



# Town of Lincoln Retirement Plan

January 1, 2020  
Actuarial Valuation Report

## Table of Contents

---

<b>Actuarial Certification</b>	<b>3</b>
<b>Executive Summary</b>	<b>5</b>
Summary Results	6
Changes Since Prior Valuation and Key Notes	7
Five Year Valuation Summary	8
Identification of Risks	9
Plan Maturity Measures	10
<b>Assets and Liabilities</b>	<b>11</b>
Present Value of Future Benefits	12
Actuarial Accrued Liability	13
Reconciliation of Actuarial Accrued Liability	14
Asset Information	15
Summary of Contributions	17
<b>Funding Results</b>	<b>18</b>
Reconciliation of (Gain)/Loss	19
Reconciliation of Unfunded Actuarial Accrued Liability (UAAL)	20
Development of Actuarial Recommended Contribution	21
<b>Data, Assumptions, and Plan Provisions</b>	<b>22</b>
Demographic Information	23
Participant Reconciliation	26
Active Participant Schedule	27
Plan Provisions	28
Actuarial Assumptions	33
<b>Other Measurements</b>	<b>37</b>
Exhibit 1 - Schedule of Amortizations	38
Exhibit 2 – Development of 2020 Actuarial Recommended Contribution	39
Exhibit 3 – Development of 2021 Actuarial Recommended Contribution	40

At the request of the plan sponsor, this report summarizes the actuarial results of the Town of Lincoln Retirement Plan as of January 1, 2020. The purpose of this report is to communicate the following results of the valuation:

- Funded Status;
- and Determine Recommended Contribution.

This report has been prepared in accordance with the applicable Federal and State laws. Consequently, it may not be appropriate for other purposes. Please contact Nyhart prior to disclosing this report to any other party or relying on its content for any purpose other than that explained above. Failure to do so may result in misrepresentation or misinterpretation of this report.

The results in this report were prepared using information provided to us by other parties. The census and asset information has been provided to us by the employer. We have reviewed the provided data for reasonableness when compared to prior information provided, but have not audited the data. Where relevant data may be missing, we have made assumptions we believe to be reasonable. We are not aware of any significant issues with and have relied on the data provided. Any errors in the data provided may result in a different result than those provided in this report. A summary of the data used in the valuation is included in this report.

The actuarial assumptions and methods were chosen by the employer. In our opinion, all actuarial assumptions and methods are individually reasonable and in combination represent our best estimate of anticipated experience of the plan. 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 the end of an amortization period); and
- changes in plan provisions or applicable law.

We did not perform an analysis of the potential range of future measurements due to the limited scope of our engagement. This report has been prepared in accordance with generally accepted actuarial principles and practice.

Neither Nyhart nor any of its employees have any relationship with the plan or its sponsor which could impair or appear to impair the objectivity of this report. To the extent that this report or any attachment concerns tax matters, it is not intended to be used and cannot be used by a taxpayer for the purpose of avoiding penalties that may be imposed by law.

**Actuarial Certification**

---

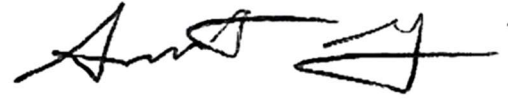
The undersigned are compliant with the continuing education requirements of the Qualification Standards for Actuaries Issuing Statements of Actuarial Opinion in the United States and are available for any questions.

Nyhart



---

Lawrence Watts, FSA, CFA, EA, MAAA  
Enrollment Number: 20-08496



---

Scott Gavin, FSA, EA, MAAA  
Enrollment Number: 20-07543

November 9, 2020  
Date

## Executive Summary

The actuarial report provides the plan sponsor with several ways to measure the funded status of the pension plan. The following detail is included in the report:

- Actuarial Recommended Contribution
- Asset Performance
- Plan Demographics

This report is filled with actuarial terminology. However, the ultimate objective of the valuation is to provide a rational method of funding the plan. It is necessary to fund the benefit promised by the employer in a manner that is logical and employer friendly, yet safeguards the participants' interest. The actuarially derived contribution, however, is not the true cost of the pension plan. The true cost is illustrated by the following formula:

$$\text{Ultimate Pension Cost} = \text{Benefits Paid} - \text{Investment Income} + \text{Plan Expenses}$$

While the plan's liability and normal cost determine the current contribution recommendations, the true cost is controlled only by the "defined" benefit and investment income generated by the underlying assets. The actuarial process only controls the timing of costs.

We suggest that a plan sponsor treat the actuarial report as you would treat a scorecard. It is simply a measure of progress toward the ultimate goal of paying all pension benefits when participants retire.

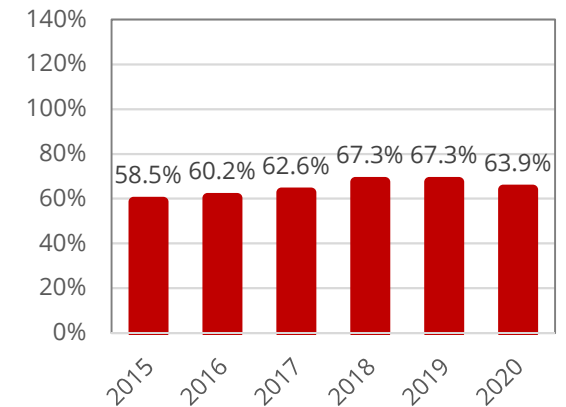
## Executive Summary

### Summary Results

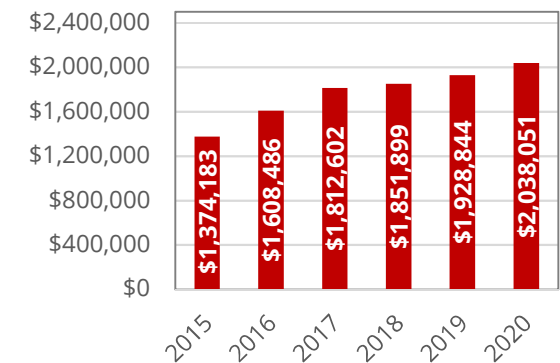
The actuarial valuation's primary purpose is to produce a scorecard measure displaying the funding progress of the plan toward the ultimate goal of paying benefits at retirement. The accrued liability is based on an entry age level percentage of pay.

