FUND EVALUATION REPORT

Worcester Retirement System

Quarterly Review
December 14, 2017

MEKETA INVESTMENT GROUP

Boston Massachusetts | Chicago Illinois | Miami Florida | Portland Oregon | San Diego California | London United Kingdom

www.meketagroup.com

Interim Update

As of October 31, 2017

PRIT Look Through Analysis
Aggregate Assets
As of October 31, 2017

	Actual Asset Allocation[1,2] (%)	PRIT Actual Asset Allocation[1] (%)
Total Retirement System	**NA**	**NA**
Global Equity Assets	44	45
Domestic Equity Assets	*21*	*19*
International Developed Market Equity Assets	*12*	*18*
International Emerging Market Equity Assets	*11*	*8*
Fixed Income Assets	23	20
Core Fixed Income Assets[3]	*13*	*12*
Value-Added Fixed Income Assets[4]	*10*	*8*
Real Estate Assets	9	9
Hedge Fund Assets	1	8
Private Equity Assets	7	10
Portfolio Completion Strategies / GTAA	4	2
Real Assets (Natural Resources, Timber, Infrastructure)	7	4
Cash[5]	4	2

[1] Numbers may not sum to 100% due to rounding.
[2] Asset classes include a pro-rata allocation of the System's 13% holding of the PRIT Core Fund.
[3] Retirement System figures include investment grade bonds and TIPS.
[4] Retirement System figures include high yield fixed income and emerging market debt.
[5] Includes Liquidating Portfolio.

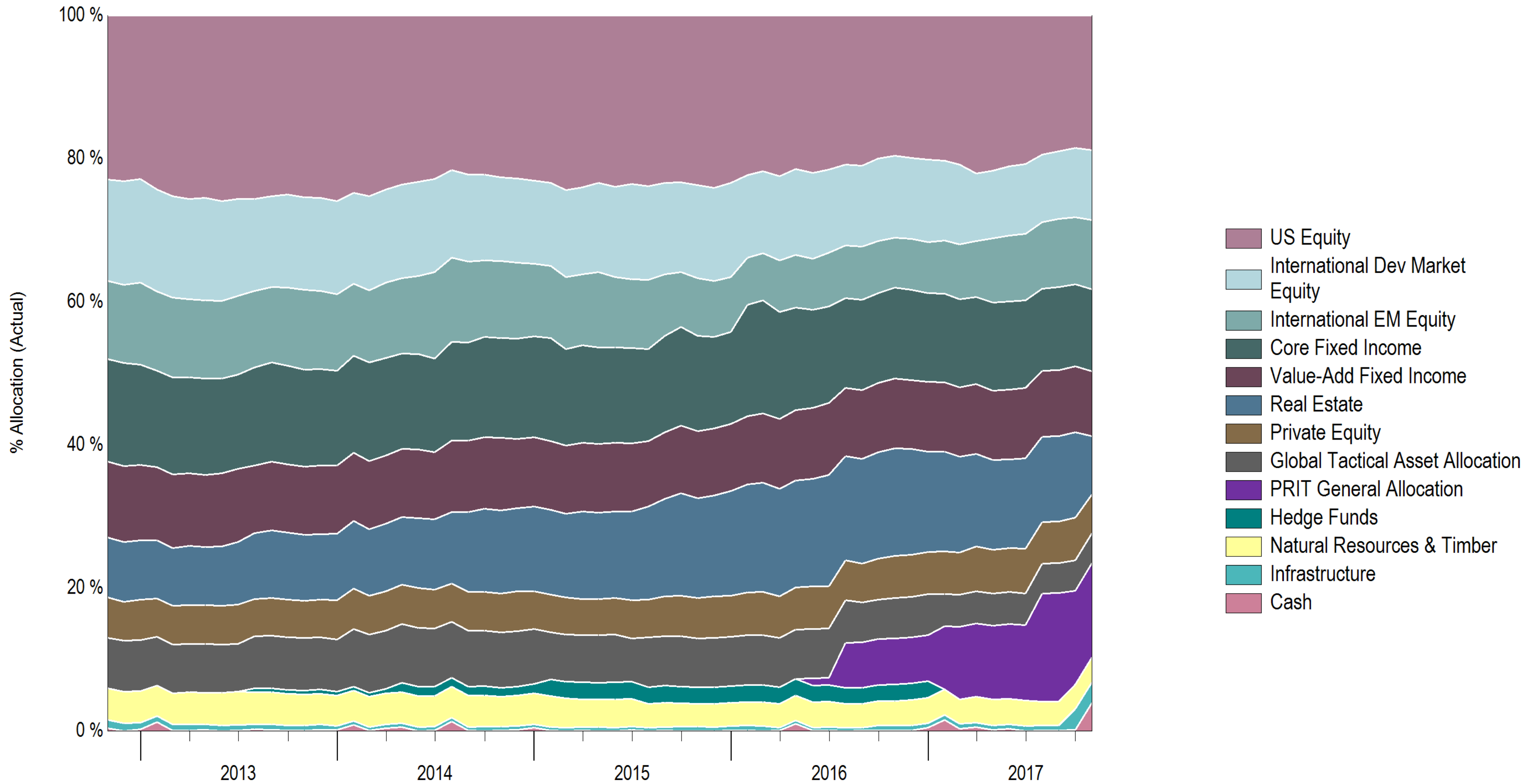
Total Retirement System

As of October 31, 2017

Allocation vs. Targets and Policy

	Current Balance	Current Allocation	Policy	Policy Range	Within IPS Range?
US Equity	$176,943,002	19%	14%	9% - 19%	Yes
International Dev Market Equity	$91,681,933	10%	8%	4% - 12%	Yes
International EM Equity	$90,745,091	10%	8%	4% - 12%	Yes
Core Fixed Income	$107,412,367	11%	10%	5% - 15%	Yes
Value-Add Fixed Income	$85,431,468	9%	4%	2% - 6%	No
Real Estate	$76,612,229	8%	6%	4% - 8%	No
Private Equity	$50,453,072	5%	7%	4% - 10%	Yes
Global Tactical Asset Allocation	$39,621,541	4%	0%	0% - 0%	No
PRIT General Allocation	$123,694,674	13%	35%	0% - 50%	Yes
Natural Resources & Timber	$32,408,093	3%	3%	1% - 5%	Yes
Infrastructure	$27,036,240	3%	5%	2% - 8%	Yes
Cash	$37,143,510	4%	0%	0% - 5%	Yes
Total	**$939,183,219**	**100%**	**100%**		

