

Actuarial Valuation

As of January 1, 2018

Fairview Township Police Pension Plan

Fairview Township Police Pension Plan
Actuarial Valuation as of January 1, 2018
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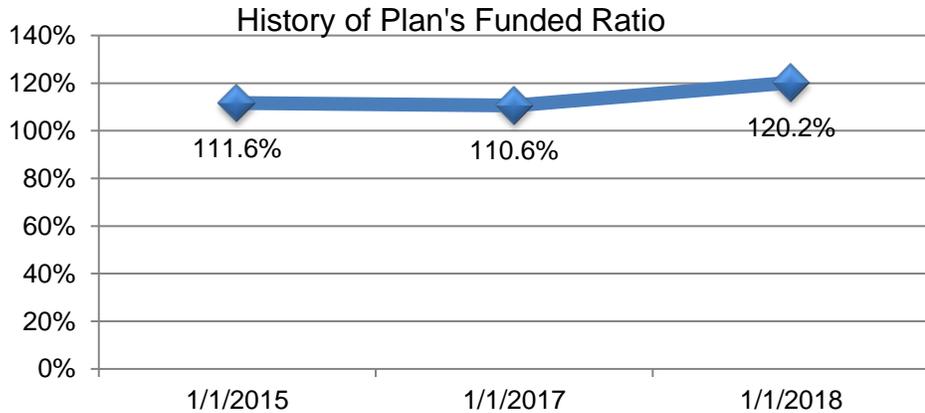
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Fairview Township Police Pension Plan
Actuarial Valuation as of January 1, 2018
Executive Summary

The purpose of the valuation report is to determine the actuarial status of the Plan.

The Summary of Principal Plan Benefit Provisions (SPPB) may be found following the Actuarial Certification. This summary represents our understanding of the current plan provisions in effect at January 1, 2018. Following the SPPB is a summary of the Actuarial Assumptions and Methods used in this valuation report.



	<u>1/1/2015</u>	<u>1/1/2017</u>	<u>1/1/2018</u>
Market Value of Assets (MVA)	\$ 9,253,290	\$ 9,715,625	\$11,156,550
Actuarial Accrued Liability (AAL)	\$ 8,289,274	\$ 8,780,911	\$ 9,284,819
Unfunded Actuarial Accrued Liability (UAAL)	\$ (964,016)	\$ (934,714)	\$ (1,871,731)
Normal Cost	\$ 231,464	\$ 266,222	\$ 283,056
W-2 Payroll	\$ 1,134,166	\$ 1,158,670	\$ 1,221,965
Percentage of W-2 Payroll	20.4%	23.0%	23.2%
Average Age	37.8	36.2	37.2
<i>Interest</i>	7.00%	7.00%	7.00%
<i>Salary Scale</i>	5.00%	5.00%	5.00%
<i>Average Life Expectancy*</i>	21.24	23.33	23.33
<i>Mortality Basis</i>	RP2000	IRS 2017 Small Plan Combined Static	IRS 2017 Small Plan Combined Static
Participant Counts:			
Active	13	14	14
DROP	0	1	1
Vested Former	2	1	1
<u>Receiving Benefits</u>	<u>10</u>	<u>11</u>	<u>11</u>
Total	<u>25</u>	<u>27</u>	<u>27</u>

*Based on a male currently aged 60.

Fairview Township Police Pension Plan
Actuarial Valuation as of January 1, 2018
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Section 1

At the beginning of Section 1, there is a summary of the receipts and disbursements for 2017. The Plan received contributions of \$218,909 during 2017. There were benefit payments to former participants totaling \$324,059 during 2017. The investment return earned by the plan assets was approximately 16.9% for 2017.

