Presentation of Actuarial Review of 2012 Valuations to Minnesota Legislative Commission on Pensions and Retirement

Presented by:

Bill Hogan, F.S.A.

Tim Herman, F.S.A.

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Actuarial Review of July 1, 2012 Actuarial Valuation Reports

Minnesota State Retirement System (MSRS)	Public Employees Retirement Association (PERA)	Teachers Retirement Association (TRA)	Duluth Teachers Retirement Fund Association (DTRFA)	St. Paul Teachers Retirement Fund Association (St.PTRFA)
Funds Included:				
• General • State Patrol	• General • Police and Fire • MERF Division	• TRA	• DTRFA	• St.PTRFA
Funds Excluded:				
• Correctional • Elective State Officials • Legislature • Judges	• Correctional			

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Purpose and Scope of Review

- Types of actuarial audits
  - Replication
  - Limited scope or Peer Review
- Both address the key components in the valuation process, but in different ways
  - Membership data
  - Financial data
  - Benefits valued
  - Actuarial assumptions
  - Actuarial methods

Replication vs. Limited Scope Audit

- Replication:
  - Commission actuary reproduces all of the steps in the valuation and attempts to reconcile the total valuation results to that of the fund actuary

7/01/2012
Replication Audit:
Duluth Teachers
St. Paul Teachers

- Limited Scope:
  - Detailed review of a small group of test lives which are specifically selected to address key valuation calculations
  - Cannot quantify the cost impact of any issues raised other than in general terms
- Goal of either type of audit is to provide assurance that the liabilities and costs are reasonable
  - Replication gives higher degree of confidence

Audit Guidelines

- No formal or published guidance
- Differences are generally analyzed as percentages
  - Small percentages of very large numbers can be large numbers
- Reasonable differences exist
  - Valuation software have inherent differences
  - Different approaches may be reasonable and acceptable
- Variability in process exists and small percentage differences between actuaries do not change the overall financial results

Example of a small percentage difference for TRA:

0.5% difference on $23 B of TRA accrued liability is $125 M

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Key Findings

- Actuarial calculations generally accurate, appropriate and consistent with LCPR standards of work
- We do not view the exceptions noted as a serious deficiency in the valuation results
- Focus on year-to-year consistency of reporting results
- Consistency in reporting fund ratios, disclosure of assumptions and disclosure of plan provisions

Key Findings

- Change in economic assumptions with 2012 Omnibus Retirement Bill
  - Interest rate changed from 8.5% to 8.0% until 6/30/2017, then 8.5%.
  - Reduce payroll growth rate assumptions
- Other new actuarial assumptions due to recently completed experience studies (Duluth Teachers and MSRS State Patrol for funds included in review).
- Future valuation and consistency issues with Post Retirement Cost of Living Adjustments (COLA)
- Implications of Methodology and Assumptions for Supplemental Contributions to pay down the unfunded actuarial liability
- Funding methodology questions for DTRFA

General Comments

- Most funds experienced decreases in funded ratio and increase in contribution deficiency
- Modest difference in actuarial and market value of assets
  - Most around 1-2% difference
  - Net unrecognized investment losses approximately equal to unrecognized investment gains.
- Evaluate long-term funding of the plans
  - Recent benefit changes have helped
  - Consider effect of recent asset performance
  - Monitor results and trends

July 1, 2012 Fund Actuaries' Results

Contribution Sufficiency/(Deficiency) Measure
Reported by Fund Actuaries

Fund*	July 1, 2011	July 1, 2012
MSRS General	-1.03%	-2.32%
MSRS Correctional	-5.30%	-4.58%
MSRS State Patrol	-5.25%	-11.52%
MSRS Judges	-5.17%	-13.50%
PERA General	0.03%	-0.96%
PERA Correctional	1.16%	0.13%
PERA P&F	-4.78%	-7.94%
TRA	-3.88%	-5.04%
DTRFA	-3.73%	-8.49%
SPTRFA	-2.27%	-6.40%

* The table above shows the results for Funds that use a level percentage of pay methodology to determine the Contribution Sufficiency/(Deficiency) measure. Consequently, the results for MSRS Elective State Officials, MSRS Legislators, and the MERF Division of PERA are not included.

