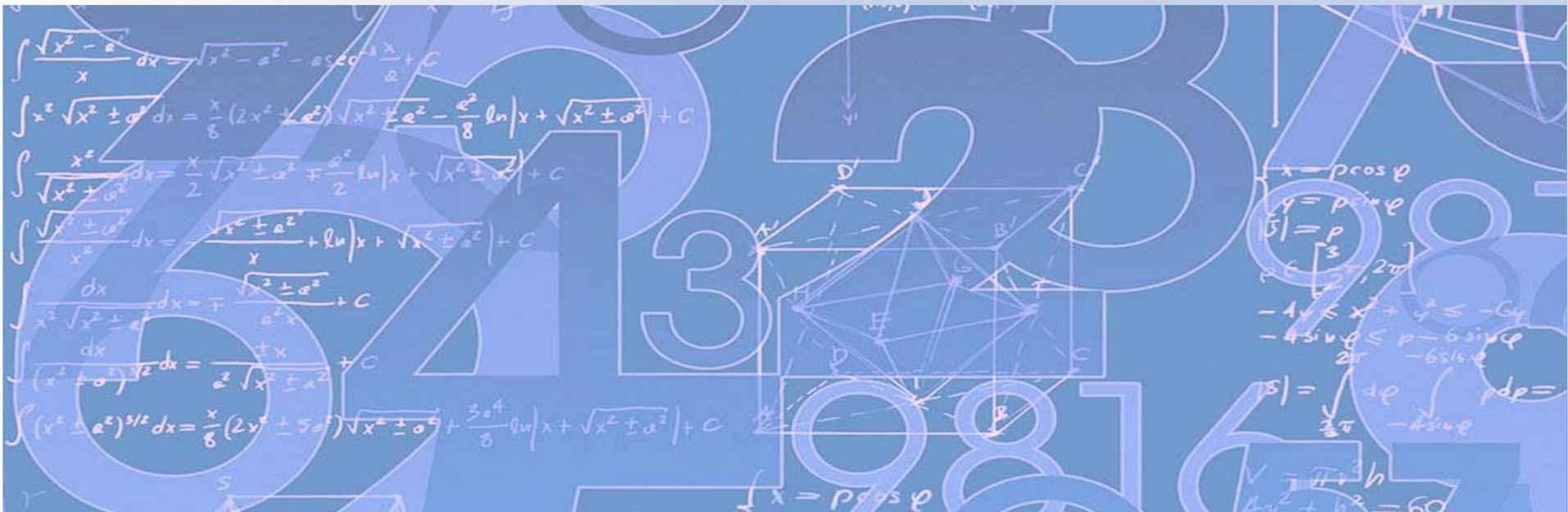


# Preliminary Actuarial Valuation Results

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Deputy State Actuary*



## Today's Presentation

- Highlights from most recent actuarial valuation report
- Budget impact of updated contribution rates
- Assumed TRS system growth rate
- Mortality assumptions



## Background On Results

- Preliminary valuation results
  - June 30, 2015, valuation date
  - Lower expected rate of investment return of 7.7 percent included in results
- Budget impacts
  - Include results from latest actuarial valuation plus second step of contribution rate phase-in of updated mortality assumptions



## Measuring Plan Health

- Has everything happened as planned?
- Are we on track with our systematic actuarial funding plan?
- Two key measurements
  - Funded status
  - Unfunded Actuarial Accrued Liability (UAAL)

