

**CITY OF GARDNER RETIREMENT SYSTEM**

Actuarial Valuation Report

January 1, 1999

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## Report Summary:

### Highlights

	<u>January 1, 1998</u>	<u>January 1, 1999</u>
<u>Contributions</u>		
Funding Schedule FY 2000	\$1,608,000	\$1,679,291
Funding Schedule FY 2001	1,666,000	1,742,093
 <u>Funded Ratios</u>		
GAS No. 25	59.9%	62.4%
 <u>Participants</u>		
Actives	268	347
Inactives	13	17
Retirees and Beneficiaries	191	194
Disabilities	<u>31</u>	<u>30</u>
Total	503	588
 <u>Payroll</u>		
Payroll of Active Members	\$7,411,290	\$8,568,299
Average Payroll	27,654	24,693
 <u>Normal Cost</u>		
Employer	609,195	665,881
Employee	518,653	638,223
Administrative Expenses	<u>75,000</u>	<u>75,000</u>
Total	1,202,848	1,379,104
 <u>Actuarial Accrued Liabilities</u>		
Actives	18,179,611	19,337,113
Retirees, Beneficiaries, Disabilities and Inactives	<u>18,000,238</u>	<u>20,467,812</u>
Total	36,179,849	39,804,925
 <u>Actuarial Value of Assets</u>		
	<u>21,657,853</u>	<u>24,845,984</u>
 <u>Unfunded Actuarial Accrued Liabilities</u>		
	\$14,521,996	\$14,958,941

## **Introduction**

This report presents the City of Gardner actuarial valuation findings as of January 1, 1999, under the Commonwealth of Massachusetts Retirement System.

The actuarial valuation is based on:

- Provisions of the General Laws of the Commonwealth of Massachusetts (principally Chapter 32) as of January 1, 1999, and Chapter 399 of the 1992 General Laws
- Employee data provided by the Retirement Board
- Asset information reported to the Public Employees' Retirement Administration Commission by the City of Gardner Retirement System
- Actuarial assumptions approved by the Retirement Board

The valuation also includes the contributions required under the provisions of Chapter 697 as interpreted by the Public Employees' Retirement Administration Commission (PERAC).

The valuation and appropriation forecast are prepared in accordance with Chapter 32 as of January 1, 1999. They account for:

- The passage of Chapter 306 regarding handling of administrative expenses
- The increased employee contribution rate of 9.0% of earnings effective for all future employees hired after July 1, 1996
- Annual cost-of-living adjustments (COLA) of 3.00%.

The valuation and forecast do not account for:

- Any other subsequent changes in the law
- Section 3(8)(c) transfers between systems
- State-mandated benefits
- Cost-of-living increases granted to retired members between 1982 and 1997. The cost of these benefits has been assumed by the State under Proposition Two and One-Half.

## **Actuarial Experience**

In performing the actuarial valuation, various assumptions are made regarding such factors as mortality, retirement, disability, and withdrawal rates as well as both payroll, salary increases, and investment returns. A comparison of the current valuation and the prior valuation is made to determine how closely actual experience corresponded to anticipated occurrences. This analysis of the system provides insight into the overall quality of the actuarial assumptions and helps explain any change in the annual appropriation.

During the past year since the last actuarial valuation the total required appropriation has increased as a dollar amount and decreased as a percentage of total payroll. The increase in the dollar amount is a result of net unfavorable actuarial experience during the preceding year. The primary component of unfavorable experience included an increase in the active population.

The actuarial assumptions have not been changed from the prior year.

## Actuarial Costs and Liabilities:

### Normal Costs

The normal cost is the sum of the individual normal costs determined for each member as if the assumptions underlying the cost determinations had been exactly realized. An individual normal cost represents that part of the cost of a member's future benefits which are assigned to the current year as if the costs are to remain level as a percentage of the member's pay. Benefits payable under all circumstances (i.e., retirement, death, disability, and terminations) are included in this calculation. Anticipated employee contributions to be made during the year are subtracted from the total normal cost to determine employer normal cost. The total normal cost is divided by total payroll to determine the normal cost as a percent of pay. The normal cost is shown in Table I.

