

City of York Paid Firefighter's Pension Fund  
Actuarial Valuation  
as of January 1, 2017

City of York Paid Firefighter's Pension Fund  
Actuarial Valuation as of January 1, 2017  
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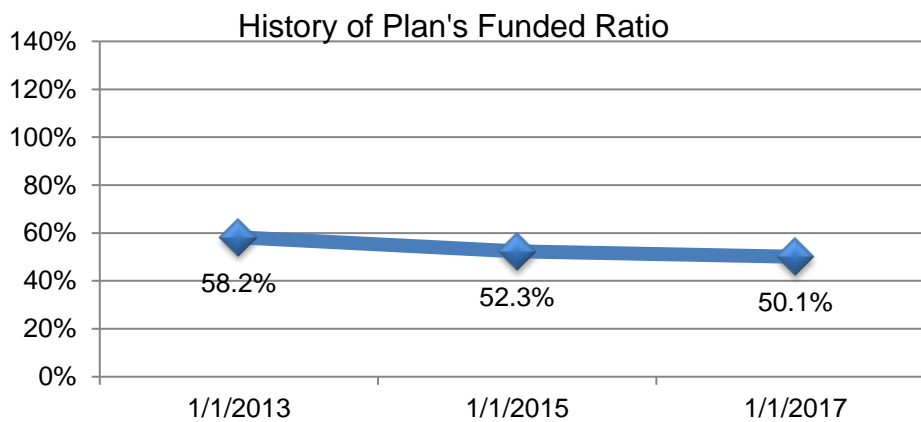
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City of York Paid Firefighter's Pension Fund  
Actuarial Valuation as of January 1, 2017  
**Executive Summary**

The purpose of the valuation report is to determine the actuarial status of the Plan and to serve as the basis for satisfying the reporting requirements under Act 205. The actuarial calculations contained in this report will be used to determine future minimum municipal obligations.

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, 2017. The changes in the provisions from the prior valuation report are the addition of a Deferred Retirement Option Plan (DROP) and a change to the postretirement cost-of-living increase benefit. Following the SPPB is a summary of the Actuarial Assumptions and Methods used in this valuation report. Changes to any assumptions from the prior valuation are indicated on the second page which include a change to the mortality assumption.



	<u>1/1/2013</u>	<u>1/1/2015</u>	<u>1/1/2017</u>
Market Value of Assets (MVA)	\$ 25,872,148	\$ 27,524,622	\$27,160,827
Actuarial Value of Assets (AVA)	\$ 25,983,937	\$ 28,193,075	\$29,556,363
Actuarial Accrued Liability (AAL)	\$ 44,675,326	\$ 53,944,991	\$59,006,604
Unfunded Actuarial Accrued Liability (UAAL)	\$ 18,691,389	\$ 25,751,916	\$29,450,241
Normal Cost	\$ 486,931	\$ 494,784	\$ 764,369
W-2 Payroll	\$ 3,487,640	\$ 3,705,295	\$ 3,624,686
Percentage of W-2 Payroll	14.0%	13.4%	21.1%
Average Age	45.8	46.7	43.8
<i>Interest</i>	8.00%	8.00%	8.00%
<i>Salary Scale</i>	5.00%	5.00%	5.00%
<i>Average Life Expectancy*</i>	18.38	21.24	23.33
<i>Mortality Basis</i>	UP1984	RP2000	IRS 2017 Small Plan Combined Static
Participant Counts:			
Active	59	53	50
DROP	0	0	6
Vested Former	1	0	0
<u>Receiving Benefits</u>	<u>83</u>	<u>81</u>	<u>83</u>
Total	143	134	139

\*Based on a male currently aged 60.

City of York Paid Firefighter's Pension Fund  
Actuarial Valuation as of January 1, 2017  
**Executive Summary**

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**Section 1**

At the beginning of Section 1, there is a summary of the receipts and disbursements for 2015 and 2016. The Plan received contributions of \$2,492,180 during 2015, and \$2,404,980 during 2016. There were benefit payments to former participants totaling \$2,925,202 during 2015, and \$3,044,634 during 2016. The investment return earned by the plan assets was approximately (3.4%) for 2015, and approximately 7.2% for 2016.

