MINUTES OF BOSTON RETIREMENT BOARD

Administrative Session

December 18, 2019

Boston Retirement Board, Room 716

Boston, Massachusetts 02201

TRUSTEES IN ATTENDANCE: Daniel J. Greene, Mayoral Appointed Member (Chairman); Maureen A. Joyce, *Ex Officio* Member; Thomas V.J. Jackson, Fifth Member; Michael W. McLaughlin (Remotely present) Elected Member; Michael D. O'Reilly, Elected Member.

STAFF IN ATTENDANCE: Timothy J. Smyth, Executive Officer; Padraic P. Lydon, General Counsel; John F. Kelly, Investment Analyst; Ellen M. McCarthy, Comptroller; Gregory Molina, Board Secretary.

ALSO IN ATTENDANCE: Will Forde, Michael Manning, Kiley Fischer of NEPC; Michael Coffey, David Olney, Jon Frey of Berkshire Residential Investments; Thomas Hynes, Alasdair Cripps of Mesirow Financial; Jonathan Davis, Quentin Reynolds of Davis Investment Ventures; Thomas Landry, James Raisides of TA Realty; William Oates, Michael Dwyer, Consultants.

Administrative Session Convene

The Board voted unanimously via roll call (5-0) to enter into Administrative Session at approximately 10:05 a.m. Roll Call Vote: Chairman Greene; Aye, Member Jackson; Aye, Member O'Reilly; Aye, Member McLaughlin; Aye, Member Joyce; Aye. All in attendance were identified for the record and introductions were made.

Previous Minutes

No minutes were presented. November 2019 Minutes will be voted to approve at January Board meeting.

Outstanding/Ongoing Administrative Issues: Timothy J. Smyth, Executive Officer

IT Update

Mr. Oates opened by giving the Board Members an update of the steps that have been taken since the November Board meeting.

Vitech V10 Proposal – Vitech Had committed to the BRs to come back with a new proposal to upgrade to V10. We did receive the proposal on December 8th, 2019. In the proposal they have added some value added consulting services which they felt were helpful for BRs to get more value out of their system. Unfortunately they did not address the price. So the proposal came back the same form a price perspective, roughly $13.6M over seven years. We quickly, with the support of BRS management, rejected that proposal and told them that they missed the boat on pricing. They quickly re-submitted a new proposal on December 10, 2019. That brought the cost down to approximately $12.1M, a reduction of about $1.5M. The kept the value added services, which we value at about $0.5M. They did remove some of the subsequent upgrades to the software system that they had originally proposed. So they did take something out so the only thing included in that proposal was the initial upgrade to their version V10. W

PTG – With Mr. Dwyer's support progress has been made with the Pension Technology Group. (PTG) A meeting was held here at City Hall on December 12, 2019 with an expanded group of BRS staff as well as staff from PTG where they did a technical demonstration and some functionality demonstrations for the teams. Once again, PTG presented themselves very well. We also pushed them for some pricing so we could have some comparison. Now they understood a little more about our environment. PTG did us their initial proposal on December 16, 2019. Their price is approximately $6.5M over Seven years. At this point we have Vitech at $12.1 with $0.5M of extra service and PTG at $6.5M. We do believe that although PTG has done a nice job of understanding our requirements they haven't responded to any detailed specs. There is probably 20% plus or minus, more likely plus on the PTG side.

Where we stand right now on the two proposals, our recommendation is that on the Vitech side is to go back one more time for a best and final with Vitech to see if there is any room there. Ms. McCarthy has done a great job drafting a counter proposal for Vitech. We have not issued yet, we wanted to get the PTG price in front of us first. Which hopefully will lead to a better proposal and potentially have them come in and present that to the Board. We are still a very different customer than what they're used to having so we want to dig a little deeper into their functionality. We'll be proposing some work shops that they are installed in a number of Massachusetts Boards. Talk to some Board Directors to talk to us about PTG. Ms. Pizzarella and I are meeting with the CIO from the City of Boston (COB) to get a working group from DoIt to help us go both PTG and Vitech to dig a little deeper into their technical infrastructure. Of the $12.1 Vitech proposal about $2.1 of that is to mo0ve to the cloud on Amazon Web services. We will challenge PTG with some type of proof of concept. We would love to have Vitech take the handcuffs off with NTRS who is also a V3 user who are on their way to this V10 upgrade.