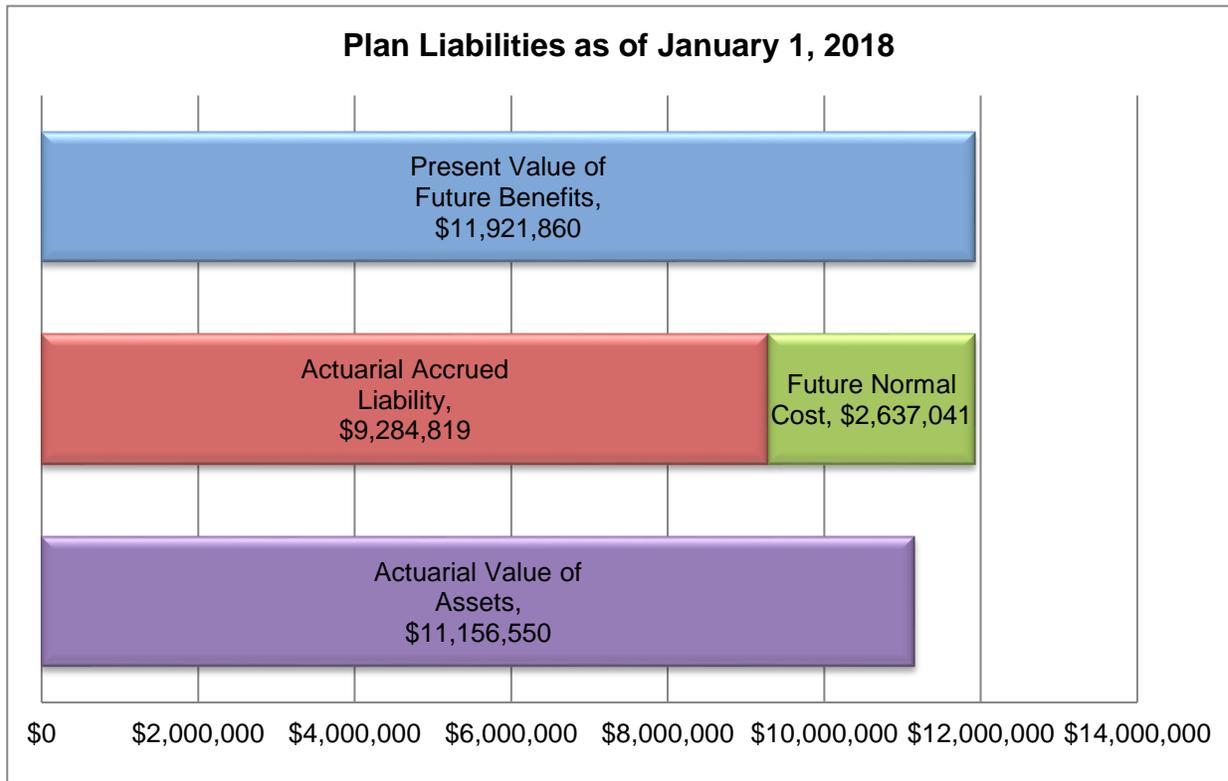
The following is a summary of the net dollar-weighted rates of investment return for the past six calendar years:

<u>2012</u>	<u>2013</u>	<u>2014</u>	<u>2015</u>	<u>2016</u>	<u>2017</u>
13.9%	16.5%	8.0%	1.1%	6.2%	16.9%

Section 2

The Act 205 funding calculations are included in Section 2.

The actuarial present value of future benefits is \$11,921,860. Since the present value of future normal costs is \$2,637,041, the actuarial accrued liability at January 1, 2018, is \$9,284,819. Subtracting the actuarial value of assets of \$11,156,550 results in an unfunded actuarial accrued liability of (\$1,871,731).



Fairview Township Police Pension Plan
Actuarial Valuation as of January 1, 2018
Executive Summary

