

# **CITY OF TAUNTON CONTRIBUTORY RETIREMENT SYSTEM**

## **REQUESTS FOR PROPOSALS FOR ACTUARIAL SERVICES**

*The City of Taunton Contributory Retirement System is soliciting proposals from qualified firms to submit written fixed fee proposals to conduct bi-annual actuarial studies of the City's outstanding pension liability. The quoted fee must consist of a seven-year pricing schedule. Please find attached to this RFP a copy of the most recent actuarial study. Valuation reports shall, at a minimum, include the same level of detail as the attached report.*

### **TIMING CONSIDERATIONS**

Qualified firms wishing to present the Board with a formal proposal for providing independent actuarial services should forward (2) copies of their proposal, including completion of the enclosed documentation, to:

Mr. Paul J. Slivinski, Executive Director  
City of Taunton Contributory Retirement System  
104 Dean St., Suite 203  
Taunton, MA. 02780

**In addition to paper copies, please  
Submit the RFP in electronic format  
(PDF) on a flash drive or via email to [pslivinski@taunton-ma.gov](mailto:pslivinski@taunton-ma.gov).**

no later than **3:00 PM** (Eastern Daylight Time) on **Tuesday, October 5, 2021**. All proposals must be in a sealed envelope and clearly marked "City of Taunton Contributory Retirement System – Actuarial Services Proposal". Any proposals received after 3:00 PM will not be accepted.

All proposals will be publicly opened and read aloud at **10:00 AM** on **October 6, 2021**. The intention of the Retirement Board is to award the actuarial services contract no later than **December 31, 2021**.

### **SCOPE OF SERVICES**

Required services consist of the following:

The actuary shall analyze and review the most recent actuarial study performed by Sherman Actuarial Services and assist the Board in its submission of a funding schedule to PERAC.

## *Pension Valuation*

1. Valuation schedule of the pension fund for each of the three years shall be performed as follows:  
  
Beginning January 1, 2022 – Full valuation as described in paragraphs 2-11 & 14  
Beginning January 1, 2023 – Off-year partial valuation as modified by paragraph 12 & 14  
Beginning January 1, 2024 – Full valuation as described in paragraphs 2-11 & 14  
Beginning January 1, 2025 - Off-year partial valuation as modified by paragraph 12 & 14  
Beginning January 1, 2026 - Full valuation as described in paragraphs 2-11 & 14  
Beginning January 1, 2027 - Off-year partial valuation as modified by paragraph 12 & 14  
Beginning January 1, 2028 - Full valuation as described in paragraphs 2-11 & 14
  
2. The first year valuation of the pension fund shall, at a minimum, calculate the following values as of December 31, 2021:
  - present values of future benefits, by benefit type (i.e. superannuation, death disability, termination)
  - employee normal cost (derived from statutorily required employer contributions);
  - employer normal cost;
  - total normal cost;
  - actuarial accrued liability by benefit type;
  - unfunded actuarial accrued liability;
  - current contribution to amortize the unfunded actuarial accrued liability for fiscal year 2022;
  - retirement allowances payable for calendar year 2021;
  - pensions payable for calendar year 2021 (without cost of living adjustments funded by the Commonwealth).
  
3. The valuation shall display the following data as of December 31, 2021:
  - total number of active members;
  - total number of inactive members;
  - total number of retirees and beneficiaries;
  - total regular compensation payable to active members.
  
4. The results of the valuation as identified in items 2-3 above shall be displayed both for the system as a whole and separately for the governmental units and certain enterprises within the system.
  
5. The candidate will provide a liability schedule for active and retired plan participants.
  
6. The valuation shall include the following charts of member data:
  - active member chart(s) displaying age by service distribution, salary by age distribution, and average age, service and salary;

- retiree and beneficiary chart displaying benefit amount by age distribution, average age and benefit amount;
- inactive member chart displaying age by service distribution and final salary by age distribution.

All charts may be displayed in five-year age cohorts.

7. The valuation report shall include a schedule that forecasts for thirty (30) fiscal years the following costs, for the Retirement System as a whole, Enterprise Funds, the Taunton Municipal Lighting Plant, and for each unit (Housing & Transit Authorities):

- active member payroll;
- assets at market (assuming the employer contributes the actuarial funding amounts);
- member contributions;
- employer normal costs;
- amortization cost (assuming the unfunded actuarial accrued liability is amortized in accordance with Massachusetts General Laws Chapter 32, Section 22D);
- total employer funding contribution (sum of employer normal cost and amortization payment);
- projected investment earnings (assuming projected funding contributions are made);
- pension and annuity payments.

The forecast shall assume that Section 22D of Chapter 32 of the Massachusetts General Laws has been accepted.

8. Actuarial costs and liabilities shall be calculated in accordance with the entry age normal cost method, other than the costs and liabilities referenced in item 9 below.
9. The valuation shall calculate and display the pension costs and liabilities required for disclosure under applicable statements of the Governmental Accounting Standards Board.
10. The valuation report shall contain a summary of plan provisions and a description of the following items:
- actuarial cost method;
  - asset valuation method;
  - actuarial assumptions;
  - assumptions made to correct for missing or bad data;
  - any other assumptions used to produce valuation results.
11. Upon submission of the written valuation report (expected 6 weeks after giving the member data and annual statement prepared for PERAC) to the Board, the successful bidder shall make a detailed oral presentation of its findings at a meeting of the Board and **one additional follow-up meeting** for final acceptance.



12. Every other year, the Board requires an update to the funded status of the plan for purposes of determining if an update to its funding schedule is warranted. For this purpose, actual asset values are used in conjunction with estimated, rolled forward, prior year plan liabilities.
13. Additional services that may be required would be attendance at various meetings and to provide additional valuation scenarios.
14. Provide actuarial services annually to report on provisions of the Governmental Accounting Standards Board (GASB) Statements 67 & 68.

### **CONTRACT PRICE AND TERM**

The price quoted by the bidder for the services performed under this contract shall be commensurate with the aggregate charges for services rendered. Progress payments may be billed monthly for actual services rendered to date. The Board will not pay more than 2/3 of the annual contract value until the final study is delivered and accepted by the Board. This contract shall begin upon award and continue until the satisfactory completion of services. The contract term shall not exceed seven (7) years, inclusive of any option exercised at the Board's sole discretion.

### **QUALIFICATION, EXPERIENCE AND REFERENCES:**

The Contractor must have performed a minimum of ten (10) actuarial valuations of defined benefit pension plan within the last (5) years. Contractor shall provide evidence of this experience during the past five (5) years. Provide the name, address, and telephone number of Massachusetts governmental clients during the last five (5) years as references that the Board may contact. Please list any formal complaints, claims, legal actions or other proceedings filed with the regulatory agencies, administrative agencies, arbitrators or courts by any individual or entity as a result of actuarial services provided by the firm and/or its actuaries. References may be checked and a poor reference may exclude a Contractor from consideration.

At least one member of the bidder's staff is a Fellow of the society of Actuaries or a Fellow of the Conference of Actuaries in Public Practice. Identify the specific staff, including non-actuarial professional personnel, that will be assigned to this contract and provide copies of the resumes of each.

Provide a general description of the firm including size, number of employees, primary business, other businesses or service, and type of organization (franchise, partnership, corporation, etc.)



## EVALUATION CRITERIA

Each proposal will be rated in the following manner and on the following criteria.

1. Experience of the Proposer in providing actuarial services to other public pension funds, with preference given to those firms with experience providing actuarial services to Massachusetts public pension funds subject to Massachusetts General Law, Chapter 32.

