Middlesex County Retirement System

Annual Report
For Year Ending December 31, 2018

Commonwealth of Massachusetts
Public Employee Retirement Administration Commission

Annual Statement

2018

Public Employee Retirement Administration Commission Members

Philip Y. Brown
Chairman

The Honorable Suzanne Bump
Auditor of the Commonwealth
Vice Chairman

Kathleen M. Fallon
Practice Area Director, Public Consulting Group

Kate Fitzpatrick
Town Manager, Town of Needham

James M. Machado
Sergeant, Fall River Police Department

Robert B. McCarthy
President Emeritus of the Professional
Firefighters of Massachusetts

Jennifer F. Sullivan
Assistant Secretary for Capital, Finance,
Administration & Finance

John W. Parsons, Esq.
Executive Director

Audit Unit Staff

Caryn Shea, *Chief Auditor* | **Scott Henderson,** *Deputy Chief Auditor*
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Elaine Pursley, *Auditor* | **Richard Wrona,** *Auditor* | **Junior Yanga,** *Auditor*

You may leave messages for any member of PERAC's Audit Staff at telephone extension 929 in our Somerville offices.

Commonwealth of Massachusetts
Public Employee Retirement Administration Commission
Five Middlesex Avenue, Suite 304 | Somerville, MA 02145
ph 617 666 4446 fax 617 628 4414
tty 617 591 8917 web www.mass.gov/perac

Instructions to Retirement Systems & Pension Funds
(Henceforth called Systems)

(1) **Date of Filing:** The statement is required by law to be filed on or before May 1st.

(2) **The Name of the System** must be typed or stamped at the top of all pages and schedules (and duplicate schedules), and on all inserted schedules and loose sheets.

(3) This statement must be typewritten or prepared legibly using electronic media.

(4) **Blank Schedules** will not be accepted. If no entries are to be made, type "NONE" across the schedule in question.

(5) Each category of investment must be grouped alphabetically on appropriate schedules as listed below. Group totals in each category must be shown (sub-totals should be identified as such). Investments must be listed on a trade date basis (as opposed to the cashbook, which is on a settlement date basis). Purchases made prior to January 1st, but not settled until after December 31st, should be recorded as accounts payable and, as such, should be listed as purchased and owned. Sales made prior to January 1st, but not settled until after December 31st, should be recorded as accounts receivable and, as such, should be listed as sold and no longer owned. *

Schedule 1
Cash

Schedule 2
Short Term Securities (Treasury Bills, Commercial Paper, Repurchase Agreements, CDs, Term Deposits, Money Market Accounts, Cooperative Shares, and Savings and Loan Shares).

Schedule 3 (A, B, and C)
Fixed Income Securities

Schedule 4 (A, B, and C)
(a) Stocks
(b) Options

Schedule 5
Pooled Funds, PRIT Fund, Mutual or Commingled Funds, International Investments, Alternative Investments, and Real Estate Investments

Schedule 6
Recap of Schedules 1 through 5

Schedule 7
Recap of all investment-related management, custodial and consultant fees

Supplementary Schedule
We are now requesting that you provide us with a supplemental schedule for Members' Balances in the Annuity Savings Account. Previously, there was some confusion as to whether this information was required. **It is required.**

(6) If the Annual Statement and Schedules do not contain the information asked for in the blanks, or are not prepared as requested above, they will NOT be accepted by the Commission.

Note: In accordance with the provisions of section 20(5)(h) and section 23(1)(c) and section 23(2)(e) of Chapter 32 of the General Laws, this statement must be filed in the office of the Public Employee Retirement Administration Commission no later than May 1, 2019. The due date for filing will be strictly enforced.

*It is critical that you determine the status of all pending transactions reported by your custodian on supplemental schedules provided by them. If any adjustments are required, these should be disclosed either in the details of accounts due in receivables, or payments pending in accounts payable. Otherwise, the supplemental schedules need to be notated for pending settlements. It may be necessary to revisit pending transactions from prior periods to properly reconcile these financial results.

Annual Statement for the Year Ended December 31, 2018 of the Conditions and Affairs of Middlesex County Retirement
(Name of Retirement System)

Organized Under the Laws of the Commonwealth of Massachusetts to the Public Employee Retirement Administration Commission

Date of Certificate 10/05/1936 Effective Date 0101/1937

ADMINISTRATIVE OFFICE

25 Linnell Circle	Billerica, MA 01865	(978) 439-3000
Street & Number	City/Town, State and Zip Code	Telephone Number

We, the undersigned, members of the Middlesex Board of Retirement certify under the penalties of perjury, that we are the official board members of said retirement system, and that on the thirty-first day of December last, all of the herein-described assets were the absolute property of said retirement system, free and clear from any liens or claims thereon, except as stated, and the following statements, with the schedules and explanations therein contained, annexed, or referred to, are a full and correct exhibit of all the assets, liabilities, income and disbursements, changes in fund balances, and of the conditions and affairs of the said retirement system on the said thirty-first day of December last, and for the year ended on that date, according to the best of our information, knowledge, and belief, respectively.

BOARD OF RETIREMENT

Please identify the name of the Board Member who serves as Chairperson by inserting the title next to his or her name.

Ex-Officio Member
Thomas F. Gibson, Esq. Chairman
(Name Typed)
Term Expires 12/31/2020
(Signature)

Appointed Member
Brian P. Curtin
(Name Typed)
Term Expires : 12/31/2021
Brian P. Curtin
(Signature)

Elected Member
John Brown
(Name Typed)
Term Expires :12/31/2020
(Signature)

Elected Member
Joseph W. Kearns
(Name Typed)
Term Expires : 12/31/2019
(Signature)

Member Appointed by Other Members
Robert W. Healy, Jr.
(Name Typed)
Term Expires : 12/17/2020
(Signature)

INVESTMENT MANAGERS

Please compile/ submit a complete list. Attach the list to this page.

(Name) (Address)

(Name) (Address)

(Name) (Address)

CUSTODIAN BANK
~~INVESTMENT CONSULTANT~~ State Street Bank & Trust Co.
(Name)
801 Pennsylvania Avenue
Tower 1, 5th floor
(Address) Kansas City, MO 64105

CUSTODIAN

(Name) (Address)

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INVESTMENT MANAGER LIST AS OF DECEMBER 31, 2018

CORE

PRIM	84 State Street, Suite 250, Boston, MA 02109

REAL ESTATE

Ares Real Estate Group – VEF Funds	3340 Peachtree RD NE, Suite 1660, Atlanta, GA 30326
Hunt Investment Management	10 S. Wacker Drive, Suite 3250, Chicago, IL 60606

PRIVATE EQUITY

Ascent Venture Partners, Inc.	255 State Street, 5th Floor, Boston, MA 02109
Auda	888 Seventh Avenue, 41st Floor, New York, NY 10106
Boston Millennia Partners	30 Rowes Wharf, Boston, MA 02110
Globespan Capital Partners	One Boston Place, Suite 2810, Boston, MA 02108
INVESCO	101 Federal Street, Boston, MA 02110
North Atlantic Ventures	Two City Center, Portland, ME 04101

ALTERNATIVE

Global Forest Partners LP	67 Etna Road, Suite 500, Lebanon, NH 03766

ANNUAL STATEMENT BALANCE TESTS

1. ASSET BALANCE

Assets Previous Year	$ 1,378,351,218.54
Income Current Year	152,178,971.60
Disbursements Current Year	(180,490,423.53)
Assets Current Year	1,350,039,766.61

2. ASSET DIFFERENCE

Assets Current Year	$ 1,350,039,766.61
Assets Previous Year	(1,378,351,218.54)
Difference	(28,311,451.93)

3. INCOME DIFFERENCE

Income Current Year	$ 152,178,971.60
Disbursements Current Year	(180,490,423.53)
Difference	(28,311,451.93)

4. FUND CHANGE DIFFERENCE - Add interfund transfer credits and debits respectively to Income and Disbursement activities.

