

City of Farmington Hills Retiree Health Plan

Actuarial Valuation

as of June 30, 2022



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November 2, 2022

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

**Re: City of Farmington Hills Retiree Health Plan Actuarial Valuation as of June 30, 2022
Actuarial Disclosures**

Dear Board Members:

The results of the June 30, 2022 Actuarial Valuation of the City of Farmington Hills Retiree Health Plan are presented in this report.

This report was prepared at the request of the Board and is intended for use by the City and those designated or approved by the City. This report may be provided to parties other than the City only in its entirety, and only with the permission of the Board. GRS is not responsible for unauthorized use of this report.

The purposes of the valuation are to measure the Plan's funding progress and to determine the employer contribution for the fiscal years ending June 30, 2024 and June 30, 2025. This report should not be relied on for any purpose other than the purposes described herein. Determinations of financial results associated with the benefits described in this report, for purposes other than those identified above, may be significantly different. This report does not include actuarial information needed to satisfy reporting requirements under Governmental Accounting Standards Board Statements No. 74 or No. 75.

This valuation assumed the continuing ability of the plan sponsor to make the contributions necessary to fund this plan. A determination regarding whether or not the plan sponsor is actually able to do so is outside our scope of expertise and was not performed.

Results presented in this report are developed using the actuarial assumptions and methods disclosed in this report. Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: plan experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the plan's funded status); and changes in plan provisions or applicable law. This report does not include a robust assessment of the risks of future experience not meeting the actuarial assumptions. Additional assessment of risks was outside the scope of this assignment. We encourage a review and assessment of the investment and other significant risks that may have a material effect on the plan's financial condition.

The findings in this report are based on information furnished by the City of Farmington Hills concerning retiree health care benefits, financial transactions, plan provisions and active members, terminated members, retirees and beneficiaries. We checked for internal reasonability and year-to-year consistency, but did not audit the data. We are not responsible for the accuracy or completeness of the information provided by the City of Farmington Hills.

This report was prepared using assumptions adopted by the Board. All actuarial assumptions used in this report are reasonable for the purposes of this valuation. All actuarial assumptions and methods used in the valuation follow the guidance in the applicable Actuarial Standards of Practice. Additional information about the actuarial assumptions is included in the section of this report entitled Actuarial Assumptions.

This report was prepared using our proprietary valuation model and related software which, in our professional judgment, has the capability to provide results that are consistent with the purposes of the valuation and has no material limitations or known weaknesses. We performed tests to ensure that the model reasonably represents that which is intended to be modeled.

This report has been prepared by actuaries who have substantial experience valuing public retiree health programs. To the best of our knowledge, the information contained in this report is accurate and fairly presents the actuarial position of the plan as of the valuation date. All calculations have been made in conformity with generally accepted actuarial principles and practices and with the Actuarial Standards of Practice issued by the Actuarial Standards Board.

Mark Buis and James D. Anderson are members of the American Academy of Actuaries. These actuaries meet the Academy's Qualification Standards to render the actuarial opinions contained herein.

The signing actuaries are independent of the plan sponsor, and all actuarial assumptions used in this report are reasonable for the purposes of this valuation.

Gabriel, Roeder, Smith & Company will be pleased to answer any questions pertaining to the valuation.

Respectfully submitted,
Gabriel, Roeder, Smith & Company



Mark Buis, FSA, FCA, EA, MAAA



James D. Anderson, FSA, EA, FCA, MAAA



SECTION A

EXECUTIVE SUMMARY

Executive Summary

1. Actuarially Determined Contributions - Fiscal Year Beginning July 1, 2023

The required employer contributions for each division are shown below:

<u>Division</u>	<u>Employer Contributions</u>
General	\$ 0
Court	5,420
Police	11,872
Fire	257,294
Total	<u>\$ 274,586</u>

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 2020 actuarial valuation of the Plan.

Actuarially Computed Employer Contributions by Valuation date

<u>Division</u>	<u>June 30, 2020</u>	<u>June 30, 2022</u>
General	\$ 66,776	\$ 0
Court	43,620	5,420
Police	-	11,872
Fire	197,466	257,294
Total	<u>\$ 307,862</u>	<u>\$ 274,586</u>

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.

