There being a quorum, Rob Dubow, Board Chair, called the Investment Committee Meeting to order at 9:54 a.m., in the Board Conference Room, 2 Penn Center Plaza, 16th Floor,

Present:

Rob Dubow, Finance Director, Board Chair Jacqueline Dunn, Alternate, Chief of Staff, Office of the Director of Finance Ronald Stagliano, Vice Chairman, Trustee Rebecca Rhynhart, City Controller Christopher Rupe, Chief of Staff, Office of the Managing Director Marsha Greene-Jones, Deputy Director of Human Resources Brian P. Coughlin, Trustee Carol G. Stukes-Baylor, Trustee Veronica M. Pankey, Trustee Marcel Pratt, City Solicitor Matt Stitt, City Council Designee

Francis X. Bielli, Esquire, Executive Director Christopher DiFusco, Esquire, Chief Investment Officer Bernard J. Buckley Jr., Deputy Chief Investment Officer Shamika Taliaferro, Deputy Director of Pensions James Cousounis, Esquire, Chief Compliance Officer William Rubin, Audit Manager Dominique A. Cherry, Head of Private Markets Tyrone Jordan, Senior Investment Officer Kristyn Bair Investment Officer II Abdel-Aziz Ibrahim, Investment Officer

Also Attending:

Kellan White, First Deputy Controller François Dutchie, Chief Deputy City Solicitor Adam Coleman, Assistant City Solicitor Ellen Berkowitz, Esquire, Senior Attorney Sharolyn L. Murphy, Esquire, Senior Attorney Lavonia Jenkins, Administrative Assistant Neshea Bumpus, Clerk Typist I Jeffrey Francis, Nationwide Bina Kumar, Nationwide Brad Nyce, Nationwide Kweku Obed, Marquette Associates Jesus Jimenez, Marquette Associates Matthew Coyne, Torrey Cove Pam McCue, Financial Investment News Nick Hand, City Controller's Office Matthew Vegari, City Controller's Office Kenneth A. Kent, and Anu Patel, Cheiron Brett Warren and Zachary Allen, Cheiron Claudia Vargas, Philadelphia Inquirer William Greene, Loop Capital Catherine Lamb, City of Philadelphia-Finance Steve Camp-Landis, Pew Charitable Trusts Theodore R. Aronson, AJO Gina Marie N. Moore, AJO

Agenda Item #1 – Approval of the Investment Committee Minutes of January 24, 2019

Mr. Dubow requested approval of the Minutes of the Investment Committee meeting for January 24, 2019. Mr. Stagliano made the motion. Mr. Coughlin seconded. The motion passed.

Agenda Item #2 - Cheiron Actuarial Presentation

Kenneth Kent, Anu Patel and Brett Warren of Cheiron, presented the Preliminary Actuarial - Valuation Results as of July 1, 2018 for fiscal year ending June 30, 2018.

Ms. Patel stated that, as of June 30, 2018, the asset market value return was 9.01% and the actuarial asset return was 5.11%. Ms. Patel further stated, as of June 30, 2018, the actuarial liability was greater than expected, producing a \$3.6M loss or 0.03% of the expected actuarial liability. She attributed the increased liabilities primarily to demographic assumption changes reflected in the experience study from last year and the decrease in the investment return assumption from 7.65% to 7.60%.

She noted that the Funded Ratio (actuarial assets/liabilities) increased from 45.3% to 46.8% and that the Funded Ratio (market assets to liability) also increased from 43.2% to 46.4%. She further noted that the Fund experienced a positive net cash flow due to the increased contributions.

She added that The Minimum Municipal Obligation (MMO) as a percent of the projected payroll is expected to decrease from 37.08% to 36.25% for FYE 2020. In addition, she stated that the Revenue Recognition Policy (RRP) cost as a percent of payroll is projected to increase slightly from 37.77% to 37.79% for FYE 2020.

She further summarized the recent legislative changes, such as the tiered contributions from current Municipal members, the additional contributions from Uniformed Members, and the Stacked Hybrid Plan and tiered contributions for new hires on or after January 1, 2019. In responding to a question from Mr. Dubow about the reduction of the support ratio (non-active/active participants) to 1.24, Ms. Patel stated that over the last 4 years, active membership has increased.

