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Town of Cumberland, RI
Police Retirement Plan

July 1, 2020

Actuarial Valuation Report

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Actuarial Certification

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

- Funded Status;
- Determine Recommended Contribution for the current plan year; and
- Determine Estimated Contribution for the following plan year.

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.

Certain assumptions and methods were chosen by the employer and have been disclosed in the "Actuarial Assumptions" section of this report. 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, Jr. FSA, CFA, EA, MAAA
Enrollment Number: 20-08496

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

December 22, 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:

Ultimate Pension Cost = Benefits Paid - Investment Income + 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.

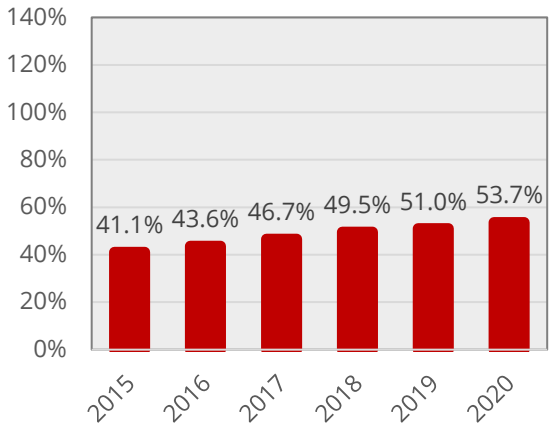
We suggest that a plan sponsor treat the actuarial report as you would treat a scorecard. It is simply a measure of progress toward the ultimate goal of paying all pension benefits when participants retire.

Summary Results

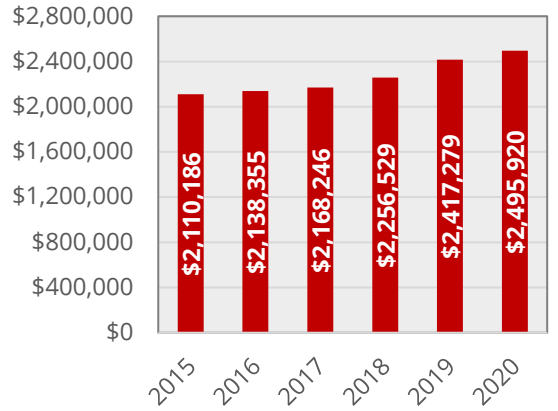
The actuarial valuation's primary purpose is to produce a scorecard measure displaying the funding progress of the plan toward the ultimate goal of paying benefits at retirement. The accrued liability is based on an entry age level percentage of pay.

	July 1, 2019	July 1, 2020	July 1, 2021
Funded Status Measures			
Accrued Liability	$ 38,343,033	$ 40,029,822	
Actuarial Value of Assets	$ 19,559,591	$ 21,481,571	
Unfunded Actuarial Accrued Liability (UAAL)	$ 18,783,442	$ 18,548,251	
Funded Percentage (AVA)	51.0%	53.7%	
Funded Percentage (MVA)	51.5%	53.4%	
Cost Measures			
Actuarial Recommended Contribution	$ 2,417,279	$ 2,495,920	$ 2,584,826
Actuarial Recommended Contribution (as a percentage of payroll)	79.2%	79.5%	
Asset Performance			
Market Value of Assets (MVA)	$ 19,750,027	$ 21,392,362	
Actuarial Value of Assets (AVA)	19,559,591	21,481,571	
Actuarial Value/Market Value	99.0%	100.4%	
Market Value Rate of Return	9.5%	5.2%	
Actuarial Value Rate of Return	6.7%	6.7%	
Participant Information			
Active Participants	43	41	
Terminated Vested Participants	1	1	
Retirees, Beneficiaries and Disabled	72	75	
Total	116	117	
Expected Payroll	$ 3,053,587	$ 3,141,404	

History of Funded Ratio



History of Recommended Contribution



Changes since Prior Valuation and Key Notes

The mortality table has been updated from using a fully generational improvement scale based on assumptions developed from the 2018 Social Security Trustees Report to the improvement scale based on assumptions developed from the 2019 Social Security Trustees Report. The mortality table (RP-2014 Blue Collar) and the year in which improvements begin (2006) remain the same. This change results in a decrease in liability and normal cost.

