

# OCTOBER PERFORMANCE REPORT

## MWRA EMPLOYEES' RETIREMENT SYSTEM

December, 2018

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BOSTON | ATLANTA | CHARLOTTE | CHICAGO | DETROIT | LAS VEGAS | PORTLAND | SAN FRANCISCO

# GOALS & OBJECTIVES

## Investment Return Objective

“Its primary goal is to provide promised benefits to participants and beneficiaries of the MWRA Employees’ Retirement system. Plan assets should be equal to or greater than the present value of the projected benefit obligations (“fully funded”). When Plan assets are less than the present value of projected benefit obligations, a schedule will be established and a plan will be in place to meet a fully funded status. When achieving return objectives required to fully fund the system, the Board is intent on controlling risk. Consistency of returns and risk of loss are primary considerations. The Board has also determined that the annual performance of plan assets should not vary substantially from returns achieved by other public pension funds with similar goals and objectives.”

## Return Expectations

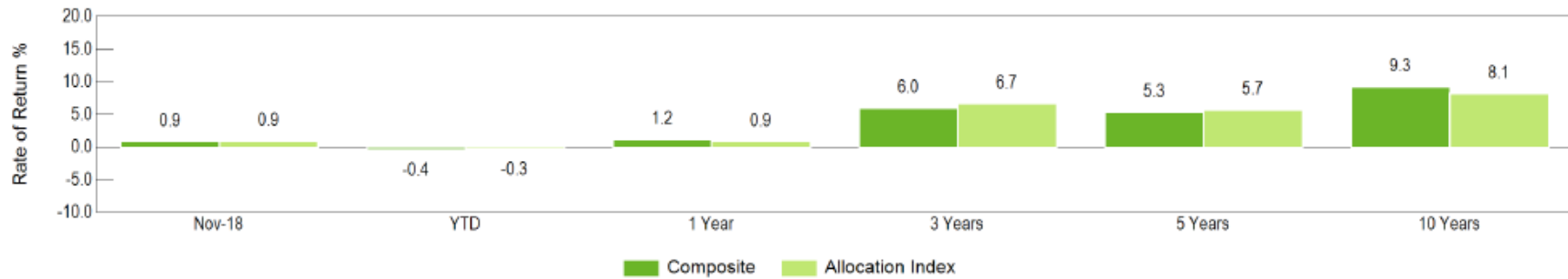
The investment growth should be maintained in such a manner that the minimum nominal rate of return does not cause a negative real rate of return over a full market cycle:

- **Time Horizon:** Return assumptions will be based on a ten year time horizon with a detailed review and analysis to be made at least annually to monitor allocations and assumptions. Should a manager deviate from proscribed mandate or expected risk and return profile by a consequential degree, that manager may be reevaluated at any time.
- **Liquidity Needs:** Presently contributions exceed plan withdrawals to provide benefits, payouts, and/or plan expenses. Portfolio liquidity will be managed based on the cash flow needs of the System.
- **Regulatory Considerations:** Assets of this Fund shall be invested in a manner consistent with the fiduciary standards established under Code of Massachusetts Regulations 840 (“840 CMR”). The Board shall also use as precedent the Employee Retirement Income Security Act (ERISA).

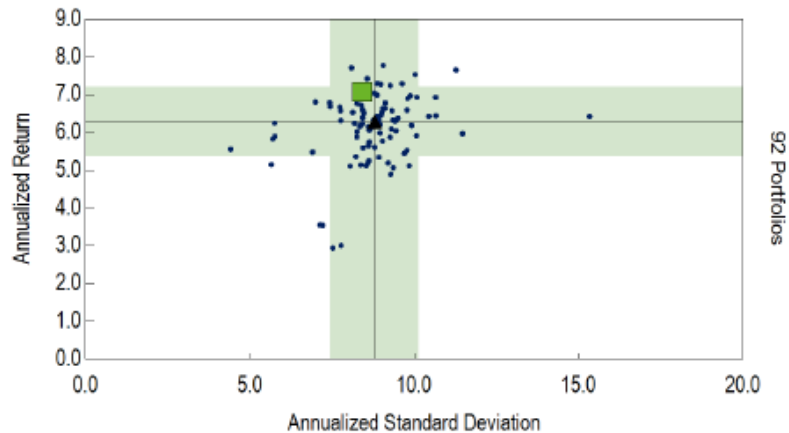


# EXECUTIVE SUMMARY

## Return Summary Ending November 30, 2018



## 20 Years Ending November 30, 2018



## 20 Years Ending November 30, 2018

	Anlzd Ret	Anlzd Std Dev
Composite	6.7%	8.3%
Allocation Index	5.7%	7.9%
InvestorForce Public DB Net Median	5.8%	8.7%

