

January 18, 2021

The Honorable Chris Tuck
Alaska State Legislature

Subject: Actuarial estimates and projections for potential variable PERS and TRS pension tiers

Dear Mr. Tuck:

Following is a description of our actuarial projections and cost estimates. You are welcome to pass this on to other parties interested in evaluating the costs of this potential plan change.

Proposed variable PERS and TRS pension tiers

It has been proposed to offer PERS members currently in the Tier 4 DCR and TRS members currently in their Tier 3 the ability to join a new variable defined benefit tier. This plan is much more modest than previous plans offered by the state. The plan eliminates pre-Medicare coverage, removes the Alaska COLA, and mandates steady contributions from both employees and employers. All these reductions make the ultimate benefit paid to individuals smaller. Consequently, the fiscal impact of adverse experience is less severe under this new plan than under PERS Tier 3 or TRS Tier 2.

In addition to the plan being more modest, there are several triggers which would be implemented if the funding period deteriorates. These include:

- Suspension of Post-Retirement Pension Adjustment if less than 90% funded
- Increase employee contributions if necessary, subject to the discretion of ARMB board. We modelled a 1/2 % increase (up to 4 times) whenever less than 90% funded.
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We had made calculations and projections of the new plan earlier last year. We are now also making use of stochastic return simulations to evaluate how the plan might react to scenarios where the funding ratio falls. The description below highlights some of our findings and methodology.

The table below compares certain provisions between the Tier 3 PERS defined benefit plan, Tier 4 DCR, and new proposed Tier 5. These apply to PERS members other than Public Safety.

Plan Provision	Tier 3 PERS	Tier 4	Proposed PERS Tier 5
Employee Contributions	6.75%	8.00%	Range of 8-10%
Employer Contributions	22%	22% with 5.31% going toward DCR	22% with no less than 5.31% going to new plan
Vesting	5 years	5 years	5 years
Full retirement eligibility	Any age with 30 years or age 60 with 5 years	None specified	Any age with 30 years or age 62 with 5 years
Benefit Calculations	2% of average pay for first ten years, 2.25% for next ten, 2.5% thereafter	Based on account balance	2% of average pay for first twenty years, 2.5% thereafter
Final average pay	Highest five years	Not applicable	Highest five years
Alaska COLA	10%, beginning at age 65	None	None
Post Retirement Pension Adjustment (PRPA)	Based on CPI	None	Same as Tier 3, but can be withheld if below 90% funded
Medical Coverage	Provided after 30 years or age 60 with 10 years	HRA 3% average PERS salary	HRA 3% average PERS salary
Occupational Disability	40% of Gross Compensation	40%. Must be permanent and total	Same as Tier 3

This similar table compares provisions between the Tier 2 TRS defined benefit plan, Tier 3 DCR, and new proposed Tier 4.

Plan Provision	Tier 2 TRS	Tier 3	Proposed TRS Tier 4
Employee Contributions	8.65%	8.00%	Range of 8-10%
Employer Contributions	12.56%	12.56% with 7.08% to DCR	12.56% with no less than 7.08% going to new plan
Vesting	5 years	5 years	5 years
Full retirement eligibility	Any age with 30 years or age 60 with 5 years	None specified	Any age with 30 years or age 60 with 5 years
Benefit Calculations	2% of average pay for first twenty, 2.5% thereafter	Based on account balance	2% of average pay for first twenty years, 2.5% thereafter
Final average pay	Highest five years	Not applicable	Highest five years
Alaska COLA	10%, beginning at age 65	None	None
Post Retirement Pension Adjustment (PRPA)	Based on CPI	None	Same as Tier 2, but can be withheld if below 90% funded
Medical Coverage	Provided after 25 years or age 60 with years	HRA 3% average TRS salary	HRA 3% average TRS salary
Disability	50% of Salary	40%. Must be permanent and total	Same as Tier 3

Costs

We have calculated the anticipated cost savings of the various changes in plan provisions. These are based on the actuarial valuations performed by the plan actuary. Page 14 of the PERS Actuarial Valuation as of June 30, 2019 indicates that the pension total Normal Cost for Tier 3 Other-than-public-safety workers is 14.08% of public safety pay. We were able to validate that figure within a reasonable degree. Based on this, we calculated the cost savings for the various plan changes discussed above. In addition, we determined the margin available from the impact of suspending the PRPA and increasing member contributions.

These findings are summarized in the following table.

Plan Provision	PERS Other than Public Safety	TRS
Baseline Tier 3 PERS/ Tier 2 TRS	14.08%	14.63%
Eliminate Alaska COLA	-0.76%	-0.67%
Change 2.00%/2.25%/2.50% Formula to match TRS 2.00%/2.00%/2.50%	-0.61%	NA
Raise full retirement age from 60 to 62	-1.10%	NA
Withhold PRPA if Underfunded	Up to 0.61%	Up to 0.64%
Increase Employee Contributions	Up to 2.00%	Up to 2.00%
Increase Employer Contributions	Up to 2.00%	Up to 2.00%
Tier 5 PERS / Tier 4 TRS Pension Cost	11.63%	13.96%
Tier 4 PERS / Tier 3 TRS Contribution	13.31%	15.08%
Initial Margin for Adverse Experience	1.68%	1.12%
Additional Margin for Adverse Experience	4.61%	4.64%