Asset Allocation History
5 Years Ending October 31, 2017



Total Retirement System

As of October 31, 2017

Asset Class Performance Summary

	Market Value ($)	% of Portfolio	1 Mo (%)	YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Return (%)	Since
Total Retirement System	**939,183,219**	**100.0**	**1.0**	**13.2**	**14.6**	**6.3**	**8.0**	**4.6**	**7.6**	**Oct-95**
Total Retirement System (Net of Fees)			**1.0**	**13.1**	**14.5**	**6.1**	**7.8**	**4.4**	**7.4**	
Custom Benchmark - Target Allocation			*1.0*	*12.0*	*14.0*	*6.6*	*8.2*	*5.0*	*--*	*Oct-95*
60% MSCI ACWI / 40% Barclays Global Aggregate			*1.1*	*14.0*	*13.9*	*5.3*	*6.7*	*3.8*	*6.2*	*Oct-95*
Domestic Equity	**176,943,002**	**18.8**	**2.2**	**15.9**	**23.8**	**10.7**	**15.2**	**7.6**	**6.2**	**Aug-00**
Russell 3000			*2.2*	*16.4*	*24.0*	*10.5*	*15.1*	*7.6*	*5.9*	*Aug-00*
International Developed Market Equity	**91,681,933**	**9.8**	**1.7**	**24.9**	**26.2**	**8.1**	**10.2**	**2.3**	**5.6**	**Aug-00**
MSCI EAFE			*1.5*	*21.8*	*23.4*	*6.1*	*8.5*	*1.1*	*3.9*	*Aug-00*
International Emerging Market Equity	**90,745,091**	**9.7**	**3.0**	**35.2**	**30.2**	**6.1**	**6.0**	**3.3**	**8.0**	**Aug-06**
MSCI Emerging Markets			*3.5*	*32.3*	*26.5*	*5.7*	*4.8*	*0.6*	*6.0*	*Aug-06*
Core Fixed Income	**107,412,367**	**11.4**	**0.1**	**2.8**	**0.9**	**2.0**	**1.0**	**4.5**	**4.5**	**May-05**
Custom Benchmark - Fixed Income			*0.1*	*2.7*	*0.7*	*2.0*	*1.4*	*3.9*	*4.0*	*May-05*
Value Added Fixed Income	**85,431,468**	**9.1**	**-0.5**	**7.2**	**7.0**	**4.2**	**4.5**	**5.6**	**7.5**	**May-05**
Custom High Yield Benchmark			*0.0*	*7.1*	*6.7*	*4.1*	*--*	*--*	*--*	*May-05*
Real Estate	**76,612,229**	**8.2**	**0.4**	**6.3**	**8.0**	**10.4**	**11.0**	**5.3**	**7.7**	**Oct-00**
NCREIF-ODCE			*0.0*	*5.4*	*7.7*	*10.8*	*11.6*	*5.0*	*8.0*	*Oct-00*
Private Equity	**50,453,072**	**5.4**	**0.0**	**12.2**	**12.6**	**5.7**	**8.2**	**7.7**	**9.0**	**Oct-00**
Cambridge Associates Fund of Funds Composite 1-Quarter Lag			*0.0*	*8.9*	*12.0*	*8.7*	*11.1*	*7.8*	*5.9*	*Oct-00*
Global Tactical Asset Allocation	**39,621,541**	**4.2**	**0.3**	**5.1**	**5.2**	**-1.8**	**0.4**	**1.6**	**2.1**	**Aug-07**
Spliced Bechmark			*1.1*	*14.0*	*13.9*	*4.9*	*2.2*	*2.4*	*3.1*	*Aug-07*
PRIT General Allocation	**123,694,674**	**13.2**	**1.1**	**14.5**	**15.7**	**--**	**--**	**--**	**13.7**	**Jun-16**
60% MSCI ACWI / 40% Barclays Global Aggregate			*1.1*	*14.0*	*13.9*	*5.3*	*6.7*	*3.8*	*11.3*	*Jun-16*
Real Assets	**59,444,333**	**6.3**	**0.4**	**10.4**	**10.0**	**4.4**	**5.5**	**3.3**	**3.4**	**Oct-06**
CPI+3%			*0.2*	*4.7*	*5.1*	*4.3*	*4.3*	*4.7*	*4.8*	*Oct-06*
Cash	**37,143,510**	**4.0**								

Trailing Performance

	Market Value ($)	% of Portfolio	% of Sector	1 Mo (%)	YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Return (%)	Since
Domestic Equity	**176,943,002**	**18.8**	**18.8**	**2.2**	**15.9**	**23.8**	**10.7**	**15.2**	**7.6**	**6.2**	**Aug-00**
Russell 3000				*2.2*	*16.4*	*24.0*	*10.5*	*15.1*	*7.6*	*5.9*	*Aug-00*
SSgA S&P 500 Index (Net of Fees)	71,865,947	7.7	40.6	2.3	16.9	23.7	10.8	15.2	7.6	6.5	Aug-98
S&P 500				*2.3*	*16.9*	*23.6*	*10.8*	*15.2*	*7.5*	*6.4*	*Aug-98*
SSgA Russell 1000 Growth Index (Net of Fees)	42,346,563	4.5	23.9	3.9	25.3	29.7	13.1	16.8	--	15.8	Nov-09
Russell 1000 Growth				*3.9*	*25.4*	*29.7*	*13.1*	*16.8*	*9.1*	*15.8*	*Nov-09*
SSgA Russell 1000 Value Index (Net of Fees)	38,849,034	4.1	22.0	0.8	8.9	17.9	8.1	13.5	6.1	7.6	Jul-05
Russell 1000 Value				*0.7*	*8.7*	*17.8*	*8.0*	*13.5*	*6.0*	*7.5*	*Jul-05*
SSgA S&P Midcap 400 Index (Net of Fees)	11,964,869	1.3	6.8	2.3	11.9	23.5	10.7	15.2	9.0	10.0	Sep-06
S&P 400 MidCap				*2.3*	*11.9*	*23.5*	*10.7*	*15.1*	*9.0*	*10.0*	*Sep-06*
Lee Munder Small Cap Value (Net of Fees)	11,916,589	1.3	6.7	0.4	5.8	22.1	11.8	14.8	--	13.9	Nov-09
Russell 2000 Value				*0.1*	*5.8*	*24.8*	*9.7*	*13.6*	*7.0*	*13.7*	*Nov-09*
International Developed Market Equity	**91,681,933**	**9.8**	**9.8**	**1.7**	**24.9**	**26.2**	**8.1**	**10.2**	**2.3**	**5.6**	**Aug-00**
MSCI EAFE				*1.5*	*21.8*	*23.4*	*6.1*	*8.5*	*1.1*	*3.9*	*Aug-00*
SSgA MSCI EAFE Index	66,709,477	7.1	72.8	1.5	22.2	23.9	6.4	8.9	1.4	6.6	Sep-04
MSCI EAFE				*1.5*	*21.8*	*23.4*	*6.1*	*8.5*	*1.1*	*6.3*	*Sep-04*
Acadian Non-U.S. Small Cap Equity (Net of Fees)	24,972,456	2.7	27.2	0.0	30.0	29.3	14.1	14.6	3.7	9.2	Feb-05
MSCI EAFE Small Cap				*1.7*	*27.5*	*27.5*	*12.5*	*13.0*	*4.2*	*7.5*	*Feb-05*
International Emerging Market Equity	**90,745,091**	**9.7**	**9.7**	**3.0**	**35.2**	**30.2**	**6.1**	**6.0**	**3.3**	**8.0**	**Aug-06**
MSCI Emerging Markets				*3.5*	*32.3*	*26.5*	*5.7*	*4.8*	*0.6*	*6.0*	*Aug-06*
PRIT Emerging Markets (Net of Fees)	90,745,091	9.7	100.0	3.0	35.0	30.3	--	--	--	27.0	Sep-16
MSCI Emerging Markets				*3.5*	*32.3*	*26.5*	*5.7*	*4.8*	*0.6*	*23.9*	*Sep-16*

