Actuarial Valuation Basics and Funding Strategies

Public Employee Retirement Administration Commission

August 22, 2014

What is an actuarial valuation?

- "Snapshot" at that date
- Estimated future cash flows
- Present value terms
- Actuarial assumptions
- How good are the assumptions?
  - Gains and losses
- "True-up" prior valuation

Actuarial Valuation Cycle

- Preliminary review
- Data preparation
- Asset preparation
- Valuation specifications
- Valuation run and summary
- Final report and presentation

How often should a valuation be performed?

- At least every two years
  - Avoid unpleasant surprises
- Interim valuation in off year
- Private sector requires annual
- PERAC with help of private actuaries

What is actuarial funding?

- Advanced funding
- Costs should be paid during working lifetime of employee
  - taxpayers receiving benefits of employee's service
  - not put off for future generations
- Pay current (normal) cost plus "past service" cost
- Level dollar vs. increasing

What are the basic actuarial assumptions?

Membership Characteristics

- Longevity
- Termination
- Disability
- Retirement

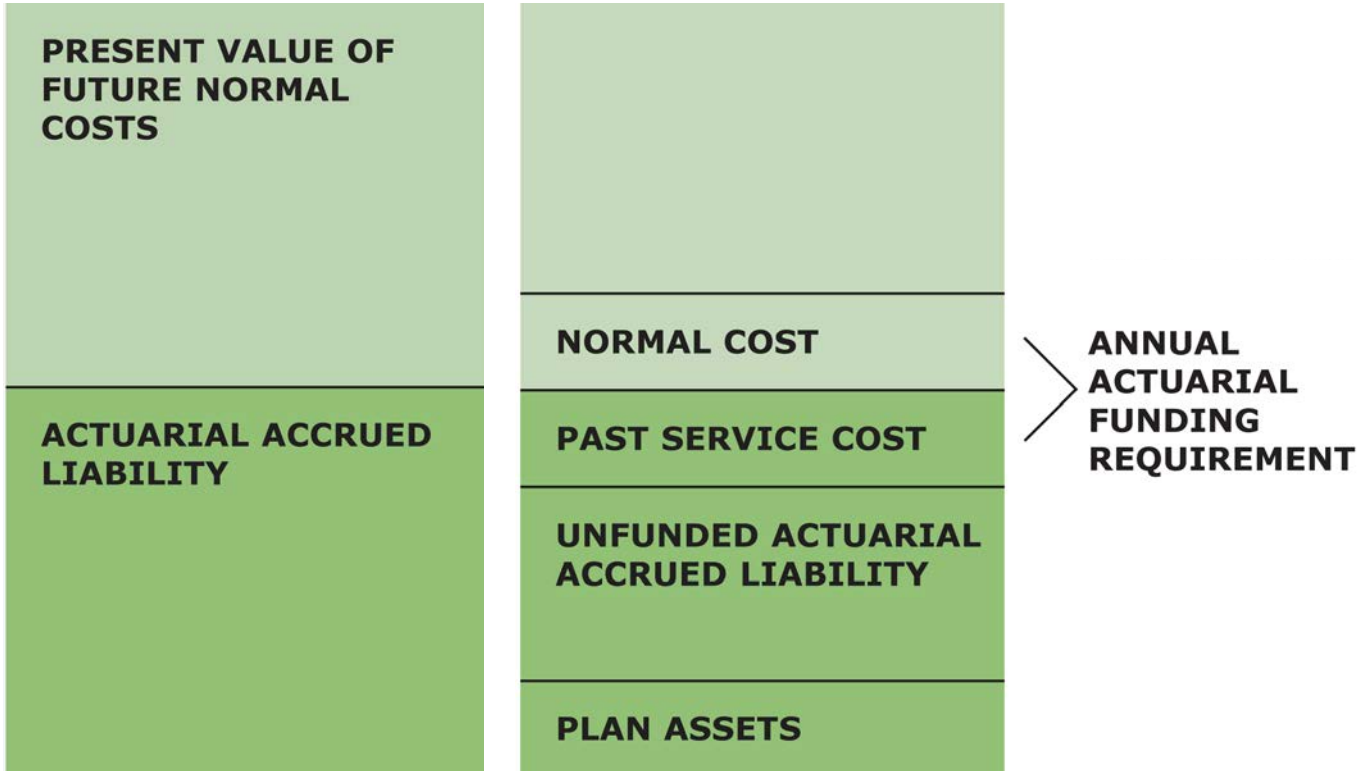
Economic Characteristics

- Investment return
- Salary increases
- Inflation
- COLA increases

What are actuarial liabilities?

- Present value of future benefits
- Present value of future normal costs
- Normal cost
- Actuarial accrued liability
- Unfunded actuarial accrued liability

Present Value of Future Benefits



Unfunded Actuarial Accrued Liability = Actuarial Accrued Liability minus Plan Assets

Past Service Cost = Amortization of Unfunded Actuarial Accrued Liability

Determination of Liabilities for Actuarial Valuation

Total Normal Cost for the system is the sum of Normal Cost for each individual participant.

