

***City of Marysville
Police Officers and Firefighters
Retirement System***

Actuarial Information for GASB Statements 67/68

June 30, 2019



November 26, 2019

The Board of Trustees
City of Marysville Police Officers and Firefighters Retirement System
Marysville, Michigan

Dear Board Members:

This document contains actuarial information required for Plan reporting purposes pursuant to Governmental Accounting Standards Board Statements No. 67/68 effective for the Fiscal Year ended June 30, 2019.

Respectfully submitted,

A handwritten signature in black ink that reads 'Denise M. Jones'.

Denise M. Jones
Senior Consultant

A handwritten signature in black ink that reads 'Sandra W. Rodwan'.

Sandra W. Rodwan
Member, American Academy of Actuaries

Net Pension Liability

The components of the net pension liability at June 30, 2019 were as follows:

Total pension liability	\$26,071,145
Plan fiduciary net position	13,716,563
City's net pension liability	12,354,582
Plan fiduciary net position as a percentage of the total pension liability	52.61%
Covered payroll	\$1,956,839
City's net pension liability as a percentage of covered payroll	631.4%

Actuarial assumptions. The total pension liability was determined based on the annual actuarial valuation as of June 30, 2019. The following actuarial assumptions were applied to compute the total pension liability:

Actuarial cost method	Entry Age
Inflation	2.5%
Salary Increases	4.0% (includes inflation)
Cost of living assumption adjustments	Varies depending on retirement date

Mortality rates were based on the RP 2000 Combined Healthy Annuitant Mortality Table projected to 2014.

Discount rate. The discount rate used to measure the total pension liability was 7.50%. The projection of cash flows used to determine the discount rate assumed that member contributions will be made at the current contribution rate and that City Contributions will be made at rates equal to the difference between actuarially determined contribution rates and the member rate. Based on these assumptions, the 7.50% discount rate is the single rate of return that, when applied to all projected benefit payments, results in an actuarial present value of projected benefit payments equal to the total of the actuarial present values determined in conformity with GASB 67, paragraph 44.

Sensitivity of discount rate

	1% Decrease 6.50%	GASB 67 Computed Rate 7.50%	1% Increase 8.50%
City's net pension liability	\$15,241,449	\$12,354,582	\$9,915,426

Schedule of Changes in the City's Net Pension Liability and Related Ratios

	Year Ended 6/30/2019
Total pension liability	
Service cost	\$358,774
Interest	1,866,396
Changes in benefit terms	-
Differences between expected and actual experience	(61,765)
Changes in assumptions used for Total Pension Liability (TPL)	
Discount rate assumption	-
Mortality assumption	-
Total due to TPL assumption changes	-
Benefit payments, including refunds of member contributions	(1,596,305)
Net change in total pension liability	\$567,100
Total pension liability-beginning	25,504,045
Total pension liability-ending (a)	\$26,071,145
Plan fiduciary net position	
Contributions-employer	1,230,551
Contributions-member	156,547
Net investment income	690,256
Benefit payments, including refunds of member contributions	(1,596,305)
Administrative Expense	(29,825)
Other	
Net change in plan fiduciary net position	451,224
Plan fiduciary net position-beginning	13,265,339
Plan fiduciary net position-ending (b)	13,716,563
City's net pension liability-ending (a)-(b)	\$12,354,582
Plan fiduciary net position as a percentage of the total pension liability	52.61%
Covered employee payroll	\$1,956,839
City's net pension liability as a percentage of covered employee payroll	631.4%

Additional Required Disclosures

	<u>6/30/2019</u>
Total expected remaining service lives	
Active Participants	193.0
Inactive Participants	0
(a) Total expected remaining service lives	193.0
Number of Participants	
Active	23
Retired	26
Vested	0
(b) Total	49
(c) Average of expected remaining service lives of all active and inactive participants (a)/(b)	3.9
(d1) Difference between expected and actual demographic experience	(61,765)
(d2) Portion allocated to expense (d1)/(c)	(15,837)
(d3) Deferred portion (d1)-(d2)	(45,928)
(e1) Changes in assumptions	-
(e2) Portion allocated to expense (e1)/(c)	-
(e3) Deferred portion (e1)-(e2)	-
(f1) Difference between expected and actual investment experience	295,681
(f2) Portion allocated to expense (f1)/5	59,136
(f3) Deferred portion (f1)-(f2)	236,545
(g) Total Deferred Portion	190,617

