Fiduciary and Conflict of Interest Review of the New York State Common Retirement Fund

Final Report

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Contents

Executive Summary 1
Summary of Conclusions and Recommendations 3
Committees 6
Private Equity Fee Reporting 7
Training 7
Decision-Making 7
Custodian Bank Contracting and Services 7
Reporting for Decision Making 8
Liquidity Management 8
Scope of the 2016 Fiduciary and Conflict of Interest Review 14
2016 Review Process 15
Task 1: Status of Implementation of Recommendations for Improvement Identified in Initial Fiduciary and Conflict of Interest Review of the Fund 16
Summary Conclusions re: Implementation Progress 16
Systemic Recommendations from 2013 (original recommendations are shown in italics) 20
Detailed Improvement Opportunities from 2013 26
Task 2: Review of Investments; Compliance with CRF Investment Policies and Procedures and DFS Regulations 56
Overview of Transaction Review Process 56
Transaction Review Findings 57
Assessment of Compliance 57
Task 3: Assess Compliance with Fiduciary Principles 58
(1) CRF Governance Framework 58
(2) Transparency 60
(3) Comptroller's Adherence to Ethical Standards 61
(4) Comptroller's Compliance with Fiduciary Responsibilities 62
(5) CRF Effectiveness and Efficiency 63
Assessment of Compliance 64
Task 4: Identify Recommendations for Improvement 65
Committees 65
Private Equity Fee Reporting 66
Training 67
Decision-Making 67
Custodian Bank Contracting and Services 69
Reporting for Decision Making 70
Liquidity Management 70
Appendix A – Project Team Biographies 72
Appendix B – Summary of Transaction Review 81
Appendix C – Glossary of Acronyms and Defined Terms 87

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Executive Summary

In January 2016, the New York State Common Retirement Fund (the Fund or CRF) selected Funston Advisory Services LLC (FAS) to conduct a fiduciary and conflict of interest review. The review covered the investment-related operations of the Fund. It did not cover the administrative operations of the New York State and Local Employees' Retirement System and the New York State and Local Police and Fire Retirement System (collectively, the System) (i.e., the administration of retirement benefits to participants).

During April 1, 2012 through March 31, 2015 (the Covered Period), there were a total of 96 investment transactions approved by the Comptroller. Based on our review process, all investment transactions conducted during the Covered Period were approved and closed in accordance with applicable CRF policies and legal requirements in all material respects. In addition, CRF transaction approval and compliance procedures are consistent with the statutory and regulatory provisions that were covered by this review.

We were asked to assess whether policies, procedures, and processes were in place during the Covered Period to ensure that the conduct of the investment-related operations of the Fund were consistent with the principles set forth in the Department of Financial Services (DFS) Regulations. We consider the CRF governance framework to be sound, with several opportunities for improvement.

The Fund is fully meeting the spirit and the letter of the transparency requirements articulated by DFS and the level of transparency compares well with other large public peer funds. During our review, it was apparent that the Division of Pension Investments and Cash Management (PICM) leadership and staff, as well as those in other divisions of the Office of the State Comptroller (OSC), act professionally and take ethics and conflict of interest standards seriously.

We did not identify any instances of inappropriate or unethical behavior. None of the external managers or service providers we spoke to identified any inappropriate requests or behavior by any of the PICM staff. We found the policies and procedures established by the Inspector General and Special Counsel on Ethics to be effective and a further control. We believe the Comptroller has been in compliance with his fiduciary responsibilities with regard to the Fund.

Overall, the Comptroller, PICM, and OSC are to be commended for their progress in the implementation of the recommendations from the initial fiduciary and conflict of interest review, which were memorialized in the final report submitted in early 2013 (the 2013 Report) and included many recommendations for improvement.

We found that, despite a lack of additional resources, the vast majority of the 2013 Report recommendations have been addressed. However, due to resource constraints, some are still in the process of being completed three years later.

Among the major improvements, utilization of Human Resources (HR) and Information Technology (IT) support functions has improved, existing resources have been re-aligned and optimized, and

organizational effectiveness has been improved. Investment process documentation has significantly improved and a middle office has been established. These achievements are mainly due to the stable and competent leadership of the Chief Investment Officer (CIO), who had just been appointed at the time of the 2013 Review, and the ongoing support of the Comptroller. Further improvements could be realized within investment operations with additional personnel and systems.

The CIO has created a vision and future direction, strategies and priorities that appear to have been embraced throughout the organization. This has been enhanced by recommendations resulting from a major review of PICM, assisted by an outside consulting firm, which involved the PICM organization in a bottom-up development of a new strategic plan (the CRF Strategic Plan) and identified key organizational barriers to improvement.

As an outcome of this review, a business case has been developed for significantly growing PICM staffing and increasing compensation levels to allow recruitment and retention of additional experienced staff. The business case anticipates lower overall costs through a higher level of insourcing of investment management at lower cost and through the expanded use of lower-cost external investment structures, such as co-investments and direct investments in real estate and private equity. While this FAS review did not analyze these plans in detail, we concur in the vision, as described to us by the CIO, and the need for additional resources and staff compensation levels more aligned with peer funds. The increase in investment staff is consistent with the needs identified in the 2013 Report.

In fact, in virtually all cases, full implementation of the recommendations of the 2013 Report and of the current review are dependent upon these staffing plans. While the Fund is currently well-managed, compared to most peers it remains severely understaffed for its scale and complexity, with underdeveloped risk analysis and management capabilities and an over-reliance on outsourced investment management and support functions. In addition, independent compensation benchmarking indicates that PICM staff compensation levels are in the bottom quartile for similar public pension funds. There is justifiable concern that current staff will leave if compensation is not increased, and it is likely that PICM will struggle to recruit needed new staff and stem turnover at current compensation levels.

Nonetheless, substantial progress has been made since the 2013 Report, with PICM working more effectively across asset classes, as well as with other divisions within OSC. The internal decision-making processes within PICM appear to be much improved, aided by a more effective Internal Investment Committee and the appointment of a Deputy CIO who is dedicated full time to investment-related matters.

Despite such progress, fully addressing the organization's HR and IT needs and realigning and optimizing resources will require adoption and implementation of the CRF Strategic Plan and approval of the PICM staffing and compensation plan by the relevant State authorities.

The analysis and recommendations in this report are based on the professional experience of the FAS review team and on information provided by or received from the Fund, other divisions within OSC, and third parties that we believe to be reliable. It is intended to provide reasonable, but not absolute, assurance on the subjects covered.

Summary of Conclusions and Recommendations

There were four tasks to be addressed by this review. Shown below is an overview of our conclusions and recommendations related to each task:

Task 1: Evaluate the extent to which the Fund has implemented the recommendations of the first fiduciary and conflict of interest review from 2013.

Conclusions

Regarding the major recommendations of the 2013 Report, the CRF and PICM have made significant progress in improving organizational effectiveness, due in no small part to the leadership of the Comptroller and the CIO, who had recently joined the Fund at the time of the 2013 Report. The Internal Investment Committee has become a key focus for investment decision making and appears to function very well. In addition, the CIO has created a vision for the organization, and we heard consistent messages from the PICM staff regarding strategies, priorities and future direction. This vision has clearly been enhanced by activities of the strategic planning project over the past year, which have involved the entire PICM organization in a bottom-up development of a new strategic plan and identified key organizational barriers to improvement.

Within the limitations of its resources, PICM has achieved partial progress in improving its HR and IT capabilities and results, but fully addressing the HR and IT needs will require implementation of the CRF Strategic Plan recommendations and approval of the strategic staffing plan by the relevant State authorities.

Similarly, PICM has achieved significant improvements in how its investment staff resources are deployed even though overall headcount is only marginally greater than in 2013. However, while substantial progress has been made addressing the 2013 Report recommendations for realignment and optimization of resources, full implementation will require approval of the CRF Strategic Plan recommendations, in particular staffing and compensation increases.

Regarding the specific, detailed recommendations from the 2013 Report, the CRF has made significant implementation progress. Forty of the 47 recommendations, or 85 percent, have either been fully implemented or have seen substantial implementation progress. In many of the cases where substantial progress is indicated, policies, procedures, or charters have been developed in draft form and are being refined and prepared for approval. In the seven instances of partial progress, in most cases resource constraints have been the primary barrier to further progress.

In our opinion, the Fund and PICM have taken the recommendations from the 2013 Report seriously and have worked to implement them despite significant resource limitations.

Recommendations

Based upon the activities of Task 1, FAS identified five recommendations for further improvement in implementation of the recommendations from the 2013 Report. These recommendations are described

below. Successful implementation of all of these recommendations will require additional staffing and resources.

R.1.1. The CRF should revise the Policies and Procedures Manual (PPM) to:

a) consistently address risk management with a more comprehensive approach that includes quantitative risk targets, as well as qualitative factors; and,

b) include a minimum frequency for in-person reviews of external managers.

R.1.2. CRF should continue to improve its document management capabilities and pursue acquisition and implementation of a commercial Document Management System (DMS) to track and provide access to investment-related electronic files.

R.1.3. The completeness of reporting of fee discussions, particularly with respect to the Real Estate Advisory committee (REAC) minutes, should be improved.

R.1.4. As the new Director of Compliance begins in his new role and resources are made available, PICM should adopt a policy to formalize the process for conducting compliance due diligence reviews of consultants.

R.1.5. An internal staff person should be hired within PICM to independently oversee reporting of Fund performance by the custodian bank.

Task 2: Evaluate the extent to which investments closed during the Covered Period were executed in compliance with:

- **Investment policies and procedures; and**
- **Specific provisions of the DFS Regulations requiring representations from investment managers on the use of placement agents, disclosure of conflicts of interest and access to records by the DFS.**

Conclusions

Based on our review of the 96 investment transactions approved by the Comptroller during the Covered Period and review of the CRF policies and compliance processes used for internal public securities portfolios, we conclude:

1. The investment transactions were approved and closed in accordance with the relevant CRF investment policies and legal requirements in all material respects.
2. Transaction files included applicable representations from investment managers on the use of placement agents, disclosure of conflicts of interest, and DFS access to records.

3. Appropriate controls are in place to confirm that internally-managed public securities portfolios are in compliance with program policies and procedures.

Recommendations

The CRF has improved its transaction documentation processes since 2013. We did not identify any areas requiring material improvements to policy or process.

Task 3: Determine, based on the above review, whether policies, procedures, and processes are in place to ensure that the conduct of the investment-related operations of the Fund continue to be consistent with the principles set forth in 11 NYCRR 136-2.1(b).

Conclusions

Based upon our review, we have concluded that the Fund's organizational structure is appropriate from both an operational and segregation of duties/ controls perspective. Delegations to staff seem to be effective and the effectiveness of all of the advisory committees is high. The Comptroller attends nearly all advisory committee meetings and appears to be well-informed regarding activities at the Fund. We consider the CRF governance framework to be sound.

The Fund and the System meet the requirements for fee reporting through the Comprehensive Annual Financial Report (CAFR) disclosures. The Comptroller has banned all placement agent fees, so the placement agent fee disclosure requirement has been met. We conclude that the Fund and the System are fully meeting the transparency requirements articulated by the DFS and the level of transparency compares well with other large public peer funds.

During our review, it was apparent that the PICM leadership and staff, as well as those in other OSC divisions, act professionally and take ethics and conflict of interest standards seriously. We did not identify any instances of inappropriate or unethical behavior. None of the external managers or service providers we spoke to identified any inappropriate requests or behavior by any of the PICM staff. We conclude that the Comptroller's Office maintains a very high level of ethical, professional and conflict of interest standards with respect to the Fund and the System.

Based upon this review, we conclude that the Comptroller is fulfilling his duty to act in the sole interest of the members and beneficiaries of the System. The Comptroller has approved all investment transactions that closed during the Covered Period, and descriptions of all new transactions that closed during each month are available on the OSC website. The assumptions and recommendations from the Actuary are deliberated at the Actuarial Advisory Committee meetings, the Committee provides its independent advice, and the Comptroller has accepted the Actuary's recommendations. We believe the Comptroller complied with his fiduciary responsibilities in all material respects with regard to the CRF.

Based upon our review, and referencing the 2013 Report, we believe the CRF is now operating more

effectively and at a somewhat higher level of efficiency. Despite constraints which have limited CRF's ability to add staff, upgrades to and redeployment of PICM staff, combined with more purposeful deployment of external resources, has resulted in an improved investment operation.

Recommendations

We believe the Comptroller is in compliance with his fiduciary duties for the Fund and the System. We did not identify any areas requiring material improvements.

Task 4: Identify, if appropriate, enhancements to the CRF's investment-related policies, procedures, and practices to bring them in line with prevailing and/or best practices.

Conclusions

We were asked to discuss how the CRF could enhance its investment-related policies, procedures, and practices, as well as to identify any significant changes in the investment or regulatory industry affecting public pension fund investment-related operations during the intervening three years since the 2013 Report and to discuss how the CRF is responding or should plan to respond to those changes.

The following eight recommendations supplement the discussion of recommendations from the 2013 Report, some of which remain to be implemented or are still being implemented.

Recommendations

Committees

Background: Two of the advisory committees to the Comptroller meet annually and are chaired by the Comptroller. The draft committee charters for the other three advisory committees, which meet regularly, state that the appointment of and length of service of the chair is at the discretion of the Comptroller but do not provide any guidelines for rotation. One of the committee chairs is relatively new and two have served for at least five years. The Comptroller has stated that he is pleased with the performance of the committees and values their input.

R.4.1. Review appointment of advisory committee chairs every two years and consider whether chair rotation could introduce a fresh perspective.

Background: Each of the committees is advisory to the Comptroller, so it is appropriate that the Comptroller's staff develops the charter for each committee. However, in most cases, the committee chairs told us they had not yet seen the draft charters that are being finalized. Staff indicated that the committees will have the opportunity to review and comment prior to finalization.

R.4.2. The Fund and the System should discuss the new committee charters with each committee, so as to familiarize the existing committee members with the charter's provisions.

Private Equity Fee Reporting

Background: The CRF is in the process of obtaining enhanced reporting of fees, expenses and carried interest by private equity partnerships, using the template developed by the Institutional Limited Partners Association (ILPA). It is not yet clear how and to what extent private equity fees, expenses and carried interest information will be made available to the public once the ILPA template information is received by the Fund. Staff expects the CRF would report such expenses in the aggregate. Currently, only known private equity management fees are reported, not carried interest or partnership expenses. Few public pension funds report private equity carried interest or partnership expenses today. The Comptroller stated to FAS that he wants to be as transparent as possible regarding fees and the Fund is considering various reporting options for carried interest disclosure on the private equity portfolio.

R.4.3. Develop a standard approach and definitions, perhaps in cooperation with other peer public funds, for reporting the expanded fee and expense information for private equity to improve transparency and comparability.

Training

Background: The CRF Strategic Plan includes a recommendation for major waves of new hiring. There is currently no formal on-boarding training of new staff, other than the standard training provided by OSC. It will be important for PICM to have a robust on-boarding process that explains not just what is expected and how PICM operates, but why PICM does what it does.

R.4.4. PICM should develop its own on-boarding training and orientation program for new hires.

Decision-Making

Background: There is often a tension between appropriate levels of process control and the need for quick investment decisions to take advantage of temporary market opportunities. For many public funds, this tension centers on making decisions regarding co-investments in private asset classes. One way to find an acceptable middle ground is to pre-determine the criteria – both in terms of size and nature (and therefore risk) for co-investments, which would then trigger a special co-investment process. The specifics of this recommendation are less important than that PICM undertake a thoughtful process to create a systematic approach that allows for the speed necessary for co-investments, while maintaining appropriate process controls.

R.4.5. PICM should explore changing potential levels of delegation, relating to existing investment mandates, which would allow for expanding the co-investment program while maintaining appropriate process controls. It should also create a pool of consultants to facilitate rapid underwriting of such opportunities.

Custodian Bank Contracting and Services

Background: Preliminary discussions are underway within the Fund and the System to begin to develop a new Request for Proposals (RFP) for custodian bank services. The range of potential services and

providers for foreign exchange (FX) and securities lending has continued to expand since the current custodian contract went into effect in 2010. The CIO stated that consideration is being given to preparing and receiving bids for three separate RFPs, one each for custodian, FX, and securities lending services. We believe this would be the best direction for the Fund, even if the same provider were selected for all three services.

R.4.6. PICM should work with OSC Finance, Accounting and Legal for the upcoming custodian bank procurement process and develop an approach that separates FX and securities lending from the scope of basic custody services. Even if the CRF ultimately contracts for FX and securities lending services from the custodial bank, there should be three separate contracts and service level agreements governing the services and relationship.

Reporting for Decision Making

Background: There appear to have been improvements in presentations to the Internal Investment Committee with more consistent and thorough presentations. However, currently there are multiple memoranda in the decision package the CIO provides to the Comptroller. An executive summary approach resulting in a common memo, prepared by PICM staff, could eliminate the need for a second memo for the Comptroller and improve the ease of use through a more standardized format. Although the detailed reports would still be available, the executive summary should contain a concise overview of all key considerations.

R.4.7. PICM should consider developing a consistent executive summary format for CIO recommendations to the Comptroller, which can also be used with the advisory committees, that synthesizes the various analyses of staff and the consultants, highlights any areas of disagreement, and includes risks and pros and cons of taking action or not taking action. The template used should also incorporate the requirements of the PPM that specify risks and mitigating factors discussed by the relevant committee, information and consideration of the manager's Environmental, Social and Governance (ESG) policies and practices, and a statement that the investment and/or Investment Manager selection complies with the procedures described in the PPM.

Liquidity Management

Background: It appears that liquidity is being managed, but aside from the CIO, the FAS Team could identify no single individual responsible for forecasting cash flows and identifying appropriate liquidity targets. A more formalized liquidity management process, with a single point of accountability, could ensure that liquidity needs are being adequately anticipated and that excessive cash balances are not being unintentionally maintained. We were told that, as part of the CRF Strategic Plan, a new cash management group is being contemplated that would be responsible for liquidity planning among its duties.

R.4.8. PICM should develop a formalized liquidity management process and assign an individual to be responsible for liquidity planning.

Background of the Review

Introduction

Since taking office in February 2007, Comptroller Thomas P. DiNapoli has introduced a number of initiatives to restore integrity following the pay-to-play scandal of the prior Comptroller's administration. Comptroller DiNapoli has imposed a variety of ethics reforms to address the manner in which the Common Retirement Fund (CRF or the Fund) is managed and to improve transparency and oversight of both the CRF and the Office of the State Comptroller (OSC) as a whole. In December 2007, the Comptroller also convened a special Task Force to perform a comprehensive independent review and assessment of the operations, policies and practices of the CRF and to make recommendations on both short-term actions and long-term best practices for the Fund.

The major reforms implemented by the Comptroller for the Fund include:

- Banning the payment of placement agent fees by investment managers to third parties in connection with CRF investments;
- Issuing an Executive Order on Ethics that, among other things, barred staff from accepting any gifts;
- Creating the new positions of Inspector General and Special Counsel for Ethics within OSC to increase oversight and establish a comprehensive ethics program;
- Implementing mandatory ethics training for all staff and the Comptroller, including special training for investment staff;
- Requiring monthly public disclosure of new investment transactions;
- Collaborating with the Superintendent of Insurance (now the Superintendent of Financial Services) to develop a new regulatory framework for the Fund;
- Imposing restrictions on political contributions by external investment managers hired by the Fund, acting in advance of the U.S. Securities and Exchange Commission's adoption of a similar, superseding Federal law;
- Creating an Internal Investment Committee, chaired by the Chief Investment Officer (CIO);
- Increasing reliance on Internal Audit reviews and reports; and,
- Establishing a Risk and Reporting Division and a Compliance Division.