Projections

Based on these figures, we made projections of potential pension costs. These are demonstrated in slides 11-22 from the attached presentation which we are available to provide to the legislature. Key findings include:

- I. Based on the best estimate assumptions, the plan funded ratios would rise to 108% (TRS) and 112% (PERS) after 20 years
- II. Although returns are expected to average 7.38%, and this is a realistic expectation, they will be volatile, often above or below 7.38%. The ARMB investment consultants estimated a “standard deviation” of 13.55% around this mean.
- III. As a result of the real world volatility, there is a strong likelihood that the year-to-year funded position will be significantly above or below the 108%-112% expectation.
- IV. Our model incorporated the triggers which would activate in years when the funded position falls below 90%
 - a. Suspend the Post Retirement Pension Adjustment
 - b. Increase employee contributions by 0.5% (with 2.0% maximum increase)
 - c. Increase employer contributions by 0.5% (with 2.0% maximum increase)

- V. Once the funded position recovers to 100%, the contribution increases will be scaled back 0.5% one year at a time
- VI. Our projections show that there is a 25%-29% likelihood that the funded ratio will be below 90% in any given future year
- VII. There is a high likelihood (59%-65%) that the funded ratio will be more than 100% in most years
- VIII. Our projections show that there is a 10% likelihood that the funded ratio will be below 75% by year 20.
- IX. The safeguards incorporated substantially mitigate, but do not fully eliminate the consequences of adverse experience.

Please refer to the text and graphs on pages 7 and 15–26 from the proposed presentation for visual examples of the projections. I recommend that we discuss these to further understand important points.

Bottom Line Fiscal Impact

These plans are designed to cost the employers no more than the current DCR tiers. If experience is significantly worse than the actuaries expect, benefits will be reduced, and member contributions will increase. There could also be a modest increase in the employer contribution if desired. If so, there is some chance that this would be triggered in future years. The projection charts illustrate these possibilities.

Actuarial calculations were made under my direction. I am a Member of the American Academy of Actuaries and qualified to render this actuarial opinion.

I am happy to answer any questions on this estimate and look forward to discussing this with you further.

Sincerely,



William B. Forna, FSA
President

Cc: Aurora Hawke
Jeff Stepp

Alaska Public Pensions

Pension Reform Briefing

Update and Findings

January 18, 2021

Agenda

- Background
- Current Costs
- Potential Variable Plan Designs for Other PERS and TRS
- Cost forecasts for Variable Plans
 - Potential Tier 5 for Other PERS (Other than Public Safety)
 - Potential Tier 4 for TRS

Background

- Bills to return to Defined Benefit program have been introduced regularly for more than a decade
- Public Safety Bill had also been introduced
 - Employer to pay 12% of its 22% contribution into new program
 - Those hired since 2005 would have option of buying service in this new DB plan
 - Plan had many features to keep costs manageable

Public Safety Bill Cost Management Features

- Contribution margin built in so would exceed actuarial costs of benefits
- Benefits in new tier would be lower than pre-2005
 - No Alaska Cost of Living Allowance
 - Minimum Retirement Age
 - Five Year Salary Average Period (versus three)
- Triggers in case plan becomes underfunded
 - Suspend Post Retirement Pension Adjustment
 - Increase member contributions by up to 2%
 - Increase employer contributions by up to 2%
- Heath Retirement Account would not change from most recent tier

