

MWRA Employees' Retirement System

# Total Fund Performance Detail (Net)

December 31, 2017

	Market Value (\$)	% of Portfolio	Policy %	1 Mo (%)	3 Mo (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Return (%)	Since
<b>Composite</b>	<b>529,837,538</b>	<b>100.0</b>	<b>100.0</b>	<b>1.0</b>	<b>3.0</b>	<b>14.6</b>	<b>6.6</b>	<b>8.1</b>	<b>6.1</b>	<b>6.9</b>	<b>Jan-86</b>
Allocation Index				1.0	3.6	15.0	7.3	8.5	5.4	--	Jan-86
Policy Index				0.9	3.5	15.3	7.6	8.6	5.8	--	Jan-86
<b>Total Balanced</b>	<b>75,209,648</b>	<b>14.2</b>	<b>15.0</b>	<b>1.2</b>	<b>2.5</b>	<b>13.2</b>	<b>5.0</b>	<b>4.4</b>	<b>--</b>	<b>4.7</b>	<b>Dec-10</b>
PRIT Core Fund	3,595,319	0.7		1.8	3.9	17.3	8.3	9.4	5.1	6.9	Apr-99
Wellington Opportunistic Investment	26,109,148	4.9	5.0	0.9	2.9	17.9	7.9	7.0	--	9.0	Nov-08
65% MSCI ACWI (Net) / 35% BBgBarc Aggregate				1.2	3.8	16.4	6.9	7.8	4.8	9.1	Nov-08
PIMCO All Asset	26,975,596	5.1	5.0	1.9	3.1	14.0	5.6	3.7	--	8.8	Dec-08
PIMCO All Asset Index				0.5	1.0	5.6	3.9	3.3	4.9	6.7	Dec-08
William Blair	18,529,585	3.5	5.0	0.7	0.7	5.5	--	--	--	-1.2	Mar-15
60% MSCI ACWI (Net) / 40% CITI WGBI				1.0	3.8	17.1	6.4	6.5	4.2	6.1	Mar-15
BofA Merrill Lynch 91-Day T-Bill				0.1	0.3	0.9	0.4	0.3	0.4	0.4	Mar-15
<b>Total Domestic Equity</b>	<b>123,562,623</b>	<b>23.3</b>	<b>21.0</b>	<b>0.7</b>	<b>5.9</b>	<b>21.2</b>	<b>9.5</b>	<b>14.3</b>	<b>8.5</b>	<b>6.7</b>	<b>May-99</b>
<b>Large Cap</b>	<b>87,235,287</b>	<b>16.5</b>	<b>15.0</b>	<b>1.2</b>	<b>6.7</b>	<b>22.3</b>	<b>9.2</b>	<b>14.5</b>	<b>--</b>	<b>13.4</b>	<b>Dec-10</b>
Rhumblin Advisors S&P 500 Index Fund	39,791,865	7.5	7.0	1.1	6.6	21.7	11.3	15.6	8.5	8.4	Apr-97
S&P 500				1.1	6.6	21.8	11.4	15.8	8.5	8.3	Apr-97
Coho Relative Value Equity	25,307,460	4.8	4.0	2.1	8.1	18.1	--	--	--	15.1	Mar-16
Russell 1000 Value				1.5	5.3	13.7	8.7	14.0	7.1	20.5	Mar-16
Polen Focused Growth	22,135,963	4.2	4.0	0.4	5.3	27.4	--	--	--	16.3	Feb-16
Russell 1000 Growth				0.8	7.9	30.2	13.8	17.3	10.0	22.6	Feb-16
<b>Small Cap</b>	<b>36,327,336</b>	<b>6.9</b>	<b>6.0</b>	<b>-0.4</b>	<b>4.0</b>	<b>18.7</b>	<b>10.4</b>	<b>14.3</b>	<b>--</b>	<b>13.5</b>	<b>Dec-10</b>
Robeco Boston Partners Small Cap Value	17,503,781	3.3	3.0	0.0	3.4	10.7	9.2	12.7	10.0	11.3	Feb-97
Russell 2000 Value				-1.0	2.0	7.8	9.5	13.0	8.2	9.6	Feb-97
Loomis Sayles Small Cap Growth	18,823,555	3.6	3.0	-0.8	4.5	27.2	11.4	15.7	9.7	6.1	Jan-97
Russell 2000 Growth				0.1	4.6	22.2	10.3	15.2	9.2	7.0	Jan-97