	January 1, 2019	January 1, 2020	January 1, 2021
<b>Funded Status Measures</b>			
Accrued Liability	\$ 41,838,488	\$ 47,137,148	
Actuarial Value of Assets	<u>\$ 28,176,527</u>	<u>\$ 30,115,122</u>	
Unfunded Actuarial Accrued Liability (UAAL)	\$ 13,661,961	\$ 17,022,026	
Funded Percentage (AVA)	67.3%	63.9%	
Funded Percentage (MVA)	62.7%	67.4%	
<b>Cost Measures</b>			
Actuarial Recommended Contribution	\$ 1,928,844	\$ 2,038,051	\$ 2,413,431
Actuarial Recommended Contribution (as a percentage of payroll)	33.0%	30.5%	
<b>Asset Performance</b>			
Market Value of Assets (MVA)	\$ 26,232,501	\$ 31,783,376	
Actuarial Value of Assets (AVA)	28,176,527	30,115,122	
Actuarial Value/Market Value	107.4%	94.8%	
Market Value Rate of Return	-6.13%	21.45%	
Actuarial Value Rate of Return	5.01%	7.14%	
<b>Participant Information</b>			
Active Participants	122	143	
Terminated Vested Participants	28	31	
Retirees and Beneficiaries	104	105	
Total	<u>254</u>	<u>279</u>	
Expected Payroll	\$ 5,840,123	\$ 6,683,828	

History of Funded Ratio



History of Recommended Contribution



**Changes since Prior Valuation and Key Notes**

There have been no changes to the plan provisions since the last valuation.

The mortality table has been updated from the RP-2014 Total Mortality with improvement according to 2018 Social Security Trustees Report to the Pub-2010 Amount-Weighted mortality table, with future generational mortality improvements projected according to Scale MP-2019 (with the Safety table for Police and Fire Participants, the Teachers table for School participants, and the General table for other participants and all beneficiaries). This change resulted in an increase in the calculated accrued liability and normal cost, relative to the assumptions previously in place.

The interest rate was changed from 7.0% to 6.75%. This change resulted in an increase in the calculated accrued liability and normal cost, relative to the assumptions previously in place.

## Executive Summary

### Five Year Valuation Summary

	01/01/2016	01/01/2017	01/01/2018	01/01/2019	01/01/2020
<b>Funding</b>					
Accrued Liability	\$ 36,646,784	\$ 38,383,370	\$ 40,011,582	\$ 41,838,488	\$ 47,137,148
Actuarial Value of Assets	\$ <u>22,070,043</u>	\$ <u>24,022,939</u>	\$ <u>26,476,508</u>	\$ <u>28,176,527</u>	\$ <u>30,115,122</u>
Unfunded Actuarial Accrued Liability	\$ 14,576,741	\$ 14,360,431	\$ 13,535,074	\$ 13,661,961	\$ 17,022,026
Funded Percentage	60.2%	62.6%	66.2%	67.3%	63.9%
Total Normal Cost (NC)	\$ 794,114	\$ 833,576	\$ 896,286	\$ 908,414	\$ 935,667
NC as a Percent of Covered Payroll	15.4%	14.8%	15.4%	15.6%	14.0%
Actual Contribution	\$ 1,693,414	\$ 1,812,602	\$ 1,851,899	1,531,040	TBD
Recommended Contribution	\$ 1,608,486	\$ 1,812,602	\$ 1,851,899	\$ 1,928,844	\$ 2,038,501
Recommended Contribution (% of Pay)	31.3%	32.2%	31.9%	33.0%	30.5%
Interest Rate	7.00%	7.00%	7.00%	7.00%	6.75%
Expense Load Assumption	N/A	N/A	N/A	N/A	N/A
<b>Rate of Return</b>					
Actuarial Value of Assets	6.69%	7.40%	8.51%	5.01%	7.14%
Market Value of Assets	0.67%	7.13%	15.76%	-6.13%	21.46%
<b>Demographic Information</b>					
Active Participants	113	114	120	122	143
Terminated Vested Participants	22	22	25	28	31
Retired Participants	84	84	86	90	90
Beneficiaries	12	14	15	14	15
Disabled Participants	0	0	0	0	0
Total Participants	<u>231</u>	<u>234</u>	<u>246</u>	<u>254</u>	<u>279</u>
Covered Payroll	\$ 5,142,178	\$ 5,623,140	\$ 5,810,106	\$ 5,840,123	\$ 6,683,828
Average Covered Pay	\$ 45,506	\$ 49,326	\$ 48,418	\$ 47,870	\$ 46,740



## Executive Summary

---

### Identification of Risks

The results presented in this report are shown as single point values. However, these values are derived using assumptions about future markets and demographic behavior. If actual experience deviates from our assumptions, the actual results for the plan will consequently deviate from those presented in this report. Therefore, it is critical to understand the risks facing this pension plan. The following table shows the risks we believe are most relevant to the Town of Lincoln Retirement Plan. The risks are generally ordered with those we believe to have the most significance at the top. Also shown are possible methods by which a more detailed assessment of the risk can be performed.

Type of Risk	Method to Assess Risk
Investment Return	Scenario Testing; Asset Liability Study
Participant Longevity	Projections and Contribution Strategy
Contribution Risk	Annual Monitoring

### Plan Maturity Measures - January 1, 2020

Each pension plan has a distinct life-cycle. New plans promise future benefits to active employees and then accumulate assets to pre-fund those benefits. As the plan matures, benefits are paid and the pre-funded assets begin to decumulate until ultimately, the plan pays out all benefits. A plan's maturity has a dramatic influence on how risks should be viewed. The following maturity measures illustrate where the Town of Lincoln Retirement Plan falls in its life-cycle.

#### **Duration of Liabilities: 14.2**

Duration is the most common measure of plan maturity. It is defined as the sensitivity of the liabilities to a change in the interest rate assumption. The metric also approximates the weighted average length of time, in years, until benefits are expected to be paid. A plan with high duration is, by definition, more sensitive to changes in interest rates. A plan with low duration is more susceptible to risk if asset performance deviates from expectations as there would be less time to make up for market losses in adverse market environments while more favorable environments could result in trapped surplus from gains. Conversely, high duration plans can often take on more risk when investing, and low duration plans are less sensitive to interest rate fluctuations.

#### **Demographic Distribution - Ratio of Actively Accruing Participants to All Participants: 51.3%**

A plan with a high ratio is more sensitive to fluctuations in salary and statutory changes. A plan with a low ratio is at higher risk from demographic experience. Such a plan should pay close attention to valuation assumptions as there will be less opportunity to realize future offsetting gains or losses when current experience deviates from assumptions. Plans with a low ratio also have limited opportunities to make alterations to plan design to affect future funded status.

#### **Asset Leverage - Ratio of Payroll for Plan Participants to Market Value of Assets: 21.0%**

Younger plans typically have a large payroll base from which to draw in order to fund the plan while mature plans often have a large pool of assets dedicated to providing benefits to a population primarily consisting of members no longer on payroll. Plans with low asset leverage will find it more difficult to address underfunding, as the contributions needed to make up the deficit will represent a higher percentage of payroll than for a plan with high asset leverage.

