

# MWRA EMPLOYEES' RETIREMENT BOARD MEETING

## AGENDA

Thursday, October 27, 2022 10:00 a.m.  
MWRA, 2 Griffin Way  
Chelsea, MA 02150

Item 1 10:00 a.m. Meeting called to order

### OLD BUSINESS

- Item 2 Standing Committee Reports
- i. By-Laws Committee: Member Kevin McKenna
  - ii. Human Resources Committee: Member Thomas J. Durkin, Member Frank Zecha
  - iii. Special Committee, Stipend: Chair James M. Fleming, Member Kevin McKenna
  - iv. Job Review Committee: Member James M. Fleming, Member Thomas J. Durkin

### NEW BUSINESS

- Item 3 Approval of Minutes – VOTE
- a) September 29, 2022 Minutes
  - b) September 29, 2022 Executive Session Minutes
- Item 4 Approval of Warrants – VOTE
- a) Warrant 10-2022
  - b) Warrant 10-2022A – Payroll
- Item 5 Approval of Monthly Transfers 10-2022 – VOTE
- Item 6 Acknowledgement of retirement applications under G.L. c 32 §5 – VOTE
- a) Carlos Haye DOR 9/15/2022
  - b) Kevin Coughlin DOR 10/4/2022
- Item 7 Approval of 12(2)d Survivor Benefit re. Chelsea Clain, daughter of Bruce Clain, DOD 9/20/2022 – VOTE
- Item 8 Approval of 12B Survivor Benefit re. Peyton Francis, daughter of Peter Francis, DOD 10/4/2022 (calculated not completed) – VOTE
- Item 9 Kathleen Leahy request for creditable service pursuant to 4(1)(c) – VOTE
- Item 10 Approval of Bank Reconciliations – VOTE
- a) August 2022
  - b) September 2022
- Item 11 Discussion requested by Mr. Zecha regarding amounts and types of retiree data published – Executive Session under Purpose 4, Security
- Item 12 11:00 a.m. Legal  
Sean Scott Section 7 Application – Executive Session under Purposes 1 and 7 (to comply with Exemption (c))

Item 13

NEPC

- a) Flash Report as of 9/30/22
- b) Small Cap Value Equity Search RFP – VOTE
- c) S&P 500 Index Strategy Search Review

.....**FOR YOUR INFORMATION and REVIEW** .....

120	Item 99-1	PERAC MEMO #26/2022 – Appropriation Data Due October 31, 2022
121	Item 99-2	PERAC MEMO #27/2022 – Free State-sponsored Cybersecurity Training
122	Item 99-3	2023 Retirement Board Meeting Dates

**The Board reserves the right to consider items on the agenda out of order. The listing of items is those reasonably anticipated by the Chair to be discussed received at least forty-eight (48) hours prior to the meeting. Not all items listed may in fact be discussed and other items not listed may also be brought up for discussion to the extent permitted by law. Items identified for discussion in Executive Session may be conducted in open session, in addition to, or in lieu of discussion in Executive Session.**

**Date of next scheduled Retirement Board meeting is Thursday, November 17, 2022, 10:00 a.m., Chelsea**

**MWRA EMPLOYEES' RETIREMENT BOARD MEETING  
SEPTEMBER 29, 2022**

A meeting of the MWRA Employees' Retirement Board was conducted in-person on Thursday, September 29, 2022. Remote access was provided to the public via Zoom, with call-in information provided on the official Meeting Notice posted to [www.mwraetirement.com](http://www.mwraetirement.com) and the MA Secretary of State's website. Participating in the in-person meeting were Board members James Fleming, Thomas Durkin, Kevin McKenna, and Andrew Pappastergion, staff members Carolyn Russo, Julie McManus, and Danielle DiRuzza, and Sebastian Grezjka representing NEPC. Board Counsel, as well as members of the public attended via remote access. Mr. Fleming called the meeting to order at 10:05 a.m. Mr. Zecha joined the meeting at 10:27 a.m.

- 1) Call the meeting to order-roll call of members: Mr. Fleming, Mr. Durkin, Mr. McKenna, and Mr. Pappastergion present.
- 2) Standing Committee Reports
  - i. By-Laws Committee: No report
  - ii. Human Resources Committee: No report
  - iii. Special Committee, Stipend: No report
  - iv. Job Review Committee: No report
- 3) Approval of Minutes of August 25, 2022 – VOTE

On a motion made by Mr. Durkin and seconded by Mr. Pappastergion:

**VOTED**

to approve the minutes of the August 25, 2022 meeting as submitted by the Executive Director. 4-0, roll call with Mr. Durkin voting yes, Mr. McKenna voting yes, Mr. Pappastergion voting yes, and Mr. Fleming voting yes.

- 4) Approval of Warrants – VOTE
  - a) Warrant 8-2022B
  - b) Warrant 9-2022
  - c) Warrant 9-2022A – Payroll

On a motion made by Mr. Pappastergion and seconded by Mr. McKenna:

**VOTED**

to approve Warrant 08-2022B. 4-0, roll call with Mr. Durkin voting yes, Mr. McKenna voting yes, Mr. Pappastergion voting yes, and Mr. Fleming voting yes.

On a motion made by Mr. Pappastergion and seconded by Mr. McKenna:  
**VOTED**  
 to approve Warrant 09-2022. 4-0, roll call with Mr. Durkin voting yes, Mr. McKenna voting yes, Mr. Pappastergion voting yes, and Mr. Fleming voting yes.

On a motion made by Mr. Pappastergion and seconded by Mr. McKenna:  
**VOTED**  
 to approve Warrant 09-2022A. 4-0, roll call with Mr. Durkin voting yes, Mr. McKenna voting yes, Mr. Pappastergion voting yes, and Mr. Fleming voting yes.

5) Approval of Monthly Transfers 9-2022 – VOTE

On a motion by Mr. McKenna and seconded by Mr. Durkin:  
**VOTED**  
 to approve the monthly transfers as presented and as recommended by NEPC. 4-0, roll call with Mr. Durkin voting yes, Mr. McKenna voting yes, Mr. Pappastergion voting yes, and Mr. Fleming voting yes.

6) Acknowledgement of retirement applications under G.L. c 32 §5 – VOTE

- a) Stephen Doherty DOR 8/23/2022
- b) Paul Kirk DOR 8/27/2022
- c) Daniel Thompson DOR 9/3/2022
- d) Louis Collins DOR 9/10/2022
- e) Patrick Kelley DOR 9/10/2022
- f) Cheryl King DOR 9/10/2022
- g) David O'Connell DOR 9/10/22

On an omnibus motion made by Mr. McKenna and seconded by Mr. Durkin:  
**VOTED**  
 to acknowledge the eight s. 5 retirements as detailed above. 4-0, roll call with Mr. Durkin voting yes, Mr. McKenna voting yes, Mr. Pappastergion voting yes, and Mr. Fleming voting yes.

7) Approval of buyback of 2 years and 7 months creditable service for Seth Gonyea's prior Town of Clinton employment (1985-1988) – VOTE

Mr. Durkin asked why the member waited so long to make the purchase. The Retirement Coordinator stated that sometimes people just don't get around to it or lack the funds, but that it will now cost the member a significant amount of interest and that he may not even make the purchase if it is cost-prohibitive.

On a motion by Mr. McKenna and seconded by Mr. Pappastergion:  
**VOTED**

to approve the buyback of 2 years and 7 months requested by Seth Gonyea, given that the Town of Clinton has already declined to accept the service credit. 4-0, roll call with Mr. Durkin voting yes, Mr. McKenna voting yes, Mr. Pappastergion voting yes, and Mr. Fleming voting yes.

8) Annual Review of Executive Session Minutes – VOTE

The Retirement Coordinator has reviewed the Executive Session minutes and has determined that disclosure of the records would defeat the lawful purposes for which the executive sessions were convened.

On a motion made by Mr. Durkin and Seconded by Mr. McKenna:  
**VOTED:**

to acknowledge that the periodic review of the Executive Session minutes has taken place, and that the release of such records would defeat the lawful purposes for which the Executive Sessions were convened. 4-0, roll call with Mr. Durkin voting yes, Mr. McKenna voting yes, Mr. Pappastergion voting yes, and Mr. Fleming voting yes.

9) Manager Due Diligence Presentations

The following managers underwent an annual investment manager review pursuant to 840 CMR 16.07. The managers presented performance and investment reports detailing the manager's activities, which the Board reviewed.

- a) Park Square
- b) Stepstone
- c) Morgan Stanley
- d) Constitution Capital

Because the Board was running ahead of schedule, Mr. Grzejka contacted the managers to see if anyone was prepared to start early. Marc Rivitz from Stepstone joined the call at 10:19 a.m. Mr. Grzejka stated that there are members of the public on the call and cautioned the presenters against disclosing any materials which may be considered proprietary. Mr. Fleming requested a review of the firm, personnel, and performance.

Mr. Rivitz reported that the MWRAERS investment is in the wind-down phase. The remaining investments are in liquidation. There have been no team changes. The fund has a net IRR of 6.7% though Q1, with a 1.4X multiple. The portfolio has been affected by the pandemic as well as Ukraine, but still sees realization potential in the remaining funds, which are expected to be fully liquidated within two to three years. Housing assets in Latin America have performed poorly,

driven by interest rates, Covid, exchange rates, Ukraine and other economic factors.

