Arthur J. Gallagher & Co.
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September 18, 2015

Independent Operational Review of the Public Safety Personnel Retirement System (the System) Investment Strategies, Alternative Asset Investment Procedures, and Fees Paid to External Investment Managers

Submitted To:
Debra Davenport, Auditor General
Office of the Auditor General
State of Arizona
2910 North 44th Street Suite 410
Phoenix, Arizona 85018

Submitted By:
Gallagher Fiduciary Advisors, LLC
a subsidiary of Arthur J. Gallagher & Co.
3600 American Blvd W, Suite 500
Bloomington, MN 55431

DEBRA K. DAVENPORT, CPA
AUDITOR GENERAL

STATE OF ARIZONA
OFFICE OF THE
AUDITOR GENERAL

MELANIE M. CHESNEY
DEPUTY AUDITOR GENERAL

September 18, 2015

Members of the Arizona Legislature

The Honorable Doug Ducey, Governor

Mr. Jared Smout, Administrator
Public Safety Personnel Retirement System

Transmitted herewith is an *Independent Operational Review of the Public Safety Personnel Retirement System's Investment Strategies, Alternative Asset Investment Procedures, and Fees Paid to External Investment Managers*. This independent operational review was conducted by Gallagher Fiduciary Advisors, LLC, a subsidiary of Arthur J. Gallagher & Co., under contract with the Office of the Auditor General and as part of the sunset review process prescribed in Arizona Revised Statutes §41-2951 et seq.

As outlined in its response, the Public Safety Personnel Retirement System agrees with all of the findings and plans to implement all of the recommendations.

Sincerely,

Debbie Davenport
Auditor General

Attachment

cc: Public Safety Personnel Retirement System Board of Trustees

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Arthur J. Gallagher & Co.

September 18, 2015

Ms. Debra Davenport
Auditor General
Arizona Office of the Auditor General
2910 North 44th Street Suite 410
Phoenix, Arizona 85018

Dear Ms. Davenport:

Gallagher Fiduciary Advisors, LLC (Gallagher) is pleased to submit our final report for the Independent Operational Review of the Public Safety Personnel Retirement System (the System) Investment Strategies, Alternative Asset Investment Procedures, and Fees Paid to External Investment Managers. This report was prescribed as part of the sunset review process in the Arizona Revised Statues §41-2951 et seq.

If you have any questions, please do not hesitate to contact me.

Sincerely,

Mark Melnychuk | Area Vice President
Joseph Karpinski | Area Executive Vice President
Barbra Byington | Area Senior Vice President
Mangala Murphy | Area Assistant Vice President
Craig Morton | Area Assistant Vice President
Julianne Wenzlick | Client Relationship Consultant

Attachments

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Introduction

Project Scope

Arthur J. Gallagher & Co. ("Gallagher") has been retained by the Office of the Auditor General (Office) for the State of Arizona to conduct performance audit work as part of the Office's performance audit and sunset review of the Public Safety Personnel Retirement System ("the System"). The focus of Gallagher's work includes a review of the agency's investment strategies, alternative asset investment procedures, and fees paid to external investment managers. Gallagher has evaluated the System in order to assess the efficiency and effectiveness of its operations and how well it meets its statutory responsibilities.

This report is presented in three sections: an executive summary; detailed discussion and analysis (Tasks I-III); and background information and methodology.

Section I, the Executive Summary, offers a high-level overview of the major themes in the report. The Executive Summary should be used in the context of the full report and not read in isolation or distributed separately from the full report.

Section II, Discussion and Analysis, comprises the body of the report and addresses each task area. The discussion and analysis sets forth detailed observed conditions and recommendations, as well as relevant background information (including best practices where applicable). Within Section II, Gallagher has addressed the following three task areas, making recommendations for improvement and comparing current System procedures to best practices, as appropriate.

> Task 1: Determine the System's investment performance during the past ten fiscal years (2005 through 2014), identify the causes for and impact of any underperformance, and make recommendations for improving the System's investment performance, as appropriate.
> Task 2: Determine if the System has adequate processes and other controls for selecting, monitoring, valuing investments, and terminating contracts with alternative investment managers and valuing these investments, identify the reasons for and impact of any inadequate controls and make recommendations for improving controls, as appropriate.
> Task 3: Determine if the System has adequate processes and other controls over external investment manager fees; identify the reasons for and impact of any inadequate processes and controls; and make recommendations for improving processes and controls, as appropriate.

Section III, Background and Methodology, provides information about Gallagher, the methodology used in performing this evaluation, the overall format of the report, and a summary of recommendations.

Section I: Executive Summary

Overall Conclusion

Gallagher has reviewed the System as described in the scope of the current project. Overall, we found that the System's current practices and procedures are reasonably consistent with industry standards and generally in line with many best practices. The purpose of the project was for Gallagher to make recommendations to enhance and improve the performance of the investment assets (or the "Trust"), as well as the System's practices and procedures regarding alternative investment due diligence and fee negotiations.

Report Highlights and Key Findings

The following paragraphs summarize the highlights and key findings of our report.

Task 1: Determine the System's investment performance during the past ten fiscal years (2005 through 2014), identify the causes for and impact of any underperformance, and make recommendations for improving the System's investment performance, as appropriate.

- Overall Observations:
  - The System has a well-diversified asset allocation, which has evolved over the years as new asset classes and strategies have been added in an effort to improve overall performance and minimize volatility.
  - The System's asset allocation varies from its peers due to the unique structure of the System's liabilities.
  - The System's staff follows a comprehensive and thorough monitoring process.
  - Gallagher analyzed the System's investment performance over the past ten fiscal years as compared to its investment objectives and peer funds. Additionally, we reviewed the processes in place to monitor its investment strategies and objectives and compared it to industry standards.
  - Over the ten fiscal years analyzed, the System has surpassed its Policy Index [1](5.8% vs. 4.8%), but lagged its 7.85% assumed actuarial investment rate[2].
    - The Real Estate composite was a significant cause for underperformance stemming from exposure to joint venture investments in Arizona. Real Estate investments excluding joint ventures performed more favorably.
  - The System ranks in the bottom quartile versus a universe of other public pension plans (92nd percentile) over the ten-year period analyzed. Although the System's absolute performance does not compare favorably to peers over most of the time periods that are the subject of the review, it is worth

[1] *Policy Index:* Public market indices are weighted to create a Policy Index that matches the System's asset allocation policy and the weights remain fixed until that asset allocation policy is changed, e.g., a fund with an asset allocation of 60% domestic equities and 40% domestic bonds might adopt a policy index of 60% Russell 3000 Index and 40% Barclays Aggregate Bond Index. Policy benchmarks serve as an objective measure of total fund performance. However, not all components of a Policy Index are necessarily investable, e.g., using a cash + benchmark for alternative investments.

[2] *Actuarial Assumed Interest Rate*: The actuarial assumed interest rate is a long-term investment rate of return assumption for the total portfolio utilized by the actuary in developing its projections. For public plans, the actuarial rate is also the discount rate used to calculate the present value of liabilities. Although the actuary certifies an investment return assumption annually, this is a long-term assumption.

noting that the System ranks in the top quartile (top 25% - lower risk) versus its peers in terms of the risk it assumes to achieve its investment returns.

- It should be noted that total fund peer universe comparisons are not "apples to apples" since the asset allocation policy can vary dramatically from one plan to the next as plans have different investment objectives.
- The System's asset allocation varies from its peers due at least in part to the System's benefit increase requirement, which causes it to seek lower volatility in investment returns. For this reason, it is also important to compare risk statistics since plans have different return objectives and risk appetites.
- Additionally, the System introduced seven additional asset classes following the economic crisis in 2008, the returns of which are only partially reflected in the ten year number.

- Policy Observations:
  - The System's main investment objectives are its 7.85% actuarial assumed interest rate and Policy Index.
  - The System has a well-diversified asset allocation and uses a variety of investment strategies.
  - The System has some additional investment-related considerations that are not typically seen within the industry.
    - In particular there is a benefit increase requirement where retired members or survivors may be entitled to a Permanent Benefit Increase ("PBI") when returns are over a 9% threshold.
    - The PBI requirement has a significant impact on required contributions going forward, as it has the potential to increase liabilities, and impacts the asset allocation policy.

- Performance Observations:
  - Based on objective #1 of the Investment Policy Statement, "Achieve a total return target that meets or exceeds the Plans actuarial rate compounded annually", the System met or exceeded its actuarial assumed rate in six out of the past ten fiscal years.
    - The System also met or exceeded its Policy Index in six out of the past ten fiscal years. As stated above, the Policy Index serves as an objective measure of total fund performance, which indicates how well the Trust is performing compared to its objective.
    - For Fiscal Year 2011, the System lagged the Policy Index by a small amount.

Years ending June 30:	Fiscal Year Return (Net of Fee)	Actuarial Rate	Met? (Y/N)	Policy Index	Met? (Y/N)
2014	13.3%	7.85%	Y	13.9%	N
2013	11.0%	7.85%	Y	10.1%	Y
2012	(0.8%)	8.00%	N	2.9%	N
2011	17.4%	8.25%	Y	17.4%	N
2010	13.5%	8.50%	Y	12.1%	Y
2009	(17.8%)	8.50%	N	(21.1%)	Y
2008	(7.3%)	8.50%	N	(5.8%)	N
2007	17.1%	8.50%	Y	15.1%	Y
2006	8.3%	8.50%	N	3.6%	Y
2005	9.2%	8.50%	Y	6.4%	Y

  - The System met its 7.85% actuarial rate during the one year and five year periods, but lagged the Policy Index.

- The System beat its Policy Index over seven and ten years, but fell below the 7.85% assumed actuarial rate.
- The System did not meet either its actuarial rate or its Policy Index during the three-year period.
- The System's Total Return excluding the Joint Venture Real Estate ("ex JV") beat both the actuarial rate and its Policy Index for the one, three, and five year periods.

June 30, 2014	The System's Return (Net of Fee)	Actuarial Rate	Met? (Y/N)	Policy Index	Met? (Y/N)	The System's Return ex JV (Net of Fee)
One Year	13.3%	7.85%	Y	13.9%	N	15.8%
Three Years	7.6%	7.85%	N	8.9%	N	8.9%
Five Years	10.7%	7.85%	Y	11.2%	N	12.4%
Seven Years	3.4%	7.85%	N	3.4%	Y	N/A
10 Years	5.8%	7.85%	N	4.9%	Y	N/A

- Observations:
  - Gallagher analyzed each asset class to understand the main reasons for the Trust's underperformance over the past ten fiscal years as compared to its investment objectives. Overall, the Real Estate Composite stood out as one of the primary drivers of underperformance. In the body of the report, Gallagher reviews the other asset class composites, and notes specific areas of underperformance and possible reasons for that underperformance.
  - The System's total Real Estate composite underperformed the NCREIF Property Index[3] in five of the last seven years and has also suffered poor absolute performance over the time period analyzed. The System's real estate portfolio has been heavily weighted to joint venture investments in Arizona; Arizona real estate was particularly negatively affected by the economic crisis of 2008. The System has since restructured the real estate portfolio and added a prohibition to future joint venture investments.
  - The performance of the Real Estate investments excluding the Joint Venture investments was more favorable since its inception.

Time Period	Returns as of June 30, 2014			
	Real Estate	Real Estate JV	Real Estate Ex JV	NCREIF Property Index
1-quarter	-3.2%	-11.8%	2.8%	2.9%
1-year	-1.3%	-26.2%	20.6%	11.2%
3-year	1.5%	-12.3%	13.4%	11.3%
5-year	-2.8%	-12.5%	7.0%	9.7%

[3] The NCREIF Property Index is a quarterly time series composite total rate of return measure of investment performance of a very large pool of individual commercial real estate properties acquired in the private market for investment purposes only. All properties in the NPI have been acquired, at least in part, on behalf of tax-exempt institutional investors - the great majority being pension funds. As such, all properties are held in a fiduciary environment. (Source: NCREIF.org).

- Recommendations:
  - Given the poor performance of the overall real estate portfolio, in particular the Joint Venture investments, Gallagher recommends that the System's staff continue to work with its specialty consultants to review and possibly restructure the portfolio, as feasible.
  - The System should continue to monitor performance of the Trust and the underlying strategies, as well as adjust its asset allocation and restructure asset classes, as appropriate and reasonable.

- Underperformance Observations:
  - The large negative returns achieved in 2008-2009 have had a significant impact on cumulative returns over seven and ten years, but recent strong bull markets have helped to lift overall returns.
  - While the System is now more diversified and should be more protected against another equity bear market or adverse economic event, the System has underperformed its peers in recent years, at least in part, since its public equity allocation is lower than average. Adding the alternative investment strategies has helped to reduce the System's risk level, but performance can continue to vary from peers.
  - According to the most recent actuarial valuation by Gabriel Roeder Smith and Company[4], pension contribution rates have increased significantly for most of the System's employers due to:
    1. Larger recognition of liabilities related to the PBI (7.17% of the 8.83% increase in contributions for June 30, 2014); and
    2. The System experienced significant asset losses (using seven-year smoothing of assets[5]) in the 2008-2009 time frame due to the economic crisis. The impact of this loss continues to effect longer-term performance, as the market has not completely erased the losses from that period.
  - The System has maintained the necessary liquidity to pay benefits.
  - The System has restructured the asset classes where the most significant underperformance was realized.
    1. The Real Estate composite has since been restructured and investments in joint ventures are no longer permitted by policy.
    2. The US Equity composite also underwent significant restructuring in 2012 and 2013 with the addition of 13 new managers.

Task 2: Determine if the System has adequate processes and other controls for selecting, monitoring, and terminating contracts with alternative investment managers and valuing these investments, identify the reasons for and impact of any inadequate controls and make recommendations for improving controls, as appropriate.

- Observations:
  - Gallagher reviewed the processes and procedures that the System has in place to evaluate and select alternative investment managers, generally defined as investments other than equities, fixed income, or cash, and believes the System has adequate controls for selecting, monitoring, and terminating investment manager contracts.

  - The process establishes a detailed framework for evaluating alternative investments for the System. It is written in a way that allows the concepts to be applied across a broad range of strategies. This will

[4] National actuarial and benefits consulting firm.
[5] Smoothing refers to the method to smooth the effect of short-term volatility of assets, by recognizing gains and losses over a period of time.

help ensure that the same philosophy is applied across the entire Trust, while maintaining the flexibility required to effectively evaluate strategies in different asset classes.

- The System has a written process for selecting and evaluating new alternative investment managers, as detailed in the System's Procedure: Fund Due Diligence – New Investments (FDD2014). The current version of FDD2014 was approved in 2014. The current document was not in place during the period of due diligence for most of the partnerships reviewed during this phase of the analysis, since the original list included partnerships dating back to 2007, but followed a similar procedure that was put in place in 2009.

- The System has invested in 135 individual partnerships that fit the definition of alternative investments (as of June 30, 2014). In the initial stage of this review, Gallagher reviewed a representative sample of partnerships from each of the underlying investment categories that make up the alternative investment allocation. Our review focused on applying the twelve areas of focus from FDD2014 to each of the selected partnerships.

- As a result of the formalization of the FDD2014 procedure during the first quarter of 2014, Gallagher identified a second sample of partnerships that the System selected for investment after FDD2014 was adopted. Again, this intentionally diverse sample represents more than 50% of the total commitments that the System made between 4/1/2014 and 12/31/2014. The evaluation of this new sample will more accurately indicate the current state of the System's alternative investment procedures.

- <u>Recommendations:</u>
  - Formally document procedures for all aspects of the investment process including, but not limited to due diligence, and review them on an annual basis.
    - <u>Potential Impact</u>: Lack of formal, documented processes can lead to inconsistent decision-making and potential accountability issues when an investment does not turn out as expected. The System has taken steps, in granting approval authority and adopting FDD2014, to improve the consistency and repeatability of its due diligence and decision process, but is now reviewing on an annual basis.

  - Create an Executive Summary for each partnership that reflects the twelve areas of focus outlined in the due diligence process (FDD2014).
    - <u>Potential Impact</u>: Absence of controls governing the documentation for each investment can lead to critical elements of the process either being left out of the final due diligence materials or forgotten entirely.

  - In addition to reviewing documentation and capital requests on an ongoing basis, the Internal Audit and Compliance Officer should perform an annual review of each investment that has been approved by the Administrator, Staff, and consultants for the System's portfolio during that year.
    - <u>Potential Impact</u>: The original internal compliance review, dated March 18, 2013, did not find any critical due diligence elements that were incomplete, but it did specify one item that had not been documented properly. Given the authority and responsibility placed for approving each investment, an internal review could ensure that every step of the process has been completed and documented properly for each investment that has been approved for the System.

- Periodically reviewing each service provider (investment advisors and legal representation) can help ensure that these firms continue to serve in the best interest of the Trust. Gallagher recommends that such a review be conducted at least every three years.

▪ Potential Impact: Regular reviews of outside service providers can give the System confidence that it continues to receive the highest quality advice and guidance at a competitive cost.

Task 3: Determine if the System has adequate processes and other controls over external investment manager fees; identify the reasons for and impact of any inadequate processes and controls; and make recommendations for improving processes and controls, as appropriate.

- Observations:
  - The System has adequate processes and other controls over external investment fees that have enabled the System to save approximately $40mm by negotiating and re-negotiating with managers.
  - Paying the lowest possible fee is not always the optimal outcome, as better performance will also lead to higher fees paid. Also, management fees for private equity funds are reimbursed before splitting performance, so the System considers fees in the context of the overall investment decision making process.
  - The System does not explicitly outline a procedure for fee negotiation in its documented due diligence procedures, which outlines the other aspects of investment manager selection, but indicates that terms are reviewed as part of legal due diligence.
  - The System has a proposed plan, as of October 2014, to review investment management fees for accuracy (on a sample basis) and as an operational audit.
- Recommendations:
  - The System should add documentation about fee negotiation to its due diligence procedures, combining current policies with best practice.
  - The documented procedures should include a standard method for documentation of fee negotiation. The documentation should include, at a minimum, the proposed fees from the manager before negotiation, the System's proposed fee structure, the final agreement, and be signed by the person(s) responsible for the negotiation. The documentation of fee negotiations should include acknowledgement of where the manager fee ranks compared to an appropriate peer group. Above-median fees should be justified by the perceived ability of the manager to add value over the appropriate benchmark.
  - Gallagher recommends that the System give a person or group responsibility for fee policy and negotiations. Once established, this group can also be tasked with documenting procedures that include the best practices outlined by the Government Finance Officers Association (GFOA). The group should draft a formal report on fee negotiations to be completed prior to the execution of each investment agreement.

Section II: Discussion and Analysis

Task 1: Performance

Task 1: Determine the System's investment performance during the past ten fiscal years (2005 through 2014); identify the causes for and impact of any underperformance; and make recommendations for improving the System's investment performance, as appropriate.

a. Identify the System's investment strategies and objectives, and expected rates of return for fiscal years 2005 through 2014;

- **Overall Observations**
  - The System's main investment objectives are its 7.85% actuarial assumed interest rate[6] and Policy Index[7].
  - The System has a well-diversified asset allocation and uses a variety of investment strategies.
  - The System has some additional investment-related considerations that are not typically seen within the industry.
    - In particular, there is a benefit increase requirement where retired members or survivors may be entitled to a Permanent Benefit Increase ("PBI") when returns are over a 9% threshold.
    - The PBI requirement has a significant impact on required contributions going forward, as it has the potential to increase liabilities, as well as on the asset allocation policy.

- **Observations**

  Overall Fund Investment Objectives and Expected Rates of Return 2005-2014
  - The System's first Investment Policy Statement ("IPS") was put in place on November 18, 1992. It was then restated and amended by the Board on February 25, 2009. It was revised multiple times during the past ten fiscal years: 3/31/2010, 10/27/2010, 12/15/2010, 2/23/2011, 1/25/2012, 7/25/2012, 1/15/2014, and 6/25/2014.
  - The IPS defines the Goals, Objectives, and General Guidelines for the System. The System and two other governmental plans, the Elected Officials' Retirement Plan and Corrections Officer Retirement Plan are collectively called the "Plans". The Plans have created a group trust called the Arizona PSPRS

[6] *Policy Index:* Public market indices are weighted to create a Policy Index that matches the System's asset allocation policy and the weights remain fixed until that asset allocation policy is changed, e.g., a fund with an asset allocation of 60% domestic equities and 40% domestic bonds might adopt a policy index of 60% Russell 3000 Index and 40% Barclays Aggregate Bond Index. Policy benchmarks serve as an objective measure of total fund performance. However, not all components of a Policy Index are necessarily investable, e.g., using a cash + benchmark for alternative investments.

[7] *Actuarial Assumed Interest Rate*: The actuarial assumed interest rate is a long-term investment rate of return assumption for the total portfolio utilized by the actuary in developing its projections. For public plans, the actuarial rate is also the discount rate used to calculate the present value of liabilities. Although the actuary certifies an investment return assumption annually, this is a long-term assumption.