**SCHEDULE OF CITY CONTRIBUTIONS
LAST 10 FISCAL YEARS
Year Ended June 30**

	2019	2018	2017	2016	2015	2014	2013	2012	2011	2010
Actuarially determined contribution	\$805,551	\$760,944	\$635,516	\$575,476	\$583,247	\$544,898	\$571,900	\$524,243	\$585,213	\$580,811
Contributions in relation to the actuarially determined contribution	1,230,551	1,174,069	635,516	575,476	583,247	544,898	571,900	524,243	585,213	580,811
Contribution excess (deficiency)	\$425,000	\$413,125	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Covered employee payroll	\$1,956,839	\$1,941,086	\$1,775,066	\$1,775,066	\$1,775,066	\$1,766,882	\$1,918,654	\$1,908,243	\$1,876,414	\$1,823,285
Actual determined contributions as a percentage of covered employee payroll	62.88%	60.49%	35.80%	32.42%	32.86%	30.84%	29.81%	27.47%	31.19%	31.86%

Notes to Schedule

Valuation date: Actuarially determined contribution rates are calculated as of the June 30, the year prior to the end of the fiscal year in which contributions are reported. Covered employee payroll is as of June 30 of the current fiscal year.

Methods and assumptions used to determine contribution rates:

Actuarial cost method	Entry age
Amortization method	Level percentage of payroll, closed
Remaining amortization period	25 years for the 6/30/2019 valuation
Asset valuation method	4 years smoothed market
Inflation	2.50%
Salary increases	4.0%, including inflation
Investment rate of return	7.75% (7.50% beginning with the 2017 valuation), net of pension plan investment expense, including inflation
Mortality Table	RP 2000 Combined Healthy Mortality Table (RP 2000 projected to 2014 beginning with the 2017 valuation)

Table 1
Projection of Total Contributions*
Assuming 25 Year Closed Amortization of UAAL

Year Beg. 7/1	Projected Entry Age AAL	Projected Funding Value of Assets	UAAL	25 Year Closed Amortization	Projected Employer Normal Cost	Employer Contribution	Employee Contribution	Total Contributions
2019	\$26,071,144	\$14,824,322	\$11,246,822	\$661,390	\$193,944	\$855,334	\$154,196	\$1,009,530
2020	26,705,319	13,984,779	12,720,540	768,132	214,067	982,199	156,958	1,139,157
2021	27,393,035	14,406,257	12,986,778	806,585	168,497	975,082	129,380	1,104,462
2022	27,847,123	14,605,302	13,241,821	847,418	158,254	1,005,672	122,583	1,128,255
2023	28,258,000	14,781,739	13,476,261	890,391	125,941	1,016,332	101,416	1,117,748
2024	28,473,372	14,782,293	13,691,079	935,960	128,526	1,064,486	103,516	1,168,002
2025	28,716,985	14,842,475	13,874,510	983,771	131,402	1,115,173	105,856	1,221,029
2026	28,994,388	14,972,649	14,021,739	1,033,953	100,888	1,134,841	83,405	1,218,246
2027	29,052,407	14,916,261	14,136,146	1,087,317	103,278	1,190,595	85,407	1,276,002
2028	29,134,864	14,931,799	14,203,065	1,143,404	88,953	1,232,357	69,190	1,301,547
2029	29,037,550	14,813,365	14,224,185	1,203,089	91,294	1,294,383	70,997	1,365,380
2030	28,960,839	14,777,021	14,183,818	1,265,937	84,732	1,350,669	63,426	1,414,095
2031	28,801,141	14,723,008	14,078,133	1,332,584	87,146	1,419,730	65,214	1,484,944
2032	28,662,696	14,768,758	13,893,938	1,402,955	77,068	1,480,023	59,046	1,539,069
2033	28,472,288	14,848,641	13,623,647	1,477,637	50,169	1,527,806	40,448	1,568,254
2034	28,094,862	14,834,085	13,260,777	1,557,628	51,665	1,609,293	41,648	1,650,941
2035	27,728,151	14,942,358	12,785,793	1,642,739	53,235	1,695,974	42,910	1,738,884
2036	27,376,533	15,191,738	12,184,795	1,733,647	23,743	1,757,390	16,136	1,773,526
2037	26,715,885	15,261,253	11,454,632	1,833,264	7,566	1,840,830	6,876	1,847,706
2038	25,941,746	15,374,309	10,567,437	1,941,915	7,783	1,949,698	7,074	1,956,772
2039	25,155,870	15,657,424	9,498,446	2,061,222	8,024	2,069,246	7,292	2,076,538
2040	24,360,243	16,137,431	8,222,812	2,194,792	8,273	2,203,065	7,520	2,210,585
2041	23,557,262	16,847,195	6,710,067	2,349,578	8,534	2,358,112	7,757	2,365,869
2042	22,748,946	17,828,675	4,920,271	2,542,464	8,806	2,551,270	8,003	2,559,273
2043	21,937,128	19,144,128	2,793,000	2,839,479	0	2,839,479	0	2,839,479

