

# Ohio State Highway Patrol Retirement System

## Preliminary Results of the December 31, 2018 Actuarial Valuation

### A. Introduction

Ohio Revised Code Section 5505.15 provides in part as follows:

- (B) The state shall annually pay into the employer accumulation fund, in monthly or less frequent installments as the state highway patrol retirement board requires, the employer contribution. The employer contribution shall be an amount equal to twenty-six and one-half percent of the total salaries paid to contributing members.

With the enactment of Senate Bill 345, the Board has the discretion to set the member contribution rate and the Cost of Living Allowance (COLA) percentage to comply with the amortization requirement of Section 5505.121 of the Revised Code. The purpose of this report is to provide preliminary information on the results of the December 31, 2018 actuarial valuation. The preliminary information will assist the Board in setting these provisions of the plan, as well as help the Board determine whether or not any change should be made to the portion of the total contribution that is allocated to funding the retiree health plan.

Items of significant importance for the December 31, 2018 actuarial valuation include:

1. The December 31, 2018 actuarial valuation included a change in the assumed rate of investment return from 7.75% to 7.25%, and a change in the mortality projection scale from MP-2015 to MP-2018.
2. The rate of market value investment return for calendar year 2018 was lower than the actuarial assumed investment return rate of 7.75% for that year. The investment loss based on the market value of assets (i.e., in comparison to the 7.75% assumption) roughly equals 100% of payroll. The market value rate of return for calendar year 2018 was approximately (5.0)%. This figure will generally differ from other reported return figures due to restated audited asset figures, approximate formulas and treatment of System expenses. The funding value rate of return was below the assumed investment return rate. The funding value rate of return for calendar year 2018 was approximately 3.6%. The funding value of assets currently exceeds the market value of assets by approximately \$61 million.
3. Non-investment experience during calendar year 2018 in the retiree health plan was favorable (i.e., actual employer paid claims were less than expected). The retiree health plan is expected to remain solvent until 2030, compared with 2029 last year.

The contribution rate allocation in effect for calendar year 2019 is assumed to be as follows:

	Employer	Employee	Total
Pension	<b>26.50%</b>	12.50%	<b>39.00%</b>
Retiree Health	<b>0.00</b>	0.00	<b>0.00</b>
Total	<b><u>26.50%</u></b>	<b><u>12.50%</u></b>	<b><u>39.00%</u></b>

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### B. Pension Results

The December 31, 2018 valuation shows that based upon the contribution rate allocation on page 1, the amortization period for pension benefits would exceed 30 years. Presented below are key valuation results for the pension program over the last ten years (\$ in millions):

Valuation Date	Active Members	Annual Payroll	Actuarial Accrued Liabilities			Percent Funded	Amortization Period
			Total	Funded	Unfunded		
12/31/2009	1,547	\$ 94.8	\$ 940.1	\$620.4	\$319.7	66.0%	infinite
12/31/2010 <sup>^</sup>	1,537	94.8	1,017.8	631.0	386.8	62.0	infinite
12/31/2011	1,520	93.1	1,047.7	623.4	424.3	59.5	Infinite
12/31/2012 <sup>**</sup>	1,645	98.1	966.3	658.4	307.9	68.1	30
12/31/2013 <sup>^</sup>	1,613	98.5	989.1	690.6	298.5	69.8	30
12/31/2014	1,622	99.2	1,012.8	712.3	300.5	70.3	29
12/31/2015 <sup>^</sup>	1,621	100.0	1,079.0	739.8	339.2	68.6	30
12/31/2016	1,670	108.8	1,127.9	763.7	364.2	67.7	29
12/31/2017 <sup>**</sup>	1,650	112.7	1,153.6	774.7	378.9	67.2	27
12/31/2018	1,668	116.0	1,189.8	769.1	420.7	64.6	31
12/31/2018 <sup>^</sup>	1,668	116.0	1,230.6	769.1	461.5	62.5	39

<sup>^</sup> Revised actuarial assumptions.

<sup>\*\*</sup> Changes in benefit provisions.