Trust (the "Trust") to commingle their assets for purposes of investment. Gallagher lists below seven of the objectives, which are related to investment performance (two additional guidelines are listed in the IPS that relate to the use of internal management and compliance monitoring). These objectives have been documented in Policy since February 25, 2009:

Objective	Description
Objective #1:	Achieve a total return target that meets or exceeds the Plans actuarial rate compounded annually. The return will be evaluated in the intermediate time horizon of three to five years, and the long-term time horizon of 25 to 30 years.

Actuarial Rate	Date
7.85%	7/01/11– Present
8.00%	7/01/10 – 6/30/11
8.25%	7/01/09 – 6/30/10
8.50%	6/30/05 – 6/30/09

Objective	Description
Objective #2:	Achieve a total return for the Plans and Trust that should meet or exceed the Plans' Policy Index. As a secondary comparison, the Plans' and Trust's total return shall also be compared with comparable public pension funds. Current Policy Index:

Asset Class	Target %	Target Benchmark
U.S Equities	16%	Russell 3000 Index
International Equities	14%	Morgan Stanley Capital International (MSCI) All Country World ex USA (Net)
Fixed Income	7%	Barclays Global Aggregate
Global Tactical Asset Allocation	10%	3 month London Interbank Offered Rate (LIBOR) + 3%
Real Estate	11%	National Council of Real Estate Investment Fiduciaries (NCREIF) Property Index
Private Equity	11%	Russell 3000 + 1%
Credit Opportunities	13%	50% Bank of America (BofA) Merrill Lynch (ML) US High Yield BB-B/ 50% Credit Suisse First Boston (CSFB) Fixed Income Arbitrage
Absolute Return	4%	BofA ML 3 month T-Bills 2%
Real Assets	8%	Consumer Price Index (CPI) + 2%
Risk Parity	4%	60% Barclays Capital Global Aggregate/ 30% MSCI AC World (Net)/ 10% Dow Jones – UBS Commodity Index Total Return
Cash	2%	BofA ML 3-Month T-Bill

Objective	Description
Objective #3:	The Plans' assets should equal or exceed their liabilities within any thirty-year period.
Objective #4:	The Plans shall annually adjust the employer contribution rates based on the recommendations made by the Plans' actuary in annual actuarial valuations. The Plans shall determine a reasonable contribution rate necessary to fund benefits and then to the extent possible, reduce employer contribution rates over time.

Objective	Description
Objective #5:	The Plans shall strive to provide the opportunity for increased benefits for retirees as the legislature of the State of Arizona may from time to time enact through the systematic growth of the investments of the Plans' assets.
Objective #6:	The Plans' and Trust's total portfolio risk exposure and total portfolio risk-adjusted returns will be evaluated annually and on a rolling three and five year basis compared with a universe of funds similar to the Plans and Trust.
Objective #7:	External Managers should exceed the return of their designated benchmark index annually and should rank in the top-half of the appropriate asset class and style universe over a three to five year period.

- The Policy Index has evolved over the years as changes have been made to the asset allocation policy:

07/01/2014 -Present	07/01/13-06/30/14	07/01/12-06/30/13	07/01/10-06/30/12	Index
16%	17%	18%	20%	Russell 3000 Index
14%	14%	14%	15%	MSCI AC World ex USA (Net)
7%	8%	12%		Barclays Global Aggregate
			20%	Barclays US Aggregate
10%	10%	8%	8%	3 month LIBOR + 3%
11%	11%	10%	8%	NCREIF Property Index
11%	10%	9%	8%	Russell 3000 + 1%
13%	12%	12%		50% BofA ML US High Yield BB-B/ 50% CSFB Fixed Income Arbitrage
			9%	BofA ML US High Yield BB-B Constrained
4%	4%	4%	4%	BofA ML 3 month T-Bills 2%
8%	8%	7%	6%	CPI + 2%
4%	4%	4%		60% Barclays Capital Global Aggregate/ 30% MSCI AC World (Net)/10% DJ – UBS Commodity Index Total Return
2%	2%	2%	2%	BofA ML 3-Month Treasury Bill

Asset allocation policy table continued:

04/01/09-06/30/10	07/01/07-03/31/09	07/01/06-06/30/07	07/01/02-06/30/06	Index
	46%			Wilshire 5000
		50%	45%	Standard & Poor's (S&P) 500
		10%		S&P 400
		5%		S&P 600
30%				Russell 3000 Index
20%	21%			MSCI AC World ex USA (Net)
	20%	20%	45%	Barclays Government & Credit
20%				Barclays US Aggregate
		10%		Expected Annual Return for Real Estate of 8.00%
8%	6%			NCREIF Property Index
8%				Russell 3000 + 1%
	6%			Wilshire 5000 +3%
8%				BofA ML US High Yield BB-B Constrained
5%				CPI + 2%
1%	1%	5%	10%	BofA ML 3-Month Treasury Bill

- The table below illustrates the investment objectives that were in place over the past ten fiscal years.

Fiscal Year 6/30	Objective #1: 7.85% Actuarial Rate	Objective #2: Policy Index	Objective #3: Assets vs. Liabilities	Objective #4: Annual Adjustments	Objective #5: Benefit Goals	Objective #6: Risk Exposure	Objective #7: Benchmark Rank
2014	X	Change in Policy	X	X	X	X	X
2013	X	Change in Policy	X	X	X	X	X
2012	8.25%	-	X	X	X	X	X
2011	8.25%	Change in Policy	X	X	X	X	X
2010	8.50%	-	X	X	X	X	X
2009	8.50%	Change in Policy	X	X	X	X	X
2008	8.50%	Change in Policy	-	-	-	-	-
2007	8.50%	Change in Policy	-	-	-	-	-
2006	8.50%	-	-	-	-	-	-
2005	8.50%	-	-	-	-	-	-

Investment Strategies Utilized 2005-2014[8]

- The number and complexity of investment strategies utilized by the System has increased over the last ten years.
- Fiscal year 2014 Investment Strategies and history for each asset class consist of:

[8] The System's Investment Performance Report for the period ending June 30, 2014, prepared by NEPC.

<table>
<tr><th>Investment Strategy</th><th>Topic</th><th colspan="2">Observations</th></tr>
<tr><td rowspan="6">Domestic Equity</td><td rowspan="5">Benchmark</td><td>Date</td><td>Benchmark</td></tr>
<tr><td>through 06/30/06</td><td>100% S&P 500</td></tr>
<tr><td>07/01/06-06/30/07</td><td>77% S&P 500, 15% S&P 400, 8% S&P 600</td></tr>
<tr><td>07/01/07-03/31/09</td><td>Wilshire 5000</td></tr>
<tr><td>04/01/09-Present</td><td>100% Russell 3000</td></tr>
<tr><td>Notes</td><td colspan="2">The targets for the domestic equity portfolio are an even split among passive, active, and portable alpha/long-short equity strategies, with a target of 1/3 for each segment. This asset class structure was adopted after NEPC’s asset class review in April 2014. Currently:
Approximately 42% of the portfolio is passively managed
Approximately 33% of the portfolio is actively managed
Approximately 26% of the portfolio is invested in portable alpha and equity long-short strategies</td></tr>
<tr><td rowspan="3">International Equity</td><td rowspan="2">Benchmark</td><td>Date</td><td>Benchmark</td></tr>
<tr><td>Since 07/01/07</td><td>100% MSCI ACWI Ex-US</td></tr>
<tr><td>Notes</td><td colspan="2">The current strategy target for the Non-US equity portfolio is to passively manage 40% in an ACWI ex-US strategy and actively manage 60%. This strategy was adopted after a Public Equity review was conducted by NEPC in April 2014. Currently, the majority of the international equity portfolio is passively managed (69%) by one manager and approximately 31% of the portfolio is actively managed.
The geographic targets for the Non-US equity portfolio are 65% developed markets and 35% emerging markets. Currently, there is a 28% exposure to emerging markets and approximately 14% of the emerging markets equity portfolio is passively managed. In the actively managed portion of the portfolio, the System has overweighted Emerging Markets versus market weights, given the belief that there are more opportunities for alpha in this segment. The portion previously managed by staff to gain Emerging Markets exposure through ETFs (Exchange Traded Funds) is now used to facilitate portfolio construction and express tactical views.
The System also has one Frontier Markets Manager and there are plans to invest with a second emerging/frontier markets manager to reach target weights.</td></tr>
<tr><td rowspan="5">Fixed Income</td><td rowspan="4">Benchmark</td><td>Date</td><td>Benchmark</td></tr>
<tr><td>through 03/31/09</td><td>100% Barclays Government/Credit</td></tr>
<tr><td>04/01/19-06/30/12</td><td>100% BC US Aggregate Index</td></tr>
<tr><td>07/01/12-Present</td><td>100% Barclays Global Aggregate</td></tr>
<tr><td>Notes</td><td colspan="2">The portfolio is split into US Fixed Income (5% of overall 8% target) and Emerging Market Debt (3% of overall 8% target).
A portion of the US Fixed Income portfolio is internally managed (1.9% of the Total Trust).</td></tr>
</table>

<table>
<tr><th>Investment Strategy</th><th>Topic</th><th>Observations</th></tr>
<tr><td rowspan="2">Credit Opportunities</td><td>Benchmark</td><td><table><tr><th>Date</th><th>Benchmark</th></tr><tr><td>through 06/30/12</td><td>100% BofA ML US High Yield BB-B Constrained</td></tr><tr><td>07/01/12-Present</td><td>50% BofA ML US HY BB-B Constrained Index, 50% CSFB Fixed Income Arbitrage</td></tr></table></td></tr>
<tr><td>Notes</td><td>▪ This portfolio is a mix of opportunistic, relative value, and distressed debt strategies. These are primarily long-only limited partnership investments, but there are a few long-short or short investments. (Inception date 7/08)</td></tr>
<tr><td rowspan="2">Global Tactical Asset Allocation (GTAA)</td><td>Benchmark</td><td>▪ The GTAA portfolio has a benchmark of 100% 3-Month LIBOR + 300 bps since inception (3/10).</td></tr>
<tr><td>Notes</td><td>▪ The System has exposure to global tactical asset allocation, commodity trading, global macro, and multi asset strategies.</td></tr>
<tr><td rowspan="2">Real Assets</td><td>Benchmark</td><td>▪ 100% CPI + 200 bps (Inception date 4/09)</td></tr>
<tr><td>Notes</td><td>▪ The portfolio is a diverse portfolio invested globally with 23 strategies as of June 30, 2014, including TIPS, infrastructure, oil & gas, timber, commodities, and other types of investments.</td></tr>
<tr><td rowspan="2">Real Estate</td><td>Benchmark</td><td><table><tr><th>Date</th><th>Benchmark</th></tr><tr><td>through 06/30/07</td><td>Absolute return benchmark of 8% annually</td></tr><tr><td>07/01/07-Present</td><td>100 % NCREIF Property Index</td></tr></table></td></tr>
<tr><td>Notes</td><td>▪ The real estate portfolio consisted of 22 partnerships as of June 30, 2014 and made up 10.8% of the Trust.
▪ The portfolio is heavily influenced by one investment, which makes up 3.7% of the Trust and 34% of the June 30th market value of the portfolio.
▪ A second investment, makes up 1.1% of the Trust, or 10% of the real estate portfolio.</td></tr>
<tr><td rowspan="2">Private Equity</td><td>Benchmark</td><td><table><tr><th>Date</th><th>Benchmark</th></tr><tr><td>through 03/31/09</td><td>100% Wilshire 5000 + 3%</td></tr><tr><td>04/01/09-Present</td><td>100% Wilshire 5000 + 1%</td></tr></table></td></tr>
<tr><td>Notes</td><td>▪ The System began investing in Private Equity in the early 2000s, but the time weighted return composite has an inception date of November 2007.
▪ The current portfolio is very close to the target of 11%.
▪ The portfolio is invested in buyouts, venture capital, growth capital, and mezzanine strategies. It also includes secondaries and co-investments.</td></tr>
<tr><td rowspan="2">Absolute Return</td><td>Benchmark</td><td>▪ 100% BofA ML 3-Month T-Bill + 2% (Inception date 11/10)</td></tr>
<tr><td>Notes</td><td>▪ This portfolio is primarily invested in hedge funds (multi-strategy and fund-of-funds) with some exposure to Distressed Private Equity.</td></tr>
<tr><td rowspan="2">Risk Parity</td><td>Benchmark</td><td>▪ 60% BC Global Aggregate, 30% MSCI AC World Net, 10% Dow Jones-UBS Commodity Index TR since inception (7/12).</td></tr>
<tr><td>Notes</td><td>▪ The System has exposure to several Risk Parity funds, with a majority investment in an all-weather portfolio.</td></tr>
</table>

- **Recommendations**: Not Applicable

b. Compare the System's investment strategies and objectives to best practice, including but not limited to industry standards;

- **Background Summary of Best Practices**

  Investment Strategies and Objectives Best Practices/Industry Standards

  - It is best practice/industry standard for a retirement system to establish and document appropriate investment strategies and objectives for the plan in the fund's Investment Policy Statement ("IPS").
  - An IPS is an industry standard foundational document for a plan's investment program.
    1. Purpose of an IPS: One purpose of an IPS is to articulate the consensus view of the Board of Trustees regarding the overall investment program and to document policies and procedures. The document can contain the following information, including:
       a) The fund's investment objectives;
       b) The fund's risk tolerance, including liquidity needs;
       c) The asset allocation policy;
       d) Broad system and asset class level investment guidelines that define the allowable asset classes/investment strategies; and,
       e) Standards and measures of investment performance (i.e., the objectives for each asset class and the overall system).
    2. Definition of Performance Standards: Standards and measures of investment performance include performance benchmarks, which are objective standards used to assist in evaluating pension fund investment performance. A good benchmark should have the following characteristics:
       a) Act as a representative opportunity set;
       b) Be transparent;
       c) Be objective;
       d) Be exhaustive; and
       e) Be composed of investable securities or assets.

  Benchmarks:

  - Institutional investors typically use at least two types of performance benchmarks: "policy" benchmarks and "strategic" benchmarks.
    1. Policy Benchmarks: Policy benchmarks should represent the broad asset class and are used as a reference point against which the investor can compare its total asset class returns. Published market indices are weighted to create a Policy Index that matches the fund's long-term target asset allocation and the weights remain fixed over time. The Policy Index serves as an objective measure of total fund performance.
       a) Example: A fund with an asset allocation of 60% domestic stocks and 40% domestic bonds may adopt a policy index of 60% Russell 3000 Index and 40% Barclays Aggregate Bond Index.
       b) Policy benchmarks also help define the types of investment managers that should be used to achieve the investment objectives for the asset class and the nature of the manager's investment mandate.
    2. Strategic Benchmarks: Strategic benchmarks are generally more narrowly defined and typically focus on a particular investment "style" within the asset class. They more clearly describe the expected range of investment opportunities for a given manager and more objectively measure the manager's value added, or the manager's return independent of its investment style.
  - Providing appropriate benchmarks for investors is essential for them to make informed investment decisions and to evaluate performance. The risk of using an inappropriate benchmark is that the

investor may not receive an accurate and appropriate measurement with which to compare its investment performance and/or volatility.

- **Overall Observations**
  - Overall, the System's asset allocation is different from its peers primarily in terms of publicly traded securities in equity and fixed income market. In place of public market allocations, the System has adopted a wider variety of private market and alternative strategies.
    - Although the System's asset allocation is not directly in line with its peers, the System has established a reasonable asset allocation reflective of its risk appetite.

- **Observations**
  - Investment Policy Statement: As stated above, the System has an IPS, in which the Performance Objectives are defined. The System has provided a revised IPS from November 18, 1992, which was amended and restated in March 25, 2009. There were no amended IPS provided for the period between 1992 and 2009.
  - Actuarial Rate of Return: It is best practice/industry standard for one of these objectives to be the assumed actuarial rate. The System's assumed actuarial rate is stated within its IPS.
    - The 2014 NCPERS Public Retirement Systems Study reports an average investment assumption of 7.7%, up 0.1% from 2013.
    - The System's actuarial assumed rate of return has been revised downward since 2009 from the initial 8.50% to a lower rate of 7.85%.
    - The System's current assumption of 7.85% is marginally above this survey average.
    - Milliman prepares an annual corporate Pension Funding Study of 100 companies[9]. The average expected rate of return for 2013 was 7.4%
    - Many pension funds, both public and private, have lowered their actuarial assumed rate of return in recent years.
      - Per the Milliman study, the average expected rate of return has dropped from 9.4% in 2000 to 8.0% in 2010 to 7.8% for 2011 to 7.5% for 2012.
      - Many corporate plans have moved towards LDI (Liability Driven Investment) strategies and have lowered their equity allocations (and increased their fixed income allocations). With the change towards LDI strategies, Gallagher expects the assumed rates of return to decrease.
      - Additionally, a lower actuarial rate would have a negative impact on the funding ratio.
  - Policy Benchmark: In accordance with best practice/industry standard, the System has a policy index as a benchmark for the Trust.
    - The Private Equity and Opportunistic Credit asset class are outside the policy target. However, this is reasonable considering the cash movements within the Private Equity portfolio.
  - Strategic Benchmark: In accordance with best practice/industry standard, the System has a strategic benchmark for each asset class.
    - Gallagher reviewed the benchmarks for each asset class listed above in Section 1.a. and found them to be reasonable benchmarks and in line with industry standards.
    - For certain types of investments, e.g., private equity, real assets, it is not possible to use an "investable" benchmark (e.g., the S&P 500 where one could buy all 500 stocks) as an objective and it is industry standard to use a target rate of return instead (e.g., LIBOR + xx% or CPI + xx%).

[9] Milliman 2014 Pension Funding Study; John W. Ehrhardt, Zorast Wadia, Alan Perry; April 2014.

- Typical Policy Objectives compared to Peers: The System has a few other objectives in its IPS that are in line with industry standards. Examples of these objectives are as follows:
  - Objective #3: The Plans' assets should equal or exceed their liabilities within any thirty-year period.
  - Objective #6: Risk Exposure Evaluations. The Plans' and Trust's total portfolio risk exposure and total portfolio risk-adjusted returns will be evaluated annually and on a rolling three and five year basis compared with a universe of funds similar to the Plans and Trust.
  - Objective #7: External Managers should exceed the return of their designated benchmark index annually and should rank in the top-half of the appropriate asset class and style universe over a three to five year period.
- Atypical Policy Objectives compared to Peer: The System has some additional investment-related objectives that are not seen within the industry:
  - Objective #4: The Plans shall annually adjust the employer contribution rates based on the recommendations made by the Plans' actuary in annual actuarial valuations. The Plans shall determine a reasonable contribution rate necessary to fund benefits and then to the extent possible, to reduce employer contribution rates over time.
  - Objective #5: The Plans shall strive to provide the opportunity for increased benefits for retirees as the legislature of the State of Arizona may from time to time enact through the systematic growth of the investments of the Plans' assets.
  - The System is subject to a benefit increase requirement where retired members or survivors may be entitled to a Permanent Benefit Increase ("PBI") when returns are over a certain threshold. For members retired on or before July 1, 2011, "Additional amounts are added to the PBI reserve in years when the investment return on the market value of assets exceeds 9.0%."[10] For members retired on or after August 1, 2011, a different formula is used and PBIs are only paid when the investment return exceeds 10.5% and the funded ratio is at least 60%. This requirement has a significant impact on required contribution rates going forward.
- Asset Classes: As stated above, the number and complexity of investment strategies (i.e., asset classes) has increased over the period covered in this review.
  - Similar to its peers, the System has diversified its asset allocation and expanded the number of alternative investment strategies utilized. While Gallagher has found this to be the case for most institutional pension funds, as discussed below, the System's use of alternative investments overall is beyond what is typical for pension plans, at least in part due to its unique benefit requirements:
    - Investments beyond domestic equity, developed markets international equity, and core fixed income have become commonplace or industry standard.
    - These include emerging markets equity, private markets investments (equity and debt), private real estate, increased inflation protection/real asset strategies, etc.
    - Greenwich Associates 2013 survey[11] (noted below) remarks, "Public funds are responding to funding shortfalls by significantly increasing allocations to alternative investments, with notable increases this year to private equity."

[10] Arizona Public Safety Personnel Retirement System Consolidated Report; June 30, 2014; Gabriel Roeder Smith & Company.
[11] Greenwich Associates; 2013 United States Institutional Investors; Institutional Asset Allocation. December 2013.