## Performance

- The Portfolio, allocation index and policy index all performed in line for November returning 0.9%.
- Domestic and International markets broadly rallied during the month of November after a challenging month in October. Domestic equities in the portfolio returned 2.3% while the S&P 500 returned 2.0%. International equity returned 0.4% while the benchmark returned 0.9% for the month. Emerging markets saw positive returns and the portfolio performed in line with the benchmark returning 4.1%. Fixed income had relatively muted performance returning 0.1% for November.
- This brings the year-to-date performance to -0.4% while the allocation and policy index returned -0.3% for the same period.

20 year Risk/Return is as of 9/30/2018. Chart reflect universe data on quarter end months only.



# LOOMIS SAYLES SMALL CAP GROWTH

Loomis Sayles Small Cap Growth Performance Attribution vs. Russell 2000 Growth								
	Attribution Effects				Returns		Sector Weights	
	Total Effects	Selection Effect	Allocation Effect	Interaction Effects	Portfolio	Benchmark	Portfolio	Benchmark
Energy	0.33%	0.33%	-0.09%	0.09%	7.69%	-8.28%	2.16%	1.39%
Materials	0.99%	1.92%	0.52%	-1.45%	44.57%	1.32%	0.93%	4.62%
Industrials	0.23%	0.22%	0.15%	-0.14%	2.38%	1.91%	18.74%	18.39%
Consumer Discretionary	1.91%	1.86%	-0.03%	0.09%	25.62%	12.35%	14.60%	14.05%
Consumer Staples	0.02%	0.19%	0.00%	-0.17%	20.86%	16.10%	0.74%	2.76%
Health Care	4.86%	5.04%	-0.07%	-0.10%	48.09%	25.83%	22.60%	23.83%
Financials	-0.44%	-0.13%	-0.21%	-0.10%	5.85%	8.02%	10.13%	6.08%
Information Technology	0.40%	0.25%	0.20%	-0.04%	29.61%	29.46%	24.45%	23.76%
Communication Services	-0.09%	-0.00%	-0.01%	-0.00%	0.16%	23.95%	1.86%	1.01%
Utilities	0.12%	--	0.12%	--	--	-0.04%	0.00%	0.76%
Real Estate	0.41%	--	0.41%	--	--	2.67%	0.00%	3.35%
Cash	-0.65%	0.00%	-0.65%	0.00%	1.34%	--	3.81%	0.00%
<b>Portfolio</b>	<b>8.10%</b>	<b>= 9.62%</b>	<b>+ 0.34%</b>	<b>+ -1.85%</b>	<b>24.05%</b>	<b>15.95%</b>	<b>100.00%</b>	<b>100.00%</b>

\*Performance is YTD as of 9/30/2018



# ROBECO BOSTON PARTNERS SMALL CAP VALUE

Robeco Boston Partners Small Cap Value Performance Attribution vs. Russell 2000 Value								
	Attribution Effects				Returns		Sector Weights	
	Total Effects	Selection Effect	Allocation Effect	Interaction Effects	Portfolio	Benchmark	Portfolio	Benchmark
Energy	-0.88%	-0.93%	0.36%	-0.31%	5.66%	7.93%	7.20%	6.48%
Materials	-1.12%	-0.56%	0.04%	-0.59%	-3.10%	1.48%	8.68%	4.49%
Industrials	0.04%	0.00%	0.07%	-0.04%	7.33%	9.09%	18.11%	12.15%
Consumer Discretionary	-1.11%	-1.39%	-0.03%	0.31%	-4.24%	8.61%	9.96%	10.98%
Consumer Staples	0.31%	0.24%	0.25%	-0.18%	-5.20%	-7.27%	0.74%	2.78%
Health Care	0.37%	0.25%	0.08%	0.04%	20.73%	24.67%	4.93%	6.22%
Financials	-1.55%	-1.24%	-0.09%	-0.22%	1.45%	5.50%	34.04%	30.45%
Information Technology	-0.09%	0.15%	-0.22%	-0.01%	1.89%	5.08%	12.88%	9.00%
Communication Services	-0.19%	--	-0.19%	--	--	32.76%	0.00%	0.50%
Utilities	0.03%	0.17%	0.02%	-0.16%	4.75%	5.77%	0.31%	6.54%
Real Estate	0.16%	-2.08%	0.45%	1.80%	-11.91%	4.19%	0.62%	10.40%
Cash	-0.18%	0.00%	-0.18%	0.00%	0.75%	--	2.54%	0.00%
Portfolio	-4.21% =	-5.41%	+ 0.57%	+ 0.63%	2.72%	6.93%	100.00%	100.00%