## Funded Status

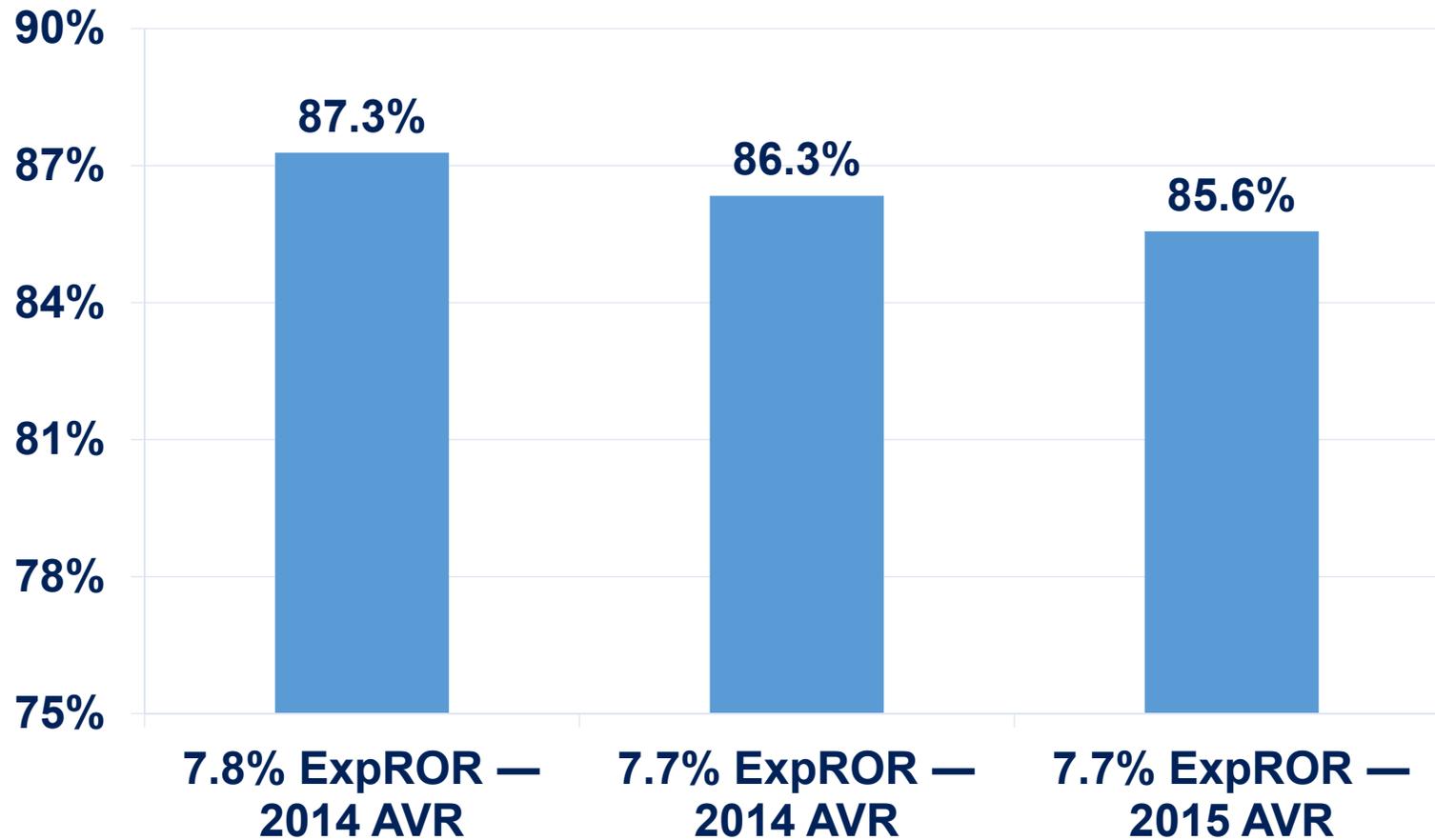
- Comparison of plan assets to today's value of earned pensions
  - Point-in-time measurement
- A funded status of at least 100 percent means a plan has at least \$1 in assets for each \$1 of earned pension liability
  - On track with systematic actuarial funding plan
- Plan more than 100 percent funded not necessarily over funded and may require on-going contributions



## Unfunded Actuarial Accrued Liability

- Occurs when a plan does not have sufficient assets to cover earned pension liabilities
  - Funded status less than 100 percent
- Off track with systematic actuarial funding plan
- Requires additional contributions to get back on track
  - Normal cost plus UAAL contributions for Plans 1
  - Higher normal cost in Plans 2/3

## Funded Status – All Plans Combined



*Note: Liabilities valued using Entry Age Normal Cost method. This method is not used to determine contribution rates.*