Components of Financial Requirements

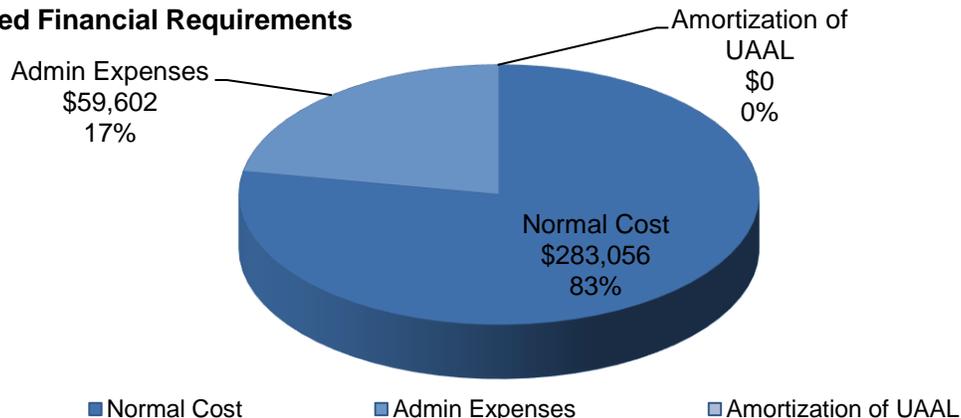
There are three cost components that make up the financial requirement of a Plan's minimum municipal obligation.

1. Normal Cost – This is the cost of pension and other benefits earned during the current year. The normal cost of the Plan is \$283,056. The normal cost represents approximately 23.2% of annual payroll.

2. Administrative Expenses – Examples of administrative expenses paid from the plan assets are expenses for: investment advisory services, actuarial services and trustee services. The Plan's estimated annual administrative expenses are \$59,602.

3. Amortization of the Unfunded Actuarial Accrued Liability – The amount of this cost is comprised of the amortization of the various gains and losses, plan amendments, and changes in actuarial assumptions that have occurred in the Plan over time. The amortization of the Unfunded Actuarial Accrued Liability is \$0 since the Actuarial Value of Assets is greater than the Actuarial Accrued Liability.

Estimated Financial Requirements



Please note that the figures shown below are for illustrative purposes only. The actual minimum municipal obligation is determined through the annual budgeting process.

Illustration of Minimum Municipal Obligation

Financial Requirements	
Normal Cost	\$283,056
Administrative Expenses	\$59,602
Amortization of Unfunded Actuarial Accrued Liability (UAAL)	\$0
Total	\$342,658
Expected Member Contributions	(\$48,879)
10% Negative Unfunded Actuarial Accrued Liability	(\$187,173)
Minimum Municipal Obligation (not less than \$0)	\$106,606

Fairview Township Police Pension Plan
Actuarial Valuation as of January 1, 2018
Actuarial Certification

In preparing this report, we have relied upon the data furnished to us. The data with respect to receipts and disbursements and assets of the Plan was furnished by BNY Mellon, N.A. The data with respect to participants and beneficiaries was furnished by Fairview Township. The data has been reviewed and has been determined to be reasonable and consistent.

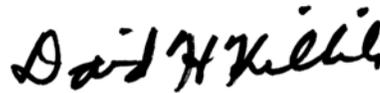
The information as contained in this report is a projection of liabilities based upon stated assumptions and is not an exact statement of the Plan's ultimate benefits and liabilities. Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: plan experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as at the end of an amortization period or additional cost or contribution requirements based on the Plan's funded status); and changes in plan provisions or applicable law. Due to the limited scope of the assignment, an analysis of the potential range of such future measurements was not performed.

I certify that all costs, liabilities, rates of interest, and other factors under the Plan in Section 2 of the report have been determined on the basis of actuarial assumptions and methods, each of which is reasonable (taking into account the experience of the Plan and reasonable expectations) or which, in the aggregate, result in a total contribution equivalent to that which would be determined if each such assumption and method were reasonable, and which, in combination, offer my best estimate of anticipated experience under the Plan.

I am a member of the American Academy of Actuaries, a Fellow of the Society of Actuaries, and an Enrolled Actuary under ERISA, and I meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinion contained in this report.

4/27/2018

Date



David H. Killick, FSA, EA, MAAA
Partner & Consulting Actuary
Enrolled Actuary No. 17-03880

Fairview Township Police Pension Plan
Actuarial Valuation as of January 1, 2018
Summary of Principal Plan Benefit Provisions

Eligibility

All full-time members of the police force join the Plan upon employment.

Normal Retirement

A member is eligible for normal retirement after attainment of age 50 and completion of 25 years of vesting service.