#### **Benefit Payment Percentage - Ratio of Annual Benefit Payments to Market Value of Assets: 6.1%**

As a plan enters its decumulation phase, a larger percentage of the pre-funded assets are paid out each year to retirees. A high percentage is not cause for alarm as long as the plan is nearly fully funded. However, such a plan is more sensitive to negative asset performance, especially if cash contributions are not an option to make up for losses.

## Assets and Liabilities

The basic building blocks of the actuarial report are contained in this section. These include:

- Actuarial Accrued Liabilities
- Asset Information
- Summary of Contributions

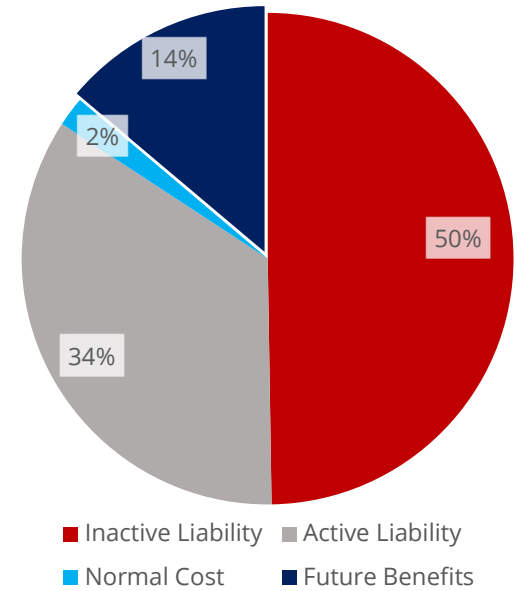
**Assets and Liabilities**

**Present Value of Future Benefits**

The Present Value of Future Benefits represents the future benefits payable to the existing participants.

	<b>January 1, 2020</b>
<b>Present Value of Future Benefits</b>	
Active participants	
Retirement	\$ 27,462,590
Death	77,248
Termination	583,826
Total active	\$ 28,123,664
Inactive participants	
Retired participants	\$ 25,555,912
Beneficiaries	919,227
Terminated vested participants	1,365,103
Total inactive	\$ 27,840,242
Total	\$ 55,963,906
 Present value of future payrolls	 \$ 52,833,726

Breakdown of Present Value of Future Benefits

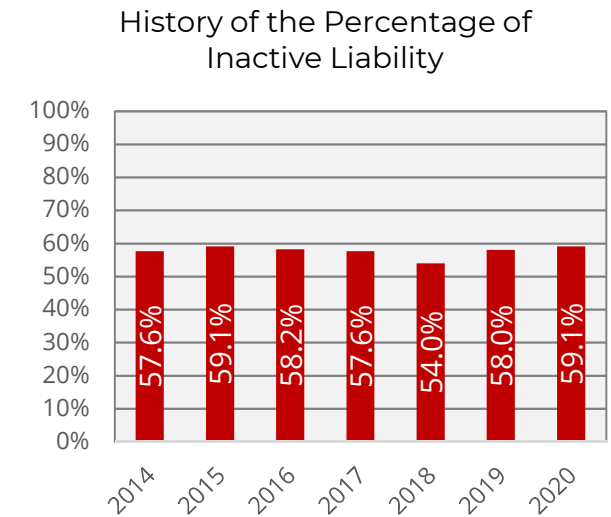


## Assets and Liabilities

### Actuarial Accrued Liability

The Actuarial Accrued Liability measures the present value of benefits earned as of the valuation date, using a specified set of actuarial assumptions.

	January 1, 2020
Active participants	
Retirement	\$ 19,220,484
Disability	0
Death	38,534
Termination	37,888
Total Active	<u>\$ 19,296,906</u>
Inactive participants	
Retired participants	\$ 25,555,912
Beneficiaries	919,227
Terminated vested participants	1,365,103
Total Inactive	<u>\$ 27,840,242</u>
Total Actuarial Accrued Liability	<u>\$ 47,137,148</u>
Normal Cost	\$ 1,079,906
Interest Rate	6.75%



## Assets and Liabilities

---

### Reconciliation of Actuarial Accrued Liability

A plan's Actuarial Accrued Liability will change from one year to the next. It increases due to benefit accruals (Normal Cost) and interest, and it decreases as benefits are paid. Demographic experience, assumptions changes, and plan changes can cause increases or decreases.

	<b>January 1, 2020</b>
<b>1. Actuarial Accrued Liability prior year</b>	\$ 41,838,488
<b>2. Increases or decreases due to:</b>	
(a) Normal Cost	\$ 908,414
(b) Interest Adjustment	2,925,534
(c) Benefits Paid	(1,939,938)
(d) Demographic Experience	(732,936)
(e) Interest Rate Changes	1,520,990
(f) Mortality Changes	2,616,596
(g) Other Assumption Changes	0
(h) Plan Changes	0
(i) Other Changes	0
<b>3. Actuarial Accrued Liability current year</b>	<b>\$ 47,137,148</b>

## Assets and Liabilities

### Asset Information

The amount of assets backing the pension promise is the most significant driver of volatility and future costs within a pension plan. The investment performance of the assets directly offsets the ultimate cost.

January 1, 2020

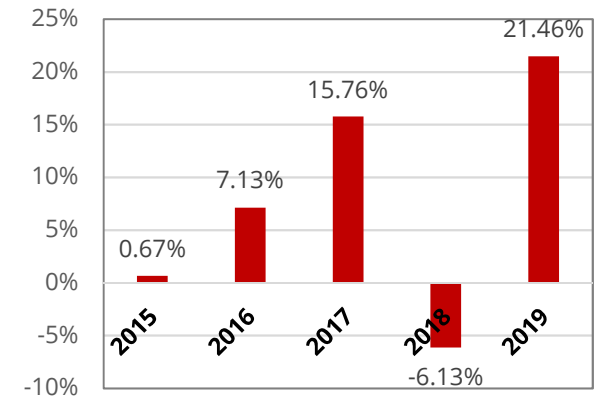
#### Market Value Reconciliation

Market value of assets, beginning of prior year	\$ 26,232,501
Contributions	
Employer contributions	\$ 1,531,040
Employee contributions	338,894
Total	\$ 1,869,934
Investment income	\$ 5,620,879
Benefit payments	\$ (1,939,938)
Administrative expenses	\$ 0
Market value of assets, beginning of current year	\$ 31,783,376
Historical Rates of Return	
Rate of return for 2019	21.46%
Rate of return for 2018	(6.13)%
Rate of return for 2017	15.76%
Rate of return for 2016	7.13%

#### Actuarial Value of Assets

Value at beginning of current year	\$ 30,115,122
------------------------------------	---------------

Rates of Return



Monitoring the pension plan's investment performance is crucial to eliminating surprises.