Mr. Zecha joined the in-person meeting at 10:27 a.m.

Hotels were adversely affected due to the pandemic, Retail went down, and Office has declined. Stepstone is looking to liquidate the funds as soon as possible, and is exploring secondary sales. Mr. Durkin asked how long it would be before the funds are liquidated. Mr. Rivitz responded that most would be sold in the next year to year and a half, but that Terranum would likely take longer and be the last, yielding only pennies on the dollar. Mr. Rivitz signed off the call at 10:32 a.m.

Mr. Fleming stepped out of the meeting at 10:32 a.m.

Mr. Fleming returned at 10:33 a.m.

Mr. Grzejka stated that he would expect that some of the Europe and Latin America funds would take longer because the impact of Covid was more protracted. Mr. Fleming asked what the intended initial duration of the fund was, and Mr. Grzejka responded that the last investment was purchased in 2015, with an estimated ten-year hold. Mr. McKenna asked about the change to Stepstone. Mr. Grzejka stated the progression was Mesirov to Courtland to Stepstone. Mr. Durkin asked about the difference between the Flash Report return and that in the presentation, and Mr. Grzejka responded that the Flash is Gross IRR, and noted that time weighted returns are calculated differently, taking cash flows into consideration, and that over 12 years the cumulative difference becomes more meaningful.

Jason Oberg and Jacob Ucar joined the meeting at 10:36 a.m. representing Park Square. Mr. Fleming asked the presenters to review firm, personnel, and performance. Mr. Grzejka stated that there are members of the public on the call and cautioned the presenters against disclosing any materials which may be considered proprietary. Mr. Ucar thanked the Board for its \$3m commitment to the Credit Opportunities Fund. The fund is performing well and is well-positioned. There have been no changes to key personnel or to strategy. The Credit Opportunities Fund has \$1.5bn in commitments that have been fully deployed.

Mr. Zecha stepped out of the meeting at 10:40 a.m.

The strategy holds 54 underlying companies in the portfolio, diversified by geography, sector, and currency. The fund has generated a Net IRR of 7.9% and Mr. Ucar expects that will increase to roughly 8.5% over the life of the fund due to rising base rates, exceeding the benchmark by 300bps. Park Square capitalizes on market dislocation, selecting high quality investments in stable sectors to maximize returns.

Mr. Zecha returned to the meeting at 10:42 a.m.

Mr. Grzejka asked what is the plan for the wind-down, and what the impact of the energy situation in Europe has been. Mr. Oberg responded that there was a four-year investment period with an expected two-year wind-down, although that may be extended. Out of 54 companies only two are on a watch list but they are not overly concerned. The larger companies in the portfolio tend to be more liquid in the secondary markets. Mr. Durkin asked how Park Square is managing currency volatility. Mr. Ucar stated that everything is converted to USD, so there is no currency risk. The representatives from Park Square signed off the call at 10:48 a.m.

Megan Golder representing Morgan Stanley joined the meeting at 10:50 a.m. Mr. Fleming asked Ms. Golder to update the Board on the firm, personnel, and performance. Mr. Grzejka stated that there are members of the public on the call and cautioned Ms. Golder against disclosing any materials which may be considered proprietary. Ms. Golder thanked the Board for its long-term business. She stated the Prime Property fund has strong fundamentals, and low vacancy rates for its properties. She expects growth. Inflation is lifting construction costs, constricting supply and keeping rents high. Morgan Stanley Prime is experiencing some outflows, due in large part to rebalancing because equity market volatility has caused over-allocation to real estate. The fund is well-positioned by sector allocation, and is in a strong relative position at leverage of roughly 18%, with its peers generally in the 15-25% range. The fund currently has \$45bn in gross real estate assets, with a net asset value of \$38bn. Prime's properties are 95% leased. The fund continued to pay 4% dividends over the trailing one-year, but is trailing the benchmark 140 bps year-to-date, due to more conservative positioning. They are still cautious on Office. Ms. Golder directed the Board to page 17 of the presentation for changes to the fund's management. Brian Niles has replaced Olivier de Poulpiquet on the MSREI Investment Committee, but there is no day-to-day impact expected. CFO Candace Todd expects to retire next year. Mr. Zecha asked Ms. Golder if rent projections are being adjusted downward. Ms. Golder responded that it is sector-specific. Industrial and Apartments are up. Morgan Stanley is more cautious on Office and Retail. There were some 8% mark-downs in Q1, but Office is still 90% leased. Marks to market are being actively managed, and may need adjustments because of the extended run of rent growth. Mr. Zecha asked if those holding the office leases are actually occupying the spaces, or are they merely keeping up with the lease payments, and whether the clients are leasing smaller spaces than they were previously. Ms. Golder stated that they are largely occupied, but they are seeing some turnover. Mr. Zecha asked about retail. Ms. Golder said 50% of the retail holdings are at stable top malls and continue to perform well, meeting or exceeding pre-pandemic pricing per square foot. Mr. Zecha asked if renewals are for same square footage. Ms. Golder responded that in malls they are. Mr. Zecha asked if the fund still owns the

Rowe's Wharf property, and Ms. Golder responded affirmatively. Mr. Zecha asked about the rents. Ms. Golder stated that the rents on Boston properties have been marked down 8%. The Post Office Square property is undergoing redevelopment and will be re-filled after the construction is complete. Mr. Zecha asked if the large number of properties expected to be offered for lease in the near term will affect pricing. Ms. Golder responded that the properties are valued every quarter in a disciplined approach. Mr. Zecha asked what percentage of the portfolio is in Boston properties, and Ms. Golder stated that Boston & New England represent 11%, including industrial and four Life Sciences spaces in Cambridge. Mr. McKenna asked how Morgan Stanley is handling large rebalance outflows. Ms. Golder reminded the Board that Morgan Stanley Prime has had an inbound queue for ten years which mitigates some of the outflows, but all redemptions are managed. Mr. McKenna asked if Morgan Stanley can deny a redemption request. Ms. Golder stated that they could, but that Morgan Stanley has not needed to place any restrictions on liquidity. It was done during the Global Financial Crisis. Ms. Golder signed off the call at 11:11 a.m.

At 11:13 a.m. Peter Melanson, Dan Clare and Robert Hatch joined the call representing Constitution Capital. Mr. Grzejka stated that there are members of the public on the call and cautioned the presenters against disclosing any materials which may be considered proprietary. Mr. Melanson expressed some concern, and recognized that Gar Chung from Financial Investment News (FIN) is on the line. He asked Mr. Chung if the meeting is being recorded, and Mr. Chung responded that he is not recording but is taking notes. Mr. Chung added that he cannot confirm that none of his associates is recording. Mr. Zecha noted that would appear to be illegal without those present being advised prior to any recording taking place. Mr. Zecha asked Mr. Chung to confirm whether any of the other callers present are affiliated with him, and Mr. Chung responded that they are not. Mr. Zecha continued that Constitution may want to re-think its future presentations because they could be saved via screen-shot, and disseminated in a way that damages or impairs Constitution's process as well as the System's returns. Mr. Melanson thanked Mr. Zecha and stated that Constitution will take the information under advisement in preparing any future materials.

There have been no firm changes which would impact the management of the funds in which MWRAERS is invested. They have added to the financial and marketing teams. Mr. Melanson directed the Board to page 6 of the presentation for Ironsides Private Equity and Co-Investment performance. The funds have performed well with Ironsides Opportunities Fund with a gross IRR of 18.4% and the Co-Investment Fund with a gross IRR of 28%. The System is receiving equalization expenses from other investors who made later commitments. Mr. Clare stated that the final call will likely be next year. Mr. Zecha asked what period is represented by the return numbers and whether we can expect positive news this quarter. Mr. Clare responded that the numbers are through quarter 2, that things are going well, and he does expect positive returns for quarter 3. The



Ironsides Opportunities fund is fully invested as of June 30. Combined, the two funds have a 14.5% Net IRR and a 1.3x multiple. Mr. Zecha asked about YTD performance, and Mr. Clare responded that the funds are up about 5% YTD, so they are still performing under tough market conditions. Constitution signed off the call at 11:27 a.m.

Mr. Grzejka stated the return calculations differ from those on the Flash report because of the cash flows and reporting lag. Mr. Durkin stated that the calculation is different, and the time-weighted returns are reported to PERAC. Mr. Grzejka continued that the since-inception IRR is a better indicator of returns, noting that Hamilton Lane and HarbourVest just reported for Q2.

The Board determined each manager continues to operate in a manner represented when retained and outlined in the agreement between the Board and the manager.

- 10) NEPC
- a) Flash Report as of 8/31/22
  - b) S&P 500 Passive Index Strategy RFP – VOTE
  - c) Equity Structure Review

In regard to item #10 (b), the draft RFP for an S&P Index product is before the Board. Mr. Grzejka simplified the turnaround to a two-week response time, since the primary differentiator for the products will be fees.