**Table I**

	<u>January 1, 1998</u>	<u>January 1, 1999</u>
Superannuation	\$751,794	\$875,972
Death	57,908	108,958
Disability	242,041	268,401
Terminations	76,105	50,773
Administrative Expenses	<u>75,000</u>	<u>75,000</u>
Total Normal Cost	1,202,848	1,379,104
% of Pay	16.2%	16.1%
Employee Contributions	518,653	638,223
% of Pay	7.0%	7.4%
Employer Normal Cost	\$684,195	\$740,881
% of Pay	9.2%	8.6%

## Present Value of Actuarial Accrued Liabilities

The present value of actuarial accrued liabilities (AAL) represents today's value of all benefits earned by the actives and inactive. The AAL can be compared to the assets to determine the funded status of the Plan. The value of these earned benefits is shown in Table II below.

**Table II**

	<u>January 1, 1998</u>	<u>January 1, 1999</u>
Actives		
Superannuations	\$15,883,093	\$16,167,810
Death	809,515	1,107,789
Disability	1,745,532	2,230,189
Terminations	(258,529)	(168,675)
Inactives		
Retirees	13,866,923	15,918,251
Disabled Retirees	4,041,224	4,322,327
Inactives	<u>92,091</u>	<u>227,234</u>
Total	\$36,179,849	\$39,804,925

## Present Value of Future Benefits

The present value of future benefits represents today's value of all benefits earned by the inactive as well as all benefits earned and expected to be earned in the coming years by the active. The difference between the present value of future benefits and the present value of actuarial accrued liabilities is the value of benefit to be earned in the coming years. The value of the total expected benefits is shown in Table III.

**Table III**

	<u>January 1, 1998</u>	<u>January 1, 1999</u>
Actives		
Superannuation	\$22,047,408	\$25,732,504
Death	1,408,654	2,269,258
Disability	4,203,972	5,142,171
Terminations	593,785	436,263
Inactives		
Retirees	13,866,923	15,918,251
Disabled Retirees	4,041,224	4,322,327
Inactives	<u>92,091</u>	<u>227,234</u>
Total	\$46,254,057	\$54,048,008



## Funded Status and Appropriations:

### Market Value of Plan Assets

The trust fund composition on a market value basis is shown in Table IV.

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	<u>January 1, 1998</u>	<u>January 1, 1999</u>
Cash equivalents	\$0	\$0
Short term investments	0	0
Fixed income securities	0	0
Equities	21,554,258	24,810,268
Other	0	0
International	0	0
Accounts receivable	103,727	173,416
Accounts payable	(132)	(137,700)
Accrued income	<u>0</u>	<u>0</u>
Total Market Value	\$21,657,853	\$24,845,984
Total Actuarial Value	\$21,657,853	\$24,845,984

## Unfunded Actuarial Accrued Liabilities

Under the Entry Age Normal Actuarial Cost Method, the Actuarial Accrued Liability represents what the accumulated assets would have been as of the valuation date if:

- current plan provisions and assumptions had always been in effect,
- experience conformed exactly to assumptions, and
- the normal cost had been contributed each year since inception.

The actuarial value of the Fund's assets as of the end of the prior year are subtracted from the Actuarial Accrued Liability (AAL) to determine the Unfunded Actuarial Accrued Liability (UAAL) as of the valuation date. Over time, annual pension contributions will accumulate Plan assets equal to the AAL and the UAAL will be eliminated. Thereafter annual contributions equal to the normal cost will keep the Plan's assets and liabilities in balance. The UAAL is developed in Table V.

**Table V**

	<u>January 1, 1998</u>	<u>January 1, 1999</u>
Actuarial Accrued Liability	\$36,179,849	\$39,804,925
Actuarial Assets	<u>21,657,853</u>	<u>24,845,984</u>
Unfunded /(Surplus) Actuarial Accrued Liability	\$14,521,996	\$14,958,941
Funded Status	59.9%	62.4%

## Appropriations

The pension appropriation for the upcoming fiscal years have been calculated in accordance with the requirements set forth in Section 22D of Chapter 32 of the Massachusetts General Laws. These amounts were calculated to comply with the June 30, 2028, full funding mandate for all accrued liabilities. The pension appropriation is the sum of the:

- Employer normal cost,
- Increasing amortization of the prior unfunded actuarial accrued liability by June 30, 2028  
\$9,465,400 over 29 years with 4.5 % increasing payments
- Level amortization of the Early Retirement Incentive (ERI) liability by June 30, 2011  
\$373,042 over 12 years
- Level amortization of the current actuarial (gains)/losses by June 30, 2028  
\$478,029 over 29 years with 4.5 % increasing payments
- Interest adjustment for payments deposited in December.

