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June 12, 1989

Mr. William J. Sudol
Assistant Administrator
Connecticut State Teachers'
Retirement Board
165 Capitol Avenue
Hartford, CT 06106

Re: Description of Actuarial Cost Methods

Dear Bill:

As you requested, we are sending you the enclosed descriptions of the following actuarial cost methods:

1. Entry age actuarial cost method
2. Projected unit credit actuarial cost method.

The State's annual contribution requirement is currently based on the results of an entry age actuarial valuation, while the determination of the funded status of the Teachers' Retirement System is based on unit credit calculations.

The enclosed descriptions are intended to be fairly self-contained. However, it might be helpful to repeat some of our earlier comments to the Board on such basic concepts as the true cost of a pension plan, actuarial cost methods, actuarial assumptions, and actuarial present value.

For example, the true cost of any pension plan equals:

The benefits paid from the plan

plus

administrative expenses

minus

investment earnings
(or plus investment losses).

Mr. William J. Sudol
June 12, 1989
Page 2

Among the factors which do not affect the true cost of a pension plan are the actuarial cost method and the actuarial assumptions. They do, however, affect the amount and the incidence of annual contribution requirements.

An actuarial cost method is merely a mathematical device (i.e., a series of formulas) used by actuaries to determine the amount and the incidence of the expected cost of a plan in a systematic and consistent manner.

A set of actuarial assumptions is a collection of educated guesses or estimates about the occurrence of such past and future events as:

- the level of inflation,
- the rate of salary increases
- a participant's age at retirement, termination, or death,
- the rate of return on investments.

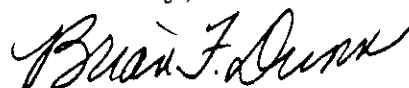
It is important to keep in mind that although a particular actuarial cost method or a set of actuarial assumptions may produce a lower contribution requirement at a specific point in time than would alternative cost methods or assumptions, the ultimate benefits to be funded remain the same. Therefore, lower current contribution requirements must be balanced by higher future contribution levels.

Finally, the actuarial present value of one or more future payments is expressed as the followed product:

The amount of the payment(s)
times
the probability that the payment(s) will be made
times
a discount factor from the expected time of
payment(s) back to the present date.

Bill, we hope this information will be helpful in your discussions about actuarial cost methods and actuarial assumptions.

Sincerely,



Brian F. Dunn

BFD/drb.03
Encls.
cc: John Shears

The Entry Age Actuarial Cost Method

The objective of this actuarial cost method, as applied to a pension plan with a pay-related formula, is to express the cost attributable to the current year's employment for each participant as a level percent of the participant's salary.

The expected pension benefit at normal retirement is determined for each participant based on projected service at normal retirement and on salary projected to normal retirement using the assumed salary progression.

Normal Cost (also called "Current Service Cost") - For each participant, a level percent called the "Normal Cost Rate" is calculated. The Normal Cost Rate is calculated so that if each year that percent of the participant's salary for the year were paid into the fund from the earliest time the participant would have been eligible to join the plan (hence, entry age) until his retirement or termination, the payments would accumulate with interest (at the assumed valuation rate) to an amount sufficient to pay all benefits under the plan for that participant.

A participant's Normal Cost for a given plan year is the product of his Normal Cost Rate and his salary for that plan year.

The Normal Cost for the plan is the sum of the Normal Costs for the individual participants.

Actuarial Accrued Liability (also called "Past Service Liability") - The Actuarial Accrued Liability is determined as the theoretical amount that would have accumulated in the fund had annual contributions equal to the Normal Cost been made in each year prior to the valuation date. (It does not represent the liability for benefits accrued as of the valuation date.)

The Actuarial Accrued Liability for the plan is the sum of the Actuarial Accrued Liabilities for the individual participants.

The Unfunded Actuarial Accrued Liability (Unfunded Past Service Liability) is the excess of the Actuarial Accrued Liability (Past Service Liability) over the value of the plan assets.

The calculation of the Normal Cost and the Actuarial Accrued Liability takes into account the time value of money (by discounting for interest), expected increases in compensation (through salary progression), and appropriate probabilities of disability, termination, and death.

The Projected Unit Credit Actuarial Cost Method

Under this actuarial cost method, the cost attributable to past employment (i.e., prior to the valuation date) and to the current year's employment for each participant is determined by prorating the pension benefit expected to be paid upon normal retirement over all years of service.

The expected pension benefit at normal retirement is determined for each participant based on service as of the valuation date but on salary projected to normal retirement using the assumed salary progression.

Normal Cost (also called "Current Service Cost") - The Normal Cost is calculated as the actuarial present value as of the valuation date of the current year's portion of the employee's expected pension benefit. The current year's portion equals the expected pension benefit divided by the total number of years of the participant's service at normal retirement.

The Normal Cost for the plan is the sum of the Normal Costs for the individual participants.

Actuarial Accrued Liability (also called "Past Service Liability") - The Actuarial Accrued Liability is determined as the actuarial present value as of the valuation date of the past years' (i.e., prior to the valuation date) portion of the participant's expected pension benefit. The past years' portion is equal to the expected pension benefit times the ratio of the number of years between the participant's date of participation and the valuation date to the number of years between his date of participation and his normal retirement date.

The Actuarial Accrued Liability for the plan is the sum of the Actuarial Accrued Liabilities for the individual participants.

The Unfunded Actuarial Accrued Liability (Unfunded Past Service Liability) is the excess of the Actuarial Accrued Liability (Past Service Liability) over the value of plan assets.

The calculation of the Normal Cost and the Actuarial Accrued Liability takes into account the time value of money (by discounting for interest), expected increase in compensation (through salary progression), and appropriate probabilities of disability, termination, and death.