## Assets and Liabilities

### Asset Information (continued) – 20% Phase in

Plan Assets are used to develop funded percentages and contribution requirements.

January 1, 2020

#### Investment Gain or (Loss)

1. Prior year's market value of assets	\$	26,232,501
2. Employer contributions for the prior plan year	\$	1,531,040
3. Employee contributions for the prior plan year	\$	338,894
4. Benefit payments during the prior plan year	\$	(1,939,938)
5. Administrative expenses during the prior plan year	\$	0
6. Expected earnings at 7.0% to the end of the plan year on		
(a) Market value of assets	\$	1,836,275
(b) Contributions		64,879
(c) Benefit payments		(66,749)
(d) Administrative expenses		0
(e) Total expected earnings, (a) + (b) + (c) + (d)	\$	1,834,405
7. Expected market value of assets, (1) + (2) + (3) + (4) + (5) + (6e)	\$	27,996,902
8. Actual market value of assets	\$	31,783,376
9. Investment Gain or (Loss), (8) – (7)	\$	3,786,474

#### Actuarial Value of Assets

10. Market value of assets	\$	31,783,376
11. Deferred Investment gains or (losses)		
(a) Current year (80%)	\$	3,029,179
(b) First prior year (60%)		(2,185,517)
(c) Second prior year (40%)		819,141
(d) Third prior year (20%)		5,451
(e) Total	\$	1,668,254
12. Preliminary actuarial value of assets, (10 – (11e))	\$	30,115,122
13. 80% Market value of assets	\$	25,426,701
14. 120% Market value of assets	\$	38,140,051
15. Final actuarial value of assets		30,115,122
16. Return on actuarial value of assets		7.14%



## Assets and Liabilities

### Summary of Contributions

Below is a summary of historical and recommended contributions.

#### Recommended Contributions for Current Plan Year\*

<b>Contribution Date</b>	<b>Amount</b>
July 1, 2020	\$2,038,051
<b>Totals</b>	<b>\$2,038,051</b>

#### Recommended Contributions for Prior Plan Year\*

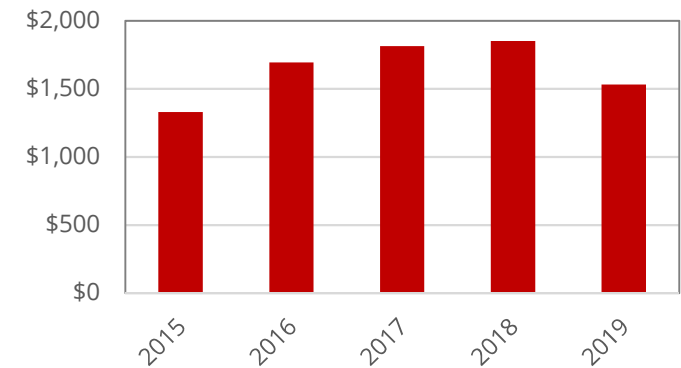
<b>Contribution Date</b>	<b>Amount</b>
July 1, 2019	\$1,928,844
<b>Totals</b>	<b>\$1,928,844</b>

#### Actual Contributions for Prior Plan Year\*

<b>Contribution Date</b>	<b>Amount</b>
July 1, 2019	\$1,531,040
<b>Totals</b>	<b>\$1,531,040</b>

\*Date is an approximation for timing of all contributions made throughout the year.

History of Actual Contributions



## Funding Results

The basic building blocks of the actuarial report are contained in this section. These include:

- Reconciliation of Gain/Loss
- Recommended Contribution

## Funding Results

### Reconciliation of (Gain)/Loss

January 1, 2020

#### Liability (Gain)/Loss

1. Actuarial liability, beginning of prior year	\$ 41,838,488
2. Normal cost for prior year	908,414
3. Benefit payments	(1,939,938)
4. Expected Interest	2,925,564
5. Change in Assumptions	4,137,586
6. Change in Plan Provisions	0
7. Expected actuarial liability, beginning of current year	\$ 47,870,084
8. Actual actuarial liability	\$ 47,137,148
9. Liability (Gain)/Loss, (8) – (7)	\$ (732,936)

#### Asset (Gain)/Loss

10. Actuarial value of assets, beginning of prior year	\$ 28,176,527
11. Contributions	1,869,934
12. Benefit payments	(1,939,938)
13. Administrative expenses	0
14. Expected Investment return	1,969,949
15. Expected actuarial value of assets, beginning of current year	\$ 30,076,472
16. Actual actuarial value of assets, beginning of current year	\$ 30,115,122
17. Asset (Gain)/Loss, (15) – (16)	\$ (38,650)

#### Total (Gain)/Loss, (9) + (17)

\$ (771,586)

## Funding Results

### Reconciliation of Unfunded Actuarial Accrued Liability (UAAL)

	January 1, 2020
1. UAAL beginning of prior year	\$ 13,661,961
2. Normal Cost for prior year	908,414
3. Employee Contributions	(1,531,040)
4. Employer Contributions	(338,894)
5. Interest	955,585
6. Expected UAAL, beginning of current year	\$ 13,656,026
7. Changes due to:	
(a) Amendments	\$ 0
(b) Assumptions	
(1) Interest Rate Change	\$ 1,520,990
(2) Mortality Table Change	2,616,596
(3) Mortality Update	0
(c) Funding Methods	0
(d) Plan Provisions	0
(e) Total	\$ 4,137,586
8. Gain/(Loss) due to:	
(a) Assets	\$ 38,650
(b) Liabilities	732,936
(c) Total	\$ 771,586
9. UAAL beginning of current year [(6)+(7)-(8)]	\$ 17,022,026

## Funding Results

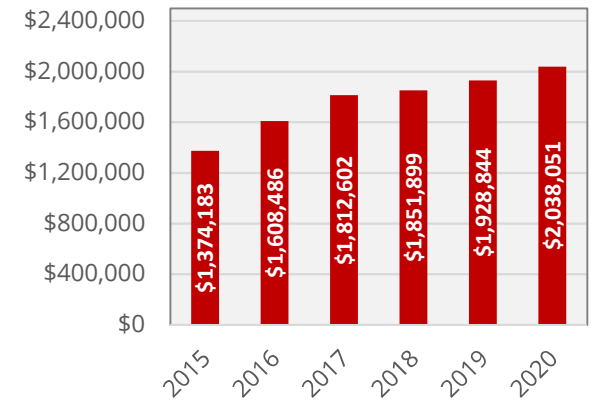
### Development of Actuarial Recommended Contribution

The recommended contribution is the annual amount necessary to fund the plan according to funding policies and/or applicable laws.