The pension appropriation is shown in Table VI.

**Table VI**

	<u>January 1, 1998</u>	<u>January 1, 1999</u>
Normal cost	\$684,195	\$740,881
Amortization payment of prior liability	821,901	498,508
Amortization payment of the ERI liability	45,834	45,834
Amortization payment of current (gains)/losses	<u>0</u>	<u>25,176</u>
Total cost	\$1,551,930	\$1,310,399
% of Pay	20.9%	15.3%
Fiscal 2000 cost	\$1,608,000	\$1,679,291
Fiscal 2001 cost	\$1,666,000	\$1,742,093

## **Appropriation Forecast**

The following exhibit forecasts employer and employee contributions over the next 32 years under the adopted funding schedule.

Note that the forecast is based upon an "open group" method. This method assumes that sufficient employees will be hired each year to keep the number constant. The total payroll of the system is expected to increase 4.5% per year. The employee contribution rate is expected to increase to 10.5% by 2028 with replacement of members contributing 5%, 7%, and 8% with those contributing 9%. Payments are assumed to be spread over the fiscal year.

The employer total cost is expected to gradually increase during the next 29 years until the unfunded liabilities are completely paid off, at which time only the normal cost will remain. The total cost increase represents on average about 19.6% of payroll and will decrease to 15.7% by the time the unfunded liabilities are fully paid off, leaving only a normal cost of 6.0% thereafter. The decrease in the cost as a percentage of payroll is a result of the increase in member deductions.

**Appropriation Forecast**  
**(amounts in thousands)**

Fiscal Year Ending	Payroll*	Employee Contribution	Employer Normal Cost with Interest	Amortization Payments with Interest	Employer Total Cost with Interest	Employer Total Cost % of Payroll	Funded Ratio %**
2000	\$8,568	\$638	\$800	\$879	\$1,679	19.6	62.4
2001	8,954	677	826	916	1,742	19.5	63.9
2002	9,357	717	852	955	1,807	19.3	65.5
2003	9,778	760	879	996	1,875	19.2	67.0
2004	10,218	806	906	1,039	1,945	19.0	68.5
2005	10,678	854	934	1,083	2,018	18.9	70.1
2006	11,158	904	963	1,130	2,093	18.8	71.6
2007	11,660	957	993	1,179	2,171	18.6	73.1
2008	12,185	1,014	1,023	1,229	2,252	18.5	74.6
2009	12,733	1,073	1,054	1,282	2,337	18.4	76.1
2010	13,306	1,136	1,086	1,338	2,424	18.2	77.6
2011	13,905	1,202	1,119	1,396	2,514	18.1	79.0
2012	14,531	1,272	1,152	1,407	2,559	17.6	80.5
2013	15,185	1,346	1,186	1,470	2,656	17.5	81.8
2014	15,868	1,424	1,220	1,536	2,757	17.4	83.2
2015	16,582	1,506	1,256	1,606	2,861	17.3	84.5
2016	17,328	1,593	1,292	1,678	2,970	17.1	85.8
2017	18,108	1,684	1,329	1,753	3,082	17.0	87.0
2018	18,923	1,781	1,366	1,832	3,198	16.9	88.3
2019	19,774	1,882	1,404	1,915	3,319	16.8	89.5
2020	20,664	1,990	1,443	2,001	3,444	16.7	90.7
2021	21,594	2,103	1,483	2,091	3,574	16.6	91.8
2022	22,566	2,222	1,523	2,185	3,708	16.4	92.9
2023	23,581	2,348	1,564	2,283	3,847	16.3	94.0
2024	24,643	2,480	1,605	2,386	3,991	16.2	95.1
2025	25,751	2,620	1,647	2,493	4,141	16.1	96.1
2026	26,910	2,767	1,690	2,606	4,295	16.0	97.1
2027	28,121	2,922	1,732	2,723	4,455	15.8	98.1
2028	29,387	3,086	1,776	2,845	4,621	15.7	99.1
2029	30,709	3,224	1,856	0	1,856	6.0	100.0
2030	32,091	3,370	1,939	0	1,939	6.0	100.0
2031	33,535	3,521	2,027	0	2,027	6.0	100.0