Five Year Valuation Summary

	07/01/2016	07/01/2017	07/01/2018	07/01/2019	07/01/2020
Funding					
Accrued Liability	$ 33,475,557	$ 34,580,512	$ 35,958,715	$ 38,343,033	$ 40,029,822
Actuarial Value of Assets	$ 14,594,768	$ 16,138,523	$ 17,808,301	$ 19,559,591	$ 21,481,571
Unfunded Actuarial Accrued Liability	$ 18,880,789	$ 18,441,989	$ 18,150,414	$ 18,783,442	$ 18,548,251
Funded Percentage	43.6%	46.7%	49.5%	51.0%	53.7%
Total Normal Cost (NC)	$ 651,363	$ 654,232	$ 682,675	$ 747,928	$ 746,400
NC as a Percent of Covered Payroll	23.7%	23.2%	22.8%	24.5%	23.8%
Actual Employer Contribution	$ 2,182,000	$ 2,218,887	$ 2,263,350	$ 2,420,000	TBD
Recommended Contribution	$ 2,138,355	$ 2,168,246	$ 2,256,529	$ 2,417,279	$ 2,495,920
Recommended Contribution (% of Pay)	77.7%	77.0%	75.4%	79.2%	79.5%
Interest Rate	7.50%	7.50%	7.50%	7.25%	7.25%
Rate of Return					
Actuarial Value of Assets	6.5%	7.1%	6.8%	6.7%	6.7%
Market Value of Assets	1.4%	9.6%	7.0%	9.5%	5.2%
Demographic Information					
Active Participants	42	42	44	43	41
Terminated Vested Participants	1	1	1	1	1
Retired Participants	54	56	55	57	58
Beneficiaries	9	9	9	9	10
Disabled Participants	6	6	6	6	7
Total Participants	112	114	115	116	117
Covered Payroll	$ 2,750,648	$ 2,817,547	$ 2,994,240	$ 3,053,587	$ 3,141,404
Average Covered Pay	$ 65,492	$ 67,084	$ 68,051	$ 71,014	$ 76,620

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 Cumberland, RI Police 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
Interest Rate Risk	Projections; Scenario Testing
Contribution Risk	Projections and Contribution Strategy; Annual Monitoring
Demographic Risk	Projections; Stress Testing
Regulatory Risk	Scenario Testing

Plan Maturity Measures - July 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 Cumberland, RI Police Retirement Plan falls in its life-cycle.

Duration of Liabilities: 13.2

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: 35.0%

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: 14.7%

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: 9.8%

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

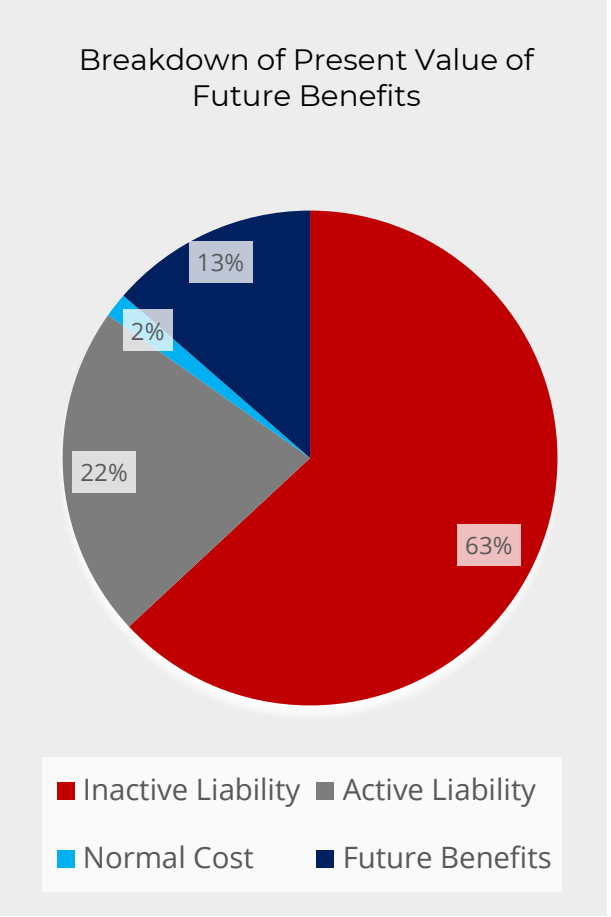
The basic building blocks of the actuarial report are contained in this section. These include:

- Actuarial Accrued Liabilities
- Asset Information
- Summary of Contributions

Present Value of Future Benefits

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

	July 1, 2020
Present Value of Future Benefits	
Active participants	
Retirement	$ 15,753,663
Disability	$ 1,545,731
Death	$ 130,688
Termination	$ 0
Total active	$ 17,430,082
Inactive participants	
Retired participants	$ 25,955,210
Beneficiaries	$ 1,026,952
Disabled	$ 2,773,502
Terminated vested participants	$ 11,950
Total inactive	$ 29,767,614
Total	$ 47,197,696
Present value of future payrolls	$ 32,206,786

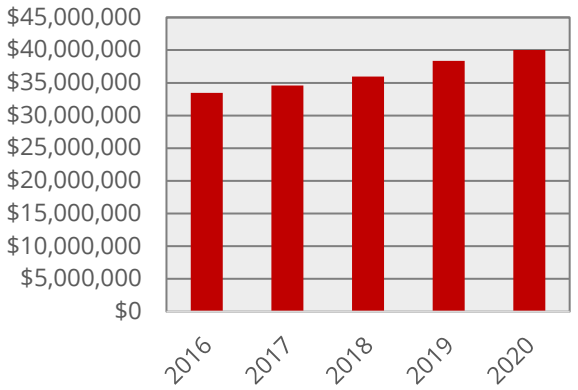


Actuarial Accrued Liability

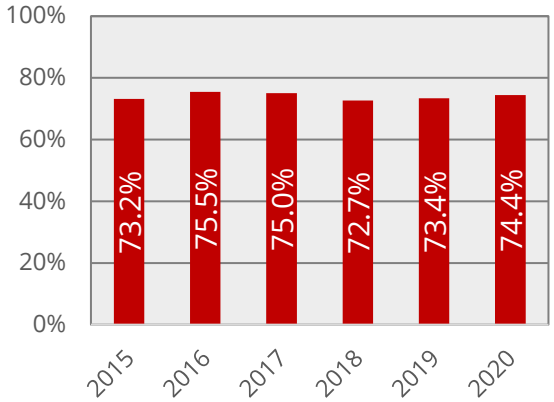
The Actuarial Accrued Liability measures the present value of benefits earned as of the valuation date, using a specified set of actuarial assumptions.

	July 1, 2020
Active participants	
Retirement	$9,634,763
Disability	$564,078
Death	$63,367
Termination	$0
Total Active	$10,262,208
Inactive participants	
Retired participants	$25,955,210
Beneficiaries	$1,026,952
Disabled	$2,773,502
Terminated vested participants	$11,950
Total Inactive	$29,767,614
Total Actuarial Accrued Liability	$40,029,822
Normal Cost	$746,400
Interest Rate	7.25%

