City of Farmington Hills Retiree Health Plan

Actuarial Valuation
as of June 30, 2018

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November 15, 2018

The Retirement Board
City of Farmington Hills Retiree
Health Plan
Farmington Hills, Michigan

Dear Board Members:

Submitted in this report are the results of an annual actuarial valuation of the liabilities, funded position and contribution requirements associated with the City of Farmington Hills Retiree Health Plan. The purpose of the valuation was to measure the City of Farmington Hills Retiree Health Plan's funding progress and to determine the employer contribution for the 2019-2020 and 2020-2021 fiscal years. This report should not be relied upon for any other purpose. This report may be provided to parties other than the City of Farmington Hills Retiree Health Plan Board only in its entirety and only with the permission of the Board. GRS is not responsible for unauthorized use of this report.

The date of the valuation was June 30, 2018. An Executive Summary is included as Section A. Valuation results are contained in Section B.

The valuation was based upon information, furnished by the City of Farmington Hills, concerning retiree health benefits, financial transactions, and individual members, terminated members, retirees and beneficiaries and other data. Data was checked for internal and year to year consistency, but was not audited by us. As a result, we are unable to assume responsibility for the accuracy or completeness of the data provided.

Future actuarial measurements may differ significantly from those presented in this report due to such factors as experience differing from that anticipated by actuarial assumptions, changes in plan provisions, actuarial assumptions/methods or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements.

To the best of our knowledge, this report is complete and accurate and the valuation was conducted in accordance with standards of practice prescribed by the Actuarial Standards Board in compliance with the applicable state statutes. Louise M. Gates and James D. Anderson are independent of the plan sponsor and are Members of the American Academy of Actuaries (MAAA) who meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinions contained herein. It is our opinion that the actuarial assumptions used for the valuation produce results which are reasonable.

Respectfully submitted,

Louise Gates | James D. Anderson

Louise M. Gates, ASA, FCA, MAAA | James D. Anderson, FSA, EA, FCA, MAAA

SECTION A

EXECUTIVE SUMMARY

Executive Summary

1. Actuarially Computed Employer Contributions - Fiscal Year Beginning July 1, 2019

The required employer contributions for each division are shown below:

Division	City Contributions
General	$ 325,832
Court	38,879
Police	-
Fire	194,649

The Plan is closed to all new hires. Accordingly, we have calculated the employer contribution using a financing method that is appropriate for a closed Plan.

2. Contribution Comparison

The chart below compares the contributions in this valuation with those of the 2016 actuarial valuation of the Plan.

Actuarially Computed Employer Contributions by Valuation date

Division	6/30/2016	6/30/2018
General	$ 204,418	$ 325,832
Court	58,154	38,879
Police	319,802	0
Fire	194,388	194,649
Total	$ 776,762	$ 559,360

3. Reasons for Change

There are three general reasons why contribution requirements change from one valuation to the next. The first is a change in the benefits or eligibility conditions of the Plan. The second is a change in the valuation assumptions used to predict future occurrences and methods. The third is the difference during the year between the Plan's actual experience and what the assumptions predicted.

Plan members may elect to receive monthly cash payments in lieu of traditional retiree health care benefits. Historically, these payments were made by the retiree health care fund. This valuation of the Plan reflects the following change in practice: The System now funds for and pays these cash benefits (a.k.a. pension stipend benefits) from the pension trust for eligible individuals. This change decreased Plan accrued liabilities by $2.4 million as of the valuation date. In addition the retiree health trend assumption was reset to better reflect anticipated future Plan experience.

4. Plan Experience

During the two year period ending June 30, 2018, health care increases in the Medicare eligible population were lower than anticipated by actuarial assumptions. This favorable experience was offset by recognized investment returns which were lower than long term expectations during the last two plan years. The result was an experience loss.

5. 2018 Funding Position

As of June 30, 2018, the Plan's funding ratio was 102%. As of June 30, 2016 the funding ratio was 100%. If the market value of assets was used to determine the Plan's funding ratio as of June 30, 2018, the result would be a funding ratio of 99.5%.

6. Other

Given the current economic environment and the growing asset liquidity needs of the Plan, we recommend a review of the current investment return and other assumptions. This could be accomplished in an actuarial study.

7. Fiscal Year 2021 Contributions

Based on current GASB standards and the Boards policy, biennial valuations of the Plan are performed. This valuation includes employer contributions for fiscal year 2020 on page A-1 of this report. Employer contributions for fiscal year 2021 are shown below:

Division	City Contributions
General	$ 310,047
Court	36,216
Police	-
Fire	194,404

SECTION B

VALUATION RESULTS

Financial Objective

The financial objective of the Retiree Health Plan is to establish and receive contributions, such that when combined with present assets and future investment income will be sufficient to meet the financial obligations of the fund to present and future retirees and beneficiaries.

Your annual actuarial valuations determine how well the objective is being met. This report covers the portion of the valuation dealing with retiree health insurance benefits.

