

Borough of Swarthmore Police Pension Plan

Actuarial Valuation Report as of January 1, 2019

February 2020



Prepared by:

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for

The Borough of Swarthmore

Date: February 2020



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I. Introduction

In accordance with the Borough's request, we have completed an actuarial valuation of the Borough's Police Pension Plan as of January 1, 2019. The valuation was based on the personnel and financial data supplied to us by the Borough. The valuation results are presented in this report.

Act 205

The Pennsylvania Municipal Pension Plan Funding Standard and Recovery Act was signed into law as Act 205 of 1984. As required, we have prepared the January 1, 2019 valuation and this report thereon in accordance with the provisions of Act 205, as amended.

A copy of this report will be filed as an attachment to Form PC-201C which must be filed with the Public Employee Retirement Commission by March 31, 2020.

Preamble

Please read the Preamble to the report very carefully. It contains important general information and concepts. It also explains how the results of the January 1, 2019 valuation, as published in this report, will normally form the basis for the Plan's 2021 and 2022 contribution requirements. As indicated on page 3, the Borough's estimated minimum contribution requirement for the year 2020 is estimated to be \$233,074.

Changes in Actuarial Assumptions, Methods and Benefits Since the Last (1/1/2017) Valuation

The mortality rates were updated to the PubS-2010 with MP2019 projection. Interest rate was decreased to 7.5% and salary scale was decreased to 4.5%. There have been no other changes in Plan provisions or actuarial assumptions since the last valuation.

Other important results and products of the January 1, 2019 valuation are presented in the Actuarial, Financial and Demographic Exhibits which make up the bulk of the report.

Respectfully submitted,

By: 

Jason L. Fine
Enrolled Actuary No.: 17-06680

February 2020



II. Preamble

The Plan

The Borough of Swarthmore sponsors a defined benefit pension plan for its full-time police officers. A summary of the Plan's provisions is set forth on [Exhibit A-8](#) of this report. The Plan is subject to the funding and reporting requirements of the Pennsylvania Municipal Pension Plan Funding Standard and Recovery Act (Act 205 of 1984). Act 205 requires that an actuarial valuation of the Plan be performed every other year, i.e., as of January 1 of each odd-numbered year. The January 1, 2019 valuation will normally form the basis for the Plan's 2021 and 2022 Financial Requirements and the Borough's 2021 and 2022 Minimum Municipal Obligation (MMO). Similarly, the January 1, 2021 valuation will form the basis for the Plan's 2023 and 2024 Financial Requirements and the Borough's 2023 and 2024 MMO.

MMO Reporting Deadline

For a particular year, the Borough's Chief Administrative Officer must report the Plan's Financial Requirements and the Borough's MMO to Borough Council by the last business day in September of the year preceding the particular year in question. Thus, the Plan's Financial Requirements and the Borough's MMO for 2020 were required to be reported to Borough Council by September 30, 2019.

Financial Requirements

The Plan's 2020 Financial Requirements consist of the following elements:

Normal Cost. This is the cost of benefits allocated to the year 2020 under the Plan's actuarial cost method and the methodology of Act 205. It will be determined by multiplying the Normal Cost Rate as determined in the 2017 valuation by an estimate of 2019 W-2 wages of Plan members.

Administrative Expenses. This is an estimate of the administrative expenses of the Plan expected to be paid from Plan assets in 2020 and is determined by multiplying the Administrative Expense Rate as determined in the 2017 valuation by the estimate of 2019 W-2 wages of Plan members.

Amortization Requirements (if applicable). This is determined in the 2017 valuation and is the amount required to amortize the Plan's Unfunded Actuarial Accrued Liability as of January 1, 2017 over the number of years prescribed under Act 205.

Minimum Municipal Obligation

The Borough's MMO for 2020 is then set equal to the Plan's Financial Requirements for 2020 less the sum of estimated member contributions for 2020 less, if applicable, a funding adjustment equal to 10% of the Plan's surplus with regard to accrued liabilities. The actual contribution that the Borough will be required to make in 2020 will be the 2020 MMO less State Aid deposited in the Plan in 2020.

As indicated on page 3, the Borough's MMO for 2020 is \$279,918. Based on estimated State Aid of \$46,844, the Borough's estimated contribution requirement for 2020 is \$233,074.



