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February 15, 2016 – DRAFT (Revised)

Ms. Kerrie Vanden Bosch
Acting Director, Office of Retirement Services
530 W. Allegan
Lansing, Michigan 48933

**Re: Michigan Public School Employees' Retirement System (MPSERS)
Funding Implications of Closing the Defined Benefit Pension System to New Hires**

Dear Kerrie:

In accordance with your request, the purpose of this letter is to present our thoughts regarding the funding implications to the Michigan Public School Employees' Retirement System (MPSERS) if the defined benefit pension portion of MPSERS is closed to new hires (i.e., new hires would participate in a defined contribution plan).

Many individuals suggest that if a plan is closed to new hires, the amortization of the unfunded actuarial accrued liability (UAAL) of the plan should be accelerated. This concept was sometimes justified based upon the accounting requirements of Governmental Accounting Standards Board Statement Nos. 25 and 27, which required the annual required contribution to reflect the fact that plan payroll would no longer be expected to increase at the wage inflation assumption (e.g., 3.5% for MPSERS). This would mean that for many plans, once they closed, the amortization of the UAAL would change from a level percent of payroll amortization method to a level dollar amortization method.

Even with the GASB Statement Nos. 25 and 27 requirement no longer being effective, there are other justifications for altering the amortization policy of MPSERS if the plan becomes closed to new hires:

(1) The Government Finance Officers Association (GFOA) provides various funding policy recommendations in its *Core Elements of a Funding Policy* Best Practice note. One of its recommendations is "for plans that are closed plans that still have active members, the continued use of a level percent of member compensation remains appropriate, but not for a long period (i.e., as the number of active members decreases)."
(2) Both the State Employees Retirement System (SERS) and the Judges' Retirement System (JRS) are closed to new hires and both use a level dollar amortization method.
(3) The closing of the plan to new hires will eliminate normal cost contributions for new hires to be contributed to MPSERS. In the absence of a change to amortization policy, the elimination of these normal cost contributions into MPSERS will reduce the asset level in the near-term that provides for the benefit security of the membership. This may be of particular concern given the fact that MPSERS's current funded ratio is approximately 60%. A change in the amortization policy to a level dollar policy would offset this near-term reduction in contributions going into MPSERS.

While one could argue that the amortization of the UAAL should be accelerated for MPSERS if the plan were closed to new hires, we would suggest that the acceleration of the UAAL payments is not the key funding implication for MPSERS if the plan is closed to new hires. *The key funding implication for MPSERS if the plan is closed to new hires is the additional funding that would be required, whether or not the UAAL payments are accelerated.*