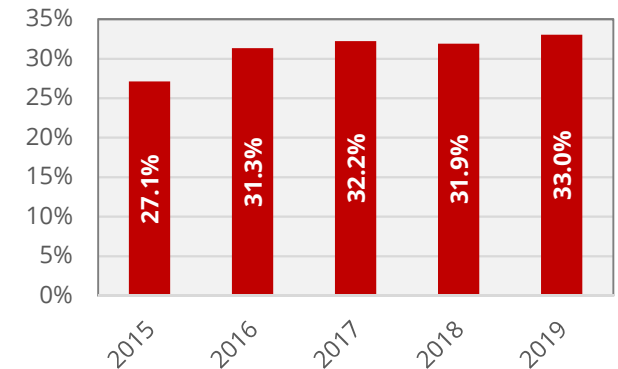
Recommended Contribution	January 1, 2020
1. Accrued Liability	\$ 43,487,540
2. Actuarial value of assets	29,504,421
3. Unfunded accrued liability, (1)-(2)	\$ 13,983,119
4. Normal Cost	
a. Total normal cost	\$ 935,667
b. Expected participant contributions	329,742
c. Net normal cost	\$ 605,925
5. Net Amortization Payment	\$ 1,362,778
6. Interest at Valuation Rate on (1) + (5)	\$ 67,739
7. Adjustment due to floor on individual divisions	\$ 1,609
8. Actuarial recommended funding contribution for valuation year	\$ 2,038,051
9. Valuation payroll	\$ 6,683,828
10. Calculated contribution as a percentage of payroll	30.5%

\*Additional details are provided in the back of the report.

History of Recommended Contribution



History of Recommended Contribution (% of Payroll)



## Data, Assumptions, and Plan Provisions

- Demographic Information
  - Plan Provisions
  - Assumptions and Methods

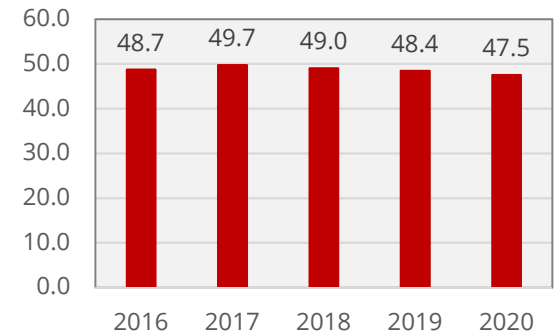
## Data, Assumptions, and Plan Provisions

### Demographic Information

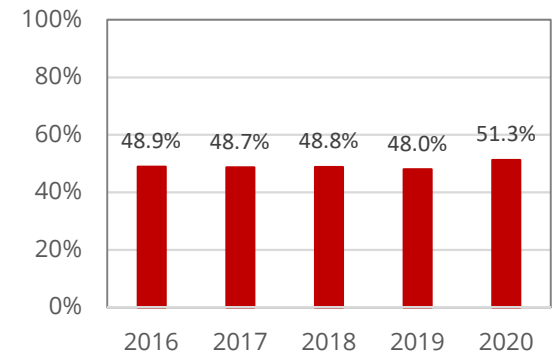
The foundation of a reliable actuarial report is the participant information provided by the plan sponsor. Monitoring trends in demographic information is crucial for long-term pension planning.

	January 1, 2019	January 1, 2020
<b>Participant Counts</b>		
Active Participants	122	143
Retired Participants	90	91
Beneficiaries	14	14
Disabled Participants	0	0
Terminated Vested Participants	28	31
<b>Total Participants</b>	<b>254</b>	<b>279</b>
<b>Active Participant Demographics (Ongoing)</b>		
Average Age	48.4	47.5
Average Service	11.3	9.6
Average Compensation	\$47,870	\$46,740
Total Covered Payroll	\$5,840,123	\$6,683,828

History of Average Active Participant Age



History of Active Participant Ratio



**Demographic Information (continued)**

	January 1, 2019	January 1, 2020
<b>Retiree Statistics</b>		
Average Age	70.7	70.1
Average Monthly Benefit	\$1,613	\$1,686
<b>Beneficiary Statistics</b>		
Average Age	78.1	79.4
Average Monthly Benefit	\$745	\$732
<b>Terminated Participant Statistics</b>		
Average Age	61.8	62.6
Average Monthly Benefit	\$936	\$991
<b>Terminated Participant Statistics – Return of Employee Contributions Only</b>		
Average Age	44.5	45.6
Average Employee Contribution Balance Owed	\$6,712	\$6,297

Monitoring the average age of the population is important due to the relationship of actuarial cost to age. Generally speaking, an older population generates a higher actuarial cost.

Changes in the ratio of active to retired participants can be a significant driver of costs in a volatile asset market.



**Demographic Information (continued) - Participants by Division**

	School	Police	Lonsdale Firefighters	Saylesville Firefighters	Firefighters	Town Hall	Water	Totals
<b>Actives</b>								
Eligible for normal retirement benefit	12	6	0	2	0	0	0	20
Non-vested benefit	63	17	0	0	0	0	0	80
Not yet eligible for retirement benefit	<u>29</u>	<u>13</u>	<u>0</u>	<u>1</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>43</u>
Total	104	36	0	3	0	0	0	143
<b>Receiving</b>								
Currently receiving benefit - retiree	37	41	3	2	0	6	2	91
Currently receiving benefit - beneficiary	<u>3</u>	<u>8</u>	<u>0</u>	<u>1</u>	<u>0</u>	<u>2</u>	<u>0</u>	<u>14</u>
Total	40	49	3	3	0	8	2	105
<b>Terminated Vested</b>								
Entitled to deferred benefit	27	2	1	0	0	1	0	31
<b>Totals</b>	171	87	4	6	0	9	2	279

**Data, Assumptions, and Plan Provisions**

**Participant Reconciliation**

	<b>Active</b>	<b>Terminated Vested</b>	<b>Retired</b>	<b>Beneficiaries</b>	<b>Totals</b>
<b>Prior Year</b>	122	28	90	14	254
<b>Active</b>					
To Death	0	0	0	0	0
To Terminated Vested	(3)	3	0	0	0
To Lump Sum Cash-Out	(1)	0	0	0	(1)
To Retired	(5)	0	5	0	0
<b>Terminated Vested</b>					
To Active	1	(1)	0	0	0
To Retired	0	0	0	0	0
To Survivor	0	0	0	0	0
To Lump Sum Cash-Out	0	0	0	0	0
To Death	0	0	0	0	0
<b>Retired</b>					
To Death	0	0	(4)	0	(4)
<b>Beneficiary</b>					
To Death	0	0	0	0	0
<b>Additions</b>	29	1	0	1	31
<b>Departures</b>	0	0	0	(1)	(1)
<b>Current Year</b>	143	31	91	14	279

**Data, Assumptions, and Plan Provisions**

**Active Participant Schedule**

Active participant information grouped based on age and service.