History of Liabilities



History of the Percentage of Inactive Liability



Reconciliation of Actuarial Accrued Liability

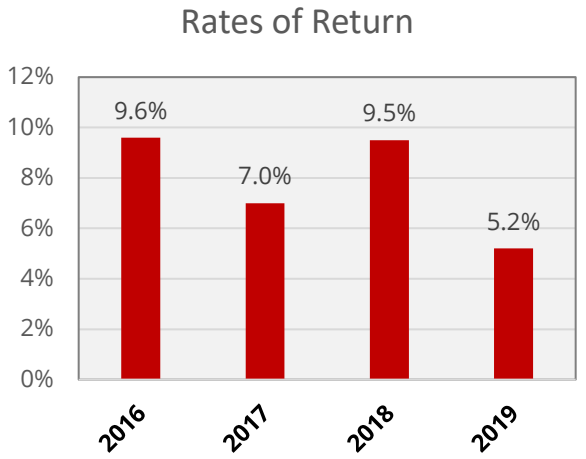
A plan's Actuarial Accrued Liability will change from one year to the next. It increases due to benefit accruals (Normal Cost) and interest, and it decreases as benefits are paid. Demographic experience, assumptions changes, and plan changes can cause increases or decreases.

	July 1, 2020
1. Actuarial Accrued Liability prior year	$38,343,033
2. Increases or decreases due to:	
(a) Normal Cost	$747,928
(b) Interest Adjustment	$2,759,395
(c) Benefits Paid	($2,097,379)
(d) Demographic Experience	$398,849
(e) Interest Rate Assumption Changes	$0
(f) Mortality Assumption Changes	($122,004)
(g) Other Assumption Changes	$0
(h) Plan Changes	$0
(i) Other Changes	$0
3. Actuarial Accrued Liability current year	$40,029,822

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.

	July 1, 2020
Market Value Reconciliation	
Market value of assets, beginning of prior year	$19,750,027
Contributions	
Employer contributions	$2,420,000
Employee contributions	$278,185
Total	$2,698,185
Investment income	$1,041,529
Benefit payments	($2,097,379)
Market value of assets, beginning of current year	$21,392,362
Historical Rates of Return	
Rate of return for 2019	5.2%
Rate of return for 2018	9.5%
Rate of return for 2017	7.0%
Rate of return for 2016	9.6%
Actuarial Value of Assets	
Value at beginning of current year	$21,481,571



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

Asset Information (continued) – 20% Phase in

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

	July 1, 2020
Investment Gain or (Loss)	
1. Prior year's market value of assets	$19,750,027
2. Employer contributions for the prior plan year	$2,420,000
3. Employee contributions for the prior plan year	$278,185
4. Benefit payments during the prior plan year	($2,097,379)
5. Expected earnings at 7.25% to the end of the plan year on	
(a) Market value of assets	$1,431,877
(b) Contributions	$96,098
(c) Benefit payments	($74,700)
(d) Total expected earnings, (a) + (b) + (c)	$1,453,275
6. Expected market value of assets, (1) + (2) + (3) + (4) + (5d)	$21,804,108
7. Actual market value of assets	$21,392,362
8. Investment Gain or (Loss), (7) – (6)	($411,746)
Actuarial Value of Assets	
9. Market value of assets	$21,392,362
10. Deferred Investment gains or (losses)	
(a) Current year [(80%) x ($411,746)]	(329,397)
(b) First prior year [(60%) x $355,623]	213,374
(c) Second prior year [(40%) x ($82,459)]	(32,984)
(d) Third prior year [(20%) x $298,988]	59,798
(e) Total	($89,209)
11. Preliminary actuarial value of assets, (9 – (10e))	$21,481,571
12. 80% Market value of assets	$17,113,890
13. 120% Market value of assets	$25,670,834
14. Final actuarial value of assets	$21,481,571
15. Return on actuarial value of assets	6.7%

Summary of Employer Contributions

Below is a summary of historical and recommended contributions.

Recommended Contributions for the Current Plan Year *

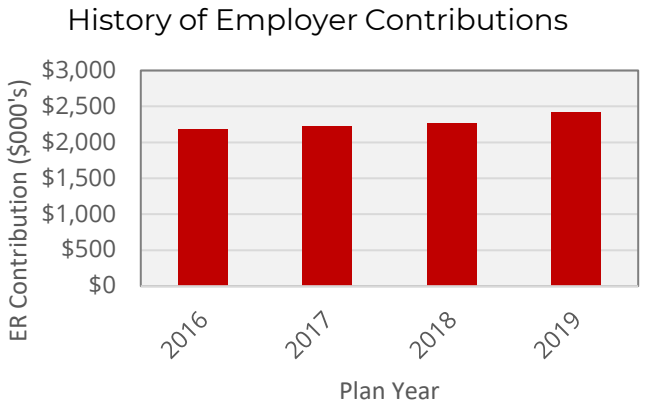
Contribution Date	Amount
July 1, 2021	$2,495,920
Totals	**$2,495,920**