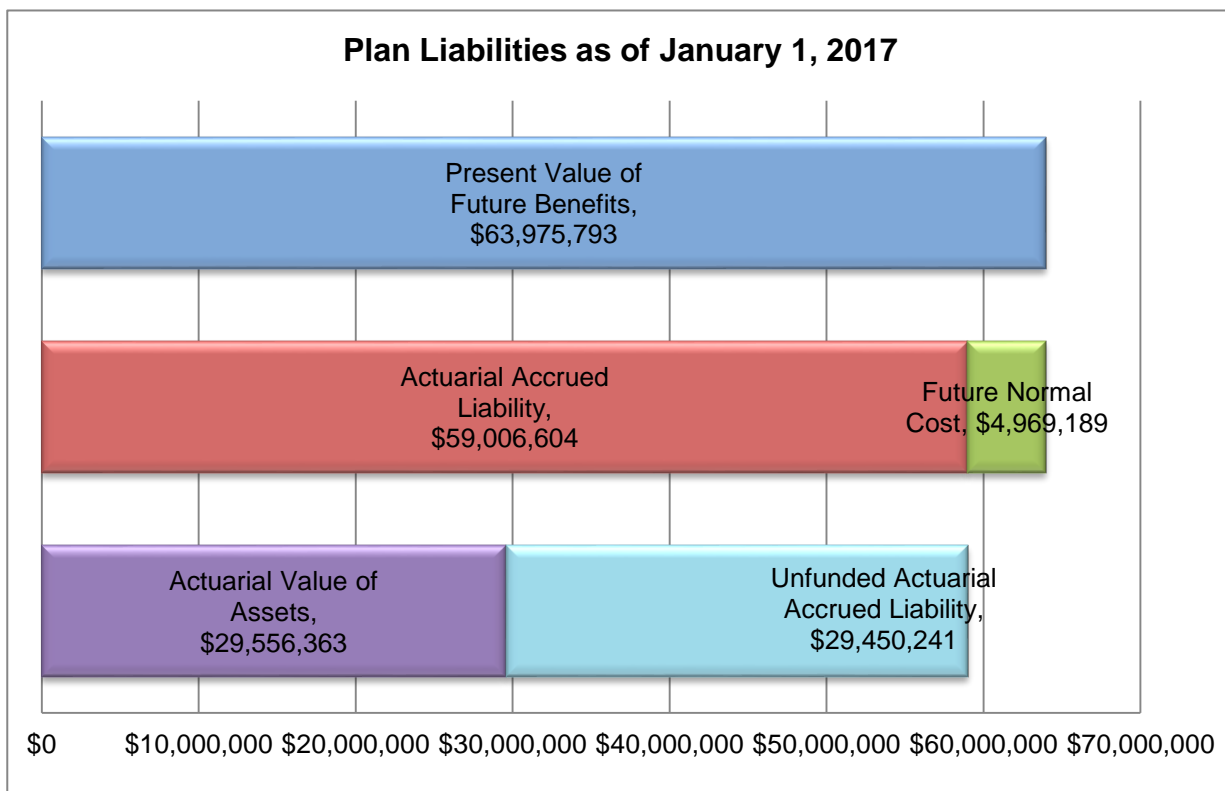
The following is a summary of the net dollar-weighted rates of investment return for the past six calendar years on both a market value and actuarial value basis:

	<u>2011</u>	<u>2012</u>	<u>2013</u>	<u>2014</u>	<u>2015</u>	<u>2016</u>
Market Value of Assets	(2.5%)	12.2%	14.3%	2.0%	(3.4%)	7.2%
Actuarial Value of Assets	0.5%	0.4%	10.2%	7.4%	4.2%	5.3%

**Section 2**

The Act 205 funding calculations are included in Section 2. The first page shows the development of the actuarial value of assets. As of December 31, 2016, the actuarial value of assets is \$29,556,363.

The actuarial present value of future benefits is \$63,975,793. Since the present value of future normal costs is \$4,969,189, the actuarial accrued liability at January 1, 2017, is \$59,006,604. Subtracting the actuarial value of assets of \$29,556,363 results in an unfunded actuarial accrued liability of \$29,450,241.



City of York Paid Firefighter's Pension Fund  
Actuarial Valuation as of January 1, 2017  
**Executive Summary**

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**Components of Financial Requirements**

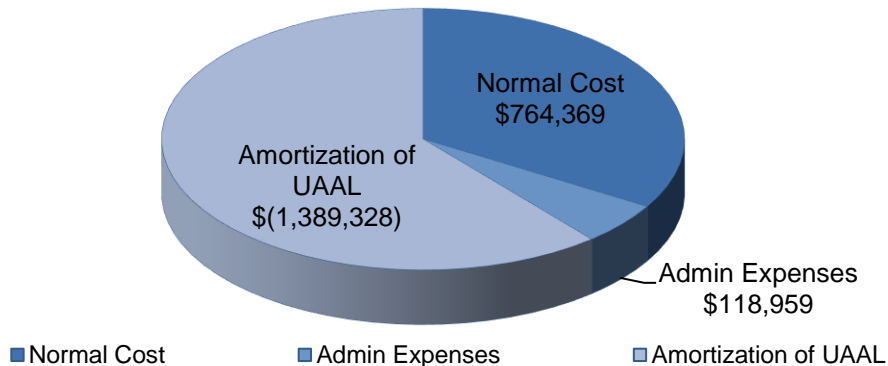
There are three cost components that make up the financial requirement of a Plan's minimum municipal obligation.

1. Normal Cost – This is the cost of pension and other benefits earned during the current year. The normal cost of the Plan is \$764,369. The normal cost represents approximately 21.1% 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 \$118,959.

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 Plan had a loss of \$989,888 due to the changes in the plan benefits. The Plan also had a loss as of January 1, 2017, of \$1,749,247 due to the change in actuarial assumptions. In addition, the Plan had an actuarial loss of \$2,137,803 for the previous two-year period. The amortization of the Unfunded Actuarial Accrued Liability is -\$1,389,328.

**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	\$764,369
Administrative Expenses	\$118,959
Amortization of Unfunded Actuarial Accrued Liability (UAAL)	(\$1,389,328)
<hr/> Total	<hr/> (\$506,000)
<u>Expected Member Contributions</u>	<u>(\$188,900)</u>
Minimum Municipal Obligation (not less than \$0)	\$0

City of York Paid Firefighter's Pension Fund  
Actuarial Valuation as of January 1, 2017  
**Actuarial Certification**

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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 as well as the data with respect to participants and beneficiaries were furnished by the City of York. The data has been reviewed and has been determined to be reasonable and consistent.

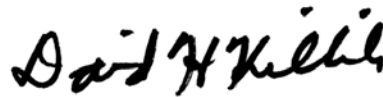
The information as contained in this report is a projection of liabilities based upon stated assumptions and is not an exact statement of the Plan's ultimate benefits and liabilities. Future actuarial measurements may differ significantly from the current measurements presented in this report due to 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.