Investment Strategy	Observations
Domestic Equity	▪ For a system the size of the System, passively managing a sizable portion of the portfolio (42%) is not uncommon. It can be difficult to achieve manager alpha in this asset class, especially in large cap equity; also, passive management is much less expensive. ▪ Per Greenwich survey, U.S. public funds manage an average of 42% of U.S. equity passively. ▪ As noted below, given the underperformance of some of the System's active domestic equity managers, managing a portion passively is a sound move. ▪ Allocations to portable alpha and long-short equity strategies are common among large institutional investors, such as the System, especially among those concerned with risk control.
International Equity	▪ For a Fund the size of the System, passively managing a large percentage of the portfolio (40%) is not uncommon, but the practice is less widely used than passive management of domestic equity, especially for emerging markets. ▪ The System has a new investment in Frontier Markets. These investments are viewed as more "cutting edge" and are not widely used by pension plans. This investment makes up a very small part of the total Trust (0.7%). Noting the size of the allocation, Gallagher does not view this as an unreasonable allocation as the additional volatility to the overall Trust would be minimal. ▪ Per Greenwich survey, U.S. public funds manage an average of 19% of international equity passively.
Fixed Income	▪ Passive (or enhanced passive) management of fixed income is generally less common than for equities, but can still be an efficient way to manage a large core portfolio. The System has diversified its portfolio with holdings in emerging market debt, high yield, and active core fixed income. This strategy has the potential of adding more value to the fixed income space. ▪ The addition of high yield and global bond strategies was a reasonable move by the System and in line with industry trends; however, the System's high yield managers have underperformed over the longer-term period.
Credit Opportunities	▪ Credit Opportunities consists of private/opportunistic debt investments outside the public markets fixed income, including direct lending, structured products, special situations, and others. ▪ This has been a newer investment area as a dedicated strategy in line with industry trends as investors seek higher yielding fixed income investments.
Risk Parity	▪ Risk Parity is a relatively new area of investment that allocates assets across investment strategies, typically utilizing leverage, so that risk is evenly distributed by asset class, rather than being dominated by equity market risk. While this type of investment strategy is not universal, it is being utilized by many large pension plans.

Investment Strategy	Observations
Real Estate	▪ This portfolio, as mentioned above, is influenced heavily by two investments that constitute 44% of the real estate portfolio. ▪ The majority of the System investments are in limited partnerships, primarily value add and opportunistic. ▪ The System also has a number of development investments that are joint ventures consisting of residential lots. ▪ It is industry standard for large pension funds to invest in a variety of private real estate, including core/value-add/opportunistic investments. Development investments in land are typically viewed as being higher risk and are less common. ▪ The System's Board has since prohibited investments in real estate joint ventures.
Real Assets	▪ The definition of "Real Assets" can vary from one fund to the next. Some include real estate and inflation protection strategies, while others do not. ▪ Certain Real Asset strategies, such as infrastructure, have become widely accepted investments for pension plans. Other strategies, such as timber, are less common, but not unusual for very large institutional investors as they attempt to diversify their portfolios.
Private Equity	▪ Investments in private equity have historically been considered "alternatives", but it is very standard for large institutional investors to invest in this asset class. ▪ The System has less emphasis in mezzanine capital[12], but the portfolio appears diversified by strategy and vintage year.
GTAA	▪ As stated above, the System has exposure to global tactical asset allocation, commodity trading, global macro, and multi asset strategies. The use of GTAA funds has become very common by sophisticated pension plan investors.
Absolute Return	▪ Investment in hedge funds and fund of funds has become very standard for large institutional investors over the last several years.

- The System has a well-diversified asset allocation and uses a variety of investment strategies. In the table below we compare the System's Target and Policy Index asset allocation to survey data: Greenwich Associates and NCPERS (National Conference on Public Employee Retirement Systems).[13]
  - The System's US Equity allocation is well below the NCPERS and the Greenwich average.
  - The System's International Equity allocation is below the Greenwich average and the NCPERS survey.
  - The System's Private Equity target allocation is in line with Greenwich and slightly above NCPERS.
  - The System's US Fixed Income target allocation is below NCPERS and below Greenwich; however, if one groups Credit Opportunities and Fixed Income, the 20% total is in line with peers.
  - The System's Real Estate Equity target allocation is slightly above the peers represented in the surveys.

[12] Mezzanine Capital is a strategy that involves the purchasing of subordinated debt. Subordinated debt is a loan that is ranked lower than other loans based on the claims on assets or earnings.
[13] 2014 NCPERS Public Retirement Systems Study. November 2014.

  - The System's Absolute Return allocation is comparable to the hedge fund allocation reported by the public funds in the Greenwich survey.
  - It is not possible to do a fully detailed comparison given the rather large allocation to "other" in the two surveys.
- Overall, the System's asset allocation is different from its peers primarily in terms of publicly traded securities in equity and fixed income market. In place of public market allocations, the System has adopted a wider variety of private market and alternative strategies.
  - In particular there is a benefit increase requirement where retired members or survivors may be entitled to a Permanent Benefit Increase ("PBI") when returns are over a 9% threshold.

- Even though the System's asset allocation is not directly in line with its peers, primarily with regard to publicly traded equity and fixed income, the System has established a reasonable asset allocation reflective of their risk appetite.

Asset Class	The System's Target	The System's Policy Index	2013 Greenwich Public Funds	2014 NCPERS Survey Target
US Equity	17%	16%	25%	32%
International Equity	14%	14%	22%	19%
Private Equity	10%	11%	10%	9%**
US Fixed Income	8%	7%	25%	19%
Real estate equity	11%	11%	8%	8%
Absolute Return (Exposure to Hedge Funds)	4%	4%	3%****	NA
GTAA	10%	10%		
Risk Parity	4%	4%		
Credit Opportunities	12%	13%		
Real Assets	8%	8%		
Cash	2%	2%		
Emerging Markets Debt				3%
Inflation Protection/ Commodities				1%
Other	-	-	7%*	9%***

*Other assets includes multi-asset, commodities and money market
**Includes private equity, hedge funds and other alternatives
***Includes 1% cash and variety of other responses
**** Greenwich category is labeled "Hedge Funds"

c. Determine the processes the System uses to monitor how well its investment strategies and objectives are performing and guide it toward meeting its expected rates of return;

Overall Observations

- The System uses a comprehensive set of processes and reports to monitor the performance of the Trust and determine whether it is performing in accordance with its investment objectives.

- **Observations**
  - The System has eleven documents detailing its processes and procedures. Some of the high-level documents are discussed below. The monitoring information is split into three sections: performance reporting, due diligence reporting, and risk management reporting.

Performance Reporting	
Report Frequency	**Report Information**
Monthly	▪ A quantitative gross performance report is produced, which displays sub-asset class levels that roll up to the global trust fund. Once approved, this report is distributed and presented to the Board of Trustees. o A detailed monthly performance report is produced and distributed to investment staff only. This report displays manager level data, including an Internal Rate of Return (IRR) calculation for private vehicles. ▪ A monthly call with investment staff and specialty consultants is conducted to discuss performance issues and potential new investments. ▪ Monthly asset class overviews and strategic plans are created by investment staff, and distributed to the Board of Trustees. ▪ An approved transaction report is produced by the investment team. The report is distributed and presented to the Board of Trustees. ▪ Ad hoc investment reports are also produced if deemed necessary.
Quarterly	▪ NEPC provides a portfolio review that provides quarterly performance, asset class attribution, and performance rankings. This report is distributed to both the Board of Trustees and investment staff and presented publicly.
Annually	▪ Annually, the investment staff creates a document on each investment that contains a description of the fund as well as commentary. This document is then reviewed by the Board of Trustees. ▪ Finally, external managers are reviewed annually or quarterly if necessary. o Either the monthly or quarterly report is reviewed along with data from the specialty consultant (if available). o A summary of findings is created and saved in the fund’s filing system.

Due Diligence Reporting	
	Report Information
	▪ A strategic plan is created on an annual basis by each Portfolio Manager (PM). ▪ The internal reporting process for due diligence is as follows: 1. Strategic allocations are reviewed first by the PM and Chief Risk Officer (CRO). 2. Investment Staff discuss potential new allocations with the Specialty Consultant. 3. An initial meeting is hosted with prospective firms by the PM. 4. After the meeting, a preliminary review is written using qualitative and quantitative factors. 5. If the opportunity is deemed worthy, a full due diligence is conducted including a comprehensive Due Diligence Questionnaire (DDQ). 6. PM reviews the DDQ with the Specialty Consultant and performs additional analysis (if necessary). 7. A manager selection meeting is scheduled with the Board of Trustees. 8. The PM recommends the investment to the CIO based on a positive review of the due diligence process.

Risk Management Reporting	
Report Frequency	**Report Information**
As Needed	▪ A risk management report is produced and used as part of the portfolio construction and decision making process. After approval, this is distributed to the Board of Trustees as well as presented in person. This report includes statistics such as volatility, Value at Risk, and stress testing, which quantifies losses that may occur in extremely unusual circumstances. ▪ The System uses quantitative and qualitative risk management measures, including an internally developed tool called GParison Analysis that looks at various risk and return statistics, e.g., marginal risk added to the Trust, and compares current managers against other existing mandates, as well as potential candidate investments.

- **Recommendations**

Task 1.c: Determine the processes the System uses to monitor how well its investment strategies and objectives are performing and guide it toward meeting its expected rates of return
Recommendation: Gallagher recommends that the System consider including consecutive calendar year performance for the most recent ten years, as well as the inception to date returns in its quarterly investment reporting.

d. Compare the processes the System uses to monitor how well its investment strategies and objectives are working to best practices, including but not limited to industry standards;

- **Background Summary of Best Practices/Industry Standards**
  - <u>Key components to monitoring</u>: Thorough and comprehensive monitoring of investment strategies and objectives is considered essential. The key components to monitor are:

  - Investment performance
  - Investment risks
  - Compliance with policy/guidelines
  - Periodic, in-depth review of managers
- Those charged with responsibility for oversight of sophisticated investment programs require clear, concise, consistent reports to monitor the performance and risk of the programs.
- An overall investment policy statement and guidelines are essential for monitoring, measuring, and analyzing portfolio performance, as well as risk and structure relative to the objectives.
- Investment Policy Statement:
  - An overall investment policy statement and guidelines are essential for monitoring, measuring, and analyzing portfolio performance, as well as risk and structure relative to the objectives.
  - The fund IPS will typically discuss who has responsibility for monitoring investment manager performance and the minimum requirements for manager monitoring, e.g., whether the Board will meet with managers on a regular basis, how often performance will be reviewed, etc. The IPS may also outline the use of a "watch list" to aid in manager monitoring.
- Reporting:
  - Most major funds rely on a combination of staff and consultants to perform the monitoring function and to provide periodic reports to the Board.
  - Monitoring and reports should be executed on a regular periodic schedule (e.g., quarterly).
- Report Content: Investment performance reports typically include data on individual managers, asset class composites, and total fund in two main areas:
  - Investment performance: Track holdings; account for cash flows and transactions; calculate periodic investment rates of return; compare returns to appropriate benchmarks and rank in a peer universe.
  - Investment risks: Based on portfolio holdings, report portfolio characteristics such as price/earnings, price/book, dividend yield, earnings growth ratios (for equity) and maturity, duration, yield, convexity (for fixed income); observe how portfolio holdings are distributed among sectors and industries; calculate measures of volatility for the portfolio; compare characteristics, diversification, and volatility to an appropriate benchmark and peer group. Estimate the role of investment style in the manager's returns (if relevant to the investment structure of the fund). Apply sophisticated portfolio analytic systems to estimate the risk of the portfolio on a forward looking basis (such as estimated tracking error).

- Questions to Answer: Good reports are designed to enable fiduciaries to answer a set of key investment questions such as:
  1. How does the performance of the investment program and its individual components compare to its objectives (usually expressed as a benchmark and a relative time period)?
  2. Is the investment program generating appropriate risk-adjusted returns, compared to stated objectives, typically that of a benchmark?
  3. What are the nature and magnitude of the risks incurred by the investment program and its components?
  4. How does the risk level compare to its benchmark(s)?

- **Overall Observation:** Overall, the System follows a comprehensive monitoring process that is in accordance with industry standards.

- **Observations**
  - The System reviews investment performance in the reports outlined above under Section 1.c.

Report Frequency	Report Information
Monthly	▪ Monthly, a detailed portfolio performance of each manager and sub-asset classes is produced. The report can be useful as "flash" report, which is a best practice.
Quarterly	▪ The System's general consultant (NEPC) prepares one quarterly investment performance report covering both public and private investment managers. o Overall, these reports are very thorough, address the major performance reporting needs, and meet industry standards; however, one area that is lacking is that the reports do not contain consecutive or annual performance. • Gallagher believes that it is important to look at individual year performance as well as cumulative returns (e.g., 1, 3, 5, 10 years). • Also, the report is missing since inception date returns. This measure can be important when evaluating an investment that has less than 3 years of history.
Annually	▪ Annually – Annual asset class reviews for all managers are prepared and presented to the Board of Trustees. o The thorough evaluation of the structure and performance of each asset class is a best practice. ▪ As stated above, Investment Staff conducts annual and if necessary quarterly reviews with all managers, which meets the industry standards. o It is typically a minimum best practice to meet with investment managers annually, either in person or via conference call, depending on the nature of the strategy.

  - The System does not use a "watch-list." There are differing opinions in the industry as to the usefulness of a watch-list and whether it adds any real value to the monitoring process. While Gallagher believes a watch-list can be a beneficial tool, the use of one is not necessary as long as a thorough monitoring process is followed.

- **Recommendations:** see Section 1.c above

e. Determine whether the System met its overall expected rates of return during the past ten fiscal years;

- **Overall Observation**: Over the ten fiscal years analyzed, the System has surpassed its Policy Index (5.8% vs. 4.8%), but lagged its 7.85% assumed actuarial investment rate.

- **Observations** – See also Appendix 1.e.1 and 1.e.2
  - It is industry standard to report investment performance on a gross of fees basis, particularly when used for peer universe comparisons so that investment manager skill can be evaluated independent of the level of fees, which can vary from fund to fund.
  - Since the System ultimately only receives net of fees performance, we use net of fee calculations to evaluate whether the Trust met the Actuarial Rate or Policy Index, as shown below.
  - The System met or exceeded its actuarial assumed rate in six out of the past ten fiscal years.
  - The System met or exceeded its Interim Policy Index in six out of the past ten fiscal years. For Fiscal Year 2011, the System lagged the Policy Index by a small amount.

Years ending 6/30:	Actuarial Rate	Met? (Y/N)	Fiscal Year Return (NOF)	Policy Index	Met? (Y/N)
2014	7.85%	Y	13.3%	13.9%	N
2013	7.85%	Y	11.0%	10.1%	Y
2012	8.00%	N	(0.8%)	2.9%	N
2011	8.25%	Y	17.4%	17.4%	N
2010	8.50%	Y	13.5%	12.1%	Y
2009	8.50%	N	(17.8%)	(21.1%)	Y
2008	8.50%	N	(7.3%)	(5.8%)	N
2007	8.50%	Y	17.1%	15.1%	Y
2006	8.50%	N	8.3%	3.6%	Y
2005	8.50%	Y	9.2%	6.4%	Y

- On a cumulative ten year basis, the System exceeded its Policy Index (5.8% versus 4.8%), but lagged the current 7.85% assumed actuarial rate.
- Over the five (10.7%) year time period, the System exceeded the 7.85% actuarial rate. However, the System lagged the 7.85% actuarial rate over the three (7.6%), seven (3.4%), and ten (6.0%) year time periods.
- The System underperformed its Policy Index over one, three, and five-year periods and beat the Policy Index over the seven and ten-year periods ended June 30, 2014.

Years ending 06/30	The System (Net of Fee)	Policy Index	Met? (Y/N)	Actuarial Rate	Met? (Y/N)
One Year	13.3%	13.9%	N	7.85%	Y
Three Years	7.6%	8.9%	N	7.85%	N
Five Years	10.7%	11.2%	N	7.85%	Y
Seven Years	3.4%	3.4%	Y	7.85%	N
10 Years	5.8%	4.9%	Y	7.85%	N
Since Inception (7/1/02)	6.6%	5.3%	Y	7.85%	N

- Gallagher compared the net of fees performance of each asset class composite to its respective policy benchmark:
  - Two composites have more than ten years of data. The Total Equity composite beat its benchmark for the ten-year period ended June 30, 2014. For the ten years analyzed, the Fixed Income composite narrowly missed beating its benchmark by two basis points (0.02%).

Style/Asset Class	The System	Benchmark
Total Equity	6.8%	6.5%
Fixed Income	5.0%	5.1%

  - For asset class composites with less than ten years of history, Gallagher reviewed since inception returns.

- A few asset classes (and sub-asset classes, e.g., real estate with and without Joint Ventures) underperformed their benchmarks:

Style/Asset Class	Since Date	The System	Benchmark
U.S. Equity	9/01/08	9.0%	10.2%
Real Estate	7/01/07	-0.7%	4.7%
JV Real Estate	9/01/08	-11.0%	4.2%
Real Estate ex JV	11/1/07	1.4%	4.5%
Risk Parity	7/01/12	4.1%	7.2%
Private Equity	11/1/07	7.2%	7.3%
Credit Opportunities	7/01/08	6.6%	7.3%

- Listed below are asset classes that outperformed their benchmarks:

Style/Asset Class	Since Date	The System	Benchmark
Non U.S. Equity	9/01/08	6.3%	4.2%
Real Assets	4/01/09	5.3%	4.2%
GTAA	3/01/10	8.3%	3.4%
Absolute Return	11/01/10	9.8%	2.1%

- See Section 1.h. below for our comments on the underperformance of these asset classes and strategies.

o **Recommendations**: Not Applicable

f. Compare the System's overall expected rates of return during the past ten fiscal years to best practices, including but not limited to industry standards, and peer retirement systems;

o **Background Summary of Best Practices**
  - See Section 1.b above

o **Observations**
  - See Section 1.b above

o **Recommendations**: Not Applicable

g. Compare the System's investment performance to peer retirement system's performance;

o **Background**
  - Peer universe comparisons are one of many performance measurement tools used to monitor total fund investment performance.
  - While interesting and informative, total fund peer universe comparisons are not "apples to apples", since the asset allocation policy can vary dramatically from one plan to the next.
    - Plans that have "riskier" asset allocations may perform better during strong bull markets, but underperform peers during market corrections.
    - It is therefore important to consider peer universe comparisons as just one element in overall performance evaluation.

- Peer universes are more relevant for specific manager universes of a certain style, e.g., core fixed income. These universes are typically gross of fees.

- **Overall Observations**
  - The System ranks in the bottom quartile versus a universe of other public pension plans (92th percentile).
    - Even though the System's absolute performance does not compare favorably to peers over most of the time periods that are the subject of the review, it is worth noting that the System ranks in the top quartile (lower risk) versus its peers in terms of its risk statistics, such as Standard Deviation[14], Sharpe Ratio[15], and Sortino Ratio[16]
    - While the System's asset allocation is now more diversified and should be more protected against another equity bear market or adverse economic event, such as occurred in 2008, the System has underperformed its peers in recent years, at least in part, since its public equity allocation is lower than average. Adding the alternative investment strategies has helped to reduce the System's risk level, but performance can continue to vary from peers.

- **Observations**
  - We compared the System Total Trust fiscal year gross of fee performance to the All Public Plans universe. The total fund universe in PARis was utilized (see Appendix 1.g.1 and 1.g.2).
    - The System ranks above median for three of the ten years.
    - The System ranked in the bottom quartile for four of the ten years (2014, 2012, 2011 and 2008).

Fiscal Year 6/30	The System Return (Rank)	Peer Group Return	Policy Index Return (Rank)
2014	13.8% (93rd)	16.9%	13.9% (93rd)
2012	-0.3% (81st)	1.0%	2.9% (15th)
2011	17.8% (88th)	21.2%	17.4% (89th)
2008	-7.2% (91st)	-4.2%	-5.8%(79th)

    - The System ranked in the bottom quartile for cumulative periods ended June 30, 2014.
      - The System ranked in the 92nd percentile for the ten years ended June 30, 2014.
      - The System ranked in the 90th percentile for the five years ended June 30, 2014.
      - The System ranked in the 93rd percentile for the three years ended June 30, 2014.
    - Although the System's absolute performance does not compare favorably to peers over most of the time periods that are the subject of the review, it is worth noting that the System ranks highly versus its peers in terms of its risk statistics, such as standard deviation, Sharpe Ratio, and Sortino Ratio.
      - NEPC's Investment Summary for the Quarter ended June 30, 2014 reports that the System ranks in the 3rd and 5th percentile for standard deviation over three and five years.

[14] *Standard Deviation*: Applied to the annual rate of return of an investment to measure the investment's volatility. Standard deviation is also known as historical volatility and is used by investors as a gauge for the amount of expected volatility.

[15] *Sharpe Ratio*: A measure of how much extra return an investment portfolio provides over a riskless standard, typically Treasury bills, for the risk it takes. The higher the ratio, the better the risk/return tradeoff.

[16] *Sortino Ratio*: Distinguishes the differences between risky volatility from general volatility by analyzing the standard deviation of negative returns. The higher the ratio, the lower the probability of a loss.