Highly Advantageous: The Proposer has ten (10) or more years of experience in providing actuarial services to Massachusetts public pension funds.

Advantageous: The Proposer has ten (10) or more years of experience in providing actuarial services public pension funds outside the Commonwealth of Massachusetts.

Not Advantageous: The Proposer has three (3) or less years of experience in providing actuarial services to public pension funds.

Unacceptable: The Proposer does not have experience in providing actuarial services to public pension funds.

2. The size of the firm, the experience of the actuaries and support staff and the availability of the staff that will be assigned to this contract.

Highly Advantageous: The firm is of such size and presents staff that is experienced and capable of providing high quality actuarial services as described in this RFP. The firm's location or availability is ideal for performing the services required by this RFP.

Advantageous: The firm is of such size and presents staff that has sufficient experience to provide the actuarial services as described in this RFP. The firm's location or availability is acceptable for performing the services required by this RFP

Not Advantageous: The firm is of limited size and has not sufficiently described the staff or their experience relative to providing the actuarial services as described in this RFP. The firm's location or availability appears to be a hindrance in performing the services required by this RFP.

Unacceptable: The firm is not of sufficient size and has not described a sufficient level of experience to perform the services contained in this RFP.

3. Quality of the Proposal.

Highly Advantageous: The Proposer has submitted a proposal that is complete in all respects, follows the organization of the RFP and responds to all requirements. The Proposal is clear, concise and easy to understand.

Advantageous: The Proposer has submitted a proposal that is complete in all respects, generally follows the organization of the RFP and responds to all requirements.

Not Advantageous: The Proposer has submitted a proposal that is nearly complete in all respects, although it does not follow the organization of the RFP and responds to most of the requirements.

Unacceptable: The Proposer has submitted a proposal that is not complete and does not follow the organization of the RFP.

#### 4. Methodology and Time Schedule for Completing the Valuation(s).

Highly Advantageous: The proposal clearly describes a reasonable and attainable schedule for completing the valuations required by this RFP in a timely manner. The methodology described in the proposal is clear and the data requirements are what are normally expected with a professionally performed actuarial valuation.

Advantageous: The proposal describes a schedule for completing the valuations required by this RFP in a timely manner. The methodology described in the proposal and the data requirements meet the minimum standards for the actuarial valuation required by this RFP.

Not Advantageous: The proposal does not provide a schedule for completing the valuations required by this RFP in a timely manner. The methodology described in the proposal is unclear and the data requirements do not meet the minimum requirements for the actuarial valuation required by this RFP.

Unacceptable: The proposal does not provide a schedule or a methodology to meet the minimum requirements of this RFP.

#### 5. Annual Appropriation Assessment.

Highly Advantageous: The proposal describes the actuarial consulting services to be provided to the retirement system in developing the annual appropriation assessment for submission to PERAC. The proposal commits to reviewing the data developed by the retirement system, performing calculations and responding to inquiries relative to the development of the annual appropriation assessment. The proposal also offers consulting services in support of exploring innovative assessment options that improve or change the manner in which the retirement system assesses its member units.



Advantageous: The proposal describes the actuarial consulting services to be provided to the retirement system in developing the annual appropriation assessment for submission to PERAC. The proposal commits to reviewing the data developed by the retirement system, performing calculations and responding to inquiries relative to the development of the annual appropriation assessment.

Not Advantageous: The proposal does not or does not clearly describe the actuarial consulting services to be provided to the retirement system in developing the annual appropriation assessment for submission to PERAC. The proposal does not clearly commit to reviewing the data developed by the retirement system, performing calculations and responding to inquiries relative to the development of the annual appropriation assessment.

Unacceptable: The proposal does not contain any information relative to consulting services for the development and submission of the annual appropriation assessment information.

6. The Proposer's experience with PERAC.

Highly Advantageous: The Proposer has performed multiple valuations that have been accepted by PERAC and the proposer has demonstrated a long-standing ability to respond to direction from PERAC in the conduct of valuation studies.

Advantageous: The Proposer has performed some valuations that have been accepted by PERAC and the proposer has demonstrated some ability to respond to direction from PERAC in the conduct of valuation studies.

Not Advantageous: The Proposer has not performed valuations that have been accepted by PERAC and the proposer has not demonstrated the ability to respond to direction from PERAC in the conduct of valuation studies.

Unacceptable: The proposal does not address any prior experience with PERAC in the preparation of valuation studies.

INFORMATION FOR BIDDERS:

**Qualifications of Bidders:** The Chairperson of the Contributory Retirement Board, the Executive Director and/or the Retirement Administrator may make such investigations as they deem necessary to determine the ability of the bidder to perform the work, and the bidder shall furnish to the same all such information for this purpose as may be requested. The Board reserves the right to reject any bid if the evidence submitted by or investigation of such bidder fails to satisfy the Board that such bidder is properly qualified to carry out the obligations of the contract and to complete the work contemplated therein.

**Consideration of Proposals:** The Board reserves the right to accept any bid, or any part of any bid, or reject any or all bids if, in its sole judgment, the best interests of the Contributory Retirement System would be served by so doing.

**Proposal in Effect:** Unless sooner rejected or accepted, all proposals must be firm and continue in effect for a period of sixty (60) days from the date of opening. Firms should indicate if their bid prices will be held firm for a longer period, and under what restrictions, if any.

**Award of Contract:** The Contract will be awarded by the Taunton Retirement Board, subject to consideration of proposals, within Ninety (90) days after the opening of bids. The successful bidder will be notified in writing, by mail or otherwise, that the bid has been accepted and that the firm has been awarded the contract.

**Taxes:** Purchases made by the City of Taunton, including the Contributory Retirement System, are exempt from the payment of Federal excise taxes and Massachusetts sale taxes and any such taxes must not be included in bid prices. Tax exemption certificates will be furnished upon request.

**Non-Collusion:** The bidder MUST sign and return the attached Vendor Certification form with the bid. Bids received without an executed Vendor Certification form are not complete and will not be considered. Form may also be found at:  
[http://www.mass.gov/perac/forms/Vendor\\_Certification.pdf](http://www.mass.gov/perac/forms/Vendor_Certification.pdf).

**Tax Certification:** The bidder shall furnish with and as part of this bid a completed Commonwealth of Massachusetts Tax Certification form indicating compliance with all laws of the Commonwealth relative to taxes.

**Signatures:** A bid filed by a corporation must bear the signature of an official of the corporation and the corporate seal. Bids by an individual or in the name of an individual doing business under a company name must be signed by the individual. A bid submitted by a partnership must bear the signature of one of the partners. All signatures must be in ink on the copy filed with the Board. Typewritten signatures are not sufficient. Bids improperly signed may not be considered.

**Cancellation of Award:** The award to the successful bidder may be canceled if the successful bidder shall fail to prosecute the work with promptness and diligence, or if funds for this service are not appropriated by the Board.

**Conflict of Interest:** The bidder certifies that no official or employee of the Taunton Retirement Board has a financial interest in this quotation or in the contract for which the bidder offers to execute or in the expected profits to arise therefrom, unless there has been compliance with provisions of Mass. General Laws Chapter 43, Section 27 (Interest in Public Contracts by Public Employees) and Mass. General Laws, Chapter 268A, Sec. 20 (Conflict of Interest).



**Indemnification:** The bidder agrees to take all necessary precautions to prevent injury to any persons or damage to property during the term of this agreement and agrees to indemnify, defend and hold the City of Taunton Contributory Retirement System harmless from any and all claims arising out of the performance of this agreement.

**Assignment:** Bidder shall not assign this Agreement, or any interest therein, without prior written consent of the Board.