Actuarially Computed Employer Contribution

The Retiree Health Plan benefits are supported by contributions from the active members (1.5% of pay), contributions by the City and by the investment income earned on its assets. The City provides an actuarially determined contribution needed to meet the financial objective.

City contributions cover both (i) normal cost, and (ii) the financing of the unfunded accrued liability over a period of future years. The normal cost is the portion of plan costs allocated to the current year by the valuation method described in Section E. The unfunded accrued liability is the portion of Plan costs not covered by present assets and future normal costs.

The contribution requirements for retiree health benefits for the fiscal year beginning July 1, 2019 are presented on page B-2. We have developed and shown in a separate report the costs of basic Retirement System benefits.

Contributions to Provide Retiree Health Benefits
Member and Employer Portions
For the Fiscal Year Beginning July 1, 2019

Contributions for	General Members	Court Members	Police Members	Fire Members
Normal cost of benefits:				
Age & service	$ 210,749	$ 56,941	$ 410,126	$ 175,878
Disability	2,087	389	18,835	10,768
Death before retirement	2,608	519	2,430	1,104
Stipend	11,476	3,761	14,582	7,455
Total	226,920	61,610	445,973	195,205
Member contributions:				
Total	78,248	19,456	91,139	41,415
Future refunds	28,169	6,615	13,367	5,522
Available for benefits	50,079	12,841	77,772	35,893
Administrative expenses	5,217	1,297	6,076	2,761
Employer normal cost	182,058	50,066	374,277	162,073
Amortization charges / (credits)	143,774	(11,187)	(379,210)	32,576
Computed Employer Contribution $	$ 325,832	$ 38,879	$ -	$ 194,649

Unfunded actuarial accrued liabilities were amortized using a level dollar method over a period of 12 years for all divisions.

Determination of Unfunded Accrued Liability
as of June 30, 2018

A. Accrued Liability		
1. For retirees and beneficiaries		
a. Health benefits	$48,069,365	
b. Reserves	0	
c. Total		$48,069,365
2. For vested terminated members		0
3. For present active members		
a. Value of expected future benefit payments	36,703,212	
b. Value of future normal costs	7,221,323	
c. Active member liability: (a) - (b)		29,481,889
4. Total		77,551,254
B. Valuation Assets		79,207,327
C. Unfunded Accrued Liability: (A.4) - (B)		(1,656,073)
D. Funding Ratio: (B) / (A.4)		102%

The table above shows the development of the Plan's unfunded actuarial accrued liabilities for the 4 employment groups in total as of June 30, 2018.

As of June 30, 2018, for the Court division the accrued liability was $2,778,158, the valuation assets were $2,864,709 and the funded percent was 103.1%.

Retiree Premium Rate Development

Initial premium rates were developed separately for each class (pre-65 and post-65). The rates were calculated by using actual paid claims and exposure data for the period of April 2015 to March 2018 adjusted for catastrophic claims, plus the load for administration and stop loss fees. The self-insured Medical and prescription drug data (pre-65 retirees only) were provided by the City of Farmington Hills. The Medical data was analyzed for the pre-65 and post-65 participants separately since Medicare is available for the post-65 participants and has a significant impact on the claim experience. Furthermore, since the prescription drug claims and the medical claims exhibit different trends and claim payment patterns, we analyzed these claims separately as well.

For the post-65 Medicare Advantage Rx plans, the fully-insured premium rates were used as the basis of the initial per capita cost without adjustments since the rate reflects the demographics of the post-65 retiree group.

For the current active employees, different benefits are available upon retirement. All future retirees will go into BCBS Community Blue 2 (Division 0017), BCBS Community Blue 3a (Division 0014), or Blue Care Network-I. We have developed separate premium rates for future retirees in order to reflect the benefit differences.

A small number of retirees were reported as members of the fully-insured BCN benefit plan. We ignored these retirees in the development of the rates since including them would not have a material impact.

Age graded and sex distinct premiums are utilized by this valuation. The premiums developed by the preceding process are appropriate for the unique age and sex distribution currently existing. Over the future years covered by this valuation, the age and sex distribution will most likely change. Therefore, our process "distributes" the average premium over all age/sex combinations and assigns a unique premium for each combination. The age/sex specific premiums more accurately reflect the health care utilization and cost at that age.

Retiree Premium Rate Development

The tables below show the results of the premium rate development process. Specifically, the combined monthly one-person medical and drug premiums (or per capita costs) at select ages. These premiums reflect the use of age grading and were used in this valuation of retiree health plan.