Board Member Jackson asked about potential timeline. Mr. Oates responded by stating that they expect all final proposals to be ready to move forward within 60 days. If the BRS decides to move away from Vitech, negotiations regarding transition support need to be held. Member Joyce asked about implantation timeline. Mr. Oates answered that he sees kickoff being an 18-24 month process. Mr. Dwyer stated that PTG sees a timeline of 12-15 months. PTG in its last demonstration showed over 200 screens that are Chapter 32 compliant. Mr. Smyth asked if the consultants thought that PTG may have room in their asking price to come down in pricing. Mr. Oates stated that due to the complexity and unfamiliarity with the BRS that he sees them going a little north on pricing. Mr. Oates feels they may have to go up 10% to 20%.

A discussion was held regarding reaching out to current PTG clients and pension Boards to compare services and commonalities.

Cybersecurity – Mr. Smith presented to the Board the three proposals submitted for cybersecurity services for the BRS. He stated that AIG and Travelers quotes are remarkably similar. Both have $2M limits, both have retention of $20 thousand dollars. The premium of AIG is $20, 288.00, Travelers is $23, 961.00. When you get to Loyds, it is far different. They offer four different options, they offer $1M, $2M, $3M and $5M limits. The premiums range from $6,150.00 up to $9, 967 for the $5M policy. The retention at Loyds is $10, 000.00, half of the other two. The glaring difference that Mr. Smyth sees is that as far the response team, you have to get preapproved vendors and they reimburse the BRS. With Travelers and AIG they have their own staffed response teams.

Motion made, and seconded, to contract Loyds of London for option four $5M limits accept as presented the proposed meeting dates and standard agenda for calendar year 2020 as presented for software liability insurance. Member O'Reilly was not audible when vote taken.

Motion accepted (4-0)

Mr. Oates stated that a meeting will be held today with COB's CIO and one of the agenda items will be cybersecurity. Mr. Oates wants to make sure that the infrastructure is discussed with some changes that may come. There will be discussions pertaining to roles and responsibilities regarding cyber the COB and the BRS as well as internet response and other topics. Mr. Oates will coordinate efforts with Lloyd's. Ms. Joyce inquired if the BRS staff has taken part in the COB's cybersecurity trainings. Mr. Smyth indicated that BRS has 100% participation.

Documents Presented

- IT update memo, Pension Software Options Comparison, V3-V3locity Proposal, PTG BRS Project Fee Proposal, AIG Boston 2019 quote, AIG Boston 2019 quote and Travelers Quote.

Outstanding/Ongoing Investment Issues: John Kelly, Investment Analyst

Value-Add Real Estate Search

Mr. Manning opened by providing a recap of the strategies in the Manager search for Value-Add Real Estate investments. As a reminder we have four Managers coming in, this is for the 2019-2020 search to invest $100M in total. We did $40M last month with AEW and Sculptor in the opportunistic space. We talked about $40M for this space and $20M in Real Estate Debt. Today we have four managers with really two different strategies. The first two Berkshire and Mesirow focus on multifamily, where Davis and TA Realty are more traditional value add diversified players. Berkshire and Davis tend to be more return focused whereas the other two firms tend to be more conservative. They are taking less debt, not doing much in development and striving for more of a consistent return stream.

Berkshire Residential Investments

Mr. Coffey opened by introducing his colleagues, providing an over view of the firm and outlining the strategy around Berkshire Value Fund V. The firm is targeting to acquire $500 million of capital commitments with an initiated rolling first close in November 2019. Berkshire is looking to construct a diversified portfolio across the U.S. rental housing spectrum with a primary focus on middle-income apartments. The targeted risk-adjusted returns are of 14%–16% (12%–14% net). We would like to invest with a vertically-integrated, rental housing sector specialist. A key benefit is Berkshire's dedicated in-house property management. The firm offers a compelling fee economics for NEPC clients participating in the rolling first close.

