



SAN JOSE FEDERATED EMPLOYEES' RETIREMENT PLAN

Actuarial Experience Study for the Six-Year Period Ending June 30, 2009

Leslie Thompson, FSA, FCA, EA, MAAA
Diane Hunt, FSA

November 12, 2009

GRS

Gabriel Roeder Smith & Company
Consultants & Actuaries
www.gabrielroeder.com

Copyright © 2009 GRS – All rights reserved.



Purpose of Experience Study

- ◆ This report tries to answer these questions for each assumption
 - ▶ What was the plan's actual experience?
 - ▶ How does that compare with current assumptions?
 - ▶ Is a change warranted?
- ◆ We also measure the aggregate impact of the recommended changes on the contribution requirement
- ◆ Based on results of study
 - ▶ Actuary recommends revised assumptions
 - ▶ Board discusses and votes on recommendation



Procedure

- ◆ Compared economic assumptions to:
 - ▶ General US price inflation and wage inflation statistics
 - ▶ Plan specific salary increases
 - ▶ Economic assumptions should be consistent
- ◆ Analyzed demographic assumptions
 - ▶ Retirement, mortality, disability, other terminations
 - ▶ Compared to actual experience
 - ▶ Looked at patterns by age and service
- ◆ If actual and expected match at all ages, assumption is “perfect”
 - ▶ Although we may want to build in some margin



Assumptions Studied

- ◆ Economic assumptions
 - ▶ Price inflation (CPI)
 - ▶ Investment return
 - ▶ Salary increases (for individuals)
 - ▶ Payroll growth rate (for plan as a whole)
- ◆ Demographic assumptions
 - ▶ Mortality
 - ▶ Disability
 - ▶ Retirement
 - ▶ Vested terminations
- ◆ Actuarial Methods--Amortization



Data Used

- ◆ We analyzed data from the last six years
 - ▶ July 1, 2003 through June 30, 2009
 - ▶ If period is too short, there may not be sufficient data for analysis, especially for more minor assumptions
 - ▶ If period is too long, trends, such as improvements in mortality or changes in retirement patterns, may not be apparent