	For Retirees Not Eligible For Medicare			
	Current Retirees		Future Retirees	
Age	Male	Female	Male	Female
45	$ 531.28	$ 733.24	$ 444.94	$ 614.08
60	1,175.73	1,157.69	984.65	969.55
64	1,429.71	1,349.26	1,197.37	1,129.99

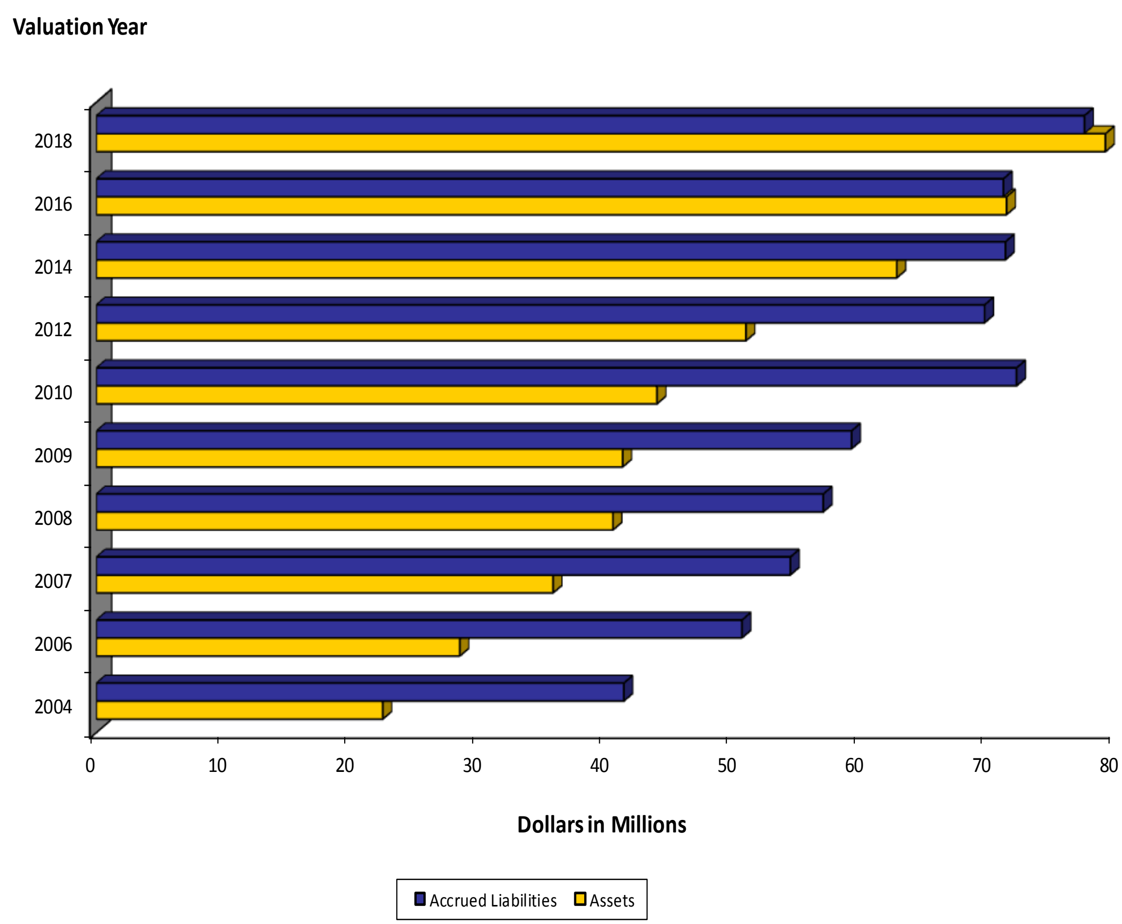
	For Retirees Eligible For Medicare			
	Current Retirees		Future Retirees	
Age	Male	Female	Male	Female
65	$ 431.40	$ 406.89	$ 353.21	$ 333.15
75	504.73	492.51	413.26	403.25
85	533.73	540.01	437.00	442.14

James E. Pranschke is a Member of the American Academy of Actuaries (MAAA) and meets the Qualification Standards of the American Academy of Actuaries to certify the per capita retiree health care rates shown above.

James E. Pranschke

James E. Pranschke, FSA, MAAA

Assets & Accrued Liabilities



2004 assets equaled 54.3% of accrued liabilities
2018 assets equaled 102.1% of accrued liabilities

Actuarially Computed Employer Contributions
Comparative Statement

Valuation Date	Covered Employee Members No.	Valuation Payroll Total	Valuation Payroll Average	Valuation Payroll % Incr.	Covered Benefit Recipients	Actuarially Computed Employer Contributions#
12-31-94	352	$ 13,186,579	$ 37,462	(1.2)%	15	3.35%
12-31-95@	361	14,310,820	39,642	5.8%	21	3.79%
12-31-96	373	15,441,733	41,399	4.4%	34	4.26%
12-31-97@	385	16,435,104	42,689	3.1%	36	4.59%
12-31-98*@	398	17,707,128	44,490	4.2%	47	4.79%
12-31-99@	411	18,879,095	45,935	3.2%	54	5.45%
12-31-00@	408	19,612,045	48,069	4.6%	58	5.62%
12-31-01*@	415	20,558,629	49,539	3.1%	58	8.19%
12-31-02*@	424	21,567,711	50,867	2.7%	69	10.94%
12-31-03*	419	22,246,938	53,095	4.4%	78	11.38%
12-31-04*	414	22,612,504	54,620	2.9%	89	10.99%
6-30-06*	414	23,302,473	56,286	3.1%	103	12.11%
6-30-07@	416	24,080,517	57,886	2.8%	108	12.41%
6-30-08@	402	24,662,884	61,350	6.0%	115	$2,971,747
6-30-09*	386	24,904,782	64,520	5.2%	121	3,186,426
6-30-10*	323	21,494,819	66,547	3.1%	169	3,955,250
6-30-12*@	292	19,889,835	68,116	2.4%	177	2,892,858
6-30-14*	255	17,633,733	69,152	1.5%	203	1,808,068
6-30-16	233	17,092,987	73,360	6.1%	214	776,762
6-30-18	204	16,003,657	78,449	6.9%	235	554,427