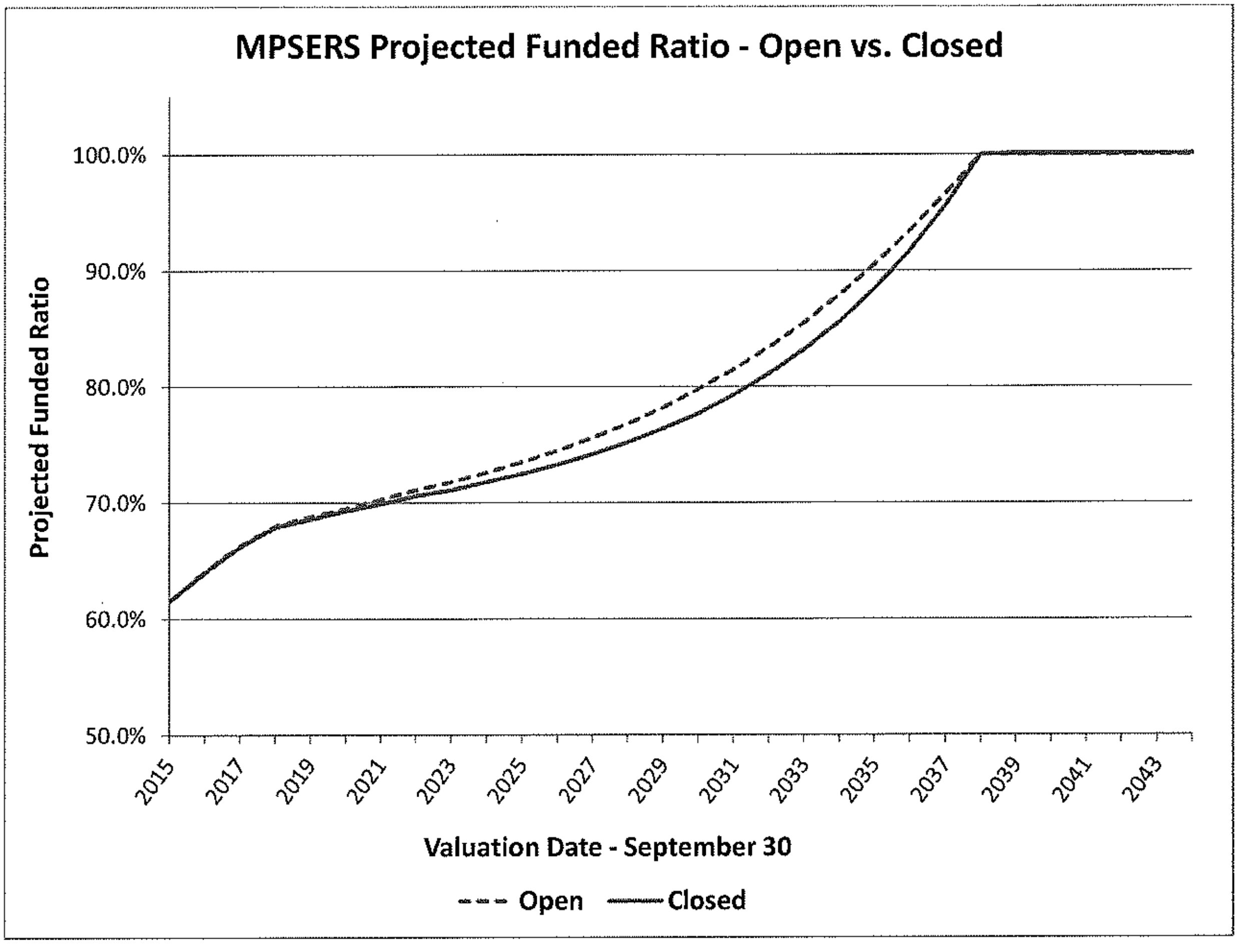
In performing our analysis of the funding implications for MPSERS, we began with the work we performed for the 30-year projection results as of September 30, 2014 that were delivered to the Office of Retirement Services (ORS) on September 30, 2015. Based upon that work, we analyzed certain key actuarial measurements that would allow us to assess the funding implications of MPSERS being closed to new hires. These actuarial measurements include the following:

(A) Projected MPSERS funded ratio (i.e., ratio of actuarial value of assets to actuarial accrued liability),
(B) Projected MPSERS trust fund ratio (i.e., ratio of beginning of fiscal year actuarial value of assets to benefit payments expected to be paid during the fiscal year), and
(C) Projected net cash flow (i.e. total employer and member contributions minus benefit payments) as a percentage of beginning of fiscal year actuarial value of assets

All of the analysis that follows was based upon the assumption that UAAL contributions would not be accelerated if MPSERS were closed to new hires and that UAAL contributions would be collected on new hire payroll if MPSERS were closed. Stated another way, UAAL contributions to the plan were expected to remain unchanged whether or not the plan remained open to new hires. The same assumptions that were used in the 30-year projection were used in this analysis, unless otherwise noted. In the closed plan analysis, the plan was assumed to be closed September 30, 2014.

