

MWRA EMPLOYEES' RETIREMENT BOARD MEETING

AGENDA

Thursday, December 16, 2021 10:00 a.m.

MWRA, 2 Griffin Way

Via Remote Participation

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
 - a) Member Services Coordinator Position Update/Memo from Executive Director
 - b) Fifth Member Appointment Update/Info. from Executive Director re. Applicant
- 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) November 16, 2021 Minutes
- b) November 16, 2021 Executive Session Minutes

Item 4 Approval of Warrants – VOTE

- a) Warrant 12-2021
Doug Ralston refund – member has 22 years of creditable service and has requested a refund. Executive Director has requested that the member call into the meeting before payment is approved
- b) Warrant 12-2021A – Payroll

Item 5 Approval of Monthly Transfers 12-2021 – VOTE

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

- a) Eugene Ironuma DOR 10/30/2021
- b) George Bento DOR 11/13/2021
- c) Rita Berkeley DOR 11/13/2021
- d) Joan Levenson DOR 11/13/2021
- e) Patrick Adesanya DOR 11/20/2021
- f) Laura Ducott DOR 11/20/2021
- g) Thomas Coffey, Jr. DOR 12/4/2021

Item 7 Approval of Tomas Lopez-Gomez's buyback of 1 year and 1 month MWRA contract employment (3/19/2020-5/6/2021) – VOTE

Item 8 Approval of Daniel Ouellette buyback of 5 months MWRA contract employment (6/21/2018-8/15/2019 prorated) – VOTE

- Item 9 Approval of Jon Wladkowski's buyback of 1 year MWRA contract employment (8/11/2005-8/16/2006) – VOTE
- Item 10 Acceptance of Section 7 Retirement Application re. John Honan – VOTE
- Item 11 Acceptance of Section 7 Retirement Application re. Sean Scott – VOTE
- Item 12 Approval of one month creditable service for James Davis pursuant to s. 4(1)(c) – VOTE
- Item 13 Approval of 2022 Proposed Budget – VOTE
Update from Executive Director regarding NEPC Contract
- Item 14 NEPC
 - a) Flash Report as of 11/30/2021
 - b) Value-Add Real Estate RFP – VOTE
- Item 15 PERAC Memo #32/2021 – Cyber Security and Cyber Security Training
- Item 16 Legal

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

- Item 99-1 2022 Retirement Board Meeting Dates
- Item 99-2 This Month in the Division of Open Government November 2021:
- Item 99-3 PERAC MEMO #33/2021 – Tobacco Company List
- Item 99-4 Polen Capital Adds Fourth Investment Franchise
- Item 99-5 Correspondence from Retiree Ruth O'Meara

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, January 27, 2021, 10:00 a.m., Chelsea

**MASSACHUSETTS WATER RESOURCES
AUTHORITY EMPLOYEES' RETIREMENT
BOARD MEETING
NOVEMBER 16, 2021**

A meeting of the MWRA Employees' Retirement Board was conducted remotely on Tuesday, November 16, 2021. Remote access was provided to the public via Zoom, with call-in information provided on the official Meeting Notice posted to mwraretirement.com and the MA Secretary of State's website. Participating in the remote meeting were Board members Thomas Durkin, Kevin McKenna, Andrew Pappastergion, and Frank Zecha and, and staff members Carolyn Russo and Julie McManus. Mr. Fleming was absent due to a scheduling conflict, so Mr. Durkin chaired the meeting. Representatives from NEPC, Sebastian Grzejka and Kiley Fisher, as well as members of the public attended. Mr. Durkin called the meeting to order at 10:12 a.m.

- 1) Call the meeting to order-roll call of members: Mr. Durkin, Mr. McKenna, Mr. Pappastergion, and Mr. Zecha present via remote access.

Mr. Pappastergion thanked the Board Members and Staff for accommodating and facilitating the meeting schedule change.

- 2) Standing Committee Reports
 - i. By-Laws Committee: No report
 - ii. Human Resources Committee:

Mr. Zecha updated the Board on the status of the Member Services Coordinator's position. Mr. Zecha stated that the Executive Director and the Retirement Coordinator had done an excellent job in selecting from among the applicants three quality candidates, and thanked them for their efforts. Unfortunately, one of the three withdrew due to geographical distance. The Human Resources sub-committee interviewed both candidates. Both were found to have met the marks for qualifications, with one slightly ahead regarding experience. Mr. Durkin suggested that the Board may want to go into Executive Session to discuss negotiations with the preferred candidate.

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

VOTED

to convene in Executive Session under Purpose 2 to discuss salary and benefits negotiations for the Member Services Coordinator's position. 4-0, roll call with Mr. McKenna voting yes, Mr. Pappastergion voting yes, Mr. Zecha voting yes, and Mr. Durkin voting yes. The Board convened in Executive Session at 10:17 a.m.

The Board reconvened in open session at 10:34 a.m.

Mr. Durkin stated that he would take the agenda items out of order to accommodate Coho.

8) Coho Partners performance review for Coho Relative Value Equity Fund

Mr. Grzejka contacted the presenters from Coho. Mr. Wayne LeSage and Mr. Chris Leonard joined the call at 10:38 a.m. Mr. Grzejka cautioned Mr. LeSage and Mr. Leonard that there are members of the public and/or media on the call, and to avoid discussion of any materials which may be considered proprietary. Mr. LeSage shared the presentation on his screen. Mr. LeSage stated that in the near term Coho expects headwinds. Mr. Zecha stated that he was advocating calling Coho in because of their performance relative to their peers, and asked for Coho's 1,3, and 5-year peer rankings, as well as the cause for any underperformance. Mr. LeSage stated that he will address those questions during the presentation. He reported that Coho has high client retention, and is in the process of onboarding new clients. Coho expects in 2022 to return to the office or a hybrid environment. He directed the Board to page 5 of the presentation. The Board has been invested with Coho for about 5 ½ years. At that time, \$19m was invested. Since then the Board has made \$13m in additional contributions, and with a net gain of \$20m the account now stands at \$53m. Mr. LeSage reported that Coho's priority is downside protection, with downside capture of about 74%. The fund will not drop as far as its peers in a down market, and aims to capture 85% of the upside. They participate in a responsible way, with a goal of benchmark-like returns at much lower risk. Over the 1-year period the fund lagged, but that was not outside of their general expectation within the context of a dramatic rebound led by cyclical following the "Covid correction." Relative to the strategy's long-term expectations, the fund still offers a comparable return profile with 15-20% less risk than the benchmark. Even with an annualized return of between 13 and 14%, "It doesn't feel good..." to lag the benchmark after leading it in 2020. However, to avoid doing so would have required Coho to compromise their established risk-averse framework. Mr. Zecha noted that 65% of Coho's peers are beating the benchmark. Mr. LeSage directed the Board to page 20 of the presentation, which demonstrates that Coho's returns over the 5-year period are in line with their peer group, but at 20% lower risk, even including the most recent one-year, over which they lagged. Mr. Zecha noted that when someone looks at MWRAERS' returns, and ours is well below others and PRIT's, the Board has to answer for the underperformance, and must question whether we are losing money keeping the funds with Coho. Mr. McKenna asked if the approach is one of high-conviction names, what is the average holding period. He asked in particular about the Nestle and Dollar General holdings, and how they can show up in both the growth and value portfolios. Mr. Leonard responded that the average turnover in the portfolio is 15-20%, but that they have to take what the market gives them, and maintain their strategy to provide downside protection and upside participation. Dollar

