These minutes are Approved and Final. Full Board review and decision took place at the February 14 & 15, 2017 Regular Meeting of the Board.

MONTANA BOARD OF INVESTMENTS
DEPARTMENT OF COMMERCE
2401 Colonial Drive, 3rd Floor
Helena, Montana
MINUTES OF THE MEETING – November 15-16, 2016

BOARD MEMBERS PRESENT:
Mark Noennig, Chairman
Kathy Bessette
Terry Cohea
Quinton Nyman
Jack Prothero
Marilyn Ryan (arrived 12:04 p.m.)
Jon Satre
Sheena Wilson

BOARD MEMBERS ABSENT:
Karl Englund, Vice Chairman

LEGISLATIVE LIAISON ABSENT:
Senator Bob Keenan
Representative Kelly McCarthy

STAFF PRESENT:

Polly Boutin, Associate Financial Manager
Jason Brent, CFA, Investment Analyst
Geri Burton, Deputy Director
Dana Chapman, Board Secretary
Frank Cornwell, CPA, Associate Financial Manager
Joseph M. Cullen, CFA, CAIA, FRM Chief Investment Officer
Roberta Diaz, Investment Accountant
David Ewer, Executive Director
Julie Feldman, CPA, Financial Manager
Julie Flynn, Bond Program Officer
Kelsey Gauthier, CPA, Investment Accountant
Kirsten Haswell, Investment Analyst
Tim House, Investment Analyst
Douglas Hill, Director of In-State Loan Programs
Ethan Hurley, CAIA, Director of Private Investments
Teri Kolnik, CFA, Investment Analyst
Eron Krpan, CIPM, Investment Analyst
April Madden, Investment Accountant
Rande Muffick, CFA, Director of Public Market Investments
Michael Nguyen, Investment Officer
Mary Noack, Network Administrator
Jon Putnam, CFA, FRM, CAIA, Director of Fixed Income
John Romasko, CFA, Investment Officer
Steve Strong, Investment Analyst
Louise Welsh, Senior Bond Program Officer
Dan Zarling, CFA, Director of Risk Management

GUESTS:
Shawn Graham, Executive Director, Montana Teachers' Retirement System (TRS)
Dore Schwinden, Executive Director, Montana Public Employee Retirement Administration (MPERA)
Becky Gratsinger, CFA, CEO, Senior Consultant, RVK, Inc.
Jim Voytko, President, Director of Research, Senior Consultant, Principal, RVK, Inc.

CALL TO ORDER

Board Chairman Mark Noennig called the regular meeting of the Board of Investments (Board) to order at 11:45 a.m. As noted above, a quorum of Board Members was present. Chairman Noennig advised video recording of the meeting was underway and called for public comment on items under Board jurisdiction. There was none. Chairman Noennig called for comments or revisions to the minutes from the August 2016 Board Meeting.

There were no comments or changes to the minutes; the Chairman called for a Motion to approve.

Member Jon Satre made a motion to approve the August 2016 Board Meeting Minutes as presented. Member Kathy Bessette seconded the motion. The motion carried.

ADMINISTRATIVE BUSINESS

Executive Director David Ewer introduced new Investment Officer Michael Nguyen, and welcomed him on behalf of the Board. Mr. Nguyen started at BOI on November 10th.

Audit Committee Report

The Audit Committee met prior to the Board meeting. Audit Committee Chairman Jon Satre reported the Committee had a full agenda. Deputy Director Geri Burton provided an update on the security cameras and noted staff has met with the other Colonial Building occupants. On the question of retaining video footage, Ms. Burton stated she confirmed with the Capitol complex security staff that the current 30-day retention period is standard practice. She added that video surveillance signs have been posted on the outside doors of the building.

Ms. Julie Feldman provided an update on the fiscal year 2016 Financial Audit. The legislative auditors have been onsite and of particular interest this time is the implementation of GASB 72 which is being looked at closely. GASB 72 deals with the fair value of assets. The auditors have not yet provided a date for the opinion or an exit date.

The Committee reviewed and approved the draft Annual Report and is recommending Board approval of the Report, which will tie with the approved financial statements contained within the Report. Committee Chairman Satre added that the Committee unanimously passed a motion to accept the draft Annual Report and the draft Financial Statements as presented, with the caveat that staff be allowed to respond to any findings should the legislative auditors have any.

Chairman Satre made a motion to approve the Audit Committee's recommendations. Member Sheena Wilson seconded the motion. The motion carried.

The Committee reviewed the Audit Committee Charter Checklist and is asking the full Board to accept the Committee's recommendation to approve the checklist. The Committee also reviewed and approved the Board's Statutory Compliance Checklist.

Chairman Satre made a motion to approve the Audit Committee Charter Checklist and the Board's Statutory Compliance Checklist. Member Sheena Wilson seconded the motion. The motion carried.

Committee Chairman Satre stated the Committee had an update on securities litigation, which Executive Director Ewer will present to the Board, and an update on STIP Resolutions still pending with local governments. Of the 158 government entities required to submit STIP Resolutions, ten have current STIP balances outstanding; the other 11 have a zero balance.

The Committee reviewed an update to the Board Education Policy and is recommending Board approval.

Committee Chairman Satre made a motion to approve the updated Education Policy as presented. Member Sheena Wilson seconded the motion. The motion carried.

Human Resource Committee Report

The Human Resource (HR) Committee met prior to the Board meeting. Committee Chairman Karl Englund was absent. Member Jack Prothero chaired the meeting and reported the Committee discussed and is recommending Board approval of the promotion of Jon Putnam to the position of Director of Fixed Income.

Member Prothero made a motion to accept the Committee's recommendation. Member Jon Satre seconded the motion. There was no discussion; the motion carried.

Member Prothero thanked Mr. Putnam. The Committee also conducted the annual review of exempt staff. All reviews were highly positive and Member Prothero thanked both the exempt and full time staff on the fine job they have done over the past year.

Loan Committee Report

The Loan Committee met prior to the Board meeting. Committee Chairman Jack Prothero stated there was a lot of INTERCAP activity and a few loans before the Board with recommendations for approval. The Montana Department of Transportation (MDT), which has an ongoing relationship with BOI, is requesting a $3 million loan for its motor pool vehicle program. The Board has determined a $10.5 million limit on MDT loans; the new request will increase the balance to $9.7 million; however, the amount outstanding revolves under the limit as repayments are received and new loans fund.

Member Prothero made a motion to accept the Committee's recommendation and approve the $3 million loan to MDT. Member Kathy Bessette seconded the motion. The motion carried.

Chairman Prothero stated the Department of Natural Resources and Conservation (DNRC) also has an ongoing relationship with BOI. DNRC has requested a loan for $1.9 million in anticipation of issuing Coal Severance Tax Bonds for its Renewable Resource Grant and Loan Program. The new loan potentially increases to $11.7 million the total of DNRC loans with BOI. DNRC manages three different loan programs which allow them to come to INTERCAP for interim financing.

Member Prothero made a motion to accept the Committee's recommendation to approve the $1.9 million loan to DNRC. Member Kathy Bessette seconded the motion. The motion carried.

Chairman Prothero stated the third loan is a request from the University of Montana (UM), although it is technically the Board of Regents, for a $1.1 million loan to complete the 3rd floor of their Interdisciplinary Science Building. This is the final phase of the project and is tied to the National Institute of General Medical Sciences grant. This is another ongoing relationship with BOI and the Committee recommends approval.

Member Prothero made a motion to accept the Committee's recommendation to approve the $1.1 million loan request from the Board of Regents. Member Terry Cohea seconded the motion. The motion carried.

Chairman Prothero explained INTERCAP is funded by the sale of tax-exempt bonds based on program demand. The Loan Committee reviewed Board Resolution No. 236 to issue up to $20 million in new bonds for INTERCAP's pool of funds available to loan. Requests have come in and activity is picking up. Some bond proceeds go into a reserve account securing the bond debt service. The bonds will be marketed in March and it appears interest rates will be up from last year, although how much is uncertain.

Member Prothero made a motion to accept the Loan Committee's recommendation to authorize staff to approve the final Bond Resolution No. 236 and to issue the INTERCAP bonds. Member Kathy Bessette seconded the motion. The motion carried.

Chairman Prothero explained the last item considered by the Committee was a change in how credit enhancement is handled. The Board has committed to provide money to cure deficiencies in the reserve accounts for the INTERCAP Bonds and to purchase tendered INTERCAP Bonds from any funds legally available for such purposes.