III. Borough's Minimum Municipal Obligation and Minimum Contribution Requirement for 2020

1. Estimated 2019 W-2 Wages of Active Members	\$	620,000
2. Normal Cost Rate from 2017 valuation		16.9613%
3. Administrative Expense Rate from 2017 valuation		5.2220%
4. Normal Cost for 2020: (1) x (2)	\$	105,160
5. Administrative Expense for 2020: (1) x (3)		32,376
6. Amortization Requirement for 2020 from 2017 valuation		<u>174,932</u>
7. Plan's 2020 Financial Requirements: (4) + (5) + (6)	\$	312,468
8. Estimated 2020 Member Contributions		32,550
9. Funding Adjustment for 2020 from Exhibit A-3		<u>0</u>
10. Borough's 2020 Minimum Municipal Obligation: (7) - (8) - (9)		279,918
11. 2020 Estimated State Aid (a restricted revenue receipt)		<u>46,844</u>
12. Borough's Estimated Minimum Contribution Requirement for 2020: (10) - (11)	\$	233,074

* Assumes members will contribute 5.0% of compensation to the Plan in 2020.

Note: The Borough's actual minimum contribution requirement for 2020 will be less than the actual amount of State Aid deposited in the Plan in 2020.



IV. Actuarial Exhibits

Exhibit A-1: Normal Cost of Plan Benefits

Type of Plan Benefit	Normal Cost Expressed As A	
	Dollar Amount	% of 2018 W-2 Wages
Retirement	\$ 66,332	9.4979%
Disability	49,029	7.0203
Survivor	3,401	0.4870
Refund of Member Contributions	1,308	0.1873
Vested Terminations	0	0.0000
Insurance Premiums (Killed in Service Benefit)*	0	0.0000
Sub Total	\$120,070	17.1925%
Estimated Average Administrative Fees for 2018 and 2019	68,000	9.7367
Grand Total	\$188,070	26.9292%

NOTES:

1. The normal cost for Plan Benefits is the portion of total Plan liabilities for current active members assigned to a particular plan year in accordance with the Entry Age Actuarial Cost Method, and the actuarial assumptions described in Exhibit A-7.
2. In accordance with Act 205 the administrative expenses of the Plan (actuarial, legal, investment, etc.) may be paid from Plan assets.
3. 2018 W-2 wages (adjusted) for the Plan's 6 active members as of 1/1/2019 were \$698,388.

* Killed in Service benefit paid by Commonwealth, per Act 55.



IV. Actuarial Exhibits

Exhibit A-2: Actuarial Accrued Liability as of January 1, 2019

1.	<u>Present Value of Benefits a/c Active Members</u>	
	(a) Retirement Benefits	\$ 2,548,249
	(b) Disability Benefits	661,915
	(c) Survivor Benefits	136,118
	(d) Refund of Member Contributions	14,615
	(e) Vested Termination	0
	(f) Total	<u>\$ 3,360,897</u>
2.	<u>Present Value of Benefits a/c Deferred Vested Benefits</u>	\$ 0
3.	<u>Member Refunds Due and Unpaid</u>	\$ 0
4.	<u>Present Value of Benefits a/c Benefit Recipients</u>	
	(a) Retirement Benefits	\$ 2,835,453
	(b) Disability Benefits	1,221,701
	(c) Surviving Spouse Benefits	306,317
	(d) Surviving Child Benefits	0
	(e) Other	0
	(f) Total	<u>\$ 4,363,471</u>
5.	<u>Present Value of Other Plan Benefits*</u>	\$ 99,851
6.	<u>Present Value of All Plan Benefits: (1.f) + (2) + (3) + (4.f) + (5)</u>	\$ 7,824,219
7.	<u>Present Value of Future Normal Costs</u>	\$ 1,014,214
8.	<u>Actuarial Accrued Liability at 1/1/2019: (6) - (7)</u>	\$ 6,810,005

*DROP account balance as of December 31, 2018



IV. Actuarial Exhibits

Exhibit A-3: Unfunded Actuarial Accrued Liability (UAAL)

As of January 1, 2019, the Plan had an Unfunded Actuarial Accrued Liability since the Actuarial Value of Plan Assets were not in excess of the Plan's Actuarial Accrued Liability as follows:

1.	Actuarial Accrued Liability at 1/1/2019 (Exhibit A-2)	\$ 6,810,005
2.	Actuarial Value of Assets at 1/1/2019 (Exhibit F-1)	<u>5,551,105</u>
3.	UAAL at 1/1/2019: (1) - (2)	<u>\$ 1,258,900</u>



IV. Actuarial Exhibits

Exhibit A-4: Costs to Amortize the Unfunded Actuarial Accrued Liability

<i>Description of Base</i>	<i>Date Established</i>	<i>Original Amount</i>	<i>Unamortized Balance at 1/1/2019</i>	<i>Amortization Target Date</i>	<i>Amortization Contribution Requirement</i>
"Fresh start" of UAAL	1/1/17	\$1,279,167	\$1,093,534	12/31/2026	\$173,671
Change in Assumptions	1/1/19	303,632	303,632	12/31/2031*	34,759
2017-18 Actuarial Loss	1/1/19	(138,266)	(138,266)	12/31/2031*	(15,828)
Total			\$1,258,900		\$192,602

* Average working lifetime at 1/1/19 of active members is 13 years.

Aggregated Amortization Target Date (for increments or decrements of unfunded actuarial liability after 1/1/1985)

- Net unamortized balance at 1/1/2019 \$1,258,900
- Net amortization contribution 192,602
- Aggregated Amortization Target Date 12/31/2027



IV. Actuarial Exhibits

Exhibit A-5: Analysis of Change in the Plan's Unfunded Actuarial Liability from January 1, 2017 to January 1, 2019

1.	Unfunded Actuarial Accrued Liability at 1/1/2017	\$	1,279,167
2.	Normal Cost (including expenses) due 1/1/2017		184,952
3.	Normal Cost (including expenses) due 1/1/2018		174,274
4.	Net interest to 1/1/2019		219,186
5.	Total Expected Contributions with interest through 1/1/19		(764,045)
6.	Increase (decrease) due to change in assumptions		303,632
7.	Increase (decrease) due to Plan amendments		0
8.	Expected Unfunded Actuarial Accrued Liability at 1/1/2019	\$	1,397,166
9.	Net actuarial loss (gain) for 2017 and 2018		(138,266)
10.	Actual Unfunded Actuarial Accrued Liability at 1/1/2019	\$	1,258,900



IV. Actuarial Exhibits

Exhibit A-6: Plan's Disclosure Information

A. Schedule of Funding Progress

<i>Actuarial Valuation Date*</i>	<i>Actuarial Value of Assets (a)</i>	<i>Actuarial Accrued Liability (AAL) - Entry Age (b)</i>	<i>Unfunded AAL (UAAL) (b-a)</i>	<i>Funded Ratio (a/b)</i>	<i>Covered Payroll (c)</i>	<i>UAAL as a % of Covered Payroll ((b-a)/c)</i>
12/31/96	\$2,794,613	\$2,098,312	\$(696,301)	133.18%	\$425,128	(163.79)%
12/31/98	3,326,043	2,046,186	(1,279,857)	162.55%	450,311	(284.22)%
12/31/00	3,656,581	2,594,511	(1,062,070)	140.94%	508,822	(208.73)%
12/31/02	3,229,092	2,796,645	(432,447)	115.46%	532,168	(81.26)%
12/31/04	3,354,417	3,409,672	55,255	98.38%	573,187	9.64%
12/31/06	3,590,477	3,468,256	(122,221)	103.52%	651,335	(18.76)%
12/31/08	2,491,695	3,773,230	1,281,535	66.04%	752,276	170.35%
12/31/10	2,756,653	4,131,669	1,375,016	66.72%	804,919	170.83%
12/31/12	3,198,212	4,656,033	1,457,821	68.69%	840,800	173.38%
12/31/14	3,878,274	5,206,351	1,328,257	74.49%	921,775	144.10%
12/31/16	4,737,123	6,016,290	1,279,167	78.74%	880,894	145.21%
12/31/18	5,551,105	6,810,005	1,258,900	81.51%	698,388	180.26%

* Information is not available in all years since, in accordance with Pennsylvania Law (Act 205 of 1984, as amended), valuations are performed biennially.

