

# Presentation of Actuarial Review of 2013 Valuations to Minnesota Legislative Commission on Pensions and Retirement

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# Actuarial Review of July 1, 2013 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
- Correctional
- Elective State Officials
- Legislature
- Judges

- General
- Police and Fire
- MERF Division
- Local Correctional

- TRA

- DTRFA

- St.PTRFA

# *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
- 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

7/01/2013

Replication Audit:

MSRS State Patrol

MSRS Correctional

PERA Police & Fire

PERA Local Correctional

# 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 \$115 M

# Key Findings

- Actuarial calculations generally accurate, appropriate and consistent with LCPR standards of work with one possible exception
- We do not view the exceptions noted as a serious deficiency in the valuation results other than one finding discussed in detail on slide 14
- Focus on year-to-year consistency of reporting results
- Consistency in reporting fund ratios, disclosure of assumptions and disclosure of plan provisions
- Significant changes due to 2013 Omnibus Retirement Bill have been reflected in the applicable funds as outlined in our report

# Observations

- 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
  - Number of smaller issues combine to make a larger issue
- Less detail provided with respect to Sample Lives make Sample Life Audit technique difficult
- Revised Actuarial Standard of Practice regarding Interest Rate Assumption

# Key Findings

## Minnesota State Retirement System (MSRS)

- No material findings on valuation work
- Form of payment assumption for deferred vested

## Public Employees Retirement Association (PERA)

- No material findings on valuation work
- MERF active members working beyond certain retirement age

## Teachers Retirement Association (TRA)

- No material findings on valuation work
- Disabled member death benefit valuation
- System differences for retirement eligibility, refunds and deferred vested members

## Duluth Teachers Retirement Fund Association (DTRFA)

- Entry Age Normal Method
- Additional detail regarding missing data assumptions
- Market Value Disclosures
- Salary Increase Assumption

## St. Paul Teachers Retirement Fund Association (St.PTRFA)

- No material findings on valuation work
- Projected Funded Ratio

More detail provided on slides 18 through 22 and in our report.



# General Comments

- The 2013 Omnibus Retirement Bill included changes to benefit provisions and financing sources including member and employer contribution increases as well as State Aid
  - In general, significant improvements in the long-term health of the affected funds are expected as a result of these changes
  - Nevertheless, there are some funds with significant financial challenges
- Modest difference in actuarial and market value of assets
  - Most funds now have actuarial value less than market value
  - Net unrecognized investment losses less than unrecognized investment gains
  - Funds are well positioned to report investment gains on an actuarial value basis
- Evaluate long-term funding of the plans
  - Recent benefit changes have helped
  - Consider effect of recent asset performance
  - Monitor results and trends

# July 1, 2013 Fund Actuaries' Results

## Contribution Sufficiency/(Deficiency) Measure Reported by Fund Actuaries

Fund*	July 1, 2012	July 1, 2013
MSRS General	-2.32%	-2.45%
MSRS Correctional	-4.58%	-5.41%
MSRS State Patrol	-11.52%	-8.68%
MSRS Judges	-13.50%	-11.46%
PERA General	-0.96%	-1.65%
PERA Local Correctional	0.13%	0.26%
PERA P&F	-7.94%	-2.64%
TRA	-5.04%	-4.74%
DTRFA	-8.49%	-2.88%
SPTRFA	-6.40%	-2.80%

\* 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:

- 2013 Omnibus Retirement Bill
- Investment returns more than assumed

Source: 7/1/2013 actuarial valuation reports prepared by respective fund actuaries.

# July 1, 2013 Long-Term Expected Results

## Contribution Sufficiency/(Deficiency) Measure Reported by Fund Actuaries

July 1, 2013 Contribution Sufficiency/(Deficiency) Measure			
Fund*	Actuarial Value Basis Reported by Fund Actuary <sup>(1)</sup>	Market Value Basis Reported by Fund Actuary <sup>(1)</sup>	Market Value Basis with Long-Term Funding Sources Calculated by Milliman <sup>(2)</sup>
MSRS General	-2.45%	-0.80%	-0.80%
MSRS Correctional	-5.41%	-3.97%	-3.97%
MSRS State Patrol	-8.68%	-4.33%	0.67%
MSRS Judges	-11.46%	-9.64%	-9.64%
PERA General	-1.65%	-0.15%	-0.15%
PERA Local Correctional	0.26%	1.19%	1.19%
PERA P&F	-2.64%	0.65%	2.90%
TRA	-4.74%	-2.73%	-1.73%
DTRFA	-2.88%	-0.85%	-10.77%
SPTRFA	-2.80%	-1.67%	-1.42%

\* 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.