Executive Director Ewer provided some background and noted a Board motion was required to have INTERCAP loan rates charge up to 15 basis points annually for credit enhancement fees. The Permanent Coal Trust Fund has received all prior proceeds from bond enhancement fees and the Board has never suffered a loss under the INTERCAP Program. Staff recommends crediting the enhancement fees to the STIP Reserve Fund. STIP is the liquidity vehicle, therefore staff submitted a recommendation to the Loan Committee that STIP should be the beneficiary of the enhancement fee and the fee should be raised. The fee has been an average of 5 basis points per year, and staff is recommending up to 15 basis points annually, which is more appropriate for the annual risk taken by the Board. All costs of issuance, including the enhancement fee, have to be recovered in the loan rate. The new framework would end the initial upfront fee which has been used since the inception of the INTERCAP program.

> Member Prothero made a motion to accept the Loan Committee's recommendation to establish an up to 15 basis point charge on INTERCAP loans, discontinuing the one-time upfront fee and crediting the enhancement fees to the STIP Reserve Fund. Member Terry Cohea seconded the motion. The motion carried.

Public Employees' Retirement System (PERS) and Teachers' Retirement System (TRS) Updates
Member Sheena Wilson congratulated Member Marilyn Ryan for her recent election to the Montana House of Representatives. Member Wilson noted MPERA Executive Director Dore Schwinden will be presenting later at the meeting. PERS continues the struggle with the computer transition; however, the current phase is nearly complete and then begins the new phase of the program enabling retirees and employees to view their accounts online. The transition has been a difficult one.

Member Marilyn Ryan stated TRS has also dealt with computer system issues, although things are moving along and the basics should be completed in two weeks. At the last meeting, the TRS Board worked on strategic planning for the upcoming legislative session, although it looks like items will be mostly housekeeping. TRS Executive Director, Shawn Graham will also present at the meeting today. Member Ryan thanked the Board and noted as a newly elected legislator she is resigning from the BOI and TRS Boards. Member Ryan expressed thanks to all, and especially to Executive Director Ewer and Chief Investment Officer Joe Cullen for their leadership.

Legislative Liaisons Comments
Both Representative Kelly McCarthy and Senator Bob Keenan were absent.

EXECUTIVE DIRECTOR'S REPORT

Overall Comments
Executive Director David Ewer noted there were no member requests from the October meeting. The quarterly cost report and the monthly snapshot are included under Tab 2.

Director Ewer reviewed the biennial budget and noted the budget is mostly predetermined by the budget office. The BOI budget includes a combination of base and an increment of present law adjustment. BOI is requesting additional resources to provide more on site due diligence by staff, which accounts for the biggest change. Staff requested an additional full time employee (FTE) which was denied and is not included in the budget.

Director Ewer presented his memo on securities litigation which includes information provided by Tim House. Dollars received are small; on $17 billion, total income amounted to approximately $200,000. BOI continues to retain the same two securities litigation firms on a contingency basis. Both contracts are renewed annually, after approval by the State's Legal Services Review Committee.

Director Ewer stated the contract with the Board's investment consultant, RVK, Inc., expires November 2017. Staff would like to extend the contract for an additional two years, provided contract price is on the same terms. Staff is asking for the Board's guidance now, as the contract renewal process is long. No Board decision is required; however, staff would like to begin the process.

Chairman Noennig asked Director Ewer to remind the Board of the contract term, and when another Request for Proposal (RFP) is required.

Director Ewer advised that legally under procurement, seven years is the maximum contract length. The original RVK contract was the full seven years the first time around. The current contract, according to the RFP, has a 5-year term, subject to two, 1-year extensions, for a total of seven years.

Member Satre stated he has been happy with RVK's role and responsiveness and would like to extend the contract for two years, and asked if the contract extension includes pricing.

Director Ewer stated the extension would need to be negotiated, although the boundaries are not unlimited.

Deputy Director Burton agreed, staff would negotiate for the next 2-year period.

Member Marilyn Ryan added she concurred with Member Satre and added since Mr. Cullen has been at BOI for one year and has proposed changes, it is prudent to continue with the same consultant.

Member Sheena Wilson agreed and noted the RFP process is arduous and therefore it is preferable to not go through it, if not necessary.

Chairman Noennig stated RVK was head and shoulders ahead of the other RFP respondents when the original RFP was performed.

Director Ewer acknowledged he had the guidance necessary to proceed and reminded RVK they are expected to be an independent periscope to staff and the Board.

Director Ewer presented his annual equity stock proxy review memo included in the packet. Under the Systematic Work and Education Plan, staff presents the proxy report to the Board annually. As a common stock owner, BOI acts on items brought before the voting stockholders. Staff has provided to the Board the proxy policies followed and how the existing managers vote proxies on behalf of BOI. Most managers subscribe to independent companies that form opinions of how to vote issues, and most proxies are voted, unless the securities are on loan and unavailable for voting. When lending securities, the borrower has the right to vote the securities out on loan. A value manager may be on the opposite side of an issue as a growth manager, and therefore may have opposing views/votes due to differences of professional opinion. BOI will continue with the status quo of delegating voting to individual managers. Managers provide voting guidelines and BOI has guidelines for all current managers.

Member Satre asked for a reminder on how voting works for ETFs (Exchange Traded Funds) and passive holdings.

Mr. Tim House explained for an index fund, such as BlackRock, they would vote; however, BOI has no control on comingled funds.

Director Ewer asked if ETFs are handled the same.

Mr. Voytko responded yes; you own the rights to holdings of funds, but you also buy their fees, managing structure and proxies; you own shares in a trust which has an intermediate. ETFs are rules based structures.

Mr. Cullen added where BOI has separate accounts, those are voting proxies, but not the commingled vehicles/trusts. Generally, managers pledge to vote proxies in the best interest of the investors invested in their funds.

Mr. Cullen explained the difference is a separate account is a portfolio where BOI maintains some discretion and provide guidelines. ETFs or comingled funds are established vehicles before the fund is entered, and parameters are agreed upon, including how proxies are voted and the lending of securities, etc.

Mr. Muffick added as legal entities, ETFs are all set up differently and BOI has no control on voting proxies.

Director Ewer presented the annual review of the various BOI authorizing resolutions.

Each year staff presents the updates for Resolution 217 which lists the approved managers BOI invests in. It is dynamic and is updated regularly. Staff tracks changes when a manager is terminated or hired, and provides each new manager the authorized signatures for those authorized to sign on BOI's behalf. No Board action is required.

Resolution 218 is the delegation of authority for the executive director and states the deputy director is authorized to take over duties in the event of the executive director's absence.

Likewise, Resolution 234 is the delegation of authority of duties in the event of the CIO's absence.

Director Ewer also reminded the Board that by statue, the BOI Annual Report must be submitted to the Governor and the public by December 31 of each year.

Included in the Board packet is the Governor's letter outlining the constitutional right and importance of Montanan's participation in open government.

Director Ewer presented the proposed 2017 Board Meeting Calendar. One slight difference is that the April meeting has been moved from Tuesday to Wednesday, April 5. Staff contemplates six meetings in 2017. The October meeting is a placeholder, although it has been skipped on occasion.

Director Ewer presented the 2017 Systematic Work and Education Plan. The work plan process is subject to Board consideration and is structured so that each item goes before the Board for review at least every 24 months, although many items are reviewed annually.

As to the question of an offsite Board Meeting, Director Ewer stated we are your employees. The logistics are such that it is important to have staff attend; however, if a change of venue is of value, staff can accommodate. Director Ewer added he was not likely to recommend a venue change.

Chairman Noennig suggested the idea be postponed until after the next round of Board appointments.

Member Satre added it is important to send the message that the Board is all-inclusive and is not just Helena centric.

Chairman Noennig inquired if any members of the public have attended previous offsite meetings.

Director Ewer advised previous meetings were held at university areas; however, there has not been much public interest. Meetings have been held in Billings, Kalispell, Bozeman, Missoula and Big Sky and staff is sensitive to perception. Logistics for offsite meetings must be considered, although it can be done.

RETIREMENT SYSTEMS' ANNUAL PRESENTATIONS

Mr. Shawn Graham, Executive Director, Montana Teachers' Retirement System (TRS) and Mr. Dore Schwinden, Executive Director, Montana Public Employee Retirement Administration (MPERA)

Mr. Shawn Graham stated by statute, TRS is required annually to provide BOI with any enhancements. None are expected at the upcoming legislative session which would affect BOI in terms of benefits, which are changed legislatively.

Mr. Graham reviewed the basic retirement equation for funding benefits: C + I = B + E or Contributions plus Investment Income equals Benefits Paid plus Expenses. Contributions plus Investment Income should equal Benefits plus Expenses; if there is excess, assets increase.

