Shared Risk Hybrid Retirement Program for Public Safety HB 55 – Actuarial Implications

William B. Fornia, FSA
Presentation to Alaska House Finance Committee
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William B. Fornia, FSA
Credentials

• Highest Actuarial Credentials
  – Fellow of the Society of Actuaries (1986)
  – Member of the American Academy of Actuaries (1983)
  – Elected as Secretary/Treasurer of 35,000 member Society of Actuaries

• Author and Frequent Speaker
  – “Still A Better Bang for the Buck” (with National Institute on Retirement Security), 2014
  – “Are California Teachers Better off with a Pension or 401(k)” University of California Berkeley Labor Center and Journal of Retirement, 2016
  – Frequent Testimony to Legislatures and City Councils
  – Regular Expert Witness (Detroit, Stockton, Puerto Rico)
Sample Work History

- Corporate actuary for Boeing 1980-1984
- Founded Pension Trustee Advisors in 2010
- Alaska related experience
  - ARMB first ongoing review actuary 2005-2006
  - Audited Alaska PERS/TRS actuarial valuations 2009
  - Former leader of Buck Consultants’ Denver retirement practice
  - Advisors to labor groups since 2011, including testimony
- Consulting services for 23 statewide retirement systems in Alaska, Colorado, Missouri, North Dakota, Oklahoma, Puerto Rico, Utah, Texas, Wyoming and others.
  - Served as system actuary for most of these (including CO, MO, ND, OK, WY)
  - Ongoing consultant to Ohio Retirement Study Council, including reform
- Expert testimony and consulting for pension systems, governments, and labor groups
- Other clients have included the US Department of State, Cities of Baltimore, New York and Philadelphia, IBM, US WEST and Ford
Shared-Risk Hybrid Retirement Program for Public Safety

• Why is change necessary?

• Proposed Structure of Shared-Risk Hybrid Retirement Program

• Illustration of Financial Projections
Illustration of hypothetical police/fire benefits: $80,000 Final Average Salary

- Tier 3 DB: $45,000
- Tier 4 DC: $20,000
- Social Security (not provided)
Why is change necessary?

Tier 3 provided adequate benefits; Tier 4 does not

<table>
<thead>
<tr>
<th>Typical Average Pension Illustration</th>
<th>Police &amp; Fire</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hire Age</td>
<td>31</td>
</tr>
<tr>
<td>Retirement Age</td>
<td>56</td>
</tr>
<tr>
<td>Years of Service</td>
<td>25</td>
</tr>
<tr>
<td>DB Benefit as Percent of Final Average Compensation (based on Tier 3 provisions)</td>
<td>57%</td>
</tr>
<tr>
<td>DCR Benefit as Percent of Final Average Compensation (calculated based on reduced return and uncertain longevity)</td>
<td>31%</td>
</tr>
<tr>
<td>Reduction of Benefit % due to DCR program</td>
<td>26%</td>
</tr>
</tbody>
</table>
Key Considerations with Shared-Risk Hybrid Retirement Programs

• **DB Plans** are more cost effective at providing retirement benefits
  – DB pension plans pool “longevity risks”
  – DB pension plans can maintain a better diversified portfolio because, unlike individuals, they do not age
  – DB pension plans achieve better investment returns because of professional asset management and lower fees

• **DC Plans** are more consistent with individual responsibility
  – Benefit is a clearly defined contribution from the employer and employee to a trust
  – Benefit is more under the control and full ownership of the individual
  – Benefit is much more portable
  – No risk of unfunded liabilities to employer

• **Shared-Risk Hybrid Plans** have many features of both
  – Cost-effectiveness of DB plans
  – But not all of the actuarial risk is borne by the employer
How does HB 55 strike a compromise?

• Start with 12% fixed employer contribution and manage plan within that target as possible
• Design current target benefit levels
  – Consider benefits provided by DCR and latest DB
• Build in benefit and/or employee contribution adjustment mechanisms
• These provide cushion against adverse experience
## Plan Comparison

