# STATE OF RHODE ISLAND INVESTMENT COMMISSION MEETING

DATA AT October 31<sup>st</sup>, 2017

December 6<sup>th</sup>, 2017 MEETING

#### MEMBERS OF THE STATE INVESTMENT COMMISSION

#### Honorable Seth Magaziner, Chair

Mr. Robert K. Benson
Mr. J. Michael Costello
Mr. Thomas P. Fay
Mr. Thomas Mullaney
Ms. Karen Hammond
Mr. Frank J. Karpinski
Ms. Marcia Reback



Agenda



#### State of Rhode Island and Providence Plantations Office of the General Treasurer

Seth Magaziner General Treasurer

# RHODE ISLAND STATE INVESTMENT COMMISSION MEETING NOTICE

The next meeting of the Rhode Island State Investment Commission has been scheduled for Wednesday, December 6<sup>th</sup>, 2017 at 9:00 a.m. in the Executive Conference Room, Department of Administration, 1 Capitol Hill, Providence.

#### **AGENDA**

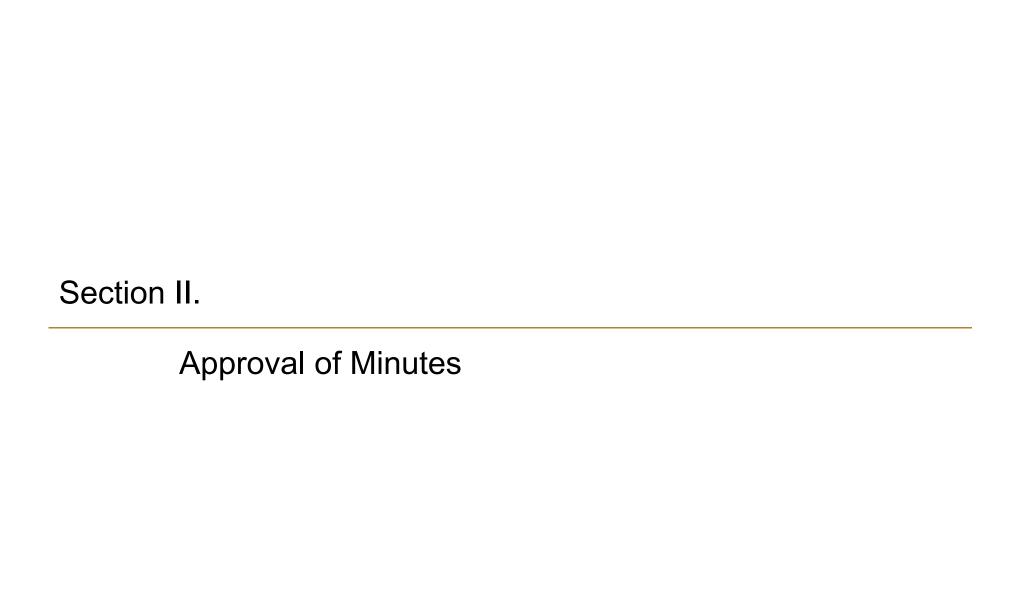
- Chairperson Call to Order
- Membership Roll Call
- Approval of Minutes
  - State Investment Commission Meeting held on October 25<sup>th</sup>, 2017\*
- Private Credit Investment Recommendation, Owl Rock\*
  - Tom Lynch, Cliffwater
  - Doug Ostrover & Natalie Oelkers, Owl Rock
- Private Equity Investment Recommendation, Carlyle Asia V\*
  - Tom Lynch, Cliffwater
  - Jessica Brennan & Patrick Siewert, Carlyle
- 529 Plan Semiannual Update
  - Tiffany Spudich, Capitol Cities
- General Consultant Search
  - General Consultant Finalist Presentation NEPC\*
  - Discussion of current general consultant\*\*
- Consideration of 2018 SIC Meeting Schedule\*
- Legal Counsel Report
- Chief Investment Officer Report
- Treasurer's General Comments

#### POSTED ON December 1<sup>st</sup>, 2017

Anyone wishing to attend this meeting who may have special needs for access or services such as an interpreter, please contact Michael Villapiano at (401) 574-9144 twenty-four hours in advance of the scheduled meeting.

<sup>\*</sup> Commission members may be asked to vote on this item.

<sup>\*\*</sup>The Commission may seek to convene into executive session pursuant to R.I.G.L. 42-46-5(a)(1).





#### **State Investment Commission**

Monthly Meeting Minutes Wednesday, October 25th, 2017 9:00 a.m. Room 205, State House

The Monthly Meeting of the State Investment Commission (SIC) was called to order at 9:02, Wednesday, October 25<sup>th</sup>, 2017 in Room 205, State House.

#### I. Roll Call of Members

The following members were present: Mr. Michael Costello, Mr. Thomas Fay, Ms. Marie Langlois, Ms. Marcia Reback, Ms. Karen Hammond, Ms. Sylvia Maxfield, Mr. Thomas Mullaney, Mr. Robert Benson, Mr. Frank Karpinski, and Treasurer Seth Magaziner.

Also in attendance: Mr. Tom Lynch, Cliffwater; Mr. John Burns, Pension Consulting Alliance (PCA); Mr. David Glickman, Pension Consulting Alliance (PCA); Larry Brown and David Iden, TIAA; Mr. Alec Stais, Chief Investment Officer; Ms. Sally Dowling, Adler, Pollock & Sheehan, legal counsel; Ms. Kimberley Shockley, Associate Director College & Retirement Savings Plans; and other members of the Treasurer's staff.

Treasurer Magaziner called the meeting to order at 9:02 a.m.

### II. Approval of Minutes

On a motion by Mr. Fay and seconded by Ms. Hammond it was unanimously **VOTED: to approve the draft minutes of the September 27th, 2017 meeting of the State Investment Commission.** 

### III. 401(a) Plan Quarterly Review, TIAA

Treasurer Magaziner introduced the TIAA team of Mr. Brown and Mr. Iden. Mr. Iden spoke to the quarter's member engagement. He told the board about an event where he teamed with the Department of Administration as well as Ms. Shockley and they individually met with 178 beneficiaries. The team is on track to have more member engagement in 2017 than they did in 2016. Mr. Iden said that on the 457 side there were 25 new enrollees in TIAA on top of the Valic participants moving over on October 12th. He added that the 457 plan had about \$33 million in it as of that date. Mr. Brown recapped the plan's investment performance for the quarter. He showed that the year-to-date performance ranged from 1.5% to 23% varying by strategy. International emerging markets have been a strong performer year-to-date. They continue to monitor the net expense ratio and try to take advantage of opportunities to lower it. He noted that as the share classes have more assets under management fees fall. The 401(a) has approximately \$60 million which enables them to take advantage of the scale and offer the 457 plan participants the same 7 basis point fee.

#### IV. Real Estate Review

Mr. Glickman noted the three areas he would like to cover in his presentation: the current state of the domestic commercial real estate market; ERSRI's real estate portfolio; and a forward looking pacing plan

to achieve the recently adopted targets. He commented on the relative healthiness of the market and the measured construction and building that he believes the US market can sustain. He spoke to current lending standards which require between ½ to 1/3 of a new project to be equity and the remainder to be financed with debt. He commented on how retail has been repurposed, but there has not been much expansion in the sector. He touched on more trends across different sectors of the commercial real estate market. Mr. Glickman noted that no one can predict what the future of commercial real estate will entail, but that PCA thinks returns will not be as fruitful as they have been the last few years. He differentiated his outlook on core versus non-core assets in the asset class. The last thing Mr. Glickman mentioned regarding the real estate market in general was the metrics PCA uses to judge the relative attractiveness the asset class at a certain time. Regarding ERSRI's real estate portfolio, Mr. Glickman noted that the outperformance in relation to the benchmark is due to the allocation to non-core assets. Real estate value appreciation has been a tail-wind in the last few years performance. He believes the leverage in ERSRI's portfolio is immaterial because of property occupancy and net operating income their portfolio has been achieving. Mr. Glickman recommended to reduce the core allocation to add to the non-core allocation to reach the desired balance between the two. He modeled the effect that redeeming from Prudential would have to the portfolio and how it would free capital to allocate to non-core to enhance returns. He noted PCA believes reducing the number of managers in the core real estate allocation would lessen fees while not changing the risk adjusted returns of the portfolio.

The Board asked questions.

### V. Consultant Contract Extension, Capital Cities

Ms. Shockley gave a recap of the various things Capital Cities has helped ERSRI plans with since November 1<sup>st</sup>, 2014 when they were elected a fiduciary and investment consultant. Ms. Shockley asked the board to extend the contract of their services one year starting November 1<sup>st</sup>, 2017.

On a motion by Ms. Reback and seconded by Ms. Hammond, it was unanimously VOTED: that the Employees' Retirement System of the State of Rhode Island approve a 1-year extension of its contract with Capital cities for \$75,000 to take effect November 1st, 2017.

### VI. Legal Counsel Report

Mrs. Dowling reported that an updated signatory authorization was required in connection with subscriptions to alternative investments.

On a motion by Ms. Reback, seconded by Ms. Maxfield, it was unanimously VOTED: That in connection with investments authorized by the Rhode Island State Investment Commission, Seth M. Magaziner, General Treasurer, Amy Crane, General Counsel, Patrick Marr, Chief of Staff, Kerri Baker, Cash Manager and Alec Stais, Chief Investment Officer, and each of them be, and hereby is, authorized, empowered and directed to execute and deliver by and on behalf of the Employees' Retirement System of the State of Rhode Island any and all Subscription Agreements, Side Letters, documents, instruments and other writings which each of them in the exercise of his or her sole discretion shall deem necessary or desirable and in the best interest of the Employees' Retirement System of the State of Rhode Island, the execution thereof by such authorized officer to be conclusive evidence that the same is duly authorized.

### VII. Chief Investment Officer Report

Mr. Stais gave a high-level overview of the plan's performance during October. Mr. Stais gave credit to the equity markets for leading the good performance, and noted our fixed income allocations have beaten their benchmarks, as well. He spoke of macroeconomic factors that have led to strong market performances like the corporate tax rate cut which would raise corporate earnings across the country. The board inquired about the QVM Public Growth allocation which outperformed over the month. Mr. Stais mentioned the staff has been performing research on the public equity markets to see if the plan is optimally allocated. He gave an update on the progress of Aspect's funding to finalize the allocation of the Crisis Protection Class. Lastly, Mr. Stais updated the Board on the general consultant search stating that he plans on bringing a consultant or two to the next SIC Meeting.

#### VIII. Treasurer's General Comments

The Treasurer recommended the board and staff consider Mr. Glickman's real estate portfolio recommendation in the future.

The Treasurer noted that the Collegebound plans had their strong Morningstar ratings reaffirmed. He emphasized that focus is now on sales being that the quality of the product has been reaffirmed. He brought up the possibility of moving the November meeting to December 6<sup>th</sup>.

There being no other business to come before the board, on a motion by Mr. Fay and seconded by Ms. Langlois, the meeting adjourned at 10:18 a.m.

Respectfully submitted,

Seth Magaziner, General Treasurer Section III.

**Staff Summary** 

# **Portfolio Highlights**

#### October 2017

On the month, the total portfolio value increased by approximately \$78.3 million. The month's \$108.0 million of positive investment performance was offset by \$29.7 million of transfers to meet pension payroll in excess of pension contributions. On a percentage basis, the portfolio increased 1.32% net of fees, outperforming the plan benchmark of 1.24% and the 60% global equity/40% fixed income benchmark of 1.27%.

The plan's return was led by strong equity performance across its strategies, including a 2.33% QVM return which handily beat its benchmark of 1.89%. The income bucket hurt performance slightly by losing 0.57% and underperforming its benchmark's return of -0.20%. The CPC's trend followers had great outperformance vs. their benchmark, 4.94% vs 2.35%. The inflation protection allocation also outperformed its benchmark by 0.14% with a return of 0.98%.

Calendar year-to-date, the total portfolio has increased by \$576.2 million, with net gains of \$898.7 million offset by \$322.5 million in pension payments. The portfolio's 11.87% net return outperformed the strategic benchmark of 11.76%, but lagged the 60/40 return of 12.84%, over the period.

Fiscal year-to-date through October, the total portfolio value increased by approximately \$231.2 million. The month's \$383.6 million of positive investment performance was offset by \$152.4 million of transfers to meet pension payroll in excess of pension contributions. The portfolio increased 4.80% net of fees, beating the plan benchmark of 4.62%, and the 60% global equity/40% fixed income benchmark return of 4.75%.

Over a 3-year time frame and when comparing against a 60/40 portfolio, the ERSRI portfolio outperformed at 6.22% net of fees versus the plan benchmark of 5.92% and the 60/40 portfolio which earned 5.83%. Over a 5-year time frame, the ERSRI portfolio earned 7.90% net of fees, outperforming the plan benchmark return of 7.79% and 60/40 benchmark which posted 7.34%.



### State of Rhode Island and Providence Plantations Office of the General Treasurer

Seth Magaziner

General Treasurer

State Investment Commission State of Rhode Island, State House Providence, Rhode Island November 27, 2017

This is to certify that the amounts so listed below belong to the credit of the Employees' Retirement, Municipal Employees', State Police and Judicial Retirement Systems of the State of Rhode Island at the close of business on October 31, 2017.

# Employees' Retirement System of Rhode Island Composite Reporting Investment Valuation October 31, 2017

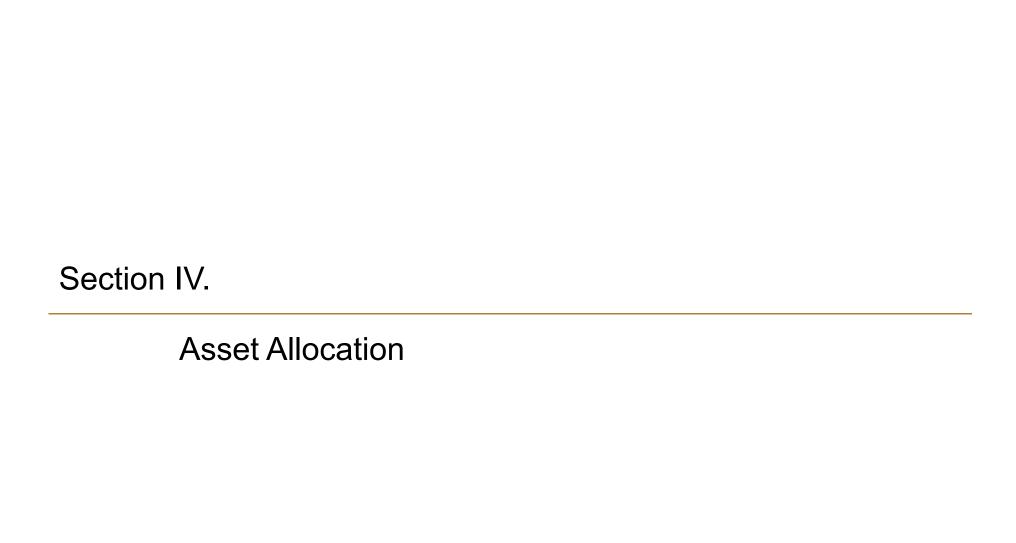
Assot Class	Base Market Value
Grand Total	8,272,215,381
CASH EQUIVALENT*	584,038,031
<b>EQUITY HEDGE FUNDS**</b>	299,601,036
GLOBAL PUBLIC EQUTIY	3,843,638,278
CREDIT	370,973,844
INFLATION-LINKED BDS	204,610,936
PRIVATE EQUITY**	569,542,919
REAL ESTATE**	596,335,359
REAL RET HEDGE FUNDS**	310,202,333
INFRASTRUCTURE**	268,786,539
US TRADITIONAL FIXED	944,125,114
CPC PROGRAM	280,360,992

Plan Allocations	%	Base Market Velue
Grand Total	100.00%	8,272,215,381
STATE EMP RET PLAN	75.03%	6,206,558,895
MUNI EMP RET PLAN	18.47%	1,527,671,159
TEACHER'S SURVIVOR BENEFIT	3.88%	320,946,472
STATE POLICE RET PL	1.63%	134,765,766
JUDICIAL RET PLAN	0.86%	70,843,379
NON-CONTRIB JUD RET	0.01%	672,571
NON-CONT ST POL RET	0.13%	10.757.139

<sup>\*</sup> Cash & Short-Term Investments, as shown, also includes amounts available within specific active-manager mandates, and thus as aggregated will not tie directly to separate cash allocations as reported elsewhere.

Investment Accounting Manager

<sup>\*\*</sup> Alternative Investments – comprising the five components as indicated – have varying degrees of liquidity and may not have readily determinable market values. As such, they may be based on appraisals only.



Balance Date: 10/31/2017

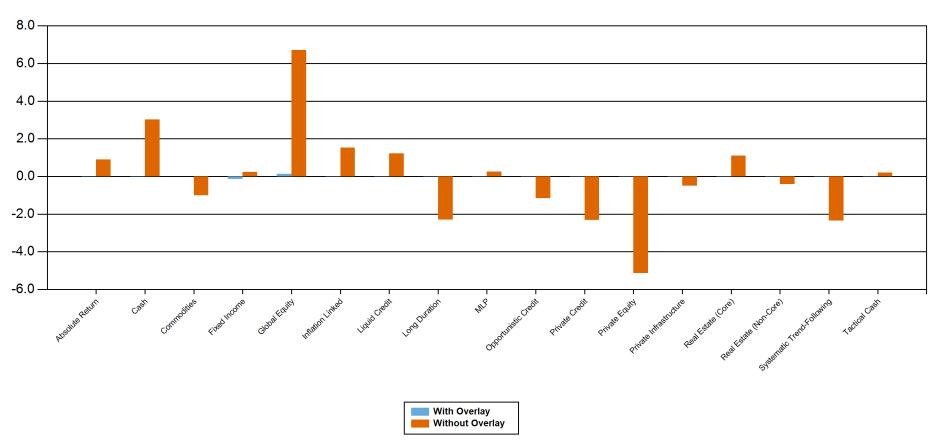


Asset Class Physical Exposure		xposure	Synthetic Ex	<u>kposure</u>	Net Po	sition_	Overlay	<u>Target</u>	Policy Target		
Total Market Value	8,243.8	100.0 %	0.0	0.0 %	8,243.8	100.0 %	8,243.9	100.0 %	8,243.9	100.00 %	
Cash	248.6	3.0 %	-241.9	-2.9 %	6.7	0.1 %	6.2	0.1 %	0.0	0.00 %	
Cash	248.6	3.0 %	-241.9	-2.9 %	6.7	0.1 %	6.2	0.1 %	0.0	0.00 %	
Equity	4,333.7	52.6 %	44.4	0.5 %	4,378.2	53.1 %	4,367.4	53.0 %	4,204.4	51.00 %	
Global Equity	3,850.7	46.7 %	44.4	0.5 %	3,895.1	47.2 %	3,884.3	47.1 %	3,297.5	40.00 %	
Private Equity	483.0	5.9 %	0.0	0.0 %	483.0	5.9 %	483.0	5.9 %	906.8	11.00 %	
Fixed	1,760.7	21.4 %	197.5	2.4 %	1,958.2	23.8 %	1,969.6	23.9 %	1,896.1	23.00 %	
Fixed Income	966.9	11.7 %	197.5	2.4 %	1,164.4	14.1 %	1,175.7	14.3 %	948.0	11.50 %	
Inflation Linked	208.0	2.5 %	0.0	0.0 %	208.0	2.5 %	208.0	2.5 %	82.4	1.00 %	
Liquid Credit	388.7	4.7 %	0.0	0.0 %	388.7	4.7 %	388.7	4.7 %	288.5	3.50 %	
Long Duration	140.6	1.7 %	0.0	0.0 %	140.6	1.7 %	140.6	1.7 %	329.8	4.00 %	
Private Credit	56.6	0.7 %	0.0	0.0 %	56.6	0.7 %	56.6	0.7 %	247.3	3.00 %	
Other	1,900.7	23.1 %	0.0	0.0 %	1,900.7	23.1 %	1,900.7	23.1 %	2,143.4	26.00 %	
Absolute Return	610.6	7.4 %	0.0	0.0 %	610.6	7.4 %	610.6	7.4 %	535.9	6.50 %	
Commodities	0.0	0.0 %	0.0	0.0 %	0.0	0.0 %	0.0	0.0 %	82.4	1.00 %	
MLP	144.5	1.8 %	0.0	0.0 %	144.5	1.8 %	144.5	1.8 %	123.7	1.50 %	
Opportunistic Credit	28.5	0.3 %	0.0	0.0 %	28.5	0.3 %	28.5	0.3 %	123.7	1.50 %	
Private Infrastructure	123.7	1.5 %	0.0	0.0 %	123.7	1.5 %	123.7	1.5 %	164.9	2.00 %	
Real Estate (Core)	420.5	5.1 %	0.0	0.0 %	420.5	5.1 %	420.5	5.1 %	329.8	4.00 %	
Real Estate (Non-Core)	171.9	2.1 %	0.0	0.0 %	171.9	2.1 %	171.9	2.1 %	206.1	2.50 %	
Systematic Trend-Following	136.3	1.7 %	0.0	0.0 %	136.3	1.7 %	136.3	1.7 %	329.8	4.00 %	
Tactical Cash	264.6	3.2 %	0.0	0.0 %	264.6	3.2 %	264.6	3.2 %	247.3	3.00 %	