# CITY OF TAUNTON CONTRIBUTORY RETIREMENT SYTEM

## INDEPENDENT ACTUARIAL SERVICES

### PRICE PROPOSAL\*

The undersigned proposes to provide the services specified regarding independent actuarial services as described in the "Scope of Services" section of the "Specifications For Independent Actuarial Services".

Price Proposal of \_\_\_\_\_  
(Name of Company)

	(Written Number)	(In Figures)
<i>Pension Actuarial Valuation &amp; GASB report(s)</i>		
Beginning January 1, 2022 (Full)	_____	_____
Beginning January 1, 2023(Partial)	_____	_____
Beginning January 1, 2024 (Full)	_____	_____
Beginning January 1, 2025 (Partial)	_____	_____
Beginning January 1, 2026 (Full)	_____	_____
Beginning January 1, 2027 (Partial)	_____	_____
Beginning January 1, 2028 (Full)	_____	_____

Full=full actuarial valuation & GASB report(s)

Partial=partial actuarial valuation (upon request only) *see paragraph 12*

\*NOTE: List separately the breakdown of the price proposal as requested on the front page.



## CERTIFICATION OF GOOD FAITH

The undersigned certifies under penalties of perjury that this proposal has been submitted in good faith and without collusion or fraud with any other person. As used in this certification, the word "person" shall mean any natural person, business, partnership, corporation, union, committee, club, or other organization, entity or group of individuals.

\_\_\_\_\_  
Name of person signing proposal (print or type)

\_\_\_\_\_  
Authorized signature of person signing proposal

\_\_\_\_\_  
Title

\_\_\_\_\_  
Company

\_\_\_\_\_  
Date

## WARRANTIES

Candidate agrees to the incorporation of the following warranties in contract:

1. Candidate warrants that it will obtain at its own expense (prior to entering into a contract with the Board) independent verification and authentication of all data presented.
2. Candidate warrants that it will disclose all third party marketing or sales fees chargeable to the account of the Board in the procurement.
3. Candidate warrants that it maintains, or will obtain at its expense prior to beginning this assignment, an errors and omissions insurance policy providing a prudent amount of coverage for negligent acts or omissions and that such coverage is applicable to the custodian actions under the contract.
4. Candidate warrants that all information and statements in this Request for Proposal are complete and true. Any statement or claim found to be incomplete, misleading or false will be grounds for immediate disqualification or dismissal and may be subject to legal action.

\_\_\_\_\_  
Date

\_\_\_\_\_  
Title of person signing proposal

\_\_\_\_\_  
Authorized signature of person signing proposal

\_\_\_\_\_  
Printed name of person signing proposal

\_\_\_\_\_  
Legal name of company

## PERAC ACKNOWLEDGEMENT

The undersigned certifies that they have reviewed the regulations set forth by the Public Employee Retirement Administration Commission, 840 CMR and are in full compliance. A copy of the regulations can be obtained via the Internet at [www.state.ma.us/PERAC/regulations.htm](http://www.state.ma.us/PERAC/regulations.htm).

---

Name of person signing proposal (print or type)

---

Authorized signature of person signing proposal

---

Title

---

Company

---

Date



# CITY OF TAUNTON CONTRIBUTORY RETIREMENT SYSTEM

## CERTIFICATE OF CORPORATE BIDDER

I \_\_\_\_\_, Certify that I am the \_\_\_\_\_ of the Corporation named as bidder in the attached Bid Form, that \_\_\_\_\_ who signed said Bid Form on behalf of the bidder was then \_\_\_\_\_ of said corporation, that I know his/her signature hereto is genuine and that said Bid Form was duly signed, sealed and executed for and in behalf of said Corporation by authority of its governing body.

(Corporate Seal)

By: \_\_\_\_\_  
(Name - Type or Print)

Signature: \_\_\_\_\_

This Certificate must be completed where bidder is a Corporation and should be so completed by its Clerk. In the event that the Clerk is the person signing the Proposal on behalf of the Corporation, this Certificate must be completed by another Officer of the Corporation.

# CITY OF TAUNTON CONTRIBUTORY RETIREMENT SYSTEM

## REVENUE ENFORCEMENT AND PROTECTION ACT

### CERTIFICATE OF COMPLIANCE

Pursuant to MGL Ch 62C, Sec 49A (b), I certify under the penalties of perjury that I \_\_\_\_\_, authorized signatory for \_\_\_\_\_ do hereby certify under the pains and penalties of perjury that said contractor has complied with all laws of the Commonwealth of Massachusetts relating to taxes, reporting of employees and contractors, and withholding and remitting child support.

\_\_\_\_\_  
Social Security Number  
Or Federal Identification No.

\_\_\_\_\_  
Signature of Individual  
Corporate Name

\_\_\_\_\_  
by Corporate Officer  
(if applicable)

This form shall be submitted by all Bidders.


Approval of a contract, or other agreement, will not be granted unless this certification form is signed by the applicant.





**TAUNTON  
CONTRIBUTORY RETIREMENT SYSTEM**

Actuarial Valuation Report  
January 1, 2020

 Sherman  
Actuarial  
Services



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**Report Summary:****Highlights****January 1, 2018****January 1, 2020****Contributions**

Funding Schedule FY 2021

\$17,023,066

\$17,023,066

Funding Schedule FY 2022

17,321,583

18,794,418

**Funded Ratios**

Funding

79.6%

74.5%

**Participants**

Actives

1,073

1,061

Retirees and Beneficiaries

778

815

Inactives

189

239

Disabled

8992

Total

2,129

2,207

**Payroll**

Payroll of Active Members

\$62,755,282

\$67,239,674

Average Payroll

58,486

63,374

**Normal Cost**

Employer

2,528,502

2,531,557

Employee

5,646,140

6,077,886

Administrative Expenses

600,000650,000

Total

8,774,642

9,259,443

**Actuarial Accrued Liabilities**

Actives

164,143,978

189,862,793

Retirees, Beneficiaries, Disabilities and Inactives

234,034,760275,147,972

Total

398,178,738

465,010,765

**Actuarial Value of Assets**317,021,969346,384,426**Unfunded Actuarial Accrued Liabilities**

\$81,156,769

\$118,626,339

## **Introduction**

This report presents the findings of an actuarial valuation as of January 1, 2020, of Taunton Contributory Retirement System.

The actuarial valuation is based on:

- Provisions Chapter 32 of the Massachusetts General Laws, "M.G.L.", as of January 1, 2020.
- Employee data provided by the Retirement Board
- Asset information reported to the Public Employee Retirement Administration Commission by the City of Taunton Contributory Retirement System
- Actuarial assumptions approved by the Retirement Board

The valuation and appropriation forecast are prepared in accordance with Chapter 32 of the M.G.L. as of January 1, 2020.

The valuation and forecast do not account for:

- Any subsequent changes in the law
- Chapter 32 of the M.G.L., Section 3(8)(c) transfers between systems
- State-mandated benefits
- Cost-of-living increases granted to retired members between 1982 and 1997. The cost of these benefits has been assumed by the State under Proposition Two and One-Half.



**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, based on the 2018 actuarial assumptions and plan provisions, the total unfunded actuarial accrued liability increased by 20.7% to \$97,857,511. The increase is the result net unfavorable actuarial experience during the preceding years. The sources of actuarial (gains) and losses are as follows:

Assets	12,449,929
Retirements	8,464,519
Terminations	(974,619)
Death while active	(464,253)
Disabled while active	(688,451)
Salary	4,936,998
New Participants	1,334,372
Inactive Mortality and data	4,109,855
Benefit Payments	(3,290,306)
Other	<u>5,575,006</u>
Total (Gain) / Loss	38,437,963

In addition, the mortality assumptions were updated based on the recent Society of Actuaries study of public sector pension plans. The change increased the actuarial accrued liability by \$20,768,828.