This valuation of the Retiree Health Plan reflects changes in the medical/prescription drug trend assumption to better reflect anticipated future experience. This change increased Plan accrued liabilities by \$3.2 million as of the valuation date. The new medical/prescription drug trend assumption is noted in Section B of this report.



4. Plan Experience

Overall, the net experience was favorable. This favorable experience was driven primarily by positive investment experience over the two-year period between the prior and current valuations. Additionally, during the two-year period ending June 30, 2022, medical and prescription drug costs increased by less than expected in the Medicare eligible population. Larger than anticipated increases in medical and prescription drug costs for the non-Medicare retiree population acted to offset sources of gain.

5. 2022 Funding Position

As of June 30, 2022, the Plan's funding ratio was 113.9%. As of June 30, 2020, the funding ratio was 107.9%. If the market value of assets was used to determine the Plan's funding ratio as of June 30, 2022, the result would be a funding ratio of 109.7%.

6. Fiscal Year 2025 Contributions

Based on current GASB standards and the Board's policy, biennial valuations of the Plan are performed. This valuation includes employer contributions for fiscal year 2024 on page A-1 of this report. Employer contributions for fiscal year 2025 are shown below:

<u>Division</u>	<u>Employer Contributions</u>
General	\$ 0
Court	3,141
Police	0
Fire	245,937
Total	<u>\$ 249,078</u>

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 Determined Contribution

The Retiree Health Plan benefits are supported by contributions from the active members (1.50% 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, 2023 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, 2023

Contributions for	General Members	Court Members	Police Members	Fire Members
Normal cost of benefits:				
Age & service	\$ 196,424	\$ 45,798	\$ 439,683	\$ 191,443
Disability	7,028	1,940	27,094	13,629
Death before retirement	1,850	337	1,901	419
Stipend	<u>7,768</u>	<u>2,783</u>	<u>9,507</u>	<u>4,403</u>
Total	213,070	50,858	478,185	209,894
Member contributions:				
Total	55,487	12,651	71,300	31,453
Future refunds	<u>13,317</u>	<u>2,868</u>	<u>6,179</u>	<u>2,726</u>
Available for benefits	42,170	9,783	65,121	28,727
Administrative expenses	11,073	11,073	11,073	11,073
Employer normal cost	181,973	52,148	424,137	192,240
Amortization charges / (credits)	<u>(903,934)</u>	<u>(46,728)</u>	<u>(412,265)</u>	<u>65,054</u>
Actuarially Determined Contribution	\$ 0	\$ 5,420	\$ 11,872	\$ 257,294

Unfunded actuarial accrued liabilities were amortized using a level dollar method over a period of 13 years for all divisions.

Determination of Unfunded Accrued Liability as of June 30, 2022

	<u>General</u>	<u>Court</u>	<u>Police</u>	<u>Fire</u>	<u>Total</u>
A. Accrued Liability					
1. For retirees and beneficiaries	\$19,530,693	\$1,856,614	\$21,537,627	\$5,768,596	\$48,693,530
2. For vested terminated members	0	0	0	0	0
3. For present active members					
a. Value of expected future benefit payments	11,011,767	1,735,353	17,793,186	7,775,679	38,315,985
b. Value of future normal costs	1,408,042	462,178	3,425,849	1,456,234	6,752,303
c. Active member liability: (a) - (b)	9,603,725	1,273,175	14,367,337	6,319,445	31,563,682
4. Total	29,134,418	3,129,789	35,904,964	12,088,041	80,257,212
B. Valuation Assets	36,551,565	3,521,100	39,758,407	11,557,914	91,388,986
C. Unfunded Accrued Liability (A.4) - (B)	(7,417,147)	(391,311)	(3,853,443)	530,127	(11,131,774)
D. Funding Ratio: (B) / (A.4)	125%	113%	111%	96%	114%

Retiree Premium Rate Development

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 2019 to March 2022 adjusted for catastrophic claims, plus the load for administration and stop loss fees. The self-insured medical and prescription drug data were provided by Farmington Hills. For pre-65 retirees both, the medical and the prescription drugs are self-insured. For the post-65 retirees, the medical is self-insured, and the prescription drug is fully insured. The self-insured medical data was analyzed separately for the pre-65 and post-65 participants 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.

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 the retiree health plan.

