



Alameda County Employees' Retirement Association
BOARD OF RETIREMENT

INVESTMENT COMMITTEE/BOARD MEETING

ACERA MISSION:

To provide ACERA members and employers with flexible, cost-effective, participant-oriented benefits through prudent investment management and superior member services.

Wednesday, October 10, 2018
9:30 a.m.

LOCATION	COMMITTEE MEMBERS	
ACERA C.G. "BUD" QUIST BOARD ROOM 475 14 TH STREET, 10 TH FLOOR OAKLAND, CALIFORNIA 94612-1900 MAIN LINE: 510.628.3000 FAX: 510.268.9574	ELIZABETH ROGERS, CHAIR	ELECTED GENERAL
	GEORGE WOOD, VICE CHAIR	ELECTED GENERAL
	DALE AMARAL	ELECTED SAFETY
	OPHELIA BASGAL	APPOINTED
	KEITH CARSON	APPOINTED
	TARRELL GAMBLE	APPOINTED
	JAIME GODFREY	APPOINTED
	LIZ KOPPENHAVER	ELECTED RETIRED
	HENRY LEVY	TREASURER
	NANCY REILLY	ALTERNATE RETIRED ¹
	DARRYL L. WALKER	ALTERNATE SAFETY ²

Should a quorum of the Board attend this meeting, this meeting shall be deemed a joint meeting of the Board and Committee. The order of agenda items is subject to change without notice. Board and Committee agendas and minutes are available online at www.acera.org.

Note regarding public comments: Public comments are limited to four (4) minutes per person in total.

Note regarding accommodations: The Board of Retirement will provide reasonable accommodations for persons with special needs of accessibility who plan to attend Board meetings. Please contact ACERA at (510) 628-3000 to arrange for accommodation.

¹ Alternate Retired Member (Votes in the absence of the Elected Retired Member, or, if the Elected Retired Member is present, then votes if both Elected General Members, or the Elected Safety Member and an Elected General Member, are absent.

² Alternate Safety Member (Votes in the absence of (1) the Elected Safety, (2) either of the two Elected General Members, or (3) both the Retired and Alternate Retired Members).

INVESTMENT COMMITTEE/BOARD MEETING

NOTICE and AGENDA, Page 2 of 2 – Wednesday, October 10, 2018

Call to Order: 9:30 a.m.

Action Items: Matters for discussion and possible motion by the Committee

1. Discussion of and Possible Motion to Recommend to the Board to Approve the Finalists for ACERA's U.S. Small Cap Growth Manager Search – Domestic Equities

9:30 – 10:15 Margaret Jadallah, Verus Advisory, Inc.
Thomas Taylor, ACERA
Betty Tse, ACERA

2. Discussion of and Possible Motion to Recommend to the Board to Adopt an Amended ACERA Real Assets Policy

10:15 – 10:45 John Nicolini, Verus Advisory, Inc.
Faraz Shooshani, Verus Advisory, Inc.
Grant Hughs, ACERA
Betty Tse, ACERA

3. Discussion of and Possible Motion to Recommend to the Board to Adopt the 2018 – 2022 Investment Plan for ACERA's Real Assets Class

10:45 – 11:15 John Nicolini, Verus Advisory, Inc.
Faraz Shooshani, Verus Advisory, Inc.
Grant Hughs, ACERA
Betty Tse, ACERA

Information Items: These items are not presented for Committee action but consist of status updates and cyclical reports

Trustee Remarks

Public Input (Time Limit: 4 minutes per speaker)

Future Discussion Items

Establishment of Next Meeting Date

November 7, 2018 at 9:30 a.m.



ALAMEDA COUNTY EMPLOYEES' RETIREMENT ASSOCIATION

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To: Members of the Investment Committee

Date: October 10, 2018

From: Betty Tse, Chief Investment Officer

Subject: Discussion of and Possible Motion to Recommend to the Board to Approve the Finalists for ACERA's U.S. Small Cap Growth Manager Search – Domestic Equities

Recommendation

Staff recommends that the Investment Committee select the following U.S. Small Cap Growth Equity Managers (candidates) to be included in the short-list of candidates for further review and evaluation by ACERA. Given the closeness in the total average score for the top four candidates, Staff and Verus are recommending four finalists (listed below in alphabetical order) instead of a typical list of three.

- Granahan Investment Management, Inc. (Granahan)
- Pier Capital, LLC (Pier)
- Virtus Investment Partners, Inc. (Virtus-KAR)
- William Blair Investment Management (William Blair)

Background

At its May 2017 meeting, the Board authorized a search for a U.S. Small Cap Growth Equity manager¹ after a review of the current manager, Next Century Growth (NCG). NCG has been on ACERA's Watchlist for underperformance since 2010 to present. Staff and Verus discussed NCG's overall underperformance and the decline in the product's AUM, among other things. Since inception, NCG has not been able to consistently outperform its benchmark, which is an important goal for ACERA.

At the May 9, 2018 ICM, Verus and Staff outlined the plan to prepare a focus-list approach to select qualified candidates for the named search. On July 19, 2018 the Board adopted the Timeline, Search Criteria (Minimum Qualifications), and Evaluation Matrix for ACERA's U.S. Small Cap Growth Equity Manager Search.

To prepare a focus-list, Staff and Verus discussed and then applied a pre-defined quantitative screening process^{2,i} – such as relative long-term performance vs. the benchmark, to narrow the universe of U.S. small cap growth managers to a list of 20 consistent strong performing candidates³ that meet the Minimum Qualifications and are suitable for ACERA (see Attachment #1). Subsequently, Staff issued a questionnaire to these 21 selected candidates of which ACERA received 17 responses to the questionnaire.

¹ The manager structure for ACERA's small-cap growth allocation is 5% of the U.S. equity asset class.

² See endnote on page 5ⁱ

³ Next Century Growth, ACERA'S incumbent small cap growth manager, was added to the list as number 21, and sent the questionnaire, as well.

Discussion

Initial Process: Upon receipt of the responses, Staff and Verus verified that all 17 responding candidates met the Board-adopted Minimum Qualifications. Subsequently, Staff and Verus independently scored each candidate utilizing the Board-adopted Evaluation Matrix. Separately, however, in the category of Performance & Risk (#C in the Evaluation Matrix), and under the sub-category fields of 1) Consistency-Beating-Benchmark, 2) Peer-Group-Rankings, and 3) Risk; Staff and Verus scored quantitatively for consistency. For example, when calculating Consistency-Beating-Benchmark, the three-year rolling average returns were ranked by quartiles and then scored, accordingly. The scores generated for each of the 17 candidates were averaged to determine the rankings, (See Attachment #2).

Evaluation Matrix: Staff used the criteria adopted by the Board to evaluate the responses which could best meet ACERA's needs. The key considerations generally fell into one of the four categories of the Board approved Evaluation Matrix, as follows:

Organization (25 Points)

- History
- Ownership, Organization, Staffing
- Compliance
- Client Service

Investment Team (30 Points)

- Strategy (e.g. Philosophy & Process)
- Experience
- Research Capabilities
- Trading/Operations
- Other Resources

Performance and Risk (35 Points)

- Consistency Beating Benchmark
- Peer Group Ranking
- Risk (to benchmark/tracking error, upside/downside)
- Risk-Adjusted Returns
- Risk Management

Fee Proposal (10 Points)

- Fee Proposal/Structure

Evaluation and Scoring of Responses: The scores from Staff and Verus were averaged together to produce rankings for each candidate. The candidates with the highest average scores – Granahan, Pier, Virtus-KAR, and William Blair, are presented in the table below, with the latter three average scores ranging from 74.40 to 74.00. For the complete list and rankings, please see Attachment #3.

	Proposed Finalists		
<i>(out of 100)</i>	Staff	Verus	Average
Granahan	85.25	81.25	83.30
Pier	70.75	78.00	74.40
Virtus-KAR	81.00	67.00	74.00
William Blair	71.25	77.00	74.10

These four managers demonstrated greater strength across the three major categories of Organization, Investment Team, and Performance and Risk, when compared to the other respondents. For example, in addition to Organization and Investment Teams, all three scored well in quantitative Performance and Risk Management. Granahan, Pier, Virtus-KAR, and William Blair's responses to the questionnaire revealed an ability to achieve consistent and repeatable excess returns as measured by the frequency of their relative outperformance to the benchmark, Sharpe Ratio, and other metrics stated in the endnote. Additionally, the firms exhibited well defined investment process, resources, roles, and expertise to manage money in the U.S. small cap growth equity markets. Nonetheless, for both Staff and Verus, Granahan demonstrably scored higher in most all categories, e.g. in the category of Investment Team, specifically strategy, experience, and research capabilities. For scoring details, please see Attachments #2 and #3.

Fee Schedule Proposals: All top four candidates for ACERA's U.S. Small Cap Growth Equity search provided a fee proposal for the mandate in question. The following table provides the fee proposal submitted from each candidate:

Manager	Fee Proposal⁴
Granahan	73 bps
Pier	65 bps
Virtus-KAR	69 bps
William Blair	88 bps

Summary of Managers Chosen for Finalist List: Below is a brief summary of the four candidates proposed for the finalist list for further evaluation, on-site interviews, additional due diligence, and reference checks.

Granahan

Founded in 1985 and located in Waltham, MA (Boston), Granahan Investment Management, Inc. (GIM) is a 100% employee-owned firm specializing in smaller cap equity investments for large institutions and wealthy individuals. The firm utilizes fundamental, bottom-up research to uncover and invest in fast growing companies. Granahan combines research-dependent company analysis, with a strict valuation discipline centered on a stock's probability-weighted expected return and risk/reward. GIM's Focused Growth strategy is a small cap growth equity product grounded in the belief that superior long-term returns can be achieved through a select portfolio of smaller companies poised to grow at 15%+ for many years, and have the underlying fundamentals to achieve this high growth. Granahan has one PM, and five PM/Analysts that manage this strategy. Although Staff and Verus scoring of Consistency-Beating-

⁴ Fee proposals are based on the Total Fund portfolio value as of December 31, 2017

Benchmark was done quantitatively and over the full tenure of the firm's strategy, in the most recent 7 of the 3-year rolling average periods ending 3/31/18, Granahan had outperformed the benchmark 6 times. As of June 30, 2018, the strategy had \$689.4 million in AUM, which made up approximately 29% of the firm's revenues.

Pier Capital

Founded in 1987, and with a recently relocated investment management team to Jersey City, NJ, Pier Capital, LLC is a 100% employee owned investment manager and has been managing Small Cap Growth equity portfolios in the same style since inception. In September of 2004, management acquired 100% of the equity advisory business from SEB Asset Management America, Inc. to form Pier Capital, LLC. Pier Capital has seven individuals dedicated to the small cap growth strategy: one PM, four research analysts, an equity trader, and one marketing individual. The firm employs bottom-up, fundamental internal analysis to invest and create its portfolios. The manager identifies companies with great products or services early, and invests with an understanding of the life cycles of these products or services. Although Staff and Verus scoring of Consistency-Beating-Benchmark was done quantitatively and over the full tenure of the firm's strategy, in the most recent 7 of the 3-year rolling average periods ending 3/31/18, Pier had outperformed the benchmark 3 times. As of June 30, 2018, the team managed \$567.4 million in AUM, which made up approximately 96% of the firm's revenues.