Participation in TRS is mandatory for public school districts in Montana, teachers, administrators and those in other positions. Community colleges and some university system employees are covered by TRS. At June 30, 2016, the system had just over 19,048 active members and 14,592 inactive members.

Member Prothero asked if for inactive members, it is anticipated they will/do receive benefits.

Mr. Graham explained inactive members includes terminated both vested and unvested. If vested, they will receive benefits if they leave their retirement in the fund. Actuarial assumptions are set and adopted by the TRS Board through a process which starts with an experience study which is conducted for a period of four years; the most recent was adopted July 1, 2014. The next study will be conducted in 2018 for the five-year period from 2012 to 2017.

Member Terry Cohea stated she was surprised by the inflation (3.25%) and interest (5.0%) assumptions on member accounts.

Mr. Graham replied the 5% interest is lower than the historical, looking at actual plan entry dates and members of the system from 2004, the last time the assumption was changed.

Member Cohea noted when looking at the current STIP rate, if it was 5% when you left employment, you would still get that current STIP rate.

Mr. Graham explained the projection is over a 30, 40 or 50-year time period; the top was 4% and the bottom was 2.5% - a study today would be different as inflation has not taken off as was expected.

Member Prothero asked how often the 7.75% actuarial investment return is discussed.

Mr. Graham replied it is reviewed in-depth each year with the actuary; and even outside of the "experience study" they could make recommendations.

Mr. Prothero inquired if the latest decision was to leave the actuarial rate as is.

Mr. Graham stated yes. Looking at the results of the valuation, the market returned 2.08% for 2016 vs. the 7.75% actuarial rate; however, we look at the actuarial value of assets of market return smoothed for the highs and lows over a four-year period. The actuarial result for the four-year rate was actually greater than the actuarial return, even with a 2.08% market return this year. The year before was 17% and before that was 12%. The four year smoothing reduces volatility, but tracks market value. The funded ratio increased from 67.4% to 69.2% and the amortization period went from 26 years down to 24 years on the amortization schedule.

Mr. Graham reviewed the ratio of active vs. retired members and noted the trend is a growing retired segment, while the active has remained flat, although there was a 4% increase from 2015 to 2016. There are 0.8 retirees per active member, while 10 years ago it was 0.6 retirees per active member.

The average salary and benefits increased by 0.4% over the last year, which is relatively flat, although the average from 2006 has been a 2% annual average salary increase. Benefits have increased 3% per year generally since 2006. Full time payroll vs. benefit payments, (note full time does not include part time workers), has grown closer to the actuarial assumption, a positive, with benefit payments growing 3-4% per year.

The total contribution rate vs. normal rate/cost of the system to pay for a current member, the present value of future benefits, if captured, 9.8% will fund. The pension reforms added an additional 1% employee and employer contribution.

Chairman Noennig asked if the normal rate is the rate you project from the actuarial table.

Mr. Graham replied the 9.87% is the projection of the cost of the current member benefit. When combined, the employer/employee totals 19.31%, and this goes to pay down the unfunded liability.

Mr. Graham stated the BOI market value of assets for FY 2016 was $3.65 billion, while the actuarial amount was $3.799 Billion, and the percent by year of market vs. actuarial for 2011 was 21.7%, but actuarial was -0.1%. The perception is that smoothing is deceptive, but it evens out; smoothing out avoids a knee jerk response.

Mr. Graham reviewed the benefits of the pension reform – even with not the best returns in 2012 the non-funded actuarial, if it had continued, would have had a point where the value of assets was less than the unfunded liability. The 2013 reform has helped a lot and the unfunded liability has gone down. While return is generated by the market, HB 377 had an overall long term impact. The funded ratio for 2016 is 69% funded, a 2% increase over last the two years and the trend will hopefully continue. Starting in 2013, the plan amortized in less than 30 years.

The summary of valuation, at 9.87%, members contribute an extra 1.72% which is used to pay down the unfunded liability. It was $1.74 billion, but has decreased to $1.68 billion, and the plan amortization decreased by two years.

Mr. Graham stated if all actuarial assumptions are realized, TRS would be fully funded by 2040; the TRS Board has a funding and benefits policy until the plan is 110% funded. The TRS Board plays a role with managing the system; however, they do not set the contribution or benefit levels, the legislature does. That is the current assumption, although it may change a couple of years from now.

Mr. Dore Schwinden presented the MPERA Board report and noted they have just hired same actuary used by TRS, Cavanaugh Macdonald Consulting, LLC. Using the funding equation as a financial checkup for the pension plan, it evaluates sufficiency of funding for future benefits. If the equation becomes unbalanced, the funding ratio will improve and the funded year goal will shorten, or the opposite. MCA 19.2.405 requires MPERA to present to BOI, Legislative Finance and SAVA. MPERA has eight defined benefit plans, one deferred comp, and two defined contribution plans with over 67,000 participants, including over 20,000 inactive, terminated, vested and non-vested.

For the actuarial assumptions, the last experience study completed in 2010 was for 2003 to 2009. The next one will occur in July for 2009 to 2016, at which time the actuarial will make a recommendation to the MPERA Board. For the Public Employees' Retirement System, the asset return is very close to TRS at 2.05% over the last fiscal year. The actuarial return was 8.6% reflecting gains/losses over four years with smoothing. The funded ratio has increased from 76% to 77.31%; it was 74%. The plan needs to amortize in under 30 years, and if over 50 years, it is considered infinite. Amortization for PERS decreased from 28 to 26 years; in 2014 it was 29.3 years. This is also a reflection of the 2013 legislative reforms.

Mr. Schwinden reviewed the details of active members and retirees, and noted retirees are gradually increasing, following the national trend.

Member Prothero stated he was surprised at how low the retiree benefits are, and asked why that is.

Mr. Schwinden stated the average benefit is $1,374 per month and added the state does not offer golden parachute retirements.

Mr. Schwinden reviewed payroll and benefits and noted there is a nice separation between the two, $1.1 billion in payroll last year and close to $357 million in benefits; which is expected to reach $390 million this year. The "normal rate" is the calculated theoretical contribution needed to fund a new employee through retirement. PERS changed actuaries, and 2014 and 2013 included 3.9% of coal tax received. The 2014 statutory rate includes no coal tax. The rate will increase 0.1% for employers until the plan amortizes.

For PERS assets, the 2016 actuarial rate has exceeded the return rate, which will be smoothed over four years. The unfunded accrued liability increased after the recession, but now the trend has reversed. The funded ratio, following the recession improved and it is improving along the line of expectations for a mature plan.

Member Prothero asked if comparisons are made with other states.

Mr. Schwinden replied yes; however, they do not always provide a good comparison and are not always applicable. For mature plans like Montana's, the funded ratio is about 60%.

Mr. Graham added you have to look at all the factors.

Mr. Schwinden stated that given the current assumptions, PERS will be fully funded in 2042. Reviewing the funding status, the normal cost rate at July 1, 2016 was 11.34%, plus the administrative expense of 0.27%; the rate to amortize the unfunded liability was 4.72% for a total of 16.37%. The value of assets has improved, and the unfunded liability decreased. Looking at the summary of the other retirement plans, all systems improved their amortization period, Sheriff's and Game Warden's do not amortize. The PERS Board has approved draft legislation to improve the status of those two systems to amortize. Under current projections, PERS would be 100% funded in 26 years.

TRS CASH FLOW ANALYSIS

Mr. Joe Cullen, CFA, CAIA, FRM, Mr. Dan Zarling, CFA and Mr. Eron Krpan, CIPM

Mr. Cullen stated staff had two presentations, one a cash flow analysis, and the other is an asset allocation recommendation. Mr. Zarling and Mr. Krpan assisted greatly in putting together the cash flow analysis. At the last Board Meeting staff discussed the shared goal of sustainable retirement benefits. Although looked at from different aspects, the end goal is to sustain retirement benefits. The better the understanding of cash flow, the more improved the chances are to put together an investment strategy.

Mr. Cullen thanked Mr. Graham and noted going forward staff will develop cash flows for the other retirement plans and will look at whether it is appropriate to keep the same investment strategy for all of the plans.

Mr. Zarling stated the cash flow has a different format this time around, looking at a 10-year time line, liquidity management and the TRS inflows and outflows. Reviewing data from the actuary report we see the sensitivity of different investment scenarios, and can create an illustration of return assumptions. The amortization of unfunded liability may necessitate an increase in contributions.

Of all the nine retirement plans, TRS has the highest net cash need (NCN) as a percent of assets. The NCN is complex and relates to an actuary formula. It is typical for mature plans to have a net cash need; the plan has more retirees than full time active members. Contributions do not have to equal the pension payments going out, but the nature and how plan contributions are invested are forces that can shift to a growing net cash need.