\*Performance is YTD as of 9/30/2018



## MWRA Employees' Retirement System

# TOTAL FUND PERFORMANCE DETAIL (NET)

	Market Value (\$)	% of Portfolio	Policy %	1 Mo (%)	YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
<b>Composite</b>	<b>526,331,980</b>	<b>100.0</b>	<b>100.0</b>	<b>0.9</b>	<b>-0.4</b>	<b>1.2</b>	<b>6.0</b>	<b>5.3</b>	<b>9.3</b>	<b>6.7</b>	<b>Jan-86</b>
Allocation Index				0.9	-0.3	0.9	6.7	5.7	8.1	--	Jan-86
Policy Index				0.9	-0.3	1.2	7.0	5.8	8.8	--	Jan-86
<b>Total Balanced</b>	<b>73,386,657</b>	<b>13.9</b>	<b>15.0</b>	<b>0.9</b>	<b>-4.8</b>	<b>-3.6</b>	<b>4.4</b>	<b>2.3</b>	<b>--</b>	<b>3.5</b>	<b>Dec-10</b>
PRIT Core Fund	3,585,083	0.7		0.0	-0.3	1.5	7.7	6.8	9.0	6.5	Apr-99
Wellington Opportunistic Investment 65% MSCI ACWI (Net) / 35% BBgBarc Aggregate	23,664,872	4.5	5.0	0.8	-9.4	-8.6	3.7	3.0	7.4	7.1	Nov-08
PIMCO All Asset PIMCO All Asset Index	23,892,975	4.5	5.0	0.9	-3.9	-2.2	6.9	2.7	7.6	7.6	Dec-08
William Blair 60% MSCI ACWI (Net) / 40% FTSE WGBI ICE BofAML 91 Days T-Bills TR	22,243,726	4.2	5.0	1.2	-1.1	-0.5	1.2	--	--	-1.2	Mar-15
				1.1	-2.7	-1.7	6.1	3.8	7.3	3.8	Mar-15
				0.2	1.7	1.8	1.0	0.6	0.4	0.8	Mar-15
<b>Total Domestic Equity</b>	<b>113,767,145</b>	<b>21.6</b>	<b>21.0</b>	<b>2.3</b>	<b>7.6</b>	<b>8.3</b>	<b>10.9</b>	<b>9.6</b>	<b>14.6</b>	<b>6.8</b>	<b>May-99</b>
Russell 3000				2.0	4.5	5.5	11.8	10.6	14.5	6.2	May-99
<b>Large Cap</b>	<b>80,722,811</b>	<b>15.3</b>	<b>15.0</b>	<b>2.6</b>	<b>8.9</b>	<b>10.1</b>	<b>11.1</b>	<b>10.4</b>	<b>--</b>	<b>13.0</b>	<b>Dec-10</b>
Rhumblin Advisors S&P 500 Index Fund S&P 500	35,591,190	6.8	7.0	2.0	5.0	6.2	12.0	11.0	14.2	8.2	Apr-97
				2.0	5.1	6.3	12.2	11.1	14.3	8.2	Apr-97
Coho Relative Value Equity Russell 1000 Value	22,862,475	4.3	4.0	3.7	7.7	10.0	--	--	--	12.9	Mar-16
				3.0	1.5	3.0	9.8	8.7	12.5	13.8	Mar-16
Polen Focused Growth Russell 1000 Growth	22,269,146	4.2	4.0	2.3	16.5	16.8	--	--	--	16.7	Feb-16
				1.1	7.8	8.6	14.0	13.0	16.5	17.8	Feb-16
<b>Small Cap</b>	<b>33,044,334</b>	<b>6.3</b>	<b>6.0</b>	<b>1.4</b>	<b>4.6</b>	<b>4.2</b>	<b>10.9</b>	<b>8.0</b>	<b>--</b>	<b>12.5</b>	<b>Dec-10</b>
Robeco Boston Partners Small Cap Value Russell 2000 Value	16,579,078	3.1	3.0	0.4	-5.9	-5.9	7.1	5.4	14.5	10.5	Feb-97
				1.6	-0.9	-1.8	10.1	6.7	12.5	9.1	Feb-97
Loomis Sayles Small Cap Growth Russell 2000 Growth	16,465,256	3.1	3.0	2.5	15.0	14.1	14.2	10.4	17.6	6.5	Jan-97
				1.6	2.7	2.8	10.0	8.2	15.5	6.8	Jan-97