For Retirees Not Eligible For Medicare				
Age	Current Retirees		Future Retirees	
	Male	Female	Male	Female
45	\$ 820.17	\$1,131.95	\$ 792.44	\$1,093.67
60	1,815.04	1,787.19	1,753.67	1,726.76
64	2,207.14	2,082.94	2,132.51	2,012.51

For Retirees Eligible For Medicare				
Age	Current Retirees		Future Retirees	
	Male	Female	Male	Female
65	\$ 380.56	\$ 358.94	\$ 345.16	\$ 325.56
75	445.25	434.46	403.84	394.06
85	470.82	476.37	427.03	432.06



Retiree Premium Rate Development

Health Care Cost Trend Assumption

The health care cost trend rate is the rate of change in per capita health care claims over time as a result of factors such as medical inflation, utilization of health care services, plan design, and technological improvements. It is a crucial economic assumption that is required for measuring retiree health care benefit obligations.

Retiree health care valuations use a health care cost trend assumption (trend vector) that changes over the years. The trend vector used in this valuation begins with a near-term trend assumption and declines over time to an ultimate trend rate. The near-term rates reflect the increases in the current cost of health care goods and services. The process of trending down to a lower ultimate trend relies on the theory that premiums will moderate over the long-term, otherwise the health care sector would eventually consume the entire GDP. It is on this basis that we project premium rate increases will continue to exceed wage inflation for the next twelve years, but by less each year until leveling off at an ultimate rate, assumed to be 3.50% in this valuation.

While experience is often the best starting point for future costs, GRS does not rely on a group's experience in setting the near-term trend assumptions since trends vary significantly from year to year and are not credible for most groups. Therefore, professional judgment, trends from GRS' book of business and industry benchmarks (e.g., trend reports from various Pharmacy Benefit Management (PBM) organizations and national healthcare benefit consulting firms) are used in conjunction with a group's historical experience to establish the trend assumptions.

Year Beginning July 1,	Retiree Health Care Cost Increases	
	Non-Medicare	Medicare
2023	7.50%	6.25%
2024	7.25	6.00
2025	6.75	5.75
2026	6.50	5.50
2027	6.00	5.25
2028	5.75	5.00
2029	5.25	4.75
2030	5.00	4.50
2031	4.50	4.25
2032	4.25	4.00
2033	3.75	3.75
Thereafter	3.50	3.50

Retiree Premium Rate Development

Actuarial Disclosures

The premium rates used in this valuation were developed using the proprietary Excel models which, in James E. Pranschke's professional judgment, provide the initial projected costs which are consistent with the purposes of the valuation. We performed tests to ensure that the models, in their entirety, reasonably represent that which is intended to be modeled.

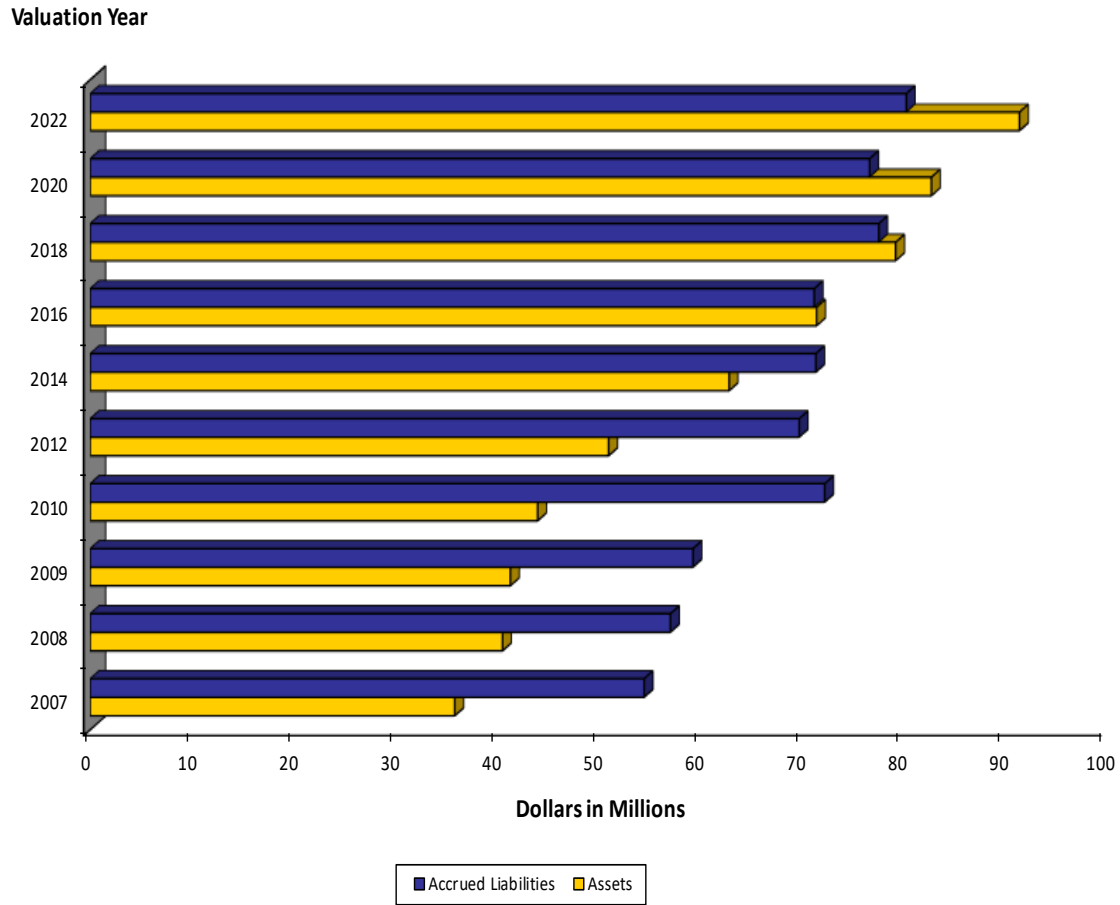
Aging factors used in the premium development models were developed based on the information and data from a 2013 study commissioned by the Society of Actuaries entitled "Health Care Costs – From Birth to Death."