## Actuarial Costs and Liabilities:

### 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>January 1, 2018</u>	<u>January 1, 2020</u>
Superannuation	\$5,250,732	\$5,708,351
Termination	1,294,158	1,366,039
Death	428,354	275,574
Disability	1,201,398	1,259,479
Administrative Expenses	<u>600,000</u>	<u>650,000</u>
Total Normal Cost	8,774,642	9,259,443
% of Pay	14.0%	13.8%
Employee Contributions	5,646,140	6,077,886
% of Pay	9.0%	9.0%
Employer Normal Cost	\$3,128,502	\$3,181,557
% of Pay	5.0%	4.7%

**Present Value of Actuarial Accrued Liabilities**

The actuarial accrued liabilities (AAL) represents today's value of all benefits based on the past service of the actives and inactive. 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>January 1, 2018</u>	<u>January 1, 2020</u>
Actives		
Superannuations	\$157,404,384	\$184,571,962
Termination	(4,281,869)	(4,496,646)
Death	4,617,459	2,825,246
Disability	6,404,004	6,962,231
Retirees and Inactives		
Retirees and Beneficiaries	201,947,343	237,461,469
Terminated (Refund)	2,281,858	3,041,201
Disabled	<u>29,805,559</u>	<u>34,645,302</u>
Total	\$398,178,738	\$465,010,765



### 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>January 1, 2018</u>	<u>January 1, 2020</u>
Actives		
Superannuation	\$197,976,401	\$228,576,855
Termination	5,733,248	6,144,022
Death	7,817,069	4,998,706
Disability	16,840,166	17,894,253
Retirees and Inactives		
Retirees and Beneficiaries	201,947,343	237,461,469
Terminated (Refund)	2,281,858	3,041,201
Disabled	<u>29,805,559</u>	<u>34,645,302</u>
Total	\$462,401,644	\$532,761,808

## Funded Status and Appropriations:

### Market Value of Plan Assets

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

**Table IV**

	<u>January 1, 2018</u>	<u>January 1, 2020</u>
Cash equivalents	\$5,748,262	\$6,705,272
Short term investments	747,383	0
Fixed income securities	47,547,904	47,464,103
Equities	156,755,607	184,768,001
International	52,933,199	58,562,948
Real Estate	37,880,420	36,128,157
Venture Capital	0	0
Other	12,203,951	10,876,902
Accounts receivable	8,282,125	16,280,422
Accounts payable	(322,910)	(66,898)
Accrued income	<u>197,794</u>	<u>143,988</u>
Total Market Value	\$321,973,735	\$360,862,895
Total Actuarial Value	\$317,021,969	\$346,384,426

**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 (7.75%) 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 20%. The calculation of the actuarial value of assets as of January 1, 2020 is presented in Table V.

**Table V**

	<u>January 1, 2020</u>
(1) Market value at January 1, 2019	\$304,094,669
(2) 2019 Contributions	\$24,946,175
(3) 2019 Payments	(\$29,530,694)
(4) Net interest adjustment at 7.75% on (1), (2), and (3) to December 31, 2019	\$23,374,883
(5) Expected market value on January 1, 2020	\$322,885,033
(1) + (2) + (3) + (4)	
(6) Actual market value on January 1, 2020	\$360,862,895
(7) 2019 (Gain) / Loss	(\$37,977,862)
(8) 80% of 2019 (Gain) / Loss	(\$30,382,290)
(9) 2018 (Gain) / Loss	\$38,666,553
(10) 60% of 2018 (Gain) / Loss	\$23,199,932
(11) 2017 (Gain) / Loss	(\$20,460,422)
(12) 40% of 2017 (Gain) / Loss	(\$8,184,169)
(13) 2016 (Gain) / Loss	\$4,440,290
(14) 20% of 2016 (Gain) / Loss	\$888,058
Actuarial value on January 1, 2020, (6) + (8) + (10) + (12) + (14)	
(15) but not less than 80% nor greater than 120% of (6)	\$346,384,426
(16) Ratio of actuarial value to market value	95.99%
(17) Market Value Return for 2018	-4.34%
(18) Market Value Return for 2019	20.33%
(19) Actuarial Value Return for 2018	4.89%
(20) Actuarial Value Return for 2019	6.91%



**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>January 1, 2018</u>	<u>January 1, 2020</u>
Actuarial Accrued Liability	\$398,178,738	\$465,010,765
Actuarial Assets	<u>317,021,969</u>	<u>346,384,426</u>
Unfunded Actuarial Accrued Liability	\$81,156,769	\$118,626,339
Funded Status	79.6%	74.5%

## Appropriations

The pension appropriation for the upcoming fiscal years have been calculated in accordance with the requirements set forth in Section 22D of Chapter 32 of the Massachusetts General Laws. These amounts were calculated to comply with the June 30, 2040, full funding mandate for all accrued liabilities. The pension appropriation is the sum of the:

- Employer normal cost,
- Increasing amortization of the unfunded actuarial accrued liability by June 30, 2030  
\$ 117,555,738 over 10 years with 4.5% increasing payments
- Increasing amortization of the FY04 Appropriation Deferral by June 30, 2026  
\$ 948,599 over 6 years with 4.5% increasing payments
- Increasing amortization of the 2004 Early Retirement Incentive by June 30, 2021  
\$ 122,002 over 1 years with 4.5% increasing payments
- Interest adjustment for payments contributed quarterly over fiscal year.

The pension appropriation for FYE22 is shown in Table VII.

**Table VII**

	<u>January 1, 2018</u>	<u>January 1, 2020</u>
Normal cost	\$3,128,502	\$3,181,557
Amortization of the unfunded accrued liability	11,789,445	13,440,618
Amortization of the FY04 Deferral	132,178	132,178
Amortization payment of 2004 ERI liability	<u>94,106</u>	<u>94,106</u>
Total cost before interest adjustments	\$15,144,231	\$16,848,459
Fiscal 2021 cost	\$16,346,018	\$17,023,066
Fiscal 2022 cost	\$16,598,250	\$18,794,418

### **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 4.5% per year. The employee contribution rate is expected to increase to 10.5% by 2036 as members contributing base percentages 5%, 7%, and 8% are replaced by new members, whose base contribution is 9%. Payments are assumed to be made at the beginning of the year.

The employer total cost is expected to increase during the next 9 years until the unfunded liabilities are substantially paid off, at which time only the normal cost will remain. The total cost represents 26.7% of payroll, decreasing to 25.6% by the time the unfunded liabilities are fully paid off, leaving only a normal cost of about 3.5% thereafter. The decrease in the cost as a percentage of payroll is a result of the increase in member deductions.