General has a business model that is counter-cyclical, which is why Coho held it. The fund has been more actively trading in order to take advantage of opportunities to buy quality at a temporarily low price. For instance, the fund bought Sysco which had been hurt by the closure of restaurants and stadiums, because they will eventually come back. They have been scaling back on companies with already-stretched valuations. Mr. McKenna stated that two years ago Coho was one of the best managers in the portfolio, but that post-Covid they are not. He asked if Coho's performance has been affected by remote work. Mr. Leonard responded that it has not. Corrections are where Coho provides protections. They do not market time, they try to take volatility out of the portfolio, and want to abide by the process that has worked over cycles for the past 20 years. No one is able to get macro calls right all of the time consistently while changing philosophy. Mr. Leonard cited page 9 of the presentation as an illustration of how Coho delivers on fundamentals, for instance in the Q4 2018 correction that resulted from rising interest rates. The sharp correction which followed is precisely the environment in which Coho provides the best protection. Mr. Durkin referenced slide 20 with the 5-year, and stated that he appreciates the benchmark-like returns at reduced risk. However, the Fund did not capture 85% of the upside over the past one-year period, and stated that if they had, the return would have been closer to 37% than the 30% where they stand today. Mr. LeSage directed the Board to page 8, which shows where in the cycle Coho tends to perform the best. Coming into a "mature bull" market, investors settle down and start looking for quality. Once we move beyond the cyclical environment, Mr. LeSage expects performance to normalize, but noted that there may be another correction before we transition to a "late bull" stage. Mr. LeSage thanked the Board members for their patience and confidence in Coho's process. Mr. Zecha asked about the fees. Mr. LeSage responded that they have a blended fee schedule, so he would refer to the materials. Mr. Zecha asked if Coho has other MA clients, and Mr. LeSage answered affirmatively and will provide the Board the list. Mr. Leonard commented that Coho's trading is in line with the benchmark's, and that they are now trading at a discount, so his outlook is optimistic. Mr. LeSage stated that the fees are a flat 50bps. The representatives from Coho signed off the call at 11:10 a.m.

Mr. Zecha requested that Mr. Grzejka comment on the presenters' remarks. Mr. Grzejka stated that the Board needs to focus on the reason Coho's value fund was selected originally for MWRAERS' portfolio, which was to buy high quality names at a discount relative to the market, to seek long term appreciation with dividends over time, to avoid cyclicals prone to ebbs and flows, and as a pairing to Polen's growth portfolio to decrease overall risk and avoid making growth/value bets. If it is the Board's position that this strategy no longer has a place in the portfolio, then this pairing is no longer appropriate. You don't want managers that move in the same direction during any given market conditions. Both have a long-term hold discipline, and the overlap hovers at about 2%. NEPC's research team has re-affirmed its conviction in Coho's Relative Value Fund and its place in the MWRAERS' portfolio. Mr. Grzejka reminded the Board

that it had the same concerns shortly after the selection, in Q1 2016, but until late 2020 Coho's performance was great, and since then has been good on an absolute basis, but has been struggling on a relative basis. Coho's process for which they were hired remains consistent, and their future will depend upon the Board's level of conviction in Coho's process to lower risk in the large cap portfolio, which may result in lower returns. We are at the six-year mark of a seven-year contract, but the current macro environment may be variable over the next six months, which would likely benefit Coho. Mr. Zecha noted that it could also be a big miss over the next six months, and wants to look at their performance again in December. Mr. Grzejka noted that Coho's approach is built for a long-term, 5-7-year cycle, and if the Board is looking for a short-term tactical manager, Coho is no longer the right fit for them. Mr. McKenna asked what moves Coho has made recently. Mr. Grzejka responded that in Coho's process, they will over time converge to 80-80 upside and downside capture. As an example, former manager Intech took risk, timed the market, did not perform well, and the Board terminated them. Coho's long-term return profile is 13%, but no manager will hit that mark month in and month out. He stated that Apple was once considered a value name. Page 14 of the presentation shows the trades. Mr. McKenna stated Coho is clearly not doing something their peers are doing. Mr. Grzejka said that Mr. McKenna is correct, that we don't want them buying into the higher risk strategies. Managers classify themselves as deeper value managers to compare themselves to that universe, when in fact they are buying cyclicals and/or "junk" at price bottoms. Coho's discipline does not allow them to do that. Mr. McKenna remarked that the others are really more core-plus managers then. Mr. Grzejka drew a comparison to Core bonds-the returns may not be exciting, but are steady and provide protection in the portfolio. Meeting the System's long-term goal may require additional exposure to Real Estate with a funding overlay in the short-term. If the Board wants a more aggressive asset allocation, they will need to select more aggressive managers and neither Polen nor Coho will fit that strategy. Mr. McKenna noted that no one likes to look at their neighbor's grass and see that it is much greener.

Mr. Durkin stated that we will now resume the regular order of business and address item #3. The Executive Director asked if the Board had yet addressed Items 2) iii and 2) iv. Mr. Durkin asked whether the Board wished to return to those items. Mr. Pappastergion stated that they'll be quick and the Board may as take care of them in order.

- 2)
 - iii. Special Committee, Stipend: No report
 - iv. Job Review Committee: No report

- 3) Approval of the Minutes of the October 28, 2021 meeting – VOTE
 - a) October 28, 2021 Minutes
 - b) October 28, 2021 Executive Session Minutes

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

VOTED

to approve the October 28, 2021 regular Meeting Minutes and Executive Session Minutes as submitted by the Executive Director. 3-0, roll call with Mr. McKenna voting yes, Mr. Zecha voting yes, and Mr. Durkin voting yes. Mr. Pappastergion is recorded as having abstained.

4) Approval of Warrants – VOTE

- a) Warrant 11-2021
- b) Warrant 11-2021A – Payroll

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

VOTED

to approve Warrants 11-2021 and 11-2021A. 4-0, roll call with Mr. McKenna voting yes, Mr. Zecha voting yes, Mr. Pappastergion voting yes, and Mr. Durkin voting yes

5) Approval of Monthly Transfers 11-2021 – VOTE

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

VOTED

to approve the monthly transfers as presented and as recommended by NEPC. 4-0, roll call with Mr. McKenna voting yes, Mr. Zecha voting yes, Mr. Pappastergion voting yes, and Mr. Durkin voting yes

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

- a) Raymond Marquis DOR 10/26/2021
- b) Brian Daffinee DOR 10/29/2021
- c) Nitin Choksi DOR 10/30/2021
- d) Lise Marx DOR 10/30/2021
- e) John Sculley DOR 10/30/2021

Mr. McKenna commented that MWRA is again losing some great employees and that he wishes the retirees the best.

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

VOTED

to acknowledge the §5 retirements as detailed above. 4-0, roll call with Mr. McKenna voting yes, Mr. Zecha voting yes, Mr. Pappastergion voting yes and Mr. Durkin voting yes

7) Approval of one month of creditable service for Charles Clancy pursuant to s. 4(1)(c) – VOTE

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

VOTED

to approve the request of Charles Clancy for one month of creditable service pursuant to 4(1)(c). 4-0, roll call with Mr. McKenna voting yes, Mr. Zecha voting yes, Mr. Pappastergion voting yes, and Mr. Durkin voting yes

9) NEPC

- a) Flash Report as of 10/31/2021
- b) Rebalance Recommendation
- c) Real Estate Strategic Review and Pacing Plan
- d) Investment Report September 30, 2021
- e) Private Equity Performance Report June 30, 2021
- f) Real Estate Performance Report June 30, 2021

a) Regarding the Flash report, Real Estate and Private Equity reporting has not yet been received. September was otherwise volatile, with macro issues such as the debt ceiling, the specter of the permanency of inflation, and China's Evergrande crisis and regulatory environment. October has been up about 2.5% month-to-date based on available reporting. PRIT's numbers have not yet been released, and the most recent includes PE performance through Q2. US Equity performance has been strong with Large Cap at 21.4% YTD, and Small Cap returning 19.5% YTD. Schroders and SEG have performed well in the non-US equity space. Baillie Gifford has had recent underperformance, but has regained some ground. In the EM portfolio, Axiom is up 1% for the month. Fixed income is flat year to date (up .2%) but it was not unexpected. Macro concerns have hurt Garcia Hamilton. Fixed Income managers with greater credit exposure have benefitted from the current environment. The Hedge Fund portfolio is up 8.2% YTD, with Corbin up 12.3%. Mr. Grzejka stated that ahead of the Asset Allocation review which normally happens in February, the Board needs to consider its comfort level with assuming additional risk, with the pairings, and the appropriate approach within the context of a System nearing fully-funded status. Mr. McKenna noted that upon funding, Axiom dropped 10%, but has come back some. Mr. Zecha asked whether the fee reduction promised by Garcia is reflected on the fee report. Mr. Grzejka state that it is not, but that he has already instructed NEPC's analysts to make that adjustment. Mr. Zecha remarked that Garcia Hamilton was already called in by the Board, and did not improve their performance, so they should be called in again or the replacement process begun.

b) Regarding the rebalance recommendations, the moves are being implemented in consideration of the early meetings and payrolls for November and December, the fact that the proceeds from the \$6m SEG redemption will not be received until early January, anticipated capital calls, and the funding of the new ABS account.

