Actuarial Valuation 101

The ultimate cost of any retirement system can be represented by the formula:

System Costs = Assets - Liabilities
Where assets = Investment Returns + Plan Contributions
and Liabilities =Benefits to be Paid + Administrative Expenses

Since none of these factors are known until the last benefit is paid, they must be measured and estimated by something called an **Actuarial Valuation**. The primary function of an **Actuarial Valuation** is to determine:

- The annual amount, the actuarially computed employer rate that must be paid into the plan in order to pay for current and all future benefit costs.

- This results in the computation of the plan's **Actuarial Funding Ratio**: the ratio of fund assets to liabilities for benefits accrued to date.

A pension plan whose assets equal its liabilities is funded at 100% and is considered *fully funded*; any shortfall of assets is an *unfunded liability*, and a plan with an unfunded liability is considered *underfunded*.

Underfunded does not mean that a plan is unable to pay the benefits for which it is presently obligated to pay or to meet it's current cash flow requirements. It simply means that in the unlikely event that all the plan's liabilities had to be settled today, it would be unable to meet them. Fortunately, a retirement system's obligations extend many years into the future so the plan has time to accrue the assets needed to ultimately meet all it's future obligations.

Calculating the employer rate and the Actuarial Funding Ratio involves many variable financial, economic, and demographic assumptions. Over the short-term, many of these assumptions will be incorrect to one degree or another. After all, the Actuarial Valuation is only a snapshot of an arrangement of complex, long-term financial and demographic projections, "based on the theoretical supposition that the plan's liabilities are subject to settlement on the date the valuation is done."

Because no one knows what the future holds, an actuary uses a mixture of professional judgment, past experience and future expectations to estimate possible future economic outcomes. Assumptions used in the **Actuarial Valuation** should be chosen in a way that ensures:

(1) the plan is funded in an orderly and stable way and
(2) that the plan's accumulated annual contributions and investment returns are adequate to provide participants with their promised benefit payouts by the end of the funding period – in the case of PERS and TRS, 25 years.

Actuarial Valuation 101

The Alaska Division of Retirement & Benefits contracts with Mercer Human Resource Consulting to prepare annual Actuarial Valuations of the state's public retirement systems – PERS & TRS.

Mercer uses the following assumptions and actuarial methods in their annual valuation analysis:

<u>Economic Assumptions</u>
Relate to the expected long-term financial experience of the plan

- Annual Investment Return
- Post Retirement Health Premium Trend
- Total Inflation
- Annual Salary Increases

<u>Demographic Assumptions</u>
Relate to the plan's populations and how they are expected to change over time

- Mortality Rates
- Total Turnover Rate
- Disability Rate
- Retirement Rates
- Assumed Retirement Date if Before Age 50

<u>Actuarial Assumptions</u>
In addition to the Demographic and Economic Assumptions stated above, the following additional assumptions are inputs in the actuarial analysis

- Medical Benefit Valuation – A pre-65 and post-65 premium cost are computed, increased with a health inflation assumption and combined into a blended premium. This evaluation also is based on who is actually eligible for employer paid health care.
- Target Funding Ratio - *The ratio of Assets to Accrued Liabilities that the plan is targeting going forward – at 100% target ratio, the plan targets full funding after 25 years in the case of PERS and TRS.*
- COLA – % of retirees receiving
- Spouse's Age
- Dependent Children
- Contribution Refund Rates
- New entrants
- Post-Pension Retirement Adjustments
- Expenses
- Marital Status

Actuarial Methods

The methods adopted by Mercer in determining the cost of a pension plan and for determining the annual contribution required to adequately provide for future benefits

- Asset Valuation Method – Mercer currently uses an Asset Smoothing Method – *which recognizes 20% of assets gains & losses for the current and preceding four years*
- Actuarial Cost Method – Mercer currently uses a Projected Unit Credit (PUC) - *which produces an Accrued Liability, Unfunded Liability, a Normal Cost Rate and a Past Service Cost*
    - Accrued Liability – *the present value of benefits credited*
    - Unfunded Liability – *the excess of Accrued Liabilities over the Plan's total Assets*
    - Normal Cost – *is the present value of the benefits expected to be earned by active members during the current year*
    - Past Service Cost – *the annual payment required to pay off any Unfunded Liability over the stipulated amortization period*
- Amortization Schedule for Unfunded Liability and Future Gains & Losses – Mercer uses a 25-year fixed period level percentage of pay.