



Town of North Providence, Rhode Island Police Pension Plan

July 1, 2020
Actuarial Valuation Report
Determination of Contribution for
Plan Year Ending June 30, 2022

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Actuarial Certification

At the request of the plan sponsor, this report summarizes the Town of North Providence, Rhode Island Police Pension Plan as of July 1, 2020. The purpose of this report is to communicate the following results of the valuation:

- Funded Status; and
- Actuarial Recommended Contribution for the Plan Year Ending June 30, 2022

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 City. 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 Board. 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.

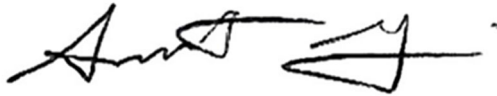
Any valuation results shown prior to July 1, 2016 were provided by the prior actuary. The values were checked for reasonableness and when reproduced were within 5% of the provided values.

Actuarial Certification

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.

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



Scott Gavin, FSA, EA, MAAA
Enrolled Actuary No. 20-07543



Lawrence Watts, Jr., FSA, CFA, EA, MAAA
Enrolled Actuary No. 20-08496

December 14, 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:

- 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.

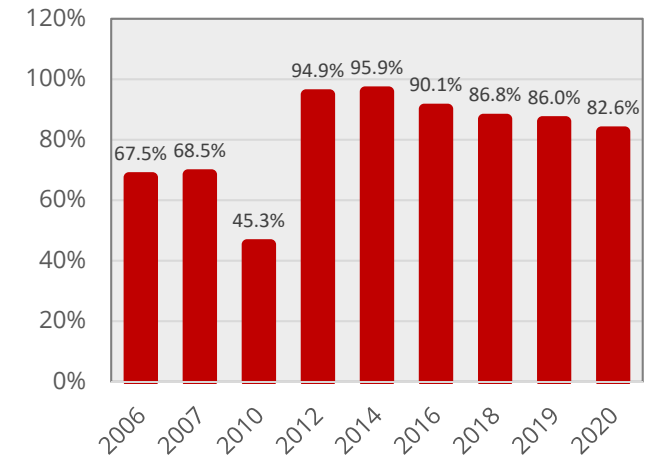
Executive Summary

Summary Results

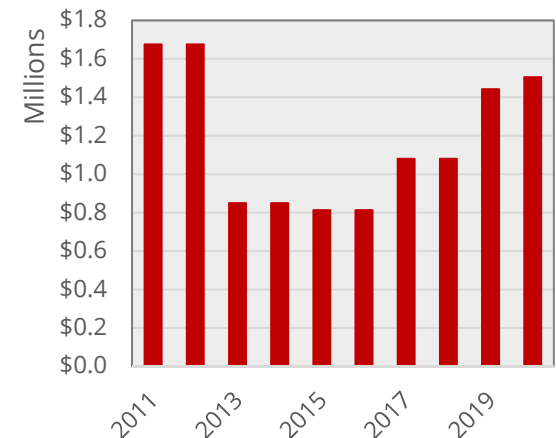
The actuarial valuation's primary purpose is to produce a scorecard measure displaying the funding progress of the plan toward the ultimate goal of paying benefits at retirement. The accrued liability is based on an entry age level percentage of pay.

	July 1, 2019	July 1, 2020
Funded Status Measures		
Entry Age Accrued Liability	\$50,155,232	\$53,803,893
Actuarial Value of Assets	\$43,148,651	\$44,465,736
Unfunded Actuarial Accrued Liability (UAAL)	\$7,006,581	\$9,338,157
Funded Percentage (AVA)	86.0%	82.6%
Funded Percentage (MVA)	86.1%	79.5%
Asset Performance		
Market Value of Assets (MVA)	\$43,168,556	\$42,796,555
Actuarial Value of Assets (AVA)	\$43,148,651	\$44,465,736
Actuarial Value/Market Value	100.0%	103.9%
Return on Market Value	6.37%	1.41%
Participant Information		
Active Participants	64	61
Terminated Vested Participants	3	7
Retirees, Beneficiaries, and Disableds	95	97
Total	162	165
Cost Measures		
	For Plan Year Ending June 30, 2021	For Plan Year Ending June 30, 2022
Actuarial recommended Contribution	\$1,504,160	\$2,046,807
As a percentage of projected payroll	34.4%	42.9%

