

October 11, 2018

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

Dear Board Members:

*The purpose of the annual actuarial valuation* of the City of Marysville Police Officers and Firefighters Retirement System as of June 30, 2018 is to:

- Compute the liabilities associated with benefits likely to be paid on behalf of current retired and active members of the Retirement System,
- Compare accrued assets with accrued liabilities to assess the funded condition of the Retirement System, and
- Compute the City's recommended contribution rate for the Fiscal Year beginning July 1, 2018 and July 1, 2019.

This valuation has been conducted in accordance with generally accepted actuarial principles and practices. Data concerning active members, retirees, beneficiaries and assets was provided by the City of Marysville. This data has been reviewed for reasonableness, but no attempt has been made to audit such information. The valuation was based on the provisions of the Retirement System as amended through June 30, 2018. This valuation has been prepared under the supervision of a Member of the American Academy of Actuaries who meets the qualification standards of the American Academy of Actuaries to render the actuarial opinions contained herein.

Respectfully submitted,



Denise M. Jones



Sandra W. Rodwan, M.A.A.A

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

*Actuarial Valuation as of June 30, 2018*

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***Section One:***  
***Valuation Summary***



### **Purpose of Valuation**

The purpose of the annual actuarial valuation of the City of Marysville Police Officers and Firefighters Retirement System as of June 30, 2018 is to:

- ❖ Compute the liabilities associated with benefits likely to be paid on behalf of current retired and active members of the retirement system,
- ❖ Compare accrued assets with accrued liabilities to assess the funded condition of the retirement system, and
- ❖ Compute the City's recommended contribution rate for the Fiscal Year beginning July 1, 2018 and July 1, 2019.

### **Liabilities and Funded Condition of Retirement System**

Accrued liabilities of the Retirement System as of June 30, 2018, were computed to be \$25,504,045. The funding value of assets was \$14,770,125. The ratio of the funding value of assets to accrued liabilities was 57.91%.

### **Funding Value of Assets**

A smoothed market value of assets was used for the June 30, 2018 valuation. This method credits the assumed rate to the funding value of assets and spreads the difference between the actual and assumed return over 5 years.

### **City's Computed City Contribution Rate**

The City's normal cost contribution rate was computed to be 9.78% of active member payroll (17.78% total normal cost less 8.00% member contributions). The unfunded accrued liabilities were amortized as a level percent of payroll over a period of 26 years. The amortization of the unfunded accrued liabilities was 31.72% of member payroll. The City's total contribution rate for FY 18/19 and FY 19/20 was therefore computed to be 41.50% of member payroll.

**Benefit Provision Changes**

There were no benefit changes included in this valuation.

**Assumption and Method Changes**

There were no assumption or method changes included in this valuation.

**Participant Data**

	<u><b>06/30/2018</b></u>	<u><b>06/30/2017</b></u>
Active Members	23	23
Active Member Payroll	\$1,941,086	\$1,871,942
Retirees and Beneficiaries	32	33
Annual Pensions	\$1,577,826	\$1,584,392

**Financial Data**

	<u><b>06/30/2018</b></u>	<u><b>06/30/2017</b></u>
Funding Value of Assets	\$14,770,125	\$14,620,289
Market Value of Assets	13,265,339	12,771,017



***Section Two:***

***Actuarial Calculations –  
Funding***







**Unfunded Actuarial Accrued Liability**

	<b><u>June 30, 2018</u></b>	<b><u>June 30, 2017</u></b>
Actuarial accrued liability	\$25,504,045	\$24,937,767
Assets allocated to funding	<u>14,770,125</u>	<u>14,620,289</u>
Unfunded actuarial accrued Liability	\$10,733,920	\$10,317,478

**Recommended City Contributions**

<b>Valuation Date June 30,</b>	<b>Fiscal Year</b>	<b>Computed City Dollar Contributions</b>
2002	02/03	\$130,371
2003	03/04	289,907
2004	04/05	492,784
2005	05/06	536,961
2006(a)	06/07	491,802
2007	07/08	468,500
2008(a)	08/09	491,172
2009(a)	09/10	580,811
2010	10/11	577,252
2011	11/12	528,398
2012	12/13	571,900
2013	13/14	616,272
2014(a)	14/15	583,248
2015	15/16	575,476
2016	16/17	635,516
2016	17/18	660,937
2017(a)	17/18	760,944
<b>2018</b>	<b>18/19</b>	<b>805,551</b>
<b>2018</b>	<b>19/20</b>	<b>837,773</b>

(a) After changes in assumptions/methods.