Table 1 (Continued)
Projection of Total Contributions*
Assuming 25 Year Closed Amortization of UAAL

Year Beg. 7/1	Projected Entry Age AAL	Projected Funding Value of Assets	UAAL	25 Year Closed Amortization	Projected Employer Normal Cost	Employer Contribution	Employee Contribution	Total Contributions
2044	\$21,024,382	\$20,825,762	\$198,620	\$201,925	\$0	\$201,925	\$0	\$201,925
2045	20,104,139	19,961,403	142,736	145,111	0	145,111	0	145,111
2046	19,179,622	19,041,615	138,007	140,304	0	140,304	0	140,304
2047	18,254,148	18,120,029	134,119	136,351	0	136,351	0	136,351
2048	17,330,875	17,200,818	130,057	132,221	0	132,221	0	132,221
2049	16,411,804	16,285,909	125,895	127,990	0	127,990	0	127,990
2050	15,498,307	15,376,633	121,674	123,699	0	123,699	0	123,699
2051	14,593,524	14,476,228	117,296	119,248	0	119,248	0	119,248
2052	13,699,528	13,586,686	112,842	114,720	0	114,720	0	114,720
2053	12,819,207	12,710,947	108,260	110,062	0	110,062	0	110,062
2054	11,954,571	11,850,937	103,634	105,359	0	105,359	0	105,359
2055	11,107,959	11,009,022	98,937	100,583	0	100,583	0	100,583
2056	10,281,980	10,187,806	94,174	95,741	0	95,741	0	95,741
2057	9,479,223	9,389,885	89,338	90,825	0	90,825	0	90,825
2058	8,703,037	8,618,615	84,422	85,827	0	85,827	0	85,827
2059	7,955,398	7,875,892	79,506	80,829	0	80,829	0	80,829
2060	7,237,723	7,163,106	74,617	75,859	0	75,859	0	75,859
2061	6,553,623	6,483,952	69,671	70,830	0	70,830	0	70,830
2062	5,905,795	5,841,087	64,708	65,785	0	65,785	0	65,785
2063	5,295,338	5,235,508	59,830	60,826	0	60,826	0	60,826
2064	4,722,891	4,667,816	55,075	55,992	0	55,992	0	55,992
2065	4,188,709	4,138,246	50,463	51,303	0	51,303	0	51,303
2066	3,692,660	3,646,628	46,032	46,798	0	46,798	0	46,798
2067	3,234,466	3,192,692	41,774	42,469	0	42,469	0	42,469
2068	2,814,249	2,776,583	37,666	38,293	0	38,293	0	38,293

Table 1 (Continued)
Projection of Total Contributions*
Assuming 25 Year Closed Amortization of UAAL

Year Beg. 7/1	Projected Entry Age AAL	Projected Funding Value of Assets	UAAL	25 Year Closed Amortization	Projected Employer Normal Cost	Employer Contribution	Employee Contribution	Total Contributions
2069	\$2,431,527	\$2,397,777	\$33,750	\$34,312	\$0	\$34,312	\$0	\$34,312
2070	2,085,427	2,055,392	30,035	30,535	0	30,535	0	30,535
2071	1,774,893	1,748,345	26,548	26,990	0	26,990	0	26,990
2072	1,498,646	1,475,371	23,275	23,662	0	23,662	0	23,662
2073	1,255,111	1,234,865	20,246	20,583	0	20,583	0	20,583
2074	1,042,424	1,024,968	17,456	17,746	0	17,746	0	17,746
2075	858,514	843,603	14,911	15,159	0	15,159	0	15,159
2076	700,992	688,361	12,631	12,841	0	12,841	0	12,841
2077	567,386	556,785	10,601	10,777	0	10,777	0	10,777
2078	455,223	446,416	8,807	8,954	0	8,954	0	8,954
2079	362,044	354,792	7,252	7,373	0	7,373	0	7,373
2080	285,418	279,502	5,916	6,014	0	6,014	0	6,014
2081	223,006	218,229	4,777	4,856	0	4,856	0	4,856
2082	172,675	168,855	3,820	3,884	0	3,884	0	3,884
2083	132,488	129,457	3,031	3,081	0	3,081	0	3,081
2084	100,713	98,333	2,380	2,420	0	2,420	0	2,420
2085	75,828	73,981	1,847	1,878	0	1,878	0	1,878
2086	56,536	55,110	1,426	1,450	0	1,450	0	1,450
2087	41,730	40,642	1,088	1,106	0	1,106	0	1,106
2088	30,499	29,679	820	834	0	834	0	834
2089	22,066	21,453	613	623	0	623	0	623
2090	15,810	15,358	452	460	0	460	0	460
2091	11,224	10,895	329	334	0	334	0	334
2092	7,888	7,645	243	247	0	247	0	247
2093	5,482	5,313	169	172	0	172	0	172

