

YEAR	1977	1986	1996	2000	2007	2011	2017
Number of Actives	1195	1252	1375	1489	1597	1520	1650
Number of Retirees	254	395	708	926	1092	1205	1360
Number of Retirees/Survivors	346	544	911	1174	1359	1465	1612
Ratio - Retiree to Active	4.7 : 1	3.2 : 1	1.9 : 1	1.7 : 1	1.5 : 1	1.3 : 1	1.2 : 1
Average Retiree Age	60.7	62.3	61.6	61.0	63.4	65.5	67.0
Oldest Retiree	78	87	88	92	99	97	98
Life Expectancy at age 50 M/F	76.4/80.9	77.5/83.7	78.0/84.1	79.2/84.9	80.4/83.1	82.8/84.6	85.1/86.7
Annual Active Payroll	\$ 18,995,363	\$ 34,757,227	\$ 59,239,349	\$ 69,028,285	\$ 93,752,908	\$ 93,126,449	\$ 112,700,000
Annual Pension Payments	\$ 1,777,596	\$ 4,589,028	\$ 16,834,908	\$ 27,605,568	\$ 41,781,324	\$ 51,249,684	\$ 69,514,995
Ratio to Active Member Pay	9.4%	13.2%	28.4%	40.0%	44.4%	55.0%	57.4%
Average Annual Active Pay	\$ 15,898	\$ 27,761	\$ 43,083	\$ 46,358	\$ 58,706	\$ 61,267	\$ 68,303
Average Annual Pension (All)	\$ 5,136	\$ 8,436	\$ 18,480	\$ 23,514	\$ 30,774	\$ 34,983	\$ 39,722
Pension Valuation - Assets	\$ 32.2M	\$ 117.8M	\$ 411.3M	\$ 570.0M	\$ 718.8M	\$ 583.6M	\$ 774.4M
Total Valuation - Assets	\$ 32.2M	\$ 127.1M	\$ 454.7M	\$ 608.3M	\$ 833.7M	\$ 679.4M	\$ 898.2M
Unfunded Liabilities	\$ 47.6M	\$ 52.2M	\$ 43.2M	\$ 24.2M	\$ 165.4M	\$ 424.3M	\$ 378.9M
Funding Ratio	40.4%	69.3%	90.5%	95.9%	80.9%	59.5%	67.2%
Amortization Period	40	33	16	8	27	Infinite	27
Investment Assumption Rate	6.00%	6.50%	7.75%	7.75%	8.00%	8.00%	7.75%
Health Care Expenses	N/A	\$ 898,613	\$ 2,001,226	\$ 5,078,342	\$ 11,260,675	\$ 12,360,917	\$ 15,456,987
Medical	N/A	\$ 787,245	\$ 1,353,932	\$ 3,190,885	\$ 6,580,455	\$ 6,755,757	\$ 8,091,247
Prescription	N/A	\$ 80,911	\$ 491,525	\$ 1,684,300	\$ 3,513,662	\$ 4,053,343	\$ 6,488,074
Medicare B Reimbursement	N/A	\$ 30,457	\$ 155,769	\$ 203,157	\$ 572,127	\$ 770,183	\$ -
Number of Live Covered	N/A	715	1379	1848	2085	2310	2357

Major Legislative Changes

- 01/01/1974 – The General Assembly authorized the board to provide health care benefits if sufficient funds are available to do so.
 - 11/05/1981 – Final average salary reduced from 5 years to 3 years.
 - 11/18/1981 – Members now eligible to receive reduced benefits between 48-52.
 - 11/02/1989 – Salary is defined to include shift differential, hazardous duty, longevity, and certain leaves. Only sworn officers are HPRS members hired after this date.
 - 06/30/1989 – Cadet time in academy is considered HPRS service time.
 - 11/02/1989 – Members now eligible to retire at age 48 with 25 years.
 - 06/30/1991 – Cadet time in academy is considered HPRS service time.
 - 09/21/1994 – Creation of optional retirement plans including Joint and Survivor Annuity (JSA).
 - 09/16/2004 – Mandatory retirement age increased from 55 to 60 as a precursor to DROP.
 - 06/15/2006 – Creation of DROP (Deferred Retirement Option Plan).
 - 01/07/2013 – Pension reform (employee contribution and COLA set by board).
 - 01/15/2015 – Final average salary back to highest 5 years.
 - 05/11/2018 – Full pension benefits eligibility for members hired after 1/1/2020 returned to age 52. Reduced benefits still in effect.
- 5505.15** – Employee and employer contribution changes – See separate slides.
- 5505.17** – Pension and survivor benefit changes – See separate slides.
- 5505.174** – COLA (Cost of Living Adjustment) – See separate slide.

