

**CITY OF PAWTUCKET
POLICE AND FIREFIGHTERS PENSION PLAN**

Actuarial Valuation Report

July 1, 2020

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Report Summary:**Highlights for the "New Plan"****July 1, 2019****July 1, 2020**Contributions

Funding Schedule FY 2021	\$14,830,895	\$14,830,896
Funding Schedule FY 2022	15,370,693	15,255,808

Funded Ratios

Actuarial Value of Assets	45.3%	46.6%
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Participants

Actives	294	294
Retirees and Beneficiaries	367	368
Vested	0	0
Inactives	0	0
Disabled	<u>54</u>	<u>55</u>
Total	715	717

Payroll

Payroll of Active Members	\$21,670,656	\$22,143,601
Average Payroll	73,710	75,318

Normal Cost

Employer	2,480,208	2,535,255
Employee	1,833,870	1,875,231
Administrative Expenses	<u>105,000</u>	<u>115,000</u>
Total	4,419,078	4,525,486

Actuarial Accrued Liabilities

Actives	68,680,314	69,878,211
Retirees, Beneficiaries, Disabilities and Inactives	<u>221,541,156</u>	<u>224,195,499</u>
Total	290,221,470	294,073,710

Actuarial Value of Assets131,578,763 137,113,010Unfunded Actuarial Accrued Liabilities

\$158,642,707 \$156,960,700

Introduction

The purpose of this report is to present the findings of an actuarial valuation as of July 1, 2020, of City of Pawtucket Police and Firefighters Pension Plan. Results are shown for the “New Plan” as well as the “Old Plan”. Firefighters who were hired prior to July 1, 1972 and police officers who were hired prior to July 1, 1973 are part of the “Old” plan.

The Old Plan has been frozen to new participants since July 1, 1973 and all of the “Old” plan participants are now retirees or beneficiaries. The City has been and will continue to fund the obligation of the Old Plan on a Pay-as-you-go basis. Although 9 of the participants receive COLAs, the expectation is that mortality will continue to decrease the City’s costs from year-to-year.

The actuarial valuation is based on:

- Provisions of Collective Bargaining Agreements with the Police and Firefighters unions.
- Employee data provided by the City
- Asset information reported the City
- Actuarial assumptions approved by the City

The valuation and forecast do not account for:

- Any subsequent changes in the law
- Any subsequent changes in plan provisions

Actuarial Experience

In performing the actuarial valuation, various assumptions are made regarding such factors as mortality, retirement, disability, and withdrawal rates as well as both payroll, salary increases, and investment returns. A comparison of the current valuation and the prior valuation is made to determine how closely actual experience corresponded to anticipated occurrences. This analysis of the system provides insight into the overall quality of the actuarial assumptions and helps explain any change in the annual appropriation.

During the last year, the total unfunded actuarial accrued liability decreased from \$158,642,707 to \$156,960,700. The expected unfunded actuarial accrued liability is \$157,649,860. The decrease is the result of net favorable actuarial experience during the preceding year and payments to the Trust. The sources of actuarial (gains) and losses are as follows:

Assets	1,427,822
Salaries	301,383
New Participants	0
Retirements	800,869
Terminations	(207,892)
Active Mortality	(65,667)
Disabilities	(484,984)
Inactive - Mortality and data adjustments	(5,015,684)
Benefit Payments	2,557,314
Other	<u>(2,321)</u>
Total Actuarial (Gains) and Losses	(689,160)

Actuarial Costs and Liabilities:

"New Plan" Normal Costs

The normal cost is the sum of the individual normal costs determined for each member as if the assumptions underlying the cost determinations had been exactly realized. An individual normal cost represents that part of the cost of a member's future benefits which are assigned to the current year as if the costs are to remain level as a percentage of the member's pay. Benefits payable under all circumstances (i.e., retirement, death, disability, and terminations) are included in this calculation. Anticipated employee contributions to be made during the year are subtracted from the total normal cost to determine employer normal cost. The total normal cost is divided by total payroll to determine the normal cost as a percent of pay. The normal cost is shown in Table I.

Table I

	<u>July 1, 2019</u>	<u>July 1, 2020</u>
Superannuation*	\$3,439,064	\$3,519,669
Termination	227,441	233,076
Death	169,694	172,255
Disability	477,879	485,486
Administrative Expenses	<u>105,000</u>	<u>115,000</u>
Total Normal Cost	4,419,078	4,525,486
% of Pay	20.4%	20.4%
Employee Contributions	1,833,870	1,875,231
% of Pay	8.5%	8.5%
Employer Normal Cost	\$2,585,208	\$2,650,255
% of Pay	11.9%	12.0%

"New Plan" Present Value of Actuarial Accrued Liabilities

The actuarial accrued liabilities (AAL) represents today's value of all benefits earned by the actives and inactives. The AAL can be compared to the assets to determine the funded status of the Plan. The value of these earned benefits is shown in Table II below.