In regard to item # 10(c), Mr. Grzejka presented the Equity Structure Review for the Board's consideration. The review was done 1) because the Large Cap managers are coming upon their seven-year maximum terms; 2) because the Board has concerns about the Large Cap portfolio's performance driven by the current market environment; and 3) because due to the volatility in the public equity environment, the allocation to private markets is now over the Board's long-term target. Mr. Grzejka's recommendation as presented on page three is to keep the current target allocations, but to change the amount to be committed to the 2023 vintage year to bring the allocation closer to target. NEPC recommends larger commitments of \$10m to a single fund to have a greater impact on performance, i.e., NEPC does not recommend that a \$10m allocation be split among two or more managers. NEPC recommends that a \$7m commitment be made to PRIT VY 2022, then \$3m for PRIT VY2023, since no RFP is required. Mr. Fleming asked what the Board's alternatives would be, and Mr. Grzejka stated that an RFP would be required to see what we would receive for responses. Mr. Durkin asked what would be the advantage of giving only \$7m to PRIM this year, and Mr. Grzejka responded that it will give the Board more flexibility next year. Mr. McKenna noted that the System has had success with the Private Equity portfolio. Mr. Durkin stated that Pinebridge has performed poorly, and Mr. McKenna noted that conversely Foundry's performance has been exceptional. Mr. McKenna asked if the Large Cap RFP is coming, and what the

turnaround time will be. Mr. Grzejka noted that there is not much we can do to speed up the RFP process for the Large Cap managers outside of the index funds. Mr. Zecha moved that the System allocate \$10m to PRIT 2023 VY. Mr. Durkin seconded. Mr. Fleming asked if we should allocate \$8m to allow more flexibility next year. Mr. Pappastergion asked Mr. Zecha if he could explain his reasoning behind the motion. Mr. Zecha stated that PRIT's PE portfolio has outperformed, and the Board needs to focus on other areas of the portfolio. Mr. Pappastergion asked Mr. Grzejka whether to invest with another manager the Board would need an RFP, and Mr. Grzejka responded that it would. Mr. McKenna noted that the fees are cheaper as well. Mr. Zecha stated that in his view it is a good time in the business cycle to up the PE commitment with businesses in temporary trouble and borrowing costs rising. Mr. Grzejka added that PE tends to perform well when funds are invested during a volatile period. Mr. Durkin stated that he appreciates Mr. Fleming's concern that the Board control its own destiny, but PRIT operates under different rules, RFP and reporting information can remain confidential, and presents practical advantages that we can't overcome.

On a motion made by Mr. Zecha and seconded by Mr. Durkin:

**VOTED:**

to allocate \$10m to the PRIT 2023 VY 2023. 3-2, roll call with Mr. Durkin voting yes, Mr. McKenna voting no, Mr. Pappastergion voting yes, Mr. Zecha voting yes, and Mr. Fleming voting no.

In regard to the Large Cap allocation, Mr. Grzejka noted that the core and satellite allocations are meant to perform well on the upside and to protect on the downside. The current portfolio structure has provided 96% upside capture and 89.4% downside capture, so it has performed as intended. The Large Cap separate account managers have fewer levers to pull because they are concentrated, so it may make sense to go passive. However, Mr. Grzejka cautioned that going fully passive on the Large Cap portfolio means 100% upside capture and 100% downside capture. Mr. Zecha asked if the performance numbers are net of fees, and Mr. Grzejka responded that they are. Mr. Zecha asked if by going passive Mr. Grzejka means eliminating the separate accounts, and Mr. Grzejka confirmed that he does. Mr. Zecha asked if we had done so back in January, whether the System would be better or worse off, and Mr. Grzejka stated the fund would likely be neutral YTD. Mr. Zecha asked if this would result in a fee reduction, and Mr. Grzejka confirmed that it would. Coho and Polen have fees in the 50-60bps range, while the S&P index is about 4bps. Mr. McKenna asked if the System would get "more bang for the buck" focusing on the Small Cap portfolio, and Mr. Grzejka concurred, provided the Board secures the right pairing and allocation size. Mr. McKenna asked about SMID products, and Mr. Grzejka responded that the current Small Cap managers both offer SMID products as well. Mr. Grzejka stated that it is not anything Polen or Coho are/are not doing, it is a matter of whether the Board remains comfortable with their approaches in the current market environment, and what the Board

decides is an appropriate number of managers within the large cap space. He also reminded the Board that because Polen is down so significantly, it is likely a bad time to sell out of the position. Mr. McKenna asked if the search would focus on Growth or Value, and Mr. Grzejka stated it would encompass the universe, and the Board could narrow down the pairings. Mr. McKenna asked about the timeline, and Mr. Grzejka responded March 2023. Mr. Zecha recommended that the Board take the matter of a possible Large Cap search under advisement, and re-assess the System's position in 60-90 days. Actively managed funds may have a better chance of recovering. Page 9 demonstrates that Coho has provided protection, with only 75% downside capture. Polen has a concentrated buy and hold strategy that has harmed the fund's performance. Page 11 shows the rolling three-year risk/return profiles. Mr. Grzejka recommends that the Board reassess at a later date, and move on with the Small Cap Growth or Value search.

Mr. Zecha noted that FIN had already published an inaccurate article regarding the Large Cap search that has not yet been approved by the Board, and also provided incorrect contact information. Mr. Zecha read into the record excerpts from the ads published Wednesday September 28, 2022 stating that there would be Large Cap Growth and Value searches, naming the current managers, and providing the Executive Director's contact information. Mr. Zecha noted that the correct contact is, and has always been, NEPC for investment RFP responses, since NEPC manages the searches. He asked if Mr. Chung would like to respond, and Mr. Chung stated that the information was provided in the Board packages. Mr. Zecha responded that the draft in the package had not been approved by the Board, that the pieces were not accurate, that Mr. Chung published them anyway, and he is not happy about it. Mr. Zecha stated that his expectation is that Mr. Chung will take down the inaccurate pieces immediately. Mr. Fleming concurred with Mr. Zecha's displeasure stating the Board had not approved the search.

Mr. Durkin stated that in regard to the search that the decision regarding active or passive management is an important one, and asked how we can sell Polen now. Mr. Fleming stated we have to remain contrarian, and Mr. Grzejka agreed, stating that is why NEPC wanted to have the in-depth discussion. Mr. McKenna stated that the RFP draft discussion had served its purpose and provided talking points. Mr. Durkin stated that he feels no compulsion to make any big changes right now. The portfolio is well-constructed and the Board may consider at another time whether it might be appropriate to index the Large Cap allocation. Mr. Grzejka stated that the portfolio structure discussion helps lead the Board to its priorities. Coho has done well, so the Board could consider rebalancing to passive. Mr. Grzejka expects rates will continue to rise, so he would not recommend rebalancing value to growth. Polen's concentrated portfolio has overlap to the S&P, so that is an indicator of what should be active and what should be passive. Mr. Fleming stated that the Board will continue the discussion on Large Cap portfolio structure and RFP to a later date. Mr. Grzejka

asked for direction as to the Board's wishes on a Small Cap RFP. If the Board approves today, he will present a draft Small Cap RFP at the October meeting with target funding set for January, given that the separate accounts require side letters as well as PERAC acknowledgment.

Mr. Grzejka returned to the Flash report, stating that the portfolio is down 2.2% for the month and down 10.9% YTD. The PRIT Fund is down 10.4% YTD. Coho has outperformed Polen, with Baillie Gifford trailing on the international side due to the rising rate environment.

Mr. Pappastergion stepped out of the meeting at 12:22 p.m.

Mr. Zecha asked what the protocol would be if he is approached by prospective managers at MACRS next week, if he should tell them to reach out to NEPC, and Mr. Grzejka said yes, but cautioned that they are likely to be managers that do well in this environment, but not necessarily in others. Mr. Zecha stated he wants to see the 7-10 year returns, and Mr. Grzejka agreed that the Board should look at performance over at least a full cycle. Mr. McKenna stated Octagon has been one of our best managers year to date. Mr. Grzejka agreed, and stated that core bond managers have done well but are struggling lately, and Loomis Sayles has become less of a differentiator. He stated that the traditional Equities up, Bonds down and Bonds up, Equities down adage has not held up in the current market.

Mr. Pappastergion returned at 12:28 p.m.

Mr. Zecha asked whether we should trim the Octagon position or whether NEPC thinks there's still room to run, and Mr. Grzejka stated there may still be upside potential. Rebalancing has to be approached with discipline. When the Board rebalanced in February, it was widely believed that the Fed would be easing in 2023, but that is probably not the case anymore. The Board members thanked Mr. Grzejka for the detailed presentation, and for the thorough review.

