



Cavanaugh Macdonald
CONSULTING, LLC

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Actuarial Transition Update – North Carolina Retirement Systems Division

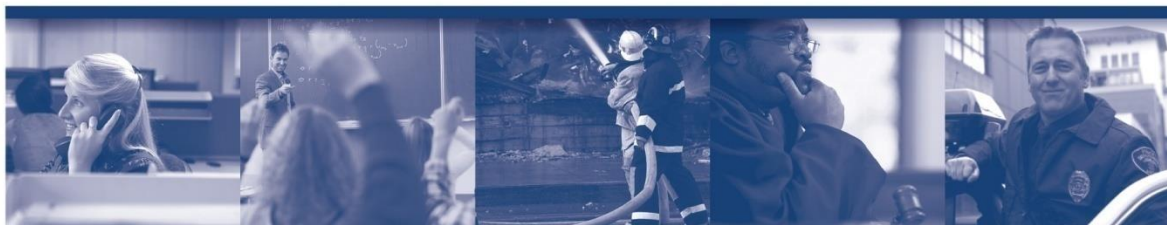
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Discussion Topics

- Transition Process
- Information Collected
- Matching Valuation Results
- Progress to Date
- Key Observations

Transition Process

- Notification of Selection
- Data Request to Client
- Data Request to Prior Actuary
- Programming of Benefits and Assumptions
- Matching Valuation Results

Information Collected

- 12/31/2016 Census Data from System
- 12/31/2016 Census Data from Prior Actuary
- Actuarial Assumptions from Prior Actuary
- 1/1/2016 – 12/31/2016 Asset Information
- 12/31/2016 Actuarial Reports

Purpose of a Replication

- Standard part of takeover services
- Ensures proper programming of plan provisions and assumptions in valuation software
- Material discrepancies are investigated and resolved with the help of the prior actuary

Information Used

- The processed (valuation) data used by Conduent in the last actuarial valuations
- Complete sets of actuarial assumptions for each plan
- CavMac independently programs the benefit provisions and the actuarial assumptions and methods in our software
- Resolution of differences by reviewing detailed calculations of individual members (sample lives)

Replication Valuations

- Actuarial valuation process is an estimate of financial value of future benefits
 - Uncertainty and variability surround estimates
- Actuarial valuation software used by different firms can have implicit variations that impact numbers but Conduent uses same software
- More appropriate to compare differences in terms of percentages than dollars
- Thresholds for replication results
 - Our goal is to program properly and accurately and match as close as possible
 - Industry standards are:
 - Present value of future benefit: 1-2%
 - Actuarial liability and normal cost: 4-5% (more variation in how total cost is allocated to years of service by different valuation software)

Overall Results

- Replication results, in aggregate, are within acceptable ranges
 - Based on our understanding of Conduent's methods
 - May refine to better estimate liabilities
- Few areas where we would like results to match more closely
 - Additional information recently requested from Conduent regarding some technical parameters

Additional Transition Services

- Review of actuarial based tables/calculations
 - Service Purchase (actuarial equivalent cost)
 - Optional form factors
 - Service annuity factors

Conclusions

- Good progress on the replications to date with some outstanding questions to Conduent
- We look forward to working together!