Contribution Sufficiency/Deficiency Measure:

- **Sufficiency** = Statutorily required contribution rate exceeds Actuarially required rate
- **Deficiency** = Statutorily required contribution rate less than Actuarially required rate

Key Drivers of Change:

- Actuarial assumption changes, mainly interest rate
- Investment returns less than assumed

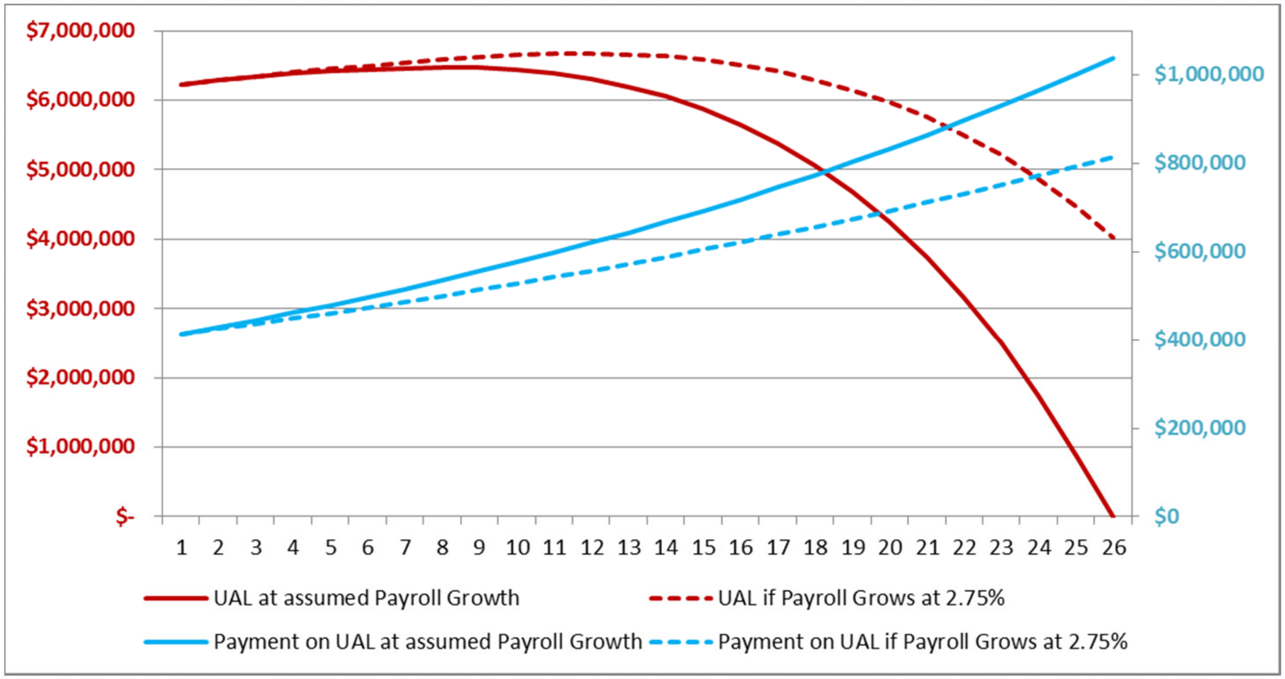
Source: 7/1/2012 actuarial valuation reports prepared by respective fund actuaries.

General Comments

- Cost of Living Adjustment (COLA) after the 2010 Omnibus Pension Legislation
  - Fund pays a lower COLA until “financial stability” is restored for fund
  - “Financial Stability”: $\dfrac{\text{Market Value of Assets}}{\text{Actuarial Accrued Liabilities}} \geq 90\%$
  - Based on fund actuaries’ analysis, 2012 actuarial valuation for most funds assume lower COLA paid for all future years
  - Issues
    - Technical issues
      - How much COLA should be paid if the full COLA reduces “financial stability” measure below 90%?
      - How should an actuarial valuation model a fund where “financial stability” is projected in future years?

Supplemental Contribution determined as a Level Percentage of Payroll

($ in Thousands)



UAL = Unfunded Accrued Liability

Current Approach:

- Supplemental contribution is calculated as a level percent of payroll to statutory amortization date.
- Key Assumptions:
  - 8.0%/8.5% interest rate
  - 3.75% payroll growth rate

Milliman Observations:

- Payment on Unfunded Accrued Liability is less than interest on Unfunded Accrued Liability for a number of years.
- Eventually, payroll increases enough to pay principal on unfunded liability.
- If payroll growth is less than assumed, may not pay off Unfunded Accrued Liability.

