



## MEMO

To: PERA Board Members

From: Greg Smith, Executive Director

RE: Impact of Various Change Scenarios Presented in Years of Amortization until 100% Funded

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Attached is a table titled *Colorado PERA – Impact of Change Presented in Years of Amortization until 100% Funded* (Grid). The Grid contains updated information first discussed during the September 22, 2016, Planning Meeting regarding possible change and/or experience scenarios that would affect the funding period of four of the five PERA divisions (pension trust funds).

The baseline projected funding period of the State, School, Local Government, and DPS Divisions appear at the top of each page of the Grid. Please note that the baseline projections are based upon the recently revised actuarial assumptions and the 7.25 percent assumed rate of return as adopted by the PERA Board of Trustees (Board) on November 18, 2016. On the first and second pages of the Grid, possible change scenarios regarding contributions and benefit provisions are listed on the left-hand side, with the estimated funding period impact displayed under each division header. The third page shows possible investment return scenarios to illustrate the impact of various return possibilities, including a few examples of returns based on historical time periods.

Please note that the estimated impacts shown in each cell of this Grid are intended to illustrate the impact of the isolated change or experience item and should not be considered additive. This means that the adoption of a combination of more than one of these items likely would produce a notably different result than if the provided estimated impact amounts are simply added together.

Upon posting, the Grid can be considered a public document for informational and educational use only. As we progress through the following months of discussion and the scheduled outreach, involving the PERA Board and all stakeholders, taxpayers, and legislators, we can begin to formulate possible packages and ask the Board's actuaries to run combinations of specific scenarios. Until that time, we are hopeful that this Grid will provide sufficient information to initiate meaningful conversations.

As noted above, the Judicial Division has been excluded from this Grid as it is expected that there will be legislation in the General Assembly's 2017 Legislative Session that will significantly affect the funding period and may heavily impact the type and severity of reforms required to lower the projected funding period to a suitable and desirable level. The Judicial Division's situation will be addressed and discussed separately from the general discussions driven by the information on the attached Grid.

# Impact of Change Presented in YEARS OF AMORTIZATION UNTIL 100 PERCENT FUNDED



Reflecting Revised Actuarial Assumptions and a 7.25% Assumed Rate of Return, Adopted November 18, 2016

Research Topics and Scenarios	State	School	Local Government	DPS
<b>Projection Results as of 12/31/2015 Valuation after Experience Study Changes (in years of amortization)</b>	<b>54.9</b>	<b>74.6</b>	<b>51.9</b>	<b>52.1</b>
	<b>Increase/(Decrease) from Baseline Displayed Below</b>			
<b>Contributions</b>				
<b>Employer Contribution—Effective 2018</b>				
Additional 2%	(11.1)	(22.2)	(14.0)	(11.2)
Additional 2%, bifurcated: If pre-2007 hire, 2% to Trust Fund If post-2006 hire, 1% to Trust Fund (for UAAL), 1% to AIR	(7.1)	(15.3)	(9.8)	(7.3)
<b>Employee Contribution—Effective 2018</b>				
Additional 2%	(10.3)	(20.7)	(13.5)	(8.9)
Additional 2%, bifurcated: If pre-2007 hire, 2% to Trust Fund If post-2006 hire, 1% to Trust Fund (for UAAL), 1% to AIR, without refund or matching dollars	(5.3)	(11.6)	(7.4)	(4.5)
<b>Plan Design</b>				
<b>Retirement Eligibilities—Effective 2020</b>				
<b>Unreduced Retirement</b>				
Age 67 and any years of service—for new hires only	(3.3)	(11.2)	(5.3)	(5.0)
Age 67 and any years of service—for new hires and non-vesteds only	(3.7)	(12.3)	(5.8)	(5.6)
Age 65 and 5 years of service and any age and 40 years of service—for new hires only	(1.1)	(5.8)	(1.9)	(3.1)
Age 65 and 5 years of service and any age and 40 years of service—for new hires and non-vesteds only	(1.3)	(6.5)	(2.3)	(3.3)
<b>Reduced Retirement</b>				
Age 55 and 25 years of service (Reduced from earlier of Age 65 or 40 years)—for new hires only	(8.4)	(19.9)	(10.4)	(7.3)
Age 55 and 25 years of service (Reduced from earlier of Age 65 or 40 years)—for new hires and non-vesteds only	(9.1)	(21.5)	(11.3)	(8.0)
<b>Highest Average Salary (HAS)—Effective 2020</b>				
Five-Year HAS—for new hires only	(1.3)	(3.5)	(1.8)	(1.5)
Five-Year HAS—for new hires and non-vesteds only	(1.7)	(4.3)	(2.2)	(1.7)
Seven-Year HAS—for new hires only	(2.4)	(6.6)	(3.3)	(2.4)
Seven-Year HAS—for new hires and non-vesteds only	(3.0)	(7.8)	(4.1)	(3.1)
Career Average Plan—for new hires only	(12.5)	(31.3)	(10.2)	(10.1)
Career Average Plan—for new hires and non-vesteds only	(14.9)	(38.7)	(11.9)	(12.1)