Age Group	Years of Service									Total
	0 to 5	5 to 10	10 to 15	15 to 20	20 to 25	25 to 30	30 to 35	35 to 40	40 & Up	
Under 25	3									3
25 to 29	9	2								11
30 to 34	6	7	1							14
35 to 39	5		3	1						9
40 to 44	9	1	3	3	1					17
45 to 49	12	7	2	5	1					27
50 to 54	6	2	3	1	3	1				16
55 to 59	6	3	6	6	5			1		27
60 to 64	4	2	1	3	5		1			16
65 to 69		1		1	1					3
70 & up										0
<b>Total</b>	<b>60</b>	<b>25</b>	<b>19</b>	<b>20</b>	<b>16</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>0</b>	<b>143</b>

## **Data, Assumptions, and Plan Provisions**

---

### **Plan Provisions**

#### **Plan Effective Date:**

The plan was originally effective September 1, 1970.

#### **Plan Status:**

The plan is closed to any new Saylesville Firefighter hired after January 1, 2016. Otherwise, the plan is open to new participants and all participants are eligible to accrue additional benefits.

#### **Eligibility for Participation:**

Employees who work 20 or more hours per week and more than five months per year are eligible to participate in the Plan.

#### **Normal Retirement Benefit:**

##### *Police (hired on or before July 1, 2013)*

Eligibility: Earlier of attainment of age 58 and completion of 10 years of credited service or the completion of 20 years of credited service regardless of age

Benefit: A monthly benefit equal to 2.5% of average monthly salary multiplied by credited service up to 20 years, plus 2% of average monthly salary multiplied by up to 5 additional years of credited service.

##### *Police (hired after July 1, 2013)*

Eligibility: Earlier of attainment of age 58 and completion of 10 years of credited service or the completion of 25 years of credited service regardless of age

Benefit: A monthly benefit equal to 2.0% of average monthly salary multiplied by credited service up to 30 years.

##### *Saylesville Firefighters*

Eligibility: Earlier of attainment of age 55 and completion of 10 years of credited service or the completion of 30 years of credited service regardless of age

Benefit: A monthly benefit equal to 2.5% of average monthly salary multiplied by credited service up to 20 years, plus 2% of average monthly salary multiplied by up to 10 additional years of credited service.

## **Data, Assumptions, and Plan Provisions**

---

### **Plan Provisions (continued)**

#### *Lonsdale Firefighters*

- Eligibility: Earlier of attainment of age 60 and completion of 10 years of credited service or the completion of 20 years of credited service regardless of age
- Benefit: A monthly benefit equal to 2.5% of average monthly salary multiplied by credited service up to 20 years, plus 2% of average monthly salary multiplied by up to 5 additional years of credited service.

#### *All other participants*

- Eligibility: Attainment of age 60 and completion of 10 years of credited service
- Benefit: A monthly benefit equal to 1.5% of average monthly salary multiplied by credited service, with a maximum benefit of 60% of average monthly salary.

### **Average Monthly Salary:**

Average compensation during the highest 3 consecutive years out of the final 10 years of employment

### **Pre-Retirement Death Benefit:**

The beneficiary of a participant who dies prior to retirement receives the participant's accumulated contributions. In lieu of this benefit, the surviving spouse of the participant who dies prior to retirement can elect to receive a monthly benefit equal to 50% of the participant's benefit accrued to the date of death, payable at the participant's normal retirement date.

### **Termination before 10 years of credited service:**

Refunded employee contributions with annual interest credited at 5% after 1997 (3.5% before 1998).

### **Termination after 10 years of credited service:**

100% vested after 10 years of credited service in accrued benefit deferred to Normal Retirement.

### **Compensation:**

Annual base compensation plus holiday pay and longevity pay but excluding overtime pay

### **Credited Service:**

Contributing employees will receive credit for all service rendered to the Town from their date of membership.

## **Data, Assumptions, and Plan Provisions**

---

### **Plan Provisions (continued)**

#### **Compensation**

Average of W-2 compensation (including amounts contributed by means of a salary reduction agreement to either a cash or deferred arrangement) for highest five consecutive calendar years within the last ten. If a participant works less than 1,800 hours of service, his compensation shall be annualized to reflect full-time service.

No compensation earned after January 1, 2013 will be taken into account for calculating the amount of accrued benefit for participants whose benefit accruals were frozen as of January 1, 2013.

#### **Average Compensation**

Average Compensation is the average of the 5 highest consecutive amounts of the last 10 completed years preceding retirement.

#### **Employee Contributions**

Participants shall not be required or permitted to make contributions under the Plan.

#### **Payment Forms**

Normal Form

A Single Life Annuity for single participants, Qualified Joint and 50% Survivor Annuity for married participants.

Optional Forms

Life Annuity, 50% Joint and Survivor Annuity, 100% Joint and Survivor Annuity, 10-Year Certain and Life Annuity, Single Sum if terminated prior to January 1, 2015

#### **Actuarial Equivalence**

Actuarial Equivalence will be computed using 7.5% interest and the mortality table in the 1971 Group Annuity Mortality Table for females for the primary annuitant and the male mortality for the contingent annuitant.

#### **Plan Provisions Not Included**

We are not aware of any plan provisions not included in the valuation.

#### **Adjustments Made for Subsequent Events**

We are not aware of any event following the measurement date and prior to the date of this report that would materially impact the results of this report.

## Data, Assumptions, and Plan Provisions

---

### Plan Provisions (continued)

#### Cost of living adjustments:

Police Department employees who retire after June 30, 2004 receive an automatic 3% annual compounded Cost of Living Adjustment to their monthly pension benefit. Officers hired after July 1, 2015 will receive a 3% compounded COLA capped 18 years after the date of retirement.

#### Employee Contributions:

As a requirement for participation, employees are required to contribute the following to the plan:

Police	8% of compensation
Firefighters	6% of compensation
All Others	4% of compensation

#### Normal form of payment

For participants other than Police and Firefighters, the normal form of benefit is a monthly life annuity. For Police and Firefighters, the normal form of benefit is a monthly benefit payable for the participant's lifetime with 67.5% of such benefit continued to a surviving contingent annuitant following the participant's death.

#### Optional forms of payment

A participant may choose to receive distributable benefits in an actuarially equivalent alternative form of benefit as follows.

