

MWRA Employees' Retirement System

Total Fund Performance Detail (Net)

September 30, 2017

| | Market Value (\$) | % of Portfolio | Policy % | 1 Mo (%) | 3 Mo (%) | YTD (%) | 1 Yr (%) | 3 Yrs (%) | 5 Yrs (%) | 10 Yrs (%) | Return (%) | Since |
|--|----------------------|-------------------|--------------|-------------|-------------|-------------|-------------|--------------|--------------|---------------|---------------|---------------|
| Composite | 513,904,739 | 100.0 | 100.0 | 1.2 | 3.2 | 11.1 | 11.3 | 6.0 | 8.0 | 5.7 | 6.9 | Jan-86 |
| <i>Allocation Index</i> | | | | 1.1 | 3.5 | 10.9 | 11.3 | 6.7 | 8.0 | 5.0 | -- | Jan-86 |
| <i>Policy Index</i> | | | | 1.1 | 3.5 | 11.3 | 11.8 | 6.9 | 8.1 | 5.4 | -- | Jan-86 |
| Total Balanced | 73,409,402 | 14.3 | 15.0 | 0.7 | 3.1 | 10.5 | 10.4 | 3.5 | 4.5 | -- | 4.5 | Dec-10 |
| PRIT Core Fund | 3,460,916 | 0.7 | | 1.6 | 3.9 | 12.9 | 12.5 | 7.6 | 9.3 | 4.8 | 6.7 | Apr-99 |
| Wellington Opportunistic Investment | 25,382,951 | 4.9 | 5.0 | 0.9 | 3.8 | 14.6 | 14.2 | 6.5 | 6.9 | -- | 8.9 | Nov-08 |
| <i>65% MSCI ACWI (Net) / 35% BBgBarc Aggregate</i> | | | | 1.1 | 3.7 | 12.1 | 11.8 | 5.9 | 7.4 | 4.4 | 8.9 | Nov-08 |
| PIMCO All Asset | 26,155,801 | 5.1 | 5.0 | -0.1 | 3.2 | 10.5 | 10.2 | 3.5 | 3.6 | -- | 8.7 | Dec-08 |
| <i>PIMCO All Asset Index</i> | | | | -0.1 | 1.4 | 4.6 | 2.9 | 3.8 | 3.3 | 5.1 | 6.8 | Dec-08 |
| William Blair | 18,409,733 | 3.6 | 5.0 | 1.2 | 1.9 | 4.8 | 5.6 | -- | -- | -- | -1.5 | Mar-15 |
| <i>60% MSCI ACWI (Net) / 40% CITI WGBI</i> | | | | 0.7 | 3.8 | 12.8 | 9.7 | 4.9 | 6.0 | 3.9 | 5.2 | Mar-15 |
| <i>BofA Merrill Lynch 91-Day T-Bill</i> | | | | 0.1 | 0.3 | 0.6 | 0.7 | 0.3 | 0.2 | 0.5 | 0.4 | Mar-15 |
| Total Domestic Equity | 120,428,580 | 23.4 | 21.0 | 3.0 | 4.4 | 14.5 | 18.0 | 9.7 | 13.0 | 7.7 | 6.5 | May-99 |
| Large Cap | 85,561,395 | 16.6 | 15.0 | 2.1 | 4.0 | 14.6 | 16.9 | 9.1 | 12.9 | -- | 12.9 | Dec-10 |
| Rhumblin Advisors S&P 500 Index Fund | 37,316,609 | 7.3 | 7.0 | 2.1 | 4.5 | 14.2 | 18.5 | 10.7 | 14.1 | 7.4 | 8.1 | Apr-97 |
| <i>S&P 500</i> | | | | 2.1 | 4.5 | 14.2 | 18.6 | 10.8 | 14.2 | 7.4 | 8.0 | Apr-97 |
| Coho Relative Value Equity | 23,418,683 | 4.6 | 4.0 | 3.7 | 3.4 | 9.3 | 10.8 | -- | -- | -- | 12.1 | Mar-16 |
| <i>Russell 1000 Value</i> | | | | 3.0 | 3.1 | 7.9 | 15.1 | 8.5 | 13.2 | 5.9 | 20.1 | Mar-16 |
| Polen Focused Growth | 24,826,102 | 4.8 | 4.0 | 0.8 | 3.9 | 21.0 | 20.0 | -- | -- | -- | 15.3 | Feb-16 |