11) Legal – Shift Differential Agreement re: Regular Compensation

Attorney Gibson began the legal presentation at 12:30 p.m. He reported that PERAC had issued an opinion that the shift differential, though the agreements stipulates that it is temporary, may be considered regular compensation. The Board must therefore notify payroll to begin withholding retirement from the differential, and must recover any retroactive deductions due. Mr. Fleming stated that he is pleased with the decision. Mr. Zecha stated that he is surprised, given that temporary compensation is specifically excluded from the definition of wages, and given PERAC's previous opinion from Attorney Hill stating the differential is not regular compensation because it is temporary in nature. Mr. McKenna asked if the Board may just withhold moving forward, and Attorney Gibson said they may not. It is either regular compensation, or it isn't. Mr. Zecha

asked the Executive Director if that would be handled by payroll, and she responded that it would be. The Board thanked Attorney Gibson for his work on the issue. Mr. Durkin asked about the initial opinion. Attorney Gibson stated that the legitimate issue of the temporary nature of the payments was raised which would bar inclusion as regular compensation, but a differential due to the time services are performed may be included as regular compensation. Mr. Zecha noted this is the first time he has ever seen PERAC issue an opinion stating temporary payments may be included, and it must have taken some lobbying on Attorney Gibson's part. Mr. McKenna asked if the union has been notified of the PERAC letter and that we will have to withhold retroactively and prospectively. Mr. Durkin responded that he shared the opinion with the Law Department and with Human Resources. Mr. Zecha said we don't want to alarm the recipients unnecessarily, and asked how much the differential is. Mr. McKenna stated it is \$4.50 per hour. Mr. Zecha reiterated there is no option, we have to withhold the money anyway. Mr. Fleming asked that a notice go out to the union.

Attorney Gibson stated that he needs to discuss the matter of a legal action against PTG. Through the Chair, the Executive Director asked that the Board convene in Executive Session under Purpose 4 to address security measures taken regarding the PTG issue, a recent active employee targeted scam, and the draft Direct Deposit Change Policy. Counsel had previously discussed the matters with the Executive Director and confirmed this as an appropriate use of Executive Session.

On a motion made by Mr. McKenna and seconded by Mr. Pappastergion:

**VOTED:**

to convene in Executive Session under purpose 4. 5-0, roll call with Mr. Durkin voting yes, Mr. McKenna voting yes, Mr. Pappastergion voting yes, Mr. Zecha voting yes and Mr. Fleming voting yes.

The Board convened in Executive Session at 12:46 p.m. A breakout room was established and members of the public were removed. Mr. Grzejka left the in-person meeting.

On a motion made by Mr. Zecha and seconded by Mr. Pappastergion:

**VOTED:**

to return to Open Session. 5-0, roll call with Mr. Durkin voting yes, Mr. McKenna voting yes, Mr. Pappastergion voting yes, Mr. Zecha voting yes and Mr. Fleming voting yes.

The Board returned to open session at 1:12 p.m. Mr. Grzejka re-joined the in-person meeting, and the breakout room was closed.

The Retirement Coordinator reminded the Board that they need to ratify the vote taken in Executive Session. Mr. Fleming asked for a motion to acknowledge.

On a motion made by Mr. Zecha and seconded by Mr. Pappastergion:

**VOTED:**

to acknowledge the Board's vote in Executive Session to adopt the new Direct Deposit Policy as drafted by the Executive Director and intended to provide retirees greater protection from fraud. 5-0, roll call with Mr. Durkin voting yes, Mr. McKenna voting yes, Mr. Pappastergion voting yes, Mr. Zecha voting yes and Mr. Fleming voting yes.

Attorney Gibson reported that the clarifications regarding Sean Scott have been requested, and the Board is awaiting the doctors' responses. The proposed one-time five percent COLA remains in Ways and Means. PERAC's legislative package seems to be progressing, including the equal pay act anti-spiking exclusion, the Veterans' buyback, Vernava II language, Electronic signatures, etc. Mr. McKenna asked if Capozzi is still pending. Attorney Gibson reported that it is, the matter remains before CRAB. Mr. Fleming thanked Attorney Gibson for the update.

Mr. Zecha made a motion to adjourn.

Mr. Durkin asked that he be permitted to address the funding schedule issue. He was supposed to have drafted a communication for the Retirement Executive Director to submit to Ms. VanDermark, but held off from doing so after seeing PERAC's Actuary John Boorack make a presentation at the Emerging Issues Forum in regard to "layering" amortization of gains and losses, although the mechanism to do so is not yet in place and Mr. Boorack believes it is still several years out. Mr. Durkin will send an email to the Executive Director to send to Segal, noting that the Advisory Board is advocating extending the funding schedule. Mr. Fleming responded that the Advisory Board has no authority over the funding schedule, and stated that the Retirement Board member who has been discussing the Retirement System Funding Schedule with the Advisory Board should explain to the Advisory Board the drawbacks and restrictions which come with extending beyond 2030. Mr. Durkin stated that he would do so. Mr. McKenna asked Mr. Durkin to elaborate on the layering mechanism. Mr. Durkin stated that for example a future loss could be amortized over a twenty-year period, then a gain the following year would be amortized over a twenty-year, etc. Mr. Durkin noted that smoothing encompasses gains and losses due to all of the assumptions, but this would apply specifically to the investment gains and losses. Mr. Zecha stated it is a mechanism to avoid compression of the schedule, but new rules need to come out to permit it. Mr. Zecha stated that perhaps the Advisory Board should be invited to attend the meeting with Segal and Mr. Boorack. Mr. Durkin stated that for example, only Systems that were 90% funded and would be reach full-funding within five years would qualify. Mr.

Pappastergion commented that discussion of all available options is warranted. Mr. McKenna stated that the easiest way out is to pay off the debt earlier, rather than continually paying extra interest. Mr. Fleming stated that the Advisory Board may attend such a meeting, but may not come in and make demands, and whether they are allowed to participate will be at the discretion of the Chair. Mr. Pappastergion responded "fair enough."

On a motion by Mr. Zecha and seconded by Mr. Pappastergion:

**VOTED**

to adjourn the September 29, 2022 meeting of the MWRA Employees' Retirement Board. 5-0, roll call with Mr. Durkin voting yes, Mr. McKenna voting yes, Mr. Pappastergion voting yes, Mr. Zecha voting yes and Mr. Fleming voting yes. The meeting was adjourned at 1:28 p.m.

The following communications were distributed to the Board for their review:

PERAC MEMO #23/2022 – Vacation Buybacks as Regular Compensation

PERAC MEMO #24/2022 – Mandatory Retirement Board Member Training – 4th Quarter 2022

PERAC MEMO #25/2022 – Tobacco Company List

S & P Global Ratings

PERAC Pension News

Notice of Complaint Filed Against PTG

New Financial Reporting Requirements for Governments Proposed in U.S. Senate

HarbourVest Partners Personnel Update

Direct Deposit Change Requirements

Update: Retirement Office Access

**The Board reserves the right to consider items on the agenda out of order. The listing of items is those reasonably anticipated by the Chair to be discussed received at least forty-eight (48) hours prior to the meeting. Not all items listed may in fact be discussed and other items not listed may also be brought up for discussion to the extent permitted by law. Items identified for discussion in Executive Session may be conducted in open session, in addition to, or in lieu of discussion in Executive Session.**

**Date of next scheduled Retirement Board meeting is Thursday October 27, 2022, 10:00 a.m., Chelsea**

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James M. Fleming, Elected member

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Thomas Durkin, Appointed Member

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Kevin McKenna, Elected Member

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Andrew Pappastergion, Ex-Officio Member

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Frank Zecha, Fifth Member



# MONTHLY PERFORMANCE REPORT

**MWRA EMPLOYEES' RETIREMENT  
SYSTEM**

SEPTEMBER 30, 2022



PROPRIETARY & CONFIDENTIAL

# GOALS & OBJECTIVES

## Investment Return Objective

“Its primary goal is to provide promised benefits to participants and beneficiaries of the MWRA Employees’ Retirement system. Plan assets should be equal to or greater than the present value of the projected benefit obligations (“fully funded”). When Plan assets are less than the present value of projected benefit obligations, a schedule will be established and a plan will be in place to meet a fully funded status. When achieving return objectives required to fully fund the system, the Board is intent on controlling risk. Consistency of returns and risk of loss are primary considerations. The Board has also determined that the annual performance of plan assets should not vary substantially from returns achieved by other public pension funds with similar goals and objectives.”

## Return Expectations

**The investment growth should be maintained in such a manner that the minimum nominal rate of return does not cause a negative real rate of return over a full market cycle:**

- **Time Horizon:** Return assumptions will be based on a ten-year time horizon with a detailed review and analysis to be made at least annually to monitor allocations and assumptions. Should a manager deviate from proscribed mandate or expected risk and return profile by a consequential degree, that manager may be reevaluated at any time.
- **Liquidity Needs:** Presently contributions exceed plan withdrawals to provide benefits, payouts, and/or plan expenses. Portfolio liquidity will be managed based on the cash flow needs of the System.
- **Regulatory Considerations:** Assets of this Fund shall be invested in a manner consistent with the fiduciary standards established under Code of Massachusetts Regulations 840 (“840 CMR”). The Board shall also use as precedent the Employee Retirement Income Security Act (ERISA).