Total Actuarial Accrued Liability for the system is the sum of the Actuarial Liability for each individual.

UAL vs. Funded Ratio

Different views of funding with same components

- Actuarial Accrued Liability and Assets

UAL = Liability - Assets

- Dollar Amount

Funded Ratio = Assets/Liability

- Percentage Basis

What exactly is 100% funding?

Normal cost still applies

- Benefits accruing in current year.

100% is a moving target

- Different valuation systems produce different results.
- What is the benchmark? 95%? 105%?

Funding status can change

Plan Changes

- Employee contributions
- Benefit enhancements

Non-pension

- Post retirement healthcare funding

Conservative Actuarial Approaches

Adopt more conservative assumptions

- Investment return
- Salary scale
- Longevity

Actuarial value of assets

- 92% of local systems (8 use market value)
- Reduce volatility

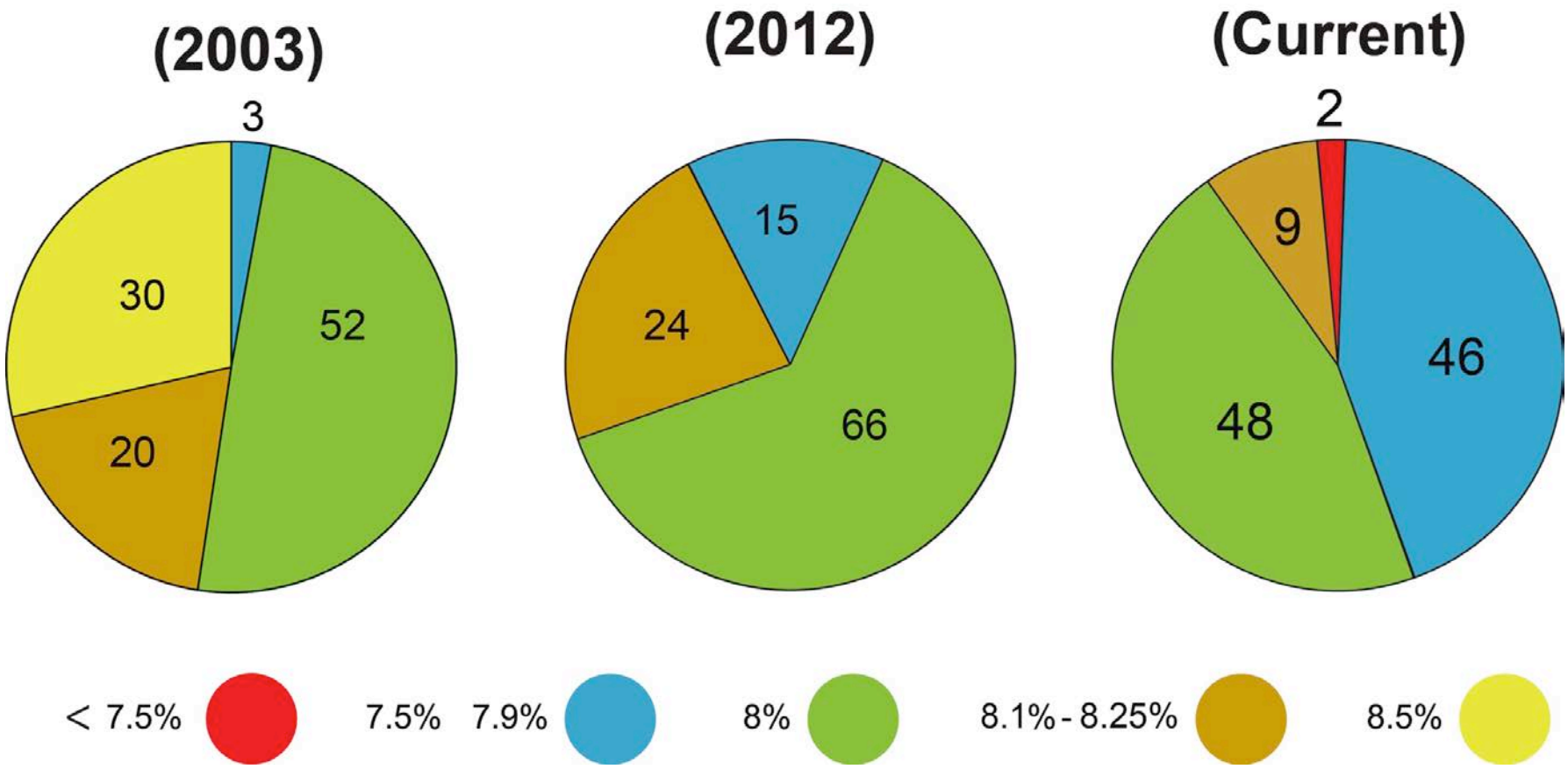
More aggressive funding schedule

- FY35 goal – more flexibility

Other Conservative Actuarial Approaches

- Increase in **total** appropriation
  - Ramp-up / Phase-in
  - 49 use this approach
    - 24 for entire length of schedule
    - 25 use phase-in schedule
- Expenses
  - Administrative
  - Investment
- Net 3(8)(c) liability
  - Most local systems net outflow
  - Include in schedule as add on to normal cost
    - Alternatively increase actual liability