Table II

	<u>July 1, 2019</u>	<u>July 1, 2020</u>
Actives		
Superannuations	\$67,019,865	\$68,192,907
Termination	(53,866)	(71,925)
Death	1,068,011	1,100,593
Disability	<u>646,304</u>	<u>656,636</u>
Subtotal	68,680,314	69,878,211
Retirees and Inactives		
Retirees and Beneficiaries	187,815,227	190,447,689
Vested	0	0
Terminated (Refund)	0	0
Disabled	<u>33,725,929</u>	<u>33,747,810</u>
Subtotal	221,541,156	224,195,499
Total	\$290,221,470	\$294,073,710

"New Plan" Present Value of Future Benefits

The present value of future benefits represents today's value of all benefits earned by the inactive participants as well as all benefits earned and expected to be earned in the coming years by the active participants. The difference between the present value of future benefits and the present value of actuarial accrued liabilities is the value of benefits to be earned in the coming years. The value of the total expected benefits is shown in Table III.

Table III

	<u>July 1, 2019</u>	<u>July 1, 2020</u>
Actives		
Superannuation	\$100,438,852	\$102,316,669
Termination	2,162,675	2,194,607
Death	2,686,021	2,735,621
Disability	<u>5,210,044</u>	<u>5,281,125</u>
Subtotal	110,497,592	112,528,022
Retirees and Inactives		
Retirees and Beneficiaries	187,815,227	190,447,689
Vested	0	0
Terminated (Refund)	0	0
Disabled	<u>33,725,929</u>	<u>33,747,810</u>
Subtotal	221,541,156	224,195,499
Total	\$332,038,748	\$336,723,521

Funded Status and Appropriations:**"New Plan" Market and Actuarial Value of Plan Assets**

The trust fund composition on a market value basis is shown in Table IV.

Table IV

	<u>July 1, 2019</u>	<u>July 1, 2020</u>
Cash equivalents	\$5,735,273	\$3,194,674
Short term investments	0	0
Fixed income securities	31,904,645	34,829,354
Equities	95,836,698	98,150,476
International	0	0
Real Estate	0	0
Venture Capital	0	0
Other	0	0
Accounts receivable	451,474	1,282,188
Accounts payable	(1,995,480)	(829,179)
Accrued income	<u>0</u>	<u>0</u>
Total Market Value	\$131,932,610	\$136,627,513
Total Actuarial Value	\$131,578,763	\$137,113,010

Actuarial Value of Assets

The actuarial value of assets is determined by projecting the market value of assets as of the beginning of the prior plan year with the assumed rate of return during that year (7.5%) and accounting for deposits and disbursements with interest at the assumed rate of return. An adjustment is then applied to recognize the difference between the actual investment return and expected return over a five year period. This preliminary actuarial value is not allowed to differ from the market value of assets by more than 10%. The calculation of the actuarial value of assets as of July 1, 2020 is presented in Table V.

Table V

	<u>July 1, 2020</u>
(1) Market value at July 1, 2019	\$131,932,610
(2) 2020 Contributions	\$16,906,163
(3) 2020 Payments	(\$19,709,284)
(4) Net interest adjustment at 7.5% on (1), (2), and (3) to June 30, 2020	\$9,789,829
(5) Expected market value on July 1, 2020	\$138,919,318
(1) + (2) + (3) + (4)	
(6) Actual market value on July 1, 2020	\$136,627,513
(7) 2020 (Gain) / Loss	\$2,291,805
(8) 80% of 2019 (Gain) / Loss	\$1,833,444
(9) 2019 (Gain) / Loss	(\$1,492,006)
(10) 60% of 2018 (Gain) / Loss	(\$895,204)
(11) 2018 (Gain) / Loss	\$378,845
(12) 40% of 2017 (Gain) / Loss	\$151,538
(13) 2017 (Gain) / Loss	(\$3,021,404)
(14) 20% of 2016 (Gain) / Loss	(\$604,281)
(15) Actuarial value on July 1, 2020, (6) + (8) + (10) + (12) + (14) but not less than 80% nor greater than 120% of (6)	\$137,113,010
(16) Ratio of actuarial value to market value	100.36%
(17) Actuarial Value Return for 2019	7.71%
(18) Actuarial Value Return for 2020	7.35%
(19) Market Value Return for 2019	10.41%
(20) Market Value Return for 2020	7.17%

"New Plan" Unfunded Actuarial Accrued Liabilities

Under the Entry Age Normal Actuarial Cost Method, the Actuarial Accrued Liability represents what the accumulated assets would have been as of the valuation date if:

- current plan provisions and assumptions had always been in effect,
- experience conformed exactly to assumptions, and
- the normal cost had been contributed each year since inception.

