

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

Actuarial Information for GASB Statements 67/68

June 30, 2018



October 18, 2018

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, 2018.

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, 2018 were as follows:

Total pension liability	\$25,504,045
Plan fiduciary net position	13,265,339
City's net pension liability	12,238,706
Plan fiduciary net position as a percentage of the total pension liability	52.01%
Covered payroll	\$1,941,086
City's net pension liability as a percentage of covered payroll	630.5%

Actuarial assumptions. The total pension liability was determined based on the annual actuarial valuation as of June 30, 2018. The following actuarial assumptions were applied to compute the total pension liability:

Actuarial cost method	Entry Age
Inflation	3.00%
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	\$15,109,140	\$12,238,706	\$9,817,524

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

	Year Ended <u>6/30/2018</u>
Total pension liability	
Service cost	\$346,030
Interest	1,884,136
Changes in benefit terms	-
Differences between expected and actual experience	(65,202)
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	(1,598,677)
Net change in total pension liability	\$566,287
Total pension liability-beginning	24,937,758
Total pension liability-ending (a)	\$25,504,045
Plan fiduciary net position	
Contributions-employer	1,174,069
Contributions-member	155,287
Net investment income	785,251
Benefit payments, including refunds of member contributions	(1,598,677)
Administrative Expense	(21,608)
Other	
Net change in plan fiduciary net position	494,322
Plan fiduciary net position-beginning	12,771,017
Plan fiduciary net position-ending (b)	13,265,339
City's net pension liability-ending (a)-(b)	\$12,238,706
Plan fiduciary net position as a percentage of the total pension liability	52.01%
Covered employee payroll	\$1,941,086
City's net pension liability as a percentage of covered employee payroll	630.5%

Additional Required Disclosures

Total expected remaining service lives	<u>6/30/2018</u>
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	(65,202)
(d2) Portion allocated to expense (d1)/(c)	(16,719)
(d3) Deferred portion (d1)-(d2)	(48,484)
(e1) Changes in assumptions	-
(e2) Portion allocated to expense (e1)/(c)	-
(e3) Deferred portion (e1)-(e2)	-
(f1) Difference between expected and actual investment experience	193,229
(f2) Portion allocated to expense (f1)/5	38,646
(f3) Deferred portion (f1)-(f2)	154,583
(g) Total Deferred Portion	106,100

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

	2018	2017	2016	2015	2014	2013	2012	2011	2010	2009
Actuarially determined contribution	\$760,944	\$635,516	\$575,476	\$583,247	\$544,898	\$571,900	\$524,243	\$585,213	\$580,811	\$491,172
Contributions in relation to the actuarially determined contribution	1,174,069	635,516	575,476	583,247	544,898	571,900	524,243	585,213	580,811	491,172
Contribution excess (deficiency)	\$413,125	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Covered employee payroll	\$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	\$1,882,693
Actuarially determined contributions as a percentage of covered employee payroll	39.2%	35.80%	32.42%	32.86%	30.84%	29.81%	27.47%	31.19%	31.86%	26.09%

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	26 years
Asset valuation method	4 years smoothed market
Inflation	3.00%
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 26 Year Closed Amortization of UAAL