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, FSA, FCA, MAAA

Assets and Accrued Liabilities



2007 assets equaled 65.8% of accrued liabilities
2022 assets equaled 113.9% of accrued liabilities

Actuarially Determined Contributions Comparative Statement

Valuation Date	Covered Employee Members				Covered Benefit Recipients +	Actuarially Determined Contributions#
	No.	Valuation Payroll				
		Total	Average	% Incr.		
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
6-30-20*	176	15,005,716	85,260	8.7%	254	307,862
6-30-22*	136	12,435,716	91,439	7.2%	243	274,586

Prior to the June 30, 2008 valuation, the computed employer contribution was determined as a percent of payroll.

* Actuarial assumptions/methods revised.

@ Benefit changes.

+ Covered benefit recipients include potential future recipients who opt back into the Plan.



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)
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)
2020	82.7	76.7	(6.0)	107.9	15.0	(40.0)
2022	91.4	80.3	(11.1)	113.9	12.4	(89.5)

Schedule of Employer Health Contributions

Valuation Date June 30	Fiscal Year Ended June 30	Actuarially Determined Contributions	Actual Contributions
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	767,528
2018	2020	559,360	559,360
2018	2021	540,667	540,667
2020	2022	307,862	307,862
2020	2023	285,085	¹
2022	2024	274,586	¹

¹ Not yet available.

SECTION D

SUMMARY OF BENEFIT PROVISIONS AND VALUATION DATA

Summary of Benefit Provisions as of June 30, 2022

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	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	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, 2022

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 which differ from those shown in the chart below.

Employment Group(s)	Eligibility Requirement	Monthly Maximum
AFSCME, Executive, General Exempt, Dispatch, Teamsters & Court	<ul style="list-style-type: none"> • Age 60 with 15 years • Rule of 80 minimum age 55 minimum 20 years of service 	\$400* None
Police Command Police Patrol & Fire	<ul style="list-style-type: none"> • Age 50 with 25 years or 30 years regardless of age • 25 years of service 	None 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, including those promoted to Police Command Officer.
 - Court employees hired after September 1, 2015.