\* Calendar basis

\*\* As of beginning of the Fiscal Year

## **GAS No. 25 and GAS No. 27**

Effective for periods beginning after June 15, 1997, the Governmental Accounting Standards Board (GASB) requires the disclosure of pension related liabilities for public employer financial statements in accordance with Statements 25 and 27. These statements, which replace GAS Statement No. 5, must be adhered to by any public employee retirement system that follows Generally Accepted Accounting Principles (GAAP).

These disclosures are intended to establish a reporting framework that distinguishes between:

- current financial information about plan assets and financial activities,
- actuarially determined information from a long-term perspective,
- the funded status of the plan, and
- progress being made in accumulating sufficient assets to pay benefits when due.

Footnote disclosures required by GASB Statement No. 25 and 27 include a description of the plan, a summary of significant accounting policies, and information about contributions, legally required reserves, and investment concentrations. As a result of the oversight of the Public Employees Retirement Administration Commission (PERAC) and the conversion of unpaid contributions to pension related debt, the Net Pension Obligation (NPO) as required by Statement No. 27 will effectively always be equal to \$0. The required disclosure information is shown in Table VII.

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	<u>January 1, 1998</u>	<u>January 1, 1999</u>
(1) Actuarial Accrued Liability	\$36,179,849	\$39,804,925
(2) Actuarial Value of Assets	<u>21,657,853</u>	<u>24,845,984</u>
(3) Unfunded Actuarial Accrued Liability	14,521,996	14,958,941
(4) Funded Ratio (2)/(1)	59.9%	62.4%
(5) Covered Payroll	\$7,411,290	\$8,568,299
(6) UAAL as a percentage of payroll: (3)/(5)	195.9%	174.6%
(7) Annual Required Contribution (ARC)	\$1,551,930	\$1,679,291
(8) Net Pension Obligation	\$0	\$0

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**PERAC Annual Statement**  
**APPENDIX PAGE 3**  
**ACTUARIAL VALUATION AND ASSUMPTIONS**

The most recent actuarial valuation of the System was prepared by PricewaterhouseCoopers LLP as of January 1, 1999.

The normal cost for employees on that date was:	\$638,223	7.4% of pay
The normal cost for the employer was:	665,881	7.8% of pay

The actuarial liability for active members was:	\$19,337,113
The actuarial liability for retired members was:	20,467,812
Total actuarial accrued liability:	39,804,925
System assets as of that date:	24,845,984
Unfunded actuarial accrued liability	\$14,958,941

The ratio of system's assets to total actuarial liability was 62.4%

The principal actuarial assumptions used in the valuation are as follows:

Investment Return:	8.0%
Rate of Salary Increase:	5.5%

**SCHEDULE OF FUNDING PROGRESS**

Actuarial Valuation Date	Actuarial Value of Assets	Actuarial Accrued Liability	Unfunded Actuarial Accrued Liability	Funded Ratio	Covered Payroll	UAAL as a percent of Covered Payroll
	(a)	(b)	(b-a)	(a/b)	(c)	(b-a)/c
01/01/99	\$24,845,984	\$39,804,925	\$14,958,941	62.4%	\$8,568,299	174.6%
01/01/98	21,657,853	31,529,849	9,871,996	68.7%	7,411,290	133.2%
01/01/95	13,249,355	25,236,042	11,986,687	52.5%	6,327,535	189.4%
01/01/92	10,431,980	22,279,978	11,847,998	46.8%	5,320,785	222.7%