- a monthly benefit payable for the participant's lifetime; or
- a monthly benefit payable for the participant's lifetime with a guarantee that the remainder, if any, of 120 payments will be made to the participant's beneficiary following the participant's death; or
- a monthly benefit payable for the participant's lifetime with a percentage, 50%, 66 2/3%, 75%, or 100%, of such benefit continuing to a surviving spouse following the participant's death.

#### Actuarial Equivalence

Actuarial Equivalence will be computed using 8.5% interest and the mortality table is the UP-1984 Table.

## **Data, Assumptions, and Plan Provisions**

---

### **Plan Provisions (continued)**

#### **Plan Provisions Not Included**

We are not aware of any plan provisions not included in the report.

#### **Adjustments Made for Subsequent Events**

We are not aware of any event following the measurement date and prior to the date of this report that would materially impact the results of this report.

#### **Changes Since Prior Report**

None.



## Data, Assumptions, and Plan Provisions

---

### Assumptions

Except where otherwise indicated, the following assumptions were selected by the plan sponsor with the concurrence of the actuary. Prescribed assumptions are based on the requirements of the relevant law, the Internal Revenue Code, and applicable regulation. The actuary was not able to evaluate the prescribed assumptions for reasonableness for the purpose of the measurement.

**Valuation Date:** January 1, 2020

**Participant and Asset Information as of:** January 1, 2020

### Retirement Rates (FE):

Police hired before July 1, 2013	100% retirement at the completion of 10 years of service and attainment of age 58 100% retirement at the completion of 20 years of service and attainment of age 55 20% retirement at the completion of 20 years of service and attainment of ages 40-49, 51-54 50% retirement at the completion of 20 years of service and attainment of age 50
Police hired after July 1, 2013	100% retirement at the completion of 10 years of service and attainment of age 58 100% retirement at the completion of 25 years of service and attainment of age 55 20% retirement at the completion of 25 years of service and attainment of ages 40-49, 51-54 50% retirement at the completion of 25 years of service and attainment of age 50
School	100% retirement at the completion of 10 years of service and attainment of age 63
Lonsdale Fire	100% retirement at the completion of 10 years of service and attainment of age 60 100% retirement at the completion of 20 years of service and attainment of age 55 20% retirement at the completion of 20 years of service and attainment of ages 40-49, 51-54 50% retirement at the completion of 20 years of service and attainment of age 50
Saylesville Fire	100% retirement at the completion of 10 years of service and attainment of age 55
All other participants	100% retirement at the completion of 10 years of service and attainment of age 63

The assumed retirement rates are based on a study of actual experience for the plan during January 1, 2010 – January 1, 2018 and are based on a combination of plan experience and expectation based upon current plan provisions. See the experience study report dated March 30, 2018.

**Data, Assumptions, and Plan Provisions**

**Assumptions (continued)**

**Mortality (FE):**

Healthy		
Police and Fire		Pub-2010 Safety Amount-Weighted mortality table, with future generational mortality improvements projected according to Scale MP-19.
Teacher		Pub-2010 Teacher Amount-Weighted mortality table, with future generational mortality improvements projected according to Scale MP-19.
Others and Beneficiaries		Pub-2010 General Amount-Weighted mortality table, with future generational mortality improvements projected according to Scale MP-19.
Disability		
Police and Fire		Pub-2010 Safety Amount-Weighted mortality table, with future generational mortality improvements projected according to Scale MP-19.
Teacher		Pub-2010 Teacher Amount-Weighted mortality table, with future generational mortality improvements projected according to Scale MP-19.
Others and Beneficiaries		Pub-2010 General Amount-Weighted mortality table, with future generational mortality improvements projected according to Scale MP-19.

As the plan is not large enough to have credible experience, mortality assumptions are set to reflect general population trends.

**Disability (FE):**

None

**Withdrawal (FE):**

Sample Rates shown below

Police and Fire	<b>Age</b>	<b>Male</b>	<b>Female</b>
	25	5.00%	7.50%
	30	3.50%	5.00%
	35	2.50%	3.50%
	40	1.50%	2.50%
	45	1.00%	1.50%
	50	0.50%	1.00%
	55	0.00%	0.50%
	60	0.00%	0.00%

**Data, Assumptions, and Plan Provisions**

---

**Assumptions (continued)**

**Withdrawal (Continued) (FE):**

All other participants	Age	Male	Female
	25	10.00%	15.00%
	30	7.00%	10.00%
	35	5.00%	7.00%
	40	3.00%	5.00%
	45	2.00%	3.00%
	50	1.00%	2.00%
	55	0.00%	1.00%
	60	0.00%	0.00%

The assumed withdrawal rates are based on a study of actual experience for the plan during January 1, 2010 – January 1, 2018. As the plan is not large enough to have credible experience, termination rates are set to reflect general population trends. See the experience study report dated March 30, 2018.

**Salary Projection Scale (FE):**

Age	Increase
<25	6.00%
25-29	5.00%
30-34	4.00%
35-39	3.50%
40-44	3.50%
45-49	3.50%
50-54	3.50%
55-59	3.50%
60+	3.00%

The salary projection scale is based on a study of actual experience for the plan during January 1, 2010 – January 1, 2018 and is based on a combination of plan experience and the scales outlined in the collective bargaining agreements for each division. See the experience study report dated March 30, 2018.

**Interest Rate (CO):** 6.75%. This assumption was evaluated as part of the experience study dated March 30, 2018 and adjusted at January 1, 2020 to reflect updated expectations.

**Expense and/or Contingency Loading (FE):** None

**Marital Status and Ages (FE):** 85% of Participants assumed to be married with wives assumed to be 3 years younger than husbands.

## Data, Assumptions, and Plan Provisions

---

### Assumptions (continued)

<b>Cost of Living Increases (FE):</b>	3.00% increase is assumed for Police retiring after June 30, 2004. Officers hired after July 1, 2015 will receive a 3% compounded COLA capped 18 years after the date of retirement. This assumption is based on the terms of the collective bargaining agreement.
<b>Funding method</b>	Liabilities and contributions in the report are based on application of an Entry Age Normal cost method.  In determining the Actuarially Recommended Contribution, the excess of the entry age actuarial accrued liability over the actuarial value of plan assets is amortized over a closed 20-year period as a level percentage of pay. For this purpose, pay is assumed to grow at 3.0% annually. The contribution for a given year is determined based on projected Unfunded Accrued Liability for the year as of the preceding valuation date. The calculation assumes mid-year timing to reflect contributions being received throughout the year.
<b>Asset Valuation Method:</b>	Market value of assets with a five year phase in of gains and losses, subject to a 20% corridor.
<b>Changes Since Prior Report:</b>	The Mortality assumption was updated from the RP-2014 Mortality Table, with future generational mortality improvements projected according to the 2018 Social Security Generational Improvement Scale from 2006, to the Pub-2010 Amount-Weighted mortality table, with future generational mortality improvements projected according to the Society of Actuaries' MP-19 Improvement Scale (with the Safety table for Police and Fire Participants, the Teachers table for School participants, and the General table for other participants and all beneficiaries).