## Funded Status Declined From Last Report

- Phase-in of lower investment return assumption from 7.8 percent to 7.7 percent
  - Today's value of future benefits increases when the discount rate decreases

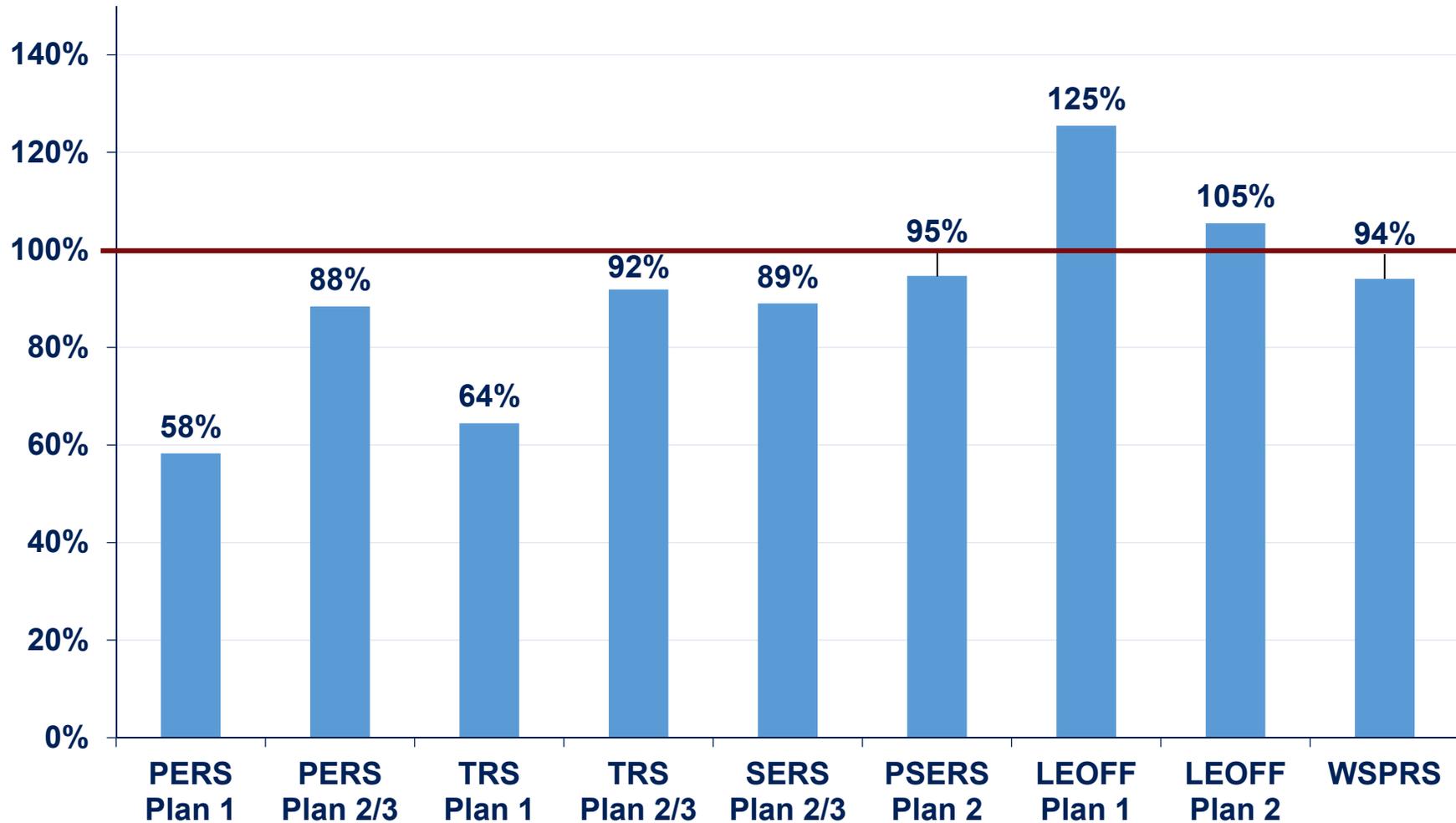
Funded Status at June 30		
(Dollars in Millions)	2015	2014
<b>All Systems</b>		
a. Accrued Liability*	\$83,518	\$78,800
b. Market Value of Assets**	74,476	72,553
c. Deferred Gains/(Losses)	3,016	3,776
d. Actuarial Value of Assets (b-c)	71,460	68,777
e. Unfunded Liability (a-d)	\$12,058	\$10,023
f. Funded Ratio (d/a)	86%	87%

Note: Totals may not agree due to rounding.

