

PERAC AUDIT REPORT



Massachusetts Water Resources Authority
Contributory Retirement System



JAN. 1, 2012 - DEC. 31, 2015



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PERAC

COMMONWEALTH OF MASSACHUSETTS | PUBLIC EMPLOYEE RETIREMENT ADMINISTRATION COMMISSION

PHILIP Y. BROWN, ESQ., *Chairman*

JOSEPH E. CONNARTON, *Executive Director*

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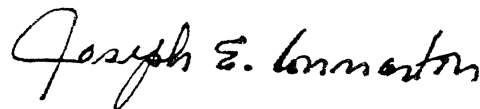
December 4, 2018

The Public Employee Retirement Administration Commission has completed an examination of the Massachusetts Water Resources Authority Retirement System pursuant to G.L. c. 32, § 21. The examination covered the period from January 1, 2012 to December 31, 2015. This audit was conducted in accordance with the accounting and management standards established by the Public Employee Retirement Administration Commission in regulation 840 CMR 25.00. Additionally, all supplementary regulations approved by PERAC and on file at PERAC are listed in this report.

In our opinion, the financial records are being maintained and the management functions are being performed in conformity with the standards established by the Public Employee Retirement Administration Commission with the exception of those noted in the findings presented in this report.

In closing, I acknowledge the work of examiners Elaine Pursley and George Nsia who conducted this examination, and express appreciation to the Board of Retirement and staff for their courtesy and cooperation.

Sincerely,



Joseph E. Connarton
Executive Director



EXPLANATION OF FINDINGS AND RECOMMENDATIONS

I. Cash Books:

The MWRA Employees' Retirement Board has been submitting late and incomplete Cash Books to PERAC's Compliance and Investment Units. Cash Receipts and Cash Disbursements Reports have been submitted without monthly Trial Balances or Adjusting Journal Entries. PERAC has not been able to perform the monthly standard accounting/investment analysis with only the Cash Receipts and Cash Disbursements Reports.

It is the Board's practice to wait for all investment manager statements to update the accounting before sending the Trial Balances and Adjusting Journal Entries to PERAC. For the alternative investments there is generally a lag between the end of the quarter and the receipt of the investment manager statements. Consequently, the monthly accounting provided to the Board at each monthly Board meeting may change significantly after updating with information from investment managers.

In 2017 this practice led to the Trial Balances for January through May 2017 being provided to PERAC in one batch in July 2017. The March through July trial balances were then revised in September and December 2017. The August through October Cash Books were submitted in December 2017. The Board has since notified PERAC that the March through October Cash Books will be revised again due to late investment manager reports and that the previously submitted Cash Books should be disregarded. As of this writing, no submissions have taken place.

Recommendation: In accordance with 840 CMR 4.03, complete Cash Books, including Trial Balances, Cash Receipts, Cash Disbursements and Adjusting Journal Entries, should be provided to PERAC's Compliance and Investment Units within four weeks of the close of the month. Cash Books should be provided to the Board for their review and approval at each monthly Board meeting.

The information from the investment manager statements should be posted in the month it is received.

Board Response:

The MWRA Employees' Retirement System has assets under management totaling approximately \$530 million dollars, and currently invests in and maintains over sixty investment accounts. Cash receipts and disbursements experienced by the System for any given month are being entered into PTG as they occur and submitted to PERAC as they are completed, and transactions reported by managers are entered into the accounting records upon receipt.

This method is used in order to ensure, on behalf of both the System's members and the Plan Sponsor, that for every statement period, each account is balanced by Staff independently to the Managers' Balances and to the Custodian's Balances, in order to detect any irregularities as immediately as possible. It is this Board's opinion that failing to enter transactions in the period in which they occur could serve to obscure any malfeasance and delay its detection, as it may not otherwise become evident until year-end.

EXPLANATION OF FINDINGS AND RECOMMENDATIONS (Continued)

PERAC's contention that Staff's practice of verifying all managers' balances each statement period lead to Trial Balances for January through May being submitted in one batch in July of 2017 is incorrect. Cash transactions experienced by the System are being submitted to PERAC, but are not being considered complete by PERAC until accompanied by trial balances. The PTG System does not allow users to run trial balances for a subsequent year until the prior accounting year has been closed, since they would continue to include prior years' activity. Thus, although Staff continued to complete 2017 cash book entries in the interim, until Staff completed the 2016 PERAC Annual Statement and closed the 2016 accounting year, no 2017 trial balances could be run. Staff intentionally files the Annual Statement to PERAC as close to PERAC's May filing deadline as possible in order to elicit as many year-end statements from managers as possible, in order to present the MWRA Employees' Retirement System's financial condition at year-end as accurately as possible. Upon Staff's completion and filing of the 2016 Annual Statement in late April 2017, Staff was able to close the 2016 financial year, complete any outstanding entries, and file the outstanding 2017 trial balances in July for January through May 2017.

In addition, the date on the letter accompanying PERAC's 2012-2015 Audit Findings was May 18, 2018. Whereas all 2017 submissions have been completed and the 2017 Annual Statement was hand-delivered to PERAC on April 27, 2018, PERAC's assertion that "As of this writing no submissions have taken place" is not accurate. Staff has again timely filed the Annual Statement, and had already filed 2018 cash books through March inclusive of all available managers' statements prior to the May 18, 2018 date which appears on the PERAC letter.

PERAC Response:

PERAC acknowledges that the date of the letter in the draft report was May 18, 2018 and we should have adjusted the wording of the last sentence of this finding to read 'as of the date of the Exit Conference with the Board on January 12, 2018, no submissions have taken place'. Nevertheless, since the finding was written and provided to the Board prior to the Exit Conference on January 12, 2018, the Board was well aware of the timeframe referenced in the wording 'as of this writing'.

PERAC recognizes that the complete Cash Books for a new year cannot be submitted until after the Annual Statement is prepared and the books are closed for the prior year. That was not the issue here. The issue is that the MWRA Cash Books are being revised multiple times due to adjusting entries being made to prior monthly accounting periods. As was stated in the finding above, for alternative investments there is generally a lag between the end of the quarter and the receipt of the investment manager statements. When MWRA receives these statements they record the activity, which could have occurred up to five or six months prior, by backdating the entries in the general ledger to the quarter in which the statement referenced. This practice opens up the possibility of failure to detect malfeasance, or to delay the detection of malfeasance. General industry practice is to lag alternative investment accounting by one quarter, e.g., use the September 30 balance for a December 31 quarter end. This practice is successfully applied by other Boards within the Commonwealth in order to timely submit their complete Cash Books. Therefore, we recommend that MWRA adopt this practice of accounting for alternative investments to facilitate compliance with 840 CMR 4.03.

EXPLANATION OF FINDINGS AND RECOMMENDATIONS (Continued)

2. 2015 Investment Management Fees:

An estimated total of \$1.3 million of management fees were not recorded to General Ledger (GL) #5304 Management Fees in 2015.

1. We noted there were no fees recorded in the GL for the William Blair Macro Allocation Fund in 2015. This was a new investment in 2015 and the estimated management fee paid was \$162,876. Also, there were no fees recorded for the Loomis Sayles Fixed Income Fund in 2015; the amount paid that should have been recorded was \$337,645.
2. We found that the Estimated Fees of \$844,048 listed on the 2015 Annual Statement's Schedule 7 Summary of Investment Related Fees were not recorded to the Annual Statement's Disbursements report and not recorded to the GL #5304 Management Fees. The Estimated fees are calculated for investment funds that deduct their fees from the income. Also, we found that these Estimated Fees were not recorded to the GL for 2012, 2013 and 2014.

Recommendation: The MWRA Retirement System should review the accounting of investments in detail to ensure that all management fees are properly recorded in the GL and reported to the Annual Statements. The Retirement System should not "net" management fees for accounting purposes, but should record gross management fees and income for each investment.

Board Response:

Fees for Managers who report net of fees were not included in the General Ledger for 2015, or for prior years. Whereas only 2015 is being cited by PERAC as a finding, and whereas prior years' accounting was performed by former staff, we will limit our response to 2015.