| <i>Russell 1000 Growth</i> | | | | 1.3 | 5.9 | 20.7 | 21.9 | 12.7 | 15.3 | 9.1 | 20.7 | Feb-16 |
| Small Cap | 34,867,186 | 6.8 | 6.0 | 5.4 | 5.2 | 14.1 | 21.7 | 11.5 | 13.6 | -- | 13.4 | Dec-10 |
| Robeco Boston Partners Small Cap Value | 16,879,701 | 3.3 | 3.0 | 6.1 | 3.9 | 7.0 | 18.4 | 10.0 | 12.8 | 9.0 | 11.3 | Feb-97 |
| <i>Russell 2000 Value</i> | | | | 7.1 | 5.1 | 5.7 | 20.5 | 12.1 | 13.3 | 7.1 | 9.6 | Feb-97 |
| Loomis Sayles Small Cap Growth | 17,987,484 | 3.5 | 3.0 | 4.7 | 6.4 | 21.7 | 24.7 | 12.7 | 14.4 | 9.2 | 5.9 | Jan-97 |
| <i>Russell 2000 Growth</i> | | | | 5.4 | 6.2 | 16.8 | 21.0 | 12.2 | 14.3 | 8.5 | 6.9 | Jan-97 |



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|------------------------------------|--------------------|----------------|-------------|-------------|------------|-------------|-------------|------------|------------|------------|------------|---------------|
| Total Non-US Equity | 102,882,871 | 20.0 | 19.0 | 1.7 | 6.7 | 24.8 | 20.2 | 4.4 | 7.9 | 0.7 | 4.7 | Mar-99 |
| International Equity | 79,805,401 | 15.5 | 15.0 | 2.5 | 6.7 | 23.9 | 19.7 | 4.8 | 8.1 | -- | -- | Sep-05 |
| SEG Baxter Street | 28,243,405 | 5.5 | 5.0 | 1.7 | 5.3 | 22.2 | 18.5 | -- | -- | -- | 17.8 | May-16 |
| MSCI ACWI ex USA | | | | 1.9 | 6.2 | 21.1 | 19.6 | 4.7 | 7.0 | 1.3 | 16.3 | May-16 |
| Schroder International Alpha Fund | 28,520,589 | 5.5 | 5.0 | 2.9 | 8.0 | 25.5 | 20.9 | 5.9 | 8.6 | -- | 7.2 | Mar-12 |
| MSCI ACWI ex USA | | | | 1.9 | 6.2 | 21.1 | 19.6 | 4.7 | 7.0 | 1.3 | 5.8 | Mar-12 |
| LMCG Small Cap International | 23,041,407 | 4.5 | 5.0 | 3.0 | -- | -- | -- | -- | -- | -- | 4.7 | Aug-17 |
| MSCI EAFE Small Cap | | | | 2.9 | 7.5 | 25.4 | 21.8 | 11.1 | 12.8 | 4.6 | 3.7 | Aug-17 |
| Emerging Markets Equity | 23,077,470 | 4.5 | 4.0 | -0.8 | 6.6 | 27.1 | 21.4 | 3.1 | -- | -- | 2.6 | Nov-13 |
| MSCI Emerging Markets | | | | -0.4 | 7.9 | 27.8 | 22.5 | 4.9 | 4.0 | 1.3 | 3.6 | Nov-13 |
| LMCG Emerging Markets | 23,077,470 | 4.5 | 4.0 | -0.8 | 6.6 | 27.1 | 21.4 | 3.1 | -- | -- | 2.7 | Dec-13 |
| MSCI Emerging Markets | | | | -0.4 | 7.9 | 27.8 | 22.5 | 4.9 | 4.0 | 1.3 | 4.1 | Dec-13 |
| Total Fixed Income | 113,851,553 | 22.2 | 22.0 | 0.0 | 1.3 | 4.9 | 3.2 | 2.9 | 3.9 | 6.0 | 6.9 | Mar-99 |
| Invesco Core Bonds | 41,607,521 | 8.1 | 9.0 | -0.2 | 1.1 | 4.1 | 1.7 | 3.4 | 3.0 | 5.1 | 5.3 | Dec-98 |
| BBgBarc US Aggregate TR | | | | -0.5 | 0.8 | 3.1 | 0.1 | 2.7 | 2.1 | 4.3 | 4.8 | Dec-98 |