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

VOTED

to approve rebalance recommendations as presented by NEPC. 4-0, roll call with Mr. McKenna voting yes, Mr. Zecha voting yes, Mr. Pappastergion voting yes, and Mr. Durkin voting yes

b) The Real Estate Review and Pacing Plan was presented to the Board. The last review was done in 2019 when the Board added TA Core Realty. Morgan Stanley has been a steady performer over the long term, but the climate has been uncertain, especially within the retail and office sectors. There has been more online shopping, and more movement of both business and residential to secondary markets. The target is 10%, but the portfolio is under at this point due to significant growth of the portfolio overall. There have been buying opportunities in residential, industrial, “last mile,” grocery, healthcare/biotech, and digital infrastructure properties. Core has been performing well, and value-add was up pre-Covid. Returns are temporarily compressed. NEPC’s recommendation is that the Core RE exposure should be maintained, and an RFP for value-add issued in early 2022 for a \$20m mandate. Mr. Grzejka will draft the RFP for the Board’s approval at the December meeting, and anticipates initial responses by the January meeting. Mr. McKenna asked from a percentage standpoint how much of the Real Estate exposure can be residential, and Mr. Grzejka stated that there is no limit set by the Board, and that the managers base decisions on current market conditions. For example, Amazon will be looking to more rural areas to maintain one-day delivery, in areas outside city centers, and there is demand for healthcare/biotech facilities, so managers will seek opportunities in those areas. Mr. McKenna asked if the RFP should require a percentage standard, such as 50%, in industrial. Mr. Grzejka responded that the Board has never done so before, and that doing so would constrict responses. We want the largest response as possible to the RFP in order to select from the best possible candidates. Mr. Zecha asked if FL is still a hot market, and remarked that RE in general is a bit scary right now. Mr. Durkin asked if we have too much FL exposure already.

Mr. Zecha reported that he received a message which stated that Mr. Fleming had been in Court all morning, which is why he was absent.

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

VOTED

to approve the Real Estate Pacing Plan as presented by NEPC, and to authorize an RFP for a \$20m Opportunistic Real Estate allocation. 4-0, roll call with Mr. McKenna voting yes, Mr. Zecha voting yes, Mr. Pappastergion voting yes, and Mr. Durkin voting yes

Items numbered 9) d,e, and f were all provided for the Board’s information.

Mr. Grzejka reported that the deadline to invest in PRIT VY2022 is December 15, prior to the next meeting, so an allocation would require a vote today. Mr. McKenna asked given that the PRIT PE portfolio has done so well, why aren't we all in on the PE portfolio. Mr. Grzejka stated that the PE allocation for 2022 would be \$20m in total to keep up with the pacing plan. He referred the Board to pages 4 and 5 of the PE presentation, which show that we want to add steadily to the PE portfolio. Some years look like there was no allocation, but the calls are made and the PE funds invested over a period of years rather than just in the year of the manager selection. NEPC suggests a commitment of 1% of the portfolio per strategy.

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

VOTED

to approve an investment of \$7.5m into PRIT PEVY 2022. 4-0, roll call with Mr. McKenna voting yes, Mr. Zecha voting yes, Mr. Pappastergion voting yes, and Mr. Durkin voting yes

10) Legal Update

Attorney Gibson reported having called in early, at 11:30 a.m., and stated that the legal agenda is brief. Attorney Gibson reported that there has been a SSA COLA increase of 5.9%, but a significant increase to Medicare premiums of about \$21 per month. Mr. Durkin asked if there is any expectation of public retirees of parity of COLA increases. Attorney Gibson noted that the SS raises are based on the entire amount rather than a base, but that frequently the SS increases are less than the 3% generally granted by Boards.

There are two cases pending involving motor vehicle accidents and how injuries sustained in such an incident should be treated for accidental disability purposes. The first involved a Deputy Chief who returned home to retrieve an item he needed to perform an inspection, before returning to the station. While there, he picked up his daughter and dropped her off at a location which was along his route back. On the way he had a serious motor vehicle crash in which he sustained career-ending injuries. The Retirement Board denied the application for accidental disability. A DALA magistrate upheld the denial opining that the trip home put him outside of the course of employment. An appeal of the decision is expected.

The second case involves an ABCC Inspector, for whom the vehicle essentially serves as an office. The inspector sustained injuries in an accident on the expressway. The State Retirement Board approved the application for accidental disability stating that the member was going from one location at which they had a work obligation to another. PERAC had remanded the case three times. DALA granted the application, noting that the member was actually working while traveling. Board Counsel will continue to follow both cases as they proceed.

Counsel has been working on the Side Letter for ABS, Harbourvest and Constitution, and stated that the Executive Director has diligently completed and forwarded the voluminous subscription materials.

The Public Service Committee heard 49 bills on retirement on October 19th, and another 64 bills on group classification on the 26th. The Chair has asked that the bills not come before the Committee without a cost estimate completed by PERAC, which PERAC maintains is overly burdensome on the agency. The Veterans' bill remains in the Ways and Means Committee. Counsel noted that the federal funds may not be used directly for retirement but that money is likely to be designated to pay bonuses to those who worked through the pandemic if they are at or below 300% of the poverty level. As a bonus progresses, the 3-year incentive becomes less likely to pass. Mr. McKenna asked if the bonuses would be deemed "pensionable" and Counsel responded that they are already specifically excluded from the definition of regular compensation. Mr. Pappastergion noted that it should include those who worked through the pandemic but who have since retired.

Mr. McDonough reported that there is a trial scheduled for tomorrow on damages regarding the Stanton matter, wherein attorney Hass is demanding back pay of a percentage of the retro plus a percentage of any ongoing benefits received by the retiree, which Counsel termed unconscionable.

Mr. Zecha raised the matter of Cyber liability coverage. He noted that the Executive Director has done Yeoman's work in updating the System's Internal Controls, but that this is an area of increasing risk. Attorney Gibson stated that the fiduciary policies are already seeing sharp premium increases due to ERISA litigation. Cyber coverage has very sizable hurdles, Systems must have significant security infrastructure in place, and Systems need to look closely at whether the cost is worth it because the coverage is extremely limited.

Mr. Durkin referenced the article from today's Salem News in regard to the forfeiture of the pension of Andrew Bisignani arising from conduct while he was employed by Saugus and Nahant. Attorney Gibson stated that he sees significant differences in this case in comparison to Bettencourt. In Bettencourt, the forfeiture was based on a single incident, the conduct did not result in financial gain, and there was no irreparable harm caused as a result of the conduct. Attorney Gibson also questioned the assertion that this would be the most expensive forfeiture assessed in MA history, given the high profile cases of some pretty high-ranking officials. Mr. Durkin asked that Counsel keep the Board informed about the case.

Mr. Zecha asked Counsel whether if the Member Services Coordinator's position was advertised at a certain range whether the Board may go outside of it during negotiations. Board Counsel stated that the Board does have the Authority to do so, and that it is a fairly common occurrence.