Table 1 (Continued)
Projection of Total Contributions*
Assuming 25 Year Closed Amortization of UAAL

Year Beg. 7/1	Projected Entry Age AAL	Projected Funding Value of Assets	UAAL	25 Year Closed Amortization	Projected Employer Normal Cost	Employer Contribution	Employee Contribution	Total Contributions
2094	\$3,762	\$3,640	\$122	\$124	\$0	\$124	\$0	\$124
2095	2,548	2,459	89	90	0	90	0	90
2096	1,694	1,634	60	61	0	61	0	61
2097	1,105	1,065	40	41	0	41	0	41
2098	711	683	28	28	0	28	0	28
2099	442	425	17	17	0	17	0	17
2100	265	250	15	15	0	15	0	15
2101	161	154	7	7	0	7	0	7
2102	97	94	3	3	0	3	0	3
2103	57	54	3	3	0	3	0	3
2104	32	30	2	2	0	2	0	2
2105	16	16	0	0	0	0	0	0
2106	6	6	0	0	0	0	0	0
2107	0	0	0	0	0	0	0	0
2108	0	0	0	0	0	0	0	0
2109	0	0	0	0	0	0	0	0
2110	0	0	0	0	0	0	0	0
2111	0	0	0	0	0	0	0	0
2112	0	0	0	0	0	0	0	0
2113	0	0	0	0	0	0	0	0
2114	0	0	0	0	0	0	0	0
2115	0	0	0	0	0	0	0	0
2116	0	0	0	0	0	0	0	0
2117	0	0	0	0	0	0	0	0
2118	0	0	0	0	0	0	0	0

*The Projection of Contributions uses the plan's actuarial valuation interest and mortality assumptions.

Table 2: Projection of the Pension Plan's Fiduciary Net Position

Year Beg. 7/1	Projected Beginning Fiduciary Net Position (a)	Projected Total Contributions* (b)	Projected Benefit Payments** (c)	Projected Administrative Expense*** (d)	Projected Investment Earnings**** (e)	Projected Fiduciary Ending Net Position (a)+(b)+(c)+(d)+(e)
2019	\$13,716,563	\$1,009,530	\$(1,712,742)	\$(29,825)	\$1,001,253	\$13,984,779
2020	13,984,779	1,139,157	(1,714,037)	(29,824)	1,026,182	14,406,257
2021	14,406,257	1,104,462	(1,920,609)	(33,419)	1,048,611	14,605,302
2022	14,605,302	1,128,255	(1,979,556)	(34,444)	1,062,182	14,781,739
2023	14,781,739	1,117,748	(2,148,391)	(37,382)	1,068,579	14,782,293
2024	14,782,293	1,168,002	(2,141,336)	(37,259)	1,070,775	14,842,475
2025	14,842,475	1,221,029	(2,131,423)	(37,087)	1,077,655	14,972,649
2026	14,972,649	1,218,246	(2,314,681)	(40,275)	1,080,322	14,916,261
2027	14,916,261	1,276,002	(2,299,302)	(40,008)	1,078,846	14,931,799
2028	14,931,799	1,301,547	(2,452,435)	(42,672)	1,075,126	14,813,365
2029	14,813,365	1,365,380	(2,428,992)	(42,264)	1,069,532	14,777,021
2030	14,777,021	1,414,095	(2,491,030)	(43,344)	1,066,266	14,723,008
2031	14,723,008	1,484,944	(2,462,317)	(42,844)	1,065,967	14,768,758
2032	14,768,758	1,539,069	(2,486,430)	(43,264)	1,070,508	14,848,641
2033	14,848,641	1,568,254	(2,610,261)	(45,419)	1,072,870	14,834,085
2034	14,834,085	1,650,941	(2,574,135)	(44,790)	1,076,257	14,942,358
2035	14,942,358	1,738,884	(2,534,586)	(44,102)	1,089,184	15,191,738
2036	15,191,738	1,773,526	(2,756,754)	(47,968)	1,100,711	15,261,253
2037	15,261,253	1,847,706	(2,793,355)	(48,604)	1,107,309	15,374,309
2038	15,374,309	1,956,772	(2,747,480)	(47,806)	1,121,629	15,657,424
2039	15,657,424	2,076,538	(2,698,784)	(46,959)	1,149,212	16,137,431
2040	16,137,431	2,210,585	(2,646,979)	(46,057)	1,192,215	16,847,195
2041	16,847,195	2,365,869	(2,592,622)	(45,112)	1,253,345	17,828,675
2042	17,828,675	2,559,273	(2,536,059)	(44,127)	1,336,366	19,144,128
2043	19,144,128	2,839,479	(2,558,030)	(44,510)	1,444,695	20,825,762