# Impact of Change Presented in YEARS OF AMORTIZATION UNTIL 100 PERCENT FUNDED



Reflecting Revised Actuarial Assumptions and a 7.25% Assumed Rate of Return, Adopted November 18, 2016

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<b>Projection Results as of 12/31/2015 Valuation after Experience Study Changes (in years of amortization)</b>	<b>54.9</b>	<b>74.6</b>	<b>51.9</b>	<b>52.1</b>
	Increase/(Decrease) from Baseline Displayed Below			
<b>Plan Design (continued)</b>				
<b>Annual Increases (COLA)—Effective 2020—For pre-2007 hires</b>				
One year holiday	(1.8)	(4.2)	(2.9)	(1.5)
One year holiday with added second year for those not yet retired	(3.2)	(7.4)	(4.9)	(2.6)
AI at 1.00% for 5 years, then back to 2.00%	(4.0)	(8.9)	(6.4)	(3.2)
AI at 1.00% for 10 years, then back to 2.00%	(7.9)	(16.3)	(12.8)	(6.2)
Reduce AI cap to 1.75%	(5.7)	(12.3)	(8.6)	(7.2)
Reduce AI cap to 1.50%	(10.3)	(20.6)	(15.3)	(8.5)
Reduce AI cap to 1.25%	(14.1)	(26.7)	(21.0)	(11.8)
Reduce AI cap to 1.00%	(17.5)	(31.8)	(25.7)	(14.8)
Reduce AI cap to 0.00%	(27.4)	(44.7)	(39.8)	(24.4)
<b>Multiplier (Reduce on Prospective Service Only—Effective 2020)</b>				
Reduce Multiplier 2.0%—for new hires only	(7.2)	(14.9)	(9.4)	(7.2)
Reduce Multiplier 2.0%—for new hires and non-vesteds only	(8.0)	(16.6)	(11.1)	(8.4)
Reduce Multiplier 2.0%—for all current and future members	(10.5)	(22.8)	(13.7)	(11.2)
Reduce Multiplier 1.5%—for new hires only	(14.2)	(27.0)	(17.1)	(13.8)
Reduce Multiplier 1.5%—for new hires and non-vesteds only	(15.1)	(28.5)	(17.4)	(15.5)
Reduce Multiplier 1.5%—for all current and future members	(17.2)	(33.2)	(21.8)	(18.4)
<b>Matching Dollars on Refunds for Terminated Employees</b>				
Apply stair-step schedule: prior to age 65, 25% match from 1-4 years and 50% match at 5 years	0.2	0.5	0.4	0.2
<b>\$125 Plan Deductions - Change definition of PERA Includable Salary to allow PERA to collect contributions on these deductions</b>				
1% of Payroll - 25% Occurrence	(1.9)	(4.5)	(2.8)	(2.0)
1% of Payroll - 50% Occurrence	(3.7)	(8.3)	(5.3)	(3.8)
<b>State Division DC Choice</b>				
<b>New Entrants</b>				
Reduce ER DC Contributions from 10.15% to 4.0% with remaining 6.15% put toward UAAL	(2.6)	N/A	N/A	N/A
Same as above for new entrant and existing DC participants, but offer one last “one-time” option into DB plan for the existing participants who would otherwise experience a decrease in future benefit accruals - Assumed various utilization rates (75%, 50% and 25%, respectively)	(7.2)	N/A	N/A	N/A
	(5.3)			
	(3.1)			

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	<b>Increase/(Decrease) from Baseline Displayed Below</b>			
<b>All DC Choice Participants</b>				
Shut down DC with one-time shift to DB plan; prospective only, but with option to use DC balance to purchase service in DB plan	(8.9)	N/A	N/A	N/A
<b>Investment Return</b>				
<b>Single Year Event</b>				
<b>2% Increments of Return, Over &amp; Under 7.25% Assumed LTROR</b>				
1.25%	10.0	35.1	28.8	11.2
3.25%	6.2	18.2	15.7	7.0
5.25%	2.9	7.7	6.8	3.2
9.25%	(2.7)	(6.0)	(5.4)	(3.0)
11.25%	(5.2)	(10.9)	(9.9)	(5.6)
13.25%	(7.4)	(15.1)	(14.1)	(8.1)
For 2016, replicate 2008 using an investment return of -25.8%	Exhaustion	Exhaustion	Exhaustion	Exhaustion
For next five years, replicate investment experience equal to last five years (1.9%, 13.0%, 15.6%, 5.7%, 1.5%, respectively)	(1.4)	(3.0)	(2.6)	(1.5)
For next 10 years, replicate 1990's boom era: (Returns for PERA for the period 1990 – 1999 were: 1.5%, 20.1%, 6.4%, 14.9%, 1.1%, 24.6%, 13.6%, 20.1%, 15.7%, and 19.0%, respectively)	(40.8)	(62.6)	(43.9)	(43.1)
<b>Average Return Over Next 10-Year Period of</b>				
6.00%	17.1	Exhaustion	Infinite	18.9
7.00%	2.4	6.8	6.4	2.5
8.00%	(10.4)	(20.0)	(19.1)	(11.0)