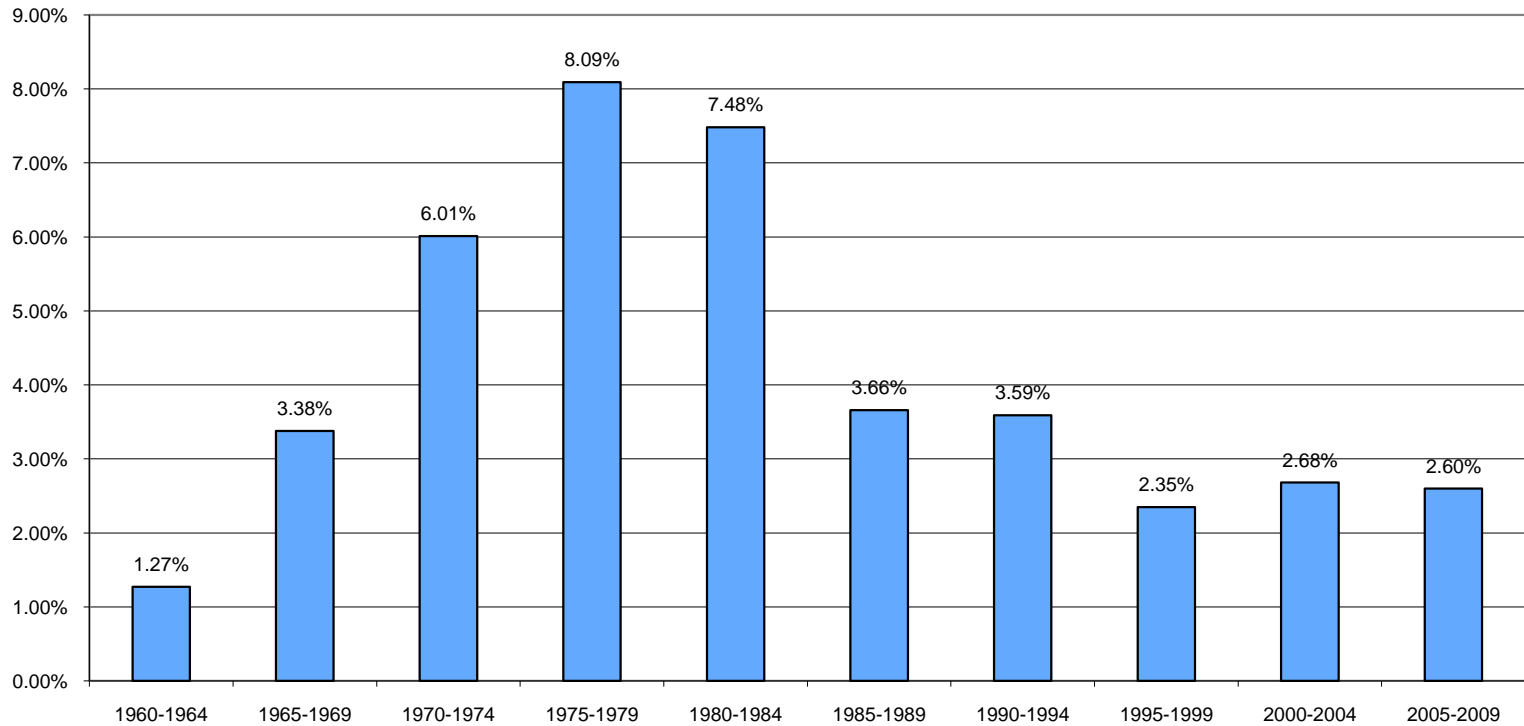
Inflation

- ◆ The assumed inflation rate is not used directly in the actuarial valuation, but it impacts the development of:
 - ▶ Investment return assumption
 - ▶ Salary increase assumptions
 - ▶ Payroll growth rate
- ◆ The current inflation assumption is 4.00% per year
- ◆ Actual inflation (measured by the CPI-U) during
 - ▶ Last 5 years: 2.60%
 - ▶ Last 10 years: 2.64%
 - ▶ Last 20 years: 2.80%
 - ▶ Last 50 years: 4.09%



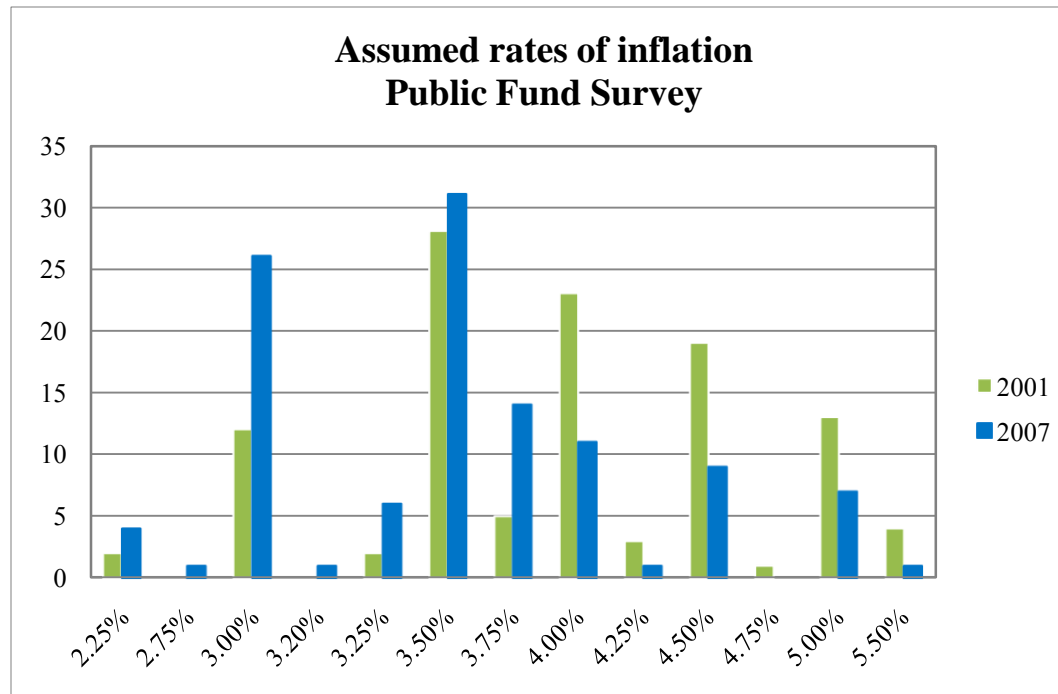
Inflation Rate

Average Annual Inflation
CPI-U, Five Fiscal Year Averages



Inflation

- ◆ Over 50% of large public pension funds have an inflation assumption of less than or equal to 3.5%
- ◆ Public funds' inflation rates trending downward
 - ▶ 2001 median inflation rate of 4.0%
 - ▶ 2007 median inflation rate of 3.5%