2020 Activity

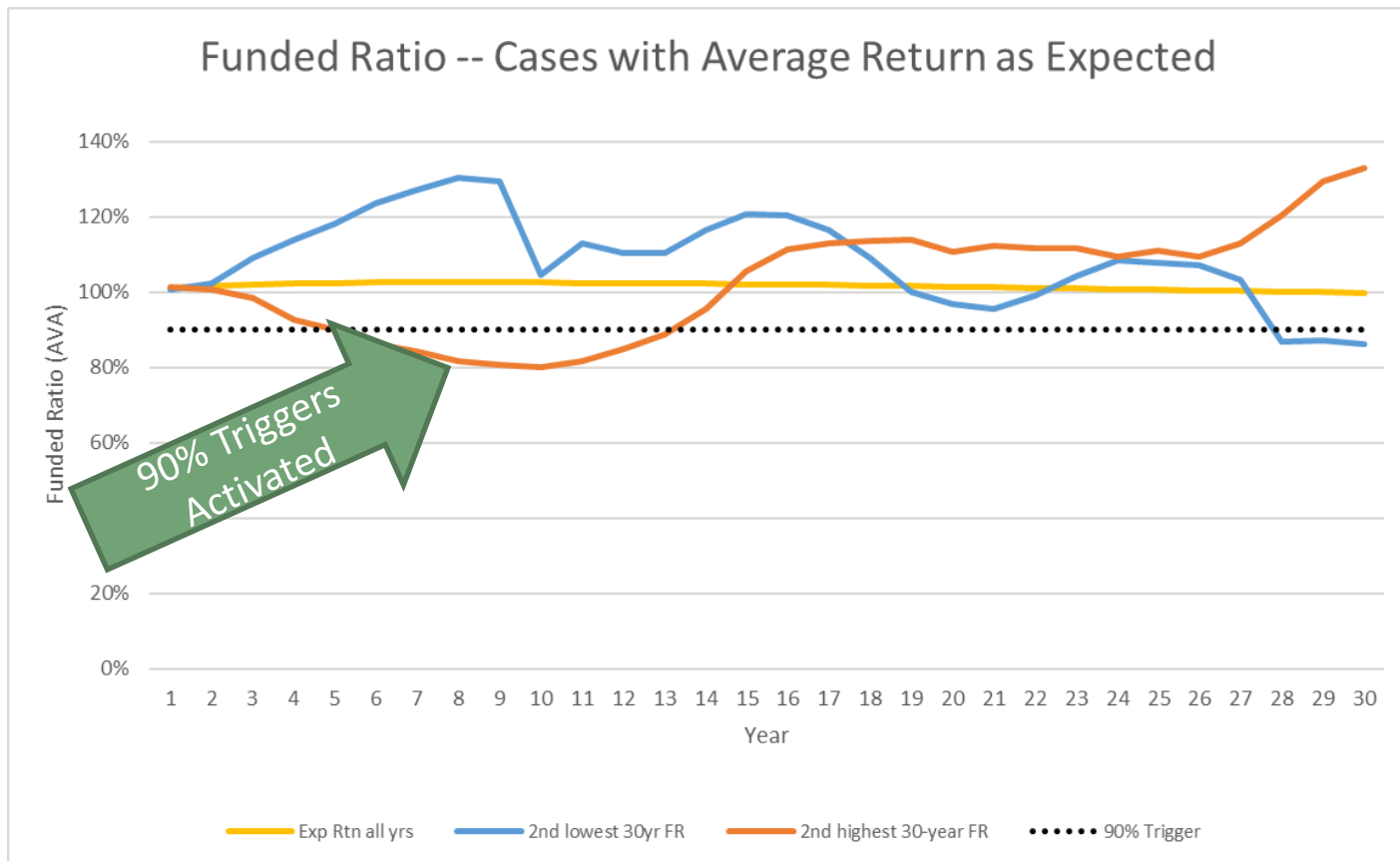
- PTA was engaged by Alaska Public Pension Coalition to analyze similar approach for Other PERS and TRS
- Propose plan was presented
- No specific final plan design decisions were made by APPC
- This initial plan is the plan which is being analyzed in the following pages
- Robust thought as to plan for bill introduction is encouraged

TRS and Other PERS could have a similar structure

- Proposed plan / structure has employer costs at same level as for current new-hire tiers
- Plan is designed to provide lower benefits than pre-2005 tiers
- Cost difference builds up a cushion of well-funded plan
- If experience is unfavorable, would be some cost increases / benefit reductions
- Still likely to provide more secure benefits than current tiers

Benefit Plan Simulations

We modeled 10,000 potential future scenarios based on investment return assumptions consistent with ARMB advisors



Benefit Plan Simulation Conclusions

- Safeguards have been implemented to protect against downside risk
 - Benefits reduced so that expected actuarial cost is lower than baseline contributions (which are set at current levels)
 - Triggers if funded ratio fall below 90%
 - Increased contributions by up to 2% each employee and employer
 - Suspension of Post Retirement Pension Adjustment
- High likelihood of being extremely well funded
- But still some risk of being under-funded
 - About 28% chance of being below 90% funded in any given year
 - About 14% chance of being below 75% funded in year 20

How to avoid cost of new program for TRS and other PERS?

- Ask for employer contribution (ERCost) at or below what employers are now paying (DCRCost).
- Design program with “Normal Costs” (NC) somewhat below that contribution (ERCost).
- If $ERCost < DCRCost$, new program won't have a cost
- The excess of ERCost over NC helps build a cushion to prevent underfunding and need for additional employer contribution down the road

Current Employer Costs

	PERS	TRS
Latest DB Tier (pre-2005)	Tier III	Tier II
Total Retirement Normal Cost	14.08%	14.63%
Member Contributions	6.75%	8.65%
Net Employer Retirement Normal Cost	7.33%	5.98%
DC Tier	Tier IV	Tier III
Death & Disability Normal Cost	0.31%	0.08%
Employer Retirement DC Contribution	5.00%	7.00%
Member Retirement DC Contribution	8.00%	8.00%
Total Contribution	13.31%	15.08%
Ratio - DCR / Total DB Normal Cost	95%	103%

- This means that PERS Tier V must cost 5% less than Tier III, to avoid underfunding
- But TRS Tier IV would generate a 3% cushion if equivalent to Tier II

Potential DB Design – PERS Tier V

- Current Tier III Total Normal Cost is 14.08%
- Current Tier IV employees pay 8.00%
- Current Tier IV employers only pay 5.31%
- Current Tier IV contribution (13.31%) isn't enough for DB equivalent to Tier III, let alone provide a cushion
- Removing Alaska COLA would save about 0.76%
- Changing formula to match TRS (40% at 20 vs 42.5% at 20) would save about 0.61%
- Requiring Age 62 retirement (vs 60) would save about another 1.10%
- This would result in total cost of 11.63% paid for by contributions of 13.31% ($11.63\% = 14.08\% - 0.74\% - 0.61\% - 1.19\%$)
- This is a 14% cushion, which would give strong protection against underfunding
- If plans become overfunded, as expected, some relief to employees may be granted