Attach Copy of Current Approved Funding Schedule

**EXHIBITS**



Age/Service Distribution with Salary as of January 1, 1999

Attained Age	Average Salary									
	<5	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40+	Total
< 20	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0
20-24	5	0	0	0	0	0	0	0	0	5
	26,762	0	0	0	0	0	0	0	0	26,762
25-29	13	0	0	0	0	0	0	0	0	13
	26,042	0	0	0	0	0	0	0	0	26,042
30-34	21	4	9	0	0	0	0	0	0	34
	22,709	33,838	29,462	0	0	0	0	0	0	25,806
35-39	30	4	11	4	0	0	0	0	0	49
	17,580	24,602	26,522	26,573	0	0	0	0	0	20,895
40-44	39	6	6	6	5	0	0	0	0	62
	18,739	22,485	29,317	34,644	40,521	0	0	0	0	23,421
45-49	23	5	9	7	8	6	0	0	0	58
	17,625	20,588	17,772	31,826	40,497	38,006	0	0	0	24,880
50-54	16	5	10	4	13	16	5	0	0	69
	21,441	24,217	20,683	24,916	32,834	36,262	37,264	0	0	28,464
55-59	5	1	6	3	1	10	2	1	0	29
	17,861	34,082	17,923	28,766	17,167	35,231	39,480	37,845	0	27,707
60-64	5	2	7	1	1	2	1	2	0	21
	15,969	33,263	14,373	24,608	19,875	24,032	12,442	16,185	0	18,302
65-69	2	2	0	0	1	1	0	0	0	6
	14,845	15,616	0	0	19,790	54,841	0	0	0	22,592
70+	0	0	0	1	0	0	0	0	0	1
	0	0	0	12,187	0	0	0	0	0	12,187
Total Employees	159	29	58	26	29	35	8	3	0	347
Average Salary	19,841	24,984	22,547	29,219	34,836	36,098	34,715	23,405	0	24,693

Retiree Distribution as of January 1, 1999

Attained Age	Number of Employees			Total Payments		
	Male	Female	Total	Male	Female	Total
< 20	0	0	0	0	0	0
20-24	0	0	0	0	0	0
25-29	0	0	0	0	0	0
30-34	0	0	0	0	0	0
35-39	0	0	0	0	0	0
40-44	0	0	0	0	0	0
45-49	1	0	1	11,219	0	11,219
50-54	1	0	1	43,242	0	43,242
55-59	11	3	14	238,264	11,784	250,049
60-64	11	8	19	192,943	49,987	242,930
65-69	16	18	34	261,151	128,060	389,211
70-74	24	16	40	227,733	98,271	326,004
75-79	21	15	36	165,557	103,135	268,692
80-84	13	6	19	64,744	26,268	91,013
85-89	15	5	20	99,361	37,650	137,011
90-94	5	4	9	59,707	10,690	70,397
95-99	0	1	1	0	2,299	2,299
Total	118	76	194	1,363,922	468,145	1,832,067
Average (Age/Payment)	73.8	73.8	73.8	11,559	6,160	9,444
Frequency Percent	60.8	39.2	100	74.4	25.6	100

Disabled Retiree Distribution as of January 1, 1999

Attained Age	Number of Employees			Total Payments		
	Male	Female	Total	Male	Female	Total
< 20	0	0	0	0	0	0
20-24	0	0	0	0	0	0
25-29	0	0	0	0	0	0
30-34	0	0	0	0	0	0
35-39	0	0	0	0	0	0
40-44	1	0	1	28,703	0	28,703
45-49	1	0	1	35,148	0	35,148
50-54	6	0	6	117,145	0	117,145
55-59	5	0	5	85,596	0	85,596
60-64	3	0	3	59,411	0	59,411
65-69	6	0	6	84,626	0	84,626
70-74	3	0	3	37,089	0	37,089
75-79	2	0	2	24,369	0	24,369
80-84	3	0	3	32,721	0	32,721
85-89	0	0	0	0	0	0
90-94	0	0	0	0	0	0
95-99	0	0	0	0	0	0
Total	30	0	30	504,809	0	504,809
Average (Age/Payment)	63.4	N/A	63.4	16,827	N/A	16,827
Frequency Percent	100	N/A	100	100	N/A	100

## EXHIBIT 4 – SUMMARY OF PLAN PROVISIONS:

This summary is prepared in accordance with Chapter 32 as of January 1, 1999, and does not take into account any subsequent changes.

### 1. Administration

Each of the 107 contributory retirement systems for public employees for the Commonwealth of Massachusetts are guided by the applicable provisions of Chapter 32 of the Massachusetts general laws and other applicable statutes. Although these boards operate semi-independently, there is a uniform set of rules governing benefits, eligibility, contributions, financing, and accounting.