History of Funded Ratio



History of Recommended Contribution



Executive Summary

Changes since Prior Valuation and Key Notes

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

The healthy and disabled tables for generational mortality improvement have been updated from a scale based on assumptions developed from the 2018 Social Security Administration's Trustees Report to a scale based on assumptions developed from the 2019 Social Security Administration's Trustees Report. The mortality tables (RP-2014 Blue Collar and RP-2014 Disabled, respectively) and the year in which improvements begin (2006) remain the same. These changes result in a decrease in the liabilities and the actuarial recommended contribution.

Executive Summary

Historical Valuation Summary

	7/1/2014	7/1/2016	7/1/2018	7/1/2019 ¹	7/1/2020
Funding					
Accrued Liability	\$39,484,542	\$44,148,794	\$48,668,362	\$50,155,232	\$53,803,893
Actuarial Value of Assets	\$37,854,440	\$39,792,575	\$42,266,290	\$43,148,651	\$44,465,736
Unfunded Actuarial Accrued Liability	\$1,630,102	\$4,356,219	\$6,402,072	\$7,006,581	\$9,338,157
Funded Percentage	95.9%	90.1%	86.8%	86.0%	82.6%
Total Normal Cost (NC)	\$541,150	\$736,642	\$918,138	\$943,820	\$1,017,321
NC as a Percent of Covered Payroll	14.7%	19.0%	22.3%	22.3%	22.0%
Actual Contribution	\$1,110,332	\$1,118,098	\$1,460,559	N/A	N/A
Recommended Contribution	\$812,452	\$1,079,745	\$1,442,262	\$1,504,160	\$2,046,807
Recommended Contribution (% of Pay) ²	21.3%	26.2%	34.0%	34.4%	42.9%
Interest Rate	7.25%	7.25%	7.00%	7.00%	7.00%
Expense Load Assumption	N/A	N/A	N/A	N/A	N/A
Rate of Return					
Actuarial Value of Assets	\$37,854,440	\$39,792,575	\$42,266,290	\$43,148,651	\$44,465,736
Market Value of Assets	\$38,426,236	\$36,680,757	\$41,736,189	\$43,168,556	\$42,796,555
Demographic Information					
Active Participants	62	61	64	64	61
Retired Participants	55	64	69	69	70
Beneficiaries	3	6	8	8	10
Disabled Participants	16	18	18	18	17
Terminated Vested Participants	7	6	3	3	7
Total Participants	143	155	162	162	165
Covered Payroll	\$3,674,659	\$3,811,043	\$4,116,403	\$4,239,895	\$4,628,303
Average Covered Pay	\$59,269	\$62,476	\$64,319	\$66,248	\$75,874

¹Valuation performed using a roll forward of the preceding plan year's participant data. This includes the payroll and average covered pay data, which were estimated using the 3% salary scale and 4% payroll growth assumptions.

²These values may differ from figures present in prior valuation reports. Going forward, the recommended contribution will be expressed as a percentage of projected payroll for the year in which the contribution is due.

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 North Providence, Rhode Island Police Pension 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
Demographic Risk	Projections; Stress Testing
Contribution Risk	Annual Monitoring
Political 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 North Providence, Rhode Island Police Pension Plan falls in its life-cycle.

Duration of Liabilities: 12.5%

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: 37.0%

A plan with a high ratio is more sensitive to fluctuations in salary (if a salary-based plan) 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: 10.7%