Mr. Olney went on to outline that the firm is an innovative, vertically-integrated real estate investment manager with over one-half of a century of experience stewarding capital through several economic cycles. Berkshire is a U.S. residential real estate specialist offering a breadth of investment solutions across the risk spectrum. We are privately-held company with an investor-centric approach Leading-edge owner-operator model that drives investor value. The firm is an in-house economic and market research company with a commitment to sustainability. (member of GRESB) Berkshire has five offices with headquarters in Boston with 267,000 Units owned, managed & overseen and 77 investors totaling $8.8B in assets.

On the topic of the current middle income housing challenge, Mr. Olney stated that recent supply generally focused on upper-income renters. Meanwhile, middle-income households comprised the largest share of growth. The result is a material supply/demand imbalance, creating an apartment unit shortage of over 200 thousand apartments. Over the Last 5 Years, 68% of supply has targeted the upper income renters while only 29% has targeted the middle income renters. The highest percentage on the demand side is for middle income apartments at 51% while the lower income segment is coming in at 32%

Mr. Frey presented on the Fund V investment opportunity. Berkshire is focusing on controlled-risk investments across the spectrum of U.S. residential housing. The firm is looking to acquire below replacement cost, well-built assets with predictable capital requirements. Berkshire has the ability to generate durable cash flows with growth potential. Invest in structured transactions across the capital stack and pursue select development, targeting middle income renters. We target U.S. markets and sectors with supply/demand imbalances that are poised to outperform on a relative basis. Berkshire utilizes its operating and development skills to drive innovation and sustainability and create value. We use a prudent combination of fixed-and floating-rate debt, no more than 65% across the portfolio.

It was noted that 15-20% of the fund will be invested in the Niche Residential Sectors. This sector will capitalize on demographic trends the aging of the U.S. population and need for more affordable housing. This is meant to target a return premium to market-rate apartment investing. Berkshire employees do all the maintenance, rehabbing, leasing and management for all their properties. Mr. Coffey concluded by stating that across its value funds, Berkshire has acquired approximately $5.3 billion of residential real estate in 150 equity, development and debt investments. Distributions are 8% preferred return to Partners with an 80%/20% split to Partners/General Partner thereafter; no catch-up. The Berkshire management Fee is 1.25% on committed capital; 1.5% on invested equity.

Documents Presented

- Berkshire Value Fund V Presentation

Mesirow Financial

Mr. Hynes opened by introducing himself and Chief Executive Officer, Alasdair Cripps. Mesirow is an independent and diversified financial services firm with expertise in Investment Management and Global Markets. The firm was founded in 1937 -employee-owned and privately-held. Its headquarters are in Chicago with approximately 487 employees globally in offices across the United States, London and Hong Kong.

They market themselves as a premier provider of alternative investment management solutions with total firm assets under management of $30.7 billion and an additional $93.9 billion in currency risk management assets as of September 30, 2019. The firm prides itself on a deep infrastructure in areas such as: client service, legal & compliance, IT, human resources, communications, economic research and accounting.

The current offering of Mesirow Financial Real Estate Value Fund IV, L.P. ("Fund IV") is to target of $750 million (with a hard cap of $1.0 billion) value-added commingled real estate fund focused primarily on the U.S. multifamily sector and with a secondary focus on the student housing sector. The target Returns are 12% -15% gross of fees and expenses 10% -12% net of fees and expenses.

Currently the national apartment vacancy at September 30, 2019 is 4.7%. There are some strong operating fundamentals. Multifamily fundamentals remained strong to-date in 2019, in June 30, 2019 occupancy closed 110 bps over the LTA of 94.5%. Rent growth closed 40 bps over the LTA at 3.3%, the third wave of rent momentum recorded this cycle post 2010 and a 2015 high of 3.5%.

Some of the attractive demographic trends are that renting momentum has increased for all cohorts under the age of 65. Household heads aged 60-65 registered a rental choice increase of 43% between 2010 –2017. The transition from rentership to ownership is not the right of passage it was once considered to be nor as easily achieved. The Annual U.S. household growth topped the 1.5 million mark in 2018.

