NEPC, LLC

To: Investment Subcommittee of the Delaware Cash Management Policy Board

From: John Krimmel, CPA, CFA, Partner

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Subject: Liquidity and Reserve Portfolio Structure Recommendations

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Background
As a part of the Request for Proposals for Investment Management Services we solicited feedback from the respondents on the Liquidity & Reserve portfolio structures, as well as a conversion approach to implementing the new structures. This was a fruitful effort as we received a number of well-reasoned responses to the questions posed in the RFP, which were followed up as a part of the oral presentations. The following three sections summarize these inquiries and result in two recommendations and one follow up discussion topic for the Investment Subcommittee and Board.

Liquidity Portfolio Structure Comments, Discussion & Recommendations
We received several comments in the RFP responses related to the Liquidity Structure. The two most received comments concerned the size of the liquidity mandates relative to the overall cash needs, and the cyclical drawdown approach being considered.

Managers commented in their written proposals that the proposed size of the Liquidity portfolio - $400 million average balance - was slightly more than what would be utilized during a normal year. Others noted that guideline compliance could become an issue during a drawdown period depending on liquidity conditions in the market.

When following up during oral presentations, it was apparent that the size and cyclical draw patterns, depleting one portfolio and then replenishing it while drawing down the other portfolio, concerned the managers. Several of the more thoughtful responses and oral presentations indicated that their preference would be to continue the pro-rata draws across both Liquidity portfolios. The managers indicated that continuing the pro-rata draws would lead to potentially less out-of-compliance periods in the case of a large draw. Further, the managers indicated that drawing a portfolio down to near zero would likely lead to small security position sizes that would trade at larger bid/ask spreads. A final concern raised was that managers may build less than optimal portfolios (more liquid than desired) in order to meet any larger than anticipated cash draws.

Based upon the RFP responses and discussions during the oral presentations, we believe that continuing the practice of pro-rata draws across both Liquidity portfolios remains appropriate. As such, we would recommend that this practice be continued indefinitely.

Reserve Portfolio Structure Comments, Discussion & Recommendations
We received numerous responses to the waterfall or tiered approach to the Reserve portfolio structure. Nearly all respondents acknowledged that they were in agreement that a portion

of the Reserve portfolio should be invested in longer duration strategies than what was being achieved in the previous construct. However, there were a sizeable number (24 of 35 responses) of comments on the number and specific segments contained in the newly revised structure. There were two major concerns with the Proposed Reserve structure: roll down effect and benchmark/universe issues. There was also one Guideline Issue that was raised by several managers that is discussed in this section.

The concerns cited regarding roll down had to do with an artificial increase in turnover due to a security moving out of a narrow benchmark universe. Many of the managers indicated that they would likely not continue to hold a security once it exited the benchmark due merely to the passage of time. An example frequently cited was a manager with the Government/Credit 5-7 year benchmark would likely trade out a security in their portfolio soon after it had less than five years to maturity. The managers acknowledged that while they could still hold the security and be in compliance with the Guidelines, they would likely sell the security and replace it with a comparable security that was included in the benchmark's universe. As a result, the managers indicated that turnover would be artificially inflated, with the increased cost being 1 to 5 basis points per year depending on market conditions.

The concerns cited regarding benchmark/universe issues had to do with "non-standard" benchmarks that were chosen in the revised Reserve structure. Several of the managers noted that while the Government/Credit 3-5, 5-7 and 7-10 year indices exist, they are not widely utilized by the investment management community. The managers further noted that several of these universes (i.e., Government/Credit 7-10 year A or Better Index) contained significantly less securities than a broader universe would contain[1]. Most of the respondents who raised this issue suggested several alternative structures they believed would meet the desired objective of investing the Reserve portfolio across a broader segment of the yield curve.

As a reminder, the Proposed Reserve portfolio structure is as follows:
25% Government/Credit 1-3 Year A or Better
25% Government/Credit 3-5 Year A or Better
25% Government/Credit 5-7 Year A or Better
25% Government/Credit 7-10 Year A or Better

The three most commonly cited alternatives[2] to the Proposed Reserve portfolio structure were:

Alternative A:
25% Government/Credit 1-3 Year A or Better
25% Government/Credit 1-5 Year A or Better
50% Government/Credit 5-10 Year A or Better

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[1] The 1-3 Yr. Government/Credit A or Better Index contains 1,416 issues with an approximate market value $4.5 trillion, while the 7-10 Government/Credit A or Better Index contains 675 issues with an approximate market value of $1.6 trillion. Further, many of the issues in the 7-10 Index are not frequently traded, further reducing the universe.
[2] Alternative A and B, combined, were cited a total of 16 times. Alternative C was cited 8 times.

