

Liquidity Profile

As of October 31, 2020

	Estimated Market Value (\$ mm)	% of Retirement System
Daily	\$372.3	36
Weekly/Semi-Monthly	\$24.0	2
Monthly	\$478.0	46
Quarterly	\$42.0	4
Illiquid	\$124.4	12
Retirement System Total:	\$1,040.8	100%

	Daily	Weekly/Semi- Monthly	Monthly	Quarterly	Illiquid
US Equity	100%				
International Developed Equity	100%				
Emerging Market Equity			100%		
Core Fixed Income	100%				
Value-Add Fixed Income	50%	38%			12%
Real Estate			95%		5%
Private Equity					100%
PRIT General Allocation			100%		
Natural Resources & Timber	47%				53%
Infrastructure				76%	24%
Cash	100%				

**Performance Update
As of September 30, 2020**

PRIT Look Through Analysis – Aggregate Assets | As of September 30, 2020

	Actual Asset ^{1,2} Allocation	PRIT Actual Asset Allocation ¹
Total Retirement System		
Global Equity Assets	44	42
<i>Domestic Equity Assets</i>	21	23
<i>International Developed Market Equity Assets</i>	12	14
<i>International Emerging Market Equity Assets</i>	10	6
Fixed Income Assets	25	24
<i>Core Fixed Income Assets</i> ³	16	17
<i>Value-Added Fixed Income Assets</i> ⁴	9	8
Real Estate Assets	7	8
Private Equity Assets	13	12
Portfolio Completion Strategies / Hedge Funds / GTAA	3	9
Real Assets (Natural Resources, Timber, Infrastructure)	8	4
Cash	<1	<1

¹ Numbers may not sum to 100% due to rounding.

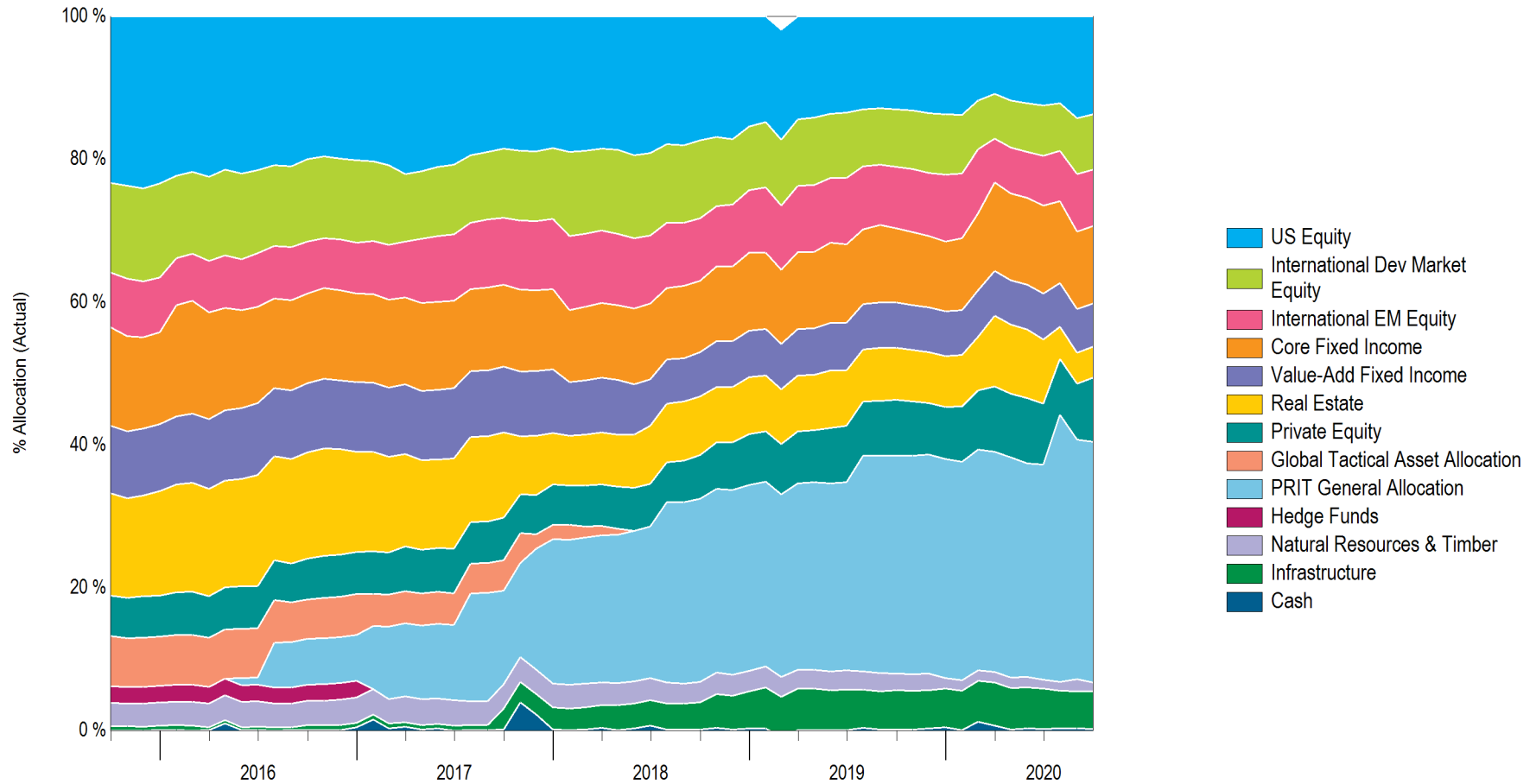
² Asset classes include a pro-rata allocation of the System's 31% holding of the PRIT Core Fund.