Virtus-KAR

Founded in 1984, and located in Los Angeles, Virtus-KAR (originally founded by Richard Kayne and John Anderson; then later joined by Allan Rudnick in 1989) is wholly owned by Virtus Investment Partners, Inc., which is publicly traded (NASDAQ: VRTS). Less than 5% of KAR employees own VRTS. Virtus-KAR has nine dedicated employees to the small cap growth strategy: a CIO, two PMs, and six research analysts. Virtus-KAR's investment philosophy is centered on the belief that owning high-quality businesses, purchased at attractive prices, will achieve attractive risk-adjusted returns over a complete market cycle. Portfolio construction is a collaborative bottom-up research effort, i.e., between the PMs, senior research analyst and the sector specialists. Although Staff and Verus scoring of Consistency-Beating-Benchmark was done quantitatively and over the full tenure of the firm's strategy, in the most recent 7 of the 3-year rolling average periods ending 3/31/18, Virtus-KAR had outperformed the benchmark 6 times. As of June 30, 2018, Virtus-KAR managed approximately \$23.9 billion in assets, oversaw \$5.6 billion in the small cap growth strategy, which made up approximately 20% of the firm's revenues

William Blair

Founded in 1935, and located in Chicago, IL, William Blair Investment Management is a 100% employee owned limited partnership. The firm has 185 partners and more than 1,300 employees; 58 are partners within the investment management division, which has 322 employees and 100 investment professionals. The William Blair small cap growth strategy team has ten employees: three PMs, and seven research analysts. The portfolio construction process incorporates a fundamental, bottom-up process with the collaboration of the portfolio management team, and decisions are made on an ongoing basis. Although Staff and Verus scoring of Consistency-Beating-Benchmark was done quantitatively and over the full tenure of the firm's strategy, in the most recent 7 of the 3-year rolling average periods ending 3/31/18, William Blair Small Cap Growth had outperformed the benchmark 5 times. As of June 30, 2018, William Blair

Investment Management oversaw \$61.6 billion in discretionary client assets of which \$976.4 million (1.6%) was in this small cap growth strategy. Revenues from Investment Management represented 41% of total revenues; the Small Cap Growth strategy represented <0.05% as of June 30, 2108.

Next Steps:

Upon approval of this recommendation, Staff will proceed to the next steps for each short-list candidate, which include:

1. Site visits to each finalist's headquarters
2. Additional due diligence
3. Reference checks
4. Recommend finalist(s) to the Investment Committee

Conclusion:

Based on Staff's and Verus' review and scoring of the questionnaire responses, it is recommended that the Investment Committee recommend to the Board of Retirement the following fund managers for further review and evaluation:

- Granahan Investment Management, Inc. (Small-Cap Focused Growth)
- Pier Capital, LLC (Small Cap Growth)
- Virtus Investment Partners, Inc. (Virtus-KAR)
- William Blair Investment Management (Small Cap Growth)

Attachments:

1. Board Approved Minimum Qualifications
2. Evaluation Matrix – U.S. Small Cap Growth Scoring Summary – Prepared by Staff
3. Evaluation Matrix – U.S. Small Cap Growth Scoring Detail (Staff and Verus) – Prepared by Staff
4. Verus Advisory, Inc. Memo

ⁱ End Note for Quantitative Selection Process Utilized to Narrow the Universe of U.S. Small Cap Growth Managers to be Included in the U.S. Small Cap Growth Equity Manager Search:

To narrow the universe of U.S. small cap growth equity managers to a select group of managers that were included in this search, a methodology was created and employed to evaluate quantitative performance measurement, on a long-term basis and three- and five-year basis. Data from the eVestment database specific to each manager's strategy track record, along with the eVestment peer universe, were used within the below framework:

1. Long-term Performance vs. Benchmark – Outperform the Russell 2000 Growth Index over 50% of the time on a rolling 3-year basis over the strategy's entire track record.
2. Long-Term Performance vs. Peer Median – Rank above the median of the eVestment peer universe on a rolling 3-year basis over 50% of the time over the strategy's entire track record.

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3. Sharpe Ratio (i.e. Amount of return generated above risk-free rate, per unit of risk) – Score above the median of the eVestment peer universe for the three- and five-year periods ending 6/30/18.
 4. Information Ratio (i.e. Excess return above the Russell 2000 Growth Index, per unit of risk) - Score above the median of the eVestment peer universe for the three- and five-year periods ending 6/30/18.
 5. Batting Average (i.e. Consistency Beating Benchmark) – Score above the median of the eVestment universe for the three- and five-year periods ending 6/30/18.
 6. Status of Fund – Is the fund open to new business and does it have product assets of \$200 million or more.

Attachment I

ACERA – U.S. SMALL CAP GROWTH EQUITY MANAGER SEARCH

Minimum Qualifications

1. The Firm must agree to act as a fiduciary to ACERA.
2. The Firm must be registered as an investment adviser under the Investment Advisers Act of 1940, a bank (as defined in that Act) or an insurance company qualified to perform investment management services under state law in more than one state, including the State of California.
3. ACERA's investment portfolio (or account) should not comprise more than 25% of the Firm's total assets under management at any time in accordance with the General Investment Guidelines, Policies and Procedures.
4. The Firm must be directly responsible for the management of the account, and all personnel responsible for the account must be employees of the Firm or a legal joint venture partner.
5. The Firm must have a minimum five-year, continuous performance history managing the U.S small cap growth equity product for institutional investors by the existing portfolio manager or portfolio manager team. The performance history must be real time (i.e. not simulated or back-tested) and in compliance with CFA Institute (CFAI) Global Investment Performance Standards (GIPS).
6. The U.S small cap growth equity product must be benchmarked against the Russell 2000 Growth Index.
7. The Firm must be able to provide monthly GIPS-compliant performance reports to ACERA, its General Consultant, and its Custodian Bank.
8. The Firm must be able to provide a minimum of weekly liquidity.
9. The Firm should carry the following minimum insurance coverage or should apply for it by contract execution¹:
 - a. Commercial General Liability – \$4,000,000
 - b. Crime Coverage
 - i. Employee Dishonesty Coverage - \$10,000,000
 - ii. Computer Theft Coverage - \$1,000,000
 - c. Error and Omissions (Professional Liability) - \$10,000,000
 - d. Fiduciary Liability - \$25,000,000, or 10% of the total assets managed in the ACERA account, whichever is higher, unless the proposed contract specifies otherwise
 - e. Workers' Compensation and Employer's Liability - \$1,000,000
10. Attend ACERA's Investment Committee Meetings as needed.
11. The Firm must be willing to allow ACERA to review the latest 3-5 years of the firm's audited financial statements. In-office reviews are acceptable.
12. Once selected by ACERA as the finalist Firm, the Firm must consent to a background investigation.

¹ Subject to change upon final contract negotiation.

Evaluation Matrix – Summary

U.S. Small Cap Growth Equity Scoring Summary				
Rank	Investment Manager	Staff	Verus	Average
1	Granahan Investment Management, Inc.	85.3	81.3	83.3
2	Pier Capital, LLC	70.8	78.0	74.4
3	William Blair Investment Management, LLC	71.3	77.0	74.1
4	Virtus Investment Partners, Inc.	81.0	67.0	74.0
5	Fuller & Thaler Asset Management, Inc.	70.0	76.5	73.3
6	Granite Investment Partners, LLC	71.0	75.0	73.0
7	Geneva Capital Management	79.0	66.8	72.9
8	Columbia Management Investments	73.0	70.3	71.6
9	Federated Investors, Inc. Active SCG	73.3	66.8	70.0
10	Driehaus Capital Management LLC	72.5	67.3	69.9
11	Weatherbie Capital, LLC	67.0	70.0	68.5
12	BMO Global Asset Management U.S.	73.3	62.8	68.0
13	Victory Capital Management Inc.	74.0	61.3	67.6
14	Federated Investors, Inc. MDT	69.3	63.8	66.5
15	Hood River Capital Management LLC	61.5	68.0	64.8
16	AllianceBernstein L.P.	62.3	60.8	61.5
17	Next Century Growth Investors, LLC	52.3	62.8	57.5

Evaluation Matrix – Detailed Scores

		Alliance Bernstein L.P.			BMO Global Asset Management U.S.			Columbia Management Investments			Driehaus Capital Management LLC			Federated Investors, Inc. Active SCG		
	Total Points	Staff	Verus	Average	Staff	Verus	Average	Staff	Verus	Average	Staff	Verus	Average	Staff	Verus	Average
A. Organization																
1. History	4	3.0	4.0	3.5	3.0	3.0	3.0	3.0	3.0	3.0	4.0	4.0	4.0	4.0	4.0	4.0
2. Ownership, Organization, Staffing	9	4.5	6.0	5.3	7.0	4.0	5.5	4.5	5.0	4.8	4.0	4.0	4.0	4.0	5.0	4.5
3. Compliance	8	3.5	5.0	4.3	5.0	6.0	5.5	5.0	6.0	5.5	5.0	4.0	4.5	3.5	2.0	2.8
4. Client Service	4	3.5	4.0	3.8	4.0	4.0	4.0	3.5	4.0	3.8	3.0	4.0	3.5	3.5	4.0	3.8
Total Organization	25	14.5	19.0	16.8	19.0	17.0	18.0	16.0	18.0	17.0	16.0	16.0	16.0	15.0	15.0	15.0
B. Investment Team																
1. Strategy (e.g. Philosophy & Process)	10	9.0	7.0	8.0	9.0	5.0	7.0	7.0	6.0	6.5	7.5	6.0	6.8	9.0	6.0	7.5
2. Experience	9	7.0	7.0	7.0	8.0	5.0	6.5	9.0	7.0	8.0	7.0	5.0	6.0	9.0	6.0	7.5
3. Research Capabilities	8	7.0	4.0	5.5	7.0	5.0	6.0	7.5	5.0	6.3	7.0	5.0	6.0	7.5	7.0	7.3
4. Other Resources	1	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
5. Trading/Operations	2	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Total Investment Team	30	26.0	21.0	23.5	27.0	18.0	22.5	26.5	21.0	23.8	24.5	19.0	21.8	28.5	22.0	25.3
C. Performance & Risk																
1. Consistency Beating Benchmark	10	6.3	6.3	6.3	2.5	2.5	2.5	8.8	8.8	8.8	10.0	10.0	10.0	7.5	7.5	7.5
2. Peer Group Ranking	7	1.8	1.8	1.8	7.0	7.0	7.0	3.5	3.5	3.5	5.3	5.3	5.3	5.3	5.3	5.3
3. Risk (to benchmark/tracking error, upside/downside)	7	3.8	3.8	3.8	1.3	1.3	1.3	5.0	5.0	5.0	5.0	5.0	5.0	4.0	4.0	4.0
4. Risk-Adjusted Returns	8	2.0	2.0	2.0	6.0	6.0	6.0	4.0	4.0	4.0	2.0	2.0	2.0	6.0	6.0	6.0
5. Risk Management	3	2.0	1.0	1.5	2.5	3.0	2.8	2.3	3.0	2.6	1.8	2.0	1.9	2.0	2.0	2.0
Total Performance & Risk	35	15.8	14.8	15.3	19.3	19.8	19.5	23.5	24.3	23.9	24.0	24.3	24.1	24.8	24.8	24.8
D. Proposed Fee Schedule/Structure	10	6.0	6.0	6.0	8.0	8.0	8.0	7.0	7.0	7.0	8.0	8.0	8.0	5.0	5.0	5.0
Total Score	100	62.3	60.8	61.5	73.3	62.8	68.0	73.0	70.3	71.6	72.5	67.3	69.9	73.3	66.8	70.0