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<b>Total Non-US Equity</b>	<b>110,486,230</b>	<b>20.9</b>	<b>19.0</b>	<b>2.0</b>	<b>4.4</b>	<b>30.3</b>	<b>7.3</b>	<b>7.4</b>	<b>1.2</b>	<b>4.8</b>	<b>Mar-99</b>
<b>International Equity</b>	<b>82,668,582</b>	<b>15.6</b>	<b>15.0</b>	<b>1.5</b>	<b>3.6</b>	<b>28.3</b>	<b>8.0</b>	<b>7.5</b>	<b>--</b>	<b>--</b>	<b>Sep-05</b>
SEG Baxter Street	28,789,288	5.4	5.0	1.2	1.9	24.6	--	--	--	16.3	May-16
<i>MSCI ACWI ex USA</i>				2.2	5.0	27.2	7.8	6.8	1.8	17.0	May-16
Schroder International Alpha Fund	26,448,257	5.0	5.0	1.2	3.4	29.8	8.6	7.9	--	7.5	Mar-12
<i>MSCI ACWI ex USA</i>				2.2	5.0	27.2	7.8	6.8	1.8	6.4	Mar-12
LMCG Small Cap International	27,431,037	5.2	5.0	2.0	5.8	--	--	--	--	10.7	Aug-17
<i>MSCI EAFE Small Cap</i>				2.7	6.1	33.0	14.2	12.9	5.8	10.0	Aug-17
<b>Emerging Markets Equity</b>	<b>27,817,649</b>	<b>5.3</b>	<b>4.0</b>	<b>3.8</b>	<b>7.2</b>	<b>36.3</b>	<b>5.9</b>	<b>--</b>	<b>--</b>	<b>4.2</b>	<b>Nov-13</b>
<i>MSCI Emerging Markets</i>				3.6	7.4	37.3	9.1	4.3	1.7	5.2	Nov-13
LMCG Emerging Markets	27,817,649	5.3	4.0	3.8	7.2	36.3	5.9	--	--	4.3	Dec-13
<i>MSCI Emerging Markets</i>				3.6	7.4	37.3	9.1	4.3	1.7	5.7	Dec-13
<b>Total Fixed Income</b>	<b>114,839,399</b>	<b>21.7</b>	<b>22.0</b>	<b>0.7</b>	<b>0.8</b>	<b>5.8</b>	<b>3.1</b>	<b>3.7</b>	<b>5.9</b>	<b>6.8</b>	<b>Mar-99</b>
Invesco Core Bonds	41,895,938	7.9	8.0	0.6	0.6	4.7	3.2	2.9	4.9	5.2	Dec-98
<i>BBgBarc US Aggregate TR</i>				0.5	0.4	3.5	2.2	2.1	4.0	4.8	Dec-98
Loomis Sayles - Multi Sector Bonds	44,868,296	8.5	8.0	0.6	0.8	8.4	3.8	4.6	6.6	8.2	Mar-99
<i>BBgBarc US Aggregate TR</i>				0.5	0.4	3.5	2.2	2.1	4.0	4.9	Mar-99
<i>BBgBarc US High Yield TR</i>				0.3	0.5	7.5	6.4	5.8	8.0	7.0	Mar-99
Rhumbline TIPS	27,756,663	5.2	6.0	0.9	1.2	3.0	--	--	--	2.0	Jun-16
<i>BBgBarc US TIPS TR</i>				0.9	1.3	3.0	2.0	0.1	3.5	2.3	Jun-16
Invesco Mortgage Fund	318,502	0.1		0.0	0.0	-8.5	1.0	8.7	--	14.2	Apr-10
<i>BBgBarc US Aggregate TR</i>				0.5	0.4	3.5	2.2	2.1	4.0	3.5	Apr-10