³ Retirement System figures include investment grade bonds and TIPS.

⁴ Retirement System figures include high yield fixed income and emerging market debt.

	Allocation vs. Targets and Policy				
	Current Balance	Current Allocation	Policy	Policy Range	Within IPS Range?
US Equity	\$144,193,748	14%	14%	9% - 19%	Yes
International Dev Market Equity	\$81,275,412	8%	8%	4% - 12%	Yes
International EM Equity	\$82,936,891	8%	8%	4% - 12%	Yes
Core Fixed Income	\$113,746,515	11%	10%	5% - 15%	Yes
Value-Add Fixed Income	\$63,019,355	6%	4%	2% - 6%	No
Real Estate	\$45,697,337	4%	6%	4% - 8%	Yes
Private Equity	\$94,648,623	9%	7%	4% - 10%	Yes
PRIT General Allocation	\$353,519,671	34%	35%	0% - 50%	Yes
Natural Resources & Timber	\$12,960,386	1%	3%	1% - 5%	Yes
Infrastructure	\$55,208,424	5%	5%	2% - 8%	Yes
Cash	\$2,502,675	0%	0%	0% - 5%	Yes
Total	\$1,049,709,038	100%	100%		

Asset Allocation History
5 Years Ending September 30, 2020



Asset Class Performance Summary										
	Market Value (\$)	% of Portfolio	QTD (%)	YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
Total Retirement System	1,049,709,038	100.0	6.0	0.8	6.0	5.7	7.9	7.2	7.4	Oct-95
Total Retirement System (Net of Fees)			6.0	0.7	5.9	5.6	7.8	7.0	7.2	
Custom Benchmark - Target Allocation			5.3	2.6	8.0	6.3	8.2	7.7	--	Oct-95
60% MSCI ACWI / 40% Barclays Global Aggregate			6.0	3.6	9.3	6.2	8.0	6.2	6.2	Oct-95
Domestic Equity Assets	144,193,748	13.7	8.7	2.7	11.8	10.3	12.9	13.1	6.7	Aug-00
Russell 3000			9.2	5.4	15.0	11.6	13.7	13.5	6.7	Aug-00
International Developed Market Equity	81,275,412	7.7	6.6	-4.9	3.8	1.4	6.5	5.9	4.9	Aug-00
MSCI EAFE			4.8	-7.1	0.5	0.6	5.3	4.6	3.3	Aug-00
International Emerging Market Equity	82,936,891	7.9	9.6	-2.0	10.0	2.4	10.6	3.6	6.6	Aug-06
MSCI Emerging Markets			9.6	-1.2	10.5	2.4	9.0	2.5	5.0	Aug-06
Core Fixed Income	113,746,515	10.8	1.6	6.8	7.3	5.1	4.2	3.5	4.6	May-05
Custom Benchmark - Fixed Income			1.2	6.8	7.2	5.0	4.0	3.4	4.2	May-05
Value Added Fixed Income	63,019,355	6.0	3.2	-1.2	2.0	3.4	5.6	4.9	6.8	May-05
Custom High Yield Benchmark			3.4	-1.2	1.4	3.1	5.5	--	--	May-05
Real Estate	45,697,337	4.4	0.9	-3.5	-0.5	5.4	6.8	9.7	7.4	Oct-00
NCREIF ODCE			0.5	-0.1	1.4	5.2	6.6	10.3	7.6	Oct-00
Private Equity	94,648,623	9.0	14.6	7.7	9.9	12.2	9.7	9.6	9.5	Oct-00
Cambridge Associates FoF Composite 1Q Lagged			3.8	3.3	3.9	9.8	8.7	11.4	6.6	Oct-00
PRIT General Allocation	353,519,671	33.7	6.1	2.2	6.8	6.4	--	--	8.5	Jun-16
PRIM Interim Benchmark			5.4	2.9	7.1	6.9	8.6	8.0	8.8	Jun-16
60% MSCI ACWI / 40% Barclays Global Aggregate			6.0	3.6	9.3	6.2	8.0	6.2	7.7	Jun-16
Real Assets	68,168,810	6.5	1.6	-7.3	-4.3	3.1	6.3	3.7	3.3	Oct-06
CPI + 3%			1.9	2.9	4.4	4.8	4.9	4.8	4.8	Oct-06