Part of the regulatory reform was also to require a Fiduciary and Conflict of Interest Review every three

years.[1] The first such review took place in late 2012 covering the three-year period ending March 31, 2012. A final report was submitted in early 2013 (the 2013 Report).[2]

The scope of the 2013 Report was to compare the Fund's investment-related policies, procedures, and practices during the Covered Period with common and leading practices among selected enterprises of like character and with like aims (e.g. state, provincial and international public pension funds and state investment boards, etc.). In addition, the scope requested suggesting, where appropriate, options for improvement to the CRF's investment-related policies, procedures, and practices to bring them in line with prevailing and/or leading practices. At a minimum, the scope required a determination of whether policies, procedures, and processes were in place to assure that the conduct of the business of the Fund was consistent with the principles contained in the Department of Financial Services (DFS) regulations.[3]

The 2013 Fiduciary and Conflict of Interest Review addressed four major areas:

1. Fiduciary Responsibilities and Framework for the Operations and Decision Making Processes of the Fund;
2. Ethical, Professional, and Conflict of Interest Standards;
3. Operational Transparency; and,
4. Efficiency and Effectiveness of Management.

The 2013 Report made a series of recommendations. Three broad recommendations addressed organization-wide issues, and the remainder were specific to each area included in the Request for Proposal.

At the time of the 2013 Report, a new CIO had just been appointed. Since that time, under her leadership, the organization has significantly evolved. There have been three reviews conducted with external assistance that have informed the direction of the organization:

1. The 2013 Fiduciary and Conflict of Interest Review, which resulted in the recommendations memorialized in the 2013 Report;
2. Development of an Operating Model Strategy in mid-2014; and
3. Development of the CRF strategic plan (CRF Strategic Plan) to transform the direction of the CRF.

Each of these reviews has had a positive impact on the Fund.

This 2016 Fiduciary and Conflict of Interest Review (2016 Review) documents the Fund's progress in

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[1] Section 136-2.5(g) (5) of the Insurance Department Regulations requires "fiduciary and conflict of interest reviews of the Fund every three years by a qualified unaffiliated person."

[2] Fiduciary and Conflict of Interest Review of the New York State Common Retirement Fund. Funston Advisory Services LLC, February 4, 2013.

[3] Official Compilation of Codes, Rules and Regulations of The State of New York, Title 11, Sub-Part 136-2.

implementing the recommendations from the 2013 Report. Several key recommendations from the Operating Model Strategy are being implemented. In particular, the initial implementation of the "middle office" recommended in the Operating Model Strategy has resulted in a significant improvement in the efficiency and effectiveness of the Fund.

The CRF Strategic Plan development appears to have resulted in a set of ambitious plans which, if successfully implemented, will transform the Fund. While FAS did not review the CRF Strategic Plan, as is it still being finalized and opining on this document was not in the mandate of this review, it is clear that many changes are anticipated within the division of Pension Investments and Cash Management (PICM) over the next five years. The work streams in the CRF Strategic Plan project include: Mandate and Vision; Investment Philosophies; Investment Strategies and Organizational Structure; Investment Process; Environmental, Social and Governance (ESG) Policy and Process Integration; Enterprise Risk Management; Support Function Strategy; Talent Management Program; Accountability Levers; Collaboration Strategy; and, Identify Quick Wins.

The Fund has been limited in its ability to fully implement many of the 2013 Report recommendations, as well as the Operating Model Strategy, due to severe resource limitations. As an outcome of the development of the CRF Strategic Plan, the CRF has recently requested approval to significantly increase PICM staffing over the next 2-3 years and to increase compensation to reach the mid-point of the Fund's peer group (from the bottom quartile). The added costs of enhanced internal staffing are expected to be more than offset by reduced external manager costs. The increased staffing will allow the Fund to achieve its asset allocation and make even more significant improvements in efficiency, effectiveness, and risk management.

We applaud the Comptroller and Fund leadership for proactively addressing these resource limitations and developing a bold and comprehensive plan to make a quantum improvement in the Fund's capabilities and performance. Our benchmarking of the Fund has shown that it has been operating near the bottom of its peer group in terms of level of investment staff headcount relative to its scale and complexity. Obtaining the necessary staffing and budget approvals will allow for major improvements in performance and understanding and managing risk. We believe the Fund's leadership team is capable of leading a successful transformation.

Overview of the Common Retirement Fund

The CRF, as established by Article 9 of the New York Retirement and Social Security Law (RSSL), holds the assets of the New York State and Local Employees' Retirement System and the New York State and Local Police and Fire Retirement System (collectively, NYSLRS or the System). As of March 31, 2015, NYSLRS had, in total, more than 1,073,400 participants, including more than 608,600 members from the Employees' Retirement System, more than 34,500 members from the Police and Fire Retirement System, and more than 430,308 retirees and beneficiaries.

The Comptroller determines policies and manages the investment operations of the CRF, with the

support of the First Deputy Comptroller, the CIO/Deputy Comptroller for PICM, and the Counsel to the Comptroller and their professional staff, together with outside counsel, consultants, and advisory committees. PICM manages the assets of the CRF on a day-to-day basis. As of March 31, 2015 the total assets of the Fund were valued at approximately $183.5 billion. The CRF is the third-largest state public pension fund in the U.S.

Mission Statement

The mission of the CRF is to provide Retirement System participants with a secure pension through prudent asset management.

Vision Statement

The vision of the CRF is to be a high-performing organization with exceptional people and the highest standards of ethics and investment management.

Legal and Regulatory Framework

The Comptroller, as Trustee of the CRF, is permitted to invest the assets of the CRF in specific types of investments enumerated in several sections of the RSSL, including Sections 13, 313, and 177 – 179, and by incorporation under Section 177(1), those securities that the trustee of a savings bank could invest in pursuant to Section 235 of the New York State Banking Law. These statutory sections also contain limitations on the amount and quality of specific investments the CRF may hold.

In addition to the foregoing, Section 177(9) of the RSSL (the Basket Clause) provides that up to 25% of the Fund's assets may be invested in investments that do not qualify or are otherwise not permitted under the RSSL. The Fund is managed to the investment flexibility created by the Basket Clause by investing in other assets including private equity, international equity, absolute return strategies investments, opportunistic investments, and real assets.

The language of the fiduciary duty standards in the RSSL and the DFS Regulations is based upon well-developed common law principles of trust law and is similar to the language describing fiduciary duty standards in Section 404(a)(1) of the Federal Employee Retirement Income Security Act of 1974 (ERISA). As a government plan, the CRF is not subject to ERISA. However, as a matter of policy, the CRF voluntarily looks for guidance to ERISA and the U.S. Department of Labor interpretations provided thereunder, where relevant and appropriate. The CRF also may draw upon common law principles of trust and fiduciary duty in analyzing investments as well as current best practice in institutional fund management. Compliance with the "exclusive benefit" rule also assures the Retirement System's continued status as a tax-exempt entity under the Internal Revenue Code.

Structure of the Fund

The CRF is constituted as a trust that holds and invests the assets of the Fund for the exclusive benefit of the members, retirees and beneficiaries of the System. The Comptroller must operate the CRF in a manner consistent with the fiduciary responsibility required of him as trustee of the Fund.

Because PICM functions as a division within the OSC, it is subject to the internal controls, reporting and management processes of the overall organization.

Scope of the 2016 Fiduciary and Conflict of Interest Review

In January 2016, the Fund selected FAS to conduct a fiduciary and conflict of interest review. The review covered the investment-related operations of the Fund as constituted under and regulated by the law in effect from April 1, 2012 through March 31, 2015 (the Covered Period). It did not cover the administrative operations of the System (i.e., the administration of retirement benefits to participants).

The scope of the review was comprised of the following tasks:

1. Evaluate the extent to which the Fund has implemented the recommendations of the 2013 Report.

2. Evaluate the extent to which investments closed during the Covered Period were executed in compliance with:

    - Investment policies and procedures; and

    - Specific provisions of the DFS Regulations requiring representations from investment managers on the use of placement agents, disclosure of conflicts of interest, and access to records by the DFS.

3. Determine, based on the above review, whether policies, procedures, and processes were in place to ensure that the conduct of the investment-related operations of the Fund were consistent with the principles set forth in 11 NYCRR 136-2.1(b); and,

4. Identify, if appropriate, enhancements to the CRF's investment-related policies, procedures, and practices to bring them in line with prevailing and/or best practices.

2016 Review Process

FAS assembled a highly-experienced, professional team (the FAS Team) of public pension experts, with decades of consulting, legal and/or pension industry experience, to conduct the 2016 Fiduciary and Conflict of Interest Review (the 2016 Review). Most team members were also part of the FAS team which conducted the 2013 Review. Information on the FAS Team is contained in *Appendix A – Project Team Biographies*.

The 2016 Review began in late January 2016 and was completed in early June 2016. The Fund provided over 700 files, with policies, presentations, minutes and other background information, and the FAS Team reviewed over 1,000 contract documents relating to 96 transactions completed during the Covered Period. The FAS Team conducted interviews with 28 OSC staff and advisory board members and 16 external service providers to the Fund. Some were interviewed multiple times.

The Fund's progress on addressing the recommendations from the 2013 Report was assessed both on an overall basis and for each individual recommendation. Progress was determined based upon input from interviews and a review of documents.

Documentation on every new investment that closed during the Covered Period was reviewed for compliance with investment policies and procedures and DFS requirements.

The FAS Team reviewed PICM's policies, procedures and processes and relied upon internal and external interviews and a review of documentation to reach conclusions regarding compliance with regulations.

After reviewing the implementation of recommendations from the 2013 Report and the transaction documentation and the investment operations during the Covered Period, the FAS Team identified a number of recommendations for further improvement for the Fund's consideration. The recommendations were based upon the FAS Team's experience and knowledge of leading and prevailing practices and perceived gaps in the Fund's current policies and practices.

An Opening Conference was conducted in Albany on February 16, 2016 and an Interim Briefing was held in New York City on March 29, 2016. The initial draft final report was submitted to the Fund on April 25, 2016. After review and feedback, the final report was submitted to the Fund on June 16, 2016.

Task 1: Status of Implementation of Recommendations for Improvement Identified in Initial Fiduciary and Conflict of Interest Review of the Fund

The FAS Team was asked to review the recommendations for improvement identified in the 2013 Report and to report on the status of each recommendation: whether it has been completed, is in process of completion, is under consideration, or has not been undertaken. In any cases where the CRF has not undertaken action to implement a recommendation for improvement identified in the 2013 Report, the FAS Team was asked to report on whether the CRF identified a rationale for why the recommendation was not feasible or desirable. The FAS Team was also asked to note progress made after the Covered Period and prior to the completion of the 2016 Review.

The FAS Team reviewed internal audit reports and other documentation related to the implementation of the recommendations identified in the 2013 Report. In addition, the FAS Team received input to complete our assessment through interviews with both internal OSC staff and external service providers.

Summary Conclusions re: Implementation Progress

The CRF has made significant progress in implementing the recommendations from the 2013 Report. As indicated below, 40 of the 47 recommendations, or 85 percent, have either been fully or substantially implemented. In many of the cases where substantial progress is indicated, policies, procedures, or charters have been developed in draft form and are being refined and prepared for approval by the CIO and the Comptroller. In the seven instances of partial progress, in most cases resource constraints have been the primary barrier to further progress.

The chart below presents summary conclusions regarding each of the recommendations identified in the 2013 Report, as summarized above, with brief explanations. A more detailed description is provided thereafter.

2013 Recommendation	Current Status	Explanation
Systemic Recommendations		
1. Improve utilization of Human Resources (HR) and Information Technology (IT) support functions	Partial	Implement the CRF Strategic Plan
2. Re-align and optimize resources	Substantial	Implement the CRF Strategic Plan
3. Improve organizational effectiveness	Substantial	On-going
Specific Recommendations		
1. Fiduciary Responsibilities		
Policies		
Policy Updates	Substantial	Pending approval of the Policies and Procedures Manual (PPM)
Policy Consistency	Substantial	Pending approval of PPM

Policy Documentation	Implemented	
Additional Policies	Substantial	Pending approval of PPM
Proxy Voting Guidelines for Foreign Holdings	Substantial	Continued support required of both the CIO and Comptroller for foreign proxy voting
Securities Litigation Guidelines	Substantial	Pending approval of proposed Securities Litigation Protocol
Code of Ethics for Advisory Council and Committee Members	Substantial	Pending approval of the revised Real Estate Advisory Committee (REAC) policies and procedures and finalization of the PPM
Code of Conduct for NYSLRS and NYSCRF	Substantial	Pending approval of PPM
Insider Trading and Misuse of Information	Implemented	
2. Ethical, Professional, and Conflict of Interest Standards		
Committee Member Selection Criteria	Substantial	Pending approval of committee charters
Committee Member Selection Process	Substantial	Pending approval of committee charters
Committee Charters and Regulations	Substantial	Pending approval of committee charters
Guidance for Committee Members	Substantial	Pending approval of the REAC charter
Audit Committee Quarterly Progress Reports	Substantial	Pending approval of the Audit Committee charter
Actuarial Advisory Committee Composition	Implemented	
Committee Meeting Minutes and Records	Substantial	Will be complete when the Investment Advisory Committee (IAC) minutes are signed
Internal Investment Committee	Implemented	
Investment Policy Statement Review	Substantial	Pending annual investment policy statement reviews
Training	Partial	Need to design and deploy an appropriate on-boarding procedure for new PICM staff
File Management and Related Compliance Functions	Substantial	Requires implementation of a commercial Document Management System (DMS)
File Organization for Private Assets	Partial	Pending selection and implementation of an alternative asset portfolio management system
File Maintenance, Document Control and Provider Compliance Reporting	Substantial	Requires implementation of a commercial DMS
Complaint Investigation	Substantial	Pending approval of PPM
3. Operational Transparency		
Disclosure of Policies and Related Information	Implemented	
Disclosure of Operational Information	Partial	No significant increase in the availability of information regarding operations

		with respect to risk management or compliance on OSC website
Manager Responses to DFS Inquiries	Implemented	
4. Efficiency and Effectiveness of Management		
Policy Consistency	Substantial	Pending approval of PPM
Standard Legal Policies	Substantial	Pending approval of PPM
Managing External Mandates	Partial	Requires additional staffing
Staff Recommendation Memo and Minutes Discussion of Fees	Substantial	Improve completeness, particularly with respect to the REAC minutes
Potential Consultant Conflicts of Interest	Implemented	
Annual Compliance Questionnaire; Additional Question	Not required	Already addressed in existing policies
Compliance Questionnaire Follow-up	Substantial	Being implemented
Opportunistic/Absolute Return Strategies (ARS) Record-keeping Contract	Partial	Pending new Request for Proposals (RFP) process for services
Fixed Income Consultant	Implemented	
Consultant Collaboration	Implemented	
Private Market Manager Fees	Substantial	Requires additional staffing
Equities Broker Search	Substantial	Implement contract with broker search firm
Investment Accounting		
Custodian Bank Service Level Agreement	Implemented	
Daily Pricing Process	Implemented	
Compliance		
Consultant Reviews	Substantial	Pending additional resources
Compliance Office Resourcing	Implemented	
Performance and Fund Analytics		
Independent Fund Reporting Oversight	Partial	Pending additional resources
Year-end Valuations	Implemented	

Rating Scale

Partial = Some progress has been made (additional resources may be required)
Substantial = Significant progress has been made and, in many cases, pending approval
Implemented = Completed and on-going
Not required = Not pursued due to revised conclusion that it is not necessary

The new recommendations developed relating to the recommendations identified in the 2013 Report are:

R.1.1. The CRF should revise the PPM to:

a) consistently address risk management with a more comprehensive approach that includes quantitative risk targets, as well as qualitative factors; and,

b) include a minimum frequency for in-person reviews of external managers.

R.1.2. The CRF should continue to improve its document management capabilities and pursue acquisition and implementation of a commercial DMS to track and provide access to investment-related electronic files.

R.1.3. The CRF should improve the completeness of reporting of fee discussions, particularly with respect to the REAC minutes.

R.1.4. As the new Director of Compliance begins his new role and resources are available, PICM should adopt a policy to formalize the process for conducting compliance due diligence reviews of consultants.

R.1.5. PICM should hire an internal staff person to independently oversee reporting of the Fund's performance by the custodian bank.

Each of these is discussed in more detail in the assessment which follows.

Systemic Recommendations from 2013 (original recommendations are shown in italics)

In the 2013 Report, three systemic recommendations, i.e., recommendations that cut across the organization and areas under review, were made.

2013 Recommendation 1. Improve utilization of HR and IT support functions

> *"Maintaining a strong investment operation with the staff and infrastructure to effectively manage risk and respond to investment opportunities requires running not only the investments of the Fund, but also its associated HR and IT functions. The Fund has had a strong focus on managing the CRF's investments effectively, but the CRF's employee recruitment and development processes, related human resource (HR) programs and information technology (IT) infrastructure appear, as noted earlier, to be underdeveloped or underutilized. This includes recruiting and on-boarding of staff, providing ongoing training, succession planning, and building and maintaining an integrated, highly-functional supporting information technology infrastructure."*

Assessment of progress: Within the limitations of its resources, PICM has achieved some improvements in its HR and IT capabilities and results.

Although the overall staffing level within PICM is only marginally greater than in 2013 and the level of support from the HR function within the OSC is largely the same, there have been many personnel changes and, in general, the capabilities of new hires over the past three years appears to be high.

A new operations group was recently formed within PICM. Among other roles, this group is responsible for ordering new workstations and other technology for new hires. This work of the operations group appears to have improved PICM's preparation for new hires when they start. Having said that, there is still not a unique onboarding process for new PICM staff and most HR processes remain standard across OSC. It is our understanding that this situation will start to change as the CRF Strategic Plan is implemented over the next two years.

The level of authorized headcount to be requested from relevant State authorities, in response to the CRF Strategic Plan, will also materially affect the ability to complete implementation of this recommendation, as that request includes the hiring of an administrative group within PICM to assist in resource planning, recruiting, onboarding and other HR tasks. Assuming the CRF Strategic Plan is approved and implemented over the next two years, establishing this administrative group within PICM will be critical for success in recruiting, onboarding, developing, and supporting the new staff.

With respect to IT, there have been tangible improvements in planning and coordination for PICM's requirements. There are now monthly meetings, which began as part of the development process for the CRF Strategic Plan, where representatives of each support area within PICM meet with the IT group. There is also a formal service level agreement between IT and PICM. Based upon our discussions with PICM leadership, there will also be a small administrative group formed within PICM which will work with the asset classes and operations team to develop and implement a new PICM IT plan to coordinate

the use of any necessary third-party hosted applications. We understand these plans are already being developed as part of the CRF Strategic Plan. As PICM's current level of IT support from within OSC does not have the specialized knowledge or expertise for an investment organization of its scale and complexity, creating this administrative group within PICM to lead planning and implementation of new technology is a very important initiative.

Conclusion: Partial progress has been made, but fully addressing the HR and IT needs will require implementation of the CRF Strategic Plan recommendations and approval of the strategic staffing plan by the relevant State authorities.