Balance Date: 10/31/2017



#### **Percent Deviation from Overlay Target**



**Total Absolute Notional Value: 241.9 (USD)** 

Balance Date: 10/31/2017



Manager	Total Market	Value	Equity Market	Value	Fixed Market	Value	Other Market	Value	Cash Balance	
	·	<u></u>		<u>.</u>		<u></u>	,	<u></u>		<u></u>
Total Assets Cash	8,243.9 234.9	100.0 % 2.8 %	4,333.7 0.0	52.6 % 0.0 %	1,760.7 0.0	21.4 % 0.0 %	1,900.7 0.0	23.1 % 0.0 %	248.6 234.8	3.0 % 2.8 %
Cash Acct (Pooled Trust)	234.9	2. <b>6</b> % 2.7 %	0.0	0.0 % 0.0 %	0.0	0.0 %	0.0	0.0 % 0.0 %	234.6 220.2	<b>2.6 %</b> 2.7 %
Municipal EE's Retirement Plan	0.0	0.0 %	0.0	0.0 %	0.0	0.0 %	0.0	0.0 %	0.0	0.0 %
Russell Overlay	14.6	0.0 %	0.0	0.0 %	0.0	0.0 %	0.0	0.0 %	14.6	0.0 %
State EE's Retirement Plan	0.0	0.0 %	0.0	0.0 %	0.0	0.0 %	0.0	0.0 %	0.0	0.0 %
Equity	4,333.8	52.6 %	4,333.7	52.6 %	0.0	0.0 %	0.0	0.0 %	0.1	0.0 %
Global Equity	3,850.8	46.7 %	3,850.7	46.7 %	0.0	0.0 %	0.0	0.0 %	0.1	0.0 %
Global Equity Transition	0.1	0.0 %	0.0	0.0 %	0.0	0.0 %	0.0	0.0 %	0.1	0.0 %
QVM Tilt	1,242.6	15.1 %	1,242.6	15.1 %	0.0	0.0 %	0.0	0.0 %	0.0	0.0 %
Rhode Island Transition Acct	0.0	0.0 %	0.0	0.0 %	0.0	0.0 %	0.0	0.0 %	0.0	0.0 %
Shott Capital	0.8	0.0 %	0.8	0.0 %	0.0	0.0 %	0.0	0.0 %	0.0	0.0 %
SSgA Emerging Mkts	357.8	4.3 %	357.8	4.3 %	0.0	0.0 %	0.0	0.0 %	0.0	0.0 %
SSgA MSCI Canada	109.2	1.3 %	109.2	1.3 %	0.0	0.0 %	0.0	0.0 %	0.0	0.0 %
SSgA MSCI EAFE	766.0	9.3 %	766.0	9.3 %	0.0	0.0 %	0.0	0.0 %	0.0	0.0 %
SSgA Russell 3000	1,374.4	16.7 %	1,374.4	16.7 %	0.0	0.0 %	0.0	0.0 %	0.0	0.0 %
Private Equity	483.0	5.9 %	483.0	5.9 %	0.0	0.0 %	0.0	0.0 %	0.0	0.0 %
Private Equity	483.0	5.9 %	483.0	5.9 %	0.0	0.0 %	0.0	0.0 %	0.0	0.0 %
Fixed	1,760.7	21.4 %	0.0	0.0 %	1,760.7	21.4 %	0.0	0.0 %	0.0	0.0 %
Fixed Income	966.9	11.7 %	0.0	0.0 %	966.9	11.7 %	0.0	0.0 %	0.0	0.0 %
MacKay Shields Core	480.3	5.8 %	0.0	0.0 %	480.3	5.8 %	0.0	0.0 %	0.0	0.0 %
Pyramis Core	486.5	5.9 %	0.0	0.0 %	486.5	5.9 %	0.0	0.0 %	0.0	0.0 %
Inflation Linked	208.0	2.5 %	0.0	0.0 %	208.0	2.5 %	0.0	0.0 %	0.0	0.0 %
Brown Brothers Harriman-GILBS	208.0	2.5 %	0.0	0.0 %	208.0	2.5 %	0.0	0.0 %	0.0	0.0 %
Liquid Credit	388.7	4.7 %	0.0	0.0 %	388.7	4.7 %	0.0	0.0 %	0.0	0.0 %
PIMCO	202.9	2.5 %	0.0	0.0 %	202.9	2.5 %	0.0	0.0 %	0.0	0.0 %
WAMCO	185.8	2.3 %	0.0	0.0 %	185.8	2.3 %	0.0	0.0 %	0.0	0.0 %
Long Duration	140.6	1.7 %	0.0	0.0 %	140.6	1.7 %	0.0	0.0 %	0.0	0.0 %
Mackay Long Duration	70.4	0.9 %	0.0	0.0 %	70.4	0.9 %	0.0	0.0 %	0.0	0.0 %
WAMCO Long Duration	70.2	0.9 %	0.0	0.0 %	70.2	0.9 %	0.0	0.0 %	0.0	0.0 %
Private Credit	56.6	0.7 %	0.0	0.0 %	56.6	0.7 %	0.0	0.0 %	0.0	0.0 %
Private Credit	56.6	0.7 %	0.0	0.0 %	56.6	0.7 %	0.0	0.0 %	0.0	0.0 %
Other	1,914.4	23.2 %	0.0	0.0 %	0.0	0.0 %	1,900.7	23.1 %	13.8	0.2 %
Tactical Cash	264.6	3.2 %	0.0	0.0 %	0.0	0.0 %	264.6	3.2 %	0.0	0.0 %
ERSRI SMA CASH	264.6	3.2 %	0.0	0.0 %	0.0	0.0 %	264.6	3.2 %	0.0	0.0 %
Absolute Return	624.4	7.6 %	0.0	0.0 %	0.0	0.0 %	610.6	7.4 %	13.8	0.2 %
Brevan Howard LP	36.9	0.4 %	0.0	0.0 %	0.0	0.0 %	36.9	0.4 %	0.0	0.0 %
Brigade Levered Capital	3.2	0.0 %	0.0	0.0 %	0.0	0.0 %	0.0	0.0 %	3.2	0.0 %
Capula Global Relative Value	70.4	0.9 %	0.0	0.0 %	0.0	0.0 %	70.4	0.9 %	0.0	0.0 %
Claren Road Cr Fund	3.0	0.0 %	0.0	0.0 %	0.0	0.0 %	3.0	0.0 %	0.0	0.0 %
D.E. Shaw Composite Fund	106.0	1.3 %	0.0	0.0 %	0.0	0.0 %	106.0	1.3 %	0.0	0.0 %

<sup>3</sup> Copyright © 2017 Russell Investments.
All rights reserved. All market values in millions. Numbers may not add due to rounding. Daily values are provided by custodian and are unaudited. Balances and exposures include Russell Overlay accruals and pending trades.

Balance Date: 10/31/2017

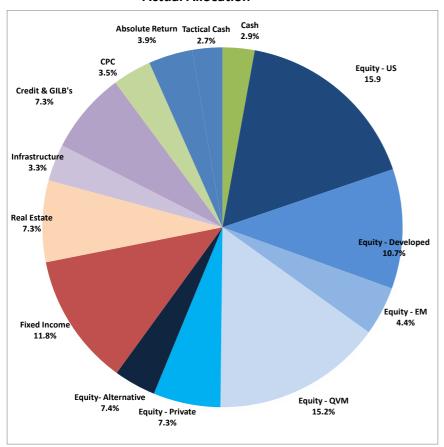


<u>Manager</u>	<u>Total Market V</u>	'alue	Equity Market \	Value_	Fixed Market V	/alue	Other Market Value		Cash Balance	
Davidson Kempner	85.2	1.0 %	0.0	0.0 %	0.0	0.0 %	85.2	1.0 %	0.0	0.0 %
Elliot Associates, LP	101.4	1.2 %	0.0	0.0 %	0.0	0.0 %	101.4	1.2 %	0.0	0.0 %
ESG	1.1	0.0 %	0.0	0.0 %	0.0	0.0 %	0.0	0.0 %	1.1	0.0 %
Graham Global	58.4	0.7 %	0.0	0.0 %	0.0	0.0 %	58.4	0.7 %	0.0	0.0 %
Indus Asia Pacific Fund	0.3	0.0 %	0.0	0.0 %	0.0	0.0 %	0.3	0.0 %	0.0	0.0 %
Luxor Capital Partners	5.1	0.1 %	0.0	0.0 %	0.0	0.0 %	5.1	0.1 %	0.0	0.0 %
Oz Domestic Partners II	5.5	0.1 %	0.0	0.0 %	0.0	0.0 %	0.0	0.0 %	5.5	0.1 %
PFM Diversified Fund LP	3.9	0.0 %	0.0	0.0 %	0.0	0.0 %	0.0	0.0 %	3.9	0.0 %
Samlyn Onshore Fund LP	49.8	0.6 %	0.0	0.0 %	0.0	0.0 %	49.8	0.6 %	0.0	0.0 %
Viking Global Equities	58.2	0.7 %	0.0	0.0 %	0.0	0.0 %	58.2	0.7 %	0.0	0.0 %
Winton Futures Ltd Fund	35.8	0.4 %	0.0	0.0 %	0.0	0.0 %	35.8	0.4 %	0.0	0.0 %
Commodities	0.0	0.0 %	0.0	0.0 %	0.0	0.0 %	0.0	0.0 %	0.0	0.0 %
RI Commodities	0.0	0.0 %	0.0	0.0 %	0.0	0.0 %	0.0	0.0 %	0.0	0.0 %
MLP	144.5	1.8 %	0.0	0.0 %	0.0	0.0 %	144.5	1.8 %	0.0	0.0 %
Harvest Fund Advisor	144.5	1.8 %	0.0	0.0 %	0.0	0.0 %	144.5	1.8 %	0.0	0.0 %
Opportunistic Credit	28.5	0.3 %	0.0	0.0 %	0.0	0.0 %	28.5	0.3 %	0.0	0.0 %
Opportunistic Private Credit	28.5	0.3 %	0.0	0.0 %	0.0	0.0 %	28.5	0.3 %	0.0	0.0 %
Private Infrastructure	123.7	1.5 %	0.0	0.0 %	0.0	0.0 %	123.7	1.5 %	0.0	0.0 %
Priv Listed Infrastructure	123.7	1.5 %	0.0	0.0 %	0.0	0.0 %	123.7	1.5 %	0.0	0.0 %
Real Estate (Core)	420.5	5.1 %	0.0	0.0 %	0.0	0.0 %	420.5	5.1 %	0.0	0.0 %
Core Real Estaté	420.5	5.1 %	0.0	0.0 %	0.0	0.0 %	420.5	5.1 %	0.0	0.0 %
Real Estate (Non-Core)	171.9	2.1 %	0.0	0.0 %	0.0	0.0 %	171.9	2.1 %	0.0	0.0 %
Non-Core Real Estate	171.9	2.1 %	0.0	0.0 %	0.0	0.0 %	171.9	2.1 %	0.0	0.0 %
Systematic Trend-Following	136.3	1.7 %	0.0	0.0 %	0.0	0.0 %	136.3	1.7 %	0.0	0.0 %
CPC CB LLC	69.8	0.8 %	0.0	0.0 %	0.0	0.0 %	69.8	0.8 %	0.0	0.0 %
CPC QIS LLC	66.5	0.8 %	0.0	0.0 %	0.0	0.0 %	66.5	0.8 %	0.0	0.0 %

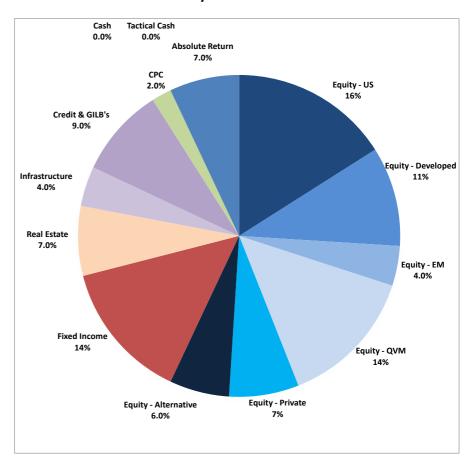
#### **ERSRI Portfolio**

%%% - as of October 31, 2017

#### **Actual Allocation**

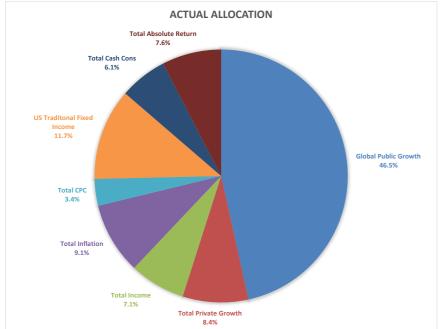


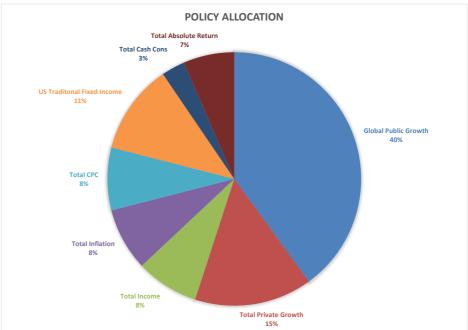
#### **Policy Allocation**



#### **ERSRI Portfolio**

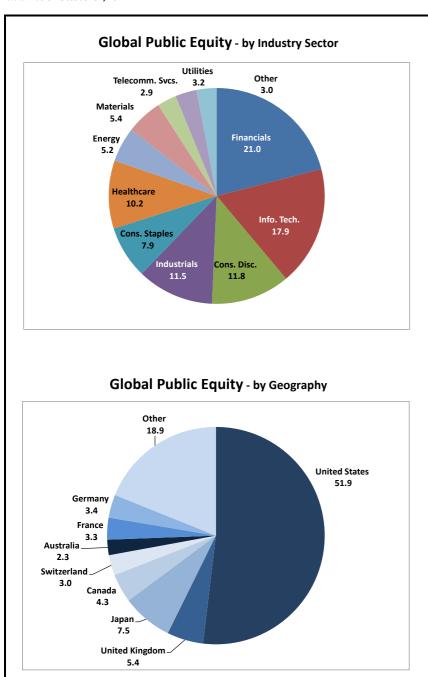
%%% - as of October 31, 2017

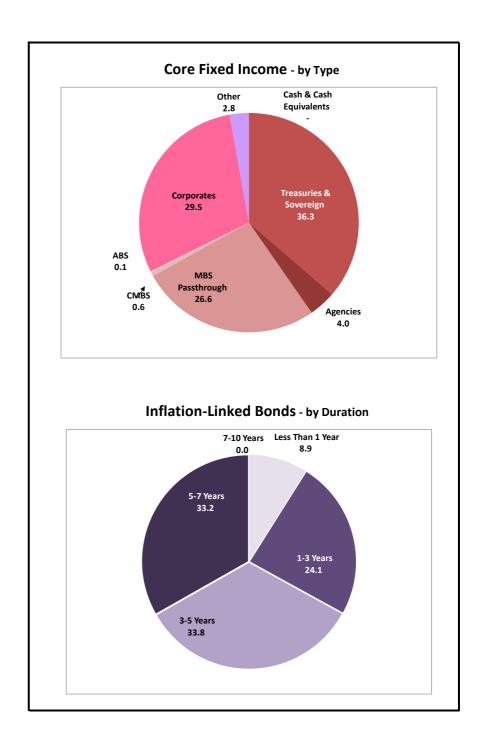




# ERSRI Asset Allocation Public-Asset Portfolios

%%% - as of October 31, 2017



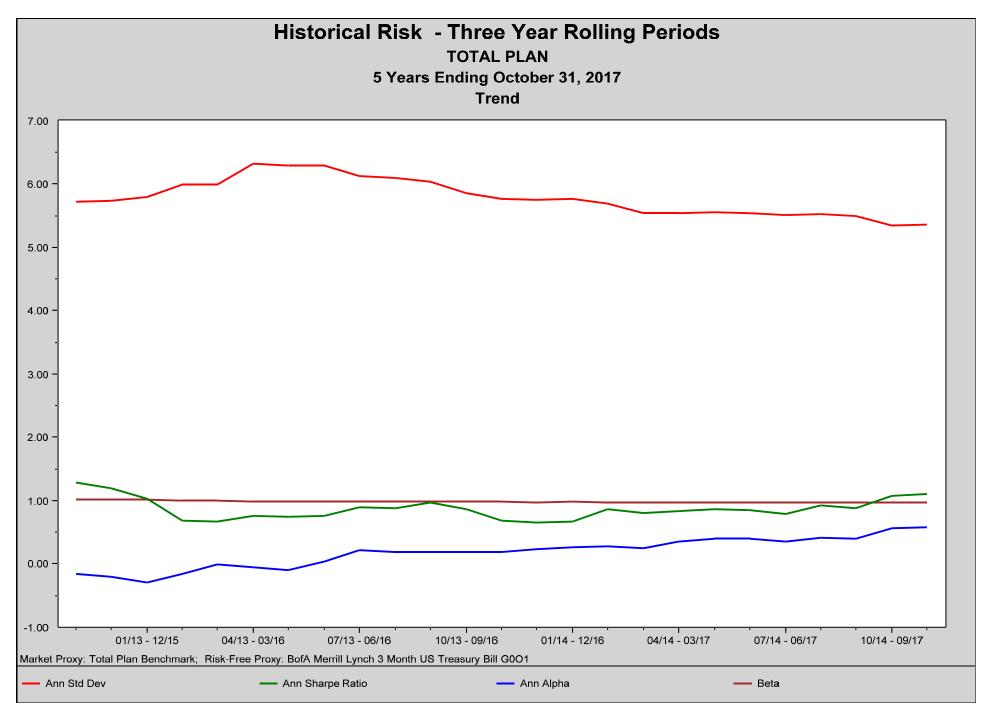


## ERSRI Asset Allocation Tracking as of 10/31/2017

Functional Bucket	Aggregate Asset Class	Aggregate Allocation Weight	Asset Class	(a) Asset Allocation	(b) Actual exposure as of 10/31/17	(b) - (a)
	Global	40.09/	US Equity	20.6%	25.5%	4.9%
GROWTH	Equity	40.0%	International Developed Equity	15.9%	16.8%	0.9%
			EM Equity	3.5%	4.3%	0.8%
	Private Growth	15.0%	PE	11.3%	5.9%	-5.3%
			Non-core RE	2.3%	2.1%	-0.2%
			Opp Private Credit HY Infra REITS	1.5% 1.0% 1.0%	0.3% 1.7% 0.0%	-1.2% 0.7% -1.0%
			REITS Liquid Credit	1.0% 2.8%	0.0% 4.7%	-1.0% 1.9%
INCOME	Income	8.0%	Private Credit	3.2%	0.7%	-2.5%
	СРС	0.00/	Treasury Duration	4.0%	1.7%	-2.3%
	CPC	8.0%	Systematic Trend	4.0%	1.7%	-2.3%
	Inflation	8.0%	Core RE	3.6%	5.1%	1.5%
	Protection	0.070	Private Infra TIPs	2.4%	1.5%	-0.9% 1.5%
			Nat' Resources	1.0% 1.0%	2.5% 0.0%	1.5% -1.0%
STABILITY	Volatility Protection	21.0%	IG Fixed Income	11.5%	11.7%	0.2%
	Totection		Absolute Return	6.5%	7.6%	1.1%
			Cash	3.0%	3.2%	0.2%
	Short-term	n/a	ST Tactical Cash	0.0%	2.7%	2.7%
OTHER	Tactical	n/a	Russell Overlay	0.0%	0.2%	0.2%
TOTAL	Total	100.0%	n/a	100.0%	100.0%	0.0%



**Risk Overview** 

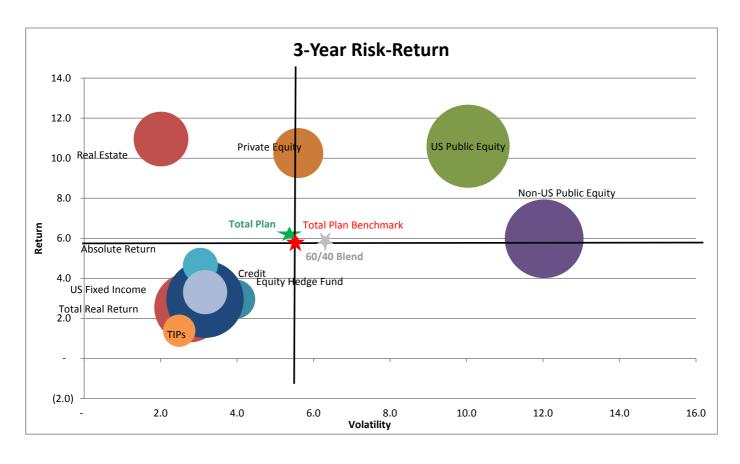


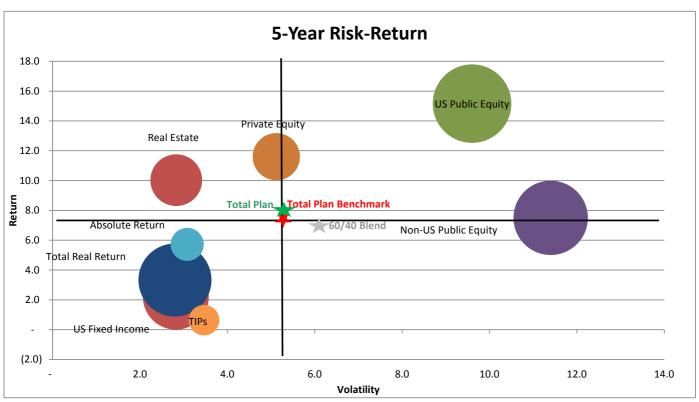
Risk Exposures
3 Years Ending October 31, 2017