Evaluation Matrix – Detailed Scores

		Federated Investors, Inc. MDT			Fuller & Thaler Asset Management, Inc.			Geneva Capital Management			Granahan Investment Management, Inc.			Granite Investment Partners, LLC		
	Total Points	Staff	Verus	Average	Staff	Verus	Average	Staff	Verus	Average	Staff	Verus	Average	Staff	Verus	Average
A. Organization																
1. History	4	4.0	4.0	4.0	4.0	4.0	4.0	3.0	3.0	3.0	4.0	3.0	3.5	4.0	3.0	3.5
2. Ownership, Organization, Staffing	9	5.0	8.0	6.5	4.0	7.0	5.5	8.0	3.0	5.5	9.0	6.0	7.5	2.5	9.0	5.8
3. Compliance	8	3.5	2.0	2.8	5.0	5.0	5.0	5.0	5.0	5.0	5.0	7.0	6.0	5.0	3.0	4.0
4. Client Service	4	3.5	4.0	3.8	4.0	4.0	4.0	4.0	4.0	4.0	3.0	4.0	3.5	3.0	4.0	3.5
Total Organization	25	16.0	18.0	17.0	17.0	20.0	18.5	20.0	15.0	17.5	21.0	20.0	20.5	14.5	19.0	16.8
B. Investment Team																
1. Strategy (e.g. Philosophy & Process)	10	8.0	6.0	7.0	7.0	8.0	7.5	8.0	8.0	8.0	10.0	8.0	9.0	9.0	8.0	8.5
2. Experience	9	8.0	4.0	6.0	7.0	8.0	7.5	8.0	5.0	6.5	9.0	9.0	9.0	8.0	9.0	8.5
3. Research Capabilities	8	7.0	5.0	6.0	6.0	7.0	6.5	8.0	5.0	6.5	7.0	7.0	7.0	7.5	7.0	7.3
4. Other Resources	1	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
5. Trading/Operations	2	2.0	2.0	2.0	2.0	1.0	1.5	2.0	1.0	1.5	2.0	2.0	2.0	1.5	1.0	1.3
Total Investment Team	30	26.0	18.0	22.0	23.0	25.0	24.0	27.0	20.0	23.5	29.0	27.0	28.0	27.0	26.0	26.5
C. Performance & Risk																
1. Consistency Beating Benchmark	10	5.0	5.0	5.0	6.3	6.3	6.3	6.3	6.3	6.3	8.8	8.8	8.8	5.0	5.0	5.0
2. Peer Group Ranking	7	5.3	5.3	5.3	3.5	3.5	3.5	7.0	7.0	7.0	7.0	7.0	7.0	5.3	5.3	5.3
3. Risk (to benchmark/tracking error, upside/downside)	7	4.5	4.5	4.5	5.8	5.8	5.8	3.5	3.5	3.5	3.5	3.5	3.5	4.8	4.8	4.8
4. Risk-Adjusted Returns	8	6.0	6.0	6.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	6.0	6.0	6.0
5. Risk Management	3	1.5	2.0	1.8	1.5	3.0	2.3	2.3	2.0	2.1	2.0	1.0	1.5	1.5	2.0	1.8
Total Performance & Risk	35	22.3	22.8	22.5	25.0	26.5	25.8	27.0	26.8	26.9	29.3	28.3	28.8	22.5	23.0	22.8
D. Proposed Fee Schedule/Structure	10	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	6.0	6.0	6.0	7.0	7.0	7.0
Total Score	100	69.3	63.8	66.5	70.0	76.5	73.3	79.0	66.8	72.9	85.3	81.3	83.3	71.0	75.0	73.0

Evaluation Matrix – Detailed Scores

		Hood River Capital Management LLC			Next Century Growth Investors, LLC			Pier Capital, LLC			Victory Capital Management Inc.			Virtus Investment Partners, Inc.		
	Total Points	Staff	Verus	Average	Staff	Verus	Average	Staff	Verus	Average	Staff	Verus	Average	Staff	Verus	Average
A. Organization																
1. History	4	4.0	3.0	3.5	3.0	2.0	2.5	4.0	4.0	4.0	3.0	3.0	3.0	3.0	3.0	3.0
2. Ownership, Organization, Staffing	9	3.0	8.0	5.5	2.0	7.0	4.5	4.0	9.0	6.5	7.0	3.0	5.0	7.0	3.0	5.0
3. Compliance	8	5.0	8.0	6.5	2.0	7.0	4.5	5.0	6.0	5.5	5.0	3.0	4.0	4.0	3.0	3.5
4. Client Service	4	4.0	4.0	4.0	3.5	4.0	3.8	3.0	4.0	3.5	3.5	4.0	3.8	3.5	4.0	3.8
Total Organization	25	16.0	23.0	19.5	10.5	20.0	15.3	16.0	23.0	19.5	18.5	13.0	15.8	17.5	13.0	15.3
B. Investment Team																
1. Strategy (e.g. Philosophy & Process)	10	8.0	9.0	8.5	7.0	8.0	7.5	8.0	8.0	8.0	10.0	7.0	8.5	9.0	5.0	7.0
2. Experience	9	9.0	8.0	8.5	9.0	9.0	9.0	8.0	8.0	8.0	8.0	7.0	7.5	8.0	6.0	7.0
3. Research Capabilities	8	7.0	6.0	6.5	6.5	7.0	6.8	7.0	6.0	6.5	8.0	6.0	7.0	8.0	6.0	7.0
4. Other Resources	1	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
5. Trading/Operations	2	1.5	2.0	1.8	1.5	2.0	1.8	1.5	1.0	1.3	2.0	1.0	1.5	2.0	1.0	1.5
Total Investment Team	30	26.5	26.0	26.3	25.0	27.0	26.0	25.5	24.0	24.8	29.0	22.0	25.5	28.0	19.0	23.5
C. Performance & Risk																
1. Consistency Beating Benchmark	10	2.5	2.5	2.5	3.8	3.8	3.8	10.0	10.0	10.0	10.0	10.0	10.0	5.0	5.0	5.0
2. Peer Group Ranking	7	5.3	5.3	5.3	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	7.0	7.0	7.0
3. Risk (to benchmark/tracking error, upside/downside)	7	1.3	1.3	1.3	4.3	4.3	4.3	5.3	5.3	5.3	4.5	4.5	4.5	6.0	6.0	6.0
4. Risk-Adjusted Returns	8	4.0	4.0	4.0	2.0	2.0	2.0	4.0	4.0	4.0	2.0	2.0	2.0	8.0	8.0	8.0
5. Risk Management	3	2.0	2.0	2.0	2.0	1.0	1.5	1.3	3.0	2.1	2.3	2.0	2.1	2.5	2.0	2.3
Total Performance & Risk	35	15.0	15.0	15.0	13.8	12.8	13.3	22.3	24.0	23.1	20.5	20.3	20.4	28.5	28.0	28.3
D. Proposed Fee Schedule/Structure	10	4.0	4.0	4.0	3.0	3.0	3.0	7.0	7.0	7.0	6.0	6.0	6.0	7.0	7.0	7.0
Total Score	100	61.5	68.0	64.8	52.3	62.8	57.5	70.8	78.0	74.4	74.0	61.3	67.6	81.0	67.0	74.0

Evaluation Matrix – Detailed Scores

		Weatherbie Capital, LLC			William Blair Investment Management, LLC		
	Total Points	Staff	Verus	Average	Staff	Verus	Average
A. Organization							
1. History	4	2.0	3.0	2.5	4.0	3.0	3.5
2. Ownership, Organization, Staffing	9	5.0	6.0	5.5	5.0	8.0	6.5
3. Compliance	8	5.0	6.0	5.5	4.0	6.0	5.0
4. Client Service	4	3.0	4.0	3.5	3.5	4.0	3.8
Total Organization	25	15.0	19.0	17.0	16.5	21.0	18.8
B. Investment Team							
1. Strategy (e.g. Philosophy & Process)	10	9.5	8.0	8.8	9.0	8.0	8.5
2. Experience	9	9.0	8.0	8.5	7.0	8.0	7.5
3. Research Capabilities	8	7.0	7.0	7.0	8.0	8.0	8.0
4. Other Resources	1	1.0	1.0	1.0	1.0	1.0	1.0
5. Trading/Operations	2	1.8	2.0	1.9	2.0	2.0	2.0
Total Investment Team	30	28.3	26.0	27.1	27.0	27.0	27.0
C. Performance & Risk							
1. Consistency Beating Benchmark	10	3.8	3.8	3.8	7.5	7.5	7.5
2. Peer Group Ranking	7	3.5	3.5	3.5	1.8	1.8	1.8
3. Risk (to benchmark/tracking error, upside/downside)	7	5.8	5.8	5.8	4.8	4.8	4.8
4. Risk-Adjusted Returns	8	4.0	4.0	4.0	8.0	8.0	8.0
5. Risk Management	3	1.8	3.0	2.4	1.8	3.0	2.4
Total Performance & Risk	35	18.8	20.0	19.4	23.8	25.0	24.4
D. Proposed Fee Schedule/Structure	10	5.0	5.0	5.0	4.0	4.0	4.0
Total Score	100	67.0	70.0	68.5	71.3	77.0	74.1



ALAMEDA COUNTY EMPLOYEES' RETIREMENT ASSOCIATION

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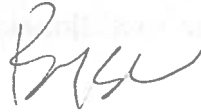
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www.acera.org

TO: Members of the Investment Committee

FROM: Betty Tse, Chief Investment Officer 

DATE: October 10, 2018

SUBJECT: Discussion of and Possible Motion to Recommend to the Board to Adopt an Amended ACERA Real Assets Policy

Recommendation:

Adopt the proposed amendments to ACERA's Real Assets Policy (RA Policy).

Background/Discussion:

On September 12, 2018, Staff and Verus provided the Investment Committee with a version of the RA Policy which had been updated in red-line to reflect several proposed changes for consideration by the Committee since the previous RA Policy was adopted on March 17, 2016. These changes included the interim allocation targets, but were not limited to:

1. Allocation of 65% to the Illiquid Pool for privately-placed investments.
2. Allocation of 35% to the Liquid Pool for publicly-traded securities/instruments.

As discussed, the RA Policy sets out clearly the long-term (or strategic) goals and structure as well as the interim goals and structure for the RA class. The changes to the RA Policy proposed and discussed at the last ICM remain unchanged in this version of the proposed RA Policy. In addition, Staff has added red-line changes to Section XII and the Appendix IV title upon the advice of counsel.

The following identify and explain the key proposed revisions for your consideration:

Strategic Allocation To and Types of Real Assets

(Section IV, V, VI - Pages 4-7)

1. Modify the strategic allocations to real assets to include both liquid and illiquid investments with specific asset allocation targets.
2. Clarify the strategic objective of the Real Assets portfolio.
3. Better define the types of real assets investments to allow for investments in both liquid and illiquid strategies.

Real Assets Information Disclosure Policy

(Section XII and Appendix IV, pp. 11-12 and 17)

4. Update the RA Policy language to reflect current California law on disclosure and related changes (e.g., "Privately-Placed," was added to the Appendix IV title).

Addendum Regarding Interim Asset Allocation Targets
(Addendum - Pages 18-19)

5. The Addendum was added to describe the transition of the RA Portfolio until it reaches the portfolio's strategic asset allocation target.

Attachment:

1. Proposed Amended ACERA Real Assets Policy (red-line copy)

**Alameda County Employees'
Retirement Association**

ACERA

REAL ASSETS POLICY

~~Amended March 17, 2016~~

Amended: TBD

ACERA REAL ASSETS POLICY

TABLE OF CONTENTS

TBU

I.	SCOPE	3
II.	PURPOSE	3
III.	LEGAL AUTHORITY	3
IV.	TYPES OF REAL ASSETS INVESTMENTS	4
V.	STRATEGIC OBJECTIVE OF REAL ASSETS STRATEGIES	4
VI.	STRATEGIC ALLOCATIONS TO REAL ASSETS	4
VII.	SPECIFIC GUIDELINES FOR REAL ASSETS PORTFOLIO	5
VIII.	ROLES AND RESPONSIBILITIES	6
IX.	DUE DILIGENCE PROCESS FOR REAL ASSETS SELECTION	8
X.	SPECIFIC PERFORMANCE EVALUATION CRITERIA	9
XI.	MONITORING AND REPORTING	9
<u>XII.</u>	<u>REAL ASSETS INFORMATION DISCLOSURE POLICY</u>	<u>9</u>
<u>XII.XIII.</u>	<u>Table of Amendment Dates</u>	
	Appendix I – List of Reports Required for Each Investment Recommendation/Approval	11
	Appendix II – Executive Summary Report Template	12
	Appendix III – Compliance Checklist Template for Real Assets Investment/Commitment	13
	<u>Appendix IV – Details of Disclosure Policy for Real Assets Investments (RA Funds)</u>	<u>16</u>

Real Assets Policy

I. SCOPE

This Real Assets Policy (“RA Policy” ~~or “Policy”~~) governs all investments in the Real Assets (“RA”) asset class made by Alameda County Employees’ Retirement Association (“ACERA”). Established in April, 2011 the RA Policy is subject to all provisions of applicable law and applicable limitations and requirements of ACERA’s General Investment Guidelines, Policies and Procedures. If there is any conflict between this RA Policy and ACERA’s General Investment Guidelines, Policies and Procedures pertaining to investments in the RA asset class, the Policy prevails. The ACERA Board (Board) reserves the right to amend, supplement, and/or rescind the Policy at any time.

