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## City of Austin

# Employees' Retirement System

Investment Practices and Performance

Evaluation by

*RVK Investment Program Review Team*



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### **RVK Investment Program Review (IPR) Team**

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**Project Consultant** | Samia Khan, Consultant

**Project Associate Consultant** | Blake Curtis, Associate Consultant

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**Administrative Support** | Jessica Goodall, Senior Executive Assistant

**Specialist Consultant** | Jonathan Kowolik, Senior Consultant, Head of IOSG, Principal

# Introduction & Background Information

## Introduction

RVK was engaged to conduct an independent evaluation of the current investment practices and performance, with a focus on the appropriateness, adequacy, and effectiveness of the City of Austin Employees' Retirement System (COAERS or "the System") and to make recommendations for improving COAERS' investment policies, procedures, and practices. Per Texas Government Code 802.109, each evaluation must include:

- 1) *An analysis of any investment policy or strategic investment plan adopted by the retirement fund and the retirement fund's compliance with that policy or plan;*
- 2) *A detailed review of the retirement fund's investment asset allocation, including:*
  - a) *The process for determining target allocations;*
  - b) *The expected risk and expected rate of return, categorized by asset class;*
  - c) *The appropriateness of selection and valuation methodologies of alternative and illiquid assets; and*
  - d) *Future cash flow and liquidity needs;*
- 3) *A review of the appropriateness of investment fees and commissions paid by the retirement fund;*
- 4) *A review of the retirement fund's governance processes related to investment activities, including investment decision-making processes, delegation of investment authority, and board investment expertise and education; and*
- 5) *A review of the retirement fund's investment manager selection and monitoring process.*

As part of the scope for this project, the COAERS Board required the following three additions to our report beyond those required by Texas Government Code 802.109:

- 1) Review of COAERS' internal proxy voting policies and procedures;
- 2) Recommendations to align with best-in-class investment management programs; and
- 3) An analysis of COAERS' implementation of the recommendations presented in the 2020 review performed by RVK.

RVK is uniquely qualified to perform this evaluation, as we are one of the largest fully independent consulting firms in the world, with over 200 institutional clients and over \$3 trillion of assets under advisement. We are strictly focused on providing our clients with non-discretionary consulting services and do not offer discretionary management of assets, nor do we offer any investment products. Since our founding in 1985, RVK has been an industry leader in adhering to a strict no conflicts of interest policy, with 100% of our revenue generated from client fees; we do not accept fees of any kind from any investment manager or other service provider that our clients may ask us to evaluate.

RVK has completed over 20 related projects thus far. We offer an effective option for executing PRB analyses based on the following key attributes:

- **We have extensive experience in this area.** Serving over 200 full-retainer and project clients, we are keenly aware of the multi-dimensional challenges many boards and committees face in managing investment programs. Unlike other “audit firms,” which are not actually engaged in the institutional investment industry, we bring substantial and ongoing real-world experience to these reviews.
- **We bring the broad resources of a large, national, full-service investment consulting firm to the task,** covering governance and investment decision-making, staff and resource organization, portfolio analytics, asset allocation, asset/liability, investment manager selection and monitoring, risk management, and investment operations.
- **We are an independent, employee-owned firm with no conflicting lines of business.** COAERS can rest assured that our analysis and findings will be credible and objective.
- For each IPR assignment, **we draw upon RVK's consulting, research, and specialized professionals to create a customized team** specifically matched to the scope of work for that particular assignment. We believe our team, which includes specialized resources and experience across the firm, places RVK in a uniquely qualified position to complete this project.

## Background Information

COAERS provides benefits for full-time employees of the City and was established in 1941 by City ordinance. It serves over 10,000 active members, plus an additional 9,000+ retired and inactive members, and is managed by an eleven-member Board, as well as professional full-time Investment Staff. As of December 31, 2022, the market value of System investment assets was approximately \$3.5 billion. The System's stated mission is to “provide our members their promised benefits” and is strengthened by a set of values and overall vision:

### **We Value**

*Accessibility*  
*Accountability*  
*Cooperation*  
*Ethical Behavior*  
*Fairness*  
*Innovation*  
*Integrity*  
*Open Communication*  
*Respect*  
*Responsiveness*

### **Our Vision**

*Our vision is to be a best-in-class public pension plan through excellence in financial stewardship, plan administration, and investment management.*

The majority of this evaluation will focus on investment practices and program management, with RVK providing an independent review of policies, procedures, and specific considerations as described in Texas Government Code 802.109. Outlined below is a review of the resources and approach employed by the RVK team in executing this evaluation. Supplementary details on the background and experience of the RVK project team can be found in the **Appendix**.

In addition to drawing upon RVK and its employees' institutional knowledge of investment programs, the RVK team used several methods to conduct research and gain insight into the COAERS organization, its decision-making process, and overall efficacy. The first method employed was a detailed review of numerous documents COAERS provided and produced. These documents covered a comprehensive array of topics including, but not limited to:

- Investment Policy Statements
- Investment Implementation Policies
- Investment Committee Charter
- COAERS Effectiveness Assessment Global Governance Advisors
- Investment Staff and Investment Consultant Presentations to the Investment Committee and Board
- Meeting Minutes
- Investment Management Agreements
- Investment Cost Effectiveness Analysis (CEM Benchmarking)
- COAERS PRB Training Requirements – Core and Continuing MET Requirements
- 2020 COAERS Evaluation of Investment Practices and Performance
- Governance Manual
- Asset/Liability Studies
- Asset Allocation Studies
- Actuarial Valuation Reports
- Audit Reports
- Strategic Plans
- Trade Cost Analysis Report (Zeno AN Solutions)

A note of appreciation to the COAERS Investment Staff and Board, as well as the System's Lead Consultants, Spencer Hunter and Ian Bray of RVK, and actuary, Lewis Ward, from Gabriel, Roeder, Smith & Company, whose cooperation with our requests for interviews, data, and organizational information were critical in the execution of this project.

RVK serves as the General Consultant for the System. Although the Lead Consultants assigned to COAERS were interviewed, they were not involved in the research, analysis, or drafting of this Investment Practices and Performance Evaluation. Both the IPR Team and the General Consulting Team were mindful of avoiding all conflicts. The General Consulting Team was not copied on emails pertaining to the Evaluation and were not included on the IPR Team email.

## Section I – Analysis of any investment policy or strategic investment plan adopted by the retirement fund and the retirement fund's compliance with that policy or plan.

### Documents Reviewed

- ✓ Investment Policy Statements
- ✓ Investment Implementation Policy
- ✓ COAERS Governance Manual
- ✓ Investment Committee Charter
- ✓ COAERS Effectiveness Assessment (Global Governance Advisors)
- ✓ Strategic Plan – Fiscal Years 2021-2023
- ✓ Strategic Plan – Fiscal Years 2022-2026
- ✓ Board and Investment Committee Packets

#### Does the system have a written investment policy statement (IPS)?

Yes, COAERS' investment program is governed by two separate but related policies summarized as follows:

1. The Investment Policy Statement (IPS) serves as the comprehensive “road map” for the investment program, detailing items that, in our judgment, are best practice inclusions in an IPS, such as: (1) Investment Beliefs, (2) responsibilities, (3) objectives and guidelines, (3) risk management, (4) asset allocation, and (5) monitoring used for the management of System assets and fiduciary oversight of the investment program.
2. The Investment Implementation Policy (IIP) is meant to complement the IPS by providing specifics relating to the selection, contracting, monitoring, and retention of investment managers. It references the reporting strategies used by the System to assist the Board in its duty to monitor and regularly evaluate the design and effectiveness of the processes that define the execution of the investment program, and critically, their congruence with the Board's IPS. The IIP includes sections about reporting the progress toward stated strategic objectives, measuring investment risk, total fund, asset class, and sub-asset class performance compared to stated benchmarks, and retention of investment managers. We observe that the use of a supplemental implementation-oriented policy statement, such as the one employed at COAERS, is more often seen at larger institutional investment funds and one that RVK believes is a good practice.

Both policies are reviewed at least annually by the Board, which we believe is a best practice. The following page lists the most recent adoption dates for each policy.

IPS Review Dates	IPS Adoption Dates	IIP Review Dates	IIP Adoption Dates
5/10/2019		5/10/2019	
6/25/2019	6/25/2019	6/25/2019	6/25/2019
11/15/2019		11/15/2019	
12/10/2019	12/10/2019	12/10/2019	12/10/2019
3/27/2020		3/27/2020	
3/31/2020	3/31/2020	3/31/2020	3/31/2020
		8/21/2020	
		9/1/2020	9/1/2020
11/13/2020		11/13/2020	
12/16/2020	12/17/2020	12/18/2020	12/19/2020
2/26/2021		2/26/2021	
3/30/2021	3/30/2021	3/30/2021	3/30/2021
2/18/2022		2/18/2022	
3/31/2022	3/31/2022	3/31/2022	3/31/2022
2/23/2023		2/23/2023	
3/30/2023	3/30/2023	3/30/2023	3/30/2023



## Summary of the IPS

The IPS serves as the governing document with respect to the System's investment program. The IPS is organized into seven sections, each detailing a set of oversight components approved and applicable to the Board.

- I. **Statement of Policy** – Section I sets the stage by stating that the IPS is the Board's document that establishes the objectives and policies of the System's investment program. Section I reminds all related parties that the sole purpose of the investment program is to accumulate the financial reserves necessary to provide benefits to the System's members and their beneficiaries. Beyond outlining purpose and scope, this section defines investment goals; states the Board's Investment Beliefs; and clarifies interpretation, review, and revision requirements.
- II. **Investment Responsibilities** – Section II details the investment responsibilities of the System's fiduciaries including the Board, Investment Committee (as a subset of the Board), Professional Staff, Executive Director, Investment Staff, Chief Investment Officer, Non-CIO Investment Staff, Finance Staff, Investment Consultant(s), Investment Managers, and Custodian(s). While the responsibilities for each differ, a consistent theme reminds all parties that each must act in a capacity that places the exclusive benefit of the assets of the System for each member, beneficiary, and retiree at the forefront of every investment decision-making process. Additionally, this section ensures proper reporting, allowing the Board to monitor that each fiduciary group is conducting its core duties effectively.

Recommendation 1. The power to designate the institutions and individuals who hold the responsibilities, as described in Section II, is a critical aspect of clarifying the ownership of both governance authority and the fulfillment of fiduciary responsibility. COAERS should consider noting the process by which these responsibilities are assigned and periodically reviewed.

- III. **Fiduciary Conduct** – Section III provides important clarity as to the individuals and entities that bear fiduciary responsibility. This section provides language that defines proper conduct for all parties considered to be fiduciaries. Finally, this section requires that all Board and Professional Staff adhere to COAERS' Ethics Policy, detailing strict adherence to no gifts, personal benefits, and/or favors. Narrowly defined permissible exceptions are noted. We consider both the existence of a formal Ethics Policy and the comment on its application in the IPS a best practice.
- IV. **Investment Risk Management** – Section IV recognizes that bearing prudent levels of compensated risk is critical to meeting long-term return objections. This section identifies types of investment risks that the Fund encounters in its pursuit of meeting its long-term return objectives and how to properly navigate, manage, and monitor these risks. The inclusion of guidance on risk management in the IPS is a best practice, though institutional funds vary in their approaches to this area.
- V. **Asset Allocation** – Section V puts at the forefront, and rightly so in our judgment, that establishing the

Strategic Asset Allocation (SAA) is the Board's responsibility. The Board relies on advice from Investment Staff and the Board's Investment Consultant for process and parameters including expectations from both an expected return and risk viewpoint. Similarly, our review noted that beyond these two fundamental aspects, the Board also utilizes both its Investment Staff and Investment Consultant to determine the most effective and sound investment methods, tools, and applicable time horizons to be used in order to assist with the process of proper asset class diversification. Formal reviews of the SAA are conducted at least annually. This Section also addresses the frequency (at least every five years) and the objective of Asset/Liability studies.

Recommendation 2. Asset/Liability Studies are the only standard analysis that fully links all three aspects of the System's investment policy, contribution policy, and benefit policy, providing a means to examine how well different investment strategies (differing asset allocations) address the objectives served by the Fund. We believe Asset/Liability merits either its own section in the IPS or to be added to Section V preceding any discussion of Strategic Asset Allocation.

Section V goes into great detail on asset class diversification and the establishment of appropriate rebalancing ranges, including procedures within the IPS outlining responsibility for adherence. The System has two sets of rebalancing ranges: tactical and strategic. Each has separate governing procedures implemented by Investment Staff or the Board depending on the degree of market drift, risk management, and cash management needs. COAERS' rebalancing strategy is not common and although we harbor general concerns about processes involving short-term tactical investment decisions, our concerns are mitigated by COAERS' adoption of differing ranges and detailed governing procedures. Please see Recommendation 14 in Section II of this Evaluation for further thoughts on COAERS' rebalancing strategy.

- VI. **Operational Guidelines** – Section VI provides operational guidelines for diversification; the evaluation, selection, and monitoring of counterparties; the use of leverage; authorized use of derivatives; cash management; securities lending; and securities litigation. All of these, in our experience, are highly appropriate inclusions in an IPS and provide critical guidance for risk mitigation.
- VII. **Reporting, Evaluation, and Review** – Section VII references the reporting strategies used by the System to assist the Board in its duty to monitor and regularly evaluate the effectiveness and adherence of the investment processes outlined within the Policy. This includes sections on reporting the progress toward stated strategic objectives, measuring investment risk, total fund, asset class and sub-asset class performance compared to stated benchmarks, and comparison to peers.

Recommendation 3. Consider removing the specificity of sub-asset class structure from the Policy Benchmark in Section VII of the IPS and make it part of a routine asset class structure discussion. For example, the Policy Benchmark specifies the benchmark index for fixed income as the Bloomberg Global Aggregate Bond TR, yet each of the sub-asset classes under fixed income are US (US

Treasuries, US Mortgages, and US Credit). This appears quite granular and could inhibit broader thinking about the structure of the fixed income asset class as conditions warrant.

Recommendation 4. We understand that one of the Board's Investment Beliefs is that "implementation should occur passively and in public markets unless a high likelihood of success on a risk-adjusted, net-of-fees basis can be expected from other approaches." We also understand that the "[Policy] benchmark is intended to reflect a passive implementation of the neutral weights established by the Board during the SAA process." However, we suggest the Board consider reviewing their Policy Benchmarks, targeting alignment with actual mandates. For example, close to 60% of the real estate composite is a private core real estate fund which is a mismatch with the Policy Benchmark for Real Estate which is the FTSE NAREIT Equity REITS TR, a publicly traded index. This will become more evident as the System moves into additional private asset classes.

### **Summary of the IIP**

The IIP is a supporting document to the IPS, further detailing specific oversight and process requirements related to selecting, contracting, monitoring, and retaining Investment Managers. The document contains twelve sections plus appendix items that pertain to the oversight processes:

- Purpose, Scope, and Revision
- Strategy and Philosophy
- Fiduciary Conduct
- Manager Responsibilities
- Manager Selection
- Manager Contracting
- Portfolio Guidelines
- Permissible Investments
- Reporting, Evaluation, and Monitoring
- Retention
- Transition Management
- Proxy Voting
- Summary of any Manager Specific Guidelines
- Onsite Due Diligence
- Manager Reporting Requirements
- Third Party Marketing
- Political Contributions
- Improper Influence, and Placement Agents and Finders

The language contained within the IIP allows for the Board to establish overarching governance with respect to Investment manager interaction, while simultaneously ensuring that the Investment Staff has authority to act on the Board’s behalf in a manner that is mutually agreed upon. Additionally, it allows the Investment Staff to have one set of guidelines to communicate to prospective and current Managers.

**Are the roles and responsibilities of those involved in governance, investing, consulting, monitoring, and custody clearly outlined?**

Yes, the IPS defines the responsibilities of the Board, Investment Committee (as a subset of the Board), Professional Staff, Investment Consultant(s), Investment Managers, and Custodian(s). We suggest that COAERS extend this delineation of roles and responsibilities as follows:

Recommendation 5. Consider adding a subsection in Section II for Investment Counsel since the position is referenced within the IIP.

Recommendation 6. With the understanding that the Board may delegate authority for strategic and operational aspects of the Fund to Staff, consider adding clarity to the degree of delegation by the Board to its Investment Committee and Staff in Section II – Responsibilities of the IPS. Although clarity for the degree of delegation may be stated later in the IPS or in the IIP, we believe it is important to lay it out upfront when addressing the responsibilities of fiduciaries to the System.

Recommendation 7. Consider including the Investment Committee, its role, responsibilities, and any authority held independent of the Board as a whole as its own subsection of Section II. We understand the Investment Committee is a subset of the Board; however, best practice would give the Investment Committee a strong advisory role to vet and recommend to the Board, so actions requiring Board approval can be addressed as a consent item or a motion based on an Investment Committee written summary of the process taken.

**Is the policy carefully designed to meet the real needs and objectives of the retirement plan? Is it integrated with any existing funding or benefit policies? (i.e. does the policy take into account the current funded status of the plan, the specific liquidity needs associated with the difference between expected short-term**

The answer to this question is “yes.” The IPS requires an Asset/Liability Study (A/L Study) to be completed at least every five years. We believe this is without question a critical requirement, particularly for any pension plan with a material unfunded actuarial liability (UAL) or a history of variable contributions below the Actuarially Determined Contribution (ADEC). Further, we strongly believe that A/L Studies are a critical prerequisite for fully informed Asset Allocation studies. In fact, the IPS indicates that an A/L Study should be completed more frequently if there is a material event that affects liability structure, contribution policy, and/or capital markets. Case in point: over a several-month period spanning 2022 and 2023, multiple A/L Studies were conducted as a result of a significant change in capital market assumptions (CMAs) due to market conditions and changes to COAERS’ contribution policy enacted by legislation in 2023. The new contribution policy is a material improvement over the prior policy and was initiated by the Board and Staff based on the projected funded status of an earlier A/L Study. The most recent A/L Study using

**inflows and outflows, the underlying nature of the liabilities being supported [e.g. pay-based vs. flat \$ benefit, automatic COLAs, DROP, etc.]**

projected stochastic modeling showed a significant improvement in funded status although still underfunded. These examples are clear evidence that to date, A/L Studies have been used in a timely manner, dictated by important changes in the System's operating and strategic environment.