| Loomis Sayles - Multi Sector Bonds | 44,516,573 | 8.7 | 8.0 | 0.5 | 1.7 | 7.5 | 7.0 | 3.3 | 5.0 | 6.7 | 8.2 | Mar-99 |
| BBgBarc US Aggregate TR | | | | -0.5 | 0.8 | 3.1 | 0.1 | 2.7 | 2.1 | 4.3 | 4.9 | Mar-99 |
| BBgBarc US High Yield TR | | | | 0.9 | 2.0 | 7.0 | 8.9 | 5.8 | 6.4 | 7.8 | 7.1 | Mar-99 |
| Invesco Mortgage Fund | 313,824 | 0.1 | | 0.0 | 0.0 | -2.1 | -9.3 | 9.1 | 8.6 | -- | 15.8 | Apr-10 |
| BBgBarc US Aggregate TR | | | | -0.5 | 0.8 | 3.1 | 0.1 | 2.7 | 2.1 | 4.3 | 3.6 | Apr-10 |
| Rhumbline TIPS | 27,413,635 | 5.3 | 5.0 | -0.6 | 0.9 | 1.7 | -0.7 | -- | -- | -- | 1.4 | Jun-16 |
| BBgBarc US TIPS TR | | | | -0.6 | 0.9 | 1.7 | -0.7 | 1.6 | 0.0 | 3.9 | 1.7 | Jun-16 |



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|--|----------------------|-------------------|------------|-------------|-------------|------------|-------------|--------------|--------------|---------------|---------------|---------------|
| Total Hedge Fund | 23,814,289 | 4.6 | 5.0 | 0.5 | 0.8 | 3.6 | 5.8 | 0.7 | 4.1 | 2.2 | 3.2 | Oct-06 |
| PRIM Absolute Return Fund | 13,258,330 | 2.6 | 5.0 | 0.5 | 1.7 | 5.3 | 8.0 | 2.9 | 5.6 | 3.0 | 3.9 | Oct-06 |
| EnTrust | 10,555,959 | 2.1 | 2.0 | 0.4 | -0.2 | 1.6 | 1.9 | -2.9 | 1.6 | -- | 2.0 | Jan-12 |
| <i>HFRI Fund of Funds Composite Index</i> | | | | <i>0.5</i> | <i>2.3</i> | <i>5.6</i> | <i>6.5</i> | <i>2.2</i> | <i>3.9</i> | <i>1.1</i> | <i>4.0</i> | <i>Jan-12</i> |
| Other | 9,123,441 | 1.8 | 0.0 | 0.0 | 0.0 | 0.6 | 0.6 | 0.3 | 0.2 | -- | 0.2 | Dec-10 |
| Cash Account | 9,123,441 | 1.8 | | 0.0 | 0.0 | 0.6 | 0.6 | 0.3 | 0.2 | 0.6 | 1.9 | Feb-00 |
| <i>91 Day T-Bills</i> | | | | <i>0.1</i> | <i>0.3</i> | <i>0.6</i> | <i>0.7</i> | <i>0.3</i> | <i>0.2</i> | <i>0.4</i> | <i>1.6</i> | <i>Feb-00</i> |
| Total Real Estate | 34,360,884 | 6.7 | 8.0 | 0.3 | 0.7 | 4.6 | 7.1 | 10.7 | 12.1 | 5.6 | 7.8 | Apr-99 |
| PRIT Core Real Estate (\$10.9m commitment in '10) | 17,005,856 | 3.3 | | 0.5 | 1.5 | 5.8 | 5.2 | 10.0 | 10.5 | -- | 11.7 | Jul-10 |
| Morgan Stanley Prime Property (\$2.8m commitment in '95) | 8,086,494 | 1.6 | | 0.0 | 0.0 | 4.2 | 6.7 | 11.1 | 12.4 | 5.4 | 8.7 | Sep-95 |
| Intercontinental Real Estate Investment Fund IV (\$2m commitment in '05) | 37,484 | 0.0 | | -0.2 | -0.2 | -2.6 | -2.8 | 6.7 | 6.0 | -3.9 | -5.5 | Jun-05 |
| Invesco Mortgage Recovery II (\$3M commitment in '15) | 1,112,615 | 0.2 | | 0.0 | 0.0 | 4.0 | 17.3 | -- | -- | -- | 10.5 | Oct-15 |
| Landmark VI (\$2m commitment in '11) | 402,342 | 0.1 | | 0.0 | 0.0 | 0.3 | -1.0 | 4.0 | 10.6 | -- | 11.6 | Jul-11 |