Source: <sup>(1)</sup> 7/1/2013 actuarial valuation reports prepared by respective fund actuaries.

<sup>(2)</sup> Milliman estimates based on 7/1/2013 actuarial valuation reports prepared by respective fund actuaries

- Each Fund Actuary has reported the Contribution Sufficiency/(Deficiency) measure on both an actuarial value and a market value basis.
- Reviewing this measure on a market value basis illustrates the impact the asset smoothing has on deferred asset gains.
- In addition to reviewing the Contribution Sufficiency/(Deficiency) measure on a market value basis, it is also instructive to consider the effects after the increases in member and employer contribution rates are fully phased in and after the temporary State Aid to the St. Paul and Duluth Teachers Funds expire.
- The table illustrates the Contribution Sufficiency/(Deficiency) measure on a market value basis and on a market value basis with long-term funding sources.

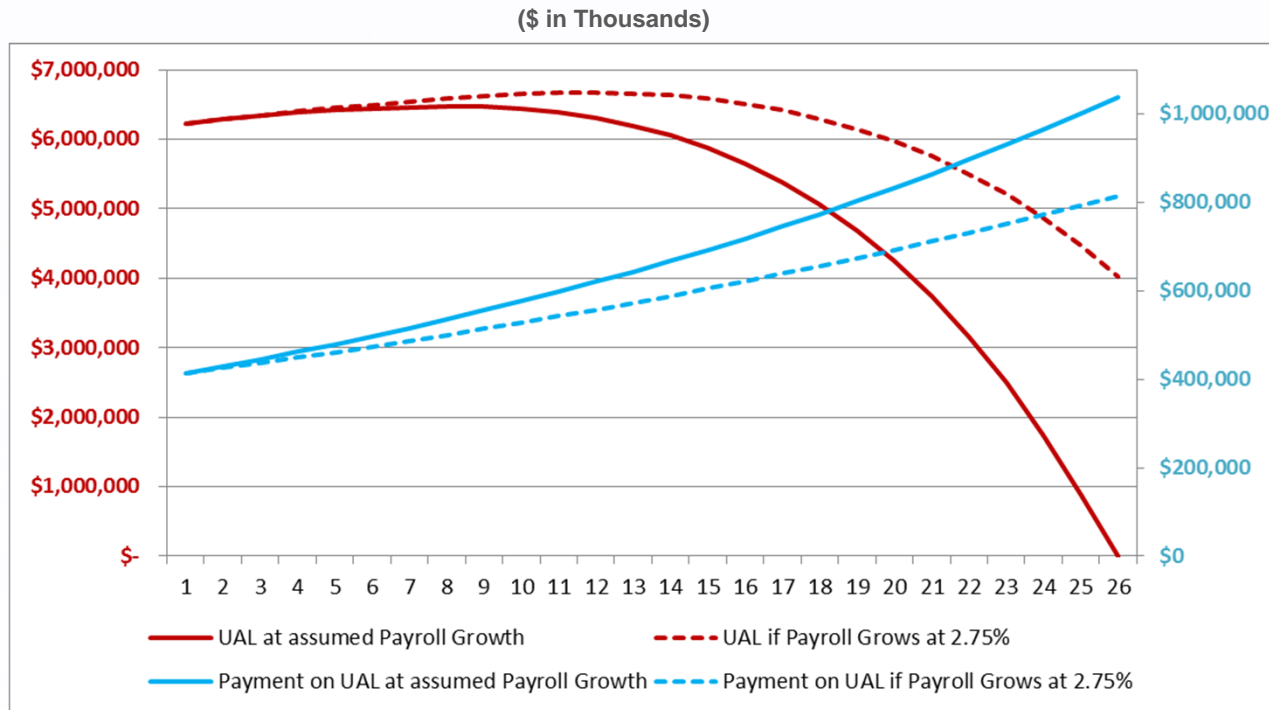
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# Observations

- 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”:
$$\frac{\text{Market Value of Assets}}{\text{Actuarial Accrued Liabilities}} \geq 90\%$$
  - Based on fund actuaries’ analysis, 2013 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?
    - 2013 Omnibus Pension Legislation modified the COLA adjustment mechanism for PERA General, Police & Fire, Local Correctional, and MERF Division of PERA. These changes reduce the likelihood that future COLAs will change on an annual basis as a fund gets close to 90% (e.g. PERA Local Correctional), but it does not address the technical issues

# Supplemental Contribution determined as a Level Percentage of Payroll



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. This is sometimes called “negative amortization”.
- Eventually, payroll increases enough to pay principal on unfunded liability.
- If payroll growth is less than assumed, may not pay off Unfunded Accrued Liability.