Table 2: Projection of the Pension Plan's Fiduciary Net Position (Continued)

Year Beg. 7/1	Projected Beginning Fiduciary Net Position (a)	Projected Total Contributions* (b)	Projected Benefit Payments** (c)	Projected Administrative Expense*** (d)	Projected Investment Earnings**** (e)	Projected Fiduciary Ending Net Position (a)+(b)+(c)+(d)+(e)
2044	\$20,825,762	\$201,925	\$(2,497,070)	\$(43,449)	\$1,474,235	\$19,961,403
2045	19,961,403	145,111	(2,432,325)	(42,322)	1,409,748	19,041,615
2046	19,041,615	140,304	(2,363,949)	(41,133)	1,343,192	18,120,029
2047	18,120,029	136,351	(2,292,332)	(39,887)	1,276,657	17,200,818
2048	17,200,818	132,221	(2,218,885)	(38,609)	1,210,364	16,285,909
2049	16,285,909	127,990	(2,144,383)	(37,312)	1,144,429	15,376,633
2050	15,376,633	123,699	(2,067,155)	(35,968)	1,079,019	14,476,228
2051	14,476,228	119,248	(1,988,512)	(34,600)	1,014,322	13,586,686
2052	13,586,686	114,720	(1,907,781)	(33,195)	950,517	12,710,947
2053	12,710,947	110,062	(1,826,077)	(31,774)	887,779	11,850,937
2054	11,850,937	105,359	(1,743,206)	(30,332)	826,264	11,009,022
2055	11,009,022	100,583	(1,659,081)	(28,868)	766,150	10,187,806
2056	10,187,806	95,741	(1,573,903)	(27,386)	707,627	9,389,885
2057	9,389,885	90,825	(1,487,129)	(25,876)	650,910	8,618,615
2058	8,618,615	85,827	(1,400,371)	(24,366)	596,187	7,875,892
2059	7,875,892	80,829	(1,314,324)	(22,869)	543,578	7,163,106
2060	7,163,106	75,859	(1,226,931)	(21,349)	493,267	6,483,952
2061	6,483,952	70,830	(1,139,353)	(19,825)	445,483	5,841,087
2062	5,841,087	65,785	(1,053,394)	(18,329)	400,359	5,235,508
2063	5,235,508	60,826	(969,598)	(16,871)	357,951	4,667,816
2064	4,667,816	55,992	(888,395)	(15,458)	318,291	4,138,246
2065	4,138,246	51,303	(810,204)	(14,098)	281,381	3,646,628
2066	3,646,628	46,798	(735,146)	(12,792)	247,204	3,192,692
2067	3,192,692	42,469	(662,802)	(11,533)	215,757	2,776,583
2068	2,776,583	38,293	(593,792)	(10,332)	187,025	2,397,777

Table 2: Projection of the Pension Plan's Fiduciary Net Position (Continued)