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<b>Total Hedge Fund</b>	<b>24,215,830</b>	<b>4.6</b>	<b>5.0</b>	<b>1.1</b>	<b>1.7</b>	<b>5.3</b>	<b>1.4</b>	<b>3.9</b>	<b>2.1</b>	<b>3.3</b>	<b>Oct-06</b>
PRIM Absolute Return Fund	13,615,494	2.6	3.0	1.5	2.7	8.2	3.5	5.6	3.0	4.0	Oct-06
EnTrust	10,600,336	2.0	2.0	0.6	0.5	2.0	-2.3	1.0	--	2.0	Jan-12
<i>HFRI Fund of Funds Composite Index</i>				<i>0.9</i>	<i>2.0</i>	<i>7.7</i>	<i>2.6</i>	<i>4.0</i>	<i>1.1</i>	<i>4.1</i>	<i>Jan-12</i>
<b>Other</b>	<b>5,593,804</b>	<b>1.1</b>	<b>0.0</b>	<b>0.0</b>	<b>0.1</b>	<b>0.7</b>	<b>0.3</b>	<b>0.2</b>	<b>--</b>	<b>0.2</b>	<b>Dec-10</b>
Cash Account	5,593,804	1.1		0.0	0.1	0.7	0.3	0.2	0.4	1.8	Feb-00
<i>91 Day T-Bills</i>				<i>0.1</i>	<i>0.3</i>	<i>0.9</i>	<i>0.4</i>	<i>0.3</i>	<i>0.3</i>	<i>1.6</i>	<i>Feb-00</i>
<b>Total Real Estate</b>	<b>39,040,811</b>	<b>7.4</b>	<b>8.0</b>	<b>0.6</b>	<b>1.1</b>	<b>6.5</b>	<b>9.5</b>	<b>11.1</b>	<b>5.5</b>	<b>7.8</b>	<b>Apr-99</b>
<i>NCREIF Property Index</i>				<i>0.0</i>	<i>0.0</i>	<i>5.1</i>	<i>8.7</i>	<i>9.8</i>	<i>5.9</i>	<i>9.0</i>	<i>Apr-99</i>
PRIT Core Real Estate (\$10.9m commitment in '10)	17,429,320	3.3		1.3	2.5	8.4	9.0	10.2	--	11.7	Jul-10
Morgan Stanley Prime Property (\$2.8m commitment in '95)	8,185,994	1.5		0.0	0.0	6.5	10.1	12.3	5.5	8.7	Sep-95
Invesco Mortgage Recovery II (\$3M commitment in '15)	1,177,887	0.2		0.0	0.0	5.2	--	--	--	9.9	Oct-15
Landmark VI (\$2m commitment in '11)	374,825	0.1		0.0	0.0	0.3	3.2	8.7	--	11.2	Jul-11
Landmark VIII (\$4m commitment in '17)	448,589	0.1									
Courtland/Mesirow MFire (\$2m commitment in '11)	1,213,316	0.2		0.0	0.0	3.6	8.3	11.3	--	4.5	May-12
Cerberus (\$1.5m commitment in '12)	1,211,020	0.2		0.0	0.0	-2.1	9.0	--	--	13.4	May-13
TA Realty Fund X LP (\$3.5m commitment in '12)	2,248,354	0.4		0.0	0.0	6.4	7.5	--	--	8.4	May-13
TerraCap Partners III, LP (\$2.6m commitment in '15)	2,667,303	0.5		0.0	0.0	2.6	--	--	--	15.4	Jul-15
TerraCap Partners IV, LP (\$4m commitment in '17)	4,084,202	0.8									



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<b>Total Private Equity</b>	<b>36,889,194</b>	<b>7.0</b>	<b>10.0</b>	<b>0.7</b>	<b>0.7</b>	<b>7.5</b>	<b>10.9</b>	<b>13.3</b>	<b>11.2</b>	<b>8.9</b>	<b>Apr-99</b>
<i>NASDAQ W/O Income</i>				<i>0.4</i>	<i>6.3</i>	<i>28.2</i>	<i>13.4</i>	<i>18.0</i>	<i>10.0</i>	<i>5.7</i>	<i>Apr-99</i>
PRIM Vintage Year 2008 (\$3m commitment in '08)	1,549,311	0.3		4.7	4.8	35.9	21.9	22.0	--	7.8	Jun-08
PRIM Vintage Year 2009 (\$1m commitment in '09)	251,675	0.0		2.4	2.0	13.0	18.2	20.3	--	4.6	Nov-09
PRIM Vintage Year 2010 (\$1m commitment in '10)	748,620	0.1		8.1	8.1	24.7	20.0	20.4	--	7.1	Jun-10
PRIM Vintage Year 2011 (\$1.5m commitment in '11)	1,234,298	0.2		4.0	3.9	23.4	24.1	19.9	--	-0.1	May-11
PRIM Vintage Year 2012 (\$1m commitment in '12)	662,364	0.1		5.0	5.3	28.2	15.7	12.1	--	-25.6	Jun-12
PRIM Vintage Year 2014 (\$2m commitment in '14)	1,215,371	0.2		4.0	3.9	20.5	9.3	--	--	-10.4	Jun-14
PRIM Vintage Year 2017 (\$2m commitment in '17)	61,779	0.0		8.8	4.5	--	--	--	--	3.4	May-17
Alcentra European DLF (\$5m commitment in '14)	3,441,707	0.6		0.0	0.0	4.5	7.4	--	--	7.4	Jan-15
Ascent Fund II (\$0.8m commitment in '99)	9,657	0.0		0.0	0.0	15.2	52.2	42.8	26.4	19.8	Jan-99
Ascent Fund IV (\$2m commitment in '04)	322,081	0.1		0.0	0.0	22.3	-37.4	-23.4	-13.6	-11.3	Jul-04
Ascent Fund IV-B (\$1m commitment in '16)	1,691,967	0.3		0.0	0.0	7.0	--	--	--	5.6	Jul-16
Ascent Fund V (\$2m commitment in '08)	1,889,696	0.4		0.0	0.0	2.2	4.5	6.4	--	7.4	Oct-08
Ascent VI (\$3m commitment in '15)	1,518,866	0.3		0.0	0.0	9.8	--	--	--	-1.4	Dec-15
Boston Capital (\$0.8m commitment in '99)	16,290	0.0		0.0	0.0	0.0	-2.7	-6.0	9.6	7.7	Apr-99
Castile Ventures III, L.P. (\$3m commitment in '07)	645,212	0.1		0.0	0.0	-21.6	-20.2	-17.2	-12.6	-12.6	Jan-08
CVI Credit Value Fund IV A LP (\$6m commitment in '17)	300,000	0.1		0.0	--	--	--	--	--	0.0	Dec-17
Invesco Fund IV (\$3m commitment in '03)	622,621	0.1		0.0	0.0	6.1	2.8	10.3	10.1	9.9	Feb-04
Invesco Fund VI (\$5m commitment in '13)	5,224,931	1.0		0.0	0.0	5.4	8.1	--	--	12.1	Jul-13
Kayne Energy Fund VII (\$5m commitment in '15)	3,753,548	0.7		0.0	0.0	13.3	--	--	--	22.8	Jan-16
Foundry 2007 (\$3m commitment in '07)	1,836,467	0.3		0.0	0.0	-6.1	8.3	19.0	29.0	27.5	Dec-07
Foundry 2010 (\$3m commitment in '10)	3,200,954	0.6		0.0	0.0	1.9	-3.1	5.2	--	6.5	Jan-11
Foundry 2010 Annex (\$0.4m commitment in '15)	237,803	0.0		0.0	0.0	20.4	--	--	--	2.3	Sep-15
Pinebridge PEP V (\$6m commitment in '07)	1,747,155	0.3		0.0	0.0	8.5	12.0	13.6	--	6.2	Mar-08
Landmark XV (\$3m commitment in '13)	865,415	0.2		0.0	0.0	3.7	9.7	--	--	12.7	Nov-13
JFL Equity Investors IV, L.P. (\$6m commitment in '16)	2,140,422	0.4		0.0	0.0	-2.0	--	--	--	-2.0	Jan-17
Private Advisors Small Co. Coinvestment Fund, LP (\$4m commitment in '17)	1,700,985	0.3		0.0	0.0	--	--	--	--	6.3	Feb-17