Recommended Contributions for Prior Plan Year*

Contribution Date	Amount
July 1, 2020	$2,417,279
Totals	**$2,417,279**

Actual Employer Contributions for Prior Plan Year*

Contribution Date	Amount
January 1, 2020	$2,420,000
Totals	**$2,420,000**



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

Funding Results

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

- Reconciliation of Gain/Loss
- Reconciliation of Unfunded Actuarial Accrued Liability (UAAL)
- Recommended Contribution

Reconciliation of (Gain)/Loss

	July 1, 2020
Liability (Gain)/Loss	
1. Actuarial liability, beginning of prior year	$38,343,033
2. Normal cost for prior year	$747,928
3. Benefit payments	($2,097,379)
4. Expected Interest	$2,759,395
5. Change in Assumptions	($122,004)
6. Change in Plan Provisions	$0
7. Expected actuarial liability, beginning of current year	$39,630,973
8. Actual actuarial liability	$40,029,822
9. Liability (Gain)/Loss, (8) – (7)	$398,849
Asset (Gain)/Loss	
10. Actuarial value of assets, beginning of prior year	$19,559,591
11. Contributions	$2,698,185
12. Benefit payments	($2,097,379)
13. Expected Investment return	$1,439,469
14. Expected actuarial value of assets, beginning of current year	$21,599,866
15. Actual actuarial value of assets, beginning of current year	$21,481,571
16. Asset (Gain)/Loss, (14) – (15)	$118,295
Total (Gain)/Loss, (9) + (16)	$517,144

Reconciliation of Unfunded Actuarial Accrued Liability (UAAL)

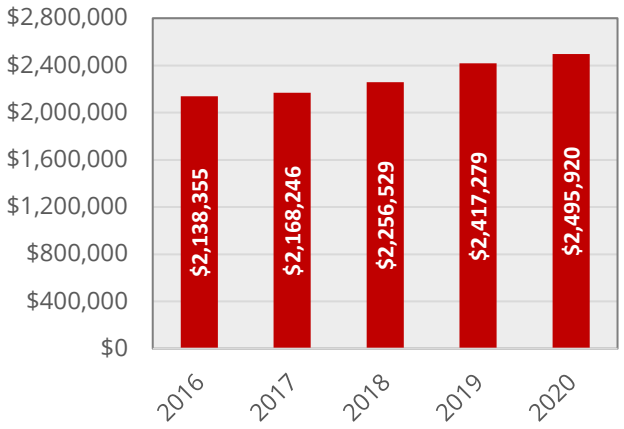
	July 1, 2020
1. UAAL beginning of prior year	$18,783,442
2. Normal Cost for prior year	$747,928
3. Employer Contributions	($2,420,000)
4. Employee Contributions	($278,185)
5. Interest	$1,319,926
6. Expected UAAL, beginning of current year	$18,153,111
7. Changes due to:	
(a) Amendments	$0
(b) Assumptions	
(1) Mortality Update	($122,004)
(c) Funding Methods	$0
(d) Plan Provisions	$0
(e) Total	($122,004)
8. Gain/(Loss) due to:	
(b) Assets	$118,295
(c) Liabilities	398,849
(d) Total	$517,144
9. UAAL beginning of current year [(6)+(7)+(8)]	$18,548,251