Recommendation 8. Regarding the discussion currently in Section V of the IPS of A/L Studies and its importance (as noted above) and the query below regarding clarity, we do find the treatment of A/L in the IPS merits review. The IPS currently states that an A/L Study determines as one of its objectives the "maximum and minimum ranges (Rebalancing Ranges)" around the SAA targets. Having a rebalancing policy and process is a best practice in our view. And COAERS has adopted both. But while rebalancing policy and process should be informed by the risk target set for the total fund in an A/L Study, its design also reflects a host of other considerations related more to asset class liquidity, transaction costs, and more. We suggest that the implied link between A/L Studies and rebalancing in the IPS be reconsidered. Indeed, if it were eliminated, we do not think it would in any way reduce the robustness of the IPS.

**Is the policy written so clearly and explicitly that anyone could manage a portfolio and conform to the desired intentions?**

The answer is "yes," conditioned only by the comment that, both by design and necessity, the COAERS IPS allows a broad range of approaches. That said, the IPS, as written, is an effective "road map" for the Board and other fiduciaries. The conformance to the pursuit of desired intentions and objectives is further strengthened by the use of the IIP. Together, these documents provide effective guidance laying out a course of action to be followed with a focus on long-term outcomes while providing flexibility, if necessary, to meet the benefit payment obligations of the System.

The IPS includes the key elements of a good and effective policy, including goals and objectives, roles and responsibilities, asset/liability and asset allocation processes including targets and ranges, a rebalancing policy, risk management, investment guidelines, benchmarks, and performance measurement.

**Does the policy follow industry best practices? If not, what are the differences?**

The IPS, in combination with its supporting IIP, is consistent with industry best practices. We have noted this throughout our discussion, as the question relates to specific aspects of the IPS. Taken as a whole, the policies are well thought out, written in clear and straightforward language, and align with guidance provided by the CFA Institute.

As mentioned above, we suggest the Board consider the following:

Recommendation 9. As addressed in Recommendations 6 and 7, add clarity to the degree of delegation by the Board to its Investment Committee, and to Staff in the Section II – Responsibilities of the IPS. Although clarity for the degree of delegation may be stated later in the IPS or in the IIP, we believe in the importance of laying it out upfront when addressing the responsibilities of fiduciaries to the System. If the work of the Investment Committee is not distinctive from and additive to the Board's final decisions and ongoing monitoring, its contribution is debatable.

<p><b>Does the IPS contain measurable outcomes for managers? Does the IPS outline over what time periods performance is to be considered?</b></p>	<p>Current COAERS Investment Managers are assigned benchmark indices, peer universes, and tracking error budgets. These guidelines are not described in the IPS or the IIP but rather in the appropriate “Premier List” document that is reviewed by the Board at least annually. Per the IIP, the Investment Committee is granted authority to oversee Managers and make recommendations to the Board regarding the System’s Premier List.</p> <p style="padding-left: 40px;"><u>Recommendation 10.</u> While we believe the inclusion of these evaluation metrics (benchmark indices, peer universes, and tracking error budgets) in the Premier List guidelines is fully sufficient given the annual review process and the use of these benchmarks in the Investment Consultant’s quarterly performance reports, COAERS might consider adding investment manager benchmarks to the IPS or reference in the IPS their inclusion in the Premier List, particularly for any investment manager actually implementing a funded “active” mandate (note: investment managers may be selected for inclusion in the Premier List but not necessarily be awarded funds to manage at any given point in time).</p> <p>The IPS states that all performance measurement should be based on total returns, net of fees, adjusted for risk, as measured over a sufficient time period to reflect the benefits of any active decisions (typically a minimum of three years and preferably over five or more years and/or a full market cycle). The baseline time period for achieving Fund, asset class, and sub-asset class performance objectives is three years, although shorter and longer periods are also considered.</p>
<p><b>Is there evidence that the system is following its IPS? Is there evidence that the system is not following its IPS?</b></p>	<p>A review of Board and Investment Committee materials and meeting agendas clearly confirms the System is following the IPS and the IIP. We see no evidence of any known compliance violations with either policy.</p>
<p><b>What practices are being followed that are not in, or are counter to, written investment policies and procedures?</b></p>	<p>No exceptions were noted.</p>
<p><b>Are stated investment objectives being met?</b></p>	<p>The sole purpose of the Fund is to accumulate the financial reserves necessary to provide benefits to eligible members of the System and their beneficiaries. To achieve this outcome as consistently as investment markets allow and do so sustainably over multiple market cycles, the Fund is to be structured and managed to maximize, in order of importance, net of all fees and expenses, the probability of achieving:</p>

1. A long-term, annualized nominal rate of return that meets or exceeds the actuarially Assumed Rate of Return (ARoR) for the System (currently 6.75% and subject to change based on the Actuary and Board's determination of prudent levels of contribution).
2. A long-term, risk-adjusted relative rate of return that meets or exceeds the Passive Benchmark (i.e., the Reference Portfolio which currently is 60% MSCI All Country World Net Total Return USD Unhedged/40% Bloomberg Global Aggregate Total Return USD Unhedged).
3. A long-term, risk-adjusted relative rate of return that meets or exceeds the Policy Benchmark (i.e., the Strategic Benchmark).
4. A long-term, risk-adjusted relative rate of return that ranks in the top quartile of comparable peers consistently.

We believe these are best practice investment objectives and, equally important, we believe this is the correct order of importance, with peer comparisons being, by far, the least important to the Fund's core mission of funding benefits.

The System pursues the strategic objectives by the following best practices:

- Ensuring proper diversification of asset classes and factor exposures;
- Maintaining appropriate long-term risk and return expectations; and
- Adapting positioning to changing market conditions.

Acknowledging the volatility of the markets over the last few years, the long-term performance results, risk profile, investment management costs, and liquidity profile of the System is in accordance with the above objectives (see performance from last three years below).

Composite: Total Fund  
Asset Allocation & Performance - Net of Fees

As of December 31, 2020

	Allocation		Rate of Return (%)							
	Market Value (\$)	%	QTD	CYTD	1 Year	3 Years	5 Years	10 Years	Since Incep.	Inception Date
<b>Total Fund</b>	<b>3,183,142,083</b>	<b>100.00</b>	<b>10.52</b>	<b>10.78</b>	<b>10.78</b>	<b>7.94</b>	<b>9.65</b>	<b>7.72</b>	<b>9.91</b>	<b>06/01/1982</b>
Policy Index			12.29	10.92	10.92	7.92	9.41	7.60	N/A	
Excess Return			-1.77	-0.14	-0.14	0.02	0.24	0.12	N/A	
Passive Index			10.13	14.05	14.05	8.32	9.48	6.79	N/A	
Excess Return			0.39	-3.27	-3.27	-0.38	0.17	0.93	N/A	

**Composite: Total Fund  
Asset Allocation & Performance - Net of Fees**

As of December 31, 2021

	Allocation		Rate of Return (%)							
	Market Value (\$)	%	QTD	CYTD	1 Year	3 Years	5 Years	10 Years	Since Incep.	Inception Date
<b>Total Fund</b>	<b>3,538,734,335</b>	<b>100.00</b>	<b>5.20</b>	<b>12.99</b>	<b>12.99</b>	<b>14.73</b>	<b>10.63</b>	<b>9.19</b>	<b>9.99</b>	<b>06/01/1982</b>
Policy Benchmark			5.36	14.38	14.38	15.54	10.76	9.17	N/A	
Excess Return			-0.16	-1.39	-1.39	-0.81	-0.13	0.02	N/A	
Passive Benchmark			3.73	8.78	8.78	13.72	10.11	7.91	N/A	
Excess Return			1.47	4.21	4.21	1.01	0.52	1.28	N/A	

**Composite: Total Fund  
Asset Allocation & Performance - Net of Fees**

As of December 31, 2022

	Allocation		Rate of Return (%)							
	Market Value (\$)	%	QTD	CYTD	1 Year	3 Years	5 Years	10 Years	Since Incep.	Inception Date
<b>Total Fund</b>	<b>2,941,251,159</b>	<b>100.00</b>	<b>6.13</b>	<b>-15.59</b>	<b>-15.59</b>	<b>1.86</b>	<b>3.71</b>	<b>6.02</b>	<b>9.27</b>	<b>06/01/1982</b>
Policy Benchmark			8.12	-17.32	-17.32	1.60	3.52	5.82	N/A	
Excess Return			-1.99	1.73	1.73	0.26	0.19	0.20	N/A	
Passive Benchmark			7.74	-17.33	-17.33	0.84	2.71	4.74	N/A	
Excess Return			-1.61	1.74	1.74	1.02	1.00	1.28	N/A	

Recommendation 11. We strongly suggest the Board remove performance relative to peers as a specific objective/benchmark for the System. First, peer comparison offers little, indeed almost no, information about whether the fund is achieving its core mission—funding benefits for COAERS plan participants. Second, COAERS is unique with its own contribution policy, benefit structure, ARoR, cash flow, size, objectives, etc. In our view, these differentiators render the very notion of “peers” questionable, and while a group of public funds can be assembled with somewhat more “peer-like” attributes, it will likely be a small universe that is far from statistically robust. The Board’s Investment Consultant can and should continue to provide the COAERS Board with peer comparisons of this data, as it is prudent to at least remain generally aware of the performance other funds deliver.

**Will the retirement fund be able to sustain a commitment to the policies under stress test scenarios, including those based on the capital markets that have actually been experienced over the past ten, twenty, or thirty years?**

Regarding this question and the one that immediately follows, there can be no guarantee that the existing policies, those policies as implemented, nor the investment managers selected to implement the resulting mandates would survive any hypothetical investment market scenarios. However, there is clear evidence that the COAERS Board has required its Investment Staff and Investment Consultant to explore stress tests as an integral part of major investment decision-making. For example:

The IPS requires an Asset/Liability Study to be conducted at least every five years. A review of the most recent studies confirms that the Board’s Investment Consultant routinely provides sensitivity analyses and stress tests as part of these studies. Permissible exceptions are detailed.



The study conducted in 2023 summarized the outcomes of the following deterministic scenarios.

- V-Shaped Recovery – The V scenario assumes a return of +20% in 2023 followed by the ARoR thereafter (6.75%).
- W-Shaped Market Event – The W scenario assumes a return of +20% in 2023, -15% in 2024, +15% in 2025, and the ARoR thereafter (6.75%).
- Future V-Shaped Market Event – This scenario assumes a return of -10% in 2032, +10% in 2033, and the ARoR (6.75%) in all other projection years.
- Future W-Shaped Market Event – This scenario assumes a return of -15% in 2032, +15% in 2033, -15% in 2034, +15% in 2035, and the ARoR (6.75%) in all other projection years.
- 6.00% – Assets earn 6.00% each year after 2022.
- Loss then Low – 10% loss in 2023 followed by a lower return environment (6.00%).
- Persistent Inflation – Assets earn 6.75% each year (after 2022) but wage inflation is 5.00% per year during the 20-year projection period.

The IPS requires an Asset Allocation Study at least once every year. Our inspection of those Asset Allocation Studies shows that forecasts of expected returns and asset risk are examined over multiple timeframes using best practice Monte Carlo analysis.

**Will the investment managers be able to maintain fidelity to the policy under the same scenarios?**

The IPS and especially the IIP are very clear with respect to fiduciary conduct, Investment manager responsibilities, guidelines, permissible investments, reporting, and evaluation. The IIP is also very transparent with COAERS' process for selection, contracting, retention, and monitoring. Process and expectations are clearly defined.

**Will the policy achieve the stated investment objectives under the same scenarios? How often is the policy reviewed and/or updated? When was the most recent substantial change to the policy and why was this change made?**

By design and best practice, COAERS' Investment Staff and Investment Consultant probe investment scenarios that clearly challenge the achievement of current stated objectives. That is the most important purpose of stress testing.

As for the frequency with which key policies are reviewed, the IPS and the IIP are formally reviewed by the Board at least annually to determine whether it remains appropriate considering the Board's investment philosophy and objectives, changes in the capital markets, and/or Fund structure. A review of Investment Committee and Board materials confirms the policy review requirement is being met.

IPS Review Dates	IPS Adoption Dates	IIP Review Dates	IIP Adoption Dates
5/10/2019		5/10/2019	
6/25/2019	6/25/2019	6/25/2019	6/25/2019
11/15/2019		11/15/2019	
12/10/2019	12/10/2019	12/10/2019	12/10/2019
3/27/2020		3/27/2020	
3/31/2020	3/31/2020	3/31/2020	3/31/2020
		8/21/2020	
		9/1/2020	9/1/2020
11/13/2020		11/13/2020	
12/16/2020	12/17/2020	12/18/2020	12/19/2020
2/26/2021		2/26/2021	
3/30/2021	3/30/2021	3/30/2021	3/30/2021
2/18/2022		2/18/2022	
3/31/2022	3/31/2022	3/31/2022	3/31/2022
2/23/2023		2/23/2023	
3/30/2023	3/30/2023	3/30/2023	3/30/2023

## Summary

### Evaluation of the IPS and IIP

RVK believes the IPS is consistent with industry best practices.

RVK believes the IIP represents a clear and workable extension of the IPS and is consistent with industry best practices.

### Compliance with the IPS

In RVK's review of the Board and Investment Committee meeting packet and minutes, the Board has reviewed, edited when necessary, and approved changes on at least an annual basis over the last three years.

The IIP has also been reviewed on an annual basis.

## Recommendations

1. The power to designate the institutions and individuals who hold the responsibilities, as described in Section II, is a critical aspect of clarifying the ownership of both governance authority and the fulfillment of fiduciary responsibility. COAERS should consider noting the process by which these responsibilities are assigned and periodically reviewed.
2. Asset/Liability Studies are the only standard analysis that fully links all three aspects of the System's investment policy, contribution policy, and benefit policy, providing a means to examine how well different investment strategies (differing asset allocations) address the objectives served by the Fund. We believe Asset/Liability merits either its own Section in the IPS or to be added to Section V preceding any discussion of Strategic Asset Allocation.
3. Consider removing the specificity of sub-asset class structure from the Policy Benchmark in Section VII of the IPS and make it part of a routine asset class structure discussion. For example, the Policy Benchmark specifies the benchmark index for fixed income as the Bloomberg Global Aggregate Bond TR, yet each of the sub-asset classes under fixed income are US (US Treasuries, US Mortgages, and US Credit). This appears quite granular and could inhibit broader thinking about the structure of the fixed income asset class as conditions warrant.
4. We understand that one of the Board's Investment Beliefs is that "implementation should occur passively and in public markets unless a high likelihood of success on a risk-adjusted, net-of-fees basis can be expected from other approaches." We also understand that the "[Policy] benchmark is intended to reflect a passive implementation of the neutral weights established by the Board during the SAA process." However, we suggest the Board consider reviewing their Policy Benchmarks, targeting alignment with actual mandates. For example, close to 60% of the real estate composite is a private core real estate fund which is a mismatch with the Policy Benchmark for Real Estate which is the FTSE NAREIT Equity REITS TR, a publicly traded index. This will become more evident as the System moves into additional private asset classes.
5. Consider adding a subsection in Section II for Investment Counsel since the position is referenced within the IIP.
6. With the understanding that the Board may delegate authority for strategic and operational aspects of the Fund to Staff, consider adding clarity to the degree of delegation by the Board to its Investment Committee and Staff in

Section II – Responsibilities of the IPS. Although clarity for the degree of delegation may be stated later in the IPS or the IIP, we believe it is important to lay it out upfront when addressing the responsibilities of fiduciaries to the System.

7. Consider including the Investment Committee, its role, responsibilities, and any authority held independent of the Board as a whole as its own subsection of Section II. We understand the Investment Committee is a subset of the Board; however, best practice would give the Investment Committee a strong advisory role to vet and recommend to the Board, so actions requiring Board approval can be addressed as a consent item or a motion based on an Investment Committee written summary of the process taken.
8. Regarding the discussion currently in Section V of the IPS of A/L Studies and its importance (as noted above) and the query below regarding clarity, we do find the treatment of A/L in the IPS merits review. The IPS currently states that an A/L Study determines as one of its objectives the “maximum and minimum ranges (Rebalancing Ranges)” around the SAA targets. Having a rebalancing policy and process is a best practice in our view. And COAERS has adopted both. But while rebalancing policy and process should be informed by the risk target set for the total fund in an A/L Study, its design also reflects a host of other considerations related more to asset class liquidity, transaction costs, and more. We suggest that the implied link between A/L Studies and rebalancing in the IPS be reconsidered. Indeed, if it were eliminated, we do not think it would in any way reduce the robustness of the IPS.
9. As addressed in Recommendations 6 and 7, add clarity to the degree of delegation by the Board to its Investment Committee, and to Investment Staff in the Section II – Responsibilities of the IPS. Although clarity for the degree of delegation may be stated later in the IPS or in the IIP, we believe in the importance of laying it out upfront when addressing the responsibilities of fiduciaries to the System. If the work of the Investment Committee is not distinctive from and additive to the Board’s final decisions and ongoing monitoring, its contribution is debatable.
10. While we believe the inclusion of these evaluation metrics (benchmark indices, peer universes, and tracking error budgets) in the Premier List guidelines is fully sufficient given the annual review process and the use of these benchmarks in the Investment Consultant’s quarterly performance reports, COAERS might consider adding investment manager benchmarks to the IPS or reference in the IPS their inclusion in the Premier List, particularly for any investment manager actually implementing a funded “active” mandate (note: investment managers may be selected for inclusion in the Premier List but not necessarily be awarded funds to manage at any given point in time).
11. We strongly suggest the Board remove performance relative to peers as a specific objective/benchmark for the System. First, peer comparison offers little, indeed almost no, information about whether the fund is achieving its core mission—funding benefits for COAERS plan participants. Second, COAERS is unique with its own contribution policy, benefit structure, assumed rate of return, cash flow, size, objectives, etc. In our view, these differentiators render the very notion of “peers” questionable, and while a group of public funds can be assembled with somewhat more “peer-like” attributes, it will likely be a small universe that is far from statistically robust. The Board’s Investment Consultant can and should continue to provide the COAERS Board with peer comparisons of this data, as it is prudent to at least remain generally aware of the performance other funds deliver.