The actuarial value of the Fund's assets as of the end of the prior year are subtracted from the Actuarial Accrued Liability (AAL) to determine the Unfunded Actuarial Accrued Liability (UAAL) as of the valuation date. Over time, annual pension contributions will accumulate Plan assets equal to the AAL, and the UAAL will be eliminated. Thereafter, annual contributions equal to the normal cost will keep the Plan's assets and liabilities in balance. The UAAL is developed in Table VI.

Table VI

	<u>July 1, 2019</u>	<u>July 1, 2020</u>
Actuarial Accrued Liability	\$290,221,470	\$294,073,710
Actuarial Assets	<u>131,578,763</u>	<u>137,113,010</u>
Unfunded Actuarial Accrued Liability	\$158,642,707	\$156,960,700
Funded Status	45.3%	46.6%

"New Plan" Appropriations

The pension appropriation for the upcoming fiscal years have been calculated in accordance with the desire of the City of Pawtucket. The pension appropriation is the sum of the:

- Employer normal cost,
- Increasing amortization of the unfunded actuarial accrued liability by June 30, 2038
 \$ 156,960,700 over 18 years with 3.64% increasing payments
- Interest adjustment for payments contributed quarterly over fiscal year.

The pension appropriation is shown in Table VII.

Table VII

	<u>July 1, 2019</u>	<u>July 1, 2020</u>
Normal cost	\$2,585,208	\$2,650,255
Amortization payment of the unfunded liability	<u>11,374,177</u>	<u>11,687,453</u>
Total cost	\$13,959,385	\$14,337,708
% of Pay	64.4%	64.7%
Fiscal 2021 appropriation	\$14,830,895	\$14,830,896
Fiscal 2022 appropriation	\$15,370,693	\$15,255,808

Appropriation Forecast

The following exhibit forecasts employer and employee contributions over the next 32 years under the adopted funding schedule.

Note that the forecast is based upon an "open group" method. This method assumes that sufficient employees will be hired each year to keep the number constant. The total payroll of the system is expected to increase 4% per year. Payments are assumed to be made quarterly.

The employer total cost is expected to increase during the next 17 years until the unfunded liabilities are completely paid off, at which time only the normal cost will remain. The total cost represents about 66% of payroll, decreasing to about 63% by the time the unfunded liabilities are fully paid off, leaving only a normal cost of 11.7%, thereafter.

https://shermanactuary-my.sharepoint.com/personal/dan_shermanactuary_com/Documents/Recovered Data/Pawtucket/2020 Pension/[2020 Pawtucket Val v1.xlsm]Approp. Results