[https://shermanactuary-ny.sharepoint.com/personal/dan\\_shermanactuary\\_com/Documents/Recovered Data/Taunton/2020/\[Taunton2020\\_Val - 775% proposed Mortality.xlsm\]Inputs](https://shermanactuary-ny.sharepoint.com/personal/dan_shermanactuary_com/Documents/Recovered%20Data/Taunton/2020/[Taunton2020_Val-775%proposedMortality.xlsm]Inputs)

### 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	\$67,239,674	\$6,077,886	\$3,395,551	\$13,627,515	\$17,023,066	25.3	74.3
2022	\$70,265,459	\$6,419,823	\$3,475,316	\$15,319,102	\$18,794,418	26.7	76.0
2023	\$73,427,405	\$6,780,227	\$3,555,384	\$16,008,461	\$19,563,845	26.6	78.1
2024	\$76,731,638	\$7,160,066	\$3,635,620	\$16,728,842	\$20,364,462	26.5	80.2
2025	\$80,184,562	\$7,560,362	\$3,715,878	\$17,481,640	\$21,197,518	26.4	82.5
2026	\$83,792,867	\$7,982,185	\$3,795,997	\$18,268,313	\$22,064,310	26.3	85.0
2027	\$87,563,546	\$8,426,662	\$3,875,802	\$18,853,491	\$22,729,293	26.0	87.6
2028	\$91,503,906	\$8,894,978	\$3,955,103	\$19,701,898	\$23,657,001	25.9	90.4
2029	\$95,621,582	\$9,388,379	\$4,033,692	\$20,588,484	\$24,622,176	25.7	93.4
2030	\$99,924,553	\$9,908,174	\$4,111,345	\$21,514,966	\$25,626,311	25.6	96.6
2031	\$104,421,158	\$10,455,738	\$4,187,818	\$0	\$4,187,818	4.0	100.0
2032	\$109,120,110	\$11,032,519	\$4,262,849	\$0	\$4,262,849	3.9	100.0
2033	\$114,030,515	\$11,640,038	\$4,336,152	\$0	\$4,336,152	3.8	100.0
2034	\$119,161,888	\$12,279,893	\$4,407,421	\$0	\$4,407,421	3.7	100.0
2035	\$124,524,173	\$12,953,763	\$4,476,322	\$0	\$4,476,322	3.6	100.0
2036	\$130,127,761	\$13,663,415	\$4,542,500	\$0	\$4,542,500	3.5	100.0
2037	\$135,983,510	\$14,278,269	\$4,746,913	\$0	\$4,746,913	3.5	100.0
2038	\$142,102,768	\$14,920,791	\$4,960,524	\$0	\$4,960,524	3.5	100.0
2039	\$148,497,392	\$15,592,226	\$5,183,747	\$0	\$5,183,747	3.5	100.0
2040	\$155,179,775	\$16,293,876	\$5,417,016	\$0	\$5,417,016	3.5	100.0
2041	\$162,162,865	\$17,027,101	\$5,660,781	\$0	\$5,660,781	3.5	100.0
2042	\$169,460,194	\$17,793,320	\$5,915,517	\$0	\$5,915,517	3.5	100.0
2043	\$177,085,902	\$18,594,020	\$6,181,715	\$0	\$6,181,715	3.5	100.0
2044	\$185,054,768	\$19,430,751	\$6,459,892	\$0	\$6,459,892	3.5	100.0
2045	\$193,382,233	\$20,305,134	\$6,750,587	\$0	\$6,750,587	3.5	100.0
2046	\$202,084,433	\$21,218,865	\$7,054,364	\$0	\$7,054,364	3.5	100.0
2047	\$211,178,233	\$22,173,714	\$7,371,810	\$0	\$7,371,810	3.5	100.0
2048	\$220,681,253	\$23,171,532	\$7,703,541	\$0	\$7,703,541	3.5	100.0
2049	\$230,611,909	\$24,214,250	\$8,050,201	\$0	\$8,050,201	3.5	100.0
2050	\$240,989,445	\$25,303,892	\$8,412,460	\$0	\$8,412,460	3.5	100.0
2051	\$251,833,970	\$26,442,567	\$8,791,021	\$0	\$8,791,021	3.5	100.0
2052	\$263,166,499	\$27,632,482	\$9,186,616	\$0	\$9,186,616	3.5	100.0

\* Calendar basis

\*\* Beginning of Fiscal Year

**EXHIBITS**

http://dharma.muhimbi.com/Services/MS\_ExcelViewer.aspx?Document=Resources/Data/Taunton2020Report[ACT].xlsx

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

Attained Age	Average Salary <5	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40+	Total
< 20	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0
20-24	19 27,883	1 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	20 28,858
25-29	59 47,568	11 73,767	1 21,201	0 0	0 0	0 0	0 0	0 0	0 0	71 51,255
30-34	60 55,156	26 65,355	6 94,672	0 0	0 0	0 0	0 0	0 0	0 0	92 60,615
35-39	36 55,920	14 73,429	25 71,858	9 74,246	0 0	0 0	0 0	0 0	0 0	84 65,545
40-44	29 40,622	15 76,292	17 83,393	27 81,874	5 72,978	0 0	0 0	0 0	0 0	93 67,910
45-49	27 40,441	20 57,616	18 53,808	18 92,121	40 102,896	5 85,918	2 0	0 0	0 0	130 74,822
50-54	33 50,804	27 46,505	29 51,809	19 71,040	28 90,521	23 106,323	18 102,847	2 85,619	0 0	179 71,435
55-59	25 36,158	19 50,928	22 50,913	35 47,693	32 61,077	25 79,765	30 95,595	11 75,249	1 77,881	200 61,915
60-64	13 40,274	10 58,281	17 45,847	21 54,276	32 56,598	14 44,059	15 59,760	9 101,057	2 111,295	133 56,256
65-69	1 43,986	6 61,616	4 45,036	6 61,831	8 57,252	7 45,509	5 47,762	4 52,037	3 103,771	44 56,811
70+	3 27,378	0 0	0 0	2 75,493	4 33,180	1 77,284	5 45,815	0 0	1 95,959	16 48,010
Total Employees	305	149	139	137	149	75	75	26	7	1,062
Average Salary	46,422	60,478	60,101	67,283	76,320	78,424	81,112	81,409	101,106	63,334



## Exhibit 2 - Retiree Distribution as of January 1, 2020

Attained Age	Number of Employees			Total 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	2	3	19,662	66,759	86,421
45-49	0	2	2	0	43,712	43,712
50-54	3	7	10	38,726	230,357	269,083
55-59	20	17	37	217,108	1,103,296	1,320,404
60-64	41	69	110	626,577	3,976,919	4,603,496
65-69	98	90	188	1,855,518	4,374,462	6,229,980
70-74	79	75	154	1,547,248	3,134,147	4,681,395
75-79	70	59	129	1,275,772	2,051,534	3,327,306
80-84	32	36	68	559,260	1,062,782	1,622,043
85-89	22	35	57	365,911	990,993	1,356,904
90-94	15	14	29	187,299	229,099	416,398
95+	14	14	28	157,786	202,137	359,923
<b>Total</b>	<b>395</b>	<b>420</b>	<b>815</b>	<b>6,850,868</b>	<b>17,466,197</b>	<b>24,317,065</b>
<b>Average (Age/Payment)</b>	<b>32.32</b>	<b>73</b>	<b>73.16</b>	<b>17,344</b>	<b>41,586</b>	<b>29,837</b>
<b>Frequency Percent</b>	<b>48.5</b>	<b>51.5</b>	<b>100.0</b>	<b>28.2</b>	<b>71.8</b>	<b>100.0</b>

## Exhibit 3 - Disabled Retiree Distribution as of January 1, 2020

Attained Age	Number of Employees			Total 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	1	0	1	22,759	0	22,759
40-44	0	0	0	0	0	0
45-49	1	2	3	29,491	70,073	99,564
50-54	3	6	9	121,855	344,666	466,521
55-59	4	6	10	76,668	277,638	354,306
60-64	2	10	12	69,383	450,628	520,011
65-69	6	11	17	142,158	484,694	626,852
70-74	0	18	18	0	747,940	747,940
75-79	3	10	13	37,429	398,071	435,499
80-84	1	4	5	10,113	145,988	156,101
85-89	0	2	2	0	37,729	37,729
90-94	0	1	1	0	25,335	25,335
95-99	0	1	1	0	16,046	16,046
<b>Total</b>	<b>21</b>	<b>71</b>	<b>92</b>	<b>509,855</b>	<b>2,998,808</b>	<b>3,508,664</b>
<b>Average (Age/Payment)</b>	<b>62.84</b>	<b>68.89</b>	<b>67.51</b>	<b>24,279</b>	<b>42,237</b>	<b>38,138</b>
<b>Frequency Percent</b>	<b>22.8</b>	<b>77.2</b>	<b>100.0</b>	<b>14.5</b>	<b>85.5</b>	<b>100.0</b>

