

**CHARLOTTE FIREFIGHTERS'  
RETIREMENT SYSTEM  
REPORT OF ACTUARY  
ON THE VALUATION  
PREPARED AS OF JULY 1, 2001**

**BUCK  
CONSULTANTS**

200 Galleria Parkway, N.W. Suite 1900  
Atlanta, Georgia 30339-5945

October 22, 2001

Board of Trustees  
Charlotte Firefighters' Retirement System  
428 East Fourth Street  
Suite 205  
Charlotte, North Carolina 28202

Dear Members of the Board:

We are pleased to submit herewith the results of the annual actuarial valuation of the City of Charlotte Firefighters' Retirement System prepared as of July 1, 2001. The purpose of this report is to provide a summary of the funded status of the System as of July 1, 2001, to recommend rates of contribution and to provide accounting information under Governmental Accounting Standards Board Statements No. 25 and 27 (GASB 25 and 27). While not verifying the data at source, the actuary performed tests for consistency and reasonability.

The promised benefits of the System are included in the actuarially calculated contribution rates which are developed using the entry age normal cost method. Actuarial value of plan assets is used for actuarial valuation purposes. Gains and losses are reflected in the unfunded accrued liability that is being amortized by regular annual contributions as a level percentage of payroll within a 19-year period, on the assumption that payroll will increase by 3.75% annually. The assumptions recommended by the actuary and adopted by the Board are in the aggregate reasonably related to the experience under the System and to reasonable expectations of anticipated experience under the System.

Since the previous valuation, the Plan has been amended to change the definition of compensation for determining Final Average Salary to include up to 24 unused sick days rather than the current maximum of 4.8 days. In addition, vested members who terminate and choose to receive a refund of contributions in lieu of a deferred benefit are now entitled to 4% interest compounded annually on their contributions. Also, beneficiaries of members who die prior to retirement eligibility now receive interest of 4% a year on the deceased member's contributions rather than 2-1/2%.

The valuation has been prepared in accordance with the parameters set forth in Statement Nos. 25 and 27 of the Governmental Accounting Standards Board. The annual required contribution (ARC) of the City under GASB for the fiscal year ending June 30, 2002 is 12.65% of payroll, which will liquidate the unfunded accrued liability over a 19-year period.

We have prepared the Schedule of Active Member Valuation Data, Schedule of Retirants and Beneficiaries Added to and Removed from Rolls, the Solvency Test and the Analysis of Financial Experience for the actuarial section of the Annual Report and the Schedule of Funding Progress and Trend Information for the financial section of the Annual Report.

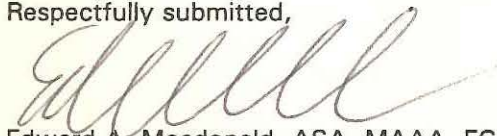
This is to certify that the independent consulting actuary is a member of the American Academy of Actuaries and has experience in performing valuations for public retirement systems, that the valuation was prepared in accordance with principles of practice prescribed by the Actuarial Standards Board, and that the actuarial calculations were performed by qualified actuaries in accordance with accepted actuarial procedures, based on the current provisions of the retirement system and on actuarial assumptions that are internally consistent and reasonably based on the actual experience of the System.

In our opinion the System is operating on an actuarially sound basis. Assuming that contributions to the System are made by the City from year to year in the future at the rates recommended on the basis of the successive actuarial valuations, the continued sufficiency of the retirement fund to provide the benefits called for under the System may be safely anticipated.

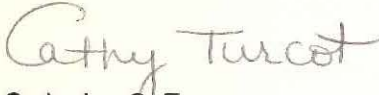
We trust that the report will meet the approval of the Board and will furnish the desired information concerning the financial condition of the Retirement System.

The Table of Contents, which immediately follows, outlines the material contained in the report.