## MWRA Employees' Retirement System

# TOTAL FUND PERFORMANCE DETAIL (NET)

	Market Value (\$)	% of Portfolio	Policy %	1 Mo (%)	YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
<b>Total Non-US Equity</b>	<b>103,094,148</b>	<b>19.6</b>	<b>19.0</b>	<b>1.3</b>	<b>-9.8</b>	<b>-8.0</b>	<b>5.6</b>	<b>1.4</b>	<b>6.1</b>	<b>4.1</b>	<b>Mar-99</b>
<b>International Equity</b>	<b>78,379,285</b>	<b>14.9</b>	<b>15.0</b>	<b>0.4</b>	<b>-8.4</b>	<b>-7.0</b>	<b>5.1</b>	<b>1.8</b>	<b>--</b>	<b>--</b>	<b>Sep-05</b>
SEG Baxter Street	27,897,480	5.3	5.0	0.7	-3.2	-2.0	--	--	--	8.9	May-16
MSCI ACWI ex USA				0.9	-10.1	-8.1	5.4	1.8	7.7	6.2	May-16
Schroder International Alpha Fund	24,591,888	4.7	5.0	1.8	-7.0	-5.9	5.6	2.9	--	5.3	Mar-12
MSCI ACWI ex USA				0.9	-10.1	-8.1	5.4	1.8	7.7	3.9	Mar-12
LMCG Small Cap International	25,889,916	4.9	5.0	-1.2	-14.4	-12.7	--	--	--	-4.0	Aug-17
MSCI EAFE Small Cap				-0.7	-12.2	-9.9	6.3	4.9	12.0	-2.6	Aug-17
<b>Emerging Markets Equity</b>	<b>24,714,863</b>	<b>4.7</b>	<b>4.0</b>	<b>4.1</b>	<b>-14.1</b>	<b>-10.9</b>	<b>6.9</b>	<b>0.4</b>	<b>--</b>	<b>0.4</b>	<b>Nov-13</b>
MSCI Emerging Markets				4.1	-12.2	-9.1	9.4	1.9	9.1	1.6	Nov-13
LMCG Emerging Markets	24,714,863	4.7	4.0	4.1	-14.1	-10.9	6.9	0.4	--	0.4	Dec-13
MSCI Emerging Markets				4.1	-12.2	-9.1	9.4	1.9	9.1	1.9	Dec-13
<b>Total Fixed Income</b>	<b>113,708,271</b>	<b>21.6</b>	<b>22.0</b>	<b>0.1</b>	<b>-1.8</b>	<b>-1.1</b>	<b>3.2</b>	<b>2.7</b>	<b>7.6</b>	<b>6.4</b>	<b>Mar-99</b>
Loomis Sayles - Multi Sector Bonds	40,017,475	7.6	8.0	-0.6	-2.0	-1.5	4.7	3.0	9.2	7.7	Mar-99
BBgBarc US Aggregate TR				0.6	-1.8	-1.3	1.3	2.0	3.7	4.6	Mar-99
BBgBarc US High Yield TR				-0.9	0.1	0.4	7.1	4.4	12.2	6.7	Mar-99
Rhumbline TIPS	31,186,697	5.9	6.0	0.4	-2.0	-1.1	--	--	--	0.4	Jun-16
BBgBarc US TIPS TR				0.5	-1.8	-0.9	1.7	1.3	4.1	0.7	Jun-16
Lord Abbett Core Fixed Income	12,091,528	2.3		0.5	--	--	--	--	--	-0.4	Apr-18
BBgBarc US Aggregate TR				0.6	-1.8	-1.3	1.3	2.0	3.7	-0.3	Apr-18
Garcia Hamilton Fixed Income Aggregate	30,126,627	5.7		0.5	--	--	--	--	--	0.3	Apr-18
BBgBarc US Aggregate TR				0.6	-1.8	-1.3	1.3	2.0	3.7	-0.3	Apr-18
Invesco Mortgage Fund	285,944	0.1		0.0	13.4	19.0	0.2	11.7	--	14.9	Apr-10
BBgBarc US Aggregate TR				0.6	-1.8	-1.3	1.3	2.0	3.7	2.9	Apr-10