\# *Prior to the June 30, 2008 valuation, the computed employer contribution was determined as a percent of payroll.*
* *Actuarial assumptions/methods revised.*
@ *Benefit changes*

SECTION C

SUPPLEMENTAL INFORMATION

Supplemental Information

Schedule of Health Funding Progress
($ Amount in Millions)

Valuation Date June 30	Actuarial Value of Assets (a)	Actuarial Accrued Liability (AAL) (b)	Unfunded AAL (UAAL) (b-a)	Funded Ratio (a/b)	Covered Payroll (c)	UAAL as a % of Covered Payroll ((b-a)/c)
2012	$ 51.0	$ 69.7	$ 18.7	73.2%	$ 19.9	94.0%
2014	62.8	71.3	8.5	88.1	17.6	48.3
2016	71.4	71.2	(0.2)	100.3	17.1	(1.2)
2018	79.2	77.6	(1.6)	102.1	16.0	(10.0)

Schedule of Employer Health Contributions

Valuation Date June 30	Fiscal Year Ended June 30	Actuarially Computed Employer Contributions	Actual Contributions
2010	2013	$ 4,161,881	$ 3,375,239
2012	2014	2,892,858	4,292,810
2012	2015	2,890,395	2,890,875
2014	2016	1,808,068	1,808,068
2014	2017	1,794,724	1,794,724
2016	2018	776,762	776,762
2016	2019	767,528	[1]
2018	2020	554,427	[1]

[1]*not yet available*

SECTION D

SUMMARY OF BENEFIT PROVISIONS AND VALUATION DATA

Summary of Benefit Provisions as of June 30, 2018

Employee Group	Eligibility	Benefit Amount	Spouse Coverage	Member Contribution
General	Retirement after effective date of coverage at age 60 with 15 years of service or under Rule of 80 (minimum age 55) and receiving Retirement System Pension.	Until age 65 - the same medical coverage as is in effect for General City employees. Beginning at age 65 - Medicare supplementary coverage. Retiree coverage can be different from active employees.	Yes	1.50%
Court	Retirement after effective date of coverage at age 60 with 15 years of service or under Rule of 80 (minimum age 55) and receiving Retirement System Pension.	Until age 65 - the same medical coverage as is in effect for General City employees. Beginning at age 65 - Medicare supplementary coverage. Retiree coverage can be different from active employees.	Yes	1.50%
Police Patrol and Fire	At any age with 25 or more years of service.	Until age 65 - the same medical coverage as is in effect for Police Department employees. Beginning at age 65 - Medicare supplementary coverage. Retiree coverage can be different from active employees.	Yes	1.50%
Police Command	At age 50 with 25 years of service or 30 years regardless of age.	Until age 65 - the same medical coverage as is in effect for Police Department employees. Beginning at age 65 - Medicare supplementary coverage. Retiree coverage can be different from active employees.	Yes	1.50%

Summary of Benefit Provisions as of June 30, 2018

1. Health age and service requirements do not apply to retirees receiving a System Disability Pension.

2. Benefits cover medical benefits and prescription drugs. Certain retirees have grandfathered benefit amounts. Medicare Part B premium is not reimbursed to the retiree.

Employment Group(s)	Eligibility Requirement	Monthly Maximum
AFSCME, Executive, General Exempt, Dispatch	• Age 60 with 15 years	$400*
Teamsters & Court	• Rule of 80 minimum age 55 minimum 20 years of service	None
Police Command	• Age 50 with 25 years or 30 years regardless of age	None
Police Patrol & Fire	• 25 years of service	None

** This is a combined maximum. Retirees with single life and multiple life coverage have the same maximum.*

When a retiree waives coverage under this plan, the City will pay the retiree a waiver allowance. Opt-out allowance monthly maximum equals $400 for two people and $200 for one person.

3. Applicable to spouses of retired members who are covered for Plan medical insurance. The same medical benefits for which the retired member is covered as long as the retired member is alive or after member's death if the spouse is receiving System pension payments.