Reported Financial Information for the Period June 30, 2020 to June 30, 2022 Retiree Health Trust Assets

Reconciliation of the Market Value of Assets

	2020-2021	2021-2022
Market Value of Assets - Beginning of the Year:	\$ 78,013,220	\$ 101,061,175
Revenues:		
a. Member contributions	216,025	195,527
b. Employer contributions	540,667	307,862
c. Net investment return	25,671,154	(10,110,429)
d. Total	26,427,846	(9,607,040)
Disbursements:		
a. Health insurance benefits paid	3,236,904	3,340,851
b. Refund of member contributions	77,380	36,671
c. Administrative expenses	65,607	44,292
d. Total	3,379,891	3,421,814
Market Value of Assets - End of the Year:	\$101,061,175	\$88,032,321

Trust Assets and Reserves (Market Value) as of June 30, 2022

Assets:		Reserve Accounts:	
a. Payables	\$ (265,809)	a. Member contributions	\$ 4,811,592
b. Cash & short term investments**	1,114,353	b. Reserve for benefits now being paid	53,960,501
c. Fixed income	15,052,855	c. Reserve for future benefits	29,260,228
d. Equities	52,119,797		
e. Real estate	14,429,263		
f. Other investments	5,581,862	Total	\$ 88,032,321
g. Total assets	88,032,321		
Retiree Health Assets	\$ 88,032,321		

** Includes receivables.



Derivation of Valuation Assets

Valuation Date June 30:	2020	2021	2022
1. Beginning of Year Assets			
a) Market Value	\$ 79,006,858	\$ 78,013,220	\$101,061,175
b) Valuation Assets	81,106,082	82,722,745	88,889,452
2. End of Year Market Value Assets	78,013,220	101,061,175	88,032,321
3. Net Additions to Market Value			
a) Contributions	790,278	756,692	503,389
b) Net Investment Income	1,237,857	25,671,154	(10,110,429)
c) Benefit Payments, Refunds and Administrative Expenses	(3,021,773)	(3,379,891)	(3,421,814)
d) Total Additions to Market Value	(993,638)	23,047,955	(13,028,854)
4. Average Valuation Assets	79,990,335	81,411,146	87,430,240
5. Expected Income at Valuation Rate = 7.0% x (4)*	5,999,275	5,698,780	6,120,117
6. Gain (Loss) = (3b) - (5)	(4,761,418)	19,972,374	(16,230,546)
7. Phased-In Recognition of Investment Return			
a) Current Year: 0.2 x (6)	(952,284)	3,994,475	(3,246,109)
b) First Prior Year	(451,084)	(952,284)	3,994,475
c) Second Prior Year	(47,157)	(451,084)	(952,284)
d) Third Prior Year	547,176	(47,157)	(451,084)
e) Fourth Prior Year	(1,247,768)	547,176	(47,156)
f) Total Recognized Investment Gain (Loss)	(2,151,117)	3,091,126	(702,158)
8. Change in Valuation Assets (3a) + (3c) + (5) + (7f)	1,616,663	6,166,707	2,499,534
9. Valuation Assets = (1b) + (8)	82,722,745	88,889,452	91,388,986
10. Recognized Rate of Return	4.81%	10.80%	6.20%
11. Market Rate of Return	1.59%	33.47%	(10.15%)

* Prior to fiscal year 2021, the expected income at valuation rate was based on a 7.5% assumed return.

Retirees Receiving Plan Benefits – June 30, 2022 Tabulated by Attained Age

Attained Age	No. of Contracts
Under 50	1
50	3
51	0
52	1
53	3
54	2
55	4
56	3
57	6
58	3
59	5
60	3
61	11
62	8
63	5
64	7
65	18
66	9
67	9
68	13
69	17
70	14
71	9
72	2
73	7
74	4
75	6
76	6
77	3
78	2
79	5
80+	26
Totals	215

Average Age at Retirement: 56.9 years

Average Age Now: 68.9 years

In addition to the current recipients of medical/Rx benefits shown above, there are 62 individuals who have “opted out” of these benefits as of June 30, 2022. Of the 62 individuals who have “opted out” of benefits, 28 are assumed to “opt back into” coverage upon reaching age 65. As such, there are 243 retiree records with a non-zero liability in the valuation as of June 30, 2022.

Active Members Comparative Schedule

Valuation Date	Active Members					Valuation Payroll	Average			
	General	Court	Police	Fire	Totals		Age	Service	Pay	% Inc.
2001	262	**	117	36	415	\$ 20,558,629	42.6 yrs.	11.2 yrs.	\$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	11.91	54,620	2.9
2006	259	**	115	40	414	23,302,473	44.45	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
2020	68	20	59	29	176	15,005,716	50.4	20.5	85,260	8.7
2022	52	14	48	22	136	12,435,716	50.6	21.1	91,439	7.2

Year Ended June 30, *	Number Added During Year	Terminations Since the Last Valuation					Active Members End of Year
		Normal Retirement	Disability Retirement	Died-in Service	Vested	Other	
2001	38	10				21	415
2002	30	7				1	424
2003	13	11				7	419
2004	23	12				2	414
2006	32	15			1	3	414
2007	19	7				10	416
2008	9	10			1	3	402
2009	5	6			1	2	386
2010	1	52			2	1	323
2012	1	22			1	5	292
2014	4	33			1	3	255
2016	1	17				5	233
2018		25		1		1	204
2020		27				1	176
2022		38				2	136

* Prior to 2006, the year ended was December 31.

