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P: 469.524.0000 | www.grsconsulting.com

July 16, 2021

Ms. Pattie Featherston
Executive Director
Austin Police Retirement System
2520 South IH-35, Suite 100
Austin, TX 78704

Re: Permissive Service Cost Study

Dear Pattie:

In compliance with Board Policy, GRS has reviewed the Permissive Service Purchases that have occurred over the past 5 calendar years ending with 2020. The table below shows the total number of purchases and the total purchase price by year.

Calendar Year	Number of Purchases	Cost of Purchases
2016	14	$ 1.27
2017	23	$ 2.65
2018	7	$ 0.64
2019	13	$ 0.96
2020	24	$ 1.60
Total	81	$ 7.12

$ in millions

This represents approximately 35% of the total number of retirements over the five-year time period.

Current Factors

The current actuarial equivalent service purchase factors are those that were put in place for purchases beginning in 2018. The actuarial basis for those factors were a discount rate of 7.20% and a mortality assumption of RP-2000 with fully generational mortality using mortality improvement Scale AA. When these factors were put into place, the Board made the decision to add a risk premium to the cost of the service purchases by basing them on: (1) an investment return assumption 50 basis points less than the valuation assumption at the time, and (2) fully generational mortality improvement even though the valuation morality assumption at that time had no mortality improvement included. We believe this was a prudent decision by the Board.

The actuarial equivalent factors used for services purchases are generally updated whenever the actuarial assumptions are updated for actuarial valuation purposes (e.g., following an actuarial experience study). After the Board adopted the new actuarial assumptions in 2019, the decision was made to continue using the current factors until the time of this study.

Rationale for Risk Adjusted Factors

As noted earlier we believe it was prudent of the Board to add a risk premium in the development of the service purchase factors. However, we think it is important for the Board to discuss how much risk premium should be added. When the current factors were put in place (for 2018) they produced a purchase price that was approximately 7%-10% higher than the liability associated with the purchase when using valuation assumptions. One approach would be to develop factors that have a similar level of risk premium. Before the Board makes that decision, the Board should ask itself why that level of risk premium?

To help answer this question it is important to understand what a permissive service purchase is. This is a voluntary financial transaction between the member and APRS. In exchange for the purchase price, APRS is selling an annuity to the member. There are other features as well such as allowing the member to commence their benefit earlier than normal, but primarily APRS is acting similar to an insurance company and selling an annuity to the member. Once this transaction occurs, APRS assumes all of the risk associated with this annuity (investment return, longevity, etc.). If adverse experience occurs APRS cannot go back to the member who purchased the permissive time and ask for more money to make APRS whole.

If APRS is acting like an insurance company in this transaction perhaps it would be helpful to understand how an insurance company goes about determining its price for selling annuities. In simple terms, the price is composed of three pieces: actuarial cost of the annuity, expenses, and profit. First and foremost, insurance companies have a very low risk tolerance with regards to developing the actuarial cost component of the annuities. The insurance companies will choose assumptions that have a very high likelihood of being achieved (not a 50-50 probability that is generally used for actuarial valuation purposes).

If members were to purchase annuities from an insurance company they would receive approximately 50%-60% of the income they receive when purchasing Type B Permissive Service Credit (no changing of retirement date). In other words, the member is receiving an annuity almost double the annuity they would receive from an insurance company (for the same purchase price). As noted above, insurance companies also factor in expenses (e.g., they need to pay everyone that works for the insurance company), and profits. Fortunately, APRS has a very low expense cost (no insurances salesmen to pay) and no need for profits. If we assume that approximately 20% of the annuity purchase price is for expenses and profit that would still mean the member is purchasing an annuity that is 50%-65% larger than they would receive from an insurance company based on just actuarial costs (excluding expense and profit).

Proposed Factors

The question for the Board now becomes what is the appropriate amount of risk premium to add to the service purchase factors. While considering the appropriate amount of risk, it is important to keep in mind that the purchase of service is a completely voluntary decision for each individual member. We would like to layout two options for the Board to consider.

1. Adopt a similar amount of risk premium as the current factors had when initially adopted (7%-10%). This could be accomplished by using the current valuation assumptions but lowering the discount rate (similar to the current factors) to produce the desired risk premium. The discount rate adjustment would need to be 75 basis points less than the investment return assumption to produce factors with a 6%-9% risk premium.

2. Adopt a higher level of risk premium by using a discount rate that is 200 basis points less than the current investment return assumption. This would produce a risk premium of approximately 18-25%. This should provide a significant enough margin that even with adverse experience APRS should not see an actuarial loss on the purchases. Note that this would still be a significantly better price than the member could receive if purchasing an annuity from an insurance company at today's annuity purchase rates (approximately 45%-55% greater).

Note both methods would require the factors to be updated when the investment return assumption for valuation purposes is changed (and perhaps the mortality assumption as well). However, this would be expected to occur infrequently.

Recommendation

While the total amount of dollars is not large, APRS is assuming a financial risk by allowing permissive service purchases. Currently this option is only being utilized by a relatively small group of members. It would seem appropriate for these members to bear the risk of this transaction rather than APRS since the decision to purchase service is completely voluntary for the member. Therefore, we are recommending Option 2 above. We believe this should provide adequate protection from adverse experience for APRS while still providing the member with a very reasonable price when compared to their other available commercial options.

Impact

If the Board follows are recommendation then the cost of purchase prices compared with the current cost would be approximately 20%-25% higher.

Administration

No matter which option the Board chooses, the cost of service purchases will increase versus the current costs. When significant changes like this are made it usually prudent to provide the membership some lead time with regards to when the change will occur. We would recommend that the new factors be put into place effective January 1, 2022. This will allow sufficient time for the staff to communicate with the membership about the change in the purchase price.

We look forward to discussion this analysis with the Board. Please let us know if you have any questions.

Sincerely,

Lewis Ward
Consultant

R. Ryan Falls, FSA, EA, MAAA
Senior Consultant & Actuary

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