*Note: Results prior to 2004 are based on report prepared by previous actuarial firm.*

**History of Assets and Accrued Liabilities**

<b>Valuation Date June 30,</b>	<b>Valuation Assets</b>	<b>Actuarial Accrued Liabilities</b>	<b>Funded Ratio</b>	<b>Unfunded Actuarial Accrued Liabilities</b>
1995	\$8,757,556	\$9,109,618	96.14%	\$352,062
1996	9,565,878	9,303,476	102.82	(262,402)
1997	11,156,747	10,098,786	110.48	(1,057,961)
1998	12,788,100	10,635,002	120.25	(2,153,098)
1999	14,447,397	11,899,712	121.41	(2,547,685)
2000	15,473,531	13,310,991	116.25	(2,162,541)
2001	15,580,355	14,246,713	109.36	(1,333,642)
2002	15,052,172	14,574,723	103.28	(477,449)
2003	14,578,126	15,195,489	95.94	617,363
2004	14,683,776	18,025,358	81.46	3,341,582
2005(a)	15,015,228	18,728,091	80.18	3,712,863
2006	15,544,392	19,612,395	79.26	4,068,003
2007(a)	16,359,155	19,810,294	82.58	3,451,139
2008	16,363,541	20,074,706	81.51	3,711,165
2009(a)	16,032,814	21,133,862	75.86	5,101,048
2010	15,802,957	20,894,397	75.63	5,091,440
2011	15,657,192	20,397,994	76.76	4,740,802
2012	15,214,758	21,178,733	71.84	5,963,975
2013(a)	14,804,132	21,729,016	68.13	6,924,884
2014	15,308,292	23,362,115	65.53	8,053,823
2015	15,388,502	23,216,650	66.28	7,828,148
2016	14,874,871	23,370,787	63.65	8,495,916
2017(a)	14,620,289	24,937,767	58.63	10,317,477
<b>2018</b>	<b>14,770,125</b>	<b>25,504,045</b>	<b>57.91</b>	<b>10,733,920</b>

(a) After changes in assumptions/methods.

Results shown throughout this report, for years prior to 2004, were prepared by the previous actuarial firm.

**Comments**

**Comment 1:** The City’s computed contribution rate for the fiscal year beginning July 1, 2018 and July 1, 2019 has been computed to be 41.50% of active members payroll, or \$805,551 for FY 18/19 and \$837,773 for FY 19/20.

**Comment 2:** During the year ended June 30, 2018, the recognized rate of the return on the funding value of assets was less than assumed. The funding value of assets includes carry-forwards of gains and losses from the 4 prior fiscal years. The recognized rate of return on the funding value of assets was 3.05% vs 7.50%.

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***Section Three:***

***Retirement System  
Benefit Provisions***



## **Benefit Provision Summary**

### ***Regular Retirement***

*Eligibility:*

Age 55 with 5 or more years of service.

*Annual Benefit:*

Straight life pension equals 2.5% of final average compensation times the first 25 years of service plus 2.0% of final salary times service in excess of 25 years.

An annual cost of living supplement is payable and is determined by multiplying each .4 (as a unit) change in the Consumer Price Index (CPI-W 1967 = 100) by one cent (\$.01) and multiplying that product by 2080. Members hired after March 5, 1984 shall receive the cost of living supplement after 3 full years of retirement and shall cease after 23 full years of retirement. Members hired after June 30, 2011 are not eligible for the post-retirement cost of living supplement.

### ***Final Average Compensation***

Average of the highest three (3) of the last five (5) calendar years of employment immediately preceding the date of retirement. Some lump sums included.

### ***Deferred Retirement***

*Eligibility:*

5 or more years of credited service.

*Annual Benefit:*

Computed as service retirement at age 55 but based upon credited service at termination.

### ***Duty Disability Retirement***

*Eligibility:*

Payable upon the total and permanent disability in the line of duty of a member who has not reached their normal retirement date.

*Annual Benefit:*

If the disability occurs prior to age 55, the amount is computed as a regular retirement based on credited service at the date of disability. A minimum of 50% of final salary applies. The benefit is recomputed at age 55 to include service for the year(s) that a disability pension was paid. If the disability occurs subsequent to age 55 the disability benefit is equal to the annual normal pension. This amount is offset by any amount payable due to Worker's Compensation or any similar law.

***Non-Duty Disability***

*Eligibility:*

Payable upon the total and permanent disability of a member with 5 or more years of service.