Major Legislative Changes (continued)

5505.017

10/01/1953 – Surviving spouse benefit set at \$60/month.

01/01/1966 – Surviving spouse benefit increased to \$90/month.

03/23/1972 – Surviving spouse benefit increased to \$130/month.

01/01/1974 – Surviving spouse benefit increased to \$160/month.

08/20/1976 – Increased benefits for surviving spouse and children added.

08/26/1977 – Surviving spouse benefit increased to \$250/month.

07/30/1979 – Surviving spouse benefit increased to \$263/month.

11/18/1981 – Surviving spouse benefit increased to \$425/month.

Maximum pension calculation increased from 66% to 72%.

05/06/1988 – Surviving spouse benefit changed to the greater of 50% or \$425/month.

11/02/1989 – Surviving spouse benefit increased to the greater of 50% or \$600/month.

06/05/1996 – Surviving spouse benefit increased to the greater of 50% or \$850/month.

Remarried surviving spouse now eligible for survivor benefits.

09/16/1998 – Maximum pension calculation increased from 72% to 78%.

06/30/2000 – Maximum pension calculation increased from 78% to 79.25%, or a minimum of \$1,050/month. Surviving spouse benefit increased to the greater of 50% of \$900/month.

05/11/2018 – Surviving spouse must be married to member while active to receive survivor benefit – \$900/month in 2018 and increases annually as board determines COLA. JSA portion of benefit is still in effect.

Employee Contributions Rates:

September 1, 1941	-	December 31, 1949	4.00%
January 1, 1950	-	December 31, 1965	5.00%
January 1, 1966	-	June 18, 1977	7.00%
June 19, 1977	-	November 28, 1981	8.00%
November 29, 1981	-	November 18, 1989	9.00%
November 19, 1989	-	June 8, 1996	10.50%
June 9, 1996	-	June 30, 2000	10.00%
July 1, 2000	-	March 23, 2003	9.50%
March 24, 2003	-	January 11, 2014	10.00%
January 12, 2014	-	January 10, 2015	11.50%
January 11, 2015	-	Present	12.50%

Employer Contributions Rates:

1941	-	December 31, 1949	4.00%
January 1, 1950	-	December 31, 1965	5.00%
January 1, 1966	-	June 30, 1971	9.00%
July 1, 1971	-	June 30, 1975	10.00%
July 1, 1975	-	June 30, 1977	13.00%
July 1, 1977	-	June 30, 1979	13.50%
July 1, 1979	-	June 30, 1981	18.00%
July 1, 1981	-	June 30, 1983	22.00%
July 1, 1983	-	June 30, 1985	24.80%
July 1, 1985	-	June 30, 1989	24.66%
July 1, 1989	-	June 30, 1991	24.39%
July 1, 1991	-	June 8, 1996	24.53%
June 9, 1996	-	June 30, 1999	24.00%
July 1, 1999	-	June 30, 2003	23.50%
July 1, 2003	-	June 30, 2005	24.50%
July 1, 2005	-	June 30, 2009	25.50%
July 1, 2009	-	Present	26.50%

ORC 5505.174 HISTORY OF COLA (Cost of Living Adjustment)

COLA History:

- | | |
|------------|--|
| 11/18/1981 | Eligibility Age set at 62 . Up to 3% COLA if funds available. |
| 11/02/1989 | Eligibility Age reduced to age 60 . |
| 09/21/1994 | Eligibility Age reduced to age 57 or 1 year after retirement. Disability retirees 5 years or age 57, whichever is first. |
| 06/05/1996 | Eligibility Age reduced to age 53 . |
| 09/27/1996 | COLA up to 3%, banking of extra CPI. |
| 02/01/2002 | Automatic 3% COLA established. |
| 01/07/2013 | Eligibility Age increased to age 60 . COLA set by Board based on compliance with the annual actuarial valuation requirements of ORC 5505.121. 3% COLA for those over age 65 and pension is less than 185% of the federal poverty level for a family of two. |

Actuarial Assumption Rates:

January 1, 1946	-	December 31, 1956	2.50%
January 1, 1957	-	December 31, 1962	3.00%
January 1, 1963	-	December 31, 1964	3.25%
January 1, 1965	-	December 31, 1969	3.50%
January 1, 1970	-	December 31, 1973	4.50%
January 1, 1974	-	December 31, 1978	6.00%
January 1, 1979	-	December 31, 1986	6.50%
January 1, 1987	-	December 31, 1988	7.50%
January 1, 1989	-	December 31, 2001	7.75%
January 1, 2002	-	December 31, 2014	8.00%
January 1, 2015	-	Present	7.75%

ISSUE #1

1. The Ohio Revised Code requires HPRS to be able to amortize its unfunded actuarial accrued pension liabilities within 30 years or less.
 - Until the market collapse of October 2007 – March 2009, HPRS had always been in or near compliance.
 - With pension reform in 2012, we were on track to be fully funded by 2043.
 - **5-Year Actuarial Experience Study changed that.**
 - Although the value of our assets did not change, the actuarial assumptions applied to those assets increased our Unfunded Actuarial Accrued Liabilities by almost \$50 million.
 - Wage and price inflation
 - Mortality experience
 - Investment return

Actuarial Results

- 2000 actuarial report:
 - **96% funded** 8 years funding period
- 2007 actuarial report:
 - 81% funded 27 years funding period
- 2011 actuarial report:
 - **59.5% funded** Infinite amortization period
- 2015 actuarial report:
 - **71.8% / 68.6% funded** 28 / 55 years funding period
 - 5-Year Actuarial Experience Study
 - Elimination of Employer Contribution to HC Fund
 - (22/30 years funding period)
- 2017 actuarial report:
 - 67.2% funded 27 years funding period

ISSUE #2

2. Health care costs continue to escalate, and the gap in the health care fund between incoming revenues and outgoing expenses continues to increase.
 - Why?
 - Additional recipients being covered (until recently).
 - Maintain Gold-Platinum level coverage.
 - Additional health care costs:
 - Inflation
 - Medical professionals' costs increase
 - Availability of and compulsion to perform more expensive testing
 - Prescription costs have skyrocketed.
 - Affordable Care Act
 - Self-insured plan for non-Medicare.
 - But still less expensive than fully funded plan
 - Unlike a pension, health care is not guaranteed.

Rank	Average Initial Pension	2018 Average Current Pension
Trooper	\$30,462	\$37,239
Sergeant	\$35,426	\$45,166
Lieutenant	\$37,687	\$48,811
Staff Lieutenant	\$43,772	\$53,568
Captain	\$47,055	\$60,875
RT	\$13,776	\$23,973
CT	\$21,241	\$29,413
ET	\$30,742	\$40,604
Surviving Spouse	\$12,294	\$18,595
ALL	\$31,455	\$40,091