Custom Benchmark - Fixed Income is comprised of 70% Barclays US Aggregate Index and 30% Barclays 1-10 Year TIPS Index.

Custom High Yield Benchmark is comprised of one third Barclays High Yield Index, one third Credit Suisse Leveraged Loans Index, and the final third being split evenly between JPMorgan's Emerging Market Bond Index and Emerging Markets Government Bond Index.

	Trailing Performance										Inception Date
	Market Value (\$)	% of Portfolio	% of Sector	QTD (%)	YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	
Total Retirement System	1,049,709,038	100.0	100.0	6.0	0.8	6.0	5.7	7.9	7.2	7.4	Oct-95
Total Retirement System (Net of Fees)				6.0	0.7	5.9	5.6	7.8	7.0	7.2	
<i>Custom Benchmark - Target Allocation</i>				5.3	2.6	8.0	6.3	8.2	7.7	--	Oct-95
<i>60% MSCI ACWI / 40% Barclays Global Aggregate</i>				6.0	3.6	9.3	6.2	8.0	6.2	6.2	Oct-95
Domestic Equity Assets	144,193,748	13.7	13.7	8.7	2.7	11.8	10.3	12.9	13.1	6.7	Aug-00
<i>Russell 3000</i>				9.2	5.4	15.0	11.6	13.7	13.5	6.7	Aug-00
SSgA S&P 500 Index (Net of Fees)	33,051,047	3.1	22.9	8.9	5.5	15.0	12.2	14.1	13.8	7.1	Aug-98
<i>S&P 500</i>				8.9	5.6	15.1	12.3	14.1	13.7	7.1	Aug-98
SSgA Russell 1000 Growth Index (Net of Fees)	48,510,165	4.6	33.6	13.2	24.3	37.5	21.6	20.1	17.2	17.1	Nov-09
<i>Russell 1000 Growth</i>				13.2	24.3	37.5	21.7	20.1	17.3	17.1	Nov-09
SSgA Russell 1000 Value Index (Net of Fees)	39,984,988	3.8	27.7	5.6	-11.5	-4.9	2.7	7.7	10.0	6.6	Jul-05
<i>Russell 1000 Value</i>				5.6	-11.6	-5.0	2.6	7.7	9.9	6.5	Jul-05
SSgA S&P Midcap 400 Index (Net of Fees)	9,316,196	0.9	6.5	4.7	-8.6	-2.1	2.9	8.1	10.5	8.4	Sep-06
<i>S&P 400 MidCap</i>				4.8	-8.6	-2.2	2.9	8.1	10.5	8.3	Sep-06
Lee Munder Small Cap Value (Net of Fees)	13,331,352	1.3	9.2	2.1	-20.1	-13.1	-3.8	4.4	7.4	8.7	Nov-09
<i>Russell 2000 Value</i>				2.6	-21.5	-14.9	-5.1	4.1	7.1	8.3	Nov-09