Potential DB Design – TRS Tier IV

- Current Tier II Total Normal Cost is 14.63%
- Current Tier III employees pay 8.00%
- Current Tier III employers only pay 7.08%
- Current Tier III contribution (15.08%) is enough for DB equivalent to Tier II, but only a 3% cushion
- Removing Alaska COLA would save about 0.67%
- This would result in total cost of 13.96% paid for by contributions of 15.08%
- This is an 8% cushion, which would give strong protection against underfunding
- If plans become overfunded, as expected, some relief to employees may be granted

Potential PERS Tier V - Benefits

- Age 60 normal retirement **would change to 62**
 - Or 30 years
 - Age 55 early retirement – actuarially reduced
- Five year average monthly compensation (AMC)
- Multiplier varies on service
 - 2.00% for first ten years **would change to 20 years**
 - 2.25% for next ten years **would be eliminated**
 - 2.50% for service over twenty
- Postretirement Pension Adjustments
- **No** Alaska Cost of Living Allowance (10%, age 65+)

TRS Tier IV - Benefits

- Age 60 normal retirement
 - Or 30 years
 - Age 55 early retirement – actuarially reduced
- Five-year average monthly compensation (AMC)
- Multiplier varies on service
 - 2.00% for first twenty years
 - 2.50% for service over twenty
- Postretirement Pension Adjustments
- **No** Alaska Cost of Living Allowance (10%, age 65+)

Benefit Plan Simulations

- In the real world, returns will not be stable from year to year.
- Even though the anticipated cost is less than the contribution going in, plan still might become underfunded
- To protect against this, plan has additional “safeguards” beyond funding cushion
 - Don’t pay Post Retirement Pension Adjustment
 - Increase member contributions by up to 2.0%
 - Increase employer contributions by up to 2.0%

Benefit Plan Simulations- Stochastic

- To illustrate this, we simulated potential scenarios for thirty years using “stochastic” modeling
- ARMB investment advisors estimate a “standard deviation” of 13.55% for the investment return of the current asset mix
 - This roughly means that in one of every three years, return would be more than 13.55% above or below 7.38%.
 - Above 21% in one-sixth of the years and below minus 7% in one-sixth of the years
 - Although this standard deviation is somewhat higher than we typically see, we modelled future returns consistent with ARMB advisors estimates

Benefit Plan Simulations

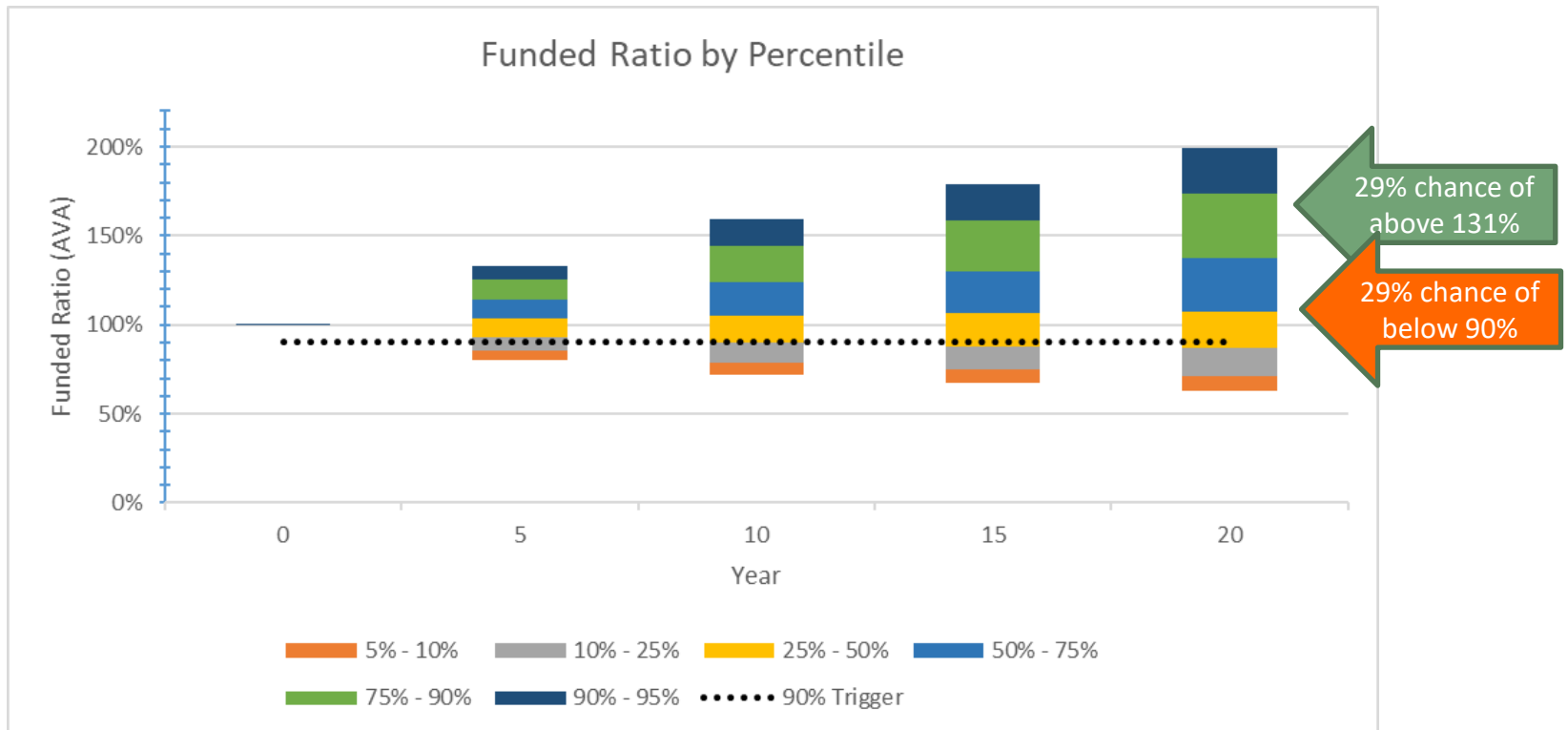
- We modelled 10,000 random simulations based on ARMB actuaries assumptions of 7.38% return on assets
- In simulations where the funded ratio fell below 90% threshold, we activated the triggers
 - Boost contributions by 1% (up to 4%)
 - Presumably shared between employees and employer
 - Suspend the Post Retirement Pension Adjustment