2/14/2018

Date



David H. Killick, F.S.A.  
Consulting Actuary  
Enrolled Actuary No. 17-03880

City of York Paid Firefighter's Pension Fund  
Actuarial Valuation as of January 1, 2017  
**Summary of Principal Plan Benefit Provisions**  
Members Hired Before January 1, 1988

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### **Eligibility**

All full-time members of the City Fire Department hired before January 1, 1988, are eligible for the following benefits.

### **Normal Retirement**

The normal retirement requirement is attainment of age 50 and completion of 20 years of service.

The normal retirement pension is payable monthly for life with payments continuing after the member's death to the surviving spouse or, if no surviving spouse, to dependent children under the age of 18.

The amount of annual pension is equal to 50% of the yearly salary of the member at the time of retirement or the highest average annual salary which the member received during any five years preceding retirement, if higher. An additional incremental pension is provided equal to 1/40 of the annual pension for each complete year of service in excess of 20 (but not beyond age 65) up to a maximum of \$1,200 additional per year. The calculation of salary includes base salary plus longevity increments.

### **Postretirement Cost-of-Living Increase**

The monthly pension is increased by 50% of the dollar increase granted to active firefighters of the highest pay grade or the member may elect an annual increase of 2.5%. For certain members who retired between January 1, 2003, and January 15, 2003, the monthly pension is increased by 4.0% per year.

No increase shall result in a total retirement benefit in excess of 50% of the salary being paid to active firefighters of the highest pay grade.

### **Disability Retirement**

A disability benefit is provided under permanent disability after completion of ten years of service. The disability retirement pension is 30% of salary at the time of disability plus 2% of salary for each year of service in excess of ten, up to a maximum pension of 50% of salary.

Such disability pension is reduced by Workers' Compensation benefits received if the disability was not incurred in the line of duty.

### **Preretirement Death Benefits**

If a member dies prior to being eligible to retire, a death benefit is payable to his surviving spouse or, if no surviving spouse, to dependent children under the age of 18 equal to 30% of salary plus 2% of salary for each year of service in excess of ten, up to a maximum pension of 50% of salary.

If a member dies after being eligible to retire, a death benefit is payable to his surviving spouse or, if no surviving spouse, to dependent children under the age of 18 equal to the benefit the member would have been receiving had he been retired on the day of his death.

City of York Paid Firefighter's Pension Fund  
Actuarial Valuation as of January 1, 2017  
**Summary of Principal Plan Benefit Provisions**  
Members Hired Before January 1, 1988

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**Deferred Retirement Option Plan (DROP)**

Effective January 1, 2016, an active member who has met the eligibility requirements for normal retirement may elect to participate in the deferred retirement option plan (DROP) for a period of not less than one year nor more than three years. His monthly pension shall be calculated as of his date of participation in the DROP and shall be deposited into a self-directed account, or be credited with a fixed rate of return designated by the City at no less than 3.0% per annum, with the monies in such account distributed to the member in a lump sum at retirement.

**Vesting**

A member's benefits vest upon completion of 10 years of service. The vested benefit is a deferred monthly pension beginning at normal retirement equal to the benefit accrued to the date of termination.

The member may also vest his benefits upon termination after completion of 20 years of service. The vested benefit is a deferred pension beginning at age 50 equal to the normal retirement benefit based upon his average annual compensation at the date of termination of employment if the member continues to make contributions to the Plan until attainment of age 50 equal to the amount he was contributing at the date of termination.

**Accrued Pension**

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

**Employee Contributions**

Members contribute 5% of salary plus \$1 per month. Employee contributions are not credited with interest. Contributions are refunded on termination before eligibility for retirement or on death if member is not eligible for widow or children's benefits.



City of York Paid Firefighter's Pension Fund  
Actuarial Valuation as of January 1, 2017  
**Summary of Principal Plan Benefit Provisions**  
Members Hired On or After January 1, 1988

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### **Eligibility**

All full-time members of the City Fire Department hired on or after January 1, 1988, are eligible for the following benefits.

### **Normal Retirement**

The normal retirement requirement is attainment of age 50 and completion of 20 years and six months of service.

The normal retirement pension is payable monthly for life with payments continuing after the member's death to the surviving spouse or, if no surviving spouse, to dependent children under the age of 18.

The amount of annual pension is equal to 52% of the yearly salary of the member at the time of retirement or the highest average annual salary, which the member received during any five years preceding retirement, if higher. The calculation of salary includes base salary plus longevity increments.

### **Postretirement Cost-of-Living Increase**

The monthly pension is increased by 2.5% per year.

No increase shall result in a total retirement benefit in excess of 50% of the salary being paid to active firefighters of the highest pay grade.

### **Disability Retirement**

A disability benefit is provided under permanent disability after completion of ten years of service. The disability retirement pension is 30% of salary at the time of disability plus 2% of salary for each year of service in excess of ten, up to a maximum pension of 50% of salary.

Such disability pension is reduced by Workers' Compensation benefits received if the disability was not incurred in the line of duty.

### **Preretirement Death Benefits**

If a member dies prior to being eligible to retire, a death benefit is payable to his surviving spouse or, if no surviving spouse, to dependent children under the age of 18 equal to 30% of salary plus 2% of salary for each year of service in excess of ten, up to a maximum pension of 50% of salary.

If a member dies after being eligible to retire, a death benefit is payable to his surviving spouse or, if no surviving spouse, to dependent children under the age of 18 equal to the benefit the member would have been receiving had he been retired on the day of his death.