Investment Return Assumptions



Investment Return and Salary Increase Assumption

Investment Return	8.0%	7.5%	7.5 %	7.75%
Salary Increase	Current	Current	*	*
Actives	2,800	3,000	2,900	2,790
Retirees	3,200	3,300	3,300	3,250
Total Actuarial Liability	6,000	6,300	6,200	6,040
Assets	4,000	4,000	4,000	4,000
Unfunded Liability	2,000	2,300	2,200	2,040
Funded Ratio	66.7%	63.5%	64.5%	66.2%

*current reduced by 1% at all ages

Expenses

- Administrative and investment related expenses
- Administrative expenses included in normal cost
- Most assume return net of investment expenses
- Reflecting a portion of investment expenses
- Alternatively, reduce investment return assumption

Mortality

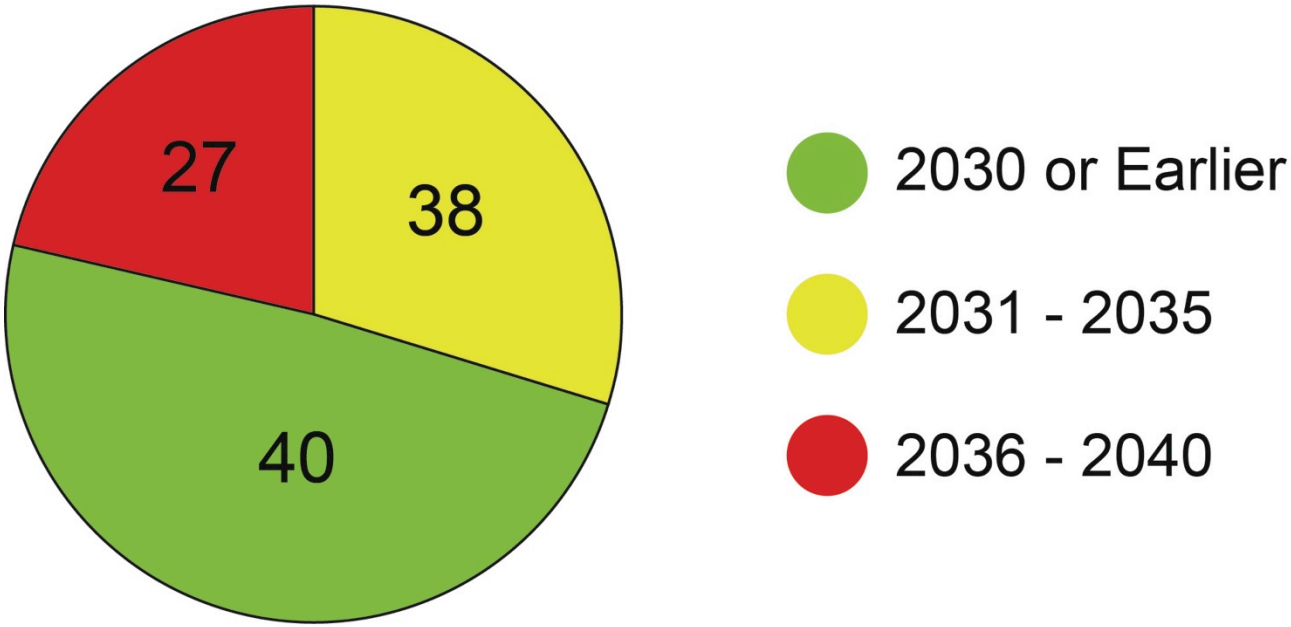
- Past methodology
  - Update periodically
- 2012 valuations and beyond
  - Toward "fully generational"
- Revised table to be released in 2014
  - Longer life expectancy
  - Projection scale modified
  - Impact on systems (if any) not yet clear

Funding Schedule Extension

- Proposed long-term funding solution for Massachusetts systems
- 2008 investment returns were the impetus
- Discussions on extending 2028 began about 10 years ago
- Provide relief responsibly

Stay Within 2030 Rules

- Preferred by many systems
- Is it feasible? 30% - 50% increases using <u>same</u> schedule
- Many systems must extend beyond 2030
- Originally expected 60-75% of locals to extend

Funding Schedules Adopted

As of April 2014