  - The System ranks in the top quartile for both Sharpe Ratio and Sortino Ratio for three and five years as well. These are additional risk-adjusted return measures.
- As stated above, peer universe comparisons are not "apples to apples" comparisons, since each pension fund has its own asset allocation policy and investment structure. For the System, these comparisons are less relevant than usual given how different the System's investment policy objectives and asset allocation are from its peers. Additionally, the System's asset allocation has dramatically changed since the inception of the ten-year period covered by this review.
  - For example, at the inception point of our review, the System was heavily weighted to publicly traded equities. Publicly traded equities performed very poorly during the economic crisis of 2008 and this would help explain, at least in part, the poor peer universe ranking of the System for this time period.
  - Since that time, the System has added numerous alternative asset classes (both public and private). Considering the dynamic changes the asset allocation policy has gone through overtime, it's difficult to compare the longer term performance of the Trust against peer pension plans that did not have similarly structured portfolios.
- We compared each asset class composite for which peer universes are available to the appropriate peer universe in PARis. We discuss any underperformance in section 1.h. below. Note, we use gross of fees performance (industry standard) for peer universe comparisons. For asset classes with less than ten years of performance history, we looked at five year period returns (see Appendix 1.g.3 – 1.g.9).

Investment Strategy	Quartile Ranking	Observations
Domestic Equity	89th- Fourth Quartile	▪ Domestic Equity was analyzed over a 5-year period ending June 30, 2014.
International Equity	91st- Fourth Quartile	▪ International Equity was analyzed over a 5-year period.
Fixed Income	82nd- Fourth Quartile	▪ Fixed Income was analyzed over a 10-year period.
Real Estate	100th- Fourth Quartile	▪ Real Estate was analyzed over a 5-year period.
Real Estate JV	100th – Four Quartile	▪ Real Estate JV was analyzed over a 5-year period.
Real Estate ex JV	67th – Third Quartile	▪ Real Estate ex JV was analyzed over a 5-year period.
GTAA	49th- Second Quartile	▪ GTAA was analyzed over a 10-year period.

- **Recommendations**: Not Applicable

h. Determine the causes for any underperformance, including any procedures or requirements that limit the System's investment strategies;

- **Overall Observations**
  - As discussed below, the Real Estate composite was a significant driver of overall underperformance stemming from its exposure to joint venture investments in Arizona. However, Real Estate investments excluding joint ventures performed more favorably.
  - The US Equity composite also contributed to underperformance, but has since been restructured.

- **Observations**
  - <u>Assumed Actuarial Rate</u>: The fiscal years in which the System underperformed its actuarial target were 2006, 2008, 2009, and 2012.

- The effects of the economic crisis caused the majority of pension plans to fail to achieve their actuarially assumed rate of return in 2008 and 2009.
  - The System's peer universe and policy benchmark also suffered negative returns in these years (see Appendix 1.g.1).
  - The large negative returns achieved in these years have had a significant impact on cumulative returns over seven and ten years.
- In fiscal year 2006, the System came close to achieving its actuarial return (8.3% vs. 8.5%), but dramatically outperformed the Policy Index (3.6%).
- In fiscal year 2012, the System significantly underperformed the Policy Index (-0.8% vs. 2.9% net of fees). Market conditions also made it very difficult to achieve an 8.25% return during that year.
  - Peer funds also posted very low returns over this period. The median return was 1.0% (gross of fees) (see Appendix 1.g.1).
  - Equities struggled during this period, with low to negative returns for domestic equity benchmarks and negative international equity returns for both developed and emerging markets. The System's U.S. Equity portfolio lagged its benchmark (0.1% versus 3.8% for the Russell 3000 Index).
  - The System's fixed income portfolio performed well, 6.4% vs. Barclays Global Aggregate 2.7%, for the year ended June 30, 2012, but not enough to help the System meet its actuarial target.
  - Real Estate had negative returns for the year (-3.9% versus 12.04% for the NCREIF PI).
  - Private Equity posted a relatively high return of 6.2% during the year and helped balance out the low to negative public equity returns.

- As mentioned above, two broad asset class composites have at least ten years of data (Total Equity and Fixed Income). Total Equity beat its benchmark for the cumulative ten year period ended June 30, 2014. The Fixed Income composite narrowly missed its benchmark by 2 basis points (5.04% vs 5.06%) over the same ten year period.
- The following asset classes with less than ten years of composite history underperformed their benchmarks on a net of fees basis (See Appendix 1.e.1 and 1.e.2):
  - U.S. Equity
    - The composite has returned 9.0% vs. 10.2% since September 1, 2008:
    - As described above in Section 1.a., the U.S. Equity portfolio is currently a mix of Passive, Long Only, and Long-Short strategies.
    - The current lineup of managers in the U.S. Equity composite has a very short history. Only one manager, a passively managed fund, has a five year history.
    - The U.S. Equity composite underwent significant restructuring over the past few years.
      - Six managers were added in 2012. The focus of the additional managers in 2012 centered on small and large cap managers.
      - Seven managers were added in 2013. The focus of the managers added in 2013 centered on value oriented and hedged equity strategies (i.e., portable alpha and long-short).
    - One long/short equity manager was recently terminated during the 3rd quarter of 2014. This manager has a short history, approved in 2011, and has underperformed its benchmark on a one-year basis (7.5% vs. 25.4%) as of 6/30/2014.
    - A second long/short equity manager trailed its benchmark over the one year return, underperforming by 12.30%.
    - Given the prolonged bull market in U.S. Equities, it has been a difficult environment in recent years for long-short equity managers to outperform or even meet long only benchmarks. Long-

short equity managers can protect on the downside and achieve similar returns over long periods, but one would expect them to underperform in strong equity markets. Given the PBI, the System is best served by achieving a less volatile return stream, as offered by long-short equity and other hedged strategies.
   - Given all of the recent changes to this asset class, it is too soon to evaluate the restructured U.S. Equity portfolio's performance.

- Real Estate
   - The composite has returned -0.7% vs. 4.9% for the NCREIF Property Index since July 1, 2007:
   - The total Real Estate composite underperformed the NCREIF Property Index in five of the last seven years and has also suffered poor absolute performance over the time period analyzed. Private real estate investments are long-term investments and can be difficult to exit, especially when market conditions are stressed. The System's real estate portfolio has been heavily weighted to investments in Arizona; Arizona real estate was particularly negatively affected by the economic crisis of 2008.

Real Estate Portfolio	Returns	
	The System	Benchmark
2008	15.6%	9.2%
2009	-5.1%	-19.6%
2010	-12.7%	-1.5%
2011	-5.0%	16.7%
2012	-3.9%	12.0%
2013	10.3%	10.7%
2014	-1.3%	11.2%

   - The Real Estate composite has been split into two separate sub-composites: the legacy Joint Venture investments "Real Estate JV" and the "Real Estate Ex JV" shows the Real Estate performance excluding the legacy accounts.
   - Exposure to Joint Ventures within the Real Estate composite significantly impacted the performance and was the major detractor. As noted above, investments in joint ventures have since been prohibited by the Board.
   - The performance of the Real Estate ex JV composite was more favorable over the last five years, as shown below, and beat the NCREIF Property Index for FY 2014. Despite positive gains from Real Estate Ex JV, the composite still underperformed its benchmark for the five year time period net of fees.

Time Period	Returns as of June 30, 2014			
	Real Estate	Real Estate JV	Real Estate Ex JV	NCREIF Property Index
1-quarter	-3.2%	-11.8%	2.8%	2.9%
1-year	-1.3%	-26.2%	20.6%	11.2%
3-year	1.5%	-12.3%	13.4%	11.3%

Time Period	Returns as of June 30, 2014			
	Real Estate	Real Estate JV	Real Estate Ex JV	NCREIF Property Index
5-year	-2.8%	-12.5%	7.0%	9.7%

- The largest investment in the real estate portfolio, one of the legacy joint venture investments – 34% of the portfolio, has posted negative returns as illustrated below. Gallagher understands that this investment made up more than 50% of the real estate portfolio. Exposure to this strategy has negatively affected the real estate composite over the 5-year period for which we have real estate composite data. This is a joint venture investment in retail, lifestyle, and commercial real estate investments in Arizona. Although real estate composite performance data only goes back to 2007, Gallagher understands that initial joint venture investments were made in 1995.

Time Period	Returns as of June 30, 2014
	Legacy JV
1-quarter	-11.0%
1-year	-16.4%
3-year	-3.1%
5-year	-4.7%

- Also negatively affecting the real estate composite is a European opportunistic limited partnership investment, which returned -42.2% for the 5-year period. Currency movements negatively impacted performance.
- Several other real estate investments have also posted negative five-year returns, including two joint venture investments in residential lots in Arizona; as mentioned above, the System's Board no longer allows joint venture real estate investments. Two other international limited partnerships, with investments in the United Kingdom and Mexico, also underperformed:

Investment	5-Year Returns as of June 30, 2014
AZ Joint Venture	-2.3%
AZ Joint Venture	-14.1%
United Kingdom LP	-10.5%
Mexico LP	-3.2%

- Risk Parity
  - The composite has returned since inception 4.3% versus 7.2% for the benchmark.
  - This asset class has a short history, with an inception date of July 1, 2012, so it is too soon to draw meaningful conclusions regarding performance. However, returns have been below benchmark for the last two fiscal years. The main driver of recent underperformance appears to have been from the TIPS/Currency portfolio, which is a component of the Risk Party strategy and composite.

The System Risk Parity	Returns	
	The System	Benchmark
2013	-1.3%	2.6%
2014	9.7%	12.1%

- Private Equity
    - The composite has returned since inception 7.2% versus 7.3% for the benchmark
    - Private Equity marginally underperformed its benchmark since inception, net of fees, on a time-weighted return basis.
    - Private Equity investments, as well as other types of private alternative investments, are better evaluated on a dollar-weighted return basis (i.e., IRR or Internal Rate of Return) given the nature of their cash flows and their long time horizon. The IRR achieved by the System's Private Equity portfolio is in line with expectations for this asset class.
    - On an IRR basis, the System's Private Equity portfolio, as reported by the System's Investment Team, achieved three, five and ten year IRRs of 16.1%, 17.4% and 12.3%, respectively, for the periods ended 6/30/2014. These compare mostly favorably with the ILPA (Institutional Limited Partners Association) All Funds Index returns of 12.4%, 16.3% and 13.2% for the same time periods.
    - When evaluating Private Equity it is also important to understand the long time horizon of this asset class. It will take approximately 7-8 years to reach the proposed target allocation for private equity. There is a commitment period, drawdown period, and finally a realization period. Capital is first committed to a variety of limited partnerships over a number of vintage years. For each partnership, capital is drawn down through "capital calls" over a number of years to fund the initial commitment. An individual partnership's investment cycle typically begins with what is called a "J-curve," where the portfolio exhibits losses (negative performance) as fees are paid and capital is called with no investment gains realized. The investment period for a partnership is typically 3-4 years with a holding period of an additional 4-6+ years. As the investments mature and the portfolio experiences unrealized and realized gains, performance starts to turn positive.
    - As of 12/31/2014, the System had committed capital to 62 funds and 37 managers over multiple vintage years since inception of its private equity program. Therefore, it's difficult at this time to draw any definitive conclusions regarding the System's' portfolio given the relative newness of the asset class.

- Credit Opportunities
    - The composite has returned since inception (2008) 6.6% versus 7.3% for the benchmark on a time-weighted return basis. However, the portfolio has exceeded its benchmark over the most recent five years ended June 30th, with a return of 14.7% (net of fees) versus 11.2% for the benchmark.
    - Two investments were the drivers of this asset class's underperformance.
    - One fund in particular detracted from overall performance in the credit opportunities composite with a return of -29.8% for the one-year time period.
    - A second fund also negatively impacted performance, returning -17.2% for the three-year time period. It has since been removed from the portfolio.

- **Recommendations**

Task 1.h: Determine the causes for any underperformance, including any procedures or requirements that limit the System's investment strategies
Recommendation: 1. Given the poor performance of the overall real estate portfolio, in particular the Joint Venture investments, Gallagher recommends that the System's staff continue to work with its specialty consultants to review and possibly restructure the portfolio as feasible. 2. The System should continue to monitor performance of the Trust and the underlying strategies, as well as adjust its asset allocation and restructure asset classes as appropriate and reasonable.

i. Determine the impacts of any underperformance;

- **Observations**
  - The large negative returns achieved in 2008-2009 have had a significant impact on cumulative returns over seven and ten years, but recent strong bull markets have helped to lift overall returns.
  - According to the most recent actuarial valuation referenced above by Gabriel Roeder Smith and Company, pension contribution rates have increased significantly for most of the System's employers due to:
    - Larger recognition of liabilities related to the PBI (7.17% of the 8.83% increase in contributions for June 30, 2014), and
    - Continued recognition of 2008-2009 asset losses (using seven-year smoothing of assets).
  - The System has maintained the necessary liquidity to pay benefits.
  - The System has restructured the asset classes where the most significant underperformance was realized.

j. Make recommendations for improving the System's investment performance, as appropriate.

- **Observations**
  - See recommendations in sections above.

Task 2: Alternatives

Task 2: Determine if the System has adequate processes and other controls for selecting, monitoring, and terminating contracts with alternative investment managers and valuing these investments, identify the reasons for and impact of any inadequate controls and make recommendations for improving controls, as appropriate.

a. Identify the processes and other controls the System uses for selecting, developing terms and conditions for, monitoring, valuing investments, and terminating alternative investment manager contracts;

- **Observations**

- The System has a written process for selecting and evaluating new alternative investment managers, as detailed in Fund Due Diligence – New Investments (FDD2014). The process includes twelve areas of interest in the process:
  1. Formation of Investment Thesis and Strategic Plan
  2. Implementation of Investment Thesis
  3. Fund Due Diligence
  4. Initial Meeting
  5. Full Due Diligence
  6. Draft Memo
  7. Manager Selection Meeting
  8. Recommendation to Chief Investment Officer
  9. Recommendation by Chief Investment Officer
  10. Legal Due Diligence
  11. Background Investigations
  12. Closing

- The process establishes a detailed framework for evaluating alternative investments for the System, which completes full due diligence internally and has discretion. It is written in a way that allows the concepts to be applied across a broad range of strategies. This will help ensure that the same philosophy is applied across the entire Trust, while maintaining the flexibility required to effectively evaluate strategies in different asset classes.

- The most recent version of the Fund Due Diligence Procedure was completed during the first quarter of 2014.

- The System employs outside legal counsel to review relevant documents for each of the alternative investment partnerships that it considers for the portfolio. In addition, new internal counsel has joined the System staff within the last year. Internal Counsel provided several templates that help ensure the adequacy and consistency of the legal review for individual investments.

- As a result of our sample auditing, no terminations of any alternative investments was noted. The policies, procedures, and practices in place by the System are adequate. The monitoring by the

System personnel and the independent consultant cover the issue of termination of an alternative investment. As a matter of record, private equity and alternative investment strategies are not terminated unless performance becomes an issue and the fact that the lack of liquidity in the marketplace is a factor.

- The System employs an ongoing process for monitoring alternative investment managers. Several periodic publications are a part of the monitoring procedures:

Frequency	Report Information
Monthly	▪ Prepared by the System staff: Report includes current estimates of market values, cash flows, unfunded commitments, performance, portfolio allocations, and notes on recent Manager Selection Meetings.
Quarterly	▪ Prepared by the General Consultant: Report includes market values and current performance statistics by manager and by strategy.
Annually	▪ Prepared by the System Staff: Report provides an overview of each fund, including a history of the investment and an annual update on the fund status.

- **Recommendations**

Task 2.a: Identify the processes and other controls the System uses for selecting, developing terms and conditions for, monitoring, valuing investments, and terminating alternative investment manager contracts
Recommendation: The Fund Due Diligence procedure was approved in 2014 and our review shows that it is due to be reviewed in 2015. Gallagher recommends following the annual review schedule that is listed and documenting each annual review.

b. Determine whether the System used the identified processes and controls for alternative investment contracts the System entered into during fiscal years 2005 through 2014;

- **Observations**

The System has invested in 135 individual partnerships that fit the definition of alternative investments (as of June 30, 2014). In the initial stage of this review, Gallagher reviewed a representative sample of partnerships from each of the underlying investment categories that make up the alternative investment allocation. Our review focused on applying the twelve areas of focus from FDD to each of the selected partnerships.

- The sample is intentionally diverse, including partnerships from different vintage years and commitments of various sizes. In the selection, Gallagher ensured that our sample represented at least 50% of the current market value in each alternative investment category.

- With each of the selected partnerships, Gallagher reviewed the available documentation for evidence that each investment adhered to the twelve focus areas explained in the procedure. The current version of FDD2014 was approved in 2014. The current document was not in place during the period of due diligence for most of the partnerships reviewed during this phase of the analysis, since the original list included partnerships dating back to 2007. Prior processes, most notably the System's Policy, Revised: Investment Vetting Process (undated), include many of the same concepts that are currently outlined in FDD2014. Interviews with the System's staff have also indicated that the evaluation criteria for alternative investments have been largely consistent during the period of this analysis. The System did not formally document ongoing changes to procedures throughout this period, although the agency has taken steps to formalize its process in recent years.

- As a result of the formalization of the FDD2014 procedure during the first quarter of 2014, Gallagher identified a second sample of partnerships that the System selected for investment after FDD2014 was adopted. Again, this is an intentionally diverse sample that represents more than 50% of the total commitments that the System made between April 1, 2014 and December 31, 2014.
- Gallagher has drawn the following conclusions from the two stages of the individual partnership review:
  1. While the System has not operated under formal, written procedures for an extended period, the quality of the due diligence process appears sufficient. For the funds in our first sample, Gallagher met with the System team in their Phoenix, Arizona office and observed many of the binders containing full due diligence materials on each investment. The depth of the materials increased over time, as expected, but most investment binders included substantial key information:
     a) Board Minutes indicating the approval of the investment
     b) Private Placement Memorandum
     c) Due Diligence Questionnaire
     d) Investment memo(s) by staff and specialty consultants
     e) Legal Review

  2. In reviewing materials from the second sample, Gallagher noted the following trends:
     a) The System has adopted a wide reaching, integrated procedure with its specialty consultants, which results in a collaborative process that leverages the resources of the System along with those of its consultants. This collaboration allows the System to consider and effectively evaluate a far greater number of investment options than it could do independently. Essentially, the System is using its outside advisers well and taking full advantage of their expertise.
     b) The staff memos prepared on each investment are comprehensive and include sufficient information to enable the System to make effective investment decisions. These memos, in conjunction with the supporting materials provided by the specialty consultants, demonstrate a commitment to conducting thorough due diligence on each investment before the System makes a financial commitment.
     c) The System leverages its relationships with existing investment managers when looking for new opportunities. While the familiarity and long-term relationships with current managers generally allow more informed decisions, it also has the potential to reduce the burden on managers to provide updated information since the System already knows the manager well.
     d) The formal documentation of each decision creates a solid record that shows the System completed the requisite process in approving each fund for investment. Specifically, the Compliance Review deliberately includes multiple independent approvals that are required before the System makes a commitment to any fund. Further, the Compliance Review serves as the verification that the System, in conjunction with its specialty consultants, has followed the stated process and fully completed the due diligence required under FDD2014 before making an investment.

3. The System has improved its process substantially over time. The formalization of the process should help to improve the consistency of the decision making process. Currently, the System employs several tools to help drive the due diligence process forward:
   a) Discussions with specialty consultants (NEPC, StepStone, ORG, and Albourne) and tools that each consultant provides for sourcing and screening of potential investments (Appendix 2.b Exhibit 3);
   b) Fund score card for evaluating initial meetings; and
   c) Templates for draft memoranda.

4. At the July 25, 2012 Board of Trustees meeting, the Board approved changes that, among other things, granted authority to the Administrator, Staff, and consultants to approve the selection of portfolio managers. This means that individual investments were no longer required to be presented to the Board before System committed assets to them. While this change offered the potential to make the decision process more efficient, it also increased the burdens of process execution and documentation on the System staff and its advisors since the final level of independent oversight (i.e. the Board) was no longer required.
   a) In March 2013, the System's Internal Audit and Compliance Officer reviewed the three investments that had been selected under the new approval process to date. The objective of the review was to "determine that controls around Manager Selection and Investment Due Diligence are adequate to assure that investments approved have been adequately reviewed and that they are within the investment guidelines and asset allocation as approved by the Board."
   b) The review found that the controls were adequate as executed. The review identified one background check that was performed but needed to be documented. The Internal Audit and Compliance Officer indicated that the review would be revisited after six months.
   c) Since the change in approval process, the System has instituted a compliance approval process for each investment. The compliance approval documents outline the details of each mandate as well as the recommendations from the System staff and the specialty consultant. The compliance form also confirms the approval of the investment. Finally, the document is executed by the Internal Audit and Compliance Officer. As a part of this review, Gallagher was provided compliance approval documents on the following investments:
   d) Gallagher originally included the Legacy Joint-Venture, an Arizona-based real estate investment, in its sample. After conversations with the System staff and a thorough review of the publicly available information regarding this specific investment, Gallagher has decided that the unique nature and history of this asset make it an inappropriate candidate for the current investment review since it is not representative of the typical alternative investment due diligence procedure or execution. In addition, the Auditor General has already reviewed the Legacy Joint-Venture matter directly.