Inflation

- ◆ Relationship of long term bonds to Treasury Inflation-Protected Securities (TIPS) gives market expected inflation of less than 3.0%
- ◆ We recommend lowering the inflation assumption from 4.0% to 3.5%



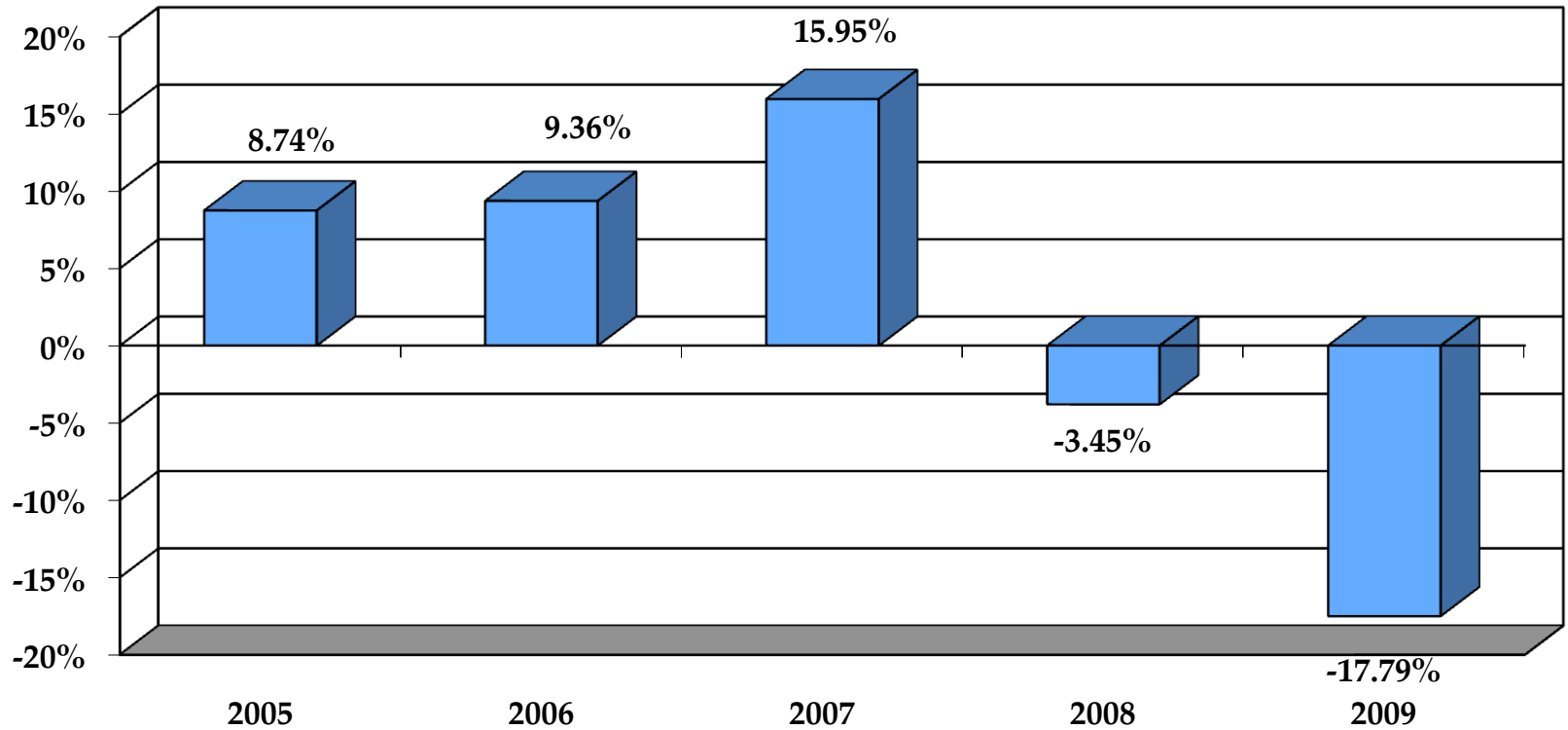
Investment Return Assumption

- ◆ The investment return rate is used to discount future expected cash flows (benefits and refunds), in order to determine the actuarial present values (liabilities)
- ◆ This is a critical assumption, since even small changes in the assumption, say 25 basis points, will usually change the required contribution rate by 1-2 percentage points (100-200 basis points)
- ◆ The current assumption is 8.25%
 - ▶ This is intended to be the return, net of all administrative and investment expenses
 - ▶ Expenses reduce the Trust's return
 - ▶ Assumption equals 4.00% inflation plus 4.25% net real return