## Section II – Detailed review of the retirement fund's investment asset allocation.

### Documents Reviewed

- ✓ Investment Policy Statement
- ✓ Investment Staff and Investment Consultant Presentations to the Investment Committee and Board
- ✓ Asset Allocation Study
- ✓ Asset/Liability Study
- ✓ Actuarial Valuation Reports
- ✓ Investment Management Agreements

### Asset Allocation: Process

<p><b>Does the system have a formal and/or written policy for determining and evaluating its asset allocation? Is the system following this policy?</b></p>	<p>The COAERS Board and Investment Committee adopted an IPS, which provides a framework for targeting appropriate risk, asset allocation, operational guidelines, and reporting—all of which serve the purpose of aligning the Fund's actions with meeting the long-term benefits committed to by the System.</p> <p>The IPS details specific quantifiable objectives that are regularly monitored. More details on the System's adherence to these policies are provided in the <b>Appendix</b>.</p>
<p><b>Who is responsible for making the decisions regarding strategic asset allocation?</b></p>	<p>The Board is responsible for providing fiduciary oversight and charters the Investment Committee to make recommendations and establish investment policies and guidelines. It is ultimately the responsibility of the Board to establish the strategic asset allocation process and parameters.</p> <p>Investment Staff have been delegated authority to make tactical tilts in asset allocation but must receive approval for larger, strategic shifts.</p>
<p><b>How is the system's overall risk tolerance expressed and measured? What methodology is used to determine and evaluate the strategic asset allocation?</b></p>	<p>Risk for the System is ultimately the inability to cover future benefit payments.</p> <p>In service of this objective, an Asset/Liability Study is conducted to determine optimal levels of risk to target given unique considerations for the Fund. Examples of such considerations include, but are not limited to, the following:</p> <ul style="list-style-type: none"> <li>• Risk of sudden drawdown</li> <li>• Volatility of employer contributions</li> <li>• Volatility of asset returns</li> <li>• Expected volatility of funded status</li> <li>• Illiquidity risk</li> </ul>

	<p>The central purpose of an A/L Study is to examine the probable future consequences, over extended periods of time, of applying alternative asset allocation strategies to the System’s investment assets in order to fund the liabilities created by the benefit provisions of the System. A/L Studies are unique in their ability to combine in a single analysis the three critical factors that drive the financial health of the System:</p> <ul style="list-style-type: none"> <li>• Benefit policy</li> <li>• Contribution policy</li> <li>• Investment strategy</li> </ul>
<p><b>How often is the strategic asset allocation reviewed?</b></p>	<p>The strategic asset allocation is reviewed at least annually. In periods where warranted, asset allocation may be reviewed more often, such as following large shifts in CMAs.</p> <p>An Asset/Liability Study is revisited at least every five years. Major changes to CMAs, contribution policy, liabilities, etc., may result in more frequent reviews.</p>
<p><b>Do the system’s investment consultants and actuaries communicate regarding their respective future expectations?</b></p>	<p>The System’s independent Investment Consultant communicates with the actuary as changes in CMAs occur or an Asset/Liability Study is required.</p> <p>While the Investment Consultant’s CMAs are one input, COAERS’ actuary utilizes a mosaic of assumptions from around 12 to 14 providers when setting the ARoR. This is consistent with common industry practice.</p>
<p><b>How does the current assumed rate of return used for discounting plan liabilities factor into the discussion and decision-making associated with setting the asset allocation? Is the actuarial expected return on assets a function of the asset allocation or has the asset allocation been chosen to meet the desired actuarial expected return on assets?</b></p>	<p>The actuarial ARoR plays a critical role in setting the contribution rate of the System and incorporates a variety of factors and risks that affect the System’s long-term ability to fund benefits. Among those factors is the Board’s asset allocation and expected long-term returns and associated variability based (as noted above) on the CMA’s of the System’s independent Investment Consultant (as well as others the actuary chooses to utilize). The Board, in its consideration of asset allocation, is aware of the actuary’s recommendation of a prudent level of contributions (based in part on the asset allocation). However, like the actuary’s decision, the Board’s decision must take into account other factors, most notably prudent levels of risk in the management of the Fund’s assets, pragmatic considerations associated with investing, maintaining sufficient near-term liquidity, and more. Thus, the decision on the ARoR (and thus prudent levels of contributions over time) and the decision on asset allocation (reflecting the Board’s view of prudent levels of risk to the System’s assets in the pursuit of investment returns over time) are two different, albeit related, decisions in the management of the System as a whole.</p> <p>The actuarial ARoR is set independently of an asset allocation and reflects a pursuit of prudent long-term contributions. Asset allocation is driven by the targeted risk level rather than an obligatory fitting to the ARoR. In the end, these must bear a reasonable relationship to one another, and our review of the Asset Allocation studies conducted for and discussed by the COAERS Investment Committee and Board are consistent with that objective.</p>

**Is the asset allocation approach used by the system based on a specific methodology? Is this methodology prudent, recognized as best practice, and consistently applied?**

The System utilizes its Investment Consultant to produce CMAs with appropriately-long-term asset assumptions that match the long-term nature of the liabilities, as required by the IPS. Expected returns utilize a “build-up” approach. A summary of inputs include, but are not limited to, the following:

- Inflation expectations and return on cash
- Going-in yields and spreads for fixed income
- Dividend yields, earnings expectations, currency impacts, and expected changes in P/E for equities
- Cap rates for real estate

Once return, risk, and correlations are set, a mean-variance optimization is used to produce an efficient frontier of asset allocations. Deterministic and stochastic analyses (such as Monte Carlo simulations) capture a multi-dimensional risk profile that seeks to model long-term impacts on the funded status of the Fund.

We deem the approach used to be prudent, aligned with best practices, and consistently applied across recent studies.

**Does the system implement a tactical asset allocation? If so, what methodology is used to determine the tactical asset allocation? Who is responsible for making decisions regarding the tactical asset allocation?**

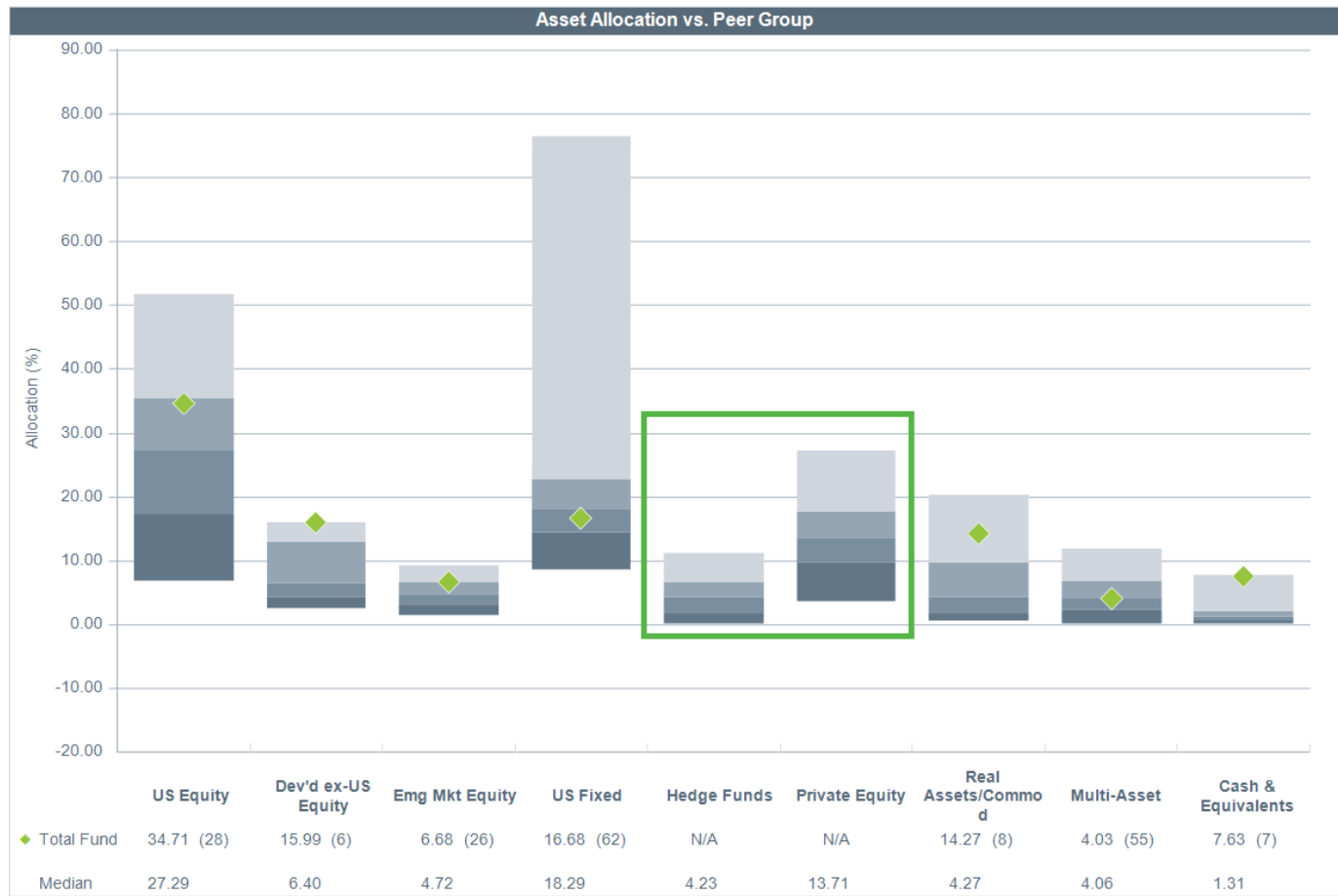
The System has delegated authority to Investment Staff to exercise limited discretion over rebalancing. There are two bands in place around the neutral allocations for each sub-asset class: a “strategic” band and a narrower “tactical” band lying within the broader strategic band.

Investment Staff has full discretion to over- or under-weight a sub-asset class only to the extent the final weight resides within the narrower tactical band without requiring additional approvals from the Board. If actual weights are desired to extend beyond the tactical range into the strategic range, formal Board approval is required.

While the IPS delegates authority to Investment Staff for rebalancing within the tactical ranges, our review indicates to date that Investment Staff has consistently sought permission from the Board anyway. We observe that, so long as obtaining this approval does not impede achievement of the objectives sought by providing the Investment Staff with delegated authority, doing so is fine. If the record to date suggests that there are no circumstances in which that delegated authority would be exercised by Investment Staff and reported to the Board promptly after the fact, the latitude it provides and the results obtained may be limited. Consider reaffirming this authority to Investment Staff and taking steps to ensure Investment Staff are prepared to exercise this authority—without Board approval—should circumstances require such action.

**How does the asset allocation compare to peer systems?**

Actual asset allocation currently in place at COAERS is not abnormal relative to other public plans, with major asset classes falling in a normal range compared to other US public pension plans with assets between \$1 – 5 billion. One area of note is the relatively large allocation to cash as of June 2023 compared to peers. This was a strategic decision approved by the Board to take advantage of higher short-term interest rates during a period of yield curve inversion. The fund has been unique in not implementing any material exposure to private markets but has pointed to new legislation improving the contribution policy as possibly enabling the funding of such strategies in the future.





**What are the strategic and tactical allocations?**

The System's strategic and tactical allocations are provided below, including neutral targets:

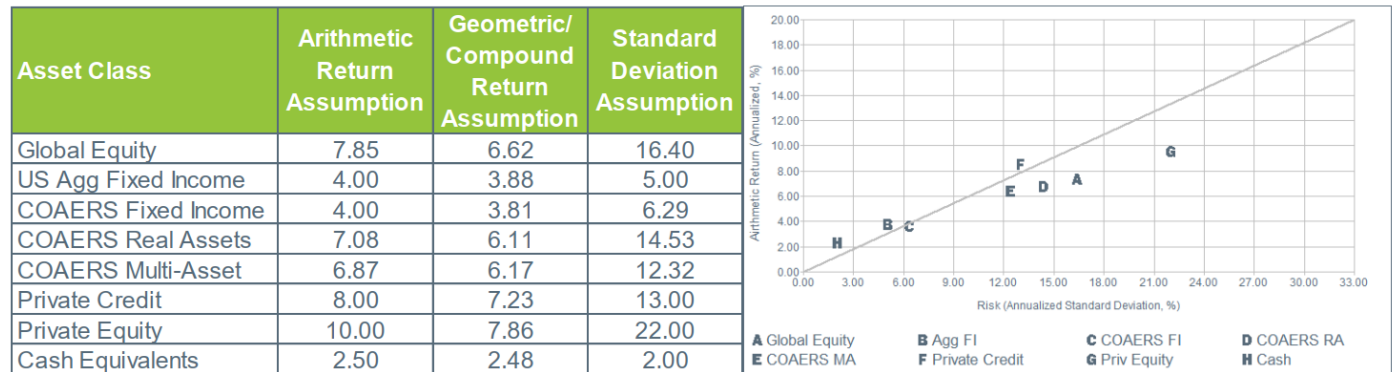
Asset Class/Sub-Asset Class Policy Weights & Rebalancing Ranges						
	Asset Class	Min <sup>S</sup>	Min <sup>T</sup>	Neutral	Max <sup>T</sup>	Max <sup>S</sup>
Growth-Oriented Assets	Global Equity	46.0%	51.0%	56.0%	61.0%	66.0%
	US Equity	22.0%	29.0%	34.0%	39.0%	47.0%
	DM Equity	11.0%	13.5%	16.0%	18.5%	20.0%
	EM Equity	2.0%	4.0%	6.0%	10.5%	13.0%
	Real Assets	10.0%	11.0%	15.0%	19.0%	20.0%
	Real Estate Equity	5.0%	7.0%	10.0%	13.0%	15.0%
	Infrastructure Equity	0.0%	1.0%	5.0%	7.0%	10.0%
Liquidity & Diversifying Assets	Fixed Income	16.0%	18.0%	21.0%	27.0%	33.0%
	US Treasuries	9.0%	11.0%	13.0%	21.0%	25.0%
	US Mortgages	2.0%	3.0%	4.0%	6.0%	8.0%
	US Credit	1.0%	2.5%	4.0%	7.0%	10.0%
	Multi-Asset	2.5%	4.5%	7.0%	12.5%	15.0%
	Asset Allocation	2.5%	3.5%	5.0%	7.5%	10.0%
	Commodities & Other	0.0%	1.0%	2.0%	5.0%	10.0%
	Cash & Equivalents	-10.0%	-5.0%	1.0%	5.0%	10.0%
	US Dollar instruments	-10.0%	-5.0%	1.0%	5.0%	10.0%
	Other currencies	0.0%	0.0%	0.0%	1.0%	2.0%

T: Tactical Rebalancing Range S: Strategic Rebalancing Range

## Asset Allocation: Risk & Return

What is the expected risk and expected rate of return of each asset class?

Based on the Investment Consultant's 2023 CMAs, the expected risk and return are provided below. Note that private credit and private equity are provided, although not officially adopted as of the completion of this report.



Assumptions noted as COAERS are custom assumptions based on COAERS' implementation of the asset class.  
 COAERS Fixed Income = 75% US Agg Fixed Income, 25% US Long Duration Government Fixed Income.  
 COAERS Real Assets = 33% each Core Real Estate, US REITs, and listed Infrastructure.  
 COAERS Multi-Asset = 56% Global Equity, 21% US Agg Fixed Income, 10% US REITs, 5% Listed Infrastructure, 7% GTAA, and 1% Cash.

How is this risk measured and how are the expected rates of return determined? What is the time horizon?

In the asset allocation process, risk is primarily measured as the standard deviation of asset returns for the purposes of optimization and creating an efficient frontier. CMAs are forecasted over 10+ years to match the long-term liabilities of the plan. Other risks are analyzed including drawdown potential, liquidity constraints, thematic exposures, and equity beta.

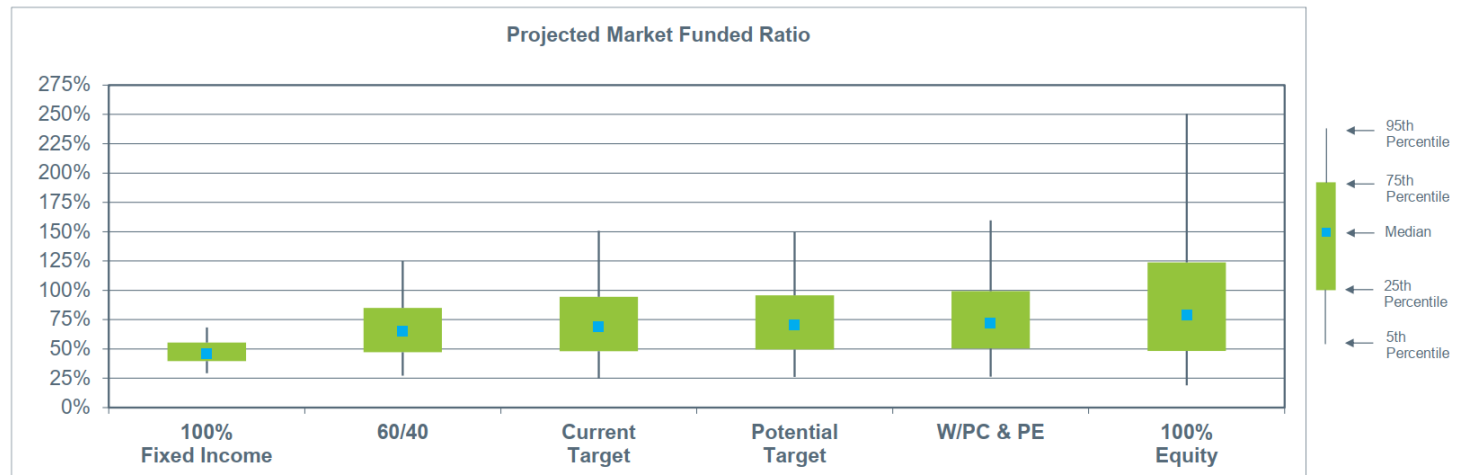
What mix of assets is necessary to achieve the plan's investment return and risk objectives?

Recent legislation has resulted in changes to the contribution policy and has significant impacts on the funded status of the Plan. Therefore, a forward-looking analysis that captures these new attributes is required. The latest Asset/Liability Study did recommend seeking more diversifying assets to bolster returns without increasing portfolio volatility. The additional contributions would enable the portfolio to pursue new asset classes like private credit and private equity, which the study found would improve the market-funded ratio over time.