\*Liabilities valued using Entry Age Normal Cost method. This method is not used to determine contribution rates.

\*\*2015 Market Value of Assets reduced by a \$15.799 million payable to the LEOFF 2 Benefit Improvement Account due by 6/30/2016, discounted to 6/30/2015 at 7.5% (C 4 L 15).

## Funded Status Below 100 Percent For Most Plans



*Note: Liabilities valued using Entry Age Normal Cost method. This method is not used to determine contribution rates.*

## Funded Status By Plan At June 30, 2015

Funded Status on an Actuarial Value Basis*										
(Dollars in Millions)	PERS		TRS		SERS	PSERS	LEOFF		WSPRS	Total
	Plan 1	Plan 2/3	Plan 1	Plan 2/3	Plan 2/3	Plan 2	Plan 1	Plan 2		
Accrued Liability	\$12,553	\$32,008	\$9,107	\$10,831	\$4,381	\$357	\$4,307	\$8,838	\$1,134	\$83,518
Valuation Assets	\$7,315	\$28,292	\$5,870	\$9,953	\$3,901	\$338	\$5,404	\$9,320	\$1,067	\$71,460
Unfunded Liability	\$5,239	\$3,715	\$3,237	\$879	\$481	\$19	(\$1,097)	(\$482)	\$67	\$12,058
<b>Funded Ratio</b>										
<b>2015</b>	<b>58%</b>	<b>88%</b>	<b>64%</b>	<b>92%</b>	<b>89%</b>	<b>95%</b>	<b>125%</b>	<b>105%</b>	<b>94%</b>	<b>86%</b>
2014	61%	90%	69%	94%	91%	96%	127%	107%	100%	87%

Note: Totals may not agree due to rounding.

\*Liabilities valued using the EAN cost method at an interest rate of 7.7% (7.5% for LEOFF 2). All assets have been valued under the actuarial asset method.

- Future contributions may not be required when a plan's assets cover earned and expected future benefits of current members
  - As of 2015 valuation, only LEOFF 1 satisfies this condition
- Funded status measures presented here are not sufficient to determine whether a plan has enough assets to terminate or settle the plan obligations

## Funded Status With Different Interest Rate Assumption

Funded Status at a 1% Lower Interest Rate Assumption*										
(Dollars in Millions)	PERS		TRS		SERS	PSERS	LEOFF		WSPRS	Total
	Plan 1	Plan 2/3	Plan 1	Plan 2/3	Plan 2/3	Plan 2	Plan 1	Plan 2		
Accrued Liability	\$13,631	\$36,983	\$9,882	\$12,630	\$5,033	\$435	\$4,716	\$10,299	\$1,298	\$94,908
Valuation Assets	\$7,315	\$28,292	\$5,870	\$9,953	\$3,901	\$338	\$5,404	\$9,320	\$1,067	\$71,460
Unfunded Liability	\$6,316	\$8,691	\$4,011	\$2,677	\$1,133	\$97	(\$688)	\$979	\$231	\$23,448
<b>Funded Ratio</b>										
<b>2015</b>	<b>54%</b>	<b>77%</b>	<b>59%</b>	<b>79%</b>	<b>77%</b>	<b>78%</b>	<b>115%</b>	<b>90%</b>	<b>82%</b>	<b>75%</b>
2014	56%	78%	63%	80%	79%	78%	116%	92%	88%	77%

Note: Totals may not agree due to rounding.

\*Liabilities valued using the EAN cost method at an interest rate of 6.7% (6.5% for LEOFF 2). All assets have been valued under the actuarial asset method.