| Mesirow MFire Global (\$2m commitment in '11) | 1,272,386 | 0.2 | | 0.0 | 0.0 | 3.6 | 4.7 | 9.5 | 10.2 | -- | 4.7 | May-12 |
| Cerberus (\$1.5m commitment in '12) | 1,185,279 | 0.2 | | 0.0 | 0.0 | -4.2 | -1.1 | 10.2 | -- | -- | 13.6 | May-13 |
| TA Realty Fund X LP (\$3.5m commitment in '12) | 2,598,892 | 0.5 | | 0.0 | 0.0 | 6.4 | 0.6 | 8.7 | -- | -- | 8.9 | May-13 |
| TerraCap Partners III, LP (\$2.6m commitment in '15) | 2,659,536 | 0.5 | | 0.0 | 0.0 | 1.7 | 27.0 | -- | -- | -- | 16.8 | Jul-15 |
| <i>NCREIF Property Index</i> | | | | <i>0.0</i> | <i>0.0</i> | <i>3.3</i> | <i>5.1</i> | <i>9.2</i> | <i>10.0</i> | <i>6.0</i> | <i>7.8</i> | <i>Jul-15</i> |



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|---|----------------------|-------------------|-------------|-------------|-------------|-------------|-------------|--------------|--------------|---------------|---------------|---------------|
| Total Private Equity | 36,033,718 | 7.0 | 10.0 | 0.9 | 1.0 | 5.1 | 4.0 | 13.3 | 13.8 | 10.6 | 8.9 | Apr-99 |
| PRIM Vintage Year 2008 (\$3m commitment in '08) | 1,594,287 | 0.3 | | 8.8 | 10.1 | 29.8 | 36.1 | 20.8 | 22.1 | -- | 7.5 | Jun-08 |
| PRIM Vintage Year 2009 (\$1m commitment in '09) | 259,588 | 0.1 | | 3.8 | 4.0 | 10.8 | 15.3 | 19.5 | 20.5 | -- | 4.5 | Nov-09 |
| PRIM Vintage Year 2010 (\$1m commitment in '10) | 788,830 | 0.2 | | 5.8 | 6.0 | 15.4 | 20.9 | 17.9 | 19.2 | -- | 6.2 | Jun-10 |
| PRIM Vintage Year 2011 (\$1.5m commitment in '11) | 1,266,969 | 0.2 | | 3.6 | 3.5 | 18.7 | 23.0 | 23.6 | 18.6 | -- | -0.7 | May-11 |
| PRIM Vintage Year 2012 (\$1m commitment in '12) | 679,622 | 0.1 | | 5.6 | 7.7 | 21.7 | 26.0 | 14.5 | 15.6 | -- | -27.3 | Jun-12 |
| PRIM Vintage Year 2014 (\$2m commitment in '14) | 1,160,957 | 0.2 | | 6.0 | 4.7 | 16.0 | 20.7 | 7.2 | -- | -- | -12.2 | Jun-14 |
| PRIM Vintage Year 2017 (\$2m commitment in '17) | 53,116 | 0.0 | | 0.0 | -1.0 | -- | -- | -- | -- | -- | -1.0 | May-17 |
| Alcentra European DLF (\$5m commitment in '14) | 3,510,727 | 0.7 | | 0.0 | 0.0 | 4.5 | 6.7 | -- | -- | -- | 8.1 | Jan-15 |
| Ascent Fund II (\$0.8m commitment in '99) | 9,715 | 0.0 | | 0.0 | 0.0 | 15.9 | 15.4 | 59.8 | 42.7 | 26.4 | 20.1 | Jan-99 |
| Ascent Fund IV (\$2m commitment in '04) | 324,211 | 0.1 | | 0.0 | 0.0 | 23.1 | 49.3 | -38.6 | -23.2 | -13.7 | -11.5 | Jul-04 |
| Ascent Fund IV-B (\$1m commitment in '16) | 1,660,188 | 0.3 | | 0.0 | 0.0 | 7.1 | 8.7 | -- | -- | -- | 6.9 | Jul-16 |
