

July 30, 2018

The Retirement Board
City of Taylor Police and Fire Retirement System
Taylor, Michigan

Dear Board Members:

The purpose of the annual actuarial valuation of the City of Taylor Police and Fire Retirement System as of June 30, 2017 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.

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 your staff. 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, 2017. The actuarial assumptions used in this valuation represent reasonable expectations of future experience under the System. 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 Taylor
Police and Fire Retirement System

Actuarial Valuation as of June 30, 2017

Table of Contents

Section One: Valuation Summary

Valuation Summary.....	1
------------------------	---

Section Two: Actuarial Calculations – Funding

Computed Contribution Rates.....	3
----------------------------------	---

Unfunded Actuarial Accrued Liability.....	4
---	---

Section Three: Retirement System Benefit Provisions

Benefit Provision Summary	7
---------------------------------	---

Section Four: Actuarial Assumptions and Methods

Actuarial Assumptions	10
-----------------------------	----

Actuarial Methods	14
-------------------------	----

Section Five: Valuation Data

Asset Summary.....	15
--------------------	----

Participant Summary	16
---------------------------	----



Section One:

Valuation Summary



Purpose of Valuation

The purpose of the annual actuarial valuation of the City of Taylor Police and Fire Retirement System as of June 30, 2017 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.

Liabilities and Funded Condition of Retirement System

Accrued liabilities of the Retirement System as of June 30, 2017 were computed to be \$185,870,601. The funding value of accrued assets was \$120,061,921. The ratio of the funding value of accrued assets to accrued liabilities was 64.6%.

Funding Value of Assets

A smoothed market value of assets was used for the June 30, 2017 valuation. This method, which spreads the difference between actual and expected investment return over five years, is unchanged from last year's valuation.

Computed City's Contribution Rate

The City's normal cost contribution rate was computed to be 20.41% of active member payroll (28.41% total normal cost less 8.00% member contributions). The unfunded accrued liabilities were amortized over 22 years as a level percent of future payroll. The amortization of the unfunded accrued liabilities was 48.48% of member payroll. The City's total contribution for the FY beginning July 1, 2017 was therefore computed to be 68.89% of member payroll.

Retirement System Experience

Experience for the year ended June 30, 2017 was more favorable than expected. The primary source of the favorable experience was the recognized rate of investment return on the smoothed funding value of assets which was more than assumed (10.5% vs. 7.6%).

Assumption and Method Changes

- The mortality table was changed from the RP 2000 table to the RP 2014 mortality table.
- The assumed rate of investment return was changed from 7.6% to 7.25%.
- The amortization of unfunded actuarial accrued liabilities was changed from 25 years open to 22 years closed amortization.

Benefit Provision Changes

There were no benefit changes included in this valuation.

Participant Data

	<u>06/30/2017</u>	<u>06/30/2016</u>
Active Members	109	107
Active Member Payroll	\$8,898,318	\$7,931,705
Retirees and Beneficiaries	247*	245**
Annual Pensions	\$12,415,294	\$12,135,296
Inactive Vested Members	10	11
Estimated Annual Pensions	\$326,765	\$379,583

*Including 26 alternate payees receiving benefits totaling \$527,341 pursuant to Eligible Domestic Relations Orders, and 2 DROP participants with annual benefits of \$204,766.

**Including 25 alternate payees receiving benefits totaling \$476,545 pursuant to Eligible Domestic Relations Orders, and 1 DROP participant with an annual benefit of \$94,293.

Financial Data

	<u>06/30/2017</u>	<u>06/30/2016</u>
Funding Value of Assets	\$120,061,921	\$114,904,904
Market Value of Assets	122,481,034	114,382,210



Section Two:

***Actuarial Calculations –
Funding***



Computed Contribution Rates for the Year Beginning July 1, 2018

The contribution rates shown below are expressed as level percents of active member payroll.

The normal cost can be viewed as the long-term on-going cost of the Retirement System. Unfunded actuarial accrued liability as of June 30, 2017 was amortized as a level percent of payroll over 22 years. The 22 year period was first used for this valuation. The City’s total contribution rate has been computed to be 68.89% of payroll for the fiscal year beginning July 1, 2018.