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: 6.6%

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

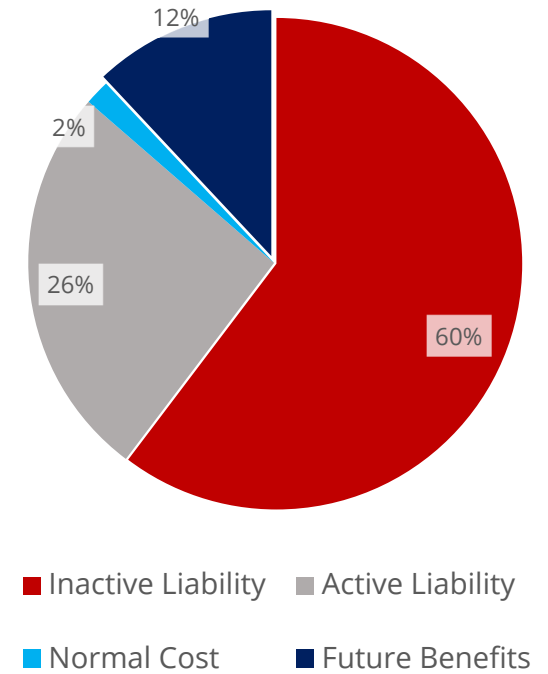
Assets and Liabilities

Present Value of Future Benefits

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

	July 1, 2020
Present Value of Future Benefits	
Active participants	
Retirement	\$23,210,872
Disability	1,393,885
Death	65,121
Termination	52,864
Total active	<u>\$24,722,742</u>
Inactive participants	
Retired participants	\$29,264,839
Beneficiaries	1,172,483
Disabled participants	6,619,357
Terminated vested participants	504,083
Total inactive	<u>\$37,560,762</u>
Total	\$62,283,504
 Present value of future payrolls	 \$39,222,641

Breakdown of Present Value of Future Benefits



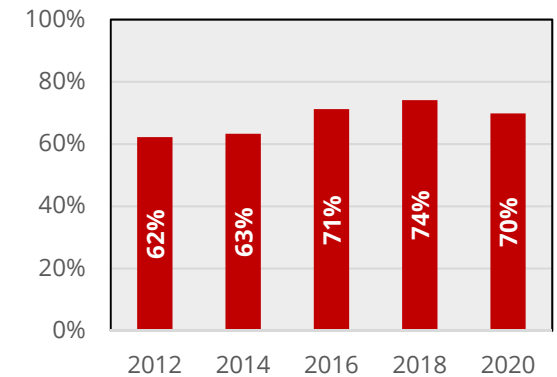
Assets and Liabilities

Entry Age Accrued Liability

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

	July 1, 2020
Funding Liabilities - Entry Age Normal as Percent of Pay	
Active participants	
Retirement	\$15,592,941
Disability	612,854
Death	40,246
Termination	(2,910)
Total Active	<u>\$16,243,131</u>
Inactive participants	
Retired participants	\$29,264,839
Beneficiaries	1,172,483
Disabled participants	6,619,357
Terminated vested participants	504,083
Total Inactive	<u>\$37,560,762</u>
Total	\$53,803,893
Normal Cost	\$1,017,321
Interest Rate	7.00%

History of the Percentage of Inactive Liability



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.

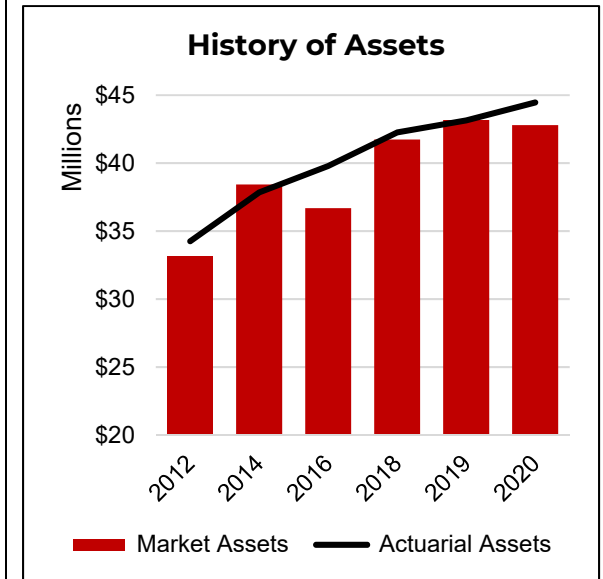
June 30, 2020

Market Value Reconciliation

Market value of assets, beginning of prior year	\$43,168,556
Contributions	
Employer contributions	\$1,460,559
Employee contributions	\$409,770
Total	\$1,870,329
Investment income and expenses	\$600,203
Benefit payments	(\$2,842,533)
Market value of assets, beginning of current year	\$42,796,555
Historical Rates of Return	
Rate of return for July 1, 2019 – June 30, 2020	1.41%
Rate of return for July 1, 2018 – June 30, 2019	6.37%
Rate of return for July 1, 2017 – June 30, 2018	8.25%
Rate of return for July 1, 2016 – June 30, 2017	10.53%
Rate of return for July 1, 2015 – June 30, 2016	0.64%
Rate of return for July 1, 2014 – June 30, 2015	-0.49%