"New Plan" Appropriation Forecast

Fiscal Year	Employee Payroll	Employee Contribution	Employer Normal Cost with Interest	Amortization Payments with Interest	Employer Total Cost with Interest	Employer Total Cost % of Payroll	Funded Ratio %**
2021	\$22,143,601	\$1,875,231	\$2,722,558	\$12,108,338	\$14,830,896	67.0	46.6
2022	\$23,029,345	\$1,960,440	\$2,820,982	\$12,434,826	\$15,255,808	66.2	48.5
2023	\$23,950,519	\$2,049,466	\$2,922,924	\$12,887,453	\$15,810,377	66.0	50.5
2024	\$24,908,540	\$2,142,477	\$3,028,507	\$13,356,557	\$16,385,064	65.8	52.6
2025	\$25,904,881	\$2,239,650	\$3,137,861	\$13,842,735	\$16,980,596	65.5	54.8
2026	\$26,941,076	\$2,341,168	\$3,251,117	\$14,346,611	\$17,597,728	65.3	57.1
2027	\$28,018,719	\$2,447,225	\$3,368,413	\$14,868,827	\$18,237,240	65.1	59.5
2028	\$29,139,468	\$2,558,020	\$3,489,891	\$15,410,053	\$18,899,944	64.9	62.1
2029	\$30,305,047	\$2,673,764	\$3,615,698	\$15,970,979	\$19,586,677	64.6	64.7
2030	\$31,517,249	\$2,794,674	\$3,745,986	\$16,552,322	\$20,298,308	64.4	67.5
2031	\$32,777,939	\$2,920,979	\$3,880,911	\$17,154,827	\$21,035,738	64.2	70.5
2032	\$34,089,056	\$3,052,916	\$4,020,637	\$17,779,262	\$21,799,899	63.9	73.5
2033	\$35,452,619	\$3,190,736	\$4,165,332	\$18,426,428	\$22,591,760	63.7	76.8
2034	\$36,870,723	\$3,318,365	\$4,331,945	\$19,097,150	\$23,429,095	63.5	80.2
2035	\$38,345,552	\$3,451,100	\$4,505,223	\$19,792,286	\$24,297,509	63.4	83.8
2036	\$39,879,374	\$3,589,144	\$4,685,432	\$20,512,725	\$25,198,157	63.2	87.6
2037	\$41,474,549	\$3,732,709	\$4,872,849	\$21,259,388	\$26,132,237	63.0	91.5
2038	\$43,133,531	\$3,882,018	\$5,067,763	\$22,033,230	\$27,100,993	62.8	95.7
2039	\$44,858,873	\$4,037,299	\$5,270,473	\$0	\$5,270,473	11.7	100.0
2040	\$46,653,228	\$4,198,790	\$5,481,292	\$0	\$5,481,292	11.7	100.0
2041	\$48,519,357	\$4,366,742	\$5,700,544	\$0	\$5,700,544	11.7	100.0
2042	\$50,460,131	\$4,541,412	\$5,928,566	\$0	\$5,928,566	11.7	100.0
2043	\$52,478,536	\$4,723,068	\$6,165,708	\$0	\$6,165,708	11.7	100.0
2044	\$54,577,678	\$4,911,991	\$6,412,337	\$0	\$6,412,337	11.7	100.0
2045	\$56,760,785	\$5,108,471	\$6,668,830	\$0	\$6,668,830	11.7	100.0
2046	\$59,031,216	\$5,312,809	\$6,935,583	\$0	\$6,935,583	11.7	100.0
2047	\$61,392,465	\$5,525,322	\$7,213,007	\$0	\$7,213,007	11.7	100.0
2048	\$63,848,163	\$5,746,335	\$7,501,527	\$0	\$7,501,527	11.7	100.0
2049	\$66,402,090	\$5,976,188	\$7,801,588	\$0	\$7,801,588	11.7	100.0
2050	\$69,058,173	\$6,215,236	\$8,113,652	\$0	\$8,113,652	11.7	100.0
2051	\$71,820,500	\$6,463,845	\$8,438,198	\$0	\$8,438,198	11.7	100.0
2052	\$74,693,320	\$6,722,399	\$8,775,726	\$0	\$8,775,726	11.7	100.0

** Beginning of Fiscal Year

Risk

Risk is defined as the potential of actual future measurements deviating from expected future measurements resulting from actual future experience deviating from actuarially assumed experience. Examples of risk that could affect its future financial condition include the following:

- Investment returns will be different than those assumed
- Changes in asset values do not align with changes in the liabilities
- Changes in plan provisions or applicable law
- Interest rates will be different than assumed
- Mortality, disability, termination, retirement, salary increases and other demographic experience will differ from the assumptions
- Employer contributions to the plan will not be made at the assumed level

Below is a brief analysis of several risk factors that are considered most significant for the continued health of the plan. More detailed risk assessment may provide a better understanding than the analysis contained in this section. Additional assessment includes variations in assumptions, stress testing, and stochastic modeling.

Investment Return Assumption

The assumed return on investments is reasonable. The GASB 67 & 68 report shows the affect of increasing the return by 1% and decreasing the return by 1%.

Unfunded Actuarial Liability and Funded Ratio

The following table shows the recent history of the Actuarial Liability, Assets, Funded Ratio and the Unfunded Liability as a portion of the covered Payroll. During the time period shown there were a number of changes in the actuarial assumptions and some modifications of the plan provisions. Therefore, not all changes can be attributed to plan experience.

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Actuarial Valuation Date	Actuarial Value of Assets	Actuarial Accrued Liability	Unfunded Actuarial Accrued Liability	Funded Ratio	Covered Payroll	UAAL as a percent of Covered Payroll
	(a)	(b)	(b-a)	(a/b)	(c)	(b-a)/c
07/01/20	\$137,113,010	\$294,073,710	\$156,960,700	46.6%	\$22,143,601	708.8%
07/01/19	131,578,763	290,221,470	158,642,707	45.3%	21,670,656	732.1%
07/01/18	125,430,685	271,962,672	146,531,987	46.1%	21,257,802	689.3%
07/01/17	116,912,411	267,723,250	150,810,839	43.7%	19,504,659	773.2%
07/01/15	103,696,681	245,561,185	141,864,504	42.2%	19,427,234	730.2%
07/01/14	97,220,726	238,725,116	141,504,390	40.7%	19,453,527	727.4%
07/01/13	82,981,582	243,784,564	160,802,982	34.0%	19,551,974	822.4%
07/01/11	73,439,515	218,309,558	144,870,043	33.6%	18,519,001	782.3%
07/01/10	60,989,068	201,065,830	140,076,762	30.3%	18,858,528	742.8%
07/01/09	54,729,846	185,122,805	130,392,959	29.6%	17,731,200	735.4%