# EXECUTIVE SUMMARY

	Market Value (\$)	1 Mo (%)	3 Mo (%)	YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)
<b>Composite</b>	<b>612,187,032</b>	<b>-5.2</b>	<b>-3.9</b>	<b>-15.9</b>	<b>-12.6</b>	<b>4.3</b>	<b>4.6</b>	<b>6.3</b>
<i>Allocation Index</i>		-5.8	-4.1	-14.7	-11.2	4.8	5.1	6.5
<i>Policy Index</i>		-5.8	-3.8	-15.6	-11.6	5.2	5.4	6.7

## 20 Years As of September 30, 2022

	Return	Standard Deviation	Sharpe Ratio	Sortino Ratio
<b>Composite</b>	<b>7.2</b>	<b>8.4</b>	<b>0.7</b>	<b>1.1</b>
<i>Allocation Index</i>	6.5	7.9	0.7	1.0
<i>Policy Index</i>	7.0	8.5	0.7	1.0

### Performance

- The Composite had a return of -5.2% (net) for the month, outperforming the Allocation Index (-5.8%) and the Policy Index (-5.8%).
- Equities continued their downward slide in September as central banks reiterated their commitment to tighter monetary policies amid persisting inflationary pressures despite softening economic growth. In the U.S., the S&P 500 Index plummeted 9.2%, fueling year-to-date losses of 23.9%. Value stocks outperformed growth equities with the Russell 1000 Value Index falling 8.8%, while the Russell 1000 Growth Index declined 9.7%. Outside the U.S., the MSCI ACWI ex USA Index fell 10.0%. The portfolio's Domestic Equity composite fell 8.8% (net) and the Non-US Equity composite declined 10.6% (net).
- Within fixed income, the yield curve flattened with 10- and 30-year Treasury yields rising 67 and 52 basis points, respectively. The 10-year German Bund yield also increased 59 basis points to 2.13% amid inflationary pressures in the Eurozone. The Fixed Income composite was fell 4.3% (net) for the month while the Bloomberg Agg and Bloomberg US HY returned -4.3% and -4.0% respectively.
- This brings the total plan return for the trailing one-year period to -12.6% (net), while the Allocation Index and Policy Index returned -11.2% and -11.6% respectively.

Returns for 20 years Risk/Return and Statistics Summary are gross of fees.

Since inception return is 8.4% gross of fees. Prior to 1999, performance history does not capture separate net and gross returns.



# TOTAL FUND PERFORMANCE DETAIL (NET)

	Allocation			Performance (%)									
	Market Value (\$)	% of Portfolio	Policy(%)	1 Mo (%)	3 Mo (%)	YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date	
<b>Composite</b>	<b>612,187,032</b>	<b>100.0</b>	<b>100.0</b>	<b>-5.2</b>	<b>-3.9</b>	<b>-15.9</b>	<b>-12.6</b>	<b>4.3</b>	<b>4.6</b>	<b>6.3</b>	<b>6.6</b>	<b>Jan-86</b>	
Allocation Index				-5.8	-4.1	-14.7	-11.2	4.8	5.1	6.5			
Policy Index				-5.8	-3.8	-15.6	-11.6	5.2	5.4	6.7			
<b>Total Balanced</b>	<b>4,668,008</b>	<b>0.8</b>	<b>0.0</b>	<b>-5.1</b>	<b>-4.7</b>	<b>-14.0</b>	<b>-9.4</b>	<b>5.8</b>	<b>4.0</b>	<b>4.2</b>	<b>4.3</b>	<b>Dec-10</b>	
PRIT Core Fund	4,668,008	0.8		-5.1	-4.7	-15.0	-10.4	6.1	6.2	7.7	6.6	Apr-99	
60% S&P 500 / 40% Bloomberg Aggregate				-7.3	-4.8	-20.1	-14.8	3.9	5.7	7.5	5.7		
<b>Total Domestic Equity</b>	<b>176,421,220</b>	<b>28.8</b>	<b>31.0</b>	<b>-8.8</b>	<b>-4.4</b>	<b>-24.9</b>	<b>-18.9</b>	<b>6.6</b>	<b>8.4</b>	<b>10.7</b>	<b>6.9</b>	<b>May-99</b>	
Russell 3000 Index				-9.3	-4.5	-24.6	-17.6	7.7	8.6	11.4	6.5		
<b>Large Cap</b>	<b>136,506,534</b>	<b>22.3</b>	<b>24.0</b>	<b>-8.9</b>	<b>-4.8</b>	<b>-25.2</b>	<b>-18.6</b>	<b>7.1</b>	<b>9.4</b>	<b>11.1</b>	<b>11.4</b>	<b>Dec-10</b>	
Rhumblin Advisors S&P 500 Index Fund	55,816,408	9.1	10.0	-9.2	-4.9	-23.9	-15.5	8.1	9.2	11.6	8.3	Apr-97	
S&P 500 Index				-9.2	-4.9	-23.9	-15.5	8.2	9.2	11.7	8.3		
Coho Relative Value Equity	43,914,832	7.2	7.0	-7.3	-3.8	-13.7	-5.0	7.6	8.4		9.3	Mar-16	
Russell 1000 Value Index				-8.8	-5.6	-17.8	-11.4	4.4	5.3	9.2	8.7		
Polen Focused Growth	36,775,294	6.0	7.0	-10.4	-5.8	-37.8	-34.8	4.3	10.1		11.3	Feb-16	
Russell 1000 Growth Index				-9.7	-3.6	-30.7	-22.6	10.7	12.2	13.7	14.2		
<b>Small Cap</b>	<b>39,914,687</b>	<b>6.5</b>	<b>7.0</b>	<b>-8.5</b>	<b>-3.0</b>	<b>-23.7</b>	<b>-20.3</b>	<b>5.1</b>	<b>5.7</b>	<b>9.6</b>	<b>10.1</b>	<b>Dec-10</b>	
Boston Partners Small Cap Value	20,234,684	3.3	3.5	-10.4	-6.3	-19.3	-16.3	3.9	3.2	7.9	9.7	Feb-97	
Russell 2000 Value Index				-10.2	-4.6	-21.1	-17.7	4.7	2.9	7.9	8.2		
Loomis Sayles Small Cap Growth	19,680,003	3.2	3.5	-6.5	0.6	-28.2	-24.3	5.6	7.5	10.9	6.2	Jan-97	
Russell 2000 Growth Index				-9.0	0.2	-29.3	-29.3	2.9	3.6	8.8	6.2		
<b>Total Non-US Equity</b>	<b>89,935,897</b>	<b>14.7</b>	<b>19.0</b>	<b>-10.6</b>	<b>-10.9</b>	<b>-31.3</b>	<b>-31.4</b>	<b>-4.1</b>	<b>-2.5</b>	<b>2.6</b>	<b>3.1</b>	<b>Mar-99</b>	
<b>International Equity</b>	<b>57,681,499</b>	<b>9.4</b>	<b>12.0</b>	<b>-10.9</b>	<b>-10.7</b>	<b>-31.3</b>	<b>-31.2</b>	<b>-3.3</b>	<b>-1.4</b>	<b>3.3</b>	<b>2.3</b>	<b>Sep-05</b>	
SEG Baxter Street	24,700,081	4.0	5.0	-11.4	-11.2	-31.7	-32.4	-4.6	-0.3		3.5	May-16	
MSCI AC World ex USA (Net)				-10.0	-9.9	-26.5	-25.2	-1.5	-0.8	3.0	2.7		
Schroder International Alpha Trust Class 1	21,887,837	3.6	4.0	-9.5	-10.3	-30.6	-28.3	1.7	1.3	4.9	4.4	Mar-12	
MSCI AC World ex USA (Net)				-10.0	-9.9	-26.5	-25.2	-1.5	-0.8	3.0	2.6		
Baillie Gifford International Growth Fund Class K	11,093,581	1.8	3.0	-12.3	-10.6	-42.0	-44.6				-20.3	Oct-20	
MSCI AC World ex USA (Net)				-10.0	-9.9	-26.5	-25.2	-1.5	-0.8	3.0	-3.7		
<b>Emerging Markets Equity</b>	<b>32,254,398</b>	<b>5.3</b>	<b>7.0</b>	<b>-10.1</b>	<b>-11.2</b>	<b>-31.4</b>	<b>-32.0</b>				<b>-24.4</b>	<b>Mar-21</b>	
Axiom Emerging Markets Trust Class 2	15,128,678	2.5	7.0	-10.7	-14.0	-34.8	-35.7				-27.0	Mar-21	
MSCI Emerging Markets (Net)				-11.7	-11.6	-27.2	-28.1	-2.1	-1.8	1.0	-21.3		
ABS Emerging Markets MA Fund	17,125,720	2.8		-9.5	-8.5	-28.1					-26.5	Dec-21	
MSCI Emerging Markets (Net)				-11.7	-11.6	-27.2	-28.1	-2.1	-1.8	1.0	-25.8		

Since inception return is 8.3% gross of fees. Prior to 1999, performance history does not capture separate net and gross returns.

In November 2019, Loomis sayles and Schroders transitioned from a mutual fund to a CIT structure. Performance prior to the transition to the CIT investment vehicle is linked to mutual fund performance history.

Boston Partners Small Cap and ABS Emerging Markets MA Fund are preliminary as of 09/2022 and are subject to change once finalized.