Member Ryan noted the 15,164 retirees includes part-timers, and therefore receive much less of a benefit.

Mr. Zarling agreed yes, that is true; however, staff focused on full-time as the biggest contributors and benefit receivers.

Mr. Krpan explained the aggregate inflows and outflows include contributions, the university system and the general fund. Outflows include benefits, refunds and administrative expenses, and are expected to grow 4% per year, while contributions and other inflows are expected to increase 2.5% per year.

Mr. Cullen added that does not include investment income or increase in value.

Mr. Krpan explained TRS is a cash negative plan - Police, Game Wardens' and Fire Fighters' are cash positive plans. The TRS net cash need is expected to grow at 6% per year over the next 10 years. Mr. Krpan stated that in order to keep the level of plan assets in ten years at about the same level they are today, it would take an annual return of about 5% each year. Because of the relatively high level and high growth of the TRS net cash need, there is a potential for liquidity concerns for the plan in later years due to the need to fund benefits from the sale of assets. Mr. Krpan stated that the plan would require roughly a 9.5% return per year, for ten years, to keep the net cash need as a percent of total assets at about the current level.

The projected return scenarios assume the same return each year, but markets are volatile. A review of different hypothetical scenarios for the next 10 years, shows when you have high returns to start, followed by lower, or the opposite, low returns followed by high returns, the early high returns over the next five years performs better than when high returns occur later.

Mr. Zarling presented the volatility of historical TRS returns since 1995. Over 20 years you can see that volatility of returns impacts plan assets. For FY 1995, actual returns were above the assumed rate of return of 7.75% for 14 years, then down markets occurred, although later rebounded. The smoothed returns over the long term have still tracked close to the actuarial return. Staff maintains higher levels of cash to accommodate the net cash needed to pay benefits without being forced to sell assets.

Mr. Cullen stated liquidity and solvency are both objectives of the plans. The objective is to focus on the trends. For TRS over the next 10 years, we expect a growing net cash need, meaning a greater percent of plan assets will be required to be paid out each year, increasing liquidity needs each year. This may necessitate keeping more assets in liquidity assets. Solvency is a bigger issue and requires a look at the unfunded status and amortization. For these to improve we have to achieve consistent long term returns, and usually to achieve return, you need to take more risk. We do not manage assets in a vacuum, but according to specific characteristics.

MONTANA PUBLIC RETIREMENT PLANS ASSET ALLOCATION

Mr. Joe Cullen, CFA, CAIA, FRM

Mr. Cullen stated the second presentation covers asset allocation of the Montana Public Retirement Plans. The goal is to make decisions for the long term benefit of the plans. There are several different plan scenarios; however, the focus will be on the more likely scenarios. The balance of risk/return is critical to achieving long term goals.

Asset allocation remains critical to long term success. Staff considered different analytical approaches looking at MVO and cash flows and the probabilities of achieving different returns from the viewpoint of the economy and investment markets from a consensus viewpoint. We do not expect a recession or a substantial change in interest rates and expect inflation to remain in check. We need to look at market valuations for both now and in the future. Staff will recommend incremental changes to asset allocation. Mr. Cullen thanked investment staff and the accounting team who provided their feedback.

Mr. Cullen stated the risk allocation should be less concentrated in some areas, resulting in a bar bell approach, less risk in some areas, more risk in other areas. Regarding liquidity, the cash flow analysis shows an increasing need. Benefit outflows are growing quicker than inflows, and even if we achieve returns, liquidity needs will continue to increase going forward and we must remain invested in equities to provide higher return over the long term.

Member Satre asked if things may be changing, with fiscal stimulation or modifications, is it likely the baseline assumptions may change?

Mr. Cullen noted any baseline will prove to be inaccurate, but we still expect growth. In general, there will be growth, and inflation may pick up, but will likely remain at low levels. We do not expect double digit inflation; however, there are no guarantees. The changes staff is recommending in asset allocation to the Board are not based on one scenario of constant growth, low inflation. One reason we have asset ranges is to allow for some flexibility.

Member Prothero asked when you say incremental change, do you have a goal in mind or just constant change?

Mr. Cullen replied both. We do not want to take imprudent risk, but want to achieve the 7.75% return and increase liquidity. We must continue to adapt and learn as markets change.

The investment policy statement for the retirement plans lists three objectives, but absolute performance is the most important thing. The goal is absolute performance of 7.75%, if we have a way to achieve that. Comparison to peers is less important, as are benchmarks. The focus is how do we take prudent risks to achieve absolute returns. The belief is we should take risks to achieve the 7.75%, but we want to take prudent risks, risk is critical. Adding real estate was a struggle, but it has paid off. The expected return from the current asset allocation and as well as the one staff is proposing, are both below the 7.75% assumption. It is important to look at a longer term time frame regarding asset allocation. Fiscal year returns were 2%; however, September to September were 9%. The list of assets mostly includes assets we have been investing in; however, they are separated out into sub asset classes. The new asset classes are not really new to us, but transparency is increased.

Member Prothero asked if there is no expectation of reaching the actuarial return of 7.75%, what return is expected?

Mr. Cullen stated that in April, RVK shared some numbers, based on the allocation at September 30, 2016 vs. the proposed new allocation and they are very close at 6.85% with a 12.82 standard deviation. The risk profile is not very different and does not add substantial risk. The 6.85% is based on an asset allocation evaluation from earlier this year and is in line with industry. Other pension plans have considered bringing down their expected return assumption.

The trend has changed for the 10-year US Treasury rate and CPI, a measure of inflation, over the longer period. The Treasury rate in the late 1990's was between 5-7%; it is much lower now. Expected returns for fixed income have also come down. Both inflation and the nominal Treasury rate are declining, which has contributed to lower expected returns.

If we employ investment strategies today that do not fit well into our current pool structures, it may help increase diversification of the plan. Global Tactical Allocation Strategies (GTAA) contains many assets BOI invests in today, but also include others we are not invested in. They do not fit nicely into the current portfolio, but would in diversified strategies.

Member Satre asked for an example.

Mr. Cullen explained they spread risk out into different risk buckets, and although they have recently underperformed, looking forward things could improve. There are overlay strategies as well as GTAA. With currency risk; if we have an overlay it could reduce risk from a hedging point of view. Before staff moves forward, guidelines will be developed and objectives determined for these diversified strategies which will be presented to the Board.

Member Terry Cohea asked about the 6% allocation to national resources.

Mr. Cullen suggested thinking of natural resources as allowing more transparency to the type of things we do today; they are meaningful parts of the portfolio. Other items fall under natural resources such as water or water infrastructure, commodities or mining. BOI has exposure with public companies already and have invested in natural resources for years to the benefit of the plans. The plan has not invested as a multi asset manager, although we should look at the opportunities and educate ourselves.

Member Satre stated the Board discussed GTAA several years ago. Looking at a bucket of diversified strategies, would it be implemented to diversify assets or enhance returns?

Mr. Cullen advised more for diversification – to give exposure to other returns in a risk thoughtful way.

Chairman Noennig asked regarding a diversified asset class, is it about various investments in all types of assets, or about managers? It seems to resemble sprinkling assets among managers.

Mr. Cullen stated some strategies have a fair amount of overlap with BOI asset classes and RVK has collected some information. These strategies are different than what are used today and there are specific managers who manage these particular types of assets and only a handful of quality managers of this type. Staff will explore further to determine whether it is suitable for BOI and if so, will move forward. It would be best to invest in one manager who covers it all in one fund, if possible. The question then is where to put it, since it would not fit well with BOI's other asset types. Meaningful education will be presented at the February and April Board Meetings.

Mr. Cullen presented the current, approved asset allocation as of 9/30/16 and the proposed new allocation. Asset classes such as domestic equity and international equity as well as sub asset classes are included. The asset allocation profile should define ranges for each asset class, although should not be overly focused on constraints. Domestic large, small and midcap allocation as of 9/30 have a total equity of 58-72% and timber shall not exceed 2%. The proposed allocation includes incremental changes, adjusting domestic equity from 28%-44% with the current actual of 38%; to a proposed range of 24%-38%. Domestic equity will still be the largest asset class; however, risk will be spread out over other types of equity. The international equity range is currently 14%-22%, the current actual is 16%, and the new proposed range is 12%-18%. Private equity will remain at 9%-15%, the actual is currently 11%; however, the target proposed actual will be 10%. Assets in the energy sector will move to natural resources. The current real estate range is 6%-10% and the proposed new range expands to 4%-12%. The current actual is 8%; however, that includes 1% timber which will now be included in natural resources.