The normal retirement pension is payable monthly during the member's lifetime, with payments continuing after the member's death to the surviving spouse, or eligible child, equal to 50% of the amount payable to the member at the time of the member's death.

The amount of monthly pension is equal to 50% of average monthly compensation, plus a service increment of \$100 per month for each completed year of benefit service in excess of 25 years, up to a maximum of \$300 additional per month.

Average monthly compensation is based upon the last 36 months of employment.

Late Retirement

If a member continues working after his normal retirement date, his pension does not start until he actually retires. The monthly late retirement pension is equal to the benefit accrued to the late retirement date.

Early Retirement

A member is eligible for early retirement after completion of 20 years of vesting service. The monthly early retirement pension is equal to the actuarial equivalent of the benefit accrued at the early retirement date.

Disability Retirement

If an active member is disabled in the line of duty, he is eligible for a disability pension. The monthly disability pension is equal to 75% of the member's monthly salary at the time the disability was incurred.

Deferred Retirement Option Program

An active member who has met the eligibility requirements for normal retirement may elect to participate in the deferred retirement option program for a period of not less than three months nor more than 24 months. His monthly pension shall be calculated as of his date of participation in the deferred retirement option program and shall be accumulated with interest earned on the DROP account and distributed in a lump sum at retirement.

Postretirement Cost-of-Living Increase

An annual cost-of-living increase equal to the percentage increase in the "Wage Earner Index" in the Consumer Price Index during the preceding calendar year is made to retirees, with a maximum total cost-of-living increase of 30%, and a maximum pension benefit of 75% of the compensation used for computing retirement benefits.

Fairview Township Police Pension Plan
Actuarial Valuation as of January 1, 2018
Summary of Principal Plan Benefit Provisions

Death Benefits

If a member is eligible for retirement at the time of death, a monthly death benefit is payable to his surviving spouse, or eligible child, equal to 50% of the monthly benefit the member would have been receiving had he been retired at the time of death.

Vesting

A member's benefits vest upon completion of 12 years of vesting service. The vested benefit is a deferred monthly pension beginning at normal retirement equal to the benefit accrued to the date of termination.

Accrued Pension

The benefit accrued at any date other than the normal retirement date is equal to the projected normal retirement benefit multiplied by the ratio of the number of years of benefit service to date to the total number of years of benefit service projected at normal retirement.

Contributions

Members contribute 4.0% of compensation.

Member contributions are credited with 4.0% annual interest.

Fairview Township Police Pension Plan
Actuarial Valuation as of January 1, 2018
Actuarial Assumptions and Methods

Interest

7.00%

Salary

5.00% Annual Increase

Withdrawal

Table D-1: Rates of withdrawal at selected ages:

<u>Age</u>	<u>Rate</u>	<u>Age</u>	<u>Rate</u>	<u>Age</u>	<u>Rate</u>
20	5.5000%	35	2.5000%	50	0.0000%
25	5.0000%	40	1.0000%	55	0.0000%
30	4.0000%	45	0.5000%	60	0.0000%

Mortality

IRS 2017 Static Combined Table for Small Plans

Incorporated into the table are rates for annuitants projected 7 years and rates for non-annuitants projected 15 years using Scale AA to reflect mortality improvement.

Disability

SOA 1987 Group LTD Table - Males, 3-month elimination. Sample rates are shown below.

<u>Age</u>	<u>Rate</u>	<u>Age</u>	<u>Rate</u>	<u>Age</u>	<u>Rate</u>
20	0.1444%	35	0.2123%	50	0.7536%
25	0.1534%	40	0.2931%	55	1.2612%
30	0.1708%	45	0.4561%	60	1.8818%

100% of disabilities are assumed to be service-related.

Retirement

It is assumed that all members enter the Deferred Retirement Option Program (DROP) upon meeting the eligibility requirements for normal retirement. It is also assumed that participation in the DROP continues for 24 months.

Preretirement Death Benefit

Liabilities computed on the assumption that all participants will have spouses of the same age at the date of eligibility for the benefit.