2013 Recommendation 2. Re-align and optimize resources

> *"Chronic understaffing and limitations on investment staff compensation levels have shaped several aspects of the Fund's investment operations and approach to resource deployment as investment strategies have become more sophisticated and complex.*
>
> *First, as mentioned earlier, the growth of Fund investment staff has not kept pace with the growth in assets under management and investment complexity, nor has the Fund had adequate resources to implement the 2009 asset allocation plan in a timely manner. As a result, the Fund is not fully invested in the markets in the manner intended. We recognize there were interim targets (due to the challenge of moving the allocations of a fund the size of the CRF) but the CRF is still behind in meeting those targets.*
>
> *Second, the level of resources has significantly affected the decisions as to whether to manage various investments internally or through external managers. The Fund has lacked the resources to efficiently gain exposure to various asset classes and management styles and, as a result, has had to tailor how it gains that exposure to fit available resources. This resulted in higher investment management costs, which reduce net returns to the Fund.*
>
> *Third, the CRF also makes more extensive use of consultants than most of its peers. At least part of that cost seems to be a substitution of external resources for internal ones, at a higher cost. In evaluating the deployment of Pension Investment and Cash Management (PICM) resources, Fund leadership should first consider the desired mix of asset class, active management and passive management, internal management and external management and then consider the resources available. Some adjustments may improve effectiveness.*
>
> *Finally, as mentioned earlier, the Risk and Reporting and Compliance functions appear to be understaffed. Although there have not been major financial or compliance incidents over the past few years, it would be prudent to ensure that these two functions are staffed at a level that supports enhanced investment risk management and compliance capabilities."*

Assessment of progress: Within the limitations of its resources, PICM has achieved significant

improvements in how its resources are deployed even though overall headcount is only marginally greater than in 2013.

With regard to effectively deploying investment officers to support the current asset allocation strategy, PICM has made three important changes that have increased its ability to effectively manage the portfolio. First, staffing changes, through a combination of new hires replacing attrition and a redeployment of existing staff, have resulted in improved capabilities and marginally more investment officers and analysts devoted to the private asset classes, in particular private equity, ARS, and real estate.

Second, the CRF has hired an investment consultant to monitor and manage its "run-out" portfolio of private equity limited partnerships so that the private equity staff and primary private equity investment consultant can focus on new investments and monitoring of general partners who are expected to receive funding for new partnerships.

Third, a new operations group has been established within PICM to remove some of the reporting and administrative burden from the asset class staff and help them to better focus on their primary responsibilities of working with the external managers or managing investments.

Due to lack of additional resources, the CRF has not been able to consistently and broadly pursue certain internal investment management strategies that would help to improve returns and reduce fees, such as co-investments or direct investments in private equity and real estate and greater internal management of public asset classes. The CRF has been able to hire an external manager to primarily focus on assisting the Fund in participating in private equity co-investments, which have lower fees and can provide greater net returns. Real estate has established a limited co-investment framework that could be expanded.

The objective of private equity and real estate co-investments and greater internal management of public assets are key components of the business case developed in the CRF Strategic Plan. Over time, with adequate additional resources, PICM should be able to take on much of the co-investment activities and reduce the need for outside support.

We caution, however, that increased co-investment and/or direct investment will require increased underwriting skill within PICM and may also require modification of some processes to allow timely responses.

By statute, the Comptroller may not authorize a real estate investment that REAC has not recommended. However, the monthly frequency of REAC meetings, combined with the need to produce the informational investment packages for REAC, may result in a process time that is not compatible with existing co-investments.

Although the CRF has not been able to reduce its spending on consultants due to ongoing resource constraints, it appears that there has been a change in the manner in which the CRF uses its consultants. Representatives of the Investment Advisory Committee (IAC) and REAC have advised that PICM staff

now takes the lead role in presenting strategies and investment opportunities, with the consultants more in the background. Further reduction of staff reliance on consultants and a resultant decrease in consultant fees is contingent upon the implementation of the CRF Strategic Plan.

Various asset class heads advised that they now try to leverage the advice and tools available from the consultants, but conduct their own independent due diligence and monitoring in most cases. The Fund's managers and consultants also advised that investment due diligence often is independent, so as to encourage independent opinions by staff and the consultants. In addition, as mentioned earlier, monitoring of run-out private equity limited partnerships has been outsourced to an investment consultant.

The FAS Team views these as positive changes that enhance the way in which PICM is using its consultants and the value it obtains from them. By contrast, operational due diligence remains a consultant-led process for most asset classes. A medium- to long-term goal remains to create an operational due diligence capacity within PICM. The use of consultants to lead operational due diligence is a common prevailing, though not leading, practice among the CRF's peers.

While the FAS Team did not observe any red flag concerns regarding Risk Management and Compliance, this area continues to be chronically understaffed for a fund of the CRF's scale and complexity. The FAS Team was informed of plans, which, if approved and implemented, will include expanding the resources in both Risk Management and Compliance. For Risk Management, this will include a new Risk Officer and staff, improved quantitative technology for risk management, such as BlackRock's "Green Package," and, potentially, a risk platform tool such as "eFront" for alternative asset classes. These improved tools, as well as a staff familiar with their use, should result in better analyzing, monitoring and simulating risk in the portfolio.

Conclusion: Substantial progress has been made, but fully addressing the 2013 Report recommendations for realignment and optimization of resources will require implementation of the CRF Strategic Plan recommendations.

2013 Recommendation 3. Improve organizational effectiveness

> *"The Fund staff is very dedicated and capable and has performed admirably under challenging circumstances over the past few years. However, our review identified several potential areas for improving the effectiveness and efficiency of how the Fund operates on a day-to-day basis.*
>
> *It may be worthwhile to assess the current structure of decision-making delegations to identify decisions which could be made more appropriately and efficiently at a different level. A leading practice identified among the peer funds is the delegation of certain investment functions to the CIO, for example, asset rebalancing and exposure management. This should result in delegations being structured to reflect the degree of relevant expertise and value added at each level, with appropriate reporting and monitoring of how authority is exercised. Administrative delegations might also be*

examined.

The format of documentation requirements for investment decisions appears to be less consistent across asset classes than we have seen at other funds. PICM's current efforts to rationalize and streamline the process should help to reduce this diversity and result in more effective and efficient document management and compliance review processes across asset classes and locations. This should be seen as an important initiative for risk management and compliance monitoring.

In addition, Fund policies have not been updated on a consistent basis, nor are they well-coordinated with each other. However, the Fund has established a General Investment Policy framework, and this should provide a platform for the future integration and updating all of its policies. Ensuring that all policies are updated on a regular, consistent and coordinated basis could help avoid compliance questions arising due to inconsistent policies.

Finally, the PICM staff is physically located in three sites, one in Albany and two in New York City, adding to coordination issues. Several efforts now underway, including a new document management system and an enlarged attendance at the Internal Investment Committee meetings, should help. Ultimately, consolidation of the two New York City offices is an option that ought to be considered."

Assessment of progress: The CRF and PICM have made significant progress in improving organizational effectiveness, due in no small part to the leadership of the Comptroller and the CIO. The CIO has created a vision for the organization, and the FAS Team heard consistent messages from PICM staff regarding strategies, priorities and future direction. This has clearly been enhanced by activities of the strategic planning project over the past year, which appear to have involved the entire PICM organization in a bottom-up development of the CRF Strategic Plan and identified key organizational barriers to improvement.

Independent of the strategic planning process, however, the CIO had already initiated three important changes that have improved the organization and its decision-making.

First, the Internal Investment Committee meetings have become a key focal point for discussing investment strategies and all internal investment recommendations, other than real estate, prior to submission to the Comptroller.

Standard information templates have been developed and are in use across asset classes to improve consistency of information to support decision making, and transaction files are much better organized and consistent. However, a recurring theme among a number of external advisors to the CRF is that investment decisions, particularly in the private asset classes, are slower than desired. In one extreme case, the FAS Team was told of a partnership opportunity that may have been missed because of delays.

In the experience of the FAS Team, general partners would always like quicker decisions and sometimes do not fully appreciate the need for process from asset owners, particularly public pension funds.

However, there was consistency, if not unanimity, in the view that the CRF process is lengthier than other public funds. The speed of decisions will become more relevant if the CRF Strategic Plan moves forward, particularly as PICM seeks to ramp up co-investment programs. The question then becomes how to accelerate investment decisions, while maintaining process controls. Recommendation 5 in Task 4 relates to this issue.

Second, a Deputy CIO position was re-created to provide day-to-day leadership with a complete focus on investment matters. This has allowed the CIO to oversee investments, while addressing other PICM requirements, such as developing the longer-term strategy and plan, beefing up operational support, and reducing the "organizational silos," which had previously inhibited cross-organization communications.

One example of improving communications is a new "Coordinating Committee" that meets monthly and includes participation by Legal, PICM, Compliance, and Accounting. Another example is the inclusion at IAC meetings of representatives from Accounting and other support functions to better understand PICM strategies and plans.

Another important change was the creation of a "middle office," a small group designed to handle the investment operations and administrative support requirements, within PICM. The FAS Team consistently heard from both asset class staff and external managers that this operations group has helped resolve settlement or accounting issues more promptly, without requiring as much involvement of asset class staff. PICM's intent is to continue to enhance this operations group.

There have been updates to the General Investment Policy Statement, and it appears that this is being reviewed on an ongoing basis, with a new version being recently released. It appears to contain all key investment policies in one place.

Finally, we note that the CRF has consolidated its New York City offices into one building as of early 2015. This has reduced fragmentation of communications, improved efficiency, and enabled improved coordination of the PICM staff.

Conclusion: Substantial progress has been made, with PICM and other divisions within the Comptroller's Office working together more effectively, and the internal decision-making processes within PICM appear to be improved. Improvement will be on-going and will be greatly enhanced by the implementation of the CRF Strategic Plan staffing plan.

Detailed Improvement Opportunities from 2013 (original recommendations are shown in italics)

1. FIDUCIARY RESPONSIBILITIES AND FRAMEWORK FOR THE OPERATIONS AND DECISION MAKING PROCESSES OF THE FUND

Policy Updates

- *Several of the CRF policies have not been updated in a long time. For example, the CRF Alternative Investments Policy was last approved in 2004 but was updated during our review. The Absolute Return Strategies Policy was last done in 2007. Responsibility for these periodic updates of policies should now be formally assigned to a PICM staff member under a regular review schedule. Over half of peer funds review and update their investment policy statement annually according to the results of the FAS Leading Practices Survey.*

Assessment of progress: Updated drafts of the CRF investment policies (including the Alternative Investments Policy and Absolute Return Strategies Policy) have been developed and the responsibility for initiating updates of the policies has been incorporated into the position description for the Director of Compliance.

Conclusion: Substantial progress. A new Director of Compliance was recently hired. When all of the updated policies are approved by the Comptroller, implementation of this recommendation will be complete.

Policy Consistency

- *There are several CRF policies that cover the same practices with inconsistent language. If it is necessary to maintain separate policies, then consistent language should be used. If separate policies are not necessary, duplicative provisions could be combined into one standard policy.*

Assessment of progress: The updated General Investment Policy Statement and draft asset class policies addressed the organization and language consistency issues that were noted in the 2013 Report. The approved policies will be compiled in the PPM and are also more consistent and comprehensive.

Conclusion: Substantial progress. When the PPM has been approved by the Comptroller, implementation of this recommendation will be complete.

Policy Documentation

- *Some established PICM practices are based on staff interpretations that fill gaps in current policies. The ongoing policy update provides an opportunity to explicitly include provisions that formalize those practices.*

Assessment of progress: The new policies include provisions that formalize the practices based on prior unwritten interpretations.

Conclusion: Implemented. This recommendation has been satisfactorily addressed.

Additional Policies

- *We found current CRF policies as appropriate to meet fiduciary duty requirements. However, there are always opportunities for further improvement. We separately provided copies of peer policies that were reviewed as part of the benchmarking process (many of which are not public documents) to PICM legal staff. They provide a framework for the CRF to identify new provisions or alternative approaches that might be considered. For example, (and without limitation), the CRF might evaluate whether to include the following peer policy provisions as part of the ongoing policy update:*
    - *Investment Policy Statement*
        - *Include a section on risk constraints or risk management*
        - *Incorporate the Iran and Sudan divestment policy*
        - *Explicitly address whether the use of derivatives is allowed and, if so, establish appropriate limits*
        - *Consolidate standards and schedules from asset class policies for monitoring internal and external managers*
        - *Formalize all asset class rebalancing practices*
    - *Alternative Investments - Absolute Return Strategies*
        - *Specify risk analysis and monitoring standards*

Assessment of progress: The CRF has updated and finalized the General Investment Policy Statement. That document is posted to its website. This General Investment Policy Statement will become Section 1 of the multi-part PPM. The CRF is in the final stages of finalizing major revisions and additions to the asset class specific investment policies and other investment policies of general application. A policy on the use of derivatives has been finalized. When completed, these investment policies will become Section 2 of the PPM. The PPM will be reviewed and updated annually.

In general, the PPM implements the recommendations in the 2013 Report, with the exception of a

consistent risk constraint or risk management policy. This is not to say there is no mention of risk management in the PPM. The real estate section specifically mentions risk management as a topic, including leverage considerations. Risk management/risk constraints are sporadically included for other asset classes, both as a goal and as a *de facto* way of investing.

For example, the Public Equity section cites position limits. But there is no overarching and consistent approach to risk management in the PPM and little qualitative risk measurement/risk management discussion. However, our interviews with both PICM staff and the external service providers to the Fund make it clear that PICM does focus on risk management in its day-to-day operations. For example, in public equities, both the High Efficiency Defensive Index and Low Carbon indices are subject to robust quantitative tests designed to understand the nature of the relative and absolute risks, as well as the factor exposures in those investments.

The fact that the PPM lacks a consistent and explicit risk management approach is understandable, in that PICM is in the midst of upgrading its risk management capabilities. It is actively seeking to hire a Chief Risk Officer (CRO), is installing the BlackRock "Green Package" for risk management (particularly important for public asset classes), and is exploring whether or not to purchase an alternative asset class risk platform tool such as "eFront".

It is understandable that PICM might want the new CRO to be involved in drafting the risk management section of the PPM. However, until that person is hired and has time to become familiar with the CRF investment program, there is a gap in the PPM.

The PPM will implement the other recommendations referenced above from the 2013 Report. It incorporates a derivatives policy that was formally adopted as a final stand-alone policy as of June 4, 2015. It incorporates a draft of the proposed Securities Litigation Protocol. It also includes policies and processes that directly respond to the other recommendations included in the 2013 Report. It includes rebalancing plans within the asset classes where appropriate, monitoring of restricted securities (including those under the Iran and Sudan policies) and an extensive, specific list of reports external managers must file to allow appropriate monitoring by PICM of those managers.

The frequency of the external manager information reports is explicit, but there is no mention of formal visits with those managers by PICM, either at the CRF offices or on-site at the manager. However, according to both internal staff and external service providers, PICM has an adequate in-person and telephonic monitoring program in place.

Conclusion: Substantial progress. The implementation of the 2013 Report's recommendations with regard to the PPM is in progress and has been substantially completed. The General Investment Policy Statement update was approved on November 10, 2015. Section 2 of the PPM, which contains the core asset class and portfolio policies and procedures, is currently in near-final draft form. (The portion covering investment in derivatives has been finalized and approved.) A process for development of several additional policies to complete the PPM, including proxy voting guidelines for foreign holdings and a proposed Securities Litigation Protocol, is in place.

Recommendation 1.1: The CRF should revise the PPM to:

a) **consistently address risk management with a more comprehensive approach that includes quantitative risk targets, as well as qualitative factors; and,**

b) **include a minimum frequency for in-person reviews of external managers.**

Proxy Voting Guidelines

- *Establish a proxy voting policy for foreign public equity holdings*
- *Consider whether and how to extend the considerations underlying the proxy voting guidelines to other asset classes*
- *Specify the extent to which consideration is given to proxy advisor recommendations*

Assessment of progress: The draft PPM, section 2 includes corporate governance policies that address several of the recommendations from the 2013 Report. The policies identify a number of sources that are analyzed when making decisions on proxy votes.

A tool for evaluating manager integration of material ESG factors is in the preliminary stages of development and a subcommittee of the Internal Investment Committee is evaluating how to best effectuate the CRF's policies on ESG factors across asset classes. The Fund is in the process of drafting contractual clauses and reporting protocols.

Since the 2013 Report, new portfolios and initiatives focused on the integration of material ESG factors into the investment analysis and manager selection processes have been initiated. For example, the HSBC Climate Change Index and Financial Times Stock Exchange Environmental Technology Index portfolios were established, external manager reports are now requested on the management of ESG factors, and due diligence on external managers includes consideration of ESG integration.

External managers are instructed to vote in accordance with CRF domestic proxy guidelines, to the extent applicable. A process for selection of a consultant to assist in drafting proxy guidelines for non-domestic holdings is being initiated.

Conclusion: Substantial progress. Implementation of proxy voting and corporate governance recommendations is either complete or in process. Substantial progress has been made with the remaining ongoing items, which involve collaboration across asset classes and external cooperation. The continued support of both the CIO and Comptroller will be essential to the successful implementation of these items.

Securities Litigation Guidelines

- *Explicitly address unique considerations that apply when evaluating claims that may only be brought outside of the United States*
- *Formalize factors evaluated when considering arrangements for joint pursuit of shared legal claims with other investors*

Assessment of progress: These recommendations have been addressed in the proposed Securities Litigation Protocol. The proposed Securities Litigation Protocol identifies the unique considerations that apply to claims brought outside the U.S., including the CRF's ability to recover damages under foreign law, the availability of contingency fee arrangements, and whether the foreign jurisdiction has adopted a "loser pays" legal framework. The proposed Securities Litigation Protocol also identifies factors that CRF must consider when determining whether to enter into a lead role in a foreign litigation with another investor. These factors include the other investor's likelihood of proving claims, prior experience serving as a class representative, and resources and personnel dedicated to conducting and supervising the litigation.

Conclusion: Substantial. This recommendation will be satisfactorily addressed when the proposed Securities Litigation Protocol is finalized and approved.

Code of Ethics for Advisory Council and Committee Members

- *Reference the OSC policy that deals with handling media inquiries*
- *Consolidate all policies applicable to Council and Committee Members in one document for easy reference*
- *Codify the pre-vote conflict disclosure requirements to include ex-parte communications received by Committee members from parties with pending investments before the Real Estate Advisory Committee*

Assessment of progress: Appropriate consideration and action on these recommendations is being taken. The recommendation to reference the Comptroller's policy for handling media inquiries in the *Code of Ethics for Advisory Council and Committee Members* was evaluated by PICM staff and rejected for several reasons: (a) it is not really an ethics policy issue and (b) the CRF has not encountered any issues with council or committee members engaging with the media. We believe this is a reasonable response to the recommendation. However, to avoid future problems, we suggest that the policy for handling media inquiries be covered in orientation and ongoing training sessions for council and committee members.

We were advised that PICM plans to implement the recommendation to consolidate council and committee policies by placing them in a section of the PPM after the remaining draft policies are approved. We believe this is appropriate.

The recommendation to codify pre-vote ex-parte communications disclosure requirements has been implemented by inserting the provision in the new REAC Policies and Procedures document.

Conclusion: Substantial progress. Appropriate action has been taken on these recommendations. The first recommendation has been considered and reasonably rejected; the other recommendations will be implemented upon approval of the revised REAC Policies and Procedures and finalization of the PPM.