For 2015, the annual private audit of the MWRA Employees' Retirement System found no material misstatements of any net positions at year end. Since all managers' balances were accurately depicted as of year-end, booking fees attributable to such managers requires booking corresponding entries increasing gains/investment income for the managers. Whereas Staff was advised by PERAC to do so during the 2012-2015 Audit, which was conducted in the summer of 2017, prior to closing the 2017 financial year, Staff made the journal entries necessary to book to the System's General Ledger estimated fees and the corresponding additional investment income/gains for all managers reporting net of fees.

PERAC Response:

The MWRA Board does not dispute that an estimated total of \$1.3 million of management fees were not recorded to General Ledger (GL) #5304 Management Fees in 2015. The Board's statement that 'only 2015 is being cited by PERAC as a finding' is incorrect, as evidenced in the last sentence of the finding, 'Also, we found that these Estimated Fees were not recorded to the GL for 2012, 2013 and 2014'. We did not include the amounts in the finding for these years but did make adjustments for them in the financial statements in this report.

EXPLANATION OF FINDINGS AND RECOMMENDATIONS (Continued)

Proper accounting dictates separate entries should be made to record the receipt of investment income and the expense of management fees for each investment. These amounts should not be recorded net. The MWRA response states that Staff was advised by PERAC and has made the journal entries necessary to record gross management fees and income/gains prior to the closing of the 2017 financial year. The MWRA should continue to record all management fees to the proper account (#5304 Management Fees) and include them on Schedule 7 of the Annual Statement. Failure to record these fees properly misinforms the Retirement Board, the system members, and the public. In addition it impedes the ability of the Board to analyze the performance of the manager and compare that performance and cost to other existing and potential managers.

FINAL DETERMINATION:

PERAC Audit staff will follow up in six (6) months to ensure appropriate actions have been taken regarding all findings.

STATEMENT OF LEDGER ASSETS AND LIABILITIES

	AS OF DECEMBER 31,			
	2015	2014	2013	2012
Net Assets Available For Benefits:				
Cash	\$5,551,637	\$7,356,759	\$8,795,589	\$8,472,816
Equities	46,730,761	55,697,803	53,172,342	48,278,505
Pooled Domestic Equity Funds	45,295,334	47,804,696	43,179,112	39,757,559
Pooled International Equity Funds	68,725,424	68,533,978	69,695,582	47,836,547
Pooled Domestic Fixed Income Funds	99,235,776	109,761,478	108,059,718	103,700,069
Pooled Alternative Investment Funds	37,351,731	27,938,231	23,089,208	18,814,179
Pooled Real Estate Funds	34,343,806	26,541,033	20,503,802	15,971,888
Pooled International Balanced Funds	65,703,807	56,444,782	51,497,269	36,009,697
Hedge Funds	39,024,722	39,135,835	35,369,549	29,646,446
PRIT Core Fund	2,849,209	2,830,659	2,628,276	2,289,393
Interest Due and Accrued	0	0	0	(115)
Accounts Receivable	97,815	112,326	10,054	89,847
Accounts Payable	<u>(325,586)</u>	<u>(336,936)</u>	<u>(323,464)</u>	<u>(362,175)</u>
Total	<u>\$444,584,437</u>	<u>\$441,820,644</u>	<u>\$415,677,038</u>	<u>\$350,504,657</u>
Fund Balances:				
Annuity Savings Fund	\$117,261,867	\$114,067,034	\$111,917,112	\$108,978,697
Annuity Reserve Fund	26,004,483	24,464,532	20,954,109	18,201,178
Pension Fund	43,601,807	46,270,401	43,211,780	39,262,103
Military Service Fund	148,591	148,443	151,294	135,335
Expense Fund	0	0	0	0
Pension Reserve Fund	<u>257,567,688</u>	<u>256,870,235</u>	<u>239,442,744</u>	<u>183,927,344</u>
Total	<u>\$444,584,437</u>	<u>\$441,820,644</u>	<u>\$415,677,038</u>	<u>\$350,504,657</u>

STATEMENT OF CHANGES IN FUND BALANCES

	Annuity Savings Fund	Annuity Reserve Fund	Pension Fund	Military Service Fund	Expense Fund	Pension Reserve Fund	Total All Funds
Beginning Balance (2012)	\$105,286,041	\$15,858,051	\$34,312,711	\$119,344	\$0	\$146,584,846	\$302,160,993
Receipts	8,198,075	492,880	13,036,914	15,990	2,980,769	37,354,432	62,079,062
Interfund Transfers	(4,143,760)	4,155,694	0	0	0	(11,934)	(0)
Disbursements	(361,659)	(2,305,447)	(8,087,523)	0	(2,980,769)	0	(13,735,398)
Ending Balance (2012)	108,978,697	18,201,178	39,262,103	135,335	0	183,927,344	350,504,657
Receipts	8,259,922	575,931	13,254,347	15,959	3,506,532	55,541,712	81,154,402
Interfund Transfers	(4,787,739)	4,814,051	0	0	0	(26,312)	(0)
Disbursements	(533,768)	(2,637,052)	(9,304,669)	0	(3,506,532)	0	(15,982,021)
Ending Balance (2013)	111,917,112	20,954,109	43,211,780	151,294	0	239,442,744	415,677,038
Receipts	8,492,114	673,032	13,625,778	16,151	3,995,497	17,426,237	44,228,809
Interfund Transfers	(6,037,679)	6,043,065	12,361	(19,002)	0	1,254	0
Disbursements	(304,513)	(3,205,675)	(10,579,518)	0	(3,995,497)	0	(18,085,203)
Ending Balance (2014)	114,067,034	24,464,532	46,270,401	148,443	0	256,870,235	441,820,644
Receipts	8,801,689	756,120	9,231,546	148	4,369,191	697,394	23,856,090
Interfund Transfers	(4,479,602)	4,496,415	(16,872)	0	0	59	0
Disbursements	(1,127,254)	(3,712,583)	(11,883,269)	0	(4,369,191)	0	(21,092,297)
Ending Balance (2015)	\$117,261,867	\$26,004,483	\$43,601,807	\$148,591	\$0	\$257,567,688	\$444,584,437

STATEMENT OF RECEIPTS

	FOR THE PERIOD ENDING DECEMBER 31,			
	2015	2014	2013	2012
Annuity Savings Fund:				
Members Deductions	\$8,292,268	\$8,075,680	\$7,760,739	\$7,626,498
Transfers from Other Systems	261,195	129,973	203,048	234,980
Member Make Up Payments and Re-deposits	77,079	57,913	91,216	136,960
Member Payments from Rollovers	32,791	111,735	96,490	92,302
Investment Income Credited to Member Accounts	<u>138,356</u>	<u>116,813</u>	<u>108,429</u>	<u>107,335</u>
Sub Total	<u>8,801,689</u>	<u>8,492,114</u>	<u>8,259,922</u>	<u>8,198,075</u>
Annuity Reserve Fund:				
Investment Income Credited to the Annuity Reserve Fund	<u>756,120</u>	<u>673,032</u>	<u>575,931</u>	<u>492,880</u>
Pension Fund:				
3 (8) (c) Reimbursements from Other Systems	1,045,286	986,119	815,245	684,305
Pension Fund Appropriation	8,159,521	12,629,475	12,431,514	12,326,022
Settlement of Workers' Compensation Claims	25,000	7,000	0	19,000
Recovery of 91A Overearnings	<u>1,739</u>	<u>3,184</u>	<u>7,587</u>	<u>7,587</u>
Sub Total	<u>9,231,546</u>	<u>13,625,778</u>	<u>13,254,347</u>	<u>13,036,914</u>
Military Service Fund:				
Contribution Received from Municipality on Account of Military Service	0	16,000	15,824	15,871
Investment Income Credited to the Military Service Fund	<u>148</u>	<u>151</u>	<u>135</u>	<u>119</u>
Sub Total	<u>148</u>	<u>16,151</u>	<u>15,959</u>	<u>15,990</u>
Expense Fund:				
Investment Income Credited to the Expense Fund	<u>4,369,191</u>	<u>3,995,497</u>	<u>3,506,532</u>	<u>2,980,769</u>
Pension Reserve Fund:				
Interest Not Refunded	27,557	6,417	0	2,056
Miscellaneous Income	15,297	0	0	0
Excess Investment Income	<u>654,540</u>	<u>17,419,820</u>	<u>55,541,712</u>	<u>37,352,376</u>
Sub Total	<u>697,394</u>	<u>17,426,237</u>	<u>55,541,712</u>	<u>37,354,432</u>
Total Receipts, Net	<u>\$23,856,090</u>	<u>\$44,228,809</u>	<u>\$81,154,402</u>	<u>\$62,079,062</u>