Total Fund Change Credits Current Year	$ 190,837,079.94
Total Fund Change Debits Current Year	(219,148,531.87)
Difference	(28,311,451.93)

NOTE: The difference as a result of tests 2,3, and 4 should be the same.

Annual Statement of the Middlesex County Retirement System for the Year Ended Dec. 31, 2018

ASSETS AND LIABILITIES

	2018	2017	2016
1. 1040-Cash	$ 39,299,109.39	$ 58,639,587.66	$ 69,258,584.20
1130-Cash(MCRS Building)	216,557.19	123,577.10	58,604.98
2. 1100-short Term Investment			
3. 1180-Fixed Income Securities (Market Value)			
4. 1101-Pooled Short Term Funds			
5. 1170-Equities			
6. 1172-Pooled Domestic Equity Funds			
7. 1173-Pooled International Equity Funds			
8. 1174-Pooled Global Equity Funds			
9. 1181-Pooled Domestic Fixed Income Funds			
10. 1182-Pooled International Fixed Income Funds			
11. 1183-Pooled Global Fixed Income Funds			
12. 1193-Pooled Alternative Investments	4,786,461.63	6,432,161.68	6,055,546.39
13. 1194-Pooled Real Estate Funds	2,332,568.95	2,973,757.51	5,287,640.51
14. 1195-Pooled Domestic Balanced Funds			
15. 1196-Pooled International Balanced Funds			
16. 1197-Hedge Funds			
17. 1198-PRIT Cash Fund			
18. 1199-PRIT Core Fund	1,290,918,214.21	1,295,940,106.93	1,088,943,336.34
19. 1350-Prepaid Expenses			-
20. 1398-Accounts Receivable (A)	7,479,617.65	8,851,643.81	7,219,452.80
1200-Accounts Receivable(MCRS Building)	182,673.29	178,568.54	177,173.51
21. 1550-Interest Due and Accrued	15,969.28	26,342.31	12,212.45
22. 2020-Accounts Payable (A)	(119,009.56)	(144,615.70)	(129,657.27)
2400-Prepaid Member Deductions	(73,859.99)		(70,023.82)
2000-Accounts Payable(MCRS Building)	(22,470.21)	(6,039.58)	(147.58)
23. 1200-Advance to MCRS Building	1,131,650.01	881,650.01	631,650.01
1920-Software System	729,570.00	729,570.00	729,570.00
1920-Building-25 Linnell Circle	4,604,032.78	4,770,312.28	4,895,743.24
Liabilities Security Deposit	(17,840.00)	(17,840.00)	(17,840.00)
1929-Accumulated Depreciation	(291,828.00)	(145,914.00)	
2200-Advance From MCRS Building	(1,131,650.01)	(881,650.01)	(631,650.01)
TOTAL	$ 1,350,039,766.61	$ 1,378,351,218.54	$ 1,182,420,195.75

FUNDS

	2018	2017	2016
1. 3293-Annuity Savings Fund	$ 479,620,656.95	$ 464,335,075.14	$ 446,230,915.84
2. 3294-Annuity Reserve Fund	119,606,751.41	113,576,797.98	110,682,967.80
3. 3295-Military Service Fund	252,717.56	218,745.75	84,357.29
4. 3296-Pension Fund	6,532,291.83	9,153,617.33	9,210,720.38
5. 3298-Expense Fund	0.00	0.00	0.00
6. 3297-Pension Reserve Fund	744,027,348.86	791,066,982.34	616,211,234.44
TOTAL	$ 1,350,039,766.61	$ 1,378,351,218.54	$ 1,182,420,195.75
TOTAL ASSETS AT MARKET VALUE	$ 1,350,039,766.61	$ 1,378,351,218.54	$ 1,182,420,195.75

(A) Specific details for Accounts Receivable and Accounts Payable are to be disclosed on Schedule A.

Annual Statement of the Middlesex County Retirement System for the Year Ended December 31, 2018

	Balance 12/31 Prior Year	Receipts	Interfund Transfers	Disbursements	Balance 12/31 Current Year
Annuity Savings Fund	464,335,075.14	52,634,298.08	(28,383,150.32)	(8,965,565.95)	$ 479,620,656.95
Annuity Reserve Fund	113,576,797.98	3,448,069.98	28,419,333.10	(25,837,449.65)	$ 119,606,751.41
Pension Fund	9,153,617.33	124,101,883.00	8,618,057.00	(135,341,265.50)	$ 6,532,291.83
Special Military Service Credit Fund	218,745.75	33,971.81	0.00	0.00	$ 252,717.56
Expense Fund	0.00	10,346,142.43	0.00	(10,346,142.43)	$ 0.00
Pension Reserve Fund	791,066,982.34	(38,385,393.70)	(8,654,239.78)	0.00	$ 744,027,348.86
TOTAL ALL FUNDS	$ 1,378,351,218.54	152,178,971.60	0.00	(180,490,423.53)	$ 1,350,039,766.61

List below all transfers:

Transfer from ASF to the ARF in the amount of	28,414,801.88	on account of New Retirees.
Transfer from ASF to the PRF in the amount of	791,905.21	on account of 10 Years No Deductions.
Transfer from ARF to the ASF in the amount of		on account of Retiree to Active then refund.
Transfer from ARF to the ASF in the amount of		on account of Recalculation for Retiree.
Transfer from ARF to the ASF in the amount of		on account of Retiree's Settlement & Re-instate.
Transfer from MSF to the ASF in the amount of	0.00	on account of Military Service to Retire
Transfer from PRF to the ASF in the amount of	794,388.76	on account of Reverse 10 years no Deductions-Transfer Out, Refunds & Ret.
Transfer from ASF to the ARF in the amount of	4,531.22	on account of Recalculation for Retiree.
Transfer from PRF to the ASF in the amount of	34,061.75	on account of re-instate
Transfer from ASF to the PRF in the amount of		on account of corrections.
Transfer from ASF to the PRF in the amount of	362.52	on account of Interest Posted Past Date of Retirement.
Transfer from PRF to the PF in the amount of	8,618,057.00	to meet the cost of benefits.