Attorney Gibson and Attorney McDonough signed off at 12:40 p.m.

Mr. Durkin announced that the System has received the PPCC award for 2020 reporting.

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

VOTED

to convene in Executive Session under Purpose 2 to continue the discussion of salary and benefits negotiations for the Member Services Coordinator's position, with the understanding that regular business has concluded and the Board will adjourn upon returning to open session. 4-0, roll call with Mr. McKenna voting yes, Mr. Pappastergion voting yes, Mr. Zecha voting yes, and Mr. Durkin voting yes. The Board convened in Executive Session at 12:41 p.m.

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

VOTED

to reconvene in open session. 4-0, roll call with Mr. McKenna voting yes, Mr. Pappastergion voting yes, Mr. Zecha voting yes, and Mr. Durkin voting yes. The Board reconvened in open session at 12:57 p.m.

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

VOTED

to adjourn the November 16, 2021 meeting of the MWRA Employees' Retirement Board. 4-0, roll call with Mr. McKenna voting yes, Mr. Pappastergion voting yes, Mr. Zecha voting yes, and Mr. Durkin voting yes.

Mr. McKenna thanked the Executive Director and the Retirement Coordinator for all of their work thus far on the hiring process, and Mr. Pappastergion concurred.

The meeting was adjourned at 12:58 p.m.

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

PERAC MEMO #29/2021 - Expansion of Post-Retirement Work in the Public Sector

PERAC MEMO #30/2021 – Investment Fraud Alert

PERAC MEMO #28/2021 – 2021 Pension Fraud Prevention Campaign

PERAC Pension News

StepStone Group Announces Leadership Transition

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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.

The next regularly scheduled meeting of the MWRA Employees' Retirement Board will be held Thursday, December 16, 2021 at Massachusetts Water Resources Authority, 2 Griffin Way, Chelsea, at 10:00 a.m., if permissible, otherwise, will be held by publicly advertised conference call.

James M. Fleming, Elected Member

Kevin Mr. McKenna, Elected Member

Andrew Pappastergion, Ex Officio

Thomas J. Durkin, Appointed Member

Frank Zecha, Fifth Member



MONTHLY PERFORMANCE REPORT

MWRA EMPLOYEES' RETIREMENT SYSTEM

NOVEMBER 30, 2021



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

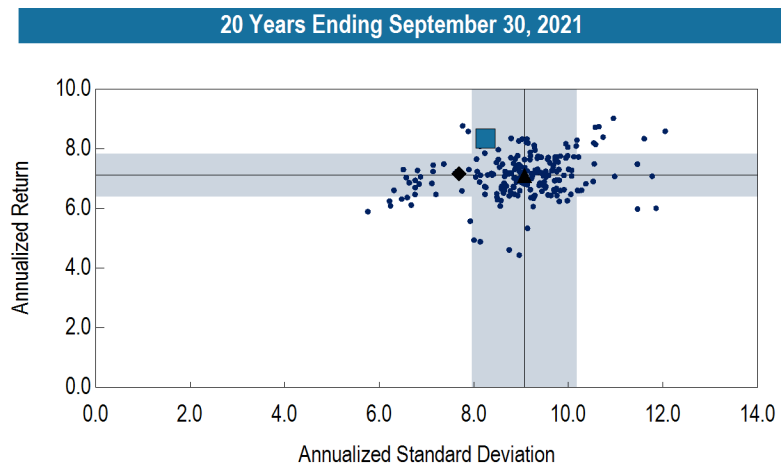
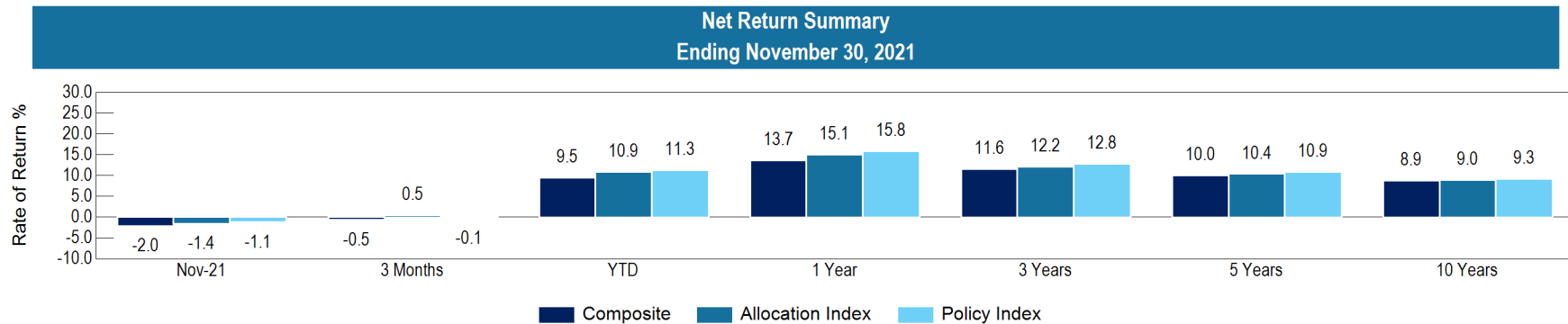
The investment growth should be maintained in such a manner that the minimum nominal rate of return does not cause a negative real rate of return over a full market cycle:

- **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).



MWRA Employees' Retirement System

EXECUTIVE SUMMARY



Preliminary Performance

- The Composite returned -2.0% (net) for the month, trailing the Allocation Index (-1.4%) and the Policy Index (-1.1%).
- Global equities sold off in November as investor sentiment weakened amid concerns around ongoing inflation and the pandemic. In the U.S., the S&P 500 Index fell -0.7%. International markets lagged with the MSCI EAFE and the Emerging Market indexes returning -4.7% and -4.1%, respectively. The portfolio's Domestic Equity composite returned -2.7% (net) while Non-US Equities fell - 5.2% (net).
- In fixed income, global yields broadly shifted lower. The U.S. yield curve flattened with the 10- and 30-year Treasury yields falling 12 and 16 basis points, respectively. The Fixed Income composite returned -0.1% (net) while the BC Agg was rose 30 bps and the Bloomberg US HY fell 100 bps.
- This brings the total Plan return for the trailing one-year period to 13.7% (net), while the Allocation and Policy Index returned 15.1% (net) and 15.8% (net), respectively.

Statistics Summary			
	Anlzd Ret	Anlzd Std Dev	Rank
Composite	8.0%	8.3%	8
Allocation Index	6.9%	7.7%	70
Policy Index	7.2%	8.4%	49
InvMetrics Public DB Gross Median	7.2%	9.2%	--

20 years Risk/Return is as of 09/30/2021. Chart reflects universe data on quarter end months only. Returns for 20 years Risk/Return and Statistics Summary are gross of fees.

Since inception return is 8.7% gross of fees. Prior to 1999, performance history does not capture separate net and gross returns.