### 2. Participation

Participation is mandatory for all full-time employees whose employment commences prior to age 65. Eligibility with respect to part-time, professional, temporaries, or intermittent employment is governed by the local board. Membership is optional for certain elected officials, State officials appointed by the Governor, and certain hospital interns.

There are four classes of membership as follows:

- (i) Group 1: Most general employees in State and local government
- (ii) Group 2: Certain specified hazardous duty positions
- (iii) Group 3: State police officers and inspectors
- (iv) Group 4: Local police officers and firefighters

For members in more than one group, participation will be proportional.

### 3. Salary

Salary is defined as gross regular compensation. Salary does not include bonuses, overtime, severance pay, unused sick leave credit, or other similar compensation.

### 4. Member Contributions

Member contributions vary depending upon date hired as follows:

<u>Date of Hire</u>	<u>Member Contribution Rate</u>
Prior to 1975	5.0% of Salary
1975 to 1983	7.0% of Salary
1984 to 1996	8.0% of Salary
1996 and Later plus	9.0% of Salary
1979 and Later	2.0% of Salary in excess of \$30,000

### 5. Average Salary

Average salary is used to determine a participant's benefit. It is defined as the average salary during the three consecutive-year period that produces the highest average. (Alternatively, if a greater amount results, it is the average rate of salary earned during the period or periods, whether or not consecutive, that constitutes the last three years preceding retirement.)

### 6. Creditable Service

In general, creditable service is awarded during the period in which a member contributes to the retirement system.

**7. Service Retirement**

a. Eligibility:

For an employee to be eligible for service retirement (also referred to as superannuation), the following conditions are to be met:

- (i) completion of 20 years of service
- (ii) for an employee prior to January 1, 1978, attainment of age 55 as an active member
- (iii) for an employee on or after January 1, 1978, attainment of age 55 as an active member and completion of ten years of service
- (iv) if an employee is a State police officer (Group 3), attainment of age 50

b. Benefit Amount:

The retirement allowance is determined as a product of the participant's Benefit Rate times Average Salary times Creditable Service, where Benefit Rate is determined from the following table:

<u>Age at Retirement</u>	<u>Percentage of Average Salary</u>		
	<u>Group 1</u>	<u>Group 2</u>	<u>Group 4</u>
65 or Over	.025	.025	.025
64	.024	.025	.025
63	.023	.025	.025
62	.022	.025	.025
61	.021	.025	.025
60	.020	.025	.025
59	.019	.024	.025
58	.018	.023	.025
57	.017	.022	.025
56	.016	.021	.025
55	.015	.020	.025
54	.014	.014	.024
53	.013	.013	.023
52	.012	.012	.022
51	.011	.011	.021
50	.010	.010	.020
49	.009	.009	.019
48	.008	.008	.018
47	.007	.007	.017
46	.006	.006	.016
45	.005	.005	.015
44	.004	.004	.004
43	.003	.003	.003
42	.002	.002	.002
41	.001	.001	.001

For Group 3 (State police), the benefit is 50% of the participant's final year's rate of regular salary, plus an additional 1% for each year of service in excess of 20 years.

In addition, for veterans (all groups) there is an additional benefit of \$15 per year for each year of service, up to a maximum of 20 years of service.

## **8. Deferred Vested Retirement**

### a. Eligibility:

A participant who has completed ten or more years of creditable service is eligible for a deferred vested retirement benefit. If termination is involuntary, the participant is vested after 6 years.

### b. Benefit Amount:

The participant's accrued benefit is payable commencing at age 55, or may be deferred until later at the employee's option.

### c. Refund of Contributions:

In lieu of the deferred pension benefit, a member may elect to receive a refund of their accumulated contributions. Members with ten or more years of service are entitled to 100% of the credited interest on their contributions. Members with five to ten years of service are entitled to 50% of the credited interest on their contributions. No credited interest is provided for members with less than five years of service.

## **9. Accidental Disability**

### a. Eligibility:

Participants are eligible for an accidental disability benefit, regardless of service or age, if they become permanently and totally incapacitated for further duty as a result of personal injury sustained while in the performance of duties.

### b. Benefit Amount:

The accidental disability amount is 72% of annual salary plus \$450 per year for each child plus an additional annuity based upon accumulated Member Contributions with credited interest.