Mr. Kent reported on the Historical Asset Returns, Annual Cash Flows, City contributions under the Funding Policy, MMO and RRP and by source, assets and liabilities, and funded status impacts. He noted that the RRP payments and the additional Member Contributions had improved the Fund's risk profile.

Mr. Bielli noted that the Board had reduced the return assumption from 9% in 2005 every year except 2008 and overall 140 basis points. Mr. Coughlin added that for all but 7 of the 24 fiscal years examined the Fund had positive market value returns. Mr. Kent confirmed in response to Mr. Coughlin's question that the City's normal cost payment as a percent of payroll would approximate 8-9% once the unfunded liability was paid off in 2033.

Mr. Coughlin asked at what amount the pension would be funded if the assumed rate of return was 9%. Mr. Kent stated it would improve the funded ratio by 7%-8%.

Ms. Rhynhart asked as the Fund beneficiaries live longer, are the mortality assumption changes built into the future projections? Ms. Patel and Mr. Kent stated that they project improvements in mortality assumptions until the next experience study is done.

Mr. Warren presented the valuation results for 2018. Mr. Dubow stated the gap in the market and actuarial value reduced a lot more in this year's study. Mr. Warren stated that the gap was reduced primarily due to the investment losses in 2009. Mr. Coughlin asked what the risk would be if the assumed rate was set too low. Mr. Kent stated that the City of Philadelphia has a finite amount of available fiscal resources and would need to find a balance of how those resources are allocated. Mr. Coughlin added there are risks on both sides of the argument of setting the assumed rate either too high or too low. Either way, Mr. Coughlin stated that it would take all members of the Board to agree on the right assumed rate for the City Pension Fund. Mr. Kent agreed.

Mr. Dubow asked Ms. Patel to illustrate what it would look like if the discount rate was set to 7.55%. Ms. Patel showed over a 5-year period for the reduced rate at 7.55% and illustrated that there would be an additional \$30.4M contributed by the City.

Ms. Patel and Mr. Kent presented final statements and closed the presentation.

Mr. Dubow asked for any questions. There were none.

Mr. Stagliano made a motion to lower the assumed rate of return by 5 basis points to 7.55%.

Ms. Rhynhart requested the opportunity to deliver her office's presentation and to have the Board vote at the next scheduled Board Meeting before consideration of the motion to reduce the assumed rate of return. Mr. Stagliano withdrew the motion.

Mr. Stagliano made a motion to lower the assumed rate of return by 5 basis points to 7.55%.

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Agenda Item #3 — AJO Presentation & Review

Mr. Theodore Aronson and Ms. Gina Moore of AJO were brought before the Board to discuss AJO's under-performance. Mr. Aronson stated that every 5 years there has been a history of AJO under-performance. He specifically mentioned the most recent AJO underperformance in 2016 and the fourth quarter of 2018. Mr. Aronson stated that the Fund and AJO had recently instituted a performance-based compensation plan in which AJO had cut their fees to zero for the Fund and would not receive any payments until there was a marked improvement in AJO's performance. Ms. Rhynhart asked when the fees were stopped. Mr. Aronson stated October 1, 2018. Ms. Moore explained the process AJO will take to begin improving performance and earning fees.

There was additional discussion about AJO's recent and long-term performance as well as questions raised by the Trustees. Also, there was general discussion around the processes AJO uses to vet and approve brokers for trading. Ms. Stukes-Baylor inquired about the very limited number of diverse/female brokers that made it through AJO's approval process. She also inquired about the responsiveness of AJO to diverse/female brokers who contacted the firm about the approval process. Mr. Aronson stated that they responded to any contacts made.

Mr. Aronson offered to discuss the issues at a later date with Investment Staff. Mr. DiFusco and Mr. Aronson discussed AJO's lengthy and intensive approval process and Mr. Aronson explained the review and evaluation they undertake.

Mr. Dubow asked for any questions. There were none.

Mr: Ronald Stagliano made a motion to terminate AJO. Ms. Carol Stukes-Baylor seconded the motion. The motion carried unanimously.