Note: Prior to 12/31/02, the Actuarial Value of Assets equaled Fair Market Value. Effective 12/31/02, the Actuarial Value of Assets was determined in accordance with the method described in Exhibit A-7.

B. Schedule of State (PA) and Borough's Contributions

<i>Year Ended December 31</i>	<i>Annual Required Contribution (a)</i>	<i>State's Contribution (b)</i>	<i>Borough's Annual Required Contribution (c)</i>	<i>Percentage Contributed</i>
2003	\$ 5,649	\$ 4,417	\$ 1,232	100
2004	39,600	39,600	0	100
2005	39,855	39,855	0	100
2006	92,267	59,144	33,123	100
2007	98,166	60,046	38,120	100
2008	82,740	53,771	28,969	100
2009	88,684	52,490	36,194	100
2010	92,480	54,121	38,359	100
2011	208,821	93,027	115,794	100
2012	215,002	61,909	153,093	100
2013	255,614	70,610	185,004	100
2014	295,388	69,729	225,659	100
2015	296,783	70,833	225,950	100
2016	312,085	82,255	234,976	100
2017	304,995	74,692	231,053	100
2018	314,970	70,988	234,982	100



IV. Actuarial Exhibits

Exhibit A-7: Summary of Economic and Demographic Actuarial Assumptions and Cost Method

I. Economic Actuarial Assumptions

- A. **Interest.** 7.5% per annum compounded annually.
- B. **Salary Scale.** 4.5% per annum compounded annually.
- C. **Post-Retirement Adjustments.** None assumed.
- D. **Social Security Benefits.** Not applicable.
- E. **Workmen's Compensation Upon Disablement.** Not applicable.
- F. **Actuarial Value of Assets** as of the current valuation date is determined in accordance with (1) subject to the limitation described in (2) as follows:
 - (1) The Actuarial Value of Assets as of the last valuation date plus non-investment increases less non-investment decreases since the last valuation date plus interest credited at the last valuation's assumed interest rate assuming non-investment increases and decreases occur at the mid-point between the last and current valuation date.
 - (2) The Actuarial Value of Assets as determined under (1) will be limited to a maximum of 115% and a minimum of 85% of the fair market value of assets as of the current valuation date.

II. Demographic Actuarial Assumptions

- A. **Mortality.** In accordance with the mortality rates set forth in the PubS-2010 Mortality Table with MP2019 projection for all members.
- B. **Rate of Termination.**

Service at Beginning of Year	Rate of Termination During Year
0 - .99	5%
1 - 1.99	4
2 - 2.99	3
3 - 3.99	2
4 - 9.99	1
10+	0



IV. Actuarial Exhibits

Exhibit A-7: Summary of Economic and Demographic Actuarial Assumptions and Cost Method (continued)

II. Demographic Actuarial Assumptions (continued)

- C. **Rate of Disability.** 100% of 1977 OASDI rates. The service-connected disability benefit is assumed to be 75% of the member's final 36-month average salary.
- D. **Retirement Age:** It is assumed that members will retire upon attainment of age 57 and completion of 27 years of service. Plan members who have reached the assumed retirement age on 1/1/2019 but who have not retired are assumed to retire on 1/1/2018.
- E. **Marital Status:** 80% of active members are assumed married; husbands are assumed to be 2 years older than their wives; Actual marital status of retirees is taken into account.

III. Cost Method

Entry Age Actuarial Cost Method

Changes Since Last (1/1/2017) Valuation

The mortality rates were changed to the PubS-2010 with MP 2019 projection for all employees.

The interest rate was decreased to 7.5% (from 7.75%).

The salary scale was decreased to 4.5% (from 5.0%).



IV. Actuarial Exhibits

Exhibit A-8: Summary of Plan Provisions as of January 1, 2019

Participation

All full-time police officers of the Borough of Swarthmore become participants as of date of hire.

Salary

Regular pay plus overtime and other scheduled compensation.

Normal Retirement

Eligibility: Age 55 and 25 years of service.

Amount of Monthly Pension: 50% of final 36-month average salary plus Service Increment benefit. Service Increment is an additional monthly benefit equal to \$100 for each full year if participant's service exceeds 25 years of service at retirement (not to exceed \$500).