II. PURPOSE

The purpose of the RA Policy is to:

1. Set forth the RA investment policies and guidelines which are deemed to be appropriate and prudent;
2. Establish criteria against which RA investment opportunities are to be measured; and
3. Serve as a review document to guide the ongoing oversight of ACERA’s Real Assets Portfolio on a consistent basis.

The Policy also defines roles and responsibilities of the Board, the ACERA Investment Committee (IC), the ACERA Staff (Staff), the ACERA RA Consultant (Consultant), and the RA Investment Managers hired by ACERA to manage its assets (Managers).

It is expected that the Policy will be a living document and that changes will be made from time-to-time to reflect experience, evolving investment products, and opportunities and changes in the economic and capital market environment.

~~RA investments consist of assets that exhibit generally positive correlation to inflation and positive returns over the long run.~~

~~The RA asset class is designed to produce positive expected returns and secondly, to, protect against domestic inflation.~~

~~The RA investments portfolio isare principally intended to provide:~~

1. ~~An attractive risk-adjusted return over a full market cycleExceed the RA pPolicy benchmark on a net of fees basis.~~
2. ~~Protection against domestic inflation and trending inflation, especially during periods of unexpected inflation.~~
3. ~~Low correlations to equity and fixed income assets~~
4. ~~Additional alpha and diversificationty to the ACERA portfolio.~~

~~The RA asset class is designed to produce returns and to, secondlysecondly, to, protect against inflation.~~

III. LEGAL AUTHORITY

The Policy is established in accordance with Article XVI, Section 17 of the California Constitution and California Government Code sections 31594 and 31595, which establish the exclusive authority and fiduciary responsibility of the Board for the investment and administration of the ACERA Trust Fund ("Fund").

IV. TYPES OF REAL ASSETS INVESTMENTS

~~RA Investments consist of assets that exhibit positive correlation to inflation and positive returns over the long-run. The RA portfolio will invest in both liquid and illiquid strategies that will seek to provide a positive expected return and exhibit a positive correlation to domestic inflation. These investments will be targeted to perform during periods of unexpected U.S. inflation and increasing U.S. inflation expectations. The strategy is to be implemented using a diverse set of exposures to inflation sensitive instruments; hedges intended to reduce various risk exposures; and active strategies intended to provide additional sources of returns through active management. Instruments and securities employed include, but are not limited to, commodity futures and options and swaps on commodity futures, global exchange traded equities issued by publicly held entities in natural resource related sectors, infrastructure, publicly traded real estate investment trusts (REITs), Treasury inflation protected securities (TIPS) and currency forwards. Liquid strategies in the liquid pool may consist of publicly-traded equities, commodities, inflation protected bonds (TIPS) and other exchange listed securities that are believed to provide an appropriate hedge to inflation. In addition, the RA portfolio will invest in privately-placed funds limited partnerships and secondaries in sectors with inflation sensitive assets including, but not limited to, energy, mining, infrastructure, timberland, and farmland. In some cases, the RA portfolio will also implement short positions in equity index futures and currency forwards used to partially hedge the equity exposure of the underlying investments. Limited leverage may be utilized to combine short positions and long investment positions to build certain hedging strategies in the RA portfolio.~~

All RA investments/strategies made through privately-placed funds are considered Alternative Investments.

RA investments may include, but are not limited to, the following:

~~Publicly traded securities and funds investing in such securities, that securities, which provide exposure to:~~

1. Commodities
2. Treasury Inflation Protected Securities (TIPS), Inflation Break-evens
3. Developed and Emerging Market Currencies
4. Natural Resources - Related Equities
5. Infrastructure - Related Equities
6. Gold, Other Precious Metals
- ~~7. Publicly traded~~ Real Estate Investment Trusts (REITs)
- ~~8. Energy Master Limited Partnerships (MLP's)~~

~~Privately-placed funds limited partnerships investing in the following assets and companies:~~

- ~~7.9. Privately placed Energy Funds,~~
- ~~8.10. Privately placed Mining, Funds~~
- ~~9.11. Privately placed Infrastructure Funds,~~

12. Farmland,
- ~~10.13. Timber,~~
- ~~Publicly-traded Energy Master Limited Partnerships (MLP's)~~
11. Other Inflation-Hedging Assets

V. STRATEGIC OBJECTIVE OF THE REAL ASSETS STRATEGIES PORTFOLIO

~~The RA will invest in a broad, diverse set of of inflation-sensitive and return-seeking instruments return seeking and inflation sensitive instruments. The RA portfolio is expected to provide return and risk above bonds but below equity a return above the RA policy index., with generally low correlations to both asset categories. The strategic objective of real assets strategies investments is to generate a positive, domestic inflation-sensitive return in excess of its the asset class's assigned benchmark. that, when pooled with the other real assets strategies, combine to outperform the composite benchmark for the asset class.~~ The Board believes the Fund's overall returns can be enhanced, on a risk-adjusted basis, by investing a portion of its assets in RA assets.

The RA asset class is expected to produce returns that:

1. Exceed the RA Policy benchmark on a net of fees basis.
2. Protect against domestic inflation, as measured by CPI, especially during periods of unexpected inflation.
3. Add diversification to the ACERA portfolio.

VI. STRATEGIC ALLOCATIONS ~~S~~ TO REAL ASSETS PORTFOLIO

The long-term target allocation to the Real Assets Asset Class is 5.0% of the total ~~Fund~~ Fund, as measured by the NAV of the portfolio and not by dollars committed. The RA target portfolio will consist of both liquid and illiquid investments with a target allocation between the two pools of capital investments, as follows:

<u>Strategic RA Portfolio¹</u>	<u>Target Allocations</u>	<u>Min/Max Ranges</u>
<u>Liquid Pool (publicly-traded)</u>	<u>Up to 35%</u>	<u>10-50%</u>
<u>Commodities</u>	<u>15%</u>	<u>10-20%</u>
<u>Natural Resources</u>	<u>+150%</u>	<u>0-15%</u>
<u>Infrastructure</u>	<u>10%</u>	<u>0-15%</u>

¹ Please see the Addendum to this RA Policy for the interim asset allocation ~~targets~~ ranges.

<u>Illiquid Pool (privately-placed)</u>	<u>Up to 65%</u>	<u>0-85%</u>
<u>Natural Resources</u>	<u>40%</u>	<u>0-50%</u>
<u>Infrastructure</u>	<u>25%</u>	<u>0-35%</u>

The Liquid pPool serves four purposes:

1. Provide a high betacorrelation to inflation.
2. To allow ACERA to flexibly to gain and maintain exposure to real assets in line with fund their RA target allocations, providing the Total Fund with RA risk exposures to the private real asset strategies.
3. To act as a drawdown vehicle to fund commitments made by ACERA within the illiquid portfolio pool.
4. Provide sufficient ongoing liquidity sufficient to either to fund other obligations within 1-3 business days.

The Illiquid pPool serves two purposes:

1. Provide a return premium above the publicly-listed infrastructure and natural resource equity markets.
2. Enhance portfolio diversification by reducing the RA portfolio's public equity correlation
The strategic allocations to the RA Portfolio, as measured by actual dollars invested and not by dollars committed to underlying Investment Managers of Funds, as follows:

<u>Sub-categories</u>	<u>Target Allocations</u>	<u>Min./Max. Ranges</u>
Commodities	15%	-0-20%
Publicly-traded Natural Resource Equities	10%	-0-15%
Publicly-traded Infrastructure Equities	10%	-0-15%
Privately-placed Natural Resources	40%	-0-50%
Privately-placed Infrastructure	25%	-0-35%
Other RA Assets	0%	-0-20%

It is expected that the RA assets will be managed on a discretionary basis by investment managers, who are evaluated and monitored by Staff and Consultant. All investment managers will adhere to specific investment guidelines which are generally consistent with the intent of the Policy. Portfolio construction will be designed to produce a diversified mix of returns, subject to the guidelines and

constraints outlined under each sub-category above. ACERA may take on over- and under-weights to sub-asset classes within the RA Portfolio to improve its risk/return posture based upon an assessment of the relative attractiveness of all available opportunities. –While specific investments may incur losses of all or part of the capital invested, it is expected that a diversified RA Portfolio will produce a net positive return that exceeds the RA Policy benchmark with risk characteristics between public equities and fixed income. Diversifiable risks associated with this Portfolio include position in the capital structure, the timing and amounts of cash flows, the size of the individual investments, and their sensitivities to business cycles. The risks associated with RA investments will be viewed within the context of the entire Fund. ACERA may take on over and under weights to sub-asset classes within the RA Portfolio to improve its risk/return posture based upon an assessment of the relative attractiveness of all available opportunities. As commitments and investments are expected to be made over time, the Portfolio is designed to reach its target allocations in 4-6 years.

VII. SPECIFIC GUIDELINES FOR REAL ASSETS PORTFOLIO

ACERA will gain exposure to RA investments by hiring external investment managers either directly or through participation in secondary RA markets. It is expected that the RA Portfolio will produce returns approximately equal to or greater than approximately 130 basis points above exceed the custom, blended benchmark² net of all fees and expenses over a 7-5-10--year period (full market cycle).

The RA Portfolio is to be implemented over 3 to 5 years and diversified as follows:

By sub-asset class: Among natural resources, infrastructure, commodities, and other similar investments.

By vintage year: Roughly equal amounts of new funding will be invested or committed in each calendar year, with significant deviations permitted to accommodate market opportunities and to facilitate initial entry into the asset class.

By Investment Manager: No more than twenty (20) percent of the ~~Fund's total~~ Total Fund's five (5) percent target allocation to the RA Portfolio may be invested/committed to any one illiquid private investment vehicle.

By geography: Through investments/commitments to funds ~~located in or outside of North America and/or investing both in and outside of North America~~ on a global basis to provide protection against domestic inflation.

By industry sector: As a result of the diversified investments/commitments outlined above, it is expected that the RA Portfolio will be generally generally be diversified by sector/industry.

VIII. ROLES AND RESPONSIBILITIES

The delineation of roles and responsibilities is important for effective administration of ACERA's RA Portfolio. The duties and responsibilities of the Board, IC, Staff, Consultant, and Managers are stated below:

A. Board

² The custom benchmark is: S&P Global LargeMidCap Natural Resources Index, S&P Global Infrastructure Index, and Bloomberg Commodity Index in the ratio of 50/35/15.

The Board shall be responsible for approving the Policy that governs the RA Portfolio and approving the Investment Plans for ACERA's RA Portfolio. From time-to-time the Board, with input from the IC, shall review the Policy to determine whether amendments are advisable. The Board shall also be responsible for reviewing and approving all RA commitments/investments that are recommended by the IC, Staff, and Consultant.

B. Investment Committee

The Investment Committee shall be responsible for the following:

1. Recommending to the Board a Policy to govern all investments in or commitments to the RA asset class;
2. Reviewing the Policy, evaluating proposals for amendments, if any, and making recommendations to the Board;
3. Reviewing and approving Investment Plans for ACERA's RA Portfolio;
4. Reviewing RA investments/commitments recommended by Staff and Consultant and recommending them to the Board for approval.