*Annual Benefit:*

If the disability occurs prior to age 55, the amount is computed as a regular retirement based on credited service at the date of disability. A minimum of 50% of final salary applies. The benefit is recomputed at age 55 to include service for the year(s) that a disability pension was paid. If the disability occurs subsequent to age 55 the disability benefit is equal to the annual normal pension. This amount is offset by any amount payable due to Worker's Compensation or any similar law.

***Duty Death in Service Survivors Pension***

*Eligibility:*

All participants.

*Annual Benefit:*

The participant's accumulated contributions are refunded, plus a pension equal to 1/3 of the last annual rate of compensation is payable to the surviving spouse until their death or remarriage. Unmarried children under age 18 also receive equal shares of 1/4 of the last annual rate of compensation. If no benefits are payable to a spouse or dependent children, a dependent mother or father shall each be paid 1/6 of the last annual rate of compensation. In no event shall these pensions exceed 50% of the maximum annual rate of salary for a patrolman or firefighter, as the case may be, as fixed in the City budget for the fiscal year in which death occurs.

***Non-Duty Death in Service Survivors Pension***

*Eligibility:*

Completion of 5 years of service.

*Annual Benefit:*

Computed as service retirement but based upon credited service at the date of death.

***Member Contributions***

8% of pay



*Section Four:*

***Actuarial Assumptions  
And Methods***





**Actuarial Assumptions**

**Economic Assumptions**

- (i) Interest Rate 7.50% (net of expenses)
- (ii) Salary Increases 4.0% per year.

**Sample Annual Rates of Salary Increase**

<b>Sample Ages</b>	
20	4.0%
25	4.0
30	4.0
35	4.0
40	4.0
45	4.0
50	4.0
55	4.0
60	4.0
65	4.0

**Demographic Assumptions**

(i) Mortality

RP 2000 Combined Healthy  
Annuitant Mortality Projected to 2014

Sample Ages	Future Life Expectancy (Years)	
	Men	Women
50	32.2	34.4
55	27.5	29.6
60	23.0	25.1
65	18.8	20.8
70	14.9	16.9
75	11.3	13.3
80	8.3	10.1

(ii) Disability

Sample Ages	Disability Rates Per 1,000 Members	
	Male	Female
25	.2	.1
30	.5	.4
35	.8	.7
40	1.1	1.0
45	1.9	1.7
50	2.7	2.3
55	4.7	3.5
60	6.7	4.6

(iii) Termination of Employment

Sample Ages	Termination Rates Per 1,000 Members	
	Male	Female
25	108.8	173.8
30	68.9	98.9
35	48.3	73.4
40	27.7	47.9
45	15.7	31.1
50	3.8	14.4
55	-	-
60	-	-
65	-	-
70	-	-
75	-	-
80	-	-

(iv) Retirement Rates

Retirement assumed at earliest age participant becomes eligible for normal retirement.

### **Actuarial Method Used for the Valuation**

***Normal Cost.*** Normal cost and the allocation of actuarial present values between service rendered before and after the valuation date were determined using an individual entry age actuarial cost method having the following characteristics:

- ❖ The annual normal costs for each individual active member, payable from date of hire to date of retirement, are sufficient to accumulate the value of the member's benefit at the time of retirement;
- ❖ Each annual normal cost is a constant percentage of the member's year-by-year projected covered pay.

***Financing of Unfunded Actuarial Accrued Liability.*** The excess of actuarial accrued liability over actuarial accrued assets was amortized as a level percent of payroll over 26 years.



***Section Five:***  
***Valuation Data***



**Asset Summary****Statement of Assets**

As of June 30, 2018, the market value of assets was reported to be \$13,265,339.

**Reconciliation of the Reported Market Value of Assets**

a. Market Value as of July 1, 2017	\$12,771,017
b. Additions	
(i) Member Contributions	155,287
(ii) Employer Contributions	1,174,069
(iii) Investment Income (Net of Expenses)	837,854
(iv) Other	<u>0</u>
(v) Total Additions	2,167,210
c. Deductions	
(i) Pensions	1,598,677
(ii) Health Insurance	0
(iii) Investment Expense	52,603
(iv) Administrative expenses	<u>21,608</u>
(v) Total Deductions	1,672,888
Market Value as of June 30, 2018	\$13,265,339

**Funding Value of Assets – June 30,****City of Marysville Police and Fire Retirement System****Alternate Funding Value of Assets--5 Yr. Smoothing**