Actuarial Value of Assets

Value at beginning of current year	\$44,465,736
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Monitoring the pension plan's investment performance is crucial to eliminating surprises.

Assets and Liabilities

Asset Information (continued) – 20% Phase in

The Actuarial Value of Assets is used to develop funded percentages and contribution requirements.

	July 1, 2020
Investment Gain or (Loss)	
1. Prior year's market value of assets	\$43,168,556
2. Employer contributions for the prior plan year	\$1,460,559
3. Employee contributions for the prior plan year	\$409,770
4. Benefit payments during the prior plan year	(\$2,842,533)
5. Expected earnings at 7.00% to the end of the plan year on	
(a) Market value of assets	\$3,021,799
(b) Contributions	\$64,355
(c) Benefit payments	(\$97,806)
(d) Total expected earnings, (a) + (b) + (c)	\$2,988,348
6. Expected market value of assets, (1) + (2) + (3) + (4) + (5d)	\$45,184,700
7. Actual market value of assets	\$42,796,555
8. Investment Gain or (Loss), (7) – (6)	(\$2,388,145)
Actuarial Value of Assets	
9. Market value of assets	\$42,796,555
10. Deferred Investment gains or (losses)	
(a) Current year (80% x (2,388,145))	(1,910,516)
(b) First prior year (60% x (258,831))	(155,299)
(c) Second prior year (40% x 391,004)	156,402
(d) Third prior year (20% x 1,201,161)	240,232
(e) Total	(\$1,669,181)
11. Preliminary actuarial value of assets, (10 – (11e))	\$44,465,736
12. 80% Market value of assets	\$34,237,244
13. 120% Market value of assets	\$51,355,866
14. Final actuarial value of assets	\$44,465,736
15. Return on actuarial value of assets	5.37%

Assets and Liabilities

Summary of Contributions

Below is a summary of historical and recommended contributions.

Recommended Contributions for Plan Year Ending June 30, 2022*

Contribution Date	Amount
January 1, 2022	\$2,046,807
Totals	\$2,046,807

Recommended Contributions for Current Plan Year*

Contribution Date	Amount
January 1, 2021	\$1,504,160
Totals	\$1,504,160

Recommended Contributions for Prior Plan Year*

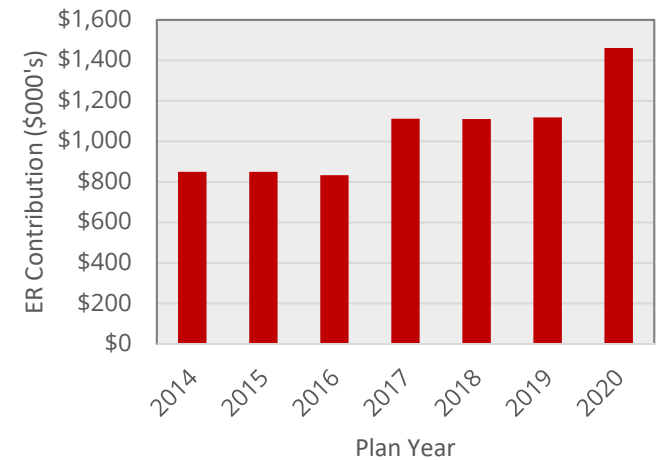
Contribution Date	Amount
January 1, 2020	\$1,442,262
Totals	\$1,442,262

