Net Position	$434,651,025	$434,651,025	$434,651,025
Net Pension Liability	$82,775,021	$25,380,817	($22,810,654)
Ratio of Plan Fiduciary Net Position to Total Pension Liability	84.0%	94.5%	105.5%

Changes in Net Pension Liability

	Fiscal Year:					
Total Pension Liability	2019	2018	2017	2016	2015	2014
Service Cost	$11,814,811	$11,360,395	$12,446,053	$12,130,409	$12,275,435	$11,745,927
Interest	31,634,001	30,372,926	29,133,132	27,474,330	26,407,761	24,577,847
Changes in benefit terms	-	-	-	-	-	-
Difference between expected and actual experience	4,388,750	(1,674,234)	2,154,502	(5,106,050)	4,677,261	579,287
Changes in assumptions	-	11,003,500	-	-	-	-
Benefit payments, including refunds	(24,220,150)	(25,347,321)	(19,591,885)	(20,190,952)	(18,118,567)	(16,122,678)
Net Change in Total Pension Liability	$23,617,412	$25,715,266	$24,141,802	$14,307,737	$25,241,890	$20,780,383
Total Pension Liability - Beginning of Year	$436,414,430	$410,699,164	$386,557,362	$372,249,625	$347,007,735	$326,227,352
Total Pension Liability - End of Year	$460,031,842	$436,414,430	$410,699,164	$386,557,362	$372,249,625	$347,007,735
Plan Fiduciary Net Position						
Contributions – employer	$12,400,000	$15,619,704	$12,215,000	$12,035,000	$9,400,000	$10,000,000
Contributions – member	5,925,325	6,347,246	6,084,625	5,965,399	5,817,678	5,760,524
Net investment income	68,874,439	(16,766,753)	55,437,388	20,917,581	2,596,962	19,368,343
Benefit payments, including refunds	(24,220,150)	(25,347,321)	(19,591,885)	(20,190,952)	(18,118,567)	(16,122,678)
Admin. expenses	-	-	-	-	-	-
Other Changes	-	-	-	3,250	-	-
Net Change in Plan Fiduciary Net Position	$62,979,614	$(20,147,124)	$54,145,128	$18,730,278	$(303,927)	$19,006,189
Plan Fiduciary Net Position - Beginning of Year	$371,671,411	$391,818,535	$337,673,407	$318,943,129	$319,247,056	$300,240,867
Plan Fiduciary Net Position - End of Year	$434,651,025	$371,671,411	$391,818,535	$337,673,407	$318,943,129	$319,247,056
Net Pension Liability - Beginning of Year	$64,743,019	$18,880,629	$48,883,955	$53,306,496	$27,760,679	$25,986,485
Net Pension Liability - End of Year	$25,380,817	$64,743,019	$18,880,629	$48,883,955	$53,306,496	$27,760,679
Net Position as a percentage of Total Pension Liability	94.5%	85.2%	95.4%	87.4%	85.7%	92.0%
Covered Payroll	$104,583,476	$114,978,362	$114,628,351	$111,592,771	$113,715,757	$106,720,140
Net Pension Liability as a percentage of Covered Payroll	24.3%	56.3%	16.5%	43.8%	46.9%	26.0%

Employer Contributions

Year	Actuarially Determined Employer Contribution	Actual County Contribution	Contribution Deficiency/ (Excess)	Covered Payroll	Contribution as a Percent of Payroll
2010	$10,666,047	$8,000,000	$2,666,047	$94,978,984	8.4%
2011	10,950,633	10,000,000	950,633	98,095,169	10.2%
2012	11,484,752	10,000,000	1,484,752	101,994,045	9.8%
2013	11,578,433	10,000,000	1,578,433	104,455,415	9.6%
2014	9,322,239	10,000,000	(677,761)	106,720,140	9.4%
2015	10,624,062	9,400,000	1,224,062	113,715,757	8.3%
2016	11,430,630	12,035,000	(604,370)	111,592,771	10.8%
2017	11,525,795	12,215,000	(689,205)	114,628,351	10.7%
2018	12,066,707	15,619,704	(3,552,997)	114,978,362	13.6%
2019	11,982,885	12,400,000	(417,115)	104,583,476	11.9%