	Annualized Return	Ann Std Dev	Beta (ACWI)	Beta (BC AGG)	Beta (GSCI)	Beta (CPI)
US Public Equity	10.61	10.05	0.9	0 -0.75	0.13	1.63
Non-US Public Equity	5.99	12.03	1.10	0.13	0.24	2.61
Equity Hedge Funds	2.97	3.96	0.22	2 -0.32	0.03	0.87
TOTAL PRIVATE EQUITY	10.11	5.49	-0.04	4 -0.17	0.06	1.52
Traditional Fixed Income	2.54	2.75	0.0	1 0.98	-0.03	-0.14
TOTAL REAL ESTATE	10.96	2.01	0.00	0.25	-0.02	-0.36
Real Return Hedge Funds	4.66	2.52	0.0	-0.01	-0.00	-0.14
Inflation-Linked Bonds	1.40	2.49	0.03	3 0.69	0.01	0.33
Cash	0.97	0.37	0.00	0 -0.01	-0.00	-0.04
Russell Overlay Fd	-0.01	0.09	-0.00	-0.00	-0.00	-0.04
TOTAL PLAN	6.22	5.36	0.5	1 -0.04	0.10	1.21

# 5 Years Ending October 31, 2017 Comparison

	TOTAL PLAN	Total Plan Benchmark	60/40 Blend
Ann Return	7.90	7.79	7.34
Ann Ex Ret vs Mkt	0.11		
Ann Tracking Error	0.81		
Ann Std Dev	5.26	5.25	6.09
Beta	0.99		
R-Squared	0.98		
Ann Alpha	0.19		
Ann Sharpe Ratio	1.43	1.41	1.16





### 3 Years Ending October 31, 2017 Correlation

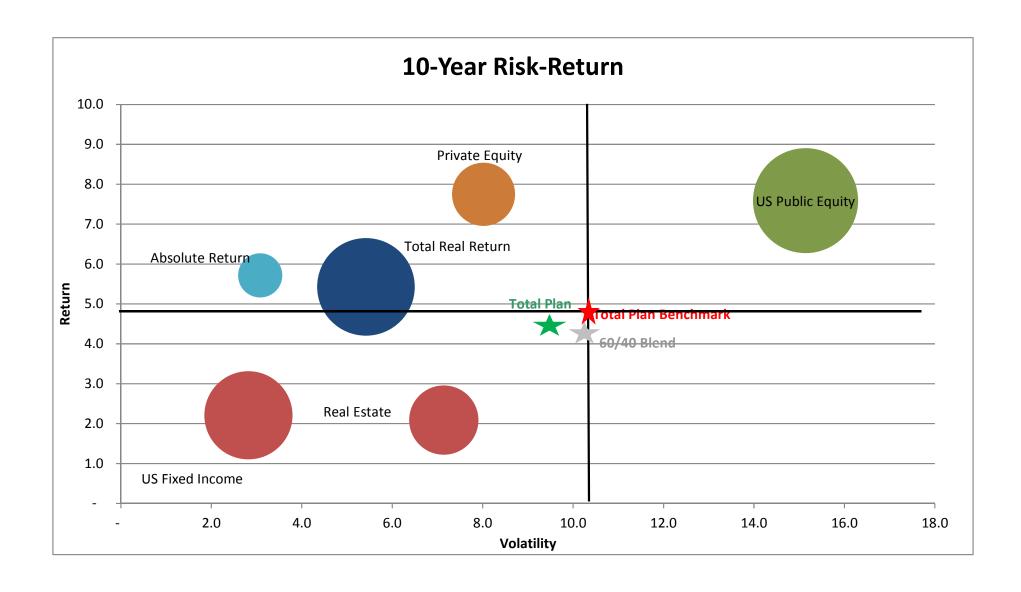
#### Ann Return

	US Pub EQ	Non-US Pub EQ	Eq HF	PE	FI	RE	RR HF	TIPS	Cash	Overlay	Total
US Pub	1.00										
Non-US P	0.79	1.00									
Eq HF	0.57	0.54	1.00								
PE	-0.07	-0.06	0.02	1.00							
FI	-0.11	0.15	-0.16	-0.09	1.00						
RE	-0.08	0.06	-0.11	-0.20	0.33	1.00					
RR HF	0.43	0.24	0.49	-0.08	0.03	0.04	1.00				
TIPS	-0.08	0.27	-0.23	-0.07	0.80	0.36	0.07	1.00			
Cash	0.19	0.16	0.17	0.02	0.01	-0.27	0.13	-0.21	1.00		
Overlay	-0.20	-0.17	-0.32	-0.02	0.04	0.20	-0.14	0.01	-0.03	1.00	
Total	0.92	0.95	0.62	-0.01	0.10	0.02	0.40	0.17	0.19	-0.20	1.00
Tot BM	0.91	0.96	0.57	-0.07	0.12	0.02	0.33	0.19	0.18	-0.20	0.99

### 5 Years Ending October 31, 2017 Correlation

#### Ann Return

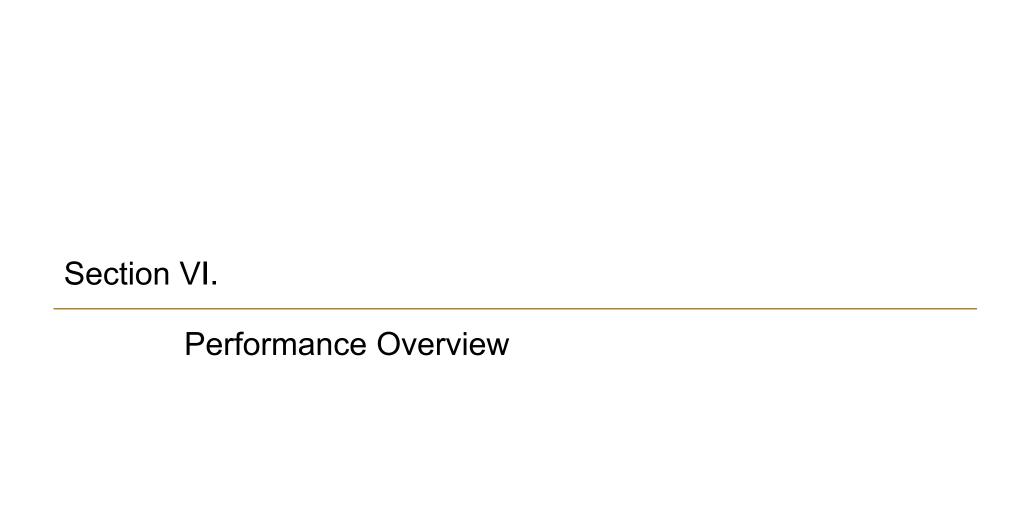
	US Pub Eq	Non-US Pub Eq	Eq HF	PE	FI	RE	RR HF	TIPS	Cash	Overlay	Total
US Pub	1.00										
Non-US P	0.76	1.00									
Eq HF	0.63	0.53	1.00								
PE	0.00	0.03	0.07	1.00							
FI	-0.01	0.24	-0.11	-0.08	1.00						
RE	0.13	0.21	0.04	-0.11	0.36	1.00					
RR HF	0.40	0.31	0.57	0.00	0.06	0.13	1.00				
TIPS	0.08	0.38	-0.02	-0.02	0.80	0.40	0.18	1.00			
Cash	0.08	0.08	0.01	-0.03	0.01	-0.04	0.07	-0.12	1.00		
Overlay	-0.04	-0.03	-0.02	-0.01	-0.13	0.12	0.07	0.06	-0.09	1.00	
Total	0.91	0.95	0.64	0.08	0.21	0.22	0.43	0.33	0.08	-0.04	1.00
Tot BM	0.91	0.95	0.61	0.01	0.20	0.19	0.38	0.30	0.08	-0.04	0.99



### 10 Years Ending October 31, 2017 Correlation

#### Ann Return

	US Pub Eq	Non-US Pub Eq	Eq HF	PE	FI	RE	RR HF	TIPS	Cash	Overlay	Total
US Pub	1.00										
Non-US P											
Eq HF											
PE	0.17			1.00							
FI	0.29			-0.02	1.00						
RE	-0.01			0.20	-0.17	1.00					
RR HF											
TIPS											
Cash	-0.17			0.06	-0.03	0.02			1.00		
Overlay											
Total	0.96			0.24	0.46	0.00			-0.18		1.00
Tot BM	0.96			0.17	0.45	-0.02			-0.18		0.99



Report ID: IPM0005

**Reporting Currency: USD** 

#### TOTAL NET OF FEES 10/31/2017

							Annualized				
Account Name Benchmark Name	Market Value	% of Total	Month	YTD	Fiscal YTD	1 Year	3 Years	5 Years	10 Years	ITD	Inception Date
US Public Equity Russell 3000 Index	1,374,396,115	17	<b>2.20</b> 2.18	<b>16.41</b> <i>16.40</i>	<b>6.86</b> 6.85	<b>23.99</b> 23.98	<b>10.61</b> <i>10.53</i>	<b>15.16</b> <i>15.12</i>	<b>7.60</b> 7.61	<b>8.14</b> 8.13	<b>8/1/2007</b> 8/1/2007
Non-US Public Equity Total International Equity BM	1,232,765,135	15	<b>1.95</b> 1.88	<b>23.94</b> 23.41	<b>8.49</b> 8.16	<b>23.82</b> 23.64	<b>5.99</b> 5.71	<b>7.51</b> 7.29		<b>9.42</b> 8.62	<b>5/1/2009</b> 5/1/2009
QVM Tilt MSCI World Net Dividend Index	1,242,589,486	15	2.33 1.89	19.23 18.21	7.97 6.82	23.95 22.77				15.79 <i>15.11</i>	10/1/2015 10/1/2015
TOTAL PUBLIC GROWTH  MSCI All Country World Net Index	3,849,750,736	47	<b>2.17</b> 2.08	<b>19.74</b> 19.69	<b>7.78</b> 7.37	<b>23.89</b> 23.20	<b>8.23</b> 7.92	<b>11.26</b> <i>10.80</i>	<b>5.04</b> 3.70	4.81	<b>7/1/2000</b> 7/1/2000
Private Equity ILPA All Fds BM 1Q Lag 2	491,325,975	6	1.66 <i>1.70</i>	16.16 <i>13.93</i>	6.60 <i>6.89</i>	17.83 18.12	10.26 <i>9.74</i>	11.61 <i>14.42</i>	7.75 8.76	9.37	2/1/1989 2/1/1989
Non Core Real Estate	173,148,795	2	1.59		6.71					6.71	7/1/2017
Opportunistic Private Credit  ILPA Distressed BM 1Q Lag	28,538,366	0	0.00 <i>0.00</i>		5.25 5.25					5.25 5.25	7/1/2017 7/1/2017
TOTAL PRIVATE GROWTH	693,013,136	8	1.57		6.58					6.58	7/1/2017
TOTAL GROWTH COMPOSITE	4,542,763,872	55	2.08		7.60					7.60	7/1/2017
Harvest Fund Advisor Alerian MLP Index	144,495,224	2	-4.26 <i>-4.14</i>	-9.14 -9.53	-6.47 -7.06	-2.51 -3.39				-9.39 -10.88	1/1/2015 1/1/2015
Credit Aggregate Credit Aggregate	389,118,371	5	<b>0.79</b> 0.51	<b>3.29</b> 3.89	<b>1.93</b> 1.65	<b>5.00</b> 5.23	<b>3.32</b> <i>4.44</i>			<b>3.22</b> 4.24	<b>5/1/2013</b> 5/1/2013
Private Credit S&P LSTA Lev Loans + 3%	56,610,499	1	0.00 <i>0.9</i> 3		2.95 2.44					2.95 2.44	7/1/2017 7/1/2017
TOTAL INCOME Income Aggregate BM	590,224,094	7	<b>-0.57</b> -0.20		<b>-0.18</b> <i>0.29</i>					<b>-0.18</b> 0.29	<b>7/1/2017</b> 7/1/2017
CPC Long Duration Barclays US Treasury LT Index	140,591,668	2	<b>-0.09</b> -0.08		<b>0.52</b> 0.50					<b>-0.67</b> -0.56	<b>6/1/2017</b> 6/1/2017
CPC Trend Following Credit Suisse Liquid Alt Beta	143,034,287	2	<b>4.94</b> 2.35		<b>8.19</b> <i>5.88</i>					<b>4.68</b> 3.78	<b>6/1/2017</b> 6/1/2017
CPC Total Program	283,625,955	3	2.39		4.29					1.98	6/1/2017

Report ID: IPM0005

**Reporting Currency: USD** 

#### TOTAL NET OF FEES 10/31/2017

Account Name Benchmark Name	Market Value	% of Total	Month	YTD	Fiscal YTD	1 Year	3 Years	5 Years	10 Years	ITD	Inception Date
Priv Listed Infrastructure  CPI + 4%	125,618,657	2	2.58 <i>0.26</i>	12.53 <i>5.50</i>	4.80 1.98	13.92 <i>6.04</i>				8.12 <i>5.87</i>	3/1/2015 3/1/2015
Core Real Estate NFI-ODCE BM 2	423,186,564	5	0.99 1.20		2.55 2.69					2.55 2.69	7/1/2017 7/1/2017
Inflation-Linked Bonds Total Inflation Linked Custom	207,951,334	3	<b>0.17</b> <i>0.16</i>	<b>1.30</b> <i>1.52</i>	<b>0.83</b> <i>0.87</i>	<b>-0.19</b> 0.14	<b>1.40</b> <i>1.50</i>	<b>0.64</b> 0.67		<b>3.76</b> 3.77	<b>11/1/2009</b> 11/1/2009
TOTAL INFLATION Inflation Protection Custom BM	756,756,555	9	<b>0.98</b> 0.84		<b>2.36</b> 2.09					<b>2.36</b> 2.09	<b>7/1/2017</b> 7/1/2017
Absolute Return HFRI Fund of Funds Composite Index	627,947,385	8	<b>0.57</b> 1.12		<b>3.17</b> 3.43					<b>3.17</b> 3.43	<b>7/1/2017</b> 7/1/2017
<b>Traditional Fixed Income</b> Bloomberg Barclays U.S. Aggregate Bond Index	966,858,054	12	<b>0.08</b> 0.06	<b>3.58</b> 3.20	<b>1.12</b> 0.91	<b>1.41</b> 0.90	<b>2.54</b> 2.40	<b>2.21</b> 2.04	<b>4.30</b> <i>4.19</i>	<b>5.21</b> 5.06	<b>7/1/2000</b> 7/1/2000
Total Cash and Other Funds	503,267,089	6	-0.20	-1.68	-0.32	0.07	0.94	1.41		1.41	11/1/2012
Russell Overlay Fd	14,616,712	0	-0.02	-0.08	-0.05	-0.04	-0.01	0.04		-0.06	9/1/2008
TOTAL VOL PROTECTION	2,098,072,529	25	0.17		1.44					1.44	7/1/2017
TOTAL STABILITY COMPOSITE	3,138,455,039	38	0.57		1.82					1.82	7/1/2017
TOTAL PLAN Total Plan Benchmark 60/40 Blend	8,272,215,381	100	<b>1.32</b> 1.24 1.27	<b>11.87</b> 11.76 12.84	<b>4.80</b> 4.62 4.75	<b>14.06</b> 13.63 13.81	<b>6.22</b> 5.92 5.83	<b>7.90</b> 7.79 7.34	<b>4.46</b> 4.24 4.26	5.08	<b>7/1/2000</b> 7/1/2000 7/1/2000
Total Plan ex PE,RE & Priv Inf Total Plan BM ex PE RE	6,973,786,525	84	<b>1.30</b> <i>1.21</i>	<b>11.91</b> 11.91	<b>4.79</b> <i>4.5</i> 6	<b>14.23</b> 13.60	<b>5.63</b> 5.32	<b>7.47</b> 7.22	<b>4.19</b> 3.87	6.44	<b>4/1/1996</b> <i>4/1/1996</i>

Report ID: IPM0005

Reporting Currency: USD

### **TOTAL NET OF FEES**

10/31/2017

				Cumu	ulative					
Account Name Benchmark Name	Market Value	% of Total	Month	9/1/2017 - 9/30/2017	8/1/2017 - 8/31/2017	YTD	2016	2015	2014	Inception Date
US Public Equity Russell 3000 Index	1,374,396,115	17	<b>2.20</b> 2.18	<b>2.40</b> 2.44	<b>0.20</b> 0.19	<b>16.41</b> 16.40	<b>12.84</b> 12.74	<b>0.60</b> 0.48	<b>12.57</b> 12.56	<b>8/1/2007</b> 8/1/2007
Non-US Public Equity Total International Equity BM	1,232,765,135	15	<b>1.95</b> 1.88	<b>1.74</b> 1.86	<b>0.69</b> 0.52	<b>23.94</b> 23.41	<b>5.01</b> 4.50	<b>-5.77</b> -5.66	<b>-3.63</b> -3.87	<b>5/1/2009</b> 5/1/2009
QVM Tilt MSCI World Net Dividend Index	1,242,589,486	15	2.33 1.89	2.28 2.24	0.60 <i>0.14</i>	19.23 18.21	7.58 7.51			10/1/2015 10/1/2015
TOTAL PUBLIC GROWTH  MSCI All Country World Net Index	3,849,750,736	47	<b>2.17</b> 2.08	<b>2.15</b> 1.93	<b>0.49</b> 0.38	<b>19.74</b> 19.69	<b>8.78</b> 7.86	<b>-2.48</b> -2.36	<b>4.35</b> <i>4.16</i>	<b>7/1/2000</b> 7/1/2000
Private Equity ILPA All Fds BM 1Q Lag 2	491,325,975	6	1.66 1.70	-0.04 -0.03	4.71 <i>4</i> .94	16.16 13.93	9.19 <i>7.98</i>	7.08 7.31	8.02 16.41	2/1/1989 2/1/1989
Non Core Real Estate	173,148,795	2	1.59	0.00	3.95					7/1/2017
Opportunistic Private Credit ILPA Distressed BM 1Q Lag	28,538,366	0	0.00 <i>0.00</i>	0.00 <i>0.00</i>	-0.10 -0.10					7/1/2017 7/1/2017
TOTAL PRIVATE GROWTH	693,013,136	8	1.57	-0.03	4.30					7/1/2017
TOTAL GROWTH COMPOSITE	4,542,763,872	55	2.08	1.83	1.05					7/1/2017
Harvest Fund Advisor Alerian MLP Index	144,495,224	2	-4.26 <i>-4.14</i>	0.45 <i>0.69</i>	-3.77 -4.94	-9.14 -9.53	20.64 18.31	-31.01 -32.59		1/1/2015 1/1/2015
Credit Aggregate Credit Aggregate	389,118,371	5	<b>0.79</b> 0.51	<b>0.38</b> 0.44	<b>-0.64</b> <i>0.00</i>	<b>3.29</b> 3.89	<b>9.59</b> 9.63	<b>-1.29</b> <i>0.4</i> 9	<b>0.66</b> 2.11	<b>5/1/2013</b> 5/1/2013
Private Credit S&P LSTA Lev Loans + 3%	56,610,499	1	0.00 <i>0.9</i> 3	0.00 <i>0.20</i>	2.95 <i>0.61</i>					7/1/2017 7/1/2017
TOTAL INCOME Income Aggregate BM	590,224,094	7	<b>-0.57</b> -0.20	<b>0.36</b> <i>0.40</i>	<b>-1.12</b> -0.70					<b>7/1/2017</b> 7/1/2017
CPC Long Duration Barclays US Treasury LT Index	140,591,668	2	<b>-0.09</b> -0.08	<b>-2.20</b> -2.16	<b>3.50</b> 3. <i>4</i> 3					<b>6/1/2017</b> 6/1/2017
CPC Trend Following Credit Suisse Liquid Alt Beta	143,034,287	2	<b>4.94</b> 2.35	<b>-4.32</b> -5.22	<b>3.59</b> <i>4.26</i>					<b>6/1/2017</b> 6/1/2017
CPC Total Program	283,625,955	3	2.39	-3.26	3.54					6/1/2017