## MWRA Employees' Retirement System

# TOTAL FUND PERFORMANCE DETAIL (NET)

	Market Value (\$)	% of Portfolio	Policy %	1 Mo (%)	YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
<b>Total Hedge Fund</b>	<b>27,190,912</b>	<b>5.2</b>	<b>5.0</b>	<b>-0.2</b>	<b>-0.1</b>	<b>0.9</b>	<b>2.2</b>	<b>1.7</b>	<b>4.1</b>	<b>3.0</b>	<b>Oct-06</b>
PRIM Portfolio Completion Strategies	16,740,507	3.2	3.0	0.0	0.8	2.3	4.1	3.5	5.1	3.8	Oct-06
Corbin Pinehurst Partners	4,500,000	0.9		-0.1	--	--	--	--	--	-0.1	Nov-18
<i>HFRI Fund of Funds Composite Index</i>				-0.7	-2.6	-1.7	1.7	2.0	3.1	-0.7	Nov-18
UBS Neutral Alpha Strategies	4,942,000	0.9		-1.2	--	--	--	--	--	-1.2	Nov-18
<i>HFRI Fund of Funds Composite Index</i>				-0.7	-2.6	-1.7	1.7	2.0	3.1	-0.7	Nov-18
EnTrust	391,694	0.1									
<i>HFRI Fund of Funds Composite Index</i>				-0.7	-2.6	-1.7	1.7	2.0	3.1	3.2	Jan-12
Entrust Peru Wind Down	616,711	0.1									
<b>Other</b>	<b>5,983,946</b>	<b>1.1</b>	<b>0.0</b>	<b>0.2</b>	<b>1.7</b>	<b>1.8</b>	<b>0.9</b>	<b>0.7</b>	<b>--</b>	<b>0.4</b>	<b>Dec-10</b>
Cash Account	5,983,946	1.1		0.2	1.7	1.8	0.9	0.7	0.4	1.9	Feb-00
<i>91 Day T-Bills</i>				0.2	1.7	1.8	1.0	0.6	0.3	1.6	Feb-00
<b>Total Real Estate</b>	<b>46,966,491</b>	<b>8.9</b>	<b>8.0</b>	<b>0.0</b>	<b>5.3</b>	<b>8.2</b>	<b>8.9</b>	<b>10.8</b>	<b>6.3</b>	<b>7.9</b>	<b>Apr-99</b>
<i>NCREIF Property Index</i>				0.0	5.3	7.2	7.8	9.6	6.4	8.9	Apr-99
PRIT Core Real Estate (\$10.9m commitment in '10)	24,755,948	4.7		0.0	5.6	7.0	7.9	9.7	--	11.1	Jul-10
Morgan Stanley Prime Property (\$2.8m commitment in '95)	8,936,045	1.7		0.0	5.9	8.1	9.0	11.4	6.1	8.7	Sep-95
Invesco Mortgage Recovery II (\$3M commitment in '15)	1,511,870	0.3		0.0	10.1	14.1	11.7	--	--	11.1	Oct-15
Landmark VI (\$2m commitment in '11)	326,147	0.1		0.0	-0.5	0.3	0.6	6.4	--	9.9	Jul-11
Landmark VIII (\$4m commitment in '17)	683,273	0.1		0.0	-5.9	34.9	--	--	--	31.8	Nov-17
Courtland/Mesirow MFire (\$2m commitment in '11)	1,005,454	0.2		0.0	2.9	5.7	8.5	9.6	--	5.0	May-12
Cerberus (\$1.5m commitment in '12)	969,221	0.2		0.0	6.7	8.9	5.8	12.3	--	12.8	May-13
TA Realty Fund X LP (\$3.5m commitment in '12)	2,209,763	0.4		0.0	20.3	23.9	13.1	13.8	--	12.0	May-13
TerraCap Partners III, LP (\$2.6m commitment in '15)	2,432,359	0.5		0.0	-5.8	2.1	12.0	--	--	11.7	Jul-15
TerraCap Partners IV, LP (\$4m commitment in '17)	4,136,411	0.8		0.0	2.6	4.8	--	--	--	4.4	Nov-17