Development of Actuarial Recommended Contribution

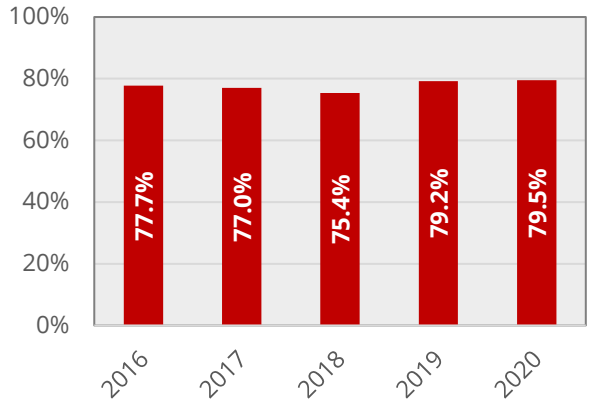
The recommended contribution is the annual amount necessary to fund the plan according to funding policies and/or applicable laws.

Funded Position	July 1, 2020
1. Entry age accrued Liability	$40,029,822
2. Actuarial value of assets	$21,481,571
3. Unfunded accrued liability, (1)-(2)	$18,548,251
Employer Contributions: Current Plan Year	
1. Normal Cost	
a. Total normal cost	$746,400
b. Expected participant contributions	$253,502
c. Net normal cost	$492,898
2. Amortization of UAAL	$1,834,300
3. Interest	$168,722
4. Calculated contribution at valuation date	$2,495,920
5. Valuation payroll	$3,141,404
6. Calculated contribution as a percentage of payroll	79.5%
Employer Contributions: Next Plan Year (Estimated)	
1. Projected payroll, next plan year	$3,251,353
2. Actuarial recommended funding contribution	$2,584,826

History of Recommended Contribution



History of Recommended Contribution (% of Payroll)



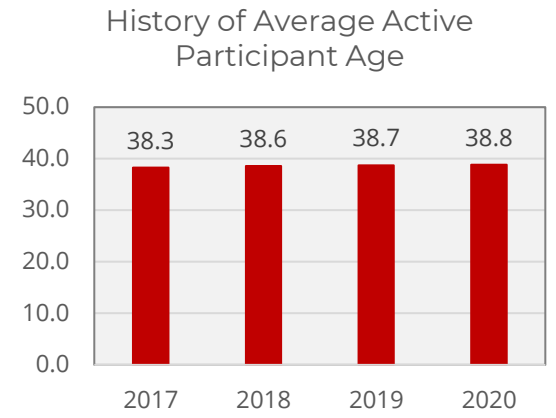
Data, Assumptions, and Plan Provisions

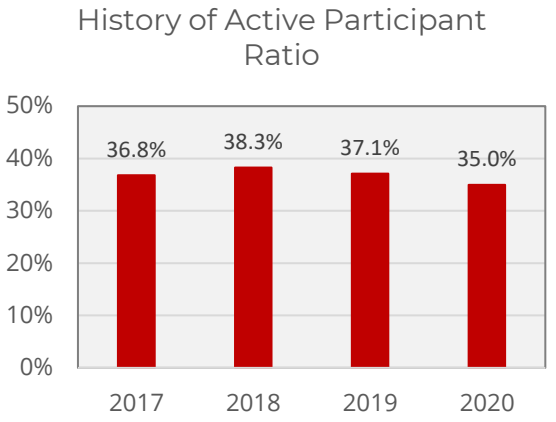
- Demographic Information
- Plan Provisions
- Assumptions and Methods

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.

	July 1, 2019	July 1, 2020
Participant Counts		
Active Participants	43	41
Retired Participants	57	58
Beneficiaries	9	10
Disabled Participants	6	7
Terminated Vested Participants	1	1
Total Participants	116	117
Active Participant Demographics		
Average Age	38.7	38.8
Average Service	10.9	11.0
Average Compensation	$71,014	$76,620
Total Covered Payroll	$3,053,587	$3,141,404





Demographic Information (continued)

	July 1, 2019	July 1, 2020
Retiree Statistics		
Average Age	62.3	62.5
Average Monthly Benefit	$2,540	$2,639
Beneficiary Statistics		
Average Age	73.7	75.5
Average Monthly Benefit	$1,028	$1,025
Disabled Participant Statistics		
Average Age	63.6	61.1
Average Monthly Benefit	$2,473	$2,429
Terminated Participant Statistics		
Average Age	35.4	36.4
Average Employee Contribution Balance Owed	$11,950	$11,950

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.