Actual Contributions for Prior Plan Year*

Contribution Date	Amount
January 1, 2020	\$1,460,559
Totals	\$1,460,559

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

History of Employer 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

July 1, 2020

Liability (Gain)/Loss

1. Actuarial liability, beginning of prior year	\$50,155,232
2. Normal cost for prior year	\$943,820
3. Benefit payments	(\$2,842,533)
4. Expected Interest	\$3,477,445
5. Change in Assumptions	(\$321,573)
6. Change in Plan Provisions	\$0
7. Expected actuarial liability, beginning of current year	\$51,412,391
8. Actual actuarial liability	\$53,803,893
9. Liability (Gain)/Loss, (8) – (7)	\$2,391,502

Asset Gain/(Loss)

10. Actuarial value of assets, beginning of prior year	\$43,148,651
11. Employer Contributions	\$1,460,559
12. Employee Contributions	\$409,770
13. Benefit payments	(\$2,842,533)
14. Expected Investment return	\$2,986,378
15. Expected actuarial value of assets, beginning of current year	\$45,162,825
16. Actual actuarial value of assets, beginning of current year	\$44,465,736
17. Asset (Gain)/Loss, (15) – (16)	\$697,089

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

\$3,088,591

Funding Results

Reconciliation of Unfunded Actuarial Accrued Liability (UAAL)

	July 1, 2020
1. UAAL beginning of prior year	\$7,006,581
2. Normal Cost for prior year	\$943,820
3. Employer Contributions	(\$1,460,559)
4. Employee Contributions	(\$409,770)
5. Interest	\$491,067
6. Expected UAAL, beginning of current year	\$6,571,139
7. Changes due to:	
(a) Amendments	\$0
(b) Assumptions	
(1) Mortality Update	(\$321,573)
(c) Funding Methods	\$0
(d) Plan Provisions	\$0
(e) Total	(\$321,573)
8. (Gain)/Loss due to:	
(a) Assets	\$697,089
(b) Liabilities	\$2,391,502
(c) Total	\$3,088,591
9. UAAL beginning of current year [(6)+(7e)+(8c)]	\$9,338,157

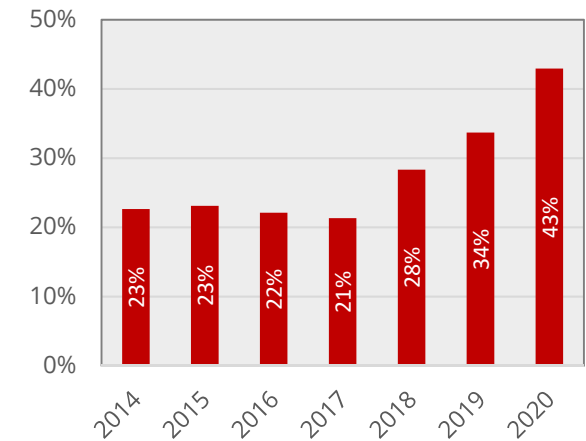
Funding Results

Development of Actuarial Recommended Contribution

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

Valuation Date For Plan Year Ending	July 1, 2020 June 30, 2022
Recommended Contribution	
1. Accrued Accrued Liability	\$53,803,893
2. Actuarial Value of Assets	\$44,465,736
3. Unfunded Accrued Liability, (1) - (2)	\$9,338,157
4. Normal Cost	
(a) Total normal cost	\$1,017,321
(b) Expected participant contributions	\$416,547
(c) Net normal cost	\$600,774
5. Net Amortization Payment	\$1,248,500
6. Interest at Valuation Rate on (4c) + (5)	\$197,533
7. Total actuarial recommended contribution for plan year ending June 30, 2022	\$2,046,807
8. Expected Valuation payroll	\$4,767,152
9. Calculated contribution as a percentage of expected payroll	42.9%

History of Recommended Contribution (% of Payroll)