Respectfully submitted,



Edward A. Macdonald, ASA, MAAA, FCA  
Principal and Consulting Actuary



Catherine G. Turcot  
Actuarial Manager



## TABLE OF CONTENTS

<u>Section</u>	<u>Item</u>	<u>Page No.</u>
I	Summary of Principal Results	1
II	Membership Data	2
III	Assets	3
IV	Comments on Valuation	3
V	Contributions Payable	4
VI	Accounting Information	5
VII	Experience	8
 <u>Schedule</u>		
A	Development of the Unfunded Actuarial Accrued Liability	9
B	Valuation Balance Sheet and Solvency Test	10
C	Development of the Actuarial Value of Assets	12
D	Asset Information	13
E	Outline of Actuarial Assumptions and Methods	14
F	Actuarial Cost Method	16
G	Summary of Main System Provisions as Interpreted for Valuation Purposes	17
H	Tables of Membership Data	19

**CHARLOTTE FIREFIGHTERS' RETIREMENT SYSTEM  
REPORT OF ACTUARY  
ON THE VALUATION  
PREPARED AS OF JULY 1, 2001**

**SECTION I - SUMMARY OF PRINCIPAL RESULTS**

1. For convenience of reference, the principal results of the current and preceding valuations are summarized below.

<b>Valuation Date</b>	<b>July 1, 2001</b>	<b>July 1, 2000</b>
Number of active members	853	780
Annualized compensation	\$ 38,079,024	\$ 33,079,899
Retired members and beneficiaries:		
Number	389	394
Annual allowances	\$ 12,824,893	\$ 13,000,973
Number of terminated vested members	2	1
Assets:		
Market Value	\$239,904,885	\$260,213,127
Actuarial Value	246,613,781	235,900,880
Unfunded actuarial accrued liability	\$ 8,152,804	\$ 3,882,796
Amortization Period	19 years	6 years
<b>Fiscal Year Ending</b>	<b>June 30, 2002</b>	<b>June 30, 2001</b>
City annual required contribution rate (ARC):		
Normal (including expenses of 0.75%)	11.11%	10.24%
Accrued liability	<u>1.54</u>	<u>2.41</u>
Total	12.65%	12.65%
Member contribution rate	12.65%	12.65%

2. The major benefit and contribution provisions of the System as reflected in the valuation are summarized in Schedule G. Since the previous valuation, the Plan has been amended to change the definition of compensation for determining Final Average Salary to include up to 24 unused sick days rather than the current maximum of 4.8 days. In addition, vested members who terminate and choose to receive a refund of contributions in lieu of a deferred benefit are now entitled to 4% interest compounded annually on their contributions. Also, beneficiaries of members who die prior to retirement eligibility now receive interest of 4% a year on the deceased member's contributions rather than 2-1/2%.

3. Schedule E of this report outlines the full set of actuarial assumptions and methods used in the valuation. There have been no changes since the previous valuation.
4. The entry age actuarial cost method was used to prepare the valuation. Schedule F contains a brief description of the actuarial cost method.
5. Comments on the valuation results as of July 1, 2001 are given in Section IV and further discussion of the contributions is set out in Section V.

#### SECTION II - MEMBERSHIP DATA

1. Data regarding the membership of the System for use as a basis of the valuation were furnished by the Retirement System office. The valuation included 853 active members with annualized compensation totaling \$38,079,024.
2. The following table shows the number of retired members and beneficiaries as of July 1, 2001 together with the amount of their annual retirement benefits payable under the System as of that date.

**THE NUMBER AND ANNUAL BENEFITS OF  
RETIRED MEMBERS AND BENEFICIARIES  
AS OF JULY 1, 2001**

GROUP	NUMBER*	ANNUAL RETIREMENT BENEFITS
Service Retirements	317	\$ 11,326,246
Disability Retirements	59	1,272,758
Beneficiaries of Deceased Members	<u>13</u>	<u>225,889</u>
Total	389	\$ 12,824,893

\* In addition, there are two terminated members entitled to deferred vested benefits.

3. Table 1 of Schedule H shows the distribution by age and years of membership service of the number of active members included in the valuation, while Table 2 shows the number and annual benefits of retired members and beneficiaries included in the valuation, distributed by age. Table 3 shows the schedule of active member valuation data and Table 4 shows the schedule of retirants and beneficiaries added to and removed from the rolls.