4. Retirements on or after October 1, 2013 for Fire: Contribution for retirees is $50 for single and $50 for double coverage. Retirements on or after January 1, 2013 for all other groups: Contribution for retirees is $50 for single and $100 for double coverage.

5. The following employees are not covered under this plan:
   - AFSCME and General Exempt and Executive employees hired after July 1, 2006.
   - Dispatch employees hired after January 1, 2007.
   - Teamster employees hired after January 1, 2008.
   - Fire employees hired after July 1, 2008.
   - Police Patrol employees hired after January 1, 2008.
   - Court employees hired after September 1, 2015.

Reported Financial Information
For the Period June 30, 2016 to June 30, 2018
Retiree Health Trust Assets

Reconciliation of the Market Value of Assets

	2016-2017	2017-2018
Market Value of Assets - Beginning of the Year:	$ 65,357,306	$ 73,176,327
Revenues:		
a. Member contributions	255,459	249,325
b. Employer contributions	1,794,724	776,762
c. Interest and dividends	1,681,179	1,720,041
d. Gain/(loss) on sale of investments	2,172,292	2,235,331
e. Other investment income	4,656,699	1,972,191
f. Miscellaneous	3,291	3,619
g. Total	10,563,644	6,957,269
Disbursements:		
a. Health insurance benefits paid	2,260,011	2,389,014
b. Refund of member contributions	35,885	38,973
c. Expenses	448,727	552,599
d. Total	2,744,623	2,980,586
Market Value of Assets - End of the Year:	$73,176,327	$77,153,010

Trust Assets and Reserves (Market Value) as of June 30, 2018

Assets:	
a. Payables	$ (492,947)
b. Cash & short term investments**	6,512,536
c. Fixed income	20,319,217
d. Equities	41,877,812
e. Real estate	4,621,071
f. Other investments	4,315,321
g. Total assets	77,153,010
Retiree Health Assets	$ 77,153,010

** *Includes receivables.*

Reserve Accounts:	
a. Member contributions	$ 5,471,479
b. Reserve for benefits now being paid	50,611,247
c. Reserve for future benefits	21,070,284
Total	$ 77,153,010

Derivation of Valuation Assets

Valuation Date June 30:	2016	2018
1. Beginning of Year Assets		
a) Market Value	$ 66,662,771	$ 73,176,327
b) Valuation Assets	68,440,146	75,830,929
2. End of Year Market Value Assets	65,357,306	77,153,010
3. Net Additions to Market Value		
a) Contributions	2,070,877	1,026,087
b) Net Investment Income	(1,113,043)	5,398,226
c) Benefit Payments, Refunds and Administrative Expenses	(2,263,299)	(2,447,630)
d) Total Additions to Market Value	(1,305,465)	3,976,683
4. Average Valuation Assets	68,343,935	75,120,158
5. Expected Income at Valuation Rate = 7.5% x (4)	5,125,795	5,634,012
6. Gain (Loss) = (3b) - (5)	(6,238,838)	(235,786)
7. Phased-In Recognition of Investment Return		
a) Current Year: 0.2 x (6)	(1,247,768)	(47,157)
b) First Prior Year	(1,011,682)	547,176
c) Second Prior Year	923,360	(1,247,768)
d) Third Prior Year	98,301	(1,011,682)
e) Fourth Prior Year	(697,329)	923,360
f) Total Recognized Investment Gain	(1,935,118)	(836,071)
8. Change in Valuation Assets		
(3a) + (3c) + (5) + (7f)	2,998,255	3,376,398
9. Valuation Assets = (1b) + (8)	71,438,401	79,207,327
10. Recognized Rate of Return	4.67%	6.39%
11. Market Rate of Return	(1.67%)	7.45%

Retirees Covered for Health Benefits - June 30, 2018
Tabulated by Attained Age

Attained Age	No. of Contracts
Under 50	3
50	1
51	4
52	2
53	3
54	1
55	4
56	4
57	6
58	6
59	5
60	10
61	15
62	9
63	11
64	14
65	19
66	17
67	9
68	3
69	9
70	8
71	7
72	8
73	3
74	4
75	4
76	5
77	5
78	7
79	3
80+	26
Totals	**235**