The 12/31/2018 results are based upon a member contribution rate of 12.5% and assumed COLA increases of 1.25%.

Page A-4 of this report provides the member contribution rate and COLA alternatives for the Board to consider in order to comply with the 30-year amortization period requirement of Section 5505.121 of the Revised Code. In accordance with the Board's request, COLA percentages are presented in 0.25% increments and member contribution rate alternatives are presented in 0.50% increments.

The final December 31, 2018 actuarial valuation report will incorporate the Board's decision regarding the member contribution rate and the COLA percentage, as well as the rate allocation between the pension program and the retiree health program. This is one of multiple documents comprising the actuarial report. Additional information regarding actuarial assumptions and methods, and important additional disclosures are provided in the final actuarial valuation report.

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### C. Retiree Health Results

The December 31, 2018 report showed that assumed contributions to the retiree health program would be insufficient to fund for normal cost contributions, based on the assumption that health care costs rise faster than pays. It also provided illustrations that showed that even higher retiree health contributions would be needed if experience were significantly worse than assumed. This continues to be the case.

Presented below is the actuarially determined employer contribution (ADEC) (expressed as a % of payroll) and funding progress information (\$ in millions) for Governmental Accounting Standards Board (GASB) and Comprehensive Annual Financial Report (CAFR) purposes from the last two annual valuations:

	December 31		
	2018		2017
Investment Return Assumption	7.25%	7.75%	7.75%
Normal Cost	6.44 %	5.73 %	5.37 %
UAL Payment (30-year amortization)	<u>7.01</u>	<u>6.84</u>	<u>6.91</u>
Total ADEC	13.45 %	12.57 %	12.28 %
Accrued Liabilities	\$ 262.0	\$ 250.1	\$ 248.1
Valuation Assets	<u>109.5</u>	<u>109.5</u>	<u>110.1</u>
Unfunded Accrued Liability	\$ 152.5	\$ 140.6	\$ 138.0
Percent Funded	41.8 %	43.8 %	44.4 %

If a 0.0% employer contribution rate is maintained and health care costs increase at the intermediate level, the plan would become insolvent in 2030. This is similar to last year, when it was reported that the plan would become insolvent in 2029. Based upon the 0.0% employer contribution rate and the plan becoming insolvent in 2030, employer provided benefits would then need to be eliminated (since the only source for health benefits would be current contributions). The table below summarizes the preliminary results of the health projection.

Assumption Set	Funding Level 1			Funding Level 2			Funding Level 3			Funding Level 4		
	Employer Rate Allocation			Lowest Employer Rate to Maintain Solvency of Fund for 20 Years			Lowest Employer Rate to Maintain Solvency of Fund for 30 Years			Lowest Employer Rate to Maintain Solvency of Fund Indefinitely		
	Fund Solvent Until		Prior Valuation %	Fund Solvent Until		Prior Valuation %	Fund Solvent Until		Prior Valuation %	Fund Solvent Until		Prior Valuation %
	%		%	%		%	%		%	%		%
A (Optimistic)	0.00%	2030	0.00%	4.60%	2039	4.10%	6.60%	2049	6.10%	9.50%	Indefinitely	8.90%
B (Intermediate)	0.00%	2030	0.00%	5.60%	2039	5.10%	7.60%	2049	7.20%	10.80%	Indefinitely	10.10%
C (Pessimistic)	0.00%	2029	0.00%	7.40%	2039	6.90%	9.60%	2049	9.20%	13.10%	Indefinitely	12.40%

For this valuation the intermediate scenario is based upon initial cost increases of 8.25% gradually declining to 3.5%. The pessimistic scenario is based upon cost increases of 12.0% declining to 3.5%. The optimistic scenario is based upon cost increases of 6.0% declining to 3.5%. The projections were based upon the funding value of assets. If market value of assets had been the basis for the projection, the fund solvency decreases by about one year for each of the assumption sets.