| Ascent Fund V (\$2m commitment in '08) | 1,862,921 | 0.4 | | 0.0 | 0.0 | 0.8 | 3.6 | 3.8 | 7.0 | -- | 7.4 | Oct-08 |
| Ascent VI (\$3m commitment in '15) | 1,333,513 | 0.3 | | 0.0 | 0.0 | 2.4 | 10.8 | -- | -- | -- | -5.2 | Dec-15 |
| Boston Capital (\$0.8m commitment in '99) | 16,290 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | -2.7 | -7.4 | 6.1 | 7.8 | Apr-99 |
| Castile Ventures III, L.P. (\$3m commitment in '07) | 645,212 | 0.1 | | 0.0 | 0.0 | -21.6 | -32.6 | -20.8 | -17.2 | -- | -12.9 | Jan-08 |
| Invesco Fund IV (\$3m commitment in '03) | 713,122 | 0.1 | | 0.0 | 0.0 | 6.1 | 0.8 | 6.2 | 11.7 | 10.5 | 10.1 | Feb-04 |
| Invesco Fund VI (\$5m commitment in '13) | 5,224,931 | 1.0 | | 0.0 | 0.0 | 5.4 | 9.5 | 13.4 | -- | -- | 12.9 | Jul-13 |
| Kayne Energy Fund VII (\$5m commitment in '15) | 3,350,135 | 0.7 | | 0.0 | 0.0 | 6.7 | 11.7 | -- | -- | -- | 22.1 | Jan-16 |
| Foundry 2007 (\$3m commitment in '07) | 1,912,558 | 0.4 | | 0.0 | 0.0 | -2.2 | -27.9 | 23.4 | 21.1 | -- | 28.9 | Dec-07 |
| Foundry 2010 (\$3m commitment in '10) | 3,055,868 | 0.6 | | 0.0 | 0.0 | -2.7 | -5.2 | -1.2 | 6.6 | -- | 6.0 | Jan-11 |
| Foundry 2010 Annex (\$0.4m commitment in '15) | 237,803 | 0.0 | | 0.0 | 0.0 | -3.0 | -0.5 | -- | -- | -- | -7.5 | Sep-15 |
| Pinebridge PEP V (\$6m commitment in '07) | 2,052,709 | 0.4 | | 0.0 | 0.0 | 4.7 | 0.5 | 12.6 | 13.2 | -- | 6.0 | Mar-08 |
| Landmark XV (\$3m commitment in '13) | 1,117,726 | 0.2 | | 0.0 | 0.0 | 3.7 | 10.3 | 4.5 | -- | -- | 13.5 | Nov-13 |
| JFL Equity Investors IV, L.P. (\$6m commitment in '16) | 2,120,415 | 0.4 | | 0.0 | 0.0 | -2.0 | -- | -- | -- | -- | -2.0 | Jan-17 |
| Private Advisors Small Co. Coinvestment Fund, LP (\$4m commitment in '17) | 1,082,306 | 0.2 | | 0.0 | 0.0 | -- | -- | -- | -- | -- | 3.9 | Feb-17 |
| <i>NASDAQ W/O Income</i> | | | | <i>1.0</i> | <i>5.8</i> | <i>20.7</i> | <i>22.3</i> | <i>13.1</i> | <i>15.8</i> | <i>9.2</i> | <i>15.7</i> | <i>Feb-17</i> |



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 06/30/2017 and are adjusted for cash flows except for Intercontinental Real Estate IV and PRIT Core Real Estate which is valued as of 09/30/2017.
- 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 PRIM accounts which are valued as of 09/30/2017.
- 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.
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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.