Year Beg. 7/1	Projected Entry Age AAL	Projected Funding Value of Assets	UAAL	26 Year Closed Amortization	Projected Employer Normal Cost	Employer Contribution	Employee Contribution	Total Contributions
2018	\$25,504,045	\$14,770,125	\$10,733,920	\$615,660	\$189,891	\$805,551	\$152,866	\$958,417
2019	26,111,603	13,477,827	12,633,776	742,953	209,474	952,427	155,318	1,107,745
2020	26,765,797	13,855,484	12,910,313	779,591	213,489	993,080	158,125	1,151,205
2021	27,474,744	14,304,824	13,169,920	817,959	167,580	985,539	129,913	1,115,452
2022	27,946,811	14,529,717	13,417,094	858,635	157,813	1,016,448	123,543	1,139,991
2023	28,379,652	14,736,747	13,642,905	901,401	124,799	1,026,200	101,733	1,127,933
2024	28,611,145	14,763,038	13,848,107	946,695	127,370	1,074,065	103,852	1,177,917
2025	28,871,231	14,849,658	14,021,573	994,199	130,235	1,124,434	106,207	1,230,641
2026	29,165,392	15,006,888	14,158,504	1,044,038	100,020	1,144,058	83,729	1,227,787
2027	29,238,446	14,976,953	14,261,493	1,096,958	102,399	1,199,357	85,747	1,285,104
2028	29,335,995	15,019,257	14,316,738	1,152,555	88,079	1,240,634	68,944	1,309,578
2029	29,245,968	14,920,491	14,325,477	1,211,657	90,410	1,302,067	70,745	1,372,812
2030	29,175,909	14,903,342	14,272,567	1,273,858	84,022	1,357,880	63,279	1,421,159
2031	29,022,738	14,868,895	14,153,843	1,339,751	86,420	1,426,171	65,066	1,491,237
2032	28,890,185	14,933,579	13,956,606	1,409,283	76,188	1,485,471	58,764	1,544,235
2033	28,703,449	15,030,288	13,673,161	1,483,007	48,384	1,531,391	40,329	1,571,720
2034	28,325,275	15,028,558	13,296,717	1,561,850	49,826	1,611,676	41,526	1,653,202
2035	27,956,686	15,148,127	12,808,559	1,645,664	51,341	1,697,005	42,785	1,739,790
2036	27,602,018	15,407,045	12,194,973	1,735,095	22,986	1,758,081	15,659	1,773,740
2037	26,936,095	15,484,167	11,451,928	1,832,831	7,390	1,840,221	6,732	1,846,953
2038	26,159,260	15,606,661	10,552,599	1,939,189	7,602	1,946,791	6,925	1,953,716
2039	25,369,710	15,896,516	9,473,194	2,055,742	7,837	2,063,579	7,139	2,070,718
2040	24,569,424	16,379,935	8,189,489	2,185,898	8,081	2,193,979	7,362	2,201,341
2041	23,760,810	17,088,924	6,671,886	2,336,209	8,336	2,344,545	7,594	2,352,139
2042	22,945,897	18,064,096	4,881,801	2,522,586	8,602	2,531,188	7,835	2,539,023

Table 1 (Continued)
Projection of Total Contributions*
Assuming 26 Year Closed Amortization of UAAL

Year Beg. 7/1	Projected Entry Age AAL	Projected Funding Value of Assets	26 Year Closed Amortization UAAL	Projected Employer Normal Cost	Employer Contribution	Employee Contribution	Total Contributions	
2043	\$22,127,011	\$19,365,770	\$2,761,241	\$2,807,192	\$0	\$2,807,192	\$0	\$2,807,192
2044	21,208,571	21,021,793	186,778	189,886	0	189,886	0	189,886
2045	20,281,927	20,150,319	131,608	133,798	0	133,798	0	133,798
2046	19,350,361	19,223,147	127,214	129,331	0	129,331	0	129,331
2047	18,417,208	18,293,554	123,654	125,712	0	125,712	0	125,712
2048	17,485,726	17,365,776	119,950	121,946	0	121,946	0	121,946
2049	16,557,979	16,441,846	116,133	118,066	0	118,066	0	118,066
2050	15,635,397	15,523,137	112,260	114,128	0	114,128	0	114,128
2051	14,721,202	14,612,957	108,245	110,046	0	110,046	0	110,046
2052	13,817,531	13,713,388	104,143	105,876	0	105,876	0	105,876
2053	12,927,409	12,827,484	99,925	101,588	0	101,588	0	101,588
2054	12,052,945	11,957,277	95,668	97,260	0	97,260	0	97,260
2055	11,196,549	11,105,225	91,324	92,844	0	92,844	0	92,844
2056	10,360,917	10,273,991	86,926	88,373	0	88,373	0	88,373
2057	9,548,734	9,466,274	82,460	83,832	0	83,832	0	83,832
2058	8,763,465	8,685,553	77,912	79,209	0	79,209	0	79,209
2059	8,007,168	7,933,815	73,353	74,574	0	74,574	0	74,574
2060	7,281,351	7,212,512	68,839	69,985	0	69,985	0	69,985
2061	6,589,697	6,525,447	64,250	65,319	0	65,319	0	65,319
2062	5,934,939	5,875,297	59,642	60,635	0	60,635	0	60,635
2063	5,318,228	5,263,100	55,128	56,045	0	56,045	0	56,045
2064	4,740,218	4,689,501	50,717	51,561	0	51,561	0	51,561
2065	4,201,193	4,154,739	46,454	47,227	0	47,227	0	47,227
2066	3,700,996	3,658,661	42,335	43,040	0	43,040	0	43,040
2067	3,239,351	3,200,952	38,399	39,038	0	39,038	0	39,038