	<u>Percents of Payroll</u>
Normal Cost	
Regular Retirement	25.45%
Pre-retirement Death	0.27
Disability	1.22
Withdrawal	<u>1.47</u>
Total Normal Cost	28.41%
Member Portion	8.00
City’s Computed Normal Cost	20.41%
Unfunded Actuarial Accrued Liability	48.48
City’s Total Contribution Rate	68.89%
City’s Dollar Contribution*	\$6,344,603

*Based on projected payroll.

Unfunded Actuarial Accrued Liability

	June 30, 2017	June 30, 2016
Actuarial Accrued Liabilities	\$185,870,601	\$171,511,297
Assets Allocated to Funding	<u>120,061,921</u>	<u>114,904,904</u>
Unfunded Actuarial Accrued Liabilities	\$65,808,680	\$56,606,393

Computed City Contributions

Valuation Date June 30	Fiscal Year Beginning July 1	Recommended Dollar Contributions*	Percent of Valuation Payroll
1995	1996	\$886,000	11.45%
2000#@	2001	792,263	5.94
2001@	2002	1,258,709	12.20
2002@	2003	2,000,194	16.11
2003#@	2004	2,497,495	20.32
2004#	2005	2,943,025	24.94
2005	2006	4,023,065	29.95
2006+	2007	4,820,841	34.07
2006@	2007	4,977,904	35.18
2007	2008	5,483,018	36.61
2008@	2009	5,613,904	38.19
2009@	2010	5,917,992	40.58
2010	2011	6,059,600	45.04
2011@	2012	6,070,834	48.85
2012#@	2013	5,145,379	63.36
2013	2014	5,409,465	56.03
2014	2015	5,588,834	55.44
2015	2016	5,190,370	53.87
2016	2017	4,987,980	60.76
2017@	2018	6,344,603	68.89

*Actual amounts for Fiscal Years beginning before July 1, 2005.

After changes in benefit provisions.

@ After changes in actuarial assumptions or methods.

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

History of Assets and Accrued Liabilities

Valuation Date June 30	Valuation Assets	Actuarial Accrued Liabilities	Funded Ratio	Unfunded Actuarial Accrued Liabilities
1990	\$46,063,061	\$43,922,543	104.9%	\$(2,140,518)
1991	49,737,330	47,178,973	105.4	(2,558,357)
1992	53,556,305	50,247,014	106.6	(3,309,291)
1993	58,155,660	56,081,864	103.7	(2,073,796)
1994	62,741,421	59,670,974	105.1	(3,070,447)
1995	66,738,487	64,413,553	103.6	(2,324,934)
1996@	72,893,834	69,575,148	104.8	(3,318,686)
1997#@	80,642,072	77,075,797	104.6	(3,566,275)
1998#	90,246,507	80,253,845	112.5	(9,992,662)
1999#	100,539,640	95,699,572	105.1	(4,840,068)
2000#@	106,949,853	100,490,847	106.4	(6,459,006)
2001@	109,890,095	106,771,235	102.9	(3,118,860)
2002@	108,014,638	110,532,059	97.7	2,517,421
2003#@	103,993,810	113,029,146	92.0	9,035,336
2004#	100,385,111	117,089,217	85.7	16,704,106
2005	98,951,961	123,358,784	80.2	24,406,823
2006@	100,038,258	132,777,933	75.3	32,739,675
2007	105,253,136	138,917,506	75.8	33,664,370
2008@	107,616,702	143,634,491	74.9	36,017,789
2009@	106,010,390	146,368,393	72.4	40,358,003
2010	104,077,490	150,774,376	69.0	46,696,886
2011@	103,934,745	155,333,797	66.9	51,399,052
2012#@	99,683,637	160,414,696	62.1	60,731,059
2013	99,259,779	161,043,175*	61.6	61,783,396*
2014	105,226,637	167,330,715	62.9	62,104,078
2015	111,681,871	168,842,174	66.1	57,160,303
2016	114,904,904	171,511,297	67.0	56,606,393
2017@	120,061,921	185,870,601	64.6	65,808,680

After changes in benefit provisions.