STATEMENT OF DISBURSEMENTS

FOR THE PERIOD ENDING DECEMBER 31,				
	2015	2014	2013	2012
Annuity Savings Fund:				
Refunds to Members	\$399,483	\$262,148	\$72,300	\$223,083
Transfers to Other Systems	727,771	42,365	461,469	138,576
Sub Total	<u>1,127,254</u>	<u>304,513</u>	<u>533,768</u>	<u>361,659</u>
Annuity Reserve Fund:				
Annuities Paid	3,699,585	3,205,675	2,637,052	2,305,447
Option B Refunds	12,998	0	0	0
Sub Total	<u>3,712,583</u>	<u>3,205,675</u>	<u>2,637,052</u>	<u>2,305,447</u>
Pension Fund:				
Pensions Paid:				
Regular Pension Payments	8,697,085	7,820,536	6,689,144	5,634,067
Survivorship Payments	890,616	752,009	679,657	631,904
Ordinary Disability Payments	276,111	258,097	253,583	255,859
Accidental Disability Payments	1,816,610	1,574,881	1,515,071	1,453,868
Section 101 Benefits	7,065	6,461	6,273	6,090
3 (8) (c) Reimbursements to Other Systems	195,780	167,535	160,942	105,734
Sub Total	<u>11,883,269</u>	<u>10,579,518</u>	<u>9,304,669</u>	<u>8,087,523</u>
Expense Fund:				
Salaries	254,227	259,915	267,027	259,081
Legal Expenses	38,024	36,917	35,271	27,489
Medical Expenses	178	410	305	136
Travel Expenses	4,777	7,949	4,416	4,330
Administrative Expenses	23,462	22,327	16,790	17,810
Professional Services	0	581	1,238	6,064
Actuarial Services	22,500	7,500	14,000	0
Accounting Services	25,000	22,000	22,000	0
Education and Training	3,435	7,138	4,946	3,790
Furniture and Equipment	3,506	5,202	1,865	8,270
Management Fees	3,764,090	3,361,147	2,856,138	2,378,335
Custodial Fees	86,867	121,795	136,186	117,783
Consultant Fees	105,820	104,980	103,429	100,850
Service Contracts	26,024	26,656	32,464	46,390
Fiduciary Insurance	11,282	10,979	10,456	10,441
Sub Total	<u>4,369,191</u>	<u>3,995,497</u>	<u>3,506,532</u>	<u>2,980,769</u>
Total Disbursements	<u>\$21,092,297</u>	<u>\$18,085,203</u>	<u>\$15,982,021</u>	<u>\$13,735,398</u>

INVESTMENT INCOME

	FOR THE PERIOD ENDING DECEMBER 31,			
	2015	2014	2013	2012
Investment Income Received From:				
Cash	\$5,829	\$1,778	(\$280)	\$500
Equities	913,827	906,244	862,193	927,539
Pooled or Mutual Funds	7,248,341	11,544,366	8,489,937	6,999,401
Commission Recapture	0	1,321	928	899
Total Investment Income	<u>8,167,997</u>	<u>12,453,709</u>	<u>9,352,778</u>	<u>7,928,340</u>
Plus:				
Realized Gains	24,652,662	9,355,067	18,430,557	10,803,145
Unrealized Gains	48,380,084	42,783,016	56,053,994	49,051,741
Sub Total	<u>73,032,746</u>	<u>52,138,083</u>	<u>74,484,552</u>	<u>59,854,886</u>
Less:				
Realized Loss	(5,559,941)	(2,721,643)	(1,502,215)	(3,174,193)
Unrealized Loss	(69,722,446)	(39,664,836)	(22,602,377)	(23,675,553)
Sub Total	<u>(75,282,387)</u>	<u>(42,386,479)</u>	<u>(24,104,592)</u>	<u>(26,849,746)</u>
Net Investment Income	<u>5,918,356</u>	<u>22,205,314</u>	<u>59,732,739</u>	<u>40,933,480</u>
Income Required:				
Annuity Savings Fund	138,356	116,813	108,429	107,335
Annuity Reserve Fund	756,120	673,032	575,931	492,880
Military Service Fund	148	151	135	119
Expense Fund	4,369,191	3,995,497	3,506,532	2,980,769
Total Income Required	<u>5,263,816</u>	<u>4,785,494</u>	<u>4,191,027</u>	<u>3,581,104</u>
Net Investment Income	<u>5,918,356</u>	<u>22,205,314</u>	<u>59,732,739</u>	<u>40,933,480</u>
Less: Total Income Required	<u>5,263,816</u>	<u>4,785,494</u>	<u>4,191,027</u>	<u>3,581,104</u>
Excess Income (Loss) To The Pension Reserve Fund	<u>\$654,540</u>	<u>\$17,419,820</u>	<u>\$55,541,712</u>	<u>\$37,352,376</u>

SCHEDULE OF ALLOCATION OF INVESTMENTS OWNED

(percentages by category)

AS OF DECEMBER 31, 2015		
	MARKET VALUE	PERCENTAGE OF TOTAL ASSETS
Cash	\$5,551,637	1.2%
Equities	46,730,761	10.5%
Pooled Domestic Equity Funds	45,295,334	10.2%
Pooled International Equity Funds	68,725,424	15.5%
Pooled Domestic Fixed Income Funds	99,235,776	22.3%
Pooled Alternative Investment Funds	37,351,731	8.4%
Pooled Real Estate Funds	34,343,806	7.7%
Pooled International Balanced Funds	65,703,807	14.8%
Hedge Funds	39,024,722	8.8%
PRIT Core Fund	<u>2,849,209</u>	<u>0.6%</u>
Grand Total	<u>\$444,812,207</u>	<u>100.0%</u>

For the year ending December 31, 2015, the rate of return for the investments of the Massachusetts Water Resources Authority Retirement System was 1.07%. For the five-year period ending December 31, 2015, the rate of return for the investments of the Massachusetts Water Resources Authority Retirement System averaged 7.41%. For the 30-year period ending December 31, 2015, since PERAC began evaluating the returns of the retirement systems, the rate of return on the investments of the Massachusetts Water Resources Authority Retirement System was 8.13%.

The composite rate of return for all retirement systems for the year ending December 31, 2015 was 0.91%. For the five-year period ending December 31, 2015, the composite rate of return for the investments of all retirement systems averaged 7.49%. For the 31-year period ending December 31, 2015, since PERAC began evaluating the returns of the retirement systems, the composite rate of return on the investments of all retirement systems averaged 9.14%.

SUPPLEMENTARY INVESTMENT REGULATIONS

The Massachusetts Water Resources Authority Retirement System submitted the following supplementary investment regulations, which were approved by the Public Employee Retirement Administration Commission on:

February 2, 2012

MWRA Employees' Retirement System
Supplementary Investment Regulation
Schroder International Alpha Fund (the "Fund")

With respect to the MWRA Employees' Retirement Board's investment in the Schroder International Alpha Fund (the "Fund"), a series of the Schroder Capital Funds (Delaware) (the "Fund Trust"), since the Fund is a US registered management investment company, in which the manager makes investment recommendations and actions on behalf of all investors in the Fund rather than any particular investor, to the extent that the provisions of 840 CMR 17.04(3)(b) and 17.04(10)(a)(1) conflict with the provisions of the Investment Advisory Agreement between the Fund Trust and the Manager ("Agreement"), or the disclosure in the Fund's prospectus, including any summary prospectus and prospectus supplements (together the "Prospectus") and Statement of Additional Information and any supplements thereto (together, the "SAI"), in effect from time to time, the provisions and/or disclosure in the Agreement, Prospectus or SAI shall apply.