Report ID: IPM0005

Reporting Currency: USD

#### **TOTAL NET OF FEES**

10/31/2017

				Cumi	ulative					
Account Name Benchmark Name	Market Value	% of Total	Month	9/1/2017 - 9/30/2017	8/1/2017 - 8/31/2017	YTD	2016	2015	2014	Inception Date
Priv Listed Infrastructure CPI + 4%	125,618,657	2	2.58 <i>0.26</i>	0.00 <i>0.84</i>	-0.23 <i>0.61</i>	12.53 <i>5.50</i>	13.35 <i>6.07</i>			3/1/2015 3/1/2015
Core Real Estate NFI-ODCE BM 2	423,186,564	5	0.99 1.20	0.33 1.47	0.35 <i>0.00</i>					7/1/2017 7/1/2017
Inflation-Linked Bonds Total Inflation Linked Custom	207,951,334	3	<b>0.17</b> 0.16	<b>-0.45</b> -0.49	<b>0.63</b> <i>0.69</i>	<b>1.30</b> <i>1.52</i>	<b>3.91</b> <i>4.01</i>	<b>-0.26</b> -0.15	<b>1.72</b> 2.04	<b>11/1/2009</b> 11/1/2009
TOTAL INFLATION Inflation Protection Custom BM	756,756,555	9	<b>0.98</b> 0.84	<b>0.03</b> <i>0.74</i>	<b>0.35</b> 0.25					<b>7/1/2017</b> 7/1/2017
Absolute Return HFRI Fund of Funds Composite Index	627,947,385	8	<b>0.57</b> 1.12	<b>0.59</b> 0.42	<b>0.87</b> <i>0.8</i> 3					<b>7/1/2017</b> 7/1/2017
<b>Traditional Fixed Income</b> Bloomberg Barclays U.S. Aggregate Bond Index	966,858,054	12	<b>0.08</b> 0.06	<b>-0.38</b> -0.48	<b>0.87</b> 0.90	<b>3.58</b> 3.20	<b>3.15</b> 2.65	<b>0.25</b> 0.55	<b>5.91</b> 5.97	<b>7/1/2000</b> 7/1/2000
Total Cash and Other Funds	503,267,089	6	-0.20	-0.47	0.38	-1.68	3.33	0.03	1.56	11/1/2012
Russell Overlay Fd	14,616,712	0	-0.02	-0.03	0.01	-0.08	0.06	0.00	-0.02	9/1/2008
TOTAL VOL PROTECTION	2,098,072,529	25	0.17	-0.10	0.75					7/1/2017
TOTAL STABILITY COMPOSITE	3,138,455,039	38	0.57	-0.31	0.79					7/1/2017
TOTAL PLAN  Total Plan Benchmark  60/40 Blend	8,272,215,381	100	<b>1.32</b> 1.24 1.27	<b>0.91</b> 1.02 0.97	<b>0.79</b> 0.68 0.59	<b>11.87</b> 11.76 12.84	<b>7.35</b> 6.42 5.92	<b>-0.28</b> -0.24 -0.98	<b>4.52</b> 5.05 4.96	<b>7/1/2000</b> 7/1/2000 7/1/2000
Total Plan ex PE,RE & Priv Inf Total Plan BM ex PE RE	6,973,786,525	84	<b>1.30</b> <i>1.21</i>	<b>1.07</b> 1.08	<b>0.48</b> <i>0.42</i>	<b>11.91</b> 11.91	<b>6.97</b> <i>6.13</i>	<b>-1.68</b> -1.64	<b>3.98</b> 3.90	<b>4/1/1996</b> <i>4/1/1996</i>



Report ID: IPM0005

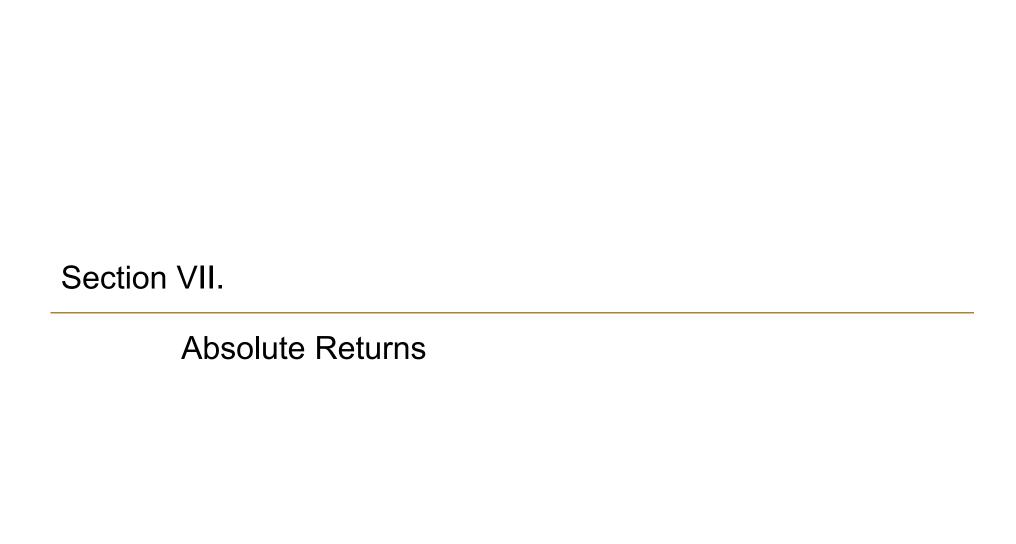
Reporting Currency: USD

#### **END NOTES**

#### 10/31/2017

1 R	16G23000000	TOTAL PLAN	Month - Current Month
			Cumulative Months - Prior Month and Second Prior Month
			Monthly Reporting for Private Equity and Real Estate skew performance on an actual and benchmark basis due to nature of valuations
			2014, 2013, 2012 - Calendar Years
R	RI6G23000000	TOTAL PLAN	The current composition of the Total Plan Benchmark is as follows:
			40% MSCI ACWI Net
			11% ILPA All Funds Index
			11.5% Barclays Agg
			1% Barclays 1-10 Year TIPs Index
			4% Barclays Long Duration US Treasury Index
			3.5% Liquid Credit Custom (50% BoA HY/50% CS LL)
			3% S&P LSTA Lev Loans + 3%
			2.5% ODCE + 2.5%
			1.5% ILPA/Cambridge Distressed Securities Index
			6.5% HFRI FOF Composite
			3.0% BofA Merrill Lynch US T-Notes 0-1 Yr
			4% NFI-ODCE Index
			2% CPI + 4%
			1.5% Alerian MLP Total Return
			4% CS Managed Futures 18% Vol Index

1% Commodities





#### Employees' Retirement System of the State of Rhode Island

Absolute Return Portfolio Portfolio Performance Summary Estimated as of October 31, 2017

						Ret	urns					Sharpe	Incep
Fund	Market Value	Actual %	Oct	QTD	YTD	FYTD	1 Year	3 Year	5 Year	Incep	Std Dev	Ratio	Date
Absolute Return Portfolio													
Brevan Howard LP	36,584,248	5.8%	-0.94%	-0.94%	-5.32%	-0.31%	0.17%	-1.23%	-0.08%	0.32%	5.57%	-0.01	Nov-11
Capula Global Relative Value Fund Ltd.	70,640,880	11.2%	0.37%	0.37%	3.98%	1.64%	7.19%	7.47%	7.24%	6.01%	1.88%	2.84	Dec-11
Davidson Kempner Institutional Partners, L.P.	85,822,998	13.7%	0.67%	0.67%	6.29%	2.12%	7.03%	5.05%	6.01%	6.15%	1.94%	2.83	Nov-11
DE Shaw Composite Fund LLC	106,463,142	16.9%	0.50%	0.50%	11.78%	6.51%	11.02%	12.69%	14.17%	13.42%	4.12%	2.96	Nov-11
Elliott Associates, L.P.	103,153,731	16.4%	0.10%	0.10%	7.14%	3.23%	11.50%	8.21%	9.56%	9.45%	3.61%	2.38	Nov-11
Graham Absolute Return Trading Ltd.	58,123,703	9.2%	-0.52%	-0.52%	-6.36%	1.36%	0.63%	2.13%	2.73%	2.59%	5.14%	0.42	Jan-12
Samlyn Onshore Fund, L.P.	48,001,310	7.6%	1.33%	1.33%	11.29%	4.18%	13.17%	5.52%	8.13%	8.38%	5.94%	1.30	Jan-12
Viking Global Equities, LP	59,905,141	9.5%	2.90%	2.90%	13.78%	6.26%	12.15%	6.16%	10.59%	11.09%	7.18%	1.43	Dec-11
Winton Fund Limited	37,432,356	6.0%	4.48%	4.48%	4.70%	5.40%	5.29%	3.13%	5.50%	3.81%	8.53%	0.42	Dec-11
Absolute Return Portfolio - Total	606,127,510	96.4%	0.79%	0.79%	6.51%	3.57%	8.18%	4.05%	6.01%	5.70%	3.07%	1.65	Nov-11
HFRI Fund of Funds Composite Index			1.20%	1.20%	6.81%	10.20%	8.04%	2.84%	4.14%	3.71%	3.30%	0.97	Nov-11
MSCI AC World Index Free - Net			2.08%	2.08%	19.69%	27.53%	23.20%	7.92%	10.80%	10.42%	10.64%	0.94	Nov-11
ML 3-month T-Bills			0.09%	0.09%	0.66%	0.84%	0.72%	0.35%	0.24%	0.21%	0.08%	-	Nov-11
Russell 3000 Index (DRI)			2.18%	2.18%	16.40%	26.63%	23.98%	10.53%	15.12%	15.06%	9.83%	1.43	Nov-11
Liquidating Portfolio													
Brigade Leveraged Capital Structures Fund LP - Holdback	3,188,048	0.5%	0.00%	0.00%	3.91%	12.94%	6.78%	4.18%	4.35%	4.38%	5.43%	0.72	Mar-12
Claren Road Credit Fund, Ltd.	2,957,368	0.5%	0.00%	0.00%	3.46%	-2.41%	21.93%	1.55%	-	-0.73%	10.61%	-0.07	Apr-13
ESG Cross Border Equity Fund LP - Holdback	1,095,973	0.2%	0.00%	0.00%	-4.43%	-11.13%	-9.52%	-8.90%	-	-8.76%	7.26%	-1.31	Jun-14
Indus Asia Pacific Distribution Holding Company II, 06.30.14 Series													
(liquidating trust)	345,258	0.1%	0.00%	0.00%	2.86%	-1.37%	0.16%	-21.57%	-14.44%	-11.91%	17.32%	-0.66	Jan-12
Luxor Capital Partners, LP - Liquidating SPV	5,543,030	0.9%	8.01%	8.01%	56.20%	30.65%	49.43%	-	-	29.14%	16.86%	1.55	Jul-16
Luxor Capital Partners, LP - Holdback	-	0.0%	0.00%		0.00%	-2.73%	0.00%	-11.62%	-	-11.62%	8.16%	-1.55	May-14
OZ Domestic Partners II, L.P Holdback	5,537,981	0.9%	0.00%	0.00%	4.47%	11.03%	6.85%	3.75%	6.08%	6.71%	4.39%	1.38	Nov-11
PFM Diversified Fund, L.P Holdback	3,925,246	0.6%	0.00%	0.00%	1.67%	4.67%	1.30%	1.87%	6.21%	4.89%	8.34%	0.55	Mar-12
Liquidating/Redeeming - Total	22,592,904	3.6%	1.85%	1.85%	10.13%	5.66%	17.79%	0.59%	-0.64%	0.13%	7.12%	-0.02	Nov-11
Total Absolute Return Portfolio	628,720,413	100.0%	0.83%	0.83%	6.47%	3.64%	8.20%	3.88%	5.62%	5.38%	3.05%	1.57	Nov-11
HFRI Fund of Funds Composite Index			1.20%	1.20%	6.81%	10.20%	8.04%	2.84%	4.14%	3.71%	3.30%	0.97	Nov-11
Market Indices													
Libor3Month			0.12%	0.12%	1.02%	1.47%	1.18%	0.72%	0.53%	0.52%	0.10%	-	Nov-11
Barclays Aggregate Bond Index			0.06%	0.06%	3.21%	0.59%	0.90%	2.41%	2.04%	2.57%	2.74%	0.75	Nov-11
Barclays High Yield Credit Bond Index			0.42%	0.42%	7.46%	15.43%	8.94%	5.57%	6.28%	7.46%	5.29%	1.30	Nov-11
S&P 500 TR			2.33%	2.33%	16.91%	26.05%	23.63%	10.77%	15.18%	15.18%	9.58%	1.48	Nov-11
MSCI EAFE - Net			1.52%	1.52%	21.78%	28.69%	23.44%	6.08%	8.53%	7.86%	12.76%	0.62	Nov-11
MSCI EMF (Emerging Markets Free) - Net			3.51%	3.51%	32.26%	38.19%	26.45%	5.70%	4.83%	4.46%	15.55%	0.32	Nov-11

Most recent month returns are based on manager estimates; prior months use final market values.

Hedge Fund Research, Inc. ("HFR") is the source and owner of the HFR data contained or reflected in this report. The HFR indices included in this report are revised by HFR for up to three months following their initial release. The revisions are reflected in the trailing period returns.

This report reflects information only through the date hereof. Our due diligence and reporting rely upon the accuracy and completeness of financial information (which may or may not be audited by the fund manager) and other information publicly available or provided to us by the fund manager, its professional staff, and references we have contacted and other third parties. We have not conducted an independent verification of the information provided to the rinst professional staff, and references we have contacted as providing legal advice. Past performance does not guarantee future performance. The information contained herein is confidential commercial or financial information, the disclosure of which would cause substantial competitive harm to you, Cliffwater LLC, or the person or entity from whom the information was obtained, and may not be disclosed except as required by applicable law.



#### Employees' Retirement System of the State of Rhode Island

Absolute Return Portfolio Fund Level Performance Report Estimated as of October 31, 2017

						Trailing Returns				Calendar Year Returns				5 Yr	Sharpe Ratio			Start
Fund	QTD	YTD	Oct	Sep	Aug	1 Year	3 Year	5 Year	2016	2015	2014	2013	2012	Std Dev	3 yr	5 yr	Incep.	Date
Absolute Return																		
Brevan Howard LP	-0.94%	-5.45%	-0.94%	-0.88%	0.10%	0.02%	-1.29%	-0.05%	2.99%	-1.98%	-0.78%	2.68%	3.91%	5.82%	-0.31	-0.07	0.81	Sep-05
Capula Global Relative Value Fund Ltd.	0.37%	3.99%	0.37%	0.45%	0.55%	7.24%	7.49%	7.23%	8.37%	7.54%	8.14%	7.60%	0.41%	1.73%	3.63	3.72	1.89	Oct-05
Davidson Kempner Institutional Partners, L.P.	0.70%	6.04%	0.70%	0.61%	0.43%	6.70%	4.85%	5.90%	6.71%	1.51%	4.45%	9.52%	6.87%	2.02%	2.71	2.59	1.60	Mar-96
DE Shaw Composite Fund LLC	0.50%	11.52%	0.50%	1.50%	3.00%	10.85%	12.08%	12.96%	6.12%	13.68%	15.57%	11.51%	13.94%	4.06%	2.74	2.90	1.61	Mar-01
Elliott Associates, L.P.	0.10%	6.99%	0.10%	1.50%	0.30%	11.20%	7.77%	9.08%	12.98%	2.51%	8.24%	12.44%	13.18%	3.35%	1.87	2.47	1.93	Jan-90
Graham Absolute Return Trading Ltd.	-0.52%	-6.33%	-0.52%	0.34%	-0.82%	0.63%	3.75%	6.38%	11.78%	1.50%	10.42%	10.50%	9.29%	7.58%	0.43	0.78	0.96	Jan-05
Samlyn Onshore Fund, L.P.	1.27%	11.23%	1.27%	-0.08%	1.92%	13.29%	5.21%	7.87%	1.17%	-1.29%	9.24%	18.93%	10.49%	5.99%	0.76	1.21	1.09	Mar-07
Viking Global Equities, LP	2.90%	13.93%	2.90%	0.50%	0.80%	12.33%	6.21%	10.55%	-3.92%	8.27%	13.47%	22.65%	12.75%	7.67%	0.70	1.28	1.44	Oct-99
Winton Fund Limited	4.48%	4.68%	4.48%	-2.06%	3.12%	5.26%	3.13%	5.51%	-3.01%	0.95%	13.88%	9.43%	-3.56%	8.72%	0.30	0.60	0.67	Oct-97
Liquidating Portfolio																		
Brigade Leveraged Capital Structures Fund LP	-0.18%	6.43%	-0.18%	0.69%	0.19%	9.41%	5.01%	4.86%	23.04%	-10.73%	0.61%	6.13%	6.91%	5.78%	0.64	0.76	0.75	Jan-07
Claren Road Credit Fund, Ltd.	0.00%	4.31%	0.00%	-1.11%	0.84%	6.14%	-6.08%	-4.20%	-12.72%	-7.96%	-10.10%	5.43%	1.49%	7.57%	-0.95	-0.60	0.37	Jan-06
ESG Cross Border Equity Fund LP	0.00%	-0.05%	0.00%	0.00%	0.90%	-5.36%	-7.58%	-2.40%	-13.04%	-5.06%	-7.16%	13.59%	6.74%	7.43%	-1.00	-0.36	0.56	Jan-04
Indus Asia Pacific Fund. LP	0.00%	2.86%	0.00%	-2.36%	0.44%	0.16%	-21.57%	-14.24%	-26.00%	-33.23%	-15.60%	4.97%	8.21%	18.47%	-0.95	-0.75	0.03	Dec-00
Luxor Capital Partners, LP	8.01%	66.63%	8.01%	9.93%	8.25%	81.84%	11.21%	10.05%	7.80%	-19.05%	-9.83%	19.53%	5.21%	12.90%	0.71	0.77	0.95	Apr-02
OZ Domestic Partners II, L.P.	1.82%	12.02%	1.82%	-0.15%	1.12%	14.53%	6.14%	7.27%	3.79%	-0.44%	5.45%	14.20%	12.01%	4.55%	1.08	1.46	1.16	Jan-04
PFM Diversified Fund, L.P.	4.12%	16.31%	4.12%	-2.18%	6.43%	15.92%	6.50%	8.95%	-7.11%	8.10%	2.84%	22.17%	5.59%	9.09%	0.70	0.93	0.87	Nov-04
Benchmark																		
HFRI Fund of Funds Composite Index	1.20%	6.81%	1.20%	0.40%	0.83%	8.04%	2.84%	4.14%	0.51%	-0.27%	3.37%	8.96%	4.79%	3.26%				Jan-90
HFRI Fund Weighted Composite Index	1.26%	7.23%	1.26%	0.68%	0.49%	9.14%	3.98%	5.06%	5.44%	-1.12%	2.98%	9.13%	6.36%	3.62%				Jan-90
Market Indices																		
3 Month Libor - BOM	0.12%	1.02%	0.12%	0.11%	0.11%	1.18%	0.72%	0.53%	0.76%	0.33%	0.23%	0.27%	0.42%	0.11%				Jan-87
Barclays Aggregate Bond Index	0.06%	3.21%	0.06%	-0.48%	0.90%	0.90%	2.41%	2.04%	2.66%	0.57%	5.94%	-2.02%	4.23%	2.85%				Jan-76
Barclays High Yield Credit Bond Index	0.42%	7.46%	0.42%	0.90%	-0.04%	8.94%	5.57%	6.28%	17.14%	-4.46%	2.46%	7.46%	15.81%	5.23%				Jul-83
S&P 500 (TR)	2.33%	16.91%	2.33%	2.06%	0.31%	23.63%	10.77%	15.18%	11.96%	1.38%	13.69%	32.39%	16.00%	9.46%				Jun-88
MSCI EAFE - Net - USD	1.52%	21.78%	1.52%	2.49%	-0.04%	23.44%	6.08%	8.53%	1.00%	-0.81%	-4.90%	22.78%	17.31%	11.74%				Dec-69
MSCI EMF (EMERGING MARKETS FREE) - Net - USD	3.51%	32.26%	3.51%	-0.40%	2.23%	26.45%	5.70%	4.83%	11.19%	-14.92%	-2.19%	-2.60%	18.23%	14.46%				Dec-87

Note: The above is manager composite history.