Maturity

In the previous valuation the Actuarial Liability attributed to inactive employees was 76.3% of the total. This year it has decreased to 76.2%. Plans with a greater portion of their liability attributed to inactive members are likely to experience greater impact from short term investment return experience. High benefit payments as compared to income from employer and employee contributions, and investment returns may result in negative cash flow – hindering future investment returns. The forecast of cashflow show later in this report shows that a negative cash flow is currently not expected to decrease total assets. However, the plan may need to liquidate investments from time to time to cover the benefit payments.

Funded Ratio

The Funding Schedule shown on page 12 also includes a forecast of the funded ratio.

EXHIBITS

Exhibit 1 - Age/Service Distribution with Average Salary as of July 1, 2020

Attained Age	Service									Total
	<5	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40+	
< 20	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0
20-24	12	1	0	0	0	0	0	0	0	13
	45,406	70,363	0	0	0	0	0	0	0	47,326
25-29	34	13	0	0	0	0	0	0	0	47
	58,309	67,660	0	0	0	0	0	0	0	60,895
30-34	26	19	10	0	0	0	0	0	0	55
	59,063	70,990	76,324	0	0	0	0	0	0	66,321
35-39	5	15	28	3	0	0	0	0	0	51
	57,463	67,174	74,156	85,985	0	0	0	0	0	71,162
40-44	1	7	12	10	0	0	0	0	0	30
	53,759	68,414	74,390	79,017	0	0	0	0	0	73,850
45-49	0	3	11	22	13	3	0	0	0	52
	0	69,924	71,693	78,559	90,665	78,269	0	0	0	79,618
50-54	0	2	4	4	7	5	1	0	0	23
	0	71,226	69,813	76,806	84,336	84,230	73,778	0	0	78,879
55-59	0	0	2	3	5	4	4	2	0	20
	0	0	75,095	74,039	76,351	86,264	77,067	78,474	0	78,217
60-64	0	0	0	0	0	0	2	1	0	3
	0	0	0	0	0	0	93,450	78,517	0	88,472
65-69	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0
70+	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0
Total Employees	78	60	67	42	25	12	7	3	0	294
Average Salary	56,463	68,958	73,886	78,709	86,030	83,418	81,278	78,488	0	70,591

Exhibit 2 - Retiree Distribution as of July 1, 2020

Attained Age	Number of Retirees			Total Monthly Payments		
	Female	Male	Total	Female	Male	Total
< 20	0	0	0	0	0	0
20-24	0	0	0	0	0	0
25-29	0	0	0	0	0	0
30-34	0	0	0	0	0	0
35-39	0	0	0	0	0	0
40-44	1	0	1	2,000	0	2,000
45-49	1	9	10	1,913	29,982	31,895
50-54	7	26	33	11,321	109,444	120,765
55-59	6	43	49	11,581	196,184	207,765
60-64	5	49	54	11,814	219,156	230,970
65-69	18	47	65	30,005	184,456	214,461
70-74	10	49	59	17,588	181,947	199,535
75-79	15	35	50	23,965	118,611	142,577
80-84	10	19	29	16,121	42,255	58,376
85-89	9	9	18	12,811	23,833	36,644
90-94	1	2	3	1,803	4,072	5,875
95+	0	0	0	0	0	0
Total	83	288	371	140,923	1,109,941	1,250,864
Average (Age/Payment)	71.48	66.98	67.99	1,698	3,854	3,372
Frequency Percent	22.4	77.6	100	11.3	88.7	100

Exhibit 3 - Disabled Retiree Distribution as of July 1, 2020

Attained Age	Number of Retirees			Total Monthly Payments		
	Female	Male	Total	Female	Male	Total
< 20	0	0	0	0	0	0
20-24	0	0	0	0	0	0
25-29	0	0	0	0	0	0
30-34	0	1	1	0	3,960	3,960
35-39	0	2	2	0	8,870	8,870
40-44	1	3	4	4,274	11,936	16,210
45-49	0	5	5	0	18,778	18,778
50-54	0	10	10	0	41,595	41,595
55-59	2	7	9	7,545	25,853	33,397
60-64	1	9	10	4,840	34,930	39,770
65-69	0	11	11	0	38,036	38,036
70-74	0	3	3	0	11,874	11,874
75-79	0	1	1	0	4,877	4,877
80-84	0	0	0	0	0	0
85-89	0	0	0	0	0	0
90-94	0	0	0	0	0	0
95-99	0	0	0	0	0	0
Total	4	52	56	16,659	200,709	217,368
Average (Age/Payment)	54.35	57.70	57.46	4,165	3,860	3,882
Frequency Percent	7.1	92.9	100	7.7	92.3	100

EXHIBIT 4 - "NEW PLAN" CASHFLOW FORECAST

The following is a 30 year forecast of benefit payments, Contribution Income and Investment Returns.