In addition, regarding this investment the following shall apply:

840 CMR 21.01(3)(a) and (b): Futures and forward currency contracts may be used for the purposes of managing risks and gaining exposure to certain asset classes or currencies (including short exposures) or as otherwise described in the Fund's Prospectus or SAI, when deemed to be in the interest of Fund shareholders;

840 CMR 21.01(2): The Fund may sell a security short when the Fund's adviser or sub-adviser anticipates that the price of the security will decline, or as otherwise described in the Fund's Prospectus or SAI, when deemed to be in the interest of Fund shareholders.

840 CMR 21.01(3): The Fund may invest in options, futures contracts, or other derivative instruments as part of its investment strategy to add incremental return over the Fund's benchmark index, or as otherwise described in the Fund's Prospectus or SAI, when deemed to be in the interest of Fund shareholders. The Fund may purchase or sell futures contracts and options, in order to gain long or short exposure to particular securities or markets, in connection with hedging transactions, or otherwise to increase total return, or as otherwise described in the Fund's Prospectus or SAI, when deemed to be in the interest of Fund shareholders.

840 CMR 21.01(4): The Fund may use call options written against securities in the portfolio to add incremental return over the Fund's benchmark index, or as otherwise described in the Fund's Prospectus or SAI, when deemed to be in the interest of Fund shareholders.

SUPPLEMENTARY INVESTMENT REGULATIONS (Continued)

840 CMR 21.01(5): The Fund may purchase options other than as required to close out options positions, to add incremental return over the Fund's benchmark index, or as otherwise described in the Fund's Prospectus or SAI, when deemed to be in the interest of Fund shareholders.

840 CMR 21.01(6): The Fund may invest in "restricted securities," i.e., securities that cannot be sold to the public without registration or the availability of an exemption from registration (such as Rules 144 or 144A), or that are "not readily marketable" because they are subject to restrictions on resale, when deemed to be in the interest of Fund shareholders.

January 3, 2012

Regulation Number 19.01(8): Notwithstanding the provisions of 840 CMR 19.01(8), the MWRA Retirement Board ("the MWRA") may allocate 9% of the total market value of its portfolio at the time of investment to alternative investments.

March 25, 2011

Regulation Number 16.08: In accordance with Investment Guideline 99-3, the Massachusetts Water Resources Authority Retirement Board is authorized to invest in Foundry Venture Capital 2010, L.P. The Board has been a satisfied investor in Foundry's predecessor partnership. The management team and strategy are essentially unchanged. The Board has submitted the required updated regulatory documents.

February 14, 2011

Regulation Number 21.01(7) & (10): The Massachusetts Water Resources Authority Retirement Board is authorized to invest in Landmark Real Estate Partners VI, L.P., a fund of funds. 840 CMR 21.01(7) and 21.01(10) will not apply to investments of the partnership.

December 23, 2009

Notwithstanding the provisions of 840 CMR 16.02(5) or other relevant provisions of the Public Employee Retirement Administration Commission regulations, the Massachusetts Water Resources Authority Employees' Retirement Board may invest funds of the Massachusetts Water Resources Authority Employees' Retirement System (the "System") in the fund known as the INTECH Risk-Managed Broad Large Cap Growth Fund LLC (the "Fund"), and in connection therewith, the System may enter into a Subscription Agreement with the Fund that provides, among other things, that the System agrees to indemnify the Fund and certain other parties and affiliates "against any and all losses, damages, liabilities, costs and expenses (including attorneys' fees and expenses) incurred or sustained by reason of, or in connection with, any breach of any representation, warranty, covenant or agreement" of the System contained in the Subscription Agreement.

December 9, 2009

Regulation Number 21.01: The Massachusetts Water Resources Authority Retirement Board is authorized to invest in INVESCO's Mortgage Recovery Master Fund. That portion of the fund that invests in mortgage-backed products from the US Treasury's PPIP program will employ leverage up to 1x. That portion of the fund that invests in whole loans may employ leverage up to 4-6x.

SUPPLEMENTARY INVESTMENT REGULATIONS (Continued)

October 21, 2008

The provisions of 840 CMR 21.01(2)(3)(4) and (5) shall not apply to the investment of the Massachusetts Water Resources Authority Retirement Board in the fund known as the WTC-CIF Opportunistic Investment Portfolio.

October 21, 2008

The provisions of 840 CMR 21.01(2)(3)(4) and (5) shall not apply to the investment of the Massachusetts Water Resources Authority Retirement Board in the fund known as the PIMCO All Asset Fund.

April 22, 2008

Regulation Number 16.08: In accordance with Investment Guideline 99-3, the Massachusetts Water Resources Authority Retirement Board is authorized to invest in Ascent Venture Partners V. The Board has been a satisfied investor in Ascent Venture Partners' previous partnership. The management group and strategy are essentially unchanged. The manager has submitted a revised Exemption Application.

August 15, 2003

1. Exemption of the Board and INVESCO from the second sentence of 840 CMR 17.04(1)(c) – This Regulation deals with the use of non-public information by managers and consultants. PERAC recognizes that, in making the investments contemplated by the INVESCO Funds delineated above, that sentence, which prohibits action until information is publicly disseminated, represents an undue burden on the ability of the Partnerships to operate. Consequently, the Massachusetts Water Resources Authority Retirement Board request as it applies to 840 CMR 17.04(1)(c) is approved.
2. Exemption of the Board and INVESCO from 840 CMR 17.04(6), except as otherwise provided for in the Partnership Agreement and/or as disclosed in INVESCO's Form ADV – This Regulation deals with the Priority of Transactions and an investment manager's obligation to prioritize board transactions and provide the board with the opportunity to act prior to the manager acting, if applicable. PERAC recognizes that this Regulation may impede the ability of partnerships such as INVESCO's to operate. Upon receipt of a copy of the provisions of the Partnership Agreement and/or disclosures in the INVESCO Form ADV, the Commission will approve the Massachusetts Water Resources Authority request as it applies to 840 CMR 17.04(6).
3. Exemption of the Board and INVESCO from 840 CMR 19.01(7)(a)(6) with respect to the management fees and the General Partner's Carried Interest to be received by the manager or the General Partner pursuant to the (a) Subscription Agreement, (b) Agreement as defined in the side letter, and/or (c) Manager's Investment Advisory Agreement with respect to the Board's commitments to the Partnerships – PERAC recognizes the fact that the market, at the present time, is such that fee limitations, as outlined in these Regulations, result in limiting the number of partnerships available to the retirement boards. Consequently, the Massachusetts Water Resources Authority Retirement Board request, as it applies to 840 CMR 19.01(7)(a)(6), is approved.

SUPPLEMENTARY INVESTMENT REGULATIONS (Continued)

4. Exemption of the Board and INVESCO from 840 CMR 21.01(2), 21.01(3)(a), 21.01(4), and 21.01(5) to the extent as otherwise permitted under the applicable agreement – These Regulations prohibit certain transactions as follows: 21.01(2) prohibits the sale of securities not owned by the system at the time of the sale (short sales); 21.01(3)(a) permits the use of forward currency contracts in limited circumstances; 21.01(4) prohibits the use of call options; 21.01(5) prohibits the purchase of options other than as required to close out option positions. PERAC has received a letter dated August 22, 2000 from INVESCO that clarifies the possible use of options, futures, or other derivatives. In pertinent part, the letter states as follows:

“Although the above referenced funds do not expect to use options, futures, or other derivatives other than infrequently, if at all, futures and/or options would be used only for no speculative true hedging purposes. In general, we would anticipate their use, if at all, for among other reasons to protect downside risk on public securities of companies distributed to the funds by the underlying portfolio funds we invest in and where a commitment to a fund was made in a non US currency to limit currency risk of the funds.”