City of York Paid Firefighter's Pension Fund  
Actuarial Valuation as of January 1, 2017  
**Summary of Principal Plan Benefit Provisions**  
Members Hired On or After January 1, 1988

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**Deferred Retirement Option Plan (DROP)**

Effective January 1, 2016, an active member who has met the eligibility requirements for normal retirement may elect to participate in the deferred retirement option plan (DROP) for a period of not less than one year nor more than three years. His monthly pension shall be calculated as of his date of participation in the DROP and shall be deposited into a self-directed account, or be credited with a fixed rate of return designated by the City at no less than 3.0% per annum, with the monies in such account distributed to the member in a lump sum at retirement.

**Vesting**

A member's benefits vest upon completion of 10 years of service. The vested benefit is a deferred monthly pension beginning at normal retirement equal to the benefit accrued to the date of termination.

The member may also vest his benefits upon termination after completion of 20 years and 6 months of service. The vested benefit is a deferred pension beginning at age 50 equal to the normal retirement benefit based upon his average annual compensation at the date of termination of employment if the member continues to make contributions to the Plan until attainment of age 50 equal to the amount he was contributing at the date of termination.

**Accrued Pension**

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

**Employee Contributions**

Members hired on or after January 1, 1988, contribute 5% of salary. Members hired on or after January 1, 2007, contribute 6% of salary. Employee contributions are not credited with interest. Contributions are refunded on termination before eligibility for retirement or on death if member is not eligible for widow or children's benefits.

City of York Paid Firefighter's Pension Fund  
Actuarial Valuation as of January 1, 2017  
**Actuarial Assumptions and Methods**

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**Interest**

8.00%

**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 Plan (DROP) upon the later of attainment of age 52, age at the completion of 20 years of service if hired before January 1, 1988, or age at the completion of 20 years and six months of service if hired on or after January 1, 1988. It is also assumed that participation in the DROP continues for three years.

**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.

City of York Paid Firefighter's Pension Fund  
Actuarial Valuation as of January 1, 2017  
**Actuarial Assumptions and Methods**

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**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**

2.50% per year. For certain members who retired between January 1, 2003 and January 15, 2003 - 4.00% per year.

**Actuarial Value of Assets**

Each year the investment gain (excess of actual investment income including realized and unrealized appreciation over expected investment income) or loss is recognized over a five-year period. In no event is the actuarial value of assets allowed to be greater than 120% or less than 80% of market value.

**Actuarial Cost Method**

Entry Age Normal (required by Act 205 of 1984) using level percentage of future payroll amortization of the initial unfunded actuarial accrued liability based on a 4.0% annual increase in covered payroll assumption and using level percentage of future payroll amortization of the increase in the unfunded actuarial accrued liability as of January 1, 2005, attributable to the change in the postretirement cost-of-living increase benefit based upon a 5.0% annual increase in covered payroll assumption.

**Changes in Actuarial Assumptions and Methods**

	<u>Prior</u>	<u>Current</u>
Mortality	RP2000 Table	See Above

City of York Paid Firefighter's Pension Fund  
Actuarial Valuation  
as of January 1, 2017

Section 1

Summary of Plan Assets and Summary of Plan Membership

City of York Paid Firefighter's Pension Fund  
 Actuarial Valuation as of January 1, 2017  
**Receipts and Disbursements - January 1, 2015 to December 31, 2015**

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Market Value at 1/1/2015		\$ 27,524,622.00
<b>Receipts</b>		
Employer Contributions		
Received	\$ 2,955,026.00	
Receivable at 1/1/2015	(681,658.00)	
Receivable at 12/31/2015	0.00	
Total Employer Contributions	\$ 2,273,368.00	
Employee Contributions Received		218,812.00
Investment Income		
Income Received	\$ 387,657.00	
Accrued Income at 1/1/2015	0.00	
Accrued Income at 12/31/2015	0.00	
Total Investment Income	387,657.00	
Change in Market Value	(1,289,373.00)	
Total Receipts		1,590,464.00
<b>Disbursements</b>		
Monthly Benefit Payments	\$ (2,925,202.00)	
Administrative Expenses	(118,920.00)	
Total Disbursements		(3,044,122.00)
Market Value at 12/31/2015		\$ 26,070,964.00
Approximate Net Dollar-Weighted Rate of Investment Return		(3.40%)

City of York Paid Firefighter's Pension Fund  
 Actuarial Valuation as of January 1, 2017  
**Receipts and Disbursements - January 1, 2016 to December 31, 2016**

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Market Value at 1/1/2016		\$ 26,070,964.00
<b>Receipts</b>		
Employer Contributions Received	\$ 2,226,597.00	
Employee Contributions Received	178,383.00	
Investment Income		
Income Received	\$ 392,293.00	
Accrued Income at 1/1/2016	0.00	
Accrued Income at 12/31/2016	0.00	
Total Investment Income	392,293.00	
Change in Market Value	1,456,221.00	
Total Receipts		4,253,494.00
<b>Disbursements</b>		
Monthly Benefit Payments	\$ (3,042,808.00)	
Lump Sum DROP Account Payments	(1,826.00)	
Administrative Expenses	(118,997.00)	
Total Disbursements		(3,163,631.00)
Market Value at 12/31/2016		\$ 27,160,827.00
Approximate Net Dollar-Weighted Rate of Investment Return		7.15%

City of York Paid Firefighter's Pension Fund  
Actuarial Valuation as of January 1, 2017  
**Assets and Liabilities**

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**Assets**

Cash	\$	0.00
Mutual Funds		<u>27,160,827.00</u>
Total Assets in Fund		\$ 27,160,827.00
Accrued Income		<u>0.00</u>
Total Assets		\$ 27,160,827.00