Below is a summary of the recommended strategic asset allocation following the August 2023 Asset/Liability Study:

	100% FI	60/40	Current Target	Potential Target	W/PC & PE	100% Eq
Global Equity	0	60	56	53	47	100
US Agg Fixed Income	100	40	0	0	0	0
COAERS Fixed Income	0	0	21	21	19	0
COAERS Real Assets	0	0	15	15	15	0
COAERS Multi-Asset	0	0	7	0	0	0
Private Credit	0	0	0	10	10	0
Private Equity	0	0	0	0	8	0
Cash Equivalents	0	0	1	1	1	0
<b>Total</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>
Capital Appreciation	0	60	60	63	65	100
Capital Preservation	100	40	24	22	20	0
Alpha	0	0	0	0	0	0
Inflation	0	0	16	15	15	0
<b>Expected Arithmetic Return</b>	<b>4.0</b>	<b>6.3</b>	<b>6.8</b>	<b>6.9</b>	<b>7.1</b>	<b>7.8</b>
<b>Expected Risk (Standard Deviation)</b>	<b>5.0</b>	<b>10.3</b>	<b>12.0</b>	<b>11.7</b>	<b>12.2</b>	<b>16.4</b>
<b>Expected Compound Return</b>	<b>3.9</b>	<b>5.8</b>	<b>6.1</b>	<b>6.3</b>	<b>6.4</b>	<b>6.6</b>
Expected Sharpe Ratio	0.30	0.37	0.36	0.38	0.38	0.32
RVK Expected Eq Beta (LCUS Eq = 1)	0.07	0.61	0.71	0.69	0.71	0.97
RVK Liquidity Metric (T-Bills = 100)	85	88	85	77	70	90

The introduction of private markets is also supported by the projected market-funded ratio, which projects out 20 years:



**What consideration is given to active vs. passive management?**

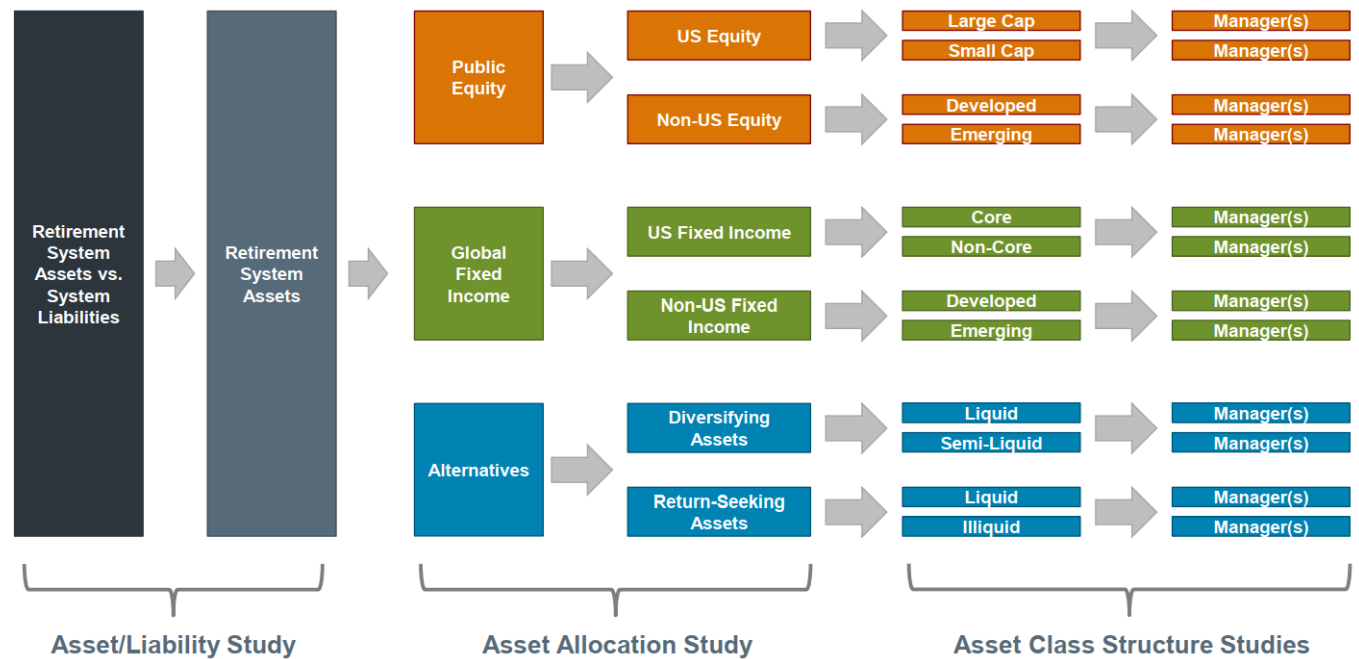
Per the IPS, investment implementation should occur passively and in public markets unless a high likelihood of success on a risk-adjusted, net-of-fees basis can be expected from other approaches. An information ratio of 0.5 is provided as the hurdle expected to be met by an active mandate.

COAERS' utilization of active management is low and has allowed the System to maintain competitively low management fees versus peers. Comparing the deployment of active management by asset class versus peers, the Plan utilizes less active management as a percentage of composite assets in US small-cap equities and in fixed income versus most peers.

These observations are not a concern and are delivering a competitive investment fee structure. COAERS should continue to promote fee-efficient implementations, so long as they do not come at the expense of higher net-of-fee returns. Where no active management is utilized, Investment Staff should be able to communicate their Investment Beliefs that rationalize this decision to Board.

**Is the approach used by the system to formulate asset allocation strategies sound, consistent with best practices, and does it result in a well-diversified portfolio?**

The process for determining a sound asset allocation begins with understanding the ability of the fund to bear risk, which starts with reviewing the liabilities and cash flows of the System. Once an appropriate risk level is determined, an Asset Allocation Study is conducted to produce the most efficient return per unit of risk. Finally, an Asset Class Structure Study produces targets across style and implementation, investment manager selection, and other considerations.



The methodology used to formulate an asset allocation target is sound and aligns with the goals of the System. Focusing principally on alignment with System liabilities is consistent with best practices and has been the point of focus of the Asset/Liability Studies. The resulting portfolio is diversified by asset class, structure, and investment manager selection—in order of emphasis.

**How often are the strategic and tactical allocations reviewed?**

The strategic asset allocation is reviewed annually, at a minimum. Actual allocations are monitored as part of regular periodic reviews.

Additionally, Investment Staff have the authorization to tilt the portfolio within tactical bands. These tilts are monitored as part of the quarterly Investment Strategy Dashboard.

## Asset Allocation: Appropriateness of Valuation Methodologies

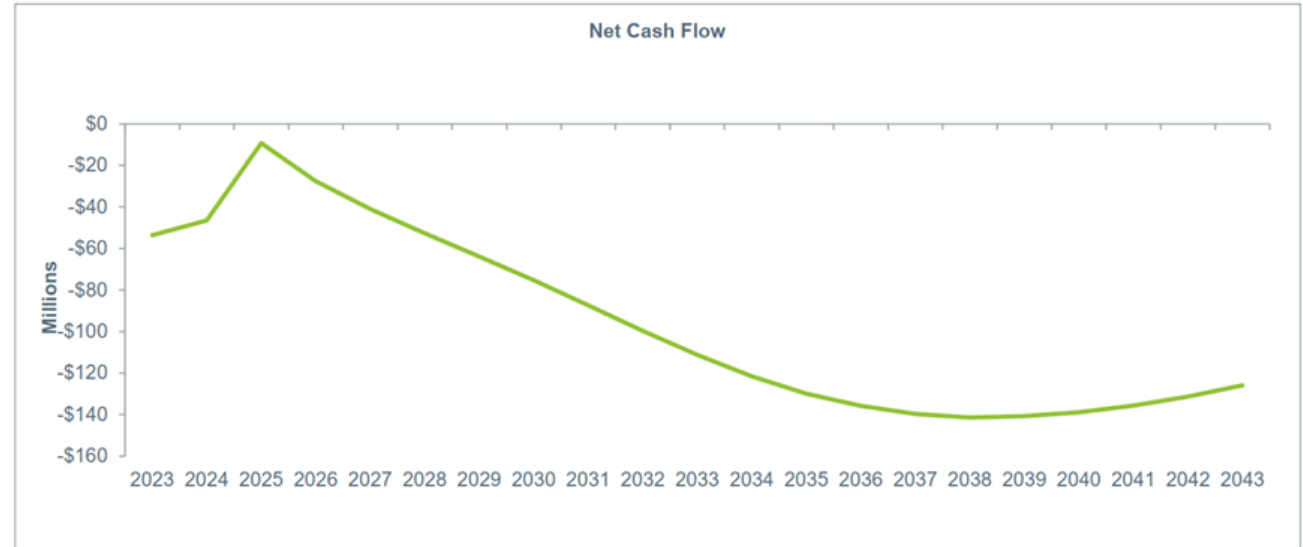
<p><b>How are alternative and illiquid assets selected, measured and evaluated? What valuation methodologies are used to measure alternative and illiquid assets? What alternative valuation methodologies exist and what makes the chosen method most appropriate?</b></p>	<p>COAERS currently utilizes the same process for the selection and evaluation of alternative and illiquid asset class managers as it does for the selection and evaluation of public market asset class managers. We provide more details on the investment manager selection and evaluation process in Section V of this report.</p> <p>As of December 31, 2022, COAERS has allocations to two alternative investment managers: a private real estate strategy that has daily liquidity with provisions for redemption gates, and a private infrastructure strategy that has quarterly liquidity on best efforts basis. Each of the investment managers has their own valuation methodology, which is appropriate and consistent with industry practice.</p> <p>While COAERS' Custodian pricing serves as the primary basis for valuing liquid/less liquid assets, fund statements provided by alternative/illiquid investment managers are used to obtain the fund market values. The appropriateness of investment manager valuation policies is reviewed during the initial due diligence, and, if hired or added to the Premier List, on an ongoing basis, but at least annually. The IIP document has clear guidelines on valuation policies of liquid/less liquid assets along with illiquid assets. COAERS provides its policies to the fund managers and any differences with individual investment manager valuation policies are disclosed by the investment manager to COAERS Investment Staff and Investment Consultant. Investment staff are required to confirm valuation policy compliance with appropriate valuation procedures on an annual basis. The valuation methodology for the two current alternative investment managers is consistent with industry best practice.</p>
<p><b>Are the system's alternative investments appropriate given its size and level of investment expertise? Does the IPS outline the specific types of alternative and illiquid investments allowed, as well as the maximum allocation allowable?</b></p>	<p>The IPS outlines all asset classes, including alternative and illiquid asset classes, utilized by the System and allocations to each. As of December 31, 2022, COAERS has allocations to real estate and infrastructure. Investments in these two asset classes comprise a mix of private core open-end funds (60%) and liquid passive funds (40%).</p> <p>The policy includes target (neutral) allocation, as well as permissible allocation ranges (minimum and maximum strategic and tactical) for all asset classes. As of December 31, 2022, the asset classes are within their allowable ranges.</p> <p>Given COAERS' liquidity needs, the asset allocation with minimal exposure to private and illiquid assets is appropriate. However, based on the Asset/Liability Study conducted by the System in 2023, the new contribution policy is expected to improve the total fund liquidity. This would allow the system to take slightly more risk through a portfolio, which could include moderate exposures to private credit and private equity. COAERS is in the process of evaluating these asset classes for possible additions to the investment structure.</p> <p>Consider adding a separate section for the selection and evaluation of private equity and private credit mandates, if implemented. Reporting and benchmarking of private investments should also be added.</p>

## Asset Allocation: Future Cash Flow and Liquidity Needs

**What are the plan’s anticipated future cash flow and liquidity needs? Is this based on an open or closed group projection?**

Below are the latest cash flow projections as of the August 2023 Asset/Liability Study. The study was based on an open group analysis.

The results assume the contribution policy remains unchanged, and that the System’s assets return precisely the actuarially assumed rate each year without exception for all projection years.



### As % of Market Value

	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043
Net Cash Flow	1.8%	0.3%	0.3%	0.8%	1.1%	1.4%	1.6%	1.8%	2.0%	2.1%	2.3%	2.4%	2.5%	2.5%	2.4%	2.4%	2.3%	2.1%	2.0%	1.8%	1.7%

**When was the last time an asset-liability study was performed?**

An Asset/Liability Study was produced in 2023, with a memo outlining the major findings provided to the System on August 25, 2023.

**How are system-specific issues incorporated in the asset allocation process? What is the current funded status of the plan and what impact does it have? What changes should**

System-specific issues have a material and direct impact on the asset allocation process and are modeled as part of the Asset/Liability Study. The plan’s funded status was projected to have fallen to 56% as of December 31, 2022, due to a difficult market environment through year-end.

While the System is currently underfunded, the Asset/Liability Study revealed that merely increasing overall risk would

<p><b>be considered when the plan is severely underfunded, approaching full funding, or in a surplus?</b></p>	<p>likely not yield a materially better outcome due to the widened distribution of potential outcomes.</p> <p>Increases in contribution rates (resulting from recently approved legislation) and recently proposed adoption of private markets are expected to help reach a more diversifying universe of assets and improve the funded status without material changes in overall volatility risk.</p>
<p><b>What types of stress testing are incorporated in the process?</b></p>	<p>Stochastic modeling is used to capture a distribution of potential outcomes and model the effects of path dependency that arise from future uncertainty. This includes forward-looking projections like a Monte Carlo simulation in addition to historic scenario analysis to capture archetypal market regimes and risks.</p>

**Summary**

Collective efforts of COAERS’ Board, Investment Committee, and Staff have led to an effective and well-articulated methodology for selecting a Strategic Asset Allocation policy that is responsive to changes in the System’s liabilities and shifts in long-term capital market assumptions. To the extent that Staff exercise their delegated authority to tactically tilt the portfolio, the rationale is transparently communicated and in service of prudent risk management. Discussions around enhancing the portfolio structure and asset class exposures are ongoing and will likely include the addition of private market assets in future iterations of the System’s portfolio. Overall, the System has developed a comprehensive approach to managing the portfolio in the ultimate service of the Plan’s beneficiaries.

**Recommendations**

**12. Consider removing 10 – 12% risk targets for the portfolio/adding metrics that more directly align with the Asset/Liability Study and the goals of the portfolio.**

Setting a range of acceptable risk via monitoring long-term standard deviation helps measure whether realized risk is favorable versus peers, but is not, in isolation, a good proxy for the alignment of risk relative to the stated goals of the portfolio.

Target risk is set based on the liabilities of the System, which can vary meaningfully from other plans with different liability profiles. Therefore, selecting a realized risk metric—or better yet, a set of metrics considered in combination—that bounds the desired outcome of the Asset/Liability Study may be a better proxy for success.

The introduction of private investments may add additional difficulties in measuring the true risk of the portfolio through standard deviation alone due to smoothing effects and should be taken into consideration.

**13. Consider setting capacity/risk contribution constraints in place of 4% dollar-weight constraints for sub-asset class thresholds:**

There is currently an exception to the 4% rule in place for commodities. The exception suggests there may be better variables to consider than the dollar weight of a sub-asset class.



Commodities exhibit a higher level of volatility and have capacity constraints that warrant consideration—even below a 4% allocation. As such, reframing the inclusion criteria around a measurement such as ex-ante risk contribution may be a more direct way to evaluate sub-asset class inclusion while avoiding the need to create exceptions.

**14. Consider consolidating explanations for how tactical and strategic sub-asset class ranges are set:**

The independent Investment Consultant currently works with Investment Staff to determine target weights allocated to each sub-asset class. The ranges are stated to be based on the volatility of the asset class relative to the proportion of the fund allocated to each. This explanation aligns with the IPS policy set forth in Section V (Asset Allocation) within the “Rebalancing” subsection—particularly the last sentence of the first paragraph.

The IPS separately states that the rebalancing ranges are defined as reflecting 2<sup>nd</sup> – 3<sup>rd</sup> quartile allocations of peers for tactical ranges and 1<sup>st</sup> – 4<sup>th</sup> quartile of peer allocations for strategic ranges. This policy is set forth in the IPS guidelines under Section V (Asset Allocation) within the “Asset Class Diversification” subsection and is detailed within the two bullet points on pages 13 – 14.

We are not convinced that the behavior of peers is a good guide to setting strategic and tactical ranges that appropriately reflect the specific circumstances in place at COAERS and explored in the regular Asset/Liability Studies. COAERS should reconsider the role of peer data in setting these ranges and instead focus more on asset volatility data combined with stress tests based on varying inter-asset class correlations.

**15. Consider revisiting tracking error targets:**

Some asset classes have fallen short of tracking error targets over the last ten years, particularly within developed international and emerging markets.

If these targets are still desired, more active management or active structuring decisions by Investment Staff may be appropriate. If lower tracking error is preferred, a revision of tracking error targets may be warranted.

**16. Consider reaffirming Investment Staff’s authority to execute rebalancing decisions—without Board approval—should circumstances require such action.**

While the IPS delegates authority to Investment Staff for rebalancing within the tactical ranges, our review indicates to date that Investment Staff have consistently sought permission from the Board anyway. We observe that, so long as obtaining this approval does not impede the achievement of the objectives sought by providing the Investment Staff with delegated authority, doing so is fine. If the record to date suggests that there are no circumstances in which that delegated authority would be exercised by Investment Staff and reported to the Board promptly after the fact, the latitude it provides and the results obtained may be limited.

**17. Consider adding a separate section for the selection and evaluation of private equity and private credit mandates, if implemented. Reporting and benchmarking of private investments should also be added.**

## Section III – Review of the appropriateness of investment fees and commissions paid by the retirement fund.

### Documents Reviewed

- ✓ Investment Management Agreements
- ✓ Confirmation Emails of Current Fee Agreements
- ✓ Trade Cost Analysis Report (Zeno AN Solutions)
- ✓ Investment Cost Effectiveness Analysis (CEM Benchmarking)
- ✓ Investment Staff and Investment Consultant Presentations to the Investment Committee and Board
- ✓ Investment Policy Statement
- ✓ Investment Implementation Policy

**Do the system's policies describe the management and monitoring of direct and indirect compensation paid to investment managers and other service providers? What direct and indirect investment fees and commissions are paid by the system? Does the system have appropriate policies and procedures in place to account for and control investment expenses and other asset management fees?**

Inherent in COAERS' Investment Beliefs as stated in the IPS, is the System's consideration of cost in making decisions regarding investment strategy and implementation. The policy states a preference for the use of passive management and public markets as the default unless the expected likelihood of risk-adjusted, net-of-fees outperformance is high from other approaches. Per the IIP document, implementation decisions of investment strategies, including choice of vehicles for both public and private markets, will take into consideration the effect of costs on net returns to the fund and the policy preference for lower cost structures when available and effective in the pursuit of net-of-fee returns. There is evidence in the current structure of the fund that low-cost passive mandates are highly utilized by the System.