PERAC approves the exemption of the Board and INVESCO from 840 CMR 21.01(2), 21.01(3)(a), 21.01(4), and 21.01(5) for the limited purpose of protecting downside risk on public securities of companies distributed to the funds by underlying portfolio funds and to limit currency risk of the funds where a commitment to a fund was made in a non US currency.

Please be advised that this Supplemental Regulation as it exempts the Massachusetts Water Resources Authority Retirement Board from PERAC Regulations, only does so in relation to the INVESCO Funds that are the subject of the Supplementary Regulation. In all other circumstances, these Regulations apply to the Massachusetts Water Resources Authority Retirement Board.

February 7, 2000

Regulation Number 16.08: The Massachusetts Water Resources Authority Retirement Board may invest in the Loomis Sayles Investment Trust Small Company Growth Fund. This fund has the same investment strategy and management team as a previously-approved separate account. The purpose of the change is to reduce administrative and custodial expenses.

NOTES TO FINANCIAL STATEMENTS

NOTE I – SUMMARY OF PLAN PROVISIONS

The plan is a contributory defined benefit plan covering all Massachusetts Water Resources Authority Retirement System member unit employees deemed eligible by the retirement board.

ADMINISTRATION

There are 104 contributory retirement systems for public employees in Massachusetts. Each system is governed by a retirement board and all boards, although operating independently, are governed by Chapter 32 of the Massachusetts General Laws. This law in general provides uniform benefits, uniform contribution requirements and a uniform accounting and funds structure for all systems.

PARTICIPATION

Participation is mandatory for all full-time employees. Eligibility with respect to part-time, provisional, temporary, seasonal or intermittent employment is governed by regulations promulgated by the retirement board, and approved by PERAC. Membership is optional for certain elected officials.

There is only one class of membership in the MWRA Retirement System:

Group I:

General employees, including clerical, administrative, technical and all other employees not otherwise classified.

NOTES TO FINANCIAL STATEMENTS (Continued)

MEMBER CONTRIBUTIONS

Member contributions vary depending on the most recent date of membership:

Prior to 1975:	5% of regular compensation
1975 - 1983:	7% of regular compensation
1984 to 6/30/96:	8% of regular compensation
7/1/96 to present:	9% of regular compensation
1979 to present:	an additional 2% of regular compensation in excess of \$30,000.

In addition, members of Group I who join the system on or after April 2, 2012 will have their withholding rate reduced to 6% after achieving 30 years of creditable service.

RATE OF INTEREST

Interest on regular deductions made after January 1, 1984 is a rate established by PERAC in consultation with the Commissioner of Banks. The rate is obtained from the average rates paid on individual savings accounts by a representative sample of at least 10 financial institutions.

RETIREMENT AGE

There is no mandatory retirement age for employees in Group I.

SUPERANNUATION RETIREMENT

A person who became a member before April 2, 2012 is eligible for a superannuation retirement allowance (service retirement) upon meeting the following conditions:

- completion of 20 years of service, or
- attainment of age 55 if hired prior to 1978, or
- attainment of age 55 with 10 years of service, if hired after 1978, and if classified in Group I.

A person who became a member on or after April 2, 2012 is eligible for a superannuation retirement allowance (service retirement) upon meeting the following conditions:

- attainment of age 60 with 10 years of service if classified in Group I.

NOTES TO FINANCIAL STATEMENTS (Continued)

AMOUNT OF BENEFIT

A member's annual allowance is determined by multiplying average salary by a benefit rate related to the member's age and job classification at retirement, and the resulting product by his creditable service. The amount determined by the benefit formula cannot exceed 80% of the member's highest three year (or five year as discussed below) average salary. For veterans as defined in G.L. c. 32, s. 1, there is an additional benefit of \$15 per year for each year of creditable service, up to a maximum of \$300.

For employees who become members after January 1, 2011, regular compensation is limited to 64% of the federal limit found in 26 U.S.C. 401(a)(17). In addition, regular compensation will be limited to prohibit "spiking" of a member's salary to increase the retirement benefit.

- For persons who became members prior to April 2, 2012, Average Salary is the average annual rate of regular compensation received during the 3 consecutive years that produce the highest average, or, if greater, during the last 3 years (whether or not consecutive) preceding retirement.
- For persons who became members on or after April 2, 2012, Average Salary is the average annual rate of regular compensation received during the 5 consecutive years that produce the highest average, or, if greater, during the last 5 years (whether or not consecutive) preceding retirement.
- The Benefit Rate varies with the member's retirement age. For persons who became members prior to April 2, 2012 the highest rate of 2.5% applies to Group I employees who retire at or after age 65. A .1% reduction is applied for each year of age under the maximum age for the member's group.
- For persons who became members on or after April 2, 2012 and retire with less than 30 years of creditable service, the highest rate of 2.5% applies to Group I employees who retire at or after age 67. A .15% reduction is applied for each year of age under the maximum age for the member's group.
- For persons who became members on or after April 2, 2012 and retire with more than 30 years of creditable service, the highest rate of 2.5% applies to Group I employees who retire at or after age 67. A .125% reduction is applied for each year of age under the maximum age for the member's group.

DEFERRED VESTED BENEFIT

A participant who has attained the requisite years of creditable service can elect to defer his or her retirement until a later date. Certain public safety employees cannot defer beyond age 65. All participants must begin to receive a retirement allowance or withdraw their accumulated deductions no later than April 15 of the calendar year following the year they reach age 70½.

NOTES TO FINANCIAL STATEMENTS (Continued)

WITHDRAWAL OF CONTRIBUTIONS

Member contributions may be withdrawn upon termination of employment. The interest rate for employees who first become members on or after January 1, 1984 who voluntarily withdraw their contributions with less than 10 years of service will be 3%. Interest payable on all other withdrawals will be set at regular interest.

DISABILITY RETIREMENT

The Massachusetts Retirement Plan provides 2 types of disability retirement benefits:

ORDINARY DISABILITY

Eligibility: Non-veterans who become totally and permanently disabled by reason of a non-job related condition with at least 10 years of creditable service (or 15 years creditable service in systems in which the local option contained in G.L. c. 32, s. 6(1) has not been adopted).

Veterans with ten years of creditable service who become totally and permanently disabled by reason of a non-job related condition prior to reaching “maximum age”. “Maximum age” applies only to those employees classified in Group 4 who are subject to mandatory retirement.

Retirement Allowance: For persons who became members prior to April 2, 2012, the benefit is equal to the accrued superannuation retirement benefit as if the member was age 55. If the member is 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 member is over age 55, he or she will receive not less than the superannuation allowance to which he or she is entitled.

For persons in Group 1 who became members on or after April 2, 2012, the benefit is equal to the accrued superannuation retirement benefit as if the member was age 60. If the member is 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 member is over age 60, he or she will receive not less than the superannuation allowance to which he or she would have been entitled had they retired for superannuation.

NOTES TO FINANCIAL STATEMENTS (Continued)

ACCIDENTAL DISABILITY

Eligibility: Applies to members who become permanently and totally unable to perform the essential duties of the position as a result of a personal injury sustained or hazard undergone while in the performance of duties. There are no minimum age or service requirements.

Retirement Allowance: 72% of salary plus an annuity based on accumulated member contributions, with interest. This amount is not to exceed 100% of pay. For those who became members in service after January 1, 1988 or who have not been members in service continually since that date, the amount is limited to 75% of pay. There is an additional pension of \$846.12 per year (or \$312.00 per year in systems in which the local option contained in G.L. c. 32, s. 7(2)(a)(iii) has not been adopted), per child who is under 18 at the time of the member's retirement, with no age limitation if the child is mentally or physically incapacitated from earning. The additional pension may continue up to age 22 for any child who is a full time student at an accredited educational institution. For systems that have adopted Chapter 157 of the Acts of 2005, veterans as defined in G.L. c. 32, s. 1 receive an additional benefit of \$15 per year for each year of creditable service, up to a maximum of \$300.