Average Age at Retirement: 57.2 years
Average Age Now: 67.6 years

Active Members
Comparative Schedule

Valuation Date June 30, *	Active Members General	Court	Police	Fire	Totals	Valuation Payroll	Average Age	Service	Pay	% Inc.
1999	260	**	116	35	411	$ 18,879,095	42.0 yrs.	10.7 yrs.	$45,935	3.2%
2000	253	**	119	36	408	19,612,045	42.3	11.1	48,069	4.6
2001	262	**	117	36	415	20,558,629	42.6	11.2	49,539	3.1
2002	270	**	114	40	424	21,567,711	43.1	11.3	50,867	2.7
2003	265	**	114	40	419	22,246,938	43.9	11.8	53,095	4.4
2004	263	**	111	40	414	22,612,504	44.1	11.9	54,620	2.9
2006	259	**	115	40	414	23,302,473	44.5	12.3	56,286	3.1
2007	252	**	120	44	416	24,080,517	44.9	12.8	57,886	2.8
2008	239	**	118	45	402	24,662,884	45.3	13.4	61,350	6.0
2009	225	**	117	44	386	24,904,782	46.0	14.3	64,520	5.2
2010	181	**	101	41	323	21,494,819	45.3	14.0	66,547	3.1
2012	133	26	93	40	292	19,889,835	46.2	15.5	68,116	2.4
2014	111	25	85	34	255	17,633,733	46.9	16.6	69,152	1.5
2016	101	23	78	31	233	17,092,987	48.4	17.9	73,360	6.1
2018	84	23	66	31	204	16,003,657	49.5	19.2	78,449	6.9

Year Ended June 30, *	Number Added During Year	Terminations Since the Last Valuation: Normal Retirement	Disability Retirement	Died-in Service	Vested	Other	Active Members End of Year
1999	34	10				11	411
2000	29	6		2	4	20	408
2001	38	10				21	415
2002	30	7			1	13	424
2003	13	11				7	419
2004	23	12			2	14	414
2006	32	15		1	3	13	414
2007	19	7				10	416
2008	9	10		1	3	9	402
2009	5	6		1	2	12	386
2010	1	52		2	1	9	323
2012	1	22		1	5	4	292
2014	4	33		1	3	4	255
2016	1	17			5	1	233
2018		25	1		1	2	204

** Prior to 2006, the year ended was December 31.*
***Included in the General division prior to 2012*

Total Active Members, June 30, 2018
By Age and Years of Service

Age	Years of Service on Valuation Date							Totals	
	0-4	5-9	10-14	15-19	20-24	25-29	30 Plus	No.	Valuation Payroll
30-34		1	4					5	$ 376,762
35-39	1	3	22	8				34	2,588,394
40-44		1	7	10	4			22	1,806,946
45-49			9	6	26	4		45	3,837,933
50-54			2	3	15	8	8	36	2,960,462
55-59			6	7	11	1	5	30	2,355,428
60			3		2			5	323,386
61			2	1		1	1	5	333,962
62				3		1		4	284,178
63			1	2	2	1		6	324,369
64				1			1	2	173,263
65					1			1	102,130
66			1	1	1			3	150,919
67				2				2	116,176
68					1	1		2	160,826
70			1					1	62,360
76				1				1	46,163
Totals	**1**	**5**	**58**	**45**	**63**	**17**	**15**	**204**	**$16,003,657**

While not used in the financial computations, the following group averages are computed and shown because of their general interest.

Age:	49.5 years
Service:	19.2 years
Annual Pay:	$78,449

SECTION E

ACTUARIAL COST METHODS, ASSUMPTIONS AND GLOSSARY

Valuation Methods

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

(i) the annual normal costs for each individual active member, payable from the hire date to the date of retirement, are sufficient to accumulate to the value of the member's benefit earned.

(ii) each annual normal cost is a constant percentage of the member's year by year projected covered pay.

Asset Valuation Method: The actuarial value equals:

(i) Actuarial value of assets from the previous valuation, plus
(ii) employer and member contributions since the last valuation, minus
(iii) benefit payments and refunds since the last valuation, plus
(iv) estimated investment income at the assumed investment return, plus
(v) portion of gain/(loss) recognized in the current valuation.

For the above purpose, gain/(loss) is defined as the excess during the period of the investment return on the market value of assets over the expected investment income. 20% of the difference is recognized each year over a 5 year period in the actuarial value of assets.

This method was first adopted for the December 31, 2003 actuarial valuation. Prior to 2006, the valuation date was December 31st of each year.

The Funding Value of Assets is allocated between groups based on actual non-investment net cash-flows.

Financing of Unfunded Actuarial Accrued Liabilities: Unfunded actuarial accrued liabilities were amortized by level (principal & interest combined) dollar contributions over 12 years for all employees.

Actuarial Assumptions Used for the Valuation

Investment Return (net of investment expenses):
7.50% per year compounded annually. This rate consists of a real rate of return of 4.00% a year plus a long-term assumed rate of pay inflation of 3.50% a year.

This assumption is used to equate the value of payments due at different points in time and was first used for the December 31, 2003 valuation. Approximate rates of investment return, for the purpose of comparisons with assumed rates, are shown below.

	Year Ended June 30				
	2018	**2016**	**2014**	**2012**	**2010**
Rate of Investment Return (Recognized on Valuation Assets)	6.4%	4.7%	9.4%	3.4%	2.2%

The nominal rate of return was computed using the approximate formula i = I divided by 1/2 (A + B - I), where I is actual investment income net of expenses, A is the beginning of year asset value, and B is the end of year asset value.

These rates of return should not be used for measurement of an investment advisor's performance or for comparisons with other systems.

Pay Projections: These assumptions are used to project current pays for contribution development purposes.