**Liabilities**

Total Liabilities		<u>0.00</u>
Net Assets		<u><u>\$ 27,160,827.00</u></u>



City of York Paid Firefighter's Pension Fund  
Actuarial Valuation as of January 1, 2017  
**Summary of Plan Membership**

<b>Active Members</b>	Number of Members	Annual Payroll
Active Members as of 1/1/2015	53	
New Members During the Period	8	
Returned to Active	0	
Members No Longer Active:		
Retired with Disability Benefit	0	
Retired with Service Retirement Benefit	(4)	
Elected DROP Benefit	(7)	
Separated with Deferred Benefit	0	
Separated with Refund of Contributions	0	
Separated with Neither Deferred Benefit nor Refund of Contributions	0	
Deceased	0	
Total	(11)	
Active Members as of 1/1/2017	50	\$ 3,624,686
 <b>DROP Members</b>		
	Number of Members	Annual Benefit
DROP Members as of 1/1/2015	0	
Elected DROP Benefit	7	
Retired from DROP Benefit	(1)	
Deceased	0	
DROP Members as of 1/1/2017	6	\$ 235,224
 <b>Retired Members</b>		
Retired Members as of 1/1/2015	55	
Retired with Service Retirement Benefit	4	
Retired from DROP Benefit	1	
Deceased or Paid in Full	(2)	
Retired Members as of 1/1/2017	58	\$ 2,377,869
 <b>Disabled Members</b>		
Disabled Members as of 1/1/2015	4	
Retired with Disability Benefit	0	
Retired from DROP Benefit	0	
Deceased	0	
Disabled Members as of 1/1/2017	4	\$ 137,075

City of York Paid Firefighter's Pension Fund  
Actuarial Valuation as of January 1, 2017  
**Summary of Plan Membership**

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<b>Spouse Beneficiaries of Deceased Members</b>	Number of Members	Annual Benefit
Spouse Beneficiaries of Deceased Members as of 1/1/2015	<u>22</u>	
Additional Spouse Beneficiaries of Deceased Members Deceased	2 <u>(3)</u>	
Spouse Beneficiaries of Deceased Members as of 1/1/2017	<u>21</u>	<u>\$ 564,570</u>

City of York Paid Firefighter's Pension Fund  
Actuarial Valuation  
as of January 1, 2017

Section 2

Act 205 Funding Calculations

City of York Paid Firefighter's Pension Fund  
Actuarial Valuation as of January 1, 2017  
**Actuarial Value of Assets**

	2013	2014	2015	2016
Market Value at 1/1	\$25,872,148.00	\$28,836,154.00	\$27,524,622.00	\$26,070,964.00
Contributions	1,876,527.00	1,869,478.00	2,492,180.00	2,404,980.00
Benefit Payments and Expenses	(2,441,203.00)	(3,720,327.00)	(3,044,122.00)	(3,163,631.00)
Expected Investment Income <sup>1</sup>	2,047,185.00	2,232,858.00	2,179,892.00	2,055,331.00
Expected Value at 12/31	\$27,354,657.00	\$29,218,163.00	\$29,152,572.00	\$27,367,644.00
Market Value at 12/31	28,836,154.00	27,524,622.00	26,070,964.00	27,160,827.00
Gain/(Loss): (Market Value less Expected Value)	\$ 1,481,497.00	\$ (1,693,541.00)	\$ (3,081,608.00)	\$ (206,817.00)
Percentage of Gain/(Loss) to be recognized in the future	20%	40%	60%	80%
Gain/(Loss) to be recognized in the future	\$ 296,299.00	\$ (677,416.00)	\$ (1,848,965.00)	\$ (165,454.00)
Market Value at 12/31/2016				\$27,160,827.00
Total (Gain)/Loss for 2013-2016 to be recognized in the future				<u>2,395,536.00</u>
Actuarial Value of Assets at 12/31/2016				<u><u>\$29,556,363.00</u></u> <sup>2</sup>
2015 Approximate Net Dollar-Weighted Rate of Investment Return				4.19%
2016 Approximate Net Dollar-Weighted Rate of Investment Return				5.29%

<sup>1</sup> 8.00% annual interest rate

<sup>2</sup> Actuarial Value of Assets cannot be greater than 120% nor be less than 80% of the Market Value.

City of York Paid Firefighter's Pension Fund  
 Actuarial Valuation as of January 1, 2017  
**Unfunded Actuarial Accrued Liability and Normal Cost**

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**Unfunded Actuarial Accrued Liability**

Actuarial Present Value of Future Benefits

Active Members Retirement Pension Benefits	\$ 22,432,549	
Active Members Vested Withdrawal Benefits	213,430	
Active Members Disability Benefits	798,065	
Active Members Preretirement Death Benefits	21,304	
Active Members Refund of Member Contributions	47,521 <sup>1</sup>	
Retired and DROP Members Benefits	34,196,837	
Disabled Members Benefits	1,776,593	
Surviving Spouses Benefits	4,282,639	
Monies Accumulated in DROP Accounts	<u>206,855</u>	
Total	\$ 63,975,793	
Actuarial Present Value of Future Normal Costs		<u>(4,969,189)</u>
Actuarial Accrued Liability	\$ 59,006,604	
Actuarial Value of Assets		<u>(29,556,363)</u>
Unfunded Actuarial Accrued Liability		<u><u>\$ 29,450,241</u></u>
 <b>Normal Cost</b>		
Normal Cost		<u><u>\$ 764,369</u></u>
Normal Cost as a Percentage of Annual Payroll		<u>21.1%</u>

<sup>1</sup> Accumulated Member Contributions Without Interest as of 1/1/2017 = \$1,918,887