ACCIDENTAL DEATH

Eligibility: Applies to members who die as a result of a work-related injury or if the member was retired for accidental disability and the death was the natural and proximate result of the injury or hazard undergone on account of which such member was retired.

Allowance: An immediate payment to a named beneficiary equal to the accumulated deductions at the time of death, plus a pension equal to 72% of current salary and payable to the surviving spouse, dependent children or the dependent parent, plus a supplement of \$846.12 per year, per child (or \$312.00 per year in systems in which the local option contained in G.L. c. 32, s. 9(2)(d)(ii) has not been adopted), payable to the spouse or legal guardian until all dependent children reach age 18 or 22 if a full time student, unless mentally or physically incapacitated.

The surviving spouse of a member of a police or fire department or any corrections officer who, under specific and limited circumstances detailed in the statute, suffers an accident and is killed or sustains injuries while in the performance of his duties that results in his death, may receive a pension equal to the maximum salary for the position held by the member upon his death. In addition, an eligible family member may receive a one-time payment of \$150,000.00 from the State Retirement Board. This lump sum payment is also available to the family of a public prosecutor in certain, limited circumstances.

NOTES TO FINANCIAL STATEMENTS (Continued)

DEATH AFTER ACCIDENTAL DISABILITY RETIREMENT

Effective November 7, 1996, Accidental Disability retirees were allowed to select Option C at retirement and provide a benefit for an eligible survivor. For Accidental Disability retirees prior to November 7, 1996, who could not select Option C, if the member's death is from a cause unrelated to the condition for which the member received accidental disability benefits, a surviving spouse will receive an annual allowance of \$6,000. For Systems that accept the provisions of Section 28 of Chapter 131 of the Acts of 2010, the amount of this benefit is \$9,000. For Systems that accept the provisions of Section 63 of Chapter 139 of the Acts of 2012, the amount of this benefit is \$12,000.

DEATH IN ACTIVE SERVICE

Allowance: An immediate allowance equal to that which would have been payable had the member retired and selected Option C on the day before his or her death. For a member who became a member prior to April 2, 2012 whose death occurred prior to the member's superannuation retirement age, the age 55 benefit rate is used. For a member classified in Group I who became a member on or after April 2, 2012 whose death occurred prior to the member's superannuation retirement age, the age 60 benefit rate is used. If the member died after age 60, the actual age is used. The minimum annual allowance payable to the surviving spouse of a member in service who dies with at least two years of creditable service is \$3,000 unless the retirement system has accepted the local option increasing this minimum annual allowance to \$6,000, provided that the member and the spouse were married for at least one year and living together on the member's date of death.

The surviving spouse of such a member in service receives an additional allowance equal to the sum of \$1,440 per year for the first child and \$1,080 per year for each additional child until all dependent children reach age 18 or 22 if a full time student, unless mentally or physically incapacitated.

COST OF LIVING

If a system has accepted Chapter 17 of the Acts of 1997, and the Retirement Board votes to pay a cost of living increase (COLA) for that year, the percentage is determined based on the increase in the Consumer Price Index used for indexing Social Security benefits, but cannot exceed 3.0%. Section 51 of Chapter 127 of the Acts of 1999, if accepted, allows boards to grant COLA increases greater than that determined by CPI but not to exceed 3.0%. Only a certain portion of a retiree's total allowance is subject to a COLA. The total COLA for periods from 1981 through 1996 is paid for by the Commonwealth of Massachusetts.

Under the provisions of Chapter 32, Section 103(j) inserted by Section 19 of Chapter 188 of the Acts of 2010, systems may increase the maximum base on which the COLA is calculated in multiples of \$1,000. For many years the COLA base was calculated based upon the first \$12,000 of a retiree's allowance. Now the maximum base upon which the COLA is calculated varies from system to system. Each increase in the base must be accepted by a majority vote of the Retirement Board and approved by the legislative body.

NOTES TO FINANCIAL STATEMENTS (Continued)

METHODS OF PAYMENT

A member may elect to receive his or her retirement allowance in one of 3 forms of payment.

Option A: Total annual allowance, payable in monthly installments, commencing at retirement and terminating at the member's death.

Option B: A reduced annual allowance, payable in monthly installments, commencing at retirement and terminating at the death of the member, provided, however, that if the total amount of the annuity portion received by the member is less than the amount of his or her accumulated deductions, including interest, the difference or balance of his accumulated deductions will be paid in a lump sum to the retiree's beneficiary or beneficiaries of choice.

Option C: A reduced annual allowance, payable in monthly installments, commencing at retirement. At the death of the retired employee, 2/3 of the allowance is payable to the member's designated beneficiary (who may be the spouse, or former spouse who is has not remarried, child, parent, sister, or brother of the employee) for the life of the beneficiary. For members who retired on or after January 12, 1988, if the beneficiary pre-deceases the retiree, the benefit payable increases (or "pops up" to Option A) based on the factor used to determine the Option C benefit at retirement. For members who retired prior to January 12, 1988, if the System has accepted Section 288 of Chapter 194 of the Acts of 1998 and the beneficiary pre-deceases the retiree, the benefit payable "pops up" to Option A in the same fashion. The Option C became available to accidental disability retirees on November 7, 1996.

ALLOCATION OF PENSION COSTS

If a member's total creditable service was partly earned by employment in more than one retirement system, the cost of the "pension portion" is allocated between the different systems pro rata based on the member's service within each retirement system. In certain circumstances, if a member received regular compensation concurrently from two or more systems on or after January 1, 2010, and was not vested in both systems as of January 1, 2010, such a pro-ration may not be undertaken. This is because such a person may receive a separate retirement allowance from each system.

NOTES TO FINANCIAL STATEMENTS (Continued)

NOTE 2 - SIGNIFICANT ACCOUNTING POLICIES

The accounting records of the System are maintained on a calendar year basis in accordance with the standards and procedures established by the Public Employee Retirement Administration Commission.

Cash accounts are considered to be funds on deposit with banks and are available upon demand.

Short Term Investments are highly liquid investments that will mature within twelve months from the date of acquisition.

Investments are reported at their fair value. Securities traded on recognized exchanges are valued at the most recent sales price at year end. If no sale was reported, the mean of the bid and asked price is used when available, or the most recent bid price. Mutual, commingled and pooled funds are valued based on the net asset or unit value at year end. Real estate and alternative investments are valued based on estimates provided by the managers of those respective investments. Purchases and sales of securities are reflected on the date the trade is initiated. Realized gain or loss is largely based on the difference between the cost or the value at the prior year end and the funds realized upon liquidation. Dividend income is generally recorded when received. Interest income is recorded as earned on an accrual basis. Income from alternative investments is recorded as reported by the managing partner. Appreciation or depreciation in the value of investments consists of the unrealized gains and losses reported as the difference between the previous period and the current value.

The system makes estimates and assumptions that affect the reported values of assets and liabilities and the reported amounts added and deducted during the reporting periods. The fair value of real estate and alternative investment holdings are generally estimated in the absence of reliable exchange values. The actual funds realized upon liquidation may differ from these estimates.

The provisions of Massachusetts General Laws Chapter 32, § 23(2) generally govern the investment practices of the system. The Board retains an investment consultant to closely monitor the implementation and performance of their investment strategy and advise them of the progress toward full funding of the system. That strategy seeks to balance the exposure to common deposit and investment risks related to custody, credit concentrations, interest rate and foreign currency fluctuations.

Operating expenses include the ordinary and necessary cost of investment and professional services and the other miscellaneous administrative expenses of the system.

NOTES TO FINANCIAL STATEMENTS (Continued)

The Annuity Savings Fund is the fund in which members' contributions are deposited. Voluntary contributions, re-deposits, and transfers to and from other systems, are also accounted for in this fund. Members' contributions to the fund earn interest at a rate determined by PERAC. Interest for some members who withdraw with less than ten years of service is transferred to the Pension Reserve Fund. Upon retirement, members' contributions and interest are transferred to the Annuity Reserve Fund. Dormant account balances must be transferred to the Pension Reserve Fund after a period of ten years of inactivity.