Code of Conduct for NYSLRS and NYSCRF

- *Consider appending the other policies it references*
- *Reference the OSC policy that deals with handling media inquiries*

Assessment of progress: As with the prior recommendation, PICM staff has considered inserting a reference to the Comptroller's policy for handling media inquiries in this Code of Conduct and determined that it is not appropriate. In regard to consolidation of policies referenced in the Code of Conduct, they will all be included in the PPM for ease of reference.

Conclusion: Substantial progress. The first recommendation will be implemented upon finalization of the PPM, and the second recommendation was appropriately considered.

Insider Trading and Misuse of Information

- *Reference the OSC policy on confidentiality and safeguarding of electronic information*
- *Expand the reporting requirement to cover outside accounts for which an employee exercises discretion or provides advice*

Assessment of progress: PICM staff has proposed amendments to the Policies and Procedures to Prevent Insider Trading and the Misuse of Material Nonpublic and Confidential Information contained in Section 3 of the PPM. Specifically, new language has been proposed reminding employees of other policies imposing confidentiality obligations with respect to electronic information. In addition, the current version of the form "Quarterly Report of Securities Transactions" requires covered employees to disclose securities traded not only for themselves or related persons but also at their direction or the direction of a related person, which addresses the concern with respect to outside accounts. Combined, the change to the form and the proposed revisions would more clearly implement both recommendations from the 2013 Report.

Conclusion: Implemented. PICM has proposed language to the PPM which will more clearly incorporate these recommendations.

2. ETHICAL, PROFESSIONAL, AND CONFLICT OF INTEREST STANDARDS

A number of the recommendations in this section refer to the various advisory committees which serve the Comptroller. As reference, the Comptroller has appointed the following advisory committees:

- IAC, appointed by the Comptroller pursuant to RSSL §423, advises the Comptroller on general investment issues. IAC reviews the investment policy statement and any amendments and it reviews and provides a recommendation to the Comptroller on the proposed asset allocation plan developed by the CIO after the completion of an asset liability study, which is performed by the CRF at least once every five years. IAC also periodically reviews the strategic plan of each CRF asset class, and monitors the CRF's risk profile, investment activity and performance on a periodic basis.

- REAC, appointed by the Comptroller with the consent of IAC pursuant to RSSL §423, reviews proposed mortgage and real estate investments. In the event REAC disapproves of a proposed mortgage or real estate investment, the investment will not be presented to the Comptroller and cannot be made by the CRF.

- The Actuarial Advisory Committee, appointed by the Comptroller pursuant to 11 NYCRR 136-2, reviews and advises the Comptroller on the actuarial soundness and financial condition of the System and the CRF, and annually reviews the proposed actuarial assumptions and employer contributions.

- The Advisory Council for the Retirement Systems, appointed by the Comptroller pursuant to regulations of the Comptroller (2 NYCRR Part 320), advises and makes recommendations to the Comptroller on the formulation of policies in relation to the administration and management of the Fund and the System. At the annual meetings of the Advisory Council, the Comptroller and senior staff also exchange information and insights with the Council to help stakeholders understand the status and challenges of the CRF and the System.

- The Audit Committee, appointed by the Comptroller pursuant to 11 NYCRR 136-2, reviews and reports to the Comptroller on the annual internal and external audit process related to the System and the CRF, and on the CAFR.

Committee Member Selection Criteria

With the exception of Advisory Council for the Retirement System and the Audit Committee, the process and criteria for selecting committee members are largely undocumented and undefined. As mentioned earlier, the Fund has generally recruited and retained committee members who provide significant combined expertise and oversight to the Comptroller and staff. However, the lack of defined criteria does not provide a standard against which to assess if committee members have appropriate qualifications to serve. Additionally, in the case of the Actuarial

Advisory Committee, the Comptroller is required to establish written selection criteria by Department of Financial Services regulation 136 2.6 (b) 2. Appropriate standards should be developed and disseminated.

Assessment of progress: The draft charters for each committee now contain a description of the selection criteria for its members. The criteria are tailored for each committee. Assuming these charters are finalized and approved with these provisions intact, this recommendation should be substantially completed later this year. We recommend that the new charters be formally reviewed with each respective committee, so as to familiarize the existing committee members with the new codifications. Staff indicates that the committees will have the opportunity to review the proposed charters before they are finalized.

Conclusion: Substantial progress. This recommendation will be fully implemented when all new committee charters are finalized and adopted.

Committee Member Selection Process

With the exception of the Advisory Council for the Retirement System, the process for selecting members is not well defined and documented. When combined with the lack of documented committee member selection criteria, absence of an established process for sourcing members represents a gap in committee governance structure. Standards and processes should be developed that are appropriate to each committee.

Assessment of progress: The draft charters for each committee now contain a description of the process for selection of its members. The process is tailored for each committee. Assuming these charters are finalized and approved with these provisions intact, this recommendation should be substantially completed later this year.

Conclusion: Substantial progress. This recommendation will be fully implemented when all new committee charters are finalized and adopted.

Committee Charters and Regulations

Charters for the IAC and REAC are of out of date and provide limited descriptions of the committees' duties.

- *In the case of the IAC, policies and procedures have been developed to augment the previous regulations that provide an additional level of guidance for members.*
    - *While the IAC discussions are in and of themselves valuable in advising the Comptroller, formalizing the consensus emerging from those discussions could increase their value. Towards that end, the IAC could be asked to formally*

recommend to the Comptroller the adoption of the asset allocation plan and to annually suggest to the Comptroller whether the asset allocation plan remains appropriate given market and Fund conditions.

- *The IAC could also be asked to formally recommend to the Comptroller the adoption of the various asset class strategic plans.*
- *To the extent the Fund would like to have the IAC formally recommend the asset allocation and/or the strategic plans for each asset class, those responsibilities could be included in the revised descriptions of duties.*

Assessment of progress: Overall, the level of IAC discussion is now appropriately focused on strategic implementation of the asset allocation study and asset class plans.

The IAC charter was amended to reflect that focus, mandating that IAC review and recommend for approval to the Comptroller the asset allocation (as was done for the 2015 asset allocation study) and subsequently review that asset allocation annually, per the original report's recommendation.

Additional proposed revisions to the charter also require that IAC review each asset class's annual plan, but does not go as far as the 2013 Report's recommendation that IAC approve those plans. PICM argues that the increased sophistication of the staff presentations and the more robust IAC discussions are adequate, and that a formal requirement for annual recommendation would be too time consuming and leave little discretion for IAC to focus on higher priority plan-level issues.

Our review of IAC minutes and discussions with those present at IAC meetings confirms that the discussions are robust and effectively scrutinize the asset class plans. Therefore, though there is no formal recommendation to the Comptroller to adopt the annual plans as the 2013 Report recommended, it would be difficult to conceive that an asset class plan, which received material unresolved criticism, would go forward unchanged.

This is effectively the *de facto*, if not *de jure*, approval process. While a formal recommendation would represent a step towards a more explicit accountability mechanism and might institutionalize that accountability a bit more (should there be a leadership change at the Fund), we regard the current situation as adequate progress. The new draft charter also includes a more complete description of the duties of IAC.

Conclusion: Substantial progress. These recommendations will be adequately implemented when all new committee charters are finalized and adopted.

Guidance for Committee Members

- *In the case of REAC, we found the regulations referenced in the policies lack meaningful guidance for new and existing committee members on their duties and expectations. These*

committee policies and procedures should be updated and/or supplemented by additional guidance for members. Updated policies and procedures should be developed in conjunction with the Comptroller, CIO and committee members to ensure appropriate guidance is available to members.

Assessment of progress: The new draft charter for REAC contains a more complete description of the duties of its members as well as the policies which apply to members. The new charter also calls for the Chief Investment Officer to provide an orientation package for new REAC members which describes the CRF's investment process, policies and procedures and portfolio information.

Conclusion: Substantial progress. This recommendation will be fully implemented when the new REAC charter is finalized and adopted.

Audit Committee Quarterly Progress Reports

The Audit Committee was formed in mid-2010 as part of the ongoing reforms for oversight and transparency of the CRF. While the Comptroller's staff has noted that the committee is still in its formative stage, the Audit Committee has made significant progress since its inception and generally meets the requirements of Department of Financial Services Regulation 136 2.4 (e). However, the Audit Committee has yet to settle into a regular meeting cadence, with established agenda topics and a consistent reporting format.

In addition, the Audit Committee has yet to formalize the procedures used to meet requirements of 2.4 (e) (6). In order to do so, the Comptroller should consider:

- *Amending the Audit Committee charter to explicitly direct the committee to develop quarterly reports on audit progress for the Comptroller;*
- *Developing a consistent quarterly report due diligence process that provides a formalized schedule of discussions with:*
    - *The External Audit Team,*
    - *Executive Deputy Comptroller,*
    - *Assistant Comptroller for Internal Audit, and*
    - *Director of Compliance.*
- *Developing a consistent quarterly progress report format, with content requirements that include:*
    - *Review of completed, ongoing and scheduled audits.*

- *Review of progress against the current audit plan.*
- *Overview of significant findings.*
- *Overview of trends and implications of the audit findings for the retirement fund.*
- *An independent summary of the observations, concerns and recommendations of the Audit Committee members.*

Assessment of progress: The draft Audit Committee charter contains a number of changes which clarify the role of the Audit Committee and also change the required number of annual meetings from four to three. The draft charter also includes an annual meeting calendar which identifies key agenda items to be discussed at each meeting. These changes are appropriate.

Regarding the preparation of quarterly reports to the Comptroller, the new charter directs that the Chief Audit Executive of the System prepare and provide to the Committee and the Comptroller quarterly progress reports. The intent is for the Committee to review the reports and provide comments and advice to the Comptroller during Committee meetings.

The minutes become the record of the discussion and advice to the Comptroller. This approach is different than initially recommended in the 2013 Report; however, we concur that this is appropriate and effective, without placing burden on Committee members. With the exception of missing one meeting due to a death in the family, the Comptroller attended all Audit Committee meetings during the Covered Period (including once by video-conference and once by telephone). Consequently, he has been consistently receiving Committee input.

Conclusion: Substantial progress. These recommendations will be satisfactorily implemented when the revised Audit Committee charter is finalized and adopted.

Actuarial Advisory Committee Composition

Since 2009, the Committee has been operating with 4 members instead of five, leaving one of the membership slots provided for in the Actuarial Advisory Committee charter vacant. Given the depth of expertise held by the current Actuarial Advisory Committee members, the fund does not appear to have been materially impacted by the lack of full committee membership. As a result, the Comptroller should consider:

- *Amending the current Actuarial Advisory Committee charter to require four (rather than five) members; or*
- *Selecting a fifth committee member to fill the vacant slot under the current Actuarial Advisory Committee charter.*

Assessment of progress: The Actuarial Advisory Committee has had at least five members since 2013

and currently comprises five members. The new draft Committee charter continues to specify five members for the Committee.

Conclusion: Implemented. The vacant position has been filled and the CRF is now in compliance with its policy that the Actuarial Advisory Committee comprise at least five members.

Committee Meeting Minutes and Records

While we cannot independently verify the accuracy of the meeting minutes, the detail, form and structure of each document appear to provide a full record of the conduct of each meeting.

- *The CRF should leverage the future document management system to house meeting minutes. This would allow access to the documentation (password protected as necessary) for all PICM functions.*
- *While committees approve minutes at the subsequent meeting, only the Real Estate Advisory Committee ("REAC") minutes bear the signature of a staff person who is accountable for accuracy of the minutes. Consideration should be given to adoption of a formal method to identify final approved minutes for all committees.*

Assessment of progress: The CRF has improved its file organization and access, although it has not yet implemented a commercial DMS. Since at least 2014, the minutes for the Actuarial Advisory Committee and the Advisory Audit Committee indicate who prepared them and they are signed. The IAC minutes do not indicate who prepared them and they were not signed during the Covered period.

Conclusion: Substantial progress. The CRF has improved its file organization. With the exception of IAC, all committee meeting minutes now indicate who prepared them and the final approved version is signed.

Internal Investment Committee

While the Internal Investment Committee ("IIC") is a staff committee, it plays an important role in due diligence and documentation of compliance with investment-related policies. However, IIC meeting minutes are often less detailed than those of the advisory committees, even though the Investment Policy Statement requires that IIC minutes on transactions be provided to the Comptroller with final approval recommendations. While the same level of detail may not be required as is applied to external advisory committee minutes, we recommend that the CRF consider a greater level of consistency and specificity for IIC minutes. Regular use of a signatory on the minutes (as is done for REAC minutes) would also provide accountability and ensure an appropriate level of content integrity.

Assessment of progress: Internal Investment Committee minutes are now more detailed and consistent. In conjunction with the remainder of the package – particularly the CIO recommendation -- submitted to the Comptroller, they provide adequate documentation of the investment decision rationale.

We note that, despite the key role they play in conveying results of the investment vetting process to the Comptroller, the Internal Investment Committee minutes still are not signed. A signature would help to establish "ownership" of accuracy for the minutes. However, the fact that they are included in the Comptroller's decision packet, which is reviewed by the CIO (who generally chairs the Internal Investment Committee, and signs the recommendation memorandum), provides an alternative method of insuring content integrity. While we continue to prefer that the Internal Investment Committee minutes be signed so as to provide an extra layer of internal control, we regard the current situation as adequate.

Conclusion: Implemented. Review of minutes, the investment memoranda, and other written material submitted to Internal Investment Committee, and discussions with both participants and observers demonstrates that Internal Investment Committee now is effectively serving its function.

Investment Policy Statement Review

> *The Comptroller should consider establishing a practice of reviewing the Investment Policy Statement, with the support of the IAC, more frequently than every three years, ideally annually.*

Assessment of progress: Please see the discussion of the PPM in the Policy Updates section above. As noted, Compliance will "own" the policy manual once it is formally adopted, and plans to periodically review for needed updates.

Conclusion: Substantial progress. Implementation of this recommendation is in progress. As the PPM has not been formally adopted, it is too soon to determine the periodicity of review. However, establishing an "owner" for the manual is a positive step towards accountability for keeping it current.

Training

> *Participation in regular refresher or supplementary training programs, through a variety of internal and external resources used by other funds, is a leading practice that should be encouraged and monitored by the CRF.*

Assessment of progress: Training has been a focus of PICM over the past few years. Internally, there has been an emphasis on cross-asset class knowledge sharing. Externally, one advantage of the CRF relationships with larger asset managers has been the willingness of several managers to train PICM staff in specific areas. The CRF is leveraging those relationships to provide educational opportunities for

staff.

However, given the plans for a major wave of new hiring, the fact that there is no formal, standard on-boarding specific to new PICM staff, other than the standard training provided by the OSC, is a potential issue. As OSC is increasingly successful in attracting more seasoned investment personnel, this becomes more of an issue; those staff have learned one way of doing something at a previous employer, likely in private industry, and now will have to learn PICM procedures that govern a large public pension institutional investor with specific restrictions on investments and operations.

Such cross-fertilization from different perspectives is productive, but it has to be in the context of allowable policies and procedures. One proven method to do that is through a robust on-boarding process that explains not just what is expected and how PICM operates, but the rationale behind PICM's policies and procedures. The process PICM leadership has undertaken to align investment beliefs with investment structure and specific investments should be helpful in designing an on-boarding program.

To her credit, the CIO recognizes the scope of this challenge across two dimensions: imparting specific knowledge of how and why CRF does what it does, and maintaining the culture and the CRF-specific identity which leadership has tried to create over the past three years. The CRF Strategic Plan includes dedicated administrative staff to support PICM's unique needs and to be the liaison with other departments.

Conclusion: Partial progress***.*** Implementation of this recommendation has been partially accomplished. The next step is to design and deploy an appropriate on-boarding procedure for new PICM staff.

File Management and Related Compliance Functions

> *The Comptroller's staff recognizes that file management and related compliance functions have not been adequately resourced, and they have been identified as priorities for continued improvement. We strongly endorse this initiative and believe these are areas of potential risk that should be promptly addressed.*

Assessment of progress: As discussed above, substantial progress has been made on improving file management. The search for a new Director of Compliance was recently completed and the position is now filled. In addition, a compliance staff position was added, PICM compliance processes have been established, and a Director of Compliance position description has been developed. However, a commercial DMS is not yet in place.

Conclusion: Substantial progress. The vacant Director of Compliance position was recently filled, but there are currently no plans to obtain a commercial DMS.

Recommendation 1.2: CRF should continue to improve its document management capabilities and pursue acquisition and implementation of a commercial DMS to track and provide access to investment-related electronic files.

File Organization for Private Assets

The FAS Leading Practices Survey found that 70 percent of peers (9 of 13) are satisfied with their investment tracking system for non-public investments. However, the CRF was one of only four funds that were dissatisfied.

Assessment of progress: File organization for non-public investments has substantially improved since 2013. A paralegal was hired and charged with responsibility for tracking closing documents and loading them into the electronic files, resulting in better access to transaction documents and a higher level of file maintenance reliability. Staff expressed satisfaction with the current filing system. Nevertheless, legal and investment staffs still maintain separate filing systems for transaction documents. The planned acquisition of a PICM alternative asset portfolio management system should be a significant improvement which provides uniform access across the agency, better data analysis capabilities, and more efficiency.

Conclusion: Partial progress. These recommendations will be implemented upon acquisition and roll out of an alternative asset portfolio management system.

File Maintenance, Document Control and Provider Compliance Reporting

We believe the following projects to improve the CRF's file maintenance, document control, and enforcement of service provider compliance certification reporting are critical:

- *Develop a robust and centralized electronic file management and document control system.*
- *Review PICM policies, practices and procedures to provide greater standardization and consistency for transaction file management, internal transaction approval report forms and the CRF's transaction contract requirements for compliance matters.*
- *Establish service provider timely compliance reporting expectations, embed enforcement standards in both compliance and investment staff position descriptions, and incorporate standard provisions in contract negotiations which allow the CRF to withhold payments to managers, advisors or consultants that do not comply.*

Assessment of progress: Although substantial improvements in file management have been achieved with a centralized shared drive, a commercial DMS, as mentioned above, is not being pursued by PICM. Since the 2013 report, PICM has devoted substantial effort to updating policies, making them more consistent and preparing to incorporate them into a comprehensive PPM, as well as to developing checklists, a uniform CIO transaction internal approval form and standard contract language for required CRF clauses. A specific clause is now being used that requires managers to provide compliance reports

annually. Some position descriptions have been updated to incorporate compliance-related duties, though we were not able to confirm the extent to which all effected position descriptions have been revised.

Conclusion: Substantial progress. With the exception of a commercial DMS, these recommendations have either been implemented or plans are in place to address them.

Complaint Investigation

> *Consideration should be given to formally referencing the complaint Investigation process in personnel policies and ethics codes of the OSC. Consideration should also be given to adding provisions that explicitly deal with:*
>
> - *according confidentiality to someone who files a complaint;*
> - *specifying with whom a complaint against the Inspector General would be filed;*
> - *including an obligation to complete investigations of meritorious complaints in a timely manner; and,*
> - *extending protection from retaliation beyond OSC officers and employees to third party CRF service providers, counterparties or investment candidates.*

Assessment of progress: Since the 2013 report, the Inspector General's participation in periodic staff training, the availability of information about the Inspector General's processes on the OSC intranet, and the posting of notices about reporting fraud in OSC offices have provided a reasonable level of visibility regarding the procedures of the Inspector General. In addition, recently proposed changes to the PPM will fully implement the 2013 recommendation to protect the identity and prevent retaliatory action against CRF officers and employees who file complaints with the Inspector General. However, third party CRF service providers, counterparties, or investment candidates have not been offered similar protection.