## MWRA Employees' Retirement System

# Notes

- 1 - Results for periods longer than one year are annualized.
- 2 - Total Balances, Large Cap, Small Cap, and Other Composite performance starts 12/1/2010.
- 3 - Market values for Real estate managers are as of 06/30/2017 and are adjusted for cash flows except for Cerberus, Invesco, Intercontinental Real Estate IV, Morgan Stanley Prime Property, and PRIT Core Real Estate which are valued as of 09/30/2017 and are adjusted for cash flows.
- 4 - Preliminary Total Composite gross of fee since inception return is 8.6% for the current month.
- 5 - Market values for Private Equity managers are as of 06/30/2017 and are adjusted for cash flows except for Boston Capital as of 12/31/2016 adjusted for cash flows, and Ascent Funds, Invesco, Kayne Energy Fund VII, and PRIM accounts which are valued as of 12/31/2017 and are adjusted for cash flows. PRIM accounts are valued as of 12/31/2017.
- 6 - Targets, Allocation Index, and Policy Index have been updated to reflect new allocation of 07/31/2017.

## Information Disclaimer and Reporting Methodology

### Information Disclaimer

- Past performance is no guarantee of future results.
- All investments carry some level of risk. Diversification and other asset allocation techniques are not guaranteed to ensure profit or protect against losses.
- NEPC's source for portfolio pricing, calculation of accruals, and transaction information is the plan's custodian bank. Information on market indices and security characteristics is received from other sources external to NEPC. While NEPC has exercised reasonable professional care in preparing this report, we cannot guarantee the accuracy of all source information contained within.
- Some index returns displayed in this report or used in calculation of a policy, allocation or custom benchmark may be preliminary and subject to change.
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### Reporting Methodology

- The client's custodian bank is NEPC's preferred data source unless otherwise directed. NEPC generally reconciles custodian data to manager data. If the custodian cannot provide accurate data, manager data may be used.
- Trailing time period returns are determined by geometrically linking the holding period returns, from the first full month after inception to the report date. Rates of return are annualized when the time period is longer than a year. Performance is presented gross and/or net of manager fees as indicated on each page.
- For managers funded in the middle of a month, the "since inception" return will start with the first full month, although actual inception dates and cash flows are taken into account in all Composite calculations.
- This report may contain forward-looking statements that are based on NEPC's estimates, opinions and beliefs, but NEPC cannot guarantee that any plan will achieve its targeted return or meet other goals.