Member Cohea observed conventional wisdom would dictate an increase of international equities because the valuation is good; however, the new asset allocation has a decrease. Is that due in part to the desired diversification of assets?

Mr. Cullen replied, yes; the consensus is for a more attractive valuation in global equities. However, we are not really decreasing necessarily. Over the next 10 years, staff is looking to increase international equity, private equity and other asset classes. Incrementally, the movement going forward is consistent with RVK's view.

Mr. Voytko added keep in mind, you have to pay benefits in U.S. dollars.

Mr. Cullen stated for fixed income, the previous allocation was 22%-30% with an actual of 24%. The new is not so new, as fixed income today is an aggregation of a lot of strategies, from TIPS to high yield which are really fixed income. Treasury is inflation protected – broad fixed income has aggregated type strategies. Treasuries, agencies, corporate bonds, agency mortgage backed securities, are all components of fixed income. The aggregated roll up is what most investors use for fixed income.

Member Satre asked why the breakout is not detailed in the investment policy statements.

Mr. Cullen replied they are all asset classes. Looking at fixed income, it contains an aggregation of key asset classes and when broken out, it shows the liquidity in the portfolio. Treasuries vs. corporate bonds are both fixed income; however, they have different risk. The new structure will provide transparency.

Member Cohea noted the high end of the range for fixed income is increasing from 30% to 40% under the new structure which is a larger change than for equities and asked why such a large increase for fixed income?

Mr. Cullen stated the larger range will include all the various fixed income asset classes. If fixed income goes up to 7% return, it could push up to the high end of range. Domestic and international equity plus private equity are all included in total equity; a large part of real estate is also equity. The cash range has been 1-5%, staff is proposing a change to 1-6%; BOI managers also hold cash, but this would be the BOI plan allocation to cash. It is true domestic equity and international equity ranges will come down, and fixed income will go up, although over the intermediate all will stay within the current ranges.

Mr. Cullen explained the asset classes are not the fund pools and we need to distinguish between asset classes and pools. The Real Asset Pool would be a name change from the Montana Real Estate Pool. All fixed income from Treasuries would be grouped in the Retirement Funds Bond Pool (RFBP) and diversified strategies would be in a new pool.

Chairman Noennig asked if the changes would mean losing historical performance reporting.

Member Satre asked for RVK to weigh in.

Mr. Voytko first thanked the Board for their kind words about RVK's services. Mr. Voytko stated RVK has collaborated with staff on the upcoming changes. Asking whether the change is incremental or major, he offered it is incremental. Where Mr. Cullen is leading over the intermediate term, two years, fits into the current asset ranges and RVK agrees it is prudent for the Board to weigh how much risk to take. He agreed yes, for the time being, the recommendation leans towards protecting assets rather than raising risk to try and meet the target 7.75% return. The proposal puts tighter caps on domestic equity; the market has run up from the Great Financial Crisis (GFC) and it is the job of investors to lean against the wind. The plan has more granularity regarding pools vs. asset exposures, and while pools are needed, it is good to emphasize investment exposures, rather than the accounting tools, and the new proposal will provide greater transparency. The historical data will be reformulated under the new structure. The heavily diversified GTAA has actually done poorly over the last seven or eight years, but the question is what do the next five years look like, and will greater diversification be beneficial?

Member Prothero asked is the there will be higher or lower risk under new plan?

Mr. Voytko replied there will likely be a reduction of total fund volatility in terms of risk. The higher midpoint for cash and adding of diversified strategies, are more likely to mitigate risk rather than act as return enhancers.

Director Ewer added it is slightly more efficient under the new portfolio mix, with higher fractional returns. It is more complicated, more efficient, and provides more protection on the downside.

Mr. Voytko added it will seem more complicated than it is. Most assets are already in the portfolio, although they have not been broken out.

Mr. Cullen agreed increasing transparency is an improvement.

Mr. Prothero asked the accounting staff if the new structure will make it more difficult for staff.

Ms. Julie Feldman replied it is scary to some degree to work through the mechanics. In talking with State Street Bank and the investment staff, we will have to ensure proper internal controls are in place. Once the mechanics are in place, the fear goes away.

Mr. Cullen stated staff will not move forward with implementation immediately; but have a long term focus.

Mr. Voytko added for RVK, all the history has to be moved over and reflected correctly.

Director Ewer noted the change would empower the creation of the GTAA pool, and added staff is researching the possibility of moving to a single unit pool structure. There will always be the need to parse assets; however, in a year the investment pools may be replaced by a single unit pool and STIP.

Member Jack Prothero made a motion to accept the proposed new asset allocation structure as presented. Member Sheena Wilson seconded the motion.

Chairman Noennig asked if this complexity broken down by the new asset classes is largely to accommodate the creation of the new GTAA pool, which will hold no more than 4% of assets?

Mr. Cullen stated it is not required. Staff could continue with the fixed income pool and revise the investment policy statement and guidelines; however, the new structure will result in easier reporting over the long run. He added, it will clarify what assets are held, and the risks of each. It is a recommendation about risk exposures, not the pools. GTAA could be included with fixed income, the range expanded and the policy expanded and the results would be very similar. Most fixed income is managed internally.

Chairman Noennig asked Mr. Voytko how much additional work would be required of RVK.

Mr. Voytko replied when sub asset classes are combined in a pool, it is difficult to do attribution, or why an asset behaves the way it does. The new structure will provide enhanced granularity.

The motion carried.

MONTANA IN-STATE LOAN PROGRAM

Mr. Doug Hill provided a recap of the In-State Loan Program. The commercial loan portfolio balance as of October 31, 2016 was $105,246,221, the prior month was $111 million. The difference was the collection of a Rural Development guarantee for Shoot the Moon. There are 105 individual loans, and there are seven reservations for $10,147,287 and 14 commitments totaling $56,399,552. Neptune Aviation was recently funded. There is one loan past due which is On the Border in Great Falls; the outstanding principal is $1,162,873.

Mr. Hill provided an overview of IRP (Intermediary Relending Program) loans. There is $5 million allocated by the legislature for direct loans made to economic development organizations, with an interest rate of 2%. The draw is over three years and there is a USDA match. The loans provide an equity injection to small businesses. Currently there is an IRP outstanding loan balance of $3,234,300 and remaining available balance of $624,354. Staff recently received a reservation for $125,000.

Mr. Hill reported the residential loan balance is $6.8 million. There is no activity in the program. There are five loans 30 days past due totaling $219,063. Four are FHA guaranteed and one is VA, therefore there is no risk to BOI. The VA home loan program balance as of October 31, 2016 was $32,546,910 with two loans past due over 30 days totaling $422,154. There are 194 VA loans in the program.

BOND PROGRAM REPORTS

Activity Report

Ms. Louise Welsh presented the quarterly activity report and noted there were two new borrowers this quarter, the Town of Westby and Flathead County Water District #101 in Columbia Falls.

The meeting was adjourned for the day at 4:22 p.m.

CALL TO ORDER

Board Chairman Mark Noennig called the regular meeting of the Board of Investments (Board) to order at 8:35 a.m. As noted above, a quorum of Board Members was present. Chairman Noennig advised video recording of the meeting was underway and called for public comment. There was none.

CONSULTANT REPORT

Quarterly Performance Report - RVK, Inc. – Ms. Becky Gratsinger, CFA and Mr. Jim Voytko

Mr. Voytko started by stating he has been asked by every client to say something about the recent general election. The election was a big surprise to many and it impacted both the stock and bond markets. This lesson is one of a string of political and other events, which constitutes surprises for investors. The prognosticators got both the event and the resulting potential aftermath wrong. They did the same with Brexit for both the vote and what would happen after. Bonds went down, stocks went up. This stretches to flashbacks of the crash downgrade of the US Treasury by S&P, the first Gulf War, and the US stock market crash of 1987.

By definition, these events change the landscape and are not the kind of things institutional investors are well set up to face. They happen quickly and are surprises in and of themselves. S&P futures were down drastically in the middle of the night after the 2016 presidential election, then rallied. These market movements are not necessarily a happy hunting ground for Institutional investors whom are focused on building a long term investment plan. Institutional investors look to the longer term, but are reviewing their asset allocation each year for ongoing expectations and fit. The years 2000, 2002, and 2009 are good examples for market volatility, but on a longer term basis, what Institutional investors have to put in place is asset exposures designed for the longer term to a longer term risk premium which in most years yields return.