The Inspector General considered extending retaliation protection to third parties doing business with the CRF and decided the office's lack of jurisdiction over outside parties made this impractical. While the intent of the original recommendation was to protect third parties from retaliation by PICM staff, we believe that the Inspector General's decision is reasonable.

The proposed changes to the PPM also implement the 2013 recommendation to specify how complaints against the Inspector General should be handled. Section 104[3] of the Guidelines for the Conduct of Business by the Office of the Inspector General requires that any employee or officer filing a complaint against the Inspector General should report to the Counsel to the Comptroller, who will advise the Comptroller.

The recommendation to adopt in writing a policy requiring the Inspector General to manage and complete investigations in a timely manner has not been implemented, based on concerns that a specific time period (e.g., 90 days) may be too rigid. While the Inspector General has determined that timely management of investigations is unlikely to become a practical concern, we think it is important to provide official direction and comfort to PICM staff that meritorious complaints will be diligently pursued. However, the addition of a process for filing complaints regarding the Inspector General mitigates our concern.

Conclusion: Substantial progress. The material concerns underlying these recommendations will be fully addressed upon the approval of the changes to the PPM. Although two of these recommendations have not been implemented, we believe that they have been considered and reasonably dismissed or are unlikely to be material concerns.

3. OPERATIONAL TRANSPARENCY

Disclosure of Policies and Related Information

The peer group is evenly split in the disclosure of governance related policies and information. The Fund, together with approximately half the peer group, currently chooses not to disclose this type of information. The Fund may wish to enhance transparency in this area.

Assessment of progress: The CRF has made available on the Comptroller's Office website summaries of a significant number of policies which were previously not available in 2012. For example, the General Investment Policy Statement currently available on the website added the following information:

- Mission and vision statements
- Summary descriptions of:
    - Audits and other reviews
    - Ban on use of placement agents
    - Ban on political contributions
    - Conflict disclosure requirements for managers, consultants and advisors
    - Consultant independence policy
    - Insider trading and misuse of confidential information policy
    - Manager's use of derivatives policy
    - Risk management policy
    - ESG policy
    - Emerging manager program and Minority and Women-Owned Business Enterprise (MWBE) strategy
    - Asset class reporting requirements to the CIO
    - Authority of the CIO regarding post-closing actions

In addition, information on proxy votes and corporate governance activities is now posted on the website, and the annual Comprehensive Annual Financial Report (CAFR) includes an overview of ESG accomplishments and priorities.

Conclusion: Implemented. The Comptroller's Office has enhanced the availability of information regarding its governance policies available on its website.

Disclosure of Operational Information

Several funds have started to disclose more operational information, including on compliance and risk management. The CRF may wish to consider the merits of disclosing additional information related to these topics to continue to demonstrate the Fund's commitment to transparency and leading governance practices.

Assessment of progress: The CRF includes an overview discussion of its risk management activities in the annual CAFR and in the General Investment Policy Statement, otherwise it has not made any other discernable changes with regard to publicly reporting operational information such as compliance or risk management. When additional risk management tools are acquired, as contemplated by current plans, the Fund may be in a position to provide more insight into its fund risk analyses and reports.

Conclusion: Partial progress. The CRF has not significantly increased the availability of information regarding its operations with respect to risk management or compliance on its website.

Manager Responses to DFS Inquiries

> *In the majority of cases, there is a requirement for a written response to the Superintendent's inquiries, although it is less consistently included in investment management contracts. These requirements could be more consistently included in all contracts.*

Assessment of progress: A standard clause for investment transaction documentation that requires managers provide a written response to inquiries from DFS is now consistently used. This was confirmed through our review of investment transaction documents.

Conclusion: The recommendation has been implemented.

4. EFFICIENCY AND EFFECTIVENESS OF MANAGEMENT

Policy Consistency

A project to consolidate and improve the consistency of related polices and update policy language is under way at the CRF. This project should be given priority, as a way to improve clarity and consistency of the Comptroller's delegation and reporting policies.

Assessment of progress: Implementation of this recommendation has been a clear priority. An updated General Investment Policy Statement was approved in November 2015. Old asset class policies have been updated, while new policies have been developed to formalize previously unwritten practices. Upon approval, the policies will be incorporated into the PPM. The Director of Compliance has been tasked with responsibility for initiating future policy updates to keep them current.

Conclusion: Substantial progress. The recommendation has been substantially implemented and will be complete upon finalization of the PPM.

Standard Legal Policies

Several projects are being initiated which will enhance legal services being provided to the CRF and PICM staff:

- *the initiative to update and better integrate currently separate investment policies into a comprehensive policy manual: and,*
- *standardization of contract clauses for required compliance and regular CRF investment transaction documentation provisions.*

Assessment of progress: As discussed above, these recommendations have been substantially implemented and will be complete upon finalization of the PPM.

Conclusion: Substantial progress. The recommendations will be completed upon approval of the draft updated policies and finalization of the PPM.

Managing External Mandates

The CRF lags its peers with respect to the number of staff it has to manage external mandates in areas such as private equity.

Options would include fewer but larger mandates in certain areas, increased reliance on consultants in the oversight of external managers and/or increased internal resources. The new CIO has indicated that an early priority will be to examine external manager relationships with an eye towards reducing or discontinuing those that have been less productive.

Assessment of progress: The total number of external active mandates has grown from 471 in 2011 to 521 as of March 2016. The overall growth is attributable to private equity mandates that grew from 239 to 297. CRF's goal is to move toward fewer private equity managers and larger commitments – with a $100 million minimum. The Fund is approving some much larger deals than in the past, e.g., $300-600 million for buyout funds. Private equity has restarted the co-investment program and closed on three co-investments, totaling about $300 million, since last September.

Private equity partnership investments typically entail a ten-year commitment (with potential extensions for another two years), so it will take time to reduce the number of existing mandates. In November 2015, CRF engaged a separate investment consultant to monitor 50 private equity legacy funds. The CIO has also directed private equity and real estate staff to put together potential portfolios to consider for sale in the secondary market. Over time, these steps should reduce the number of mandates and help staff manage workload.

Lack of sufficient staff continues to be a limiting factor in managing mandates. Increases in investment staff headcount have been marginal since 2013. However, an increase from ten to 15 in staff providing operational support has been well received as a means to make more effective use of investment staff time. PICM plans to further increase support capabilities by hiring additional operations staff with asset manager middle office experience.

More importantly, PICM is pursuing State authorization to add a significant number of staff positions over the next two to three years, and is seeking to provide more competitive compensation to PICM staff. The costs will be paid by the Fund and are to be offset by fee savings from shifting assets from external to internal management. The allocation of these and subsequent staff increases will be influenced by the CRF Strategic Plan, which includes defining a "set of organizational needs (e.g., systems, people) for each asset class and the required justification for those needs."

In the interim, PICM has been pursuing other strategies to expand the reach of the current number of investment staff. An investment relationship with an external manager began in 2015 to pursue fixed income strategies and bond market segments that require expertise and resources not available internally at current staff levels. This manager is also to provide CRF staff with research, reporting, and portfolio management tools.

Another investment relationship was begun with a different manager to provide a co-investment platform for private equity. Long-term, the CRF wants greater co-investment capability in-house, which will require more staff, but should reduce costs and the number of external mandates.

The global equities team now manages all of its domestic indexed strategies internally. It also has a new relationship with a third investment manager, akin to a manager of managers. This manager helps source local managers, advises on relationships with seven managers managing over $2 billion and negotiates rates with the managers.

Conclusion: Partial progress. The CRF has taken the initial steps to facilitate reducing and managing external mandates, but it will take more time before reductions are reflected in the data.

Implementation of the CRF Strategic Plan recommendations for added PICM resources will also assist in accelerating a reduction in external mandates in the private asset classes.

Staff Recommendation Memo and Minutes Discussion of Fees

> *CRF could adopt a more standard format for the staff recommendation memo for proposed transactions that: (a) clearly describes fees; (b) indicates whether or not fees are market rate; and (c) describes mitigating circumstances if fees are greater than market rate. IIC and REAC minutes could include a more complete description of the committees' review of fees for proposed transactions.*

Assessment of progress: In 2013, PICM adopted a template for staff investment recommendations from the CIO to the Comptroller. The "Investment Terms" section is to include "Negotiated terms for this specific investment, emphasis on fees (management /performance) relative to market and peers. "

Our review of 40 transactions closed since the 2013 template adoption found that about 70 percent of the CIO to Comptroller memos included an explicit discussion of fees. In a number of cases, the memos compared the proposed fees to market rates and/or mentioned steps investment staff took to negotiate favorable terms. In all but two of the other 30 percent of transactions, the recommendation memo from the Investment Officer to the CIO included a fee discussion and was part of the file.

In general, the Investment Officer to CIO memo includes more extensive information about management fees. Although the approach from transaction to transaction varies somewhat, CRF has made significant progress in presenting a more consistent and concise summary of management fees in staff recommendation memos.

The CRF has made substantial progress in documenting Internal Investment Committee discussion of fees for investment proposals in its minutes. We examined minutes for the 47 proposed investments considered by Internal Investment Committee members in 2014 through April 2015. For over 80% of proposals discussed, minutes included an explicit mention of fees. In a number of cases, the minutes note that Internal Investment Committee members requested clarification about proposed fee structures that were unusual or complex. Minutes also referenced concessions that had been, or were being, negotiated. In several cases, the minutes indicate that the outcome of the Internal Investment Committee discussion was to pursue further fee reductions.

Improvement in documentation of REAC's fee discussions is still a work in progress. Although division staff indicate that REAC receives an extensive description of fees for proposed transactions, and thoroughly reviews them, Division management should ensure that REAC minutes include a more complete description of the Committee's review of fees for each proposal. The Real Estate Director stated that staff will make an effort to capture the committee's review and discussion of fees for proposed transactions.

We reviewed minutes for the 24 proposed investments considered by REAC in 2014 through April 2015. We conclude that there was less informative documentation of fee discussion than in the Internal Investment Committee minutes. We also reviewed minutes for an additional 12 investments that REAC considered through February 2016 and found that improvements still need to be made.

Conclusion: Substantial progress. The CRF has made progress in adopting a more standardized format for describing competitiveness of fees for proposed transactions and in documenting fee discussions in both Internal Investment Committee and REAC meetings.

Recommendation 1.3: There could be improvement in completeness of reporting of fee discussions, particularly with respect to the REAC minutes.

Potential Consultant Conflicts of Interest

> *Any potential consultant conflicts of interest and how they are managed should be documented in writing.*

Assessment of progress: This recommendation was addressed through adoption of a new Policy Regarding Independence of Consultants Providing Investment Advisory Services which limits engagement of consultants with conflicts of interest and establishes a process for due diligence and documentation of any engagements under the policy.

Conclusion: This recommendation has been implemented.

Annual Compliance Questionnaire

> *The annual compliance questionnaire should be updated to capture sources of revenue (including subsidiaries and affiliates) from other than consulting clients.*

Assessment of progress: The Director of Compliance evaluated the recommendation and determined that addition of questions to the compliance questionnaire is not necessary because this information is already obtained through due diligence during the selection and contracting of consultants. In addition, the new Policy Regarding Independence of Consultants Providing Investment Advisory Services addresses the issue. This appears to be a reasonable response.

Conclusion: This recommendation has been adequately considered by PICM and determined to not be necessary at this time.

Compliance Questionnaire Follow-up

> *Where a review of the annual compliance questionnaire reveals information at odds with the knowledge of the CRF staff, the compliance officer, assisted as necessary by the appropriate asset class staff, should investigate and resolve the inconsistency and the results of that investigation should be documented.*

Assessment of progress: The Acting Director of Compliance confirmed that investigation and documentation of apparent compliance discrepancies will be done.

Conclusion: Substantial progress. This recommendation is being implemented.

ARS Recordkeeping Contract

> *The record-keeping and documentation consultant who assists in managing the absolute return portfolio's fees are based on assets under management in the asset class. However, the actual services provided are administrative in nature, with the amount of work based on the number of managers and transactions, not assets. In that way, the services provided are more akin to a transfer agent than a traditional asset class consultant. The CRF may want to explore changing the basis on which it pays the consultant from an asset based to account based calculation, so as to better align fees and workload.*

Assessment of progress: After this recommendation was made, the Fund approached its custodian bank to determine if it could provide ARS portfolio record-keeping and reporting services and replace the consultant. This solution was pursued for some period of time, but the Fund ultimately concluded that the custodian bank could not provide the desired level of service and reporting detail.

The Fund continues to use the same record-keeping and documentation consultant under the original contract terms. As the ARS portfolio has not grown, it does not appear that fees for this service have increased appreciably.

PICM is beginning to prepare RFPs to review and renew their investment consulting relationships and create a new pool of consultants. The ARS asset class has asked that these book-keeping and documentation services be included in the RFP for ARS consulting support. The current plan is to replace these services as part of a new consultant contract to be completed over the next 12-18 months.

Conclusion: Partial progress. Fees have not increased and there is a plan to find a replacement for the existing service provider contract.

Fixed Income Consultant

> *Given the day-to-day role of the fixed income consultant, the CRF may want to examine whether it would be less expensive to add fixed income staff to perform some of the duties now performed by the consultant. Additional considerations may be a recalibration of the consultant's role along the spectrum from extension of staff to independent opinion provider.*

Assessment of progress: The fixed income program has changed materially in the years since the 2013 report. There is new leadership of the team and a change in mentality from a buy-and-hold program to a more active portfolio. Additional managers have been hired to manage non-core fixed income mandates. In addition, the CRF has availed itself of the research, risk modeling and market intelligence that can be provided by its external managers to enhance in-house capabilities. This, combined with changes in the staff, has changed the role of the consultant considerably. Therefore, the issues identified in the initial report no longer apply.

Conclusion: Implemented.

Consultant Collaboration

> *There may be ways consultants could collaborate or offer contrasting views on key strategic topics. Such collaboration would need to be staff directed. As recommended by the Pension Task Force, and as required by the CRF policy, the Fund is due to submit its own assessment of its consultant services.*

Assessment of progress: Reviews of relevant documents such as IAC minutes and investment recommendation packages, as well as interviews with PICM staff, consultants and managers, all indicate a maturation of how PICM uses its consultants over the past few years. While PICM still relies on its consultants for some operational roles (such as operational due diligence in some asset classes) due to staff limitations, the overall philosophy and day-to-day practice has moved from thinking of the consultants as extensions of staff to regarding them as outside experts whose independent views on strategy, structure and managers should be considered. There is variation in the degree of this movement depending on the asset class (largely due to differential resource levels), but the directionality of the movement is uniform.

However, the information sharing culture which has taken hold internally is slightly uneven in terms of PICM's dealings with its consultants and managers. While most of those external observers of the CRF said they had a good understanding of the CRF's philosophies and intents, there were occasional contrary views.

One asset class consultant remarked that it had never seen the approved annual plan for its asset class, despite several requests. An external manager said it had been taken aback by a change in direction in its asset class following a change in personnel. Again, those were minority viewpoints: the vast majority

of external advisors – both consultants and service providers – thought communication was good, and that partially as a result of that and the increased sophistication of the staff, they were providing higher-value services now than they had been three years ago.

Conclusion: Implemented.

Private Market Manager Fees

> *The CRF could likely reduce management fees by making greater use of separate accounts, co-investments and other structures that avoid the higher costs of commingled limited partnerships. The CRF may also determine that these structures offer other advantages beside lower fees. However, such structures will probably require more staff. Discussions with consultants and analysis of the CEM Benchmark Survey suggest that any additional staff expenses would be more than offset by a reduction in fees. The CRF should develop a long-term resource plan to support its long-term asset allocation plan in the most cost effective way. The new CIO is working with the leadership team to identify resource needs, with increased support for the current investment program as the top priority.*

Assessment of progress: This is a primary rationale for the CRF Strategic Plan business case and for the increased headcount request. Everyone, from the Comptroller down, understands that any increased headcount will be justified only by reduced expenses, and the Comptroller has made clear that he expects monitoring of those savings.

Conclusion: Substantial progress. In process and dependent upon approval of increased headcount for completion.

Equities Broker Search

> *The CRF has not conducted an equities broker search since 2008, but should do so more frequently to better assure best execution. A continuous selection process is a practice amongst peer funds and was identified by the CRF trading staff as an option worth considering.*

Assessment of progress:

The broker-dealers PICM currently uses to execute trades for internally managed portfolios were largely selected by an RFP in 2008. In the 2013 Report, CRF recognized that the selection process should be done more frequently to keep pace with market changes and CRF's investment strategies. PICM indicated that it had not issued a more recent RFP because it was seeking a way to vet brokers on a continuous basis. This would better assure that broker coverage meets CRF's evolving needs.

On an exception basis, PICM has added several broker-dealers since 2013 as it became more active in fixed income and needed broader trading coverage. PICM considered internally building a process for

firms to apply on-line to become eligible to execute trades. However, it decided that too much staff time would be required to create and manage this internally.

In November 2015, CRF issued an RFP for brokerage search consulting services. It has recently contracted with a firm to provide "a continuously updated and vetted database of broker-dealers qualified to perform execution services for internally managed fixed income, equity and short term funds." This firm provides similar services to other institutional investors.

The vetting firm is to examine the broker-dealer's credentials, experience, financial health, execution capabilities, research services, infrastructure and market sectors in which the broker trades. This scope generally corresponds to criteria suggested by the CFA Institute for selecting brokers.[4] PICM will continue to rely on an independent measuring service to examine the cost and market impact of trades executed by each of its brokers compared to industry benchmarks.

At the time of this 2016 Review, the contract with the vetting firm had just been signed and further discussions were planned as to how the continuous vetting process will actually work, such as determining which portions can be done on-line.

Conclusion: Substantial progress. CRF has made significant progress toward the use of a continuous broker selection process with the recent contract with a broker search consulting firm. When the broker search firm begins selecting brokers on the CRF's behalf, this recommendation will be implemented.

INVESTMENT ACCOUNTING

Custodian Bank Service Level Agreement

> *Inclusion of a formal service performance level agreement in the contract with the custodian bank is recommended under the axiom of "what gets measured gets managed." Such an agreement will become more valuable if, for example, the Fund increases international holdings (tax letters and tax rebate reclamations) and invests in swaps (swap resets).*

Assessment of progress: JP Morgan Chase and the CRF now have an official Service Level Document. Quarterly reports are provided by the custodian bank and meetings between the custodian bank and CRF are held semi-annually.

A service level agreement is most useful when kept up to date. To that end, an owner of the document has been assigned with an annual review requirement. CRF's middle office structure increasingly interacts with JP Morgan Chase, so middle office service level requirements should be updated as needed to keep the document synchronized with actual activity. A person from the middle office group also should be assigned to review that section annually.

Conclusion: Implemented.

[4] "Trade Management Effectiveness", CFA Institute

Daily Pricing Process

> *The custodian bank, investment accounting and PICM could review the current daily pricing process. There may be appropriate proxies for entities that routinely fail to make pricing deadlines or for investments whose values are statement driven. The CRF should know the percentage of transactions, if any, that do not make the end of day cut-off and the percentage of assets in the total portfolio that were priced to market for that day. A specific person on the CRF staff should be responsible for reviewing the pricing report daily for rectifying any anomalies that occur.*

Assessment of progress: On a day-to-day basis, the Accounting Bureau has direct responsibility for the accuracy of recording the investment transactions. The Bureau only has responsibility for monthly and annual pricing of investments as a part of the reporting process.