C. Staff

Staff shall be responsible for oversight of ACERA's RA Portfolio. Staff's responsibilities shall include, but not be limited to the following:

1. Developing and recommending all necessary changes to the Policy with input from Consultant;
2. Developing and maintaining specific procedures, if necessary, to comply with the approved Policy with input from Consultant;
- ~~3. Developing the annual investment plan of ACERA's RA Portfolio and making recommendations to the IC for adoption with input from Consultant;~~
- ~~4.3.~~ Reviewing, conducting due diligence, and, if satisfied, recommending RA investment/commitment proposals to the IC. Staff and Consultant shall provide the IC all required reports;
- ~~5.4.~~ Monitoring the RA Portfolio for performance and compliance with the Policy;
- ~~6.5.~~ Monitoring the performance of the underlying Managers and their compliance with a) the investment guidelines as set forth in their respective contracts; b) the Policy; and c) applicable requirements of ACERA's General Investment Guidelines, Policies and Procedures;
- ~~7.6.~~ Conducting comprehensive annual reviews of ACERA's RA Portfolio and the individual investments in the Portfolio;
- ~~8.7.~~ Reporting to the IC any violations of the Policy with appropriate recommendations;
- ~~9.8.~~ Assisting ACERA's legal department in contract negotiations with the selected Managers;
- ~~10.9.~~ Evaluating RA investment opportunities with Consultant's input on an ongoing basis; and
- ~~11.10.~~ Evaluating and making recommendations for retention and termination of Managers.

D. Consultant

Consultant hired by the Board is a fiduciary to ACERA and its Board. Consultant shall independently and continuously monitor and analyze the performance of ACERA's RA Portfolio and make related recommendations to serve the best interests of the plan members. Consultant shall assist Staff in developing the Policy and recommending all necessary changes to the Policy. In addition, Consultant shall be responsible for:

1. Analyzing the asset allocation of the RA Portfolio by type, implementation vehicle, geography, industry, and vintage year, and making recommendations for reallocation of assets, as appropriate;
2. Developing an investment plan for ACERA's RA Portfolio annually;
3. Developing a search strategy for highly qualified RA investments and maintaining a robust database containing information on qualifying Managers;
4. Recommending highly qualified investments to Staff and/or the Investment Committee upon completion of a thorough due diligence process and providing the required reports to Staff and/or the IC;
5. Ongoing monitoring of the investment performance of ACERA's RA Portfolio and individual investments in the Portfolio;
6. Conducting ongoing due diligence on Managers, notifying ACERA of any significant developments and adverse events and providing analysis and advice on such issues;
7. Monitoring Managers' compliance with a) their respective investment guidelines as set forth in their contracts; b) the Policy; and c) applicable requirements of ACERA's General Investment Guidelines, Policies and Procedures;
8. Assisting Staff in contract negotiations with the selected Managers;
9. Submitting performance evaluation reports and conducting comprehensive reviews of the RA Portfolio and individual Managers ~~when appropriate, quarterly semi-annually~~ to the IC, ~~in conjunction with the regular quarterly performance report and review;~~
10. Making recommendations for retention or termination of Managers;
11. Attending IC and Board meetings as needed; and
- ~~12. Performing other duties in accordance with the terms of its contract and applicable State and Federal law, in particular, the California law requiring public plans to report annual performance and fee disclosures on alternative investments.~~
- ~~13-12.~~

E. Managers

Managers are fiduciaries and shall manage ACERA's assets prudently and in the best interests of ACERA and its members. Managers shall abide by all applicable policies and procedures established by ~~ACERA,~~ ~~and ACERA and~~ comply with applicable law. Managers shall be responsible for compliance with a) the specific investment guidelines as set forth in their respective contracts; b) the Policy; and c) applicable requirements of ACERA's General Investment Guidelines, Policies and Procedures. They shall also:

1. Communicate with Staff and/or Consultant promptly regarding investment strategy, investment results, and any non-conforming issues that may have significant and/or negative impact on the portfolio;
2. Cooperate fully with Staff, Consultant, ACERA's custodian, and other ACERA vendors concerning requests for information;
3. Submit reports to Staff and Consultant in accordance with their contract terms; and
4. Attend meetings as needed.

IX. DUE DILIGENCE PROCESS FOR RA INVESTMENT SELECTION

ACERA recognizes that a proper due diligence process is essential to control the risks associated with RA investments and, therefore, hereby establishes the following due diligence processes for both its Consultant and Staff:

A. Consultant

Consultant shall conduct extensive, documented due diligence before making any RA investment recommendations to Staff and the IC. Consultant shall involve Staff in the due diligence process when appropriate. Consultant shall, but not be limited to:

1. Assessing the reputation of the individuals who manage the RA investments. Consider background checks, internet searches, and in-person meetings with these individuals, etc.;
2. Conducting on-site visits to the offices of the Managers;
3. Checking references from other investors that have invested in these RA investments, and, when advisable, from competitors;
4. Determining that the RA investment funds are audited, at least annually, by a reputable and recognized external auditing firm;
5. Reviewing Managers' investment strategies, policies, operating procedures, and historical performances;
6. Reviewing and understanding the valuation procedures employed by the Managers;
7. Reviewing business terms of all legal agreements and other related documents for the RA investments under consideration, such as offering memorandum, legal agreements, and SEC Forms ADV;
8. Assessing what exit strategies exist to avoid future investments in or liquidate exiting investments from strategies exhibiting poor performance; and
9. Reviewing the investments for potential exposure to Unrelated Business Taxable Income (UBTI).

B. Staff

Staff shall ensure that Consultant has conducted extensive, documented due diligence on all RA investment proposals recommended to Staff and the IC. Staff shall participate in Consultant's due diligence process when appropriate and shall also:

1. Review the comprehensive analysis report prepared by Consultant on its recommended RA investments;
2. Conduct independent internal due diligence on the recommended investment, including, but not limited to: meeting with Managers and their proposed management teams, performing background checks on related parties, review of the offering materials and proposed investment contracts, and attending onsite diligence meetings at the Managers' offices.
3. Verify the appropriateness of each recommended RA investment with consideration to the Policy, the investment plan for ACERA's RA Portfolio and other applicable investment policies;
4. Discuss all issues related to the recommended RA investments with Consultant and if necessary, with the Managers; and
5. Arrange presentations to the IC for all recommended RA investments to allow the IC to make recommendations to the Board for approval.

X. PERFORMANCE EVALUATION CRITERIA

When appropriate, the specific performance evaluation criteria, including, but not limited to benchmarks, for Managers will be established in the investment agreements between ACERA and individual Managers.

Performance of the RA portfolio will be measured against the following blended benchmark:

S&P Global <u>LargeMidCap</u> Natural Resources Index	50%
S&P Global Infrastructure Index	35%
Bloomberg Commodity Index	15%

Individual managers will be measured against their respective benchmarks as governed by the above chart

XI. MONITORING AND REPORTING

Consultant and Staff will monitor and analyze the RA Portfolio closely so that the strategic objective(s) of the Portfolio can be met.

Managers shall submit all reports to Staff, Consultant, ACERA's custodian, and other ACERA vendors in accordance with their respective contracts.

Consultant shall submit all reports to Staff in accordance with its contract terms and the Policy.

Consultant, in conjunction with Staff, shall perform evaluations of ACERA's RA Portfolio and the underlying Managers annually and, when appropriate, semiannually. Consultant shall report the findings to Staff and the IC.

XII. REAL ASSETS INFORMATION DISCLOSURE POLICY

ACERA is a public agency subject to state laws, including, without limitation, (a) the California Public Records Act (Cal. Govt. Code §6250, et seq.)(the "Public Records Act"), which provides generally that all records relating to a public agency's business are open to public inspection and copying unless exempted under the Public Records Act, (b) the Ralph M. Brown Act (Cal. Govt. Code § 54950 et. seq.)(the "Brown Act"), which provides generally for open meetings for local legislative bodies, and (c) the California Government Code Section 7514.7 ("Cal. Govt. Code § 7514.7") which provides generally that public pension systems in California obtain and publicly disclose certain information regarding fees, expenses and returns from the alternative investment vehicles in which they invest. See Appendix IV for details of the ACERA disclosure policy regarding its real assets alternative investments.

~~ACERA is a public agency subject to the California Public Records Act (Cal. Gov. Code §6250 et seq.), which provides generally that all records relating to a public agency's business are open to public inspection, disclosure and copying, unless specifically exempted. The investment of the ACERA Fund is a matter of legitimate public interest; however, the Legislature has determined that the public interest requires that certain information regarding privately placed funds remain exempt from disclosure. (Cal. Gov. Code §6254.26.) Therefore, regarding RA investments, it shall be the policy of ACERA to disclose only those records described in California Government Code Section 6254.26, subdivision (b). Specifically, ACERA will disclose the following categories of documents:~~

- ~~1. The name, address, and vintage year of each RA investment;~~
- ~~2. The dollar amount of the commitment made to each RA investment vehicle by ACERA since inception;~~
- ~~3. The dollar amount of cash contributions made by ACERA to each RA investment vehicle since inception;~~

4. ~~The dollar amount, on a fiscal year-end basis, of cash distributions received by ACERA from each RA investment vehicle;~~
5. ~~The dollar amount, on a fiscal year-end basis, of cash distributions received by ACERA plus remaining value of fund assets (or interest in) attributable to ACERA's investment in each RA investment vehicle;~~
6. ~~The net internal rate of return of each RA investment vehicle since inception;~~
7. ~~The investment multiple of each RA investment vehicle since inception;~~
8. ~~The dollar amount of the total management fees and costs paid on an annual fiscal year-end basis, by ACERA to each RA investment vehicle; and~~
9. ~~The dollar amount of cash profit received by ACERA from each RA investment vehicle on a fiscal year-end basis.~~

~~All other records regarding such RA investments shall be exempt from disclosure to the fullest extent permitted under applicable law. Notwithstanding the preceding, ACERA reserves the right to withhold any record on the basis that the public interest in disclosure is clearly outweighed by the public interest in withholding the record (Cal. Gov. Code §6255).~~

XIII. Table of Amendment Dates

March 17, 2016

Appendix I

List of Reports Required for Each Investment Recommendation/Approval

Name of Report	Source
Recommendation/Approval memo	Staff
Recommendation/Approval memo	Consultant
Executive Summary iesy of the Fund	Consultant and Staff <u>(separately prepared)</u>
Compliance Checklist	Staff
Comprehensive Due Diligence Report (Available to Trustees upon request owing to confidentiality <u>confidentiality</u>)	Consultant
Manager Pitchbook	Manager

Appendix II

Executive Summary Report Template

Fund Name

Section I: General Information

Fund Name; Total AUM of the Firm; Current Target Fund Size; Previous Fund Size; Fund Focus; etc.

Section II: Investment Management

Organizational Structure; Management Group; Experience; Personnel Turnover; etc.

Section III: Investment Strategy

Investment Philosophy; Investment Strategy; Investment Process; Investment Objective; etc.

Section IV: Risk Management

Risk Control Methodology; Exit Strategy; etc.

Section V: Investment Rationale

Section VI: Investment Concerns

Section VII: Performance (example)

Benchmark:

Net Returns (%):

Periods Ending Dates	YTD	1Year	3Years	5Years	Since Inception
<u>Gross Fund/Account Results</u>					
<u>Net Fund/Account Results</u>					
Benchmark <u>(See Section X)</u>					
Relative Performance: Account – Benchmark					
<u>Gross Fund/Account -- Benchmark</u>					
<u>Net Fund/Account -- Benchmark</u>					

Section VIII: Key Terms

Fund Term; Preferred Return; Investment Period; Management Fee; Other Fees; Fee Discounts; General Partner Carry; GP Commitment; Advisory Board; Clawbacks; No-Fault Divorce; Key-Person Events; Closing Schedule; Drawdown Schedule; etc.