Annual Rate of Pay Increase

	General and Court Members		
Years of Service	**Base (Economic)**	**Merit & Longevity**	**Total**
1 to 5	3.5%	4.0%	7.5%
6 to 10	3.5%	2.0%	5.5%
thereafter	3.5%	1.0%	4.5%

Years of Service	Police Members			Fire Members		
	Base (Economic)	Merit & Longevity	Total	Base (Economic)	Merit & Longevity	Total
1	3.5%	20.0%	23.5%	3.5%	17.0%	20.5%
2	3.5%	15.0%	18.5%	3.5%	12.0%	15.5%
3	3.5%	7.0%	10.5%	3.5%	12.0%	15.5%
thereafter	3.5%	1.0%	4.5%	3.5%	1.0%	4.5%

Retiree Health Care Premium Increase Assumption

Year Beginning July 1	Retiree Health Care Cost Increases
2016	9.00%
2017	8.25
2018	7.50
2019	6.75
2020	6.25
2021	5.75
2022	5.25
2023	4.75
2024	4.25
2025	3.50
Thereafter	3.50

The mortality table (a risk assumption) used was the RP-2000 Mortality Combined Healthy Tables, projected 20 years with U.S. Projection Scale BB. This table was first used for the June 30, 2014 valuation. Sample values follow:

	Single Life Retirement Values			
	Present Value of $1 Monthly for Life With 3.50% Compound Increases*		**Future Life Expectancy (Years)**	
Sample Ages	**Men**	**Women**	**Men**	**Women**
50	$216.88	$225.64	32.99	35.59
55	198.97	208.92	28.37	30.90
60	179.05	189.86	23.94	26.34
65	157.37	168.83	19.74	21.98
70	134.25	146.56	15.83	17.93
75	110.39	123.63	12.26	14.25
80	87.00	100.59	9.13	10.95

* *These values do not take into account the temporary period when increases are assumed to exceed general inflation.*

This assumption is used to measure the probabilities of members dying before retirement and the probabilities of each retiree health payment being made after retirement. The RP-2000 Mortality Combined Healthy Tables, projected 20 years with U.S. Projection Scale BB with ages set forward 4 years was used for disabled lives.

75% of deaths are assumed to be non-duty for the General and Court groups, while 50% of deaths are assumed to be non-duty for Police and Fire groups.

Rates of separation from active membership: The rates do not apply to members eligible for regular retirement and do not include separation on account of death or disability. This assumption measures the probabilities of members remaining in employment.

Sample Ages	Years of Service	% of Active Members Separating within Next Year: General	Court	Police	Fire
ALL	0	11.00%	12.00%	6.00%	7.00%
	1	10.00	12.00	4.00	5.00
	2	8.00	10.00	3.50	3.50
	3	8.00	9.00	3.00	3.50
	4	7.00	9.00	2.50	3.00
20	5 & Over	6.00	6.00	3.00	3.00
25		5.50	5.50	3.00	3.00
30		4.40	4.40	2.50	2.50
35		3.90	3.90	1.50	1.50
40		3.40	3.40	0.70	0.70
45		3.00	3.00	0.50	0.50
50		2.00	2.00	0.50	0.50
55		1.40	1.40	0.50	0.50
60		1.40	1.40	0.50	0.50

The rates were first used for the December 31, 2014 valuation.

Rates of disability: These rates represent the probabilities of active members becoming disabled.

Sample Ages	Number of Disabilities Per 100 Eligible Members
20	0.01
25	0.02
30	0.04
35	0.07
40	0.12
45	0.19
50	0.28
55	0.40
60	0.57

These rates were first used for the December 31, 1993 valuation.

Rates of retirement: These rates are used to measure the probability of eligible members retiring during the next year. Early retirement rates do not apply to members eligible for regular retirement.

	Percent of Eligible Active Members Retiring			
Retirement Ages	General & Court	Police Command	Years of Service	Police Command
50		15%	25	
51		15	26	
52		15	27	
53		15	28	
54		15	29	
55	30%	15	30	40%
56	25	15	31	40
57	25	15	32	40
58	25	15	33	40
59	25	15	34	40
60	25	100	35	100
61	25			
62	30			
63	20			
64	25			
65	25			
66	30			
67	30			
68	30			
69	30			
70	100			

	Percent of Eligible Active Members Retiring	
Years of Service	Police Patrol Hired Before 1/1/2008	Fire Hired Before 7/1/2008
25	30%	30%
26	30	30
27	30	30
28	100	30
29	100	30
30	100	100

The incidence of retirement for Police Patrol hired before January 1, 2008 and Fire hired before July 1, 2008 is assumed to be 100% when the participant reaches the benefit maximum.

Retirement Ages	Percent of Eligible Active Members Retiring (Early Retirement) General & Court	Police & Fire
50		1%
51		1
52		1
53		1
54		1
55		1
56		1
57	1%	1
58	1	1
59	1	1

Health care coverage at retirement and continuation percentage to survivor: 90% of future retirees are assumed to elect coverage from this plan at the time of retirement.