The need for information on daily pricing is in PICM and the current daily pricing process is being handled by PICM's middle office section. The Performance and Analytics team at JP Morgan Chase provides a daily unaudited price report of the fund's liquid assets which is used by PICM's staff as an indication of how a manager is performing or how a significant market move may have affected the allocation targets. Custodian banks often have the capability of creating proxy portfolios for hedge funds that provide daily unaudited estimates of the positions of those hedge funds. PICM does not currently use such proxies.

Conclusion: Implemented. The new PICM middle office can address the concerns raised in the 2013 recommendation.

COMPLIANCE

Consultant Reviews

> *The compliance officer should do a due diligence review of the consultants to determine if she can rely on their reviews of proposed managers.*

Assessment of progress: The PICM compliance office has been doing background checks on managers and consultants. The prior Director of Compliance had initiated on-site visits to evaluate operational and compliance procedures but these are not regularly occurring. As the new Director of Compliance will soon be in place and resources are made available, PICM should adopt a policy to formalize its ongoing compliance review processes for consultants. This will ensure that they are held to the same standards and are subject to consistent review processes. The policy may describe the role of the Compliance Office in overseeing or conducting these due diligence reviews. For example, compliance due diligence reviews could include on-site visits, audits, document reviews and/or interviews. Although there can be flexibility regarding the scope and methods used in compliance due diligence reviews, a primary purpose should be to confirm that consultants have the resources, staffing, procedures and

capabilities to perform their contractual and fiduciary obligations. Consultants should have processes in place to determine whether investment managers are, and are capable of, complying with applicable laws, contract obligations, policies and reporting standards.

Conclusion: Substantial progress. This recommendation has been substantially implemented.

Recommendation 1.4: As the new Director of Compliance begins in his new role and resources are made available, PICM should adopt a policy to formalize the process for conducting compliance due diligence reviews of consultants.

Compliance Office Resourcing

> *The CRF should consider additional resources for the compliance office to assure daily functions and strategic development of the compliance function both can be effectively accomplished.*

Assessment of progress: Two additional compliance positions, a compliance analyst and administrative assistant, were added.

Conclusion: Implemented. One compliance position needs to be filled.

PERFORMANCE AND FUND ANALYTICS

Independent Fund Reporting Oversight

> *The CRF should consider an internal staff person responsible for oversight of reporting fund performance. That individual should have expertise in performance reporting (and, ideally, be separate from PICM).*

Assessment of progress: The CRF has not yet implemented this recommendation due to lack of adequate personnel authorization and the urgent need for additional personnel in other areas.

CFR's investment performance is calculated by a performance and analytics team from JP Morgan Chase. It is important that an independent, third party calculates the system's performance. Due to the volume of CRF's holdings and increasingly more complex investments, anomalies may occur that affect performance calculations. The heads of the investment areas do review the performance for their areas and the general investment consultant does a quarterly performance review, so there is some oversight of the process.

CRF is aware of the trend for other similar systems to be involved in reviewing and even calculating performance. They are also aware that performance calculations on a sub-fund level will have greater consequence if incentives become part of the investment staff salary structure. FAS continues to recommend that a position that is independent of the staff who has investment authority and that has

knowledge of performance calculations, such as a Certificate in Investment Performance Measurement designation, review the data provided by JP Morgan Chase for accuracy and completeness.

Conclusion: Partially complete. Action on this recommendation has been deferred due to resource constraints.

Recommendation 1.5: Hire an internal staff person within PICM to independently oversee reporting of fund performance by the custodian bank.

Year-end Valuations

> *While the process is currently being performed informally, the year-end values of the investments of the New York Common Retirement Fund should be confirmed in a written document by the Director of Accounting Bureau, the Chief Investment Officer and Executive Deputy Director.*
>
> *The Director of the Accounting Bureau, the Chief Investment Officer and the Executive Deputy Comptroller currently all sign the management representation letter to the auditor, acknowledging responsibility, among other things, for the values of the assets shown on the financial statement.*
>
> *The Director of Accounting prepares the financial statements and she keeps the other two informed of issues and late pricing. However, because all three share responsibility for the investment values, it is recommended that a formal committee comprised of at least the three management representation letter signers (and any others deemed necessary) review a report of valuations, discuss any issues or pending valuations, and officially affirm or adjust the values for financial disclosure. Within the benchmark survey, nearly half (7 or 15) of the respondents have an internal committee that signs off on the existence and value of assets.*

Assessment of progress: This recommendation has been implemented. The process is working well and implementation prepared CRF to comply with new GASB standards.

Conclusion: Implemented.

Task 2: Review of Investments; Compliance with CRF Investment Policies and Procedures and DFS Regulations

We were asked to review documents for all investment transactions requiring the Comptroller's approval that closed during the Covered Period to determine whether the transaction documents:

(i) demonstrate compliance with CRF investment policies and procedures, and

(ii) include representations from investment managers on the use of placement agents, disclosure of conflicts of interest and access to records, as required by applicable DFS regulations.

We were not asked to test underlying investments in alternative investment asset classes. We did review all of the new external mandates which closed during the Covered Period. In addition, for our review of the internally-managed public securities portfolios, we tested for compliance with program policies and procedures.

Overview of Transaction Review Process

During the Covered Period there were a total of 96 investment transactions approved by the Comptroller. We conducted our compliance review of those transactions with the following process:

- We were provided with the transaction files for each of the 96 transactions;
- We reviewed the CRF investment policies and procedures, the CRF investment checklists developed for each asset class and the applicable DFS requirements;
- We reviewed CRF investment reports and the proposed new uniform format for CIO transaction approval recommendations to the Comptroller; and,
- We also compared the list of review transactions provided by PICM staff to public reports of approved transactions approved for CRF investment during the Covered Period to confirm that our review included all transactions falling within the established criteria.

We reviewed the CRF policies and compliance processes used for internal public securities portfolios.

To determine transaction compliance with applicable policies and legal requirements covered by the review, we examined the files to determine whether they contained documentation demonstrating compliance with the following:

- Independent investment advisor recommendation of the transaction;
- Internal PICM portfolio or asset class manager analysis and recommendation;
- REAC approval (if applicable) or Internal Investment Committee review;

- CIO recommendation with supporting materials;
- Approval by the Comptroller;
- Confirmation of legal review and approval;
- Fully executed transaction documents consistent with CRF policies and approvals;
- Compliance with the Comptroller's placement agent policy;
- Confirmation of adherence to applicable campaign contribution limits;
- Acknowledgment of fiduciary duty and conflict disclosure obligations; and,
- Submission to review by DFS.

A table which summarizes the results of our review for each covered transaction is attached to this report as *Appendix B – Summary of Transaction Reviews*.

Transaction Review Findings

Based on the above review process, we conclude that:

1. The investment transactions were approved and closed in accordance with the covered CRF investment policies and legal requirements in all material respects.
2. Transaction files included applicable representations from investment managers on the use of placement agents, disclosure of conflicts of interest and DFS access to records.
3. Appropriate controls were in place to confirm that internally-managed public securities portfolios are in compliance with program policies and procedures.

Assessment of Compliance

Based on the above review process, all Covered Period investment transactions were approved and closed in accordance with applicable CRF policies and legal requirements in all material respects. In addition, CRF transaction approval and compliance procedures were consistent with the statutory and regulatory provisions that were covered by this review.

The CRF has improved its transaction documentation processes since 2013. We did not identify any areas requiring material improvements to policy or process.

Task 3: Assess Compliance with Fiduciary Principles

We were asked, based on the assessment conducted during Task 1 and Task 2 of this review, to assess whether policies, procedures, and processes were in place to ensure that the conduct of the investment-related operations of the Fund continue to be consistent with the following principles, as set forth in the DFS Regulations:

(1) the System and the Fund shall operate under a strong governance framework with a rigorous system of internal controls;

(2) the System and the Fund shall maintain a high level of operational transparency;

(3) the Comptroller shall adhere to and manage the System and the Fund with the highest ethical, professional and conflict of interest standards;

(4) the Comptroller shall have a fiduciary responsibility to act for the sole benefit of the System's members and beneficiaries; and

(5) the System and the Fund shall be managed in the most efficient and effective manner possible.

(1) CRF Governance Framework

When considering the governance framework under which the CRF operates, we addressed two primary areas:

1. The ***legal and regulatory responsibilities and authorities***, such as fiduciary responsibilities and authorities, oversight, statutory authority/limitations, investment limitations, non-economic investment requirements, resource authorities, and selection of custodian bank, external auditor, and outside counsel; and

2. The ***governance policies and practices***, including reporting structure, delegations to staff and third parties, use of advisory committees, access to information and reporting to the fiduciary, fiduciary performance, self-assessment, fiduciary time commitments, enterprise risk oversight, and independent reassurance.

Our assessment of each follows.

Legal and Regulatory Responsibilities and Authorities

The Comptroller has been provided with full and sole fiduciary responsibility for the assets of the Common Retirement System under RSSL Article 9 and under DFS Regulation No. 85, 11 NYCRR 136-2.3. Further, 11 NYCRR 136-2.3, 2.4, 2.5, 2.6 and 2.7 provide definition of the Comptroller's fiduciary responsibilities, powers of delegation, and requirements for the investment policy statement, committees, investment managers, reporting, transparency, internal audit, and compliance. RSSL sections 13, 177, 313 and 420 all contain various direction for the Comptroller regarding management of the Fund, including allowable investments (including a basket clause provision), and preferential investing programs such as in-state venture capital and MWBE manager strategies.

The legal and regulatory structure provides clear articulation of Comptroller responsibilities, as well as oversight duties, including the Superintendent of Financial Services and a variety of advisory committees which provide controls and checks and balances. The Comptroller and his staff have the authority to select the custodian bank, the external auditor, and outside counsel. The Comptroller has the ability to delegate responsibilities to his staff as well as outside managers and advisors. The venture capital and MBWE provisions allow, but do not require, the Comptroller to establish preferential programs. We find these to all be consistent with leading practice for a sole fiduciary governance structure.

Governance Policies and Practices

Based upon our review, we have reached the following conclusions regarding the governance policies and practices of the CRF:

1. The OSC organizational structure is appropriate from both an operational and segregation of duties/ controls perspective. Operationally, the CIO has clearly been delegated all investment authorities not retained by the Comptroller. All functions which have an oversight or reassurance role with respect to PICM, including Ethics, Internal Audit and the Inspector General, report separately to the Comptroller. The Director of Compliance role has recently been filled and reports to the Executive Deputy Comptroller for the Division of Retirement Services, which is independent of the CIO. We concur that this segregation of duties is appropriate.

2. Delegations to staff seem to be effective, and the Deputy CIO role appears to function well. The effectiveness of all of the advisory committees is high and they are all fulfilling their responsibilities.

3. Access to information has improved and seems to function adequately, although implementation of a commercial DMS could be an improvement.

4. Despite all his other responsibilities, the Comptroller attends nearly all advisory committee

meetings and appears to be very well-informed regarding activities at the Fund.

5. The Internal Audit Department has been active in reviewing many diverse aspects of the CRF and its reports appear to be thorough. In addition to the annual financial audits, this fiduciary and conflict of interest review is also an important source of independent reassurance to stakeholders. Through the Internal Control Officer, the Comptroller's Office has developed a basic enterprise risk management capability. This should continue to be enhanced going forward.

6. We consider the CRF governance framework to be sound, with several opportunities for improvement.

(2) Transparency

DFS regulations identify transparency requirements which address, in addition to access by the DFS to the records of CRF and its managers:

- Certified annual financial statements;
- The CAFR;
- The triennial Fiduciary and Conflict of Interest Review; and,
- Several requirements for the OSC website:
    - At least annually, all fees paid to investment managers, consultants or advisors, and third party administrators;
    - At least annually, payments to placement agents; and,
    - The Fund's investment policies and procedures.

Findings:

OSC has recently re-engaged KPMG as the independent auditor and has continued to obtain certified financial statements on an annual basis. Financial statements from the past five fiscal years are available on the OSC website.

The CAFR is published annually; CAFRs from the prior twelve fiscal years available on the OSC website.

The OSC has commissioned this Fiduciary and Conflict of Interest Review three years after the initial review was completed in 2013. The 2013 Review is available on the OSC website.

Conclusions:

1. The OSC meets the requirements for fee reporting through the CAFR disclosures. All manager fees are reported by manager for the year, including commissions for brokers and performance fees for absolute return strategies (hedge funds), opportunistic and real estate. Private equity fees include invoiced management fees only and exclude carried interest. All consultant fees are individually listed.

2. The Comptroller has banned all placement agent fees, so the disclosure requirement has been met.

3. The CRF General Policies document, which is available on the OSC website, includes a summary of all key CRF policies and investment strategies. The version available on the website at the time of this report was approved in November 2015.

4. The Comptroller's Office is meeting the spirit and the letter of the transparency requirements articulated by DFS. The level of transparency compares well with other large public peer funds. The one transparency issue the CRF will need to address in the near future is the level of reporting of carried interest, partnership expenses, and management fees on its private equity portfolio once expanded information is collected from the private equity general partners. This topic is addressed earlier in this report.

(3) Comptroller's Adherence to Ethical Standards

The DFS regulations state that "the Comptroller shall adhere to and manage the retirement system and the fund with the highest ethical, professional and conflict of interest standards." The ethical reforms initiated by the current Comptroller include:

- A prohibition on the Fund doing business with investment advisers who make political contributions to the State Comptroller or a candidate for State Comptroller;
- A ban on placement agents, paid intermediaries and registered lobbyists from investing with the Fund;
- Expanded internal and external vetting, review and approval of all investment decisions;
- Mandatory ethics training for all staff, including the Comptroller;
- Created the position of Inspector General to monitor investment transactions and the activities of the Comptroller and OSC employees;
- Hired Special Counsel for Ethics to implement a comprehensive ethics program;
- Initiated monthly reporting on investment transactions; and

- Published estimated quarterly pension fund performance in addition to annual audited statements.

Findings:

During our review, it was apparent that PICM leadership and staff, as well as those in other OSC divisions, act professionally and take ethics and conflict of interest standards very seriously.

We did not identify any instances of inappropriate or unethical behavior. None of the external managers or service providers we spoke to identified any inappropriate requests or behavior by any of the PICM staff.

We found the policies and procedures established by the Inspector General and Special Counsel for Ethics to be effective and a further control and check and balance.

Conclusions:

The Comptroller's Office maintains a very high level of ethical, professional and conflict of interest standards with respect to the Fund.

(4) Comptroller's Compliance with Fiduciary Responsibilities

Findings:

The RSSL and the DFS regulations identify and articulate the fiduciary responsibilities for the Comptroller. Using these as a guide, based upon our assessment, the Comptroller is in full compliance with his fiduciary duties with respect to the CRF. The following comments address those areas of fiduciary responsibility within the scope of this review (we did not address areas related to System funding and administration).

The Comptroller consistently acts in the sole interest of the members and beneficiaries of the retirement system. We did not identify any instances where a decision appeared to be contrary to those interests.

The Comptroller has adopted and updated a General Investment Policy Statement which includes all the elements identified in the DFS regulations. That statement appears to have been thoughtfully developed and expanded from its prior version.

After thorough vetting by the PICM staff and the CIO and, in the case of real estate transactions, further vetting by the REAC, the Comptroller has approved all investment transactions which closed during the Covered Period. Descriptions of all transactions which closed during each month are available on the OSC website. Those descriptions include the rationale for the changes and other pertinent information.

The Retirement System Actuary, who is part of the Comptroller's Office but not part of PICM, prepares an annual report to the Comptroller on actuarial assumptions. This report is reviewed by and discussed with the Actuarial Advisory Committee and the Comptroller. The assumptions and recommendations from the Actuary are deliberated and the Committee provides its independent advice. The Comptroller has accepted the Actuary's recommendations.

Minutes of all committee meetings are appropriately prepared and maintained, and committee members have been properly briefed regarding their duties and responsibilities.

Conclusions:

In summary, based on our review, we believe the Comptroller is in full compliance with his fiduciary duties with respect to the CRF.

(5) CRF Effectiveness and Efficiency

CEM Benchmarking Inc. (CEM) is a global benchmarking company which provides independent benchmarking information for large pools of capital including pension funds, endowments/ foundations and sovereign wealth funds. The CRF participates in CEM's investment benchmarking program and its investment performance and management costs are compared to a peer group of fifteen global pension funds with a median size of $158 billion in assets under management. Based upon the 2015 CEM Investment Cost Effectiveness Analysis for the CRF for the five years ending December 31, 2014, the most recent four-year investment returns were above the peer median due to a favorable investment policy (the asset allocation) which had a higher allocation to U.S. stocks and private equity than peers.

CEM calculated the CRF investment costs at 40.1 basis points, slightly lower than the peer group median of 42.7 basis points. Adjusted for comparable asset allocations, the peer benchmark cost was 39.8 basis points. This CEM analysis concludes that CRF investment costs are "normal" compared to the peer group. CEM explained the CRF investment cost performance as having a slightly lower cost implementation style, which considers internal versus external management, active versus passive public market strategies, and use of fund of funds versus direct investments. The CRF has a higher proportion of funds in passive indexed strategies than its peers. This lower cost implementation style (i.e., internal, passive management) was offset by the CRF paying more for external management of certain alternative investments (hedge funds and real estate) than its peers.

Conclusions:

Based upon our review, and referencing the 2013 Report, we believe the CRF is now operating more effectively and at a somewhat higher level of efficiency. Despite constraints which have limited CRF's ability to add staff, upgrades to and redeployment of PICM staff, combined with more purposeful deployment of external resources, has resulted in an improved investment operation. However, PICM

appears to be approaching the limits of significant improvement without more resources. In fact, we were told that CRF will be unable to achieve its current asset allocation without approval of planned staffing and budget increases as described in the CRF Strategic Plan. In our assessment, the ability to identify and manage risk effectively also remains limited without acquisition of new risk monitoring and modeling tools.

Achieving leading performance will require a significantly higher level of internal resources to take advantage of additional market opportunities and develop a deeper level of risk management and analysis. We concur with the Comptroller and CRF leadership that additional staffing and more competitive compensation levels should be approved, as well as a budget for new portfolio and risk management tools.

Assessment of Compliance

In summary, based on our review, we believe the Comptroller is in full compliance with his fiduciary duties with respect to the CRF.

Task 4: Identify Recommendations for Improvement

We were asked to discuss how the CRF could enhance its investment-related policies, procedures, and practices to bring them in line with prevailing and/or best practices. We were also asked to identify any significant changes in the investment or regulatory industry affecting public pension fund investment-related operations during the intervening three years and discuss how the CRF is responding or should plan to respond to those changes. We were not asked to provide advice on specific investments.

The following recommendations supplement the above discussion of recommendations from the 2013 Report, some of which remain to be implemented or are still in process. Completing implementation of the remaining 2013 Report recommendations should remain a high priority of the Comptroller, CIO and PICM staff.

Committees

Recommendation 4.1: Review appointment of advisory committee chairs every two years and consider whether or not chair rotation could introduce a fresh perspective.

