ACTUARIAL VALUATION BASICS AND FUNDING STRATEGIES

Public Employee Retirement Administration Commission

SEPTEMBER 2016

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

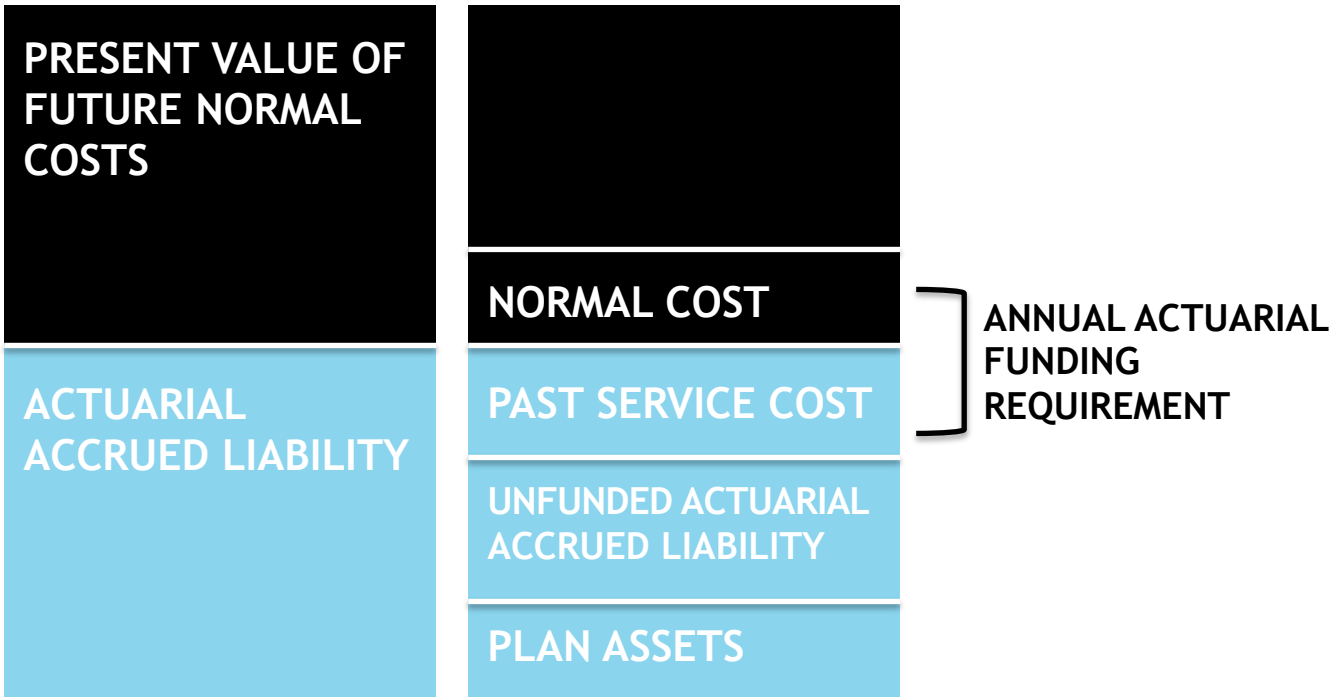
What Are the Basic Actuarial Assumptions?

Membership Characteristics	Economic Characteristics
▪ Longevity	▪ Investment return
▪ Termination	▪ Salary increases
▪ Disability	▪ Inflation
▪ Retirement	▪ 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? The 80% myth.
- **Funding status can change**
  - Gain/Loss
  - Assumptions
  - Plan Amendments