**A. MPSERS Projected Funded Ratio**

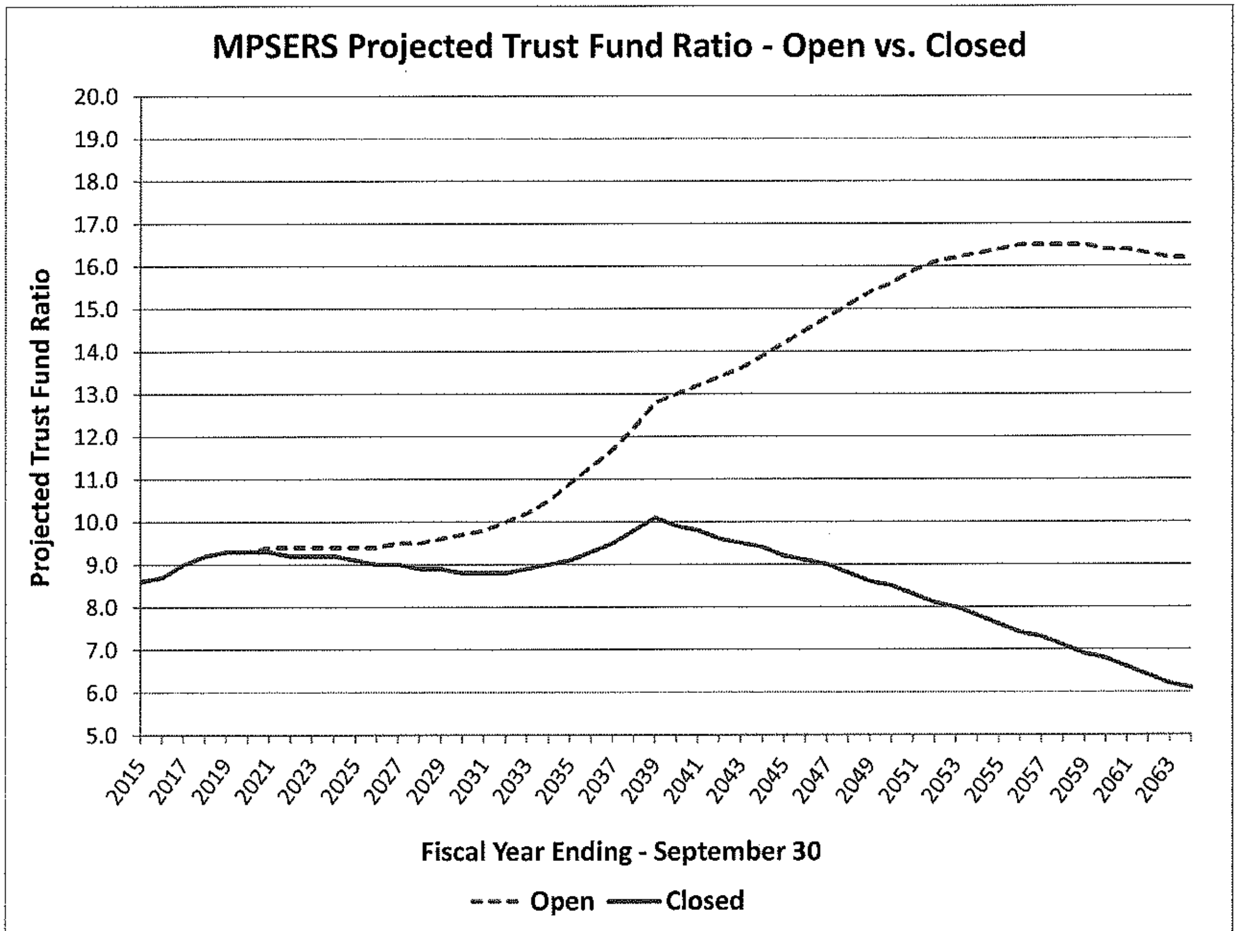
Presented below is a graph that shows the projected funded ratio for MPSERS if the plan remains open or is closed to new hires.




As shown from the graph, given the current amortization policy for MPSERS (i.e., level percentage of payroll with the amortization period ending September 30, 2038), the projected funded ratio of MPSERS is affected very little if the plan remains open or is closed. One troubling aspect of the projected funded ratio is that even if the plan remains open, MPSERS is not expected to achieve an 80% funded ratio until 2030. Given this observation, one could argue that the amortization of the UAAL should be accelerated even if the plan were to remain open to new hires.

**B. MPSERS Trust Fund Ratio**

One measure of a plan's financial security is something called the trust fund ratio. It is the ratio of the beginning of fiscal year actuarial value of assets to the benefit payments expected to be paid during the fiscal year. It is an approximate measurement of the number of years that a plan could be expected to pay out benefit payments in the absence of any additional contributions or investment income. Presented below is a graph that shows the projected trust fund ratio for MPSERS if the plan remains open or is closed to new hires.