<table>
<thead>
<tr>
<th></th>
<th>Tier 3 Public Safety</th>
<th>Tier 4</th>
<th>Shared-Risk Hybrid</th>
</tr>
</thead>
<tbody>
<tr>
<td>Employee contributions</td>
<td>7.5%</td>
<td>8.0%</td>
<td>Range of 8-10% set by ARM board</td>
</tr>
<tr>
<td>Employer contribution</td>
<td>22%</td>
<td>22%</td>
<td>22% with no less than 12% to Shared-Risk Hybrid</td>
</tr>
<tr>
<td>Vesting</td>
<td>5</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>Retirement age</td>
<td>Any age with 20 years</td>
<td>None</td>
<td>55 with 20 years or 60 without</td>
</tr>
<tr>
<td>Benefit Multiplier</td>
<td>2% x first 10 years, 2.5% thereafter</td>
<td>None – based on market returns</td>
<td>2% x first 10 years, 2.5% thereafter</td>
</tr>
<tr>
<td>Final Average Pay</td>
<td>Highest 3 years</td>
<td>NA</td>
<td>Highest 5 years</td>
</tr>
<tr>
<td>Alaska COLA</td>
<td>Higher or $50 or 10%</td>
<td>None</td>
<td>None</td>
</tr>
<tr>
<td></td>
<td>Tier 3 public safety</td>
<td>Tier 4</td>
<td>Shared-Risk Hybrid</td>
</tr>
<tr>
<td>------------------------------</td>
<td>-----------------------------------------------------------</td>
<td>---------------------------------------------</td>
<td>------------------------------------------------</td>
</tr>
<tr>
<td>Post-Retirement Pension</td>
<td>Automatic for disabled, over 60 and 5 years retired</td>
<td>none</td>
<td>Same as Tier 3 but can be withheld if plan funding is below 90% per ARM board</td>
</tr>
<tr>
<td>Adjustment (PRPA)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Medical coverage</td>
<td>Provided after 25 years at any age or age 60 with 10 years</td>
<td>HRA 3% average PERS salary plus Medicare supplement</td>
<td>Same as Tier 4 Public safety</td>
</tr>
<tr>
<td>Disability</td>
<td>• Non-occupational calculated as normal retirement</td>
<td>• Non-Occupational is only service credit</td>
<td>Same as Tier 3 Public safety</td>
</tr>
<tr>
<td></td>
<td>• Occupational is 40% of gross compensation</td>
<td>• Occupational is 40% of salary. Must be</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>total and permanent disability.</td>
<td></td>
</tr>
</tbody>
</table>
Changes from old DB system

• Removal of full medical coverage
• Funding level built on more conservative 7.00% rate of return vs current 7.38% ARM Board uses
• Employee contribution can adjust upward from 8% to 10%
• Employer payment toward Shared-Risk Hybrid can adjust upward from 12% to 14%
• Alaska COLA benefit is eliminated
• Post Retirement Pension Adjustment is not automatic and can be withheld if funding level is below 90%
• Minimum age of 55
• Final average salary is based on highest 5 years instead of highest 3 years
Current Tier 4 members transferring into plan

• ARM Board will create an actuarially equivalent formula for purchasing time.
• Individual will have 90 days from implementation to join.
• Individual can use their Tier 4 DC account to purchase service credit or start from 0.
• Tier 4 balance may not be enough to cover actual time employed.
• Example:
  – Peace Officer with 6 years and $100,000 balance in Tier 4.
  – ARM board determines the cost of purchasing 6 years is $120,000.
  – Officer could elect to just purchase 5 years or pay the difference between the two amounts ($20,000) and purchase the 6 years.
### Benefit Comparison

<table>
<thead>
<tr>
<th>Tier 3 Public Safety</th>
<th>Shared-Risk Hybrid</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hypothetical final 3 years of salary:</td>
<td>Hypothetical final 5 years of salary:</td>
</tr>
<tr>
<td>$95,481</td>
<td>$90,000</td>
</tr>
<tr>
<td>$98,345</td>
<td>$92,700</td>
</tr>
<tr>
<td>$101,295</td>
<td>$95,481</td>
</tr>
<tr>
<td></td>
<td>$98,345</td>
</tr>
<tr>
<td></td>
<td>$101,295</td>
</tr>
<tr>
<td>High 3-year average salary = $98,374</td>
<td>High 5-year average salary = $95,564</td>
</tr>
<tr>
<td>25 years at any age</td>
<td>25 years at age 55</td>
</tr>
<tr>
<td>57.5% x $98,374 = $56,565/12 = $4,714 monthly</td>
<td>57.5% x $95,564 = $54,949/12 = $4,579 monthly</td>
</tr>
<tr>
<td>10% COLA at age 65 = $5,656/12 = $471</td>
<td>No COLA</td>
</tr>
<tr>
<td>Automatic PRPA based on CPI</td>
<td>Same Formula and criteria, but PRPA is withheld</td>
</tr>
<tr>
<td></td>
<td>whenever fund falls below 90% funded.</td>
</tr>
<tr>
<td>Health Care:</td>
<td>HRA = 3% contribution and market return over career.</td>
</tr>
<tr>
<td>Retiree and Spouse is $1,647 x 12 = 19,764</td>
<td>Defined contribution benefit.</td>
</tr>
<tr>
<td>Retiree and family is 1,987 x 12 = 23,844</td>
<td>Health care only after Medicare eligibility</td>
</tr>
</tbody>
</table>
## Benefit Comparison (cont’d)