Appendix III

Compliance Checklist Template for RA Investment/Commitment

Target allocation to RA asset class: 5% of the **€**Total Fund

RA Policy

Investment Fund

In Compliance

1. Permissible Legal Structures

Any legally permissible vehicle will be allowed including, but not limited to, separate accounts, commingled funds, joint ventures, limited partnerships, corporations, and limited liability companies.	<i>Specific legal structure.</i>	<i>Yes, No, or N/A</i>
--	----------------------------------	------------------------

2. Investment Methods

Individual limited partnership funds Primary and/or Secondary Separate accounts Discretionary Separate Accounts Commingled Funds ETF's Fund-of-funds Direct investments/Co-Investments Combination of the above	<i>Specific investment methods.</i>	<i>Yes, No, or N/A</i>
--	-------------------------------------	------------------------

3. Investment Characteristics

RA may include, but not be limited to, commodities, energy, mining, timberland, farmland (natural resources), infrastructure, renewables, and debt-related / special situations.	<i>Specific investment type.</i>	<i>Yes, No, or N/A</i>
Commodities: typically typically, futures, options on futures, and/or swaps on exchange-traded commodity instruments. Natural Resources: typically purchase assets/companies in the energy, mining, timberland, and/or farmland industries. Infrastructure: typically purchase privately-held assets and/or companies in the infrastructure sector Other RA Assets: investments include debt-like instruments, sub-industry investments (e.g. renewables) or any asset which exhibits an inflation protection component with an attractive risk/return characteristic.	<i>Specific investment characteristics.</i>	<i>Yes, No, or N/A</i>
RA Investments may be denominated in USD or other currencies.	<i>Specific currency denomination.</i>	<i>Yes, No, or N/A</i>

RA Policy**Investment Fund****In Compliance****4. Portfolio Diversification**

<u>By sub-asset class</u> : among commodities natural resources, infrastructure, and debt-related/special situations.	<i>Specific investment type.</i>	<i>Yes, No, or N/A</i>
<u>By vintage year</u> : roughly equal amounts of new funding may be committed in each calendar year with deviations permitted.	<i>Specific vintage year.</i>	<i>Yes, No, or N/A</i>
<u>By Investment Fund</u> : <=20% of the target allocation to total RA may be committed to any one private <u>illiquid private</u> investment vehicle.	<i>Specific commitments to the Investment Fund.</i>	<i>Yes, No, or N/A</i>
<u>By geography</u> : commitments to funds located and/or investing both inside and outside of the U.S.	<i>Specific location.</i>	<i>Yes, No, or N/A</i>

5. Return Expectation

Custom Benchmark or Blend (see Primary Benchmark in Policy) (net of all fees) in aggregate.	<i>Specific return target(s).</i>	<i>Yes, No, or N/A</i>
---	-----------------------------------	------------------------

6. Strategic Investment Allocations³

<u>RA Portfolio</u> : range 0-5% of the total Fund. <u>Liquid Pool (publicly-traded)</u> : range 10-50% <u>Commodities</u> : range 10-20% <u>Natural Resources</u> : range 0-15% <u>Infrastructure</u> : range 0-15% <u>Illiquid Pool (privately-placed)</u> : range 0-85% <u>Natural Resources</u> : range 0-50% <u>Infrastructure</u> : range 0-35% <u>Commodities</u> : target 15%; range 0%-25% <u>Natural Resources</u> : target 50%; range 10%-60%. <u>Infrastructure</u> : target 35%; range 10%-45%. <u>Other RA Assets</u> : <u>Target 0%; Range 0%-20%.</u>	<i>Expected allocations to the RA Portfolio and to the underlying portfolios including specific commitment to the Investment Fund.</i>	<i>Yes, No, or N/A</i>
---	--	------------------------

RA Investment Plan for YEARS**Approved: DATE****Investment Fund****In compliance**

Specific Investment Plan.	<i>Specific commitment to the Investment Fund.</i>	<i>Yes, No, or N/A</i>
---------------------------	--	------------------------

³ Please see the Addendum for pertinent, interim asset allocation ranges.

APPENDIX IV

Details of Disclosure Policy For Privately-Placed Real Assets Investments (“RA Funds”)

1. Upon request, ACERA shall disclose : (i) the name, address and vintage year of each RA Fund; (ii) the dollar amount of capital committed to each RA Fund by ACERA since inception; (iii) the dollar amount of cash contributions made to each RA Fund by ACERA since inception; (iv) the dollar amount of distributions received by ACERA from each RA Fund on a fiscal yearend basis; (v) the market value of ACERA’s investment in each RA Fund on a fiscal yearend basis; (vi) each RA Fund’s net internal rate of return (“IRR”) since inception; (vii) the investment multiple of each RA Fund since inception; (viii) the dollar amount of total management fees and expenses paid on an annual fiscal yearend basis, by ACERA to each RA Fund; and (ix) the dollar amount of cash profit received by ACERA from the RA Fund on a fiscal yearend basis. (See Cal. Govt. Code § 6254.26(b).)

2. ACERA shall disclose at least once annually in a report presented at a meeting open to the public : (i) the fees and expenses that ACERA pays directly to the RA Fund, the RA Fund manager or related parties; (ii) ACERA’s pro rata share of fees and expenses not included in (i) that are paid from the RA Fund to the RA Fund manager or related parties; (iii) ACERA’s pro rata share of carried interest distributed by the RA Fund to the RA Fund manager or related parties; (iv) ACERA’s pro rata share of aggregate fees and expenses paid by all of the portfolio companies held by the RA Fund to the RA Fund manager or related parties; (v) the information outlined in Section 1, above, and (vi) the gross and net IRR of the RA Fund, since inception. (See Cal. Govt. Code § 7514.7.)

All other records regarding such RA Fund investments shall be exempt from disclosure to the fullest extent permitted under applicable law.

Notwithstanding the preceding, or anything else in this Policy, ACERA reserves the right to withhold any record when “on the facts of the particular case the public interest served by not disclosing the record clearly outweighs the public interest served by disclosure of the record.” (See Cal. Govt. Code §6255(a).) This weighing process contemplates a case-by-case balancing test between competing public interests based on the facts presented as the statute has been interpreted by the courts.⁴

⁴ *Michaelis, Montanari & Johnson v Superior Court*, 38 Cal.4th 1065, 1071 (2006).

ADDENDUM

Interim Asset Allocation Ranges (expected 5-8 Years)

For Real Assets Portfolio

To facilitate the transition of the Real Assets Portfolio from one that is highly exposed to exchange-traded commodities into an investment structure that has a better expected return profile and is better aligned with the target RA Asset Allocation, and the asset class's purpose, the RA portfolio will include interim asset allocation ranges, as listed below. This interim asset allocation range temporarily accommodates higher-than-target capital to the Liquid Pool, which permits immediate investments, and lower-than-target capital to the Illiquid Pool.

The Illiquid Pool (65% of the RA Asset Allocation target) is comprised of illiquid, privately-placed investment vehicles that typically cannot be invested in all at once. These vehicles must first be committed to, then, over their investment periods (typically 3 – 7 years), the funds call investors' capital to fund investors' long-term commitments. As a result, it is expected that the process of building out the Illiquid Pool with these vehicles will take several years.

In the meantime, to rapidly alter the RA Portfolio's investment exposure from one that is highly exchange-traded commodity-focused into one that is better aligned with the asset class's purpose and objectives, the Liquid Pool will temporarily (over the next 5 – 8 years) be over-weighted allocated to. This over-weighting allocation to the Liquid Pool will, over time, be reduced as the Illiquid Pool is built out and rises towards its asset allocation target.

As commitments are made to the illiquid, privately-placed vehicles in the Illiquid Pool and the associated capital is called, the Liquid Pool will be used as a draw-down vehicle to fund the Illiquid Pool capital calls dollar-for-dollar. Over time, both the Liquid and Illiquid Pools will increasingly move towards their target asset allocations until finally reaching them. This Addendum and the below Interim Asset Allocation Ranges demonstrate the wide allocation ranges these sub-asset classes are expected to assume during this process and over the interim period.

<u>Interim RA PortfolioRA Asset Sub Class</u>	<u>Interim Asset Allocation Ranges</u>
<u>Liquid Pool (publicly-traded)</u>	<u>20-100%</u>
<u>Commodities</u>	<u>10-20%</u>
<u>Natural Resources</u>	<u>5-45%</u>
<u>Infrastructure</u>	<u>5-35%</u>
<u>Illiquid Pool (privately-placed)</u>	<u>0-80%</u>

Natural
Resources

0-50%

Infrastructure

0-30%

Memorandum

To: ACERA
From: John Nicolini
Date: October 2018
RE: ACERA Real Assets Investment Plan Update

Executive Summary

In March 2016, Verus and ACERA staff presented a plan for how we would recommend altering the real assets portfolio within the ACERA Plan. The Board approved the new plan and we have been working on the private market piece of the portfolio since that time. Today's discussion is meant to finalize an investment policy that conforms to the already approved investment plan made in 2016. We also plan to present an updated investment plan that incorporates the private fund commitments we have made since 2016 and includes the previously introduced "liquid pool". Because the liquid pool will involve terminating some existing ACERA managers and hiring a new manager, we wanted to provide some information on why we are making those changes and the steps involved for implementing the liquid pool.

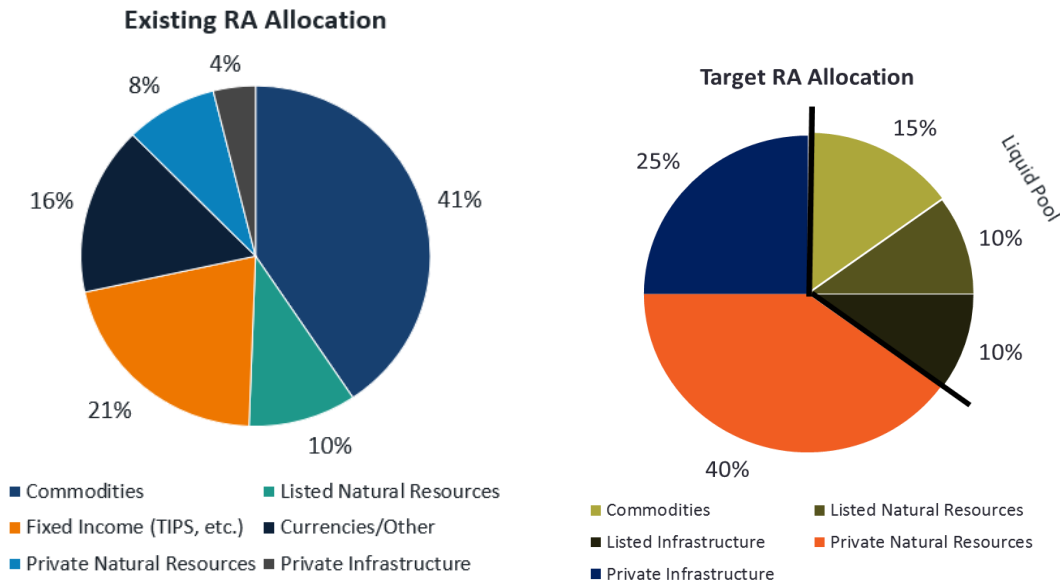
As a reminder, we recognized that performance within the real asset class was not meeting expectations while also carrying a considerable amount of volatility. Staff and Verus presented an alternative that would seek to reduce the market volatility within the portfolio, while also targeting a substantially higher expected return. The plan put forward would involve moving the portfolio away from a commodity futures heavy allocation and into both a diversified private markets portfolio and a liquid portfolio that would allocate to commodities, natural resources and infrastructure. A key factor in our recommended move toward infrastructure and natural resources and away from commodities and TIPS/Break-evens are the following return expectations derived from Verus.