Year Beg. 7/1	Projected Beginning Fiduciary Net Position (a)	Projected Total Contributions* (b)	Projected Benefit Payments** (c)	Projected Administrative Expense*** (d)	Projected Investment Earnings**** (e)	Projected Fiduciary Ending Net Position (a)+(b)+(c)+(d)+(e)
2069	\$2,397,777	\$34,312	\$(528,460)	\$(9,195)	\$160,958	\$2,055,392
2070	2,055,392	30,535	(466,941)	(8,125)	137,484	1,748,345
2071	1,748,345	26,990	(409,361)	(7,123)	116,520	1,475,371
2072	1,475,371	23,662	(355,935)	(6,193)	97,960	1,234,865
2073	1,234,865	20,583	(306,822)	(5,339)	81,681	1,024,968
2074	1,024,968	17,746	(262,090)	(4,560)	67,539	843,603
2075	843,603	15,159	(221,912)	(3,861)	55,372	688,361
2076	688,361	12,841	(186,182)	(3,240)	45,005	556,785
2077	556,785	10,777	(154,714)	(2,692)	36,260	446,416
2078	446,416	8,954	(127,322)	(2,215)	28,959	354,792
2079	354,792	7,373	(103,783)	(1,806)	22,926	279,502
2080	279,502	6,014	(83,819)	(1,458)	17,990	218,229
2081	218,229	4,856	(67,054)	(1,167)	13,991	168,855
2082	168,855	3,884	(53,139)	(925)	10,782	129,457
2083	129,457	3,081	(41,712)	(726)	8,233	98,333
2084	98,333	2,420	(32,436)	(564)	6,228	73,981
2085	73,981	1,878	(24,980)	(435)	4,666	55,110
2086	55,110	1,450	(19,048)	(331)	3,461	40,642
2087	40,642	1,106	(14,361)	(250)	2,542	29,679
2088	29,679	834	(10,721)	(187)	1,848	21,453
2089	21,453	623	(7,911)	(138)	1,331	15,358
2090	15,358	460	(5,772)	(100)	949	10,895
2091	10,895	334	(4,181)	(73)	670	7,645
2092	7,645	247	(2,995)	(52)	468	5,313
2093	5,313	172	(2,132)	(37)	324	3,640

Table 2: Projection of the Pension Plan's Fiduciary Net Position (Continued)

Year Beg. 7/1	Projected Beginning Fiduciary Net Position (a)	Projected Total Contributions* (b)	Projected Benefit Payments** (c)	Projected Administrative Expense*** (d)	Projected Investment Earnings**** (e)	Projected Fiduciary Ending Net Position (a)+(b)+(c)+(d)+(e)
2094	\$3,640	\$124	\$(1,499)	\$(26)	\$220	\$2,459
2095	2,459	90	(1,045)	(18)	148	1,634
2096	1,634	61	(716)	(12)	98	1,065
2097	1,065	41	(478)	(8)	63	683
2098	683	28	(320)	(6)	40	425
2099	425	17	(212)	(4)	24	250
2100	250	15	(124)	(2)	15	154
2101	154	7	(75)	(1)	9	94
2102	94	3	(47)	(1)	5	54
2103	54	3	(29)	(1)	3	30
2104	30	2	(18)	0	2	16
2105	16	0	(11)	0	1	6
2106	6	0	(6)	0	0	0
2107	0	0	0	0	0	0
2108	0	0	0	0	0	0
2109	0	0	0	0	0	0
2110	0	0	0	0	0	0
2111	0	0	0	0	0	0
2112	0	0	0	0	0	0
2113	0	0	0	0	0	0
2114	0	0	0	0	0	0
2115	0	0	0	0	0	0
2116	0	0	0	0	0	0
2117	0	0	0	0	0	0
2118	0	0	0	0	0	0

*From Table 1.