Fairview Township Police Pension Plan
Actuarial Valuation as of January 1, 2018
Actuarial Assumptions and Methods

Expenses

Provision for administrative expenses added to annual contribution requirement, per Act 205 of 1984.

Inflation

Moderate inflation based on long term historical average rates is a component of the actuarial assumptions used herein. Provision is not made for advance funding of sharply higher rates of inflation experienced in some years. The effects of such higher rates are reflected in the funding after their occurrence.

Cost-of-Living Increase

3.00% per year

Actuarial Value of Assets

Market Value as determined by the trustee.

Actuarial Cost Method

Entry Age Normal (required by Act 205 of 1984)

Fairview Township Police Pension Plan
Actuarial Valuation
as of January 1, 2018

Section 1

Summary of Plan Assets and Summary of Plan Membership

Fairview Township Police Pension Plan
 Actuarial Valuation as of January 1, 2018
Receipts and Disbursements

Market Value at 1/1/2017		\$ 9,715,625.34
Receipts		
Employer Contributions Received	\$ 17,985.84	
Employee Contributions		
Received	\$ 52,510.32	
Receivable at 1/1/2017	(4,650.71)	
Receivable at 12/31/2017	3,186.85	
Total Employee Contributions	51,046.46	
State Contributions Received		149,877.16
Investment Income		
Income Received	\$ 15,573.59	
Accrued Income at 1/1/2017	(14.55)	
Accrued Income at 12/31/2017	31.28	
Total Investment Income	15,590.32	
Change in Market Value		1,611,020.17
Total Receipts		1,845,519.95
Disbursements		
Monthly Benefit Payments	\$ (324,058.80)	
Administrative Expenses	(80,536.63)	
Total Disbursements		(404,595.43)
Market Value at 12/31/2017		\$ 11,156,549.86
Approximate Net Dollar-Weighted Rate of Investment Return		16.94%

Fairview Township Police Pension Plan
Actuarial Valuation as of January 1, 2018
Assets and Liabilities

Assets

Cash	\$	0.00
Common Trust Funds		10,722,879.34
Mutual Funds		<u>430,452.39</u>
Total Assets in Fund		\$ 11,153,331.73
Employee Contributions Receivable		3,186.85
Accrued Income		<u>31.28</u>
Total Assets		\$ 11,156,549.86

Liabilities

Total Liabilities		<u>0.00</u>
Net Assets		<u><u>\$ 11,156,549.86</u></u>

Fairview Township Police Pension Plan
Actuarial Valuation as of January 1, 2018
Summary of Plan Membership

Active Members	Number of Members	Annual Payroll
Active Members as of 1/1/2017	14	
New Members During the Period	1	
Returned to Active	0	
Members No Longer Active:		
Retired with Disability Benefit	0	
Retired with Service Retirement Benefit	0	
Elected DROP Benefit	0	
Separated with Deferred Benefit	0	
Separated with Refund of Contributions	(1)	
Separated with Neither Deferred Benefit nor Refund of Contributions	0	
Deceased	0	
Total	(1)	
Active Members as of 1/1/2018	14	\$ 1,221,965
Vested Former Members	Number of Members	Annual Benefit
Vested Former Members as of 1/1/2017	1	
Separated with Deferred Benefit	0	
Beneficiary of Deceased Participant	0	
Returned to Active	0	
Retired with Service Retirement Benefit	0	
Deceased or Paid in Full	0	
Vested Former Members as of 1/1/2018	1	\$ 29,467
DROP Members		
DROP Members as of 1/1/2017	1	
Elected DROP Benefit	0	
Retired from DROP Benefit	0	
Deceased	0	
DROP Members as of 1/1/2018	1	\$ 52,225
Retired Members		
Retired Members as of 1/1/2017	10	
Retired with Service Retirement Benefit	0	
Retired from DROP Benefit	0	
Deceased or Paid in Full	0	
Retired Members as of 1/1/2018	10	\$ 312,890

Fairview Township Police Pension Plan
 Actuarial Valuation as of January 1, 2018
Summary of Plan Membership