Benefit Plan Simulations (cont.)

- High likelihood (59%) that TRS funded ratio will be more than 100% in most years
 - 65% for Other PERS
- Median funded ratio in 20 years is 108% for TRS and 112% for Other PERS
- But still about 29% chance that TRS funded ratio will be 90% or below after 20 years
 - 25% for Other PERS
- Only about 14% chance that TRS funded ratio will be 75% or below after 20 years
 - 11% for Other PERS

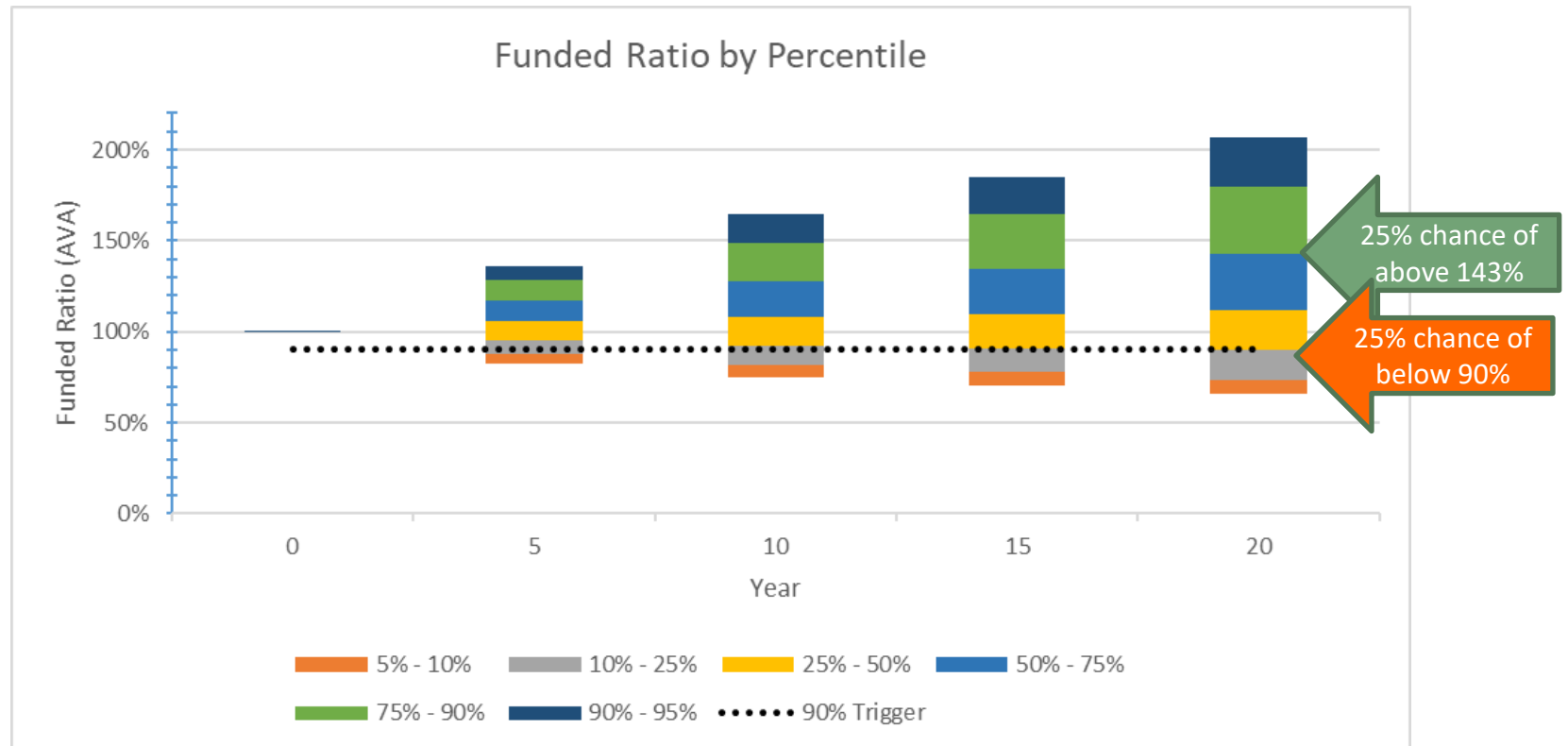
Benefit Plan Simulations (cont.)