	<u>07/01/17</u>	<u>07/01/18</u>
A. Funding Value Beginning of Year	14,874,871	14,620,289
B. Market Value End of Year	12,771,017	13,265,339
C. Market Value Beginning of Year	12,585,051	12,771,017
D. Non-Investment Net Cash Flow	(816,037)	(290,929)
E. Investment Income		
E1. Market Total B-C-D	1,002,003	785,251
E2. Amount for Immediate Recognition	1,120,161	1,085,612
E3. Amount for Phased-In Recognition: E1 -E2	(118,158)	(300,361)
F. Phased-In Recognition of Investment Income		
F1. Current Year: 0.20 x E3	(23,632)	(60,072)
F2. First Prior Year	(426,388)	(23,632)
F3. Second Prior Year	(340,826)	(426,388)
F4. Third Prior Year	206,070	(340,826)
F5. Fourth Prior Year	26,070	206,070
F5. Total Phased-In Amount	(558,705)	(644,847)
H. Initial Adjustment*	0	0
I. Funding Value End of Year: A+D+E2+F5+H	14,620,289	14,770,125
L. Difference Between Market and Gross Funding Value	(1,849,272)	(1,504,786)

## Participant Summary

### Retirees and Beneficiaries Included in the Valuation

There were 26 retirees and beneficiaries and 6 alternate payees included in the valuation, with annual pensions totaling \$1,577,826. One retiree was removed.

### History of Pensions Being Paid

Valuation Date June 30	No.	Annual Pensions	% of Active Payroll	Average Pension	Discounted Value of Pensions	
					Total	Average
2002	18	\$601,440	36.5%	\$33,413	\$8,562,876	\$475,715
2003	18	601,440	34.7	33,413	8,500,655	472,259
2004	25	1,206,124	75.3	48,245	14,604,364	584,175
2005	27	1,228,895	75.0	45,515	14,698,024	544,371
2006	26	1,224,462	70.3	47,095	14,348,638	551,871
2007	28	1,175,012	69.2	41,965	14,400,490	514,303
2008	28	1,216,370	66.9	43,441	13,923,935	497,283
2009	28	1,248,894	66.3	44,603	14,134,833	504,815
2010	30	1,282,967	70.4	42,766	14,097,384	469,913
2011	29	1,243,124	66.3	42,866	13,503,126	465,625
2012	28	1,284,121	67.3	45,861	13,868,552	495,305
2013	28	1,285,320	67.0	45,904	13,711,417	489,693
2014	31	1,468,557	83.1	47,372	16,023,821	516,897
2015	31	1,497,551	84.4	48,308	16,081,320	518,752
2016	31	1,504,657	80.8	48,537	16,060,662	518,086
2017	33	1,584,375	84.6	48,012	17,429,669	528,172
<b>2018</b>	<b>32</b>	<b>1,577,826</b>	<b>81.3</b>	<b>49,307</b>	<b>17,110,821</b>	<b>534,713</b>



**Retired Members and  
Survivors  
as of June 30, 2018  
(Excluding Alternate Payees)**

<b>Attained Age</b>	<b>No.</b>	<b>Annual Pensions</b>
56	1	\$ 68,429
57	1	52,426
58	1	88,702
59	2	161,512
62	1	50,980
63	1	72,782
64	1	67,446
66	2	114,585
67	1	65,042
68	1	76,161
69	2	126,908
72	1	37,704
73	1	81,286
75	1	43,934
76	2	71,296
77	2	109,110
79	1	63,341
80	1	18,288
81	1	20,051
87	1	51,524
90	1	16,564
<b>Totals</b>	<b>26</b>	<b>\$ 1,458,072</b>

**Active Member Summary**  
Marysville PF

**Active Members - June 30, 2018**  
**Age and Service Distribution**

Attained Age	Service						Totals	
	0-4	5-9	10-14	15-19	20-24	25-29	No.	Payroll
30-34	1						1	\$80,015
35-39	2		3				5	414,648
40-44	1	1		2			4	316,554
45-49			1	2	3		6	516,675
50-54			2	2	1	1	6	509,431
55-59				1			1	103,763
<b>Totals</b>	<b>4</b>	<b>1</b>	<b>6</b>	<b>7</b>	<b>4</b>	<b>1</b>	<b>23</b>	<b>\$1,941,086</b>

**Group Averages**

Age: 45.1 years  
Service: 14.8 years  
Annual Pay: \$84,395

**Active Members – Three-Year Summary**

	2018	2017	2016
Active Members	23	23	23
Valuation Payroll	\$1,941,086	\$1,871,942	\$1,863,138
Average Compensation	\$84,395	\$81,389	\$81,066
Average Age (yrs.)	45.1	44.1	44.0
Average Service (yrs.)	14.8	13.8	14.0