Fiscal Year Ending	Benefit Payments	Employee Contributions	Employer Contributions	Investment Returns 7.5%	Net change in plan assets
2021	\$17,708,263	\$1,875,231	\$14,830,896	\$10,882,634	\$9,880,497
2022	18,023,924	1,960,440	15,255,808	11,760,531	10,952,854
2023	18,702,914	2,049,466	15,810,377	12,609,613	11,766,542
2024	19,365,951	2,142,477	16,385,064	13,520,762	12,682,352
2025	20,058,315	2,239,650	16,980,596	14,501,675	13,663,606
2026	20,769,231	2,341,168	17,597,728	15,557,302	14,726,967
2027	21,502,745	2,447,225	18,237,240	16,693,843	15,875,563
2028	22,293,876	2,558,020	18,899,944	17,917,734	17,081,821
2029	23,211,135	2,673,764	19,586,677	19,233,345	18,282,651
2030	24,083,576	2,794,674	20,298,308	20,640,316	19,649,723
2031	24,888,112	2,920,979	21,035,738	22,151,167	21,219,772
2032	25,606,478	3,052,916	21,799,899	23,781,168	23,027,506
2033	26,331,480	3,190,736	22,591,760	25,548,201	24,999,217
2034	27,073,170	3,318,365	23,429,095	27,464,173	27,138,462
2035	27,883,483	3,451,100	24,297,509	29,542,116	29,407,241
2036	28,731,683	3,589,144	25,198,157	31,791,801	31,847,419
2037	29,555,618	3,732,709	26,132,237	34,226,143	34,535,471
2038	30,317,705	3,882,018	27,100,993	36,863,793	37,529,099
2039	31,082,660	4,037,299	5,270,473	38,650,660	16,875,772
2040	31,874,487	4,198,790	5,481,292	39,928,229	17,733,825
2041	32,546,355	4,366,742	5,700,544	41,270,629	18,791,559
2042	33,065,538	4,541,412	5,928,566	42,692,852	20,097,292
2043	33,424,010	4,723,068	6,165,708	44,213,521	21,678,287
2044	33,660,499	4,911,991	6,412,337	45,853,298	23,517,127
2045	33,871,595	5,108,471	6,668,830	47,631,546	25,537,252
2046	33,984,359	5,312,809	6,935,583	49,561,881	27,825,914
2047	34,061,739	5,525,322	7,213,007	51,664,466	30,341,056
2048	34,147,674	5,746,335	7,501,527	53,956,314	33,056,502
2049	34,172,922	5,976,188	7,801,588	56,452,470	36,057,325
2050	35,193,067	6,215,236	8,113,652	59,174,365	38,310,186

EXHIBIT 5 – SUMMARY OF PLAN PROVISIONS:

This summary is prepared in accordance with Collective Bargaining Agreements as of July 1, 2020, and does not take into account any subsequent changes.

1. Administration

The City of Pawtucket administers the plan.

2. Participation

Participation is mandatory for employees of the City of Pawtucket who are covered under a collective bargaining agreement between the City of Pawtucket and the Pawtucket Fire Fighters Independent Union and the City of Pawtucket and the Pawtucket Lodge No. 4, Fraternal Order of Police.

3. Salary

Salary is defined as gross regular salary to include the base salary, holiday pay, longevity, out of grade pay and shift differential (if applicable).

4. Member Contributions

Members contribute 9%.

5. Creditable Service

In general, creditable service is awarded during the period in which a member contributes to the pension plan.

6. Service Retirement

a. Eligibility:

Completion of 20 years of service

b. Benefit Amount:

Police: 50% of final average compensation plus an additional 2% of final average

compensation for each year of service over 20 years, not to exceed 10 years. Final average compensation is defined as the highest 3 year average salary rate over the last 10 years.

Fire: 50% of final average compensation plus an additional 2% of final average compensation for each year of service over 20 years, not to exceed 10 years. Final average compensation is defined as the latest 3 year average salary rate.

7. **Accidental Disability**

a. **Eligibility:**

Participants are eligible for an accidental disability benefit, regardless of service or age, if they become permanently and totally incapacitated for further duty as a result of personal injury sustained while in the performance of duties.

b. **Benefit Amount:**

The accidental disability amount is 66 2/3% of compensation at date of disability plus an additional 10% of compensation for each dependent child (until the child attains age 21), not to exceed 80% of compensation, payable to normal retirement date. If the date of disability is after 20 years of service, the disability benefit is payable until the member would have completed 25 years of employment. A normal retirement benefit is payable after the disability benefit is no longer payable.