# TOTAL FUND PERFORMANCE DETAIL (NET)

	Allocation			Performance (%)								
	Market Value (\$)	% of Portfolio	Policy(%)	1 Mo (%)	3 Mo (%)	YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
<b>Total Fixed Income</b>	<b>130,752,265</b>	<b>21.4</b>	<b>20.0</b>	<b>-4.3</b>	<b>-3.8</b>	<b>-12.8</b>	<b>-12.6</b>	<b>-1.0</b>	<b>0.9</b>	<b>2.4</b>	<b>5.6</b>	<b>Mar-99</b>
Garcia Hamilton Fixed Income Aggregate	33,930,240	5.5	6.0	-4.8	-5.3	-12.8	-12.8	-2.8			-0.1	Apr-18
<i>Blmbg. U.S. Aggregate Index</i>				-4.3	-4.8	-14.6	-14.6	-3.3	-0.3	0.9	-0.1	
Lord Abbett Core Fixed Income	34,666,162	5.7	4.0	-4.5	-4.7	-14.7	-14.6	-2.9			0.1	Apr-18
<i>Blmbg. U.S. Aggregate Index</i>				-4.3	-4.8	-14.6	-14.6	-3.3	-0.3	0.9	-0.1	
Loomis Sayles Multisector Full Discretion Trust	48,498,686	7.9	8.0	-4.2	-3.3	-14.7	-14.9	-0.5	1.2	3.1	6.7	Mar-99
<i>Blmbg. U.S. Aggregate Index</i>				-4.3	-4.8	-14.6	-14.6	-3.3	-0.3	0.9	3.8	
<i>Blmbg. U.S. Corp: High Yield Index</i>				-4.0	-0.6	-14.7	-14.1	-0.5	1.6	3.9	5.9	
Octagon Senior Secured Credit Cayman Fund Ltd. - Class L Acc, Series 1	13,603,575	2.2	2.0	-2.3	0.8	-4.7	-4.1	1.7			1.6	Aug-19
<i>Credit Suisse Leveraged Loan</i>				-2.2	1.2	-3.3	-2.6	2.1	3.0	3.7	2.1	
Invesco Mortgage Recovery Loans Feeder Fund	53,601	0.0		0.0	0.0	-0.3	-0.3	-1.9	3.7	5.4	10.2	Apr-10
<i>Blmbg. U.S. Aggregate Index</i>				-4.3	-4.8	-14.6	-14.6	-3.3	-0.3	0.9	2.0	
<b>Total Hedge Fund</b>	<b>41,666,282</b>	<b>6.8</b>	<b>6.0</b>	<b>-1.0</b>	<b>0.1</b>	<b>-3.8</b>	<b>-2.9</b>	<b>4.6</b>	<b>3.7</b>	<b>3.9</b>	<b>3.3</b>	<b>Oct-06</b>
PRIM Portfolio Completion Strategies	14,812,213	2.4		-1.8	-0.7	-3.5	-2.2	2.9	3.1	4.4	3.6	Oct-06
Corbin Pinehurst Partners	12,395,661	2.0		-2.1	0.5	-12.2	-12.5	4.3			4.1	Nov-18
<i>HFRI Fund of Funds Composite Index</i>				-2.0	-0.7	-7.2	-6.8	4.0	3.0	3.4	3.8	
UBS Neutral Alpha Strategies	13,725,987	2.2		1.0	0.6	4.0	5.8	7.6			6.5	Nov-18
<i>HFRI Fund of Funds Composite Index</i>				-2.0	-0.7	-7.2	-6.8	4.0	3.0	3.4	3.8	
Entrust Peru Wind Down	732,421	0.1		-0.1	-0.5	-1.7	-0.9	-2.2			-3.2	Dec-17
<i>HFRI Fund of Funds Composite Index</i>				-2.0	-0.7	-7.2	-6.8	4.0	3.0	3.4	2.9	
<b>Other</b>	<b>8,650,648</b>	<b>1.4</b>	<b>0.0</b>	<b>0.3</b>	<b>0.5</b>	<b>0.5</b>	<b>0.5</b>	<b>0.7</b>	<b>1.2</b>	<b>0.7</b>	<b>0.6</b>	<b>Dec-10</b>
Cash Account	8,650,648	1.4		0.3	0.5	0.5	0.5	0.7	1.2	0.7	1.7	Feb-00
<i>90 Day U.S. Treasury Bill</i>				0.2	0.5	0.6	0.6	0.6	1.1	0.7	1.6	

Importantly, all returns in this report, including those of the private real estate managers, are based on a time weighted return calculation and not based on IRRs, which can result in return differences.

Corbin Pinehurst Partners and Entrust Peru Wind Down are preliminary as of 09/2022 and are subject to change once finalized.



# TOTAL FUND PERFORMANCE DETAIL (NET)

	Allocation			Performance (%)								
	Market Value (\$)	% of Portfolio	Policy(%)	1 Mo (%)	3 Mo (%)	YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
<b>Total Real Estate</b>	<b>73,307,600</b>	<b>12.0</b>	<b>12.0</b>	<b>0.5</b>	<b>0.5</b>	<b>11.3</b>	<b>20.9</b>	<b>13.0</b>	<b>11.1</b>	<b>11.7</b>	<b>8.6</b>	<b>Apr-99</b>
<i>NCREIF Property Index</i>				0.0	0.0	8.7	15.4	9.7	8.5	9.4	9.0	
Morgan Stanley Prime Property (\$2.8m commitment in '95)	26,975,346	4.4		-0.1	-0.1	10.2	20.8	11.2	9.6	11.2	9.0	Sep-95
TA Realty Core Property Fund, LP (\$15m commitment in '19)	28,645,200	4.7		1.4	1.4	15.3	24.9	17.0			16.1	Jun-19
Invesco Mortgage Recovery II (\$3M commitment in '15)	942,943	0.2		0.0	0.0	-3.8	-3.8	-20.2	-6.2		-1.7	Oct-15
Landmark VI (\$2m commitment in '11)	45,198	0.0		0.0	0.0	-12.6	3.7	-8.2	-7.7	1.1	2.7	Jul-11
Landmark VIII (\$4m commitment in '17)	1,827,480	0.3		0.0	0.0	14.9	24.8	18.2			19.8	Nov-17
StepStone Real Estate Fund II (\$2m commitment in '11)	472,141	0.1		0.0	0.0	1.1	0.2	-2.8	-0.5	4.9	2.4	May-12
Cerberus Institutional Real Estate Partners III (\$1.5m commitment in '12)	516,079	0.1		0.0	0.0	-14.3	-2.5	18.6	14.6		14.4	May-13
TA Realty Fund X LP (\$3.5m commitment in '12)	3,478	0.0		0.0	0.0	5.7	4.6	0.3	6.4		8.0	May-13
TerraCap Partners III, LP (\$2.6m commitment in '15)	1,583,492	0.3		0.0	0.0	5.6	5.0	4.0	5.8		9.2	Jul-15
TerraCap Partners IV, LP (\$4m commitment in '17)	3,532,850	0.6		0.0	0.0	2.1	13.6	11.2			10.5	Nov-17
TerraCap Partners V, LP (\$8m commitment in '22)	8,763,392	1.4		0.0	0.0						3.6	Jun-22
<b>Total Private Equity and Debt</b>	<b>86,785,112</b>	<b>14.2</b>	<b>12.0</b>	<b>-0.1</b>	<b>-0.8</b>	<b>3.6</b>	<b>6.1</b>	<b>18.7</b>	<b>15.8</b>	<b>15.1</b>	<b>10.5</b>	<b>Apr-99</b>
<i>CJA US All PE</i>				0.0	0.0	-2.7	2.9	19.6	16.9	15.1	13.3	
<i>NASDAQ W/O Income</i>				-10.5	-4.1	-32.4	-26.8	9.8	10.2	13.0	6.4	
PRIM Vintage Year 2008 (\$3m commitment in '08)	817,522	0.1		-0.1	-4.4	1.7	8.9	15.1	15.2	18.6	10.1	Jun-08
PRIM Vintage Year 2009 (\$1m commitment in '09)	99,181	0.0		-0.8	-18.1	-12.5	0.1	37.8	32.4	26.3	14.5	Nov-09
PRIM Vintage Year 2010 (\$1m commitment in '10)	496,036	0.1		-0.1	-10.8	-37.8	-23.4	24.2	20.5	19.8	11.8	Jun-10
PRIM Vintage Year 2011 (\$1.5m commitment in '11)	874,500	0.1		1.6	-4.3	-1.6	6.5	32.7	26.7	22.6	10.5	May-11
PRIM Vintage Year 2012 (\$1m commitment in '12)	458,262	0.1		-3.5	-19.3	-30.4	-30.4	12.6	12.8	14.2	-10.1	Jun-12
PRIM Vintage Year 2014 (\$2m commitment in '14)	2,245,060	0.4		-0.9	-1.9	1.2	14.4	26.8	26.0		9.1	Jun-14
PRIM Vintage Year 2017 (\$2m commitment in '17)	2,507,219	0.4		-0.8	-4.4	2.1	8.8	25.1	18.3		16.6	May-17
PRIM Vintage Year 2020 (\$5m commitment in '20)	3,360,709	0.5		-0.6	-4.7	5.4	12.6				18.6	Mar-20
PRIM Vintage Year 2021 (\$5m commitment in '21)	2,593,046	0.4		0.0	-5.0	-1.6	2.1				1.1	Dec-20
PRIM Vintage Year 2022 (\$7.5m commitment in '22)	769,172	0.1		-1.2	-2.5						-5.2	Apr-22
Alcentra European DLF (\$5m commitment in '14)	195,385	0.0		0.0	0.0	8.2	11.0	23.3	14.0		12.2	Jan-15
Ascent Fund IV-B (\$1m commitment in '16)	45,225	0.0		0.0	0.0	-14.7	-14.7	-24.5	-20.2		-15.4	Jul-16
Ascent Fund V (\$2m commitment in '08)	1,539,356	0.3		0.0	0.0	-7.8	-12.4	0.4	-0.8	3.1	4.5	Oct-08
Ascent VI (\$3m commitment in '15)	3,482,574	0.6		0.0	0.0	3.5	13.0	2.8	4.2		2.6	Dec-15
CVI Credit Value Fund IV A LP (\$6m commitment in '17)	5,754,763	0.9		0.0	0.0	2.7	4.6	6.1			6.0	Dec-17
Invesco Fund VI (\$5m commitment in '13)	1,405,531	0.2		0.0	0.0	-21.3	-5.6	31.8	23.6		19.3	Jul-13