Total Retirement System

As of October 31, 2017

	Market Value ($)	% of Portfolio	% of Sector	1 Mo (%)	YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Return (%)	Since
Core Fixed Income	**107,412,367**	**11.4**	**11.4**	**0.1**	**2.8**	**0.9**	**2.0**	**1.0**	**4.5**	**4.5**	**May-05**
Custom Benchmark - Fixed Income				*0.1*	*2.7*	*0.7*	*2.0*	*1.4*	*3.9*	*4.0*	*May-05*
IR&M Aggregate Bond	72,168,497	7.7	67.2	0.1	3.4	1.2	2.7	--	--	3.4	Feb-14
BBgBarc US Aggregate TR				*0.1*	*3.2*	*0.9*	*2.4*	*2.0*	*4.2*	*2.9*	*Feb-14*
IR&M Intermediate TIPS	35,243,870	3.8	32.8	0.1	1.5	0.1	1.2	--	--	1.2	Feb-14
BBgBarc US TIPS 1-10 Yr TR				*0.2*	*1.5*	*0.1*	*1.2*	*0.0*	*3.2*	*1.2*	*Feb-14*
Value Added Fixed Income	**85,431,468**	**9.1**	**9.1**	**-0.5**	**7.2**	**7.0**	**4.2**	**4.5**	**5.6**	**7.5**	**May-05**
Custom High Yield Benchmark				*0.0*	*7.1*	*6.7*	*4.1*	*--*	*--*	*--*	*May-05*
High Yield Bonds	47,967,193	5.1	56.1	0.3	5.9	7.0	4.4	5.1	--	6.4	Jun-08
50% BBgBarc US High Yield/ 50% Credit Suisse Leveraged Loans				*0.5*	*5.6*	*7.1*	*4.8*	*5.4*	*6.2*	*6.9*	*Jun-08*
Loomis Sayles High Yield	24,934,597	2.7	52.0	0.0	8.4	9.4	5.0	6.6	7.6	8.2	Jan-96
BBgBarc US High Yield TR				*0.4*	*7.5*	*8.9*	*5.6*	*6.3*	*7.8*	*7.3*	*Jan-96*
Loomis Sayles Bank Loans	23,032,596	2.5	48.0	0.6	3.2	4.4	4.1	4.0	4.2	4.3	Oct-05
Credit Suisse Leveraged Loans				*0.7*	*3.7*	*5.2*	*4.1*	*4.5*	*4.4*	*4.6*	*Oct-05*
Lazard Emerging Market Debt Blend	29,406,774	3.1	34.4	-1.8	9.7	4.8	0.9	--	--	1.6	Aug-13
50% JPM EMBI GD / 50% JPM GBI-EM				*-1.2*	*10.2*	*5.8*	*2.4*	*1.6*	*5.2*	*3.1*	*Aug-13*
Mezzanine Debt	8,057,501	0.9	9.4	0.0	6.5	12.7	13.3	9.4	8.0	--	
Northstar Mezzanine Partners VI	4,020,196	0.4	49.9								
Newstone Capital Partners II	1,480,706	0.2	18.4								
Northstar Mezzanine Partners V	1,711,208	0.2	21.2								
Northstar Mezzanine Partners IV	334,475	0.0	4.2								
Newstone Capital Partners	418,753	0.0	5.2								

	Market Value ($)	% of Portfolio	% of Sector	1 Mo (%)	YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Return (%)	Since
Northstar Mezzanine Partners III	92,163	0.0	1.1								
Real Estate	**76,612,229**	**8.2**	**8.2**	**0.4**	**6.3**	**8.0**	**10.4**	**11.0**	**5.3**	**7.7**	**Oct-00**
NCREIF-ODCE				*0.0*	*5.4*	*7.7*	*10.8*	*11.6*	*5.0*	*8.0*	*Oct-00*
Open-End Real Estate	**67,316,328**	**7.2**	**87.9**	**0.4**	**6.3**	**7.6**	**10.0**	**10.6**	**3.9**	**7.3**	**Jan-99**
PRIT Real Estate	67,316,328	7.2	100.0	0.3	6.1	6.7	9.8	11.0	--	11.7	Apr-10
NCREIF-ODCE				*0.0*	*5.4*	*7.7*	*10.8*	*11.6*	*5.0*	*12.9*	*Apr-10*
NCREIF ODCE Equal Weighted				*0.0*	*5.5*	*7.8*	*11.0*	*11.6*	*4.9*	*12.9*	*Apr-10*
Custom Benchmark				*-0.1*	*6.0*	*7.8*	*9.9*	*11.0*	*--*	*12.5*	*Apr-10*
Non-Core Real Estate	**9,295,900**	**1.0**	**12.1**	**0.0**	**7.1**	**14.4**	**15.8**	**17.5**	**9.5**	**12.4**	**Oct-05**
AEW Partners VII	7,107,760	0.8	76.5								
AEW Partners VI	2,118,730	0.2	22.8								
Intercontinental Real Estate Investment Fund IV	56,359	0.0	0.6								
AREA Property Partners Fund II	13,051	0.0	0.1								
Private Equity	**50,453,072**	**5.4**	**5.4**	**0.0**	**12.2**	**12.6**	**5.7**	**8.2**	**7.7**	**9.0**	**Oct-00**
Cambridge Associates Fund of Funds Composite 1-Quarter Lag				*0.0*	*8.9*	*12.0*	*8.7*	*11.1*	*7.8*	*5.9*	*Oct-00*
Buyouts	**39,209,819**	**4.2**	**77.7**	**0.0**	**15.4**	**15.7**	**7.9**	**8.6**	**9.8**	**11.6**	**Oct-05**
American Securities Partners VI	5,554,748	0.6	14.2								
Riverside Capital Appreciation Fund VI	5,741,504	0.6	14.6								
Vitruvian Investment Partnership I	4,769,330	0.5	12.2								
Riverside Micro Cap Fund III	6,019,391	0.6	15.4								
Ridgemont II	5,278,082	0.6	13.5								

	Market Value ($)	% of Portfolio	% of Sector	1 Mo (%)	YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Return (%)	Since
Capital International Private Equity Fund VI	5,583,361	0.6	14.2								
Harvest Partners V	1,666,755	0.2	4.3								
TA XII	2,297,440	0.2	5.9								
Riverside Capital Fund V	980,025	0.1	2.5								
Riverside Europe III	593,097	0.1	1.5								
Charlesbank Equity Fund VI	433,025	0.0	1.1								
2000 Riverside Capital Appreciation	211,874	0.0	0.5								
2003 Riverside Capital Appreciation	72,261	0.0	0.2								
Charlesbank Equity Fund V	8,925	0.0	0.0								
Fund of Funds	**2,469,418**	**0.3**	**4.9**	**-0.3**	**-2.0**	**-7.9**	**-13.1**	**-4.9**	**-3.1**	**6.7**	**Oct-05**
PRIT Vintage Year 2016	1,498,747	0.2	60.7								
PRIT Vintage Year 2017	795,833	0.1	32.2								
European Strategic Partners	86,357	0.0	3.5								
INVESCO Private Capital II	88,481	0.0	3.6								
Venture Capital Funds	**8,773,836**	**0.9**	**17.4**	**0.0**	**3.0**	**3.5**	**0.8**	**7.7**	**4.4**	**7.0**	**Oct-05**
Ascent Venture Partners V	4,657,079	0.5	53.1								
Asecent Venture Partners VI	2,222,522	0.2	25.3								
Boston Millennia Partners III	516,289	0.1	5.9								
Boston Millennia Partners II	566,643	0.1	6.5								