**EXHIBIT 4 - CASHFLOW FORECAST:**

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

Plan Year Ending	Benefit Payments	Employee Contributions	Employer Contributions	Investment Returns	Net change in plan assets
2020	\$32,822,168	\$6,077,886	\$17,023,066	\$26,490,001	\$16,768,785
2021	31,218,750	6,419,823	18,794,418	26,832,836	20,828,326
2022	32,851,233	6,780,227	19,563,845	28,387,754	21,880,593
2023	34,453,115	7,160,066	20,364,462	30,025,731	23,097,144
2024	35,983,649	7,560,362	21,197,518	31,761,070	24,535,301
2025	37,655,155	7,982,185	22,064,310	33,602,900	25,994,241
2026	39,272,499	8,426,662	22,729,293	35,558,008	27,441,465
2027	40,937,861	8,894,978	23,657,001	37,626,073	29,240,192
2028	42,519,024	9,388,379	24,622,176	39,837,222	31,328,752
2029	43,843,264	9,908,174	25,626,311	42,220,518	33,911,739
2030	45,190,805	10,455,738	4,187,818	44,573,949	14,026,700
2031	46,579,764	11,032,519	4,262,849	45,604,676	14,320,281
2032	48,011,412	11,640,038	4,336,152	46,656,696	14,621,473
2033	49,487,063	12,279,893	4,407,421	47,730,568	14,930,819
2034	51,008,069	12,953,763	4,476,322	48,826,900	15,248,916
2035	52,575,823	13,663,415	4,542,500	49,946,339	15,576,431
2036	54,191,763	14,278,269	4,746,913	51,080,681	15,914,100
2037	55,857,369	14,920,791	4,960,524	52,238,792	16,262,737
2038	57,574,169	15,592,226	5,183,747	53,421,440	16,623,244
2039	59,343,735	16,293,876	5,417,016	54,629,462	16,996,618
2040	61,167,690	17,027,101	5,660,781	55,863,768	17,383,960
2041	63,047,704	17,793,320	5,915,517	57,125,349	17,786,481
2042	64,985,502	18,594,020	6,181,715	58,415,291	18,205,524
2043	66,982,859	19,430,751	6,459,892	59,734,776	18,642,561
2044	69,041,605	20,305,134	6,750,587	61,085,101	19,099,217
2045	71,163,627	21,218,865	7,054,364	62,467,681	19,577,283
2046	73,350,871	22,173,714	7,371,810	63,884,071	20,078,724
2047	75,605,341	23,171,532	7,703,541	65,335,971	20,605,703
2048	77,929,103	24,214,250	8,050,201	66,825,245	21,160,593
2049	80,324,286	25,303,892	8,412,460	68,353,938	21,746,004



## EXHIBIT 5 – SUMMARY OF PLAN PROVISIONS:

This summary is prepared in accordance with Chapter 32 as of January 1, 2020, and does not take into account any subsequent changes.

### 1. Administration

Each of the 104 contributory retirement systems for public employees of the Commonwealth of Massachusetts are guided by the applicable provisions of Chapter 32 of the Massachusetts General Laws and other applicable statutes. Although these boards operate semi-independently, there is a uniform set of rules governing benefits, eligibility, contributions, financing, and accounting.

### 2. Participation

Participation is mandatory for all full-time employees whose employment commences prior to age 65. Eligibility with respect to part-time, professional, temporary, or intermittent employment is governed by the local board. Membership is optional for certain elected officials, State officials appointed by the Governor, and certain hospital interns.

There are four classes of membership as follows:

- (i) Group 1: Most general employees in State and local government
- (ii) Group 2: Certain specified hazardous duty positions
- (iii) Group 3: State police officers and inspectors
- (iv) Group 4: Local police officers, firefighters, and designated employees of the municipal light department.

For members in more than one group, participation will be proportional.

Chapter 176 of the Acts of 2011 created different plan provisions within these groups for those hired on or after April 2, 2012.

### 3. Salary

Salary is defined as gross regular compensation. Salary does not include bonuses, overtime, severance pay, unused sick leave credit, or other similar compensation.

### 4. Member Contributions

Member contributions vary depending upon date hired as follows:

<u>Date of Hire</u>	<u>Member Contribution Rate</u>
Prior to 1975	5.0% of Salary
1975 to 1983	7.0% of Salary
1984 to 1996	8.0% of Salary
1996 and Later plus	9.0% of Salary
1979 and Later	2.0% of Salary in excess of \$30,000

For Group 1 employees who become members on or after April 2, 2012, the Contribution Rate shall be 6% after the completion of 30 years of service.

### 5. Average Salary

Average salary is used to determine a participant's benefit. It is defined as the average salary during the three consecutive-year period that produces the highest average. (Alternatively, if a greater amount results, it is the average rate of salary earned during the period or periods, whether or not consecutive, that constitutes the last three years preceding retirement.). For employees who become members on or after April 2, 2012, the averaging period shall be five years.

### 6. Creditable Service

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

**7. Service Retirement**

a. Eligibility:

For an employee to be eligible for service retirement (also referred to as superannuation), one of the following conditions must be met:

- (i) completion of 20 years of service
- (ii) for an employee hired prior to January 1, 1978, attainment of age 55 as an active member
- (iii) for an employee hired on or after January 1, 1978, attainment of age 55 as an active member and completion of ten years of service
- (iv) for a Group 1 employee hired on or after April 2, 2012, attainment of age 60 and completion of ten years of service

b. Benefit Amount:

The retirement allowance is determined as a product of the participant's Benefit Rate times Average Salary times Creditable Service, where Benefit Rate is determined from the following table for those hired prior to April 2, 2012:

<u>Age at Retirement</u>	<u>Percentage of Average Salary</u>		
	<u>Group 1</u>	<u>Group 2</u>	<u>Group 4</u>
65 or Over	.025	.025	.025
64	.024	.025	.025
63	.023	.025	.025
62	.022	.025	.025
61	.021	.025	.025
60	.020	.025	.025
59	.019	.024	.025
58	.018	.023	.025
57	.017	.022	.025
56	.016	.021	.025
55	.015	.020	.025
54	.014	.014	.024
53	.013	.013	.023
52	.012	.012	.022
51	.011	.011	.021
50	.010	.010	.020
49	.009	.009	.019
48	.008	.008	.018
47	.007	.007	.017
46	.006	.006	.016
45	.005	.005	.015
44	.004	.004	.004
43	.003	.003	.003
42	.002	.002	.002
41	.001	.001	.001



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For those hired after April 1, 2012 who retire with less than 30 years of service, the following rates are applied:

<u>Age at Retirement</u>	<u>Percentage of Average Salary</u>		
	<u>Group 1</u>	<u>Group 2</u>	<u>Group 4</u>
67 or Over	.0250	.0250	.0250
66	.0235	.0250	.0250
65	.0220	.0250	.0250
64	.0205	.0250	.0250
63	.0190	.0250	.0250
62	.0175	.0250	.0250
61	.0160	.0235	.0250
60	.0145	.0220	.0250
59		.0205	.0250
58		.0190	.0250
57		.0175	.0250
56		.0160	.0235
55		.0145	.0220
54			.0205
53			.0190
52			.0175
51			.0160
50			.0145