Asset Class	Ten Year Return Forecast	Standard Deviation Forecast
US TIPS	2.6%	5.5%
Commodities	4.3%	15.9%
Infrastructure	7.1%	18.9%

Verus does not currently publish a natural resources capital market assumption but the underlying funds target private equity-like returns (or higher) which our capital market assumptions project a 6.4% return target.

On a forward expected return basis, we don't feel that clients will be compensated for the risk they assume within commodities. TIPS simply do not offer attractive enough yields to warrant a meaningful allocation within a portfolio.

The two charts below show how the previous ACERA real assets portfolio was allocated and the approved target real assets portfolio. In the near term, the liquid pool will comprise the bulk of the allocation till private investments can be allocated to the plan.



In order to shift the existing real assets portfolio toward the new allocation, several steps would need to be taken. The first step was to approve a new target real assets portfolio which was designed to provide ACERA with a more attractive risk-return profile within real assets. Once the new target allocation was approved in 2016, we initiated the build-out of the portfolio by first consolidating the existing real assets portfolio with select private energy investments into a single real assets class structure called “Real Assets”. This meant shifting Warburg Energy and Sheridan Energy from the private equity portfolio into the newly created real assets portfolio. In addition, \$110 million in natural resources and infrastructure investment commitments have been approved since 2016 to build out the private portion of the portfolio.

The third stage in the process is to create the liquid pool within the real assets portfolio. Implementing the liquid pool is relatively straightforward, ACERA will submit redemptions for both Gresham TAP and ETAP as well as, the AQR Real Return Strategy and use those funds to invest in a custom account of liquid real assets strategies. ACERA will also true-up the real asset portfolio to its full policy allocation target (5% of Total Plan).

The target liquid pool is meant to be a drawdown facility that will fund future private real asset investments. We will replace the existing AQR Real Return Strategy and Gresham commodity exposure with the liquid pool to provide a more diversified set of exposures within real assets and to enhance the expected returns to ACERA. Additionally, as the liquid pool is entirely passively managed, ACERA will save substantially on management fees.

Strategy	Management Fees
AQR Real Return Strategy	0.75%
Gresham TAP	0.74%
Gresham ETAP	1.10%*
ACERA Custom Liquid Real Assets	~ 0.17%

* Estimated fees. Includes both management fees and incentive fees.

It will take several years for the private real assets sleeve to be built-out, so in the interim, the liquid pool will provide market exposure to the underlying asset classes that ACERA will seek to invest in on a private markets basis. As commitments are made to private funds, the capital will be drawn down on the liquid pool till the portfolio reaches the target allocation.

The liquid pool will consist of a custom allocation benchmark (15% in commodities, 50% in listed natural resources equities and 35% in listed infrastructure equities). The entire pool will be invested in passive investment vehicles that will provide inexpensive beta exposure to the real assets sub-markets. Verus and Staff decided that passive exposure was the preferred route as we view the active universe in natural resources and infrastructure to be unduly expensive, with a limited opportunity set in terms of security selection and a manager universe that is still quite nascent. Furthermore, when we review active strategies within the infrastructure and natural resources sectors, it was evident that each manager had a unique definition of what securities were available within their respective asset classes. The commodities allocation may shift towards a more active strategy if we find a manager that can demonstrate skill at managing risk while also providing the inflation beta that we seek. However, until such time, we believe passive exposure is the best way to ensure we were receiving the market exposures we were after.

We plan to present the finalist for the liquid pool implementation in November.

Past performance is no guarantee of future results. This document is provided for informational purposes only and is directed to institutional clients and eligible institutional counterparties only and is not intended for retail investors. Nothing herein constitutes investment, legal, accounting or tax investment vehicle or any trading strategy. This document may include or imply estimates, outlooks, projections and other "forward-looking statements." No assurance can be given that future results described or implied by any forward looking information will be achieved. Investing entails risks, including possible loss of principal. Verus Advisory Inc. and Verus Investors, LLC ("Verus") file a single form ADV under the United States Investment Advisors Act of 1940, as amended.



PERSPECTIVES THAT DRIVE ENTERPRISE SUCCESS



OCTOBER 2018

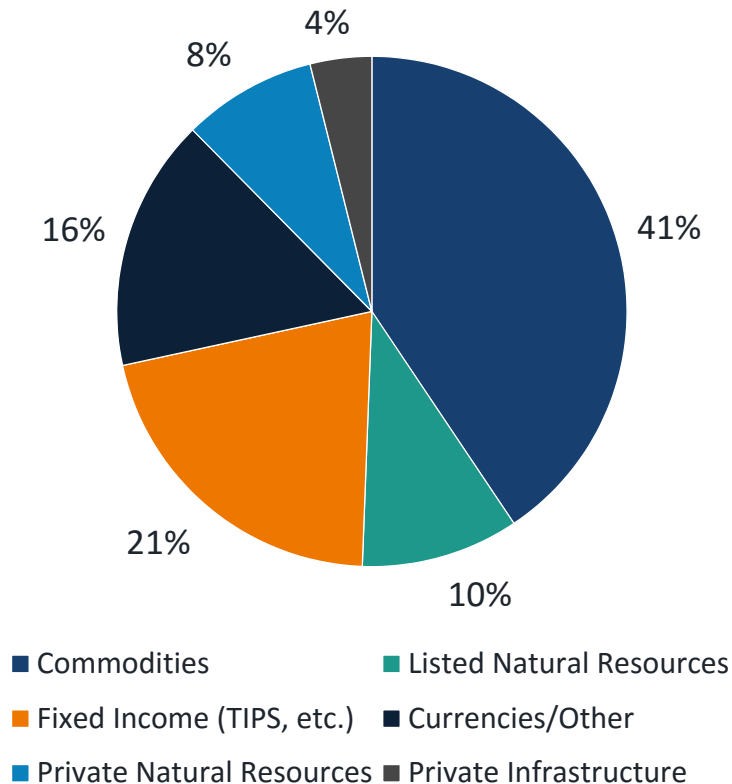
Real Assets Investment Plan

Alameda County Employees' Retirement Association

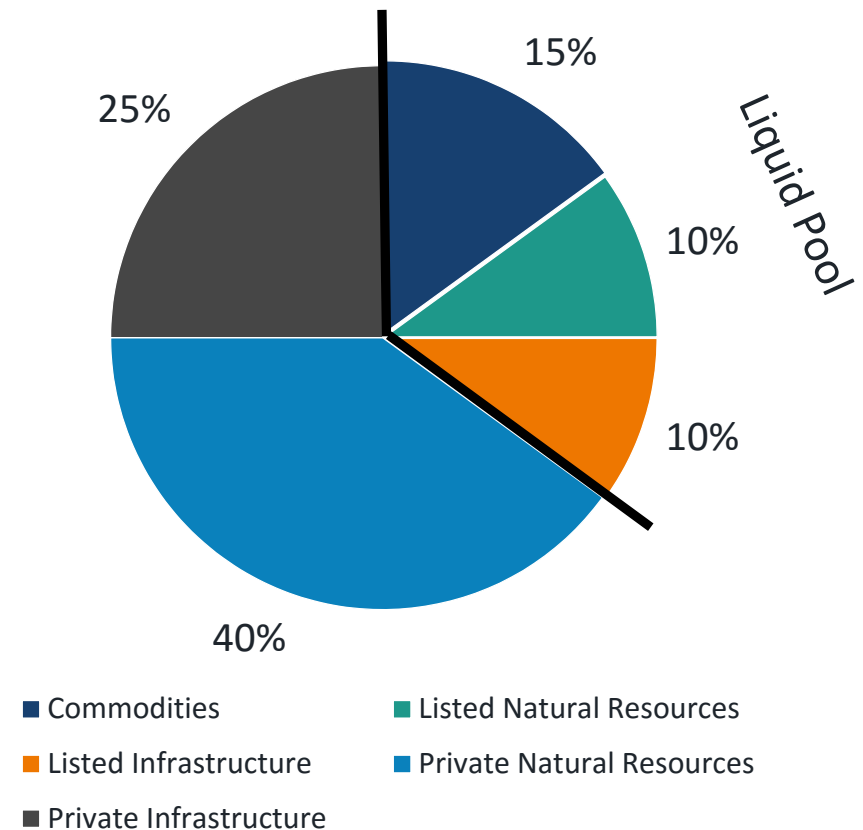
Recall the approved RA allocation

- Current Real Assets (“RA”) portfolio has a large weighting in exchange-traded commodities
- New Real Asset portfolio will still have exposure to commodities but in a higher expected return asset class (i.e. private natural resources)

Existing RA Allocation



Target RA Allocation



Assumptions used to model real assets

Assumptions:

- ACERA's Total Fund Growth Rate of 7.25%
- Natural Resources
 - *Custom Cash Flow Assumptions*
 - *Assumes a 12-Year Fund Life*
 - *Net 16.0% IRR Return*
- Infrastructure
 - *Custom Cash Flow Assumptions*
 - *Assumes a 14-Year Fund Life*
 - *Net 11.0% IRR Return*
- Mining
 - *Custom Cash Flow Assumptions*
 - *Assumes a 12-Year Fund Life*
 - *Net 22.0% IRR Return*
- Farmland/Timberland
 - *Custom Cash Flow Assumptions*
 - *Assumes a 14-Year Fund Life*
 - *Net 9.0% IRR Return*

Commitment schedule

RA	2014	2015	2016	2017	2018	2019	2020	2021	2022
	Actual Commit (\$)	Actual Commit (\$)	Actual Commit (\$)	Actual Commit (\$)	Projected Commit (\$)	Projected Commit (\$)	Projected Commit (\$)	Projected Commit (\$)	Projected Commit (\$)
Infrastructure			\$35,000,000.00		\$80,000,000.00	\$65,000,000.00		\$70,000,000.00	
Natural Resources	\$15,000,000.00			\$35,000,000.00			\$55,000,000.00		\$55,000,000.00
Mining						\$30,000,000.00			\$30,000,000.00
Timberland/Farmland							\$55,000,000.00		

Annual Commitment (\$)*	Total RA Portfolio	\$15,000,000.00	\$0.00	\$35,000,000.00	\$35,000,000.00	\$80,000,000.00	\$95,000,000.00	\$110,000,000.00	\$70,000,000.00	\$85,000,000.00
	Listed Infrastructure					\$127,001,151.35	-\$33,250,000.00	-\$38,500,000.00	-\$24,500,000.00	-\$29,750,000.00
	Listed Natural Resources					\$181,430,216.21	-\$47,500,000.00	-\$55,000,000.00	-\$35,000,000.00	-\$42,500,000.00
	Commodities					\$54,429,064.86	-\$14,250,000.00	-\$16,500,000.00	-\$10,500,000.00	-\$12,750,000.00
	Total Public					\$362,860,432.42	-\$95,000,000.00	-\$110,000,000.00	-\$70,000,000.00	-\$85,000,000.00
Number of Commitments*	Total PE Portfolio	0	0	0	6-8	5-6	5-6	5-6	5-6	5-7

	Projected Commit (#)	Projected Commit (#)	Projected Commit (#)	Projected Commit (#)	Projected Commit (#)	Projected Commit (#)	Projected Commit (#)	Projected Commit (#)	Projected Commit (#)
Infrastructure			1		2	2		2	
Natural Resources	1			1			1		1
Mining						1			1
Timberland/Farmland							1		
Number of Commitments*	Total	1	0	1	1	2	3	2	2