**Assumed Mortality for Benefit Payout Projection was based on the RP 2000 Combined Healthy Table projected to 2014.

***Administrative expense was assumed to be 1.74% of pension payroll.

****Long term expected rate of return on pension plan investments was 7.50%.

Table 3: Actuarial Present Values of Projected Benefit Payments

Year (a)	Projected Beginning Fiduciary Net Position* (b)	Projected Benefit Payments (c)	"Funded" Portion of Benefit Payments (d)	"Unfunded" Portion of Benefit Payments (e)	Present Value of "Funded" Benefits Payments** (f)	Present Value of "Unfunded" Benefit Payments*** (g)=(e)/(1+x.xx%)^(a)	Present Value Using the Single Discount Rate**** (h) = (c)/(1 + y.yy%)^(a)
1	\$13,716,563	\$1,712,742	\$1,712,742	\$0	\$1,593,248	\$0	\$1,593,248
2	13,984,779	1,714,037	1,714,037	0	1,483,212	0	1,483,212
3	14,406,257	1,920,609	1,920,609	0	1,546,015	0	1,546,015
4	14,605,302	1,979,556	1,979,556	0	1,482,293	0	1,482,293
5	14,781,739	2,148,391	2,148,391	0	1,496,480	0	1,496,480
6	14,782,293	2,141,336	2,141,336	0	1,387,503	0	1,387,503
7	14,842,475	2,131,423	2,131,423	0	1,284,726	0	1,284,726
8	14,972,649	2,314,681	2,314,681	0	1,297,847	0	1,297,847
9	14,916,261	2,299,302	2,299,302	0	1,199,278	0	1,199,278
10	14,931,799	2,452,435	2,452,435	0	1,189,907	0	1,189,907
11	14,813,365	2,428,992	2,428,992	0	1,096,309	0	1,096,309
12	14,777,021	2,491,030	2,491,030	0	1,045,869	0	1,045,869
13	14,723,008	2,462,317	2,462,317	0	961,687	0	961,687
14	14,768,758	2,486,430	2,486,430	0	903,354	0	903,354
15	14,848,641	2,610,261	2,610,261	0	882,180	0	882,180
16	14,834,085	2,574,135	2,574,135	0	809,275	0	809,275
17	14,942,358	2,534,586	2,534,586	0	741,247	0	741,247
18	15,191,738	2,756,754	2,756,754	0	749,973	0	749,973
19	15,261,253	2,793,355	2,793,355	0	706,912	0	706,912
20	15,374,309	2,747,480	2,747,480	0	646,793	0	646,793
21	15,657,424	2,698,784	2,698,784	0	591,004	0	591,004
22	16,137,431	2,646,979	2,646,979	0	539,218	0	539,218
23	16,847,195	2,592,622	2,592,622	0	491,297	0	491,297
24	17,828,675	2,536,059	2,536,059	0	447,050	0	447,050
25	19,144,128	2,558,030	2,558,030	0	419,463	0	419,463

Table 3: Actuarial Present Values of Projected Benefit Payments (Continued)

Year	Projected Beginning Fiduciary Net Position*	Projected Benefit Payments	"Funded" Portion of Benefit Payments	"Unfunded" Portion of Benefit Payments	Present Value of "Funded" Benefits Payments**	Present Value of "Unfunded" Benefit Payments***	Present Value Using the Single Discount Rate****
(a)	(b)	(c)	(d)	(e)	(f)	(g)=(e)/(1+x.xx%)^(a)	(h) = (c)/(1 + y.yy%)^(a)
26	\$20,825,762	\$2,497,070	\$2,497,070	\$0	\$380,900	\$0	\$380,900
27	19,961,403	2,432,325	2,432,325	0	345,138	0	345,138
28	19,041,615	2,363,949	2,363,949	0	312,033	0	312,033
29	18,120,029	2,292,332	2,292,332	0	281,470	0	281,470
30	17,200,818	2,218,885	2,218,885	0	253,443	0	253,443
31	16,285,909	2,144,383	2,144,383	0	227,845	0	227,845
32	15,376,633	2,067,155	2,067,155	0	204,316	0	204,316
33	14,476,228	1,988,512	1,988,512	0	182,831	0	182,831
34	13,586,686	1,907,781	1,907,781	0	163,170	0	163,170
35	12,710,947	1,826,077	1,826,077	0	145,286	0	145,286
36	11,850,937	1,743,206	1,743,206	0	129,016	0	129,016
37	11,009,022	1,659,081	1,659,081	0	114,223	0	114,223
38	10,187,806	1,573,903	1,573,903	0	100,799	0	100,799
39	9,389,885	1,487,129	1,487,129	0	88,597	0	88,597
40	8,618,615	1,400,371	1,400,371	0	77,608	0	77,608
41	7,875,892	1,314,324	1,314,324	0	67,757	0	67,757
42	7,163,106	1,226,931	1,226,931	0	58,839	0	58,839
43	6,483,952	1,139,353	1,139,353	0	50,827	0	50,827
44	5,841,087	1,053,394	1,053,394	0	43,714	0	43,714
45	5,235,508	969,598	969,598	0	37,429	0	37,429
46	4,667,816	888,395	888,395	0	31,902	0	31,902
47	4,138,246	810,204	810,204	0	27,064	0	27,064
48	3,646,628	735,146	735,146	0	22,844	0	22,844
49	3,192,692	662,802	662,802	0	19,159	0	19,159
50	2,776,583	593,792	593,792	0	15,967	0	15,967