City of York Paid Firefighter's Pension Fund  
 Actuarial Valuation as of January 1, 2017  
**Analysis of the Change in the Unfunded Actuarial Accrued Liability**

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Unfunded Actuarial Accrued Liability at 1/1/2015	\$	25,751,916
<b>Additions</b>		
Normal Costs	\$ 1,014,307	
Administrative Expenses	237,917	
Interest on Unfunded Actuarial Accrued Liability, Normal Costs, and Administrative Expenses	<u>4,428,424</u>	
Total		5,680,648
<b>Contributions</b>		
Employer Contributions	\$ (4,499,965)	
Employee Contributions	(397,195)	
Interest on Contributions	<u>(378,637)</u>	
Total		(5,275,797)
Adjustment for Funding Deviation		(1,583,464)
Modification in the Benefit Plan		989,888
Change in Actuarial Assumptions		1,749,247
<b>Actuarial Loss</b>		
Investment Loss	\$ 1,894,503	
Experience Gain	(1,340,164)	
Funding Deviation	<u>1,583,464</u>	
Total		<u>2,137,803</u>
Unfunded Actuarial Accrued Liability at 1/1/2017	\$	<u><u>29,450,241</u></u>

City of York Paid Firefighter's Pension Fund  
Actuarial Valuation as of January 1, 2017  
**Amortization of Unfunded Actuarial Accrued Liability**

Initial Date	Initial Amount	Outstanding Balance	Amortization Amount	Remaining Amortization	Nature
January 1, 2002	\$ 1,699,746	\$ 1,287,205	\$ 134,651	16 Years	Investment Loss
January 1, 2003	(3,693,442)	(1,739,052)	(348,320)	6 Years	Assumption Chg.
January 1, 2003	4,557,377	3,583,224	374,833	16 Years	Investment Loss
January 1, 2003	675,974	73,144	73,144	1 Year	Other Actuarial Loss
January 1, 2005	9,415,508	11,788,758	823,303	18 Years <sup>1</sup>	COLA Amendment
January 1, 2005	1,981,228	232,090	232,090	1 Year	Active Amendment
January 1, 2005	1,105,554	129,526	129,526	1 Year	Actuarial Loss
January 1, 2007	(818,230)	(106,120)	(106,120)	1 Year	Assumption Chg.
January 1, 2007	1,587,217	205,856	205,856	1 Year	Actuarial Loss
January 1, 2009	(5,364,683)	(4,117,753)	(505,930)	12 Years	Assumption Chg.
January 1, 2009	8,087,649	6,207,803	762,727	12 Years	Actuarial Loss
January 1, 2011	(2,047,995)	(1,719,692)	(193,141)	14 Years	Actuarial Gain
January 1, 2013	1,744,950	1,573,128	164,562	16 Years	Actuarial Loss
January 1, 2015	28,139	24,099	3,883	8 Years <sup>2</sup>	Act. Amend. (NM)
January 1, 2015	1,962,059	1,811,754	212,247	13 Years	Assumption Chg.
January 1, 2015	5,593,576	5,339,333	527,517	18 Years	Actuarial Loss
January 1, 2017	6,103,041	6,103,041	842,160	10 Years <sup>2</sup>	Act. Amend. (NM)
January 1, 2017	(5,113,153)	(5,113,153)	(5,113,153)	1 Year <sup>2</sup>	Ret. Amend. (NM)
January 1, 2017	1,749,247	1,749,247	189,226	15 Years	Assumption Chg.
January 1, 2017	2,137,803	2,137,803	201,611	20 Years	Actuarial Loss
<b>Total</b>	<b>\$ 31,391,565</b>	<b>\$ 29,450,241</b>	<b>\$ (1,389,328)</b>		

Projected plan year in which the unfunded accrued liability is fully amortized is 2036.

**Aggregation of Changes in Unfunded Actuarial Accrued Liability**

Date of Aggregation	Aggregated Target Date	Outstanding Balance	Amortization Amount	Remaining Amortization
January 1, 2017	N/A	<u>\$ 29,450,241</u>	<u>\$ (1,389,328)</u>	N/A Years

<sup>1</sup> Level Percentage of Future Payroll Amortization

City of York Paid Firefighter's Pension Fund  
 Actuarial Valuation as of January 1, 2017  
**Illustration of Minimum Municipal Obligation**

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Financial Requirements

Normal Cost	\$	764,369
Administrative Expenses		118,959 <sup>1</sup>
Amortization of Unfunded Actuarial Accrued Liability		<u>(1,389,328)</u>
Total	\$	(506,000)
Expected Member Contributions		<u>(188,900)</u>
Minimum Municipal Obligation	\$	<u><u>0</u></u> <sup>2</sup>

<sup>1</sup> Total Administrative Expenses for Plan Year 1/1/2015 to 12/31/2015 - \$ 118,920

Total Administrative Expenses for Plan Year 1/1/2016 to 12/31/2016 - \$ 118,997

<sup>2</sup> This is not an actual MMO. Figures from this report will be used to prepare actual MMOs in future years.