	Market Value ($)	% of Portfolio	% of Sector	1 Mo (%)	YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Return (%)	Since
Ascent Venture Partners II	24,304	0.0	0.3								
Ascent Venture Partners IV	486,335	0.1	5.5								
Ascent Venture Partners III	280,302	0.0	3.2								
Boston Capital Venture III	20,363	0.0	0.2								
Global Tactical Asset Allocation	**39,621,541**	**4.2**	**4.2**	**0.3**	**5.1**	**5.2**	**-1.8**	**0.4**	**1.6**	**2.1**	**Aug-07**
Spliced Bechmark				*1.1*	*14.0*	*13.9*	*4.9*	*2.2*	*2.4*	*3.1*	*Aug-07*
William Blair Macro Allocation Strategy (Net of Fees)	39,621,541	4.2	100.0	0.3	5.1	5.2	--	--	--	-1.9	Jun-15
60% MSCI ACWI / 40% Barclays Global Aggregate				*1.1*	*14.0*	*13.9*	*5.3*	*6.7*	*3.8*	*6.0*	*Jun-15*
PRIT General Allocation	**123,694,674**	**13.2**	**13.2**	**1.1**	**14.5**	**15.7**	**--**	**--**	**--**	**13.7**	**Jun-16**
60% MSCI ACWI / 40% Barclays Global Aggregate				*1.1*	*14.0*	*13.9*	*5.3*	*6.7*	*3.8*	*11.3*	*Jun-16*
PRIT General Allocation Fund (Net of Fees)	123,694,674	13.2	100.0	1.1	14.1	15.3	--	--	--	13.4	Jun-16
60% MSCI ACWI / 40% Barclays Global Aggregate				*1.1*	*14.0*	*13.9*	*5.3*	*6.7*	*3.8*	*11.3*	*Jun-16*
Real Assets	**59,444,333**	**6.3**	**6.3**	**0.4**	**10.4**	**10.0**	**4.4**	**5.5**	**3.3**	**3.4**	**Oct-06**
CPI+3%				*0.2*	*4.7*	*5.1*	*4.3*	*4.3*	*4.7*	*4.8*	*Oct-06*
Natural Resources Assets	**17,046,493**	**1.8**	**28.7**	**0.9**	**21.0**	**24.5**	**0.2**	**1.3**	**--**	**--**	
S&P Global Natural Resources Index TR USD				*2.2*	*15.4*	*23.0*	*3.2*	*1.7*	*-1.1*	*--*	
Natural Resources (Public)	**7,993,447**	**0.9**	**46.9**	**2.0**	**12.7**	**18.7**	**0.6**	**-0.8**	**--**	**-3.5**	**May-11**
SSgA Global Natural Resources Stock Index	7,993,447	0.9	100.0	2.0	12.7	18.7	0.6	-0.8	--	-3.5	May-11
S&P Global LargeMidCap Commodity and Resources GR USD				*2.0*	*12.4*	*18.6*	*0.6*	*-0.8*	*-0.8*	*-3.2*	*May-11*
Natural Resources (Private)	**9,053,046**	**1.0**	**53.1**	**0.0**	**30.0**	**29.9**	**-7.3**	**0.3**	**--**	**9.1**	**Jul-10**
White Deer Energy II	7,184,989	0.8	79.4								
White Deer Energy	1,868,057	0.2	20.6								

Total Retirement System

As of October 31, 2017

	Market Value ($)	% of Portfolio	% of Sector	1 Mo (%)	YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Return (%)	Since
Timber	**15,361,600**	**1.6**	**25.8**	**0.0**	**-1.5**	**-4.2**	**-0.8**	**2.1**	**0.7**	**1.8**	**Oct-05**
NCREIF Timberland				*0.0*	*2.1*	*3.3*	*5.3*	*7.2*	*5.2*	*7.1*	*Oct-05*
RMK Select Timberland Investment Fund I	5,383,610	0.6	35.0								
Hancock Timberland VII	5,125,337	0.5	33.4								
RMK Select Timberland Investment Fund II	3,651,720	0.4	23.8								
RMK Balanced Timberland B	1,200,933	0.1	7.8								
Infrastructure	**27,036,240**	**2.9**	**45.5**	**0.2**	**16.5**	**16.3**	**33.4**	**28.8**	**--**	**15.9**	**Jun-08**
DJ Brookfield Global Infrastructure Net TR USD				*-0.2*	*15.0*	*12.7*	*3.3*	*--*	*--*	*--*	*Jun-08*
IFM Global Infrastructure (Net of Fees)	20,507,450	2.2	75.9	0.3	--	--	--	--	--	0.3	Sep-17
CPI+5%				*0.3*	*6.4*	*7.1*	*6.3*	*6.4*	*6.8*	*0.3*	*Sep-17*
Global Infrastructure Partners	3,787,287	0.4	14.0								
Global Infrastructure Partners III	2,741,503	0.3	10.1								
Cash	**37,143,510**	**4.0**	**4.0**								
State Street STIF - Cash	37,143,510	4.0	100.0								

Retirement System Summary

PRIT Look Through Analysis
Aggregate Assets
As of September 30, 2017

	Actual Asset Allocation[1,2] (%)	PRIT Actual Asset Allocation[1] (%)
Total Retirement System	**NA**	**NA**
Global Equity Assets	43	45
Domestic Equity Assets	*21*	*19*
International Developed Market Equity Assets	*12*	*18*
International Emerging Market Equity Assets	*11*	*8*
Fixed Income Assets	23	20
Core Fixed Income Assets[3]	*13*	*13*
Value-Added Fixed Income Assets[4]	*10*	*8*
Real Estate Assets	13	9
Hedge Fund Assets	1	8
Private Equity Assets	7	11
Portfolio Completion Strategies / GTAA	4	2
Real Assets (Natural Resources, Timber, Infrastructure)	7	4
Cash[5]	<1	2

[1] Numbers may not sum to 100% due to rounding.
[2] Asset classes include a pro-rata allocation of the System's 13% holding of the PRIT Core Fund.
[3] Retirement System figures include investment grade bonds and TIPS.
[4] Retirement System figures include high yield fixed income and emerging market debt.
[5] Includes Liquidating Portfolio.

