

MWRA Employees' Retirement System

Total Fund Performance Detail (Net) - Preliminary

October 31, 2016

	Market Value (\$)	% of Portfolio	Policy %	1 Mo (%)	YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Return (%)	Since
Composite	460,892,548	100.0	100.0	-1.1	3.9	1.5	3.9	7.2	5.6	6.7	Jan-86
Allocation Index				-1.3	5.1	3.9	4.5	7.2	4.8	--	Jan-86
Policy Index				-1.4	5.4	4.0	4.5	7.4	5.2	--	Jan-86
Total Balanced	68,488,076	14.9	14.0	-0.1	7.6	4.8	1.3	4.1	--	3.4	Dec-10
PRIT Core Fund	3,075,200	0.7									
Wellington Opportunistic Investment 65% MSCI ACWI (Net) / 35% BC Agg	22,005,876	4.8	5.0	-1.2	5.5	3.6	2.8	5.1	--	8.0	Nov-08
PIMCO All Asset PIMCO All Asset Index	25,855,700	5.6	5.0	0.3	14.0	10.2	1.3	3.8	--	8.5	Dec-08
William Blair 60% MSCI ACWI (Net)/40% CITI WGBI	17,551,301	3.8	4.0	0.7	2.4	-1.0	--	--	--	-5.1	Mar-15
				-2.4	5.9	3.8	2.2	4.9	4.1	0.8	Mar-15
Total Domestic Equity	99,751,428	21.6	21.0	-3.0	1.4	-0.3	5.5	12.1	6.9	5.7	May-99
Large Cap	71,258,637	15.5	15.0	-2.4	0.6	-0.9	6.7	12.4	--	11.6	Dec-10
Rhumblin Advisors S&P 500 Index Fund S&P 500	30,900,643	6.7	7.0	-1.8	5.7	4.4	8.7	13.4	6.7	7.5	Apr-97
Coho Relative Value Equity Russell 1000 Value	20,220,689	4.4	4.0	-3.5	--	--	--	--	--	4.3	Mar-16
Polen Focused Growth Russell 1000 Growth	20,137,305	4.4	4.0	-2.0	--	--	--	--	--	3.8	Feb-16
				-2.3	3.5	2.3	9.4	13.7	8.2	9.6	Feb-16
Small Cap	28,492,791	6.2	6.0	-4.5	3.2	1.0	2.9	11.4	--	11.0	Dec-10
Robeco Boston Partners Small Cap Value Russell 2000 Value	14,868,191	3.2	3.0	-3.9	8.1	3.9	3.8	11.6	7.1	10.7	Feb-97
Loomis Sayles Small Cap Growth Russell 2000 Growth	13,624,600	3.0	3.0	-5.1	-1.5	-1.9	1.9	11.1	8.8	4.8	Jan-97
				-6.2	0.8	-0.5	3.7	11.3	6.9	5.8	Jan-97