5. Given the evolving nature of the due diligence process and the lack of formal documentation requirements historically, it was not possible to review all of the individual investments using a consistent set of criteria. The process has grown more robust over time, which is a positive development. The System has already enacted many of the changes that would have been recommended prior to the adoption of the current investment and approval process (FDD2014).

- **Recommendations**

Task 2.b: Determine whether the System used the identified processes and controls for alternative investment contracts the System entered into during fiscal years 2005 through 2014
Recommendation: 1. Gallagher recommends creating an Executive Summary for each partnership that reflects the twelve areas of focus outlined in the due diligence process (FDD2014). The summary should indicate that each area has been reviewed and completed as outlined in the process document. The summary should be included in all due diligence records, in both electronic and hard copy form, as appropriate. 2. The Internal Audit and Compliance Officer should review, at least annually, each investment that has been approved by the Administrator, Staff, and consultants for the System portfolio. The scope of this review should mirror that of the initial process documented in the Review of Investment Due Diligence Report dated March 18, 2013. Future annual reviews should be presented to the Board of Trustees. 3. Gallagher recommends updating and revising the due diligence procedures on an annual basis. In the next revision of the procedure outlined in FDD2014, Gallagher specifically recommends: a. Expand the staff memo to specifically include information on how the investment was identified and selected for additional due diligence. b. Include a note in the FDD2014 procedure that very clearly specifies that the Meeting Scorecard is only relevant for new firms where the System does not have an existing relationship. c. When making an additional investment with an existing manager relationship, ask the investment manager to verify, in writing, any material changes to the firm or investment process since the time of the most recent investment by the System. d. Either remove or clarify the reference to Board of Trustees meetings as appropriate.

c. Determine if the System collects and utilizes monitoring data to improve subsequent contracts;

- **Observations**

The System employs Kutak Rock, Foley & Larder, Jackson Walker, and Foster Pepper as additional outside counsel to perform legal review of its prospective alternative investments. The System is also authorized to use additional firms including Cooley Godward, Goodwin Proctor, Robson Gray, and Pillsbury Winthrop. The Trust appears to have adequate resources to evaluate and potentially improve its legal agreements over time.

In addition, the System's in-house investment counsel has been reviewing and seeking to improve the current processes since joining the System in August 2014. Counsel has amended existing procedures and implemented new procedures that will help improve future contracts, including:

- Deal Term Summary Sheets, which compare specific deal terms versus industry standards.
- Standard side letter templates, which have been used historically.
- Transaction Status Checklist, which include key characteristics of each deal and tracks the approval process through the System.
- Closed Transaction Report, which has been used historically and is presented to the Board monthly, as appropriate.

Overall, the legal review process appears to be thorough and appropriate. The System has made an investment in its legal review process with the new addition of In-House Investment Counsel. Also, the processes that are in place should help the System to both track past transactions and improve upon the execution terms of future opportunities.

- **Recommendations**

Task 2.c: Determine if the System collects and utilizes monitoring data to improve subsequent contracts
Recommendation: 1. The System should continue to utilize outside firms in the legal review of fund terms and documents, as appropriate, and focus on key legal partners as opposed to casting a wide net with several approved vendors. 2. The System should conduct a documented periodic review of each service provider to help ensure that the firms continue to serve in the best interest of the System. Gallagher recommends that such a review be conducted at least every three years.

d. Compare the System's processes and other controls for selecting, monitoring, and terminating alternative investment manager contracts and valuing investments to best practices, including but not limited to industry standards;

- **Background Summary of Best Practices**

  - In evaluating individual alternative investments, it is critical to employ consistent, rigorous standards to ensure the overall quality of the due diligence process. Gallagher believes that the process should include several key elements, including:
    1. Initial contact and information showing where the investment idea originated;
    2. A preliminary review and evaluation of the fund as a candidate for additional due diligence;
    3. Comprehensive due diligence review, including (but not limited to):
       a. Organizational Stability, focused on key personnel
       b. Investment Strategy and Process
       c. Investment Risk
       d. Operational Risk
       e. Performance Track Record
       f. Investment Terms
       g. Market Environment and Industry Overview
       h. Legal Review and Negotiated Terms
    4. Full Documentation of the investment review and approval process; and,
    5. Ongoing monitoring, including both qualitative and quantitative evaluations.

  - In addition to our internal expertise, Gallagher also consulted an independent source to further refine our perspective on best practices and industry standards. fi360's 2013 publication, *Prudent Practices for Investment Stewards (U.S. Edition)*, provides insight for the evaluation of the System's processes and controls. See Appendix 2.d Exhibit 1 for a listing of the best practices included in the publication.

In this part of the evaluation, Gallagher focused specifically on the following practices (criteria designations are consistent with the identification presented in the publication):

Practice 3.3	**Decisions regarding investment strategies and types of investments are documented and made in accordance with fiduciary obligations of care.**
3.3.1	Decisions regarding investment strategies and types of investments are documented and made in accordance with fiduciary obligations of care.
3.3.2	Decisions regarding the selection of investments consider both qualitative and quantitative criteria.
3.3.3	The documented due diligence process used to select investments and third-party Investment Managers is consistently applied.
3.3.7	Decisions regarding the use of separately managed and commingled accounts, such as mutual funds, unit trusts, exchange-traded products, and limited partnerships, are documented and made in accordance with obligations of care.
3.3.8	Decisions to use complex investments or strategies, such as alternative investments or strategies involving derivatives, are supported by documentation of specialized due diligence conducted by individuals who possess knowledge and skills needed to satisfy the heightened obligations of care.

Practice 4.1	**Periodic reports compare investment performance to appropriate index, peer group, and investment policy statement objectives.**

Practice 4.2	**Periodic reviews are made of qualitative and/or organizational changes of Investment Advisors, Investment Managers, and other service providers.**
4.2.1	Periodic evaluations of the qualitative factors that may impact the results or reliability of Investment Advisors, Investment Managers, and other service providers are performed.
4.2.3	Deliberations and decisions regarding the retention or dismissal of Investment Advisors, Investment Managers, and other service providers are documented.
4.2.4	Qualitative factors that may impact service providers are considered in the contract review process.

- **Observations**
  - Overall, the System employs many of the best practices identified above. While the mechanics of the process have evolved over time, it appears that the System has consistently based investment decisions on both qualitative and quantitative factors that had been evaluated through a comprehensive due diligence process executed by both the System's staff and qualified advisors. The system has improved its documentation procedures.

- **Recommendations**

Task 2.d: Compare the System's processes and other controls for selecting, monitoring, and terminating alternative investment manager contracts and valuing investments to best practices, including but not limited to industry standards
Recommendation: 1. Gallagher recommends the System continue with its commitment to regularly update and improve its due diligence procedures, particularly in light of the decision-making responsibilities that have been granted to the Administrator, Staff, and consultants for the System portfolio. 2. A periodic review of all service providers (both investment advisors and legal representation) would help to ensure that the System continues to receive high-quality guidance and advice at a reasonable cost. Gallagher recommends that these reviews be conducted at least every three years.

e. Identify the reasons for and impacts of any inadequate processes or other controls; and

- **Observations**

The System employs reasonable procedures in evaluating investment opportunities for its portfolio. Historically, the System has documented and maintained records on each investment in a sufficient fashion, although consistency can be improved. Finally, the monitoring of each investment is robust and allows for an appropriate level of oversight once an investment is added to the portfolio.

Given these perspectives, Gallagher considers the current processes to be appropriate and thorough. Gallagher has instead chosen to focus on the potential impact of specific recommendations that are outlined in this review.

- Recommendation: Formally document procedures and update them on an annual basis.
  - Potential Impact: Lack of formal, documented processes can lead to inconsistent decision-making and potential accountability issues when an investment does not turn out as expected. The System has taken steps, in granting approval authority and adopting FDD2014, to improve the consistency and repeatability of its due diligence and decision process.

- Recommendation: Create an Executive Summary for each partnership that reflects the twelve areas of focus outlined in the due diligence process (FDD2014).
  - Potential Impact: Absence of controls governing the documentation that was produced for each investment can lead to critical elements of the process either being left out of the final due diligence materials or forgotten entirely.

- Recommendation: Internal Audit and Compliance Officer should review, at least annually, each investment that has been approved by the Administrator, Staff, and consultants for the System.
  - Potential Impact: The original internal compliance review, dated March 18, 2013, did not identify critical due diligence elements that were incomplete, but it did specify one item that had not been documented properly. Given the authority and responsibility placed for approving each investment, an internal review could ensure that every step of the process has been completed and documented properly for each investment that has been approved for the Trust.

- Recommendation: Periodically review each service provider to help ensure that the firms continue to serve in the best interest of the System. Gallagher recommends that such a review be conducted at least every three years.
  - Potential Impact: Regular reviews of outside service providers can give the system confidence that it continues to receive the highest quality advice and guidance at a competitive cost.

f. Make recommendations for improving how the System selects, develops terms and conditions, monitors, and terminates alternative investment manager contracts and values investments, as appropriate.

- Please see each section for specific recommendations.

Task 3: Fees

Task 3: Determine if the System has adequate processes and other controls over external investment manager fees; identify the reasons for and impact of any inadequate processes and controls; and make recommendations for improving processes and controls, as appropriate. Tasks will include the following:

a. Identify the processes and other controls the System uses for accepting and/or negotiating external investment manager fees;

- **Observations**
  - The System does not explicitly outline a procedure for fee negotiation in its documented due diligence procedures, which outlines the other aspects of investment manager selection, but indicates that terms are reviewed as part of legal due diligence.
  - The key takeaways from the System response to this question, which can be found in Exhibit 1 of Appendix 3.a, are as follows:
    1. The System takes the approach that aligning overall interests with external partners is of primary importance, and at times, that will include negotiating lower investment management fees.
    2. Other times lower fees come with increased risks and the System will use negotiating leverage to improve other deal terms such as liquidity.
    3. The System is committed to negotiating preferred terms, using a side letter over 50 pages long, and has additionally secured some advisory board seats.
    4. The System will review the budget of most, especially larger, funds to see justification of fee levels. It will compare fees to peers and will request fees are brought down to be in line with peers when they are in excess.
    5. The team sizes commitments larger than "one might expect" to increase negotiating leverage, and models the impact of fees on returns to decide if that leverage is best saved for other negotiations.
  - The System has a proposed plan, as of October 2014, to review investment management fees for accuracy (on a sample basis) and as an operational audit.

- **Recommendations**

Task 3.a: Identify the processes and other controls the System uses for accepting and/or negotiating external investment manager fees
Recommendation: The System should add specific procedures regarding fee negotiation to its due diligence procedures, combining current policies with best practice (see section 3.c).

b. Determine whether the System used the identified processes and controls for accepting and/or negotiating external investment manager fees for contracts the System entered into during fiscal years 2005 through 2014;

- **Observations**
  - The results are inconclusive toward establishing whether the System followed the outlined procedures when negotiating investment manager fees. Without documentation of the negotiations it is hard to say with certainty which measures were or were not taken for each particular investment.
  - There is strong evidence for successful fee negotiation on alternative investments, as analysis shows that the system has achieved fee reductions of over $39 million compared to standard market fees.
  - Overall, the System has adequately managed fees for the benefit of the System despite lacking a formal, documented procedure.

- **Recommendations**

Task 3.b: Determine whether the System used the identified processes and controls for accepting and/or negotiating external investment manager fees for contracts the System entered into during fiscal years 2005 through 2014
Recommendation: The documented procedures mentioned in Section 3.a should include a standard method for documentation of fee negotiation. The documentation should match what is already being done, including the proposed fees from the manager before negotiation, the System office proposed fee structure, and the final agreement.

c. Compare the System's processes and other controls over setting external investment manager fees to best practices, including but not limited to industry standards;

- **Background Summary of Best Practices**

  - The Government Finance Officers Association identifies several best practices in its Investment Fee Policies for Retirement Systems Best Practices (released September 2014, see Appendix 3.c):
    1. Negotiate the lowest possible fees given knowledge of what similar investors are paying and include a most favored nation clause in the agreement.
    2. Give an individual or group responsibility for negotiating fees, and require that they report before any agreement is signed.
    3. Consider the importance of investment management fees amongst the multiple factors examined when selecting investment managers.
    4. Consider separately managed accounts, establish fee breakpoints as the investment grows, and discuss excluding uninvested cash.
    5. Fees for alternative investments should favor performance-based fees, and consideration should be given to group purchasing arrangements and cooperative fees.
  - In addition, Gallagher would advise using indexed investments in areas where the market is largely efficient, and reserving active management for market segments were the median manager has demonstrated an ability to consistently add value over the relevant benchmark net of fees.

- **Observations**
  - The System portfolio has a considerable portion of assets invested in passive investments, particularly in efficient markets such as large-cap U.S. equities, and has secured favorable pricing on such investments as compared to the relevant peer group of passive investment managers.
  - Of the five GFOA recommended best practices, the System has explicitly noted that fees are considered amongst the multiple factors examined when selecting a manager, but did not comment on the other GFOA recommendations.

- **Recommendations**

Task 3.c: Compare the System's processes and other controls over setting external investment manager fees to best practices, including but not limited to industry standards
Recommendation: Gallagher recommends that the System begin by giving a person or group responsibility for fee policy and negotiations. Once established, this group can also be tasked with documenting procedures that include the best practices outlined by the GFOA. The group should draft a formal report on fee negotiations to be completed prior to the execution of each investment agreement.

d. Identify the reasons for and impact of any inadequate processes or other controls; and

- **Observations**
  - While the majority of assets in traditional asset classes have secured favorable fee arrangements, several are above the median (using eVestment Alliance database) level for the asset class given the size of the mandate.
  - These investments do not necessarily indicate a failure of procedure, as long as fees were negotiated to the best of the team's ability and the assessment was made that the manager's potential to add value relative to its benchmark was likely to justify the above-median expense.
  - The System may consider reducing the number of similar strategies and consolidate to negotiate fees that are more competitive.
  - There is not a perfectly constructed peer group for comparison in certain asset classes, especially long/short investments that are more appropriately regarded as alternatives.

- **Recommendations**

Task 3.d: Identify the reasons for and impact of any inadequate processes or other controls
Recommendation: Gallagher recommends the documentation of fee negotiations should include acknowledgement of where the manager fee ranks compared to an appropriate peer group. Above-median fees should be justified by the perceived ability of the manager to add value over the appropriate benchmark.

e. Make recommendations for improving how the System accepts and/or negotiates external investment manager fees, as appropriate.

- Please see each individual section for specific recommendations.

Section III: Background and Methodology

Background Information

The Public Safety Personnel Retirement System (the "System") is a multi-employer governmental plan acting as an independent agency of the State of Arizona to provide retirement and disability benefits for Arizona's public safety personnel and their beneficiaries and survivors. The System and two other governmental plans, the Elected Officials' Retirement Plan ("EORP") and Corrections Officer Retirement Plan ("CORP"), which collectively, are called the "Plans," are administered by a single, seven-member board of trustees (the "Board"). The EORP provides retirement and disability benefits for Arizona's jurists and elected officials and their beneficiaries and survivors. The CORP provides retirement and disability benefits for Arizona's corrections officers and their beneficiaries and survivors. By law, the Board administers the Plans through the System's offices. The Plans have created a group trust called the "Arizona PSPRS Trust" (the "Trust") to commingle their assets for purposes of investment, and, indeed, nearly all investments made by the Plans are made through the Trust.

Arthur J. Gallagher & Co., an international insurance brokerage and risk management services firm, is headquartered in Itasca, Illinois, has operations in 30 countries, and offers client service capabilities in approximately 140 countries around the world through a network of correspondent brokers and consultants. Gallagher Fiduciary Advisors, LLC (Gallagher) specializes in evaluating the organizational governance, day-to-day administration and investment programs of investment boards and pension systems using combined expertise in investment practices, pension fund administration and fiduciary responsibility. In operation for over 20 years, Gallagher has performed similar evaluations for numerous other public and private pension funds, and is recognized as the leading firm in the industry performing this type of consulting services.

The specific details, scope and depth of the review are defined by the December 1, 2014 agreement, between the Arizona Office of the Auditor General and Gallagher. Throughout the report, as part of our operational review, we identify and highlight our findings or observations and provide recommendations. We note that our comments are limited by the scope of work and we were not tasked with reviewing all areas of the investment program. Where appropriate, for each Task Area, we provide supplemental background information in addition to our findings and recommendations. The background sections may also include what we have deemed an industry "best practice" based on our experience performing similar reviews. A "best practice" is not necessarily the "norm" or most common practice, rather it is the most effective and efficient means (e.g., a process, procedure or structure) of doing something in a given situation to achieve an optimal outcome. Since effectiveness and efficiency are situational, what is a best practice for one operation may not be a best practice for all operations. Gallagher's responses to each recommendation are provided throughout the report.

The analysis leading up to this Report progressed through the following stages:

Document Collection
The first stage in our process was collection, with the System's cooperation, of information regarding the agency's investment practices and performance. This included amassing data and documents, such as written investment policies and guidelines, investment performance reports, service provider contracts, and other materials. This phase was conducted primarily between November 2014 and February 2015.

Analysis & Interviews

The next stage of our process, which continued throughout the project, was analysis. Throughout the process, we coordinated and integrated our efforts and maintained communication with designated representatives. The main interviews with the System were conducted during document procurement and in preparation for the preliminary draft.

Summary of Recommendations

Task 1.c: Determine the processes the System uses to monitor how well its investment strategies and objectives are performing and guide it toward meeting its expected rates of return
Recommendation: Gallagher recommends that the System consider including consecutive calendar year performance for the most recent ten years, as well as the inception to date returns in its quarterly investment reporting.

Task 1.h: Determine the causes for any underperformance, including any procedures or requirements that limit the System's investment strategies
Recommendation: 1. Given the poor performance of the overall real estate portfolio, in particular the Joint Venture investments, Gallagher recommends that the System staff continue to work with its specialty consultants to review and possibly restructure the portfolio as feasible. 2. The System should continue to monitor performance of the Trust and the underlying strategies and adjust its asset allocation and restructure asset classes as appropriate and reasonable.

Task 2.a: Identify the processes and other controls the System uses for selecting, developing terms and conditions for, monitoring, valuing investments, and terminating alternative investment manager contracts
Recommendation: The Fund Due Diligence procedure was approved in 2014 and our review shows that it is due to be reviewed in 2015. Gallagher recommends following the annual review schedule that is listed and documenting each annual review.

Task 2.b: Determine whether the System used the identified processes and controls for alternative investment contracts the System's entered into during fiscal years 2005 through 2014
Recommendation: 1. Gallagher recommends creating an Executive Summary for each partnership that reflects the twelve areas of focus outlined in the due diligence process (FDD2014). The summary should indicate that each area has been reviewed and completed as outlined in the process document. The summary should be included in all due diligence records, in both electronic and hard copy form, as appropriate. 2. The Internal Audit and Compliance Officer should review, at least annually, each investment that has been approved by the Administrator, Staff and consultants for the System portfolio. The scope of this review should mirror that of the initial process documented in the Review of Investment Due Diligence Report dated March 18, 2013. Future annual reviews should be presented to the Board of Trustees. 3. Gallagher recommends updating and revising the due diligence procedures on an annual basis. In the next revision of the procedure outlined in FDD2014, Gallagher specifically recommends: a. Expand the staff memo to specifically include information on how the investment was identified and selected for additional due diligence.

Task 2.b: Determine whether the System used the identified processes and controls for alternative investment contracts the System's entered into during fiscal years 2005 through 2014
b. Include a note in the FDD2014 procedure that very clearly specifies that the Meeting Scorecard is only relevant for new firms where the System does not have an existing relationship. c. When making an additional investment with an existing manager relationship, ask the investment manager to verify, in writing, any material changes to the firm or investment process since the time of the most recent investment by the System. d. Either remove or clarify the reference to Board of Trustees meetings as appropriate.

Task 2.c: Determine if the System collects and utilizes monitoring data to improve subsequent contracts
Recommendation: 1. The System should continue to utilize outside firms in the legal review of fund terms and documents, as appropriate, and focus on key legal partners as opposed to casting a wide net with several approved vendors. 2. The System should periodically review each service provider which can help ensure that the firms continue to serve in the best interest of the Trust. Gallagher recommends that such a review be conducted at least every three years.

Task 2.d: Compare the System's processes and other controls for selecting, monitoring, and terminating alternative investment manager contracts and valuing investments to best practices, including but not limited to industry standards
Recommendation: 1. Gallagher recommends the System continue with its commitment to regularly update and improve its due diligence procedures, particularly in light of the decision-making responsibilities that have been granted to the Administrator, Staff, and consultants for the System's portfolio. 2. A periodic review of all service providers (both investment advisors and legal representation) would help to ensure that the System continues to receive high-quality guidance and advice at a reasonable cost. Gallagher recommends that these reviews be conducted at least every three years.