### SECTION III - ASSETS

As of July 1, 2001, the total market value of assets amounted to \$239,904,885. The actuarial value of assets used for the current valuation was \$246,613,781. Schedule C shows the development of the actuarial value of assets as of July 1, 2001. Schedule D shows the allocation of the System's assets and the market value of assets for three years.

### SECTION IV - COMMENTS ON VALUATION

1. Schedule B of this report contains the valuation balance sheet which shows the present and prospective assets and liabilities of the System as of July 1, 2001. The valuation was prepared in accordance with the actuarial assumptions set forth in Schedule E and the actuarial cost method which is described in Schedule F.
2. The valuation balance sheet shows that the System has total prospective liabilities of \$350,838,857 of which \$121,075,233 is for the prospective benefits payable on account of present retired members, beneficiaries of deceased members, and terminated members entitled to deferred benefits, and \$229,763,624 is for the prospective benefits payable on account of present active members. Against these liabilities, the System has a total present actuarial value of assets of \$246,613,781 as of July 1, 2001. The difference of \$104,225,076 between the total liabilities and the total present assets represents the present value of future contributions.
3. The contributions to the System consist of normal contributions and accrued liability contributions. The valuation indicates that normal contributions at the rate of 23.01% of payroll are required under the entry age method. Of this amount, 12.65% is paid by the members and the remaining 10.36% is required by the City.
4. Prospective normal contributions at the rate of 23.01% have a present value of \$96,072,272. When this amount is subtracted from \$104,225,076 is the present value of the total future contributions to be made, there remains \$8,152,804 as the amount of unfunded accrued liability contributions. The development of the unfunded accrued liability is shown in Schedule A.

**SECTION V - CONTRIBUTIONS PAYABLE**

1. The contributions consist of a normal contribution and an accrued liability contribution as determined by actuarial valuation.
2. The normal contribution rate is calculated as the level percentage of payroll which, if applied for the average new member during the entire period of his anticipated covered service, would be required to meet the cost of all benefits payable on his behalf. On the basis of the valuation the normal contribution rate was determined to be 23.01%.
3. Section 24 of Title V of the Charlotte Firefighters' Retirement System Act states that each member shall contribute an amount equal to the Member's Compensation multiplied by 12.65%.
4. The City normal contribution rate is equal to the difference between the normal contribution rate of 23.01% and the member contribution rate of 12.65%, or 10.36% of payroll. An additional 0.75% is required for expenses, making the total City normal rate 11.11% of payroll.
5. Section 25 of Title V of the Charlotte Firefighters Retirement System Act states that the City of Charlotte shall contribute an amount equal to the Member's Compensation multiplied by 12.65%.
6. Based on a total employer rate of 12.65%, the annual accrued liability contribution rate is determined to be 1.54% of payroll. This rate will be sufficient to amortize the unfunded actuarial accrued liability within approximately 19 years following the valuation date, on the assumption that the payroll will increase 3.75% each year.



7. The following table summarizes the employer contributions which were determined by the July 1, 2001 valuation and are recommended for use.

**CITY ANNUAL REQUIRED CONTRIBUTIONS (ARC)  
FOR FISCAL YEAR ENDING JUNE 30, 2002**

CONTRIBUTION	PERCENTAGE OF ACTIVE MEMBERS' COMPENSATION
Normal (including expenses of 0.75%)	11.11%
Accrued Liability	<u>1.54</u>
Total	12.65%

**SECTION VI - ACCOUNTING INFORMATION**

1. Governmental Accounting Standards Board Statements 25 and 27 set forth certain items of required supplementary information to be disclosed in the financial statements of the System and the employer. One such item is a distribution of the number of employees by type of membership, as follows:

**NUMBER OF ACTIVE AND RETIRED PARTICIPANTS  
AS OF JULY 1, 2001**

GROUP	NUMBER
Retired participants and beneficiaries currently receiving benefits	389
Terminated participants and beneficiaries entitled to benefits but not yet receiving benefits	2
Active Participants	<u>853</u>
Total	1,244