Background: Two of the advisory committees (the Advisory Council for the Retirement Systems and the Actuarial Committee) meet annually and are chaired by the Comptroller. The draft committee charters for the other three advisory committees (IAC, REAC, and the Audit Committee), which meet regularly, state that the appointment of and length of service of the chair is at the discretion of the Comptroller but do not provide any guidelines for rotation. One of the committee chairs is relatively new and two have served for at least five years. The Comptroller has stated that he is pleased with the performance of the committees and values their input.

Leading Practices: Although it varies considerably, at many retirement systems, committee chairs serve for a defined term, typically one or two years. In most cases the chair can be re-appointed. In our experience, it is a leading practice to review the chair positions periodically and rotate committee chairs as a means of ensuring committees maintain a high level of performance. It is a lagging practice to have very long-tenured committee chairs.

Recommendation 4.2: OSC should discuss the new committee charters with each respective committee, so as to familiarize the existing committee members with the new codifications.

Background: Each of the committees is advisory to the Comptroller, so it is appropriate that OSC develop the charter for each committee. However, in most cases, the committee chairs told us they had not yet seen the draft charters which are being finalized. Staff indicated that the committees will have the opportunity to review and comment prior to finalization. While the committees are functioning well, and satisfaction has improved from three years ago, as evidenced from conversations with both

committee members and PICM staff, it is important that committee members have a clear understanding of expectations, such as the time frame for appointing new members.

Leading Practices: Committees should be aware of, and embrace, their charters. Another leading practice would be for the committees to do periodic self-evaluations. Putting the new charters on the agenda for the various committees would cover some, but not all, of the same topics that a self-evaluation would: reminding committee members of the processes and responsibilities, and engendering a discussion of how to work efficiently to accomplish each committee's responsibilities.

Private Equity Fee Reporting

Recommendation 4.3: Develop a standard approach and definitions, perhaps in cooperation with other peer public funds, for reporting the expanded fee and expense information for private equity to improve transparency and comparability.

Background: Increased transparency of private equity investment manager fees has become an important objective for many public pension funds, including the CRF, and the amount of fee information disclosed has generally been increasing. However, under GASB reporting rules, there is not a well-defined reporting standard and the level and type of reporting among public pension funds varies widely.

The CRF is a member of the Institutional Limited Partner Association (ILPA), which has developed a reporting template which captures greater detail on fees, expenses and carried interest paid to general partners and their affiliates with the intent of gaining more consistency and transparency in private equity fee and expense reporting. CRF's private equity general partners have all been asked to provide information consistent with the ILPA template. This information will be provided to one of CRF's investment consultants and compiled for the internal use of CRF once all the information has been received.

It is not yet clear how and to what extent private equity fees, expenses and carried interest information will be made available to the public once the ILPA template information is received by the Fund. Staff expects the CRF would report such information in the aggregate. Currently, only known private equity management fees are reported, not carried interest or partnership expenses. Few public pension funds report private equity carried interest or partnership expenses today. The Comptroller stated to FAS that he wants to be as transparent as possible regarding fees and the Fund is considering various reporting options for carried interest disclosure on the private equity portfolio.

Leading Practices: Recent history has shown that being a leader in external manager fee reporting typically opens up a public fund to charges that it is a high-cost fund which pays excessive fees. Indeed, this happened previously to the CRF when it increased its disclosure and required an explanation to the public that they were not new fees being paid, they simply had not been reported previously.

Being appropriately transparent about the costs of the private equity portfolio will require clearly defining the types of partnership fees and expenses, including carried interest, that are included in the disclosure and those that are not. In the absence of standard guidelines, it is the responsibility of the reporting fund to clearly explain what compensation is included in the private equity portfolio reporting.

Training

Recommendation 4.4: PICM should develop its own on-boarding training and orientation program for new hires.

Background: The CRF Strategic Plan includes a recommendation to include major waves of new hiring. Among the additional resources will be a small administrative group within PICM to focus on its unique human resources requirements and work as liaison with the enterprise-wide OSC HR group.

There is currently no formal on-boarding training of new staff, other than the standard training provided by the OSC. While this is already an issue, as OSC becomes increasingly successful in attracting more seasoned investment personnel this will be exacerbated. Those staff have learned one way of doing something at a previous employer, possibly in the private sector, and now will have to conform to the PICM procedures. Generally, cross-fertilization from different perspectives is productive, but it has to be in the context of allowable policies and procedures and sensitive to public sector ethics and transparency. To her credit, the CIO recognizes the scope of this challenge across two dimensions: imparting specific knowledge of how and why CRF does what it does, and maintaining the culture and the CRF-specific identity which leadership has tried to create over the past three years.

It will be very important for PICM to have a robust on-boarding process that explains not just what is expected and how PICM operates, but why PICM does what it does. We note that the process PICM leadership has undertaken to align investment beliefs with investment structure and specific investments should be helpful in designing an on-boarding program.

Leading Practices: Organizations such as the OSC, which have a centralized HR function servicing a range of departments, often find it challenging to provide the unique human resource support required by a sophisticated investment management operation. Leading practice is for the investment organization to have an internal HR group that has the appropriate expertise to support recruitment and staff development (we understand this is consistent with the CRF Strategic Plan).

Decision-Making

Recommendation 4.5: PICM should explore changing potential levels of delegation, relating to existing investment mandates, which would allow for expanding the co-investment program while maintaining appropriate process controls. It should also create a pool of consultants to facilitate rapid underwriting of such opportunities.

Background: There is often a tension between appropriate levels of process control and the need for

quick investment decisions to take advantage of temporary market opportunities. For many public funds, this tension centers on making decisions regarding co-investments in private asset classes. One way to find an acceptable middle ground is to pre-determine the criteria – both in terms of size and nature (and therefore risk) for co-investments, which would then trigger a special co-investment process. The CRF has taken a few steps down this pathway, particularly in the real estate and private asset classes, as discussed on page 22, in the section reviewing implementation of 2013 Recommendation 2: Re-align and optimize resources. Those initial efforts, in real estate and private equity, could pave the way for a more widespread co-investment program.

For example, the Comptroller (and in the case of real estate, REAC), might establish a policy to allow co-investments up to a pre-determined percentage of the allocated value of a fund, contingent on: a) no single co-investment being more than a certain amount; b) the co-investment being consistent with the nature of the fund; and c) the CIO signing off.

As a hypothetical example (using real estate as the asset class since it is the most complicated in terms of process), PICM might recommend to REAC and the Comptroller that the CRF invest $400 million in a core, open-ended real estate fund. At that time, PICM would also ask for authority to make co-investments, on the CIO's signature, for co-investments which were less than $40 million each, and which did not total more than $100 million, contingent on the CIO affirming in writing that the co-investment is consistent with the core nature of the fund. (The amounts are, of course, arbitrary in this example and it would be up to PICM to suggest, and for REAC and, ultimately, the Comptroller, to agree.)

The goal is to move the very top of the accountability process to the point of the initial decision to make the investment, and to have the discussion at that time, so that the co-investment process can be curtailed even while controls can be maintained. PICM would, of course, report periodically on any such co-investments as they are made.

The specifics of this recommendation are less important than that PICM undertake a thoughtful process to try to determine a way to create a systematic approach which allows for the speed necessary for co-investments, while maintaining appropriate process controls.

Should PICM choose to create such a process, FAS also strongly suggests that PICM create a "spring-fed pool" of consultants that might quickly and thoroughly underwrite co-investment opportunities which are independent of previously approved funds, but which PICM nonetheless believes may be appropriate. FAS also notes that such a pool would be helpful, in particular, to the opportunistic asset class, which will need such a rapid response capability to take advantage of investments across disparate asset classes and geographies as markets present temporary opportunities, particularly in areas where staff does not have underwriting experience or capacity.

Leading Practices: Some funds allow senior investment officers or the Internal Investment Committee or the CIO to make such co-investments, at delegated dollar amount. At those funds, the investment officers often have direct underwriting experience and/or the ability to use consultants quickly.

Custodian Bank Contracting and Services

Recommendation 4.6: PICM should work with OSC Finance, Accounting and Legal for the upcoming custodian bank procurement process and develop an approach that separates FX and securities lending from the scope of basic custody services. Even if the CRF ultimately contracts for FX and securities lending services from the custodian bank, there should be three separate contracts and service level agreements governing the services and relationship.

Background: The existing five-year OSC contract with J.P. Morgan Chase expired on June 30, 2015 and services are currently being received from J.P. Morgan Chase on a one-year extension. A second one-year extension is expected to continue services through June 30, 2017. We were told that preliminary discussions are underway within OSC to begin to develop a new RFP for custodian bank services after that date.

The range of potential services and providers for FX and securities lending has continued to expand since the current custody contract went into effect in 2010. The CIO stated that consideration is being given to preparing and receiving bids for three separate RFPs, one each for custody, foreign exchange, and securities lending services. We believe this would be the best direction for the OSC, even if the same provider was selected for all three services.

There have been significant concerns throughout the investment industry as to the FX rates pension funds receive from their custodian banks and excessive service charges. PICM took steps to address those issues with J.P. Morgan Chase, and receives a quarterly independent benchmarking of its FX results. PICM has been having discussions with a range of different providers about ways to further reduce program costs, such as encouraging more external managers to use the same FX provider as CRF uses. CRF is also meeting with other FX vendors, including those who function only in an agent role, meaning that they have a fiduciary responsibility to act only in the interests of the client. CRF is also exploring potential ways to expand the use of FX beyond settling trades and repatriating income to include generating additional return.

Following the credit market collapse of 2008-09, CRF and the majority of public pension funds adopted more conservative policies for securities lending. Discussions with CRF suggest that the objectives and scope of its lending program are likely to remain essentially the same in the next bid process. However, changes in markets, regulatory environment and technology have increased the range of options for lending securities.

Issuing separate RFPs increases the opportunity to find the best provider of each of those services. In addition, it makes it easier to change CRF's securities lending or FX provider, should that become necessary, without disrupting the custody relationship.

While this approach may result in higher apparent costs for custody, it should improve transparency of actual costs, enhance securities lending and/or FX performance, and provide the opportunity to consider use of agency firms whose sole responsibility is to the client.

Leading Practices: In a 2012 FAS survey, nine of fifteen funds indicated they would likely unbundle custody services from FX and securities lending in their next bidding process. FAS is increasingly seeing other major funds separate contracts for custodian bank services, FX, and securities lending. In some cases, they utilize three different providers.

Reporting for Decision Making

Recommendation 4.7: PICM should consider developing a consistent executive summary format for CIO recommendations to the Comptroller, which can also be used with the advisory committees, that synthesizes the various analyses of staff and the consultants, highlights any areas of disagreement, and includes risks and pros and cons of taking action or not taking action. The template used should also incorporate the requirements of the PPM, which specify risks and mitigating factors discussed at committee, information and consideration of the manager's ESG policies and practices, and a statement that the investment and/or Investment Manager selection complies with the procedures described in the PPM.

Background: There appear to have been improvements in presentations to the Internal Investment Committee with more consistent and thorough presentations. However, currently there are multiple memoranda in the decision package the CIO provides to the Comptroller. An executive summary approach resulting in a common memo, prepared by PICM staff, could eliminate the need for a second memo for the Comptroller and improve the ease of use through a more standardized format. Although the detailed reports would still be available, the executive summary should contain a concise overview of all key considerations.

Based upon the PPM, PICM's requirements include risks and mitigating factors discussed at committee, information and consideration of the manager's ESG policies and practices, and a statement that the investment and/or Investment Manager selection complies with the procedures described in the PPM. This format is not consistently utilized.

Leading Practices: At peer funds, leading practice includes executive summaries which provide insight into the issue, the options available and the thought process behind any recommendation for all decision requests. The same summary format is used by Committees, staff and consultants. The executive summaries typically include, for example: Issue/ Background; Options / Pros and Cons; Risks of action / inaction; and Recommendation. This template approach also facilitates more effective use of a portal for trustees and committee members, which is also a leading practice.

Liquidity Management

Recommendation 4.8: PICM should develop a formalized liquidity management process and assign an individual to be responsible for liquidity planning.

Background: It appears that liquidity is being managed, but aside from the CIO, the FAS Team could identify no single individual responsible for forecasting cash flows and identifying appropriate liquidity targets. A more formalized liquidity management process, with a single point of accountability, could ensure that liquidity needs are being adequately anticipated and that excessive cash balances are not being unintentionally maintained.

We were told that, as part of the CRF Strategic Plan, a new cash management group is being contemplated, which would be responsible for liquidity planning among its duties.

Leading Practices: Many public funds have a Chief Financial Officer (CFO) whose duties include projecting cash inflows and requirements and providing projected net cash requirements to the CIO.

Appendix A – Project Team Biographies

Funston Advisory Services LLC (FAS) was formed in 2010. The principals have been providing governance, strategy and risk advisory services since at least 1980. FAS works with a network of public pension retirement system experts who operate as independent subcontractors to FAS, including specialized firms, such as Reinhart Boerner Van Deuren s.c., a business law firm. Each team member is a highly-experienced professional, with decades of consulting, legal and/or pension industry experience. Our team has worked together on a series of high-profile governance assignments:

- California Public Employees' Retirement System (CalPERS) – Board Governance and Effectiveness Project
- Oregon Investment Council – Fiduciary Governance Review
- New York State Common Retirement Fund – Fiduciary and Conflict of Interest Review (2013)
- Trust Fund for the People of the Federated States of Micronesia – Governance Review
- School Employees Retirement System (SERS) of Ohio – Fiduciary Audit
- South Carolina Retirement System Investment Commission (RSIC) – Fiduciary Performance Audit
- South Carolina Public Employee Benefit Authority (PEBA) – Fiduciary Performance Audit
- New York City Bureau of Asset Management – Management and Operations Study and Best Practices Review
- Pennsylvania State Employees' Retirement System (SERS) – Board and Organizational Structure Review

These engagements were unique assignments which required a customized approach and involved an in-depth understanding and review of governance structures and fiduciary responsibilities, critical decision-making processes, delegations of authority, investment operations, and accountabilities. The reviews frequently involved extensive benchmarking and original research to identify and describe leading and prevailing practices in a range of governance and operational areas.

The biographies of each team member involved in the CRF review are included below in alphabetical order.

Keith Bozarth

Keith S. Bozarth retired as Executive Director of the State of Wisconsin Investment Board (SWIB) in June 2012. He was a senior advisor on the FAS team for our New York State CRF, SERS of Ohio, South Carolina RSIC, South Carolina PEBA, and NYC BAM fiduciary and operations review engagements. During his tenure at SWIB, he successfully led a number of key initiatives:

- Modernization of Wisconsin law governing SWIB investments, providing full "prudent investor" authority;
- Changes in Wisconsin law to provide trustees with full control of SWIB budget and staff positions;
- Thirty percent increase in staffing at SWIB, which facilitated as increase in internal management from 20% of assets to over 50%, resulting in net cost savings;
- Review of the actuarial assumptions used for investment return and wage growth, resulting in significant adjustment to both;
- Implementation of a cost attribution system, assigning cost to individual portfolios, and a revised incentive program to reflect full "net return" calculation;
- Revised incentive program to reflect market for comparable operations; and
- Implementation of an enterprise risk management function for SWIB.

Before joining SWIB, Keith was CEO of the Orange County Employees Retirement System in California. His experience working with public pension funds began in 1992 and also includes the Teachers' Retirement System of Illinois and both the State Employees' and Public School Retirement systems in Missouri. He has served 11 years in a CEO role with oversight of investment, benefit and actuarial funding plans. In addition, he spent five years providing counsel to the Missouri section 457 deferred compensation plan and served one term as a member of the oversight board for the plan. In total, he has nearly 25 years involved in deferred compensation or pension issues. He has overseen asset-liability studies at four different public funds, working with a range of consultants and actuaries. Keith is a well-known figure among the pension fund community and has regularly published and presented.

Keith holds a bachelor's degree and a J.D. degree, both from the University of Missouri-Columbia. He also was awarded the Retirement Plans Associate designation from the International Foundation of Employee Benefit Plans (joint program with the Wharton School).

Virginia Brizendine

Virginia S. Brizendine led the review of CRF's, South Carolina RSIC's, and NYC BAM's investment accounting processes. She served as Chief Financial Officer for the School Employees Retirement System (SERS) of Ohio from 1999 to 2010. Prior to SERS Ohio, she was employed by the Public School Retirement System of Missouri (PSRS) and Public Educational Employee Retirement System of Missouri (PEERS) from 1981 until 1999. During that time, she served as Chief Financial Officer of PRSR/PEERS from 1994 to 1999, as PSRS Administrator from 1986 to 1994, and as PEERS Administrator from 1981 to 1986.

Virginia is a Certified Public Accountant (Missouri Certificate No. 7773, retired) and a Certified Government Financial Manager (CGFM) (Certificate No. 4). She also holds a Missouri Permanent Teaching Certificate.

Virginia is an instructor for the Association of Government Accounts on the topics of "Government Environment" and "Government Financial Management and Control." She has made presentations throughout the United States on "Dealing with Change in the Workplace," "GAAP for Public Pension Plans," "Internal Control Issues," "Fraud in Public Retirement Systems," and "Ethics in Government."

She has served as chairman of the GFOA Committee on Retirement and Benefit Administration, was the national president of the Association of Government Accountants and was a co-founder and president of the Public Pension Financial Forum.

Virginia earned an M.S. in Accountancy from in 1981, an M.M.Ed. in 1977, and a B.S.Ed. (magna cum laude), all from the University of Missouri.

Rick Funston

Frederick (Rick) Funston is the Managing Partner of Funston Advisory Services LLC, focusing on the interrelationship between governance, strategy and risk. In 2001, he created the concept of risk intelligence for both value creation and value protection. He is a frequent public speaker both domestically and internationally and he is the principal author of Surviving and Thriving in Uncertainty: Creating The Risk Intelligent Enterprise™, published by John Wiley & Sons in April, 2010. This book is specifically targeted at the governance and risk oversight needs of boards and executives in both public and private sectors.

Rick recently led the review of the New York City Bureau of Asset Management and Pennsylvania SERS. He previously led the fiduciary performance audits of the South Carolina Retirement System Investment Commission (RSIC) and the Public Employee Benefit Authority (PEBA), as well as the Fiduciary Audit for the School Employees Retirement System (SERS) of Ohio, where the emphasis was on governance, policies and procedures in the investment operations and identifying improvement opportunities. He led the 2013 Fiduciary and Conflict of Interest Review for the CRF, a review of governance structure alternatives for the Oregon Investment Council, and a Board Governance Project and Enterprise Risk Management projects at CalPERS. He has provided board and executive education for the Washington State and the State of Wisconsin Investment Boards and for the San Jose Police and Fire, the State Universities Retirement System of Illinois, and Los Angeles County Employees Retirement Association (LACERA).

Rick left Deloitte & Touche LLP in May 2010 and formed Funston Advisory Services LLC. Prior to his departure, he was the National Practice leader for Deloitte's Governance and Risk Oversight Services. In that capacity, he served many of Deloitte's largest domestic and global clients and was responsible for the thought leadership that currently underpins Deloitte's globally pre-eminent position in risk intelligence. Over the past 14 years, Rick has been in high demand as a thought leader and public speaker ranging from public and private sector boards and professional organizations such as the National Association of Public Pension Attorneys, the Public Pension Financial Forum, Institutional Investors and the Institute of Internal Auditors to the FBI, the Department of Defense, the University of California Berkeley, Stanford Law School, Yale and Princeton. He was the first to introduce the concept of velocity in risk assessments that has recently been officially adopted by COSO, the Committee of Sponsoring Organizations of the Treadway Commission.