@ After changes in actuarial assumptions or methods.

*Does not include additional liability for Case No. 01-72176 settlement.

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

Comments

Comment A: Experience for the year ended June 30, 2017 was more favorable than assumed based on the long-term assumptions. The primary source of the favorable experience was the recognized rate of investment return on the funding value of assets which was greater than assumed (10.5% vs. 7.6% assumed).

Comment B: The annual actuarial valuation includes the following changes in assumptions and method as adopted by the Retirement Board: i) mortality table was changed from the RP 2000 table to the RP 2014 mortality table, ii) assumed rate of investment return was changed from 7.6% to 7.25%, and iii) the amortization of unfunded actuarial accrued liabilities was changed from an open period of 25 years to a closed 22-year period.



Section Three:

***Retirement System
Benefit Provisions***



Benefit Provision Summary

Service Retirement

Eligibility:

Corporal/Patrol hired prior to 10/1/2011 and Fire hired prior to August 1, 2012: Any age with 20 or more years of service or age 60 regardless of service. Fire post July 31, 2012 hires are covered by a Defined Contribution Plan.

Corporal/Patrol hired after 9/30/2011: Age 50 with 25 or more years of service or age 60.

Police Command: Any age with 25 or more years of service or age 60 regardless of service. Command officers are eligible to participate in the DROP after 20 years of service.

Annual Benefit:

Corporal/Patrol hired prior to 10/1/2011:

Straight life pension equals 2.8% of average final compensation (AFC) times first 25 years of service, maximum of 70% of AFC.

Police Command and Fire hired prior July 1, 2007:

Straight life pension equals 2.8% of average final compensation (AFC) times first 25 years of service plus 1.0% of AFC times years of service in excess of 25 years to a maximum of 75% of AFC.

Fire hired on or after July 1, 2007 (and before August 1, 2012) and Corporal/Patrol hired after 9/30/2011:

Straight life pension equals 2.25% of AFC times years of service. Fire AFC will use base wages only and overtime is capped at \$3,000. Corporal/Patrol AFC shall be base wage plus a maximum of 240 hours of paid leave.

Average Final Compensation:

Highest 3 years out of last 10.

Deferred Retirement

Eligibility:

10 or more years of service.

Annual Benefit:

Computed as service retirement but based upon service, AFC and benefit provisions in effect at termination. Benefit begins at date retirement would have occurred had member remained in employment.

Duty Disability Retirement

Eligibility:

Payable upon the total and permanent disability of a member in the line of duty.

Annual Benefit:

To age 55: 50% of AFC.

At age 55: Same as Service Retirement Pension with service credit from date of disability to age 55.

Non-Duty Disability

Eligibility:

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

Annual Benefit:

To Age 55: 1.5% of AFC times years of service.

At Age 55: Same as Service Retirement Pension.

Duty Death in Service Survivor's Pension

Eligibility:

Payable upon the expiration of a worker's compensation to the survivors of a member who died in the line of duty.

Annual Benefit:

Same amount that was paid by worker's compensation.

Non-Duty Death in Service Survivor's Pension

Eligibility:

Payable to a surviving spouse, if any, upon the death of a member with 10 or more years of service.

Annual Benefit:

Fire: Spouse's pension equals 60% of the straight life pension.

All others: Accrued straight life pension actuarially reduced in accordance with an Option I election.

Death After Retirement Survivor's Pension

Eligibility:

Payable to an eligible surviving spouse, if any, upon the death of a retired member who was receiving a straight life pension which was effective July 1, 1975 or later.

Annual Benefit:

Spouse's pension equals 60% of the straight life pension the deceased retiree was receiving.

Member Contributions

8% of pay.