Performance Update | As of September 30, 2020

	Market Value (\$)	% of Portfolio	% of Sector	QTD (%)	YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
International Developed Market Equity	81,275,412	7.7	7.7	6.6	-4.9	3.8	1.4	6.5	5.9	4.9	Aug-00
MSCI EAFE				4.8	-7.1	0.5	0.6	5.3	4.6	3.3	Aug-00
SSgA MSCI EAFE Index	55,946,913	5.3	68.8	4.9	-6.6	1.1	1.0	5.6	5.0	5.4	Sep-04
MSCI EAFE				4.8	-7.1	0.5	0.6	5.3	4.6	5.1	Sep-04
Acadian Non-U.S. Small Cap Equity (Net of Fees)	25,328,499	2.4	31.2	10.2	-1.7	9.2	1.1	8.3	8.7	7.6	Feb-05
MSCI EAFE Small Cap				10.3	-4.2	6.8	1.4	7.4	7.3	6.2	Feb-05
International Emerging Market Equity	82,936,891	7.9	7.9	9.6	-2.0	10.0	2.4	10.6	3.6	6.6	Aug-06
MSCI Emerging Markets				9.6	-1.2	10.5	2.4	9.0	2.5	5.0	Aug-06
PRIT Emerging Markets (Net of Fees)	82,936,891	7.9	100.0	9.6	-2.0	10.0	2.4	--	--	8.2	Sep-16
MSCI Emerging Markets				9.6	-1.2	10.5	2.4	9.0	2.5	7.3	Sep-16
Core Fixed Income	113,746,515	10.8	10.8	1.6	6.8	7.3	5.1	4.2	3.5	4.6	May-05
Custom Benchmark - Fixed Income				1.2	6.8	7.2	5.0	4.0	3.4	4.2	May-05
IR&M Aggregate Bond	73,532,637	7.0	64.6	1.0	7.0	7.2	5.4	4.5	--	4.3	Feb-14
BBgBarc US Aggregate TR				0.6	6.8	7.0	5.2	4.2	3.6	4.0	Feb-14
IR&M Intermediate TIPS	40,213,878	3.8	35.4	2.6	6.6	7.6	4.5	3.6	--	2.7	Feb-14
BBgBarc US TIPS 1-10 Yr TR				2.5	6.7	7.7	4.6	3.7	2.7	2.7	Feb-14
Value Added Fixed Income	63,019,355	6.0	6.0	3.2	-1.2	2.0	3.4	5.6	4.9	6.8	May-05
Custom High Yield Benchmark				3.4	-1.2	1.4	3.1	5.5	--	--	May-05

Custom Benchmark - Fixed Income is comprised of 70% Barclays US Aggregate Index and 30% Barclays 1-10 Year TIPS Index.

Custom High Yield Benchmark is comprised of one third Barclays High Yield Index, one third Credit Suisse Leveraged Loans Index, and the final third being split evenly between JPMorgan's Emerging Market Bond Index and Emerging Markets Government Bond Index.

Performance Update | As of September 30, 2020

	Market Value (\$)	% of Portfolio	% of Sector	QTD (%)	YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
High Yield Bonds	37,320,761	3.6	59.2	4.3	0.4	2.6	3.4	4.9	5.0	5.7	Jun-08
50% BBgBarc US High Yield/ 50% Credit Suisse Leveraged Loans				4.4	-0.1	2.1	3.7	5.4	5.5	6.1	Jun-08
Loomis Sayles High Yield (Net of Fees)	19,968,421	1.9	53.5	4.8	1.5	4.4	3.4	--	--	--	Jan-96
BBgBarc US High Yield TR				4.6	0.6	3.3	4.2	6.8	6.5	6.9	Jan-96
Loomis Sayles Bank Loans (Net of Fees)	17,352,340	1.7	46.5	3.4	-1.7	-0.5	2.3	--	--	--	Oct-05
Credit Suisse Leveraged Loans				4.1	-0.8	0.8	3.2	4.0	4.4	4.3	Oct-05
Total Emerging Markets Debt	18,536,237	1.8	29.4	1.8	-3.5	0.7	1.6	5.2	--	1.4	Aug-13
50% JPM EMBI GD / 50% JPM GBI-EM				1.5	-3.4	0.0	1.9	5.5	3.0	2.8	Aug-13
Lazard Emerging Market Debt Blend	18,536,237	1.8	100.0	1.8	-3.5	0.7	1.6	5.2	--	1.9	Aug-13
50% JPM EMBI GD / 50% JPM GBI-EM				1.5	-3.4	0.0	1.9	5.5	3.0	2.8	Aug-13
Mezzanine Debt	7,162,357	0.7	11.4	1.4	6.2	8.2	10.8	11.1	10.3	--	Oct-02
Northstar Mezzanine Partners VI	5,346,174	0.5	74.6								
Newstone Capital Partners II	583,743	0.1	8.2								
Northstar Mezzanine Partners V	1,203,590	0.1	16.8								
Northstar Mezzanine Partners IV	14,674	0.0	0.2								
Newstone Capital Partners	0	0.0	0.0								
Northstar Mezzanine Partners III	14,176	0.0	0.2								