<table>
<thead>
<tr>
<th>Tier 3 Public Safety</th>
<th>Shared-Risk Hybrid</th>
</tr>
</thead>
<tbody>
<tr>
<td>Final benefit retiree and spouse =</td>
<td>Final Benefit retiree and spouse =</td>
</tr>
<tr>
<td>$56,565 pension + $5,656 COLA + $19,764 medical = $81,985</td>
<td>$54,949 pension + fixed HRA amount</td>
</tr>
<tr>
<td>Final Benefit Retiree and family =</td>
<td>Same as above</td>
</tr>
<tr>
<td>$56,565 pension + $5,656 COLA + $23,844 medical = $86,065</td>
<td></td>
</tr>
</tbody>
</table>
Safeguard #1: Reduce benefits vis-à-vis Tier 3

- Minimum Age 55 eligibility
- Five-year average salary
- Eliminate Alaska 10% COLA
- Suspend Post-Retirement Pension Adjustment when not well funded
- Increase employee and employer contributions up to 2% each if not well funded
## Preliminary Cost Estimates

<table>
<thead>
<tr>
<th>Plan Provision</th>
<th>Based on 7.38% return</th>
<th>Based on 7% return &amp; 0.38% drop in inflation</th>
<th>Based on 6% return &amp; 1.38% drop in inflation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Baseline Tier 3 Public Safety Plan</td>
<td>18.00%</td>
<td>19.19%</td>
<td>22.84%</td>
</tr>
<tr>
<td>Minimum Age 55 Retirement Eligibility</td>
<td>-1.31%</td>
<td>-1.40%</td>
<td>-1.66%</td>
</tr>
<tr>
<td>Average Earnings Period to Five Years</td>
<td>-0.76%</td>
<td>-0.75%</td>
<td>-0.71%</td>
</tr>
<tr>
<td>Eliminate COLA</td>
<td>-0.63%</td>
<td>-0.69%</td>
<td>-0.84%</td>
</tr>
<tr>
<td>Withhold PRPA if Underfunded</td>
<td>Up to 2.28%</td>
<td>Up to 2.04%</td>
<td>Up to 1.55%</td>
</tr>
<tr>
<td>Increase Employee/Employee Contributions</td>
<td>Up to 4.00%</td>
<td>Up to 4.00%</td>
<td>Up to 4.00%</td>
</tr>
<tr>
<td>Shared-Risk Hybrid Pension Cost</td>
<td>15.30%</td>
<td>16.35%</td>
<td>19.63%</td>
</tr>
<tr>
<td>Contributions (net of health)</td>
<td>17.08%</td>
<td>17.08%</td>
<td>17.08%</td>
</tr>
<tr>
<td>Contribution Margin</td>
<td>1.78%</td>
<td>0.73%</td>
<td>-2.55%</td>
</tr>
<tr>
<td>Additional Margin for Adverse Experience</td>
<td>6.28%</td>
<td>6.04%</td>
<td>5.55%</td>
</tr>
</tbody>
</table>
Safeguard #2: Actuarial Methods

• Build in margin in actuarial assumptions
• Build reserves in good times to provide added funding during bad times
• Compare 12% + 8% = 20% contributions with costs above
  – 16.35% cost for pension based on 7.00% returns
  – HRA & Medicare Supplement are another 2.92%
  – This provides cushion of 0.73%
  – Additional 6.04% available through PRPA suspension and additional 2%+2% employee and employer contributions
Safeguard #3: Reduced Discount Rate

• Target the pension and health care benefits to be equal to latest tier DB

• Determine the costs based on 7% discount rate rather than 7.38% assumed by PERS actuary

• Seek additional funding for this level, and then commit to this fixed employer contribution rate going forward
  – This is 12% employer contribution for Police and Fire employers

• Monitor experience and adjust benefits and/or contributions as necessary going forward
Benefit Plan Simulations - Historical

- We modelled how plan might have worked under various returns consistent with PERS returns
- Considering each 20-year period from 1980-2000 to 2000-2020
  - Median case was if 1995-2015 was replicated
    - 9.1% average return
    - Never falls below 90%
  - Worst case was if 2000-2020 was replicated
    - 8.6% average return
    - Falls below 90% for 3 of those 20 years, by end would be 99% funded
  - 75%ile best case was if 1986-2006 replicate
    - 10.2% average return
    - Would be 133% funded after 20 years
Benefit Plan Simulations - Historical

If we re-live returns from 2000-2020, would dip below 90% funding, but recover
How have other states operated?
Case Study – Wisconsin

• Cost of Living Adjustment is dependent on fund returns
• At retirement, each member has a fixed benefit
• A variable benefit is added to this, based on fund returns
• The variable benefit itself can go down as well as up, but the fixed benefit does not decrease
• Following 2008, the variable benefit did decrease, but has recovered
Case Study – FPPA