Table 1 (Continued)
Projection of Total Contributions*
Assuming 26 Year Closed Amortization of UAAL

Year Beg. 7/1	Projected Entry Age AAL	Projected Funding Value of Assets	UAAL	26 Year Closed Amortization	Projected Employer Normal Cost	Employer Contribution	Employee Contribution	Total Contributions
2068	\$2,816,327	\$2,781,728	\$34,599	\$35,175	\$0	\$35,175	\$0	\$35,175
2069	2,431,385	2,400,414	30,971	31,486	0	31,486	0	31,486
2070	2,083,615	2,056,069	27,546	28,004	0	28,004	0	28,004
2071	1,771,886	1,747,564	24,322	24,727	0	24,727	0	24,727
2072	1,494,859	1,473,553	21,306	21,661	0	21,661	0	21,661
2073	1,250,888	1,232,373	18,515	18,823	0	18,823	0	18,823
2074	1,038,037	1,022,097	15,940	16,205	0	16,205	0	16,205
2075	854,188	840,576	13,612	13,839	0	13,839	0	13,839
2076	696,885	685,371	11,514	11,706	0	11,706	0	11,706
2077	563,607	553,948	9,659	9,820	0	9,820	0	9,820
2078	451,836	443,818	8,018	8,151	0	8,151	0	8,151
2079	359,081	352,489	6,592	6,702	0	6,702	0	6,702
2080	282,878	277,504	5,374	5,463	0	5,463	0	5,463
2081	220,867	216,536	4,331	4,403	0	4,403	0	4,403
2082	170,909	167,440	3,469	3,527	0	3,527	0	3,527
2083	131,053	128,305	2,748	2,794	0	2,794	0	2,794
2084	99,563	97,409	2,154	2,190	0	2,190	0	2,190
2085	74,916	73,245	1,671	1,699	0	1,699	0	1,699
2086	55,828	54,535	1,293	1,315	0	1,315	0	1,315
2087	41,184	40,204	980	996	0	996	0	996
2088	30,084	29,340	744	756	0	756	0	756
2089	21,751	21,200	551	560	0	560	0	560
2090	15,576	15,165	411	418	0	418	0	418
2091	11,052	10,755	297	302	0	302	0	302
2092	7,759	7,545	214	218	0	218	0	218

Table 1 (Continued)
Projection of Total Contributions*
Assuming 26 Year Closed Amortization of UAAL

Year Beg. 7/1	Projected Entry Age AAL	Projected Funding Value of Assets	UAAL	26 Year Closed Amortization	Projected Employer Normal Cost	Employer Contribution	Employee Contribution	Total Contributions
2093	\$5,391	\$5,236	\$155	\$158	\$0	\$158	\$0	\$158
2094	3,698	3,588	110	112	0	112	0	112
2095	2,502	2,425	77	78	0	78	0	78
2096	1,664	1,610	54	55	0	55	0	55
2097	1,086	1,048	38	39	0	39	0	39
2098	695	673	22	22	0	22	0	22
2099	434	416	18	18	0	18	0	18
2100	259	248	11	11	0	11	0	11
2101	157	150	7	7	0	7	0	7
2102	95	91	4	4	0	4	0	4
2103	56	53	3	3	0	3	0	3
2104	31	30	1	1	0	1	0	1
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