**Included in the General division prior to 2012.



Total Active Members, June 30, 2022 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
35-39			5	4				9	833,066
40-44		2	3	18	8			31	2,894,434
45-49		1	1	8	11	4		25	2,533,095
50-54				8	8	12	4	32	2,926,357
55-59				2	5	5	2	14	1,240,386
60				2	2			4	317,012
61				2	1	1		4	385,596
62							1	1	126,084
63				1		2		3	215,981
64				2		1		3	226,734
65				2				2	149,511
66					1			1	54,199
67				1		2		3	181,465
68					1		1	2	191,200
70				1				1	67,733
72							1	1	92,863
Totals		3	9	51	37	27	9	136	\$12,435,716

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

Age: 50.6 years
Service: 21.1 years
Annual Pay: \$91,439



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 13 years for all employees.

Actuarial Assumptions Used for the Valuation

Investment Return (net of investment expenses):

7.00% 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 3.00% 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, 2020 valuation. Approximate rates of investment return, for the purpose of comparisons with assumed rates, are shown below.

	Year Ended June 30				
	2022	2020	2018	2016	2014
Rate of Investment Return (Recognized on Valuation Assets)	6.2%	4.8%	6.4%	4.7%	9.4%

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

Years of Service	General and Court Members		
	Base (Economic)	Merit & Longevity	Total
1 to 5	3.0%	4.0%	7.0%
6 to 10	3.0%	2.0%	5.0%
thereafter	3.0%	1.0%	4.0%

Years of Service	Police Members			Fire Members		
	Base (Economic)	Merit & Longevity	Total	Base (Economic)	Merit & Longevity	Total
1	3.0%	20.0%	23.0%	3.0%	17.0%	20.0%
2	3.0%	15.0%	18.0%	3.0%	12.0%	15.0%
3	3.0%	7.0%	10.0%	3.0%	12.0%	15.0%
thereafter	3.0%	1.0%	4.0%	3.0%	1.0%	4.0%

The mortality tables (a risk assumption) used in the valuation are described below:

General and Court

- **Healthy Pre-Retirement:** The Pub-2010 Amount-Weighted, General, Employee, Male and Female tables, with future mortality improvements projected generationally through 2025 using scale MP-2018.
- **Healthy Post-Retirement:** The Pub-2010 Amount-Weighted, General, Healthy Retiree, Male and Female tables, with future mortality improvements projected generationally through 2025 using scale MP-2018.
- **Disability Retirement:** The Pub-2010 Amount-Weighted, General, Disabled Retiree, Male and Female tables, with future mortality improvements projected generationally through 2025 using scale MP-2018.

Police and Fire

- **Healthy Pre-Retirement:** The Pub-2010 Headcount-Weighted, Safety, Employee, Male and Female tables, with future mortality improvements projected generationally through 2025 using scale MP-2018.
- **Healthy Post-Retirement:** The Pub-2010 Headcount-Weighted, Safety, Healthy Retiree, Male and Female tables, with future mortality improvements projected generationally through 2025 using scale MP-2018.
- **Disability Retirement:** The Pub-2010 Headcount-Weighted, Safety, Disabled Retiree, Male and Female tables, with future mortality improvements projected generationally through 2025 using scale MP-2018.