He has over forty years' experience in both not-for-profit and for-profit sectors. Before joining Deloitte, Rick was the CEO of Continuous Improvement Services Inc. He began his career in the public

sector consulting on strategy and operations, organization and leadership development, performance management, program evaluation and survey research.

Rick has been a guest lecturer at the Yale School of Business and at Princeton University. He also served on the Board of Visitors for the Oakland University School of Business Administration from 2009-2011 and is an Adjunct Professor for the executive MBA program. He was awarded a B.A. from York University in Ontario and an M.S.W. from Tulane University.

Megan Jackson

Megan K. Jackson is an attorney at Reinhart Boerner Van Deuren s.c. (Reinhart Law) in the firm's Employee Benefits Practice and Institutional Investor Services Group. She assists the FAS team in developing a new Governance Policy Manual for the Oregon Investment Council. She works closely with a range of benefits providers, including domestic and global pension funds. Megan is also an experienced business law attorney, specializing in drafting and negotiating commercial contracts.

In the area of private markets investments, Megan has analyzed and negotiated the legal and economic terms of investments in private equity funds, hedge funds and alternative investment vehicles on behalf of domestic and foreign institutional investors. (The Reinhart team represents 11 of the 50 largest pension plans in the world and 27 of the 300 largest pension plans in connection with alternative investments, corporate governance, fiduciary matters and securities litigation.) She also works with senior attorneys to review investment management agreements, wrap master agreements, ISDA master agreements and related investment documentation. Megan has also analyzed and negotiated the legal and economic terms of investments in private equity funds, hedge funds and alternative investment vehicles on behalf of domestic and foreign institutional investors.

Megan is a member of the State Bar of Wisconsin. She is also a member of the Madison Public Library Board of Directors and the Madison Public Library Foundation. She serves on the Wisconsin Governor's Conference on Minority Business Development. Megan received her J.D. from the Indiana University Law School-Bloomington, completed a Course of Study at the University of Hong Kong, and earned her B.A. at the University of Illinois.

Ken Johnson

Kenneth (Ken) W. Johnson retired from the State of Wisconsin Investment Board (SWIB) in 2010. He has worked with FAS since 2012 and led the review of investment-related operations and use of external managers and consultants on our assignments with the New York City Bureau of Asset Management (BAM), the South Carolina RSIC, SERS of Ohio, and the CRF, and he also assisted with our Oregon Investment Council engagement. He became Administrator for Global Investor Collaboration Services, LLC after retiring at the end of 2010 as Chief Operating Officer and Chief Financial Officer for SWIB.

As COO/CFO for over 10 years, Ken had oversight of SWIB support services including financial operations, information technology, communications with the public, and cost-effectiveness benchmarking. He previously served as a team leader and analyst for the nonpartisan Wisconsin Legislative Fiscal Bureau and as Executive Assistant to the Secretary of the Wisconsin Department of Veterans Affairs.

Ken was a board member and treasurer for Summit Credit Union, one of the largest credit unions in Wisconsin, for six years. He served as a board member and investment committee chair for the Wisconsin College Savings Program (EdVest) for 15 years. He is currently an outside director and Audit Committee member for Bankers' Bank, which supports community banking services in the Midwest. Ken holds a bachelor's degree from Northwestern University and a master's degree in public policy administration from the University of Wisconsin-Madison. He also holds the Claritas® Investment Certificate from the CFA Institute.

Keith Johnson

Keith L. Johnson is an attorney who heads the Institutional Investor Legal Services team at Reinhart Boerner Van Deuren s.c. (Reinhart Law). Keith represents pension funds and institutional investors on fiduciary, investment, securities litigation and corporate governance program matters. He was program director of the Wisconsin International Corporate Governance Initiative at the University of Wisconsin Law School, while serving as an adjunct professor of law.

Keith and his team from Reinhart Law were teamed with FAS in performing the CalPERS governance review, the governance structure review for the Office of the Oregon State Treasurer, the fiduciary and conflict of interest review with the CRF, the SERS of Ohio fiduciary audit, the South Carolina RSIC and PEBA fiduciary performance audits, and the Pennsylvania SERS Board Governance project.

Keith was formerly legal counsel to the State of Wisconsin Investment Board (SWIB), the ninth largest public pension fund in the United States, for more than 21 years, including almost seven as chief legal officer. In that capacity, he headed SWIB's fiduciary duty compliance, corporate governance, investment, legal services and securities litigation programs and was a member of SWIB's Risk Committee. He also served as a Board Member and President of the National Association of Public Pension Attorneys (NAPPA).

Keith regularly represents institutional investors in negotiation of investment manager and private market investment agreements and provides counsel on corporate governance, securities litigation and fiduciary duty to many of the world's largest pension funds and institutional investors. He and the Institutional Investor Legal Services team at Reinhart Law have provided investment, benefits, insurance, tax and fiduciary counsel services to a number of public pension funds, including CalPERS, the State of Wisconsin Investment Board, New York City Pension Funds, Texas Teachers Retirement System, North Carolina State Treasurer, Connecticut State Treasurer, Kentucky Retirement Systems, Employees Retirement System of the State of Hawaii and Milwaukee City and County pension boards. He is co-editor of the Cambridge University Press Handbook of Institutional Investment and Fiduciary Duty.

Keith is a member of the State Bar of Wisconsin and the State Bar of Texas. He earned a J.D. degree from the University of Wisconsin Law School and a B.A. from the University of Wisconsin-Madison.

Jon Lukomnik

Jon Lukomnik led the evaluation of hiring and firing of external managers and consultants and due diligence and monitoring procedures during the SERS of Ohio, NYS CRF, South Carolina RSIC, and New York City Bureau of Asset Management (BAM) reviews. Jon is managing partner of Sinclair Capital L.L.C., a strategic consultancy to corporations, institutional investors and the investment management industry. He has provided risk management, product development, due diligence, fund selection and portfolio construction services to various institutional investors. Clients have included Nikko Asset Management, Legg Mason, SBLI Mutual Life Insurance Company, and NS Capital. He currently serves on two investment committees. Jon is a trustee for the Van Eck mutual fund complex. He has also been a director for various public companies, private companies, not-for-profit corporations and litigation trusts.

Jon was deputy comptroller for pensions for the City of New York in the mid-1990's, where he was the designated investment advisor for the City's five defined benefit pension funds totaling $80 billion in assets, as well as the City's own treasury. Since then, he has served as investment advisor or trustee for various trusts, pension funds, endowments and asset management companies.

Over the course of his career, he has conducted more than 1,000 due diligence and external asset manager monitoring meetings. Jon is a member of the Standing Advisory Group of the Public Company Accounting Oversight Board (PCAOB), serving a three-year term from 2015-2018. He was named by the National Association of Corporate Directors as one of the 100 Most Influential People in America for Corporate Governance in 2011 and 2012. He was the International Corporate Governance Network's 2013 honoree for "excellence in corporate governance."

A frequent contributor to both academic and practitioner publications, Jon co-authored the award-winning book, *The New Capitalists: How Citizen Investors Are Reshaping the Corporate Agenda* (Harvard Business School Press, October 2006) and writes a monthly column for *Compliance Week*. His newest book is *What They Do With Your Money: How the Financial System Fails Us and How to Fix It*, examining the finance industry (Yale University Press, May 2016).

Randy Miller

Randall (Randy) W. Miller, a Principal with Funston Advisory Services LLC, has co-led governance reviews at Pennsylvania SERS, NYC BAM, South Carolina PEBA and RSIC, the CRF, SERS of Ohio, the Oregon Investment Council and the Office of the Oregon State Treasurer, CalPERS and the Trust Fund for the People of the Federated States of Micronesia. At CalPERS he also assisted in developing their enterprise risk management program. He has led six FAS governance benchmarking studies, a critical part of the FAS governance reviews. He has provided executive education workshops with the Boards of the Ohio Police & Fire Pension Fund and the Oregon College Savings Plan and has presented testimony to the South Carolina Senate Finance Special Subcommittee to Review the Investment of State Retirement Funds. He has extensive experience in operations analysis and planning, developing and directing large-scale improvement programs.

Randy retired from Deloitte Consulting LLP in February 2010 after 27 years of service, where he most recently led Mergers & Acquisitions Integration Services to manufacturing industry clients. He has significant international consulting experience, led Deloitte's global automotive industry consulting practice, and was based in Germany with Deloitte from 1997-2003, where he led Deloitte Consulting DACH (Germany, Austria, Switzerland) for two years. He specialized in planning and implementation of mergers, acquisitions and divestitures; market and supply chain strategy; and cost reduction/ operations improvements.

Randy has led a variety of benchmarking studies, including board governance, investment operations, overhead cost structure, information technology strategies, and business transformation strategies. Randy received an A.B. degree from Dartmouth College with a major in Engineering Sciences. He also received a B.E. from the Thayer School of Engineering and an M.B.A. from the Amos Tuck School of Business, both also at Dartmouth. Prior to Deloitte, Randy was a car product planner at Ford Motor Company.

Appendix B – Summary of Transaction Review

	Transaction Name	Advisor Recommendat	Staff Recommendat ion (2)	Committee Review/ Minutes (3)	CIO Recommendat ion (4)	Comptroller Approval (5)	Signed Documents (LPA, Sub	Conflicts Disclosures (7a)	No Boycotts that Violate FEAA (7b)	MacBride Fair Employment Principles (7c)	DFS Review Authority (7d)	Political Contribution Limitations	PAFD Letter (8)	Legal Review (9)
1	Ares Corporate Opportunity Fund IV	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
2	Affinity Asia Pacific Fund IV	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
3	Apex Capital	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
4	Apollo Natural Resource Partners	✓	✓	✓	✓	✓	✓	✓	✓*[1]	✓	✓	✓	✓	✓
5	Apollo VIII	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
6	ARA Morningside	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
7	Area European	✓	✓	✓	✓	✓	✓	✓	✓*	✓	✓	✓	✓	✓
8	Ariel Investments	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
9	Artisan Partners	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
10	ASF Miller Direct B	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
11	Asia Alternative IV	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
12	Black Rock	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
13	Blackstone RE Asia	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

[1] PICM determined that CRF is not subject to New York State Finance Law § 139-h but has voluntarily adopted a corresponding policy which went into effect in August 2013. The asterisk indicates that the transaction closed before the adoption of the policy and the policy provision is therefore inapplicable.

	Transaction Name	Advisor Recommendat	Staff Recommendat ion (2)	Committee Review/ Minutes (3)	CIO Recommendat ion (4)	Comptroller Approval (5)	Signed Documents (LPA, Sub	Conflicts Disclosures (7a)	No Boycotts that Violate FEAA (7b)	MacBride Fair Employment Principles (7c)	DFS Review Authority (7d)	Political Contribution Limitations	PAFD Letter (8)	Legal Review (9)
14	Blackstone RE VIII	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
15	Blackstone Tactical	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
16	Bridgewater All Weather	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
17	Brightwood Capital III	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
18	CAPE IV	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
19	Caspian Select Credit Fund	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
20	CCMP Capital III	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
21	Centerbridge Capital III	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
22	CIM VIII	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
23	Cinven V	✓	✓	✓	✓	✓	✓	✓	✓*	✓	✓	✓	✓	✓
24	Clarion Gables	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
25	Clearlake Capital III	✓	✓	✓	✓	✓	✓	✓	✓*	✓	✓	✓	✓	✓
26	Clearwater IV	✓	✓	✓	✓	✓	✓	✓	✓*	✓[2]	✓	✓	✓	✓
27	Contour	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
28	CPC[3]	✓	✓	✓	✓	✓	✓	✓	✓*	✓	✓	✓[4]	✓	✓
29	CVC Asia IV	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

[2] In Clearwater IV, the manager is not investing with entities doing business in Northern Ireland and the MacBride Fair Employment Principles do not apply.
[3] The CPC program is an in-state mortgage investment program designed to provide financing to New York borrowers to stimulate the multi-family residential housing market. The program is administered by Community Preservation Corporation which is a non-profit servicer and not an investment manager and typical side letter provisions do not apply.
[4] Compliance based on application of Investment Advisers Act Rule 206(4)-5.

	Transaction Name	Advisor Recommendat	Staff Recommendat ion (2)	Committee Review/ Minutes (3)	CIO Recommendat ion (4)	Comptroller Approval (5)	Signed Documents (LPA, Sub	Conflicts Disclosures (7a)	No Boycotts that Violate FEAA (7b)	MacBride Fair Employment Principles (7c)	DFS Review Authority (7d)	Political Contribution Limitations	PAFD Letter (8)	Legal Review (9)
30	CVC European Equity VI	✓	✓	✓	✓	✓	✓	✓	✓*	✓	✓	✓	✓	✓
31	Discovery Global	✓	✓	✓	✓	✓	✓	✓	✓*	✓	✓	✓	✓	✓
32	Eagle Capital	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
33	EQT	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
34	First Pacific Advisors	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
35	FIS Group[5]	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
36	Fountainvest	✓	✓	✓	✓	✓	✓	✓	✓*	✓	✓	✓	✓	✓
37	Francisco Partners IV	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
38	Frontier II-Artemis	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
39	FS Equity VII	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
40	Goldman Sachs Asset Mgt	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
41	Gratucule - Fortress Asia	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
42	Graycliff III	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
43	GSO Capital II	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
44	Hamilton Lane (Credit Co-investment & SBIC)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
45	HBK	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
46	Helios III	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
47	Hellman Friedman VIII	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

[5] Restructuring only. Advisor recommendation and committee review not required.

	Transaction Name	Advisor Recommendat	Staff Recommendat ion (2)	Committee Review/ Minutes (3)	CIO Recommendat ion (4)	Comptroller Approval (5)	Signed Documents (LPA, Sub	Conflicts Disclosures (7a)	No Boycotts that Violate FEAA (7b)	MacBride Fair Employment Principles (7c)	DFS Review Authority (7d)	Political Contribution Limitations	PAFD Letter (8)	Legal Review (9)
48	Horizon	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
49	Iridian Asset Management	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
50	KKR Asia II	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
51	Knighthead	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
52	Lake Montauk II	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
53	Landmark Equity XV	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
54	Landmark Real Estate VII	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
55	LaSalle Industrial	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
56	Leading Edge	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
57	Lindsay Goldberg IV	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
58	Marshall Wace	✓	✓	✓	✓	✓	✓	✓	✓*	✓	✓	✓	✓	✓
59	MetLife JV[6]	✓	✓	✓	✓	✓	✓	✓	✓*	✓	✓	✓	✓	✓
60	Newport 59-PAAMCO	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
61	Nordic Capital VIII	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
62	NYCRF Pioneer Co-Invest (Farol)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
63	NYCRF Pioneer Partnership A-II	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
64	OxAm	✓	✓	✓	✓	✓	Side Letter not available	Side Letter not available	✓*	Side Letter not available	Side Letter not available	✓[7]	✓	✓
65	P2 Brasil	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

[6] MetLife and CRF are 50/50 partners in a joint venture. MetLife is not considered an investment manager and typical side letter provisions do not apply.
[7] Compliance based on application of Investment Advisers Act Rule 206(4)-5.

	Transaction Name	Advisor Recommendat	Staff Recommendat ion (2)	Committee Review/ Minutes (3)	CIO Recommendat ion (4)	Comptroller Approval (5)	Signed Documents (LPA, Sub	Conflicts Disclosures (7a)	No Boycotts that Violate FEAA (7b)	MacBride Fair Employment Principles (7c)	DFS Review Authority (7d)	Political Contribution Limitations	PAFD Letter (8)	Legal Review (9)
66	Palladium Equity IV	✓	✓	✓	✓	✓	✓	✓	✓*	✓	✓	✓	✓	✓
67	Paulson	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
68	Penn Capital	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓[8]	✓	✓
69	Pine Brook II	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
70	Pine River	✓	✓	✓	✓	✓	✓	✓	✓*	✓	✓	✓	✓	✓
71	Pine Street	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
72	Platinum Equity	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
73	Progress[9]	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
74	Providence Equity VII	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
75	PVP Fund I-a (High Peaks)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
76	Rock Creek Group	✓	✓	✓	✓	✓	✓	✓	✓*	✓[10]	✓	✓	✓	✓
77	Rockefeller Asset Mgt	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
78	Rockpoint IV	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
79	RRJ Capital	✓	✓	✓	✓	✓	✓	✓	✓*	✓	✓	✓	✓	✓
80	Smith Graham	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
81	Softbank	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
82	Star Lake II	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
83	Summer Street III & NYS III	✓	✓	✓	✓	✓	✓	✓	✓*	✓	✓	✓	✓	✓
84	Tilden Park	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
85	TPG Growth III	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

[8] Compliance based on application of Investment Advisers Act Rule 206(4)-5.
[9] Restructuring only. Advisor recommendation and committee review not required.
[10] The manager is not investing with entities doing business in Northern Ireland and the MacBride Fair Employment Principles do not apply.

	Transaction Name	Advisor Recommendat	Staff Recommendat ion (2)	Committee Review/ Minutes (3)	CIO Recommendat ion (4)	Comptroller Approval (5)	Signed Documents (LPA, Sub	Conflicts Disclosures (7a)	No Boycotts that Violate FEAA (7b)	MacBride Fair Employment Principles (7c)	DFS Review Authority (7d)	Political Contribution Limitations	PAFD Letter (8)	Legal Review (9)
86	TPG Opp Partners III	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
87	TPG Partners VII	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
88	Trian Strategic Fund II	✓	✓	✓	✓	✓	✓	✓	✓*	✓	✓	✓	✓	✓
89	Trian Strategic Fund N	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
90	Tribeca Venture Partners I NY	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
91	TSSP	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
92	Vista Equity V	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
93	Vista Foundation II	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
94	Warburg Pincus Energy	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
95	Warburg Pincus XI	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
96	Wellington	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓[11]	✓	✓

[11] Compliance based on application of Investment Advisers Act Rule 206(4)-5.

Appendix C – Glossary of Acronyms and Defined Terms

2013 Report – the report completed as a result of the 2013 New York State CRF Fiduciary and Conflict of Interest Review

2016 Review – the New York State CRF Fiduciary and Conflict of Interest Review conducted in 2016.

ARS – Absolute Return Strategies

Basket Clause – Investments that do not qualify or are otherwise not permitted under the RSSL

CAFR – Comprehensive Annual Financial Report

CEM – CEM Benchmarking Inc.

CIO – Chief Investment Officer

Covered Period – April 1, 2012 through and including March 31, 2015

CRF – Common Retirement Fund

CRO – Chief Risk Officer

DFS – Department of Financial Services

DMS – Document Management System

ERISA – Employee Retirement Income Security Act of 1974

ESG – Environmental, Social and Governance

FAS – Funston Advisory Services LLC

FAS Team – Public pension experts who conducted the 2016 Review

FX – Foreign Exchange

Fund – Common Retirement Fund

HR – Human Resources

IAC – Investment Advisory Committee

ILPA – Institutional Limited Partners Association

IT – Information Technology

MWBE – Minority and Women-Owned Business Enterprise

NYSLRS – New York State and Local Employees' Retirement System and the New York State and Local Police and Fire Retirement System

OSC – Office of the State Comptroller

PICM – Division of Pension Investments and Cash Management

PPM – Policies and Procedures Manual

REAC – Real Estate Advisory Committee

RFP – Request for Proposals

RSSL – Retirement and Social Security Law

System – The New York State and Local Employees' Retirement System and the New York State and Local Police and Fire Retirement System, collectively