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Memorandum

To: Tucson Supplemental Retirement System Board of Trustees

From: Paul Erlendson, Gordon Weightman and Jay Kloepfer

CC: Mike Hermanson, Silvia Navarro, and Allan Bentkowski

Date: May 28, 2014

Subject: Asset/Liability Study

Background

Callan Associates Inc. (Callan) has completed Phase Two of the asset allocation and liability study for the Tucson Supplemental Retirement System (TSRS or Plan). The objective of the study is help the TSRS Board select an asset allocation policy that will provide an optimal balance between sustainable funded status volatility and minimization of funding costs over the long run.

To provide context for the evaluation of asset allocation choices, we also modeled the Plan's liabilities and two funding alternatives. We modeled the Plan's liabilities as detailed in the valuation report prepared by Gabriel Roeder Smith (GRS), the Plan's actuary. Funding and liability information was supplemented with research and assumptions developed in the experience study GRS delivered to the TSRS Board of Trustees in January, 2014. The asset liability study's results are contained in the attached document and will be presented to the TSRS Board at your June 5, 2014 meeting.

Summary of Results

The TSRS Plan is an open, active plan that faces many of the funding challenges that confront public plans generally. The plan is currently 64% funded, and recently adopted a funding policy of Normal Cost plus amortization of the unfunded liability over an open 20-year period. Following the experience study conducted by GRS, the Board changed several Plan assumptions. These include demographic changes and lowering the investment return assumption to 7.25%.

Using deterministic projections where the new demographic and asset return (i.e. 7.25%) assumptions are fixed, we expect the Plan's funded status to improve modestly over the next 10- and 20-year periods. This scenario shows that the Plan's funded status will increase from 64% today to 72% by 2033. Net cash flow needs (benefit payments and expenses net of contributions) are substantial, and will rise from 3% of assets currently to 5% of plan assets within the next ten years. Net outflows could reach 7% of Plan assets by 2032. While increasing outflows are to be expected as a plan matures, these levels are of a magnitude that have implications for asset allocation, particularly regarding illiquid investments.

We project liability growth to moderate over the next decade. Median simulated liability growth (net of benefit payments) starts at 1.6% per year and falls to 0.5% over the ten-year horizon. Normal Cost is expected to fall over the next 20 years as new hires are placed in Tier II, decreasing the future cost of the Plan given the lower benefits (liabilities) that Tier II participants will accrue. The Plan's active liability, as a percentage of total liability, falls from 34% to 28% over the next 10 years. Our projections show some volatility reflected in liability growth. The range of liability growth is based on inflation uncertainty since higher inflation may result in higher than expected future salary growth.

As of this writing, the Plan is invested primarily in liquid public markets – domestic and international equities as well as bonds. The Plan's exposure to illiquid assets (i.e.—asset classes and investment strategies which are not readily convertible to cash) amounts to a target allocation of 13% of Plan assets. The illiquid components of the Plan are invested in diversified real assets including an 8% allocation to real estate and 5% to infrastructure. It is Callan's belief that TSRS could maintain up to 15% in real assets exposure to diversify the Plan's stocks and bonds, and to provide inflation-sensitive investments.

Because of the current funding gap, the Plan needs return-seeking assets to supplement contributions in order to help improve the funded status. The Plan's liability and demographic profiles suggest a sufficiently long time horizon to assume investment risk. Callan believes the Plan's current target allocation is appropriately tilted toward growth assets. We believe there may be some capacity to add modestly to the Plan's current level of return-seeking, illiquid investments. However, caution is advised as TSRS must maintain vigilance vis-à-vis the increasing liquidity demands of future benefit payments.

Private equity is one of the few assets that is expected to generate higher returns than public equity, and could be added to pursue greater return. The decreased liquidity and long investment horizon of this asset class present potential challenges that will need further evaluation relative to the Plan's future dynamics. Specifically, the Board's consideration of private equity will require clarity around the future status of the Plan (i.e.—will it remain open or closed?) as well as substantial education so as to gain both knowledge and comfort with the characteristics of private equity investing. For these reasons, we cannot provide an unqualified recommendation to proceed with private equity at this time. If appropriate, Callan will work with TSRS staff to provide Trustee education on private equity at future Board meetings.

Other strategies to enhance the potential for higher return short of a greater exposure to return-seeking assets include shifts in the implementation of existing asset classes: more active risk as well as tilts toward higher returning segments of asset classes such as small cap and emerging markets. We also believe the Plan will benefit from a greater proportion of its equity exposure in international. Such as shift will maintain the Plan's current risk level since it will be funded primarily from domestic equity.

The Plan is currently underweight international equity relative to the opportunity set and to public fund peers. Callan believes international equity includes exposure to faster growing economies around the globe. Our experience has shown that active international equity management offers the opportunity for value-added to investors such as TSRS.

Alternative Funding Policy

We were directed to consider an alternative to the current contribution policy. The alternative we analyzed fixed contributions at a flat 27.5% of payroll for employers. The modeling suggests that this flat rate funding policy is projected to fully fund the Plan by 2032. We project that this policy could succeed if the Plan generates the 7.25% return on assets. It is important to note that our modeling shows that little improvement in funded status occurs in the first ten years. Rather, the bulk of the funded status improvement occurs during the second decade out, in years 11 through 20.

Under the 27.5% contribution formula, the first ten years' of funded status is projected to be similar to that which is observed using the current Normal Cost plus 20-year amortization of unfunded liability. The improvement in funded status achieved under the 27.5% flat rate is realized in years 11 through 20 of the forecast horizon. The reason for the different outcome in the second 10-year period is that that is when the 27.5% contribution rate greatly exceeds the rate modeled under the existing policy. Interestingly, the Plan's liquidity needs are reduced in the expected case under the flat 27.5% contribution policy, particularly in years 11 through 20. As a result, concerns about illiquid investments in the later years of the projection are lower. During the first 10 year period, however, liquidity is a potential risk that cannot be ignored in establishing a new asset allocation policy.

A key difference between the Normal Cost plus amortization policy and the flat percent of pay policy is that any negative market volatility cannot be absorbed by the Plan's funding policy since it is fixed at 27.5% of payroll. Current policy allows contributions to adjust to market volatility through the amortization of the unfunded liability. In our simulation work, liquidity needs in the expected case begin to be reduced by year seven (7) under the alternative policy and become meaningful by year ten (10). However, countering the result under the expected case, funded status volatility rises under the alternative contribution policy, raising the probability of liquidity concerns in the worse case outcomes.

Conclusion

The preceding paragraphs highlight several considerations that we believe are relevant to the selection of an appropriate asset allocation policy to meet the Plan's future funding and liquidity needs. We look forward to an interactive discussion with you during the June 5, 2014 TSRS Board of Trustees meeting.

If you have any questions prior to the upcoming Board of Trustees meeting, please call either Paul Erlendson or Gordie Weightman at (303) 861-1900.

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