Chairman Greene asked if there was a geographic focus by Mesirow. Mr. Cripps indicated that the firm looks at roughly 90 markets and focuses on 12-13. The current target markets states are California, Washington, Oregon, Utah, Colorado, Minnesota, Texas, Illinois, Florida, Georgia, South Carolina, North Carolina, Maryland, Pennsylvania, New York and Massachusetts.

Documents Presented

- Mesirow Value Fund IV Presentation

Davis Investment Ventures

Mr. Davis opened by introducing himself and his associate Mr. Reynolds. Mr. Davis went on to give an overview of firm. Davis is a Boston-based investment manager with a 43-year history of investing across cycles. We have been successful in good and bad markets. In fact some our biggest successes have come in periods of distress. We capitalize in markets of change. We all know that there has been great change in the Boston market today. Historically from 1976 to 2009, Davis's activities have been focused exclusively in the Boston market.

Davis got into the fund management business at the height of the global financial crisis in 2009. Since 2009 we have raised four funds. Our first three funds have done very well and we are about two thirds of the way through raising our fourth fund which is a $650M fund. Before going into the fund management business we were solely focused on eastern Massachusetts. We have grown a little broader to cover the north and southeast and at least half of what we do is in the Boston area.

Davis has also been a significant developer in the market, developing 8.5M square feet of property, 23M square feet across 200 investments and $6.2B capital invested since inception. The majority of the developments are in office, multifamily and condo spaces. We are very proud in the way we have worked collaboratively with local elected officials and neighborhood groups and planning agencies in order to find solutions and make neighborhoods better and increase in value. A couple of projects you may be familiar with 100 Shawmut Street in the South End, we've been very active in the Allston/Brighton area of Boston and we are the developers of the new convention center hotel.

Mr. Reynolds stated that the Fund IV Investment themes are to capitalize on new demand driven by intellectual capital, innovation, and population flows. Focusing on Innovation Centers, Life Science, and R&D. Provide modern work, research, and lab space for companies located in growing intellectual/knowledge hubs. Residential repositioning and development. We target middle-income residential projects that appeal to evolving preferences of Millennials and Baby Boomers in growing urban areas. We also focus on distribution and storage by acquiring and developing warehouse and industrial space that benefits from expanding ecommerce, changing consumer demographics, and technological disruption

DIV Fund IV: Summary of Key Terms are; target fund size is $650M; $475M closed through November 2019. Minimum commitment size is $1M. Investment period is four (4) years from final closing, subject to one additional one-year extension with the approval of the Advisory Board. The term is eight (8) years from final closing. Preferred return of 8% per annum, compounded annually with a management fee of 1.5% on committed capital during the Investment Period, 1.5% on invested capital thereafter.

Discussions were held with Board regarding the positive rate of return on previous funds. Davis's goal is achieve a 14-16% net return and 6 -17 net multiple on invested capital.

Documents Presented

- Davis Fund IV Presentation

TA Realty

Mr. Landry opened by introducing himself, Mr. Raisides went on to introduce himself. Mr. Landry gave an overview of the firm. TA Realty is among the largest and most experienced private real estate advisors in the United States.

Since its founding in 1982, TA Realty has managed approximately $31.41 billion of real estate assets through its series of commingled funds and customized separate accounts. TA has approximately $10.4 billion of gross assets under management as of September 30, 2019. 23 Partners have an average of approximately 29 years of real estate experience and an average tenure at TA Realty of approximately 17 years. Currently conducting closings for the 12th in our series of commingled value-add funds; open through February 2020.

TA Realty has an established track record of creating diversified, value-added real estate funds delivering attractive risk-adjusted returns. U.S. based, focused on primary markets with emphasis on coasts, 25 markets across the U.S. TA property diversification is in, Industrial, Office, Multifamily and grocery-anchored Retail. Our primary focus is on Industrial: 45% allocation target.