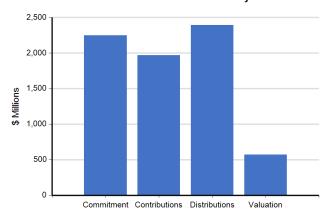
#### **Portfolio Summary**

6/30/2017

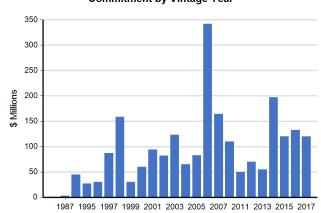
# All Investments Performance Summary

		Number of					Multiple of		
Asset Class	Investment Type	Investments	Commitments	Contributions	Distributions	Valuation	Cost	Net IRR	TWR
Private Equity Funds									
	Buyout	80	1,376,987,393	1,215,882,844	1,559,480,008	335,438,610	1.56	13.24%	0.00
	Direct Lending	3	75,000,000	56,390,390	30,084,482	35,187,627	1.16	9.82%	0.00
	Distressed Debt	13	213,000,000	220,486,591	236,800,825	69,823,525	1.39	10.30%	0.00
	Energy	9	198,000,000	143,385,075	190,300,074	26,300,504	1.51	23.85%	0.00
	Fund of Funds	1	45,000,000	45,000,000	106,748,821	-	2.37	19.94%	0.00
	Secondary	4	60,000,000	54,952,240	63,882,193	3,494,278	1.23	5.90%	0.00
	Venture Capital	22	281,250,000	258,351,937	234,065,945	100,380,886	1.29	5.13%	0.00
Total: Private Equity Fu	nds	132	2,249,237,393	1,994,449,077	2,421,362,348	570,625,430	1.31	13.48%	0.00

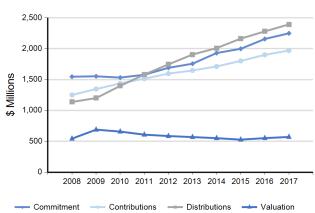
#### **Cash Flow and Valuation Summary**



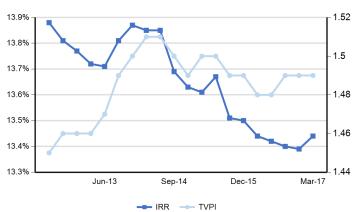
#### **Commitment by Vintage Year**



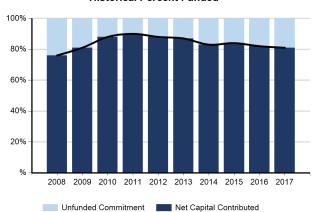




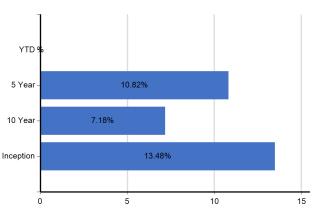
#### **Historical Performance**



#### **Historical Percent Funded**



#### Period IRRs



# Employees' Retirement System of Rhode Island Private Equity Performance 6/30/2017

Cumulative Cash Flows (\$)

Cumulative Performance

Current Partnerships	Vintage Year	Туре	Amount Committed (In \$ unless otherwise noted)	Amount Drawn	Amount Distributed	Amount Unfunded	Valuation (\$)	Net IRR (%)	Net Multiple of Investment
Fenway Partners Capital Fund II	1998	Buyout	15,000,000	18,513,234	20,350,029	232,336	1,665,410	4.7	1.2
Nautic Partners V	2000	Buyout	20,000,000	20,329,437	40,413,948	638,041	1,388,654	17.1	2.1
Providence Equity Partners IV	2000	Buyout	25,000,000	35,976,647	68,572,594	1,990,528	31,317	23.9	1.9
CVC European Equity Partners III Parthenon Investors II	2001 2001	Buyout	20,000,000 23,960,000	23,158,043 23,409,381	59,551,716	899,966 1.821.022	572,639 952,232	41.0 12.3	2.6 1.6
Leeds Equity Partners IV	2001	Buyout Buyout	10,000,000	10,209,327	37,045,489 11,467,347	1,099,639	1.695.616	4.1	1.3
Nordic Capital Fund V	2003	Buyout	€ 14,615,550	21.434.529	58.016.017	1,099,039	938.411	21.0	2.8
TPG Partners IV	2003	Buyout	15,000,000	16,672,684	31,030,047	64,421	1,515,034	15.6	2.0
Aurora Equity Partners III	2004	Buyout	15,000,000	16.243.392	26.952.245	835.850	796,771	15.2	1.7
Birch Hill Equity Partners III	2005	Buyout	CAD 18,000,000	18,932,021	31,383,048	213.134	3.471.688	12.3	1.8
CVC European Equity Partners IV	2005	Buyout	€16,500,000	21,261,935	40,062,001	2,215,997	1,062,052	17.0	1.9
Providence Equity Partners V	2005	Buyout	25,000,000	31,136,262	34,902,461	2,205,797	3,433,554	3.9	1.2
Centerbridge Capital Partners	2006	Buyout	15,000,000	23,577,635	38,936,515	1,095,593	3,706,901	19.9	1.8
Charterhouse Capital Partners VIII	2006	Buyout	€15,000,000	18,405,042	17,611,940		22,576	-0.7	1.0
Fenway Partners Capital Fund III	2006	Buyout	15,000,000	17,064,623	13,785,183	1,177,710	5,980,632	2.9	1.2
LNK Partners	2006	Buyout	12,500,000	12,112,899	16,864,774	389,353	1,147,355	9.3	1.5
Nordic Capital Fund VI	2006	Buyout	€15,000,000	22,438,197	32,892,826	-	1,709,859	7.0	1.5
TPG Partners V	2006	Buyout	20,000,000	20,697,887	22,474,872	1,774,959	6,191,135	5.2	1.4
Green Equity Investors V	2007	Buyout	20,000,000	20,422,420	28,614,196	1,731,093	12,494,545	17.9	2.0
Nautic Partners VI	2007	Buyout	20,000,000	23,976,560	47,452,221	777,632	6,478,426	17.6	2.2
Providence Equity Partners VI	2007	Buyout	25,000,000	29,303,648	27,980,584	1,311,435	12,264,415	6.5	1.4
Trilantic Capital Partners IV	2007	Buyout	11,098,351	11,562,139	16,412,421	1,196,107	2,670,537	14.8	1.7
Bain Capital Fund X CVC European Equity Partners V	2008 2008	Buyout Buyout	25,000,000 €20.000.000	24,300,000 29,450,297	27,631,915 36,988,715	762,500 332,209	10,379,308 12,089,777	9.3 14.6	1.6 1.7
	2008	.,	€ 20,000,000 € 15,000,000	29,450,297	36,988,715 15,113,060	332,209 907,071	12,089,777		1.7
Nordic Capital Fund VII TPG Partners VI	2008	Buyout	€ 15,000,000	13,806,059	15,113,060	719.978	13,122,678	5.6 9.3	1.4
Advent International GPE VII	2008	Buyout Buyout	20.000,000	18,000,009	7.600.000	2,000,000	21.609.419	19.4	1.4
Providence Equity Partners VII	2012	Buyout	25,000,000	22,410,256	9.230.482	9,215,045	22,903,763	21.0	1.4
Nordic Capital Fund VIII	2013	Buyout	€ 15.000.000	11.878.270	368,111	6.116.918	16,536,709	16.0	1.4
Riverside Capital Appreciation Fund VI	2013	Buyout	20,000,000	14,983,972	2,120,379	5,716,752	17,607,168	14.7	1.3
Carlyle Asia Partners IV	2014	Buyout	30,000,000	19,926,235	2.930.747	13.045.404	24.597.600	18.7	1.4
CVC Capital Partners VI	2014	Buyout	€15,000,000	11,176,000	1,878,834	7,608,169	11,189,043	12.8	1.2
Nautic Partners VII	2014	Buyout	20,000,000	15,913,349	8,520,578	5,323,234	17,482,299	48.0	1.6
Riverside Micro-Cap Fund III	2014	Buyout	20,000,000	17,758,317	(4,719)	2,241,683	28,974,318	21.9	1.6
Sorenson Capital Partners III	2014	Buyout	30,000,000	19,534,908		17,423,246	20,830,100	5.0	1.1
Baring Asia Private Equity Fund VI	2015	Buyout	15,000,000	6,844,959	22,568	8,155,041	7,970,728	13.6	1.2
Centerbridge Capital Partners III	2015	Buyout	25,000,000	7,045,467	956,070	18,291,786	8,498,278	19.8	1.3
Paine & Partners Capital Fund IV	2015	Buyout	30,000,000	16,129,892	805,848	14,675,321	13,904,572	-8.4	0.9
Advent International GPE VIII	2016	Buyout	20,000,000	4,680,000		15,320,000	4,990,726	22.0	1.1
Nautic Partners VIII	2016	Buyout	20,000,000	3,526,579	-	16,473,421	3,682,141	13.0	1.0
Southvest Partners VII	2016	Buyout	37,500,000	2,272,488	577,053	35,227,512	520,650	n/a	0.5
Tenex Capital Partners II	2016	Buyout	25,000,000	6,688,396	75,837	18,311,266	6,471,007	-3.3	1.0
Capital Spring Investment Partners	2016	Direct Lending	30,000,000	16,561,946		13,310,955	17,180,678	5.7	1.0
Avenue Special Situations Fund IV	2006	Distressed Debt	20,000,000	25,179,595	32,706,000		75,631	8.2	1.3
MHR Institutional Partners III	2006 2007	Distressed Debt	20,000,000	20,800,000	20,578,134	6,974,396	8,807,040	7.0 10.6	1.4
Avenue Special Situations Fund V WLR Recovery Fund IV	2007	Distressed Debt Distressed Debt	20,000,000 8,000,000	20,329,267 7,277,318	26,322,021 8,983,688	275,492	165,766 935,031	7.8	1.3 1.4
Oaktree European Principal Fund III	2007	Distressed Debt	20.000,000	17,277,316	4.518.800	5.783.415	19,841,193	10.4	1.4
Centerbridge Special Credit Partners II	2011	Distressed Debt	25,000,000	22.500.000	13.818.489	2.500.000	10.090.394	10.4	1.4
Garrison Opportunity Fund IV	2014	Distressed Debt	30,000,000	23.913.341	(498,315)	6,031,705	26,201,569	5.2	1.1
First Reserve Fund X	2004	Energy	20,000,000	19,999,999	36.485.800	0,031,703	85.066	31.0	1.8
Kayne Anderson Energy Fund III	2005	Energy	15.000,000	15.965.344	15.214.110	366,426	156.004	-2.1	1.0
First Reserve Fund XI	2006	Energy	20,000,000	22.125.580	14,559,430	(1)	1,432,866	-8.3	0.7
Kayne Anderson Energy Fund IV	2007	Energy	15.000.000	16,605,519	16.582.616	- (-/	1,304,063	2.6	1.1
EnCap Energy Capital Fund IX	2013	Energy	18,000,000	17,866,917	11,343,486	3,342,562	12,053,793	16.7	1.3
EnCap Energy Capital Fund X	2015	Energy	25,000,000	13,012,274	3,402,217	13,550,205	11,268,712	17.3	1.1
W Capital Partners	2004	Secondaries	15,000,000	14,197,500	10,381,292	802,500	258,575	-9.9	0.7
Coller International Partners V	2006	Secondaries	15,000,000	12,563,354	15,832,410	3,270,000	2,059,330	8.3	1.4
W Capital Partners II	2007	Secondaries	15,000,000	14,896,718	19,701,094	1,596,691	1,148,421	10.6	1.4
Alta BioPharma Partners III	2003	Venture Capital	15,000,000	14,250,000	20,297,956	750,000	486,920	5.8	1.5
Lighthouse Capital Partners V	2003	Venture Capital	11,250,000	10,462,500	12,208,726	787,500	121,221	3.8	1.2
Granite Global Ventures II	2004	Venture Capital	15,000,000	14,333,510	20,268,907	675,000	3,858,942	6.7	1.7
Leapfrog Ventures II	2005	Venture Capital	10,000,000	9,490,000	6,811,564	510,000	3,761,708	1.9	1.1
Alta Partners VIII	2006	Venture Capital	15,000,000	15,000,000	24,903,567	-	6,704,983	15.9	2.1
Castile Ventures III	2006	Venture Capital	5,000,000	5,009,730	1,396,371	-	1,075,356	-13.5	0.5
Focus Ventures III	2006	Venture Capital	15,000,000	15,000,000	5,556,044		2,634,591	-10.8	0.5
Granite Global Ventures III	2006	Venture Capital	15,000,000	14,625,678	26,198,158	375,000	9,967,894	16.7	2.5
Point 406 Ventures I	2006	Venture Capital	10,000,000	10,950,534	8,474,403	370,000	8,303,601	7.9	1.5
Point Judith Venture Fund II	2006	Venture Capital	5,000,000	6,173,309	2,201,897	78,179	4,190,699	0.6	1.0
Lighthouse Capital Partners VI	2007	Venture Capital	15,000,000	14,250,000	19,600,846	750,000	1,065,326	7.2	1.5
Paladin III	2008	Venture Capital	10,000,000	12,633,566	5,957,037	546,350	10,508,483	6.7	1.3
Industry Ventures Partnership Holdings III	2014	Venture Capital	25,000,000	19,562,702	2,442,579	5,500,000	21,451,784	11.7	1.2
Industry Ventures Partnership Holdings III C	2015 2016	Venture Capital	15,000,000	4,425,000 2,250,000	-	10,575,000	5,046,456 2,286,171	6.4 11.9	1.1 1.1
Industry Ventures Partnership Holdings IV		Venture Capital	10,000,000		118.973.993	7,750,000		11.9	1.1
Other funds in aggregate** Total	various	\$	120,000,000 1,480,432,476	116,456,791 \$ 1,329,834,410		18,846,417 \$ 324,854,964	36,959,758 \$ 570.511.191		
ıvıaı		3	1,400,432,470	φ 1,329,034,41U	φ 1,370,106,503	φ 324,034,964	φ 5/U,311,191		

\*IRR refers to the fund's Internal Rate of Return, or the annualized compounded yield on an investment. This calculation is typically applied in private equity where there are multiple points at which capital is invested (capital called) and at which it is distributed. A positive IRR means that the fund's current value plus any cash distributions are greater than the cash value contributed and management fees paid. Typically a fund will have a negative IRR during the first few years of its life, a period referred to as the "J-Curve", because cash is invested upfront and it takes time to generate value. It is important to consider a fund's start date (vintage year) when assessing IRRs. Multiple of investment is another indicator of returns, and is calculated by dividing the fund's cumulative distributions and current value, after fees, by the amount of capital paid in. Please note that performance calculations are specific to the ERSRI investment, and were not prepared, reviewed or approved by the General Partners.

<sup>\*\*</sup>Other funds in aggregate are the total commitments to and amounts drawn and distributed by funds whose confidentiality provisions do not permit the disclosure of their performance data. These funds include Braemar Energy Ventures III, Constellation Ventures III, Summit Partners Credit Fund, Summit Partners Credit Fund, Summit Partners Credit Fund II, Thomas, McNemey & Partners, Thomas McNemey & Partners II and Wellspring Capital Partners III.



#### PORTFOLIO SUMMARY

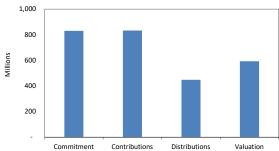
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All Portfolio Investments - Real Estate (1)

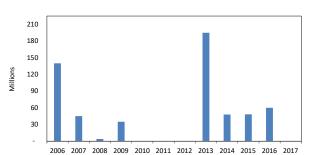
#### Performance Summary

Asset Class	Investment Type	Number of Investments (4)	Commitment	Contributions (2), (3)	Distributions (3)	Adjusted Valuation	Multiple of Cost	IRR	TWR
Real Estate Funds	Core	8	414,873,657	479,799,847	293,106,517	421,188,587	1.5x	5.4%	5.6%
	Non-Core	21	415,260,817	352,761,029	154,300,584	171,947,904	0.9x	-2.1%	1.7%
Total: Real Estate Funds		29	830,134,474	832,560,876	447,407,101	593,136,491	1.2x	3.9%	4.8%
Total:		29	830,134,474	832,560,876	447,407,101	593,136,491	1.2x	3.9%	4.8%

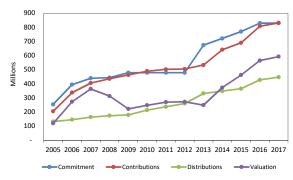
#### **Cash Flow and Valuation Summary**



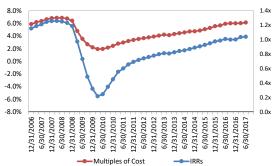
#### Commitment by Vintage Year



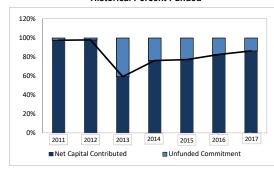
#### **Historical Cash Flows and Valuation**



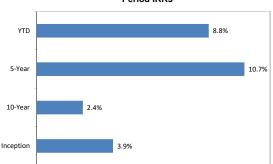
# **Historical Performance**



#### **Historical Percent Funded**



#### Period IRRs (5)



<sup>(1)</sup> Investment information listed as of March 31, 1989 through June 30, 2017 and includes those investments which have been liquidated.

<sup>(2)</sup> Contributions are based on cash activity and are higher than commitments primarily due to reinvestments and contributions for management fees in some of the core open-end funds.

<sup>(3)</sup> Contributions and Distributions each include activity in the amount of \$33.5 million related to a simultaneous sale and purchase of shares in a core open-end fund.

<sup>(4)</sup> As of June 30, 2017, there are five core funds and eleven non-core funds, which includes a closed, but unfunded commitment to GEM Realty Fund VI (non-core).

<sup>(5)</sup> The YTD IRR presented is an annualized percentage.

# Employees' Retirement System of Rhode Island Real Estate Performance 6/30/2017

Cumulative Cash Flows (\$)

Cumulative Performance\*

Current Partnerships	Vintage Year/Initial Investment	Туре	Amount Committed (In \$ unless otherwise noted)	Amount Drawn	Amount Distributed	Amount Unfunded	Valuation (\$)	Net IRR (%)	Net Multiple of Investment
AEW Core Property Trust	2010	Core	69,873,660	69,873,660	14,864,399	-	101,979,754	11.7	1.5
Heitman America Real Estate Trust	2014	Core	60,000,000	60,000,000	7,961,641	-	77,746,904	11.0	1.3
JP Morgan Strategic Property Fund	2006	Core	75,000,000	75,000,000	25,756,842	-	105,133,205	6.3	1.6
Morgan Stanley Prime Property Fund	2005	Core	35,000,000	35,000,000	20,550,912	-	61,678,506	7.3	2.0
Prudential (PRISA)	2005	Core	50,000,000	50,000,000	19,253,701	-	74,650,218	5.3	1.7
Magna Hotel Fund III	2008	Value-Add	4,000,000	3,426,573	5,059,527	573,427	1,088,022	15.9	1.8
IC Berkeley Partners III	2013	Value-Add	18,000,000	16,038,326	7,961,760	1,961,674	13,037,045	17.2	1.3
Exeter Industrial Value Fund III	2014	Value-Add	30,000,000	29,099,454	2,993,484	900,546	33,719,849	18.6	1.3
Waterton Fund XII	2014	Value-Add	35,000,000	29,210,982	2,553,647	5,789,018	35,934,960	18.1	1.2
Crow Holdings Retail Fund	2015	Value-Add	24,000,000	20,935,313	1,508,101	3,064,687	21,764,560	13.8	1.1
IC Berkeley Partners IV	2016	Value-Add	30,000,000	5,994,646	1,742,945	24,005,354	5,412,845	-17.8	0.9
TriCon Capital Fund VII	2005	Opportunistic	15,000,000	14,571,533	3,953,566	428,467	1,064,629	-18.6	0.3
JP Morgan Alternative Property Fund	2006	Opportunistic	20,000,000	20,000,000	14,750,429	-	177,546	-4.6	0.7
GEM Realty Fund V	2013	Opportunistic	50,000,000	36,501,311	6,621,000	13,498,689	42,344,618	15.6	1.2
Lone Star Real Estate Fund IV	2015	Opportunistic	24,260,817	17,930,581	3,880,670	6,330,236	17,403,830	22.3	1.2
Total			\$ 540,134,477	\$ 483,582,379	\$ 139,412,624	\$ 56,552,098 \$	593,136,491		

<sup>\*</sup>IRR refers to the fund's Internal Rate of Return, or the annualized compounded yield on an investment. This calculation is typically applied in private real estate where there are multiple points at which capital is invested (capital called) and at which it is distributed. A positive IRR means that the fund's current value plus any cash distributions are greater than the cash value contributed and management fees paid. Typically a fund will have a negative IRR during the first few years of its life, a period referred to as the "J-Curve", because cash is invested upfront and it takes time to generate value. It is important to consider a fund's start date (vintage year) when assessing IRRs. Multiple of investment is another indicator of returns, and is calculated by dividing the fund's current value, after fees, by the amount of capital paid in. Please note that performance calculations are specific to the ERSRI investment, and were not prepared, reviewed or approved by the General Partners.