- It's as likely that TRS funded ratio will be above 131% than below 90%



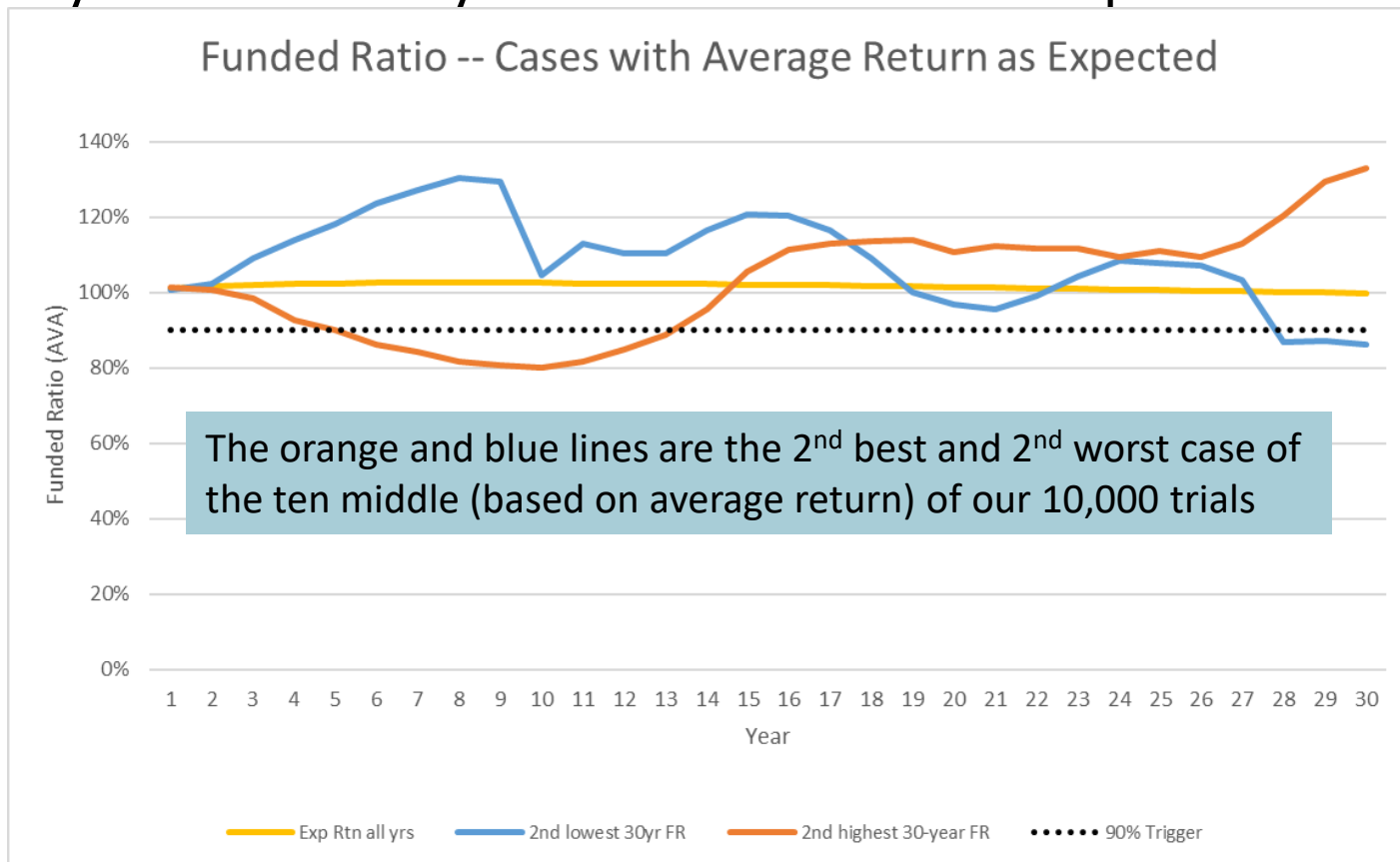
Benefit Plan Simulations (cont.)

- It's as likely that funded ratio for Other PERS will be above 143% than below 90%