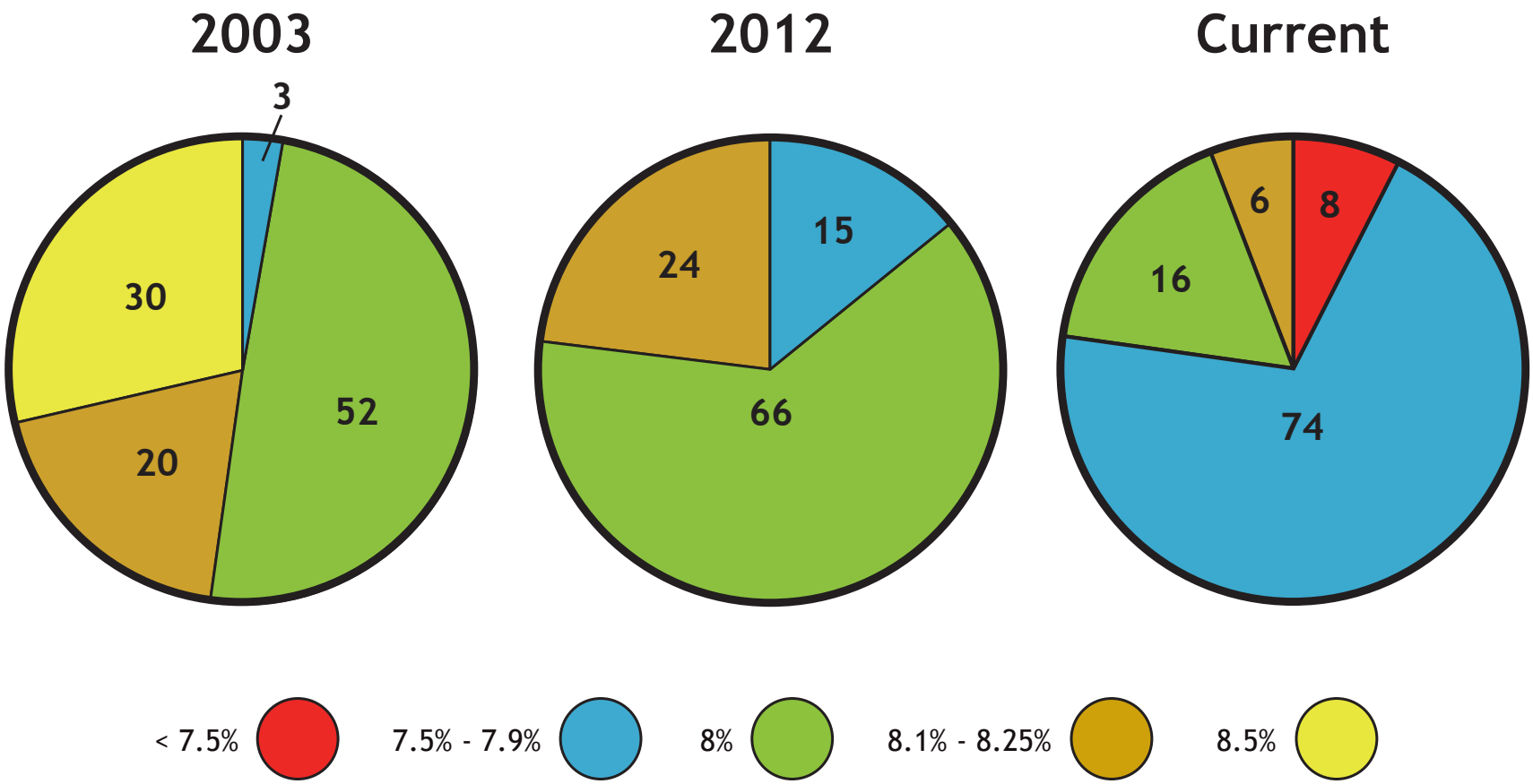
Conservative Actuarial Approaches

- **Adopt more conservative assumptions**
  - Investment return
  - Salary scale
  - Longevity
- **Actuarial value of assets**
  - 95 systems (9 use market value, 1 fresh start 1/16)
  - Reduce volatility
- **More aggressive funding schedule**
  - FY35 goal – more flexibility

Conservative Actuarial Approaches *(continued)*

- Increase in **total** appropriation
  - Ramp-up / Phase-in
  - 77 use this approach
    - 60 for entire length of schedule
    - 17 use phase-in schedule (usually 2-5 years)
- Expenses
  - Administrative
  - Investment
- Net 3(8)(c) liability
  - Most local systems net outflow
  - Include in schedule as add on to normal cost
    - Alternatively increase actuarial liability