- Colorado Fire and Police Pension Association
  - Formed in 1980, creating new statewide plan
  - Contributions are fixed at 8% employee + 8% employer
  - This level is sufficient for core DB plan
  - Excess contributions went into DC plan during good times
  - Board has discretion over COLA, keeping costs below 16%
Case Study – SDRS

• Historically among best funded state plans
• SDRS is considered a hybrid DB plan with DC features
• History of substantive benefit improvements funded by favorable investment results—including retirees
• Fixed member and employer contributions
• Statutory triggers requiring Board recommendations for corrective actions/no higher employer contributions
• Primary benefit change tied COLA to Funded Ratio and CPI
• Retirees received smaller COLA as a result
Case Study – Ohio

• Employer contributions are fixed for each of five pension systems
• Major pension reform completed in 2012
• Systems were and are required to develop plans to keep funded periods within 30 years
• Systems are now imposing plan reductions in many cases
• Like Alaska, plans include retiree healthcare
Proposed 12% employer contribution is consistent

• Recently modified police and fire plans
  – Utah employer contribution of 12.0%
  – Ohio employer contribution of 14.0% for non-emergency, 19.5% for Police, and 24.0% for Fire

• Major Alaska employers
  – Wells Fargo
    • 6% match on 401(k)
    • Plus 6.2% Social Security for total of 12.2%
  – Alaska Airlines
    • 7% match on 401(k) plus 1.5% Stock Purchase Plan subsidy
    • Plus 6.2% Social Security for total of 14.7%
Recap

- Alaska has concern with potential future unfunded liabilities
- DCR provides inadequate benefits
- HB 55 Shared-Risk Hybrid Retirement Program for Public Safety is a potential solution
  - If actuarial experience is as expected, benefits will be paid comparable to Tier 3
  - If actuarial experience is unfavorable, lower benefits will be paid
  - Individuals do not take this risk, the government does not take this risk; pools of individuals do
Questions?
Appendix

• We recommend that PERS actuary review and refine our estimates

• Estimates based on limited publicly available actuarial information, while PERS actuary has complete information

• Actuarial calculations were made by or under the direction of William Fornia, FSA, a Member of the American Academy of Actuaries, who is qualified to render these actuarial opinions
2019 Benefit Plan Simulations-
Stochastic

• In 2019, we conducted simulations to see likelihood of this program becoming significantly underfunded.
• In the real world, returns will not be stable from year to year.
• ARMB investment advisors estimate a “standard deviation” of 14.71% for the investment return of the current asset mix.
  – This roughly means that in one of every three years, return would be more than 14.71% above or below 7.38%.
    • Above 22% in one-sixth of the years and below minus 7.3% in one-sixth of the years.
  – Although this standard deviation is higher than we normally see, we modelled future returns consistent with ARMB advisors estimates.
Benefit Plan Simulations – 2019 Baseline

• We modelled how plan might have worked under various returns
• If fund earns 6.6% for next ten years, as ARMB investment consultant estimates, then 7.38% (consistent with long-term PERS actuarial consultants) thereafter
  – Plan will grow to 107% funded by 20 years
  – Never below 100% funded
  – Funded ratios based on conservative 7.00%
    • Current actuary uses 7.38%
2019 Benefit Plan Simulations (cont.)

• We modelled 10,000 random simulations based on ARMB investment advisors return assumptions of 6.6% for next ten years, followed by ARMB actuaries assumptions of 7.38% beyond that.

• In simulations where the funded ratio fell below 90% threshold, we activated the triggers
  – Boost contributions by 1% (up to 4%)
  – Suspend the Post Retirement Pension Adjustment
2019 Benefit Plan Simulations (cont.)

• High likelihood (68%) that funded ratio will be more than 100% in most years
• Median funded ratio in 20 years is 114%
• But still was about 23% chance that funded ratio will be 90% or below
• Only about 10% chance that funded ratio will be 75% (current PERS level) or below after 20 years
• These simulations have not been updated
• We encourage system actuaries to conduct similar simulations for this program as well as legacy tiers
2019 Benefit Plan Simulations (cont.)

- It was as likely that funded ratio will be above 149% than below 90%
Benefit Plan Simulation Conclusions

• Safeguards have been implemented to protect against downside risk
  – Baseline contributions slightly higher than expected cost
  – Conservative assumed rate or return
  – 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 (2019 analysis)
  – About 23% chance of being below 90% funded in any given year
  – About 10% chance of being below 75% funded in year 20
Benefit Plan Simulations (cont.)

- Our safeguards are what provides downside protection
Benefit Plan Simulations (cont.)

- There’s about 23% chance that funded ratio would be below 90% in any given year, triggering safeguards
  - But only about 10% chance of below 75% at year 20

It’s more likely than not that by year 16, the 90% triggers will have been activated at least once