Deferred Retirement Option Plan (DROP)

Eligibility: Normal Retirement; election to participate is irrevocable

Amount of Benefit: Beginning on the effective date of DROP participation and ending on the last day of termination, all monthly pension payments as if the participant retired shall be deposited into an individual DROP participant account. The account will earn between 0% - 4.5% annually. Upon termination, the individual DROP Participant Account shall be paid in a lump sum. In addition, the participant will begin to receive their normal retirement monthly pension.

Vesting

Eligibility: 12 or more years of service at date of termination.

Amount of Deferred Monthly Pension: A percentage of the participant's final 36 month average salary is payable commencing at the member's projected normal retirement date. The percentage is equal to 50% multiplied by the ratio of the participant's service at termination to his projected service at normal retirement.

Survivor Benefits

Eligibility: Surviving spouse (or eligible children, if no spouse) of a participant who (a) dies after retirement or before retirement but after having met the age and service requirements for normal retirement or (b) is killed in service regardless of age or service.

Amount of Benefit: 50% of the pension the participant was receiving or was eligible to receive is continued to spouse or children except, if the participant was killed in service, the survivor pension equals 100% of the participant's monthly salary at time of death.



IV. Actuarial Exhibits

Exhibit A-8: Summary of Plan Provisions as of January 1, 2019 (continued)

Disability

Eligibility: Incurrence of service-connected disability; no service requirement.

Amount of Monthly Pension: If disability prevents participant from continuing as a Borough police officer, 75% of final 36 month average salary; If disability prevents any gainful employment and if participant qualifies for Social Security Disability benefits, 100% of final 36 month average salary less 50% of Social Security benefits.

Early Retirement

Eligibility: 20 or more years of service at date of termination.

Amount of Immediate Monthly Pension: The amount of the deferred monthly pension described under Vesting actuarially reduced to reflect early commencement of benefits.

Participant Contributions

Participants may be required to contribute up to 5% of compensation to assist in the funding of Plan benefits. Contributions accumulate with interest at 6% per annum and would be payable to a participant (or beneficiary, if applicable) of a participant who terminated without entitlement to vested benefits. Participants are assumed to contribute 5% of compensation for the 1/1/2019 valuation.

Cost of Living Increases (Normal and Early Retirement Pensions)

A participant's initial pension is subject to annual cost-of-living increases. A participant's ultimate pension cannot exceed the lesser of (a) 130% of the participant's initial pension and (b) 75% of the salary upon which the participant's initial pension was based.

Changes Since Last Valuation

There have been no changes in Plan provisions since the last valuation.



V. Financial Exhibits

Exhibit F-1: Pension Plan Assets at Fair Market Value as of January 1, 2019

<u>Asset Description</u>	<u>Fair Market Value</u>
Cash and Cash Equivalents	\$ 66,268
Mutual Funds	5,229,881
Interest Receivable	0
Accounts Receivable	9,797
	<hr/>
	\$ 5,305,946

Note: Accounting Method is Accrual Basis

DROP Account Balance as of 12/31/2018: 5,229,881 - \$5,130,030 = \$99,851

Actuarial Value of Assets as of January 1, 2019

1. Actuarial Value of Assets at January 1, 2017	\$ 4,737,123
2. Non-investment increases during 2017 and 2018	707,010
3. Non-investment decreases during 2017 and 2018	(659,395)
4. Credited interest for 2017 and 2018: $.1610 \times (1) + .0775 [(2) + (3)]$	<hr/> 766,367
5. Preliminary Actuarial Value of assets as of January 1, 2019	\$ 5,551,105
6. Market Value of Assets at January 1, 2019 x .85	4,510,054
7. Market Value of Assets at January 1, 2019 x 1.15	6,101,838
8. Actuarial Value of Assets at January 1, 2019: (5) but not less than (6) or more than (7)	\$ 5,551,105