General and Court						
Sample Ages*	Healthy Pre-Retirement		Healthy Post-Retirement		Disabled Retirement	
	Future Life Expectancy (Years)		Future Life Expectancy (Years)		Future Life Expectancy (Years)	
	Men	Women	Men	Women	Men	Women
50	37.72	39.84	33.79	36.65	24.62	27.11
55	33.00	35.02	29.28	32.05	21.51	24.07
60	28.37	30.26	24.93	27.54	18.71	21.21
65	23.86	25.57	20.74	23.12	16.08	18.26
70	19.43	20.95	16.75	18.85	13.49	15.16
75	15.08	16.44	13.03	14.83	10.93	12.11
80	10.82	12.05	9.71	11.19	8.51	9.35

Police and Fire						
Sample Ages*	Healthy Pre-Retirement		Healthy Post-Retirement		Disabled Retirement	
	Future Life Expectancy (Years)		Future Life Expectancy (Years)		Future Life Expectancy (Years)	
	Men	Women	Men	Women	Men	Women
50	36.27	39.00	32.74	35.20	31.04	32.59
55	31.51	34.21	28.17	30.56	26.72	28.17
60	26.83	29.47	23.73	26.12	22.60	24.06
65	22.28	24.78	19.57	21.88	18.74	20.18
70	17.87	20.14	15.63	17.85	15.12	16.40
75	13.66	15.69	12.01	14.10	11.77	12.90
80	9.72	11.50	8.84	10.73	8.80	9.91

* The Pub-2010 rates shown above were based on a generational projection of mortality rates through the year 2025 using the MP-2018 projection scale and sample ages as of the valuation date.

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 the Police and Fire groups.

These tables were first used for the June 30, 2020 valuation of the Plan.



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.

Years of Service	% of Active Members Separating within Next Year			
	General	Court	Police	Fire
10	2.70%	2.70%	1.10%	1.10%
15	1.40	1.40	0.50	0.50
20	1.40	1.40	0.40	0.40
25	1.40	1.40	0.40	0.40
30 & over	1.40	1.40	0.40	0.40

The rates were first used for the December 31, 2020 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.

Retirement Ages	Percent of Eligible Active Members Retiring		
	General	Court	Police Command
50			30%
51			30
52			30
53			30
54			30
55	30%	20%	20
56	25	15	15
57	25	15	15
58	25	15	15
59	25	15	15
60	25	20	100
61	25	25	
62	30	30	
63	20	20	
64	25	25	
65	25	25	
66	30	30	
67	30	30	
68	30	30	
69	30	30	
70	100	100	

Years of Service	Percent of Eligible Active Members Retiring		
	Police Patrol Hired Before 1/1/2008	Fire Hired Before 7/1/2008	Police Command
25	30%	30%	
26	30	30	
27	30	30	
28	30	30	
29	30	30	
30	100	100	40%
31			40
32			40
33			40
34			40
35			100

General and Court division members who retire under Rule of 80 (with minimum age of 55) and age 60 with completion of 15 or more years of service are eligible for benefits under the Plan. Police patrol and firefighters who retire with 25 or more years of service are eligible for benefits under the Plan. Police Command Officers who retire at age 50 with 25 or more years of service (or with 30 years of service at any age) are eligible for benefits under the Plan.



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

General and Court

	One-Person	Two-Person/Family		Opt-Out
		Electing	Continuing	
Male	36%	54%	100%	10%
Female	36%	54%	100%	10%

Police and Fire

	One-Person	Two-Person/Family		Opt-Out
		Electing	Continuing	
Male	23%	67%	100%	10%
Female	23%	67%	100%	10%

For the 10% of eligible, future retirees expected to “opt out” of coverage, it was assumed these individuals continued to opt out of coverage while under age 65. The opt out benefit payable to these individuals in lieu of coverage is quantified in the pension actuarial valuation. Upon reaching age 65, it was assumed that these individuals elected to “opt back into” the retiree medical plan with their eligible coverage.

Retirees under age 65 who are “opting out” of coverage as of the valuation date are treated similarly to future retirees opting out. While under age 65, these individuals are assumed to continue to opt out of coverage and have cash in lieu of coverage benefits quantified in the pension actuarial valuation. Upon reaching age 65, these individuals are assumed to “opt back into” the retiree medical plan with their eligible coverage.

Retirees age 65 and older who are “opting out” of coverage as of the valuation date are assumed to do so indefinitely. The opt out benefit payable to these individuals in lieu of coverage is quantified in the pension actuarial valuation.

Non-investment administration expenses: Administrative expenses used in the contribution determination are based on the actual administrative expenses paid during the 2022 fiscal year. This flat dollar administrative expense load is allocated between the General, Court, Police, and Fire groups evenly (a 25% share).

Other: Liabilities were loaded by 18% 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, 2022

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 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.

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.