Task 3.a: Identify the processes and other controls the System uses for accepting and/or negotiating external investment manager fees
Recommendation: The documented procedures mentioned in Section 3.a should include a standard method for documentation of fee negotiation. The documentation should match what is already being done, including the proposed fees from the manager before negotiation, the System office proposed fee structure, and the final agreement.

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Task 3.c: Compare the System's processes and other controls over setting external investment manager fees to best practices, including but not limited to industry standards
Recommendation: Gallagher recommends that the System begin by giving a person or group responsibility for fee policy and negotiations. Once established, this group can also be tasked with documenting procedures that include the best practices outlined by the GFOA. The group should draft a formal report on fee negotiations to be completed prior to the execution of each investment agreement.

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Disclosures

Investment advisory services, named and independent fiduciary services are offered through Gallagher Fiduciary Advisors, LLC, an SEC Registered Investment Adviser. Gallagher Fiduciary Advisors, LLC is a single-member, limited-liability company, with Gallagher Benefit Services, Inc. as its single member. Neither Arthur J. Gallagher & Co., Gallagher Fiduciary Advisors, LLC nor their affiliates provide accounting, legal or tax advice. An index, such as but not limited to the S&P 500, is a portfolio of specific securities, the performance of which is often used as a benchmark in judging the relative performance of certain investments or asset classes. Past performance does not guarantee future results. The index returns are generally "Total Return" which includes the reinvestment of any dividends or other income paid by the index constituents. The "Total Return" of an index generally does not reflect any brokerage commissions, other transaction costs or investment management fees that an investor may incur in connection with an actual investment in securities. Historical results should not and cannot be viewed as an indicator of future results.

Alternative investments sometimes lack liquidity, lack diversification, are not subject to the same regulatory requirements as other traditional investments, may involve complex tax structures and delays in distributing important tax information, and may involve substantial fees. Alternatives may involve leverage, short selling and/or derivatives. These products often execute trades on non-U.S. exchanges. Investing in foreign markets may entail risks that differ from those associated with investments in U.S. markets. These investments may not be appropriate for all investors.

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Unless otherwise noted, the data sources are: Standard & Poor's, Russell, MSCI Barra, Barclays, Dow Jones, Bloomberg, HFRI, and Investment Metrics.

Independent Operational Review of the Public Safety Personnel Retirement System (the System) Investment Strategies, Alternative Asset Investment Procedures, and Fees Paid to External Investment Managers

Appendices

Unless otherwise noted, the data sources are: Standard & Poor's, Russell, MSCI Barra, Barclays, Dow Jones, Bloomberg, HFRI, and Investment Metrics.

Appendix 1.e:

Determine whether the System met its overall expected rates of return during the past 10 fiscal years

Exhibit 1:

Public Safety Personnel Retirement System Trust
As of June 30, 2014

	Performance(%)									
	Jul-2013 To Jun-2014	Jul-2012 To Jun-2013	Jul-2011 To Jun-2012	Jul-2010 To Jun-2011	Jul-2009 To Jun-2010	Jul-2008 To Jun-2009	Jul-2007 To Jun-2008	Jul-2006 To Jun-2007	Jul-2005 To Jun-2006	Jul-2004 To Jun-2005
Total Fund	13.25	10.98	-0.80	17.36	13.45	-17.77	-7.25	17.05	8.28	9.17
Total Fund Policy	*13.85*	*10.11*	*2.91*	*17.40*	*12.12*	*-21.12*	*-5.76*	*15.12*	*3.56*	*6.41*
Total Equity	21.15	18.23	-6.19	29.98	13.74	-21.90	-11.81	20.62	6.73	9.14
Total Equity Benchmark	*23.68*	*18.07*	*-4.36*	*31.29*	*13.66*	*-27.04*	*-10.53*	*19.95*	*8.63*	*6.32*
U.S. Equity	21.84	21.04	0.03	30.19	16.96	N/A	N/A	N/A	N/A	N/A
Russell 3000 Index	*25.22*	*21.46*	*3.84*	*32.37*	*15.72*	*-26.56*	*-12.69*	*20.07*	*9.56*	*8.05*
Non US Equity	20.34	14.65	-14.82	29.78	8.97	N/A	N/A	N/A	N/A	N/A
MSCI AC World ex USA (Net)	*21.75*	*13.63*	*-14.56*	*29.73*	*10.43*	*-30.92*	*-6.64*	*29.62*	*27.90*	*16.47*
Fixed Income	6.15	1.35	6.38	4.20	13.84	-1.68	3.62	6.93	0.07	10.46
Barclays Global Aggregate	*7.39*	*-2.18*	*2.73*	*10.51*	*5.00*	*2.76*	*12.90*	*4.67*	*0.27*	*7.51*
Real Estate	-1.32	10.27	-3.85	-4.95	-12.68	-5.10	15.63	N/A	N/A	N/A
NCREIF Property Index	*11.21*	*10.73*	*12.04*	*16.73*	*-1.48*	*-19.56*	*9.21*	*17.25*	*18.67*	*18.02*
JV Real Estate	-26.24	6.80	-14.21	-14.29	-11.47	N/A	N/A	N/A	N/A	N/A
NCREIF Property Index	*11.21*	*10.73*	*12.04*	*16.73*	*-1.48*	*-19.56*	*9.21*	*17.25*	*18.67*	*18.02*
Real Estate EX JV	20.60	13.14	6.78	14.88	-16.03	-20.25	N/A	N/A	N/A	N/A
NCREIF Property Index	*11.21*	*10.73*	*12.04*	*16.73*	*-1.48*	*-19.56*	*9.21*	*17.25*	*18.67*	*18.02*
Private Equity	26.50	11.53	6.21	25.86	26.66	-23.69	-12.70	N/A	N/A	N/A
Private Equity Benchmark	*26.47*	*22.68*	*4.88*	*33.69*	*16.88*	*-25.83*	*-11.81*	*21.27*	*10.65*	*9.13*
Credit Opportunities	11.25	12.53	0.26	18.37	33.85	-26.23	N/A	N/A	N/A	N/A
Credit Opportunites Benchmark	*8.59*	*8.02*	*6.51*	*12.46*	*20.95*	*-10.17*	*-2.00*	*8.51*	*5.50*	*5.72*

Performance returns are net of fees.

Exhibit 1 Continued:

Public Safety Personnel Retirement System Trust
As of June 30, 2014

	Performance(%)									
	Jul-2013 To Jun-2014	Jul-2012 To Jun-2013	Jul-2011 To Jun-2012	Jul-2010 To Jun-2011	Jul-2009 To Jun-2010	Jul-2008 To Jun-2009	Jul-2007 To Jun-2008	Jul-2006 To Jun-2007	Jul-2005 To Jun-2006	Jul-2004 To Jun-2005
Real Assets	8.86	3.50	0.54	6.85	5.99	N/A	N/A	N/A	N/A	N/A
Real Assets Benchmark	*4.09*	*3.77*	*3.72*	*5.59*	*3.14*	*0.75*	*7.03*	*4.75*	*6.27*	*4.59*
GTAA	7.51	3.46	3.43	21.22	N/A	N/A	N/A	N/A	N/A	N/A
GTAA	*3.25*	*3.34*	*3.45*	*3.32*	*3.35*	*4.99*	*7.26*	*8.54*	*7.66*	*5.61*
Absolute Return	8.28	17.99	2.87	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Absolute Return Benchmark	*2.04*	*2.09*	*2.04*	*2.16*	*2.14*	*2.95*	*5.65*	*7.26*	*5.93*	*3.96*
Risk Parity	9.72	-1.30	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Risky Parity Benchmark	*12.07*	*2.58*	*-1.47*	*17.83*	*7.08*	*-13.10*	*8.73*	*10.40*	*7.23*	*8.88*
Short Term Investments	0.34	0.20	-0.55	0.22	0.35	0.95	4.46	5.48	4.46	2.33
90 Day U.S. Treasury Bill	*0.04*	*0.09*	*0.04*	*0.15*	*0.13*	*0.94*	*3.58*	*5.16*	*3.85*	*1.92*

Performance returns are net of fees.

Exhibit 2:

Public Safety Personnel Retirement System Trust
As of June 30, 2014

	Performance(%)								
	1 Quarter	1 Year	3 Years	5 Years	7 Years	10 Years	Jan-2014 To Jun-2014	Since Inception	Inception Date
Total Fund	2.94	13.25	7.63	10.67	3.43	5.77	5.37	6.57	07/01/2002
Total Fund Policy	*3.10*	*13.85*	*8.86*	*11.17*	*3.39*	*4.82*	*4.90*	*5.25*	
Total Equity	3.62	21.15	10.35	14.71	4.58	6.75	4.55	7.58	07/01/2002
Total Equity Benchmark	*4.95*	*23.68*	*11.78*	*15.82*	*4.50*	*6.54*	*6.32*	*6.99*	
U.S. Equity	3.16	21.84	13.84	17.57	N/A	N/A	4.51	8.95	09/01/2008
Russell 3000 Index	*4.87*	*25.22*	*16.46*	*19.33*	*6.47*	*8.23*	*6.94*	*10.21*	
Non US Equity	4.21	20.34	5.53	10.69	N/A	N/A	4.61	6.33	09/01/2008
MSCI AC World ex USA (Net)	*5.03*	*21.75*	*5.73*	*11.11*	*1.27*	*7.75*	*5.56*	*4.22*	
Fixed Income	2.51	6.15	4.60	6.30	4.74	5.04	4.71	5.81	07/01/2002
Barclays Global Aggregate	*2.47*	*7.39*	*2.57*	*4.60*	*5.48*	*5.06*	*4.93*	*5.81*	
Real Estate	-3.18	-1.32	1.52	-2.78	-0.69	N/A	1.35	-0.69	07/01/2007
NCREIF Property Index	*2.91*	*11.21*	*11.32*	*9.67*	*4.86*	*8.63*	*5.73*	*4.86*	
JV Real Estate	-11.84	-26.24	-12.25	-12.50	N/A	N/A	-11.35	-11.00	09/01/2008
NCREIF Property Index	*2.91*	*11.21*	*11.32*	*9.67*	*4.86*	*8.63*	*5.73*	*4.15*	
Real Estate EX JV	2.81	20.60	13.37	7.04	N/A	N/A	10.64	1.44	11/01/2007
NCREIF Property Index	*2.91*	*11.21*	*11.32*	*9.67*	*4.86*	*8.63*	*5.73*	*4.50*	
Private Equity	6.86	26.50	14.43	19.02	6.86	N/A	14.38	7.22	11/01/2007
Private Equity Benchmark	*5.13*	*26.47*	*17.62*	*20.52*	*7.54*	*9.31*	*7.47*	*7.33*	
Credit Opportunities	2.45	11.25	7.87	14.74	N/A	N/A	5.11	6.60	07/01/2008
Credit Opportunites Benchmark	*1.89*	*8.59*	*7.70*	*11.19*	*5.92*	*6.12*	*4.47*	*7.31*	

Performance returns are net of fees.

Exhibit 2 Continued:

Public Safety Personnel Retirement System Trust
As of June 30, 2014

	Performance(%)								
	1 Quarter	1 Year	3 Years	5 Years	7 Years	10 Years	Jan-2014 To Jun-2014	Since Inception	Inception Date
Real Assets	2.97	8.86	4.24	5.11	N/A	N/A	5.34	5.29	04/01/2009
Real Assets Benchmark	*1.16*	*4.09*	*3.86*	*4.06*	*4.00*	*4.36*	*2.14*	*4.17*	
GTAA	4.19	7.51	4.78	N/A	N/A	N/A	4.10	8.30	03/01/2010
GTAA	*0.80*	*3.25*	*3.35*	*3.34*	*4.13*	*5.06*	*1.61*	*3.35*	
Absolute Return	2.56	8.28	9.54	N/A	N/A	N/A	2.82	9.80	11/01/2010
Absolute Return Benchmark	*0.51*	*2.04*	*2.06*	*2.09*	*2.72*	*3.61*	*1.02*	*2.07*	
Risk Parity	4.23	9.72	N/A	N/A	N/A	N/A	7.12	4.07	07/01/2012
Risky Parity Benchmark	*3.00*	*12.07*	*4.24*	*7.40*	*4.38*	*5.70*	*5.58*	*7.22*	
Short Term Investments	0.03	0.34	0.00	0.11	0.84	1.80	0.11	1.72	07/01/2002
90 Day U.S. Treasury Bill	*0.01*	*0.04*	*0.06*	*0.09*	*0.70*	*1.57*	*0.03*	*1.51*	

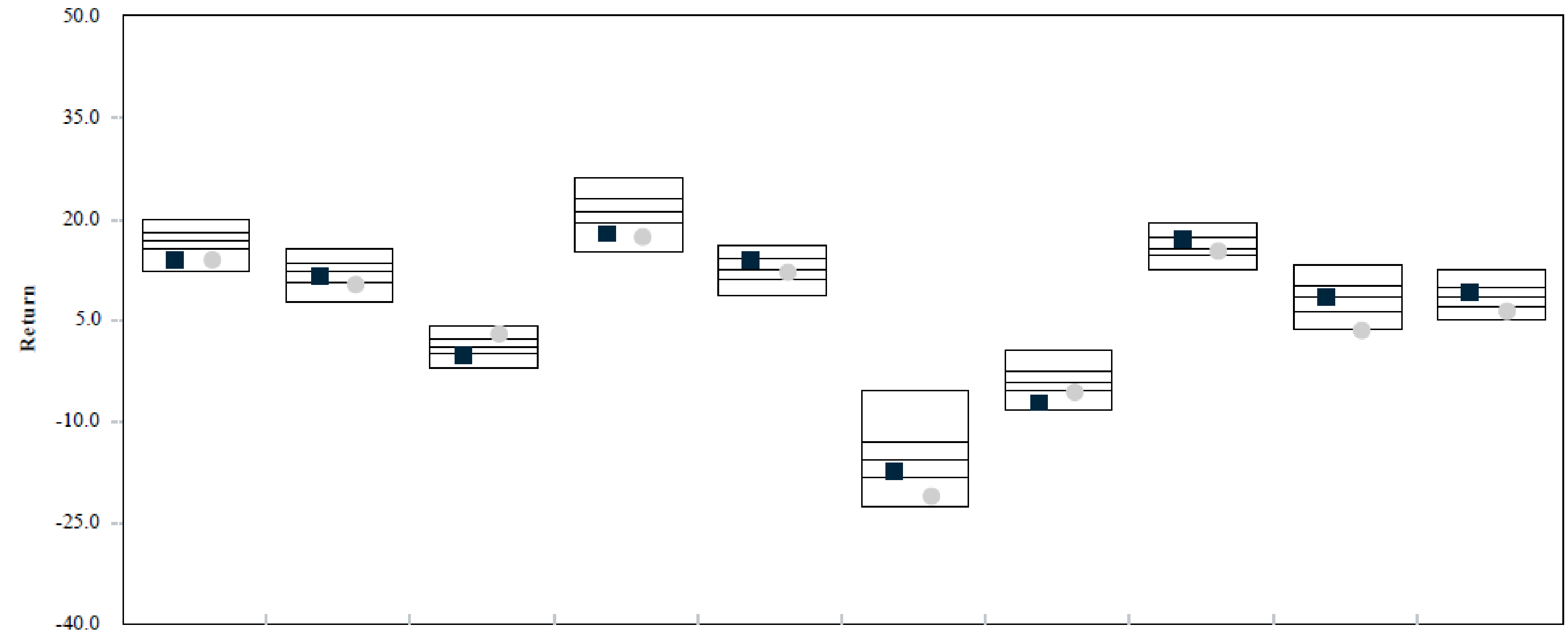
Performance returns are net of fees.

Appendix 1.g:

Compare the System's investment performance to peer retirement systems' performance

Exhibit 1:

Public Safety Personnel Retirement System Trust
All Public Plans-Total Fund
As of June 30, 2014



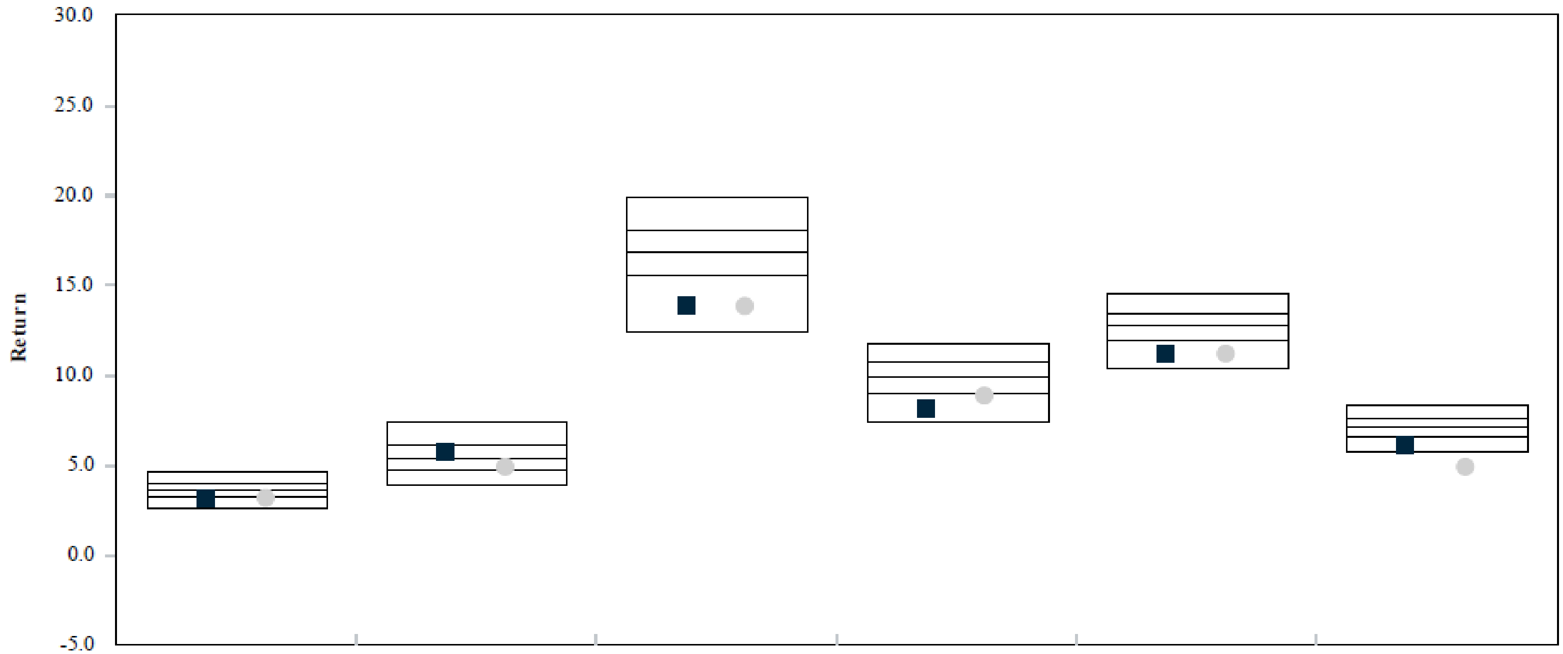
	Jul-2013 To Jun-2014	Jul-2012 To Jun-2013	Jul-2011 To Jun-2012	Jul-2010 To Jun-2011	Jul-2009 To Jun-2010	Jul-2008 To Jun-2009	Jul-2007 To Jun-2008	Jul-2006 To Jun-2007	Jul-2005 To Jun-2006	Jul-2004 To Jun-2005
■ Total Fund	13.82 (93)	11.47 (66)	-0.33 (81)	17.78 (88)	13.89 (29)	-17.46 (69)	-7.18 (91)	17.05 (28)	8.28 (52)	9.17 (38)
● Total Fund Policy	13.85 (93)	10.11 (83)	2.91 (15)	17.40 (89)	12.13 (60)	-21.12 (92)	-5.76 (79)	15.12 (67)	3.56 (96)	6.41 (89)
5th Percentile	19.91	15.62	4.27	26.25	16.25	-5.58	0.55	19.43	13.39	12.54
1st Quartile	18.05	13.62	2.25	23.07	14.15	-13.07	-2.60	17.24	10.34	10.04
Median	16.85	12.35	1.03	21.23	12.65	-15.61	-4.22	15.75	8.45	8.33
3rd Quartile	15.60	10.84	0.00	19.44	11.04	-18.21	-5.51	14.59	6.31	6.99
95th Percentile	12.45	7.93	-2.10	15.12	8.62	-22.35	-8.24	12.49	3.61	5.33
Population	517	515	526	530	516	457	414	311	290	279

Parentheses contain percentile rankings.
Calculation based on monthly periodicity.

Performance returns are gross of fees.