	2 Person Coverage		Continuation
	General & Court	Police & Fire	Percentage
Male	54%	67%	90%
Female	54%	67%	90%

Non-investment administration expenses: 0.1% of payroll.

Other: Liabilities were loaded by 30% for the expected future impact of the "Cadillac Plan" status as defined by the Patient Protection and Affordable Care Act and for future contingencies including fluctuation in health care claims experience and volatility associated with the size of the Plan.

Miscellaneous and Technical Assumptions
June 30, 2018

Marriage Assumption:	100% of males and 100% of females are assumed to be married for purposes of death-in-service benefits. Male spouses are assumed to be three years older than female spouses for active member valuation purposes.
Pay Increase Timing:	Middle of (Fiscal) year.
Decrement Timing:	Decrements of all types are assumed to occur mid-year.
Eligibility Testing:	Eligibility for benefits is determined based upon the age nearest birthday and service nearest whole year on the date the decrement is assumed to occur.
Decrement Relativity:	Decrement rates are used directly from experience, without adjustment for multiple decrement table effects.
Decrement Operation:	Disability and mortality decrements do not operate during the first 5 years of service. Disability also does not operate during retirement eligibility.
Service Credit Accruals:	It is assumed that members accrue one year of service credit per year.
Incidence of Contributions:	Contributions are assumed to be received continuously throughout the year based upon the computed percent of payroll shown in this report, and the actual payroll payable at the time contributions are made.
Medicare Coverage:	Assumed to be available for all covered employees on attainment of age 65.
Election Percentage:	It was assumed that 90% of eligible retirees will elect to receive retiree health care benefits through the City. Of those assumed to elect coverage, 54% were assumed to elect two-person coverage, if eligible for General & Court (67% for Police & Fire). For Active employees who have opted out of the City's active health care plan, it is assumed they will elect retiree health care coverage upon retiring. It was assumed that all retirees who "opt out" of the retiree health plan will ultimately opt back in on or after age 65.

Glossary

Actuarial Accrued Liability - The difference between (i) the actuarial present value of future plan benefits, and (ii) the actuarial present value of future normal cost. Sometimes referred to as "accrued liability" or "past service liability." Under the actuarial cost method used the "AAL" differs somewhat from the value of future payments based on benefits earned as of the valuation date.

Accrued Service - The service credited under the plan which was rendered before the date of the actuarial valuation.

Actuarial Assumptions - Estimates of future plan experience with respect to rates of mortality, disability, retirement, investment income and salary increases. Decrement assumptions (rates of mortality, separation and retirement) are generally based on past experience, often modified for projected changes in conditions. Economic assumptions (salary increases and investment income) consist of an underlying rate appropriate in an inflation-free environment plus a provision for a long-term average rate of inflation.

Actuarial Cost Method - A mathematical budgeting procedure for allocating the dollar amount of the "actuarial present value of future plan benefits" between the normal costs to be paid in the future and the actuarial accrued liability. Sometimes referred to as the "actuarial funding method."

Actuarial Equivalent - Benefits whose actuarial present values are equal.

Actuarial Present Value - The amount of funds presently required to provide a payment or series of payments in the future. It is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Amortization - Paying of an interest-bearing liability by means of periodic contributions of interest and principal, as opposed to a lump sum payment.

Experience Gain (Loss) - A measure of the difference between actual experience and experience anticipated by a set of actuarial assumptions during the period between two actuarial valuation dates, in accordance with the actuarial cost method being used.

Normal Cost - The annual cost assigned, under the actuarial funding method, to current and subsequent plan years. Sometimes referred to as "current service cost." An amortization payment toward the unfunded actuarial accrued liability is in addition to the normal cost.

PLAN TERMINATION LIABILITY - The actuarial present value of future plan benefits based on the assumption that there will be no further accruals for the future service and salary. The termination liability will generally be less than the liabilities computed on a "going-concern" basis and is not normally determined in a routine actuarial valuation.

RESERVE ACCOUNT - An account used to indicate that funds have been set aside for a specific purpose and are not generally available for other uses.

UNFUNDED ACTUARIAL ACCRUED LIABILITY - The difference between the actuarial accrued liability and valuation assets. Sometimes referred to as "unfunded accrued liability."

VALUATION ASSETS - The value of current plan assets recognized for valuation purposes.

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November 15, 2018

The Retirement Board
City of Farmington Hills
Retiree Health Care Plan
31555 West Eleven Mile Road
Farmington Hills, Michigan 48336-1165

Dear Board Members:

Enclosed are 15 copies of the report of the annual actuarial valuation of the City of Farmington Hills Retiree Health Plan as of June 30, 2018. We would be pleased to meet with you to discuss the report.

Sincerely,

Louise Gates

Louise M. Gates, ASA, FCA, MAAA

Enclosures

One Towne Square | Suite 800 | Southfield, Michigan 48076-3723