Annual Statement of the Middlesex County Retirement System for the Year Ended December 31, 2018

Receipts

	2018	2017	2016
1.Annuity Savings Fund			
(a) 4891-Members Deductions	$46,064,419.79	$44,020,430.74	$42,015,296.19
(b) 4892-Transfers From Other Systems	5,276,441.84	5,727,458.54	4,255,620.42
(c) 4893-Member Make Up Payments & Redeposits	605,791.84	820,576.96	826,164.63
(d) 4900-Member Payments from Rollovers			
(e) Investment Income Credited to Members Accounts	687,644.61	680,900.12	616,044.30
Subtotal	52,634,298.08	51,249,366.36	47,713,125.54
2. Annuity Reserve Fund:			
(a) 4750-Recovery of Annuity from Reinstatement			
(b) Investment Income Credited to Annuity Reserve Fund	3,448,069.98	3,319,909.88	3,241,376.63
Subtotal	3,448,069.98	3,319,909.88	3,241,376.63
3. Pension Fund:			
(a) 4898-3(8) (c) Reimbursements from Other Systems	3,539,492.74	3,572,503.22	7,191,133.36
(b) 4899-Received From Commonwealth For COLA and Survivor Benefits	0.00	0.00	0.00
(c) 4894-Pension Fund Appropriation	120,499,451.00	115,377,205.40	107,032,210.50
(d) 4840-Workers' Compensation Settlements	68,542.26	58,300.00	29,000.00
(e) 4751-Recovery of Pension from Reinstatement			
(f) 4841-Recovery of 91 A Overearnings	(5,603.00)	87,745.51	9,602.54
Subtotal	124,101,883.00	119,095,754.13	114,261,946.40
4. Military Service Fund:			
(a) 4890-Contributions Received from Municipality for Military Service	33,881.35	157,383.65	0.00
(b) Investment Income Credited	90.46	84.36	84.27
Subtotal	33,971.81	157,468.01	84.27
5. Expenses Fund:			
(a) Investment Income Credited to Expenses Fund	10,346,142.43	9,131,462.85	8,865,699.19
Subtotal	10,346,142.43	9,131,462.85	8,865,699.19
6. Pension Reserve Fund:			
(a) 4897-Federal Grant Reimbursement	1,881.36	26,530.46	35,495.94
(b) 4100-Rental Income(MCRS Building)	146,628.67	153,816.09	165,490.58
(c) 4822-Interest Not Refunded	96,976.72	112,658.06	79,779.75
(d) 4825-Miscellaneous Income	13,981.48	335.26	1,941.54
(e) Excess Investment Income (from Page 6)	(38,644,861.93)	182,423,148.66	67,342,446.16
Subtotal	(38,385,393.70)	182,716,488.53	67,625,153.97
TOTAL RECEIPTS	$ 152,178,971.60	$ 365,516,633.67	$ 241,707,386.00

Annual Statement of the Middlesex County Retirement System for the Year Ended December 31, 2018

Disbursements

		2018	2017	2016
1. Annuity Savings Fund:				
(a) 5757- Refunds to Member		$ 3,031,448.79	$ 3,564,979.76	$ 4,023,171.93
(b) 5756-Transfers to Other System		5,934,117.16	5,051,691.06	4,268,569.87
	Subtotal	8,965,565.95	8,616,670.82	8,291,741.80
2. Annuity Reserve Fund:				
(a) 5750-Annuities paid		25,663,078.80	23,853,776.72	22,076,814.85
(b) 5759-Option B refunded		174,370.85	0.00	350,238.65
	Subtotal	25,837,449.65	23,853,776.72	22,427,053.50
3. Pension Fund:				
(a) 5751-Pension Paid				
Regular Pension Payments		99,461,542.18	94,423,315.32	90,372,427.67
Survivorship Payments		5,119,153.62	4,946,105.07	5,023,926.61
Ordinary Disability Payments		1,130,516.15	1,110,977.04	1,072,874.64
Accidental Disability Payments		13,409,632.41	13,247,123.19	12,858,584.26
Accidental Death Payments		2,779,427.22	2,705,183.74	2,604,372.34
Section 101 Benefits		822,038.44	771,077.79	698,504.37
(b) 5755-3(8) (c)Reimbursement to Other System		12,618,955.48	10,464,962.53	11,554,902.56
(c) 5752-COLA's Paid				
(d) 5753-Chapter 389 Beneficiary Increase Paid				
	Subtotal	135,341,265.50	127,668,744.68	124,185,592.45
4. Expense Fund:				
(a) 5118-Board Member Stipend		18,000.00	18,000.00	15,750.00
(b) 5119-Salaries		1,295,420.21	1,239,430.07	1,405,918.37
(c) 5304-Management Fees		7,018,694.19	6,312,178.66	5,749,629.45
(d) 5305-Custodial Fees		53,712.76	53,908.80	53,548.72
(e) 5307-Consultant Fees				
(f) 5308-Legal Expenses		15,190.66	13,801.16	99,120.95
(g) 5309-Medical Expenses		351.50	1,843.00	820.59
(h) 5310-Fiduciary Insurance		163,935.00	163,273.00	224,475.42
(i) 5311-Service Contracts		0.00	0.00	0.00
(j) 5312-Rent Expenses(MCRS Building)		309,355.66	306,177.94	235,667.67
(k) 5315-Professional Service		66,581.23	116,035.27	91,907.32
(l) 5316-Actuarial Service		78,000.00	0.00	0.00
(m) 5317-GASB 67/68 Implement		5,000.00	38,327.50	124,900.00
(n) 5320-Eduction & Training		12,542.80	15,089.59	10,014.20
(o) 5589-Administrative Expenses		968,070.80	991,515.94	1,065,873.80
(p) 5599-Furniture, Equipment & IT		145,914.00	145,914.00	0.00
(p) 5829-Depreciation Expenses (MCRS Building)		172,898.30	162,593.96	162,593.96
(r) 5719-Travel		22,475.32	22,145.86	23,740.37
	Subtotal	10,346,142.43	9,600,234.75	9,263,960.82
TOTAL DISBURSEMENTS		$ 180,490,423.53	$ 169,739,426.97	$ 164,168,348.57

Annual Statement of the Middlesex County Retirement System for the Year Ended December 31, 2018

Investment Income

	2018	2017	2016
Investment Income received from:			
(a) Cash(from schedule 1)	$ 758,938.86	$ 612,218.38	$ 281,400.64
(b) Short Term Investments (from schedule 2)	0.00	0.00	0.00
(c) Fixed Income Securities (from schedules 3A & 3C)	0.00	0.00	0.00
(d) Equities (from schedules 4A & 4C)	0.00	0.00	0.00
(e) Pooled Funds (from schedule 5)	35,840,811.84	32,669,536.22	30,316,712.98
(f) Commission Recapture/Securities Litigation	4,469.48	11,068.31	11,280.86
4821-TOTAL INVESTMENT INCOME	36,604,220.18	33,292,822.91	30,609,394.48
Plus:			
4884-Realized Gains (Profits)	61,967,867.09	54,349,888.99	30,053,196.19
4886-Unrealized Gains (Inc. in Market Value)	48,087,115.64	109,657,791.06	90,891,858.00
1550-Interest Due and Accrued - Current Year	15,969.28	26,342.31	12,212.45
Less:			
4823-Paid Accrued Interest on Fixed Income Securities	0.00	0.00	0.00
4885-Realized Losses	(11,120.00)	(475,609.14)	(1,025,557.98)
4887-Unrealized Losses(Decrease in Market Value)	(170,800,624.33)	(1,283,517.81)	(70,071,068.30)
1550-Interest Due and Accrued - Prior Year	(26,342.31)	(12,212.45)	(6,122.66)
Additional Adjustmnets:			
4701-Carried Interest Expenses	-		
4702-Equalization Expenses	-		
4703-Miscellaneous Investment Expenses	-		
NET INVESTMENT INCOME	(24,162,914.45)	195,555,505.87	80,463,912.18
Income Required:			
Annuity Savings Fund (from Supplementary schedule)	687,644.61	680,900.12	616,044.30
Annuity Reserve Fund	3,448,069.98	3,319,909.88	3,241,376.63
Special Military Service Credit Fund	90.46	84.36	84.27
Expense Fund	10,346,142.43	9,600,234.75	9,263,960.82
TOTAL INCOME REQUIRED	14,481,947.48	13,601,129.11	13,121,466.02
Net Investment Income	(24,162,914.45)	195,555,505.87	80,463,912.18
Less Income Required	(14,481,947.48)	(13,601,129.11)	(13,121,466.02)
EXCESS INCOME TO PENSION RESERVE FUND	$ (38,644,861.93)	$ 181,954,376.76	$ 67,342,446.16