MWRA Employees' Retirement System

PRELIMINARY TOTAL FUND PERFORMANCE DETAIL (NET)

	Market Value (\$)	% of Portfolio	Policy %	1 Mo (%)	YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
Composite	705,892,137	100.0	100.0	-2.0	9.5	13.7	11.6	10.0	8.9	7.1	Jan-86
Allocation Index				-1.4	10.9	15.1	12.2	10.4	9.0	--	Jan-86
Policy Index				-1.1	11.3	15.8	12.8	10.9	9.3	--	Jan-86
Total Balanced	5,347,001	0.8	0.0	0.0	16.8	21.8	12.1	9.1	6.6	5.8	Dec-10
PRIT Core Fund	5,347,001	0.8		0.0	16.8	21.8	14.0	12.2	10.2	7.5	Apr-99
60% S&P 500 / 40% Bloomberg Aggregate				-0.3	12.9	15.6	14.7	12.3	11.0	6.8	Apr-99
Total Domestic Equity	228,678,055	32.4	31.0	-2.7	17.7	23.0	18.6	17.1	15.1	8.3	May-99
Russell 3000				-1.5	20.9	26.3	20.2	17.5	16.0	8.0	May-99
Large Cap	178,520,983	25.3	24.0	-2.2	18.7	22.7	19.8	18.2	15.7	14.8	Dec-10
Rhumblin Advisors S&P 500 Index Fund	72,908,605	10.3	10.0	-0.7	23.1	27.9	20.3	17.8	16.0	9.6	Apr-97
S&P 500				-0.7	23.2	27.9	20.4	17.9	16.2	9.6	Apr-97
Coho Relative Value Equity	51,582,977	7.3	7.0	-3.2	9.7	12.7	11.3	12.1	--	12.1	Mar-16
Russell 1000 Value				-3.5	17.7	22.2	11.5	10.4	12.5	12.6	Mar-16
Polen Focused Growth	54,029,401	7.7	7.0	-3.4	20.8	24.7	27.6	25.1	--	22.2	Feb-16
Russell 1000 Growth				0.6	25.0	30.7	29.2	25.1	19.5	23.5	Feb-16
Small Cap	50,157,073	7.1	7.0	-4.3	14.3	23.6	15.2	14.0	13.7	13.3	Dec-10
Boston Partners Small Cap Value	24,764,205	3.5	3.5	-4.2	20.6	29.6	12.4	8.8	11.4	10.8	Feb-97
Russell 2000 Value				-3.4	23.2	33.0	11.5	9.1	11.8	9.4	Feb-97
Loomis Sayles Small Cap Growth	25,392,867	3.6	3.5	-4.5	7.4	16.9	17.4	18.7	15.7	7.8	Jan-97
Russell 2000 Growth				-4.9	2.4	11.9	16.1	14.7	14.1	7.9	Jan-97
Total Non-US Equity	133,330,731	18.9	19.0	-5.2	-0.3	4.9	9.9	9.5	6.5	4.8	Mar-99
International Equity	96,168,277	13.6	12.0	-5.5	1.0	6.2	11.6	10.6	7.4	4.6	Sep-05
SEG Baxter Street	40,351,265	5.7	5.0	-7.1	-1.5	2.4	11.9	11.3	--	10.5	May-16
MSCI ACWI ex USA				-4.5	3.5	9.1	9.9	9.3	6.7	8.2	May-16
Schroder International Alpha Trust Class 1	36,412,433	5.2	4.0	-3.9	7.7	14.3	15.7	13.7	--	8.4	Mar-12
MSCI ACWI ex USA				-4.5	3.5	9.1	9.9	9.3	6.7	5.7	Mar-12
Baillie Gifford International Growth Fund Class K	19,404,579	2.7	3.0	-6.0	-8.1	-3.0	--	--	--	9.4	Oct-20
MSCI ACWI ex USA				-4.5	3.5	9.1	9.9	9.3	6.7	17.9	Oct-20

Since inception return is 8.7% 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 transitioning to the CIT investment vehicle is linked to mutual fund performance history.

SEG Baxter Street is preliminary as of 11/30/2021, and is subject to change once finalized.



MWRA Employees' Retirement System

PRELIMINARY TOTAL FUND PERFORMANCE DETAIL (NET)

	Market Value (\$)	% of Portfolio	Policy %	1 Mo (%)	YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
Emerging Markets Equity	37,162,454	5.3	7.0	-4.0	--	--	--	--	--	-8.4	Mar-21
Axiom Emerging Markets Trust Class 2	21,162,454	3.0	7.0	-4.4	--	--	--	--	--	-8.8	Mar-21
<i>MSCI Emerging Markets</i>				-4.1	-4.3	2.7	9.3	9.5	5.2	-7.9	Mar-21
ABS Emerging Markets MA Fund	16,000,000	2.3		--	--	--	--	--	--	--	Dec-21
<i>MSCI Emerging Markets</i>				-4.1	-4.3	2.7	9.3	9.5	5.2	--	Dec-21
Total Fixed Income	163,244,052	23.1	24.0	-0.1	0.1	0.9	6.5	4.8	5.0	6.4	Mar-99
Garcia Hamilton Fixed Income Aggregate	38,984,903	5.5	6.0	0.3	-2.0	-1.9	4.6	--	--	3.8	Apr-18
<i>Bloomberg US Aggregate TR</i>				0.3	-1.3	-1.2	5.5	3.7	3.0	4.4	Apr-18
Lord Abbett Core Fixed Income	38,453,423	5.4	4.0	0.3	-0.6	-0.2	5.8	--	--	4.7	Apr-18
<i>Bloomberg US Aggregate TR</i>				0.3	-1.3	-1.2	5.5	3.7	3.0	4.4	Apr-18
Rhumbline TIPS	15,288,785	2.2	4.0	0.9	5.6	6.8	8.5	5.2	--	4.8	Jun-16
<i>Bloomberg US TIPS TR</i>				0.9	5.6	6.8	8.5	5.2	3.1	4.9	Jun-16
Loomis Sayles Multisector Full Discretion Trust	56,341,655	8.0	8.0	-0.9	-0.7	0.5	7.8	6.1	6.1	7.7	Mar-99
<i>Bloomberg US Aggregate TR</i>				0.3	-1.3	-1.2	5.5	3.7	3.0	4.7	Mar-99
<i>Bloomberg US High Yield TR</i>				-1.0	3.3	5.3	7.4	6.3	6.9	6.8	Mar-99
Octagon Senior Secured Credit Cayman Fund Ltd. - Class L Acc, Series 1	14,120,159	2.0	2.0	-0.3	3.3	4.8	--	--	--	4.0	Aug-19
<i>Credit Suisse Leveraged Loan</i>				-0.2	4.7	6.1	4.4	4.4	4.8	4.0	Aug-19
Invesco Mortgage Recovery Loans Feeder Fund	55,127	0.0		0.0	0.5	-0.7	0.3	0.4	6.4	11.0	Apr-10
<i>Bloomberg US Aggregate TR</i>				0.3	-1.3	-1.2	5.5	3.7	3.0	3.6	Apr-10
Total Hedge Fund	43,186,730	6.1	6.0	-0.8	7.6	11.3	7.1	5.3	4.8	3.8	Oct-06
PRIM Portfolio Completion Strategies	15,246,527	2.2		0.0	8.8	12.3	5.3	5.0	5.2	4.0	Oct-06
Corbin Pinehurst Partners	14,143,327	2.0		-2.4	9.6	14.7	10.4	--	--	9.9	Nov-18
<i>HFRI Fund of Funds Composite Index</i>				-1.2	6.1	10.0	7.8	5.9	4.5	7.5	Nov-18
UBS Neutral Alpha Strategies	13,059,927	1.9		-0.1	4.6	7.3	7.3	--	--	6.6	Nov-18
<i>HFRI Fund of Funds Composite Index</i>				-1.2	6.1	10.0	7.8	5.9	4.5	7.5	Nov-18
Entrust Peru Wind Down	736,948	0.1		-0.1	-2.3	1.7	-3.8	--	--	-3.7	Dec-17
<i>HFRI Fund of Funds Composite Index</i>				-1.2	6.1	10.0	7.8	5.9	4.5	5.4	Dec-17
Other	14,964,121	2.1	0.0	0.0	0.0	0.0	1.2	1.3	0.7	0.6	Dec-10
Cash Account	14,964,121	2.1		0.0	0.0	0.0	1.2	1.3	0.7	1.8	Feb-00
<i>91 Day T-Bills</i>				0.0	0.0	0.0	0.9	1.1	0.6	1.5	Feb-00

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, UBS Neutral Alpha Strategies, and Entrust Peru Wind Down are preliminary as of 11/30/2021 and are subject to change once finalized. ABS Emerging Markets MA Fund funded 11/26/2021.