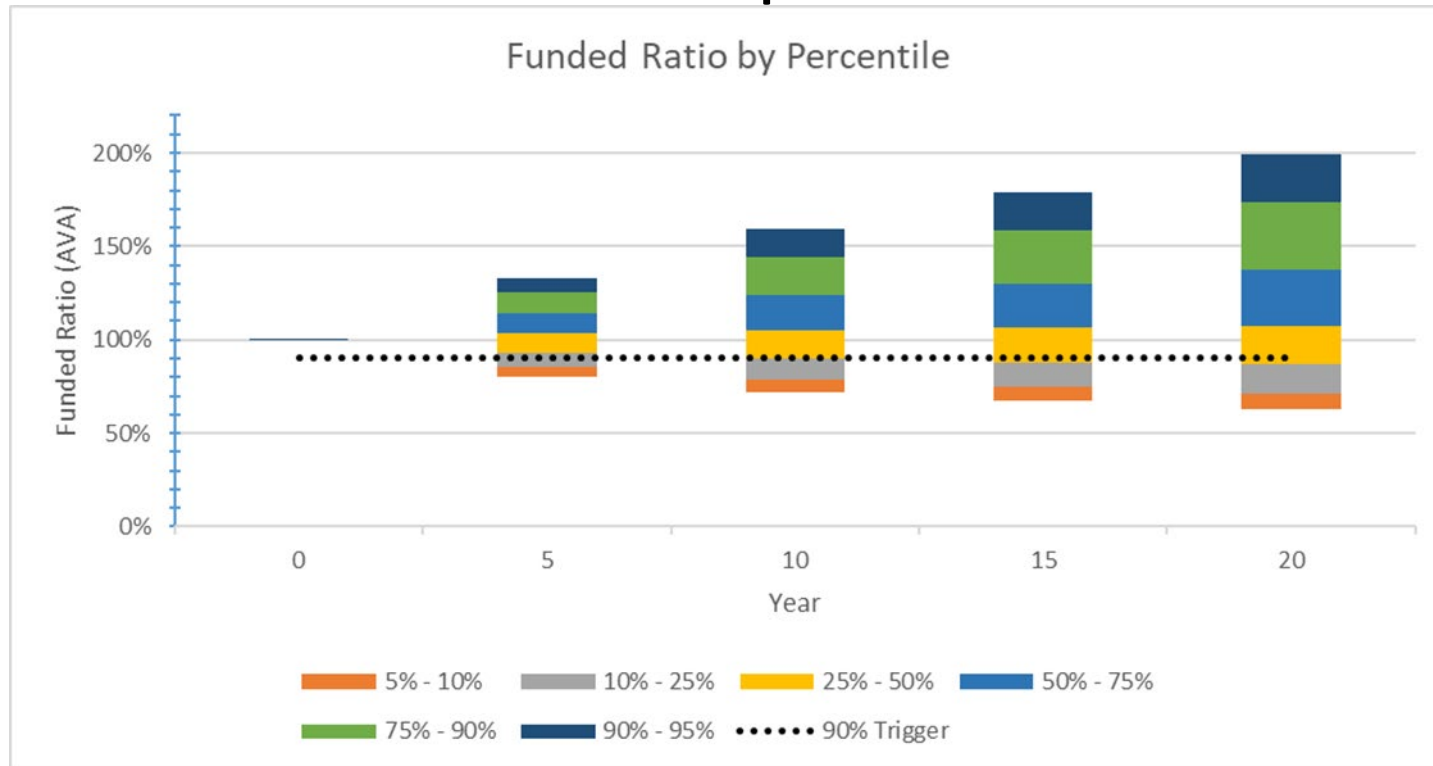
Benefit Plan Simulations (cont.)

- Even if we hit our return expectations in the long run, there's likely to be volatility in short run – TRS example



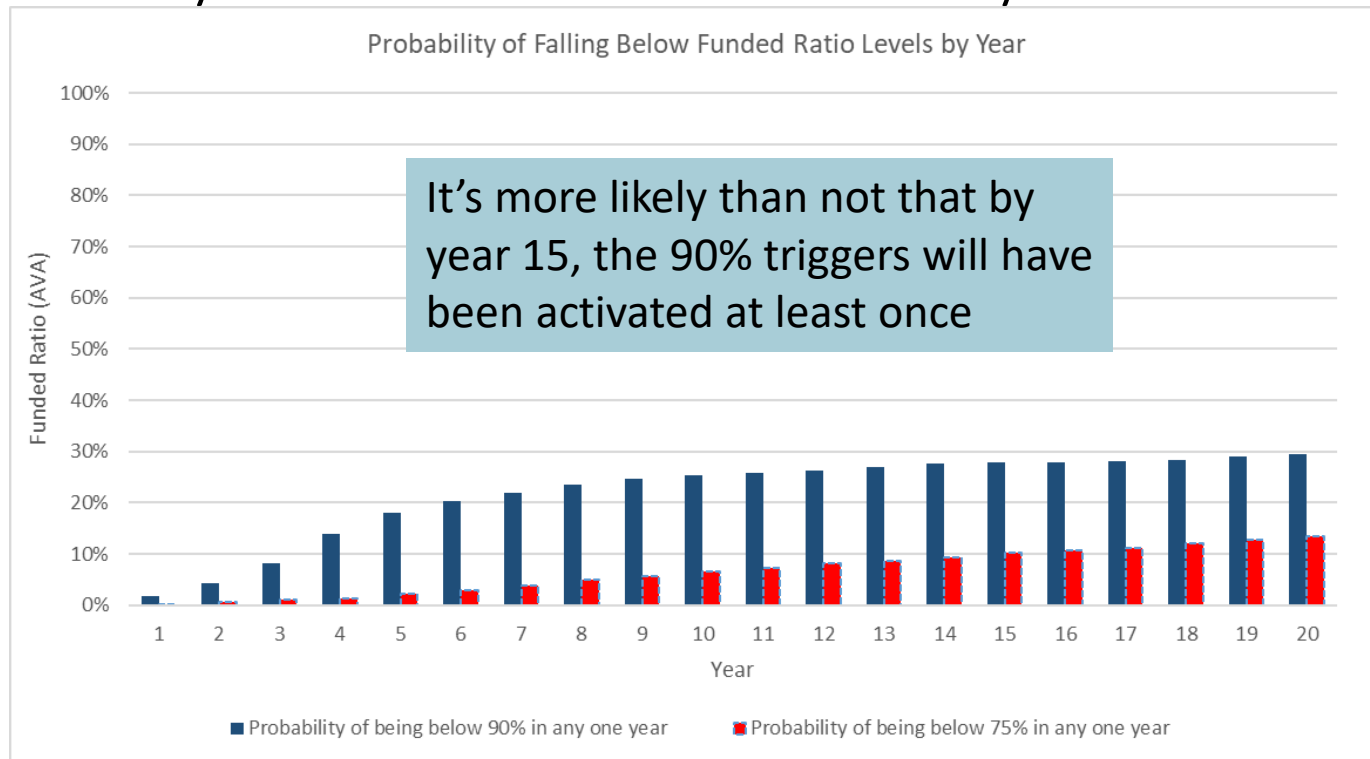
Benefit Plan Simulations (cont.)