Membership Counts for the as of 12/31/2018

MEMBERSHIP FOR CURRENT YEAR

ACTIVE MEMBERS	**Group 1**	**Group 2 & 4**	**TOTAL**
Active Membership, Dec. 31st, Previous Year	7,392	1,652	9,044
Inactive Membership, Dec. 31st, Previous Year	2,996	161	3,157
Enrolled During Current Year	1,167	127	1,296
Transfers Between Groups	0	0	0
Reinstatements of Disabled Members	0	0	0
SUBTOTAL	1,167	127	1,296
Deduct:			
Death	7	0	7
Withdrawals	490	30	520
Retirements	286	54	340
SUBTOTAL	783	84	867
Active Membership, Current Year	7,458	1,684	9,142
Inactive Membership, Current Year	3,314	172	3,486

RETIRED MEMBERS, BENEFICIARIES & SURVIVORS			
Retired, Beneficiary and Survivor Membership, Dec. 31st, Previous Year	4,219	1,270	5,489
Retirements During the Year			
Superannuation	278	49	327
Ordinary Disability	1	0	1
Accidental Disability	0	5	5
Termination Retirement Allowance	0	0	0
Beneficiary of Deceased Retiree	19	12	31
Survivor Benefits from Active Membership	8	0	8
SUBTOTAL	306	66	372
Deduct:			
Deaths of Retired Members	131	32	163
Termination of Survivor Benefits	21	8	29
Reinstatements of Disabled Pensions	0	0	0
SUBTOTAL	152	40	192
Retired Membership, Current Year			
Superannuation	3,786	873	4,659
Ordinary Disability	48	19	67
Accidental Disability	143	220	363
Termination	21	0	21
Beneficiaries from Accidental Deaths	15	62	77
Beneficiaries from Section 100	0	3	3
Beneficiaries from Section 101	25	37	62
Beneficiaries under Option C	190	56	250
Option (D) Survivor Allowance	144	26	174
Section 12B Survivor Allowance	1	0	1

Total Retired, Beneficiary and Survivor Membership, Current Year	4,373	1,296	5,677
TOTAL MEMBERSHIP			
Active, Inactive, Retired, Beneficiary and Survivor, Current Year	15,145	3,152	18,305

Annual Statement of the Middlesex County Retirement System for the year ended 12/31/18

Schedule A : Detail of Accounts Receivable and Accounts Payable

	Amount	**Original Date**
Accounts Receivable		
4891-Members Deductions(Current Year)	$ 2,291,452.24	
4891-Members Deductions(Prior Years)	2,233.04	
4893-Member Make Up Payments and Redeposit	172,359.82	
4898-3(8) (c) Reimbursements From Other system	3,896,020.69	
4890- Military Service Contribution (Current Year)	20,901.43	
4894- Pension Fund Appropriation (Current Year)	56,990.50	
1398-14 Other	12,503.43	
4841- Excess Earnings(91A)	69,603.85	
4892- Transfer from Other System (Current Year)	957,552.65	
TOTAL RECEIVABLES	**$ 7,479,617.65**	

	Amount	**Original Date**
Accounts Payable		
5308-Legal Expenses(Current Year)	$ 839.00	
5309-Medical Expenses(Current Year)	$ 140.67	
5315-Professional Services(Current Year)	1,200.00	
5589-13 Office Supplies(Current Year)	1,203.38	
5589-14 Postage(Current Year)	4,416.05	
5589-15 Telephone(Current Year)	74.07	
5589-21 Computer & Office Maintenance(Current Year)	35,561.35	
5589-22 Computer Supplies(Current Year)	10,715.00	
5589-33 Electricity Charge (Current Year)	2,519.44	
5589-41 Health & Life Ins. Benefits(Current Year)	50,980.13	
4891-Members Deductions(Current Year)	273.64	
5304-Management Fees/Timberfund 4Q.18	2,151.48	
5305-Custodial / Nov.2018 & Dec. 2018)	8,935.35	
TOTAL PAYABLES	$ 119,009.56	

Schedule No. 1

Annual Statement of the Middlesex County Retirement System for the Year Ended December 31, 2018

Cash Account Activity During Year

Cash defined in ledger #1040 as Savings, Checking or Checking

Description: type of account, account number, interest rate list alphabetically	(A) Book Value at End of Previous Year	(B) Total Deposits this year	(C) Income Reinvested/ Redeposited into Account	(D) Withdrawals During Year	(E) =A+B+C-D Total Book Value December 31st This Year	(F) Cash Income paid to System not Re-invested or Redeposited	(G) Interest Due and Accrued December 31st
BELMONT BANK							
Belmont Bank(#8934)	$ 4,059,784.84		$ 10,471.16	4,070,255.88	$ 0.12		
Belmont Bank(#8945 & #8956)	$ 8,117,944.21		$ 143,812.96		$ 8,261,757.17		
ENTERPRISE BANK							
Debit Card(#763017)	$ 4,104.75	$ 10,000.00		$ 9,353.11	$ 4,751.64		
Operating Account(#769053)	$ 8,075,107.12	$ 179,616,880.77	$ 2,347.17	$ 173,160,964.61	$ 14,533,370.45		
Retiree Payroll Account(#769082)	$ 305,381.00	$ 148,588,965.91		$ 148,669,846.71	$ 224,500.20		
Enterprise Bank(#834849)	$ 4,040,167.78		$ 49,711.45		$ 4,089,879.23		
Enterprise Bank(#943081& #943082))	$ -				$ -		
Enterprise Bank(#841586)	$ 1,054,523.70	$ 127,306,957.70	$ 10,081.47	$ 127,705,908.75	$ 665,654.12		
READING COOPERATIVE BANK							
Reading Cooperative Bank(#4633)	$ 4,063,257.71		$ 12,961.84	$ 4,076,219.55	$ -		
Reading Coop. Bank(#4625 & #4617)	$ 8,118,921.70		$ 139,966.53		$ 8,258,888.23		
STATE STREET BANK							
State Street Bank(RBHD-00019851)	$ 20,800,394.85	$ 119,132,611.39	$ 389,586.28	$ 137,062,284.29	$ 3,260,308.23		$ 15,969.28
TOTAL ACCOUNTS	**$ 58,639,587.66**	**$ 574,655,415.77**	**$ 758,938.86**	**$ 594,754,832.90**	**$ 39,299,109.39**	**$ -**	**$ 15,969.28**

Schedule 2

Annual Statement of the Middlesex County Retirement System for the Year ended December 31, 2018

Short Term Securities *Bought and Sold or Matured during the Year as well as Still Held on December 31st

***Short Term defined in ledger #1100 as U.S. Treasury Bills, Commercial Paper, Repurchase Agreements, CDs, Term Deposits, Money Market, Cooperative Shares, Savings and Loan Shares**