MWRA Employees' Retirement System

PRELIMINARY TOTAL FUND PERFORMANCE DETAIL (NET)

	Market Value (\$)	% of Portfolio	Policy %	1 Mo (%)	YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
Total Real Estate	54,977,372	7.8	10.0	0.0	14.4	16.5	8.5	8.8	10.9	8.0	Apr-99
<i>NCREIF Property Index</i>				0.0	10.9	12.2	6.7	6.8	9.0	8.6	Apr-99
Morgan Stanley Prime Property (\$2.8m commitment in '95)	22,333,673	3.2		0.0	10.8	12.5	6.7	7.4	10.4	8.5	Sep-95
TA Realty Core Property Fund, LP (\$15m commitment in '19)	23,631,936	3.3		0.0	19.5	23.8	--	--	--	11.6	Jun-19
Invesco Mortgage Recovery II (\$3M commitment in '15)	980,562	0.1		0.0	10.5	-41.6	-13.3	-2.4	--	-1.3	Oct-15
Landmark VI (\$2m commitment in '11)	79,068	0.0		0.0	-3.5	-8.9	-13.7	-8.4	2.4	2.5	Jul-11
Landmark VIII (\$4m commitment in '17)	1,520,208	0.2		0.0	22.0	31.8	13.0	--	--	17.7	Nov-17
StepStone Real Estate Fund II (\$2m commitment in '11)	639,022	0.1		0.0	4.0	3.3	-3.1	0.7	--	2.5	May-12
Cerberus Institutional Real Estate Partners III (\$1.5m commitment in '12)	571,241	0.1		0.0	47.2	68.7	23.1	15.4	--	16.3	May-13
TA Realty Fund X LP (\$3.5m commitment in '12)	138,058	0.0		0.0	3.1	3.4	5.1	6.4	--	8.3	May-13
TerraCap Partners III, LP (\$2.6m commitment in '15)	1,600,833	0.2		0.0	2.5	4.8	5.9	10.1	--	9.7	Jul-15
TerraCap Partners IV, LP (\$4m commitment in '17)	3,444,942	0.5		0.0	6.1	9.7	9.1	--	--	9.3	Nov-17
Cerberus Institutional Real Estate Partners III AIV, S.C.A. SICAV-RAIF	37,830	0.0		0.0	--	--	--	--	--	-2.1	Mar-21
Total Private Equity	62,164,075	8.8	10.0	0.0	32.4	46.3	17.3	15.5	13.9	10.5	Apr-99
<i>CJA US All PE</i>				0.0	25.1	39.5	19.3	18.6	15.8	13.4	Apr-99
<i>NASDAQ W/O Income</i>				0.3	20.6	27.4	28.5	23.9	19.5	8.5	Apr-99
PRIM Vintage Year 2008 (\$3m commitment in '08)	1,037,340	0.1		0.0	29.4	47.3	16.4	20.8	19.6	10.1	Jun-08
PRIM Vintage Year 2009 (\$1m commitment in '09)	149,347	0.0		0.0	57.4	76.9	47.1	36.3	27.0	15.6	Nov-09
PRIM Vintage Year 2010 (\$1m commitment in '10)	742,229	0.1		0.0	87.3	105.1	34.9	32.2	23.5	15.3	Jun-10
PRIM Vintage Year 2011 (\$1.5m commitment in '11)	1,119,326	0.2		0.0	101.1	122.0	37.0	31.7	20.1	11.2	May-11
PRIM Vintage Year 2012 (\$1m commitment in '12)	887,550	0.1		0.0	44.2	55.2	30.5	27.7	--	-7.4	Jun-12
PRIM Vintage Year 2014 (\$2m commitment in '14)	2,467,734	0.3		0.0	46.3	56.4	30.9	28.9	--	8.9	Jun-14
PRIM Vintage Year 2017 (\$2m commitment in '17)	2,272,769	0.3		0.0	47.8	65.5	26.2	--	--	17.7	May-17
PRIM Vintage Year 2020 (\$5m commitment in '20)	1,632,314	0.2		0.0	26.6	37.6	--	--	--	20.3	Mar-20
PRIM Vintage Year 2021 (\$5m commitment in '21)	819,064	0.1		0.0	-0.2	-0.2	--	--	--	-0.2	Dec-20
Alcentra European DLF (\$5m commitment in '14)	223,422	0.0		0.0	71.4	74.5	16.8	13.6	--	12.1	Jan-15
Ascent Fund IV (\$2m commitment in '04)	6,399	0.0		0.0	-13.7	-15.7	-43.0	-34.5	-32.6	-21.1	Jul-04
Ascent Fund IV-B (\$1m commitment in '16)	115,240	0.0		0.0	-14.3	-20.9	-26.4	-16.3	--	-15.1	Jul-16
Ascent Fund V (\$2m commitment in '08)	2,107,352	0.3		0.0	25.7	29.7	4.3	2.8	7.7	5.9	Oct-08
Ascent VI (\$3m commitment in '15)	3,082,018	0.4		0.0	3.5	4.0	-1.9	5.2	--	0.9	Dec-15
CVI Credit Value Fund IV A LP (\$6m commitment in '17)	5,684,654	0.8		0.0	12.2	18.5	6.4	--	--	6.1	Dec-17

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.



MWRA Employees' Retirement System

PRELIMINARY TOTAL FUND PERFORMANCE DETAIL (NET)

	Market Value (\$)	% of Portfolio	Policy %	1 Mo (%)	YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
Invesco Fund VI (\$5m commitment in '13)	1,006,238	0.1		0.0	37.5	72.0	31.9	25.3	--	20.3	Jul-13
Kayne Energy Fund VII (\$5m commitment in '15)	1,798,420	0.3		0.0	44.9	20.4	-36.9	-18.0	--	-12.0	Jan-16
Foundry 2007 (\$3m commitment in '07)	493,302	0.1		0.0	53.7	138.5	-9.6	-2.7	8.5	21.1	Dec-07
Foundry 2010 (\$3m commitment in '10)	6,643,950	0.9		0.0	78.3	80.9	31.4	24.5	18.4	15.2	Jan-11
Foundry 2010 Annex (\$0.4m commitment in '15)	1,191,633	0.2		0.0	200.5	251.4	106.6	72.9	--	51.1	Sep-15
Pinebridge PEP V (\$6m commitment in '07)	886,598	0.1		0.0	3.8	19.3	7.5	5.6	9.8	--	Mar-08
Landmark XV (\$3m commitment in '13)	1,432,551	0.2		0.0	12.7	49.6	12.5	15.1	--	14.6	Nov-13
JFL Equity Investors IV, L.P. (\$6m commitment in '16)	2,004,605	0.3		0.0	44.2	77.2	50.5	--	--	41.0	Jan-17
Private Advisors Small Co. Coinvestment Fund, LP (\$4m commitment in '17)	4,871,120	0.7		0.0	20.8	32.1	27.2	--	--	21.6	Feb-17
Park Square Credit Opportunities III (\$3m commitment in '17)	2,613,621	0.4		0.0	5.6	8.1	8.9	--	--	6.7	Feb-18
Ironsides Constitution Opportunities (\$3m commitment in '18)	2,396,526	0.3		0.0	11.0	17.3	13.8	--	--	13.1	Oct-18
HarbourVest Dover Street X (\$9m commitment in '20)	4,184,308	0.6		0.0	30.1	42.5	--	--	--	89.8	Jun-20
Hamilton Lane Secondary Fund V LP (\$9m commitment in '20)	5,679,333	0.8		0.0	29.3	50.6	--	--	--	43.5	Jul-20
JFL Equity Investors V, L.P. (\$9m commitment in '20)	4,615,112	0.7		0.0	-4.7	-7.2	--	--	--	-11.8	Sep-20
<i>Private Equity Benchmark (1 Qtr. Lag)</i>				0.0	39.5	53.9	20.8	19.5	15.3	51.8	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.