The equity premium has been dominating part of the BOI portfolio, due to assets owned. But you have exposure to credit risk premium and liquidity risk. Private equity has returned a premium relative to marketable equity. Institutional investors look at these events with violent market moves and it is different than how we as citizens view it. As a citizen, you have to put your institutional investor hat on to look out over the next several years with two basic protections, diversification – incrementally diversify the portfolio even more, and the uncertainty how a change of regime may change the markets. We must keep our institutional investor hat on when we look at these events as trustees and citizens and not conflate the two together.

Chairman Noennig asked if it is best to ignore the election.

Mr. Voytko noted do not assume that as a citizen you can quickly see what the ramifications will be. Sector weighting decisions are delegated to managers. They consider the possible impacts such as opportunity in infrastructure and possible downticks in technology, due to trade policies that could emerge. Countries oversee trade policies and active managers will discern the necessary sector changes.

Ms. Gratsinger presented the executive summary which includes capital market comments. The market environment at September 30, was awaiting the results of the election. July was strong after Brexit, followed by a quiet August. Small caps emerged around the world, international large cap globally outperformed the domestic market, and bonds were flat. REITS and high dividend paying stocks did not do well. The negative bond yields are still a factor in several markets around the world. For performance, we are looking at 3.25% for retirement plans for the quarter. BOI rankings have seen a departure from the prior strong position; non-us markets are outperforming U.S. markets which had an effect due to BOI's low international allocation.

Reviewing the total pension performance as represented by PERS, relative to other plan sponsors greater than $3 billion, BOI is in the top decile for all periods of three years and greater. BOI is not in the top decile for the one year when the market experienced a sharp change, and we believe there is no need to be alarmed.

Member Prothero asked how many years should we look at before getting concerned?

Ms. Gratsinger explained BOI had a U.S. stock overweight in addition to real estate, and both have added value; the world may be very different going forward.

Mr. Voytko added BOI's rank vs. peers looking at 3, 5 and 7 years, has been strong, ranking in the top decile. Usually, investors are there because they took enormous risk, but that is not the case for BOI. For 5 and 7 years, BOI beat the actuarial benchmark. The most important comparison is against the actuarial benchmark, then your execution benchmark, and lastly how you rank vs. peers. Staff is planning changes and is looking ahead.

Member Satre asked if the cause for the dip in rankings is due to the equity centric portfolio?

Mr. Voytko stated BOI is still above peers over one year. As we reconstruct per the coming changes, it would be good to do more to determine attribution and the new structure with greater granularity could assist. It is a given that some parts of your portfolio at any given time will be "not working." How does a fund get to be in the top decile over 10 years? By not trying to be in the top decile. Zen.

Ms. Gratsinger noted if you look at calendar 2015, 2014 and 2012 you see performance has only been down in 2016. The EAFE was up and portfolio underweight in international was a factor. Relative strengths of U.S. vs. developing countries, the U.S. is in good relative shape. Additionally, China has done very well.

Ms. Gratsinger reviewed risk and return. For the five-year analysis, BOI has a lot more return relative to risk, therefore, you are not taking more risk than your peers to get the return. The same is true over 10 years.

Mr. Voytko added it is unusual given the amount of equity, which shows very good execution; real estate and fixed income have acted as diversifiers.

Ms. Gratsinger reviewed the performance of pools vs. the benchmarks net of fees for the quarter ending September 30, 2016. The Montana Domestic Equity Pool (MDEP) outperformed by 12 basis points, the Montana International Pool (MTIP) underperformed just a little bit; managers Lazard, Templeton and Invesco, tend to lag. The Retirement Funds Bond Pool (RFBP) outperformed by 41 basis points and the Trust Fund Investment pool (TFIP) outperformed by 20 basis points. The Montana Real Estate Pool (MTRP) had a 2% return, not as good as equity but it did well, and the Montana Private Equity Pool (MPEP) lagged results, but had a solid 2.4% total return.

Mr. Voytko stated in response to Member Satre's question, what the drivers are behind the diminution of peer ranking and one is that international markets did better; but while ranking went down, again, execution was very good.

Ms. Gratsinger added for rankings of asset classes, domestic equity ranked below the median, active managers did better on average, and international has been at the median. It is a difficult asset as some plans lump in global. The bond pool has been solid through three years and well above the median, high yield has done well and emerging market debt came screaming back; even low quality high yield did well.

Ms. Gratsinger reviewed equity beta, adding the biggest risk is beta; however, it has been quite consistent trending at 0.6. Tracking beta and tracking asset classes will monitor if there are any changes in the wrong direction.

Ms. Gratsinger reviewed the trust accounts which total nearly $5.3 billion. The trust accounts are invested differently than retirement plans and therefore have lower returns.

Member Prothero asked Ms. Gratsinger to talk about BOI managers, and whether she has any concern regarding performance.

Ms. Gratsinger stated the restructuring a couple of years ago was a good move. Active managers have a challenge to outperform; Wells Capital was a transition, and there are some chronic issues; however, only a handful have had difficulty.

Reviewing how managers have done since inception net of fees vs. benchmarks, there are a lot of positive numbers. Post and Neuberger show slight underperformance since inception. Invesco and Alliance Bernstein have had issues with their styles, and both are fairly new relationships. All in all, BOI has solid managers and the situation looks much better than in past years. You cannot expect that at any given time you will not have some managers on the minus side. When building a portfolio, you will have some strategies that are underperforming under any given market. The current degrees of underperformance are not significant, net of fees.

Mr. Voytko stated when asking the question, what will the next 10 years look like? The major decisions over 10+ years in the portfolio structure have made a difference. One was the delegation of authority to investment staff, now in the second generation of senior investment staff. Staff has conducted intense monitoring of managers, which takes a load off of the feeling to intervene. The second decision was the addition of real estate which made a difference in portfolio structure. It was tough for the first 18 months, but has paid off. Additionally, the decision to not invest in hedge funds, although staff spent 18 months reviewing that option. Staff worked within domestic and international equities to develop active/passive hybrids. Those few decisions have made a difference.

Interest rates are going up around the globe and have gone up more since the election. However, that was already underway before the election. The dollar weakened, strengthened, and then weakened again. Large Cap active managers beat the index for the first time in a long time; although it is unknown whether the trend will continue. Those kinds of tectonics plates can make a big difference in performance over 3, 5 or 7 years.

Member Prothero asked if Mr. Voytko had any recommendations.

Mr. Voytko stated in reference to the prior presentation that various options have been discussed with staff, including the GTAA diversified strategy, which is reflected in the new asset allocation plan.

INVESTMENT ACTIVITIES/REPORTS

State Operating Funds – John Romasko, CFA
Mr. Romasko reported there was very little change in asset allocation and liquidity levels for the STIP portfolio over the quarter. The STIP major holders have remained the same for the past year. Performance numbers had a little increase vs. the one month LIBOR benchmark. Staff has reduced systemic risk moderately over the past year or so. The spread over LIBOR has widened a bit.

Member Terry Cohea asked Mr. Romasko if it was a good decision to discontinue securities lending of STIP.

Mr. Romasko replied yes; in order to sell a security, it is best not to have to wait for State Street to call an item back from on loan.

Mr. Romasko stated there were no purchases this quarter for the Treasurer's Fund, mostly in anticipation of purchasing shorter Treasuries at US Bank.

Risk Management Funds – Dan Zarling, CFA
Mr. Zarling stated he, Mr. Eron Krpan and Mr. Tim House make up the risk management team. Asset allocation weights across plans are comparable with the exception of two plans, Firefighters and Police which are at 6% due to large contributions during the month. Staff rebalances the plans on the first of the month. The MBOI snapshot reflects the end of the quarter, therefore it is prior to the monthly rebalance.

Mr. Zarling reviewed the pension plan net contributions/distributions and noted $64.4 million was the net cash need, for the quarter. Net cash runs $22 million per month, the bulk of which is attributed to PERS and TRS. The $64.5 million is covered through liquidity management; staff meets regularly to discuss how best to reallocate assets to determine the sources for funding.

In response to a question from Member Satre, Mr. Cullen clarified no money moves between the plans. Regarding inflows and outflows, the incoming cash for Firefighters and Police stays within their plans, although it is utilized for the monthly benefit outflow required of those plans. At the pool level, allocation within the plans is not comingled. However, the inflow vs. outflow net result may not require a trade, although the allocation of assets within a plan may be adjusted. Each plan benefits from the pool structure, reducing the number of required trades.

Mr. Voytko added this is common for a board of investments structure. In one month you may swap out between plans, which allows for fewer transactions. The accounting level is separate for each of the beneficiaries. Each plan gets full credit for what occurs at the pool level.