Agenda Item #4 — Flash Report for The Period Ending January 2019

Mr. DiFusco presented the Fund's performance numbers for January and February 2019. Mr. DiFusco stated all asset classes for January added value to the plan. The Fund had a +5.2% return for the month of February, which was ahead of its benchmark and had a 1.8% return for the previous three months. Mr. DiFusco also provided an update on the Pension Fund's daily and quarterly liquidity.

Mr. Coughlin asked what's the recommended industry standard for liquidity for a pension fund. Mr. Obed explained the liquidity tolerance is based upon the cashflow required for each individual pension fund, and therefore it is difficult to have a precise number. Mr. DiFusco added that 70-75% daily liquidity is very reasonable. Mr. Obed stated everything has been working from an asset allocation standpoint, and he referenced the volatility experienced in 2018 and the 3-month return ending January 31.

Mr. Bielli commented on a study that compared Philadelphia's incoming cash flows from City contributions to that of other comparable plans. Mr. Bielli noted that approximately 95% of City benefit payments were being covered by the MMO/RRP and that this was higher than any other plans cited in the research.

Mr. Obed stated that the Fund has a larger cashflow that is more stable and predictable than other comparable city pension funds. Mr. Dubow mentioned it has been a while since assets were liquidated to meet pensions obligations. Mr. DiFusco agreed and stated that assets have not been liquidated since September to pay benefits. He also opined that he did not anticipate having to raise cash from principal for pension obligations for another 3-4 months. Mr. Stagliano asked if the RRP payment would be received in March. Mr. DiFusco stated that the RRP/MMO would be received in March and that a Staff Memo detailing sources and uses would be provided at Board Meeting held in March.

Mr. Dubow asked for any questions. There were none.

Agenda Item #5 — Investment Staff's Report

Mr. DiFusco presented the reports.

Mr. DiFusco & Mr. Obed requested a change of the scheduled March Board meeting to March 21,2019. The Trustees agreed to change the date of the next ICM Board Meeting to March 21, 2019. Mr. Dubow asked for any questions. There were none.

Mr. Dubow asked if there was any new or old business. Mr. Hand of the Controller's Office presented an informational report on the Fund. The report referred to matters such as: historical and projected cash flows; current investment strategy; current return assumptions; PME benchmark and claw back policies for PE; annual stress tests and stress testing to measure impact of market shock; and an annual pension CAFR. The report also included recommendations to amend the IPS to formalize certain of these policies or practices, e.g., claw back procedures,

PME equivalent as primary benchmark for PE, annual stress tests, and to explore preparation and public release of an annual CAFR.

Ms. Rhynhart and Mr. Obed discussed Marquette's return assumptions, which Ms. Rhynhart compared to the Horizon Survey averages. For many of the asset classes, Ms. Rhynhart commented that Marquette's assumptions were higher than the average of 30+ surveyed financial firms. Mr. Obed responded that the Horizon survey was not a precise measuring stick, noting particularly that it assumed index returns and used simplistic asset allocation models. Ms. Rhynhart asked whether Marquette had conducted follow-up simulations since the September 2016 asset allocation study. Mr. Obed replied that such simulations were run regularly. Ms. Rhynhart asked if these assumptions were subject to change, and if they were, whether the Board had been informed. Mr. Obed responded that no changes had happened to compel an asset allocation study and that it was best practice to do such a study every 3-5 years. Mr. Obed added that if there were any significant changes in the simulation results, they would be brought to the Board's attention.

Ms. Rhynhart also recommended more detailed market shock stress tests that measured liquidity risks and capital constraints. Mr. Coughlin commented that the Board has in fact adopted and engaged in many of these policies or procedures, though not all may have been "formalized" in an IPS or another document.

Mr. Dubow asked if there was any other business. There was none.

At 1:22pm., Mr. Dubow requested a motion to adopt the actions of the Investment Committee. Mr. Ronald Stagliano made the motion. Ms. Carol Stukes-Baylor seconded the motion. The motion passed unanimously.

At 1:23 p.m., Mr. Dubow requested a motion to adjourn the Investment Committee Meeting. Ms. Pankey made the motion. Mr. Coughlin seconded. The motion passed unanimously.

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The	Investment	Committee	of the	Board	of	Pensions	and	Retirement	approved	the	Minutes	on

Rob Dubow Finance Director Chair, Board of Pensions and Retirement

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