History of Market Returns

(Net of Administrative and Investment Expenses)





Investment Return

- ◆ The average of market returns, net of expenses for last 5 years
 - ▶ Geometric 1.82%
 - ▶ Arithmetic 2.56%



Investment Return

- ◆ The asset allocation of the trust will impact investment performance
- ◆ The System's target asset allocation is shown below

Asset Class	2009 Allocation
Domestic Equities – Large Cap	26%
Domestic Equities – Small Cap	7%
International Equities (Developed)	20%
Private Equity	5%
Domestic Fixed Income	22%
High Yield Bonds	9%
International Fixed Income	5%
Real Estate (Direct)	6%
TOTAL	100%

Source: Meketa Investment Group, August 18, 2009

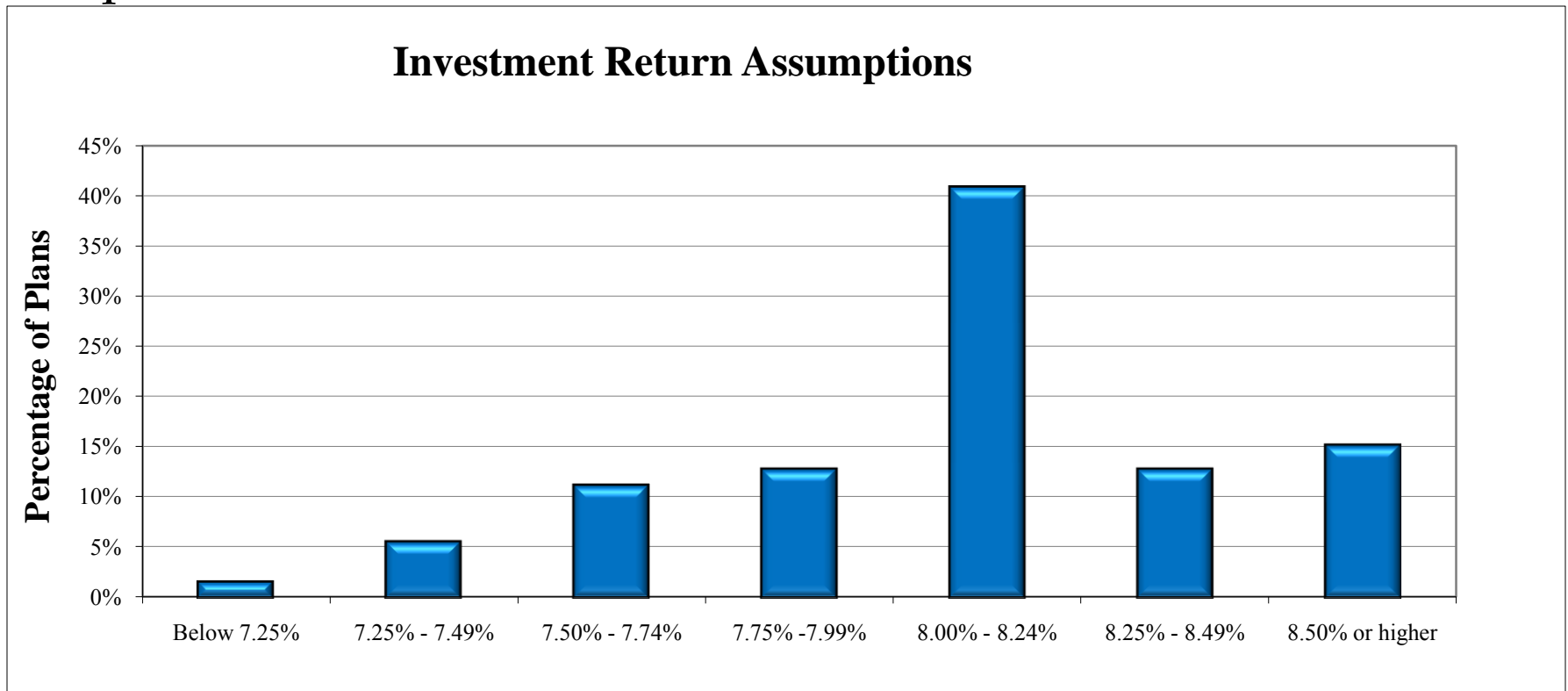


Investment Return

- ◆ Capital market assumptions from 5 large investment consulting firms had median of 7.69% return
- ◆ Estimated total expenses for System are 90 basis points
 - ▶ Includes investment, administrative and SRBR expenses
 - ▶ As estimated by San Jose staff
- ◆ Used asset allocation, capital market assumptions and estimated Trust expenses to develop investment return range of 6.80%-8.05%, net of expenses