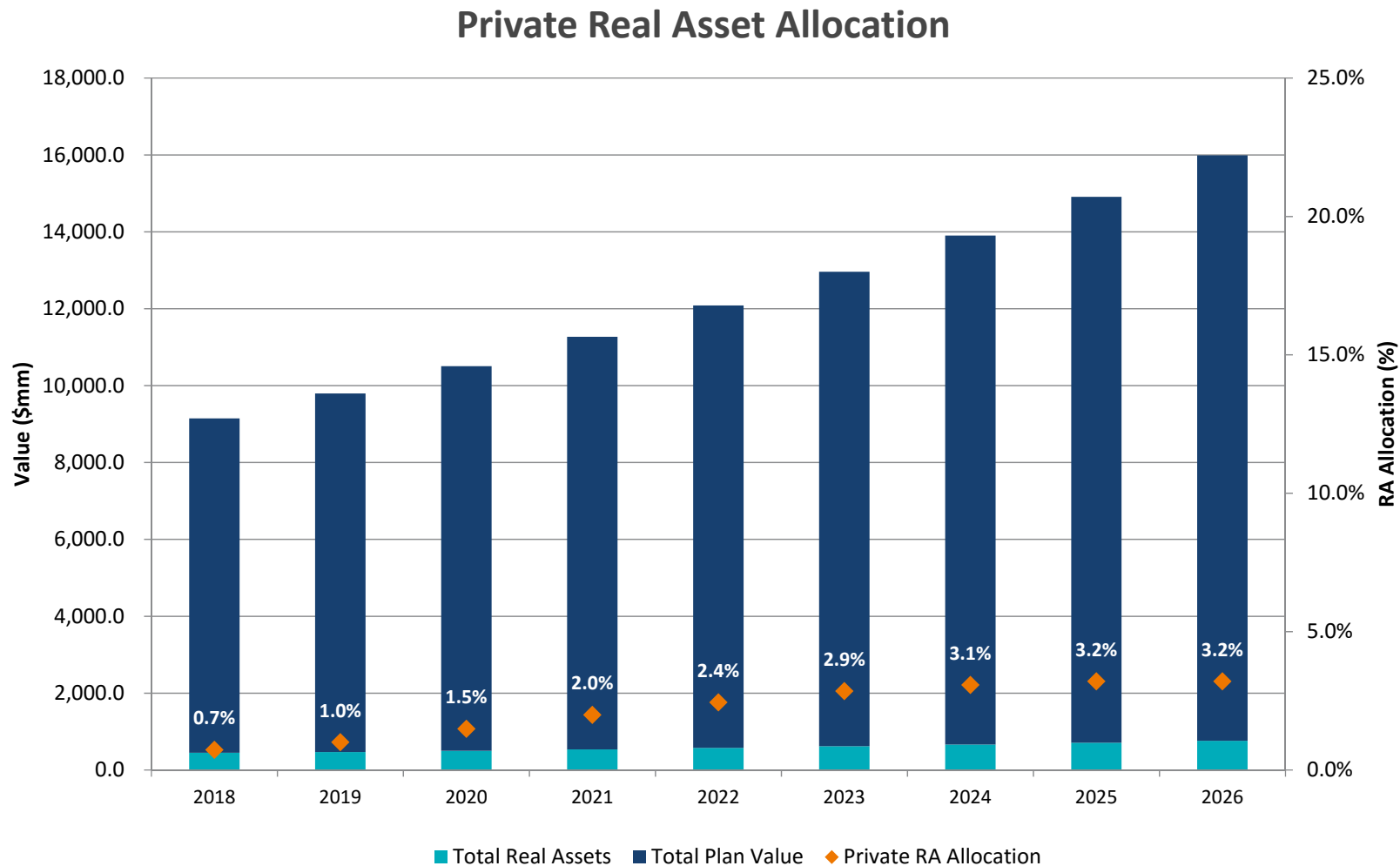
- Projected commitments would need to increase substantially in the future in order to reach the ~3.3% target in private real assets
- Continued commitments in natural resources (energy, mining, timber/agriculture) will be required if we follow the pacing plan
- Having a fully-funded liquid pool alleviates some of the pressure to meet projected commitments. We still believe private funds offer a return premium which ACERA should capitalize on as opportunities appear.

Cash flow projection

TOTAL PROJECTED ALLOCATIONS	12/31/2014	12/31/2015	12/31/2016	12/31/2017	12/31/2018	12/31/2019	12/31/2020	12/31/2021	12/31/2022
	Actual Allocation	Actual Allocation	Actual Allocation	Actual Allocation	Projected Allocation	Projected Allocation	Projected Allocation	Projected Allocation	Projected Allocation
Infrastructures	-	-	8,497,019.00	16,992,047.01	35,312,632.57	62,735,933.37	96,917,534.34	136,551,692.30	165,439,660.35
Natural Resources	10,316,172.00	8,172,692.00	21,621,033.00	25,682,090.00	32,859,556.67	37,418,276.67	50,682,524.67	59,544,402.98	75,681,243.46
Mining	-	-	-	-	-	4,485,000.00	11,715,000.00	21,285,000.00	30,270,000.00
Timberland/Farmland	-	-	-	-	-	-	7,011,091.67	16,693,322.51	28,068,920.35
Total Privates			\$ 30,118,052	\$ 42,674,137	\$ 68,172,189	\$ 104,639,210	\$ 166,326,151	\$ 234,074,418	\$ 299,459,824
Listed Infrastructure					\$ 112,700,822	\$ 93,152,580	\$ 67,866,413	\$ 52,384,929	\$ 31,454,258
Listed Natural Resources					\$ 111,964,215	\$ 91,579,925	\$ 65,541,040	\$ 49,435,667	\$ 27,949,549
Commodities					\$ 158,954,641	\$ 125,889,691	\$ 85,102,947	\$ 59,362,374	\$ 26,214,956
Total Publics					\$ 383,619,678	\$ 361,829,463	\$ 333,961,501	\$ 302,484,089	\$ 275,999,174
Total Real Assets	\$ -	\$ -	\$ 30,118,052	\$ 42,674,137	\$ 451,791,867	\$ 466,468,673	\$ 500,287,652	\$ 536,558,507	\$ 575,458,998
Approximate Plan Value - Beginning of Year					\$ 8,110,691,389	\$ 8,698,716,514	\$ 9,329,373,461	\$ 10,005,753,037	\$ 10,731,170,133
+ Verus Growth Assumption (7.25% per year)					\$ 588,025,126	\$ 630,656,947	\$ 676,379,576	\$ 725,417,095	\$ 778,009,835
= Plan Value - End of Year				8,110,691,388.50	\$ 8,698,716,514	\$ 9,329,373,461	\$ 10,005,753,037	\$ 10,731,170,133	\$ 11,509,179,967
Real Assets as a % of Plan (Target ~5.0%)	--			0.53%	5.19%	5.00%	5.00%	5.00%	5.00%
Infrastructures % of Total Real Assets			28.21%	39.82%	7.82%	13.45%	19.37%	25.45%	28.75%
Natural Resources % of Total Real Assets			71.79%	60.18%	7.27%	8.02%	10.13%	11.10%	13.15%
Mining % of Total Real Assets			0.00%	0.00%	0.00%	0.96%	2.34%	3.97%	5.26%
Timberland/Farmland % of Total Real Assets			0.00%	0.00%	0.00%	0.00%	1.40%	3.11%	4.88%
Privates % of Total Real Assets			100.00%	100.00%	15.09%	22.43%	33.25%	43.63%	52.04%
Listed Infrastructure % of Total Real Assets			0.00%	0.00%	29.38%	25.74%	20.32%	17.32%	11.40%
Listed Natural Resources % of Total Real Assets			0.00%	0.00%	29.19%	25.31%	19.63%	16.34%	10.13%
Commodities % of Total Real Assets			0.00%	0.00%	41.44%	34.79%	25.48%	19.62%	9.50%
Publics % of Total Real Assets			0.00%	0.00%	84.91%	77.57%	66.75%	56.37%	47.96%

- As commitments are funded in the private investments an equal cash drawdown is taken pro-rata across the three publicly-listed investments. We also included growth rates across the public market investments using Verus capital market expectations.

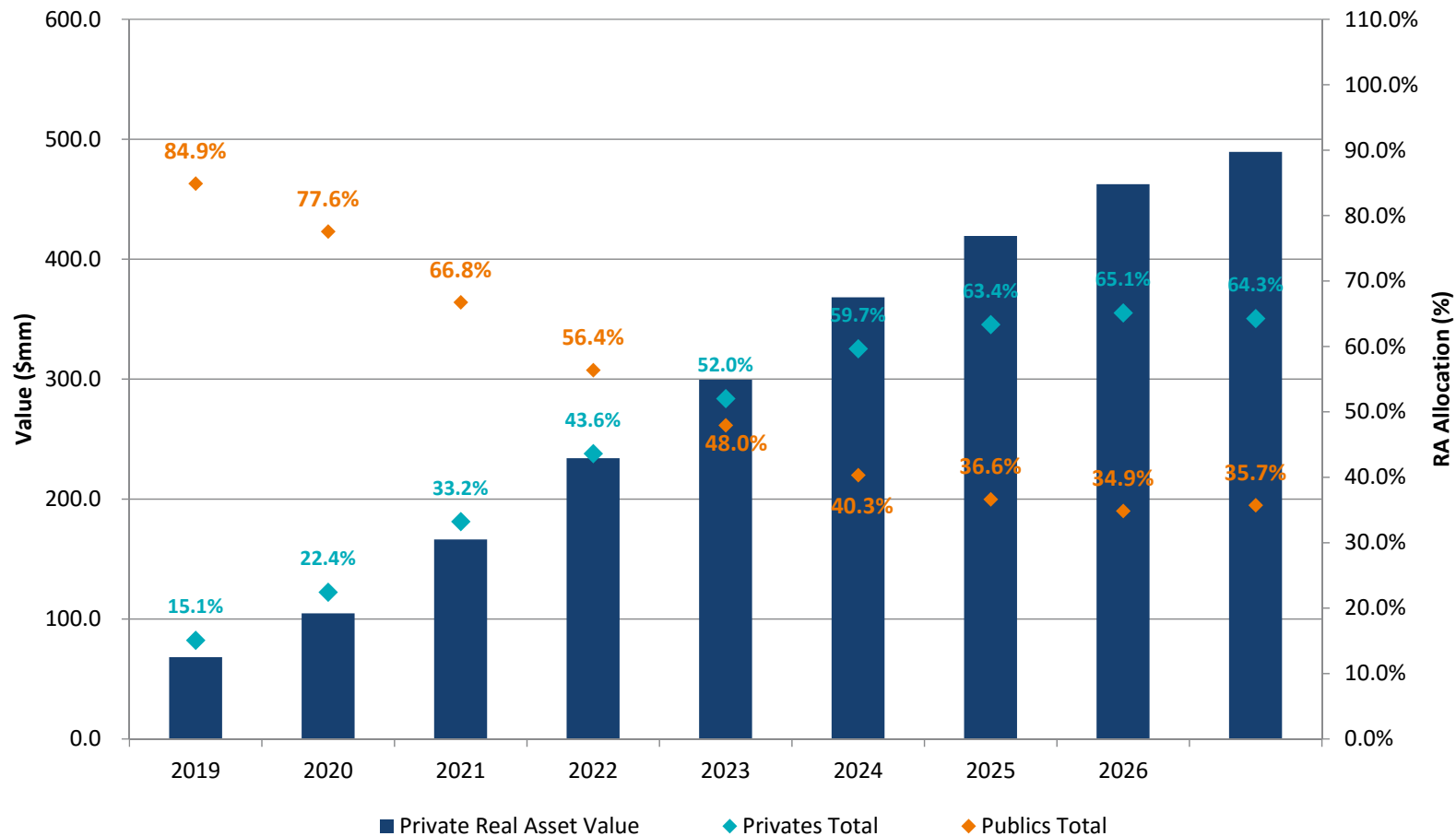
Projected private real assets allocation



Pacing model projects ACERA will reach its target allocation to private real assets in 2025-2026.

Projected private vs public real assets allocation

Real Asset Allocation



Public real assets declines over time as private commitments are funded.

Percentages assume a fully-funded liquid pool that will drawdown as private investments are made.