Section Four:

***Actuarial Assumptions
And Methods***



Actuarial Assumptions

Economic Assumptions

(i) **Interest Rate** 7.25% (net of expenses)

(ii) **Salary Increases**

Across-the-Board 3.5%
 Merit and Longevity Age-related rates

Sample Annual Rates of Salary Increase

Age	Inflation	Merit and Longevity	Total
20	3.5%	3.0%	6.5%
25	3.5%	3.0	6.5
30	3.5%	2.6	6.1
35	3.5%	1.1	4.6
40	3.5%	0.2	3.7
45	3.5%	0.2	3.7
50	3.5%	0.2	3.7
55	3.5%	0.1	3.6
60	3.5%	-	3.5

Demographic Assumptions

(i) Mortality

RP 2014 Combined Healthy Mortality Table

Sample Ages	Future Life Expectancy (Years)	
	Men	Women
55	28.2	30.7
60	24.1	26.3
65	20.1	22.0
70	16.2	18.0
75	12.7	14.3
80	9.5	10.9

Note: The valuation process uses mortality rates at each future age for an individual in order to determine the present value of future benefits. Life expectancy is shown to illustrate the mortality table but is not used in the valuation process.

(ii) Disability

Sample Ages	Percent Becoming Disabled Within Next Year	
	Men	Women
20	0.07%	0.03%
25	0.09	0.05
30	0.10	0.07
35	0.14	0.13
40	0.21	0.19
45	0.32	0.28
50	0.52	0.45
55	0.92	0.76

(iii) Termination of Employment

Service related rates for first 5 years of employment. Age related rates after first 5 years of employment

Sample Ages	Years of Service	Percent Terminating	
		Police	Fire
All	0	10.00%	8.00%
	1	8.00	6.00
	2	6.00	4.50
	3	4.00	3.00
	4	3.00	2.00
25	5 & Over	2.97	2.00
30		2.57	1.65
35		1.52	0.86
40		0.59	0.34
45		0.33	0.29
50		0.33	0.29
55		0.33	0.29
60		0.33	0.29

(iv) Retirement Rates

**Active Members Retiring within Year
Following Attainment of Indicated Retirement Age**

Years of Service	Percent of Active Members Retiring Within Next Year			Retirement Age	Percent of Active Members Retiring Within Next Year	
	All Other Police	Corp/Patrol Hired after 9/30/11	Fire		Police	Fire
20	70%		30%	60	100%	100%
21	20		20			
22	20		20			
23	20		20			
24	20		20			
25	100	50%	50			
26		40	50			
27		40	50			
28		40	50			
29		40	50			
30		90	100			
31		40				
32		100				

Corporal/Patrol hired prior to 10/1/11 and Fire members are eligible for retirement with 20 years of service or after attaining age 60. Police Command are eligible for DROP with 20 years of service. Police Command are eligible for normal retirement with 25 years of service or after attaining age 60. Corporal Patrol hired after 9/30/11 are eligible for retirement at age 50 with 25 years of service or after attaining age 60.

Lump sum factors: 17% of active member normal retirement liabilities for Police and 10% of active member normal retirement liabilities for Fire. These loads may need to be revised in the future based on emerging experience.

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. Unfunded actuarial accrued liability was amortized as a level percent of payroll over a 22 year closed period and added to the computed employer normal cost.

Active member payroll was assumed to increase 3.5% a year for the purpose of determining the level percent of payroll amortization payment.



Section Five:
Valuation Data



Asset Summary

As of June 30, 2017 the market value of assets was reported to be \$122,481,034. The funding value of assets (smoothed market value) was computed to be \$120,061,921.

Funding Value of Assets

A. Funding Value Beginning of Year	\$114,904,904
B. Market Value End of Year	122,481,034
C. Market Value Beginning of Year	114,382,210
D. Non-Investment Net Cash Flow	(6,599,523)
E. Investment Income	
E1. Market Total B-C-D	14,698,347
E2. Amount for Immediate Recognition (7.6%)	8,481,991
E3. Amount for Phased-In Recognition E1-E2	6,216,356
F. Phased-In Recognition of Investment Income	
F1. Current Year $0.20 \times E3$	1,243,271
F2. First Prior Year	(1,524,485)
F3. Second Prior Year	(156,448)
F4. Third Prior Year	2,332,379
F5. Fourth Prior Year	1,379,833
F6. Total Phased-In Amount	3,274,550
G. Funding Value End of Year $A+D+E2+F6$	120,061,921
H. Difference Between Market and Funding Value	2,419,113
I. Recognized Rate of Return	10.5%
J. Ratio of Funding Value to Market Value	98.0%

Participant Summary

Retirees and Beneficiaries Included in the Valuation

There were 247 retirees and beneficiaries included in the valuation, with annual pensions totaling \$12,415,294. Included in this total are 26 alternate payees receiving benefits totaling \$527,341, and 2 DROP participants with annual pensions of \$204,766.