## 10. Ordinary Disability

### a. Eligibility:

An ordinary disability occurs when a member becomes permanently and totally disabled due to sickness or injury that is not job related. In order to be eligible for an ordinary disability benefit, a member must have ten years of service (and be less than age 55).

### b. Benefit Amount:

The ordinary disability amount is equal to the accrued retirement benefit as if the member were age 55. If the member was a veteran, the benefit is 50% of the member's final rate of Salary during the preceding 12 months, plus an annuity based upon accumulated Member Contributions plus credited interest. If the participant is over age 55, he will receive not less than the superannuation allowance to which he is entitled.

## 11. Survivor Benefits

### a. Occupational Death:

The survivors of a member who dies due to an occupational injury will be entitled to a lump sum return of contributions plus a pension benefit equal to 72% of the participant's annual Salary.

### b. Non-Occupational Death:

Upon the death of a member other than due to an occupational injury, the designated beneficiary will be entitled to a retirement benefit as if Option C had been elected with a minimum of \$250 per month to the surviving spouse, plus \$120 for the first child, plus \$90 for each additional child. If no beneficiary is designated and if the employee worked two years, and is married at least one year, the spouse may elect benefits. If there is no designated beneficiary or surviving spouse, then member contributions are returned. If there are dependent children but no surviving spouse, they may elect minimum survivor benefits of \$250 per month plus \$120 for the first child and \$90 for each additional child.

c. Refund of Contributions:

Upon the death of a member not entitled to survivor benefits, the beneficiary is entitled to a refund of all member contributions with interest.

**12. Cost-of-Living Increases**

In accordance with the adoption of Chapter 17 of the Acts of 1997 the granting of a cost-of-living adjustment will be determined by an annual vote by the Retirement Board. The amount of increase will be based upon the Consumer Price Index, limited to a maximum of 3.0%, beginning on July 1. All retirees, disabled retirees, and beneficiaries who have been receiving benefits payments for at least one year as of July 1 are eligible for the adjustment. The maximum pension benefit on which a COLA may be granted is \$12,000. All COLA's granted to members after 1981 and prior to July 1, 1998 are deemed to be an obligation of the State and are not the liability of the Retirement System.

**13. Postretirement Death Benefits**

Any benefits following the death of a member after retirement are based upon the form of benefit the participant elected at the time of retirement. There are three available forms as follows:

- (i) Option A – Life annuity
- (ii) Option B – Life annuity with death benefit equal to excess of member contributions plus credited interest to retirement over annuity benefit paid to member
- (iii) Option C – Life annuity with 66-2/3% of benefit continued after death of member to designated joint annuitant

## **EXHIBIT 5 – ACTUARIAL METHODS AND ASSUMPTIONS:**

The actuarial cost method, factors, and assumptions used in determining cost estimates are presented below.

### **1. Member Data**

The member data used in the determination of cost estimates consist of pertinent information with respect to the active, inactive, retired, and disabled members of the employer as supplied by the employer to the actuary.

### **2. Valuation Date**

January 1, 1999.

### **3. Actuarial Cost Method**

The costs of the Plan have been determined in accordance with the individual entry age normal actuarial cost method.

### **4. Rate of Investment Return**

It is assumed that the assets of the fund will accumulate at a compound annual rate of 8.0% per annum.

### **5. Salary Scale**

It is assumed that salaries including longevity will increase at a rate of 5.5% per year.

### **6. Cost-of-Living Increases**

Cost-of-living increases have been assumed to be 3.0% of the lessor of the pension amount and \$12,000 per year.

7. **\$30,000 Pay Cap**

The \$30,000 salary cap no longer applies for purposes of benefit determination.

8. **Value of Investments**

Assets held by the fund are valued at market value as reported by the Public Employees' Retirement Administration Commission (PERAC).

9. **Annual Rate of Withdrawal Prior to Retirement**

Based on an analysis of experience, the assumed annual rates of withdrawal may best be illustrated by the following rates at the following ages:

<u>Age</u>	<u>General Employees</u>	<u>Police and Fire Employees</u>
20	0.1200	0.0210
30	0.0555	0.0165
40	0.0231	0.0056
50	0.0146	0.0000

10. **Annual Rate of Mortality**

It is assumed that both preretirement and postretirement mortality are represented by the 1983 Group Annuity Mortality Table (with margin) for males and females. Mortality for disabled members is represented by the 1983 Annuity Mortality Table set forward ten years for all disabled members.