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## Preliminary Results of the December 31, 2018 Actuarial Valuation

### D. Recent Employer and Member Contribution Rates

The table below shows the employer and member contribution rates, as well as the contribution split between pension benefits and retiree health benefits, for the last 25 actuarial valuations:

Actuarial Valuation Date	Contribution Rates Covering the Period	Contribution Rates as a % of Active Member Payroll							
		Pension Benefits			Retiree Health Benefits			Totals	
		Employer	Member	Total	Employer	Member	Total	Employer	Member
12/31/1993	07/1995 – 06/1997	19.03%	10.50%	29.53%	5.50%	0.00%	5.50%	24.53%	10.50%
12/31/1994	07/1995 – 06/1997	19.03	10.50	29.53	5.50	0.00	5.50	24.53	10.50
12/31/1995	07/1997 – 06/1999	19.87	10.00	29.87	4.13	0.00	4.13	24.00	10.00
12/31/1996	07/1997 – 06/1999	19.87	10.00	29.87	4.13	0.00	4.13	24.00	10.00
12/31/1997	07/1999 – 06/2001	19.50	9.50	29.00	4.00	0.00	4.00	23.50	9.50
12/31/1998	07/1999 – 06/2001	19.50	9.50	29.00	4.00	0.00	4.00	23.50	9.50
12/31/1999	07/2001 – 06/2003	18.75	9.50	28.25	4.75	0.00	4.75	23.50	9.50
12/31/2000	07/2001 – 06/2003	18.75	9.50	28.25	4.75	0.00	4.75	23.50	9.50
12/31/2001	07/2003 – 06/2005	18.75	10.00	28.75	5.75	0.00	5.75	24.50	10.00
12/31/2002	07/2003 – 06/2005	21.00	10.00	31.00	3.50	0.00	3.50	24.50	10.00
12/31/2003	07/2005 – 06/2007	22.00	10.00	32.00	3.50	0.00	3.50	25.50	10.00
12/31/2004	07/2005 – 06/2007	22.00	10.00	32.00	3.50	0.00	3.50	25.50	10.00
12/31/2005	07/2007 – 06/2009	22.00	10.00	32.00	3.50	0.00	3.50	25.50	10.00
12/31/2006	07/2007 – 06/2009	21.00	10.00	31.00	4.50	0.00	4.50	25.50	10.00
12/31/2007	07/2009 – 06/2011	21.00	10.00	31.00	5.50	0.00	5.50	26.50	10.00
12/31/2008	07/2009 – 06/2011	22.00	10.00	32.00	4.50	0.00	4.50	26.50	10.00
12/31/2009	07/2011 – 06/2013	23.00	10.00	33.00	3.50	0.00	3.50	26.50	10.00
12/31/2010	07/2011 – 06/2013	24.75	10.00	34.75	1.75	0.00	1.75	26.50	10.00
12/31/2011	07/2013 – 06/2015	24.75	10.00	34.75	1.75	0.00	1.75	26.50	10.00
12/31/2012	01/2013 – 12/2013	22.85	10.00	32.85	3.65	0.00	3.65	26.50	10.00
12/31/2013	01/2014 – 12/2014	22.20	11.50	33.70	4.30	0.00	4.30	26.50	11.50
12/31/2014	01/2015 – 12/2015	22.50	12.50	35.00	4.00	0.00	4.00	26.50	12.50
12/31/2015	01/2016 – 12/2016	22.50	12.50	35.00	4.00	0.00	4.00	26.50	12.50
12/31/2016	01/2017 – 12/2017	22.50	12.50	35.00	4.00	0.00	4.00	26.50	12.50
12/31/2017	01/2018 – 12/2018	22.50	12.50	35.00	4.00	0.00	4.00	26.50	12.50
12/31/2018	01/2019 – 12/2019	TBD	12.50	TBD	TBD	0.00	TBD	26.50	12.50

Notes: (1) The employer contribution rate was reduced to 24.00% effective June 9, 1996 by Board action. At that time the employee rate was reduced to 10.00%.