*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)
2018	\$13,265,339	\$958,417	\$(1,690,941)	\$(21,608)	\$966,620	\$13,477,827
2019	13,477,827	1,107,745	(1,696,326)	(21,713)	987,951	13,855,484
2020	13,855,484	1,151,205	(1,697,973)	(21,734)	1,017,842	14,304,824
2021	14,304,824	1,115,452	(1,908,344)	(24,427)	1,042,212	14,529,717
2022	14,529,717	1,139,991	(1,965,625)	(25,160)	1,057,824	14,736,747
2023	14,736,747	1,127,933	(2,140,501)	(27,398)	1,066,257	14,763,038
2024	14,763,038	1,177,917	(2,134,316)	(27,319)	1,070,338	14,849,658
2025	14,849,658	1,230,641	(2,125,358)	(27,205)	1,079,152	15,006,888
2026	15,006,888	1,227,787	(2,311,883)	(29,592)	1,083,753	14,976,953
2027	14,976,953	1,285,104	(2,297,591)	(29,409)	1,084,200	15,019,257
2028	15,019,257	1,309,578	(2,459,028)	(31,476)	1,082,160	14,920,491
2029	14,920,491	1,372,812	(2,436,741)	(31,190)	1,077,970	14,903,342
2030	14,903,342	1,421,159	(2,499,715)	(31,996)	1,076,105	14,868,895
2031	14,868,895	1,491,237	(2,472,108)	(31,643)	1,077,198	14,933,579
2032	14,933,579	1,544,235	(2,498,575)	(31,982)	1,083,031	15,030,288
2033	15,030,288	1,571,720	(2,626,297)	(33,617)	1,086,464	15,028,558
2034	15,028,558	1,653,202	(2,591,190)	(33,167)	1,090,724	15,148,127
2035	15,148,127	1,739,790	(2,552,603)	(32,673)	1,104,404	15,407,045
2036	15,407,045	1,773,740	(2,777,615)	(35,553)	1,116,550	15,484,167
2037	15,484,167	1,846,953	(2,812,227)	(35,997)	1,123,765	15,606,661
2038	15,606,661	1,953,716	(2,767,111)	(35,419)	1,138,669	15,896,516
2039	15,896,516	2,070,718	(2,719,113)	(34,805)	1,166,619	16,379,935
2040	16,379,935	2,201,341	(2,667,921)	(34,149)	1,209,718	17,088,924
2041	17,088,924	2,352,139	(2,614,098)	(33,460)	1,270,591	18,064,096
2042	18,064,096	2,539,023	(2,557,500)	(32,736)	1,352,887	19,365,770

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)
2043	\$19,365,770	\$2,807,192	\$(2,577,962)	\$(32,998)	\$1,459,791	\$21,021,793
2044	21,021,793	189,886	(2,517,288)	(32,221)	1,488,149	20,150,319
2045	20,150,319	133,798	(2,452,712)	(31,395)	1,423,137	19,223,147
2046	19,223,147	129,331	(2,384,428)	(30,521)	1,356,025	18,293,554
2047	18,293,554	125,712	(2,312,777)	(29,604)	1,288,891	17,365,776
2048	17,365,776	121,946	(2,239,177)	(28,661)	1,221,962	16,441,846
2049	16,441,846	118,066	(2,164,431)	(27,705)	1,155,361	15,523,137
2050	15,523,137	114,128	(2,086,852)	(26,712)	1,089,256	14,612,957
2051	14,612,957	110,046	(2,007,760)	(25,699)	1,023,844	13,713,388
2052	13,713,388	105,876	(1,926,431)	(24,658)	959,309	12,827,484
2053	12,827,484	101,588	(1,844,026)	(23,604)	895,835	11,957,277
2054	11,957,277	97,260	(1,760,363)	(22,533)	833,584	11,105,225
2055	11,105,225	92,844	(1,675,376)	(21,445)	772,743	10,273,991
2056	10,273,991	88,373	(1,589,252)	(20,342)	713,504	9,466,274
2057	9,466,274	83,832	(1,501,425)	(19,218)	656,090	8,685,553
2058	8,685,553	79,209	(1,413,554)	(18,093)	600,700	7,933,815
2059	7,933,815	74,574	(1,326,358)	(16,977)	547,458	7,212,512
2060	7,212,512	69,985	(1,237,760)	(15,843)	496,553	6,525,447
2061	6,525,447	65,319	(1,148,982)	(14,707)	448,220	5,875,297
2062	5,875,297	60,635	(1,061,834)	(13,591)	402,593	5,263,100
2063	5,263,100	56,045	(976,873)	(12,504)	359,733	4,689,501
2064	4,689,501	51,561	(894,544)	(11,450)	319,671	4,154,739
2065	4,154,739	47,227	(815,281)	(10,436)	282,412	3,658,661
2066	3,658,661	43,040	(739,225)	(9,462)	247,938	3,200,952
2067	3,200,952	39,038	(665,978)	(8,525)	216,241	2,781,728