Actuarial Information

Actuarial assumptions

The total pension liability was determined by an actuarial valuation as of January 1, 2019, using the following actuarial assumptions, applied to all periods included in the measurement:

Inflation:	3.00%
Salary Increases:	4.00% per annum, including inflation
Investment Return:	7.25%, net of investment expenses and including inflation
COLA:	No COLAs are assumed

Rates of mortality for Plan members are specified by the 2013 IRS annuitant and non-annuitant mortality tables for males and females (based on the Retired Pensioners (RP) 2000 tables, as published by the Society of Actuaries, projected with mortality improvement to 2013 plus 7 and 15 years, respectively, for annuitants and non-annuitants, using Scale AA).

The actuarial assumptions used in the January 1, 2019 valuation were based on the results of an actuarial experience study done by the prior actuary. The next assumption review will be completed in 2021.

A more detailed description of the actuarial assumptions can be found in the January 1, 2019 valuation report.

Changes in Actuarial assumptions.
There were no changes in actuarial assumptions in 2019.

Actuarial Methods for Determining Employer Contributions
The Entry Age cost method is used to determine plan liabilities and costs for all purposes. For funding, the unfunded liability is amortized in layers, as level dollar amounts. Investment gains and losses are recognized gradually using five-year smoothing. The outstanding unfunded liability as of 12/31/2017 is being amortized over 25 years, beginning 1/1/2018, with gains and losses after 1/1/2018 being amortized in 15 year layers.

Assumed Rate of Return

The long-term expected rate of return on pension plan investments was determined using a building-block method in which best-estimates of expected future real rates of return (expected returns, net of pension plan investment expense and including inflation) are developed for each asset class. These ranges are combined to produce the long-term expected rate of return by weighting the expected future real rates of return by the target asset allocation percentage and by adding expected inflation. This is then modified through a Monte-Carlo simulation process, by which a (downward) risk adjustment is applied to the baseline expected return.

Best estimates of real rates of return for each major asset class included in the pension plan's target asset allocation as of December 31, 2019, and the final investment return assumption, are summarized in the following table:

Asset Class	**Long-Term Expected Real Return - Portfolio**	***Weight***
Domestic Equity	5.80%	*47.00%*
International Equity	6.50%	*19.00%*
Fixed Income	1.65%	*28.00%*
Real Estate	4.80%	*6.00%*
Cash, short term funds	0.40%	*0.00%*
Total Weighted Average Real Return	**4.71%**	*100.0%*
Plus Inflation	3.00%	
Total Return w/o Adjustment	7.71%	
Risk Adjustment	-0.46%	
Total Expected Return	**7.25%**	

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Discount Rate

The discount rate used to measure the total pension liability was 7.25%. The projection of cash flows used to determine the discount rate assumed that plan member contributions will be made at the current contribution rate and that County contributions will be made at rates equal to the difference between actuarially determined contribution rates and the member rate.

Based on those assumptions, the pension plan's fiduciary net position was projected to be available to make all projected future benefit payments of current plan members. Therefore, the long-term expected rates of return on pension plan investments was applied to all periods of projected benefit payments to determine the total pension liability.

GASB 68: Employer Reporting

The County's Net Pension Liability (NPL) as of December 31, 2014 was established under GASB 67. The purpose of GASB 68 is to outline the changes in the NPL over time, via the Pension Expense.

The Pension Expense under GASB 68 includes the cost of benefits accrued, interest cost for elapsed time, administrative expenses, decreases for benefits paid and for employee contributions, differences between actual and assumed experience, and other adjustments resulting from changes in assumptions or plan provisions.

GASB 68 was implemented as of December 31, 2015, and includes information on the County's Pension Expense, Deferred Inflows and Outflows of Resources, and recognition schedules for such.