8. **Termination Vested**

a. **Eligibility:**

Ten years of service

b. **Benefit Amount:**

Annual annuity payable at what would have been the 20th anniversary of employment.

9. Termination Non-Vested

c. Eligibility:

None

d. Benefit Amount:

Refund of employee contributions, plus interest (non-compounded).

10. Survivor Benefits

a. Eligibility:

None

b. Benefit Amount:

50% of compensation at date of death plus an additional 10% of compensation for each dependent child (until the child attains age 21), not to exceed 70% of compensation, payable for the lifetime of the surviving spouse or until the spouse remarries

12. Cost-of-Living Increases

Fire

<u>Effective Date</u>	<u>Increase</u>	<u>Compounded</u>
April 1, 1984	3.00%	Every 3 Years
July 1, 1986	1.50%	Annually
July 1, 1994	1.75%	Annually
July 1, 1995	2.00%	Annually
July 1, 1999	3.00%	Annually
July 1, 2004	3.00%	Annually

Police

<u>Effective Date</u>	<u>Increase</u>	<u>Compounded</u>
July 1, 1988	1.00%	Annually
July 1, 1989	1.50%	Annually
July 1, 1994	1.75%	Annually

July 1, 1996	2.00%	Annually
July 1, 1998	3.00%	Annually
July 1, 2004	3.00%	Annually

The cost-of-living adjustment is made on the service retirement benefit and the continuation of the service retirement benefit during the 10-year certain period. It is not applicable to a disability benefit or to a survivor benefit except as noted above.

Under the new plan provisions for active Members the COLA begin at the earlier of age 55 or 10 years following retirement.

13. **Postretirement Death Benefits**

Benefit payable for the remainder of the 10-year certain period. Then a benefit of 67½% of the participant's pension benefit is payable to the surviving spouse. In addition, a \$15,000 funeral allowance is payable for Firefighters who die in the line of duty.

EXHIBIT 6 – ACTUARIAL METHODS AND ASSUMPTIONS:

The actuarial cost method, factors, and assumptions used in determining cost estimates are presented below.

1. Member Data

The member data used in the determination of cost estimates consist of pertinent information with respect to the active, inactive, retired, and disabled members of the employer as supplied by the employer to the actuary.

2. Valuation Date

July 1, 2020.

3. Actuarial Cost Method

The costs of the Plan have been determined in accordance with the individual entry age normal actuarial cost method.

4. Rate of Investment Return

It is assumed that the assets of the fund will accumulate at a compound annual rate of 7.5% per annum, net of investment expenses.

5. Salary Scale

It is assumed that salaries including longevity will increase according to the following rates:

<u>Years of Service</u>	<u>Salary Increase</u>
0-1	8.50%
2-4	3.25%
5	11.00%
6-9	3.50%
10	4.25%
11-14	3.75%
15	4.50%
16-19	3.75%
20	4.75%
21-24	3.25%
25+	2.00%

6. Cost-of-Living Increases

Cost-of-living increases have been assumed to be 3.0% per year.

7. Value of Investments

Assets held by the fund are valued at market value. The actuarial value of assets is determined using a five-year smoothing of asset returns greater than or less than the assumed rate of return.

8. Annual Rate of Withdrawal Prior to Retirement

According to the following table.

<u>Service</u>	<u>Rate</u>
0	0.06000
1	0.03168
2	0.02886
3	0.02616
4	0.02364
5	0.02124
6	0.01896
7	0.01686
8	0.01494
9	0.01314
10	0.01146
11	0.00996
12	0.00858
13	0.00738
14	0.00630
15	0.00540
16	0.00462
17	0.00402
18	0.00354
19+	0.00000

9. Annual Rate of Mortality

It is assumed that both pre-retirement and post retirement mortality are represented by the RP-2000 combined mortality table adjusted to Blue Collar (male tables) with 1 year setback, and Scale AA improvement through 2011. Disabled mortality is assumed to follow The RP-2000 combined mortality table adjusted to blue Collar (male tables) set forward 1 year for males and 2 years for females, and Scale AA improvement through 2011.