Review of Historical Payroll Growth Rates

Geometric Mean Over Select Time Periods

	Payroll Growth Assumption	1-Year	5-Year	10-Year	20-Year
PERA General	3.75%	1.2%	2.9%	3.0%	4.1%
PERA P&F	3.75%	2.4%	4.1%	4.3%	6.2%
MSRS General	3.75%	-3.0%	2.5%	2.1%	2.6%
MSRS State Patrol	3.75%	-1.1%	0.3%	2.4%	3.3%
TRA	3.75%	0.9%	1.9%	3.0%	3.4%
DTRFA	3.50%	-5.3%	-2.1%	-1.1%	0.3%
StPTRFA	4.00%	-0.3%	0.8%	1.7%	3.7%

We note that covered payroll for MSRS General decreased by 3% from fiscal year 2011 to fiscal year 2012. Using fiscal year 2011 as the starting point in the analysis does not produce a geometric mean greater than the payroll growth assumption for any time period other than the 1-year period where the increase was 4%.

Milliman Observations:

- Covered payroll history for PERA P&F appears to be consistent with current assumption.
- Experience for all other funds less than current assumption.
- St. Paul Teachers Retirement Fund utilizes a rolling 25-year amortization. This means the Supplemental Contribution is always less than interest on the Unfunded Accrued Liability.

Source: Covered payroll information from 7/1/2012 actuarial valuation reports prepared by respective fund actuaries.

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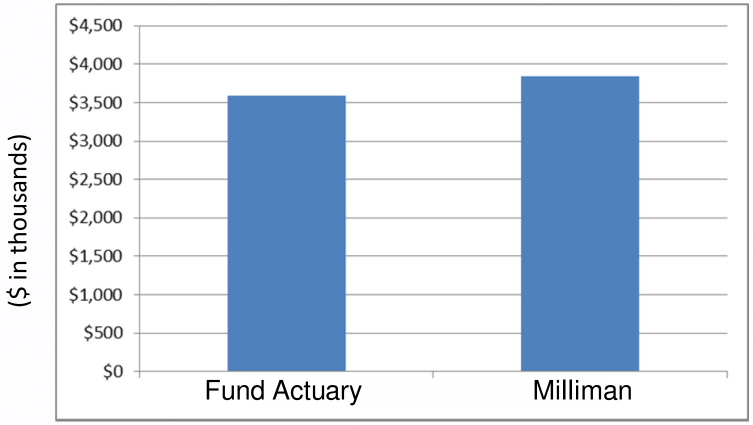
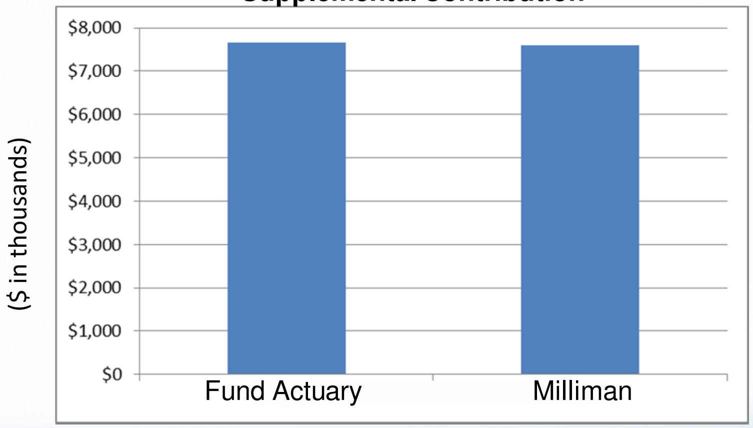
DTRFA Entry Age Normal Methodology

Illustrative Results using Milliman's Replication Valuation

Normal Cost



Supplemental Contribution



Methodology for Milliman results:

- Normal cost rate based on benefits earned by member
- Level over member's career
- Normal cost rate for fund will change over time due to new members with lower benefits replacing current members with higher benefits

Methodology for Fund Actuary's results:

- Normal cost rate based on benefit structure for new hires
- Level over member's career
- Level over fund absent demographic changes
- Shifts costs from normal cost rate to supplemental cost rate

Concerns:

- Does methodology satisfy LCPR's Actuarial Standards?
- Mature Fund with flat payroll
- Upward bias in Actuarially Required Contribution Rate