Investment gains and losses for each year, beginning in 2015, are recognized over five years. Demographic gains and losses as well as assumption changes will be recognized over the average remaining working lifetimes of all plan participants, which could vary from year to year. In general, any plan/benefit changes will be recognized immediately.

Pension Expense

Item	Fiscal Year 2019	Fiscal Year 2018
Service Cost	$11,814,811	$11,360,395
Interest on Total Pension Liability	31,634,001	30,372,926
Difference between expected and actual experience*	820,146	(57,604)
Changes in actuarial assumptions*	2,000,636	2,000,636
Changes in benefit terms	0	0
Employee contributions	(5,925,325)	(6,347,246)
Projected Earnings on Plan investments	(26,769,893)	(28,286,449)
Difference between projected and actual earnings*	(609,713)	7,811,196
Administrative expense	0	0
Other changes in Fiduciary Net Position	0	0
Total Pension Expense	**$12,964,663**	**$16,853,854**

* portion recognized for expense purposes

Change in Balance Sheet

	Fiscal Year 2019	Fiscal Year 2018
Change in Net Pension Liability	($39,362,202)	$45,862,390
Change in Deferred Outflows of Resources	13,459,880	(39,085,822)
Change in Deferred Inflows of Resources	26,466,985	(5,542,418)
Employer Contributions	12,400,000	15,619,704
Total Pension Expense	**$12,964,663**	**$16,853,854**

Development of Gains/Losses

Total Pension Liability (TPL) - Prior	$436,414,430
Service Cost	11,814,811
Benefit Payments	(24,220,150)
Interest	31,634,001
Expected TPL	$455,643,092
Actual TPL, before Assumption Changes	460,031,842
Experience (Gain)/Loss	4,388,750
Assumption Changes	-
Total Pension Liability	$460,031,842

Net Position, Prior	$371,671,411
Contributions	18,325,325
Benefit Payments + Expenses	(24,220,150)
Expected Earnings	26,769,893
Expected Net Position	$392,546,479
Actual Net Position	434,651,025
Investment (Gain)/Loss	$(42,104,546)

Deferred Inflow and Outflow Summary

As of December 31, 2019, the County reported deferred outflows of resources and deferred inflows of resources related to pensions from the following sources:

	Deferred Outflows of Resources	Deferred (Inflows) of Resources	Net Amount of (Inflow)/ Outflow
Net difference between projected and actual earnings on plan investments	$27,616,419	($45,747,424)	($18,131,005)
Differences between expected and actual experience	5,476,454	(2,650,060)	2,826,394
Changes in actuarial assumptions	7,002,228	0	7,002,228
Total	$40,095,101	($48,397,484)	($8,302,383)

Amounts reported as deferred outflows of resources and deferred inflows of resources related to pensions will be recognized in pension expense as follows:

Year ended December 31	Net Amount of Outflow/(Inflow)
2020	($2,036,883)
2021	(2,965,006)
2022	3,394,550
2023	(6,695,044)
After 2023	0
Total Amount to be Recognized	**($8,302,383)**

Prior Year Total Amount of Outflow/(Inflow): $31,624,482

Schedule of Deferred Inflows and Outflows by Source

Number of Years[1]	Fiscal Year	Difference (Actual vs Expected)	Remaining as of 12/31/2019	2019	2020	2021	2022	2023
Investment								
5.0	2015	21,239,750	-	4,247,950				
5.0	2016	2,922,493	584,497	584,499	584,497			
5.0	2017	(30,159,466)	(12,063,787)	(6,031,893)	(6,031,893)	(6,031,894)		
5.0	2018	45,053,202	27,031,922	9,010,640	9,010,640	9,010,640	9,010,642	
5.0	2019	(42,104,546)	(33,683,637)	(8,420,909)	(8,420,909)	(8,420,909)	(8,420,909)	(8,420,910)
		Net Total	(18,131,005)	(609,713)	(4,857,665)	(5,442,163)	589,733	(8,420,910)
Experience								
6.3	2015	4,677,261	965,151	742,422	742,422	222,729	-	-
5.8	2016	(5,106,050)	(1,584,638)	(880,353)	(880,353)	(704,285)	-	-
5.6	2017	2,154,502	1,000,303	384,733	384,733	384,733	230,837	-
5.5	2018	(1,674,234)	(1,065,422)	(304,406)	(304,406)	(304,406)	(304,406)	(152,204)
5.0	2019	4,388,750	3,511,000	877,750	877,750	877,750	877,750	877,750
		Net Total	2,826,394	820,146	820,146	476,521	804,181	725,546
Assumption Changes								
5.5	2018	11,003,500	7,002,228	2,000,636	2,000,636	2,000,636	2,000,636	1,000,320
		Net Total	7,002,228	2,000,636	2,000,636	2,000,636	2,000,636	1,000,320
		Net of All	(8,302,383)	2,211,069	(2,036,883)	(2,965,006)	3,394,550	(6,695,044)