Custom Benchmark comprised of 80% NCREIF ODCE, 10% NAREIT Equity, and 10% FTSE NAREIT Developed ex US.

Performance Update | As of September 30, 2020

	Market Value (\$)	% of Portfolio	% of Sector	QTD (%)	YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
Real Estate	45,697,337	4.4	4.4	0.9	-3.5	-0.5	5.4	6.8	9.7	7.4	Oct-00
<i>NCREIF ODCE</i>				<i>0.5</i>	<i>-0.1</i>	<i>1.4</i>	<i>5.2</i>	<i>6.6</i>	<i>10.3</i>	<i>7.6</i>	<i>Oct-00</i>
Open-End Real Estate	43,058,641	4.1	94.2	1.2	-3.3	-0.8	4.9	6.3	9.2	6.9	Jan-99
PRIT Real Estate	43,058,641	4.1	100.0	1.2	-3.3	-0.8	4.9	6.4	9.6	9.8	Apr-10
<i>NCREIF ODCE</i>				<i>0.5</i>	<i>-0.1</i>	<i>1.4</i>	<i>5.2</i>	<i>6.6</i>	<i>10.3</i>	<i>10.8</i>	<i>Apr-10</i>
<i>NCREIF ODCE Equal Weighted</i>				<i>0.6</i>	<i>0.2</i>	<i>1.7</i>	<i>5.5</i>	<i>7.0</i>	<i>10.4</i>	<i>10.9</i>	<i>Apr-10</i>
<i>Custom Benchmark</i>				<i>0.9</i>	<i>-3.4</i>	<i>-1.7</i>	<i>4.4</i>	<i>6.3</i>	<i>9.7</i>	<i>10.2</i>	<i>Apr-10</i>
Non-Core Real Estate	2,638,696	0.3	5.8	-3.8	-5.7	10.2	13.7	13.8	16.3	12.8	Oct-05
AEW Partners VII	2,581,762	0.2	97.8								
AEW Partners VI	56,934	0.0	2.2								
Private Equity	94,648,623	9.0	9.0	14.6	7.7	9.9	12.2	9.7	9.6	9.5	Oct-00
<i>Cambridge Associates FoF Composite 1Q Lagged</i>				<i>3.8</i>	<i>3.3</i>	<i>3.9</i>	<i>9.8</i>	<i>8.7</i>	<i>11.4</i>	<i>6.6</i>	<i>Oct-00</i>

Performance Update | As of September 30, 2020

	Market Value (\$)	% of Portfolio	% of Sector	QTD (%)	YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
Buyouts	41,961,755	4.0	44.3	17.1	9.6	12.9	17.0	13.3	11.8	12.7	Oct-05
American Securities Partners VI	3,912,089	0.4	9.3								
Riverside Capital Appreciation Fund VI	3,980,923	0.4	9.5								
Vitruvian Investment Partnership I	173,162	0.0	0.4								
Riverside Micro Cap Fund III	9,626,742	0.9	22.9								
Ridgemont II	10,204,647	1.0	24.3								
Capital International Private Equity Fund VI	5,209,773	0.5	12.4								
Harvest Partners V	16,712	0.0	0.0								
TA XII	7,967,251	0.8	19.0								
Riverside Capital Fund V	575,267	0.1	1.4								
Riverside Europe III	49,265	0.0	0.1								
Charlesbank Equity Fund VI	245,924	0.0	0.6								
Fund of Funds	43,609,106	4.2	46.1	16.5	10.0	11.7	7.4	-5.5	2.2	6.9	Oct-05
PRIT Vintage Year 2016	6,866,825	0.7	15.7								
PRIT Vintage Year 2017	17,980,752	1.7	41.2								
European Strategic Partners	68,774	0.0	0.2								
INVESCO Private Capital II	40,740	0.0	0.1								
PRIT Vintage Year 2018	12,066,561	1.1	27.7								
PRIT Vintage Year 2019	5,813,318	0.6	13.3								
PRIT Vintage Year 2020	772,136	0.1	1.8								