For those hired after April 1, 2012 who retire with at least 30 years of service, the following rates are applied:

Age at Retirement	Percentage of Average Salary		
	Group 1	Group 2	Group 4
67 or Over	.02500	.02500	.02500
66	.02375	.02500	.02500
65	.02250	.02500	.02500
64	.02125	.02500	.02500
63	.02000	.02500	.02500
62	.01875	.02500	.02500
61	.01750	.02375	.02500
60	.01625	.02250	.02500
59		.02125	.02500
58		.02000	.02500
57		.01875	.02500
56		.01750	.02375
55		.01625	.02250
54			.02125
53			.02000
52			.01875
51			.01750
50			.01625

**8. Deferred Vested Retirement**

a. Eligibility:

A participant who has completed ten or more years of creditable service is eligible for a deferred vested retirement benefit. If termination is involuntary, the participant is vested after six years.

b. Benefit Amount:

The participant's accrued benefit is payable commencing at age 55, or may be deferred until later at the employee's option.

c. Refund of Contributions:

In lieu of the deferred pension benefit, a member may elect to receive a refund of their accumulated contributions with interest.

9. 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 72% of annual salary plus \$450 per year for each child plus an additional annuity based upon accumulated Member Contributions with credited interest.

10. Ordinary Disability

a. Eligibility:

An ordinary disability occurs when a member becomes permanently and totally disabled due to sickness or injury that is not job related. In order to be eligible for an ordinary disability benefit, a member must have ten years of service (and be less than age 55 or age 60 if hired on or after April 2, 2012).

b. Benefit Amount:

The ordinary disability amount is equal to the accrued retirement benefit as if the member were age 55 (age 60 if hired on or after April 2, 2012). If the member was a veteran, the benefit is 50% of the member's final rate of Salary during the preceding 12 months, plus an annuity based upon accumulated Member Contributions plus credited interest. If the participant is over age 55 (age 60 if hired on or after April 2, 2012), he will receive not less than the superannuation allowance to which he is entitled.

**11. Survivor Benefits****a. Occupational Death:**

The survivors of a member who dies due to an occupational injury will be entitled to a lump sum return of contributions plus a pension benefit equal to 72% of the participant's annual Salary.

**b. Non-Occupational Death:**

Upon the death of a member other than due to an occupational injury, the designated beneficiary will be entitled to a retirement benefit as if Option C had been elected with a minimum of \$250 per month to the surviving spouse, plus \$120 for the first child, plus \$90 for each additional child. If no beneficiary is designated and if the employee worked two years, and is married at least one year, the spouse may elect benefits. If there is no designated beneficiary or surviving spouse, then member contributions are returned. If there are dependent children but no surviving spouse, they may elect minimum survivor benefits of \$250 per month plus \$120 for the first child and \$90 for each additional child.

**c. Refund of Contributions:**

Upon the death of a member not entitled to survivor benefits, the beneficiary is entitled to a refund of all member contributions with interest.

**12. Cost-of-Living Increases**

In accordance with the adoption of Chapter 17 of the Acts of 1997, the granting of a cost-of-living adjustment will be determined by an annual vote by the Retirement Board. The amount of increase will be based upon the Consumer Price Index, limited to a maximum of 3.0%, beginning on July 1. All retirees, disabled retirees, and beneficiaries who have been receiving benefits payments for at least one year as of July 1 are eligible for the adjustment. The maximum amount of pension benefit subject to a COLA is \$15,000. All COLAs granted to members after 1981 and prior to July 1, 1998 are deemed to be an obligation of the State and are not the liability of the Retirement System.



**13. Postretirement Death Benefits**

Any benefits following the death of a member after retirement are based upon the form of benefit the participant elected at the time of retirement. There are three available forms as follows:

- (i) Option A – Life annuity
- (ii) Option B – Life annuity with death benefit equal to excess of member contributions plus credited interest to retirement over annuity benefit paid to member
- (iii) Option C – Life annuity with 66-2/3% of benefit continued after death of member to designated joint annuitant

## **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**

January 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 7.75% per annum.

**5. Salary Scale**

It is assumed that salaries including longevity will increase at a rate of 3.5% per year.

**6. Cost-of-Living Increases**

Cost-of-living increases have been assumed to be 3.0% of the lesser of the pension amount and \$15,000 per year.

**7. Value of Investments**

Assets held by the fund are valued at market value as reported by the Public Employees' Retirement Administration Commission (PERAC). 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**

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

<u>Service</u>	<u>General Employees</u>	<u>Police and Fire Employees</u>
0	0.2080	0.0150
5	0.1020	0.0150
10	0.0650	0.0150
15	0.0417	0.0150
20	0.0400	0.0000
30	0.0000	0.0000

**9. Annual Rate of Mortality**

It is assumed that mortality for is represented by the various SOA Pub-2010 Public Retirement Plans Mortality Tables specific to the Group, Pre-retirement versus Post, Disabled and Beneficiaries, with Scale MP-2019 improvements until 2025.

**10. Service Retirement**

Based on an analysis of experience, the assumed annual retirement rates are illustrated at the following ages for those hired prior to April 2, 2012:

<u>Age</u>	<u>Male General Employees</u>	<u>Female General Employees</u>	<u>Male and Female Police and Fire Employees</u>
50	0.0360	0.1019	0.0144
51	0.0405	0.0714	0.0144
52	0.0437	0.0562	0.0123
53	0.0366	0.0448	0.0210
54	0.0451	0.0488	0.0569
55	0.0477	0.0469	0.0879
56	0.0574	0.0518	0.0931
57	0.0632	0.0509	0.0897
58	0.0765	0.0552	0.0846
59	0.0917	0.0645	0.1022
60	0.1057	0.0774	0.1455
61	0.1224	0.1038	0.1844
62	0.1473	0.1168	0.2741
63	0.1777	0.1440	0.1984
64	0.2136	0.1708	0.4139
65	0.2615	0.1939	1.00000
66	0.2682	0.1959	1.00000
67	0.2500	0.2000	1.00000
68	0.2500	0.2000	1.00000
69	0.2500	0.2000	1.00000
70 to 76	0.2500	0.2500	1.00000
77 to 79	0.3500	0.2500	1.00000
80	1.0000	1.0000	1.00000



Based on an analysis of experience, the assumed annual retirement rates are illustrated at the following ages for those hired on or after April 2, 2012:

<u>Age</u>	<u>Male General Employees</u>	<u>Female General Employees</u>	<u>Male and Female Police and Fire Employees</u>
50	0.0000	0.0000	0.0072
51	0.0000	0.0000	0.0072
52	0.0000	0.0000	0.0062
53	0.0000	0.0000	0.0105
54	0.0000	0.0000	0.0105
55	0.0000	0.0000	0.0389
56	0.0000	0.0000	0.0631
57	0.0000	0.0000	0.0897
58	0.0000	0.0000	0.0846
59	0.0000	0.0000	0.1022
60	0.0477	0.0469	0.1455
61	0.0574	0.0518	0.1844
62	0.0632	0.0509	0.2741
63	0.0765	0.0552	0.1984
64	0.0917	0.0645	0.4139
65	0.1057	0.0774	1.0000
66	0.1224	0.1038	1.0000
67	0.1473	0.1168	1.0000
68	0.1777	0.1440	1.0000
69	0.2136	0.1708	1.0000
70	0.2615	0.1939	1.0000
70 to 76	0.2682	0.1959	1.0000
77 to 79	0.2500	0.2000	1.0000
80	1.0000	1.0000	1.0000

**12. 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 probabilities at the following ages:

<u>Attained Age</u>	<u>General Employees</u>	<u>Police and Fire Employees</u>
20	0.000100	0.000500
30	0.000152	0.000967
40	0.000663	0.002500
50	0.001271	0.007634

In addition, it is assumed for the general employees that 30% of all disabilities are ordinary (70% are service connected). For police and fire employees, 5% of all disabilities are assumed to be ordinary (95% are service connected).