MWRA Employees' Retirement System

ESTIMATED FEE SCHEDULE

Account	Fee Schedule	Market Value As of 11/30/2021	% of Portfolio	Estimated Annual Fee (\$)	Estimated Annual Fee (%)
PRIT Core Fund	0.49% of Assets	\$5,347,001	0.8%	\$26,200	0.49%
Rhumblin Advisors S&P 500 Index Fund	0.05% of Assets	\$72,908,605	10.3%	\$36,454	0.05%
Coho Relative Value Equity	0.50% of First 75.0 Mil, 0.40% of Next 75.0 Mil, 0.35% Thereafter	\$51,582,977	7.3%	\$257,915	0.50%
Polen Focused Growth	0.65% of Assets	\$54,029,401	7.7%	\$351,191	0.65%
Boston Partners Small Cap Value	1.00% of Assets	\$24,764,205	3.5%	\$247,642	1.00%
Loomis Sayles Small Cap Growth SEG Baxter Street	0.45% of Assets	\$25,392,867	3.6%	\$114,268	0.45%
Schroder International Alpha Trust Class 1	1.00% of Assets	\$40,351,265	5.7%	\$403,513	1.00%
Baillie Gifford International Growth Fund Class K	0.55% of Assets	\$36,412,433	5.2%	\$200,268	0.55%
Axiom Emerging Markets Trust Class 2	0.60% of Assets	\$19,404,579	2.7%	\$116,427	0.60%
ABS Emerging Markets MA Fund	0.73% of Assets	\$21,162,454	3.0%	\$154,486	0.73%
Garcia Hamilton Fixed Income Aggregate	No Fee	\$16,000,000	2.3%	--	--
Lord Abbett Core Fixed Income	Performance-based 0.13 and 15.00	\$38,984,903	5.5%	\$48,731	0.13%
Rhumblin TIPS Pooled Index Fund	0.19% of Assets	\$38,453,423	5.4%	\$73,062	0.19%
Loomis Sayles Multisector Full Discretion Trust	0.04% of Assets	\$15,288,785	2.2%	\$6,116	0.04%
Octagon Senior Secured Credit Cayman Fund Ltd. - Class L Acc, Series 1	0.50% of First 20.0 Mil, 0.40% of Next 20.0 Mil, 0.30% Thereafter	\$56,341,655	8.0%	\$229,025	0.41%
Octagon Senior Secured Credit Cayman Fund Ltd. - Class L Acc, Series 1	0.40% of Assets	\$14,120,159	2.0%	\$56,481	0.40%
Invesco Mortgage Recovery Loans Feeder Fund	No Fee	\$55,127	0.0%	--	--
PRIM Portfolio Completion Strategies	No Fee	\$15,246,527	2.2%	--	--
Corbin Pinehurst Partners	0.85% of Assets	\$14,143,327	2.0%	\$120,218	0.85%
UBS Neutral Alpha Strategies	0.90% of Assets	\$13,059,927	1.9%	\$117,539	0.90%
Entrust Peru Wind Down	0.50% of Assets	\$736,948	0.1%	\$3,685	0.50%
Cash Account	No Fee	\$14,964,121	2.1%	--	--
Morgan Stanley Prime Property (\$2.8m commitment in '95)	No Fee	\$22,333,673	3.2%	--	--
TA Realty Core Property Fund, LP (\$15m commitment in '19)	No Fee	\$23,631,936	3.3%	--	--
Invesco Mortgage Recovery II (\$3M commitment in '15)	No Fee	\$980,562	0.1%	--	--
Landmark VI (\$2m commitment in '11)	No Fee	\$79,068	0.0%	--	--



MWRA Employees' Retirement System

ESTIMATED FEE SCHEDULE

Account	Fee Schedule	Market Value As of 11/30/2021	% of Portfolio	Estimated Annual Fee (\$)	Estimated Annual Fee (%)
Landmark VIII (\$4m commitment in '17)	No Fee	\$1,520,208	0.2%	--	--
StepStone Real Estate Fund II (\$2m commitment in '11)	No Fee	\$639,022	0.1%	--	--
Cerberus Institutional Real Estate Partners III (\$1.5m commitment in '12)	No Fee	\$571,241	0.1%	--	--
TA Realty Fund X LP (\$3.5m commitment in '12)	No Fee	\$138,058	0.0%	--	--
TerraCap Partners III, LP (\$2.6m commitment in '15)	No Fee	\$1,600,833	0.2%	--	--
TerraCap Partners IV, LP (\$4m commitment in '17)	No Fee	\$3,444,942	0.5%	--	--
Cerberus Institutional Real Estate Partners III AIV, S.C.A. SICAV-RAIF	No Fee	\$37,830	0.0%	--	--
PRIM Vintage Year 2008 (\$3m commitment in '08)	No Fee	\$1,037,340	0.1%	--	--
PRIM Vintage Year 2009 (\$1m commitment in '09)	No Fee	\$149,347	0.0%	--	--
PRIM Vintage Year 2010 (\$1m commitment in '10)	No Fee	\$742,229	0.1%	--	--
PRIM Vintage Year 2011 (\$1.5m commitment in '11)	No Fee	\$1,119,326	0.2%	--	--
PRIM Vintage Year 2012 (\$1m commitment in '12)	No Fee	\$887,550	0.1%	--	--
PRIM Vintage Year 2014 (\$2m commitment in '14)	No Fee	\$2,467,734	0.3%	--	--
PRIM Vintage Year 2017 (\$2m commitment in '17)	No Fee	\$2,272,769	0.3%	--	--
PRIM Vintage Year 2020 (\$5m commitment in '20)	No Fee	\$1,632,314	0.2%	--	--
PRIM Vintage Year 2021 (\$5m commitment in '21)	No Fee	\$819,064	0.1%	--	--
Alcentra European DLF (\$5m commitment in '14)	No Fee	\$223,422	0.0%	--	--
Ascent Fund IV (\$2m commitment in '04)	No Fee	\$6,399	0.0%	--	--
Ascent Fund IV-B (\$1m commitment in '16)	No Fee	\$115,240	0.0%	--	--
Ascent Fund V (\$2m commitment in '08)	No Fee	\$2,107,352	0.3%	--	--
Ascent VI (\$3m commitment in '15)	No Fee	\$3,082,018	0.4%	--	--
CVI Credit Value Fund IV A LP (\$6m commitment in '17)	No Fee	\$5,684,654	0.8%	--	--
Invesco Fund VI (\$5m commitment in '13)	No Fee	\$1,006,238	0.1%	--	--
Kayne Energy Fund VII (\$5m commitment in '15)	No Fee	\$1,798,420	0.3%	--	--
Foundry 2007 (\$3m commitment in '07)	No Fee	\$493,302	0.1%	--	--
Foundry 2010 (\$3m commitment in '10)	No Fee	\$6,643,950	0.9%	--	--
Foundry 2010 Annex (\$0.4m commitment in '15)	No Fee	\$1,191,633	0.2%	--	--
Pinebridge (AIG) PEP V Asia (\$6m commitment in '07)	No Fee	\$57,954	0.0%	--	--
Pinebridge (AIG) PEP V Co-Investment (\$6m commitment in '07)	No Fee	\$73,068	0.0%	--	--