Mr. Zarling stated the net cash need would be higher without those cash influxes. The first source for payment of monthly benefits is from interest and income, then the determination of where to source the additional $28 million needed from the pools. This time around, the proceeds were derived from private equity and real estate pools, due to a non-recurring private equity sale that occurred, as well as a partial redemption which BOI requested. Both private equity and real estate have been generating liquidity which was redistributed, such as the domestic equity rebalancing.

Mr. Zarling reviewed performance for the quarter and presented a new addition to the packet: a periodic table of returns. It is easy to read and shows what the top performing investments were for the quarter. This quarter it was domestic equity, which has had strong performance for the year, and real estate which has also been strong for the last 12 months. Over the longer horizon for 7 and 10 years, private equity and domestic equity have had strong performance relative to the other pools. On the flip side, looking at the 7 and 10-year performance, international equity has been on the bottom, underperforming. The drivers of BOI returns compared to peers include the international equity markets where BOI's underweight position has provided a benefit.

Chairman Noennig noted the chart shows the justification for diversification.

<u>Private Investment Reports – Ethan Hurley, CAIA</u>
Mr. Hurley presented activity over the quarter for the Montana Private Equity Pool (MPEP) and reported there were no new investments or divestments and cash flow was again positive for the quarter. There were no major shifts in the portfolio. Regarding exposure, special situations will now be referred to as energy, as all are energy investments, and will be classified as natural resources. Mr. Hurley added he does not expect any major shifts in the near term, although staff will continue to reduce fund of funds.

Member Prothero asked if it is possible to have a sale of fund of funds.

Mr. Hurley stated yes, although it is highly unlikely to achieve a market price similar to the recent secondary sales. Many fund of funds have fee drags and create an administrative burden, although it is best not to expect premium pricing if sold. He added this year staff may facilitate another transaction.

Member Prothero asked if there were any individual funds with issues that the Board should know about.

Mr. Hurley stated no. The private equity team recently met and reviewed about one third of the current general partners. The Board manages many funds and if an issue comes up, staff will inform the Board.

Mr. Hurley stated there were no changes to the Partnership Focus List, which may not be included in the future. Staff may also make some changes in the real estate portfolio, although premium pricing is not expected if that occurs. It would be a strategic portfolio change, a cleanup of names to be discontinued.

Mr. Hurley reviewed the Montana Real Estate Pool (MTRP) and advised there were no new commitments this quarter, although staff did divest a JP Morgan fund, through a sale of $100 million. It was the final distribution of a $100 million reduction request which was received. There were no major shifts in diversification, although due to the JP Morgan sale, core real estate exposure dropped from 33% to 26% which will be reflected on the next quarter.

Chairman Noennig asked what prompted the sale.

Mr. Hurley advised it was outsized compared to other positions and staff wanted to trim a bit. Additionally, core real estate has been running up, therefore it was a good time to take some profits.

Member Terry Cohea asked if the current delinquency rates were unusual.

Mr. Hurley stated there was talk of 2006 or 2007 in need of refinancing and delinquency rates are an indicator. The MSCI REIT index has come down year-to-date, which can be a sign; however, the fundamentals still look good. They are slow moving asset classes, but staff monitors.

Mr. Hurley reviewed the cash flow chart for non-core funds, and noted the cash flow should capture core funds as well and staff will make that adjustment. There were no major changes in exposure by strategy or geographic exposure; staff makes no attempt to match an index; property type exposure used to be the NCREIF, but staff is not mapping the index.

Member Cohea asked if there would be additional commitments on timberland.

Mr. Hurley replied yes, staff is looking at more deals, and recently completed a re-up recommendation to ORM Fund IV. The constraint is the 2% timber range; however, timber is currently just over 1% of the total portfolio. Staff is always on the lookout for new opportunities. For core real estate, staff is looking at other property types we have not had exposure to, and are perhaps resistant to market downturns. Real estate has performed well and continues its upward trend, but that may be slowing. Real estate holdings as of September 30 are conservatively levered.

Member Prothero asked if staff has goals on leverage.

Mr. Hurley stated no, no specific ranges; however, staff ensures the portfolio is not overly or under leveraged. It is common for real estate on an aggregate basis to always be levered. We are not looking for an overly levered portfolio. The managers actively manage portfolios, and staff looks at their history and management style.

Chairman Noennig asked for more details regarding leveraging.

Mr. Hurley explained when a manager purchases a building for $100 million, they may raise $50 million. Leveraging varies depending whether it is core, value add or opportunistic; each has leverage built in, such as core at 0-30%; if leveraged at 60-70% it is value add, and over 70% is opportunistic.

Fixed Income Portfolio Reports – Jon Putnam, CFA, FRM, CAIA

Mr. Putnam stated he appreciated the support of the Board, Director Ewer and Mr. Cullen in his recent transition to Director of Fixed Income. Mr. Putnam reviewed third quarter activity and noted the market was still skeptical on raising rates for November or December. The market as of today is expecting the Fed to raise rates .25. In early July, the 10-year Treasury fell to 1.36%, which was a historic low. Corporates have enjoyed historically low rates. During the summer, spreads kept tightening and that continues today at 5-10 basis points over most asset classes. Investors are reaching for yield, foreign investors in particular, since negative rates are seen globally in a number of counties. Staff has been reviewing the portfolio given these low rates, emphasizing quality and downside protection overall and made some sales over the quarter.

Mr. Putnam reviewed the metrics for the Core Internal Bond Portfolio (CIBP). There was no big change in credit quality with 0.89% of BB; staff sold out of a couple of BB's to increase portfolio quality.

Director Ewer asked Mr. Putnam for his preliminary thoughts on inflation increasing and added it is early, but appears volatile, as the 10-year went up 30% in 5 days.

Mr. Putnam agreed yes, there was a big move. Staff has been purchasing Treasury Inflation Protected Securities (TIPS). Staff reviewed the breakeven analysis; the low historical trend was running 1.5% and is ticking up; however, it is low compared to historical levels. TIPS will become a core component, as staff has been making incremental purchases. The market is building in an expectation of inflation. If you look at long term trends, staff is not confident that the projections are correct. Policies take a long time to implement. A lot of the environment has not changed, although if there are changes, it will take a long time to play out.

PUBLIC MARKET INVESTMENT REPORTS – Rande Muffick, CFA

Montana Domestic Equity Pool (MDEP)

Mr. Muffick stated staff made some moves within the pool to help lower the risk profile by reducing exposure to a higher beta manager. The portfolio remains overweight in small and mid-caps. At the end of September, midcaps totaled 10.8% and small caps 6.1% of the portfolio, both slight reductions. Staff continued to reduce small cap exposure in October due to a manager change. The portfolio is largely passive in large cap, and contains less actively managed than peers. For the quarter, the portfolio outperformed the benchmark by 12 basis points. Overall performance by large cap managers was positive. JP Morgan performed well, even though staff trimmed them a bit. Cyclicals have done well and managers are tilted that way. Cyclicals include industrials, such as GE and Caterpillar. The overweight of small and mid-caps will continue and the cash level will remain elevated.

Mr. Muffick presented his memo outlining the recent transition out of Wells Capital. At the end of the third quarter, small cap manager Wells Capital had an abrupt "lift out" by the portfolio manager who departed on a Friday and his team then departed on the following Monday. Staff made the decision to move the cash out, and transitioned the $27 million from Wells Capital small cap into the S&P 500 ETF (SPY). The transition cost only 4 basis points, lower than the estimate, and was completed on market close orders for a lot of the stocks and ETFs. Although the team departed at the end of the quarter, the transition occurred on October 7, and therefore is not reflected in the 9/30/16 information, however is included in the Board handout for the period ending October 31. The transition took a couple of weeks from first word that the team had departed. With external accounts, it does take some time complete a transition. Such lift outs occur, but staff had not seen one.

Member Satre asked if Wells Capital initiated contact with the news and offered a plan.

Mr. Muffick stated in this case, the manager made contact directly. Wells Capital did not try to persuade BOI staff to remain; however, they did offer a new manager to take over. BOI due diligence would prevent switching over to the new manager or following the departed team, although we could invest with them at some time in the future. Staff is still in contact with them.

Member Wilson inquired as to how many other investors jumped ship with the manager.

Mr. Muffick replied we do not have that information, but we will monitor how much in assets the new team garners.

Montana International Pool (MTIP)

Mr. Muffick reported there were no major changes over the quarter in the international pool. Emerging markets did pretty well; the ACWI mandate is used to compare against peer performance. MTIP has emerging market exposure, whereas a lot of peers have more or less exposure.