## MWRA Employees' Retirement System

# TOTAL FUND PERFORMANCE DETAIL (NET)

	Market Value (\$)	% of Portfolio	Policy %	1 Mo (%)	YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
<b>Total Private Equity</b>	<b>42,234,410</b>	<b>8.0</b>	<b>10.0</b>	<b>0.0</b>	<b>11.2</b>	<b>17.5</b>	<b>4.9</b>	<b>15.4</b>	<b>13.8</b>	<b>9.4</b>	<b>Apr-99</b>
<i>Cambridge Associates US All PE</i>				0.0	8.7	14.2	13.2	12.7	11.7	12.3	Apr-99
<i>NASDAQ W/O Income</i>				0.3	6.2	6.6	12.8	12.5	16.9	5.7	Apr-99
PRIM Vintage Year 2008 (\$3m commitment in '08)	1,378,173	0.3		0.0	13.6	18.9	21.1	22.2	14.3	8.4	Jun-08
PRIM Vintage Year 2009 (\$1m commitment in '09)	207,977	0.0		0.0	24.9	27.9	20.0	22.5	--	6.7	Nov-09
PRIM Vintage Year 2010 (\$1m commitment in '10)	723,299	0.1		0.0	25.2	35.4	21.9	22.8	--	9.2	Jun-10
PRIM Vintage Year 2011 (\$1.5m commitment in '11)	1,238,165	0.2		0.0	20.1	24.9	23.0	23.5	--	2.3	May-11
PRIM Vintage Year 2012 (\$1m commitment in '12)	759,273	0.1		0.0	12.4	18.1	18.7	15.2	--	-21.0	Jun-12
PRIM Vintage Year 2014 (\$2m commitment in '14)	1,512,876	0.3		0.0	25.3	30.3	19.5	--	--	-3.7	Jun-14
PRIM Vintage Year 2017 (\$2m commitment in '17)	234,003	0.0		0.0	1.4	10.4	--	--	--	3.1	May-17
Alcentra European DLF (\$5m commitment in '14)	2,575,445	0.5		0.0	6.7	8.9	7.4	--	--	8.6	Jan-15
Ascent Fund II (\$0.8m commitment in '99)	9,310	0.0		0.0	-2.6	-3.6	40.1	42.0	26.1	18.6	Jan-99
Ascent Fund IV (\$2m commitment in '04)	141,533	0.0		0.0	-51.2	-56.1	-43.3	-37.0	-19.4	-15.6	Jul-04
Ascent Fund IV-B (\$1m commitment in '16)	1,667,227	0.3		0.0	-4.5	-5.2	--	--	--	1.2	Jul-16
Ascent Fund V (\$2m commitment in '08)	1,728,411	0.3		0.0	-3.3	-3.5	5.7	5.1	6.4	6.3	Oct-08
Ascent VI (\$3m commitment in '15)	2,456,237	0.5		0.0	10.5	15.1	3.8	--	--	3.8	Dec-15
Castile Ventures III, L.P. (\$3m commitment in '07)	389,203	0.1		0.0	-5.4	-30.5	-28.0	-22.2	-15.3	-15.6	Jan-08
CVI Credit Value Fund IV A LP (\$6m commitment in '17)	916,215	0.2		0.0	2.7	2.7	--	--	--	2.7	Dec-17
Invesco Fund IV (\$3m commitment in '03)	247,493	0.0		0.0	3.1	6.9	6.3	9.9	10.7	9.9	Feb-04
Invesco Fund VI (\$5m commitment in '13)	6,339,930	1.2		0.0	8.7	14.5	11.3	15.2	--	14.0	Jul-13
Kayne Energy Fund VII (\$5m commitment in '15)	4,523,756	0.9		0.0	9.7	24.2	--	--	--	24.0	Jan-16
Foundry 2007 (\$3m commitment in '07)	667,861	0.1		0.0	58.9	70.6	-11.2	30.7	32.2	31.2	Dec-07
Foundry 2010 (\$3m commitment in '10)	3,626,362	0.7		0.0	12.6	31.0	5.0	7.6	--	9.6	Jan-11
Foundry 2010 Annex (\$0.4m commitment in '15)	223,678	0.0		0.0	32.9	39.1	14.5	--	--	13.2	Sep-15
Pinebridge PEP V (\$6m commitment in '07)	1,394,483	0.3		0.0	-4.7	-0.5	0.9	11.2	7.8	5.6	Mar-08
Landmark XV (\$3m commitment in '13)	1,249,444	0.2		0.0	17.1	23.2	12.5	16.1	--	15.8	Nov-13
JFL Equity Investors IV, L.P. (\$6m commitment in '16)	4,369,830	0.8		0.0	35.3	50.9	--	--	--	27.3	Jan-17
Private Advisors Small Co. Coinvestment Fund, LP (\$4m commitment in '17)	2,155,348	0.4		0.0	4.6	5.1	--	--	--	6.2	Feb-17
Park Square Credit Opportunities III (\$3m commitment in '17)	804,601	0.2		0.0	--	--	--	--	--	-0.7	Feb-18
Ironsides Constitution Opportunities (\$3m commitment in '18)	694,277	0.1		0.0	--	--	--	--	--	-12.3	Sep-18



