Agenda

- Your Milliman Team
- Our Approach
- Audit Process
- Interactions with OSA
- Preliminary Observations
- Summary
Your Milliman Team

- Proud to be working for one of Milliman’s two oldest clients
  - When Wendell Milliman founded our firm in Seattle in 1947 the Washington State Employees Retirement System was a client.

- Mark, Nick, and Daniel
  - Have worked for public plans for many years
  - Serve many of the nation’s largest public plans

Daniel Wade  Mark Olleman  Nick Collier
How will Milliman approach the audit?

- Identify any concerns the PFC may have
- Verify results independently
- Work cooperatively with OSA to improve work product
- Thorough analysis and evaluation of all material information:
  - Data
  - Processes
  - Reports
- Conformance with Actuarial Standards of Practice
How will Milliman approach the audit? (continued)

- Identify issues which may:
  - Cause a material difference in results
  - Result in improved communications

- Resolve issues
  - Discuss findings with State Actuary
  - Work with State Actuary to understand “why”

- Recognize that differences of opinion may exist in certain areas, particularly with respect to actuarial assumptions

- Communicate clearly to the PFC any material areas in which our judgment differs from the State Actuary and explain “why”
Audit Process

- **Goals**
  - Verify financial condition of Plan is accurately reported
  - Evaluate actuarial communication

- **Replication audit**
  - Most comprehensive approach
  - All calculations are independently replicated based on the same census data, assumptions, and methodology
Audit Process  *(continued)*

- Preliminary discussions with OSA
- Gather Necessary Information
- Data
  - Assess accuracy
  - Test for missing elements
  - Compare data provided by DRS to data used by OSA
Audit Process (continued)

- Experience Study
  - Review assumptions and cost methods
    - Economic assumptions
    - Demographic assumptions
  - Consistency with Actuarial Standards of Practice
  - Professional judgment
  - Compare to other systems
Audit Process (continued)

- Actuarial Assets - Independent Replication
- Valuation Liability Calculations
  - Check Individuals
  - Perform full parallel valuation
  - Compare results to OSA
  - Reconcile differences
- Valuation Funding Calculations
  - Independent reconciliation of contribution rates
Audit Process  

- Review of reports
  - Appropriate information and scope?
  - Easy to understand and find information?
  - Consistent with Actuarial Standards of Practice?
Where Differences May Occur

- Types of differences
  - Objective
    - Data
    - Benefits not reflected correctly
    - Assumptions not applied correctly
    - Application of cost method or smoothing method
  - Subjective
    - Based on actuary’s judgment
    - Most often regarding assumptions
    - Discuss with State Actuary to understand “why?”
    - Explain “why” to PFC and put it in perspective
Interactions with OSA so Far

- Very professional
  - Open discussion of issues
  - Receptive to different ideas
  - Schedule set up by OSA and used to track progress
  - Advance notice of any changes
  - All requested information provided in a timely manner
PRELIMINARY OBSERVATIONS
Aggregate Cost Method

- **Aggregate Normal Cost** equals the level % of projected pay to fund the difference between the present value of projected benefits and the actuarial value of assets.
  - All projected contributions go in one bucket, and are spread evenly over the projected value of future salaries.
- Gains and losses cause the normal cost to go up and down.
Aggregate Cost Method

- Does not calculate liability independent of the assets, however OSA uses Projected Unit Credit to accomplish that.
- Conference of Consulting Actuaries Draft White Paper classifies Aggregate as “Acceptable” if supplemental calculations disclose additional information. If not, then “Acceptable with conditions.”
- All projected future contributions spread over projected salaries
  - Good for agency risk (cost of benefits is not pushed into the future)
  - Excellent for demographic matching (cost is matched to salaries of members earning benefits)
Conference of Consulting Actuaries (CCA)
Draft White Paper

- “Actuarial Funding Policies and Practices for Public Pension Plans”
- Response to the void left by GASB no longer specifying parameters for an ARC (Annual Required Contribution)
- Composed by a group of public plan actuaries from the major firms in public plan practice who met more than 24 times over two years.
- Sets out policy objectives and classifies practices for the three major components of funding policies (a) cost methods (b) asset methods and (c) amortization methods.
- Final scheduled for release July, 2014
Conference of Consulting Actuaries (CCA)
Draft White Paper  (continued)

- Level Cost Allocation Model (LCAM)
- Classifications
  - LCAM Model practices
    - NOT “Best Practices”
    - Usually one practice most consistent with the Level Cost Alloc. Model
  - Acceptable Practices
    “well established in practice and typically do not require additional analysis to demonstrate their consistency with general policy objectives.”
  - Acceptable with Conditions – require additional analysis
  - Non-recommended Practices
    adopt only with acknowledgement of identified policy concerns or with understanding they reflect different policy objectives
  - Unacceptable Practices
Asset Method

- OSA Asset Method
  - Smooths losses based on size of gain or loss. Examples
    - If actual return within 1% of assumption – immediate recognition
    - If actual return more than 7% above or below assumption – 8 years
      - Must be inside 70% to 130% of Market Value Corridor
  - OSA is almost inside of CCA Model Practice:
    - 5 or fewer years with 50% - 150% corridor, OR
    - 7 years or less with 60%/140% corridor
  - OSA satisfies CCA Acceptable Practice:
    - 10 years or less with 70%/130% corridor

- Other systems
  - 5 year smoothing is most common
  - Unusual to consider the size of the gain or loss
OSA Asset Method satisfies all CCA Policy Objectives:

- Policy specifies all components of Asset Method
- Unbiased relative to market
- Does not selectively reset at market when market > actuarial
- Unbiased relative to realized and unrealized gains and losses
- Satisfies ASOP No. 44 (Actuarial Standard of Practice):
  - Likely to return to market value in a reasonable period, and
  - Likely to stay within a reasonable range of market.
- Parameters reflect empirical experience from historical market volatility
- Support the policy goal of demographic matching
**Mortality**

- **Two parts**
  - Base table: What is the probability today of living another year?
  - Improvement scale: People are living longer. How much longer?