Investment Return Assumptions



Investment Return and Salary Increase Assumption

Investment Return Salary Increase	8.0% Current	7.5% Current	7.5% *	7.75% *
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
  - Static projection— extend projection each year
  - Toward “fully generational”
  - Currently 64 systems have adopted
  - Expect over 80 by end of year

Mortality *(continued)*

- Revised table released in 2014 (RP-2014)
  - Longer life expectancy
  - Projection scale modified
  - Does not match our experience (except teachers)
  - Continue to use RP-2000

Funding Schedule History

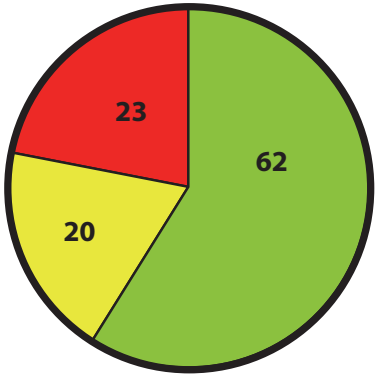
- 1989— Full funding by 2028 (40 years)
- 2009— Full funding by 2030
- 2010— Full funding by 2040
  - Proposed long-term funding solution for systems
  - 2008 investment returns were the impetus
  - Discussions on extending 2028 began about 15 years ago
  - Provide relief responsibly

Stay Within 2030 Rules

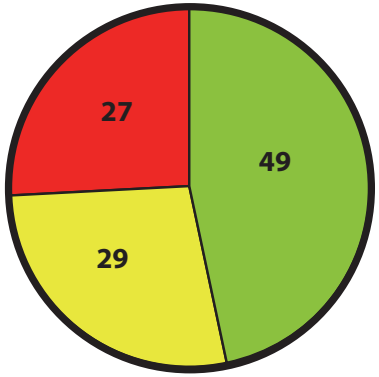
- Preferred by many systems
- 2008 Impact— 30%-50% increases using **same** schedule
- Many systems needed to extend beyond 2030
- Originally expected 60-75% of locals to extend

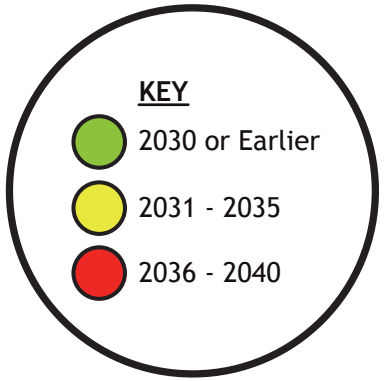
Funding Schedules Adopted

May 2012

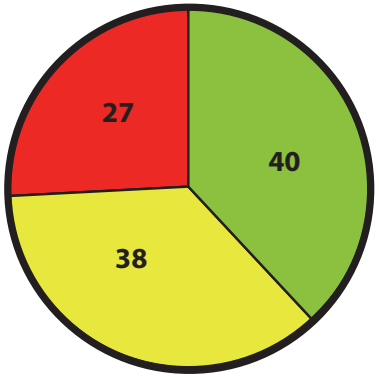


May 2013

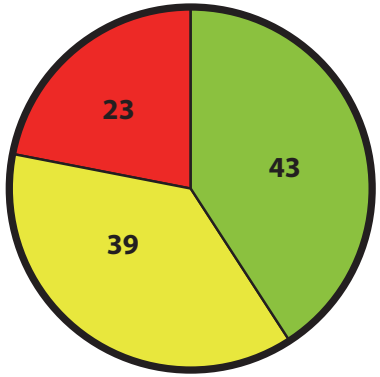




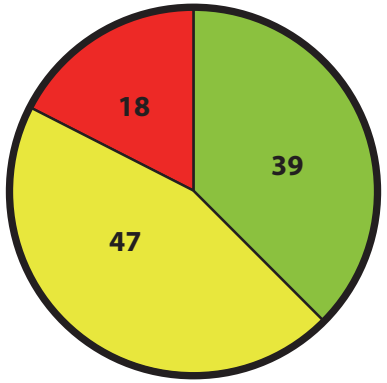
April 2014



January 2015



September 2016



Actuarial Funding Policies and Practices for Public Pension Plans

- October, 2014 white paper guidance*
  - Cost Method
  - Asset Smoothing Method
  - Amortization Policy
  - Actuarial Assumptions (outside scope of project)