## MWRA Employees' Retirement System

# ESTIMATED FEE SCHEDULE

Account	Fee Schedule	Market Value As of 11/30/2018	% of Portfolio	Estimated Annual Fee (\$)	Estimated Annual Fee (%)
PRIT Core Fund	0.49% of Assets	\$3,585,083	0.7%	\$17,567	0.49%
Wellington Opportunistic Investment	0.65% of Assets	\$23,664,872	4.5%	\$153,822	0.65%
PIMCO All Asset	0.87% of Assets	\$23,892,975	4.5%	\$206,674	0.87%
William Blair	0.89% of Assets	\$22,243,726	4.2%	\$197,969	0.89%
Rhumblin Advisors S&P 500 Index Fund	0.05% of Assets	\$35,591,190	6.8%	\$17,796	0.05%
Coho Relative Value Equity	0.50% of First 100.0 Mil, 0.40% Thereafter	\$22,862,475	4.3%	\$114,312	0.50%
Polen Focused Growth	0.65% of Assets	\$22,269,146	4.2%	\$144,749	0.65%
Robeco Boston Partners Small Cap Value	1.00% of Assets	\$16,579,078	3.1%	\$165,791	1.00%
Loomis Sayles Small Cap Growth	0.45% of Assets	\$16,465,256	3.1%	\$74,094	0.45%
SEG Baxter Street	1.00% of Assets	\$27,897,480	5.3%	\$278,975	1.00%
Schroder International Alpha Fund	0.85% of Assets	\$24,591,888	4.7%	\$209,031	0.85%
LMCG Small Cap International	0.85% of Assets	\$25,889,916	4.9%	\$220,064	0.85%
LMCG Emerging Markets	0.75% of Assets	\$24,714,863	4.7%	\$185,361	0.75%
Loomis Sayles - Multi Sector Bonds	0.57% of Assets	\$40,017,475	7.6%	\$228,100	0.57%
Rhumblin TIPS	0.05% of First 50.0 Mil, 0.04% Thereafter	\$31,186,697	5.9%	\$15,593	0.05%
Lord Abbett Core Fixed Income	0.19% of Assets	\$12,091,528	2.3%	\$22,974	0.19%
Garcia Hamilton Fixed Income Aggregate	0.25% of First 25.0 Mil, 0.20% Thereafter	\$30,126,627	5.7%	\$72,753	0.24%
Invesco Mortgage Fund	No Fee	\$285,944	0.1%	--	--
PRIM Portfolio Completion Strategies	No Fee	\$16,740,507	3.2%	--	--



## MWRA Employees' Retirement System

# ESTIMATED FEE SCHEDULE

Account	Fee Schedule	Market Value As of 11/30/2018	% of Portfolio	Estimated Annual Fee (\$)	Estimated Annual Fee (%)
Corbin Pinehurst Partners	0.85% of Assets	\$4,500,000	0.9%	\$38,250	0.85%
UBS Neutral Alpha Strategies	0.90% of Assets	\$4,942,000	0.9%	\$44,478	0.90%
EnTrust	No Fee	\$391,694	0.1%	--	--
Entrust Peru Wind Down	0.50% of Assets	\$616,711	0.1%	\$3,084	0.50%
Cash Account	No Fee	\$5,983,946	1.1%	--	--
PRIT Core Real Estate (\$10.9m commitment in '10)	No Fee	\$24,755,948	4.7%	--	--
Morgan Stanley Prime Property (\$2.8m commitment in '95)	No Fee	\$8,936,045	1.7%	--	--
Invesco Mortgage Recovery II (\$3M commitment in '15)	No Fee	\$1,511,870	0.3%	--	--
Landmark VI (\$2m commitment in '11)	No Fee	\$326,147	0.1%	--	--
Landmark VIII (\$4m commitment in '17)	No Fee	\$683,273	0.1%	--	--
Courtland/Mesirow MFire (\$2m commitment in '11)	No Fee	\$1,005,454	0.2%	--	--
Cerberus (\$1.5m commitment in '12)	No Fee	\$969,221	0.2%	--	--
TA Realty Fund X LP (\$3.5m commitment in '12)	No Fee	\$2,209,763	0.4%	--	--
TerraCap Partners III, LP (\$2.6m commitment in '15)	No Fee	\$2,432,359	0.5%	--	--
TerraCap Partners IV, LP (\$4m commitment in '17)	No Fee	\$4,136,411	0.8%	--	--
PRIM Vintage Year 2008 (\$3m commitment in '08)	No Fee	\$1,378,173	0.3%	--	--
PRIM Vintage Year 2009 (\$1m commitment in '09)	No Fee	\$207,977	0.0%	--	--
PRIM Vintage Year 2010 (\$1m commitment in '10)	No Fee	\$723,299	0.1%	--	--
PRIM Vintage Year 2011 (\$1.5m commitment in '11)	No Fee	\$1,238,165	0.2%	--	--
PRIM Vintage Year 2012 (\$1m commitment in '12)	No Fee	\$759,273	0.1%	--	--
PRIM Vintage Year 2014 (\$2m commitment in '14)	No Fee	\$1,512,876	0.3%	--	--
PRIM Vintage Year 2017 (\$2m commitment in '17)	No Fee	\$234,003	0.0%	--	--