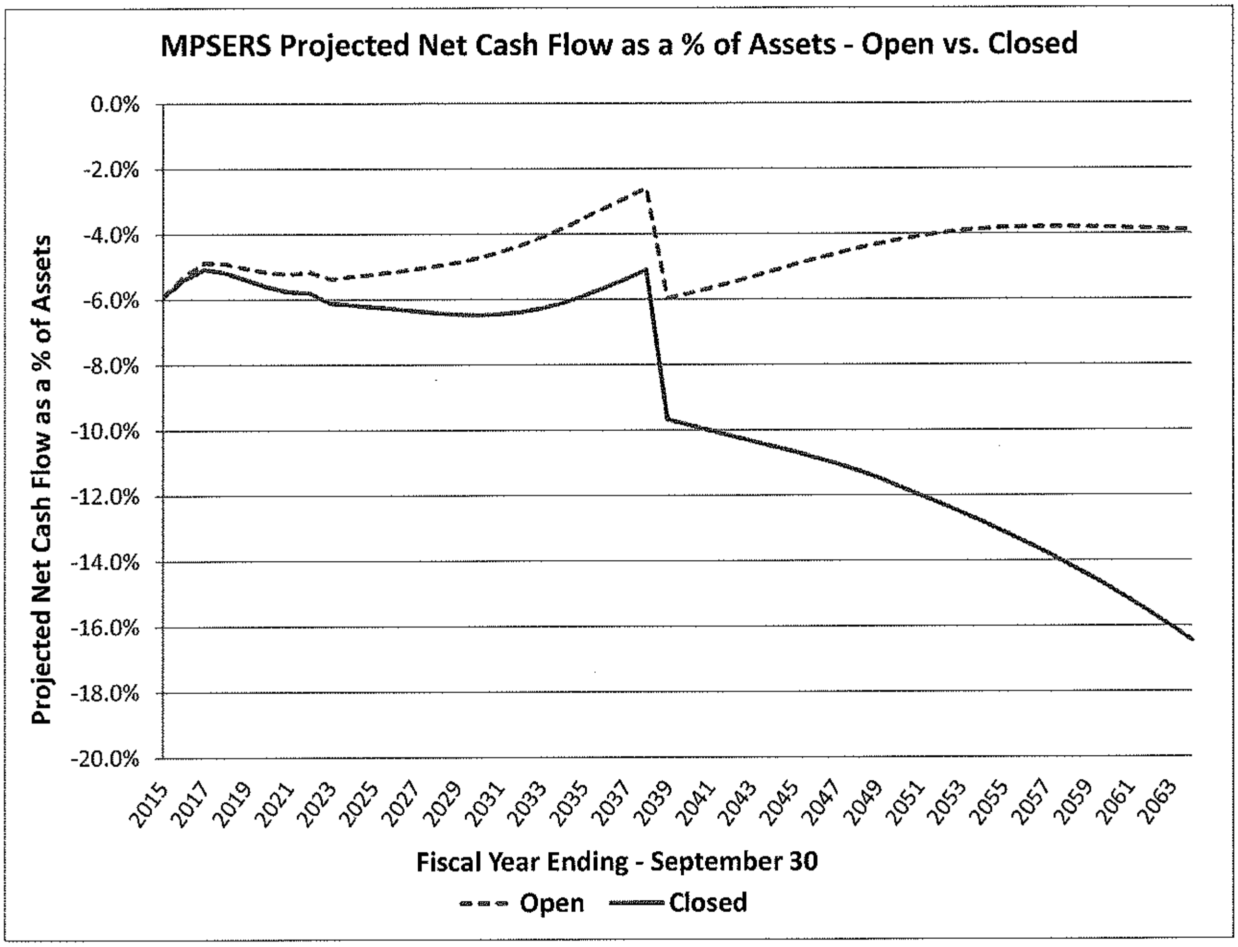



As shown from the graph, the current trust fund ratio for MPSERS is just under 9.0, and if the plan were closed to new hires, remains at roughly that level for most of the period in which the UAAL is being amortized. Therefore, if there are no concerns today regarding the current trust fund ratio, it would be difficult to argue that the closing of the plan significantly changes the ratio during the period in which the UAAL is being amortized from where it is today.

If MPSERS had a 100% funded ratio as of September 30, 2014, the trust fund ratio would be approximately 14.5. Note that if the plan were to remain open to new hires, the trust fund ratio becomes approximately 16.0, with the plan expected to have a 100% funded ratio. This is a natural result of the Hybrid portion of MPSERS using a 7% investment return assumption versus the 8% investment return assumption that is used for the Non-Hybrid portion of MPSERS. A lower assumed rate of investment return used for the actuarial valuation process results in a greater security of benefits for the membership.