The document also states that Investment Staff are required to report investment costs, including investment management fees and commissions, no less than annually, to the Board via the Investment Committee. Investment Staff are also required to regularly review to ensure investment manager compliance with specific directives regarding commission cost management. In addition, the Board periodically engages a third party to evaluate its total fee structure, and the results are presented to and discussed with the Board.

**Who is responsible for monitoring and reporting fees to the board? Is this responsibility clearly defined in the system's investment policies?**

The duty to review fees is inherent in the Board's oversight role per the IPS and its monitoring provisions. The Investment Committee and the Board review fees for each of the investment managers and strategies in the reports provided by the independent Investment Consultant and the Investment Staff. Total fund performance in these reports is shown on both a gross-of-fees basis and net-of-fees basis and includes 'Cash Activity – Investment Operations' and 'COAERS Investment Manager Fees' reports, which detail direct and indirect fees paid to the investment managers quarterly.

**Are all forms of manager compensation included in reported fees?**

While the majority of COAERS' investment managers' fee structure is based on a fixed management fee schedule varying only with the size of the mandate, the Board and Investment Staff have negotiated performance-based fees with a small number of investment managers. These fees are generally predicated on net outperformance over a specified highwater mark, hurdle rate, and/or loss carryforward, as appropriate, over a specified time horizon. All forms of investment manager compensation, including administrative expenses and performance-based fees, are reported in the quarterly fees paid to the investment managers.

**How do these fees compare to peer group and industry averages for similar services? How are the fee benchmarks determined?**

RVK's analysis included review and confirmation of fee schedules of all investment managers, review of investment manager agreements, comparison to similar mandates, as well as a comprehensive peer group fee analysis. These peer groups are routinely used by RVK to benchmark fees and are comprised of both active and passive managers specific to the mandate's vehicle type. Each investment manager was ranked against an appropriate eVestment peer group based on mandate type and overall asset size. The eVestment fee database is considered the broadest and most frequently updated in the industry. Lower fees are represented by lower percentile rank (i.e., the 1<sup>st</sup> percentile is the lowest fee and conversely the 99<sup>th</sup> percentile is the highest fee in the relevant investment manager peer group).

As shown in the table below, 94% of the System's public fund managers have effective annual fees that fall well below the industry median for each respective mandate. As stated above, COAERS favors passive implementation, as appropriate, which leads to low fees in general, but we observed that even fees paid to passive managers are below the industry average. The System's utilization of mainly separately managed accounts (SA), followed by collective funds (CFs and CITs) and small usage of mutual funds also contribute to its low fees. Peer group classification for this table can be found in the **Appendix**.

**Investment Managers and Management Fees as of December 31, 2022**

Fund	Universe Median Fee (%)	Fee Rank	Size of Universe
BNYM Dynamic US Eq. NL (SA)	0.44%	26	337
BNYM SciBeta US Max Decorr. (SA)	0.30%	17	88
TOBAM Max Div. USA (SA)	0.30%	31	88
L&G MSCI USA Index (CIT)	0.04%	28	54
SSGA MSCI USA EW Index (SA)	0.29%	7	88
SSGA MSCI USA SC Index (CF)	0.05%	39	26
NISA S&P 500 Futures (SA)	0.07%	41	71

L&G SciBeta Inflation Plus (SA)	0.34%	2	88
Walter Scott DM Int'l Equity (SA)	0.52%	17	172
1607 Capital Partners Int'l Eq. EAFE (SA)	0.55%	5	172
BNYM DB Dynamic Glb Ex US Eq (CF)	0.70%	1	52
NISA EAFE Futures (SA)	0.12%	1	22
NT MSCI World Ex US Small Cap Index (CF)	0.10%	1	18
NISA FX Hedged EAFE Future (SA)	0.12%	1	22
Baillie Gifford EM Equity Class 3 (MF)	0.95%	28	231
L&G MSCI EM Index (CIT)	0.15%	11	15
NISA EM Futures (SA)	0.20%	1	16
Principal US Property Account (CF)			
Fidelity US REITs Completion Index (SA)	0.60%	1	59
Agincourt FTSE NAREIT Eq. REITs Index (SA)	0.70%	1	59
IFM Global Infrastructure A (CF)			
Fidelity DJ Brookfield Infra. Index (SA)	0.71%	1	50
NISA Gold Futures (SA)	0.78%	1	30
Agincourt 1-3 Year Treasury (SA)	0.06%	15	75
Agincourt 1-5 Year US TIPS (SA)	0.08%	2	75
NISA 30 Year Treasury Futures (SA)	0.10%	7	3
Hoisington Macro US Treasuries (SA)	0.25%	92	15
DoubleLine MBS (SA)	0.25%	20	56
PGIM US IG Corp. Bond (CIT)	0.24%	57	13

Agincourt Passive Index (SA)	0.57%	2	157
Agincourt 1-3 Month Treasury (SA)	0.15%	1	73
Mellon Government STIF (CF)	0.15%	1	73
COAERS USD (SA)	N/A	N/A	N/A
BNYM Money Market Fund (SA)	0.12%	1	40
NISA Cash and Carry (SA)	0.76%	4	30
NISA ST Sovereigns (SA)	0.15%	1	73

The table below summarizes the overall distribution of relative fees of the public market managers.

**Fee Percentile Distribution**

Fee Percentile Range	Number of Investment Managers in Range
1st to 24th	26
25th to 49th	6
50th to 74th	1
75th to 100th	1

*Fees as of December 31, 2022*

COAERS' allocation to private market alternatives, as of December 31, 2022, is 9% of the total Fund and is invested across two investment managers. The fees of both private mandates fall closer to the lower range of the peer universe fee range for management and incentive fees as shown in the tables below.

**Private Real Estate**

Fund	Peer Universe Management & Incentive Fees	Population
Principal US Property Account (CF)	Fee impact has varied between 0.76% - 0.97% over the past 10-year period	25

*Peer universe population and fees, as of 12/31/2022, include NCREIF-ODCE fund managers that share fee data with RVK.*

**Private Infrastructure**

Fund	Peer Universe Management & Incentive Fees	Population
IFM Global Infrastructure A (CF)	Management Fee varies but ranges between 0.70% - 1.00%. Incentive fee structure varies.	23

*Peer universe population and fees, as of 12/31/22, include open-end core infrastructure funds that share fee data with RVK.*

Overall, the System's estimated total investment management cost<sup>1</sup> based on RVK's analysis is about 0.24% as of December 31, 2022. We observe COAERS' investment management fee to be much lower compared to public plans peers. This fee is almost half compared to the average investment fee of 0.49% of 195 public retirement funds that participated in National Conference on Public Employee Retirement Systems (NCPERS) 2023 Public Retirement Systems Study. The survey includes responses from 195 state and local government pension funds with more than 19.6 million active and retired members and assets exceeding \$3 trillion.

<sup>1</sup> The calculation is based on fund market values as of December 31, 2022, and investment management fee and does not include incentive fees.

## Review of Commissions – Trade Cost Analysis

While not nearly so critical, RVK notes that the use of transaction cost analysis (TCA) covering trade activity by their investment managers within public market portfolios is a means for providing additional context to performance results, and thus can play a role in ongoing fiduciary monitoring activities. The ongoing consideration and review of such reporting over multiple periods can form the basis for additional insights into comparative trading effectiveness and trade execution cost containment by the investment managers utilized in the Fund's public markets mandates. Discussion of findings with the TCA provider, and investment managers, can add contextual value to this monitoring exercise.

RVK has reviewed recent reporting<sup>2</sup> provided by Zeno AN Solutions, the current provider of TCA for COAERS, to inform this summary of the findings<sup>3</sup>. Unless otherwise noted, we have reviewed (or assembled, based on quarterly information) the total reported information for the prior four quarters as of December 2022.

### COAERS Fixed Income Trading

- Total of 407 trades / \$1,491.0 million in market value
- 99.4% of the total volume was possible for the TCA provider to evaluate and consisted of 363 trades / \$1,481.6 million in market value
- Primarily (79.6%) US Treasury Trading
- Total Costs (as measured by Implementation Shortfall) of -4 bps, comprised of the following:
  - Multi-Day Delay Costs (Savings) of +1 bps
  - Impact Costs of -3 bps
  - Overnight Gap Costs of -2 bps
  - Explicit Costs of 0 bps
- Limited Quarter-over-Quarter variability was noted, although increased Overnight Gap costs for the quarter ended 12/31/2022 (in line with increase in cost benchmark) were observed.
- Total Cost Ranking (for the period 10/1/2021 – 9/30/2022) for measured costs of -2 bps ranked slightly below the median at the 57<sup>th</sup> percentile.

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<sup>2</sup> Fourth Quarter 2022 TCA: Fixed Income Monitor; Trading Summary Report – United States Market; Trading Summary Report – Global; and FX Monitor.

<sup>3</sup> For this reporting summary, RVK has sought to uniformly present costs as negative figures/units and cost savings as positive figures/units.

## COAERS US Equity Trading

- Total of 9,891,524 shares / \$536.65 million in market value
- Total Commission Costs of -\$60,004.65 (equivalent to -1.12 bps or -0.61 cps)
- Quarter-over-Quarter Commission Costs were observed to operate in a reasonable range of -0.5 cps to -0.79 cps | -1.0 to -1.3 bps (ranking in the 14<sup>th</sup> – 19<sup>th</sup> percentiles).
- Quarter-over-Quarter Slippage Costs vs. VWAP had some variability with the Q2 2022 portfolio experiencing the best at a (savings) of +7.7 bps gain vs. VWAP, ranking in the 20<sup>th</sup> percentile, and the Q3 2022 portfolio experiencing the worst at a cost of -12.9 bps loss versus VWAP, ranking in the 77<sup>th</sup> percentile.
- Quarter-over-Quarter Total Costs had some variability with the Q2 2022 portfolio experiencing the best at a (savings) of +6.7 bps (3.94 cps) and ranking in the 18<sup>th</sup> percentile, and the Q3 2022 portfolio experiencing the worst at a cost of -14.0 bps (-6.39 cps) and ranking in the 73<sup>rd</sup> percentile.
- Overall commission cost levels were measured in the top quartile.
- Of the 8 investment managers measured in Q4 2022
  - Managers/accounts increasing Total Execution Cost levels (i.e. below median) during Q4 2022 were: SSGA MSCI USA EW IND; AGINCOURT PASSIV IND; and FIDELITY BROOKFIELD GLOBAL.
  - Managers/accounts decreasing Total Execution Cost levels (i.e. above median) during Q4 2022 were: LGIMA INFLATION PLUS; 1607CAP; MELLON SCI BETA US DC; and FIDELITY US REITS.

## COAERS Non-US Equity Trading

- Total of 20,518,769 shares / \$90.3 million in market value
- Total Commission Costs estimated at -\$88,560.18 (due to rounded bps figures presented) equal to -9.8 bps.
- Quarter-over-Quarter Commission Costs were observed to operate in a reasonable (but above median) range of -5.7 bps to -12.6 bps (ranking in the 60<sup>th</sup> – 86<sup>th</sup> percentile, respectively). This may be due to active fundamental strategies.
- Quarter-over-Quarter Slippage Costs vs. VWAP had some variability with the Q1 2022 portfolio experiencing the best at a (savings) of +11.5 bps vs. VWAP, ranking in the 21<sup>st</sup> percentile, and the Q3 2022 portfolio experiencing the worst at a cost of -8.1 bps vs. VWAP, ranking in the 64<sup>th</sup> percentile.
- Quarter-over-Quarter Total Costs had some variability with the Q1 2022 portfolio experiencing the best at a cost of -1.1 bps, ranking in the 32<sup>nd</sup> percentile, while Q2 2022 had the worst experience with a cost of -17.7 bps, ranking in the 72<sup>nd</sup> percentile.



- In all quarters during 2022, commission levels in aggregate were below the median.
- For Q4 2022 in particular, commission cost levels overall appear to rank fairly poorly with 1607 CAP ranking at the 92<sup>nd</sup> percentile.
- Markets that appear to be driving the rank in particular include high volumes executed in the United Kingdom, Australia, and the Netherlands at higher basis point execution levels of -14.9 bps, -18.2 bps, and -8.0 bps, respectively.
- In the case of the United Kingdom and the Netherlands, and to a lesser degree in Australia, strong VWAP relative execution is evident (potentiality justifying higher commission levels) but this may not be universally present.

## COAERS FX Execution

- Total of \$144.7 million in FX traded in 556 trades – 14% Spots; 86% Forwards
- Total costs vs. the Average Daily Mid-Point were a (savings) of +7 bps and +10 bps relative to the Zeno Benchmark. Total costs were -4 bps relative to the 4 PM London Close and a savings of +53 bps relative to a hypothetical buy-high/sell-low sub-optimal scenario.
- Execution efficiency in the Forward market was notable and drove overall results with performance in 2022 of savings of +9 bps vs. Average Daily Mid-Point and savings of +13 bps relative to the Zeno Benchmark. Total costs were -4 bps relative to the 4 PM London Close and a savings of +56 bps relative to a hypothetical buy-high/sell-low sub-optimal scenario.
- The was offset by reduced execution efficiency in the Spot market with execution efficiency in 2022 of costs of -7 bps vs. Average Daily Mid-Point and costs of -4 bps relative to the Zeno Benchmark. Total costs were -3 bps relative to the 4 PM London Close and a savings of +31 bps relative to a hypothetical buy-high/sell-low sub-optimal scenario.
- 20% of trades were done with the custodian and were generally more costly.
- Average cost of -6 bps vs. 4 PM London Close.
- 80% of trades were done with a non-custodian counterparty and were slightly less costly.
- Average cost of -3 bps vs. 4 PM London Close.
- All trades were done in “non-restricted” markets.
- Continued discussion with investment managers regarding the usage of custodial vs. non-custodial venues is reasonable. For Q4 2022 the following observations can be made.

- 1607 CAP
- 100% of executions were with a custodian with an average cost of -7 bps vs. Average Daily Mid-Point

TCA reporting and review of results are prudent fiduciary exercises. In our experience, not every public fund extends its monitoring of fees and cost of execution by having TCA studies conducted as COAERS has done. The review of TCA reporting with TCA providers and the discussion of results and findings can be an effective manner of assessing transaction cost trends. RVK cautions that it is important to consider these observations within the context of longer-term trends and the qualitative observations and findings from discussions with investment managers, which may offer additional justification and/or clarification. In the final analysis, it is the fee charged to COAERS that is most important.

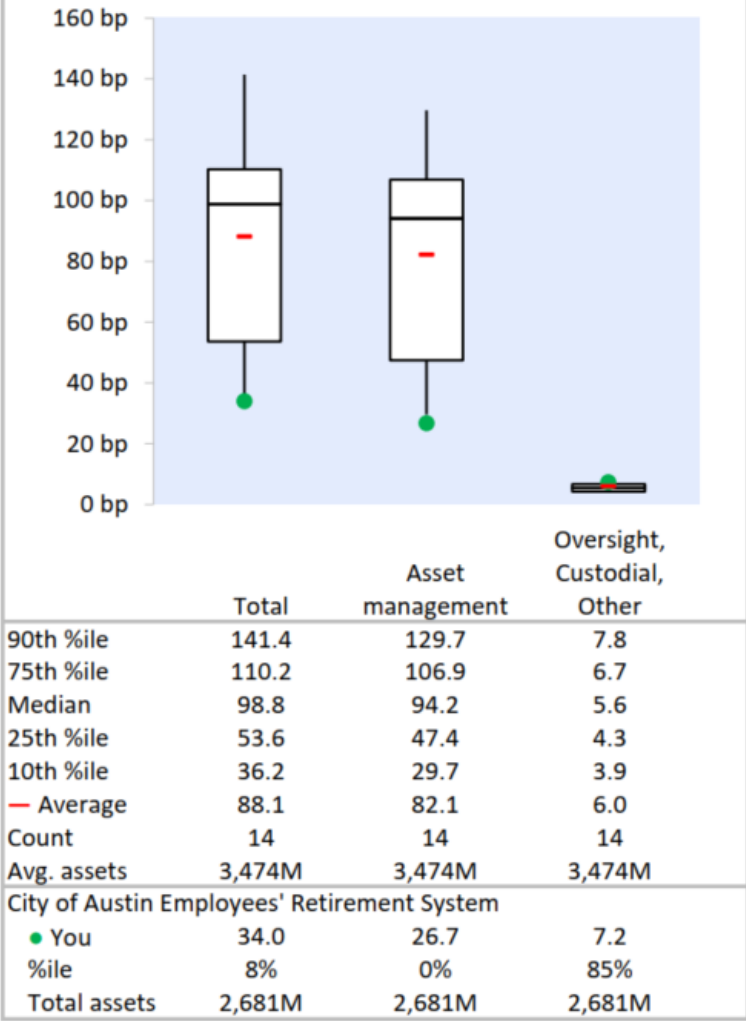
**What other fees are incurred by the system that are not directly related to the management of the portfolio? How often are the fees reviewed for reasonableness?**

Based on the documents we have reviewed, there are no other fees directly related to the management of the portfolio. In addition to reviewing the quarterly investment manager fees, COAERS also periodically conducts investment cost benchmarking analysis for comparison and appropriateness relative to public peers of similar size. This includes benchmarking of total fund fees, asset management costs by asset class, and oversight and service provider fees inclusive of trustee, custodian, consulting, reporting, and audit fees. The last fee benchmarking report was conducted by CEM Benchmarking for the period ending December 31, 2019.

Based on that study, COAERS' total investment cost, excluding transaction costs, of 0.34% was about one-third of the peer median cost of 0.99% bps. The asset management portion of the total cost at 0.27%, is between one-quarter and one-third of the peer median fee of 0.94%. The low overall cost of the System was mainly due to the lower cost of implementation style and lower fees for similar services compared to peers. The exhibit on the next page is from the study and shows that COAERS ranked in the 8<sup>th</sup> percentile among peers of similar size and is in the lowest percentile for asset management fees among all public plans<sup>4</sup> in the survey as of December 31, 2019.

<sup>4</sup> Peer group comprised of 14 global funds, with assets ranging from \$1.7 billion to \$7.9 billion, with median size of \$2.7 billion.