Funded Status at a 1% Higher Interest Rate Assumption*										
(Dollars in Millions)	PERS		TRS		SERS	PSERS	LEOFF		WSPRS	Total
	Plan 1	Plan 2/3	Plan 1	Plan 2/3	Plan 2/3	Plan 2	Plan 1	Plan 2		
Accrued Liability	\$11,622	\$27,936	\$8,438	\$9,371	\$3,845	\$296	\$3,957	\$7,649	\$1,002	\$74,116
Valuation Assets	\$7,315	\$28,292	\$5,870	\$9,953	\$3,901	\$338	\$5,404	\$9,320	\$1,067	\$71,460
Unfunded Liability	\$4,307	(\$357)	\$2,568	(\$582)	(\$56)	(\$42)	(\$1,447)	(\$1,671)	(\$65)	\$2,656
<b>Funded Ratio</b>										
<b>2015</b>	<b>63%</b>	<b>101%</b>	<b>70%</b>	<b>106%</b>	<b>101%</b>	<b>114%</b>	<b>137%</b>	<b>122%</b>	<b>107%</b>	<b>96%</b>
2014	66%	103%	74%	108%	104%	116%	139%	124%	113%	98%

Note: Totals may not agree due to rounding.

\*Liabilities valued using the EAN cost method at an interest rate of 8.7% (8.5% for LEOFF 2). All assets have been valued under the actuarial asset method.

## PERS 1 And TRS 1 UAAL At June 30, 2015

Funded Status on an Actuarial Value Basis*										
(Dollars in Millions)	PERS		TRS		SERS	PSERS	LEOFF		WSPRS	Total
	Plan 1	Plan 2/3	Plan 1	Plan 2/3	Plan 2/3	Plan 2	Plan 1	Plan 2		
Accrued Liability	\$12,553	\$32,008	\$9,107	\$10,831	\$4,381	\$357	\$4,307	\$8,838	\$1,134	\$83,518
Valuation Assets	\$7,315	\$28,292	\$5,870	\$9,953	\$3,901	\$338	\$5,404	\$9,320	\$1,067	\$71,460
Unfunded Liability	\$5,239	\$3,715	\$3,237	\$879	\$481	\$19	(\$1,097)	(\$482)	\$67	\$12,058

Note: Totals may not agree due to rounding.

\*Liabilities valued using the EAN cost method at an interest rate of 7.7% (7.5% for LEOFF 2). All assets have been valued under the actuarial asset method.

## Getting Plans Back On Track

- New funding method adopted in 2009 for PERS 1 and TRS 1
  - Requires higher employer UAAL contribution rates with minimum rates in place to ensure full funding
  - Expected full funding in 2027 for PERS 1 and 2026 for TRS 1 based on 2014 valuation projections
    - Assumes required contributions are made and actuarial assumptions are realized
    - Full funding will occur sooner/later under optimistic/pessimistic outcomes
- Open plans (except LEOFF 2) require increased normal cost contributions in the short term to keep plans on track for full funding



## Up Next: Preliminary Budget Impacts

- Concurrent outside audit in progress
  - Results may change
  - Final results expected in July
- 2017-19 and 2019-21 Budget impacts
  - Excludes LEOFF 2

## Preliminary 2017-19 And 2019-21 Budget Impacts

Increase Above 2015-17 Current Law Budget*			
	7.7% Interest Rate	Second Step of Mortality Improvement Phase-In	Total Impact
<i>(Dollars in Millions)</i>			
<b>2017-2019</b>			
General Fund	\$150	\$120	\$270
Non-General Fund	\$51	\$48	\$99
<b>Total State</b>	<b>\$201</b>	<b>\$168</b>	<b>\$370</b>
Local Government	\$150	\$134	\$284
<b>Total Employer</b>	<b>\$352</b>	<b>\$302</b>	<b>\$654</b>
<b>Total Employee</b>	<b>\$162</b>	<b>\$107</b>	<b>\$269</b>
<b>2019-2021</b>			
General Fund	\$166	\$133	\$299
Non-General Fund	\$55	\$52	\$107
<b>Total State</b>	<b>\$221</b>	<b>\$185</b>	<b>\$406</b>
Local Government	\$164	\$146	\$310
<b>Total Employer</b>	<b>\$385</b>	<b>\$330</b>	<b>\$716</b>
<b>Total Employee</b>	<b>\$179</b>	<b>\$119</b>	<b>\$298</b>

Note: Totals may not agree due to rounding.