Our average deal size is approximately $25M which allows for better yield from an inefficient market. They have a hands-on asset management team with deep property level operating expertise through multiple cycles. TA's proactive management of tenant and industry exposure minimizes industry or tenant concentration. Our over 35 year history of relationships enables access to off market deals. One of the things that TA prides itself on is our position of doing no joint ventures. That eliminates the need for extra fees and avoids potential misalignments.

As of September 30, 2019 they have successfully managed twelve funds. Nine have been liquidated and funds 10, 11 and 12 are currently active. TA carries a disciplined approach employing similar structure, strategy and execution as 11 prior funds. Diversification is critical tenet of portfolio construction techniques: property type, geographic markets, number of investments, tenancy and lease rollover and economic considerations. They execute value-added strategies converting to cash flow as quickly as possible. The current environment provides the opportunity to acquire quality assets at favorable pricing.

Fund XII's current status is approximately $960 MM in closed and committed capital. The Target Gross IRR of 12-14% with a strong income component is consistent and reliable for quarterly distributions. It has closed $500 MM Subscription Line Facility priced at LIBOR +125 basis points and rolling closings will be conducted through February 2020. The funds target diversification is primarily in industrial space; 45% with 35% in office space.

Fund XII's objective is to achieve attractive risk-adjusted investment returns through the acquisition of a well-diversified real estate portfolio, with prudent use of leverage. The target return is 12-14% Gross IRR. (Before management fees and carried interest) The funds capital commitments targets $1.25 billion in aggregate capital commitments. The minimum commitment: $5.0M, subject to lesser amounts, at the discretion of the Sponsor General Partner with an investment period of two years from the final closing date. The terms are for seven years from either the date the capital is at least 90% invested or committed, or expiration of the Capital Call Period. Management fees are 0.50% in year one, 0.85% in year two, 1.15% in year three, all based on Capital Commitments; then 1.20% in year four, 1.25% in year five, 1.20% in year six, 1.00% in year seven and 0.60% thereafter, all based on Aggregate Invested Equity.

<u>Documents Presented</u>

- TA Realty Fund XII Presentation

The Board and NEPC staff discussed rate of returns, investment strategies and fees of all the firms, fund allocations and distribution.

Motion made, and seconded, to hire Berkshire Value Fund V for $20M, TA Realty Associates Fund XII for $20M and Davis Fund IV for $10M as a part of the real estate open ended search.

Motion accepted (5-0)

Private Markets

Mr. Manning stated that the goal of the pacing plan is to highlight areas of focus within the Private Markets and determine the annual commitment amounts for the System. In 2018, the private equity and credit targets were increased to 7% and 4% respectively. The 2% target increase to both private equity and credit will result in higher commitment amounts moving forward.

NEPC recommends that the System considers a $210-$240M allocation to Hamilton Lane for the three year period (2020–2022). $70-$80M per year

NEPC also recommends committing $170 million to Private Markets for vintage year 2020 –$70-$80M to Hamilton Lane. $30-$40M to Other Private Equity (i.e. Energy, Secondaries, etc.) and $60M

Motion made, and seconded, to commit $80M to Hamilton Lane for the private market portion of the Boston Retirement System portfolio for the year 2020.

Motion accepted (5-0)

November 2019 Flash Report

The Total Plan was up +1.4 in September bringing the quarter to -0.2% and the year to date performance return to +13.3%. If it had ended last Monday the system would have been up 14%. That's an incredible year in terms of overall performance.

Based on that, the prices are really high from an asset allocation perspective. NEPC does not see any big asset allocation changes for the BRS but they still think the forward expecting returns are down, yields are down, that's why bonds have done so well and stock prices are way up. So it's hard to imagine putting another 14% on next year. Some of that may be a bounce back from last year. Last year was pretty flat so this year we got 14%.

NECP Work Plan

Mr. Manning went on to outline the work plan for 2020. He wanted to call the attention to two areas. Traditional Assets Manager Search/ Presentations and emerging markets will be on the dockets for this year, in terms of a public fund search. It's been a while since the last search was conducted. We will be issuing the search in the second quarter for an emerging market strategy. Also review the four managers we have in place.