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# 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%	2.0%	2.1%	1.8%	4.0%
PERA P&F	3.75%	0.2%	2.5%	3.6%	5.9%
MSRS General	3.75%	4.9%	1.9%	2.1%	2.6%
MSRS State Patrol	3.75%	-0.6%	0.7%	1.4%	2.8%
TRA	3.75%	1.2%	1.5%	2.9%	3.3%
DTRFA	3.50%	-3.0%	-3.0%	-1.3%	0.1%
StPTRFA	4.00%	3.5%	1.0%	1.9%	3.6%

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:

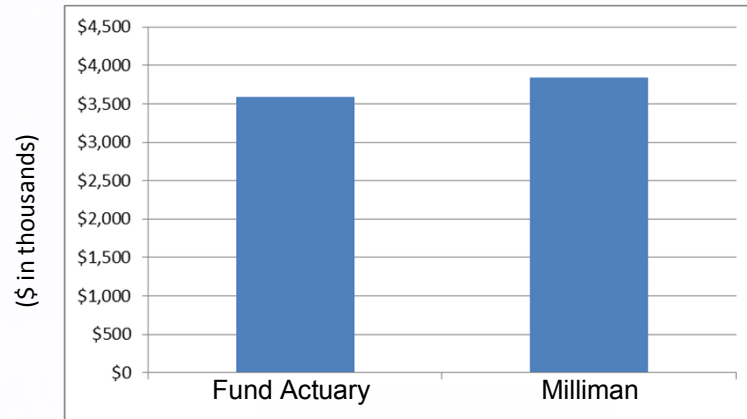
- Covered payroll history for PERA P&F appears to be consistent with current assumption.
- Experience for all other funds less than current assumption.
- St. Paul Teachers Retirement Fund utilizes a rolling 25-year amortization. This means the Supplemental Contribution is always less than interest on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

Source: Covered payroll information from 7/1/2013 actuarial valuation reports prepared by respective fund actuaries.

# DTRFA Entry Age Normal Methodology

## Illustrative Results using Milliman's July 1, 2012 Replication Valuation

Normal Cost



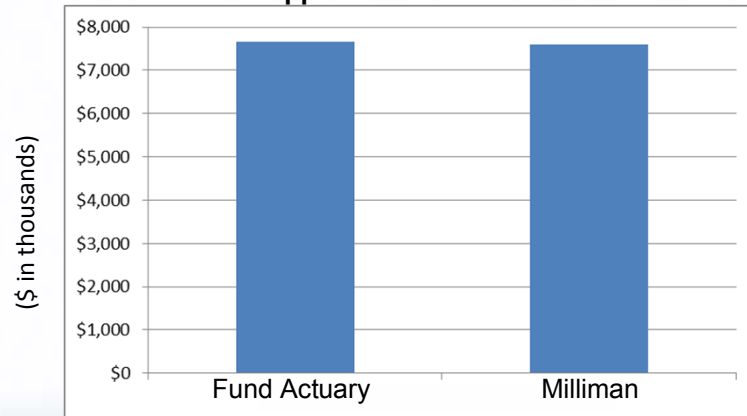
### Methodology for Milliman results:

- 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

Supplemental Contribution



### 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

7/01/2013 Valuation Results

#### DOLLARS IN THOUSANDS

A. Unfunded Accrued Liability	\$ 298,310
B. Statutory Contributions	
1. Member contributions	415
2. Regular employer contributions	415
3. Additional employer contributions	4,014
4. Employer supplemental contribution	27,000
5. State contributions	<u>24,000</u>
6. TOTAL	\$ 55,844
C. Actuarially required contribution	
1. Normal cost	455
2. Amortize unfunded accrued liability by July 1, 2031	32,426
3. Expenses	<u>343</u>
4. TOTAL	\$ 33,224
D. Contribution Sufficiency/(Deficiency)	\$ 22,620