Description:	(A)	(B)	(C)	(D)	(E)	(F)	(G)
Including CUSIP or Account no., interest Rate, Maturity Date,(List alphabetically. Rolled over securities must be listed as sold and then repurchased)	Date Acquired	Par Value	Cost Including Commissions	Amount Received at Maturity (Expiration or Upon Liquidation) Less Commissions and Excluding Interest	Market Value December 31st Current Year	Interest Received During Year	Due and Accrued December 31st
N/A							

Schedule No. 3A
Annual Statement of the Middlesex County Retirement System for the Year Ended December 31, 2018

Domestic Fixed Income Securities Owned at End of Year
(Foreign Fixed Income Securities must be Listed on Schedule 5)

Description: including maturity date and interest rate, list alphabetically	(A) Cusip Number	(B) Cost or Market Value at End of P/Y	(C) Unrealized Gain	(D) Unrealized Loss	(E) Market Value	(F) Interest Received During Year	(G) Interest Due and Accrued December 31st
N/A							
Total		$ -	$ -	$ -	$ -	$ -	$ -

Schedule No. 3B
Annual Statement of the Middlesex County Retirement System for the Year Ended December 31, 2018

Domestic Fixed Income Securities Purchase During Year
(Foreign Fixed Income Securities must be Listed on Schedule 5)

Description: including date of maturity and interest rate, list alphabetically	(A) Cusip Number	(B) Par Value	(C) Date Acquired (Trade Date)	(D) Name of Broker	(E) Commissions Paid	(F) Paid Accrued Interest	(G) Cost excluding Accrued Interest , But Including Commissions
N/A							
Total						$ -	$ -

Schedule No. 3C
Annual Statement of the Middlesex County Retirement System for the Year Ended December 31, 2018

Domestic Fixed Income Securities Sold During Year
(Foreign Fixed Income Securities must be listed on Schedule 5)

Description: including date of maturity and interest rate, list alphabetically	(A) Cusip Number	(B) Par Value	(C) Date Sold or Matured (Trade Date)	(D) Name of Broker	(E) Commissions	(F) Market Value Previous Dec 31st or cost if purchased Current Year	(G) Amount Received on Sale Less Commissions Excl. Accrued Interest	(H) =G-F Realized Gain	(I) =G-F Realized Loss	(J) Interest Received During Year including Interest Sold
N/A										
Total						$ -	$ -	$ -	$ -	$ -

Schedule No. 4A
Annual Statement of the Middlesex County Retirement System for the Year Ended December 31, 2018

Equities Owned at End of Year
Equities defined as stocks or options (Pooled Funds must be listed on Schedule 5)

Description: Give complete description list alphabetically	(A) Cusip #	(B) Number of Shares	(C) Rate of share used to obtain Current Market Value	(D) Market Value at End of Previous Year	(E) Net Purchases and (Sales) at Book Value Current Year	(F) Market Value at end of Current Year	(G) =F-D-E Unrealized Gain	(H) =F-D-E Unrealized Loss	(I) Dividends Received During Year
N/A									
Total				$ -	$ -	$ -	$ -	$ -	$ -

Schedule No. 4B

Annual Statement of the Middlesex County Retirement System for the Year Ended December 31, 2018

Equities Purchased During Year

Equities defined as stocks or options (Pooled Funds must be Listed on Schedule 5)

Description: Give complete description list alphabetically	(A) Cusip Number	(B) Number of Shares	(C) Date Acquired (Trade Date)	(D) Name of Broker	(E) Commissions and Fees Paid	(F) Cost to System Including Commissions and Fees
N/A						
Total						$ -

Schedule No. 4C
Annual Statement of the Middlesex County Retirement System for the Year Ended December 31, 2018

Equities Sold During Year
Equities defined as stocks or options (Pooled Funds must be listed on Schedule 5)

Description: Give complete description list alphabetically	(A) Cusip #	(B) Number of Shares	(C) Name of Broker	(D) Date Sold	(E) Commissions Paid	(F) Proceeds From Sale	(G) Market Value at Prior Year-end or Cost if Purchases in Current Year	(H) =F-G Realized Gain	(I) =F-G Realized Loss	(J) Dividends Received During Year
N/A										
Total						$ -	$ -	$ -	$ -	$ -

Schedule 5
Annual Statement of the Middlesex County Retirement System the Year Ended December 31, 2018
Schedule of Pooled Funds
This schedule is to be used for PRIT Fund, and Pooled Funds (e.g. Venture Capital, Real Estate, Mutual funds, Commingled Funds)

PERAC Ledger Number	Description: Give complete description list alphabetically by category International Fixed Income Funds	(A) Market Value at End of Previous Year	(B) Total Purchases this year At Cost	(C) Reinvested Investment Income	(D) Realized Gain	(E) Realized (Loss)	(F) Unrealized Gain	(G) Unrealized (Loss)	(H) Total Sales Redemptions this Year Amount Received	(I) Cash Dividends /Distributions to System this year	(J) Fees Paid	(K) =A+B+C+D+E+F+G-H-I Market Value at End of Year
	Alternative/Private Equity Funds											
1193	Ascent Venture Partners II	$ 23,923.00	0.00	(847.00)	35.00	0.00	0.00	0.00	0.00	0.00	0.00	23,111.00
1193	Ascent Venture Partners III	$ 159,775.68	0.00	2,069.16	0.00	0.00	0.00	(18,657.21)	0.00	0.00	0.00	143,187.63
1193	Auda Partners LP	$ 57,022.00	0.00	(1,403.00)	0.00	0.00	0.00	0.00	0.00	55,619.00	0.00	0.00
1193	Boston Millennia	$ 19,590.00	0.00	(616.33)	0.00	(4,133.00)	7.00	0.00	0.00	14,847.67	0.00	0.00
1193	Boston Millennia II	$ 255,696.00	0.00	(795.94)	0.00	(22.00)	0.00	(19,787.00)	0.00	4,713.06	1,156.00	229,222.00
1193	First America Asia Fund*	$ 1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00
1193	Globespan IV	$ 868,532.00	0.00	10.57	579.00	(1,489.00)	727,496.00	(189,488.00)	0.00	49,115.57	0.00	1,356,525.00
1193	Globespan V	$ 4,885,262.00	0.00	(817.19)	1,609,094.00	0.00	84,785.00	(2,020,526.00)	0.00	2,002,113.81	55,385.00	2,500,299.00
1193	INVESCO	$ 12,363.00	0.00	(1,716.00)	0.00	0.00	0.00	0.00	0.00	10,647.00	0.00	0.00
1193	North Atlantic Venture III	$ 149,997.00	0.00	(64,187.00)	0.00	(5,476.00)	453,782.00	0.00	0.00	0.00	0.00	534,116.00
1193	**SUBTOTAL Alternative/Private Equ**	**$ 6,432,161.68**	**$ -**	**(68,302.73)**	**$ 1,609,708.00**	**(11,120.00)**	**$ 1,266,070.00**	**(2,248,458.21)**	**$ -**	**$ 2,137,056.11**	**$ 56,541.00**	**$ 4,786,461.63**

* liquidation

Schedule 5
Annual Statement of the Middlesex County Retirement System the Year Ended December 31, 2018
Schedule of Pooled Funds
This schedule is to be used for PRIT Fund, and Pooled Funds (e.g. Venture Capital, Real Estate, Mutual funds, Commingled Funds)