TBD – To Be Determined

### E. Summary

Based upon the results of this valuation, the present contributions (i.e., employer contribution rate of 26.50% and member contribution rate of 12.5%) and COLA provisions (i.e., 1.25%) are insufficient to fund the pension benefits provided by HPRS within a 30-year amortization period. If future experience is in line with assumptions, significant additional changes to the retiree health program are necessary if the program is to continue.

The actuaries submitting this preliminary report (Brian Murphy and Mita Drazilov) are Members of the American Academy of Actuaries and meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinions contained herein.

**Ohio State Highway Patrol Retirement System**  
**Preliminary Results of the December 31, 2018 Actuarial Valuation**  
**Appendix – Separation of Assets Between Pension and Health**

	<b>Pension</b>	<b>Health</b>	<b>Total</b>
A. Market Value Beginning of Year	\$786,356,140	\$ 111,798,820	\$898,154,960
B. Member Contributions			
B1. Pension Contributions	13,166,387		13,166,387
B2. DROP Contributions	1,285,262		1,285,262
B3. Retiree Health Contributions		4,062,903	4,062,903
C. Other Contributions			
C1. Employer Contributions	26,014,314	4,623,201	30,637,515
C2. Transfers	199,355		199,355
C3. Retiree Drug Subsidy and Prescription Drug Rebates		3,161,059	3,161,059
D. Benefits Paid			
D1. Pension Benefits	66,779,510		66,779,510
D2. Benefit Payments from DROP Account	4,688,079		4,688,079
D3. HPRS Paid Retiree Health Benefits		11,699,575	11,699,575
D4. HPRS Paid Medicare Part B Benefits		0	0
D5. Member Paid Retiree Health Benefits		4,062,903	4,062,903
E. Refunds of Member Contributions	716,739	0	716,739
F. Death Benefits	110,000	0	110,000
G. Administrative Expenses	1,435,864	203,812	1,639,676
H. Net External Cash Flow (B + C - D - E - F - G)	(33,064,874)	(4,119,127)	(37,184,001)
I. Other Changes in Market Value	(37,810,306)	(5,852,119)	(43,662,425)
J. Market Value End of Year (A + H + I)	715,480,960	101,827,574	817,308,534
K. Funding Value Adjustment	53,616,244	7,630,688	61,246,932
L. <b>Funding Value End of Year</b> <b>(J + K)</b>	<b>\$769,097,204</b>	<b>\$109,458,262</b>	<b>\$878,555,466</b>

**Ohio State Highway Patrol Retirement System**  
**Preliminary Results of the December 31, 2018 Actuarial Valuation**  
**Appendix – Development of Funding Value of Retirement System Assets**