### FUTURE CHANGES

Additional Statutory Funding  
after 6/30/2013

- Added layer of employer contributions if needed to pay benefits

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
- July 1, 2013 funded ratio is 74.44%
- Using rough estimates, based on Fund Actuary's report, potential merger in 3-5 years

Note: There are 64 active members as of July 1, 2013

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# *Revised Actuarial Standard of Practice Regarding Interest Rate Assumption*

- Current Standard: “Best estimate range”
- Revised Standard: “Reasonable” assumption is one that has no significant bias
- Long-term 8.5% assumption may have a bias towards optimism under some economic models
- Revised Standard is first effective for July 1, 2015 actuarial valuation
- Monitor situation as the standard is implemented

# Fund Specific Findings - Detail

## Minnesota State Retirement System (MSRS)

In general, we believe the July 1, 2013 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	Correctional	Judges	Elective State Officers	Legislators
Audit Type	Limited Scope	Replication	Replication	Sample Life	Sample Life	Sample Life
Finding	<ul style="list-style-type: none"> <li>Form of payment assumption for former members with deferred vested benefits</li> </ul>	<ul style="list-style-type: none"> <li>Form of payment assumption for former members with deferred vested benefits</li> </ul>	<ul style="list-style-type: none"> <li>Form of payment assumption for former members with deferred vested benefits</li> </ul>	<ul style="list-style-type: none"> <li>Form of payment assumption for former members with deferred vested benefits</li> </ul>	<ul style="list-style-type: none"> <li>Form of payment assumption for former members with deferred vested benefits</li> </ul>	<ul style="list-style-type: none"> <li>Form of payment assumption for former members with deferred vested benefits</li> </ul>

# Fund Specific Findings

## Public Employees Retirement Association (PERA)

In general, we believe the July 1, 2013 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	Correctional	MERF Division
Audit Type	Limited Scope	Replication	Replication	Limited Scope
Finding	<ul style="list-style-type: none"> <li>None</li> </ul>	<ul style="list-style-type: none"> <li>None</li> </ul>	<ul style="list-style-type: none"> <li>None</li> </ul>	<ul style="list-style-type: none"> <li>Members remaining active beyond the age at which the retirement rate becomes 100%</li> </ul>

# Fund Specific Findings

## Teachers Retirement Fund (MTRA)

In general, we believe the July 1, 2013 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	<ul style="list-style-type: none"><li>• Valuation of death benefits for disabled, in-pay member<ul style="list-style-type: none"><li>- Implicit 100% marriage assumption</li><li>- Recommend Fund Actuary review implications of conversion from disability to regular retirement at Normal Retirement Age</li></ul></li><li>• Termination benefit for members: Differences exist between Fund Actuary and Milliman in the split between refund and deferred retirement components</li><li>• Additional detail regarding the new early retirement reduction factors that begin to apply July 1, 2015 is recommended</li><li>• Difference in valuation systems' determination of eligibility for future retirement benefits</li></ul>

# Fund Specific Findings

## Duluth Teachers Retirement Fund (DTRFA)

In general, we believe the July 1, 2013 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	Limited Scope
Finding	<ul style="list-style-type: none"><li>• Application of Entry Age Normal Cost Method</li><li>• Projected benefit funded ratio includes scheduled contribution rate increase (not consistent with other Fund Actuaries)</li><li>• Additional detail regarding missing data assumptions is recommended</li><li>• Report does not disclose required funding measures on a Market Value of Assets basis</li><li>• Active member termination benefit not split between refund and deferred retirement</li><li>• Mature fund with over 70% of Actuarial Accrued Liability for in-pay members<ul style="list-style-type: none"><li>- Cash flow solvency test included in valuation process</li><li>- Test results: Sufficient resources to pay benefits plus expenses over 10-year projection period.</li></ul></li><li>• Asset losses yet to be recognized<ul style="list-style-type: none"><li>- Contribution rate deficiency expected to increase when these losses are recognized in future valuations</li></ul></li><li>• Covered payroll has declined since 2008</li><li>• Salary scale assumption used by Fund Actuary is not consistent with Section 356.215</li></ul>

# Fund Specific Findings

## St. Paul Teachers Retirement Fund (St. PTRFA)

In general, we believe the July 1, 2013 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	Limited Scope
Finding	<ul style="list-style-type: none"><li>• Projected benefit funded ratio includes scheduled contribution rate increase (not consistent with other Fund Actuaries)</li><li>• Actuarially required contribution rate would not lead to a 100% funded ratio in any future year unless the system has experience more favorable than assumed</li></ul>