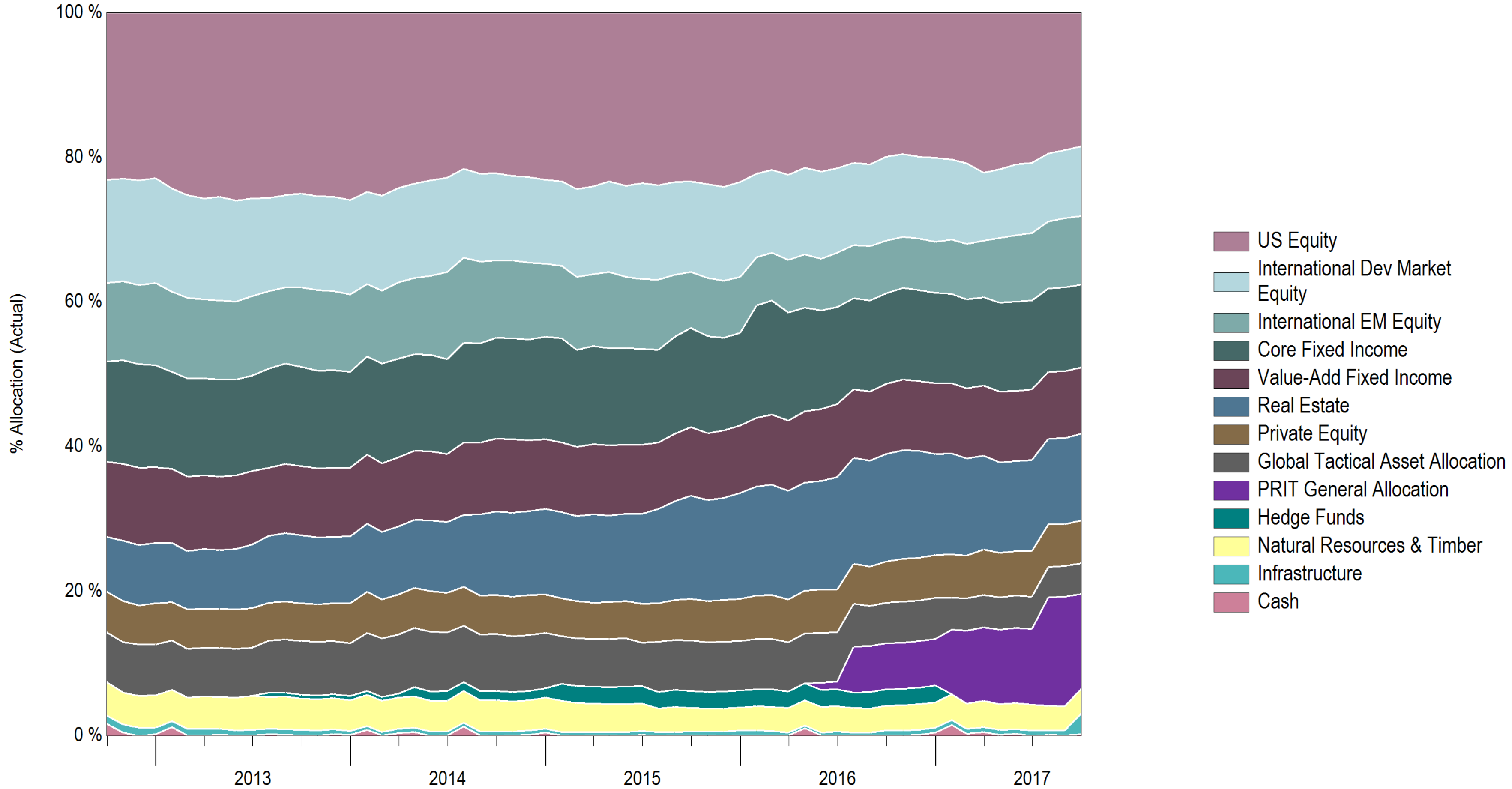
Allocation vs. Policy Targets

	Current Balance	Current Allocation	Policy	Policy Range	Within IPS Range?
US Equity	$173,130,497	19%	14%	9% - 19%	Yes
International Dev Market Equity	$90,180,891	10%	8%	4% - 12%	Yes
International EM Equity	$88,110,370	9%	8%	4% - 12%	Yes
Core Fixed Income	$107,285,252	11%	10%	5% - 15%	Yes
Value-Add Fixed Income	$85,997,599	9%	4%	2% - 6%	No
Real Estate	$111,506,966	12%	6%	4% - 8%	No
Private Equity	$55,799,339	6%	7%	4% - 10%	Yes
Global Tactical Asset Allocation	$39,530,941	4%	0%	0% - 0%	No
PRIT General Allocation	$122,359,673	13%	35%	0% - 50%	Yes
Natural Resources & Timber	$32,351,078	3%	3%	1% - 5%	Yes
Infrastructure	$26,915,425	3%	5%	2% - 8%	Yes
Cash	$1,686,343	0%	0%	0% - 5%	Yes
Total	**$934,854,374**	**100%**	**100%**		

To move the Worcester Retirement System closer to its recently adopted target ranges, Meketa Investment Group recomends the Board consider the following transactions.

- $20 million from William Blair GTAA to PRIT General Allocation.
- $10 million from PRIT Real Estate to PRIT General Allocation.
- $15 million from Loomis High Yield and Bank Loan to SSgA EAFE Index.

Asset Allocation History
5 Years Ending September 30, 2017



Total Retirement System

As of September 30, 2017

Asset Class Performance Summary

	Market Value ($)	% of Portfolio	QTD (%)	YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Return (%)	Since
Total Retirement System	**934,854,374**	**100.0**	**3.8**	**12.1**	**12.5**	**6.3**	**7.8**	**4.7**	**7.6**	**Oct-95**
Total Retirement System (Net of Fees)			**3.8**	**12.0**	**12.4**	**6.1**	**7.6**	**4.5**	**7.4**	
Custom Benchmark - Target Allocation			*3.4*	*10.8*	*11.6*	*6.5*	*8.0*	*5.1*	*--*	*Oct-95*
60% MSCI ACWI / 40% Barclays Global Aggregate			*3.8*	*12.7*	*10.3*	*5.1*	*6.3*	*4.0*	*6.2*	*Oct-95*
Domestic Equity	**173,130,497**	**18.5**	**4.4**	**13.4**	**18.7**	**10.9**	**14.3**	**7.7**	**6.1**	**Aug-00**
Russell 3000			*4.6*	*13.9*	*18.7*	*10.7*	*14.2*	*7.6*	*5.8*	*Aug-00*
International Developed Market Equity	**90,180,891**	**9.6**	**6.6**	**22.8**	**21.4**	**6.9**	**10.0**	**2.5**	**5.5**	**Aug-00**
MSCI EAFE			*5.4*	*20.0*	*19.1*	*5.0*	*8.4*	*1.3*	*3.8*	*Aug-00*
International Emerging Market Equity	**88,110,370**	**9.4**	**8.8**	**31.3**	**26.1**	**5.8**	**5.2**	**3.8**	**7.8**	**Aug-06**
MSCI Emerging Markets			*7.9*	*27.8*	*22.5*	*4.9*	*4.0*	*1.3*	*5.7*	*Aug-06*
Core Fixed Income	**107,285,252**	**11.5**	**0.8**	**2.7**	**0.3**	**2.2**	**1.1**	**4.6**	**4.5**	**May-05**
Custom Benchmark - Fixed Income			*0.8*	*2.6*	*0.0*	*2.3*	*1.5*	*4.0*	*4.0*	*May-05*
Value Added Fixed Income	**85,997,599**	**9.2**	**2.4**	**7.8**	**7.3**	**4.6**	**4.9**	**5.7**	**7.6**	**May-05**
Custom High Yield Benchmark			*2.0*	*7.2*	*6.8*	*4.5*	*--*	*--*	*--*	*May-05*
Real Estate	**111,506,966**	**11.9**	**1.5**	**5.9**	**7.0**	**10.6**	**11.0**	**5.2**	**7.7**	**Oct-00**
NCREIF-ODCE			*1.9*	*5.4*	*7.7*	*10.8*	*11.6*	*5.0*	*8.0*	*Oct-00*
Private Equity	**55,799,339**	**6.0**	**3.5**	**12.3**	**12.6**	**5.7**	**8.2**	**7.7**	**9.0**	**Oct-00**
Cambridge Associates Fund of Funds Composite 1-Quarter Lag			*4.0*	*8.9*	*12.0*	*8.7*	*11.1*	*7.8*	*5.9*	*Oct-00*
Global Tactical Asset Allocation	**39,530,941**	**4.2**	**1.8**	**4.7**	**5.5**	**-1.8**	**0.4**	**1.8**	**2.0**	**Aug-07**
Spliced Bechmark			*3.8*	*12.7*	*10.3*	*4.6*	*2.1*	*2.6*	*3.0*	*Aug-07*
PRIT General Allocation	**122,359,673**	**13.1**	**4.3**	**13.3**	**12.9**	**--**	**--**	**--**	**13.7**	**Jun-16**
60% MSCI ACWI / 40% Barclays Global Aggregate			*3.8*	*12.7*	*10.3*	*5.1*	*6.3*	*4.0*	*11.1*	*Jun-16*
Real Assets	**59,266,503**	**6.3**	**4.1**	**10.1**	**9.5**	**4.0**	**5.4**	**3.3**	**3.4**	**Oct-06**
CPI+3%			*1.5*	*4.5*	*5.3*	*4.2*	*4.3*	*4.7*	*4.8*	*Oct-06*
Cash	**1,686,343**	**0.2**								