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)
2068	\$2,781,728	\$35,175	\$(596,164)	\$(7,631)	\$187,306	\$2,400,414
2069	2,400,414	31,486	(530,123)	(6,786)	161,078	2,056,069
2070	2,056,069	28,004	(468,000)	(5,990)	137,481	1,747,564
2071	1,747,564	24,727	(409,917)	(5,247)	116,426	1,473,553
2072	1,473,553	21,661	(356,088)	(4,558)	97,805	1,232,373
2073	1,232,373	18,823	(306,661)	(3,925)	81,487	1,022,097
2074	1,022,097	16,205	(261,702)	(3,350)	67,326	840,576
2075	840,576	13,839	(221,366)	(2,833)	55,155	685,371
2076	685,371	11,706	(185,549)	(2,375)	44,795	553,948
2077	553,948	9,820	(154,042)	(1,972)	36,064	443,818
2078	443,818	8,151	(126,641)	(1,621)	28,782	352,489
2079	352,489	6,702	(103,138)	(1,320)	22,771	277,504
2080	277,504	5,463	(83,223)	(1,065)	17,857	216,536
2081	216,536	4,403	(66,526)	(852)	13,879	167,440
2082	167,440	3,527	(52,678)	(674)	10,690	128,305
2083	128,305	2,794	(41,319)	(529)	8,158	97,409
2084	97,409	2,190	(32,111)	(411)	6,168	73,245
2085	73,245	1,699	(24,712)	(316)	4,619	54,535
2086	54,535	1,315	(18,829)	(241)	3,424	40,204
2087	40,204	996	(14,192)	(182)	2,514	29,340
2088	29,340	756	(10,587)	(136)	1,827	21,200
2089	21,200	560	(7,809)	(100)	1,314	15,165
2090	15,165	418	(5,692)	(73)	937	10,755
2091	10,755	302	(4,120)	(53)	661	7,545
2092	7,545	218	(2,951)	(38)	462	5,236

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)
2093	\$5,236	\$158	\$(2,098)	\$(27)	\$319	\$3,588
2094	3,588	112	(1,473)	(19)	217	2,425
2095	2,425	78	(1,026)	(13)	146	1,610
2096	1,610	55	(704)	(9)	96	1,048
2097	1,048	39	(470)	(6)	62	673
2098	673	22	(314)	(4)	39	416
2099	416	18	(207)	(3)	24	248
2100	248	11	(121)	(2)	14	150
2101	150	7	(74)	(1)	9	91
2102	91	4	(46)	(1)	5	53
2103	53	3	(29)	0	3	30
2104	30	1	(17)	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

*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 1.28% 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	\$13,265,339	\$1,690,941	\$1,690,941	\$0	\$1,572,968	\$0	\$1,572,968
2	13,477,827	1,696,326	1,696,326	0	1,467,886	0	1,467,886
3	13,855,484	1,697,973	1,697,973	0	1,366,801	0	1,366,801
4	14,304,824	1,908,344	1,908,344	0	1,428,969	0	1,428,969
5	14,529,717	1,965,625	1,965,625	0	1,369,173	0	1,369,173
6	14,736,747	2,140,501	2,140,501	0	1,386,962	0	1,386,962
7	14,763,038	2,134,316	2,134,316	0	1,286,469	0	1,286,469
8	14,849,658	2,125,358	2,125,358	0	1,191,693	0	1,191,693
9	15,006,888	2,311,883	2,311,883	0	1,205,840	0	1,205,840
10	14,976,953	2,297,591	2,297,591	0	1,114,777	0	1,114,777
11	15,019,257	2,459,028	2,459,028	0	1,109,866	0	1,109,866
12	14,920,491	2,436,741	2,436,741	0	1,023,076	0	1,023,076
13	14,903,342	2,499,715	2,499,715	0	976,294	0	976,294
14	14,868,895	2,472,108	2,472,108	0	898,150	0	898,150
15	14,933,579	2,498,575	2,498,575	0	844,433	0	844,433
16	15,030,288	2,626,297	2,626,297	0	825,674	0	825,674
17	15,028,558	2,591,190	2,591,190	0	757,801	0	757,801
18	15,148,127	2,552,603	2,552,603	0	694,434	0	694,434
19	15,407,045	2,777,615	2,777,615	0	702,929	0	702,929
20	15,484,167	2,812,227	2,812,227	0	662,035	0	662,035
21	15,606,661	2,767,111	2,767,111	0	605,967	0	605,967
22	15,896,516	2,719,113	2,719,113	0	553,912	0	553,912
23	16,379,935	2,667,921	2,667,921	0	505,566	0	505,566
24	17,088,924	2,614,098	2,614,098	0	460,807	0	460,807
25	18,064,096	2,557,500	2,557,500	0	419,376	0	419,376