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Total Non-US Equity	75,807,842	16.4	19.0	-1.9	4.3	-0.3	-2.2	3.1	0.0	3.7	Mar-99
International Equity	54,186,435	11.8	15.0	-2.7	1.2	-2.5	-1.9	3.8	--	--	Sep-05
SEG Baxter Street	28,032,133	6.1	5.0	-3.3	--	--	--	--	--	2.9	May-16
MSCI ACWI ex USA				-1.4	4.3	0.2	-1.5	3.6	1.6	2.0	May-16
Schroder International Alpha Fund	26,154,302	5.7	5.0	-2.1	0.4	-1.5	-0.6	--	--	3.9	Mar-12
MSCI EAFE				-2.0	-0.4	-3.2	-1.3	5.0	1.2	4.3	Mar-12
Emerging Markets Equity	21,621,407	4.7	4.0	0.2	12.4	5.5	-3.0	--	--	-3.0	Nov-13
Lee Munder Emerging Market Equity	21,621,407	4.7	4.0	0.2	12.4	5.5	--	--	--	-3.0	Dec-13
MSCI Emerging Markets				0.2	16.3	9.3	-2.0	0.5	3.5	-1.6	Dec-13
Total Fixed Income	104,140,490	22.6	21.0	-0.6	7.9	5.6	3.4	5.0	6.3	7.0	Mar-99
Invesco Core Bonds	40,597,561	8.8	9.0	-0.5	7.3	6.4	4.0	4.1	5.3	5.4	Dec-98
Barclays Aggregate				-0.8	5.0	4.4	3.5	2.9	4.6	5.0	Dec-98
Loomis Sayles - Multi Sector Bonds	44,095,769	9.6	8.0	-0.8	9.6	6.2	2.8	5.6	6.8	8.2	Mar-99
Barclays Aggregate				-0.8	5.0	4.4	3.5	2.9	4.6	5.2	Mar-99
Barclays High Yield				0.4	15.6	10.1	4.6	7.2	7.6	7.0	Mar-99
Invesco Mortgage Fund	1,054,585	0.2		0.0	-22.4	-23.3	9.9	7.0	--	15.3	Apr-10
Barclays Aggregate				-0.8	5.0	4.4	3.5	2.9	4.6	3.9	Apr-10
Rhumblin TIPS	18,392,575	4.0	4.0	-0.4	--	--	--	--	--	2.2	Jun-16
Barclays US TIPS				-0.4	6.8	5.9	2.1	1.5	4.5	2.7	Jun-16
Total Hedge Fund	39,382,610	8.5	9.0	0.1	0.9	-0.5	1.0	3.9	2.8	2.9	Oct-06
PRIM Absolute Return Fund	18,008,846	3.9	5.0								
Permal Fixed Income Holdings	11,004,965	2.4	2.0	0.5	1.9	-0.3	0.8	4.1	--	4.4	Oct-11
HFRI Fund of Funds Composite Index				0.1	-0.1	-0.2	1.8	3.0	1.6	3.1	Oct-11
EnTrust	10,368,799	2.2	2.0								
HFRI Fund of Funds Composite Index				0.1	-0.1	-0.2	1.8	3.0	1.6	3.4	Jan-12
Other	3,676,325	0.8	0.0	0.0	0.0	0.0	0.2	0.1	--	0.1	Dec-10
Cash Account	3,676,325	0.8		0.0	0.0	0.0	0.2	0.1	1.0	1.9	Feb-00
91 Day T-Bills				0.0	0.2	0.3	0.1	0.1	0.7	1.6	Feb-00