V. Financial Exhibits

Exhibit F-2: Asset Reconciliation January 1, 2017 to December 31, 2018

	Year Beginning January 1	
	2017	2018
1. Market Value at January 1	\$ 4,813,092	\$ 5,684,483
2. <u>Revenues During Year</u>		
a) Member Contributions	\$ 47,905	\$ 38,390
b) Municipal Contributions - State Aid Portion	74,692	70,988
c) Municipal Contribution - Local Portion	231,053	243,982
d) Interest	117,840	136,049
e) Dividends	0	0
f) Net Appreciation	636,788	(445,439)
g) Increase in Cash Surrender Values	0	0
h) Donations	0	0
i) Other Revenues	0	0
j) Total Revenues	\$ 1,108,278	\$ 43,970
3. <u>Expenses During Year</u>		
a) Total Benefit Payments (Lump Sums)	\$ 0	\$ 0
b) Total Benefit Payments (Monthly)	193,845	354,395
c) Annuity Purchases (Lump Sums)	0	0
d) Refund of member contributions	0	0
e) Insurance Premiums (Life)	0	0
f) Insurance Premiums (Disability)	0	0
g) Administrative Expenses	43,042	68,113
h) Net Realized Capital Losses	0	0
i) Net Depreciation	0	0
j) Other (Prior period adjustment)	0	0
k) Total Expenses	\$ 236,887	\$ 422,508
4. Market Value at December 31: (1) + (2.j) - (3.k)	\$ <u>5,684,483</u>	\$ <u>5,305,946</u>
• Total Investment Growth During Year	\$ 754,628	\$ (309,390)
• Average Assets On Deposit During Year	4,871,474	5,649,910
• Approximate Annual Rate of Return	15.49%	(5.48)%



V. Financial Exhibits

Exhibit F-3: Administrative Costs Paid From Pension Plan During 2018

<u>Type</u>	<u>Amount</u>
Actuarial	\$ 0
Investment	68,113
Miscellaneous	<u>0</u>
	\$ 68,113



VI. Demographic Exhibits

Exhibit D-1: Active Members Demographic Data as of January 1, 2019

	<i>Number</i>	<i>Annual W-2 Wages*</i>
1. Active members @ 1/1/2017	8	\$ 880,894
2. New entrants	1	\$ 81,855
3. Separations from active service		
a) Refund of contributions	0	\$ 0
b) Separation with deferred benefit	0	0
c) Separation with neither refund or deferred benefit	0	0
d) Disability	0	0
e) Death	0	0
f) Retirement with service retirement benefit	3	338,806
g) Total separations	3	338,806
4. Adjustment for salary changes	-	74,445
5. Active members @ 1/1/2019: (1) + (2) - (3.g) + (4)	6	\$ 698,388

* W-2 Wages for year preceding valuation date; Annualized for new hires



VI. Demographic Exhibits

Exhibit D-2: Benefit Recipients Demographic Data as of January 1, 2019

	<u>Number</u>	<u>Annual Benefit</u>
1. Benefit recipients @ 1/1/2017	7	\$ 241,519
2. New benefit recipients	3	\$ 154,189
3. Terminations		
a) Death	0	\$ 0
b) Other	0	0
c) Total Terminations	0	\$ 0
4. Benefit increases	-	-
5. Benefit recipients @ 1/1/2019: (1) + (2) - (3.c) + (4)	10	\$ 395,708

Terminated Vested Members Demographic Data as of January 1, 2019

	<u>Number</u>	<u>Annual Benefit</u>
1. Terminated vested members @ 1/1/2017	0	\$ 0
2. New terminated vested members	0	\$ 0
3. Terminations		
a) Death	0	\$ 0
b) Retired	0	0
c) Other	0	0
c) Total Terminations	0	\$ 0
4. Terminated vested members @ 1/1/2019: (1) + (2) - (3.d)	0	\$ 0



Certification

Assumptions used for the valuation were selected by the Borough with my advice based on the recently completed experience study, and I believe they are reasonable and appropriate for the valuation. The results and exhibits have been prepared in conformance with applicable Actuarial Standards of Practice.

The report was prepared under my supervision. I am an Enrolled Actuary under ERISA and a Member of American Academy of Actuaries. I meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinions presented in this report. I also have more than five years of experience with Pennsylvania Act 205 plans and am authorized to submit the results of the report to the State's Department of Auditor General, as required under PA Act 205.

Respectfully submitted,

By:

Jason L. Fine

Enrolled Actuary No.: 17-06680

February 2020