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Specific Comments: MERF Division of PERA

2010 Omnibus Pension Bill

CURRENT STATE

7/01/2012 Valuation Results

DOLLARS IN THOUSANDS

A. Unfunded Accrued Liability	$ 376,924
B. Statutory Contributions	
1. Member contributions	514
2. Regular employer contributions	514
3. Additional employer contributions	4,041
4. Employer supplemental contribution	27,000
5. State contributions	24,000
6. TOTAL	$ 56,069
C. Actuarially required contribution	
1. Normal cost	579
2. Amortize unfunded accrued liability by July 1, 2031	39,911
3. Expenses	386
4. TOTAL	$ 40,876
D. Contribution Sufficiency/(Deficiency)	$ 15,193

Note: There are 80 active members as of July 1, 2012

7/01/2012 VALUATION

Additional Statutory Funding after 6/30/2012

- Increased state contributions from $22,750 in 2011 valuation to $24,000 in 2012 valuation
- Added layer of employer contributions if needed to pay benefits

FUTURE CHANGES

MERF Division merged into PERA General

- Trigger:
  MERF reaches 80% funding
- Minneapolis employing units make fixed payments to retire any remaining unfunded accrued liability at date of merger

Fund Specific Findings

Minnesota State Retirement System (MSRS)

In general, we believe the July 1, 2012 actuarial valuation has been prepared in accordance with Sections 356.215 and 352 of the Minnesota Statutes except as noted below.

Fund	General Employees	State Patrol
Audit Type	Limited Scope	Limited Scope
Finding	• Form of payment assumption for former members with deferred vested benefits	• Form of payment assumption for former members with deferred vested benefits

Funds excluded: Correctional, Elective State Officials, Legislature, Judges

Fund Specific Findings

Public Employees Retirement Association (PERA)

In general, we believe the July 1, 2012 actuarial valuation has been prepared in accordance with Sections 356.215 and 353 of the Minnesota Statutes except as noted below.

Fund	General Employees	Police and Fire	MERF Division
Audit Type	Limited Scope	Limited Scope	Limited Scope
Finding	• None	• None	• Members remaining active beyond the age at which the retirement rate becomes 100%

Funds excluded: Correctional

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Fund Specific Findings

Teachers Retirement Fund (MTRA)

In general, we believe the July 1, 2012 actuarial valuation has been prepared in accordance with Sections 356.215 and 354 of the Minnesota Statutes except as noted below.

Fund	Minnesota Teachers Retirement Association
Audit Type	Limited Scope

Finding	• Valuation of death benefits for disabled, in-pay member
	  - Implicit 100% marriage assumption
	  - Recommend Fund Actuary review implications of conversion from disability to regular retirement at Normal Retirement Age
	• Termination benefit for members: Differences exist between Fund Actuary and Milliman in the split between refund and deferred retirement components
	• Additional detail regarding missing data assumptions is recommended

Fund Specific Findings

Duluth Teachers Retirement Fund (DTRFA)

In general, we believe the July 1, 2012 actuarial valuation has been prepared in accordance with Sections 356.215 and 354A of the Minnesota Statutes except as noted below.

Fund	Duluth Teachers Retirement Fund Association
Audit Type	Replication
Finding	• Application of Entry Age Normal Cost Method • Projected benefit funded ratio includes scheduled contribution rate increase (not consistent with other Fund Actuaries) • Additional detail regarding missing data assumptions is recommended • Report does not disclose required funding measures on a Market Value of Assets basis • Active member termination benefit not split between refund and deferred retirement • Mature fund with over 70% of Actuarial Accrued Liability for in-pay members - Cash flow solvency test included in valuation process - Test results: Sufficient resources to pay benefits plus expenses over 10-year projection period. • Asset losses yet to be recognized - Contribution rate deficiency expected to increase when these losses are recognized in future valuations • Covered payroll has declined since 2008

Fund Specific Findings

St. Paul Teachers Retirement Fund (St. PTRFA)

In general, we believe the July 1, 2012 actuarial valuation has been prepared in accordance with Sections 356.215 and 354A of the Minnesota Statutes except as noted below.

Fund	St. Paul Teachers Retirement Fund Association
Audit Type	Replication
Finding	• Projected benefit funded ratio includes scheduled contribution rate increase (not consistent with other Fund Actuaries) • Data processing difference for active members with less than 1 year of service

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