**13. Family Composition**

It is assumed that 80% of all members will be survived by a spouse and that females (males) are three years younger (older) than members.

**14. 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 2022 is \$650,000 and is anticipated to increase at 4.0% 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 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 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. 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:

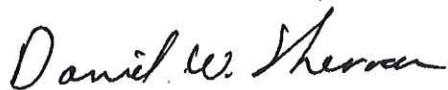
This report fairly represents the actuarial position of the City of Taunton Retirement System contributing as of January 1, 2020, in accordance with generally accepted actuarial principles applied consistently with the preceding valuation. In our opinion, the actuarial assumptions used to compute actuarial 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 funded status measure is appropriate for assessing the sufficiency of plan assets to cover the estimated cost of settling the plan's benefit obligations. The funded status measure is appropriate for assessing the need for or the amount of future contributions. The funded status measure would be different if the measure reflected the market value of assets rather than the actuarial value of assets.

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 or additional cost or contribution requirements based on the plan's funded status); and changes in plan provisions or applicable law. Due to the limited scope of our assignment, we did not perform an analysis of the potential range of such future measurements.

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



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Daniel W. Sherman, ASA, MAAA

April, 2020

**BREAKOUTS**

Breakouts

	Non-Light								Nursing		
	Subtotal	Total	City	GATRA	Landfill	Sewer	Water	Home	Light	Housing	
(1) Participants											
(a) Actives	914	1,061	804	30	2	0	30	0	147	48	
(b) Inactives	233	239	99	17	0	0	4	110	6	3	
(c) Retirees and Beneficiaries	662	815	572	3	0	8	25	39	153	15	
(e) Disabled Retirees	76	92	61	0	0	0	3	10	16	2	
(f) Total	1,885	2,207	1,536	50	2	8	62	159	322	68	
(2) Payroll of Active Participants	52,069,293	67,239,674	44,895,504	1,470,773	148,810	0	1,877,357	0	15,170,381	3,676,849	
Percent of Total Payroll	77.44%	100.00%	66.77%	2.19%	0.22%	0.00%	2.79%	0.00%	22.56%	5.47%	
(3) Normal Cost											
(a) Total Normal Cost	6,562,233	8,609,443	5,799,062	167,470	14,054	0	208,641	0	2,047,210	373,008	
(b) Expected Employee Contributions	4,669,541	6,077,886	4,024,024	129,058	14,022	0	165,927	0	1,408,345	336,510	
(c) Administrative Expenses	476,989	650,000	420,971	5,323	466	1,526	16,686	15,732	173,011	16,286	
(d) Net Employer Normal Cost (a) - (b) + (c)	2,369,681	3,181,557	2,196,009	43,735	498	1,526	59,400	15,732	811,876	52,784	
(4) Actuarial Accrued Liability	341,238,352	465,010,765	301,163,034	3,807,730	333,424	1,091,678	11,937,315	11,254,345	123,772,413	11,650,830	
(5) Assets*	254,186,913	346,384,426	224,334,989	2,836,361	248,366	813,186	8,892,052	8,383,311	92,197,513	8,678,651	
(6) Unfunded Actuarial Accrued Liability (4) - (5)	87,051,439	118,626,339	76,828,045	971,369	85,058	278,492	3,045,263	2,871,034	31,574,900	2,972,179	
(7) Amortizations											
(a) Unfunded Actuarial Accrued Liability	9,155,420	12,476,232	8,080,200	102,161	8,946	29,290	320,278	301,954	3,320,812	312,592	
(b) Early Retirement Incentive	122,002	122,002	112,298	0	0	0	0	9,703	0	0	
(c) Holiday	127,051	170,447	116,608	0	68	1,134	5,030	4,212	43,396	0	
(8) Total Required Employer Contributions (3d) + (7)	11,774,154	15,950,238	10,505,114	145,896	9,511	31,949	384,708	331,601	4,176,085	365,375	
(9) Fiscal 2021 Cost	12,780,814	17,023,066	11,399,594	140,798	6,407	38,874	379,922	515,550	4,242,252	299,670	
Percentage of total	75.08%	100.00%	66.97%	0.83%	0.04%	0.23%	2.23%	3.03%	24.92%	1.76%	
(10) Fiscal 2022 Cost	13,842,083	18,794,418	12,365,080	176,615	10,967	36,782	452,625	370,855	4,952,335	429,161	
Percentage of total	73.65%	100.00%	65.79%	0.94%	0.06%	0.20%	2.41%	1.97%	26.35%	2.28%	
(11) Fiscal 2023 Cost	14,407,915	19,563,845	12,867,995	183,405	11,460	38,437	471,705	387,543	5,155,930	447,373	
(12) Fiscal 2024 Cost	14,996,643	20,364,462	13,391,132	190,448	11,974	40,167	491,586	404,982	5,367,819	466,355	
(13) Fiscal 2025 Cost	15,609,180	21,197,518	13,935,295	197,754	12,512	41,974	512,301	423,207	5,588,338	486,139	
(14) Fiscal 2026 Cost	16,246,477	22,064,311	14,501,315	205,331	13,074	43,863	533,886	442,251	5,817,834	506,760	

[https://shermanactuary-my.sharepoint.com/personal/dan\\_shermanactuary\\_conv/Documents/Recovered Data/Taunton2020/\[Taunton2020\\_Val - 775% proposed Mortality.xlsm\]Inputs](https://shermanactuary-my.sharepoint.com/personal/dan_shermanactuary_conv/Documents/Recovered%20Data/Taunton2020/[Taunton2020_Val - 775% proposed Mortality.xlsm]Inputs)

### Appropriation Forecast - Municipal Light Plant

Fiscal Year	Employer Normal Cost and Admin Expense	Unfunded Liability Amortization	ERI Amortization	Holiday Amortization	Employer Total Cost
2022	\$877,033	\$4,026,903	\$0	\$48,400	\$4,952,335
2023	\$897,238	\$4,208,114	\$0	\$50,578	\$5,155,930
2024	\$917,487	\$4,397,479	\$0	\$52,853	\$5,367,819
2025	\$937,741	\$4,595,365	\$0	\$55,232	\$5,588,338
2026	\$957,960	\$4,802,157	\$0	\$57,717	\$5,817,834
2027	\$978,099	\$5,018,254	\$0	\$0	\$5,996,353
2028	\$998,112	\$5,244,075	\$0	\$0	\$6,242,187
2029	\$1,017,944	\$5,480,059	\$0	\$0	\$6,498,003
2030	\$1,037,541	\$5,726,661	\$0	\$0	\$6,764,202
2031	\$1,056,840	\$0	\$0	\$0	\$1,056,840
2032	\$1,075,775	\$0	\$0	\$0	\$1,075,775
2033	\$1,094,274	\$0	\$0	\$0	\$1,094,274
2034	\$1,112,259	\$0	\$0	\$0	\$1,112,259
2035	\$1,129,647	\$0	\$0	\$0	\$1,129,647
2036	\$1,146,348	\$0	\$0	\$0	\$1,146,348
2037	\$1,197,933	\$0	\$0	\$0	\$1,197,933