[1] For investment experience, the recognition period is five years. For demographic experience and assumption changes, it is the remaining average working lifetime of all participants (including 0 for all inactive participants).

Plan Membership

Number of Participants	**January 1, 2019**
Active	2,019
Retired and Beneficiaries	1,445
Terminated/Inactive	317
Total Participants	3,781

Plan Description

There have been no changes in provisions since the prior valuation.

Effective Date and Membership

The effective date of this plan is January 1, 1960. An employee shall be eligible to become a participant immediately upon becoming an employee.

Definitions

Compensation

Pic-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.

Final Average Salary

Final Average Salary is determined as the average of the member's compensation for the three years which produces the highest average.

Membership Service Retirement Eligibility

Members are eligible for Normal Retirement (Superannuation) at age 60, or at age 55 with 20 years of service. Early Retirement (reduced benefit) eligibility is at 20 years of service (voluntary) or 8 years of service (involuntary).

Benefit Amount

Benefit amounts are determined as portions of Final Average Salary, and based on years and months of service in each Class, as defined below.

Class	Percentage	Effective Date
1/50	2.00%	1/1/1960
1/80	1.25%	1/1/2017

In addition to this benefit, a monthly annuity is provided; equal to the actuarial equivalent of the member's accumulated contributions with credited interest. Benefits paid before eligibility for Normal Retirement are actuarially reduced from age 60, using the Plan's actuarial equivalence basis.

Form of Benefit

The Service Retirement Benefit will be paid monthly beginning at retirement and for the life of the member. If the member selects a Joint and Survivor Option, in the event of the member's death a percentage of the benefit will continue for the life of the member's beneficiary. Other optional benefit forms are also available, as described below.

Disability

Eligibility

Members are eligible for Disability Retirement benefits at any age if they are permanently disabled after rendering five years of County service.

Benefit Amount

The Disability Retirement Benefit payable to members is equal to 25% of their Final Average Pay, plus an annuity based on the actuarial equivalent of accumulated member contributions.

Form of Benefit

The Disability Retirement Benefit will be paid monthly beginning at the effective date of disability retirement and for the life of the member.

Pre-Retirement Death

Eligibility

Age 60 or after ten years of service.

Benefit Amount

A payment, equal to the actuarial present value of the member's County paid retirement benefit, is made to the beneficiary. Additionally, the member's accumulated contributions with interest are refunded to the beneficiary.

Form of Benefit

The benefit is paid as a one-time lump sum payment.

Withdrawal Benefit

Eligibility

A member is eligible for a Withdrawal Benefit upon termination of employment.

Benefit Amount

The Withdrawal Benefit is a refund of the member's accumulated contributions with interest. Upon receipt of the Withdrawal Benefit the member forfeits all credited service.

Form of Benefit

The Withdrawal Benefit is paid in a lump sum upon election by the member.

Deferred Vested Benefit

Eligibility

A member is eligible for a Deferred Vested Benefit upon termination of employment after earning five years of credited service. The member must leave his or her member Contributions with interest on deposit with the Plan.

Benefit Amount

The Deferred Vested Benefit is computed in the same manner as the Normal Retirement Benefit, but it is based on credited service and Final Average Pay on the date of termination.