\*Excludes LEOFF 2. Budget impacts reflect difference between contribution rates adopted for the 2015-17 Biennium and the calculated rates for the 2017-19 Biennium under different phase-ins. The preliminary 2015 AVR was used along with estimated projected salaries.

## Preliminary 2017-19 Employer Contribution Rates

Total Employer Contribution Rates*			
	2017-19 Contribution Rates**		
	2015-17 Adopted Rates	Current Law Assumptions	Second Step of Mortality Improvement Phase-In
<b>PERS</b>	11.00%	11.78%	12.52%
<b>TRS</b>	12.95%	14.22%	15.15%
<b>SERS 2/3</b>	11.40%	12.40%	13.30%
<b>PSERS 2</b>	11.36%	11.41%	11.76%
<b>LEOFF 1</b>	0.00%	0.00%	0.00%
<b>WSPRS 1/2</b>	8.01%	10.71%	12.81%

\*Excludes current administrative expense rate of 0.18%.

\*\*Includes lowering interest rate assumption from 7.8% to 7.7%, consistent with state law.

## Preliminary 2017-19 Member Contribution Rates

Member Contribution Rates			
	2017-19 Contribution Rates*		
	2015-17 Adopted Rates	Current Law Assumptions	Second Step of Mortality Improvement Phase-In
<b>PERS 2</b>	6.12%	6.89%	7.38%
<b>TRS 2</b>	5.95%	6.56%	7.06%
<b>SERS 2</b>	5.63%	6.62%	7.27%
<b>PSERS 2</b>	6.59%	6.63%	6.73%
<b>LEOFF 1</b>	0.00%	0.00%	0.00%
<b>WSPRS 1/2**</b>	6.69%	7.34%	7.34%

\*Includes lowering interest rate assumption from 7.8% to 7.7%, consistent with state law.

\*\*WSPRS maximum employee rate is 7.34%.

## Additional References

- Supporting exhibits available on OSA website
  - [http://osa.leg.wa.gov/Actuarial\\_Services/Publications/Valuations.htm](http://osa.leg.wa.gov/Actuarial_Services/Publications/Valuations.htm)
- Staff at OSA
- Full and final actuarial valuation report available end of August

## Up Next

- Assumed TRS system growth rate
- Mortality assumptions



## Assumed TRS System Growth Rate

- Last supplemental budget included provisions on assumed TRS system growth rate
  - Section 922 of 2ESHB 2376
  - *“From July 1, 2016, until July 1, 2017, the growth in system membership for the teachers’ retirement system shall be 1.25 percent. It is the intent of the legislature to continue this growth rate assumption in the 2017-19 fiscal biennium.”*
- Current system growth assumption of 0.80 percent for TRS
- Higher growth rate from supplemental budget consistent with state actuary’s most recent recommendation
- Assumption used to determine employer contributions to the TRS 1 UAAL only
- See *2015 Economic Experience Study* for further details

## 2017-19 And 2019-21 Preliminary Budget Impacts From Higher Assumed TRS System Growth Rate

Increase Above 2015-17 Current Law Budget*			
	7.7% Interest Rate Second Step of Mortality Improvement Phase-In	1.25% TRS System Growth	Total Impact
<i>(Dollars in Millions)</i>			
<b>2017-2019</b>			
General Fund	\$270	(\$10)	\$260
Non-General Fund	\$99	\$0	\$99
<b>Total State</b>	<b>\$370</b>	<b>(\$10)</b>	<b>\$359</b>
Local Government	\$284	(\$4)	\$280
<b>Total Employer</b>	<b>\$654</b>	<b>(\$15)</b>	<b>\$639</b>
<b>Total Employee</b>	<b>\$269</b>	<b>\$0</b>	<b>\$269</b>
<b>2019-2021</b>			
General Fund	\$299	(\$12)	\$287
Non-General Fund	\$107	\$0	\$107
<b>Total State</b>	<b>\$406</b>	<b>(\$12)</b>	<b>\$394</b>
Local Government	\$310	(\$5)	\$305
<b>Total Employer</b>	<b>\$716</b>	<b>(\$16)</b>	<b>\$699</b>
<b>Total Employee</b>	<b>\$298</b>	<b>\$0</b>	<b>\$298</b>

Note: Totals may not agree due to rounding.