### 6/30/2017

All Private Infrastructure

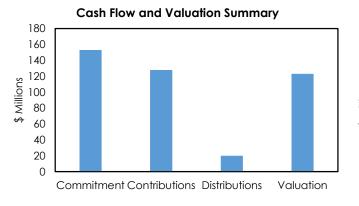




Investment	Commitment	Contributions	Distributions	Reported Valuation	Multiple of Cost*	Since Inception IRR*	1-yr IRR*	QTD IRR*
IFM Global Infrastructure	50,000,000	50,000,000	1,595,547	58,446,195	1.20	9.1	10.9	3.4
ISQ Global Infrastructure Fund	50,000,000	50,104,045	16,902,436 <sup>1</sup>	39,215,002	1.12	15.8	22.5	4.4
Stonepeak Infrastructure Fund II	43,000,000	26,929,403	4,245,672 <sup>2</sup>	26,926,294	1.16	21.0	11.7	-1.3
Stonepeak Infrastructure Fund II Master Co-Investment	10,000,000	1,874,560	0	NA	NA	NA	NA	NA
Total	153,000,000	128,908,008	22,743,655	124,587,491	1.16	11.9	14.2	2.7

\*Net of Fees and Expenses

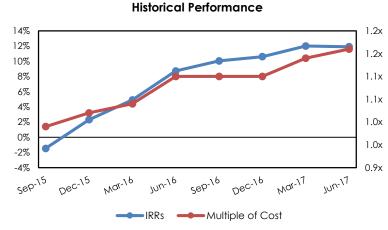
- 1. Recallable distributions
- 2. Partial distributions subject to recall total \$2,768,950

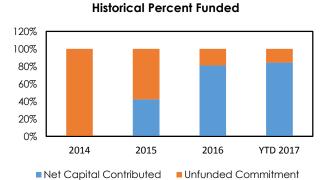


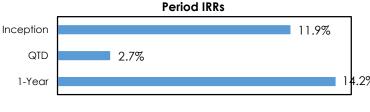
# Commitment by Vintage Year 120 100 80 80 20 20 2014 2015 2016 2017

#### 180 160 140 120 100 80 60 40 20 2015 YTD 2017 2014 2016 Commitment -Contributions Valuation Distributions

Historical Cash Flows and Valuation







## Employees' Retirement System of Rhode Island Private Infrastructure Performance 6/30/2017

Cumulative Cash Flows (\$)

Cumulative Performance\*

Current Partnerships	Vintage Year/Initial Investment	,	Amount Committed (In \$ unless otherwise noted)	Amount Drawn	Amount Distributed	I Amount Unfunded	Valuation (\$)	Net IRR (%)	Net Multiple of Investment
IFM Global Infrastructure, L.P.	2015	Core	50,000,000	50,000,00	0 1,595,547		58,446,195	9.1	1.2
ISQ Global Infrastructure Fund, L.P.	2015	Value-Add	50,000,000	50,104,04	5 16,902,436	16,798,391	39,215,002	15.8	1.1
Stonepeak Infrastructure Fund II, L.P.	2016	Opportunistic	43,000,000	26,929,40	3 4,245,672	18,839,547	26,926,294	21.0	1.2
Stonepeak Infrastructure Fund II-C	2016	Opportunistic	10,000,000	2,507,05	0 -	7,492,950	2,505,976	n/a	1.0
Total			\$ 153,000,000	\$ 129.540.49	8 \$ 22.743.655	\$ 43.130.888	\$ 127.093.467		

\*IRR refers to the fund's Internal Rate of Return, or the annualized compounded yield on an investment. This calculation is typically applied in private real estate where there are multiple points at which capital is invested (capital called) and at which it is distributed. A positive IRR means that the fund's current value plus any cash distributions are greater than the cash value contributed and management fees paid. Typically a fund will have a negative IRR during the first few years of its life, a period referred to as the "J-Curve", because cash is invested upfront and it takes time to generate value. It is important to consider a fund's start date (vintage year) when assessing IRRs. Multiple of investment is another indicator of returns, and is calculated by dividing the fund's cumulative distributions and current value, after fees, by the amount of capital paid in. Please note that performance calculations are specific to the ERSRI investment, and were not prepared, reviewed or approved by the General Partners.



Cash Flow



# Monthly Valuation Change

Period: 2017-10-01 - 2017-10-31

Category	Source Account Name	Closing Balance	Market Value Increase/(Decrease)	Transfer In/(Out)	Opening Balance
			,		., .
Frand Total		8,272,215,380.91	107,962,686.47	(29,689,065.00)	8,193,941,759.4
Total Global Equity		4,156,716,274.23	84,705,162.46	(85,000,000.00)	4,157,011,111.7
Global Equity		3,849,696,480.25	82,777,516.80	(85,000,000.00)	3,851,918,963.4
	SSGA R3000 INDEX	1,374,396,115.35	30,011,100.30	(20,000,000.00)	1,364,385,015.0
	SSGA MSCI EAFE	765,875,097.55	11,676,065.72	(20,000,000.00)	774,199,031.8
	SSGA MSCI CANADA	109,194,242.16	(177,404.59)	0.00	109,371,646.7
	SSGA MSCI EM	357,641,539.12	12,708,917.70	(20,000,000.00)	364,932,621.4
	QVM TILT	1,242,589,486.07	28,558,837.67	(25,000,000.00)	1,239,030,648.4
Global Equity Hedge Fu	ınds	307,019,793.98	1,927,645.66	0.00	305,092,148.3
	DAVIDSON KEMPNER	85,822,998.13	609,812.39	0.00	85,213,185.7
	ELLIOTT ASSOCIATES	100,024,990.85	(1,398,950.92)	0.00	101,423,941.7
	INDUS ASIA PACIFIC	303,566.09	(41,691.57)	0.00	345,257.6
	PFM DIVERSIFIED	3,925,246.43	0.00	0.00	3,925,246.4
	SAMLYN ON/OFFSHORE	50,385,325.08	629,984.42	0.00	49,755,340.6
	VIKING GLOBAL EQUITI	59,905,140.95	1,717,137.00	0.00	58,188,003.9
	LUXOR CAP PTNS LP	5,543,156.88	411,354.34	0.00	5,131,802.5
	ESG CBE FUND LP	1,109,369.57	0.00	0.00	1,109,369.5
Private Equity		491,325,974.80	8,088,663.13	(3,611,205.84)	486,848,517.5°
Private Equity		491,325,974.80	8,088,663.13	(3,611,205.84)	486,848,517.5
	PRIVATE EQUITY	491,325,974.80	8,088,663.13	(3,611,205.84)	486,848,517.5
Total Fixed Income		966,856,561.18	781,452.47	0.00	966,075,108.7
Fixed Income		966,856,561.18	781,452.47	0.00	966,075,108.7
T IXOU IIIOOIIIO	MACKAY SHIELDS	480,348,130.85	448,100.75	0.00	479,900,030.11
	PYRAMIS GLOBAL ADV	486,508,430.33	333,351.72	0.00	486,175,078.6
Total Real Return		1,188,111,177.42	1,962,639.64	(35,667,181.99)	1,221,815,719.7
Alternative Absolute Re	vium	244,141,491.82	1,425,450.65	0.00	242,716,041.17
Alternative Absolute Ne	BREVAN HOWARD	36,584,310.01	(347,268.62)	0.00	36,931,578.6
	DE SHAW	106,463,142.37	481,101.86	0.00	105,982,040.5
	OZ DOMESTIC PTRS	5,537,981.00	0.00	0.00	5,537,981.0
	WINTON FUTURE FD	37,432,355.69	1,603,809.48	0.00	35,828,546.2
	GRAHAM ABS RETURN	58,123,702.75	(312,192.07)	0.00	58,435,894.8
Alternative Fixed Incom		76,786,099.14	220,801.39	0.00	76,565,297.7
Alternative Fixed incom	BRIGADE LEV CAP	3,188,047.59	0.00	0.00	3,188,047.5
	CAPULA GLOBAL	70,640,880.48	252,306.75	0.00	70,388,573.7
	CLAREN ROAD CR. FUND	2,957,171.07	(31,505.36)	0.00	2,988,676.4
Credit	CLAREN ROAD CR. FUND				
Credit	PIMCO	389,118,371.39	3,186,209.53	0.00	385,932,161.86
		203,170,195.49	1,858,571.96	0.00	201,311,623.5
Oll D	WAMCO	185,948,175.90	1,327,637.57	0.00	184,620,538.3
GILBs		207,951,334.40	409,005.84	(40,000,000.00)	247,542,328.50
Bullion T. C. C.	BROWN BROTHERS HARR	207,951,334.40	409,005.84	(40,000,000.00)	247,542,328.5
Publicly Traded Infrastr		270,113,880.67	(3,278,827.77)	4,332,818.01	269,059,890.43
	PRIV INFRASTR AGGR	125,618,656.76	3,155,077.51	4,332,818.01	118,130,761.2
	HARVEST FUND ADVISOR	144,495,223.91	(6,433,905.28)	0.00	150,929,129.1
Total Cash		224,048,821.56	84,447.94	85,521,110.16	138,443,263.46
Cash Accounts		224,048,821.56	84,447.94	85,521,110.16	138,443,263.46
	ERSRI CASH	220,354,424.56	84,447.94	85,010,175.16	135,259,801.4



# Monthly Valuation Change

Period: 2017-10-01 - 2017-10-31

Category	Source Account Name	Closing Balance	Market Value Increase/(Decrease)	Transfer In/(Out)	Opening Balance
Total Other		14,616,711.78	(1,423,432.02)	0.00	16,040,143.80
Other		14,616,711.78	(1,423,432.02)	0.00	16,040,143.80
	RUSSELL OVERLAY FD	14,616,711.78	(1,423,432.02)	0.00	16,040,143.80
Total Miscellaneous		833,430.20	(81,819.38)	4,000.00	911,249.58
Miscellaneous Acco	unts	833,430.20	(81,819.38)	4,000.00	911,249.58
	RI TRANS ACCT	5,305.37	(161.20)	0.00	5,466.57
	SHOTT CAPITAL	772,376.00	(80,831.66)	4,000.00	849,207.66
	NON-US EQUITY TRANS	54,255.80	(832.32)	0.00	55,088.12
	FIXED INC TRANS	1,493.03	5.80	0.00	1,487.23
*unclassified		1,229,706,429.74	13,845,572.23	9,064,212.67	1,206,796,644.84
*Unclassified		1,229,706,429.74	13,845,572.23	9,064,212.67	1,206,796,644.84
	ERSRI SMA CASH	264,596,250.70	352,304.86	14,000,000.00	250,243,945.84
	MACKAY LONG DURATION	70,374,948.75	(43,840.21)	0.00	70,418,788.96
	WAMCO LONG DURATION	70,216,719.22	(79,541.03)	0.00	70,296,260.25
	CPC CB LLC	74,840,283.14	4,997,288.39	0.00	69,842,994.75
	CPC QIS LLC	68,194,003.73	1,739,509.71	0.00	66,454,494.02
	PRIVATE CREDIT	56,610,499.00	0.00	0.00	56,610,499.00
	OPPORTUNISTIC PRV CR	28,538,366.00	0.00	(745,966.00)	29,284,332.00
	CORE REAL ESTATE	423,186,564.13	4,156,419.40	(995,112.29)	420,025,257.02
	NON CORE REAL ESTATE	173,148,795.07	2,723,431.11	(3,194,709.04)	173,620,073.00

#### **CASH FLOW ANALYSIS - INCOME & EXPENSES**

#### **Employees Retirement System**

FISCAL YEAR 2018	FY 2017-18												
	TOTAL	Projected June	Projected May	Projected April	Projected March	Projected February	Projected January	Projected December	Projected November	Actual October	Actual September	Actual August	Actual July
							2018						2017
MEMBER BENEFITS	822,615,481	68,500,000	68,500,000	68,500,000	68,500,000	68,500,000	68,500,000	68,500,000	68,500,000	68,912,763	68,797,894	68,654,488	68,250,336
ADMINISTRATIVE EXPENSES	9,813,969	1,169,348.10	1,005,428	738,845	892,566	768,264	484,162	1,428,567	415,373	844,408	1,200,489	473,241	393,280
INVESTMENT EXPENSES	7,649,482	145,711	1,035,970	874,882	1,134,860	528,297	329,085	(6,989)	1,354,605	875,124	77,109	1,034,676	266,153
TOTAL OUTFLOW	840,078,932	69,815,059	70,541,398	70,113,726	70,527,426	69,796,561	69,313,247	69,921,577	70,269,978	70,632,295	70,075,492	70,162,404	68,909,768
CONTRIBUTIONS	528,762,300	55,658,886	43,884,816	38,943,512	46,923,170	40,327,455	53,349,987	58,176,740	43,254,275	45,184,050	24,149,562	22,954,146	55,955,701
OTHER INCOME*	86,226,554	3,453,123	8,323,084	12,121,233	8,192,692	7,278,049	6,918,798	13,717,971	5,469,260	9,405,337	3,322,153	3,119,643	4,905,210
TOTAL INCOME	614,988,854	59,112,009	52,207,900	51,064,745	55,115,862	47,605,504	60,268,785	71,894,711	48,723,535	54,589,387	27,471,715	26,073,789	60,860,911
DIFFERENCE	(225,090,078)	(10,703,050)	(18,333,499)	(19,048,981)	(15,411,564)	(22,191,057)	(9,044,462)	1,973,134	(21,546,443)	(16,042,908)	(42,603,777)	(44,088,614)	(8,048,857)

#### **Municipal Employees Retirement System**

	TOTAL	Projected June	Projected May	Projected April	Projected March	Projected February	Projected January 2018	Projected December	Projected November	Actual October	Actual September	Actual August	Actual July 2017
MEMBER BENEFITS	94,823,048	7,900,000	7,900,000	7,900,000	7,900,000	7,900,000	7,900,000	7,900,000	7,900,000	7,964,379	7,919,871	7,882,040	7,856,758
ADMINISTRATIVE EXPENSES	2,268,234	270,038	232,184	169,799	205,127	176,177	109,317	322,493	105,608	197,622	278,994	109,981	90,893
INVESTMENT EXPENSES	1,807,569	33,649	239,237	201,063	260,810	121,148	74,303	(1,578)	354,234	204,810	17,920	240,459	61,512
TOTAL OUTFLOW	98,898,851	8,203,687	8,371,421	8,270,862	8,365,937	8,197,326	8,083,620	8,220,915	8,359,843	8,366,811	8,216,785	8,232,481	8,009,164
CONTRIBUTIONS	66,931,668	6,717,800	5,334,349	4,706,224	6,148,074	4,495,807	6,943,950	6,219,708	5,806,255	5,693,573	4,943,375	5,317,956	4,604,597
OTHER INCOME*	19,024,684	797,431	1,922,052	2,785,667	1,882,821	1,668,993	1,562,174	3,096,771	476,838	2,201,187	772,070	725,007	1,133,676
TOTAL INCOME	85,956,352	7,515,231	7,256,401	7,491,891	8,030,895	6,164,800	8,506,124	9,316,479	6,283,093	7,894,760	5,715,445	6,042,963	5,738,273
DIFFERENCE	(12,942,498)	(688,456)	(1,115,020)	(778,971)	(335,043)	(2,032,525)	422,503	1,095,564	(2,076,750)	(472,051)	(2,501,340)	(2,189,518)	(2,270,891)

#### CASH FLOW ANALYSIS - INCOME & EXPENSES

Retirement System	TOTAL	Projected June	Projected May	Projected April	Projected March	Projected February	Projected January 2018	Projected December	Projected November	Actual October	Actual September	Actual August	Actual July 2017
MEMBER BENEFITS  ADMINISTRATIVE	5,969,261 201,158	500,000 23,674	500,000 20,356	500,000 14,842	500,000 17,930	500,000 15,383	500,000 9,455	500,000 27,863	500,000 9,124	492,341 17,434	500,000 12,525	492,341 24,574	484,579 7,998
EXPENSES INVESTMENT EXPENSES	161,413	2,950	20,974	17,575	22,798	10,578	6,427	(136)	30,606	18,068	24,584	1,578	5,412
TOTAL OUTFLOW	6,331,831	526,624	541,329	532,417	540,728	525,960	515,882	527,727	539,730	527,842	537,109	518,493	497,989
CONTRIBUTIONS	7,171,820	564,377	505,403	628,202	577,192	621,162	669,574	681,141	577,084	792,032	640,662	490,527	424,464
OTHER INCOME*	1,682,647	69,911	168,506	243,498	164,579	145,725	135,118	267,558	41,198	194,181	84,619	68,003	99,750
TOTAL INCOME	8,854,467	634,288	673,909	871,700	741,771	766,887	804,692	948,699	618,282	986,213	725,281	558,530	524,215
DIFFERENCE	2,522,636	107,664	132,580	339,283	201,043	240,926	288,810	420,973	78,552	458,371	188,172	40,038	26,225

Judicial													
Retirement System	TOTAL	Projected June	Projected May	Projected April	Projected March	Projected February	Projected January 2018	Projected December	Projected November	Actual October	Actual September	Actual August	Actual July 2017
							2010						2017
MEMBER BENEFITS	2,734,994	227,956	227,937	227,918	227,918	227,879	227,841	227,841	227,841	227,976	227,976	227,956	227,956
ADMINISTRATIVE EXPENSES	103,680	12,367	10,633	7,745	9,356	8,023	4,915	14,561	4,768	9,164	12,882	5,078	4,188
INVESTMENT EXPENSES	82,606	1,541	10,956	9,171	11,896	5,517	3,341	(71)	15,994	9,498	827	11,103	2,834
TOTAL OUTFLOW	2,921,281	241,865	249,527	244,833	249,170	241,419	236,096	242,330	248,603	246,638	241,685	244,137	234,978
CONTRIBUTIONS	7,568,824	775,599	645,108	632,110	625,931	612,878	602,903	590,610	454,249	457,399	590,263	800,433	781,341
OTHER INCOME*	868,503	36,520	88,025	127,059	85,878	76,001	70,235	139,821	21,529	102,077	35,649	33,476	52,233
TOTAL INCOME	8,437,327	812,120	733,133	759,168	711,809	688,879	673,138	730,430	475,778	559,475	625,912	833,909	833,575
DIFFERENCE	5,516,046	570,255	483,606	514,335	462,639	447,461	437,042	488,100	227,175	312,837	384,227	589,772	598,596

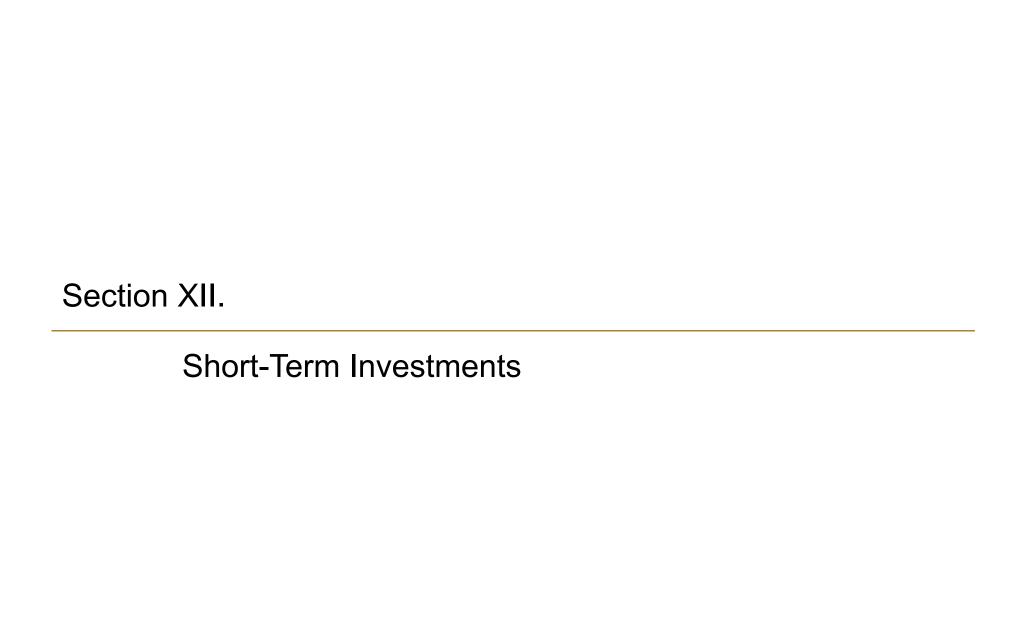
<sup>\*</sup>includes income from Real Estate Investments, Private Equity, and Cash Accounts

ERSRI & MERSRI

ACCRUAL BASIS

	Projected Jul 17	Projected Aug	Projected Sept	Projected Oct	Projected Nov	Projected Dec	Projected Jan 18	Projected Feb	Projected Mar	Projected Apr	Projected May	Projected June	Projected TOTAL
		. 3			-					·	•		
EQUITIES US													
SSGA Russell 3000			42,000			42,000			42,000			42,000	168,000
Shott Capital/Hamilton Lane			10,797			1,000			1,000			1,000	13,797
SSGA QVM Tilt			<u>115,000</u>			<u>115,000</u>			<u>115,000</u>			<u>115,000</u>	<u>460,000</u>
			167,797			158,000			158,000			164,800	188,597
FIXED INCOME													
Pyramis			170,000			170,000			170,000			170,000	680,000
Mackay Shields			170,000			170,000			170,000			170,000	680,000
Brown Bros.TIPS/GILB			77,000			77,000			77,000			77,000	308,000
			417,000			417,000			417,000			417,000	1,668,000
INT'L EQUITIES													
SSGA MSCI EAFE			55,000			55,000			55,000			55,000	220,000
SSGA MSCI CAD			8,000			8,000			8,000			8,000	32,000
SSGA MSCI Emerg Mkts			82,000			82,000			82,000			82,000	328,000
J			145,000			145,000			145,000			145,000	580,000
CREDIT													
WAMCO			130,000			130,000			130,000			130,000	520,000
PIMCO			130,000			130,000			130,000			130,000	520,000
			260,000			260,000			260,000			260,000	1,040,000
Infrastructure													
Harvest Partners			300,000			300,000			300,000			300,000	1,200,000
REAL ESTATE													
Direct Billed Real Estate	193,678	0	0	961,509	94,274	0	411,042	0	94,343	322,544	107,294	0	2,184,684
ALTERNATIVE INVESTMENTS Direct Billed Private Equity	142,868	1,309,667	97,602	147,522	1,880,276	(8,795)	3,044	667,372	1,339,709	782,990	1,202,765	184,262	7,749,282
, ,			-	•		(0). 33)	•			702,330		10 1,202	
SUB TOTAL-INV MGMT FEES	336,546	1,309,667	1,387,399	1,109,032	1,974,550	1,271,205	414,085	667,372	2,714,052	1,105,534	1,310,059	1,471,062	14,610,563
PROFESSIONAL FEES													
Legal	8,475	11,258	10,736	8,750	8,750	8,750	8,750	8,750	8,750	8,750	8,750	8,750	109,218
BNY Mellon - Custodial	60,277	39,000	39,000	39,000	39,000	39,000	39,000	39,000	39,000	39,000	39,000	39,000	489,277
Cliffwater	37,500	37,500	37,500	37,500	37,500	37,500	37,500	37,500	37,500	37,500	37,500	37,500	450,000
PCA/Russell/Aberdeen	21,283	21,458	23,660	14,583	33,333	72,831	14,583	14,583	78,809	14,583	14,583	107,852	432,143
Payden & Rygel	23,293	24,373	24,000	24,000	24,000	24,000	24,000	24,000	24,000	24,000	24,000	24,000	287,666
PCA Real Estate	10,417	10,417	10,417	10,417	10,417	10,417	10,417	10,417	10,417	10,417	10,417	10,417	125,004
	161,245	144,005	145,313	134,250	153,000	192,498	134,250	134,250	198,476	134,250	134,250	227,519	1,893,308
OPERATING EXPENSE	· ·	,	,	,	,	,	,	•	,	•	•	,	
Retirement Transfers	359,498	488,767	677,553	921,394	456,008	870,703	706,200	529,069	1,384,884	537,192	1,162,726	1,361,470	9,455,463
Other Expense	6,270	<u>0</u>	<u>o</u>	14,463	10,000	23,820	750	9,523	39,903	1,795	23,073	45,001	174,598
	365,768	488,767	677,553	935,857	466,008	894,523	706,950	538,592	1,424,787	538,987	1,185,799	1,406,471	9,630,061
TOTAL:	863,559	1,942,439	2,210,264	2,179,138	2,593,558	2,358,227	1,255,286	1,340,214	4,337,315	1,778,771	2,630,108	3,105,052	26,133,932

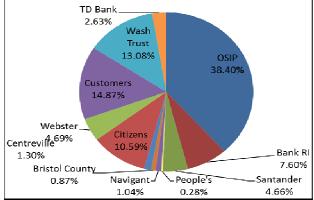
Note: Numbers in bold are actual.