**C. MPSERS Projected Net Cash Flow as a Percentage of Assets**

One measure of a plan's ability to maintain a certain asset allocation is a plan's net cash flow as a percentage of its assets. Basically, it illustrates what portion of the assets at the beginning of the year are expected to be needed to cover the benefit payments not covered by that year's contributions. Presented below is a graph that shows the projected net cash flow as a percentage of assets for MPSERS if the plan remains open or is closed to new hires.




As shown from the graph, approximately 6% of the beginning of year assets (coming from either investment return or the liquidation of assets) is currently needed to cover benefit payments in excess of contributions, and if the plan were closed to new hires, remains at roughly that level for most of the period in which the UAAL is being amortized. Therefore, if there are no concerns today that the current asset allocation is inappropriate given these cash flow requirements, it would be difficult to argue that the closing of the plan significantly changes the cash flow requirements during the period in which the UAAL is being amortized from where it is today.

However, if MPSERS were closed to new hires, the cash flow requirements of the plan are expected to significantly change in fiscal years 2039 and thereafter. In fiscal year 2039, approximately 10%

of the beginning of year assets (coming from either investment return or the liquidation of assets) would be needed to cover benefit payments in excess of contributions. At that point, it could be very challenging to maintain the asset allocation currently in place for MPSERS and in particular to maintain an asset allocation consistent with an 8.0% investment return assumption. With MPSERS in essence becoming a retiree only plan (or at least with a vast majority of the liabilities associated with retirees), we would expect the asset allocation of the plan to shift significantly to less risky investments (e.g., fixed income securities) that would be expected to yield less in investment return.

If MPSERS were to be closed to new hires, we attempted to quantify the amount of additional funding (i.e., lump sum payment) that MPSERS would need as of September 30, 2014, above and beyond any currently projected employer contribution amounts, due to an expected change in its asset allocation policy beginning in fiscal year 2039. The table below shows the amount of additional funding (i.e., lump sum payment) that MPSERS would need under three different investment return scenarios:

(1) Scenario 1 - 8% (Non-Hybrid) / 7% (Hybrid) for fiscal years 2015 through 2038; 3% for fiscal years 2039 and thereafter
(2) Scenario 2 - 8% (Non-Hybrid) / 7% (Hybrid) for fiscal years 2015 through 2038; 4% for fiscal years 2039 and thereafter
(3) Scenario 3 - 8% (Non-Hybrid) / 7% (Hybrid) for fiscal years 2015 through 2038; 5% for fiscal years 2039 and thereafter

| **Scenario** | **Estimated Additional Funding Needed for MPSERS as of September 30, 2014 if the Plan Were Closed to New Hires** |
|---|---|
| 1 | $6.7 Billion |
| 2 | 4.8 Billion |
| 3 | 3.3 Billion |

As the above table indicates, there would be a substantial increase in the amount of funding that would be required for MPSERS if the plan were to be closed to new hires. The primary reason for the additional required funding would be due to a change in asset allocation that would be expected to occur as the cash flow considerations of the plan change.

The table below shows the additional UAAL payments beginning in fiscal year 2017 that would be required to finance the additional funding amounts presented above based upon the same amortization policy currently in place for MPSERS. That is, amortization payments are computed as a level percent of payroll assuming that payroll grows 3.5% in each subsequent fiscal year. Regardless of whether payroll actually grows at the 3.5% assumed payroll growth rate, the amortization payment dollar amounts will increase by 3.5% from the previous fiscal year.

| **Scenario** | **Estimated Additional UAAL Payment Beginning Fiscal Year 2017** | **Estimated Additional UAAL Contribution Rate Increase (as a % of Payroll)** |
|---|---|---|
| 1 | $550 Million | 6.1% |
| 2 | 400 Million | 4.4 |
| 3 | 270 Million | 3.0 |

Please let us know if there are any questions.

Mita D. Drazilov is a member of the American Academy of Actuaries and meets the Qualification Standards of the American Academy of Actuaries to render the actuarial opinions contained herein.