- Our safeguards are what provides downside protection – TRS example



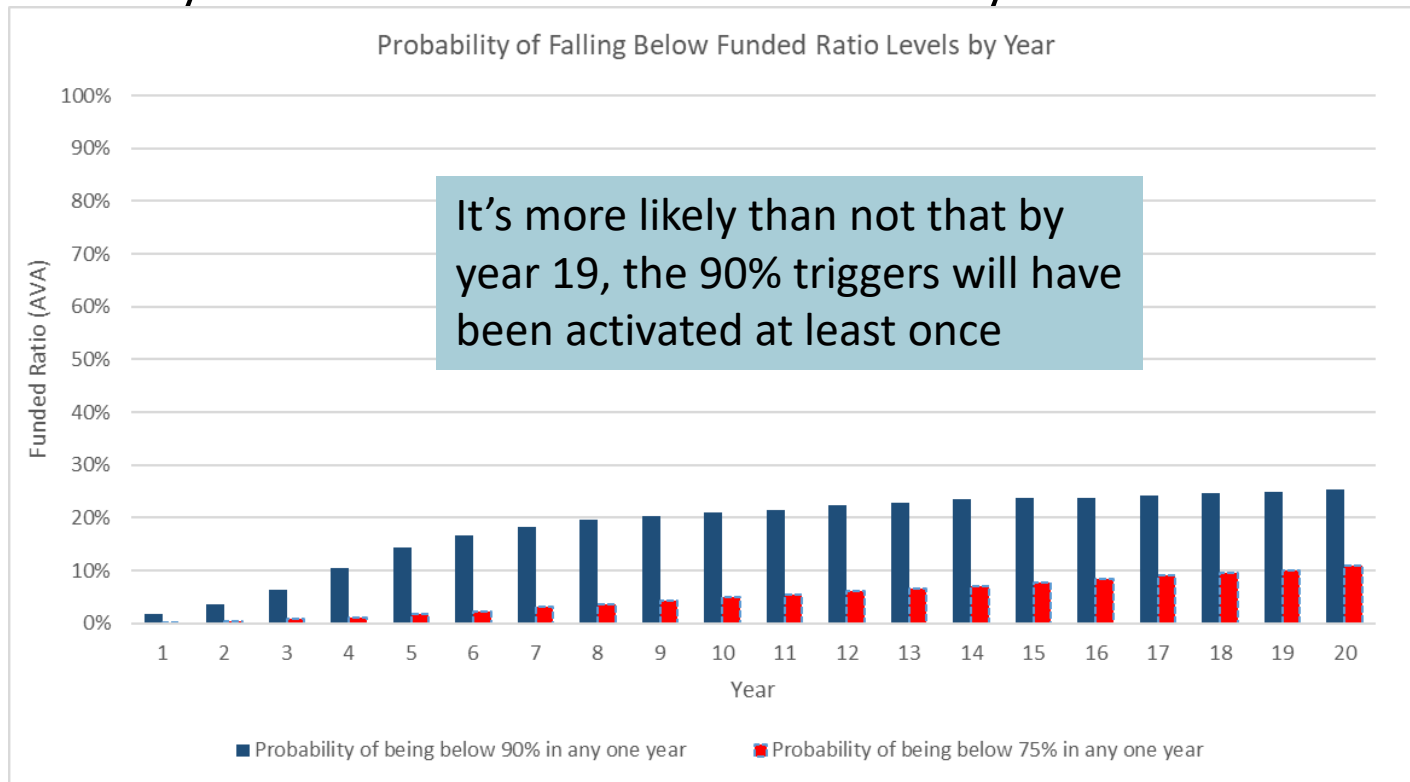
Benefit Plan Simulations (cont.)

- There's about 28% chance that TRS ratio would be below 90% in any given year, triggering safeguards
 - But only about 14% chance of below 75% at year 20



Benefit Plan Simulations (cont.)

- There's about 23% chance that funded ratio for Other PERS would be below 90% in any given year, triggering safeguards
 - But only about 11% chance of below 75% at year 20



Additional Risk Considerations

- Scenarios where plan is continually underfunded are those where returns are below 7.38%. If this situation were to occur
 - Those participants trying to retire under a Defined Contribution approach would also have extreme difficulty being able to retire
 - Relative value of Lower-48 Defined Benefit plans would increase
- Further decrease in actuarial assumed rate of return would reduce funded ratios and could:
 - Require higher contributions to this plan as well as legacy PERS and TRS, or
 - Require further reductions in benefits

Benefit Plan Simulation Conclusions

- Safeguards have been implemented to protect against downside risk
 - Baseline contributions higher than expected cost
 - Triggers if funded ratio fall below 90%
 - Increased contributions by up to 2% each employee and employer
 - Suspension of Post Retirement Pension Adjustment
- High likelihood of being extremely well funded
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Actuarial calculations in this presentation were made under the direction of William Forna, FSA a Member of the American Academy of Actuaries and qualified to render this actuarial opinion