PERAC Ledger Number	Description: Give complete description list alphabetically by category		(A) Market Value at End of Previous Year	(B) Total Purchases this year At Cost	(C) Reinvested Investment Income	(D) Realized Gain	(E) Realized (Loss)	(F) Unrealized Gain	(G) Unrealized (Loss)	(H) Total Sales/ Redemptions this Year Amount Received	(I) Cash Dividends /Distributions to System this year	(J) Fees Paid	(K) =A+B+C+D+E+F+G-H-I Market Value at End of Year
	Real Estate Funds												
1194	**GFP-World Timberfund**	$	1,721,181.00	0.00	-	-	-	205,188.00	-	-	276,507.00	-	1,649,862.00
1194	**Hunt-Tuckerman RIVA**	$	160,798.00	0.00	(9,257.00)	455.00	-	2,852.00	-	-	74,407.00	332.00	80,109.00
1194	**Intercontinental RE III**	$	-		3,856.17						3,856.17		-
1194	**Value Enhancement Fund V (8645)**	$	404,761.02	0.00	(467.21)	130.97	-	12,906.16	(2,143.72)	-	363,456.01	-	51,731.21
1194	**Value Enhancement Fund VI (8925)**	$	687,017.49	0.00	899.99	40,140.43	-	56,427.90	(27.22)	-	230,956.01	2,635.84	550,866.74
1194	**SUBTOTAL Real Estate Funds**		**2,973,757.51**	**0.00**	**(4,968.05)**	**40,726.40**	-	**277,374.06**	**(2,170.94)**	-	**949,182.19**	**2,967.84**	**2,332,568.95**
	PRIT FUND												
1199	**General-Allocation Account**		1,295,940,106.93	127,703,495.00	35,914,082.62	60,317,432.69	0.00	46,543,671.58	(168,549,995.18)	100,000,000.00	0.00	6,950,579.43	1,290,918,214.21
1199	**SUBTOTAL-PRIT Fund**		**1,295,940,106.93**	**127,703,495.00**	**35,914,082.62**	**60,317,432.69**	**0.00**	**46,543,671.58**	**(168,549,995.18)**	**100,000,000.00**	**0.00**	**6,950,579.43**	**1,290,918,214.21**
	Paid by Agency(RBHD) Account												
	GFP-World Timberfund											8,605.92	
												8,605.92	
	TOTAL ALL POOLED FUNDS	$	**1,305,346,026.12**	**$ 127,703,495.00**	**$ 35,840,811.84**	**$ 61,967,867.09**	**$ (11,120.00)**	**$ 48,087,115.64**	**$ (170,800,624.33)**	**$ 100,000,000.00**	**$ 3,086,238.30**	**$ 7,018,694.19**	**$ 1,298,037,244.79**

Schedule 6

Annual Statement of the Middlesex County Retirement System for the Year Ended December 31, 2018

Summary of Investments Owned

Category of Investment	Current Market Value	Interest Due and Accrued as of 12/31/18	Paid Accrued Interest on Purchases in Current year	Commissions Paid During Current Year	Unrealized Gains	Unrealized (Losses)	Realized Gains	Realized (Losses)	Investment Income Received During Year
1. 1040-Cash	$ 39,299,109.39	$ 15,969.28							758,938.86
Commission Recapture/Securities Litigation									4,469.48
2. 1100-Short Term Securities									
3. 1180-Fixed Inc. Securities									
4. 1170-Equities									
5a.1101-Pooled Short Term Funds									
5b.1172-Pooled Domestic Equity Funds									
5c.1173-Pooled International Equity Funds									
5d.1174-Pooled Global Equity Funds									
5e. 1181-Pooled Domestic Fixed Income Funds									
5f. 1182-Pooled International Fixed Inc. Funds									
5g. 1183-Pooled Global Fixed Income Funds									
5h. 1193-Pooled Alt. Investment/Private Equity	4,786,461.63				1,266,070.00	(2,248,458.21)	1,609,708.00	(11,120.00)	(68,302.73)
5i. 1194-Pooled Real Estate Funds	2,332,568.95				277,374.06	(2,170.94)	40,726.40	0.00	(4,968.05)
5j. 1195-Pooled Domestic Balanced Funds									
5k. 1196-Pooled International Balanced Funds									
5l. 1197-Hedge Funds									
5m. 1198-PRIT Cash Fund									
5n. 1199-PRIT General Allocation Account	1,290,918,214.21				46,543,671.58	(168,549,995.18)	60,317,432.69	0.00	35,914,082.62
Total	$ 1,337,336,354.18	$ 15,969.28	$ -	$ -	$ 48,087,115.64	$ (170,800,624.33)	$ 61,967,867.09	$ (11,120.00)	$ 36,604,220.18

Schedule 7

Annual Statement of the Middlesex County Retirement System for the Year Ended December 31, 2018

Summary of Investment Related Fees

Manager/Vendor-All Managers/Vendors Must be Listed	1stQ	2ndQ	3rdQ	4thQ	Accrued Payable at Year End	Total Paid or Accrued in 18	Market Value as of 12/31/18	*Payment Method	#4701 Carried Interest Exp.	#4702 Equalization Expense	#4703 Investment Expense
5304-Management Fee											
Ascent Venture Partners II	-	-	-	-	-	-	23,111.00		-	-	-
Ascent Venture Partners III	-	-	-	-	-	-	143,187.63		-	-	-
Auda Partners LP	-	-	-	-	-	-	-		-	-	-
Boston Millennia	-	-	-	-	-	-	(0.00)		-	-	-
Boston Millennia II	256.00	300.00	300.00	300.00	-	1,156.00	229,222.00		-	-	-
First America Asia Fund*	N/A	N/A	N/A	N/A	N/A	-	1.00		-	-	-
Globespan IV	-	-	-	-	-	-	1,356,525.00		-	-	-
Globespan V	13,920.00	14,762.00	13,727.00	12,976.00	-	55,385.00	2,500,299.00		-	-	-
North Atlantic Venture III	-	-	-	-	-	-	534,116.00		-	-	-
GFP-World Timberfund	2,151.48	2,151.48	2,151.48		2,151.48	8,605.92	1,649,862.00	wire	-	-	-
Hunt-Tuckerman RIVA	99.00	77.00	78.00	78.00	-	332.00	80,109.00		-	-	-
Value Enhancement Fund V (8645)	-	-	-	-	-	-	51,731.21		-	-	-
Value Enhancement Fund VI (8925)	676.34	670.34	660.22	628.94	-	2,635.84	550,866.74		-	-	-
General-Allocation Account	1,675,724.10	1,755,902.95	1,763,089.95	1,755,862.43	-	6,950,579.43	1,290,918,214.21		-	-	-
* liquidation											
	1,692,826.92	1,773,863.77	1,780,006.65	1,769,845.37	2,151.48	7,018,694.19	1,298,037,244.79		-	-	-
5305-Custodial Fee											
State Street Bank	13,581.86	13,415.96	13,296.96	4,482.63	8,935.35	53,712.76		C			
	13,581.86	13,415.96	13,296.96	4,482.63	8,935.35	53,712.76					
						7,072,406.95					

*N=Net / C=Check / W=Wire

Supplementary Schedule
Annual Statement of the Middlesex County Retirement System for the Year Ended December 31, 2018

Members' Balance in the Annuity Savings Account

Previous Balance	Total Additions Current Year	Total Interest Current Year	Reductions	Transfer to ASF	Transfers to ARF	Transfer to PF	Transfer to/from PRF	Balance Current Year
$ 463,987,080.91	$ 46,064,419.79	$ 687,644.61	$ (8,868,589.23)	$ 6,034,788.54	$ (28,419,333.10)	$ -	$ (60,793.94)	$ 479,425,217.58
Military Service	<<2017							$ 23,079.55
Account Receivable/4893/page 8								172,359.82
							3293-page 2>>	$ 479,620,656.95