Sincerely,

Mita Drazilov

Mita D. Drazilov, ASA, MAAA

MDD:mdd

cc: Louise Gates (GRS)
Chris Smith (GRS)

**DETROIT PUBLIC SCHOOLS NORMAL COST COMPARISON**
**HYBRID vs PURE DC**
**($ in Millions)**

| Fiscal Year [1] | Fiscal Year New Hire Payroll $ [2] | Employer Normal Cost Contribution Summary | | | |
|---|---|---|---|---|---|
| | | Hybrid NC% [3] | Pure DC NC% [4] | Expected NC Savings | |
| | | | | % | $ |
| 2017 | 43.1 | 4.13 | 3.00 | (1.13) | (0.5) |
| 2018 | 63.2 | 4.28 | 3.00 | (1.28) | (0.8) |
| 2019 | 83.8 | 4.30 | 3.00 | (1.30) | (1.1) |
| 2020 | 105.4 | 4.26 | 3.00 | (1.26) | (1.3) |
| 2021 | 128.3 | 4.23 | 3.00 | (1.23) | (1.6) |
| 2022 | 152.8 | 4.18 | 3.00 | (1.18) | (1.8) |
| 2023 | 178.8 | 4.15 | 3.00 | (1.15) | (2.1) |
| 2024 | 205.8 | 4.10 | 3.00 | (1.10) | (2.3) |
| 2025 | 233.9 | 4.06 | 3.00 | (1.06) | (2.5) |
| 2026 | 263.2 | 4.02 | 3.00 | (1.02) | (2.7) |
| 2027 | 293.7 | 3.98 | 3.00 | (0.98) | (2.9) |
| 2028 | 325.0 | 3.94 | 3.00 | (0.94) | (3.1) |
| 2029 | 357.1 | 3.91 | 3.00 | (0.91) | (3.2) |
| 2030 | 389.9 | 3.87 | 3.00 | (0.87) | (3.4) |
| 2031 | 422.3 | 3.82 | 3.00 | (0.82) | (3.5) |
| 2032 | 454.7 | 3.79 | 3.00 | (0.79) | (3.6) |
| 2033 | 487.0 | 3.75 | 3.00 | (0.75) | (3.7) |
| 2034 | 518.6 | 3.71 | 3.00 | (0.71) | (3.7) |
| 2035 | 550.1 | 3.67 | 3.00 | (0.67) | (3.7) |
| 2036 | 580.7 | 3.64 | 3.00 | (0.64) | (3.7) |
| 2037 | 611.0 | 3.61 | 3.00 | (0.61) | (3.7) |
| 2038 | 641.0 | 3.57 | 3.00 | (0.57) | (3.7) |
| 2039 | 671.2 | 3.54 | 3.00 | (0.54) | (3.6) |
| 2040 | 701.4 | 3.50 | 3.00 | (0.50) | (3.5) |
| 2041 | 731.8 | 3.47 | 3.00 | (0.47) | (3.4) |
| 2042 | 762.5 | 3.45 | 3.00 | (0.45) | (3.4) |
| 2043 | 793.7 | 3.44 | 3.00 | (0.44) | (3.5) |
| 2044 | 825.4 | 3.43 | 3.00 | (0.43) | (3.5) |
| 2045 | 857.8 | 3.42 | 3.00 | (0.42) | (3.6) |
| 2046 | 891.0 | 3.41 | 3.00 | (0.41) | (3.7) |

Notes:

(1) The analysis included here is based upon the September 30, 2014 pension valuation. For purposes of this exhibit, it is assumed that the Hybrid plan is closed to DPS new hires as of September 30, 2014.

(2) The FY 2014 payroll for the 6,849 DPS actives prospectively covered by the defined benefit pension plan as of September 30, 2014 was $303.2 million. New hire payroll was derived by projecting the fiscal year 2014 payroll forward with 3.5% each year and subtracting the closed, expected pay for the 6,849 DPS people active as of September 30, 2014, reflecting valuation assumptions. Payroll for the 65 DPS actives already participating in the defined contribution plan as of September 30, 2014 was excluded for this purpose.

(3) This assumes the Hybrid normal cost percentage for DPS actives is the same as the Hybrid normal cost percentage for the total MPSERS population. This includes 1% of payroll for the DC portion of the Hybrid plan.

(4) This assumes employees contribute 6% of pay to receive the full employer match.