There were 4 new age and service retirements with pensions totaling \$307,424, 7 were removed and 5 new alternate payees were added.

Pensions Being Paid Historical Schedule

Valuation Date June 30	No.	Annual Pensions	Average Pension	Discounted Value of Pensions	
				Total	Average
1995	83	\$2,844,663	\$34,273	\$31,974,175	\$385,231
2000	149	6,085,866	40,845	68,126,791	457,227
2001	156	6,442,233	41,296	71,745,841	459,909
2002	163	6,707,742	41,152	74,134,281	454,812
2003	181	7,645,268	42,239	85,119,435	470,273
2004	181	7,700,045	42,542	85,195,935	470,696
2005	184	7,881,237	42,833	86,107,080	467,973
2006	190	8,283,847	43,599	90,795,403	477,871
2007	191	8,404,642	44,003	91,369,752	478,376
2008	195	8,605,974	44,133	92,592,662	474,834
2009	194	8,589,355	44,275	91,404,656	471,158
2010	201	9,210,058	45,821	97,973,402	487,430
2011	201	9,424,943	46,890	99,603,600	495,540
2012	225	10,901,222	48,450	117,054,252	520,241
2013	231	11,290,211	48,875	119,785,940	518,554
2014	234	11,461,609	48,981	120,228,142	513,795
2015	236	11,479,807	48,643	119,429,588	506,058
2016	245	12,135,296	49,532	125,194,199	510,997
2017	247	12,415,294	50,264	135,345,780	547,959

Retirees and Beneficiaries - June 30, 2017
Age Distribution (Including Alternate Payees)

Attained Ages	Retirees		Disability		Totals	
	No.	Annual Pensions	No.	Annual Pensions	No.	Annual Pensions
35-39	1	\$38,792			1	\$38,792
40-44	6	416,377	1	20,740	7	437,117
45-49	22	1,464,704			22	1,464,704
50-54	28	1,897,192	1	42,981	29	1,940,173
55-59	25	1,407,720			25	1,407,720
60-64	38	2,015,667			38	2,015,667
65-69	36	1,872,184			36	1,872,184
70-74	41	1,722,410			41	1,722,410
75-79	23	876,256			23	876,256
80-84	20	536,938			20	536,938
85-89	4	92,744			4	92,744
90-94	1	10,589			1	10,589
Totals	245	\$12,351,573	2	\$63,721	247	\$12,415,294

Active Members as of June 30, 2017
Age and Service Distribution

Attained Age	Service						No.	Totals Payroll
	0-4	5-9	10-14	15-19	20-24	25-29		
20-24	5						5	230,989
25-29	16	4					20	1,050,674
30-34	2	3					5	266,757
35-39	0	2	9	9			20	1,934,856
40-44			2	28			30	2,733,914
45-49				18	3		21	1,893,010
50-54				4	2	1	7	703,496
55-59				1			1	84,622
Totals	23	9	11	60	5	1	109	\$ 8,898,318

Group Averages:

Age: 39.1 years

Service: 13.3 years

Annual Pay: \$81,636

Active Members – Three-Year Summary

	2017	2016	2015
Active Members	109	107	115
Valuation Payroll	\$8,898,318	\$7,931,705	\$9,309,171
Average Compensation	\$81,636	\$74,128	\$80,949
Average Age (yrs.)	39.1	39.2	39.7
Average Service (yrs.)	13.3	13.4	13.4

Inactive Members - June 30, 2017

<u>Age</u>	<u>No.</u>	<u>Estimated Annual Pensions</u>
36	1	\$24,527
37	1	28,335
38	2	60,186
40	2	59,262
42	1	27,527
44	1	43,978
45	1	42,534
46	1	<u>40,416</u>
Totals	10	\$326,765