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

Data, Assumptions, and Plan Provisions

- Demographic Information
- Plan Provisions
- Assumptions and Methods

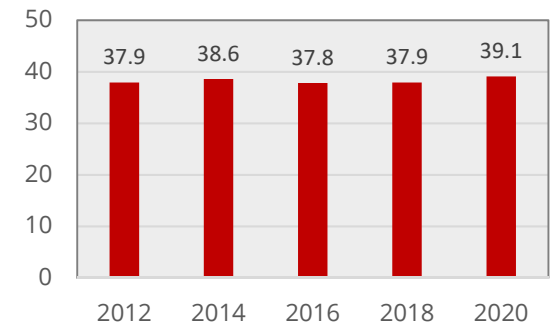
Data, Assumptions, and Plan Provisions

Demographic Information

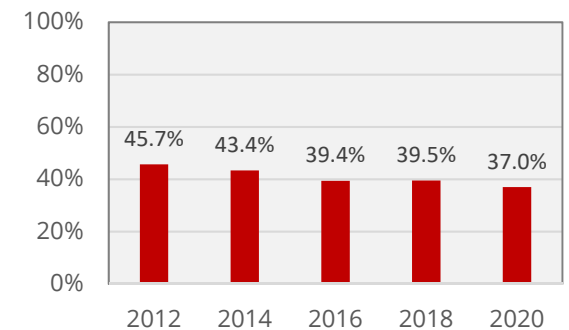
The foundation of a reliable actuarial report is the participant information provided by the plan sponsor. Monitoring trends in demographic information is crucial for long-term pension planning.

	July 1, 2018	July 1, 2020
Participant Counts		
Active Participants	64	61
Retired Participants - Full Benefit	53	54
Retired Participants - COLA Only ¹	16	16
Beneficiaries	8	10
Disabled Participants	18	17
Terminated Vested Participants	3	7
Total Participants	162	165
Active Participant Demographics (Ongoing)		
Average Age	37.9	39.1
Average Service	8.9	10.5
Average Compensation	\$64,319	\$75,874
Total Covered Payroll	\$4,116,403	\$4,628,303

History of Average Active Participant Age



History of Active Participant Ratio



¹ This splits out retirees receiving only COLA payments from the Plan. Annuities were purchased through John Hancock.

Demographic Information (continued)

	July 1, 2019	July 1, 2020
Retiree Statistics – Full Benefit		
Average Age	53.7	55.7
Average Monthly Benefit	\$2,609	\$2,622
Retiree Statistics – COLA Only		
Average Age	75.0	77.0
Average Monthly Benefit	\$213	\$213
Beneficiary Statistics		
Average Age	68.0	70.0
Average Monthly Benefit	\$607	\$819
Disabled Participant Statistics		
Average Age	56.6	56.0
Average Monthly Benefit	\$2,460	\$2,543
Terminated Vested Participant Statistics		
Average Age	51.9	47.2
Average Monthly Benefit	\$1,517	\$1,517
Average Return of Contributions*	\$20,052	\$20,916

*Five of the seven terminated participants are only owed a return of employee contributions.

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 (7/1/2018)	64	3	18	69	8	162
Active						
To Retired	(1)	0	0	1	0	0
To Disabled	(1)	0	1	0	0	0
To Terminated Vested	(4)	4	0	0	0	0
To Lump Sum Cash-Out	(1)	0	0	0	0	(1)
Terminated Vested						
To Active	0	0	0	0	0	0
To Retired	0	0	0	0	0	0
To Disabled	0	0	0	0	0	0
To Lump Sum Cash-Out	0	0	0	0	0	0
Retired						
To Death	0	0	0	0	0	0
Disabled						
To Death	0	0	(2)	0	0	(2)
Additions						
New	4	0	0	0	2	6
Alternate Payee	0	0	0	0	0	0
Departures						
	0	0	0	0	0	0
Current Year (7/1/2020)	61	7	17	70	10	165

Data, Assumptions, and Plan Provisions

Active Participant Schedule (7/1/2020)

Active participant information grouped based on age and service.

Age Group	Years of Service										Total
	Under 1	1 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 to 34	35 to 39	40 & Up	
Under 25		1									1
25 to 29	1	7	1								9
30 to 34		4	8	3							15
35 to 39		1	2	2	3						8
40 to 44				8	4						12
45 to 49			1		5	2					8
50 to 54	1		1	2	1	1					6
55 to 59		1				1					2
60 to 64											0
65 to 69											0
70 & up											0
Total	2	14	13	15	13	4	0	0	0	0	61

Data, Assumptions, and Plan Provisions

Plan Effective Date:

The plan was originally effective July 1, 1978.

