

PERA will be conducting the following studies in 2009 that will help it assess the status of the funds for recommendations by the Board of Trustees to the General Assembly for its consideration:

- **The Annual Actuarial Valuation for 2008**

This is performed annually by PERA's actuaries to calculate the actuarial experience of the System. The end result will be a calculation of the present value of liabilities, unfunded liabilities, actuarial value of assets, amortization periods, and Annually Required Contribution rates based on the GASB standard as well as other items. The 2008 Annual Valuation will be presented to the Board for review and approval at the May 29, 2009, Board meeting. This includes not only individual analysis by pension divisions, but the Health Care Trust Fund.

The Annual Valuation serves as the formal basis for determining the funding status of any defined benefit pension system. The actuaries use extremely sophisticated mathematical and statistical procedures to make probabilistic estimates of the likely long-term benefit payments, contributions, and cash flows. The actuaries rely on a long list of Board-approved assumptions to determine these items and predict "behavior" of members and beneficiaries. The valuation compares these assumptions to what actually occurred in 2008 to determine "actuarial" gains and losses.

Some of the key assumptions used to measure gains and losses include:

- Mortality rates by division for age, gender, and health;
- Salary growth by age cohorts;
- Growth and turnover in membership;
- Retirement rates including early retirements;
- Account withdrawals both before and after retirement eligibility;
- Benefit growth;
- Ending retirement ages and dates;
- Disability rates;
- Survivorship rates;
- Employment separations;
- Inflation rates;
- Actuarial method (PERA uses the entry-age normal method); and
- Other assumptions including combinations of the above assumptions.

- **Actuarial Projections**

This study is performed annually by PERA's retained actuary and will involve the actuary running projections about the future funded status of each of the PERA divisions over a thirty-year period based on the annual actuarial valuation. The preliminary projections, prior to Board approval of the Annual Valuation, will be presented to the Board at the May 29, 2009, Board meeting.

Often people look forward to seeing the graphical depictions of the projected future funded status of the fund. This depiction uses a deterministic measure of a variable rate of return assumption to produce ranges of future funding ratio projected out thirty-years. These projections offer the most complete estimate of the sustainability of the fund because it incorporates every forward looking measure and component of the future benefit and contribution structure of the fund.

- **The Actuarial Experience Study**

The actuarial experience study is performed by PERA's retained actuary for the Board to review and measure the actuarial assumptions versus actual actuarial experience for the purpose of adjusting actuarial assumptions, if necessary. This study is performed every three to five years on a regular rotation. The Actuarial Audit will also use this information in its testing procedures for reasonableness. The study should be completed for review, discussion and adoption of recommendations by the Board at their June 19, 2009, meeting.

- **The Actuarial Audit**

The actuarial audit is performed by an independent actuary hired by the Board to review the actuarial methods and assumptions used by our retained actuary for reasonableness. This study is performed every three to five years on a regular rotation. A vendor must be selected and the process will usually take two to three months. It is expected that the Board could receive this audit by its July 24, 2009, Board meeting.

The performance of this audit is one of the key checks on the practices of the Board's retained actuary. The complexities of pension systems, mathematical models and the large sums of dollars involved make this a prudent expense by the Board. In other pension systems, systemic errors have crept into the mathematical process causing billions of dollars in unrecognized liabilities to go unrecorded for long periods of time.

- **Actuarial Studies of Benefit and Funding Components**

PERA's retained actuaries will perform calculations that estimate the actuarial costs of providing each and every component of the statutory benefit packages PERA currently administers including retiree health care subsidies. This is an ongoing exercise with estimates gaining more accuracy based on the annual actuarial valuation, audit, and experience study. This benefit and funding components study is the result of specific directions by the PERA Board in response to market declines and in preparation for making comprehensive recommendations for legislative consideration. These assessments are under way and will continue throughout the year. Initial models are expected to be ready for preliminary Board review and discussion at its July 24, 2009, meeting.

- **The Asset/Liability Study**

The asset/liability study is performed by a Board-selected investment consultant and includes a comprehensive review of the asset allocation policy: the target allocations to stocks, bonds and other types of investments that will be the primary driver of long-term investment risk and return of the fund. The study uses projected future liabilities of the fund as calculated by the retained actuary and assesses investment risk and potential return expectations in the context of PERA's long-term investment horizon.

The investment consultant works closely with the plan's actuary. Using the plan's liability assumptions, the consultant is able to move beyond the basic framework of expected return and volatility of return. The asset/liability simulation translates general capital market risk and return assumptions into a framework that uses plan cost and/or plan funded status as the key measured variables:

- Reward, which means lower ultimate cost to the sponsor and/or higher funded ratios; and
- Risk, which is the potential for unpleasant surprises in cost or funded status results.

This asset/liability framework helps to fully understand the inherent risk of the program. To quantify these risk and reward measures, a customized model of the plan's liability structure is used to forecast financial results under various economic scenarios. The liability model incorporates all of the following:

- The current demographic profile of all the plan participants (active employees, retired participants and terminated employees with vested rights to future benefits);
- Expected changes in the participant groups over future years, reflecting retirements, deaths, disabilities, turnover and patterns of new hires;

- Expected benefit payments from the plan over future years;
- The sensitivity of the liabilities to different rates of wage and price inflation in future years;
- The specific actuarial methods and assumptions used by the plan's actuary;
- Changes resulting from any future revisions to the plan's benefit structure; and
- Possible pension funding and accounting reforms that will affect a plan's circumstances.

The economic scenarios used for the forecasts are from a model that produces integrated outputs for possible future rates of price and wage inflation, interest rate yields and investment returns for various types of investments.

This study is performed every three to five years on a regular rotation. The completion date for all of the components of this study for presentation to the Board is its October 16, 2009, meeting.

During the course of its efforts, the PERA Board will conduct a series of public input meetings in August, October, and November:

- **Listening Tours**

Trustees and PERA executives will travel around the State during the month of August to get member, retiree, and the public's input on a legislative proposal to ensure PERA's sustainability. Details on the Listening Tours will be finalized and posted on the PERA Web site.

- **Shareholder Meetings**

Similar to town-hall meetings, PERA executives travel around the State during the months of October and November to present information to PERA "shareholders" and the public about current PERA issues as well as review PERA's financial position. After a briefing about PERA, a question-and-answer session will follow at the Shareholder Meetings. Details on the Shareholder Meetings will be finalized and posted on the PERA Web site.