Spouse Beneficiaries of Deceased Members	Number of Members	Annual Benefit
Spouse Beneficiaries of Deceased Members as of 1/1/2017	1	
Additional Spouse Beneficiaries of Deceased Members	0	
Deceased	0	
Spouse Beneficiaries of Deceased Members as of 1/1/2018	1	\$ 14,577

Fairview Township Police Pension Plan
Actuarial Valuation
as of January 1, 2018

Section 2

Act 205 Funding Calculations

Fairview Township Police Pension Plan
 Actuarial Valuation as of January 1, 2018
Unfunded Actuarial Accrued Liability and Normal Cost

Unfunded Actuarial Accrued Liability

Actuarial Present Value of Future Benefits

Active Members Retirement Pension Benefits	\$	6,231,051
Active Members Vested Withdrawal Benefits		86,758
Active Members Disability Benefits		642,057
Active Members Preretirement Death Benefits		10,261
Active Members Refund of Member Contributions		18,350 ¹
Refund of Employee Contributions to Terminated Members		23,106
Vested Former Members Benefits		358,495
Retired and DROP Members Benefits		4,378,689
Surviving Spouses Benefits		112,287
Monies Accumulated in DROP Accounts		<u>60,806</u>
Total	\$	11,921,860
Actuarial Present Value of Future Normal Costs		<u>(2,637,041)</u>
Actuarial Accrued Liability	\$	9,284,819
Actuarial Value of Assets		<u>(11,156,550)</u>
Unfunded Actuarial Accrued Liability	\$	<u><u>(1,871,731)</u></u>

Normal Cost

Normal Cost	\$	<u>283,056</u>
Normal Cost as a Percentage of Annual Payroll		<u>23.2%</u>

¹ Accumulated Member Contributions Without Interest as of 1/1/2018 = \$286,964
 Accumulated Member Contributions With Interest as of 1/1/2018 = \$344,208

Fairview Township Police Pension Plan
 Actuarial Valuation as of January 1, 2018
Analysis of the Change in the Unfunded Actuarial Accrued Liability

Unfunded Actuarial Accrued Liability at 1/1/2017	\$	(934,714)
Additions		
Normal Cost	\$	266,222
Administrative Expenses		80,537
Interest on Unfunded Actuarial Accrued Liability, Normal Cost, and Administrative Expenses		<u>(43,976)</u>
Total		302,783
Contributions		
Employer Contributions	\$	(17,986)
Employee Contributions		(51,046)
State Contributions		(149,877)
Interest on Contributions		<u>(7,223)</u>
Total		(226,132)
Modification in the Benefit Plan		0
Change in Actuarial Assumptions		0
Actuarial Gain		
Investment Gain	\$	(953,455)
Experience Gain		<u>(60,213)</u>
Total		<u>(1,013,668)</u>
Unfunded Actuarial Accrued Liability at 1/1/2018	\$	<u><u>(1,871,731)</u></u>

Fairview Township Police Pension Plan
 Actuarial Valuation as of January 1, 2018
Illustration of Minimum Municipal Obligation

Financial Requirements

Normal Cost	\$ 283,056	
Administrative Expenses	<u>59,602</u>	¹
Total		\$ 342,658
Expected Member Contributions		(48,879)
10% of Negative Unfunded Actuarial Accrued Liability		<u>(187,173)</u>
Minimum Municipal Obligation		\$ 106,606 ²
Estimated Allocation of General Municipal Pension System State Aid		<u>(106,606)</u>
Net Minimum Municipal Obligation		<u><u>\$ 0</u></u> ²

¹ Total Administrative Expenses for Plan Year 1/1/2016 to 12/31/2016 - \$ 38,666
 Total Administrative Expenses for Plan Year 1/1/2017 to 12/31/2017 - \$ 80,537

² This is not an actual MMO.