Eligibility for Participation:

All full-time Police Officers working 1,000 hours or more who are contributing to the Plan are eligible to participate.

Credited Service:

For Vesting

A year of vesting service is credited for each plan year in which a participant is credited with at least 1,000 hours of service.

For Benefit Accrual

Full years and completed months from date of hire.

Average Compensation:

Average of 3 highest non-consecutive years during the last 10 years of base annual pay (including longevity pay and excluding overtime)

Normal Retirement Benefit:

Eligibility: Completion of 20 years of service regardless of age

Benefit: 2.50% of Average Compensation for the first 20 years of Credited Service plus 2.00% of Average Compensation for any years of Credited Service in excess of 20. The maximum retirement benefit is 75% of Average Compensation.

Occupational Disability Benefit:

Eligibility: Permanent and total disability

Benefit: 66 2/3% of Average Compensation

Non-Occupational Disability Benefit:

Eligibility: Completion of 7 years of service and eligible for Social Security Disability

Benefit: 50% of Average Compensation

Data, Assumptions, and Plan Provisions

Pre-Retirement Death Benefit:

Eligibility: Immediately eligible, payable immediately

- (1) Benefit (in the line of duty): If death occurs while in the line of duty and the participant is married, the spouse shall receive 66-2/3% of the gross pay that the employee was receiving at the time of his death. The spouse will receive all yearly increases as well. This benefit ceases upon the surviving spouse attaining age 65, remarriage, or death. If death of the surviving spouse occurs before all children are age 21, this benefit will continue to be paid to them until the 21st birthday, unless they're attending college full time, then the benefit will continue until they graduate. If the employee is not married and has no children, then the named beneficiary shall receive a \$10,000 lump sum benefit.
- (2) Benefit (retirement eligible): If death occurs while actively employed and the participant was eligible to retire at the time of their death, then 67.5% of the annuity payable to the participant is payable to the surviving spouse until they remarry or die, and then to the dependent children until they attain the age of 18. If death occurs when a participant is in the line of duty (1) and is retirement eligible (2), the beneficiary benefit is the greater of the benefit in (1) or (2).
- (3) Other Benefit: If a participant is not eligible for (1) or (2) above, they are eligible for \$400 per year of service, subject to a minimum of \$2,000 and a maximum of \$8,000. If death occurs after the termination date, only the Employee Accumulation is payable.

Post-Retirement Death Benefit:

Eligibility: Death after retirement, payable immediately

Benefit: \$400 per year of service, subject to a minimum of \$2,000 and a maximum of \$8,000, reduced by 25% for each year subsequent to retirement date but not less than \$2,000 total, plus the Employee Accumulation less annuity payments received. If the former participant's termination date occurred before their retirement date, only their Employee Accumulation less annuity payments received is payable.

Termination Benefit

Eligibility: 100% vested upon termination (completion of 10 years of service)

Benefit: 2.50% of Average Compensation multiplied by Credited Service. This is payable at the date at which the employee would've reached 20 years of service had they continue employment, regardless of age.

Vesting:

100% on completing 10 years of vesting service

Data, Assumptions, and Plan Provisions

Employee Contributions:

<i>Prior to January 1, 2007</i>	7% of Compensation, accumulated with 5% interest
<i>On or after January 1, 2007 but before July 1, 2018</i>	8% of Compensation, accumulated with 5% interest
<i>On or after July 1, 2018</i>	9% of Compensation, accumulated with 5% interest

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 (FE):

Participants retiring on after July 1, 1982 and before July 1, 1986

- Eligibility: All eligible.
- COLA: Lump sum payment each January 1st in an amount equal to 3% of the original retirement allowance next following date of retirement, plus 3% every year thereafter, not compounded.

Participants retiring on or after July 1, 1986 and before July 1, 2004

- Eligibility: Completion of 20 years of service
- COLA: Lump sum payment each January 1st in an amount equal to 3% of the original annual retirement allowance, increasing each year by 1%, to a maximum of 12%.