* Conference of Consulting Actuaries Public Plans Community

Actuarial Funding Policies and Practices for Public Pension Plans *(continued)*

- Level Cost Allocation Model (LCAM) practices
- Acceptable
- Acceptable with conditions
- Non-recommended
- Unacceptable

Actuarial Funding Policies and Practices for Public Pension Plans *(continued)*

- ✓ **Cost Method** – Entry Age level percent of pay
- ✓ **Asset Smoothing** – 5 year smoothing, corridor usually 90%/110%
  - Market value acceptable
- **Amortization Policy** – not an automatic check for many systems

Actuarial Funding Policies and Practices for Public Pension Plans *(continued)*

- **LCAM Amortization Policy** - level percent of pay layered approach

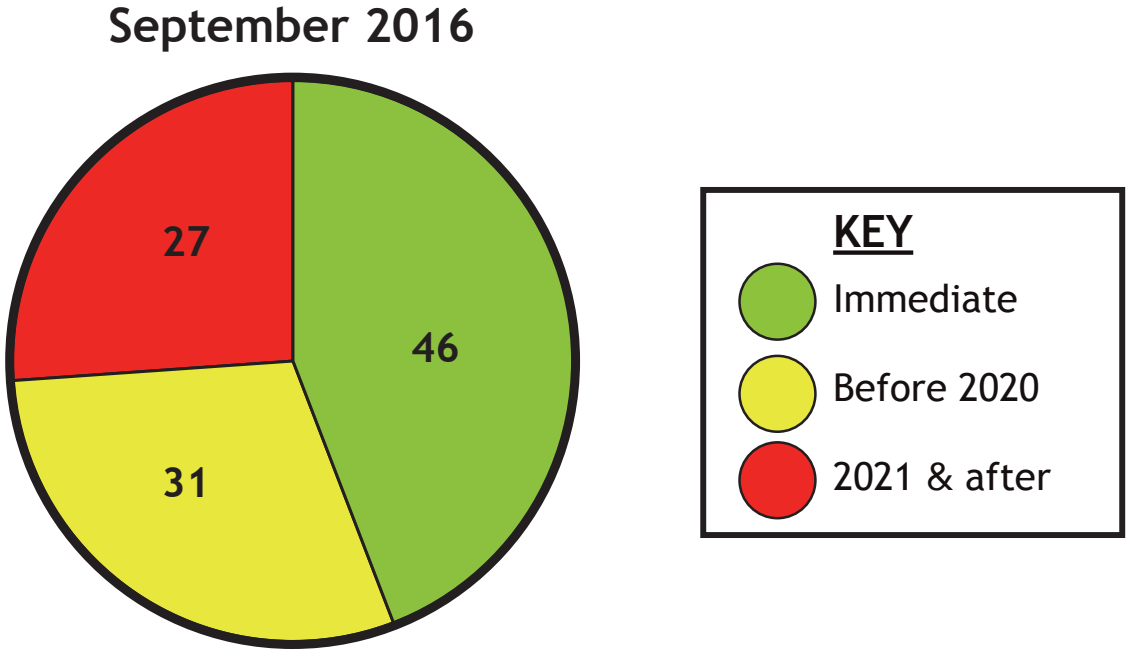
▪ Amendments	10-15 years
▪ Experience gains/loss	15-20 years
▪ Assumption changes	15-25 years
▪ ERIs	5 years

Actuarial Funding Policies and Practices for Public Pension Plans *(continued)*

- Current "average" result — 15-20 years??
  - Approximates FY35 goal
- **Non recommended:** fixed amortization 26-30 years
- **Unacceptable:** fixed amortization over 30 years
- But limiting **negative amortization** important!
  - Level and duration

Negative Amortization in Current Funding Schedules

- Unfunded actuarial liability begins decreasing



*21 Systems estimated, projected Unfunded Actuarial Liability not provided