The Private Equity & Debt we have Entrust, Crescent and Blue Bay, who changed their name to Arcmont. They'll be presenting in January, 2020. Then Niche and Distressed lending strategies. In January we will spend some time on asset allocation, meet the managers and set the plan for private debt for the rest of 2020. Total allocation is $60M in total; $20M Global/European, $20M Niche strategy and $20M in the Distressed. Then Real Estate debt search for 2021.

Board wants to initiate a Fischer investments replacement search that is currently indexed with State Street. Further discussions will be held next month.

Documents Presented

- NEPC December 2019 Meeting Materials Presentation

Outstanding/Ongoing Financial Issues: Ellen M. McCarthy, Comptroller

November 2019 Financial Snapshot

Ms. McCarthy reported the following: Pension payroll contributors: $54,139,205 Total Contributory Payees: 14,913 Total Payees; Payroll (non-contributors:) $ 313,553; Total Contributory payees: 51; New Regular Retirees: 33; Survivor/Beneficiary Retirees: 1; Disability Retirees: 2; Refunds and transfers: 81 for $ 2,109,918; Members Refunds: 65 for $ 1,269,408, Members Transfers: 14 for $ 768,291; Option B Refunds: 2 for $ 72,220; Operational Warrants: $465,764.

October 2019 Financial Statement

Comptroller McCarthy presented a September 2019 BRS financial statements. The BRS overall net assets available are up $40M for the month, attributed to increases and decreases from pool to international equities. For yearend total assets up close to $6000M from December 31, 2018.

Ms. McCarthy went over some of the assumptions for the BRS budget for 2020. The 2020 budget has an increase of 51% from the 2019 budget which are attributed to personnel increase due to future contract increases and the addition of two open positions and an intern position. As far as the contracts, SEIU has an increase in January 2020. SENA contract got an increase in October 2019. In technology, it's increased 155%. Primarily due to the prepaid hours that will be necessary for the first quarter of 2020. Currently we are at 2600 prepaid hours, I expect in March and April to use some of that and will need to purchase additional hours if we are still with Vitech. Also the proposed upgrade to V10 adds to the increase in technology. The overall seven year cost is expected to be an average of $2M a year. The line item has decreased by 5% as a result of eliminating a PERAC report that State Street was providing to the BRS. The report is now being done by BRS staff. Disability had an increase of 7% due to some bumps in miscellaneous settlements that were unexpected. There also was a slight increase in transcription services. General office increased 97% due to the upcoming two Board positions and cyber security and a possible cyber security officer there is also a line item for 8th floor renovations.

Mr. Smyth added that the technology costs could change dramatically so this budget allows for the worst case scenario. There also monies set aside for renovations to the BRS office of 816. BRS has been trying to consolidate the space. He doesn't think it's going to happen. In conversations with Property Management, their recommendation is to redo 816. They would move us temporarily to 26 Court Street. Legacy system removal was discussed by the board in the objective to save monies.

Motion made, and seconded, to accept the calenderer year 2020 budget as presented.

Motion accepted (5-0)

Documents Presented

November 2019 Financial Snapshot Sheet, October 2019 Financial Statements Sheet, BRS calendar year 2020 budget.

Outstanding/Ongoing Operations Issues: Christine M. Weir, Operations Officer

November 2019 payroll update

Operations Officer Weir was not present an update on the payroll number for the month of November can be reviewed online for board members.

Adjourn

Motion made, and seconded, to adjourn from Administrative Session at approximately 12:57p.m. Roll Call Vote: Chairman Greene; Aye, Member Jackson; Aye, Member O'Reilly; Aye, Member McLaughlin; Aye, Member Joyce; Aye.

Motion accepted (5-0)

Respectfully submitted,
BOSTON RETIREMENT BOARD

Daniel J. Greene, Esquire
Mayoral Appointed Member, Chairman

Maureen A. Joyce
Ex Officio Member

Michael W. McLaughlin
Elected Member

Michael D. O'Reilly
Elected Member

Thomas V.J. Jackson
Fifth Member