Importantly, all returns in this report, including those of the private markets managers, are based on a time weighted return calculation and not based on IRRs, which can result in return differences.



# TOTAL FUND PERFORMANCE DETAIL (NET)

	Allocation			Performance (%)								
	Market Value (\$)	% of Portfolio	Policy(%)	1 Mo (%)	3 Mo (%)	YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
Kayne Energy Fund VII (\$5m commitment in '15)	3,388,589	0.6		0.0	0.0	60.7	85.4	-14.2	-10.4		-2.0	Jan-16
Foundry 2007 (\$3m commitment in '07)	484,267	0.1		0.0	0.0	-3.5	4.5	18.0	5.6	12.7	20.2	Dec-07
Foundry 2010 (\$3m commitment in '10)	6,051,790	1.0		0.0	0.0	0.6	7.4	32.6	26.1	16.6	14.8	Feb-11
Foundry 2010 Annex (\$0.4m commitment in '15)	1,114,610	0.2		0.0	0.0	0.0	-0.2	83.6	65.1		43.9	Sep-15
Pinebridge PEP V (\$6m commitment in '07)	492,734	0.1		0.0	0.0	-0.1	-0.1	10.3	4.9	9.4	8.6	Dec-10
Pinebridge (AIG) PEP V Asia (\$6m commitment in '07)	35,776	0.0		0.0	0.0	4.1	-7.8	-12.5			-13.0	Oct-18
Pinebridge (AIG) PEP V Co-Investment (\$6m commitment in '07)	96,394	0.0		0.0	0.0	8.0	14.0	21.1			8.3	Oct-18
Pinebridge (AIG) PEP V Europe (\$6m commitment in '07)	18,235	0.0		0.0	0.0	-12.3	-19.1	204.6			139.7	Oct-18
Pinebridge (AIG) PEP V Large Market US Buyout (\$6m commitment in '07)	85,418	0.0		0.0	0.0	-5.3	-6.5	17.4			10.2	Oct-18
Pinebridge (AIG) PEP V Preferred Participation Fund (\$6m commitment in '07)	93,372	0.0		0.0	0.0	-5.5	-8.5	5.2			1.0	Oct-18
Pinebridge (AIG) PEP V Secondary (\$6m commitment in '07)	24,803	0.0		0.0	0.0	-5.3	-25.5	-11.2	-10.8		-9.5	Jan-17
Pinebridge (AIG) PEP V Small-Mid Market US Buyout (\$6m commitment in '07)	90,345	0.0		0.0	0.0	-5.9	-2.5	19.1			16.9	Oct-18
Pinebridge (AIG) PEP V US Venture (\$6m commitment in '07)	48,391	0.0		0.0	0.0	-0.1	3.9	3.3			-2.3	Oct-18
Landmark XV (\$3m commitment in '13)	773,750	0.1		0.0	0.0	0.4	1.5	11.8	12.3		13.3	Nov-13
JFL Equity Investors IV, L.P. (\$6m commitment in '16)	1,634,445	0.3		0.0	0.0	4.1	17.5	37.6	43.3		38.0	Jan-17
Private Advisors Small Co. Coinvestment Fund, LP (\$4m commitment in '17)	4,671,521	0.8		0.0	0.0	0.0	4.7	23.9	21.7		20.2	Feb-17
Park Square Credit Opportunities III (\$3m commitment in '17)	2,767,479	0.5		0.0	0.0	1.5	4.6	7.0			6.5	Feb-18
Ironsides Constitution Opportunities (\$3m commitment in '18)	2,236,091	0.4		0.0	0.0	-0.1	3.3	10.4			11.1	Oct-18
HarbourVest Dover Street X (\$9m commitment in '20)	6,801,359	1.1		0.0	0.0	6.1	18.6				73.4	Jun-20
Hamilton Lane Secondary Fund V LP (\$9m commitment in '20)	7,250,273	1.2		0.0	0.0	1.5	11.5				37.9	Jul-20
Constitution Ironsides Co-Investment Fund VI (\$12m commitment in '21)	13,788,863	2.3		0.0	0.0	4.9					4.9	Nov-21
HarbourVest Co-Investment Fund VI (\$8m commitment in '21)	1,165,382	0.2		0.0	0.0							Jan-22
JFL Equity Investors V, L.P. (\$9m commitment in '20)	7,520,418	1.2		0.0	0.0	9.0	17.8				0.3	Sep-20

Importantly, all returns in this report, including those of the private markets managers, are based on a time weighted return calculation and not based on IRRs, which can result in return differences.

# FEE SCHEDULE

Account Name	Fee Schedule	Market Value (\$)	% of Portfolio	Estimated Annual Fee (\$)	Estimated Annual Fee (%)
PRIT Core Fund	0.5 % of Assets	4,668,008	0.8	22,873	0.5
Rhumblin Advisors S&P 500 Index Fund	0.1 % of Assets	55,816,408	9.1	27,908	0.0
Coho Relative Value Equity	0.5 % of First \$75 M 0.4 % of Next \$75 M 0.4 % Thereafter	43,914,832	7.2	219,574	0.5
Polen Focused Growth	0.7 % of Assets	36,775,294	6.0	239,039	0.7
Boston Partners Small Cap Value	1.0 % of Assets	20,234,684	3.3	202,347	1.0
Loomis Sayles Small Cap Growth	0.5 % of Assets Minimum Fee: \$45,000	19,680,003	3.2	88,560	0.4
SEG Baxter Street	1.0 % of Assets	24,700,081	4.0	247,001	1.0
Schroder International Alpha Trust Class 1	0.6 % of Assets	21,887,837	3.6	120,383	0.5
Baillie Gifford International Growth Fund Class K	0.6 % of Assets	11,093,581	1.8	66,561	0.6
Axiom Emerging Markets Trust Class 2	0.7 % of Assets	15,128,678	2.5	110,439	0.7
ABS Emerging Markets MA Fund	0.8 % of Assets	17,125,720	2.8	128,443	0.8
Garcia Hamilton Fixed Income Aggregate		33,930,240	5.5	42,413	0.1
Lord Abbett Core Fixed Income	0.2 % of Assets	34,666,162	5.7	65,866	0.2
Loomis Sayles Multisector Full Discretion Trust	0.5 % of First \$20 M 0.4 % of Next \$20 M 0.3 % Thereafter	48,498,686	7.9	205,496	0.4
Octagon Senior Secured Credit Cayman Fund Ltd. - Class L Acc, Series 1	0.4 % of Assets	13,603,575	2.2	54,414	0.4
Invesco Mortgage Recovery Loans Feeder Fund		53,601	0.0		
PRIM Portfolio Completion Strategies		14,812,213	2.4		
Corbin Pinehurst Partners	0.9 % of Assets	12,395,661	2.0	105,363	0.8
UBS Neutral Alpha Strategies	0.9 % of Assets	13,725,987	2.2	123,534	0.9
Entrust Peru Wind Down	0.5 % of Assets	732,421	0.1	3,662	0.5
Cash Account		8,650,648	1.4		
Morgan Stanley Prime Property (\$2.8m commitment in '95)		26,975,346	4.4		
TA Realty Core Property Fund, LP (\$15m commitment in '19)[CE]		28,645,200	4.7		
Invesco Mortgage Recovery II (\$3M commitment in '15)		942,943	0.2		
Landmark VI (\$2m commitment in '11)		45,198	0.0		
Landmark VIII (\$4m commitment in '17)		1,827,480	0.3		
StepStone Real Estate Fund II (\$2m commitment in '11)		472,141	0.1		
Cerberus Institutional Real Estate Partners III (\$1.5m commitment in '12)		516,079	0.1		
TA Realty Fund X LP (\$3.5m commitment in '12)		3,478	0.0		