Total Retirement System

As of September 30, 2017

Trailing Performance

	Market Value ($)	% of Portfolio	% of Sector	QTD (%)	YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Return (%)	Since
Total Retirement System	**934,854,374**	**100.0**	**--**	**3.8**	**12.1**	**12.5**	**6.3**	**7.8**	**4.7**	**7.6**	**Oct-95**
Total Retirement System (Net of Fees)				**3.8**	**12.0**	**12.4**	**6.1**	**7.6**	**4.5**	**7.4**	
Custom Benchmark - Target Allocation				*3.4*	*10.8*	*11.6*	*6.5*	*8.0*	*5.1*	*--*	*Oct-95*
60% MSCI ACWI / 40% Barclays Global Aggregate				*3.8*	*12.7*	*10.3*	*5.1*	*6.3*	*4.0*	*6.2*	*Oct-95*
Domestic Equity	**173,130,497**	**18.5**	**18.5**	**4.4**	**13.4**	**18.7**	**10.9**	**14.3**	**7.7**	**6.1**	**Aug-00**
Russell 3000				*4.6*	*13.9*	*18.7*	*10.7*	*14.2*	*7.6*	*5.8*	*Aug-00*
SSgA S&P 500 Index (Net of Fees)	70,224,250	7.5	40.6	4.5	14.3	18.7	10.9	14.3	7.5	6.4	Aug-98
S&P 500				*4.5*	*14.2*	*18.6*	*10.8*	*14.2*	*7.4*	*6.3*	*Aug-98*
Large Cap MStar MF Median				*4.4*	*13.8*	*18.4*	*9.5*	*13.5*	*7.1*	*6.5*	*Aug-98*
Large Cap MStar MF Rank				*47*	*42*	*45*	*24*	*28*	*35*	*54*	*Aug-98*
SSgA Russell 1000 Growth Index (Net of Fees)	40,771,362	4.4	23.5	5.9	20.6	21.9	12.7	15.3	--	15.4	Nov-09
Russell 1000 Growth				*5.9*	*20.7*	*21.9*	*12.7*	*15.3*	*9.1*	*15.4*	*Nov-09*
Large Growth MStar MF Median				*5.3*	*20.4*	*20.2*	*11.0*	*14.1*	*7.9*	*14.1*	*Nov-09*
Large Growth MStar MF Rank				*32*	*47*	*26*	*24*	*24*	*--*	*19*	*Nov-09*
SSgA Russell 1000 Value Index (Net of Fees)	38,560,028	4.1	22.3	3.1	8.0	15.2	8.6	13.3	6.0	7.6	Jul-05
Russell 1000 Value				*3.1*	*7.9*	*15.1*	*8.5*	*13.2*	*5.9*	*7.5*	*Jul-05*
Large Value MStar MF Median				*3.8*	*9.6*	*17.1*	*8.2*	*12.6*	*6.0*	*7.4*	*Jul-05*
Large Value MStar MF Rank				*74*	*79*	*69*	*37*	*29*	*53*	*47*	*Jul-05*
SSgA S&P Midcap 400 Index (Net of Fees)	11,700,297	1.3	6.8	3.2	9.4	17.5	11.2	14.5	9.0	9.9	Sep-06
S&P 400 MidCap				*3.2*	*9.4*	*17.5*	*11.2*	*14.4*	*9.0*	*9.8*	*Sep-06*
Mid Cap MStar MF Median				*3.7*	*11.9*	*17.0*	*9.3*	*13.3*	*7.5*	*8.6*	*Sep-06*
Mid Cap MStar MF Rank				*64*	*65*	*41*	*17*	*20*	*13*	*20*	*Sep-06*

	Market Value ($)	% of Portfolio	% of Sector	QTD (%)	YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Return (%)	Since
Lee Munder Small Cap Value (Net of Fees)	11,874,560	1.3	6.9	3.1	5.4	19.0	13.6	14.6	--	14.0	Nov-09
Russell 2000 Value				*5.1*	*5.7*	*20.5*	*12.1*	*13.3*	*7.1*	*13.8*	*Nov-09*
Small Value MStar MF Median				*4.7*	*5.7*	*19.4*	*10.0*	*13.3*	*7.8*	*13.7*	*Nov-09*
Small Value MStar MF Rank				*85*	*56*	*54*	*4*	*17*	*--*	*46*	*Nov-09*
International Developed Market Equity	**90,180,891**	**9.6**	**9.6**	**6.6**	**22.8**	**21.4**	**6.9**	**10.0**	**2.5**	**5.5**	**Aug-00**
MSCI EAFE				*5.4*	*20.0*	*19.1*	*5.0*	*8.4*	*1.3*	*3.8*	*Aug-00*
SSgA MSCI EAFE Index	65,705,854	7.0	72.9	5.5	20.4	19.6	5.4	8.7	1.7	6.5	Sep-04
MSCI EAFE				*5.4*	*20.0*	*19.1*	*5.0*	*8.4*	*1.3*	*6.2*	*Sep-04*
Foreign MStar MF Median				*6.0*	*22.3*	*19.1*	*6.0*	*8.6*	*2.0*	*6.7*	*Sep-04*
Foreign MStar MF Rank				*63*	*73*	*44*	*62*	*47*	*58*	*57*	*Sep-04*
Acadian Non-U.S. Small Cap Equity (Net of Fees)	24,475,037	2.6	27.1	9.8	30.0	26.2	13.1	15.0	4.2	9.2	Feb-05
MSCI EAFE Small Cap				*7.5*	*25.4*	*21.8*	*11.1*	*12.8*	*4.6*	*7.4*	*Feb-05*
Foreign Small/Mid Growth MStar MF Median				*7.7*	*27.5*	*20.1*	*9.4*	*11.3*	*4.7*	*8.0*	*Feb-05*
Foreign Small/Mid Growth MStar MF Rank				*14*	*31*	*2*	*13*	*9*	*68*	*29*	*Feb-05*
International Emerging Market Equity	**88,110,370**	**9.4**	**9.4**	**8.8**	**31.3**	**26.1**	**5.8**	**5.2**	**3.8**	**7.8**	**Aug-06**
MSCI Emerging Markets				*7.9*	*27.8*	*22.5*	*4.9*	*4.0*	*1.3*	*5.7*	*Aug-06*
PRIT Emerging Markets (Net of Fees)	88,110,370	9.4	100.0	8.8	31.1	26.3	--	--	--	25.9	Sep-16
MSCI Emerging Markets				*7.9*	*27.8*	*22.5*	*4.9*	*4.0*	*1.3*	*22.0*	*Sep-16*
eA Emg Mkts Equity Net Median				*7.8*	*28.4*	*21.9*	*5.3*	*5.2*	*2.3*	*21.5*	*Sep-16*
eA Emg Mkts Equity Net Rank				*30*	*29*	*19*	*--*	*--*	*--*	*19*	*Sep-16*