Participant Reconciliation

	Active	Terminated Vested	Disabled	Retired	Beneficiaries	Totals
Prior Year	43	1	6	57	9	116
Active						
To Death	0	0	0	0	0	0
To Terminated Vested	0	0	0	0	0	0
To Lump Sum Cash-Out	0	0	0	0	0	0
To Disabled	(1)	0	1	0	0	0
To Retired	(2)	0	0	2	0	0
Terminated Vested						
To Retired	0	0	0	0	0	0
To Survivor	0	0	0	0	0	0
To Lump Sum Cash-Out	0	0	0	0	0	0
To Death	0	0	0	0	0	0
Retired						
To Death	0	0	0	(1)	0	(1)
Beneficiary						
To Death	0	0	0	0	0	0
Additions	1	0	0	0	1	2
Departures	0	0	0	0	0	0
Current Year	41	1	7	58	10	117

Active Participant Schedule

Active participant information grouped based on age and service.

Age Group	Years of Service									
	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	Total
Under 25										0
25 to 29	8									8
30 to 34		5								5
35 to 39		4	6	1						11
40 to 44		1	3	2						6
45 to 49		2		2	2					6
50 to 54			2	1	2					5
55 to 59										0
60 to 64										0
65 to 69										0
70 & up										0
Total	8	12	11	6	4	0	0	0	0	41

Plan Effective Date:

The plan was originally effective July 1, 1958. It was amended and restated April 6, 2016.

Eligibility for Participation:

All full-time Police Officers are eligible to participate in this Plan.

Normal Retirement Benefit:

Police (hired on or before July 1, 2013)

Eligibility: Completion of 20 years of service regardless of age

Benefit: For credited service prior to 7/1/2013, 2.75% of average annual earnings for the first 20 years plus 1.00% for the next 5 years. For credited service after 7/1/2013, 2.50% of average annual earnings for the first 20 years plus 1.00% for the next 10 years. The maximum retirement benefit is 60% of average annual earnings.

Police (hired after July 1, 2013)

Eligibility: Attainment of age 55 and completion of 25 years of service

Benefit: 2.00% of average annual earnings for each year of credited service up to 30 total years

Average Annual Earnings:

Police (hired on or before July 1, 2013)

Average of final 36 months of base salary, overtime pay, holiday pay, shift differential pay, longevity pay, and accreditation pay

Police (hired after July 1, 2013)

Average of final 5 years of base salary, holiday pay, and longevity pay

Credited Service:

Full years and completed months from date of participation.

Pre-Retirement Death Benefit:

If an inactive officer dies after 15 years of service and while married, the spouse will receive a monthly pension equal to the amount which would be payable if the Officer had retired with a 67.5% Joint & Survivor Annuity.

For those with less than 15 years of service, the beneficiary will receive a refund of the member's contributions with 5% interest.

Post-Retirement Death Benefit:

A spouse's pension equal to 67.5% of the participant's pension is payable until the earlier of the spouse's death or remarriage, or to surviving dependent children under age 18.

Disability Retirement Benefit:

Duty Related	66.67% of Average Compensation
Non Duty Related	Completed 12 - 18 years of service. Accrued benefit is subject to reduction as follow: At 12 years - 60%, increase by 5% for each year up to 17 years, 100% at 18 years.

Termination Benefit:

If an officer terminates employment after 15 years of service, the officer will receive 35% of base annual pay deferred until the date at which the officer would've reached their 20th year of service.

Vesting:

Police (hired on or before July 1, 2013)	100% on completing 15 years of service
Police (hired after July 1, 2013)	100% on completing 25 years of service

Employee Contributions:

Police (hired on or before July 1, 2013)	8% of annual earnings effective 7/1/2013. No interest is accrued.
Police (hired after July 1, 2013)	11% of annual earnings effective 7/1/2013. No interest is accrued.