The Annuity Reserve Fund is the fund to which a member's account is transferred upon retirement from the Annuity Savings Fund and Special Military Service Credit Fund. The annuity portion of the retirement allowance is paid from this fund. Interest is credited monthly to this fund at the rate of 3% annually on the previous month's balance.

The Special Military Service Credit Fund contains contributions and interest for members while on a military leave for service in the Armed Forces who will receive creditable service for the period of that leave.

The Expense Fund contains amounts transferred from investment income for the purposes of administering the retirement system.

The Pension Fund contains the amounts appropriated by the governmental units as established by PERAC to pay the pension portion of each retirement allowance.

The Pension Reserve Fund contains amounts appropriated by the governmental units for the purposes of funding future retirement benefits. Any profit or loss realized on the sale or maturity of any investment or on the unrealized gain of a market valued investment as of the valuation date is credited to the Pension Reserve Fund. Additionally, any investment income in excess of the amount required to credit interest to the Annuity Savings Fund, Annuity Reserve Fund, and Special Military Service Credit Fund is credited to this Reserve account.

The Investment Income Account is credited with all income derived from interest and dividends of invested funds. At year-end the interest credited to the Annuity Savings Fund, Annuity Reserve Fund, Expense Fund, and Special Military Service Credit Fund is distributed from this account and the remaining balance is transferred to the Pension Reserve Fund.

NOTES TO FINANCIAL STATEMENTS (Continued)

NOTE 3 - SUPPLEMENTARY MEMBERSHIP REGULATIONS

The Massachusetts Water Resources Authority Retirement System submitted the following supplementary membership regulations, which were approved by the Public Employee Retirement Administration Commission:

Membership

April 26, 1993

Full time Employees: Membership in the retirement system is mandatory for all employees who are regularly employed on a full time basis and whose employment commences prior to the attainment of age 65.

Permanent Part Time Employees: Part time employees working a minimum of 19 hours a prorated basis as it relates to a full time position. Part time employees who work less than 19 hours per week shall not become members of the system.

Interns/Co-ops: Internship is limited to 1462 hours, which is equivalent nine months for full time and can be spread out to twelve months for part time. Interns/Co-ops shall only be allowed to work one internship/co-op at the MWRA. Interns/Co-ops shall not become members of the retirement system.

Contract Employees: Hired to perform a specific set of duties for a limited time (Less than 1 year); that will perform tasks above the capability or experience level of existing personnel; or hired to fulfill essential duties when coverage by existing staff is not feasible due to vacation schedules, illness, job vacancy, special projects, etc. Contract employees shall not be eligible for membership in the retirement system.

Consultants (Fee for Service): Hired to perform specialized services for a limited time that are beyond the expertise or capability of existing personnel. Consultants shall not be eligible for membership in the retirement system.

On Call Employees: Employees hired to fulfill the temporary clerical/other needs of the MWRA. "On Call" employees are hired on an "annual contract" basis, (with a no notice termination clause for both parties), that commences on the date of hire and ends on the one year anniversary of the date of hire. The "On Call" program employees shall not be eligible for membership in the retirement system.

Temporary, Seasonal Employees: Employees hired to perform an assignment that is not of a continuing nature during a specific period of time. Temporary, seasonal employees shall not be eligible for membership in the retirement system. On Call, Temporary, Intern/Co-op and Part Time employees who become full time employees may be eligible to "buy back" creditable service which was earned while at less than part time, (19 hours per week and therefore ineligible for membership in the retirement system); by the discretion and eventual vote of the retirement board provided that creditable service shall be granted based on actual service rendered. Effective April 5, 1993 all new employees classified not full time and thus not eligible to become members of the retirement

NOTES TO FINANCIAL STATEMENTS (Continued)

NOTE 3 - SUPPLEMENTARY MEMBERSHIP REGULATIONS (Continued)

system must contribute to the alternative defined contribution retirement plan system of the board.

September 4, 1990

Permanent Part Time Employees: An employee who is employed at least 18.75 or 20 hours per week on a permanent basis shall become a member of the system.

Interns/Coops, Seasonal, On Call Temporaries: An Intern Coop, Seasonal or On Call Temporary employee shall not be allowed membership into the retirement system until they are permanently employed. Upon becoming a member, they will be allowed to make payment toward creditable service for the time employed in that capacity.

Contractual (MWRA Employment Contract): A contractual employee shall become a member of the retirement system if later permanently employed. Upon becoming a member, they will be allowed to make payment toward creditable service for the time worked in that capacity. (Revised by supplementary rules approved April 26, 1993)

Creditable Service

November 29, 2001

1. Employees of the MWRA whose compensation is paid through a federal grant and whose employment terms and conditions would otherwise qualify them for membership, are eligible for membership in the MWRA Retirement System.
2. Active members of the MWRA Retirement System who previously were excluded or omitted from membership in the MWRA Retirement System due solely to the federal source of payment of the employees' compensation, and whose employment terms and conditions would otherwise qualify them for membership in the MWRA Retirement System, are entitled to membership in the system retroactive to the date of such exclusion or omission, upon full and complete payment into the retirement system of the appropriate retirement contribution. Such members are entitled to the benefits of membership which were in effect at the time of such exclusion or omission.
3. Active members of the MWRA Retirement System who have rendered prior employment service in another governmental unit subject to the provisions of G.L. c. 32, and whose compensation for such service was paid through a federal grant, are eligible to purchase creditable service for such prior employment service, if such prior employment service, if rendered to the MWRA, would have been eligible to be purchased.

Miscellaneous

July 11, 2016

This supplemental regulation approved on January 26, 2012. Board members are allowed to remotely participate at Board meetings in accordance with 940 CMR 29.10, except as follows:

NOTES TO FINANCIAL STATEMENTS (Continued)

NOTE 3 - SUPPLEMENTARY MEMBERSHIP REGULATIONS (Continued)

Remote participation can be employed only by internet, satellite enabled video conferencing or any other technology that enables the remote participant and all persons present at the meeting location to be clearly visible to one another and to all persons present. Notwithstanding, remote participation by telephone, cellular phone, audio or any other means may be allowed by vote of the Board where special or unforeseen circumstances require.

Upon commencement of the meeting, the remote participant must declare who is present at the remote location, and must immediately report arrivals or departures by any other individual from the remote location.

Prior to the commencement of executive session, the remote participant must ensure that all individuals who may be present vacate the remote location in order that the privacy required by executive session can be maintained. Upon the commencement of executive session, the remote participant must declare that no other individuals are present at the remote location.

February 11, 2015

Correction of Errors under G.L. c. 32, [§] 20(5)(c)(2)

In all cases of correction of an error of the MWRA Employees' Retirement Board of an underpayment or non-payment of a pension or benefit to a member or beneficiary of the MWRA Employees' Retirement System which results in a onetime retroactive payment of benefits, such payment shall include interest for such period of underpayment or non-payment at the rate annually determined for such period by the Public Employee Retirement Administration Commission pursuant to G.L. c. 32, § 22(6).

In all cases of correction of an error of the MWRA Employees' Retirement Board of an overpayment of a pension or benefit to a member or beneficiary of the MWRA Employees' Retirement System, the amount of overpayment shall be due from the member or beneficiary, along with interest for said period of overpayment at the rate annually determined by the Public Employee Retirement Administration Commission pursuant to G. L. c. 32, § 22(6).

Pursuant to the judgment of the Supreme Judicial Court in *Herrick v. Essex Regional Retirement Board*, 465 Mass. 801 (2013) and PERAC Memorandum #32, 2013, said interest shall be deemed to be the actuarial equivalent of the adjustment to the pension or benefit as required by G.L. c. 32, § 20(5)(c).

December 24, 2012

Purchase Of Military Service

Service credit with respect to qualified military service is subject to Internal Revenue Code Section 414(u) and the Uniform Services Employment and Reemployment Rights of 1994, as amended (USERRA). Members who have timely filed for and are eligible to purchase military creditable service for their military service under G.L. c. 32, s. 4(1)(h) may be credited with up to four years of service. Service shall not be credited unless and until the member has paid into the annuity savings fund payments for each year of creditable service sought an amount equal to ten percent of the

NOTES TO FINANCIAL STATEMENTS (Continued)

NOTE 3 - SUPPLEMENTARY MEMBERSHIP REGULATIONS (Continued)

regular annual compensation of the member when the member entered the retirement system. Such payments may be made in one sum or in installments at any time prior to retirement.