# FEE SCHEDULE

Account Name	Fee Schedule	Market Value (\$)	% of Portfolio	Estimated Annual Fee (\$)	Estimated Annual Fee (%)
TerraCap Partners III, LP (\$2.6m commitment in '15)		1,583,492	0.3		
TerraCap Partners IV, LP (\$4m commitment in '17)		3,532,850	0.6		
TerraCap Partners V, LP (\$8m commitment in '22)		8,763,392	1.4		
PRIM Vintage Year 2008 (\$3m commitment in '08)		817,522	0.1		
PRIM Vintage Year 2009 (\$1m commitment in '09)		99,181	0.0		
PRIM Vintage Year 2010 (\$1m commitment in '10)		496,036	0.1		
PRIM Vintage Year 2011 (\$1.5m commitment in '11)		874,500	0.1		
PRIM Vintage Year 2012 (\$1m commitment in '12)		458,262	0.1		
PRIM Vintage Year 2014 (\$2m commitment in '14)		2,245,060	0.4		
PRIM Vintage Year 2017 (\$2m commitment in '17)		2,507,219	0.4		
PRIM Vintage Year 2020 (\$5m commitment in '20)		3,360,709	0.5		
PRIM Vintage Year 2021 (\$5m commitment in '21)		2,593,046	0.4		
PRIM Vintage Year 2022 (\$7.5m commitment in '22)		769,172	0.1		
Alcentra European DLF (\$5m commitment in '14)		195,385	0.0		
Ascent Fund IV-B (\$1m commitment in '16)		45,225	0.0		
Ascent Fund V (\$2m commitment in '08)		1,539,356	0.3		
Ascent VI (\$3m commitment in '15)		3,482,574	0.6		
CVI Credit Value Fund IV A LP (\$6m commitment in '17)		5,754,763	0.9		
Invesco Fund VI (\$5m commitment in '13)		1,405,531	0.2		
Kayne Energy Fund VII (\$5m commitment in '15)		3,388,589	0.6		
Foundry 2007 (\$3m commitment in '07)		484,267	0.1		
Foundry 2010 (\$3m commitment in '10)		6,051,790	1.0		
Foundry 2010 Annex (\$0.4m commitment in '15)		1,114,610	0.2		
Pinebridge (AIG) PEP V Asia (\$6m commitment in '07)		35,776	0.0		
Pinebridge (AIG) PEP V Co-Investment (\$6m commitment in '07)		96,394	0.0		
Pinebridge (AIG) PEP V Europe (\$6m commitment in '07)		18,235	0.0		
Pinebridge (AIG) PEP V Large Market US Buyout (\$6m commitment in '07)		85,418	0.0		
Pinebridge (AIG) PEP V Preferred Participation Fund (\$6m commitment in '07)		93,372	0.0		
Pinebridge (AIG) PEP V Secondary (\$6m commitment in '07)		24,803	0.0		
Pinebridge (AIG) PEP V Small-Mid Market US Buyout (\$6m commitment in '07)		90,345	0.0		
Pinebridge (AIG) PEP V US Venture (\$6m commitment in '07)		48,391	0.0		
Landmark XV (\$3m commitment in '13)		773,750	0.1		
JFL Equity Investors IV, L.P. (\$6m commitment in '16)		1,634,445	0.3		
Private Advisors Small Co. Coinvestment Fund, LP (\$4m commitment in '17)		4,671,521	0.8		

# FEE SCHEDULE

Account Name	Fee Schedule	Market Value (\$)	% of Portfolio	Estimated Annual Fee (\$)	Estimated Annual Fee (%)
Park Square Credit Opportunities III (\$3m commitment in '17)		2,767,479	0.5		
Ironsides Constitution Opportunities (\$3m commitment in '18)		2,236,091	0.4		
HarbourVest Dover Street X (\$9m commitment in '20)		6,801,359	1.1		
Hamilton Lane Secondary Fund V LP (\$9m commitment in '20)		7,250,273	1.2		
Constitution Ironsides Co-Investment Fund VI (\$12m commitment in '21)		13,788,863	2.3		
JFL Equity Investors V, L.P. (\$9m commitment in '20)		7,520,418	1.2		
HarbourVest Co-Investment Fund VI (\$8m commitment in '21)		1,165,382	0.2		
<b>Investment Manager Fee</b>		<b>612,187,032</b>	<b>100.0</b>	<b>2,073,877</b>	<b>0.3</b>

The estimated fee for private markets, inclusive of carried interest, is ~\$3,541,145 annually, which brings the total expense ratio for privates to ~53 bps. This brings the total estimated expense ratio for MWRA to ~83 bps.

# NOTES

- 1 - Results for periods longer than one year are annualized.
- 2 - Total Balances, Large Cap, Small Cap, and Other Composite performance starts 12/1/2010.
- 3 - Preliminary Total Composite net of fee since inception return is 6.6% for the current month.
- 4 - Preliminary Total Composite gross of fee since inception return is 8.1% for the current month.
- 5 - Targets, Allocation Index, and Policy Index have been updated to reflect new allocation of 02/01/2022.
- 6 - Policy Index changed from Nasdaq to Cambridge All PE to reflect as of 5/1/2012.
- 7 - Policy Index Consists of: 24% S&P 500, 7% Russell 2000, 12% MSCI ACWI IMI, 7% MSCI Emerging Markets, 12% Bloomberg US Aggregate TR, 8% Bloomberg US Universal TR, 6% HFRI Fund of Funds Composite Index, 12% NCREIF Property Index, 12% CIA US All PE.
- 8 - Allocation index consists of: Weighted index of underlying managers to their respective benchmark.

# DISCLAIMERS & DISCLOSURES

Past performance is no guarantee of future results.

Returns for pooled funds, e.g. mutual funds and collective investment trusts, are collected from third parties; they are not generally calculated by NEPC. Returns for separate accounts, with some exceptions, are calculated by NEPC. Returns are reported net of manager fees unless otherwise noted.

A “since inception” return, if reported, begins with the first full month after funding, although actual inception dates (e.g. the middle of a month) and the timing of cash flows are taken into account in Composite return calculations.

NEPC’s preferred data source is the plan’s custodian bank or record-keeper. If data cannot be obtained from one of the preferred data sources, data provided by investment managers may be used. Information on market indices and security characteristics is received from additional providers. While NEPC has exercised reasonable professional care in preparing this report, we cannot guarantee the accuracy of all source information contained within. In addition, some index returns displayed in this report or used in calculation of a policy index, allocation index or other custom benchmark may be preliminary and subject to change.

All investments carry some level of risk. Diversification and other asset allocation techniques are not guaranteed to ensure profit or protect against losses.

The opinions presented herein represent the good faith views of NEPC as of the date of this presentation and are subject to change at any time. Neither fund performance nor universe rankings contained in this report should be considered a recommendation by NEPC.

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Source of private fund performance benchmark data: Cambridge Associates, via Refinitiv

# S&P 500 INDEX STRATEGY SEARCH REVIEW

MWRA RETIREMENT SYSTEM

OCTOBER 27, 2022

Sebastian Grzejka, CAIA, Principal  
Kiley Fischer, Sr. Consulting Analyst



# SUMMARY OF S&P 500 INDEX STRATEGY SEARCH

- **Target fund strategy**

- Passive S&P 500 Index strategy

- **Advertised requirements for the search:**

1. Candidates must have familiarity with and agree to comply (in writing) with Massachusetts G.L. Chapter 32 and Chapter 176 of the Acts of 2011. Additionally, candidates must have familiarity and agree to comply with the reporting and investment guidelines administered by PERAC.
2. Candidates must read and agree to the attached side letter pertaining to mandatory contractual language, based on the guidelines above.
3. Candidates must be registered with the SEC or Massachusetts Secretary of State.
4. Preference will be given to candidates who have at least \$500 million in assets in the fund that is being suggested, however, this is subject to the Board's discretion
5. Preference will be given to Funds that have a live track record of at least three years, however, this is subject to the Board's discretion

- **Responses were due on October 17, 2022 by 5:00 PM EST.**

- A total of 5 managers responded

# S&P 500 INDEX SEARCH RESPONSES

Firm	Fund	Vehicle	Fund AUM (MM)	Fees	Comments	Side Letter
DWS	Xtrackers S&P 500 ESG ETF	ETF	\$665.7	0.10%	<ul style="list-style-type: none"> <li>- S&amp;P 500 ESG Index exposure/strategy</li> <li>- Does securities lending</li> <li>- Not Advantageous</li> </ul>	Yes
RhumbLine	S&P 500 Index Pooled Fund	Commingled	\$27,824.6	0.03%	<ul style="list-style-type: none"> <li>- Incumbent</li> <li>- Highly Advantageous</li> </ul>	Yes
Xponance	S&P 500 Passive Index	Separate Account	\$1,806	0.03%	<ul style="list-style-type: none"> <li>- Highly Advantageous</li> </ul>	Yes
Amalgamated Bank	LongView LargeCap 500 Index	Commingled	\$3,307	0.03%	<ul style="list-style-type: none"> <li>- Advantageous</li> </ul>	Yes
Northern Trust	S&P 500 Index Equity	Commingled	\$187,889	Lending: 0.015% Non-Lend: 0.02%	<ul style="list-style-type: none"> <li>- Highly Advantageous</li> </ul>	Yes