MWRA Employees' Retirement System

ESTIMATED FEE SCHEDULE

Account	Fee Schedule	Market Value As of 11/30/2021	% of Portfolio	Estimated Annual Fee (\$)	Estimated Annual Fee (%)
Pinebridge (AIG) PEP V Europe (\$6m commitment in '07)	No Fee	\$22,763	0.0%	--	--
Pinebridge (AIG) PEP V Large Market US Buyout (\$6m commitment in '07)	No Fee	\$162,454	0.0%	--	--
Pinebridge (AIG) PEP V Preferred Participation Fund (\$6m commitment in '07)	No Fee	\$317,237	0.0%	--	--
Pinebridge (AIG) PEP V Secondary (\$6m commitment in '07)	No Fee	\$36,133	0.0%	--	--
Pinebridge (AIG) PEP V Small-Mid Market US Buyout (\$6m commitment in '07)	No Fee	\$113,328	0.0%	--	--
Pinebridge (AIG) PEP V US Venture (\$6m commitment in '07)	No Fee	\$103,661	0.0%	--	--
Landmark XV (\$3m commitment in '13)	No Fee	\$1,432,551	0.2%	--	--
JFL Equity Investors IV, L.P. (\$6m commitment in '16)	No Fee	\$2,004,605	0.3%	--	--
Private Advisors Small Co. Coinvestment Fund, LP (\$4m commitment in '17)	No Fee	\$4,871,120	0.7%	--	--
Park Square Credit Opportunities III (\$3m commitment in '17)	No Fee	\$2,613,621	0.4%	--	--
Ironsides Constitution Opportunities (\$3m commitment in '18)	No Fee	\$2,396,526	0.3%	--	--
HarbourVest Dover Street X (\$9m commitment in '20)	No Fee	\$4,184,308	0.6%	--	--
Hamilton Lane Secondary Fund V LP (\$9m commitment in '20)	No Fee	\$5,679,333	0.8%	--	--
JFL Equity Investors V, L.P. (\$9m commitment in '20)	No Fee	\$4,615,112	0.7%	--	--
Investment Management Fee		\$705,892,137	100.0%	\$2,563,221	0.36%

Estimate fee for privates are ~\$1,556,212 annually, which brings the total expense ratio for privates to ~20 bps. This brings the total estimated expense ratio for MWRA to ~ 57bps.



MWRA Employees' Retirement System

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 7.1% for the current month.
- 4 - Preliminary Total Composite gross of fee since inception return is 8.7% for the current month.
- 5 - Targets, Allocation Index, and Policy Index have been updated to reflect new allocation of 06/01/2020.
- 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, 10% Bloomberg US Aggregate TR, 4% Bloomberg US TIPS TR, 10% Bloomberg US Universal TR, 10% NCREIF Property Index, 10% CJA US All PE , 6% HFRI Fund of Funds Composite Index.
- 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.

This report may contain confidential or proprietary information and may not be copied or redistributed to any party not legally entitled to receive it.

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



The MWRA Employees' Retirement System Value-Add Real Estate Request for Proposals

The Massachusetts Water Resource Authority Employees' Retirement System (the "System") is soliciting proposals from investment firms to manage a **real estate** mandate for the System's \$650 million, defined benefit pension fund. To be considered, candidates must be raising a private closed-end value-add real estate fund. The System anticipates committing approximately \$20 million for this mandate. REITs, fund of funds, secondaries and open-end strategies will not be considered.

In order to be considered, candidates must meet the following criteria:

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. Please refer to the links provided below for further investment guideline information.
<https://malegislature.gov/Laws/SessionLaws/Acts/2011/Chapter176>
<https://malegislature.gov/Laws/GeneralLaws/PartI/TitleIV/Chapter32>
2. Candidates must be registered with the Securities and Exchange Commission or with the Secretary of State where the firm is domiciled.
3. Candidates must read and agree to the attached side letter pertaining to mandatory contractual language, based on the guidelines above.
4. Preference will be given to candidates that have raised at least one prior fund for the proposed strategy, however, this is subject to the Boards discretion.
5. The final close date of the proposed fund must be no earlier than May 31, 2022.
6. It is preferred that the proposed fund is raising at least \$200 million, however, lower amounts may be considered at the Boards discretion.
7. Candidates must complete the attached RFI, along with each appendix, with data through 9-30-2021 or most recent available. Incomplete responses may be rejected.

By submitting a formal response to this RFP, the Manager acknowledges that the Investor, MWRA Employees' Retirement System, is bound by both Massachusetts Open Meeting Law as governed by Massachusetts General Laws Chapter 30A § 18-25 and 940 CMR 29.00, and the Massachusetts Public Records Law as governed by Massachusetts General Laws Chapter 66 and 950 CMR 32.00. All materials submitted in connection with this search may be subject to disclosure consistent with Massachusetts Public Records Law.

To access the RFP and required forms, please visit the website of NEPC, LLC at www.nepc.com/institutional/investment-managers/. The Board reserves the right to cancel or reject in whole or part, any or all proposals in the best interest of the System.

All questions should be directed via email to the following contact (no phone calls please). **All proposals must be submitted via email to MWRAsearch@nepc.com by 5:00pm EDT on Monday, January 17th, 2022.** Proposals received after the deadline will not be considered. Thank you in advance for your participation in this search.

PERAC

COMMONWEALTH OF MASSACHUSETTS | PUBLIC EMPLOYEE RETIREMENT ADMINISTRATION COMMISSION

PHILIP Y. BROWN, ESQ., *Chairman*

JOHN W. PARSONS, ESQ., *Executive Director*

Auditor SUZANNE M. BUMP | KATHLEEN M. FALLON | KATE FITZPATRICK | JAMES M. MACHADO | RICHARD MACKINNON, JR. | JENNIFER F. SULLIVAN

MEMORANDUM

TO: All Retirement Boards

FROM: John W. Parsons, Esq., Executive Director

RE: Cybersecurity and Internal Controls

DATE: December 2, 2021



The threat of cybersecurity intrusions into personal and professional devices and IT systems has become increasingly frequent and varied. Despite the best efforts of entities large and small to protect their data and assets, successful attacks continue to occur. In prior PERAC Memorandums, most recently on October 26, 2021, PERAC has alerted retirement boards to hackers posing as individual members, board vendors, and even board employees. While PERAC, MACRS and retirement boards have all placed additional emphasis on cybersecurity in the recent past, it is clear that more needs to be done. Due to this ongoing proliferation of illicit hacking activity, PERAC is hereby announcing a number of additional steps and initiatives aimed at maximizing security and awareness of the vulnerability of system assets and protected information. While we anticipate that certain actions outlined below will be memorialized in regulation in 2022, all board actions called for below are effective as of the date of this memorandum.

1. Any attempted or successful cyber intrusion into a system's network, email or databases, or unauthorized activity by a third party, shall immediately be reported to PERAC. This will enable PERAC to assist the retirement board and bring valuable security information to all retirement boards in a timely manner.
2. Boards should seek an immediate assessment of their IT environment in conjunction with their IT service provider. Whether the board's IT services are received through a municipality or by independent contract, it is incumbent upon the board to assess and maintain a secure IT environment consistent with present-day security features.
3. In the first quarter of 2022, PERAC will be hosting a comprehensive cybersecurity awareness program for board members and staff, featuring experts from Massachusetts' oversight agencies. All retirement system staff and board members are strongly encouraged to attend.



MEMORANDUM – Page 2

TO: All Retirement Boards
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4. Also beginning in the first quarter of 2022, PERAC's education program for boards and staff will feature the development of an Internal Control Plan ("ICP") at each retirement board. In addition to the training program, PERAC will provide boards with a sample ICP that can be adapted to a board's personnel structure. Increased emphasis during PERAC audits will be placed on internal control processes relative to IT security, investment transactions, cash management, and retirement functions such as calculations, buy backs, etc.

We have also included a link to cybersecurity guidance, developed specifically for pension plan sponsors, fiduciaries, and participants, and published by the Department of Labor earlier this year. This guidance addresses 3 specific areas; Hiring a Service Provider, Cybersecurity Program Best Practices, and Online Security Tips. www.dol.gov/newsroom/releases/ebsa/ebsa20210414.

In summary, strong IT security and internal controls are the best remedy to combat the extensive efforts being made to compromise our systems. We urge all boards to prioritize this effort and work with PERAC and your municipalities to safeguard our information and assets. Our collective, coordinated initiatives are critical to maximizing this effort.