Exhibit 2:

Public Safety Personnel Retirement System Trust
All Public Plans-Total Fund
As of June 30, 2014



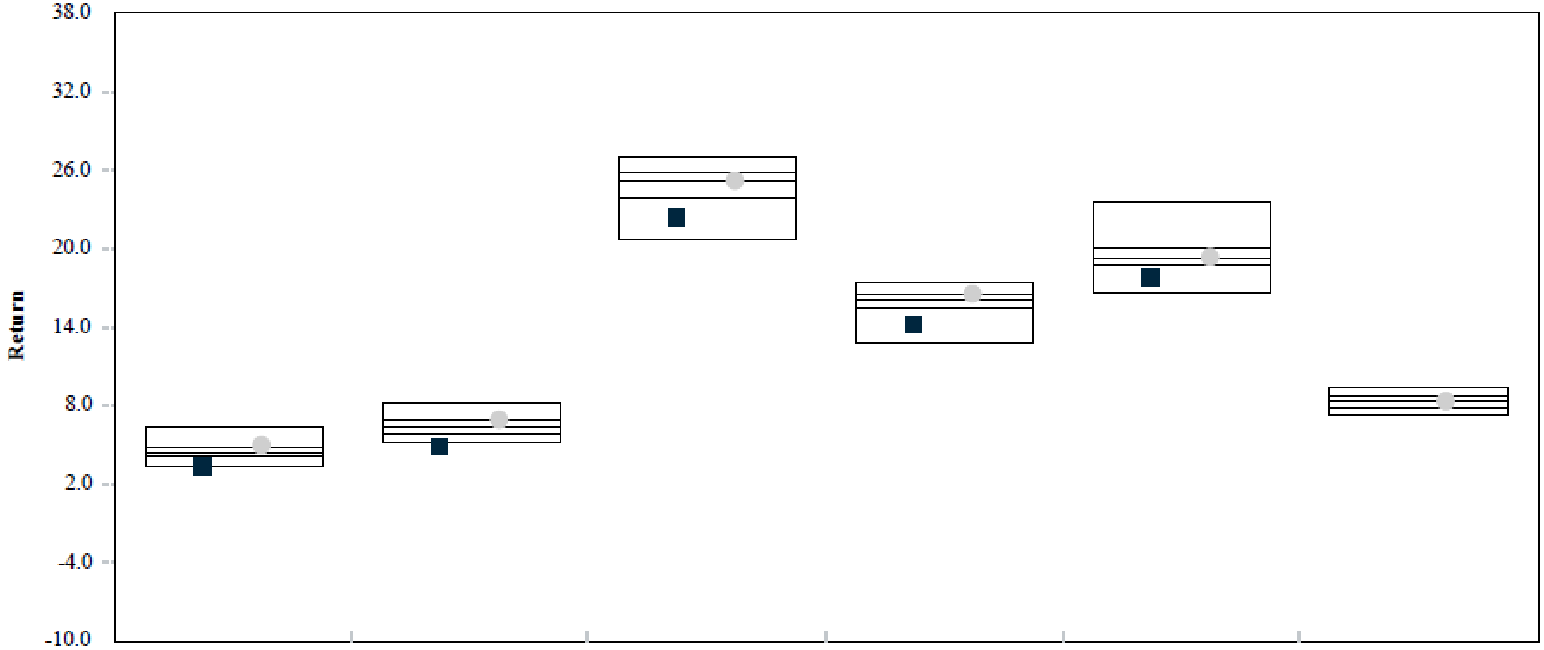
	1 Quarter	Year To Date	1 Year	3 Years	5 Years	10 Years
■ Total Fund	3.10 (84)	5.68 (38)	13.82 (93)	8.14 (93)	11.15 (90)	6.04 (92)
● Total Fund Policy	3.12 (84)	4.92 (72)	13.85 (93)	8.86 (81)	11.18 (90)	4.82 (100)
5th Percentile	4.63	7.40	19.91	11.75	14.51	8.36
1st Quartile	3.99	6.06	18.05	10.73	13.44	7.61
Median	3.63	5.40	16.85	9.94	12.76	7.14
3rd Quartile	3.28	4.81	15.60	9.06	12.00	6.63
95th Percentile	2.63	3.85	12.45	7.43	10.33	5.76
Population	529	527	517	495	464	343

Parentheses contain percentile rankings.
Calculation based on monthly periodicity.

Performance returns are gross of fees.

Exhibit 3:

Public Safety Personnel Retirement System Trust
All Public Plans-US Equity Segment
As of June 30, 2014



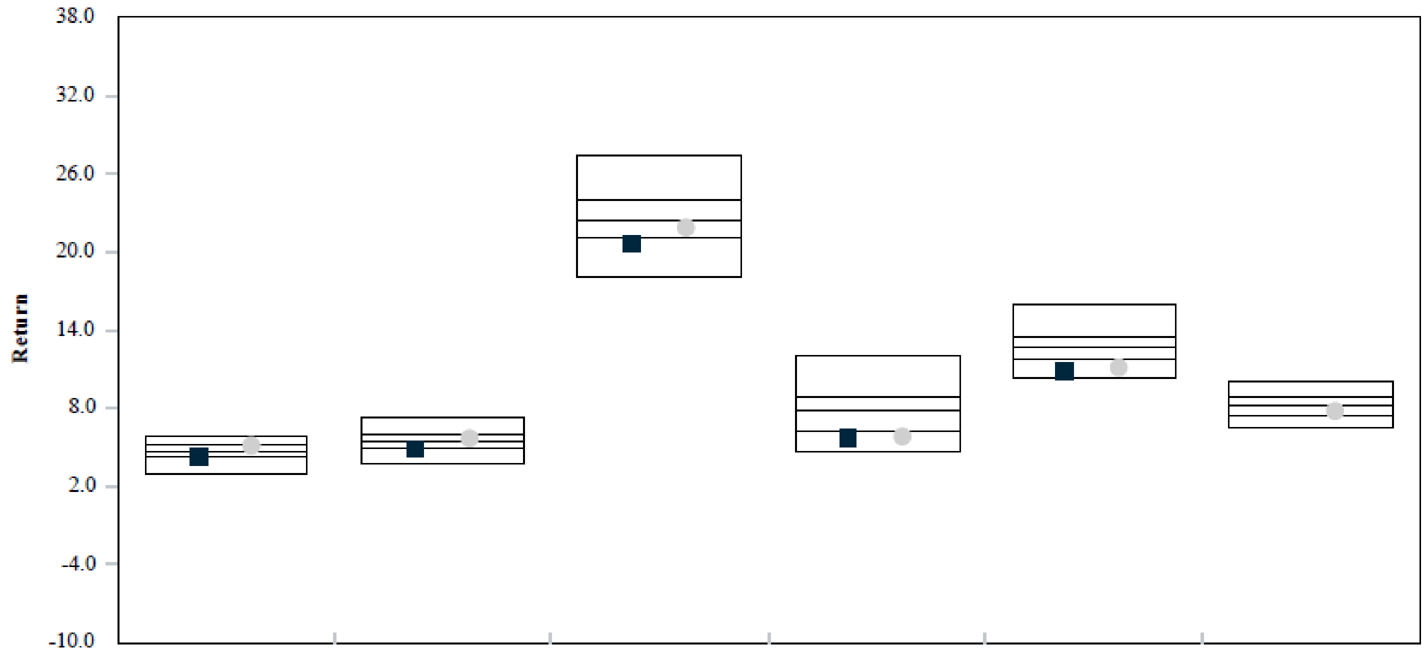
	1 Quarter	Year To Date	1 Year	3 Years	5 Years	10 Years
■ U.S. Equity	3.25 (98)	4.74 (98)	22.33 (91)	14.08 (91)	17.75 (89)	N/A
● Russell 3000 Index	4.87 (25)	6.94 (21)	25.22 (44)	16.46 (29)	19.33 (50)	8.23 (55)
5th Percentile	6.38	8.25	26.92	17.47	23.69	9.34
1st Quartile	4.86	6.87	25.85	16.53	19.97	8.73
Median	4.41	6.37	25.11	16.11	19.32	8.37
3rd Quartile	4.13	5.85	23.96	15.35	18.77	7.80
95th Percentile	3.44	5.22	20.68	12.95	16.62	7.24
Population	87	85	82	75	61	36

Parentheses contain percentile rankings.
Calculation based on monthly periodicity.

Performance returns are gross of fees.

Exhibit 4:

Public Safety Personnel Retirement System Trust
All Public Plans-Intl. Equity Segment
As of June 30, 2014



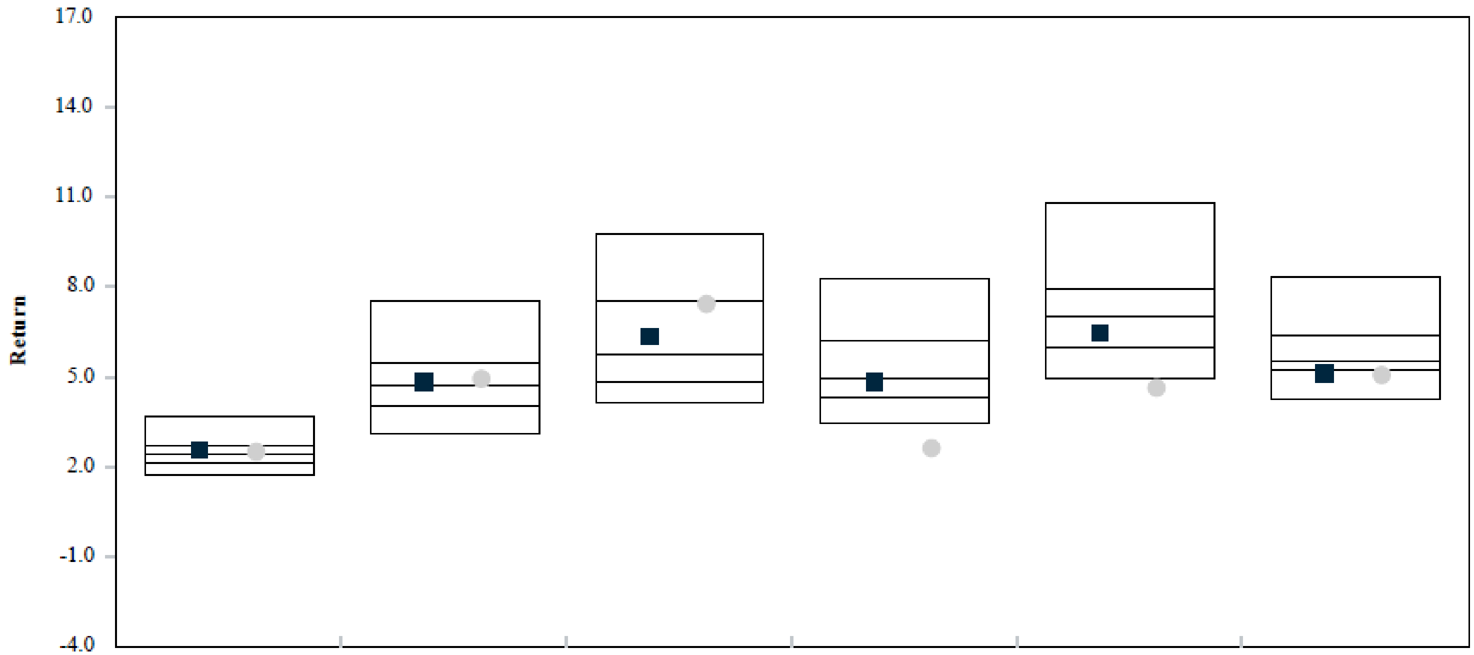
	1 Quarter	Year To Date	1 Year	3 Years	5 Years	10 Years
■ Non US Equity	4.26 (71)	4.73 (82)	20.58 (84)	5.69 (86)	10.85 (91)	N/A
● MSCI AC World ex USA (Net)	5.03 (31)	5.56 (47)	21.75 (67)	5.73 (85)	11.11 (90)	7.75 (65)
5th Percentile	5.91	7.29	27.38	11.98	15.94	10.11
1st Quartile	5.18	6.11	24.11	8.83	13.49	8.88
Median	4.63	5.48	22.33	7.91	12.76	8.21
3rd Quartile	4.19	4.91	21.11	6.23	11.83	7.37
95th Percentile	2.96	3.81	18.11	4.59	10.31	6.51
Population	83	82	80	70	56	34

Parentheses contain percentile rankings.
Calculation based on monthly periodicity.

Performance returns are gross of fees.

Exhibit 5:

Public Safety Personnel Retirement System Trust
All Public Plans-US Fixed Income Segment
As of June 30, 2014



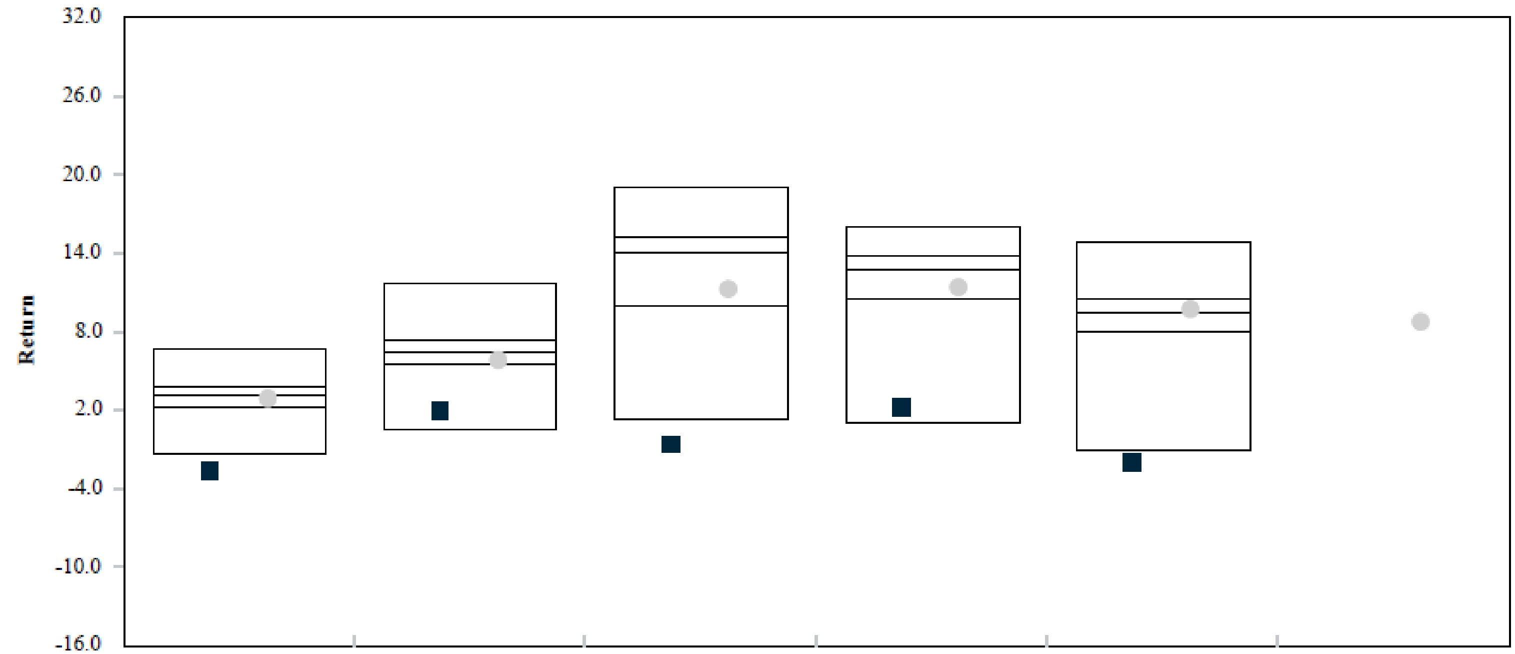
	1 Quarter	Year To Date	1 Year	3 Years	5 Years	10 Years
■ Fixed Income	2.55 (38)	4.79 (43)	6.29 (41)	4.76 (62)	6.45 (65)	5.12 (82)
● Barclays Global Aggregate	2.47 (48)	4.93 (41)	7.39 (29)	2.57 (99)	4.60 (99)	5.06 (84)
5th Percentile	3.70	7.51	9.79	8.27	10.85	8.32
1st Quartile	2.72	5.49	7.55	6.22	8.00	6.35
Median	2.43	4.72	5.79	4.99	7.02	5.54
3rd Quartile	2.10	4.06	4.83	4.30	6.03	5.21
95th Percentile	1.72	3.07	4.15	3.46	4.98	4.25
Population	83	82	79	72	56	35

Parentheses contain percentile rankings.
Calculation based on monthly periodicity.

Performance returns are gross of fees.

Exhibit 6:

Public Safety Personnel Retirement System Trust
All Public Plans-Real Estate Segment
As of June 30, 2014



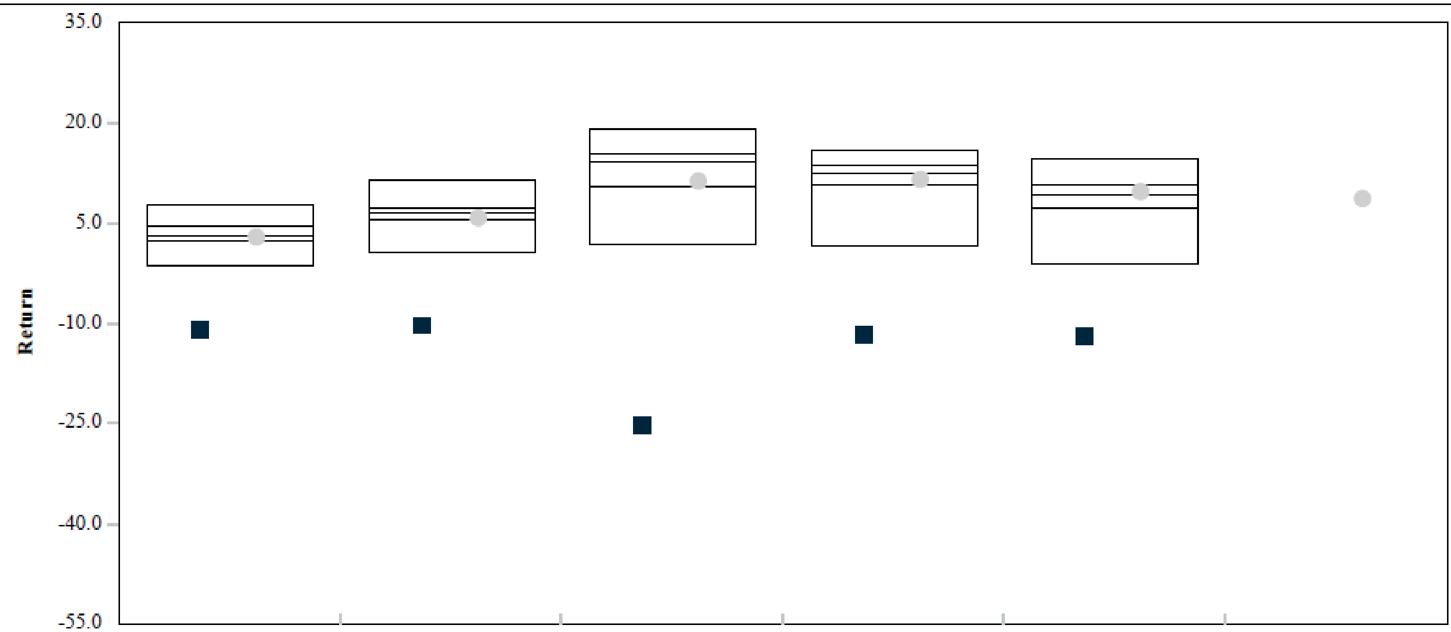
	1 Quarter	Year To Date	1 Year	3 Years	5 Years	10 Years
■ Real Estate	-2.74 (97)	1.89 (90)	-0.63 (96)	2.08 (95)	-2.00 (100)	N/A
● NCREIF Property Index	2.91 (65)	5.73 (72)	11.21 (73)	11.32 (59)	9.67 (45)	8.63 (N/A)
5th Percentile	6.74	11.60	19.09	16.06	14.77	N/A
1st Quartile	3.80	7.36	15.26	13.87	10.58	N/A
Median	3.05	6.48	14.07	12.68	9.39	N/A
3rd Quartile	2.28	5.48	9.94	10.55	8.04	N/A
95th Percentile	-1.41	0.53	1.34	1.08	-1.06	N/A
Population	32	32	30	21	18	7

Parentheses contain percentile rankings.
Calculation based on quarterly periodicity.

Performance returns are gross of fees.