	Market Value ($)	% of Portfolio	% of Sector	QTD (%)	YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Return (%)	Since
Core Fixed Income	**107,285,252**	**11.5**	**11.5**	**0.8**	**2.7**	**0.3**	**2.2**	**1.1**	**4.6**	**4.5**	**May-05**
Custom Benchmark - Fixed Income				*0.8*	*2.6*	*0.0*	*2.3*	*1.5*	*4.0*	*4.0*	*May-05*
IR&M Aggregate Bond	72,093,293	7.7	67.2	0.9	3.3	0.5	3.0	--	--	3.4	Feb-14
BBgBarc US Aggregate TR				*0.8*	*3.1*	*0.1*	*2.7*	*2.1*	*4.3*	*2.9*	*Feb-14*
Intermediate-Term Bond MStar MF Median				*0.9*	*3.5*	*0.8*	*2.7*	*2.3*	*4.7*	*3.0*	*Feb-14*
Intermediate-Term Bond MStar MF Rank				*54*	*61*	*63*	*37*	--	--	*25*	*Feb-14*
IR&M Intermediate TIPS	35,191,959	3.8	32.8	0.7	1.4	-0.2	1.3	--	--	1.2	Feb-14
BBgBarc US TIPS 1-10 Yr TR				*0.7*	*1.4*	*-0.1*	*1.3*	*0.1*	*3.3*	*1.2*	*Feb-14*
Inflation-Protected Bond MStar MF Median				*0.8*	*1.6*	*-0.5*	*1.2*	*-0.2*	*3.5*	*1.3*	*Feb-14*
Inflation-Protected Bond MStar MF Rank				*67*	*66*	*44*	*48*	--	--	*53*	*Feb-14*
Value Added Fixed Income	**85,997,599**	**9.2**	**9.2**	**2.4**	**7.8**	**7.3**	**4.6**	**4.9**	**5.7**	**7.6**	**May-05**
Custom High Yield Benchmark				*2.0*	*7.2*	*6.8*	*4.5*	--	--	--	*May-05*
High Yield Bonds	47,871,950	5.1	55.7	1.8	5.6	7.0	4.6	5.3	--	6.5	Jun-08
50% BBgBarc US High Yield/ 50% Credit Suisse Leveraged Loans				*1.5*	*5.0*	*7.1*	*4.9*	*5.4*	*6.2*	*6.9*	*Jun-08*
Loomis Sayles High Yield	24,965,659	2.7	52.2	2.4	8.4	9.9	5.2	6.9	7.8	8.2	Jan-96
BBgBarc US High Yield TR				*2.0*	*7.0*	*8.9*	*5.8*	*6.4*	*7.8*	*7.3*	*Jan-96*
eA US High Yield Fixed Inc Gross Median				*2.0*	*6.8*	*8.5*	*5.5*	*6.3*	*7.6*	*7.7*	*Jan-96*
eA US High Yield Fixed Inc Gross Rank				*12*	*7*	*18*	*66*	*24*	*43*	*26*	*Jan-96*
Loomis Sayles Bank Loans	22,906,291	2.5	47.8	1.0	2.7	3.8	4.1	4.0	4.2	4.3	Oct-05
Credit Suisse Leveraged Loans				*1.1*	*3.0*	*5.4*	*4.0*	*4.4*	*4.4*	*4.6*	*Oct-05*
eA Float-Rate Bank Loan Gross Median				*1.2*	*3.1*	*5.2*	*4.2*	*4.6*	*5.1*	*5.3*	*Oct-05*
eA Float-Rate Bank Loan Gross Rank				*83*	*80*	*94*	*69*	*89*	*94*	*92*	*Oct-05*

	Market Value ($)	% of Portfolio	% of Sector	QTD (%)	YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Return (%)	Since
Lazard Emerging Market Debt Blend	29,936,375	3.2	34.8	3.5	11.7	5.5	1.7	--	--	2.1	Aug-13
50% JPM EMBI GD / 50% JPM GBI-EM				*3.1*	*11.6*	*6.0*	*3.4*	*2.0*	*5.7*	*3.4*	*Aug-13*
Emerging Markets Bond MStar MF Median				*3.1*	*9.8*	*6.8*	*5.4*	*3.8*	*6.7*	*5.4*	*Aug-13*
Emerging Markets Bond MStar MF Rank				*25*	*26*	*73*	*92*	*--*	*--*	*90*	*Aug-13*
Mezzanine Debt	8,189,275	0.9	9.5	2.4	6.5	12.7	13.3	9.4	8.0	--	
Northstar Mezzanine Partners VI	4,020,196	0.4	49.1								
Newstone Capital Partners II	1,595,682	0.2	19.5								
Northstar Mezzanine Partners V	1,711,208	0.2	20.9								
Northstar Mezzanine Partners IV	334,475	0.0	4.1								
Newstone Capital Partners	435,551	0.0	5.3								
Northstar Mezzanine Partners III	92,163	0.0	1.1								
Real Estate	**111,506,966**	**11.9**	**11.9**	**1.5**	**5.9**	**7.0**	**10.6**	**11.0**	**5.2**	**7.7**	**Oct-00**
NCREIF-ODCE				*1.9*	*5.4*	*7.7*	*10.8*	*11.6*	*5.0*	*8.0*	*Oct-00*
Open-End Real Estate	**101,649,962**	**10.9**	**91.2**	**1.4**	**5.8**	**6.6**	**10.2**	**10.6**	**3.9**	**7.3**	**Jan-99**
PRIT Real Estate	67,150,980	7.2	66.1	1.5	5.8	5.3	10.5	11.0	--	11.8	Apr-10
NCREIF-ODCE				*1.9*	*5.4*	*7.7*	*10.8*	*11.6*	*5.0*	*13.1*	*Apr-10*
NCREIF ODCE Equal Weighted				*1.9*	*5.5*	*7.8*	*11.0*	*11.6*	*4.9*	*13.1*	*Apr-10*
Custom Benchmark				*1.9*	*6.0*	*6.7*	*10.4*	*11.1*	*--*	*12.6*	*Apr-10*
Non-Core Real Estate	**9,857,003**	**1.1**	**8.8**	**3.3**	**7.1**	**14.4**	**15.8**	**17.5**	**8.5**	**12.5**	**Oct-05**
AEW Partners VII	7,107,760	0.8	72.1								
AEW Partners VI	2,679,833	0.3	27.2								

Total Retirement System

As of September 30, 2017

	Market Value ($)	% of Portfolio	% of Sector	QTD (%)	YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Return (%)	Since
Intercontinental Real Estate Investment Fund IV	56,359	0.0	0.6								
AREA Property Partners Fund II	13,051	0.0	0.1								
Private Equity	**55,799,339**	**6.0**	**6.0**	**3.5**	**12.3**	**12.6**	**5.7**	**8.2**	**7.7**	**9.0**	**Oct-00**
Cambridge Associates Fund of Funds Composite 1-Quarter Lag				*4.0*	*8.9*	*12.0*	*8.7*	*11.1*	*7.8*	*5.9*	*Oct-00*
Buyouts	**42,544,939**	**4.6**	**76.2**	**4.2**	**15.4**	**15.7**	**7.9**	**8.6**	**9.8**	**11.6**	**Oct-05**
American Securities Partners VI	8,332,177	0.9	19.6								
Riverside Capital Appreciation Fund VI	6,167,639	0.7	14.5								
Vitruvian Investment Partnership I	4,769,330	0.5	11.2								
Riverside Micro Cap Fund III	6,019,391	0.6	14.1								
Ridgemont II	5,278,082	0.6	12.4								
Capital International Private Equity Fund VI	5,714,917	0.6	13.4								
Harvest Partners V	1,666,755	0.2	3.9								
TA XII	2,297,440	0.2	5.4								
Riverside Capital Fund V	980,025	0.1	2.3								
Riverside Europe III	593,097	0.1	1.4								
Charlesbank Equity Fund VI	433,025	0.0	1.0								
2000 Riverside Capital Appreciation	211,874	0.0	0.5								
2003 Riverside Capital Appreciation	72,261	0.0	0.2								