Form of Benefit

The Deferred Vested Benefit will be paid monthly beginning at age 60 (55 if service is at least 20 years), and for the life of the member.

Optional Benefit Forms

Prior to retirement, a member may elect to convert his retirement allowance into a benefit of equivalent actuarial value in accordance with one of the optional forms described below.

- No Option: Benefit paid as a single life annuity with a refund of unused member contributions payable to designated beneficiary(ies) at the time of death.
- Option 1: Reduced benefit paid for the life of the retiree with the guarantee that if the full present value (at time of retirement) has not been paid, then the remaining balance will be paid to designated beneficiary(ies).
- Option 2: Reduced benefit paid for the life of the member, with the same amount continuing to the beneficiary for their remaining lifetime after the retiree's death.
- Option 3: Reduced benefit paid for the life of the member, with half of that amount continuing to the beneficiary for their remaining lifetime after the retiree's death.
- Option 4: Withdrawal of member contributions at the time of retirement, and the County provided benefit payable for the life of the retiree.

Option 4 may also be combined with any of the other options.

Member Contributions

Each member contributes a percentage of Compensation to the Plan through payroll deduction. The percentage contributed ranges from 5% to 15% of Compensation, determined by individual election. The minimum amount is 5%, and additional optional amounts are contributed on an after- tax basis.

Interest is credited annually to each member's accumulated contributions. The crediting rate is set by the Board; the current annual rate is 5.5%.

Cost-of-Living Adjustments (COLA)

The cost-of-living adjustments shall be reviewed at least once every three years by the Retirement Board. There have been ten cost-of-living adjustments in the past from January, 1972 through January, 1998 and since then as follows:

PERCENTAGE CHANGE IN CPI	EFFECTIVE DATE OF INCREASE
100%	1/1/1999
100%	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

Glossary of Terms

Actuarial Accrued Liability (AAL)*:	The portion of benefits deemed to be accrued by participants based on past service. The AAL serves as the asset **funding** target, when annual contributions are determined.
Actuarial Value of Assets (AVA)*:	The smoothed value of assets, used to compute the Unfunded AAL. The purpose of the AVA is to control volatility in annual **cash contributions**.
Amortization of Unfunded Liability*:	The portion of the **annual cash contribution** that represents a portion of the Unfunded AAL. The amortization can be positive or negative.
Actuarially Determined Employer Contribution (ADEC):	The contribution determined by the actuary for **funding purposes**.
Employer's Contributions:	Contributions made in relation to the ADEC. An employer has made a contribution in relation to the ARC if the employer has (a) made payments of benefits directly to or on behalf of a retiree or beneficiary, (b) made premium payments to an insurer, or (c) irrevocably transferred assets to a trust, or an equivalent arrangement, in which plan assets are dedicated to providing benefits to retirees and their beneficiaries in accordance with the terms of the plan and are legally protected from creditors of the employers(s) or plan administrator.
Deferred Inflow of Resources:	An acquisition of net assets by the government that is applicable to a future reporting period.
Deferred Outflow of Resources:	A consumption of net assets by the government that is applicable to a future reporting period.
Discount Rate:	The rate used to adjust future benefit payments or a stream of payments, to reflect the time value of money. This rate may be different for accounting purposes versus plan funding.
Market Value of Assets (MVA):	The total value of Plan assets available to pay benefits.
Net Pension Liability:	The difference between the Total Pension Liability and the Plan Fiduciary Net Position. Can be positive or negative.
Pension Expense:	The change in Net Pension Liability during the fiscal year, with partial recognition of deferred inflows/outflows.
Plan Fiduciary Net Position:	The fair market value of assets on the measurement date, for accounting purposes. It is often equal to the MVA.
Service Cost:	That portion of the annual contribution that represents one year's accrual of benefits. In funding calculations, this is known as the Normal Cost.
Total Pension Liability:	The present value of past service benefits for all plan members, as determined for accounting purposes.
Unfunded Actuarial Accrued Liability*:	The difference between the Actuarial Value of Assets and the Actuarial Accrued Liability, used for **funding purposes**.

* actuarial **funding** terminology