	2016	2017	2018	2019	2020	2021
A. Funding Value From Prior Year	\$ 846,399,059	\$ 871,949,848	\$ <b>884,808,121</b>			
B. Market Value End of Year	824,015,063	898,154,960	<b>817,308,534</b>			
C. Market Value Beginning of Year	805,644,760	824,015,063	<b>898,154,960</b>			
D. Non-Investment Net Cash Flow	(33,341,615)	(41,809,506)	<b>(37,184,001)</b>			
E. Investment Return:						
E1. Market Total: B - C - D	51,711,918	115,949,403	<b>(43,662,425)</b>			
E2. Assumed Rate	7.75%	7.75%	<b>7.75%</b>	<b>7.25%</b>		
E3. For Immediate Recognition	64,303,939	65,955,995	<b>67,131,749</b>			
E4. Amount for Phased-In Recognition E1-E3	(12,592,021)	49,993,408	<b>(110,794,174)</b>			
F. Phased-In Recognition of Investment Return:						
F1. Current Year: 25% x E4	(3,148,005)	12,498,352	<b>(27,698,544)</b>			
F2. First Prior Year	(17,852,208)	(3,148,005)	<b>12,498,352</b>	\$ (27,698,544)		
F3. Second Prior Year	(2,786,357)	(17,852,208)	<b>(3,148,005)</b>	12,498,352	\$ (27,698,544)	
F4. Third Prior Year	18,375,035	(2,786,355)	<b>(17,852,206)</b>	(3,148,006)	12,498,352	\$ (27,698,542)
F5. Total Recognized Phased-In	\$ (5,411,535)	\$ (11,288,216)	\$ <b>(36,200,403)</b>	\$ (18,348,198)	\$ (15,200,192)	\$ (27,698,542)
G. Funding Value End of Year:						
G1. Preliminary Funding Value End of Year: A + D + E3 + F5	\$ 871,949,848	\$ 884,808,121	\$ <b>878,555,466</b>			
G2. Corridor Percent	20%	20%	<b>20%</b>			
G3. Upper Corridor Limit: (100% + G2) x B	988,818,076	1,077,785,952	<b>980,770,241</b>			
G4. Lower Corridor Limit: (100% - G2) x B	659,212,050	718,523,968	<b>653,846,827</b>			
G5. Funding Value End of Year	\$ 871,949,848	\$ 884,808,121	\$ <b>878,555,466</b>			
H. Difference between Market Value and Funding Value	\$ (47,934,785)	\$ 13,346,839	\$ <b>(61,246,932)</b>	\$ (42,898,734)	\$ (27,698,542)	\$ -
I. Funding Value Rate of Return	7.1 %	6.4 %	<b>3.6 %</b>			
J. Market Value Rate of Return	6.6 %	14.4 %	<b>(5.0)%</b>			
K. Ratio of Funding Value to Market Value	105.8 %	98.5 %	<b>107.5 %</b>			