**Total cost and components**  
Your fund versus peers - 2019



The report further provided the change in asset management and oversight/service provider fees since 2015, as shown in the below exhibit. While asset management costs have decreased by \$0.6m, the oversight cost increased by \$0.8m and service provider costs increased by \$0.2m during this period.

Asset class styles where you had assets in both 2019 and 2015 <sup>1</sup>	Style	2019 avg. assets \$mils	Cost in bps			Cost/-Savings \$000s
			2019	2015	More/-less	
<u>External asset management</u>		A			B	A x B
Stock - U.S. Large Cap	passive	592	7.9	5.0	2.9	174
Stock - U.S. Large Cap	active	190	28.8	43.9	-15.1	-286
Stock - U.S. Small Cap	passive	128	1.0	1.0	0.0	0
Fixed Income - U.S.	passive	94	1.7	4.0	-2.3	-22
Fixed Income - U.S.	active	224	15.9	16.7	-0.8	-19
Cash	active	15	29.9	1.5	28.4	43
Real Estate ex-REITs	active	246	78.6	82.3	-3.7	-91
Top layer perf. fees (on NAV)	active	266	0.0	17.0	-17.0	-452
Risk Parity	active	75	43.4	39.6	3.7	28
<b>Total for external management</b>						<b>-625</b>
Oversight		2,681	4.8	1.9	2.9	775.2
Trustee & Custodial		2,681	0.9	1.0	-0.1	-18
Consulting		2,681	0.4	0.5	-0.1	-23
Audit		2,681	0.5	0.4	0.2	41
Other		2,681	0.6	0.0	0.6	155
<b>Total for fund oversight</b>						<b>931</b>
<b>Total</b>						<b>306</b>

1. Cost differences are attributed to paying more/less for similar services only if the asset-class style existed in both years.

As the total fund grows and with the addition of private asset classes, we would expect asset management costs and oversight/service provider costs to increase. This is normal and, if fund and manager selection is good over time, the net-of-fees benefit will be realized.

**Is an attorney reviewing any investment fee arrangements for alternative investments?**

All investment manager contracts, side letters, and other agreements, whether public market or private alternatives, are evaluated, reviewed, and finalized by the Executive Director, as delegated by the Board, in consultation with the General and/or Investment Counsel.

## Overall Fees

One of COAERS' Investment Beliefs is to gain market exposure and structure the investment portfolio with important considerations given to fees and costs. The System has been very diligent and successful in negotiating fees with investment managers across asset classes in both public and private markets. Investment manager fees, trade commissions, and estimated total plan fee of 0.24% are not only reasonable and appropriate but are considerably lower compared to median universe fee and public peers of similar size, respectively.

It is important to note that the lower fee is a function of asset allocation, structure of the investment program, high utilization of passive management, and efficient fee negotiations. With the recent decision to allocate more into the private markets (private equity and private credit) which carry higher fees than the public market, total plan fees will go up relative to current fees. However, over the years, COAERS has taken a thoughtful approach to structure and implement the investment program and is expected to continue to be an industry leader in managing and controlling plan costs.

## Recommendations

18. Continue to utilize passive management in asset classes with higher efficiency.
19. Consider adding a section on management and control of investment management and service provider cost in the IPS or IIP.
20. Consider adding a periodic frequency for conducting plan fee reviews similar to the minimum frequency noted in the IPS for Asset/Liability Studies and Asset Allocation Studies.

## Section IV – Review of the retirement fund's governance processes related to investment activities, including investment decision-making processes, delegation of investment authority, and board investment expertise and education.

### Documents Reviewed

- ✓ Investment Policy Statement
- ✓ Investment Implementation Policy
- ✓ COAERS Governance Manual
- ✓ Investment Committee Charter
- ✓ COAERS Effectiveness Assessment (Global Governance Advisors)
- ✓ Investment Staff and Investment Consultant Presentations to the Investment Committee and Board
- ✓ PRB Training Requirements – Core and Continuing MET Requirements

### General Comments

Based on our review, the investment decision-making process for the System broadly reflects a comprehensive implementation of best practices.

The COAERS IPS, while not specifying required processes in detail, provides a strong foundation for investment decision-making. The IPS clearly addresses key investment principles that are industry standards for best practices in institutional investment decision-making, including but not limited to:

- The sole purpose is to provide benefits to members and their beneficiaries
- The importance of regular asset/liability and asset allocation analyses
- The commitment to incorporate risk considerations
- The central role of diversification
- The requirements and guidelines for thoughtful portfolio rebalancing
- The encouragement to seek advice from experts
- The importance of avoiding conflicts of interest

The outcome of individual investment decisions is always uncertain, but we believe COAERS' policy foundation goes a long way to mitigate that risk.

The COAERS IIP is a sound and appropriately detailed guide indicating how the Board wishes the implementation of the investment program to be accomplished. Not all boards of trustees in the US have adopted the simultaneous

development and use of an IPS as well as a more granular, process-oriented IIP. Our firm views a supplementary process-oriented policy document such as the one COAERS employs quite favorably, keeping the IPS solely focused on the Board's goals, beliefs, policy, and guidelines.

The IIP covers a broad array of investment activities common to defined benefit pension plans like the COAERS plan. It sets forth processes and methods to be employed in investment manager and product due diligence, investment manager selection and monitoring, performance evaluation, permissible investments, execution of major asset flows associated with fund management, etc. The IIP requires common best practices methods and implementation steps without being so prescriptive that it excessively constrains the flexibility necessary for effective decisions.

## Delegation of Investment Authority

Our review of the governance structure under which COAERS operates indicates clarity regarding the delegation of authority to make and provide advice on investment decisions. More specifically, our review finds:

- Authority held by the Board: Clarity that while the Board may delegate duties, it cannot delegate away overall responsibility for the operation of the plan, including the management of the funds held in trust solely for the benefit of the plan participants and their beneficiaries.
- Authority held by the Committee(s) of the Board: Clarity regarding the review and recommendation process for investment decision-making by the Investment Committee for the Board. However, we suggest the Board carefully review Recommendations 6, 7, and 9, which are addressed in Section I of this Evaluation.
- Authority held by Executive Staff: Clarity on the authority granted to the Executive Director regarding investment decisions. Furthermore, we find that that the COAERS governance documents set forth in substantial detail not only the direct authority delegated to the Executive Director but also the requirements to keep the Board informed on a timely basis when it is exercised. Similarly, we conclude that there is also clarity regarding the role and obligations of the Chief Investment Officer with respect to investment decisions when the IPS and IIP are knit together, providing policy direction, approved implementation procedures, and delegation of authority to Executive and Investment Staff.
- Authority held by Investment Staff: The governance structure addresses this point by noting that both the Executive Director and the Chief Investment Officer may delegate authority to non-CIO Investment Staff while making it clear that they remain responsible for its execution.
- Authority held by outside consultants: There is substantial clarity regarding the role of the Investment Consultant with respect to its obligations to the COAERS Board; the requirement to collaborate with Investment Staff yet retain the independence necessary to be an effective direct advisor to the Investment Committee and Board; and the importance COAERS places on all involved parties avoiding conflicts of interest.

## Transparency

<b>Does the system have a written governance policy statement outlining the governance structure? Is it a stand-alone document or part of the IPS?</b>	In addition to the IPS Section I (Responsibilities) and specific delegation noted in the IIP, the Board has adopted a Governance Manual that emphasizes that the Board utilizes the single fiduciary board model with an integrated investment and pension administration organization where the Board has authority, per its governing statute, for investments and pension administration and delegates its authorities through the Executive Director.
<b>Are all investment-related policy statements easily accessible by the plan members and the public?</b>	The IPS and IIP are available on the COAERS website.
<b>How often are board meetings? What are the primary topics of discussion? How much time, detail, and discussion are devoted to investment issues?</b>	The Board meets as needed, but at least five times a year, including a workshop. Time is allocated as needed. Meeting packets are provided in advance of scheduled meetings so that the Board has adequate time to review material in advance of meeting with the Executive Director or Chief Investment Officer as offered.
<b>Are meeting agendas and minutes available to the public? How detailed are the minutes?</b>	<p>Board agendas are available on the COAERS website. Agendas are thorough, including reviewing order and business and the establishment of meeting objectives, public comment, consent items including prior Board minutes, Committee reports, education and action items, Executive Director report, required and informational reporting, education opportunities, and, finally, a review of meeting takeaways and call for future agenda items. Over the last three years, Board meeting minutes were available on the website with the exception of two meetings.</p> <p>Beginning in 2021, Investment Committee minutes have been posted to the website in addition to agendas. We believe offering the public Investment Committee transparency is a best practice.</p>

## Investment Knowledge/Expertise

<b>What are the backgrounds of the board members?</b>	<p>COAERS is governed by an eleven-member Board comprised of:</p> <ul style="list-style-type: none"><li>• Three elected active City of Austin employees</li><li>• Two elected retired employees</li><li>• Two City Council-appointed citizens</li><li>• One Board-appointed citizen</li><li>• One City Manager designee</li></ul>
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- One Director of Finance of the City or designee
- One City Council member

Place	Type	Member	Date Appointed / Term Elected	Current Term	Title
1	City Council Member	Leslie Pool	2/15 – Appointed		
2	City Manager Designee	Diana Thomas	1/21 – Appointed		
3	City Council Appointed Citizen	Kelly Crook	8/21 – Appointed	1/21 – 12/24	
4	City Council Appointed Citizen	Dick Lavine	11/21 – Appointed	1/22 – 12/25	
5	Board Appointed Citizen	Michael Granof	12/21 – Appointed	1/22 – 12/25	
6	Active Elected Member	Brad Sinclair	12/20 – Elected	1/21 – 12/23	Vice Chair
7	Active Elected Member	Amy Hunter	12/19 – Elected	1/20 – 12/23	
8	Active Elected Member	Chris Noak	12/21 – Elected	1/22 – 12/25	
9	Active Elected Member	Yuejiao Liu	12/21 – Elected	1/22 – 12/25	Chair
10	Retired Elected Member	Michael Benson	12/20 – Elected	1/21 – 12/24	
11	Retired Elected Member	Anthony B. Ross, Sr	12/18 – Elected	1/23 – 12/26	

**What training is provided and/or required of new board members? How frequently are board members provided investment-related education?**

New Board members and administrators are required to receive a minimum of seven hours of training in core topic areas including governance, ethics investments, actuarial, benefits administration, and risk management. After the core training cycle ends, the Board members and administrators are required to complete a minimum of four hours of training every two years. This continuing education training can include core topics or non-core topics such as compliance, legal and regulatory, pension, accounting, custodial issues, plan administration, and Texas’ Open Meetings and Public Information Acts.

Board members receive investment-related education at the annual workshop and a majority of their regular meetings. In addition, the Executive Director provides a list of potential education opportunities at each Board meeting.

**What are the minimum ethics,**

Requirements are noted above. The Executive Director provides a report at least annually on the progress each

<p><b>governance, and investment education requirements? Have all board members satisfied these minimum requirements?</b></p>	<p>Trustee has made in meeting their training requirements. No exceptions were noted.</p>
<p><b>Does the system apply adequate policies and/or procedures to help ensure that all board members understand their fiduciary responsibilities?</b></p>	<p>Sections II and III of the IPS clearly describe fiduciary responsibility and conduct.</p>
<p><b>What is the investment management model (i.e. internal vs. external investment managers)? Does the board receive impartial investment advice and guidance?</b></p>	<p>Investment management is external. One of the Board’s Investment Beliefs in Section I of the IPS states that “Implementation should occur passively and in public markets unless a high likelihood of success on a risk-adjusted, net-of-fees basis can be expected from other approaches.” RVK is strictly a non-discretionary investment consulting firm. RVK is an independent, employee-owned firm with no conflicting lines of business.</p>
<p><b>How frequently is an RFP issued for investment consultant services?</b></p>	<p>There is no Investment Consultant RFP frequency requirement in the IPS or the IIP. We believe it is prudent to review service providers periodically. In addition, a documented procedure for periodic service provider RFPs (five to seven years) provides the Board with the opportunity to review the marketplace in order to confirm an existing provider or make a change.</p>

## Accountability

<p><b>How is the leadership of the board and committee(s), if any, selected?</b></p>	<p>The Board Chair is selected by the Board and is responsible for the committee assignment process.</p>
<p><b>Who is responsible for making decisions regarding investments, including manager selection and asset allocation? How is authority allocated between the full board, a portion of the board (e.g. an</b></p>	<p>The Board:</p> <ul style="list-style-type: none"> <li>• Has the fiduciary duty of overseeing the management of the Fund and the associated investment process. In fulfilling this responsibility, the Board will establish, maintain, and require compliance with this policy and its stated objectives.</li> <li>• Will select, retain, monitor, and evaluate the Investment Consultant, Investment Managers, Custodian, and</li> </ul>

**investment committee), and internal staff members and/or outside consultants? Does the IPS clearly outline this information? Is the board consistent in its use of this structure/delegation of authority?**

other parties to serve the goal that actual results meet the objectives.

- At its discretion, may delegate authority for strategic and operational aspects of the Fund to Investment Staff, though it may not delegate overall responsibility for the program.

The Investment Committee is chartered to assist the Board in fulfilling its fiduciary oversight responsibility for the management of the System's investments.

Duties of the Investment Committee may include, but are not limited to:

- Formulating and recommending to the Board the overall investment policies of the System;
- Establishing and recommending to the Board investment guidelines in furtherance of those policies, all of which shall be subject to approval by the Board;
- Monitoring investment performance relative to the strategic objectives and compliance with relevant investment risk guidelines set forth in policy; and
- Monitoring the management of the Fund for compliance with relevant investment policies and guidelines.

Managers are recommended by Investment Staff but approved by the Investment Committee and the Board.

The Board is consistent in its use of this structure and authority.

**Is the current governance structure striking a good balance between risk and efficiency? What controls are in place to ensure policies are being followed?**

Investment decisions are thoroughly vetted and reviewed by the Investment Committee and approved by the Board. Decisions are made prudently.

The following is a consistent outline for Investment Committee meeting objectives:

1. The Committee will review reports on investment performance including strategy, compliance, and delegation of authority.
2. The Committee will review the Investment Risk Framework.
3. The Committee will discuss and consider the Premier List for Global Equities with potential recommendations to the Board.
4. The Committee will review reports on an updated Asset/Liability Study following the passage of SB 1444.
5. The Committee will discuss and consider the Fund's strategic asset allocation through an updated Asset Allocation Study and related presentations with potential asset allocation recommendations to the Board.
6. The Committee will receive a report on the status of the general consultant RFP process.
7. In its oversight capacity, the Committee will review the custodial bank relationship.

<p><b>How is overall portfolio performance monitored by the board?</b></p>	<p>At least quarterly, the Investment Committee and Board review materials provided by the Board’s independent Investment Consultant and Investment Staff. The reports begin with compliance with the SAA and are followed by performance evaluation beginning with the total fund, then asset class composite performance, and finally performance for investment managers. Fees are also included in the materials. Investment Staff provides a thorough IPS compliance review. Investment Staff and the Investment Consultant provide the Investment Committee and Board with multiple monthly performance summaries and comprehensive quarterly performance reports to aid with the ongoing evaluation and monitoring of investment managers and the total fund.</p>
<p><b>How often are the investment governance processes reviewed for continued appropriateness?</b></p>	<p>The Board and the Investment Committee review the investment process at least annually when updating the IPS and the IIP.</p>

**Summary**

Based on our review of COAERS’ policies, the investment decision-making process for the System broadly reflects a comprehensive implementation of best practices. The governance structure under which COAERS operates indicates clarity regarding the delegation of authority to make and provide advice on investment decisions.

**Recommendations**

- 21. Regarding Delegation of Authority, we suggest the Board carefully review Recommendations 6, 7, and 9, which are addressed in Section I of this Evaluation.
- 22. Consider adopting and documenting a schedule for reviewing service providers, including a potential RFP after five to seven years.

## Section V – Review of the retirement fund's investment manager selection and monitoring process.

### Documents Reviewed

- ✓ Investment Policy Statement
- ✓ Investment Implementation Policies
- ✓ Investment Staff and Investment Consultant Presentations to the Investment Committee and Board

<b>Who is responsible for selecting investment managers?</b>	<p>The Board, with recommendation from the Investment Committee and advice from Investment Staff and Investment Consultant, is ultimately responsible for the selection, retention, monitoring, and evaluation of investment managers. The IPS states the following with respect to investment manager selection:</p> <ul style="list-style-type: none"><li>• “Within this framework, the Board will select, retain, monitor, and evaluate the Investment Consultant, Investment Managers, Custodian (as defined herein), and other parties to serve the goal that actual results meet the objectives.”</li><li>• “The Investment Committee is chartered to assist the Board of Trustees in fulfilling its fiduciary oversight responsibility for the management of the System’s investments.”</li><li>• “Investment Staff will also advise regarding the development of this policy and its implementation, and provide assistance in selection and monitoring of all Managers, Consultants, Custodians and other service providers related to the investment function.”</li><li>• “The CIO works closely with non-CIO Investment Staff and the Investment Consultant(s) to ensure that policies and procedures provide adequate controls to protect the integrity of the investment program, and oversees all investment processes including development, maintenance and modification of the System’s Investment Risk Framework, and the selection and oversight of Managers.”</li><li>• “A General Investment Consultant will assist the Board and Staff in manager selection and monitoring as needed, including informing the Board promptly of material changes to portfolio investments.”</li></ul>
<b>How are the managers identified as potential candidates? What are the selection criteria for including potential candidates? What are the selection criteria when deciding between multiple candidates?</b>	<p>Investment Staff and the Investment Consultant collaborate to source and identify potential candidates for the System's various asset classes. Potential investment managers, depending on the strategy and asset class, are sourced from multiple channels including universe screening through the Investment Consultant's proprietary databases; commercial databases; direct investment manager meetings; conferences and networking events; and other research.</p> <p>COAERS has a unique and disciplined approach to investment manager selection that differs from the traditional,</p>

industry-wide practice of investment consultant-led search process. The System takes a differentiated approach by creating a “Premier List” that includes several viable investment managers that have gone through an extended and rigorous due diligence process and have been approved by the Board for utilization as needed. These investment managers are regularly monitored and reviewed for continued fit within their respective asset classes.