MCRS									
Supplementary Schedule for 2018									
03/22/2019 09:07:41									
User: ChenChingLee									
	Previous Balance	**Curr Year Deductions**	**Current Year Interest**	**Makeups / Xfers In**	**Refunds / Xfers Out**	**Xfer to Annuity Reserve**	**Xfer to Pension Fund**	**Xfer to Pen Res Fund**	**Current Year Balance**
	463,987,080.91	**46,064,419.79**	**687,644.61**	**6,034,788.54**	**8,868,589.23**	**28,419,333.10**	**0.00**	**60,793.94**	**479,425,217.58**
14,956									

APPENDIX PAGE 3

ACTUARIAL VALUATION AND ASSUMPTIONS

The most recent actuarial valuation of the System was prepared by The Segal Group, Inc. as of January 1, 2018

The Normal Cost for Employees on that date was	$45,566,198	9.67% of Payroll
The Normal Cost for the Employer was	$22,549,712	4.79% of Payroll

The Actuarial Liability for Active Members was	$ 1,329,121,646
The Actuarial Liability for Retired +Inactive Members was	$ 1,468,414,324
Total Actuarial Accrued Liability	$ 2,797,535,970
System Assets as of that Date	$ 1,339,085,622
Unfunded Actuarial Accrued Liability	$ 1,458,450,348

The principal actuarial assumptions used in the valuation are as follows:

Investment Return:	7.50% per annum
Rate of Salary Increase:	4.75% to 5.25% per annum

SCHEDULE OF FUNDING PROGRESS

Actuarial Valuation Date	Actuarial Value of Assets (a)	Actuarial Accrued Liability(AAL)* (b)	Unfunded AAL (UAAL) (b-a)	Funded Ratio (a/b)	Covered Payroll (c)	UAAL as a % of Covered Payroll ((b-a)/c)
01/01/18	1,339,085,622	2,797,535,970	1,458,450,348	47.87%	451,777,105	322.83%
01/01/16	1,141,122,663	2,492,161,766	1,351,039,103	45.79%	439,644,322	307.30%
01/01/14	967,146,018	2,195,732,452	1,228,586,434	44.05%	415,752,810	295.51%
01/01/12	862,323,395	1,974,144,909	1,111,821,514	43.68%	393,100,995	282.83%
01/01/10	819,987,914	1,743,581,707	923,593,793	47.03%	384,933,571	239.94%
01/01/08	774,863,669	1,529,806,307	754,942,638	50.65%	360,206,302	209.59%

Attach Copy of Current Approved Funding Schedule

MIDDLESEX COUNTY RETIREMENT SYSTEM, BUILDING
STATEMENT OF ASSETS, LIABILITIES AND RETAINED EARNINGS

YEARS ENDED DECEMBER 31, 2017 - 2018

	December 31, 2018	December 31, 2017
Assets		
Cash	216,557	123,577
Receivables:		
Other	182,673	178,569
Capital assets, net of accumulated depreciation	4,604,033	4,770,312
Total assets	5,003,263	5,072,458
Liabilities		
Accounts payable	22,470	6,040
Due to other:		
MCRS	1,131,650	881,650
Other Current Liabilities Security Deposit	17,840	17,840
Total liabilies	1,171,960	905,530
Net Assets		
Unrestricted net assets	3,831,303	4,166,928

MIDDLESEX COUNTY RETIREMENT SYSTEM, BUILDING
STATEMENT OF CHANGES IN ASSETS

YEARS ENDED DECEMBER 31, 2017 - 2018

	December 31, 2018	December 31, 2017
Revenues		
Rental Income	146,629	153,816
Miscellaneous Revenue		
Total Income	146,629	153,816
Expenses		
Building Maintenance	121,959	128,225
Insurance	18,842	17,309
Legal Fees	-	18,990
Bank Fees	235	202
Supplies	9,945	10,166
Utilities	90,718	63,019
Real estate taxes	67,613	66,261
Vehicle lease & expenses	44	1,926
Miscellaneous		80
Total expenditures	309,356	306,178
Net Income before depreciation and capital contributions	(162,727)	(152,362)
Depreciation expense	(172,898)	(162,594)
Net Income before capital contributions	(335,625)	(314,956)
Capital contributions from MCRS	250,000	250,000
Increase (decrease) in net assets	(85,625)	(64,956)
Net assets at beginning of year	4,416,928	4,481,884
Net assets at end of year	4,331,303	4,416,928

PERAC

COMMONWEALTH OF MASSACHUSETTS | PUBLIC EMPLOYEE RETIREMENT ADMINISTRATION COMMISSION

PHILIP Y. BROWN, ESQ., *Chairman* JOSEPH E. CONNARTON, *Executive Director*

MEMORANDUM

TO: Middlesex County Retirement Board

FROM: Joseph E. Connarton, Executive Director

RE: Appropriation for Fiscal Year 2019

DATE: December 6, 2017

Required Fiscal Year 2019 Appropriation: **$121,534,601**

This Commission is hereby furnishing you with the amount to be appropriated for your retirement system for Fiscal Year 2019 which commences July 1, 2018.

Attached please find summary information based on the present funding schedule for your system and the portion of the Fiscal Year 2019 appropriation to be paid by each of the governmental units within your system. The allocation by governmental unit was developed by Segal Consulting as part of their January 1, 2016 actuarial valuation.

The amount shown above for Fiscal Year 2019 is slightly less than the amount shown in the funding schedule adopted in 2016. This difference reflects a recent adjustment to the Ayer Housing Authority.

If your System has a valuation currently in progress, you may submit a revised funding schedule to PERAC upon its completion. The current schedule is due to be updated by Fiscal Year 2019.

If you have any questions, please contact PERAC's Actuary, Jim Lamenzo, at (617) 666-4446 Extension 921.

JEC/jrl
Attachments

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Middlesex County Retirement Board

Projected Appropriations

Fiscal Year 2019 - July 1, 2018 to June 30, 2019

Aggregate amount of appropriation: **$121,534,601**

Fiscal Year	Estimated Cost of Benefits	Funding Schedule (Excluding ERI)	ERI	Total Appropriation	Pension Fund Allocation	Pension Reserve Fund Allocation	Transfer From PRF to PF
FY 2019	$128,813,376	$119,069,090	$2,465,511	$121,534,601	$121,534,601	0	$7,278,775
FY 2020	$134,910,607	$128,712,449	$792,636	$129,505,085	$129,505,085	$0	$5,405,522
FY 2021	$141,306,563	$137,862,183	$60,733	$137,922,916	$137,922,916	$0	$3,383,647
FY 2022	$148,015,880	$146,827,173	$60,733	$146,887,906	$146,887,906	$0	$1,127,974
FY 2023	$155,053,910	$156,435,620	$0	$156,435,620	$155,053,910	$1,381,710	$0

The Total Appropriation column shown above is in accordance with your current funding schedule and the scheduled payment date(s) in that schedule. Whenever payments are made after the scheduled date(s), the total appropriation should be revised to reflect interest at the rate assumed in the most recent actuarial valuation. Payments should be made before the end of the fiscal year.