2. Another such item is the schedule of funding progress as shown below.

**SCHEDULE OF FUNDING PROGRESS**  
Dollar Amounts in Thousands

Actuarial Valuation Date	Actuarial Value of Assets ( a )	Actuarial Accrued Liability (AAL) Entry Age ( b )	Unfunded AAL (UAAL) ( b - a )	Funded Ratio ( a / b )	Covered Payroll ( c )	UAAL as a Percentage of Covered Payroll ( ( b - a ) / c )
7/1/96	\$142,874	\$161,190	\$18,316	88.6%	\$26,073	70.2%
7/1/97	161,731	168,146	6,415	96.2	26,922	23.8
7/1/98	187,387	179,351	(8,036)	104.5	28,964	(27.7)
7/1/99	216,336	186,854	(29,482)	115.8	32,462	(90.8)
7/1/00*	235,901	239,784	3,883	98.4	33,080	11.7
7/1/01	246,614	254,767	8,153	96.8	38,079	21.4

All figures prior to 7/1/99 are from July 1, 1998 actuarial valuation report prepared by the prior actuary.

\* Economic and demographic assumptions were changed as of July 1, 2000 due to an experience review. In addition, the asset valuation method was changed.

3. Following is the calculation of the annual pension cost and net pension obligation for the fiscal year ending June 30, 2001.

**Annual Pension Cost and Net Pension Obligation for Fiscal Year Ending 6/30/01**

(a) Employer annual required contribution	\$ 4,537,000
(b) Interest on net pension obligation	(608,000)
(c) Adjustment to annual required contribution	<u>1,611,000</u>
(d) Annual pension cost (a) + (b) + (c)	\$ 5,540,000
(e) Employer contributions made for fiscal year ending 6/30/00	<u>4,537,000</u>
(f) Increase (decrease) in net pension obligation (d) - (e)	\$ 1,003,000
(g) Net pension obligation beginning of fiscal year	<u>(7,848,000)</u>
(h) Net pension obligation end of fiscal year (f) + (g)	\$ (6,845,000)

**TREND INFORMATION**  
Dollar Amounts in Thousands

Year Ending	Annual Pension Cost (APC)	Percentage of APC Contributed	Net Pension Obligation (NPO)
June 30, 1999	\$1,868	207.2%	\$(3,557)
June 30, 2000	(15)	N/A	(7,848)
June 30, 2001	5,540	81.9	(6,845)

4. The annual required contribution (ARC) as a percentage of payroll, determined in accordance with the parameters of GASB 25/27, is shown below.

**2001/2002 FISCAL YEAR  
EMPLOYER ANNUAL REQUIRED CONTRIBUTION (ARC)  
BASED ON THE VALUATION AS OF JULY 1, 2001**

<b>EMPLOYER ANNUAL REQUIRED CONTRIBUTION (ARC)</b>	
Normal (includes expenses)	11.11%
Accrued liability	<u>1.54</u>
Total	12.65%

5. Additional information as of July 1, 2001 follows.

Valuation date	7/1/01
Actuarial cost method	Entry age
Amortization method	Level dollar open
Remaining amortization period	19
Asset valuation method	5-year smoothed market
Actuarial assumptions:	
Investment rate of return*	7.75%
Projected salary increases*	4.75-7.75%
*Includes inflation at	3.75%
Cost-of-living adjustments	N/A



**SECTION VII - EXPERIENCE**

1. As an aid to the Board in adopting service and mortality tables, the actuary prepared an experience investigation for the five-year period ending June 30, 1999. The valuation was based on the assumptions adopted by the Board at the April 27, 2000 Board meeting as a result of that investigation.
  
2. The following table shows the estimated change in the unfunded accrued liability from various factors that resulted in an increase of \$4,270,000 in the unfunded accrued liability from \$3,883,000 to \$8,153,000 during the fiscal year ending July 1, 2001.