According to the IIP, “The Board believes that developing long-term relationships with a small group of high potential managers allows for a more thoughtful and robust evaluation of potential candidates than starting each search from scratch. As such, the Investment Staff, in coordination with the Investment Consultant, will develop and maintain a ‘Premier List’ of 3-4 viable managers (including at least one passive index option, which for Multi-Asset shall include allocating back to the Fund) for potential inclusion within each sub-asset class of the Fund. Doing so is intended to allow for (1) ongoing competitive benchmarking of existing managers and (2) rapid, effective replacement of any Manager that may be deemed by the Board to no longer be able to accomplish its mandate(s), including an emergency termination by the Executive Director as described in this Policy.”

Potential managers are initially screened by Investment Staff and the Investment Consultant on objectives, investment style, and minimum stated performance metrics for fit within the asset class and overall investment program. Investment managers who pass the initial criteria for inclusion for a given asset class undergo initial due diligence. As the potential list of finalist investment managers is narrowed further, COAERS requires investment managers to complete a strategy-specific investment and Operational Due Diligence Questionnaire. Subsequent to the satisfactory outcome of quantitative and qualitative assessment, and review of organizational factors of investment managers/firms by both Investment Staff and Investment Consultant, onsite due diligence is conducted according to clearly stated ‘Onsite Diligence’ policies set forth in Appendix II of the IIP. According to the policy, the Chief Investment Officer and the Investment Consultant should be included in all onsite due diligence meetings.

Investment Staff, in collaboration with the Investment Consultant, then propose to the Investment Committee the inclusion of successful candidates to the Premier List for potential recommendation to the Board. The recommendation also includes target (neutral) and maximum allocation to each potential investment manager. Upon approval by the Board, the contracting process, including execution of contracts, side letters, and other agreements, takes place.

The Premier List for each asset class is periodically, but at least annually, presented and reviewed with the Investment Committee and the Board and includes proposals for any additions or removal from the list. Inclusion in the Premier List does not mean that an investment manager is funded at the time of approval or even in the future. The investment manager roster is maintained and monitored so that if a need arises, investment manager changes can be implemented right away.

**How does the selection process address ethical considerations and potential conflicts of interest for both**

Avoidance of conflicts of interest in conducting fiduciary duties and fulfilling the responsibilities of all involved parties is of utmost importance to COAERS. The IPS states that “the Board requires all Trustees and Staff involved in the investment of Fund assets to make all investment decisions in the best interest of the System and to abide by the System’s Ethics Policy. This Policy states that no covered person may solicit, accept, or agree to accept any gifts,

<p><b>investment managers and board members?</b></p>	<p>personal benefits, or personal favors offered to them because of their position with the System.”</p> <p>The IIP states that “In all cases, relationships with Managers should seek to mitigate agency problems and conflicts of interest that prevail in the financial services industry. Specifically, the use of performance-based contracts should be considered whenever possible. Conflicts of interest shall be disclosed at least annually or as required in accordance with the System’s Ethics Policy. The process for selecting, monitoring, and terminating Managers shall protect against improper and/or unethical behavior including bribery, corruption, and other contact between System representatives and Managers intended to influence the outcome inappropriately. Direct inquiries by Managers to individual Trustees regarding the System’s investment program will be referred to Investment Staff.”</p>
<p><b>Who is responsible for developing and/or reviewing investment consultant and/or manager contracts?</b></p>	<p>All investment manager contracts, side letters, other agreements, and service provider agreements are evaluated, reviewed, and finalized by the Executive Director, as delegated by the Board, in consultation with the General and/or Investment Counsel.</p>
<p><b>What is the process for monitoring individual and overall fund performance? Who is responsible for measuring the performance? What types of performance evaluation reports are provided to the board? Are they provided in a digestible format accessible to trustees with differing levels of investment knowledge/expertise? How frequently is net-of-fee and gross-of-fee investment manager performance reviewed? Is net-of-fee and gross-of-fee manager performance compared against benchmarks and/or peers?</b></p>	<p>The IPS and IIP both provide guidance about monitoring and evaluating individual investment managers and the overall fund. The IPS states that “Regular performance evaluation of the Fund by the Board is designed to monitor the effectiveness of the investment process in meeting the long-term objectives of the System. The purpose is to test the continued validity of the associated decisions and to prompt a review of underperformance or excessive risk. All performance measurement should be based on total returns, net of fees, adjusted for risk, as measured over a sufficient time period, to reflect the benefits of any active decisions (typically a minimum of three years and preferably over five or more years and/or a full market cycle).”</p> <p>Investment Staff and the Investment Consultant provide the Investment Committee and the Board with multiple monthly performance summaries and comprehensive quarterly performance reports to aid with the ongoing evaluation and monitoring of investment managers and the total fund. The reports provided to the Board are detailed but comprehensible for Trustees with differing levels of investment knowledge/expertise.</p> <p>The Investment Consultant provides the following regular reports:</p> <ol style="list-style-type: none"> <li>1. Summary of Fund Performance/Executive Summary <ol style="list-style-type: none"> <li>a. Total fund and asset class performance against benchmarks and peers, as applicable</li> <li>b. Risk metrics</li> <li>c. Asset allocation and allocations vs. policy targets</li> <li>d. Asset growth summary</li> <li>e. Schedule of investable assets</li> </ol> </li> </ol>

2. Quarterly Investment Performance Analysis
  - a. Additional details on the metrics provided in the Summary Report
  - b. Attribution by investment manager
3. Capital Markets Review

Investment Staff provide the following regular reports including ad-hoc reports based on the most relevant topics facing the System:

1. Investment Strategy Dashboard
  - a. Net and gross-of-fee return relative to actuarial rate of return, reference portfolio, policy index, peers, other investment goals, and risk budget
2. Investment Compliance Dashboard
  - a. Investment Strategy
  - b. Asset Diversification
  - c. Liquidity
  - d. Leverage
  - e. Counterparty Management
3. Report on Status of Delegated Authority and Policy Deviations
4. Investment Operations Cash Activity Detail

Additionally, the IIP outlines the items that need to be included in the quarterly and annual reports presented to the Board, via the Investment Committee, for comprehensive and detailed quantitative analysis, and for qualitative and operational assessment of investment managers to assist in the ongoing monitoring related to investment manager retention and/or termination.

Investment Staff and the Investment Consultant, in collaboration or separately, also regularly review, receive updates, and conduct periodic calls/meetings/due diligence to ensure consistency of strategy, compliance with applicable guidelines, as well as general firm and market updates.

COAERS also requires investment managers to provide quarterly and annual reporting in compliance with guidelines set forth in 'Reporting Requirements for Investment Managers' in Appendix III of the IIP. These are designed to provide comprehensive quantitative and qualitative updates of the investment managers/firms with specific reporting requirements by investment vehicle and asset class.



**What benchmarks are used to evaluate performance?**

The benchmarks utilized to evaluate investment managers in their respective asset classes as of December 31, 2022, are:

1. Global Equity Benchmark - MSCI ACW IM Index (USD) (Net)
2. US Equity Benchmark - MSCI USA (Net)
3. Developed Market Equity Benchmark - MSCI World Ex US Index (USD) (Net)
4. Emerging Market Equity Benchmark - Emerging Markets Index (USD) (Net)
5. Real Assets Benchmark - 34% S&P Global Infrastructure Index (Net) and 66% FTSE NAREIT Eq REITs Index (TR)
6. Real Estate Equity Benchmark: FTSE NAREIT Eq REITs Index (TR)
7. Infrastructure Equity Benchmark - S&P Global Infrastructure Index (Net)
8. Global Fixed Income Benchmark - Bloomberg Global Aggregate Bond Index
9. US Treasuries Benchmark - Bloomberg US Treasury Index
10. US Mortgages Benchmark - Bloomberg US MBS Index (Unhedged)
11. US Credit Benchmark - Bloomberg US Credit Index
12. Multi-Asset Benchmark - 60% MSCI ACW Index (USD) (Net) / 40% Bloomberg Global Aggregate Bond Index
13. Commodities & Other Benchmark - Bloomberg Commodity Index (TR)
14. Cash & Equivalents Benchmark - Bloomberg US T-Bills 1-3 Mo Index

The benchmarks utilized to evaluate the total fund as of December 31, 2022, are:

1. Policy Benchmark - 56% MSCI ACW IM Index (USD) (Net), 10% FTSE NAREIT Eq REITs Index (TR), 5% S&P Global Infrastructure Index (Net), 21% Bloomberg Global Agg Bond Index, 7% Multi-Asset Benchmark, and 1% Bloomberg US T-Bills 1-3 Mo Index.
2. Passive Benchmark - 60% MSCI ACW Index (USD) (Net) / 40% Bloomberg Global Agg Bond Index

**What is the process for determining when an investment manager should be replaced?**

The 'Retention' section of the IIP states that "Investment Staff shall maintain a Manager Watch List for the purpose of ensuring that concerns regarding any Manager with a live mandate are appropriately recognized, addressed and resolved. At the discretion of the CIO based on written internal procedures and in consultation with the Investment Consultant, a Manager may be included on the Manager Watch List. The contents of this list will be reported to the Investment Committee at each regular meeting. Performance for each of these Managers will be subject to additional

scrutiny until either (1) the Investment Staff removes the Manager from the Watch List, or (2) a recommendation to terminate the mandate(s) assigned to the Manager and/or remove the Manager from the Premier List is made to the Board via the Investment Committee.”

Decisions to place an investment manager on watch or terminate them are made on a case-by-case basis. Though performance and other quantitative factors are important determinants, several other factors may also contribute to Investment Staff and the Investment Consultant recommending to place an investment manager on watch or terminate. Per the IIP, these can include, but are not limited to:

- “Significant changes in firm ownership and/or structure,
- Loss of one or more key personnel,
- Significant loss of clients and/or assets under management,
- Shifts in the firm’s philosophy or process,
- Lack of adherence to best execution policies,
- Significant and persistent lack of responsiveness to client requests,
- Chronic violations of the IPS or guidelines, or
- Any other materials issue of which Investment Staff and/or Consultant become aware.”

**How is individual performance evaluation integrated with other investment decisions such as asset allocation and investment risk decisions?**

Individual investment manager performance directly impacts total fund performance. Investment decisions regarding the structuring of the investment program, asset classes, and allocations based on the System’s return objectives, risk budgets, liquidity constraints, and other considerations are all related and integrated.

## Overall Comment

COAERS has a robust system for investment manager selection, evaluation and monitoring. The Premier List approach is unique to public pension funds and in our judgment can be an effective approach to structuring the process of investment manager review and selection. But, as with all approaches, it has its pros and cons.

The pros include (1) having a pre-vetted list of investment managers on deck and ready to fund if a change is necessary, and (2) continuously monitoring investment managers on the Premier List even when they are not funded expands the range of ongoing vision of Investment Staff and the Investment Consultant for opportunities beyond those funded and utilized in the Fund.

The cons include (1) the Premier List will not work well if vetted but not-currently-funded investment managers are not monitored as rigorously as the funded investment managers, or if the review does not periodically expand beyond the current list for possible new inclusions, and (2) the Premier List is actually an active construct and it could become an asset class structure issue; the most important observation we can offer is that the Premier List by itself is not a replacement for deliberate and thoughtful structure of asset class mandates.

From our review of Investment Committee and Board reporting packets, we have observed that the System's performance reporting and ongoing monitoring of investment managers are comprehensive and considered best practice in reporting and monitoring.

## Recommendations

23. Consider adding language for the investment manager selection process for private market asset classes.
24. Consider updating investment manager reporting requirements for metrics and data that are relevant to private asset class managers.

## Section VI – Review of COAERS’ internal proxy voting policies and procedures.

### Documents Reviewed

- ✓ Investment Policy Statements
- ✓ Investment Implementation Policy
- ✓ COAERS Governance Manual
- ✓ Investment Committee Charter

### Overall Comment

The Board and the System’s fiduciaries including their Investment Managers are required to vote proxies solely in the best interest of the System’s members and beneficiaries. As fiduciaries, and as stated in Section III of the IPS, the Board must act with the care, skill, prudence, and diligence under the circumstances then prevailing that a prudent person acting in a similar capacity and familiar with those matters would use in the conduct of a similar enterprise with similar aims.

The execution of proxy-voting rights at shareholder meetings is a required duty of System fiduciaries. The US Department of Labor has stated that the fiduciary act of managing fund assets that are shares of corporate stock includes the voting of proxies appurtenant to those shares of stock and that a board may delegate this duty to an investment manager. Acknowledging that the System is not directly subject to the Employee Retirement Income Security Act of 1974 (ERISA), most public pension plans do generally comply with the position set forth by the US Department of Labor in 1988 with regard to the fiduciary responsibilities governing the voting of shares of stock owned by the plan.

Given this background, we believe COAERS’ proxy voting policies and procedures as stated in Section XII of the IIP are appropriate for delegating proxy voting to each Investment manager and documented in the individual contracts. Section XII allows flexibility for the Board to revoke its delegation and provides a process for monitoring and reporting by Investment Staff through the Executive Director.

## Section VII – Recommendations to align with best-in-class investment management program.

RVK serves over 200 full-retainer and project clients and we can safely say that the COAERS Board and Staff are running a pretty tight ship but there is always room to consider some improvements if they fit with the Board’s goals, objectives, and Investment Beliefs. We submit the following:

### Section I

See Page 19

1. The power to designate the institutions and individuals who hold the responsibilities, as described in Section II, is a critical aspect of clarifying the ownership of both governance authority and the fulfillment of fiduciary responsibility. COAERS should consider noting the process by which these responsibilities are assigned and periodically reviewed.
2. Asset/Liability Studies are the only standard analysis that fully links all three aspects of the System’s investment policy, contribution policy, and benefit policy, providing a means to examine how well different investment strategies (differing asset allocations) address the objectives served by the Fund. We believe Asset/Liability merits either its own Section in the IPS or to be added to Section V preceding any discussion of Strategic Asset Allocation.
3. Consider removing the specificity of sub-asset class structure from the Policy Benchmark in Section VII of the IPS and make it part of a routine asset class structure discussion. For example, the Policy Benchmark specifies the benchmark index for fixed income as the Bloomberg Global Aggregate Bond TR, yet each of the sub-asset classes under fixed income are US (US Treasuries, US Mortgages, and US Credit). This appears quite granular and could inhibit broader thinking about the structure of the fixed income asset class as conditions warrant.
4. We understand that one of the Board’s Investment Beliefs is that “implementation should occur passively and in public markets unless a high likelihood of success on a risk-adjusted, net-of-fees basis can be expected from other approaches.” We also understand that the “[Policy] benchmark is intended to reflect a passive implementation of the neutral weights established by the Board during the SAA process.” However, we suggest the Board consider reviewing their Policy Benchmarks, targeting alignment with actual mandates. For example, close to 60% of the real estate composite is a private core real estate fund which is a mismatch with the Policy Benchmark for Real Estate which is the FTSE NAREIT Equity REITS TR, a publicly traded index. This will become more evident as the System moves into additional private asset classes.
5. Consider adding a subsection in Section II for Investment Counsel since the position is referenced within the IIP.
6. With the understanding that the Board may delegate authority for strategic and operational aspects of the Fund to Staff, consider adding clarity to the degree of delegation by the Board to its Investment Committee and Staff in Section II – Responsibilities of the IPS. Although clarity for the degree of delegation may be stated later in the IPS or the IIP, we believe it is important to lay it out upfront when addressing the responsibilities of

fiduciaries to the System.

7. Consider including the Investment Committee, its role, responsibilities, and any authority held independent of the Board as a whole as its own subsection of Section II. We understand the Investment Committee is a subset of the Board; however, best practice would give the Investment Committee a strong advisory role to vet and recommend to the Board, so actions requiring Board approval can be addressed as a consent item or a motion based on an Investment Committee written summary of the process taken.
8. Regarding the discussion currently in Section V of the IPS of A/L Studies and its importance (as noted above) and the query below regarding clarity, we do find the treatment of A/L in the IPS merits review. The IPS currently states that an A/L Study determines as one of its objectives the “maximum and minimum ranges (Rebalancing Ranges)” around the SAA targets. Having a rebalancing policy and process is a best practice in our view. And COAERS has adopted both. But while rebalancing policy and process should be informed by the risk target set for the total fund in an A/L Study, its design also reflects a host of other considerations related more to asset class liquidity, transaction costs, and more. We suggest that the implied link between A/L Studies and rebalancing in the IPS be reconsidered. Indeed, if it were eliminated, we do not think it would in any way reduce the robustness of the IPS.
9. As addressed in Recommendations 6 and 7, add clarity to the degree of delegation by the Board to its Investment Committee, and to Investment Staff in the Section II – Responsibilities of the IPS. Although clarity for the degree of delegation may be stated later in the IPS or in the IIP, we believe in the importance of laying it out upfront when addressing the responsibilities of fiduciaries to the System. If the work of the Investment Committee is not distinctive from and additive to the Board’s final decisions and ongoing monitoring, its contribution is debatable.
10. While we believe the inclusion of these evaluation metrics (benchmark indices, peer universes, and tracking error budgets) in the Premier List guidelines is fully sufficient given the annual review process and the use of these benchmarks in the Investment Consultant’s quarterly performance reports, COAERS might consider adding investment manager benchmarks to the IPS or reference in the IPS their inclusion in the Premier List, particularly for any investment manager actually implementing a funded “active” mandate (note: investment managers may be selected for inclusion in the Premier List but not necessarily be awarded funds to manage at any given point in time).
11. We strongly suggest the Board remove performance relative to peers as a specific objective/benchmark for the System. First, peer comparison offers little, indeed almost no, information about whether the fund is achieving its core mission—funding benefits for COAERS plan participants. Second, COAERS is unique with its own contribution policy, benefit structure, assumed rate of return, cash flow, size, objectives, etc. In our view, these differentiators render the very notion of “peers” questionable, and while a group of public funds can be assembled with somewhat more “peer-like” attributes, it will likely be a small universe that is far from

statistically robust. The Board's Investment Consultant can and should continue to provide the COAERS Board with peer comparisons of this data, as it is prudent to at least remain generally aware of the performance other funds deliver.

## Section II

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12. Consider removing 10 – 12% risk targets for the portfolio/adding metrics that more directly align with the Asset/Liability Study and the goals of the portfolio.

Setting a range of acceptable risk via monitoring long-term standard deviation helps measure whether realized risk is favorable versus peers, but is not, in isolation, a good proxy for the alignment of risk relative to the stated goals of the portfolio.