For illustration, we have shown the amount to be transferred from the Pension Reserve Fund to the Pension Fund to meet the estimated Cost of Benefits for each year. If there are sufficient assets in the Pension Fund to meet the Cost of Benefits, this transfer is optional.

Middlesex County Retirement System
January 1, 2016 Actuarial Valuation Results
Appropriations by Unit

Unit Code	Unit Name	2017 Budgeted Appropriation	2018 Appropriation, 6.5% Increases	% Increase	2019 Appropriation, 6.5% Increases	% Increase
1	Middlesex County Retirement Board	$338,205	$352,376	4.19%	$375,519	6.57%
300	Town of Acton	3,528,754	3,519,191	-0.27%	3,754,794	6.69%
400	Town of Ashby	176,678	150,141	-15.02%	158,854	5.80%
500	Town of Ashland	2,464,185	2,809,394	14.01%	2,977,111	5.97%
600	Town of Ayer	1,456,839	1,389,056	-4.65%	1,478,269	6.42%
700	Town of Bedford	3,786,284	3,994,790	5.51%	4,259,359	6.62%
800	Town of Billerica	10,014,633	10,985,820	9.70%	11,726,238	6.74%
900	Town of Boxborough	683,893	806,756	17.97%	859,695	6.56%
1000	Town of Burlington	8,565,053	9,045,159	5.61%	9,632,711	6.50%
1100	Town of Carlisle	820,032	893,992	9.02%	950,016	6.27%
1200	Town of Chelmsford	7,696,693	7,969,999	3.55%	8,486,002	6.47%
1300	Town of Dracut	4,314,668	4,591,411	6.41%	4,894,849	6.61%
1400	Town of Dunstable	233,061	210,867	-9.52%	223,727	6.10%
1500	Town of Groton	1,874,224	2,003,316	6.89%	2,120,910	5.87%
1600	Town of Holliston	2,016,780	2,094,764	3.87%	2,224,751	6.21%
1700	Town of Hopkinton	1,871,496	2,022,018	8.04%	2,145,296	6.10%
1800	Town of Hudson	4,776,033	5,111,380	7.02%	5,445,036	6.53%
1900	Town of Lincoln	1,958,909	2,053,429	4.83%	2,188,711	6.59%
2000	Town of Littleton	1,911,148	2,092,978	9.51%	2,227,119	6.41%
2100	Town of North Reading	3,566,005	3,691,323	3.51%	3,934,661	6.59%
2200	Town of Pepperell	1,095,388	1,277,665	16.64%	1,363,121	6.69%
2300	Town of Sherborn	891,381	934,257	4.81%	993,550	6.35%
2400	Town of Shirley	769,185	769,808	0.08%	816,651	6.09%
2500	Town of Stow	762,934	842,182	10.39%	897,610	6.58%
2600	Town of Sudbury	4,037,479	4,264,754	5.63%	4,552,430	6.75%
2700	Town of Tewksbury	7,127,640	7,646,007	7.27%	8,121,864	6.22%
2800	Town of Townsend	703,208	778,833	10.75%	827,904	6.30%
2900	Town of Tyngsborough	1,559,331	1,866,903	19.72%	1,988,567	6.52%
3000	Town of Wayland	4,316,444	4,444,539	2.97%	4,736,553	6.57%
3100	Town of Westford	4,319,975	4,706,924	8.96%	4,995,038	6.12%
3200	Town of Weston	4,645,085	4,882,753	5.12%	5,210,970	6.72%
3300	Town of Wilmington	5,813,321	6,235,334	7.26%	6,658,133	6.78%
3400	Acton-Boxborough RSD	2,125,974	2,362,429	11.12%	2,513,930	6.41%
3500	Acton Water Supply	181,125	207,041	14.31%	222,170	7.31%
3600	Bedford Housing Authority	28,318	29,573	4.43%	31,094	5.14%
3700	Billerica Housing Authority	89,675	103,145	15.02%	109,705	6.36%
3800	Chelmsford Housing Authority	99,778	112,094	12.34%	119,217	6.35%
3900	Chelmsford Water District	203,130	109,525	-46.08%	117,225	7.03%
4000	Dracut Housing Authority	120,427	124,614	3.48%	133,690	7.28%
4100	Dracut Water Supply	161,383	165,086	2.29%	177,130	7.30%
4200	E. Chelmsford Water	26,658	29,054	8.99%	30,866	6.24%
4300	E. Middlesex Mosq Control	40,306	44,448	10.28%	47,391	6.62%
4400	Greater Lowell RVTSD	1,218,454	1,201,997	-1.35%	1,274,347	6.02%
4500	Groton-Dunstable RSD	766,735	875,655	14.21%	931,038	6.32%
4600	Hudson Housing Authority	97,902	102,382	4.58%	109,506	6.96%
4700	Lincoln Sudbury	597,419	617,197	3.31%	659,098	6.79%
4900	Nashoba Vally THSD	251,076	259,221	3.24%	276,326	6.60%
5000	N. Chelmsford Water	42,935	41,963	-2.26%	45,108	7.49%
5100	North Middlesex RSD	907,576	932,174	2.71%	992,998	6.52%
5300	Shawsheen Valley RVS	565,598	631,671	11.68%	674,158	6.73%
5400	South Middlesex RVTS	523,098	550,976	5.33%	588,264	6.77%
5500	Sudbury Water District	90,063	121,734	35.17%	130,866	7.50%
5600	Tewksbury Housing Authority	105,697	123,408	16.76%	131,057	6.20%
5700	Wayland Housing Authority	33,050	43,029	30.19%	46,020	6.95%
5800	Hopkinton Housing Authority	31,500	35,639	13.14%	38,114	6.94%
6000	Sudbury Housing Authority	24,693	29,050	17.64%	30,967	6.60%
6100	Wilmington Housing Authority	25,438	29,004	14.02%	30,667	5.73%
6200	Acton Housing Authority	69,434	69,639	0.30%	74,503	6.98%
6300	Burlington Housing Authority	16,012	6,595	-58.81%	6,914	4.84%
6400	Ayer Housing Authority	33,983	68,956	102.91%	73,633	6.78%

Middlesex County Retirement System
January 1, 2018 Actuarial Valuation Results
Appropriations by Unit

Unit Code	Unit Name	2017 Budgeted Appropriation	2018 Appropriation, 6.5% Increases	% Increase	2019 Appropriation, 6.5% Increases	% Increase
6500	Holliston Housing Authority	21,320	18,523	-13.12%	19,726	6.49%
6600	Littleton Housing Authority	31,856	38,079	19.53%	40,349	5.96%
6700	Westford Housing Authority	37,649	43,578	15.75%	46,011	5.58%
6800	Shirley Water District	19,648	19,847	1.01%	21,409	7.87%
6900	Tyngsboro Housing Authority	34,252	38,295	11.80%	40,609	6.04%
7000	Pepperell Housing Authority	9,655	13,748	42.39%	14,633	6.44%
7100	Groton Housing Authority	2,408	3,129	29.94%	3,284	4.95%
7200	Tyngsboro Water District	30,440	32,274	6.02%	34,389	6.55%
7400	North Reading Housing Authority	11,063	15,773	42.57%	16,702	5.89%
7500	West Groton Water	5,961	985	-83.48%	1,059	7.51%
7600	Ayer-Shirley RSD	434,035	427,801	-1.44%	454,409	6.22%
	Total	$107,210,668	$114,117,450	6.44%	$121,534,601	6.50%