July 19, 1994

Forms

Approval of Option Selection Forms and Option (d) beneficiary designation form.

June 2, 1987

Make-Up Payments

Employees may request, in writing, permission to make-up payments for their previous employment if the Retirement System from which they were previously employed is established within the provisions of c. 32. Each employee requesting permission to make-up payments for their previous employment shall provide the retirement system with a verified list of salaries, earned by them, by calendar year, not including any overtime or bonuses, so that a make-up payment can be calculated.

Make-up payments consist of regular contributions plus interest received at the time of a refund plus interest the employee's account would have earned had they not received a refund. Employees of a temporary nature found to be ineligible for membership in a governmental unit covered by c. 32 may purchase past service upon becoming a permanent employee. Purchases of prior creditable service may be in a lump sum at any time prior to retirement or in annual periodic payments [subject to four enumerated conditions].

Travel Regulations:

The Massachusetts Water Resources Authority Retirement System has adopted Travel Supplemental Regulations under the provisions of G.L. c. 7, § 50 and G.L. c. 32, § 21(4). Regulations available upon written request, and are also available on the PERAC website <http://www.mass.gov/perac/board-info/profiles/travel/mwratravelreg.html>.

NOTES TO FINANCIAL STATEMENTS (Continued)

NOTE 5 - ACTUARIAL VALUATION AND ASSUMPTIONS

The most recent actuarial valuation of the System was prepared by Segal Consulting as of January 1, 2017.

The actuarial liability for active members was	\$318,791,528
The actuarial liability for retired members and beneficiaries was	179,180,324
The actuarial liability for inactive members was	<u>13,434,395</u>
The total actuarial liability was	\$511,406,247
System assets as of that date were (actuarial value)	<u>493,403,059</u>
The unfunded actuarial liability was	<u>\$18,003,188</u>
The ratio of system's assets to total actuarial liability was	96.5%
As of that date the total covered employee payroll was	\$93,353,397

The normal cost for employees on that date was 9.72% of payroll
 The normal cost for the employer was 2.96% of payroll

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

Investment Return: 7.50% per annum
 Rate of Salary Increase: Service based

SCHEDULE OF FUNDING PROGRESS AS OF JANUARY 1, 2017 (In thousands)

Actuarial Valuation Date	Actuarial Value of Assets (a)	Actuarial Accrued Liability (b)	Unfunded AAL (UAAL) (b-a)	Funded Ratio (a/b)	Covered Payroll (c)	UAAL as a % of Cov. Payroll ((b-a)/c)
1/1/2017	\$493,403	\$511,406	\$18,003	96.5%	\$93,353	19.3%
1/1/2015	\$435,841	\$443,487	\$7,646	98.3%	\$89,169	8.6%
1/1/2013	\$341,515	\$385,296	\$43,781	88.6%	\$84,829	51.6%
1/1/2011	\$299,331	\$341,521	\$42,190	87.6%	\$82,870	50.9%
1/1/2010	\$276,270	\$319,876	\$43,606	86.4%	\$81,962	53.2%

NOTES TO FINANCIAL STATEMENTS (Continued)

NOTE 6 - MEMBERSHIP EXHIBIT

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Retirement in Past Years										
Superannuation	10	5	8	14	24	18	35	38	37	24
Ordinary Disability	0	1	0	2	2	0	0	0	0	1
Accidental Disability	3	3	8	5	2	2	2	1	5	2
Total Retirements	13	9	16	21	28	20	37	39	42	27
 Total Retirees, Beneficiaries and Survivors	267	272	288	311	343	364	396	431	476	492
 Total Active Members	1,161	1,178	1,161	1,121	1,113	1,103	1,092	1,091	1,088	1,098
 Pension Payments										
Superannuation	\$3,775,891	\$3,766,606	\$3,811,499	\$4,041,747	\$4,507,903	\$4,971,773	\$5,634,067	\$6,689,144	\$7,820,536	\$8,697,085
Survivor/Beneficiary Payments	133,623	193,754	257,551	357,412	453,569	599,582	631,904	679,657	752,009	890,616
Ordinary Disability	191,495	209,387	234,470	226,739	231,243	237,073	255,859	253,583	258,097	276,111
Accidental Disability	569,424	715,928	870,616	1,053,690	1,166,938	1,376,440	1,453,868	1,515,071	1,574,881	1,816,610
Other	65,351	76,580	75,918	109,546	94,749	154,784	111,824	167,215	173,996	202,846
Total Payments for Year	<u>\$4,735,784</u>	<u>\$4,962,255</u>	<u>\$5,250,054</u>	<u>\$5,789,134</u>	<u>\$6,454,402</u>	<u>\$7,339,652</u>	<u>\$8,087,523</u>	<u>\$9,304,669</u>	<u>\$10,579,518</u>	<u>\$11,883,269</u>

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PERAC

COMMONWEALTH OF MASSACHUSETTS | PUBLIC EMPLOYEE RETIREMENT ADMINISTRATION COMMISSION

PHILIP Y. BROWN, ESQ., *Chairman*

JOHN W. PARSONS, ESQ., *Executive Director*

Auditor: SUZANNE M. BUMP | KATHLEEN M. FALLON | KATE FITZPATRICK | JAMES M. MACHADO | ROBERT B. McCARTHY | JENNIFER F. SULLIVAN

December 4, 2019

James M. Fleming, Chairman
MWRA Employees' Retirement Board
2 Griffin Way
Chelsea, MA 02150

REFERENCE: Report of the Examination of the MWRA Employees' Retirement Board for the four-year period from January 1, 2012 through December 31, 2015.

Dear Chairman Fleming:

The Public Employee Retirement Administration Commission has completed a follow-up review of the findings and recommendations contained in its audit report of the MWRA Retirement Board for the period referenced above. We conduct these visits as a regular part of the oversight process to ensure the timely implementation of the recommendations contained in that report. The examination also addressed the other matters discussed at the completion of the audit. The results are as follows:

1. The Audit Report cited a finding that MWRA has been submitting late and incomplete monthly Cash Books to PERAC's Compliance and Investments Unit.

Follow-up Result: At the time of the review, the MWRA Executive Director affirmed that a complete set of Cash Books consisting of the Cash Receipts and Cash Disbursements Reports, Adjusting Journal Entries, and the Trial Balance have been submitted to PERAC for each month through June 2019. The MWRA has since submitted Cash Books for July and August 2019. This was confirmed with PERAC's Compliance and Investment Unit. However, it is now December and no additional Cash Books have been received by PERAC. Retirement Boards must submit monthly Cash Books within four weeks of the close of the month. This issue is not resolved.



December 4, 2019

Page Two

2. The Audit Report cited a finding that an estimated total of \$1.3 million in Management Fees were not recorded to General Ledger (GL) account #5304 Management Fees in 2015.

Follow-up Result: We compared the total amount of management fees recorded to GL account #5304 to the management fees listed on the 2018 Annual Statement Schedule 7 - Summary of Investment Related Fees. The amount recorded to GL #5304, \$2,128,290, is in agreement to the total amount listed on Schedule 7, however, we found that there are active managers listed with no management fees included in the total, as they were recorded net of income.

In MWRA's response to the finding they stated that after being advised by PERAC auditors, prior to closing the 2017 financial year, entries were made to record estimated fees and corresponding investment income/gains for all managers reporting net of fees. This practice was not continued in 2018. This issue is not resolved.

The additional matters discussed have been reviewed and most have been resolved.

PERAC auditors may conduct an additional follow-up visit to ensure progress is being made in those areas that have not been corrected at this time.

Thank you for your continued cooperation in this matter.

Sincerely,

A handwritten signature in cursive script, appearing to read "John W. Parsons".

John W. Parsons, Esq.
Executive Director