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)
26	\$19,365,770	\$2,577,962	\$2,577,962	\$0	\$393,239	\$0	\$393,239
27	21,021,793	2,517,288	2,517,288	0	357,194	0	357,194
28	20,150,319	2,452,712	2,452,712	0	323,750	0	323,750
29	19,223,147	2,384,428	2,384,428	0	292,778	0	292,778
30	18,293,554	2,312,777	2,312,777	0	264,168	0	264,168
31	17,365,776	2,239,177	2,239,177	0	237,917	0	237,917
32	16,441,846	2,164,431	2,164,431	0	213,931	0	213,931
33	15,523,137	2,086,852	2,086,852	0	191,872	0	191,872
34	14,612,957	2,007,760	2,007,760	0	171,721	0	171,721
35	13,713,388	1,926,431	1,926,431	0	153,270	0	153,270
36	12,827,484	1,844,026	1,844,026	0	136,478	0	136,478
37	11,957,277	1,760,363	1,760,363	0	121,196	0	121,196
38	11,105,225	1,675,376	1,675,376	0	107,298	0	107,298
39	10,273,991	1,589,252	1,589,252	0	94,681	0	94,681
40	9,466,274	1,501,425	1,501,425	0	83,208	0	83,208
41	8,685,553	1,413,554	1,413,554	0	72,873	0	72,873
42	7,933,815	1,326,358	1,326,358	0	63,607	0	63,607
43	7,212,512	1,237,760	1,237,760	0	55,217	0	55,217
44	6,525,447	1,148,982	1,148,982	0	47,680	0	47,680
45	5,875,297	1,061,834	1,061,834	0	40,990	0	40,990
46	5,263,100	976,873	976,873	0	35,079	0	35,079
47	4,689,501	894,544	894,544	0	29,882	0	29,882
48	4,154,739	815,281	815,281	0	25,334	0	25,334
49	3,658,661	739,225	739,225	0	21,368	0	21,368
50	3,200,952	665,978	665,978	0	17,908	0	17,908

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	\$2,781,728	\$596,164	\$596,164	\$0	\$14,912	\$0	\$14,912
52	2,400,414	530,123	530,123	0	12,335	0	12,335
53	2,056,069	468,000	468,000	0	10,130	0	10,130
54	1,747,564	409,917	409,917	0	8,254	0	8,254
55	1,473,553	356,088	356,088	0	6,669	0	6,669
56	1,232,373	306,661	306,661	0	5,343	0	5,343
57	1,022,097	261,702	261,702	0	4,242	0	4,242
58	840,576	221,366	221,366	0	3,337	0	3,337
59	685,371	185,549	185,549	0	2,602	0	2,602
60	553,948	154,042	154,042	0	2,010	0	2,010
61	443,818	126,641	126,641	0	1,537	0	1,537
62	352,489	103,138	103,138	0	1,164	0	1,164
63	277,504	83,223	83,223	0	874	0	874
64	216,536	66,526	66,526	0	650	0	650
65	167,440	52,678	52,678	0	479	0	479
66	128,305	41,319	41,319	0	349	0	349
67	97,409	32,111	32,111	0	253	0	253
68	73,245	24,712	24,712	0	181	0	181
69	54,535	18,829	18,829	0	128	0	128
70	40,204	14,192	14,192	0	90	0	90
71	29,340	10,587	10,587	0	62	0	62
72	21,200	7,809	7,809	0	43	0	43
73	15,165	5,692	5,692	0	29	0	29
74	10,755	4,120	4,120	0	20	0	20
75	7,545	2,951	2,951	0	13	0	13

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	\$5,236	\$2,098	\$2,098	\$0	\$9	\$0	\$9
77	3,588	1,473	1,473	0	6	0	6
78	2,425	1,026	1,026	0	4	0	4
79	1,610	704	704	0	2	0	2
80	1,048	470	470	0	1	0	1
81	673	314	314	0	1	0	1
82	416	207	207	0	1	0	1
83	248	121	121	0	0	0	0
84	150	74	74	0	0	0	0
85	91	46	46	0	0	0	0
86	53	29	29	0	0	0	0
87	30	17	17	0	0	0	0
88	16	11	11	0	0	0	0
89	6	6	6	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
					\$28,060,227	\$0	\$28,060,227

* From Table 2.

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

***2.92% S&P Municipal Bond 20 Year High Grade Index as of June 29, 2018 (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).