## 11. Service Retirement

Based on an analysis of experience, the assumed annual retirement rates are illustrated at the following ages:

<u>Age</u>	<u>General Employees</u>	<u>Police and Fire Employees</u>
50	0.0000	0.3200
51	0.0000	0.0721
52	0.0000	0.0590
53	0.0000	0.0800
54	0.0000	0.0771
55	0.1255	0.1551
56	0.0321	0.0911
57	0.0310	0.0909
58	0.0334	0.1190
59	0.0348	0.1142
60	0.0784	0.2395
61	0.0692	0.1360
62	0.1511	0.1950
63	0.1071	0.1253
64	0.1037	0.1873
65	0.3568	1.0000
66	0.2214	1.0000
67	0.2159	1.0000
68	0.2164	1.0000
69	0.2536	1.0000
70	1.0000	1.0000

## 12. Annual Rate of Disability Prior to Retirement

Based on an analysis of experience, the assumed annual rates of disability may best be illustrated by the following probabilities at the following ages:

<u>Attained Age</u>	<u>General Employees</u>	<u>Police and Fire Employees</u>
20	0.0006	0.0010
30	0.0011	0.0023
40	0.0022	0.0089
50	0.0061	0.0150

In addition, it is assumed for the general employees that 45% of all disabilities are ordinary (55% are service connected). For police and fire employees, 10% of all disabilities are assumed to be ordinary (90% are service connected).

## 13. Family Composition

It is assumed that 80% of all members will be survived by a spouse and that females (males) are three years younger (older) than members.

## 14. Administrative Expenses

The normal cost is increased by an amount equal to the anticipated administrative expenses for the upcoming fiscal year. The amount for fiscal year 1999 is \$75,000 and is anticipated to increase at 4.5% per year.

## **EXHIBIT 6 – GLOSSARY OF TERMS:**

This glossary summarizes the technical terms contained in this report.

### **1. Actuarial Accrued Liability**

That portion of the Actuarial Present Value of plan benefits that is not provided for by future employer Normal Costs or employee contributions.

### **2. Actuarial Assumptions**

Assumptions as to the occurrence of future events affecting the Retirement System such as:

- Rates of investment returns
- Increases in a member's salary
- Inflation
- The probability of mortality, turnover, disablement
- Retirement at each age and other relevant items

### **3. Actuarial Cost Method**

A procedure for allocating the Actuarial Present Value of pension plan benefits between Normal Cost and Actuarial Accrued Liability.

### **4. Actuarial Present Value**

The single sum amount required at the valuation date that is required to provide for anticipated future events based upon the terms of the plan and the Actuarial Assumptions.

### **5. Forecast**

A projection of future benefit payments or contribution requirements based upon the terms of the plan, the current asset amounts, the Actuarial Assumptions, and additional assumptions as to the replacement of terminating employees with new employees.

**6. Normal Cost**

That portion of the Actuarial Present Value of future benefits that is assigned to the current year.

**7. Unfunded Actuarial Accrued Liability**

That portion of the Actuarial Accrued Liability that is not provided for by current actuarial value of assets.

**8. Valuation Method**

The method used to divide the cost of future benefits among the Actuarial Accrued Liability, the current year's Normal Costs, and future years' Normal Costs. The resulting current funding requirement is then determined as the current year's Normal Cost plus the payment necessary to amortize the Unfunded Actuarial Liability.

**9. Vested Liability**

That portion of the Actuarial Present Value of Accrued Benefits that a member would be entitled to if the member terminated employment with the employer as of the valuation date.



## **CERTIFICATION:**

This report fairly represents the actuarial position of the City of Gardner Retirement System contributing as of January 1, 1999, in accordance with generally accepted actuarial principles applied consistently with the preceding valuation. In our opinion, the actuarial assumptions used to compute actuarial accrued liability and normal cost is reasonably related to plan experience and to reasonable expectations, and represents our best estimate of anticipated plan experience.

PricewaterhouseCoopers LLP

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Daniel W. Sherman, ASA, MAAA  
Enrolled Actuary No. 99-4086

July 2, 1999