# Ohio State Highway Patrol Retirement System

## Preliminary Results of the December 31, 2018 Actuarial Valuation

### Appendix – Post-Retirement Health Care and Medicare Reimbursement

Year	Covered Lives	Amounts Paid to Vendors (Including Medicare Part B)							Retiree/Spouse Premiums and Other Adjustments	Retiree Drug Subsidy and Prescription Drug Rebates	Net Paid by OHPRS	Per Covered Life	Valuation Payroll	% of Payroll
		Medical	Drugs	Medicare Part B	Dental	Vision	Wellness	Total						
1985	697	\$ 427,361	\$ 60,015	\$ 28,272				\$ 515,648			\$ 515,648	\$ 740	\$ 32,500,428	1.6%
1986	715	787,245	80,911	30,457				898,613			898,613	1,257	34,757,277	2.6%
1987	731	559,832	115,544	38,037				713,413			713,413	976	39,938,912	1.8%
1988	761	522,747	145,847	57,461				726,055			726,056	954	40,674,634	1.8%
1989	810	1,043,650	186,795	77,869				1,308,314	\$ 97,864		1,406,178	1,736	43,053,057	3.3%
1990	925	1,009,153	213,716	77,363				1,300,232	(94,251)		1,205,981	1,304	45,679,355	2.6%
1991	976	1,267,327	251,004	86,740				1,605,071	180,583		1,785,654	1,830	48,488,406	3.7%
1992	1,045	1,643,276	298,493	97,117				2,038,886	76,046		2,114,932	2,024	50,235,996	4.2%
1993	1,081	1,553,628	299,410	118,109				1,971,147	(90,525)		1,880,622	1,740	55,781,585	3.4%
1994	1,133	1,239,008	320,360	141,384				1,700,752	3,314		1,704,066	1,504	58,116,787	2.9%
1995	1,225	1,512,523	364,096	149,440				2,026,059	(66,834)		1,959,225	1,599	59,825,356	3.3%
1996	1,379	1,353,932	491,525	155,769				2,001,226	21,382		2,022,608	1,467	59,239,349	3.4%
1997	1,499	1,623,640	849,321	166,743				2,639,704	(140,526)		2,499,178	1,667	62,233,299	4.0%
1998	1,602	2,147,334	1,122,248	171,223				3,440,805	(311,917)		3,128,888	1,953	65,153,864	4.8%
1999	1,772	3,315,914	1,364,990	197,606				4,878,510	619,894		5,498,404	3,103	66,017,381	8.3%
2000	1,848	3,190,885	1,684,300	203,157				5,078,342	(358,082)		4,720,260	2,554	69,028,285	6.8%
2001	1,900	3,730,167	1,960,825	231,046				5,922,038	138,317		6,060,355	3,190	76,344,002	7.9%
2002	1,943	4,147,534	2,431,297	260,772	\$194,893	\$ 80,909		7,115,405	(200,021)		6,915,384	3,559	78,997,065	8.8%
2003	1,912	4,256,046	2,681,414	290,506	209,429	82,097		7,519,492	(507,642)		7,011,850	3,667	81,737,962	8.6%
2004	1,928	4,074,972	2,710,367	347,585	230,994	84,136		7,448,054	(641,707)		6,806,347	3,530	81,757,707	8.3%
2005	1,958	6,015,277	2,980,755	422,045	364,139	124,658		9,906,874	(552,570)		9,354,304	4,777	83,408,155	11.2%
2006	2,078	4,999,822	2,832,743	503,034	408,667	127,266		8,871,532	(198,141)		8,673,391	4,174	85,878,328	10.1%
2007	2,085	6,580,455	3,513,662	572,127	464,402	130,029		11,260,675	(980,539)		10,280,136	4,931	93,752,908	11.0%
2008	2,103	5,087,073	3,274,896	632,293	453,002	121,599	\$ 79,679	9,648,542	(784,381)	\$ (317,381)	8,546,780	4,064	94,301,538	9.1%
2009	2,095	4,983,739	3,430,089	673,450	495,272	133,296	86,007	9,801,853	(902,320)	(513,668)	8,385,865	4,003	94,824,789	8.8%
2010	2,166	6,380,294	3,709,855	713,317	453,276	133,141	57,747	11,447,630	(911,076)	(471,909)	10,064,645	4,647	94,767,852	10.6%
2011	2,269	6,755,757	4,053,343	770,183	528,824	157,600	95,210	12,360,917	(1,268,402)	(795,523)	10,296,992	4,538	93,126,449	11.1%
2012	2,310	6,393,584	4,301,087	839,451	594,292	149,962	24,604	12,302,980	(1,277,430)	(873,601)	10,151,949	4,395	98,117,403	10.3%
2013	2,359	7,872,163	4,110,260	896,970	612,575	158,197	53,440	13,703,605	(1,562,609)	(1,060,462)	11,080,534	4,697	98,519,844	11.2%
2014	2,356	7,624,000	4,722,043	874,164	619,286	167,660	48,728	14,055,881	(1,747,403)	(1,533,886)	10,774,592	4,573	99,211,756	10.9%
2015	2,400	7,087,732	5,245,815	601,860	593,016	162,417	68,263	13,759,103	(2,397,055)	(1,568,533)	9,793,515	4,081	99,983,224	9.8%
2016	2,399	7,331,598	6,115,492	311,820	621,659	182,959	31,455	14,594,983	(2,918,533)	(1,433,489)	10,242,961	4,270	108,788,871	9.4%
2017	2,310	8,091,247	6,488,074	0	642,998	181,102	53,566	15,456,987	(3,885,594)	(2,137,648)	9,433,745	4,084	112,705,188	8.4%
2018	2,175	8,153,321	6,718,221	0	690,084	172,901	27,951	15,762,478	(4,062,903)	(3,161,059)	8,538,516	3,926	116,009,622	7.4%

Separate information for dental and vision was not available for years prior to 2002. Retiree drug subsidy and prescription drug rebates are included beginning with calendar year 2008.