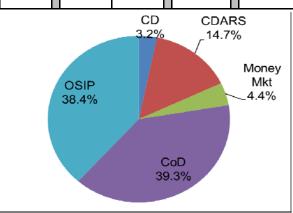


#### State of Rhode Island Office of the General Treasurer Short Term Investments

#### Issuer Credit Rating October 31, 2017

			Issuer Ratings	S-T Deb	t Rating	L-T Deb	t Rating	Credit Outlook	Rating
Issuer	Type of Instrument*	M/E % Portfolio	Moody's	Moody's	S&P	Moody's	<u>S&amp;P</u>	S&P	<u>Veribanc</u>
Bank of America	-	0.0%	Baa1	P-2	A-2	Baa1	A-	Stable	GREEN/*
Bank RI	3,4	6.8%	N/R	N/R	N/R	N/R	N/R	N/R	GREEN/***
Citizens Bank	4	10.3%	Baa1	P-2	A-2	A1	BBB+	Stable	GREEN/*
Customers Bank	4	13.3%	N/R	N/R	N/R	N/R	N/R	N/R	GREEN/*
Webster Bank	4	5.0%	Baa1	P-1	A-2	A1	BBB+	Stable	GREEN/***
Washington Trust	4,7	11.8%	N/R	N/R	N/R	N/R	N/R	N/R	GREEN/***
Santander Bank	4	7.4%	A3	P-2	A-2	A3	A-	Stable	GREEN/*
TD Bank	4	2.4%	Aa2	P-1	A-1+	Aa2	AA-	Stable	GREEN/***
Ocean State Inv. Pool	6	40.2%	N/R	N/R	N/R	N/R	N/R	N/R	N/R
People's Credit Union	4	0.3%	N/R	N/R	N/R	N/R	N/R	N/R	GREEN/***
Navigant Credit Union	4	0.7%	N/R	N/R	N/R	N/R	N/R	N/R	GREEN/***
Home Loan Inv. Bank	-		N/R	N/R	N/R	N/R	N/R	N/R	GREEN/***
Bristol County Sav. Bank	4	0.7%	N/R	N/R	N/R	N/R	N/R	N/R	GREEN/***
Centreville Bank	4	1.2%	N/R	N/R	N/R	N/R	N/R	N/R	GREEN/***/BB
				<u> </u>					





CD	= Certificate of Deposit	1*
CDARS	S = Cert.of Dep.Acct Registry Svc	2*
MMKT	= Money Market	3*
CoD	<ul><li>= Collateralized Deposit</li><li>= Ocean State Investment Pool</li></ul>	4*
OSIP	= Ocean State Investment Pool	5*

#### Moody's Short-Term Debt Ratings:

- P-1 Prime-1 have a superior ability for repayment of sr. S-T debt
- P-2 Prime-1 have a strong ability for repayment of sr. S-T debt
- P-3 Prime-1 have acceptable ability for repayment of sr. S-T debt
- NP Not Prime

#### Moody's Issuer Rating Symbols:

- Aaa Offer exceptional financial security (high-grade)
- Aa Offer excellent financial security (high-grade)
- A Offer good financial security
- Baa Offer adequate financial security
- Ba Offer questionable financial security
- B Offer poor financial security
- Caa Offer very poor financial security
- Ca Offer extremely poor financial security
- Lowest rated class, usually in default

#### Moody's Long-Term Debt Ratings:

#### Aaa - Best Quality

- Aa High Quality
- A Posess many favorable investment attributes
- Baa Medium-grade obligations
- Ba Posess speculative elements
- B Generally lack characteristics of desirable investments
- Caa Poor standing
- Ca Speculative in a high degree
- C Lowest rated class of bonds

#### Modifiers:

- 1 Higher end of letter rating category
- 2 Mid-range of letter rating category
- 3 Lower end of letter rating category

#### **Ratings Definitions**

#### S&P Short -Term Credit Ratings:

- A-1 Highest rated, strong capacity to meet obligations
- A-2 Somewhat more susceptibleto adverse effects of changes infinancial conditions; satisfactory
- A-3 Exhibits adequate protection parameters
- B Significant speculative characteristics, faces major ongoing uncertainties
- C Vulnerable to non-payment
- D Payment default
- Modifiers: + or show relative standing within the category.

#### S&P Outlook Definitions:

- Positive A rating may be raised
- Negative A rating may be lowered
- Stable A rating is not likely to change
- **Developing** May be raised or lowered
- NM Not meaningful

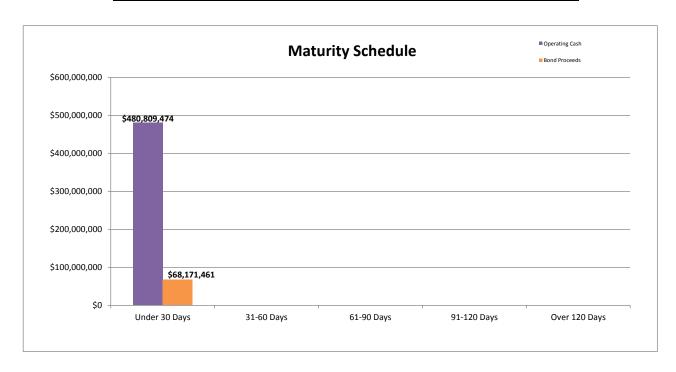
#### S&P Long-Term Debt Ratings:

- AAA Highest rating, extremely strong
- AA Differs slightly from highest rating, very strong
- A More susceptible to adverse effects of change in economic condition, strong
- BBB Exhibits adequate protection parameters
- BB, B, Have significant speculative characteristics. BB least speculative
- CCC, CC, C C highest degree
- D Payment default
- Modifiers: + or show relative standing within the category.

#### VERIBANC Ratings:

- GREEN The institution's equity exceeds a modest percentage of its assets and had positive
  - net income during the most recent reporting period.
- YELLOW The institution's equity is at a minimal percentage of its assets or it incurred a net loss
- during the most recent reporting period.
- RED The institution's equity is less than a minimal percentage of its assets or it incurred a
  - significant net loss during the most recent reporting period (or both).
- BB Blue Ribbon Bank
- Modifiers: \*\*\*-Very Strong, \*\*-Strong, \*-Moderate, No Stars-Poor

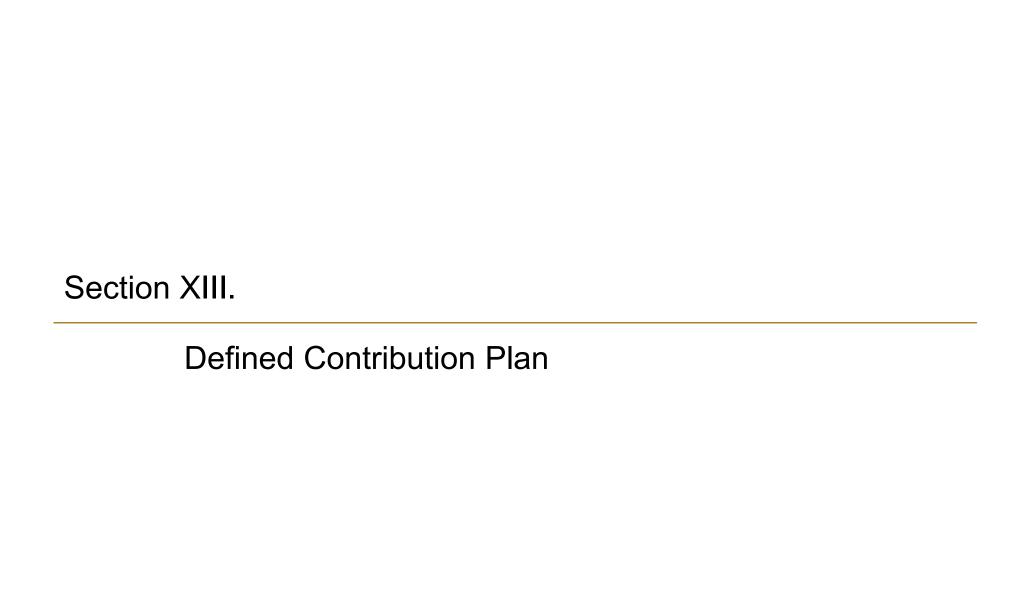
#### Short-Term Investment Maturity Schedule & SIC Compliance Report at October 31, 2017



Vendor	CD	CDARS	Money Mkt	CoD	OSIP	Total (\$)
Guidelines-Total/Vendor	50%/20%	50%/20%	75%/35%	75%/35%	50%/50%	
OSIP	0	0	0	0	184,638,063	184,638,063
	0%	0%	0%	0%	38%	38%
Bank RI	15,368,606	0	21,156,145	0	0	36,524,751
	3%	0%	4%	0%	0%	8%
Santander Bank	0	0	0	22,390,328	0	22,390,328
	0%	0%	0%	5%	0%	5%
People's Credit Union	0	0	0	1,322,474	0	1,322,474
	0%	0%	0%	0%	0%	0%
Navigant Credit Union	0	0	0	4,994,904	0	4,994,904
	0%	0%	0%	1%	0%	1%
Fidelity	0	0	0	0	0	0
	0%	0%	0%	11%	0%	11%
Webster Bank	0	0	0	22,532,422	0	22,532,422
	0%	0%	0%	5%	0%	5%
Customers Bank	0	0	0	71,516,786	0	71,516,786
	0%	0%	0%	15%	0%	15%
Washington Trust	0	60,337,927	0	2,539,836	0	62,877,763
	0%	13%	0%	1%	0%	13%
TD Bank	0	0	0	12,637,300	0	12,637,300
	0%	0%	0%	3%	0%	3%
TOTALS	15,368,606	70,780,430	21,156,145	188,866,231	184,638,063	480,809,475
(%) PORTFOLIO	3.2%	14.7%	4.4%	39.3%	38.4%	100.0%

# State of Rhode Island Short Term Cash Monthly Performance Performance for October 01, 2017 to October 31, 2017

Fund Name	Ве	eginning Balance		Ending Balance	Α	verage Daily Balance		Earnings	Yield(Annual)
GENERAL FUND	\$	211,256,081.11	\$	170,157,519.47	\$	246,091,465.24	\$	204,530.26	0.9786%
H.A.V.A	\$	299.09	\$	299.09	\$	299.08	\$	0.20	0.7874%
GENERAL FUND (HIST PRES)	\$	546,072.82	\$	546,072.82	\$	546,055.19	\$	546.44	1.1782%
HISTORIC TAX CREDITS	\$	6,959,296.32	\$	6,965,753.01	\$	6,959,285.21	\$	6,801.23	1.1507%
HIGHWAY FUND	\$	75,858,634.41	\$	67,758,674.98	\$	70,569,506.91	\$	62,992.95	1.0510%
T.D.I. RESERVE (DET)	\$	107,524,511.79	\$	96,141,232.92	\$	100,635,950.77	\$	64,352.80	0.7529%
RICAP GL FUND 21	\$	37,570,788.19	\$	30,580,434.42	\$	35,191,464.73	\$	24,202.92	0.8098%
BOND CAPITAL FUND	\$	39,786.35	\$	8,539,802.67	\$	1,459,109.73	\$	991.42	0.8000%
R.I. CLEAN WATER ACT	\$	3,229,018.68	\$	3,229,018.68	\$	3,228,923.64	\$	2,946.30	1.0744%
STATE LOTTERY FUND	\$	54,039,328.59	\$	46,439,369.85	\$	41,483,272.40	\$	37,782.98	1.0724%
ASSESSED FRINGE BEN ADM	\$	724,838.00	\$	724,838.00	\$	724,815.77		688.99	1.1192%
AUTO EQUIPMENT SERVICE	\$	1,261.37		1,261.37		1,261.34		0.86	0.8028%
HEALTH INSURANCE FUND	\$	18,233,981.44	, \$		, \$	20,278,991.75		18,080.26	1.0498%
FLEET REVOLVING LOAN FUND	, \$	2,277,094.09		2,278,066.79		2,277,072.07		1,655.26	0.8559%
EMPLOYEES RETIREMENT	\$	1,104,115.83	, \$	1,604,118.86		11,781,277.01		8,006.57	0.8002%
MUNICIPAL EMPLOYEES RET.	\$	252,343.67		452,355.82		2,358,743.98		1,602.69	0.8000%
RETIREE HEALTH FUND	\$	1,710,049.65	\$		\$	3,132,561.64		2,128.52	0.8000%
BOG RETIREE FUND	\$	958.46			\$	958.43		0.89	1.0934%
RIPTA HEALTH FUND	\$	1,041,548.67	\$		\$		\$	982.35	0.8096%
PERMANENT SCHOOL FUND	\$	1,965,087.88	\$		\$		\$	1,966.22	1.1781%
TEACHER RETIREE HEALTH FUND	\$	583,785.48	\$	3,283,925.52		2,532,120.14		1,765.44	0.8209%
RI ST POL RETIREE HEALTH	\$	124,689.46		824,689.46		415,002.91		282.98	0.8029%
RI LEG RETIREE HEALTH	\$	833.75		833.75		833.73		0.57	0.8050%
RI JUDICIAL RETIREE HEALTH	\$	40,725.07		40,725.07		40,724.18		27.67	0.8000%
UNIVERSITY COLLEGE	\$	11,545,151.76		14,945,151.76				13,839.49	1.1276%
INDUS. BLDG. & MTG. INS.	\$	1,230,303.55		1,230,303.55		14,451,156.94 45.48		0.03	0.7767%
INDUS. BLDG. & MTG. INS.	Þ	1,230,303.33	Ş	1,230,303.33	Ş	45.46	Ş	0.03	0.7707/6
Operating Funds Totals	\$	537,860,585.48	\$	480,809,473.70	\$	567,554,536.48	\$	456,176.29	0.946%
CCDL 2004 SERIES A	\$	-	\$	-			\$	-	
BOND CCDL 2006 SERIES C	\$	742,274.45	\$	741,570.63	\$	742,046.18		742.11	1.1775%
GO BND-NTAX 2007 SERIES A	\$	366,352.69	, \$	366,001.70		366,238.97		366.27	1.1775%
CCDL10B BOND CAPITAL COMPONENT	\$	950,901.63		950,000.00		950,609.20		950.69	1.1775%
CCDL10C	\$	161,625.52		161,625.52		161,620.30		161.74	1.1783%
CCDL2011A	\$	5,336,130.48	\$	5,329,102.23		5,334,171.95		5,334.60	1.1775%
CCDL2012B	\$	6,168,037.00		, ,	\$	6,166,140.14		6,166.64	1.1775%
60 CCDL 2013A	\$	2,702,562.54		2,700,000.00		2,701,731.42		2,701.95	1.1775%
GO CCDL 2013A	\$	3,127,965.90		3,125,000.00		3,127,003.95		3,127.26	1.1775%
GO CCDL 2014A	\$	1,633,429.54		94,193.10		1,384,917.11		1,379.66	1.1729%
GO CCDL 2014A	\$	40,702.86		40,664.27		40,690.34		40.69	1.1723%
GO CCDL 2014B GO CCDL 2016A	۶ \$	30,475,138.95		24,644,973.46		29,530,069.26		29,512.07	1.1767%
GO CCDL 2016B	\$	4,222,353.24		4,206,572.06		4,219,155.17		4,219.45	1.1775%
30 CCDL 2016B 30 CCDL 2017	\$ \$	21,696,088.41		18,001,227.35		21,096,538.74		4,219.45 21,083.99	1.1767%
CLEAN WATER 2004 SERIES A	\$ \$	21,030,000.41	\$ \$	10,001,227.33	Ą	21,030,330.74	\$ \$	21,083.99	1.1/0//0
		206 765 44		206 560 20	¢	206 701 05			1 17750/
CCDL99A 1999A	\$	206,765.44		206,569.39		206,701.85		206.72	1.1775%
	\$	205,967.74		205,772.44		205,904.40		205.92	1.1775%
CLEAN WATER 2007 SERIES A		1 127 172 07	S	1,236,000.00	\$	1,236,792.60	\$	1,236.89	1.1775%
CCDL2011A CLEAN WATER COMPONENT	\$	1,237,173.07	•						
	\$ \$	79,273,469.46		68,171,460.69	\$	77,470,331.58	\$	77,436.65	1.177%





(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)	(K)	(L)	(M)	(N)	(O)	(P)	(Q)	(R)	(S)	(S)
		Mgr.	AUM	Gross	Net	Net	Rev	Recent	Returns		Ann	ualized T	otal Re	turns as o	of 9/30/	2017		Since	Incep.
As of 10/31/2017	Ticker	Tenure	\$ Millions	ER	ER	%-ile	Share	1mo.	YTD	1 Year	%-ile	3 Year	%-ile	5 Year	%-ile	10 Year	%-ile	Incep.	Date
TIAA Stable Value****	Current	crediting ra	te = 2.00					0.17	1.66	1.97		1.91		1.88				1.89	3/31/2012
FIXED INCOME																			
Intermediate-Term Bond	NDT! V		100 705 10					2.40		(0.40)		0.40		4.0=		4.00			444004
Vanguard Total Bond Market Index Adm	VBTLX	4.67	189,795.62	0.05	0.05	2	-	0.12	3.27	(0.13)	81	2.62	45	1.97	59	4.22	58	4.24	11/12/01
BBgBarc US Agg Float Adj TR USD								0.07	3.28	0.06		2.72		2.07					
Intermediate-Term Bond Median				0.83	0.70			0.06	3.50	0.71		2.55		2.15		4.36			
Intermediate-Term Bond Number of Funds				1022	1022					994	993	939	938	910	909	788	787		
Inflation-Linked Bond																			
PIMCO Real Return Instl	PRRIX	9.83		0.64	0.45	28	-	0.23	2.79	0.15	28	1.32	34	(0.10)	37	4.26	5	5.91	01/29/97
BBgBarc US Treasury US TIPS TR USD								0.21	1.94	(0.73)		1.62		0.02		3.90			
Inflation-Protected Bond Median				0.81	0.60			0.21	1.69	(0.49)		1.01		(0.40)		3.32			
Inflation-Protected Bond Number of Funds				245	245					243	243	236	236	202	202	161	161		
Equity																			
Large Cap Blend		44.00							44.0=	10.55	24	40.70	- 10	4440					07/04/00
Vanguard Institutional Index I	VINIX	16.83	230,763.07	0.04	0.04	2	-	2.33	16.87	18.57	36	10.79	13	14.19	17	7.44	21	9.77	07/31/90
S&P 500 TR USD								2.33	16.30	18.61		10.81		14.22		7.44			
TIAA-CREF Social Choice Eq Instl	TISCX	11.83	2,754.19	0.19	0.19	6	-	2.13	16.30	18.49	39	9.50	51	13.89	33	7.39	23	5.58	07/01/99
Russell 3000 TR USD								2.18	16.40	18.71		10.74		14.23		7.57			
Large Blend Median				1.05	0.94			2.21	16.24	18.07		9.38		13.33		6.73			
Large Blend Number of Funds				1422	1422					1355	1355	1281	1281	1213	1213	1063	1055		
Mid Cap Blend  Vanguard Mid Cap Index I	VMCIX	19.42	89,058.97	0.05	0.05	2		1.44	14.52	15.31	59	9.73	33	14.40	17	7.97	34	9.96	05/21/98
	VIVICIA	19.42	09,030.97	0.03	0.03	2	-				39		33		17		34	9.90	03/21/90
Spliced Mid Cap Index * CRSP US Mid Cap TR USD								1.44	14.54 14.54	15.33		9.77 9.77		14.44 14.45		7.99			
ı				1 1 5	1.02			1.44		15.33						7.89			
Mid-Cap Bland Median				1.15	1.02			1.45	11.45	15.79	427	8.53	200	13.16	242	7.14	207		
Mid-Cap Blend Number of Funds Small Cap Blend				435	435					426	426	380	380	363	363	296	296		
Vanguard Small Cap Index Institutional	VSCIX	1.50	79,837.98	0.05	0.05	1	_	1.55	12.32	17.38	69	10.45	54	13.95	36	8.61	18	9.02	07/07/97
Spliced Small Cap Index **			.,					1.55	12.31	17.33		10.41		13.91		8.51			
CRSP US Small Cap TR USD								1.55	12.31	17.33		10.41		14.12		8.94			
Small Blend Median				1.30	1.15			1.13	9.82	18.94		10.55		13.27		7.12			
Small Blend Number of Funds				817	817					804	804	730	730	676	676	577	577		
Smail Biend Number of Funds				817	817					804	804	/30	/30	0/0	0/0	5//	5//		