Worcester Retirement System

Performance Update | As of September 30, 2020

	Market Value (\$)	% of Portfolio	% of Sector	QTD (%)	YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
Venture Capital Funds	9,077,761	0.9	9.6	-2.4	-8.3	-9.2	-4.4	-1.9	1.9	4.6	Oct-05
Ascent Venture Partners V	3,978,922	0.4	43.8								
Ascent Venture Partners VI	4,469,037	0.4	49.2								
Boston Millennia Partners III	335,937	0.0	3.7								
Boston Millennia Partners II	205,686	0.0	2.3								
Ascent Venture Partners II	623	0.0	0.0								
Ascent Venture Partners IV	46,781	0.0	0.5								
Ascent Venture Partners III	40,775	0.0	0.4								
PRIT General Allocation	353,519,671	33.7	33.7	6.1	2.2	6.8	6.4	--	--	8.5	Jun-16
PRIM Interim Benchmark				5.4	2.9	7.1	6.9	8.6	8.0	8.8	Jun-16
60% MSCI ACWI / 40% Barclays Global Aggregate				6.0	3.6	9.3	6.2	8.0	6.2	7.7	Jun-16
PRIT General Allocation Fund (Net of Fees)	353,519,671	33.7	100.0	6.1	2.2	6.8	6.4	--	--	8.5	Jun-16
PRIM Interim Benchmark				5.4	2.9	7.1	6.9	8.6	8.0	8.8	Jun-16
60% MSCI ACWI / 40% Barclays Global Aggregate				6.0	3.6	9.3	6.2	8.0	6.2	7.7	Jun-16
Real Assets	68,168,810	6.5	6.5	1.6	-7.3	-4.3	3.1	6.3	3.7	3.3	Oct-06
CPI + 3%				1.9	2.9	4.4	4.8	4.9	4.8	4.8	Oct-06
Natural Resources Assets	12,960,386	1.2	19.0	0.9	-21.9	-21.5	-10.3	-0.2	-2.3	--	
S&P Global Natural Resources Index TR USD				2.1	-17.4	-9.5	-2.8	6.7	0.2	--	

	Market Value (\$)	% of Portfolio	% of Sector	QTD (%)	YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
Natural Resources (Public)	8,238,251	0.8	63.6	1.9	-15.9	-9.0	-1.4	6.5	--	-3.1	May-11
SSgA Global Natural Resources Stock Index (Net of Fees)	8,238,251	0.8	100.0	2.6	-15.4	-8.5	-1.3	--	--	--	May-11
S&P Global LargeMidCap Commodity and Resources NR USD				2.5	-15.9	-9.2	-1.7	6.1	-0.6	-3.3	May-11
Natural Resources (Private)	3,654,050	0.3	28.2	3.1	-33.9	-43.5	-22.6	-10.2	-1.3	-1.3	Jul-10
White Deer Energy II	3,424,011	0.3	93.7								
White Deer Energy	230,039	0.0	6.3								
Timber	1,068,085	0.1	8.2	-4.1	-8.8	-4.5	-6.3	-3.9	-1.4	0.1	Oct-05
NCREIF Timberland (1-Quarter Lag)				0.1	0.2	0.3	2.3	2.7	4.4	6.2	Oct-05
RMK Select Timberland Investment Fund I	262,332	0.0	24.6								
Hancock Timberland VII	200,253	0.0	18.7								
RMK Select Timberland Investment Fund II	605,500	0.1	56.7								
Infrastructure	55,208,424	5.3	81.0	2.1	-2.9	1.3	10.7	20.1	18.3	14.7	Jun-08
CPI+5%				2.4	4.4	6.4	6.8	6.9	6.8	6.6	Jun-08
IFM Global Infrastructure (Net of Fees)	43,083,321	4.1	78.0	1.9	-1.0	4.1	11.7	--	--	11.7	Sep-17
Global Infrastructure Partners	79,558	0.0	0.1								
Global Infrastructure Partners III	11,569,633	1.1	21.0								