- **Base table**
  - Milliman is finalizing review of OSA’s work. Multiple discussions.
  - OSA found members with larger benefits are living longer. In conjunction with excluding non-retired lives this did not change the results but the method will be incorporated into future studies.

- **Improvement scale**
  - OSA is recommending Scale BB.
  - Scale BB is based on Social Security data from 1950 – 2007.
  - Scale BB was tested to be consistent with two large public plans.
  - Milliman believes this is reasonable.
Future Mortality Improvement *(additional detail)*

- No one knows how rapidly mortality will improve
- There are many reasonable assumptions
- Preliminary research shows
  - Scale BB is consistent with long-term national improvements
  - Scale BB is lower than recent national improvements and also lower than CalPERS experience from 1997 - 2011
  - Milliman is continuing to research

- Other Public Retirement Systems
  - Have generally not gone past Scale AA yet
  - Generational Mortality Projection
    - Half Scale AA generationally: Washington
    - Full Scale AA generationally: Oregon, Idaho, Seattle, Tacoma, Utah
    - Full Scale BB generationally: Wyoming
  - Differing Static Mortality Projections
    - CalPERS, CalSTRS, Montana PERS, Montana TRS, Colorado

(Private Plans generally use IRS mandated static projections for both IRS and accounting purposes.)
Direct Rate Smoothing

- Some retirement systems phase-in the impact of assumption changes on contribution rates.
  - Instead of phasing in assumptions
  - Funding ratios are based on best estimate assumptions
  - Generally referred to as “Direct Rate Smoothing”

- Conference of Consulting Actuaries Draft White Paper
  - Says direct rate smoothing is preferable to assumption phase-in
  - Classifies “acceptable” practice as the shorter of: the time period to next scheduled assumption review, or five years.
Membership Data

- Reviewed data supplied by DRS
  - Reviewed for reasonableness
  - Confirmed that all necessary information was included

- Reviewed data used in OSA’s valuation
  - Performed independent data editing
    - Edits made for outliers and salary adjustments made for members with less than one year of service.
    - Compared to preliminary participant data summary posted on OSA’s website.
  - Conclusion
    - Data used by OSA in valuation looks very good.
### Membership Data (continued)

#### All Plans

<table>
<thead>
<tr>
<th></th>
<th>OSA</th>
<th>Milliman</th>
<th>Ratio OSA/Milliman</th>
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</thead>
<tbody>
<tr>
<td><strong>Active Members</strong></td>
<td></td>
<td></td>
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<tr>
<td>Total Number</td>
<td>291,345</td>
<td>291,345</td>
<td>100.0%</td>
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<tr>
<td>Total Salaries (millions)</td>
<td>$16,525</td>
<td>$16,525</td>
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<tr>
<td>Average Age</td>
<td>47.7</td>
<td>47.7</td>
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<tr>
<td>Average Service</td>
<td>12.4</td>
<td>12.4</td>
<td>100.0%</td>
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<tr>
<td>Average Projected Compensation</td>
<td>$56,710</td>
<td>$56,715</td>
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<tr>
<td><strong>Retirees and Survivors</strong></td>
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<tr>
<td>Total Number</td>
<td>150,145</td>
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<td>Average Monthly Pension</td>
<td>$1,803</td>
<td>$1,800</td>
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<td>Number of New Service Retirees</td>
<td>9,474</td>
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<td>Avg Monthly Pension for New Svc Retirees</td>
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<td><strong>Terminated Members</strong></td>
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<tr>
<td>Total Number Vested</td>
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<tr>
<td>Total Number Non-Vested</td>
<td>118,332</td>
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</table>
Actuarial Value of Assets

- **Smoothing method**
  - Layered recognition of gains and losses, with length of recognition based on deviation from expectation (maximum of eight years)
  - Data provided by WSIB and DRS
    - Totals and breakdown by Plan taken from DRS data
    - Monthly cash flows taken from WSIB data.
    - End of Year total market values do not perfectly match between the two sources

- Independent calculation by Milliman based on sources of data
- Asset method and calculations are reasonable
### Actuarial Value of Assets (continued)

<table>
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<tr>
<th>AVA (millions)</th>
<th>OSA</th>
<th>Milliman</th>
<th>Ratio OSA/Milliman</th>
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<tbody>
<tr>
<td><strong>PERS</strong></td>
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<tr>
<td>Plan 1</td>
<td>$8,053</td>
<td>$8,052</td>
<td>100.0%</td>
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<tr>
<td>Plan 2/3 (DB)</td>
<td>$24,335</td>
<td>$24,333</td>
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<td><strong>TRS</strong></td>
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<td>Plan 2/3 (DB)</td>
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<td><strong>SERS</strong></td>
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<tr>
<td>Plan 2/3 (DB)</td>
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<td><strong>PSERS</strong></td>
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<tr>
<td>Plan 2</td>
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<td><strong>LEOFF</strong></td>
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<tr>
<td>Plan 1</td>
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<td>Plan 2</td>
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<td><strong>WSPRS</strong></td>
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<tr>
<td>Plan 1 &amp; 2</td>
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Summary

- Audit is in progress, so far only preliminary observations.

- Approach
  - Independent verification of results
  - Work cooperatively with OSA to improve work product
  - If any material differences exist, communicate “why” to PFC

- Positive interactions with OSA so far

- Does the PFC have any specific issues Milliman should address?
Your Questions?