Normal form of payment:

The normal form of payment for a married participant is a monthly benefit payable for the participant's lifetime with 67.5% of such benefit continuing to a surviving spouse. The normal form of payment for an unmarried participant is a monthly benefit payable for the participant's lifetime with no further payments after the participant's death.

Cost of Living Increases:

3.00% non-compounded from age 57 for retirement or disability on or after July 1, 1992
No COLA for retirement before July 1, 1992

Actuarial Equivalence

Calculated according to the UP-1984 Mortality Table at 7.0% interest.

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 Reports

None

Data, Assumptions, and Plan Provisions

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: July 1, 2020

Participant and Asset Information as of: July 1, 2020

Retirement Rates *(FE)*:

Police hired on or before 7/1/2013	70% retirement at the completion of 20 years of service 10% retirement at the completion of 21 - 24 years of service 70% retirement at the completion of 25 years of service 10% retirement at the completion of 26 - 29 years of service 100% retirement at the completion of 30 years of service
Police hired after 7/1/2013	100% retirement at the completion of 25 years of service and attainment of age 55
	Due to the size of the plan and limited experience, in our professional judgement, the use of an assumption more sophisticated than a single point estimate for post July 1, 2013 hires is not merited. The assumption for hires prior to July 1, 2013 is in line with the analysis from the experience study dated March 30, 2018.

Disability Rates *(FE)*: 1985 Pension Disability Table. All Disability is assumed to be duty-related.

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

Mortality *(FE)*:

Healthy	RP-2014 Blue Collar Mortality with 2019 Social Security Generational Improvement Scale from 2006
Disabled	RP-2014 Blue Collar Mortality with 2019 Social Security Generational Improvement Scale from 2006
	As the plan is not large enough to have credible experience, mortality assumptions are set to reflect general population trends.

Withdrawal *(FE):* None.

Data, Assumptions, and Plan Provisions

Salary Projection Scale *(FE):*

Age	Increase
<25	6.0%
25-29	6.0%
30-34	5.5%
35-39	5.0%
40-44	4.0%
45-49	3.0%
50-54	2.0%
55-59	1.0%
60+	1.0%

The annual pay increase reflects the employer's average target increase for a career employee.

Interest Rate *(CO):*

7.25%

This assumption was reviewed as part of the experience study dated March 30, 2018. The plan sponsor, in conjunction with their asset advisors, set the assumption.

Expense and/or Contingency Loading *(FE):*

None

Marital Status and Ages *(FE):*

100% of Participants assumed to be married with wives assumed to be 4 years younger than husbands.

Funding method

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 percent of pay.

Asset Valuation Method:

Market value of assets with a five year phase in of gains and losses.

Amortization Method:

Closed 20-year level percent with layered bases of the Unfunded Actuarial Accrued Liability; for this purpose, payroll is assumed to grow at 3.50% annually

Other Procedures:

Benefits projected to assumed retirement age for active participants have been limited so as not to exceed maximum benefits imposed by Code Section 415(b) and/or maximum compensation limits of Code Section 401(a)(17).

Changes Since Prior Report: To better reflect anticipated experience, the mortality improvement assumption has been updated from the Social Security improvement scale based on assumptions from the 2018 Trustees Report to the Social Security improvement scale based on assumptions from the 2019 Trustees Report. The base mortality table is unchanged. This change results in a decrease in liability and normal cost.

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 1 - Schedule of Amortizations

Date Established	Remaining Period (Years)	Outstanding Balance	Annual Payment
07/01/2012	12	$17,742,871	$1,784,773
07/01/2013	13	($3,246)	($306)
07/01/2014	14	($124,585)	($11,101)
07/01/2015	15	($386,217)	($32,645)
07/01/2016	16	$153,313	$12,347
07/01/2017	17	($189,636)	($14,606)
07/01/2018	18	$32,278	$2,386
07/01/2019	19	$1,039,882	$73,981
07/01/2020	20	$283,591	$19,471
		$18,548,251	$1,834,300