Total Retirement System

As of September 30, 2017

	Market Value ($)	% of Portfolio	% of Sector	QTD (%)	YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Return (%)	Since
Charlesbank Equity Fund V	8,925	0.0	0.0								
Fund of Funds	**2,458,076**	**0.3**	**4.4**	**0.7**	**-1.7**	**-8.7**	**-13.1**	**-4.8**	**-3.1**	**6.8**	**Oct-05**
PRIT Vintage Year 2016	1,487,242	0.2	60.5								
PRIT Vintage Year 2017	795,996	0.1	32.4								
European Strategic Partners	86,357	0.0	3.5								
INVESCO Private Capital II	88,481	0.0	3.6								
Venture Capital Funds	**10,796,325**	**1.2**	**19.3**	**1.4**	**3.0**	**3.5**	**0.8**	**7.7**	**4.4**	**7.0**	**Oct-05**
Ascent Venture Partners V	4,657,079	0.5	43.1								
Asecent Venture Partners VI	2,222,522	0.2	20.6								
Boston Millennia Partners III	2,125,363	0.2	19.7								
Boston Millennia Partners II	980,057	0.1	9.1								
Ascent Venture Partners II	24,304	0.0	0.2								
Ascent Venture Partners IV	486,335	0.1	4.5								
Ascent Venture Partners III	280,302	0.0	2.6								
Boston Capital Venture III	20,363	0.0	0.2								

Total Retirement System

As of September 30, 2017

	Market Value ($)	% of Portfolio	% of Sector	QTD (%)	YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Return (%)	Since
Global Tactical Asset Allocation	**39,530,941**	**4.2**	**4.2**	**1.8**	**4.7**	**5.5**	**-1.8**	**0.4**	**1.8**	**2.0**	**Aug-07**
Spliced Bechmark				*3.8*	*12.7*	*10.3*	*4.6*	*2.1*	*2.6*	*3.0*	*Aug-07*
William Blair Macro Allocation Strategy (Net of Fees)	39,530,941	4.2	100.0	1.8	4.7	5.5	--	--	--	-2.2	Jun-15
60% MSCI ACWI / 40% Barclays Global Aggregate				*3.8*	*12.7*	*10.3*	*5.1*	*6.3*	*4.0*	*5.7*	*Jun-15*
World Allocation MStar MF Median				*3.4*	*11.1*	*10.8*	*4.5*	*6.4*	*4.2*	*4.0*	*Jun-15*
World Allocation MStar MF Rank				*93*	*96*	*96*	--	--	--	*98*	*Jun-15*
PRIT General Allocation	**122,359,673**	**13.1**	**13.1**	**4.3**	**13.3**	**12.9**	**--**	**--**	**--**	**13.7**	**Jun-16**
60% MSCI ACWI / 40% Barclays Global Aggregate				*3.8*	*12.7*	*10.3*	*5.1*	*6.3*	*4.0*	*11.1*	*Jun-16*
PRIT General Allocation Fund (Net of Fees)	122,359,673	13.1	100.0	3.9	12.9	12.5	--	--	--	13.4	Jun-16
60% MSCI ACWI / 40% Barclays Global Aggregate				*3.8*	*12.7*	*10.3*	*5.1*	*6.3*	*4.0*	*11.1*	*Jun-16*
World Allocation MStar MF Median				*3.4*	*11.1*	*10.8*	*4.5*	*6.4*	*4.2*	*10.8*	*Jun-16*
World Allocation MStar MF Rank				*33*	*30*	*27*	--	--	--	*16*	*Jun-16*
Real Assets	**59,266,503**	**6.3**	**6.3**	**4.1**	**10.1**	**9.5**	**4.0**	**5.4**	**3.3**	**3.4**	**Oct-06**
CPI+3%				*1.5*	*4.5*	*5.3*	*4.2*	*4.3*	*4.7*	*4.8*	*Oct-06*
Natural Resources Assets	**16,989,478**	**1.8**	**28.7**	**5.5**	**19.9**	**22.8**	**-1.0**	**0.9**	**--**	**--**	
S&P Global Natural Resources Index TR USD				*10.8*	*13.0*	*20.5*	*1.3*	*1.1*	*-0.7*	--	
Natural Resources (Public)	**7,834,173**	**0.8**	**46.1**	**11.0**	**10.4**	**15.4**	**-1.5**	**-1.4**	**--**	**-3.9**	**May-11**
SSgA Global Natural Resources Stock Index	7,834,173	0.8	100.0	11.0	10.4	15.4	-1.5	-1.4	--	-3.9	May-11
S&P Global LargeMidCap Commodity and Resources GR USD				*11.1*	*10.2*	*15.3*	*-1.5*	*-1.4*	*-0.1*	*-3.6*	*May-11*
Natural Resources MStar MF Median				*8.6*	*1.9*	*6.6*	*-4.5*	*-1.7*	*-2.3*	*-4.6*	*May-11*
Natural Resources MStar MF Rank				*8*	*18*	*11*	*31*	*50*	--	*47*	*May-11*

Total Retirement System

As of September 30, 2017

	Market Value ($)	% of Portfolio	% of Sector	QTD (%)	YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Return (%)	Since
Natural Resources (Private)	**9,155,305**	**1.0**	**53.9**	**0.9**	**30.0**	**29.9**	**-7.3**	**0.3**	**--**	**9.2**	**Jul-10**
White Deer Energy II	7,184,989	0.8	78.5								
White Deer Energy	1,970,316	0.2	21.5								
Timber	**15,361,600**	**1.6**	**25.9**	**0.7**	**-1.5**	**-4.2**	**-0.8**	**2.1**	**0.7**	**1.8**	**Oct-05**
NCREIF Timberland				*0.6*	*2.1*	*3.3*	*5.3*	*7.2*	*5.2*	*7.2*	*Oct-05*
RMK Select Timberland Investment Fund I	5,383,610	0.6	35.0								
Hancock Timberland VII	5,125,337	0.5	33.4								
RMK Select Timberland Investment Fund II	3,651,720	0.4	23.8								
RMK Balanced Timberland B	1,200,933	0.1	7.8								
Infrastructure	**26,915,425**	**2.9**	**45.4**	**5.1**	**16.2**	**16.1**	**33.3**	**28.8**	**--**	**16.0**	**Jun-08**
DJ Brookfield Global Infrastructure Net TR USD				*3.3*	*15.2*	*9.2*	*4.0*	*--*	*--*	*--*	*Jun-08*
IFM Global Infrastructure (Net of Fees)	20,455,576	2.2	76.0	--	--	--	--	--	--	--	Sep-17
CPI+5%				*2.0*	*6.0*	*7.3*	*6.3*	*6.4*	*6.8*	*--*	*Sep-17*
Global Infrastructure Partners	3,787,287	0.4	14.1								
Global Infrastructure Partners III	2,672,563	0.3	9.9								
Cash	**1,686,343**	**0.2**	**0.2**								
State Street STIF - Cash	1,686,343	0.2	100.0								