Target risk is set based on the liabilities of the System, which can vary meaningfully from other plans with different liability profiles. Therefore, selecting a realized risk metric—or better yet, a set of metrics considered in combination—that bounds the desired outcome of the Asset/Liability Study may be a better proxy for success.

The introduction of private investments may add additional difficulties in measuring the true risk of the portfolio through standard deviation alone due to smoothing effects and should be taken into consideration.

13. Consider setting capacity/risk contribution constraints in place of 4% dollar-weight constraints for sub-asset class thresholds:

There is currently an exception to the 4% rule in place for commodities. The exception suggests there may be better variables to consider than the dollar weight of a sub-asset class.

Commodities exhibit a higher level of volatility and have capacity constraints that warrant consideration—even below a 4% allocation. As such, reframing the inclusion criteria around a measurement such as ex-ante risk contribution may be a more direct way to evaluate sub-asset class inclusion while avoiding the need to create exceptions.

14. Consider consolidating explanations for how sub-asset class tactical and strategic sub-asset class ranges are set:

The independent Investment Consultant currently works with Investment Staff to determine target weights allocated to each sub-asset class. The ranges are stated to be based on the volatility of the asset class relative to the proportion of the fund allocated to each. This explanation aligns with the IPS policy set forth in Section V (Asset Allocation) within the “Rebalancing” subsection—particularly the last sentence of the first paragraph.

The IPS separately states that the rebalancing ranges are defined as reflecting 2nd – 3rd quartile allocations of peers for tactical ranges and 1st – 4th quartile of peer allocations for strategic ranges. This policy is set forth in the IPS guidelines under Section V (Asset Allocation) within the “Asset Class Diversification” subsection and

is detailed within the two bullet points on pages 13 – 14.

We are not convinced that the behavior of peers is a good guide to setting strategic and tactical ranges that appropriately reflect the specific circumstances in place at COAERS and explored in the regular Asset/Liability Studies. COAERS should reconsider the role of peer data in setting these ranges and instead focus more on asset volatility data combined with stress tests based on varying inter-asset class correlations.

15. Consider revisiting tracking error targets:

Some asset classes have fallen short of tracking error targets over the last ten years, particularly within developed international and emerging markets.

If these targets are still desired, more active management or active structuring decisions by Investment Staff may be appropriate. If lower tracking error is preferred, a revision of tracking error targets may be warranted.

16. Consider reaffirming Investment Staff's authority to execute rebalancing decisions—without Board approval—should circumstances require such action.

While the IPS delegates authority to Investment Staff for rebalancing within the tactical ranges, our review indicates to date that Investment Staff have consistently sought permission from the Board anyway. We observe that, so long as obtaining this approval does not impede the achievement of the objectives sought by providing the Investment Staff with delegated authority, doing so is fine. If the record to date suggests that there are no circumstances in which that delegated authority would be exercised by Investment Staff and reported to the Board promptly after the fact, the latitude it provides and the results obtained may be limited.

17. Consider adding a separate section for the selection and evaluation of private equity and private credit mandates, if implemented. Reporting and benchmarking of private investments should also be added.

### Section III

See Page 46

18. Continue to utilize passive management in asset classes with higher efficiency.

19. Consider adding a section on management and control of investment management and service provider cost in the IPS or IIP.

20. Consider adding a periodic frequency for conducting plan fee reviews similar to the minimum frequency noted in the IPS for Asset/Liability Studies and Asset Allocation Studies.

### Section IV

See Page 53

21. Regarding Delegation of Authority, we suggest the Board carefully review Recommendations 6, 7, and 9, which are addressed in Section I of this Evaluation.

22. Consider adopting and documenting a schedule for reviewing service providers, including a potential RFP after



five to seven years.

## Section V

See Page 60

23. Consider adding language for the investment manager selection process for private market asset classes.
24. Consider updating investment manager reporting requirements for metrics and data that are relevant to private asset class managers.

## Section VIII – An analysis of COAERS’ implementation of the recommendations presented in the 2020 review performed by RVK.

### Documents Reviewed

- ✓ 2020 COAERS Evaluation of Investment Practices

### 2020 IPPE Recommendations

Recommendations presented in the 2020 IPPE report were addressed during the November 2020 Investment Committee meeting. The Board then approved the changes outlined below during their December 2020 meeting. The following table outlines the impacted sections, recommendations from the 2020 IPPE report, and ultimate resolutions adopted by the Board.

Section	Recommendation	Resolution
<b>Investment Asset Allocation</b>	Consider policy language defining a reporting process for less liquid and illiquid investments.	Ongoing work due to further allocation to private markets is pending.
<b>Investment Manager Selection and Monitoring</b>	Consider the addition of a formal investment manager review policy with a more specific timeframe.	Adopted a rolling review of investment managers on Premier List by asset class. Investment Consultant provides investment manager write-ups.
<b>Investment Manager Selection and Monitoring</b>	Consider verbiage edits to the Watch List.	Adopted suggested verbiage edits within the IIP.
<b>Investment Manager Selection and Monitoring</b>	Consider clarifying language regarding reporting for investment managers with “live” mandates vs. those currently on the Premier List.	Resolved: Investment manager requirements for “live” mandates are now separate from those without active mandates.
<b>Investment Manager Selection and Monitoring</b>	Consider the addition of performance metrics for non-public securities and/or vehicles.	Ongoing: Will need to consider different performance metrics for private investments versus public investments.

# Appendix

## Adherence to Investment Policy

	IPS Measurement	Metric	Monitored? Yes/No	Report	Comments
Risk	Risk Level Targeted at Total Fund	10-12%	Yes	COAERS Investment Strategy Dashboard	May warrant revisiting with the introduction of private markets.
	Market Risk Versus Peers	2nd-3rd quartile	Yes	RVK Quarterly Performance Report	
	Total Fund Tracking Error	150-300 bps	Yes	RVK Quarterly Performance Report	Tracking error from marketable indices could be swapped for indices more closely tracking less-liquid mandates.
	US Equity T.E.	200-500 bps	Yes	ibid	
	Developed Market Equity T.E.	400-700 bps	Yes	ibid	Realized tracking error averaged below target for much of last 10 years. May warrant reaffirming targets or asset class structure.
	Emerging Market Equity T.E.	500-800 bps	Yes	ibid	Realized tracking error averaged below target for much of last 10 years. May warrant reaffirming targets or asset class structure.
	Fixed Income T.E.	150-300 bps	Yes	ibid	
	Real Assets T.E.	350-500 bps	No*	ibid	*Realized tracking error provided for real estate and infrastructure separately. The Investment Consultant can provide for total real assets once there is enough history in the composite.
	Multi-Assets T.E.	300-600 bps	Yes	ibid	
Asset Allocation	CMA assumptions match liability duration	10+ years	Yes	RVK Asset Allocation Study	RVK estimates are produced over a 10- to 20-year horizon.
	Minimum and Maximum ranges, per asset class	Strategic/Tactical %	Yes	COAERS Investment Strategy Dashboard	
	Minimum allocation before consideration for inclusion in Asset Allocation	Max. weight target of at least 4%	Yes	ibid	IPS makes exceptions for Cash Equivalents and Commodities. May consider risk contribution/capacity-based language to eliminate the need for such exceptions.

## Adherence to Investment Policy (Cont.)

	IPS Measurement	Metric	Monitored? Yes/No	Report	Comments
Operational Guidelines	Max weight of one corporation in portfolio	3%	Yes	COAERS Investment Strategy Dashboard	
	Max weight of one voting class in portfolio	5%	Yes	ibid	
	Max weight of one investment vehicle in portfolio	20%	Yes	ibid	
	Custodian and Futures Commission Merchants credit rating	A+	Yes	ibid	
	Securities lending agent's Tier 1 and Capital Ratio	7% & 10%, respectively	Yes	COAERS Investment Strategy Dashboard (non-public version)	COAERS does not currently engage in securities lending.
	Securities lending cash collateral	102% for domestic 105% for international	Yes	ibid	COAERS does not currently engage in securities lending.
Reporting	Performance based on Total Return, Net of Fees, and Adjusted for Risk	NA	Yes	RVK Quarterly Performance Report	
	Performance summary periodicity	Quarterly	Yes	ibid	
	Is the fund meeting long-term targets	Net Return-Actuarially ARoR	Yes	COAERS Investment Strategy Dashboard	
	Is risk within budget	10-12%	Yes	ibid	May warrant revisiting with the introduction of private markets
	Risk measurements	Standard deviation, VaR, Drawdown	Yes*	ibid	*Provided by Investment Consultant via Investment Staff presentations, but not presented to Board directly in recent deliverables, per Investment Consultant.
	Long-term Sharpe Ratio	0.5	Yes	ibid	
	Forward-looking measurements	Scenario Analysis, Stress Testing	Yes	ibid	Deterministic and Stochastic modeling, plus non-normal distribution assumptions.
	Active Strategy Information Ratio	0.5	Yes	RVK Quarterly Performance Report	

## Investment Managers and Management Fees as of December 31, 2022

Asset Class	Fund	Peer Group	Universe Median Fee (%)	Fee Rank	Size of Universe
<b>US Equity</b>	BNYM Dynamic US Eq. NL (SA)	Active Large Cap Core (SA)	0.44%	26	337
	BNYM SciBeta US Max Decorr. (SA)	US Smart Beta (SA)	0.30%	17	88
	TOBAM Max Div. USA (SA)	US Smart Beta (SA)	0.30%	31	88
	L&G MSCI USA Index (CIT)	Passive US Large Cap (CF)	0.04%	28	54
	SSGA MSCI USA EW Index (SA)	US Smart Beta (SA)	0.29%	7	88
	SSGA MSCI USA SC Index (CF)	Passive US Small Cap (CF)	0.05%	39	26
	NISA S&P 500 Futures (SA)	Passive US Large Cap (SA)	0.07%	41	71
	L&G SciBeta Inflation Plus (SA)	US Smart Beta (SA)	0.34%	2	88
<b>Developed Market Equity</b>	Walter Scott DM Int'l Equity (SA)	EAFE Large Cap (SA)	0.52%	17	172
	1607 Capital Partners Int'l Eq. EAFE (SA)	EAFE Large Cap (SA)	0.55%	5	172
	BNYM DB Dynamic Glb Ex US Eq (CF)	ACWI ex US Large Cap (CF)	0.70%	1	52
	NISA EAFE Futures (SA)	Passive EAFE (SA)	0.12%	1	22
	NT MSCI World Ex US Small Cap Index (CF)	Passive EAFE (CF)	0.10%	1	18
	NISA FX Hedged EAFE Future (SA)	Passive EAFE (SA)	0.12%	1	22
<b>Emerging Markets Equity</b>	Baillie Gifford EM Equity Class 3 (MF)	Global EM (MF)	0.95%	28	231
	L&G MSCI EM Index (CIT)	Passive EM (CF)	0.15%	11	15
	NISA EM Futures (SA)	Passive EM (SA)	0.20%	1	16
<b>Real Estate</b>	Fidelity US REITs Completion Index (SA)	US REIT (SA)	0.60%	1	59
	Agincourt FTSE NAREIT Eq. REITs Index (SA)	US REIT (SA)	0.70%	1	59
<b>Infrastructure</b>	Fidelity DJ Brookfield Infra. Index (SA)	Infrastructure (SA)	0.71%	1	50
<b>Commodities</b>	NISA Gold Futures (SA)	Natural Resources	0.78%	1	30
<b>US Treasuries</b>	Agincourt 1-3 Year Treasury (SA)	US Passive Fixed Income (SA)	0.06%	15	75
	Agincourt 1-5 Yr US TIPS (SA)	US Passive Fixed Income (SA)	0.08%	2	75
	NISA 30 Year Treasury Futures (SA)	US Long Duration - Government Fixed Income (SA)	0.10%	7	3
	Hoisington Macro US Treasuries (SA)	eVestment US Government Fixed Income (SA)	0.25%	92	15
<b>US Mortgages</b>	DoubleLine MBS (SA)	US Securitized Fixed Income – Mortgage (SA)	0.25%	20	56
<b>US Credit</b>	PGIM US IG Corp. Bond (CIT)	US Corporate Fixed Income (CF)	0.24%	57	13

Asset Class	Fund	Peer Group	Universe Median Fee (%)	Fee Rank	Size of Universe
<b>Asset Allocation</b>	Agincourt Passive Index (SA)	All Global Balanced/TAA (SA)	0.57%	2	157
<b>US Dollar/Other Currency Instruments</b>	Agincourt 1-3 Month Treasury (SA)	US Enhanced Cash Management (SA)	0.15%	1	73
	Mellon Government STIF (CF)	US Enhanced Cash Management (CF)	0.15%	1	73
	COAERS USD (SA)		N/A	N/A	N/A
	BNYM Money Market Fund (SA)	Cash Management (SA)	0.12%	1	40
	NISA Cash and Carry (SA)	Natural Resources	0.76%	4	30
	NISA ST Sovereigns (SA)	US Enhanced Cash Management (SA)	0.15%	1	73

## RVK Team Biographies



### **Jim Voytko – President, Director of Research, Senior Consultant, Principal**

Located in our Portland office, Jim serves as President, Director of Research, and as a Senior Consultant with RVK. He joined the firm in 2004 and has over 40 years of industry experience. As a Senior Consultant, Jim has worked with both public and corporate pension plans, foundations and endowments, and insurance funds.

A sought-after public speaker, Jim has delivered original presentations on various topics at numerous institutional investment conferences. He is involved in multiple aspects of RVK's specialty consulting practices, most notably Asset/Liability studies and Board governance/investment program structural reviews. Jim's research responsibilities are focused primarily on capital markets issues and investment decision-making. He has also provided testimony on pension, investment, and financial issues to multiple state legislatures and the US Senate as well as participated in drafting legislation at both the state and federal level.

Prior to joining RVK, Jim served as the CEO/Executive Director of Oregon's statewide pension system for all employees of state and local governments, police and fire, teachers and higher education, statewide retiree health care insurance program, and statewide 457 deferred compensation program. He also served on the five-member Oregon Investment Committee, which directed the investment of all statewide funds totaling approximately \$45 billion.

Jim's experience also includes serving as Director of Research for PaineWebber, CIO and Managing Director of PNC Asset Management Group/PNC Advisors, and the Deputy Director and Chief Operating Officer of PaineWebber's Investment Banking Division. Jim earned his BA degree from Carnegie Mellon University, a Master of Public Administration degree from the University of Washington, and Master of Public Policy degree from Harvard University. Jim is a shareholder of the firm and serves on the firm's Board of Directors.



### **Marcia Beard – Senior Consultant, Principal**

Marcia is a Senior Consultant with RVK and is located in our Portland office. She joined the firm in 1996 and has over 40 years of experience in the investment consulting and asset management industry.

As a Consultant, Marcia has extensive experience working with government entities, and endowments and foundations. Her experience includes developing investment policy statements, formulating asset allocations, developing, and implementing asset class manager structure, conducting manager searches, performance attribution and monitoring, and ongoing investment manager due diligence. In addition, Marcia is co-lead of RVK's Investment Program Review Practice.

Prior to joining RVK, Marcia worked at US Bank, Oregon Bank and US National Bank in Illinois. Marcia graduated cum laude from the University of Illinois, earning a BS degree in Agriculture Economics. She is a shareholder of the firm.



**Samia Khan, CFA – Consultant**

Samia is a Consultant located in our New York office. She has 15 years of institutional investment experience and serves a diverse client base, including defined benefit and defined contribution plan sponsors, as well as endowments & foundations. Her responsibilities include asset allocation, investment manager research, portfolio structuring, risk analyses, and client education presentations.

Prior to joining RVK, Samia worked as Senior Manager of Investment Management at PricewaterhouseCoopers (PwC), LLP. Her role involved overseeing \$16B of retirement assets of the staff and partners of PwC and managing relationships with all associated external and internal parties including the custodian bank, DC recordkeeper, legal counsel, actuary, investment consultants, and asset managers.

Samia received her BA degree in Economics and Mathematics from Bryn Mawr College. Additionally, she is a CFA Charterholder and a member of the CFA Society of New York.



**Blake Curtis – Associate Consultant**

Blake joined RVK in 2023 and is an Associate Consultant based in Los Angeles, California, supported by our Portland Office. He serves a diverse client base, including public and corporate pensions, endowments, foundations, insurance portfolios, and defined contribution plans. As a member of our consulting team, he works on a variety of projects including asset allocation studies, manager structure analyses, investment manager evaluation, client education presentations, and portfolio rebalancing.

Prior to RVK, Blake served as a Senior Associate at Wilshire. His role involved working with defined contribution plans, endowments, and public/private pension plans. Additionally, he worked with the Head of Sustainable Investments to develop portfolio carbon analysis reporting and integrate with major data vendors. He served as Secretary of a Strategic Committee focused on ESG as an investment framework.

Blake graduated from California State University, Northridge with a BS in Finance.

**Jessica Goodall – Senior Executive Assistant**

Jessica joined RVK in 2018 as a Senior Executive Assistant. She has over a decade of administrative experience, with recent roles including Writer & Special Projects Assistant to the executives of Carondelet Health Network and Executive Assistant to the VP of Human Resources at Harvard University.

Jessica holds a Master of Arts in Professional Writing from New England College as well as a BA in English from Central Washington University.

**Alexandra Goroch – Senior Administrative Assistant**

Alexandra joined RVK in 2021 as a Senior Administrative Assistant. She has over two decades of administrative and teaching/training experience.

Alexandra holds a Master of Arts in Secondary Education/English Language Arts as well as a Bachelor of Arts in French.





**Jonathan Kowolik – Senior Consultant, Head of IOSG, Principal**

Jonathan is a Senior Consultant with RVK and is located in our New York office. He joined RVK in 2001 and serves as the practice leader for the RVK Investment Operations Solutions Group (IOSG).

The IOSG has primary responsibility for providing project consulting and research including search and evaluation projects for trust/custody providers, recordkeepers, securities lending programs, transition management, and other operational consulting projects. Jonathan and the IOSG also provide support to RVK's Defined Contribution Solutions Group (DCSG) on matters related to DC Plan Operations including Recordkeeping Evaluation, Monitoring and Search activities.

Jonathan serves as a dedicated resource to many of the firm's largest client relationships while also holding a consulting and advisory role within the general RVK consulting organization. He earned his BS degree in Economics with dual concentrations in Management and

Finance from the Wharton School at the University of Pennsylvania. He is a shareholder of the firm.