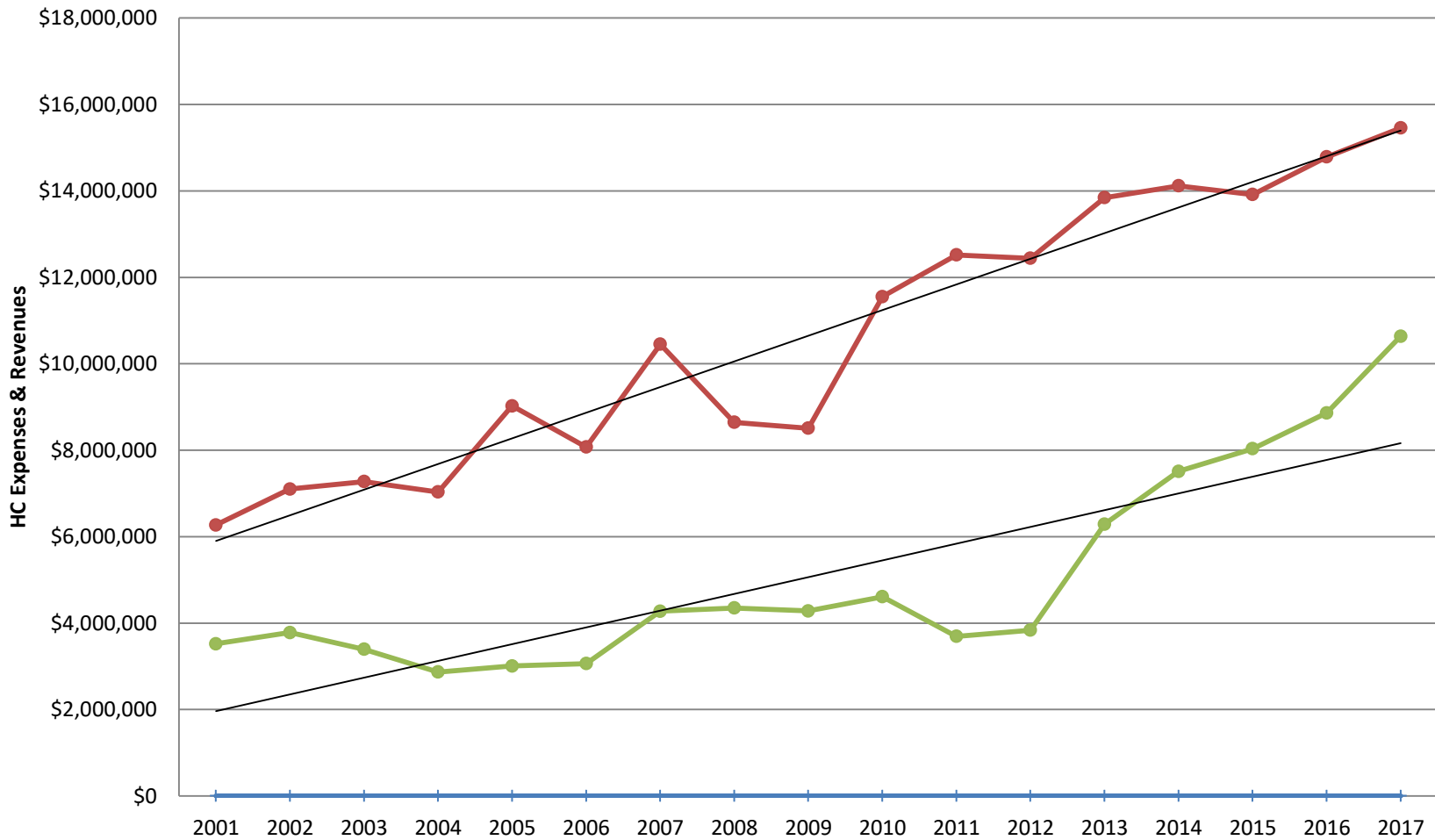
Rank	Number Under Poverty Level Threshold	2018 Total Retirees
Trooper	78	593
Sergeant	24	374
Lieutenant	13	153
Staff Lieutenant	6	93
Captain	2	76
Major	1	27
RT	5	5
CT	6	12
ET	4	23
Surviving Spouse	211	255
TOTAL	350	1633

Rank	2023 Average Initial Pension	Salary in 2020
Trooper	\$48,600	\$74,500
Sergeant	\$57,900	\$88,800
Lieutenant	\$67,000	\$102,700
Staff Lieutenant	\$73,600	\$112,900
Captain	\$81,200	\$124,500

Based on 27 years of service.

HPRS Health Care Expenses & Revenues

Expenses Revenue



Year	Covered Lives	Medical		Medicare Part B Reimb.		Dental		Vision		Wellness		Total		
1985	697	\$	427,361	\$	60,015	\$	28,272	\$				\$	515,648	
1990	925		1,009,153		213,716		77,363						1,300,232	
1996	1,379		1,353,932		491,525		155,769						2,001,226	
2000	1,848		3,190,885		1,684,300		203,157						5,078,342	
2004	1,928		4,074,972		2,710,367		347,585		230,994		84,136		7,448,054	
2008	2,103		5,087,073		3,274,896		632,293		453,002		121,599	\$	79,679	9,648,542
2009	2,095		4,983,739		3,430,089		673,450		495,272		133,296		86,007	9,801,853
2010	2,166		6,380,294		3,709,855		713,317		453,276		133,141		57,747	11,447,630
2011	2,269		6,755,757		4,053,343		770,183		528,824		157,600		95,210	12,360,917
2012	2,310		6,393,584		4,301,087		839,451		594,292		149,962		24,604	12,302,980
2013	2,359		7,872,163		4,110,260		896,970		612,575		158,197		52,440	13,702,605
2014	2,356		7,624,000		4,722,043		874,164		619,286		167,660		48,728	14,055,881
2015	2,400		7,087,732		5,245,815		601,860		593,016		162,417		68,263	13,759,103
2016	2,399		7,331,598		6,115,491		311,820		621,659		182,959		31,455	14,594,983
2017	2,357		8,091,247		6,488,074		0		642,998		181,102		53,566	15,456,987