Participants retiring on or after July 1, 2004 and before January 1, 2006

- Eligibility: Completion of 20 years of service
- COLA: Lump sum payment each January 1st beginning January 1, 2008 in an amount equal to 3% per year of the annual retirement allowance, not compounded, for a period of 15 years. At the end of 15 years, the COLA will not increase but will continue to be paid.

Data, Assumptions, and Plan Provisions

Participants retiring on or after July 1, 2006

Eligibility: Completion of 20 years of service

COLA: Lump sum payment each January 1st in an amount equal to 3% per year of the annual retirement allowance, not compounded, for a period of 25 years. At the end of 25 years, the COLA will not increase but will continue to be paid.

Actuarial Equivalence

Calculated according to the 1971 Group Annuity Table, set back three years for males and females, 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.

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 Data as of July 1, 2020

Asset Information Collected as of July 1, 2020

Retirement Rates (FE):	Service	Rate
	20	40%
	21-22	30%
	23-25	40%
	26-27	5%
	28	100%

The assumed retirement rates are based on a study of actual experience for the plan during July 1, 2012 - July 1, 2017 and are based on a combination of plan experience and expectation based upon current plan provisions. See the experience study dated March 30, 2018.

Withdrawal Rates (FE):	Age	Rate
	20-30	2.90%
	35	1.90%
	40	1.70%
	45	0.00%

The assumed withdrawal rates are based on a study of actual experience for the plan during July 1, 2012 - July 1, 2017 and are based on a combination of plan experience and expectation based upon current plan provisions. See the experience study dated March 30, 2018.

Disability Rates (FE): 50% of the 1985 Pension Disability Table (DP-85) Class 4. 50% of disabilities are assumed to be duty-related

The assumed disability rates are based on a study of actual experience for the plan during July 1, 2012 - July 1, 2017 and are based on a combination of plan experience and expectation based upon current plan provisions. See the experience study dated March 30, 2018.

Data, Assumptions, and Plan Provisions

Mortality (FE):

Healthy RP-2014 Blue Collar Mortality with generational improvements projected beginning in 2006 based on the assumptions developed from the 2019 Social Security Trustees Report

Disabled RP-2014 Disabled Mortality with generational improvements projected beginning in 2006 based on the assumptions developed from the 2019 Social Security Trustees Report

As the plan is not large enough to have credible experience, mortality assumptions are set to reflect general population trends. There is no assumption for death in the line of duty as the frequency with which we would expect this to occur is close to zero.

Salary Projection Scale (FE):

3.00% based on information provided by the Town regarding proposed salary negotiations with the Police Union

Interest Rate (CO):

7.00%

This assumption was evaluated as a part of the experience study dated March 30, 2018. It has been set by the plan sponsor in conjunction with their asset advisers.

Expense and/or Contingency Loading (FE):

None

Marital Status and Ages (FE):

70% of Participants assumed to be married with wives assumed to be 1 year younger than husbands.
100% of active members are assumed to have one dependent child

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 10-year period as a level percentage of pay. For this purpose, pay is assumed to grow at 3.0% annually.

Asset Valuation Method:

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

Amortization Method:

Closed 10-year level percent of pay amortization of Unfunded Actuarial Accrued Liability; for this purpose, payroll is assumed to grow at 3.0% annually

Changes Since Prior Report:

The healthy and disabled tables for generational mortality improvement have been updated from a scale based on assumptions developed from the 2018 Social Security Administration's Trustees Report to a scale based on assumptions developed from the 2019 Social Security Administration's Trustees Report. The mortality tables (RP-2014 Blue Collar and RP-2014 Disabled, respectively) and the year in which improvements begin (2006) remain the same. These changes result in a decrease in the liabilities and the actuarial recommended contribution.

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

Other Measurements

Exhibit 1 - Schedule of Amortizations

<u>Date Established</u>	<u>Remaining Period (Years)</u>	<u>Outstanding Balance</u>	<u>Annual Payment</u>
07/01/2018	8	\$5,632,326	\$801,414
07/01/2019	9	\$910,387	\$117,239
07/01/2020	10	\$2,795,444	\$329,847
		\$9,338,157	\$1,248,500