Exhibit 7:

Public Safety Personnel Retirement System Trust
All Public Plans-Real Estate Segment
As of June 30, 2014



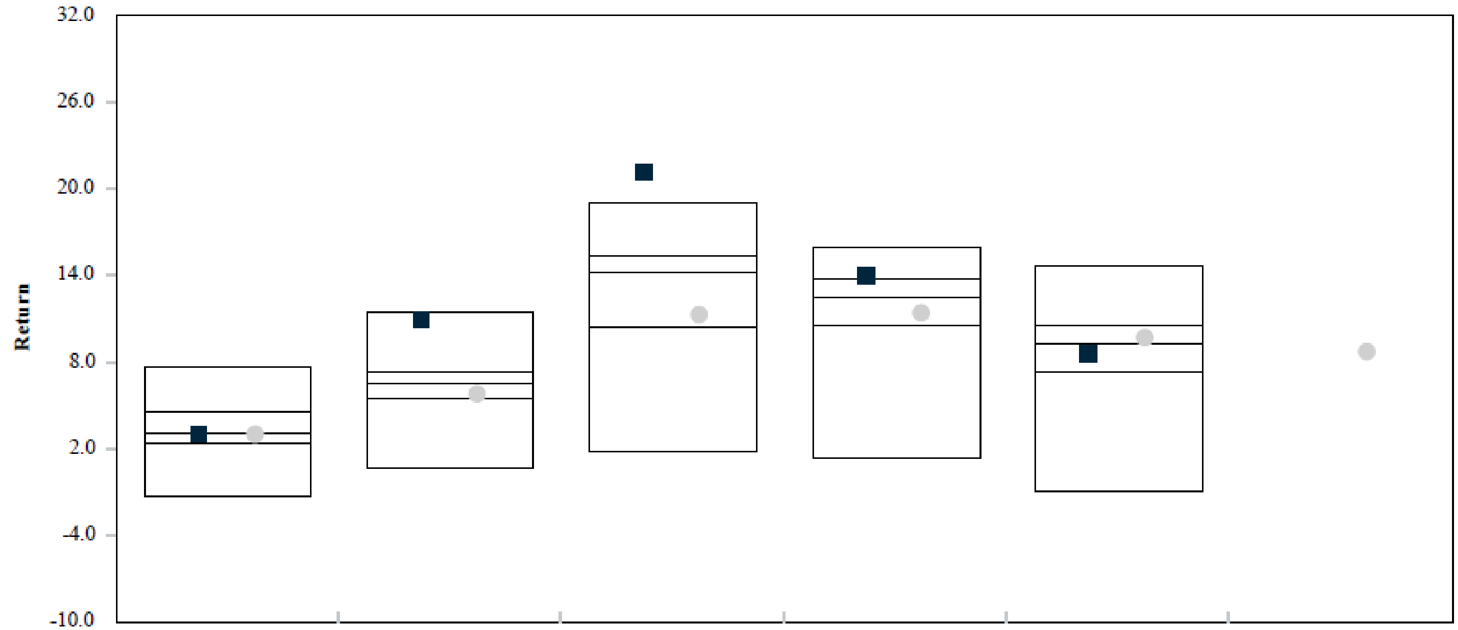
	1 Quarter	Year To Date	1 Year	3 Years	5 Years	10 Years
■ JV Real Estate	-10.99 (100)	-10.50 (100)	-25.50 (100)	-11.83 (100)	-12.06 (100)	N/A
● NCREIF Property Index	2.91 (66)	5.73 (73)	11.21 (74)	11.32 (57)	9.67 (43)	8.63 (N/A)
5th Percentile	7.73	11.50	19.04	16.02	14.66	N/A
1st Quartile	4.53	7.39	15.34	13.87	10.55	N/A
Median	3.05	6.53	14.15	12.43	9.24	N/A
3rd Quartile	2.30	5.50	10.45	10.56	7.28	N/A
95th Percentile	-1.27	0.61	1.79	1.41	-1.02	N/A
Population	33	33	31	22	19	8

Parentheses contain percentile rankings.
Calculation based on quarterly periodicity.

Performance returns are gross of fees.

Exhibit 8:

Public Safety Personnel Retirement System Trust
All Public Plans-Real Estate Segment
As of June 30, 2014



	1 Quarter	Year To Date	1 Year	3 Years	5 Years	10 Years
■ Real Estate EX JV	2.93 (64)	10.90 (6)	21.14 (1)	13.97 (23)	8.53 (67)	N/A
● NCREIF Property Index	2.91 (66)	5.73 (73)	11.21 (74)	11.32 (57)	9.67 (43)	8.63 (N/A)
5th Percentile	7.73	11.50	19.04	16.02	14.66	N/A
1st Quartile	4.53	7.39	15.34	13.87	10.55	N/A
Median	3.05	6.53	14.15	12.43	9.24	N/A
3rd Quartile	2.30	5.50	10.45	10.56	7.28	N/A
95th Percentile	-1.27	0.61	1.79	1.41	-1.02	N/A
Population	33	33	31	22	19	8

Parentheses contain percentile rankings.
Calculation based on quarterly periodicity.

Performance returns are gross of fees.

Appendix 2.d:

Compare the System's processes and other controls for selecting, monitoring, and terminating alternative investment manager contracts and valuing investments to best practices

Exhibit 1: Best Practices

Sample Best Practices, from fi360's 2013 publication, *Prudent Practices for Investment Stewards (U.S. Edition)*

STEP 1 : ORGANIZE

Practice S-1.1 20
The Investment Steward demonstrates an awareness of fiduciary duties and responsibilities.

Practice S-1.2 23
Investments and investment services under the oversight of the Investment Steward are consistent with applicable governing documents.

Practice S-1.3 25
The roles and responsibilities of all involved parties (fiduciaries and non-fiduciaries) are defined and documented.

Practice S-1.4 27
The Investment Steward identifies conflicts of interest and addresses conflicts in a manner consistent with the duty of loyalty.

Practice S-1.5 31
The Investment Steward requires agreements with service providers to be in writing and consistent with fiduciary standards of care.

Practice S-1.6 33
Portfolio assets are protected from theft and embezzlement.

STEP 2 : FORMALIZE

Practice S-2.1 37
An investment time horizon has been identified for each investment portfolio.

Practice S-2.2 39
An appropriate risk level has been identified for the portfolio.

Practice S-2.3 41
An expected return to meet each investment objective for the portfolio has been identified.

Practice S-2.4 43
Selected asset classes are consistent with the portfolio's time horizon and risk and return objectives.

Practice S-2.5 45
Selected asset classes are consistent with implementation and monitoring constraints.

Practice S-2.6 47
The investment policy statement contains sufficient detail to define, implement, and monitor the portfolio's investment strategy.

Practice S-2.7 50
When socially responsible investment strategies are elected, the strategies are structured appropriately.

STEP 3 : IMPLEMENT

Practice S-3.1 55
A reasonable due diligence process is followed to select each service provider in a manner consistent with obligations of care.

Practice S-3.2 58
When statutory or regulatory investment safe harbors are elected, each investment strategy is implemented in compliance with the applicable provisions.

Practice S-3.3 64
Decisions regarding investment strategies and types of investments are documented and made in accordance with fiduciary obligations of care.

STEP 4 : MONITOR

Practice S-4.1 69
Periodic reports compare investment performance against appropriate index, peer group, and investment policy statement objectives.

Practice S-4.2 71
Periodic reviews are made of qualitative and/or organizational changes of Investment Advisors, Investment Managers, and other service providers.

Practice S-4.3 73
Control procedures are in place to periodically review policies for trading practices and proxy voting.

Practice S-4.4 75
Periodic reviews are conducted to ensure that investment-related fees, compensation, and expenses are fair and reasonable for the services provided.

Practice S-4.5 77
There is a process to periodically review the Steward's effectiveness in meeting its fiduciary responsibilities.

Appendix 3.c:

Compare the System's processes and other controls over setting external investment manager fees to best practices

GFOA Best Practice

Investment Fee Policies for Retirement Systems

Background. Investment management fees can have a major effect on a retirement system's net investment returns. Historically, retirement systems have tried to minimize fees by: 1) using a competitive selection process that makes fee negotiation a key factor in the procurement decision; 2) using low-cost passive index investment strategies; and 3) exploring opportunities for achieving economies of scale. As retirement systems make increasing use of alternative investments such as hedge funds, private equity, and real estate, procedures to identify, quantify, and negotiate all forms of investment manager compensation are needed to minimize the effect these premium-priced investment strategies can have on the retirement system's total returns.

Recommendation. To minimize the impact of investment management fees on portfolio returns, the GFOA recommends that retirement systems, especially those that use alternative investment strategies, adopt an investment management fee policy that will allow the retirement system to negotiate the lowest competitive fee possible while looking out for the system's long-term earning potential.

To achieve this goal, an investment management fee policy should adhere to the following guidelines:

1. Staff and consultants should negotiate the lowest competitive fees using measures and techniques such as:
    - Determining what fees similar investors are paying and making these peer comparisons part of the negotiation process.
    - Including a "most favored nation" clause (ensuring that the type and size of fees are at the level that is being made available to other similar investors) in the agreement.
    - Leveraging the consultant's knowledge of the marketplace to minimize fees for contracted services, keeping in mind that fees are a key component of the competitive procurement process.

2. Give a specific individual or group of employees explicit responsibility for negotiating fees, and require that they report on the status of negotiations before the management agreement is executed. Consult with retirement system trustees to determine their interest in alternate fee structures (e.g., a fixed fee versus a performance fee that may have a higher or lower expected cost, based on performance).

3. Identify where the importance of competitive fees ranks among the multiple factors analyzed when selecting investment managers:
    - The primary factors to consider are demonstrated track records, proven investment talent, repeatable investment processes, competitive and strategic investment advantages, and other qualitative factors.[1]

  - When screening investment managers, make sure fees are reasonable. Future returns are uncertain, while fees can be determined in advance. When one manager's fees are higher than another's, analyze the track record to determine whether the additional cost is necessary and appropriate.
  - Because fees for active management can be dramatically higher than fees for passive management, examine the fees, the investment process, and historical performance of active managers to determine the likelihood that their performance will be better than the index return, after fees.[2]

4. When investing in traditional investments, ensure that the pension system is paying a reasonable, competitive fee by implementing the following strategies:
   - When using a separate account structure (whereby professional investors manage a portfolio solely for the system), establish fee break points as the manager's mandate grows. [3]
   - Explore the possibility of excluding uninvested cash from management fees, where possible. If exclusions aren't possible, consider a refunding arrangement.
   - When investing in commingled and mutual funds (investment vehicles that pool assets of multiple investors), ask the manager to identify and quantify all levels of fees.
     - Any fees that aren't directly related to the management of the portfolio should be considered for elimination.
     - Seek access to the lowest-cost share class and require that any fees related to services provided to retail investors be refunded to the retirement system.
     - Ask the investment manager to consider all the accounts it handles for your organization when determining fees.

5. When investing in alternatives, ensure that the retirement system is not paying excessive fees by implementing the following additional strategies:
   - Identify all fees. Paying a base fee is usually appropriate, but the fee policy should specify a preference for performance-based fees, where applicable. Focus on aligning the interests of the retirement system and the investment manager through the performance fee structure, potentially including fulcrum fees, hurdle rates, fee caps, and clawback provisions.[4]
   - The fee policy should state a preference for performance fees that compensate the manager for alpha rather than beta, and it should include a hard hurdle. [5] Alternative investment managers commonly use "carried interest," or participation fees, which are expressed as a percentage of net returns over a specified minimum return.
   - Rather than entering into direct partnerships with alternative investment managers, investigate the possibility of group purchasing arrangements such as an alternative investment fund of a P-share class.[6] These options allow retirement systems to realize pricing concessions based on their meaningful economies of scale and their long-term investment horizon.
   - Look for ways to "piggyback" on other institutional investors to maximize economies of scale and increase negotiating leverage.[7] One way of piggybacking is through a cooperative pool, in which an investment manager makes available a separate pool that provides lower pricing, based on the combined assets in the pool. Such "break points" are employed by mutual funds and commingled investment trusts and can be replicated through investment pools established for public pension funds.
   - Hire an attorney to oversee alternative investment contracts.

Notes.

1 A *repeatable investment processes* is one that is disciplined and consistent in strategy. *Competitive and strategic investment advantages* refer to an advantage that a firm has over its competitors, allowing it to generate greater sales or margins and/or retain more customers than its competition; this can include the firm's cost structure, product offerings, distribution network, and customer support. *Qualitative factors* refer to aspects of a firm's business such as its business model, competitive advantages, management, and corporate governance.

2 In *active management*, an investment manager attempts to earn more than the average market return. In *passive management*, the manager simply attempts to replicate the average market return before fees.

3 *Break point* refers to the investment amount that qualifies the investor for a reduced sales charge.

4 *Performance fees* are paid when an investment manager achieves an investment return that beats a specified benchmark. *Fulcrum fees* are fees that are centered on a target, or "fulcrum," performance level, which are increased or decreased, depending on performance. *Hurdle rates* are the *minimum rate of return* required for payment of performance fees. *Clawbacks* are payments the retirement system has made that the investment manager needs to return because of special circumstances that are included in the contract, such as failure to meet a minimum investment return.

5 *Alpha* refers to the portion of investment returns that is attributable to the manager's performance and skill, while *beta* is a measure of an investment's volatility, or systematic risk, when compared to the market as a whole. A *soft hurdle* calculates the manager's performance fee on all the fund's investment returns, if the hurdle rate is cleared. A *hard hurdle* is calculated only on returns above the hurdle rate. A hurdle is intended to ensure that a manager is rewarded only upon generating investment returns that are greater than what the investor would have earned elsewhere in the market.

6 A *P-share class* is a special pricing structure established by some investment fund companies; it gives retirement systems access to lower fees than those paid by retail investors.

7 Pension funds can also pursue collaborative procurement strategies and other methods of lawfully increasing the pension plan's bargaining and purchasing power. Each of the 50 states has enacted statutes permitting intergovernmental service and procurement arrangements.

Resources.

Orange County Employees Retirement System Fee Policy.

Girard Miller, "Managing Against Escalating Pension Investment Fees," *Government Finance Review*, February 2014.

PUBLIC SAFETY PERSONNEL RETIREMENT SYSTEM
CORRECTIONS OFFICER RETIREMENT PLAN
ELECTED OFFICIALS' RETIREMENT PLAN
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FAX: (602) 255-5572

September 4, 2015

Mark Melnychuk
Gallagher Fiduciary Advisors, LLC
3600 American Blvd West, Suite 500
Bloomington, MN 55431

Dear Mr. Melnychuk:

The Public Safety Personnel Retirement System (System) is pleased to receive Gallagher Fiduciary Advisors, LLC's positive findings regarding the System's investment strategies and believes there is little to add. Some recommendations presented below merely encourage the System to continue with existing practices. In these cases, the System affirms its commitment to such practices. Gallagher Fiduciary Advisors, LLC's remaining recommendations are valuable and the System will implement those recommendations without complications.

Task 1.c recommendation: *Gallagher recommends that the System consider including consecutive calendar year performance for the most recent ten years, as well as the inception to date returns in its quarterly investment reporting.*

> **Agency Response**: The finding of the Gallagher Fiduciary Advisors, LLC is agreed to and the audit recommendation will be implemented.

Task 1.h recommendations:

1. Given the poor performance of the overall real estate portfolio, in particular the Joint Venture investments, Gallagher recommends that the System staff continue to work with its specialty consultants to review and possibly restructure the portfolio as feasible.

> **Agency Response**: As Gallagher Fiduciary Advisors, LLC discuss in their report, the System restructured the Joint-Venture Real Estate portfolio and is working with legal counsel and external consultants towards a resolution for the remaining assets. Therefore, the finding of the Gallagher Fiduciary Advisors, LLC is agreed to and the audit recommendation will be implemented.

2. The System should continue to monitor performance of the Trust and the underlying strategies and adjust its asset allocation and restructure asset classes as appropriate and reasonable.

> **Agency Response:** The System will continue to monitor performance. The finding of the Gallagher Fiduciary Advisors, LLC is agreed to and the audit recommendation will be implemented.

<u>Task 2.a recommendation</u>: *The Fund Due Diligence procedure was approved in 2014 and our review shows that it is due to be reviewed in 2015. Gallagher recommends following the annual review schedule that is listed and documenting each annual review.*

> **Agency Response**: The System will continue to update procedures on an annual basis. The finding of the Gallagher Fiduciary Advisors, LLC is agreed to and the audit recommendation will be implemented.

<u>Task 2.b recommendations</u>:

1. Gallagher recommends creating an Executive Summary for each partnership that reflects the twelve areas of focus outlined in the due diligence process (FDD2014). The summary should indicate that each area has been reviewed and completed as outlined in the process document. The summary should be included in all due diligence records, in both electronic and hard copy form, as appropriate.

> **Agency Response:** The finding of the Gallagher Fiduciary Advisors, LLC is agreed to and the audit recommendation will be implemented.

2. The Internal Audit and Compliance Officer should review, at least annually, each investment that has been approved by the Administrator, Staff and consultants for the System portfolio. The scope of this review should mirror that of the internal process documented in the Review of Investment Due Diligence Report dated March 18, 2013. Future annual reviews should be presented to the Board of Trustees.

> **Agency Response:** The finding of the Gallagher Fiduciary Advisors, LLC is agreed to and the audit recommendation will be implemented.

3. Gallagher recommends updating and revising the due diligence procedures on an annual basis. In the next revision of the procedure outlined in FDD2014, Gallagher specifically recommends:

> *a. Expand the staff memo to specifically include information on how the investment was identified and selected for due diligence.*
>
> *b. Include a note in the FDD2014 procedure that very clearly specifies that the Meeting Scorecard is only relevant for new firms where the System does not have an existing relationship.*
>
> *c. When making an additional investment with an existing manager relationship, ask the investment manager to verify, in writing, any material changes to the firm or investment process since the time of the most recent investment by the System.*
>
> *d. Either remove or clarify the reference to Board of Trustees meetings as appropriate.*
>
> **Agency Response:** The finding of the Gallagher Fiduciary Advisors, LLC is agreed to

and the audit recommendation will be implemented.

<u>Task 2.c recommendations</u>:

1. The System should continue to utilize outside firms in the legal review of fund terms and documents, as appropriate, and focus on key legal partners as opposed to casting a wide net with several approved vendors.

Agency Response: The System will continue to focus on key legal partners. Therefore, the finding of the Gallagher Fiduciary Advisors, LLC is agreed to and the audit recommendation will be implemented.

2. The System should periodically review each service provider which can help ensure that the firms continue to serve in the best interest of the Trust. Gallagher recommends that such a review be conducted at least every three years.

Agency Response: The finding of the Gallagher Fiduciary Advisors, LLC is agreed to and the audit recommendation will be implemented.

<u>Task 2.d recommendations</u>:

1. Gallagher recommends the System continue with its commitment to regularly update and improve its due diligence procedures, particularly in light of the decision-making responsibilities that have been granted to the Administrator, Staff and consultants for the System's portfolio.

Agency Response: The System will continue to update its procedures. Therefore, the finding of the Gallagher Fiduciary Advisors, LLC is agreed to and the audit recommendation will be implemented

2. A periodic review of all service providers (both investment advisors and legal representation) would help to ensure that the System continues to receive high-quality guidance and advice at a reasonable cost. Gallagher recommends that these reviews be conducted at least every three years.

Agency Response: The finding of the Gallagher Fiduciary Advisors, LLC is agreed to and the audit recommendation will be implemented

<u>Task 3.a recommendation</u>: *The documented procedures mentioned in Section 3.a should include a standard method for documentation of fee negotiation. The documentation should match what is already being done, including the proposed fees from the manager before negotiation, the System office proposed fee structure, and the final agreement.*

Agency Response: Gallagher Fiduciary Advisors, LLC discusses the positive economic impact of Staff's active stance toward negotiating business terms. Simply documenting that practice is easily done. The finding of the Gallagher Fiduciary Advisors, LLC is agreed to and the audit recommendation will be implemented.

Task 3.b recommendation: *The documented procedures mentioned in Section 3.a should include a standard method for documentation of fee negotiation. The documentation should match what is already being done, including the proposed fees from the manager before negotiation, the System office proposed fee structure, and the final agreement.*

> **Agency Response**: This recommendation is identical to the previous recommendation. The finding of the Gallagher Fiduciary Advisors, LLC is agreed to and the audit recommendation will be implemented.

Task 3.c recommendation: *Gallagher recommends that the System begin by giving a person or group responsibility for fee policy and negotiations. Once established, this group can also be tasked with documenting procedures that include the best practices outlined by the GFOA. The group should draft a formal report on fee negotiations to be completed prior to the execution of each investment agreement.*

> **Agency Response**: This recommendation is directionally similar to the previous recommendations in this section. The finding of the Gallagher Fiduciary Advisors, LLC is agreed to and the audit recommendation will be implemented.

Task 3.d recommendation: *Gallagher recommends the documentation of fee negotiations should include acknowledgement of where the manager fee ranks compared to an appropriate peer group. Above-median fees should be justified by the perceived ability of the manager to add value over the appropriate benchmark.*

> **Agency Response**: The System will continue to evaluate a manager's fee relative to their peer group. The finding of the Gallagher Fiduciary Advisors, LLC is agreed to and the audit recommendation will be implemented.

Respectfully,

Jared Smout
Administrator

cc: Ms. Debra Davenport, Auditor General