HPRS
Health Care Funding Committee
Health Care Fund Estimates

	<u>2Q 2018</u>		<u>2017</u>		<u>2016</u>		<u>2015</u>		<u>2014</u>	
Beginning balance	111,798,876		102,372,098		101,419,727		107,948,537		107,754,604	
Additions										
Contributions (est.) *	-	0.0%	4,640,177	29.6%	4,511,127	30.5%	4,068,887	29.2%	4,325,434	30.4%
Investment income, net **	1,036,496		14,424,489		6,877,607		(647,230)		6,790,553	
Health care premiums		28.2%		24.8%		19.7%		17.2%		12.4%
Aetna	634,625		1,166,459		700,903		370,260		232,611	
Medical Mutual	1,183,263		2,202,975		1,697,175		1,500,803		985,886	
Dental	147,105		295,395		295,380		296,255		294,235	
Vision	70,090		140,315		139,375		139,385		138,835	
Tobacco	35,450		80,450		85,700		90,550		104,550	
Retiree Drug Subsidy	1,118,837	15.2%	1,418,110	9.1%	1,082,402	7.3%	1,140,016	8.2%	647,225	4.6%
Prescription drug rebates	628,259	8.5%	719,538	4.6%	351,087	2.4%	428,517	3.1%	886,661	6.2%
Total additions	4,854,125		25,087,908		15,740,756		7,387,443		14,405,990	
Health care expenses										
Medical		49.8%		51.6%		49.4%		50.5%		53.1%
Aetna	-		-		-		-		181,517	
Aetna Advantage	1,042,327		1,869,645		1,896,510		1,771,448		2,073,126	
Additional ACA Fees (est.)	1,376		2,752		32,877		56,291		83,117	
Medical Mutual	2,616,102		6,218,850		5,402,211		5,259,993		5,286,240	
Wellness	13,687	0.2%	53,566	0.3%	31,455	0.2%	68,263	0.5%	48,728	0.3%
Prescription drugs	3,167,604	43.1%	6,488,074	41.4%	6,115,492	41.4%	5,245,815	37.7%	4,722,044	33.2%
Medicare B reimbursement	-	0.0%	-	0.0%	311,820	2.1%	601,860	4.3%	874,164	6.2%
Dental	345,907	4.7%	642,998	4.1%	621,659	4.2%	593,016	4.3%	619,286	4.4%
Vision	86,653	1.2%	181,102	1.2%	182,959	1.2%	162,417	1.2%	167,660	1.2%
Total health care expenses	7,273,656		15,456,987		14,594,984		13,759,103		14,055,881	
Administrative expenses ***	75,261	1.0%	204,143	1.3%	193,401	1.3%	157,150	1.1%	156,176	1.1%
Change in OPEB net assets	(2,494,792)		9,426,778		952,371		(6,528,810)		193,933	
Ending Balance	109,304,084		111,798,876		102,372,098		101,419,727		107,948,537	

Percentages are based on the total expense (health care plus administrative expenses)

* Contribution amount is based on the actual 2018 contribution rate (0.00%) multiplied by the employer contributions to date.

** Includes all investment income to date multiplied by the actual 2017 allocation rate (12.44%)

*** Administrative expenses to date multiplied by the actual 2017 allocation rate (12.44%)

Joint and Survivor (JSA) Example

Options	Monthly Payable to Retiree	JSA Amount Payable After Your Death	Surviving Spouse Benefit	Total Surviving Spouse Amount
SLA	\$ 3,500.00	\$ 0.00	\$ 900.00*	\$ 900.00
10% JSA	\$ 3,470.54	\$ 347.05	\$ 900.00*	\$ 1,247.05
25% JSA	\$ 3,427.26	\$ 856.82	\$ 900.00*	\$ 1,756.82
33% JSA	\$ 3,404.62	\$ 1,123.52	\$ 900.00*	\$ 2,023.52
50% JSA	\$ 3,357.48	\$ 1,678.74	\$ 900.00*	\$ 2,578.74
Maximum JSA	\$ 3,296.54	\$ 2,396.54	\$ 900.00*	\$ 3,296.54

SLA: Single Life Annuity

JSA: Joint and Survivor Annuity

*Surviving Spouse Benefit is \$900 in 2018, but increases annually.

\$3,500.00 is payable to you if your spouse passes before you.