Fairview Township Police Pension Plan
Actuarial Valuation
as of January 1, 2018

Section 3

Supplemental Information

Fairview Township Police Pension Plan
Actuarial Valuation as of January 1, 2018
Supplemental Information

Schedule of Funding Progress

Valuation Date	Market Value of Assets (a)	Entry Age Actuarial Liability (AAL) (b)	Unfunded AAL (UAAL) (b-a)	Net Position as a % of Total Liability (b-a)/b	Funded Ratio (a/b)	Covered Payroll (c)	UAAL as a % of Covered Payroll ((b-a)/c)
1/1/2011	\$ 6,571,653	\$ 7,034,498	\$ 462,845	6.6%	93.4%	\$ 1,129,831	41.0%
1/1/2012	6,650,380	7,407,977	757,597	10.2%	89.8%	1,140,865	66.4%
1/1/2013	7,387,669	7,444,278	56,609	0.8%	99.2%	1,050,246	5.4%
1/1/2014	8,608,240	7,991,734	(616,506)	-7.7%	107.7%	1,043,932	-59.1%
1/1/2015	9,253,290	8,289,274	(964,016)	-11.6%	111.6%	1,134,166	-85.0%
1/1/2016	9,300,796	8,526,067	(774,729)	-9.1%	109.1%	1,134,341	-68.3%
1/1/2017	9,715,625	8,780,911	(934,714)	-10.6%	110.6%	1,158,670	-80.7%
1/1/2018	11,156,550	9,284,819	(1,871,731)	-20.2%	120.2%	1,221,965	-153.2%

Schedule of Interest Rate Sensitivity Testing

Interest Rate ¹	Market Value of Assets (a)	Entry Age Actuarial Liability (AAL) (b)	Unfunded AAL (UAAL) (b-a)	Net Position as a % of Total Liability (b-a)/b	Funded Ratio (a/b)
6.00%	\$ 11,156,550	\$ 10,510,107	\$ (646,443)	-6.2%	106.2%
7.00%	11,156,550	9,284,819	(1,871,731)	-20.2%	120.2%
8.00%	11,156,550	8,268,314	(2,888,236)	-34.9%	134.9%

¹ Valuation interest rate is 7.00%

Fairview Township Police Pension Plan
 Actuarial Valuation as of January 1, 2018
Supplemental Information

Schedule of Contributions from the Employer and Other Contributing Entities

Year	Actuarially ¹ Determined Contribution	Contributions ² From Employer	Contribution Deficiency/ (Surplus)
2008	\$ 92,234	\$ 92,234	\$ 0
2009	127,822	127,822	0
2010	139,987	151,643	(11,656)
2011	218,312	284,964	(66,652)
2012	216,035	216,035	0
2013	313,626	313,626	0
2014	279,909	279,909	0
2015	272,974	272,974	0
2016	143,083	143,083	0
2017	167,863	167,863	0

¹ Minimum Municipal Obligation under Act 205 of 1984

² Includes general municipal pension system State aid

Fairview Township Police Pension Plan
Actuarial Valuation as of January 1, 2018
Appendix

Supplemental Information for Assumptions for Act 205 Funding Calculations

In accordance with regulations under Act 205 of 1984, all actuarial assumptions are selected jointly by the actuary and the governing body of the pension Plan.

Interest Rates

The interest rate assumption is the long term expected rate of return on pension plan investments. It is based on the Plan's current asset allocation, expected long term inflation, and historical long term expected real rates of return on the Plan's major asset classes.

Salary

Based on expected long term salary increases for active participants, considering the effects of future inflation.

Withdrawal

Historical rates of withdrawal were considered as well as future expectations of withdrawal for the affected population.

Mortality

Based on the most current IRS mortality table for funding purposes.

Disability

Based on the Society of Actuaries Group LTD Table – Males, 3-month elimination (1987).

Retirement

Due to the plan size and design, use of a single retirement age was assumed. The use of retirement rates is not expected to produce materially different results.

Expenses

Expected expenses are determined by averaging the two prior year's expenses.

Inflation

Moderate inflation based on long term historical average rates is a component of the actuarial assumptions used herein.

Cost-of-Living Increase

Based on expected future inflation using long term historical averages, and taking into consideration annual COLA limits per Plan provisions.