\*Excludes LEOFF 2. Budget impacts reflect difference between contribution rates adopted for the 2015-17 Biennium and the calculated rates for the 2017-19 Biennium under different phase-ins. The preliminary 2015 AVR was used along with estimated projected salaries.

- Lowering contributions to the UAAL will increase long-term costs due to forgone investment earnings on the lowered contributions

## 2017-19 Preliminary Employer Contribution Rates With Higher Assumed TRS System Growth Rates

Total Employer Contribution Rates for 2017-19 Biennium				
	2015-17 Adopted Rates	2017-19 Contribution Rates*		
		Current Law Assumptions	Second Step of Mortality Improvement Phase-In	1.25% TRS System Growth
<b>PERS</b>	11.00%	11.78%	12.52%	12.52%
<b>TRS</b>	12.95%	14.22%	15.15%	15.02%
<b>SERS 2/3</b>	11.40%	12.40%	13.30%	13.30%
<b>PSERS 2</b>	11.36%	11.41%	11.76%	11.76%
<b>LEOFF 1</b>	0.00%	0.00%	0.00%	0.00%
<b>WSPRS 1/2</b>	8.01%	10.71%	12.81%	12.81%

*\*Includes lowering interest rate assumption from 7.8% to 7.7% consistent with state law.*

*Excludes current administrative expense rate of 0.18%.*

## Mortality Assumptions

- Background and history
- Developments since last demographic experience study



## Mortality Improvement And Projection Scales

- Long history of continued improvement in lifespans and most experts expect the trend to continue
  - See 2014 OSA presentation to PFC and OSA's last demographic experience study for further details
- Actuaries model these improvements by applying Mortality Projection Scales to current mortality tables
- Several projection scales available from the Society of Actuaries (SOA)
  - Scale AA
  - Scale BB
  - MP-2014
  - MP-2015
- Scales represent rates of improvement (decreases) in future mortality rates
  - Separate rates by gender

## Development And History Of Current Mortality Improvement Assumptions

- Not a new subject for Washington State
- Scale AA included in 2001-2006 Experience Study
  - Fifty percent of Scale AA proposed in 2008
  - Adopted rates for 2009-2011 excluded projected improvements in mortality
- Scale AA included in 2010 rate calculations for 2011-2013
  - Adopted rates for 2011-2013 included 50 percent of Scale AA
- Scale AA reviewed in 2007-2012 Experience Study
  - Scale BB proposed
  - Adopted rates for 2015-2017 included the first step of a three-biennia phase-in to 100 percent of Scale BB
  - Proposed rates for 2017-2019 include second step of planned phase-in



## Developments Since Last Demographic Experience Study

- SOA finalized MP-2014
  - Intended to replace Scale BB
  - MP-2014 was not final at our last demographic experience study
- SOA then released MP-2015 and announced plans to update the scale each year
  - MP-2015 represents the most current projection scale available
- Impact of moving from Scale BB to MP-2015 varies by plan
  - About a 1 percent initial drop in funded status (all plans combined)
  - Estimated 2017-19 GF-S budget impact of \$72 million (\$182 million total employer) with no phase-in
- Study on public plan mortality experience underway and may take several years for the final results to be available

## OSA Thoughts On Mortality Assumptions

- Use of Scale BB reasonable and appropriate
- The use of MP-2015 would also be reasonable and appropriate
- Annual updates to long-term assumptions appear inconsistent with the nature and application of the assumptions
  - However, annual reviews required and ensure on-going reasonability of assumptions
- Additional information and insights will be gained when the results of the public plan mortality study become available
- OSA will continue to monitor developments and include in future experience studies and analysis