FE indicates an assumption representing an estimate of future experience

MD indicates an assumption representing observations of estimates inherent in market data

CO indicates an assumption representing a combination of an estimate of future experience and observations of market data

## Other Measurements

The actuarial report also shows the necessary items required for plan reporting and any state requirements.

- Exhibit 1 – Schedule of Amortizations
- Exhibit 2 – Development of 2020 Actuarial Recommended Contribution – by Division
- Exhibit 3 – Development of 2021 Actuarial Recommended Contribution – by Division

**Other Measurements**

---

**Exhibit 1 - Schedule of Amortizations**

---

<u>Date Established</u>	<u>Remaining Period (Years)</u>	<u>Outstanding Balance</u>	<u>Annual Payment</u>
01/01/2011	11	\$ 5,051,364	\$ 551,571
01/01/2012	12	3,015,432	307,202
01/01/2013	13	1,095,377	104,832
01/01/2014	14	(266,045)	(24,058)
01/01/2015	15	4,466,973	383,601
01/01/2016	16	(60,819)	(4,982)
01/01/2017	17	16,092	1,263
01/01/2018	18	(531,800)	(40,057)
01/01/2019	19	(187,423)	(13,614)
01/01/2020	20	1,383,968	97,020
		<u>\$ 13,983,119</u>	<u>\$ 1,362,778</u>

**Other Measurements**

**Exhibit 2 - Development of 2020 Actuarial Recommended Contribution – by Division**

The actuarial recommended contribution is the annual amount necessary to fund the plan according to funding policies and/or applicable laws.

	<b>Police</b>	<b>School</b>	<b>Lonsdale Firefighters</b>	<b>Saylesville Firefighters</b>	<b>Firefighters</b>	<b>Town Hall</b>	<b>Water</b>	<b>Total</b>
(1) Total Normal Cost	\$633,802	\$283,897	\$0	\$17,968	\$0	\$0	\$0	\$935,667
(2) Expected Employee Contributions	\$208,475	\$112,210	\$0	\$9,057	\$0	\$0	\$0	\$329,742
(3) Employer Normal Cost (1)-(2)	\$425,327	\$171,687	\$0	\$8,911	\$0	\$0	\$0	\$605,925
(4) Net Amortization Payment	\$1,001,570	\$233,449	\$26,467	\$54,727	(\$1,555)	\$28,635	\$19,485	\$1,362,778
(5) Interest at Valuation Rate on (3)+(4)	\$49,097	\$13,940	\$911	\$2,190	(\$54)	\$985	\$670	\$67,739
(6) Adjustment due to floor limit of \$0	<u>\$0</u>	<u>\$0</u>	<u>\$0</u>	<u>\$0</u>	<u>\$1,609</u>	<u>\$0</u>	<u>\$0</u>	<u>\$1,609</u>
(7) Actuarial Recommended Funding Contribution (3)+(4)+(5)+(6)	\$1,475,994	\$419,076	\$27,378	\$65,828	\$0	\$29,620	\$20,155	\$2,038,051
(8) Payroll	\$2,759,402	\$3,027,241	\$0	\$228,684	\$0	\$0	\$0	\$6,015,327
(9) Actuarial Recommended Funding Contribution as a % of Payroll (8)/(9)	53.5%	13.8%	N/A	28.8%	N/A	N/A	N/A	33.9%
Accrued Liability	\$31,561,959	\$8,560,041	\$985,039	\$1,865,822	\$0	\$278,024	\$236,655	\$43,487,540
Valuation Assets	<u>\$21,227,826</u>	<u>\$6,228,221</u>	<u>\$723,577</u>	<u>\$1,296,056</u>	<u>\$30,645</u>	<u>(\$30,277)</u>	<u>\$28,373</u>	<u>\$29,504,421</u>
Unfunded Accrued Liability	\$10,334,133	\$2,331,820	\$261,462	\$569,766	(\$30,645)	\$308,301	\$208,282	\$13,983,119

## Other Measurements

### Exhibit 2 - Development of 2021 Actuarial Recommended Contribution – by Division

The actuarial recommended contribution is the annual amount necessary to fund the plan according to funding policies and/or applicable laws.

	Police	School	Lonsdale Firefighters	Saylesville Firefighters	Firefighters	Town Hall	Water	Total
(1) Total Normal Cost	\$704,326	\$396,808	\$0	\$11,169	\$0	\$0	\$0	\$1,112,303
(2) Expected Employee Contributions	\$211,482	\$142,264	\$0	\$4,342	\$0	\$0	\$0	\$358,088
(3) Employer Normal Cost (1)-(2)	\$492,844	\$254,544	\$0	\$6,827	\$0	\$0	\$0	\$754,215
(4) Net Amortization Payment	\$1,144,082	\$295,244	\$28,723	\$62,736	(\$1,754)	\$29,819	\$21,063	\$1,579,913
(5) Interest at Valuation Rate on (3)+(4)	\$54,344	\$18,253	\$954	\$2,309	(\$58)	\$990	\$699	\$77,491
(6) Adjustment due to floor limit of \$0	<u>\$0</u>	<u>\$0</u>	<u>\$0</u>	<u>\$0</u>	<u>\$1,812</u>	<u>\$0</u>	<u>\$0</u>	<u>\$1,812</u>
(7) Actuarial Recommended Funding Contribution (3)+(4)+(5)+(6)	\$1,691,270	\$568,041	\$29,677	\$71,872	\$0	\$30,809	\$21,762	\$2,413,431
(8) Payroll	\$2,822,225	\$3,822,684	\$0	\$239,434	\$0	\$0	\$0	\$6,884,343
(9) Actuarial Recommended Funding Contribution as a % of Payroll (8)/(9)	59.9%	14.9%	N/A	30.0%	N/A	N/A	N/A	35.1%
Accrued Liability	\$35,533,144	\$9,975,659	\$1,028,466	\$2,011,949	\$0	\$251,683	\$232,268	\$49,033,171
Valuation Assets	<u>\$23,737,340</u>	<u>\$6,894,760</u>	<u>\$751,438</u>	<u>\$1,358,560</u>	<u>\$33,970</u>	<u>(\$57,603)</u>	<u>\$12,223</u>	<u>\$32,730,688</u>
Unfunded Accrued Liability	\$11,795,804	\$3,080,899	\$277,028	\$653,389	(\$33,970)	\$309,286	\$220,045	\$16,302,481