Investment Return

- Current 8.25% is above median assumption for large public plans



Source: Public Fund Survey



Investment Return

- ◆ Recommend reducing investment return from 8.25% to 7.5%
- ◆ Components of investment return

	Current	Proposed
Inflation	4.00%	3.50%
Real rate of return	<u>4.25%</u>	<u>4.00%</u>
Total investment return	8.25%	7.50%



Salary Scale Assumption

- ◆ Actual data shows the salary increases were lower than the expected
- ◆ Recommend that the salary scale rates be reduced
- ◆ Underlying Assumptions
 - ▶ Current: 4.0% inflation and .25% merit
 - ▶ Proposed: 3.5% inflation and .50% merit



Salary Scale Assumption

Expected Increase			
Service Index	Actual Increase	Current	Proposed
1	5.96%	9.75%	9.50%
2	5.97%	7.75%	7.50%
3	6.47%	6.25%	6.00%
4	5.84%	5.75%	5.50%
5	3.67%	4.25%	4.00%



Payroll Growth Assumption

- ◆ Used in amortizing unfunded liability, not in projecting benefits
- ◆ Current assumption is 4.00%
- ◆ Actual increase in payroll for last ten years has been 5.25%
 - ▶ Approximately 1.0% of this increase due to annual increase in the number of members
 - ▶ Expect lower growth due to economy and demographics
 - ▶ Consistency with long-term inflation assumption
- ◆ We recommend changing payroll growth from 4.0% to 3.75%



Demographic Assumption Analysis

- ◆ In looking at demographic assumptions (the assumptions about what people do) we look at the comparison of what we expected, versus what actually happened
- ◆ We measured the actual experience vs. what was expected from the plan's assumptions



Post Retirement Mortality

- ◆ Includes age/service retirees and survivors, excludes beneficiaries, joint annuitants and disabled retirees

- ▶ Females

- Expected number of deaths 161
- Actual number of deaths 165
- Ratio 102%

- ▶ Males

- Expected number of deaths 222
- Actual number of deaths 179
- Ratio 81%



Post Retirement Mortality

- ◆ Current mortality table is 1994 Group Annuity Mortality Table (sex distinct)
- ◆ Mortality trends slowly and tends to always be improving
- ◆ Recommend adding a setback of three years for males and one year for females to current tables
 - ▶ Setback assumes participant is younger and therefore will live longer
 - ▶ Provides a margin for improving mortality rates



Disabled Mortality Rates

- ◆ Disability mortality rates differ from the general population

- ▶ Females

- Expected number of deaths 16
- Actual number of deaths 12
- Ratio 75%

- ▶ Males

- Expected number of deaths 32
- Actual number of deaths 27
- Ratio 84%

- ◆ The small sample size makes the results less reliable

- ◆ We recommend no change to this assumption



Active Mortality Rates

- ◆ Pre-retirement mortality is a small liability (and low impact) within the overall plan
- ◆ A separate mortality table from the 2005 experience study is currently used
- ◆ Not enough information to analyze the mortality rates for active members
- ◆ Due to the low counts and related liabilities, we recommend changing to the same mortality table as used for post retirement mortality



Rates of Disability

- ◆ Disability is an assumption with minimal impact on liabilities
- ◆ The current assumption is unisex and assumes 50% of disabilities are duty-related
- ◆ Male and female disability counts are combined (since the rates are the same) but are broken down by duty versus non-duty
 - ▶ Expected number of non-duty disabilities 35
 - ▶ Actual number of non duty disabilities 25
 - ▶ Expected number of duty disabilities 41
 - ▶ Actual number of duty disabilities 24
- ◆ We recommend no change to this assumption



Rates of Retirement

◆ Current retirement rates

- ▶ For members with less than 30 years of service, rates vary by age and service
- ▶ For members with more than 30 years of service, assumed retirement rates of 50%

◆ Experience study data

- ▶ For members with less than 30 years of service
 - Expected retirements 569
 - Actual retirements 656
 - Ratio 115%
- ▶ For members with more than 30 years of service
 - Expected retirements 206
 - Actual retirements 152
 - Ratio 74%