City of York Paid Firefighter's Pension Fund  
Actuarial Valuation as of January 1, 2017  
**Receipts and Disbursements Excluding Bond Issue Assets**  
**January 1, 2015 to December 31, 2015**

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Market Value at 1/1/2015		\$ 20,685,811.77
<b>Receipts</b>		
Employer Contributions Received	\$ 3,101,845.00	
Employee Contributions Received	218,812.00	
Investment Income	291,339.14	
Change in Market Value	<u>(969,013.39)</u>	
Total Receipts		2,642,982.75
<b>Disbursements</b>		
Monthly Benefit Payments	\$ (2,925,202.00)	
Administrative Expenses	<u>(118,920.00)</u>	
Total Disbursements		<u>(3,044,122.00)</u>
Market Value at 12/31/2015		<u><u>\$ 20,284,672.52</u></u>

City of York Paid Firefighter's Pension Fund  
 Actuarial Valuation as of January 1, 2017  
**Receipts and Disbursements Excluding Bond Issue Assets**  
**January 1, 2016 to December 31, 2016**

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Market Value at 1/1/2016		\$ 20,284,672.52
<b>Receipts</b>		
Employer Contributions Received	\$ 3,106,731.00	
Employee Contributions Received	178,383.00	
Investment Income	305,225.96	
Change in Market Value	<u>1,133,021.63</u>	
Total Receipts		4,723,361.59
<b>Disbursements</b>		
Monthly Benefit Payments	\$ (3,042,808.00)	
Lump Sum DROP Account Payments	(1,826.00)	
Administrative Expenses	<u>(118,997.00)</u>	
Total Disbursements		<u>(3,163,631.00)</u>
Market Value at 12/31/2016		<u><u>\$ 21,844,403.11</u></u>

City of York Paid Firefighter's Pension Fund  
Actuarial Valuation as of January 1, 2017  
**Assets and Liabilities Excluding Bond Issue Assets**

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**Assets**

Total Assets \$ 21,844,403.11

**Liabilities**

Total Liabilities 0.00

Net Assets \$ 21,844,403.11

City of York Paid Firefighter's Pension Fund  
Actuarial Valuation as of January 1, 2017  
**Actuarial Value of Assets**

	2013	2014	2015	2016
Market Value at 1/1	\$19,168,238.82	\$21,656,849.90	\$20,685,811.77	\$20,284,672.52
Contributions	2,315,473.00	2,344,245.00	3,320,657.00	3,285,114.00
Benefit Payments and Expenses	(2,441,203.00)	(3,720,327.00)	(3,044,122.00)	(3,163,631.00)
Expected Investment Income <sup>1</sup>	1,528,429.91	1,677,504.71	1,665,926.34	1,627,633.12
Expected Value at 12/31	\$20,570,938.73	\$21,958,272.61	\$22,628,273.11	\$22,033,788.64
Market Value at 12/31	21,656,849.90	20,685,811.77	20,284,672.52	21,844,403.11
Gain/(Loss): (Market Value less Expected Value)	\$ 1,085,911.17	\$ (1,272,460.84)	\$ (2,343,600.59)	\$ (189,385.53)
Percentage of Gain/(Loss) to be recognized in the future	20%	40%	60%	80%
Gain/(Loss) to be recognized in the future	\$ 217,182.23	\$ (508,984.34)	\$ (1,406,160.35)	\$ (151,508.42)
Market Value at 12/31/2016				\$21,844,403.11
Total (Gain)/Loss for 2013-2016 to be recognized in the future				<u>1,849,470.88</u>
Actuarial Value of Assets at 12/31/2016				<u><u>\$23,693,873.99</u></u> <sup>2</sup>
2015 Approximate Net Dollar-Weighted Rate of Investment Return				4.27%
2016 Approximate Net Dollar-Weighted Rate of Investment Return				5.28%

<sup>1</sup> 8.00% annual interest rate

<sup>2</sup> Actuarial Value of Assets cannot be greater than 120% nor be less than 80% of the Market Value.

City of York Paid Firefighter's Pension Fund  
Actuarial Valuation as of January 1, 2017  
**Unfunded Actuarial Accrued Liability Excluding Bond Issue Assets**

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Actuarial Present Value of Future Benefits	\$ 63,975,793
Actuarial Present Value of Future Normal Costs	<u>(4,969,189)</u>
Actuarial Accrued Liability	\$ 59,006,604
Actuarial Value of Assets	<u>(23,693,874)</u>
Unfunded Actuarial Accrued Liability	<u><u>\$ 35,312,730</u></u>

City of York Paid Firefighter's Pension Fund  
 Actuarial Valuation as of January 1, 2017  
**Analysis of the Change in the Unfunded Actuarial Accrued Liability  
 Excluding Bond Issue Assets**

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Unfunded Actuarial Accrued Liability at 1/1/2015		\$ 32,745,501
<b>Additions</b>		
Normal Cost	\$ 1,014,307	
Administrative Expenses	237,917	
Interest on Unfunded Actuarial Accrued Liability, Normal Costs, and Administrative Expenses	<u>5,592,156</u>	
Total		6,844,380
<b>Contributions</b>		
Employer Contributions	\$ (6,208,576)	
Employee Contributions	(397,195)	
Interest on Contributions	<u>(444,915)</u>	
Total		(7,050,686)
Adjustment for Funding Deviation		(1,922,349)
Modification in the Benefit Plan		989,888
Change in Actuarial Assumptions		1,749,247
<b>Actuarial Loss</b>		
Investment Loss	\$ 1,374,564	
Experience Gain	(1,340,164)	
Funding Deviation	<u>1,922,349</u>	
Total		<u>1,956,749</u>
Unfunded Actuarial Accrued Liability at 1/1/2017		<u><u>\$ 35,312,730</u></u>

City of York Paid Firefighter's Pension Fund  
Actuarial Valuation as of January 1, 2017