Table 3: Actuarial Present Values of Projected Benefit Payments (Continued)

Year (a)	Projected Beginning Fiduciary Net Position* (b)	Projected Benefit Payments (c)	"Funded" Portion of Benefit Payments (d)	"Unfunded" Portion of Benefit Payments (e)	Present Value of "Funded" Benefits Payments** (f)	Present Value of "Unfunded" Benefit Payments*** (g)=(e)/(1+x.xx%)^(a)	Present Value Using the Single Discount Rate**** (h) = (c)/(1 + y.yy%)^(a)
51	\$2,397,777	\$528,460	\$528,460	\$0	\$13,218	\$0	\$13,218
52	2,055,392	466,941	466,941	0	10,865	0	10,865
53	1,748,345	409,361	409,361	0	8,860	0	8,860
54	1,475,371	355,935	355,935	0	7,167	0	7,167
55	1,234,865	306,822	306,822	0	5,747	0	5,747
56	1,024,968	262,090	262,090	0	4,566	0	4,566
57	843,603	221,912	221,912	0	3,597	0	3,597
58	688,361	186,182	186,182	0	2,807	0	2,807
59	556,785	154,714	154,714	0	2,170	0	2,170
60	446,416	127,322	127,322	0	1,661	0	1,661
61	354,792	103,783	103,783	0	1,260	0	1,260
62	279,502	83,819	83,819	0	946	0	946
63	218,229	67,054	67,054	0	704	0	704
64	168,855	53,139	53,139	0	519	0	519
65	129,457	41,712	41,712	0	379	0	379
66	98,333	32,436	32,436	0	274	0	274
67	73,981	24,980	24,980	0	196	0	196
68	55,110	19,048	19,048	0	139	0	139
69	40,642	14,361	14,361	0	98	0	98
70	29,679	10,721	10,721	0	68	0	68
71	21,453	7,911	7,911	0	47	0	47
72	15,358	5,772	5,772	0	32	0	32
73	10,895	4,181	4,181	0	21	0	21
74	7,645	2,995	2,995	0	14	0	14
75	5,313	2,132	2,132	0	9	0	9

Table 3: Actuarial Present Values of Projected Benefit Payments (Continued)

Year (a)	Projected Beginning Fiduciary Net Position* (b)	Projected Benefit Payments (c)	"Funded" Portion of Benefit Payments (d)	"Unfunded" Portion of Benefit Payments (e)	Present Value of "Funded" Benefits Payments** (f)	Present Value of "Unfunded" Benefit Payments*** (g)=(e)/(1+x.xx%)^(a)	Present Value Using the Single Discount Rate**** (h) = (c)/(1 + y.yy%)^(a)
76	\$3,640	\$1,499	\$1,499	\$0	\$6	\$0	\$6
77	2,459	1,045	1,045	0	4	0	4
78	1,634	716	716	0	3	0	3
79	1,065	478	478	0	2	0	2
80	683	320	320	0	1	0	1
81	425	212	212	0	1	0	1
82	250	124	124	0	0	0	0
83	154	75	75	0	0	0	0
84	94	47	47	0	0	0	0
85	54	29	29	0	0	0	0
86	30	18	18	0	0	0	0
87	16	11	11	0	0	0	0
88	6	6	6	0	0	0	0
89	0	0	0	0	0	0	0
90	0	0	0	0	0	0	0
91	0	0	0	0	0	0	0
92	0	0	0	0	0	0	0
93	0	0	0	0	0	0	0
94	0	0	0	0	0	0	0
95	0	0	0	0	0	0	0
96	0	0	0	0	0	0	0
97	0	0	0	0	0	0	0
98	0	0	0	0	0	0	0
99	0	0	0	0	0	0	0
100	0	0	0	0	0	0	0
					\$28,439,698	\$0	\$28,439,698

* From Table 2.

**7.50% was the assumed rate of return used to project the plan's fiduciary net position and the discount rate used for column (f).

***3.13% Fidelity Municipal Bond GO AA Index as of June 28, 2019 (YTW).

****7.50% was the single discount rate that produces a total actuarial present value that equals the sum of the actuarial present values of "funded" and "unfunded" benefit payments in columns (f) and (g).