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Total Real Estate	35,416,301	7.7	7.0	0.0	4.6	8.2	11.8	12.7	6.1	7.8	Apr-99
PRIT Core Real Estate	16,168,826	3.5									
Morgan Stanley Prime Property	7,581,325	1.6		0.0	6.7	10.0	13.4	13.5	6.5	8.8	Sep-95
Intercontinental Real Estate Investment Fund IV	38,555	0.0		0.0	-10.8	-15.5	11.0	6.1	-4.1	-5.7	Jun-05
Invesco Mortgage Recovery II (\$3M commitment in '15)	2,179,825	0.5		0.0	-2.7	-1.7	--	--	--	-1.6	Oct-15
Landmark VI (\$2m commitment in '11)	749,979	0.2		0.0	-0.7	0.6	10.6	14.2	--	13.8	Jul-11
Mesirow MFire Global (\$2m commitment in '11)	1,504,264	0.3		0.0	5.2	7.3	9.9	--	--	3.3	May-12
Cerberus (\$1.5m commitment in '12)	1,586,954	0.3		0.0	5.0	7.8	17.5	--	--	17.9	May-13
Realty Associates Fund X LP (\$3.5m commitment in '12)	3,278,837	0.7		0.0	4.7	8.6	12.7	--	--	10.5	May-13
TerraCap Partners III (Institutional), LP	2,327,736	0.5		0.0	-12.1	1.0	--	--	--	3.6	Jul-15
<i>NCREIF Property Index 1 Qtr Lag</i>				<i>0.0</i>	<i>7.3</i>	<i>10.6</i>	<i>11.6</i>	<i>11.5</i>	<i>7.4</i>	<i>10.4</i>	<i>Jul-15</i>
Total Private Equity	34,229,476	7.4	9.0	0.0	-3.9	-9.6	17.1	12.1	12.1	9.1	Apr-99
PRIM Vintage Year 2008 (\$3m commitment in '08)	1,774,870	0.4									
PRIM Vintage Year 2009 (\$1m commitment in '09)	285,896	0.1									
PRIM Vintage Year 2010 (\$1m commitment in '10)	798,443	0.2									
PRIM Vintage Year 2011 (\$1.5m commitment in '11)	1,294,768	0.3									
PRIM Vintage Year 2012 (\$1m commitment in '12)	554,752	0.1									
PRIM Vintage Year 2014 (\$2m commitment in '14)	644,000	0.1									
Alcentra European DLF (\$5m commitment in '14)	4,441,941	1.0		0.0	1.7	3.5	--	--	--	8.2	Jan-15
Ascent Fund II	214,216	0.0		0.0	118.9	148.8	73.6	40.2	26.5	20.3	Jan-99
Ascent Fund IV (\$2m commitment in '04)	219,071	0.0		0.0	-64.0	-71.8	-46.4	-30.5	-18.1	-15.0	Jul-04
Ascent Fund IV-B	1,493,650	0.3		0.0	--	--	--	--	--	0.0	Jul-16
Ascent Fund V (\$2m commitment in '08)	1,656,046	0.4		0.0	8.1	9.5	6.0	11.4	--	7.0	Oct-08
Ascent VI (\$3m commitment in '15)	1,014,055	0.2		0.0	-10.8	--	--	--	--	-18.2	Dec-15
Boston Capital	16,290	0.0		0.0	-1.3	-2.1	-9.7	-0.7	14.8	8.2	Apr-99
Castile Ventures III, L.P. (\$3m commitment in '07)	957,353	0.2		0.0	-3.8	-8.3	-11.2	-10.8	--	-10.2	Jan-08
Invesco Fund IV (\$3m commitment in '03)	917,451	0.2		0.0	2.6	4.5	11.7	11.4	14.2	10.4	Feb-04
Invesco Fund VI (\$5m commitment in '13)	4,215,839	0.9		0.0	-0.1	0.2	13.9	--	--	12.4	Jul-13
Kayne Energy Fund VII (\$5m commitment in '15)	2,322,385	0.5		0.0	-2.3	--	--	--	--	-2.3	Jan-16
Foundry 2007 (\$3m commitment in '07)	3,605,170	0.8		0.0	-27.8	-40.7	47.7	21.0	--	37.2	Dec-07
Foundry 2010 (\$3m commitment in '10)	3,458,565	0.8		0.0	-0.8	-4.4	6.0	14.5	--	9.5	Jan-11
Foundry 2010 Annex	212,246	0.0		0.0	-8.9	-14.3	--	--	--	-12.6	Sep-15
Pinebridge PEP V (\$6m commitment in '07)	3,328,533	0.7		0.0	9.4	9.0	21.7	16.3	--	7.8	Mar-08
Landmark XV (\$3m commitment in '13)	803,937	0.2		0.0	2.6	-1.9	13.3	--	--	13.3	Nov-13

Notes

- 1 - Results for periods longer than one year are annualized.
- 2 - Total Balanced, Large Cap, Small Cap, and Other Composite performance starts 12/1/2010.
- 3 - Market values for Real Estate managers are as of 06/30/2016 and are adjusted for cash flows except Mesirow MFIRE which is valued as of 03/31/2016, Morgan Stanley Prime Property value is estimated as of 09/30/2016, PRIT Core Real Estate, Cerberus, and Intercontinental are valued as of 09/30/2016.
- 4 - Preliminary Total Composite gross of fee since inception return is 8.4% for the current month.
- 5 - Market values for the following private equity managers Private Equity managers are as of 06/30/2016 and are adjusted for cash flows: Alcentra DLF, Ascent IV, Invesco IV, Invesco VI, Kayne Anderson VII, and Landmark XV. Boston Capital and Pinebridge PEP V accounts are as of 03/31/2016, adjusted for cash flows. Ascent II, Ascent IV-B, Ascent V, Ascent VI, Castile III, Foundry 2007, Foundry 2010, Foundry 2010 Annex, PRIM accounts are valued as of 09/30/2016.

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.
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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.
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