**Amortization of Unfunded Actuarial Accrued Liability Excluding Bond Issue Assets**

Initial Date	Initial Amount	Outstanding Balance	Amortization Amount	Remaining Amortization	Nature
January 1, 1985	\$ 8,455,560	\$ 9,828,252	\$ 1,396,787	8 Years <sup>1</sup>	Initial Unfunded
January 1, 2002	1,252,468	948,474	99,219	16 Years	Investment Loss
January 1, 2003	(1,998,283)	(940,898)	(188,453)	6 Years	Assumption Chg.
January 1, 2003	2,450,287	1,926,531	201,530	16 Years	Investment Loss
January 1, 2003	541,290	58,567	58,567	1 Year	Other Actuarial Loss
January 1, 2005	9,415,508	11,788,758	823,303	18 Years <sup>1</sup>	COLA Amendment
January 1, 2005	1,981,228	232,090	232,090	1 Year	Active Amendment
January 1, 2005	791,902	92,774	92,774	1 Year	Actuarial Loss
January 1, 2007	(422,381)	(54,782)	(54,782)	1 Year	Assumption Chg.
January 1, 2007	1,036,271	134,401	134,401	1 Year	Actuarial Loss
January 1, 2009	(3,405,577)	(2,614,003)	(321,172)	12 Years	Assumption Chg.
January 1, 2009	4,099,113	3,146,337	386,578	12 Years	Actuarial Loss
January 1, 2011	(2,591,728)	(2,176,256)	(244,420)	14 Years	Actuarial Gain
January 1, 2013	174,978	157,747	16,502	16 Years	Actuarial Loss
January 1, 2015	28,139	24,099	3,883	8 Years <sup>2</sup>	Act. Amend (NM)
January 1, 2015	1,962,059	1,811,754	212,247	13 Years	Assumption Chg.
January 1, 2015	6,550,751	6,253,001	617,786	18 Years	Actuarial Loss
January 1, 2017	6,103,041	6,103,041	842,160	10 Years <sup>2</sup>	Act. Amend (NM)
January 1, 2017	(5,113,153)	(5,113,153)	(5,113,153)	1 Year <sup>2</sup>	Ret. Amend (NM)
January 1, 2017	1,749,247	1,749,247	189,226	15 Years	Assumption Chg.
January 1, 2017	1,956,749	1,956,749	184,536	20 Years	Actuarial Loss
<b>Total</b>	<b>\$ 35,017,469</b>	<b>\$ 35,312,730</b>	<b>\$ (430,391)</b>		

Projected plan year in which the unfunded accrued liability is fully amortized is 2036

Aggregation of Changes in Unfunded Actuarial Accrued Liability

Date of Aggregation	Aggregated Target Date	Outstanding Balance	Amortization Amount	Remaining Amortization
January 1, 2017	N/A	\$ 25,484,478	\$ (1,827,178)	N/A Years

<sup>1</sup> Level Percentage of Future Payroll Amortization

<sup>2</sup> (NM) represents non-mandated changes and (M) represents mandated changes.

City of York Paid Firefighter's Pension Fund  
Actuarial Valuation  
as of January 1, 2017

Section 3

Supplemental Information



City of York Paid Firefighter's Pension Fund  
Actuarial Valuation as of January 1, 2017  
**Supplemental Information**

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**Schedule of Funding Progress**

Valuation Date	Market Value of Assets (a)	Entry Age Actuarial Accrued 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	\$ 24,225,589	\$ 43,362,544	\$ 19,136,955	44.1%	55.9%	\$ 3,869,316	494.6%
1/1/2012	23,497,740						
1/1/2013	25,872,148	44,675,326	18,803,178	42.1%	57.9%	3,487,640	539.1%
1/1/2014	28,836,154						
1/1/2015	27,524,622	53,944,991	26,420,369	49.0%	51.0%	3,705,295	713.0%
1/1/2016	26,070,964						
1/1/2017	27,160,827	59,006,604	31,845,777	54.0%	46.0%	3,624,686	878.6%

**Schedule of Interest Rate Sensitivity Testing**

Interest Rate <sup>1</sup>	Market Value of Assets (a)	Entry Age Actuarial Accrued Liability (AAL) (b)	Unfunded AAL (UAAL) (b-a)	Net Position as a % of Total Liability (b-a)/b	Funded Ratio (a/b)
7.00%	\$ 27,160,827	\$ 65,923,201	\$ 38,762,374	58.8%	41.2%
8.00%	27,160,827	59,006,604	31,845,777	54.0%	46.0%
9.00%	27,160,827	53,241,070	26,080,243	49.0%	51.0%

<sup>1</sup> Valuation interest rate is 8.00%

City of York Paid Firefighter's Pension Fund  
Actuarial Valuation as of January 1, 2017  
**Supplemental Information**

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**Schedule of Contributions from the Employer and Other Contributing Entities**

Year	Actuarially <sup>1</sup> Determined Contribution	Contributions <sup>2</sup> From Employer	Contribution Deficiency/ (Surplus)
2007	\$ 1,641,164	\$ 1,641,164	\$ 0
2008	1,681,386	1,681,387	(1)
2009	1,785,031	2,018,478	(233,447)
2010	1,805,385	1,960,365	(154,980)
2011	1,715,778	1,904,238	(188,460)
2012	1,756,473	2,011,353	(254,880)
2013	1,521,930	1,702,170	(180,240)
2014	1,537,319	1,642,666	(105,347)
2015	2,217,425	2,273,368	(55,943)
2016	2,226,597	2,226,597	0

<sup>1</sup> Minimum Municipal Obligation under Act 205 of 1984

<sup>2</sup> Includes general municipal pension system State aid

City of York Paid Firefighter's Pension Fund  
Actuarial Valuation as of January 1, 2017  
**Appendix**

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**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.

**Preretirement Survivor Death Benefit**

A conservative assumption was made of percent married compared to current marital statistics for the general population.

**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.