10. Service Retirement

Based on an analysis of experience and anticipated changes in behavior, the assumed annual retirement rates are illustrated as follows for Police:

<u>Service</u>	<u>Rate</u>	<u>Service</u>	<u>Rate</u>
20	0.20	30	0.25
21	0.20	31	0.20
22	0.20	32	0.20
23	0.05	33	0.35
24	0.05	34	0.35
25	0.05	35	0.50
26	0.05	36	0.50
27	0.05	37	0.50
28	0.05	38	0.50
29	0.05	39+	1.00

Based on an analysis of experience and anticipated changes in behavior, the assumed annual retirement rates are illustrated as follows for Firefighters:

<u>Service</u>	<u>Rate</u>	<u>Service</u>	<u>Rate</u>
20	0.10	28	0.10
21	0.15	29	0.10
22	0.15	30	0.25
23	0.15	31	0.20
24	0.10	32	0.20
25	0.10	33	0.35
26	0.10	34	0.35
27	0.10	35+	0.60

At 65 the rate is 100%, regardless of the number of years of service.

11. Annual Rate of Disability Prior to Retirement

Based on an analysis of experience, the assumed annual rates of disability may best be illustrated by the following rates at the following ages:

Attained	
<u>Age</u>	<u>Rate</u>
25	.0020
30	.0020
35	.0020
40	.0020
45	.0050
50	.0063
55	.0060
60	.0043

12. Family Composition

It is assumed that 90% of male members and 75% of female members will be survived by a spouse and that females (males) are three years younger (older) than members.

13. Administrative Expenses

The normal cost is increased by an amount equal to the anticipated administrative expenses for the upcoming fiscal year. The amount for fiscal year 2020 is \$115,000 and is anticipated to increase at 4% per year.

EXHIBIT 7 – GLOSSARY OF TERMS:

This glossary summarizes the technical terms contained in this report.

1. Actuarial Accrued Liability

That portion of the Actuarial Present Value of projected plan benefits that is not provided for by future employer Normal Costs or employee contributions.

2. Actuarial Assumptions

Assumptions as to the occurrence of future events affecting the Retirement System such as:

- Rates of investment returns
- Increases in a member's salary
- Inflation
- The probability of mortality, turnover, disablement
- Retirement at each age and other relevant items

3. Actuarial Cost Method

A procedure for allocating the Actuarial Present Value of projected pension plan benefits between Normal Cost and Actuarial Accrued Liability.

4. Actuarial Present Value

The single sum amount required at the valuation date that is required to provide for anticipated future events based upon the terms of the plan and the Actuarial Assumptions.

5. Forecast

A projection of future benefit payments or contribution requirements based upon the terms of the plan, the current asset amounts, the Actuarial Assumptions, and additional assumptions as to the replacement of terminating employees with new employees.

6. **Normal Cost**

That portion of the Actuarial Present Value of future benefits that is assigned to the current year.

7. **Unfunded Actuarial Accrued Liability**

That portion of the Actuarial Accrued Liability that is not provided for by current actuarial value of assets.

8. **Actuarial Valuation Method**

The method used to divide the cost of future benefits among the Actuarial Accrued Liability, the current year's Normal Costs, and future years' Normal Costs. The resulting current funding requirement is then determined as the current year's Normal Cost plus the payment necessary to amortize the Unfunded Actuarial Liability.

9. **Vested Liability**

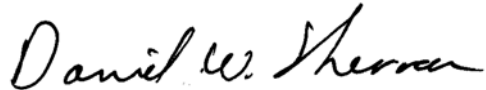
That portion of the Actuarial Present Value of Accrued Benefits that a member would be entitled to if the member terminated employment with the employer as of the valuation date.

CERTIFICATION:

This report fairly represents the actuarial position of the City of Pawtucket Police and Firefighters Pension Plan contributing as of July 1, 2020, in accordance with generally accepted actuarial principles applied consistently with the preceding valuation. In our opinion, the actuarial assumptions used to compute actuarial accrued liability and normal cost are reasonably related to plan experience and to reasonable expectations, and represents our best estimate of anticipated plan experience.

The report was prepared under the supervision of Daniel Sherman, an Associate of the Society of Actuaries and a Member of the American Academy of Actuaries, who takes responsibility for the overall appropriateness of the analysis, assumptions and results. Daniel Sherman is deemed to meet the General Qualification Standard and the basic education and experience requirement in the pension area. Based on over thirty years of performing valuations of similar complexity, Mr. Sherman is qualified by experience. Daniel Sherman has met the Qualification Standards of the American Academy of Actuaries to render the actuarial opinion contained herein.

Sherman Actuarial Services, LLC



Daniel W. Sherman, ASA, MAAA

November, 2020

“OLD PLAN”

	July 1, 2019	July 1, 2020
Pensioners:		
Number	8	5
Average Age	94.14	95.87
Average Monthly benefit	\$1,965	\$1,747
Beneficiaries:		
Number	22	20
Average Age	89.26	90.63
Average Monthly benefit	\$818	\$896
Actuarial Accrued Liability	\$1,891,904	\$1,457,816