Mr. Muffick reviewed pool performance and noted the pool is defensively positioned. Managers will lag on the upside, and underperformed by 32 basis points over the quarter. Going forward, staff expects no major changes; small caps are slightly below the benchmark and staff is looking at a possible increase. The pool is slightly underweight in emerging markets.

Public Equity External Managers Watch List
Mr. Muffick stated there are no glaring problems at this point. Staff is moving towards reducing small and mid-caps a bit. In addition to Wells Capital small cap, Nicholas was also recently terminated. Artisan and Alliance Bernstein remain on the watch list. Alliance's performance since inception is near the bottom. It is partially staff's fault for picking the small cap manager when performance was at the top for the 1, 3 and 5-year periods. Staff is not too concerned with either Alliance or Artisan which has been out of favor and should improve if markets see increased interest rates.

Retirement Funds Bond Pool (RFBP)
Mr. Muffick reported the RFBP returned less than 1% for the quarter. The high yield allocation did well in the pool, and although underperforming the benchmark, did well vs. investment grade assets. High yield returned 5% for the quarter. Staff raised the allocation for high yield, which has been one of the better assets. There were no real portfolio changes; however, staff plans to increase high yield and the bond allocation for the pension plan overall. Staff is conducting due diligence on a couple of managers and plans to add $50 million to Post, we are waiting for good market conditions.

Trust Funds Investment Pool (TFIP) – Mr. Joe Cullen, CFA, FRM, CAIA
Mr. Cullen presented the TFIP quarterly performance summary and reported all four underlying asset classes had positive returns for the quarter.

Montana State Fund – Mr. Joe Cullen, CFA, FRM, CAIA
Mr. Cullen presented the State Fund quarterly performance summary and noted that intermediate fixed income, investment grade bonds and the allocations to real estate and equity have all helped performance over time.

REAL ESTATE AND TIMBER REVIEW

Mr. Ethan Hurley stated real estate is the 5th largest asset class with a range of 6-10%, although according to the newly Board approved asset allocation changes, the range has been increased to 4-12%. Real estate offers diversification, and both real estate and timber provide geographical diversification. Although the portfolio is North American centric, it can hold a maximum of 30% international. North America is the deepest market and highly liquid, primarily investing in private limited partnerships; however, staff may look more at the public market aspect. Staff diversifies by strategy and may look to commercial mortgage back securities (CMBS).

Member Cohea stated she understood fixed income would be reduced.

Mr. Cullen stated there would be an increase of mortgage backed securities; debt in investments of CMBS.

Mr. Hurley stated the objectives include higher returns, and the diversification and growth element in real estate regarding the inflationary aspect. Results early on were dismal, due to entering the market at the wrong time. Returns have improved over time however, and real estate has been a high performing asset class for the portfolio.
Mr. Prothero asked how large the timber market is.

Mr. Hurley replied Hancock Timber is the largest in world and have 6 million acres under management. Timber as an investment opportunity is large, though the majority of timber is still privately held. TIMO (Timber Investment Management Organization) is a management group that aids institutional investors in managing their timberland investments.

Mr. Hurley stated some of the risks associated with timber include species and natural disasters, risks which can also impact real estate.

Member Cohea asked if the leverage on timber is low.

Mr. Hurley replied in general yes, timber is typically not leveraged in order to avoid harvesting when prices are low.

Member Cohea asked what effect global warming is having regarding timber.

Mr. Hurley noted one way to guard against it is with fire insurance, and through genetic management. For the long term, we want to be invested in timber. Timber management is an active operation with thinning and insect control. In general terms, the common legal structure is limited partnerships; which is how BOI invests in real estate. Investors are similar, structured with a general partner, a management company and limited partners, the same as for private equity. There are some small differences for the terms in real estate, which is usually 7-8 years compared with 10 years for private equity. Timber is very long life, 12-20 years; the investment period is shorter for real estate at 2-4 years and the capital calls operate the same as for private equity.

Mr. Hurley noted carried interest is typically 20% for private equity, but 15-20% for timber. The clawback is the same and waterfall structures are similar; however, the preferred hurdle can differ. The preferred return for real estate is 8-10%, whereas for private equity it is usually 8%.

Director Ewer stated it seems counter intuitive, with a lower ultimate return, why the hurdle is higher, not lower.

Mr. Hurley stated it is the way it has always been, like co-investments with private equity, no fee, no carry. With real estate a fee is always charged.

Ms. Teri Kolnik explained management fees are lower for real estate; 1.5% during the investment period then 0.8% to 1.0% after the investment period. The harvesting period is 1% to 1.25% dependent on the cost of investments. Organization expenses are similar to private equity and depend on size of fund and terms of the manager. Most include subscription agreements, private placement memorandums and side letters.

Member Prothero asked if all include side letters.

Mr. Hurley replied, yes, although it can be incorporated into the legal governing document.

Ms. Kolnik reviewed the different categories of real estate; we lump timber with core, although it has a lower return and lower leverage. The core real estate return is generally two thirds income. The ODCE (Open End Diversified Core Equity) index requires four property types to be in the index.

Timber is leveraged 0-30% and non-core includes value added and opportunistic, which can be leveraged up to 70% LTV (Loan to Value). Property management and marketing can be factors, as well as updating delayed capital improvements and improving efficiency of a heating system. Opportunistic generally has higher returns and higher leverage; non-traditional real estate such as hotels, or land purchases, can be built from the ground up.

Director Ewer asked if there was much real estate turned/flipped over.

Ms. Kolnik replied yes, with opportunistic that can enter into it, although usually there is a plan to improve the asset and managers follow that plan and which can take even longer than value added.

Ms. Kolnik stated real estate measures returns by IRR (Internal Rate of Return), PIC (Paid in Capital) Distributions to Paid in Capital (DPI) and Residual Value to Paid in Capital (RVPI), and Total Value to Paid in Capital TPVI also known as MOIC (Multiple on Invested Capital). (DPI + RVPI) / PIC = MOIC

Member Prothero asked what is best to focus on when looking at real estate.

Ms. Kolnik stated the multiple of invested capital is the most useful, although IRR is the easiest to understand and most important. Over the life of a fund the IRR starts low and then increases; the residual value increases during investing and decreases as sold.

Member Satre noted that is assuming it is a good investment.

Ms. Kolnik replied, yes; that is what you want and expect to see. The typical real estate schedule is the classic J Curve of cash draw down followed by distributed cash.

Mr. Hurley reviewed the net cash flows and noted the portfolio has benefitted from the cycle of positive cash flows and returns have been very positive with good distributions.

Responding to a question from Director Ewer, Mr. Hurley stated all timber is domestic and so there is no reputational risk such as redwood, teak, mahogany or rain forest timber. Timber is diversified across North America; the southern U.S. is the largest timber market in the world and therefore there is no reason to take on other risks. Canada is an option and has exposure to a variety of species, although we do not own any Canadian timber yet.

Mr. Hurley stated we generally will continue with North American markets and focus on managers and re-ups; it is a deep market. BOI will maintain core exposure which offers broad geographical exposure, and staff is looking at other areas such as storage and student housing. Some second and third tier markets offer opportunities and do not have the intense competition. High end markets may not offer the valuation. Staff will explore public equity strategies and opportunistically take advantage of secondary markets as opportunities are available, as well as free up capital to invest in order to redeploy into better opportunities. Staff due diligence uses the same approach as for private equity at the same level of vigilance.

Member Cohea asked if staff monitors manager political contributions.

Mr. Hurley replied it is black and white. We do not do business with those that cannot commit to our policy and it makes sense to reduce headline risk and mitigate any issues.

Member Satre asked if there are any investments in bridges or roads or if that is a separate class.

Mr. Hurley stated those investments do not fall within the BOI asset class – although staff may consider those down the line. Those funds are not considered at this time; returns and structure are both factors and it would be part of a real asset class. He added staff anticipates a portfolio name change for MTRP to the Montana Real Asset Pool.

RECAP OF STAFF TO DO LIST AND ADJOURNMENT

Executive Director Ewer asked for any items on the "to do" list for the next Board meeting. Deputy Director Burton noted there may be the need for a conference call Board Meeting sometime in December regarding an INTERCAP loan request which will require full Board approval.

Having no further business before the Board, the meeting adjourned at 11:25 a.m.

Next Meeting

The next regular meeting of the Board will be February 14-15, 2017 in Helena, Montana.

Complete copies of all reports presented to the Board are on file with the Board of Investments.

MONTANA BOARD OF INVESTMENTS

APPROVE: Mark E. Noennig
Mark E. Noennig, Chairman

ATTEST: David Ewer
David Ewer, Executive Director

DATE: Feb. 16, 2017

BOI:drc 12/13/2016