(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(l)	(J)	(K)	(L)	(M)	(N)	(O)	(P)	(Q)	(R)	(S)	(S)
		Mgr.	AUM	Gross	Net	Net	Rev	Recent	Returns		Annı	ualized To	otal Ret	urns as o	of 9/30/	2017		Since	Incep.
As of 10/31/2017	Ticker	Tenure	\$ Millions	ER	ER	%-ile	Share	1mo.	YTD	1 Year	%-ile	3 Year	%-ile	5 Year	%-ile	10 Year	%-ile	Incep.	Date
Foreign Large Blend																			
TIAA-CREF International Eq Idx Instl	TCIEX	12.17	11,264.42	0.06	0.06	2	-	1.65	22.78	19.01	41	5.29	44	8.57	28	1.50	37	8.30	10/01/02
MSCI EAFE NR USD								1.52	21.78	19.10		5.04		8.38		1.34			
Foreign Large Blend Median				1.22	1.02			1.62	22.65	18.43		5.04		7.86		1.06			
Foreign Large Blend Number of Funds				761	761					723	723	648	648	620	620	472	472		
Diversified Emerging Markets																			
Vanguard Emerging Mkts Stock ldx Adm	VEMAX	9.17	85,612.06	0.14	0.14	1	-	2.49	26.69	18.85	63	4.03	58	3.60	61	0.97	54	6.02	06/23/06
Spliced Emerging Markets Index ***								2.58	26.01	19.14		3.88		3.51		1.09			
FTSE EMs AC China A Inclusion NR USD								2.58	25.98	19.10		4.50		4.21		1.48			
FTSE Emerging NR USD								2.56	26.64	19.97		4.44		3.98		1.52			
MSCI EM NR USD								3.51	32.26	22.46		4.90		3.99		1.32			
Diversified Emerging Mkts Median				1.69	1.37			2.53	31.27	21.24		4.75		4.30		1.37			
Diversified Emerging Mkts Number of Funds				817	817					783	778	679	674	536	531	281	276		
Miscellaneous Sector																			
TIAA Real Estate Account	QREARX	2.17	24,837.53		0.85		0.24	0.41	3.47	4.34		6.74		8.04		2.58		6.36	10/02/95
Lifecycle																			
Vanguard Target Retirement Income Trust I				0.07	0.07		0.00	0.78	7.24	5.30		4.36		4.77		4.94		5.15	06/22/07
Vanguard Target Retirement Income Composite								0.80	7.25	5.44		4.47		4.87		4.93			
Retirement Income Median					0.76			0.68	7.39	5.86		3.94		4.22		3.85			
Retirement Income Number of Funds					190					183	183	164	164	149	149	99	99		
Vanguard Target Retirement 2015 Trust I				0.07	0.07		0.00	1.04	9.71	8.02		5.44		7.02		4.99		5.10	06/28/07
Vanguard Target Retirement 2015 Composite								1.03	9.65	8.16		5.54		7.10		4.92			
Target Date 2011-2015 Median					0.73			0.94	9.73	8.64		5.12		6.56		4.19			
Target Date 2011-2015 Number of Funds					135					127	127	106	106	88	88	52	52		



(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)	(K)	(L)	(M)	(N)	(O)	(P)	(Q)	(R)	(S)	(S)
		Mgr.	AUM	Gross	Net	Net	Rev	Recent	Returns		Ann	ualized To	otal Ret	turns as o	f 9/30/	2017		Since	Incep.
As of 10/31/2017	Ticker	Tenure	\$ Millions	ER	ER	%-ile	Share	1mo.	YTD	1 Year	%-ile	3 Year	%-ile	5 Year	%-ile	10 Year	%-ile	Incep.	Date
Vanguard Target Retirement 2020 Trust I				0.07	0.07		0.00	1.27	11.82	10.18		6.32		8.18		5.23		4.36	06/22/07
Vanguard Target Retirement 2020 Composite								1.26	11.72	10.32		6.42		8.28		5.28			
Target Date 2016-2020 Median					0.80			1.09	10.69	9.34		5.30		6.71		4.07			
Target Date 2016-2020 Number of Funds					256					246	246	215	215	188	188	128	128		
Vanguard Target Retirement 2025 Trust I				0.07	0.07		0.00	1.42	13.26	11.82		6.86		8.96		5.32		5.39	06/28/07
Vanguard Target Retirement 2025 Composite								1.42	13.19	11.97		6.94		9.06		5.37			
Target Date 2021-2025 Median					0.78			1.26	12.60	11.41		6.05		7.81		4.55			
Target Date 2021-2025 Number of Funds					227					218	218	188	188	157	157	86	86		
Vanguard Target Retirement 2030 Trust I				0.07	0.07		0.00	1.55	14.57	13.34		7.28		9.68		5.36		5.43	06/28/07
Vanguard Target Retirement 2030 Composite								1.55	14.44	13.44		7.37		9.79		5.41			
Target Date 2026-2030 Median					0.83			1.51	14.23	13.03		6.47		8.52		4.37			
Target Date 2026-2030 Number of Funds					255					246	246	215	215	188	188	128	128		
Vanguard Target Retirement 2035 Trust I				0.07	0.07		0.00	1.70	15.85	14.82		7.70		10.40		5.55		5.60	06/28/07
Vanguard Target Retirement 2035 Composite								1.69	15.69	14.94		7.78		10.50		5.60			
Target Date 2031-2035 Median					0.79			1.66	15.58	14.50		7.12		9.28		4.83			
Target Date 2031-2035 Number of Funds					227					218	218	188	188	157	157	86	86		
Vanguard Target Retirement 2040 Trust I				0.07	0.07		0.00	1.84	17.13	16.33	8	8.06		10.91		5.83		5.88	06/28/07
Vanguard Target Retirement 2040 Composite								1.82	16.95	16.45		8.20		11.04		5.87			
Target Date 2036-2040 Median					0.86			1.78	16.44	15.52		7.30		9.56		4.61			
Target Date 2036-2040 Number of Funds					255					246	246	215	215	188	188	128	128		
Vanguard Target Retirement 2045 Trust I				0.07	0.07		0.00	1.91	17.67	16.90		8.25		11.02		5.86		5.90	06/28/07
Vanguard Target Retirement 2045 Composite								1.89	17.47	17.01		8.38		11.16		5.92			
Target Date 2041-2045 Median					0.80			1.82	16.97	16.13		7.68		10.03		5.00			
Target Date 2041-2045 Number of Funds					227					218	218	188	188	156	156	82	82		
Vanguard Target Retirement 2050 Trust I				0.07	0.07		0.00	1.90	17.64	16.89		8.23		11.03		5.92		5.96	02/29/08
Vanguard Target Retirement 2050 Composite								1.89	17.47	17.01		8.38		11.16		5.92			
Target Date 2046-2050 Median					0.88			1.87	17.19	16.49		7.69		10.17		4.89			
Target Date 2046-2050 Number of Funds					248					239	239	208	208	180	180	79	79		



(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	<b>(I)</b>	(J)	(K)	(L)	(M)	(N)	(O)	(P)	(Q)	(R)	(S)	(S)
		Mgr.	AUM	Gross	Net	Net	Rev	Recent	Returns		Ann	ualized T	otal Re	turns as	of 9/30/	2017		Since	Incep.
As of 10/31/2017	Ticker	Tenure	\$ Millions	ER	ER	%-ile	Share	1mo.	YTD	1 Year	%-ile	3 Year	%-ile	5 Year	%-ile	10 Year	%-ile	Incep.	Date
Vanguard Target Retirement 2055 Trust I				0.07	0.07		0.00	1.90	17.65	16.88		8.19		10.97				10.56	10/05/10
Vanguard Target Retirement 2055 Composite								1.89	17.47	17.01		8.38		11.16					
Target Date 2051-2055 Median					0.81			1.88	17.36	16.65		7.84		10.36		6.06			
Target Date 2051-2055 Number of Funds					227					216	216	175	175	118	118	3	3		
Vanguard Target Retirement 2060 Trust I				0.07	0.07		0.00	1.90	17.66	16.87		8.20		10.95				10.42	03/01/12
Vanguard Target Retirement 2060 Composite								1.89	17.47	17.01		8.38		11.16					
Target Date 2060+ Median					0.79			1.90	17.48	16.96		8.31		10.87					
Target Date 2060+ Number of Funds					194					155	155	42	42	1	1	0	0		

Source: Morningstar & TIAA-CREF

"Morningstar Analyst Assigned Benchmark"

Data for 3-month and YTD return as of 10/31/2017. All other data as of 9/30/2017.

#### VA = Variable Annuity

Since Incep. = Since Inception Incep. Date = Inception Date

Vanguard Index Information from available at http://www.vanguard.com

Note: Rankings shown for returns are calculated by Morningstar. Rankings for expense ratio, Sharpe ratio and standard deviation are calculated by TIAA-CREF and may differ based on calculation methods

#### Fee Disclosures: 1 The net expense ratio reflects total annual fund operating expenses excluding interest expense. Ifinterest expense was included, returns would have been lower.

<sup>\* =</sup> S&P MidCap 400 Index through May 16, 2003; the MSCI US Mid Cap 450 Index through January 30, 2013; and the CRSP US Mid Cap Index thereafter

<sup>\*\* =</sup> Russell 2000 Index through May 16, 2003; the MSCI US Small Cap 1750 Index through January 30, 2013; and the CRSP US Small Cap Index thereafter

<sup>\*\*\* =</sup> Spliced Emerging Markets Index reflects performance of the Select Emerging Markets Index through August 23, 2006; the MSCI Emerging Markets Index through January 9, 2013; FTSE Emerging Transition Index through June 27, 2013; FTSE Emerging Index through November 1, 2015; FTSE Emerging Markets All Cap China A Transition Index through September 18, 2016; and FTSE Emerging Markets All Cap China A Inclusion Index thereafter.

<sup>\*\*\*\* =</sup> The TIAA Stable Value Inception Date represents the date that the plan's TIAA Stable Value record was initiated on TIAA-CREF's recordkeeping system which may be earlier than the date of first deposit to the contract.

<sup>&</sup>quot;Since Inception" performance is calculated from this date.

<sup>\*\*\*\*\* =</sup> For definitions please visit www.tiaa-cref.org/public/assetmanagement

<sup>2</sup> Accumulations in mutual funds not managed by TIAA-CREF may be subject to administrative charges. These charges are subject to change. Please review current documents related to your plan.

<sup>\*\*\*\*</sup>Adjusted Total Return is based on the Account's Total Return published in the Account's historical financial statements dating back to inception. The components of the Account's financial statements upon which the Adjusted Total Return is based excludes certain cash and short term securities and expenses associated with the liquidity guarantee because the constituents of the NFI-ODCE do not have this unique product feature. See Appendix A for a full reconciliation of the historical calculation.

<sup>\*\*\*\*\*</sup>The returns from the equal-weighted NFI-ODCE are calculated by the National Council of Real Estate Investment Fiduciaries, net of fees.

<sup>\*\*\*\*\*\*</sup>The unlevered property level returns for the Account and the NPI are both calculated by the National Council of Real Estate Investment Fiduciaries. Only NPI properties held by open end funds are included in the comparison index.

# **Disclosures**



· %-ile --> Percentile Ranking in Morningstar Category.

The performance data quoted represents past performance and is no guarantee of future results. Your returns and the principal value of your investments will fluctuate so that your shares or accumulation units, when redeemed, may be worth more or less than their original cost. Current performance may be lower or higher than the performance quoted below. For performance current to the most recent month-end, visit the TIAACREF Website at www.tiaa-cref.org, or call 877 518-9161.

Annuity account options are available through annuity contracts issued by TIAA or CREF. These contracts are designed for retirement or other long-term goals, and offer a variety of income options, including lifetime income. Payments from the variable annuity accounts are not guaranteed and will rise or fall based on investment performance.

For the variable annuity accounts, we estimate expenses for the plan year based on projected expense and asset levels. Differences between estimated and actual expenses are adjusted quarterly and reflected in current investment results. Historically, the adjusting payments have resulted in both upward and downward adjustments.

Investing in non-investment grade securities presents special risks, including significantly higher interest-rate and credit risk.

Small-cap and mid-cap stocks may have limited marketability and may be subject to more abrupt or erratic market movements than large-cap stocks.

The risks associated with foreign investments are often magnified in emerging markets where there is greater potential for political, currency, and economic volatility.

Funds that invest in fixed-income securities are not guaranteed and are subject to interest-rate, inflation and credit risks.

Funds that invest in foreign securities are subject to special risks, including currency fluctuation and political and economic instability.

Real estate securities are subject to various risks, including fluctuations in property values, higher expenses or lower income than expected, and potential environmental problems and liability.

## **Disclosures**



Any guarantees under annuities issued by TIAA are subject to TIAA's claims-paying ability. TIAA Stable Value is guaranteed insurance contract and not an investment for Federal Securities Law purposes.

Target Date Funds share the risks associated with the types of securities held by each of the underlying funds in which they invest. In addition to the fees and expenses associated with the Target Date Funds, there is exposure to the fees and expenses associated with the underlying mutual funds as well.

TIAA-CREF Individual & Institutional Services, LLC, Teachers Personal Investors Services, Inc., and Nuveen Securities, LLC, Members FINRA and SIPC, distribute securities products. Annuity contracts and certificates are issued by Teachers Insurance and Annuity Association of America (TIAA) and College Retirement Equities Fund (CREF), New York, NY. Each is solely responsible for its own financial condition and contractual obligations.

Investment, insurance and annuity products are not FDIC insured, are not bank guaranteed, are not deposits, are not insured by any federal government agency, are not a condition to any banking service or activity, and may lose value.

You should consider the investment objectives, risks, charges and expenses carefully before investing. Please call 877 518-9161 or log on to tiaacref.org for product and fund prospectuses that contains this and other information. Please read the prospectuses carefully before investing.

Morningstar is an independent service that rates mutual funds and variable annuities, based on risk-adjusted returns. Although Morningstar data is gathered from reliable sources, neither Morningstar nor TIAA-CREF can guarantee its completeness and accuracy. Morningstar does not rate money market accounts, and the other TIAA-CREF mutual fund accounts are too new to be rated. Past performance does not guarantee future results. Accumulation net asset values and returns will vary.

For each fund/account with at least a three-year history, Morningstar calculates a Morningstar Rating™ based on a Morningstar Risk-Adjusted Return measure that accounts for variation in a fund's/account's monthly performance (including the effects of sales charges, loads, and redemption fees), placing more emphasis on downward variations and rewarding consistent performance. Where applicable, Morningstar's performance rankings are based on linked performance that considers the differences in expense ratios, while actual performance data shown does not reflect such differences. The top 10 percent of funds/accounts in a category receive five stars, the next 22.5 percent receive four stars, and the next 35 percent receive three stars, the next 22.5 percent receive two stars and the bottom 10 percent receive one star. (Each share class is counted as a fraction of one fund/account within this scale and rated separately, which may cause slight variations in the distribution percentages.) Morningstar proprietary ratings on U.S.-domiciled funds/accounts reflect historical risk-adjusted performance, are subject to change every month. They are derived from a weighted average of the performance figures associated with its three-, five- and ten-year (if applicable) Morningstar Rating metrics. Please note, Morningstar now rates group variable annuities within the open-end mutual fund universe.

## **Disclosures**



#### **Prospectus Gross Expense Ratio**

The percentage of fund assets used to pay for operating expenses and management fees, including 12b-1 fees, administrative fees, and all other asset-based costs incurred by the fund, except brokerage costs. Fund expenses are reflected in the fund's NAV. Sales charges are not included in the expense ratio.

- --The expense ratio for fund of funds is the aggregate expense ratio as defined as the sum of the wrap or sponsor fees plus the estimated weighted average of the underlying fund fees.
- --Often referred to as the Annual Operating Expense, the Prospectus Gross Expense Ratio is collected annually from a fund's prospectus.

#### **Prospectus Net Expense Ratio**

The percentage of fund assets, net of reimbursements, used to pay for operating expenses and management fees, including 12b-1 fees, administrative fees, and all other asset-based costs incurred by the fund, except brokerage costs. Fund expenses are reflected in the fund's NAV. Sales charges are not included in the expense ratio.

- --The expense ratio for fund of funds is the aggregate expense ratio as defined as the sum of the wrap or sponsor fees plus the estimated weighted average of the underlying fund fees.
- --Net reimbursements, the Prospectus Net Expense Ratio is collected annually from a fund's prospectus.
- --TIAA-CREF, unless noted, does not charge additional fees for record keeping a fund. 12b-1, revenue share and admin fees are all included in the Prospectus fees.
- -- Prospectus Net Expense Ratio % ile rank is the percentile rank for the fund. The better the expense ratio (lower) the lower the ranking out of 100.

TIAA-CREF reported performance may differ from Morningstar source returns for the same option over the same time period. We would expect an occasional one to two basis point difference. Morningstar Direct calculates returns by one share owned by a hypothetical investor over the requested time period. So the return for one year is calculated using the same formula as one month. TIAA-CREF calculates returns by \$1,000 owned by hypothetical investor for one month then links returns for requested time period. Both set of returns include dividends and capital gains.

By communicating the information contained in this material, TIAA is not providing impartial investment advice or giving advice in a fiduciary capacity regarding any investment by, or other transaction of, the plan(s). TIAA is acting solely in a sales capacity with respect to an arms-length sale, purchase, loan, exchange or other transaction related to the investment of securities or other investment property.

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**OPEB Trust** 



Report ID: IPM0005

Reporting Currency: USD

#### TOTAL NET OF FEES 10/31/2017

							Annualized						
Account Name Benchmark Name	Market Value	% of Total	Month	YTD	Fiscal YTD	1 Year	3 Years	5 Years	10 Years	ITD	Inception Date		
Mackay Shields OPEB Bloomberg Barclays U.S. Aggregate Bond Index	83,586,130.8	34.5	0.14 <i>0.0</i> 6	3.42 3.20	1.05 <i>0.91</i>	1.12 0.90	2.33 2.40			2.03 2.06	5/1/2013 5/1/2013		
SSGA S&P 500 INDX S&P 500 - Total Return Index	158,635,128.4	65.5	2.33 2.33	16.88 <i>16.91</i>	6.92 6.92	23.61 23.63	10.81 <i>10.77</i>	15.13 <i>15.18</i>		13.36 <i>12.65</i>	5/1/2011 5/1/2011		
Total OPEB OPEB Custom Blend 1	242,221,259.2	100.0	<b>1.58</b> 1.54	<b>12.11</b> 11.95	<b>4.85</b> 4.79	<b>15.40</b> <i>15.24</i>	<b>7.89</b> 7.91	<b>9.78</b> 9.76		<b>9.30</b> 8.50	<b>5/1/2011</b> 5/1/2011		



Report ID: IPM0005

Reporting Currency: USD

#### **END NOTES**

10/31/2017

1 RI7GX0903OPE

**OPEB Custom Blend** 

35% Barclays Aggregate and 65% S&P 500



Report ID: IPM0005

Reporting Currency: USD

#### **TOTAL NET OF FEES**

10/31/2017

		Cumulative											
Account Name Benchmark Name	Market Value	% of Total	YTD	Month	9/1/2017 - 9/30/2017	8/1/2017 - 8/31/2017	2016	2015	2014	Inception Date			
Mackay Shields OPEB Bloomberg Barclays U.S. Aggregate Bond Index	83,586,130.8	34.5	3.42 3.20	0.14 <i>0.06</i>	-0.42 -0.48	0.82 <i>0.90</i>	2.28 2.65	0.46 <i>0.55</i>	6.03 5.97	5/1/2013 5/1/2013			
SSGA S&P 500 INDX S&P 500 - Total Return Index	158,635,128.4	65.5	16.88 16.91	2.33 2.33	2.07 2.06	0.31 <i>0.31</i>	11.99 <i>11.</i> 96	1.46 1.38	13.63 13.69	5/1/2011 5/1/2011			
Total OPEB 1 OPEB Custom Blend 2	242,221,259.2	100.0	<b>12.11</b> 11.95	<b>1.58</b> 1.54	<b>1.20</b> 1.17	<b>0.48</b> <i>0.51</i>	<b>8.69</b> 8.77	<b>1.16</b> <i>1.31</i>	<b>11.00</b> <i>11.00</i>	<b>5/1/2011</b> 5/1/2011			



Report ID: IPM0005

Reporting Currency: USD

#### **END NOTES**

10/31/2017

1 RI7G10000000 Total OPEB YTD - Calendar Year to Date

Month - Current Month

Cumulative Months - Prior Month and Second Prior Month

2013, 2012, 2011 - Calendar Year

2 RI7GX0903OPE OPEB Custom Blend 65% S&P 500 and 35% Barclays Aggregate