Joint and Survivor (JSA) Example

Options	Monthly Payable to Retiree	JSA Amount Payable After Your Death	Surviving Spouse Benefit	Total Surviving Spouse Amount
SLA	\$ 4,000.00	\$ 0.00	\$ 900.00*	\$ 900.00
10% JSA	\$ 3,966.33	\$ 396.63	\$ 900.00*	\$ 1,296.63
25% JSA	\$ 3,916.87	\$ 979.22	\$ 900.00*	\$ 1,879.22
33% JSA	\$ 3,891.99	\$ 1,284.03	\$ 900.00*	\$ 2,184.03
50% JSA	\$ 3,837.12	\$ 1,918.56	\$ 900.00*	\$ 2,818.56
Maximum JSA	\$ 3,757.41	\$ 2,857.41	\$ 900.00*	\$ 3,757.41

SLA: Single Life Annuity

JSA: Joint and Survivor Annuity

*Surviving Spouse Benefit is \$900 in 2018, but increases annually.

\$4,000.00 is payable to you if your spouse passes before you.

Ohio State Highway Patrol Retirement System
Preliminary Results of the December 31, 2017 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 yrs	21.86	23.74	25.80	28.08	30.62	33.50	36.80	40.65	45.27	51.01	58.57	69.54	89.57
	% To Health if 30-yr Pension Amortization	3.09%	2.27%	1.45%	0.63%	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10.5%	Amortization yrs	21.04	22.80	24.73	26.84	29.19	31.81	34.79	38.21	42.24	47.09	53.20	61.39	73.74
	% To Health if 30-yr Pension Amortization	3.55%	2.73%	1.90%	1.08%	0.26%	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
11.0%	Amortization yrs	20.29	21.95	23.75	25.73	27.90	30.31	33.02	36.10	39.66	43.86	48.99	55.51	64.45
	% To Health if 30-yr Pension Amortization	4.00%	3.18%	2.36%	1.54%	0.72%	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
11.5%	Amortization yrs	19.59	21.16	22.86	24.70	26.73	28.96	31.44	34.24	37.43	41.13	45.54	50.95	57.95
	% To Health if 30-yr Pension Amortization	4.46%	3.64%	2.82%	2.00%	1.17%	0.35%	N/A	N/A	N/A	N/A	N/A	N/A	N/A
12.0%	Amortization yrs	18.94	20.43	22.03	23.77	25.66	27.73	30.03	32.58	35.47	38.78	42.64	47.26	53.00
	% To Health if 30-yr Pension Amortization	4.91%	4.09%	3.27%	2.45%	1.63%	0.81%	N/A	N/A	N/A	N/A	N/A	N/A	N/A
12.5%	Amortization yrs	18.34	19.75	21.27	22.91	24.68	26.62	28.75	31.10	33.74	36.72	40.16	44.19	49.05
	% To Health if 30-yr Pension Amortization	5.37%	4.55%	3.73%	2.91%	2.09%	1.27%	0.44%	N/A	N/A	N/A	N/A	N/A	N/A
13.0%	Amortization yrs	17.77	19.12	20.56	22.11	23.78	25.60	27.58	29.77	32.19	34.91	38.00	41.56	45.78
	% To Health if 30-yr Pension Amortization	5.82%	5.00%	4.18%	3.36%	2.54%	1.72%	0.90%	0.08%	N/A	N/A	N/A	N/A	N/A
13.5%	Amortization yrs	17.25	18.53	19.90	21.37	22.95	24.66	26.52	28.55	30.80	33.29	36.09	39.29	43.00
	% To Health if 30-yr Pension Amortization	6.28%	5.46%	4.64%	3.82%	3.00%	2.18%	1.36%	0.53%	N/A	N/A	N/A	N/A	N/A
14.0%	Amortization yrs	16.75	17.98	19.29	20.68	22.18	23.80	25.54	27.45	29.53	31.83	34.40	37.30	40.61
	% To Health if 30-yr Pension Amortization	6.73%	5.91%	5.09%	4.27%	3.45%	2.63%	1.81%	0.99%	0.17%	N/A	N/A	N/A	N/A

Note: The above provisions are assumed to occur in calendar year 2019 and thereafter. Results are based upon a member contribution rate of 12.5% for 2018 and the above member contribution rates for 2019 and later. Also, the COLA increases were assumed to be 1.25% for 2018 and the above member contribution rates for 2019 and later. The “% to Health” results shown above are the additional contribution amounts above and beyond the 2018 employer contribution rate of 0.0% of payroll.