## MWRA Employees' Retirement System

# ESTIMATED FEE SCHEDULE

Account	Fee Schedule	Market Value As of 11/30/2018	% of Portfolio	Estimated Annual Fee (\$)	Estimated Annual Fee (%)
Alcentra European DLF (\$5m commitment in '14)	No Fee	\$2,575,445	0.5%	--	--
Ascent Fund II (\$0.8m commitment in '99)	No Fee	\$9,310	0.0%	--	--
Ascent Fund IV (\$2m commitment in '04)	No Fee	\$141,533	0.0%	--	--
Ascent Fund IV-B (\$1m commitment in '16)	No Fee	\$1,667,227	0.3%	--	--
Ascent Fund V (\$2m commitment in '08)	No Fee	\$1,728,411	0.3%	--	--
Ascent VI (\$3m commitment in '15)	No Fee	\$2,456,237	0.5%	--	--
Castile Ventures III, L.P. (\$3m commitment in '07)	No Fee	\$389,203	0.1%	--	--
CVI Credit Value Fund IV A LP (\$6m commitment in '17)	No Fee	\$916,215	0.2%	--	--
Invesco Fund IV (\$3m commitment in '03)	No Fee	\$247,493	0.0%	--	--
Invesco Fund VI (\$5m commitment in '13)	No Fee	\$6,339,930	1.2%	--	--
Kayne Energy Fund VII (\$5m commitment in '15)	No Fee	\$4,523,756	0.9%	--	--
Foundry 2007 (\$3m commitment in '07)	No Fee	\$667,861	0.1%	--	--
Foundry 2010 (\$3m commitment in '10)	No Fee	\$3,626,362	0.7%	--	--
Foundry 2010 Annex (\$0.4m commitment in '15)	No Fee	\$223,678	0.0%	--	--
Pinebridge PEP V (\$6m commitment in '07)	No Fee	\$1,394,483	0.3%	--	--
Landmark XV (\$3m commitment in '13)	No Fee	\$1,249,444	0.2%	--	--
JFL Equity Investors IV, L.P. (\$6m commitment in '16)	No Fee	\$4,369,830	0.8%	--	--
Private Advisors Small Co. Coinvestment Fund, LP (\$4m commitment in '17)	No Fee	\$2,155,348	0.4%	--	--
Park Square Credit Opportunities III (\$3m commitment in '17)	No Fee	\$804,601	0.2%	--	--
Ironsides Constitution Opportunities (\$3m commitment in '18)	No Fee	\$694,277	0.1%	--	--
<b>Investment Management Fee</b>		<b>\$526,331,980</b>	<b>100.0%</b>	<b>\$2,411,437</b>	<b>0.46%</b>



## 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 6/30/2018 and are adjusted for cash flows. PRIM accounts are valued as of 10/31/2018.
- 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 6/30/2018 and are adjusted for cash flows. PRIM accounts are valued as of 10/31/2018.
- 6 - Targets, Allocation Index, and Policy Index have been updated to reflect new allocation of 07/31/2017.
- 7 - Policy Index changed from Nasdaq to Cambridge All PE to reflect as of 5/1/2012.
- 8 - Entrust liquidated on 10/30/2018. Remaining balance is a holdback.
- 9 - Entrust Peru Wind Down market value is as of 10/31/2018 and adjusted for cash flows.



## **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.
- This report is provided as a management aid for the client's internal use only. Information contained in this report does not constitute a recommendation by NEPC.
- This report may contain confidential or proprietary information and may not be copied or redistributed to any party not legally entitled to receive it.

## **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.