# Ohio State Highway Patrol Retirement System

## Preliminary Results of the December 31, 2018 Actuarial Valuation

### Appendix – COLA and Employee Contribution Scenarios

Member Contribution		COLA												
		0.00%	0.25%	0.50%	0.75%	1.00%	1.25%	1.50%	1.75%	2.00%	2.25%	2.50%	2.75%	3.00%
10.0%	Amortization Years	32.36	35.38	38.83	42.83	47.72	53.56	61.03	71.36	87.92	131.96	Infinite	Infinite	Infinite
	Funded Ratio	66.5%	65.7%	64.9%	64.1%	63.3%	62.6%	61.8%	61.1%	60.4%	59.7%	59.0%	58.4%	57.7%
	% To Health*	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10.5%	Amortization Years	30.83	33.59	36.71	40.28	44.56	49.54	55.68	63.66	74.95	94.12	179.00	Infinite	Infinite
	Funded Ratio	66.5%	65.7%	64.9%	64.1%	63.3%	62.6%	61.8%	61.1%	60.4%	59.7%	59.0%	58.4%	57.7%
	% To Health*	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
11.0%	Amortization Years	29.45	31.99	34.84	38.05	41.85	46.19	51.40	57.89	66.43	78.88	101.65	Infinite	Infinite
	Funded Ratio	66.5%	65.7%	64.9%	64.1%	63.3%	62.5%	61.8%	61.1%	60.4%	59.7%	59.0%	58.4%	57.7%
	% To Health*	0.20%	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
11.5%	Amortization Years	28.20	30.55	33.16	36.09	39.50	43.34	47.86	53.31	60.18	69.38	83.24	111.37	Infinite
	Funded Ratio	66.5%	65.7%	64.8%	64.1%	63.3%	62.5%	61.8%	61.1%	60.4%	59.7%	59.0%	58.3%	57.7%
	% To Health*	0.65%	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
12.0%	Amortization Years	27.06	29.25	31.66	34.34	37.44	40.88	44.86	49.56	55.29	62.58	72.54	88.16	125.34
	Funded Ratio	66.5%	65.6%	64.8%	64.0%	63.3%	62.5%	61.8%	61.1%	60.4%	59.7%	59.0%	58.3%	57.7%
	% To Health*	1.10%	0.27%	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
12.5%	Amortization Years	26.04	28.09	30.33	32.81	35.64	38.76	42.32	46.46	51.39	57.43	65.24	76.16	94.26
	Funded Ratio	66.5%	65.6%	64.8%	64.0%	63.3%	62.5%	61.8%	61.0%	60.3%	59.6%	59.0%	58.3%	57.7%
	% To Health*	1.55%	0.72%	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
13.0%	Amortization Years	25.08	27.00	29.09	31.39	34.00	36.85	40.06	43.74	48.04	53.18	59.56	67.90	79.90
	Funded Ratio	66.4%	65.6%	64.8%	64.0%	63.2%	62.5%	61.7%	61.0%	60.3%	59.6%	59.0%	58.3%	57.7%
	% To Health*	2.01%	1.17%	0.34%	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
13.5%	Amortization Years	24.19	26.00	27.96	30.10	32.52	35.13	38.06	41.37	45.18	49.65	55.03	61.77	70.74
	Funded Ratio	66.4%	65.6%	64.8%	64.0%	63.2%	62.5%	61.7%	61.0%	60.3%	59.6%	59.0%	58.3%	57.7%
	% To Health*	2.46%	1.62%	0.79%	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
14.0%	Amortization Years	23.36	25.07	26.92	28.92	31.17	33.59	36.27	39.28	42.70	46.65	51.30	56.94	64.09
	Funded Ratio	66.4%	65.6%	64.8%	64.0%	63.2%	62.4%	61.7%	61.0%	60.3%	59.6%	58.9%	58.3%	57.6%
	% To Health*	2.91%	2.08%	1.24%	0.41%	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

\*Portion of employer contribution rate that can be additionally allocated to Health Care while still complying with the pension 30-year amortization period requirement of Section 5505.121.

Note: The above provisions are assumed to occur in calendar year 2020 and thereafter. Results are based upon a member contribution rate of 12.5% for 2019 and the above member contribution rates for 2020 and later. Also, the COLA increases were assumed to be 1.25% for 2019 and the above COLA increases for 2020 and later. The “% to Health” results shown above are the additional contribution amounts above and beyond the 2019 employer contribution rate of 0.0% of payroll.