◆ No change recommended



Rates of Termination

- ◆ Termination rates reflect members who leave for reasons other than retirement, death or disability
- ◆ Vested Terminations
 - ▶ Expected number of vested terminations 297
 - ▶ Actual number 305
 - ▶ Ratio 103%
- ◆ Ordinary withdrawal(refund rates)
 - ▶ Expected number of refunds 541
 - ▶ Actual number of refunds 488
 - ▶ Ratio 90%
- ◆ We recommend no change at this time



Other Assumptions and Methods

- ◆ We recommend no changes to any other assumptions
 - ▶ Percent married
 - ▶ Percent electing a refund
 - ▶ Age difference between husbands and wives
 - ▶ Entry age normal cost method
 - ▶ Asset smoothing assumption
 - ▶ Decrement timing assumption (all are mid year)
 - ▶ Retirement age for deferred vested



Summary of Major Recommendations

- ◆ Inflation rate—decrease from 4.0% to 3.5%
- ◆ Investment return—decrease from 8.25% to 7.5%
- ◆ Salary increase rate—decrease from 4.25% to 4.0%
- ◆ Payroll growth—decrease from 4.0% to 3.75%
- ◆ Post-retirement mortality—add a 3 year setback for males and a one year setback for females
- ◆ Active mortality—set same as Post-Retirement mortality



Actuarial Impact of Recommendations

▶ Contribution rate impact

- Current assumptions 25.7%
- Proposed assumptions 33.6%
- Percent increase 7.9%

▶ Increase in UAAL \$311.1 M



RESPONSE TO REQUEST FOR REVIEW OF OTHER ISSUES



Requested Review of other Issues

- ◆ Assumed Rate of Return
 - ▶ Previously discussed in Experience Study
- ◆ Supplemental Retiree Benefit Reserve
 - ▶ Will address in upcoming year
- ◆ Financing of Unfunded Actuarial Accrued Liability
- ◆ Biennial Valuations



Financing of Unfunded Actuarial Accrued Liability

- ◆ Currently, UAAL is amortized over 30 years at each valuation – “open amortization”
- ◆ Comparable to refinancing a mortgage every year
- ◆ Staff has requested a look at some alternative amortization strategies



Financing of Unfunded Actuarial Accrued Liability

- ◆ Alternative 1: Use a “closed amortization” method
 - ▶ For example, in 2009 valuation, the UAAL would be amortized over 30 years from 2009
 - ▶ In the 2010 valuation, the UAAL would be amortized over 29 years
 - ▶ Each year the UAAL would be amortized over a declining number of years
 - ▶ Pays off unfunded by 2039 (30 years from 2009)
 - ▶ This method produces greater volatility in the rate, but also may pay off principle faster than the open method



Financing of Unfunded Actuarial Accrued Liability

- ◆ Alternative 2: Set up an amortization component each year
 - ▶ For example, in 2009 valuation, the UAAL would be amortized over 30 years from 2009
 - ▶ In the 2010 valuation, the unamortized UAAL from 2009 would then have 29 years remaining in it's amortization schedule
 - ▶ In addition, a new amortization component would be set up for 2010 valuation experience that would be amortized over 30 years from 2010
 - ▶ This would be repeated each year



Financing of Unfunded Actuarial Accrued Liability

- ◆ Alternative 3: Use a blended method
 - ▶ Start with a closed amortization schedule
 - ▶ Proceed with closed amortization until a pre-set year
 - ▶ Then remain open thereafter



Financing of Unfunded Actuarial Accrued Liability – Time Period

- ◆ Another issue on amortization is the period of amortization
- ◆ Currently using 30 years from the valuation date
- ◆ Could fund the plan quicker by amortizing over shorter timeframe



Actuarial Valuations

- ◆ Currently an actuarial valuation is performed every 2 years
- ◆ We recommend annual valuations
 - ▶ Investment returns have been volatile and annual valuation will show funded status on more current basis
 - ▶ Contributions for employees and employers will be adjusted yearly to better match required contribution
 - ▶ The total cost of the plan doesn't change but the timing of the contributions will be altered
 - ▶ Data gathered yearly and more easily reviewed and checked for accuracy



Experience Study Analysis

- ◆ Currently an Experience Study is conducted every 2 years studying experience over 6 years
- ◆ Recommend changing to performing an Experience Study every 4 years instead of every 2 years
 - ▶ Gives a longer period to evaluate trends
 - ▶ Would serve to offset the additional actuarial fees from the annual valuations
 - ▶ Recommend maintaining the 6 year experience period for the study