Alternative B:
25% Government/Credit 1-3 Year A or Better
75% Government/Credit 3-10 Year A or Better

Alternative C:
100% Government/Credit 1-10 Year A or Better

As a result of the respondent comments on the waterfall or tiered issues, we spent a significant amount of time during the oral presentations exploring this topic. As a result of the written responses and oral presentations, we believe that moving to either Alternative A or Alternative B would be appropriate. The following table indicates that there is very little difference between the Proposed Reserve structure or the alternatives.

Delaware OST Reserve Portfolio Structure Comparison		
Data as of November 30, 2017		
	Current Yield	Effective Duration
Existing Structure	1.67%	1.19 Yrs.
Proposed Structure	2.49%	4.61 Yrs.
Alternative A	2.44%	4.34 Yrs.
Alternative B	2.49%	4.61Yrs.

Several managers raised a Guideline Issue in their written responses and oral presentation. The issue raised is a restriction contained in section 7.2 which follows:

7.2 Maturity Restrictions. The maximum maturity for any investment of State Funds in the Reserve Accounts shall be ten years from the date of settlement; *provided that, the maximum average maturity of each account managed by a Reserve Manager shall be seven years* *(emphasis added).*

Under the existing Proposed Structure, Tier 4, the 7-10 year sleeve, would be out of compliance most of the time. Additionally, under either Alternative A or B, the Reserve portfolios would be constrained to less-than-neutral position from time to time. As such, we recommend dropping the second portion of the restriction, which would then read as follows:

7.2 Maturity Restrictions. The maximum maturity for any investment of State Funds in the Reserve Accounts shall be ten years from the date of settlement.

Conversion Considerations
In previous conversations with the Board we have discussed, but not resolved, how the conversion to the new Reserve portfolio structure should be managed. We solicited comments from the investment managers during the oral presentation portion of the RFP process. A couple of themes came out of those discussions, which include:

- Immediate move to the new Structure
- Trigger point move to the new Structure
- Dollar cost averaging into the new Structure

Several managers indicated that they were of the opinion that the since the Board had adopted a new approach, it should move immediately to the new structure. These managers were of the opinion that interest rates, in the intermediate part of the curve, were likely to stay range-bound due to structural issues in the long end of the yield curve. Further, they offered the opinion that the new structure offered immediate benefits in a yield advantage (see table in previous section) that would over time offset any price declines associated with an immediate move.

Other managers were of the opinion that trigger points could be established (yield approach) and that a portion of the portfolio would be converted to the longer duration position as rates hit certain targets.

A final approach is to dollar cost average into the longer duration positions. Since the Existing Reserve structure is 25% 6-Month Treasury Bill and 75% 1-3 Year Government/Credit, there would be a significant amount of liquidity in the near term that could be immediately moved into the desired duration position. The remaining portion of the portfolio would be moved into the desired duration position over the following three quarters.

Each of these approaches offer pros and cons. We believe that this topic should be considered in greater depth at the next regularly scheduled Investment Subcommittee Meeting where a formal recommendation can be formulated for the Board's consideration.

Finally, the last item in the conversion to be addressed is the restructuring of portfolios from the current nine manager structure to the six selected managers. We believe that this should be addressed upon the selection of the managers, and successful contracting process. Assessing incumbents versus new managers and potential manager shifts from Liquidity to Reserve mandates in some instances will influence the conversion process. We believe that this topic should also be considered in greater depth at the next regularly scheduled Investment Subcommittee Meeting where a formal recommendation can be formulated for the Board's consideration.

Conclusion

Based upon the information received from the managers responding to the Delaware Request for Proposal for Investment Services, we believe that three modifications to the Liquidity & Reserve portfolio structure should be considered by the Cash Management Policy Board. These recommendations include:

1. Continue the pro-rata draws from the Liquidity Portfolios.
2. Consider adjusting the Proposed Reserve Portfolio Structure to either Alternative A or Alternative B.
3. Update the Investment Guidelines section 7.2 to remove the seven year maximum average maturity restriction.

We also are of the opinion that an additional conversation around the conversion timeline and process should be held with the Investment Subcommittee and Cash Management Policy Board at their next regularly scheduled meetings.

We look forward to discussing these items with the Board at the January 11, 2018 meeting.