**ANALYSIS OF FINANCIAL EXPERIENCE - CHANGE IN UNFUNDED ACCRUED LIABILITY**  
(in thousands of dollars)

Item	Amount of Increase/ (Decrease)
Interest (7.75%) added to previous unfunded accrued liability	300.9
Accrued Liability Contribution	(864.4)
Recognized Asset Loss	1,677.2
Liability Gain	(1,916.0)
Salary Increases	3,551.5
Amendments	1,520.8
Asset Method Change	0
Assumption Changes	<u>0</u>
Increase In Unfunded Accrued Liability	4,270.0

SCHEDULE A**DEVELOPMENT OF THE UNFUNDED ACTUARIAL ACCRUED LIABILITY  
AS OF JULY 1, 2001**

(1)	Present value of prospective benefits:	
(a)	Present active members	\$ 229,763,624
(c)	Present retired members, beneficiaries and former members entitled to deferred vested benefits	<u>121,075,233</u>
(c)	Total	\$ 350,838,857
(2)	Present value of future System and member normal contributions before expenses	<u>96,072,272</u>
(3)	Actuarial accrued liabilities 1(c) - (2)	\$ 254,766,585
(4)	Actuarial value of assets	<u>246,613,781</u>
(5)	Unfunded actuarial accrued liability (3) - (4)	\$ 8,152,804

SCHEDULE B - VALUATION BALANCE SHEET AND SOLVENCY TEST

## VALUATION BALANCE SHEET

RESULTS OF THE VALUATION AS OF JULY 1, 2001  
SHOWING THE PRESENT AND PROSPECTIVE ASSETS AND LIABILITIES  
OF THE CHARLOTTE FIREFIGHTERS' RETIREMENT SYSTEMACTUARIAL LIABILITIES

Present value of prospective benefits payable on account of present retired members, beneficiaries of deceased members, and terminated members entitled to deferred benefits	\$ 121,075,233
Present value of prospective benefits payable on account of present active members	<u>\$ 229,763,624</u>
Total liabilities	<u>\$ 350,838,857</u>

PRESENT AND PROSPECTIVE ASSETS

Actuarial value of assets	\$ 246,613,781
Present value of future contributions	
City and member normal contributions	96,072,272
Unfunded accrued liability contributions	<u>8,152,804</u>
Total prospective contributions	\$ 104,225,076
Total assets	<u>\$ 350,838,857</u>



SCHEDULE B (cont'd)**SOLVENCY TEST**

(\$ millions)

Valuation Date	Aggregate Accrued Liabilities For			Reported Assets	Portion of Accrued Liabilities Covered by Reported Asset		
	(1)	(2)	(3)		(1)	(2)	(3)
	Active Member Contributions	Retirants and Beneficiaries	Active Members (Employer Financed Portion)				
7/1/01	\$37.7	\$121.1	\$96.0	\$246.6	100%	100%	91.5%
7/1/00*	34.0	123.8	82.0	235.9	100	100	95.2
7/1/99	32.3	87.9	66.7	216.3	100	100	100.0
7/1/98	31.1	79.6	68.7	187.4	100	100	100.0
7/1/97	29.4	73.6	65.1	161.7	100	100	90.2
7/1/96	28.1	68.3	64.8	142.9	100	100	71.7
7/1/95	26.1	63.7	61.9	129.0	100	100	63.4
7/1/94	24.8	59.3	58.7	117.4	100	100	56.8
7/1/93**	22.3	59.5	54.8	109.7	100	100	51.0
7/1/92	22.2	44.9	56.9	100.6	100	100	58.8

All figures prior to July 1, 1999 are from July 1, 1998 actuarial report prepared by the prior actuary.

\* Economic and demographic assumptions were changed as of July 1, 2000 due to an experience review. In addition, the asset valuation method was changed.

\*\* Assumptions were changed beginning with the July 1, 1993 valuation to reflect recognition of unused sick and vacation time. The salary increase assumption was lowered from 6.0% to 5.0%.

SCHEDULE CDEVELOPMENT OF THE ACTUARIAL VALUE OF ASSETS

(1) Actuarial Value of Assets as of July 1, 2000	\$ 235,900,880
(2) 2000/2001 Net Cash Flow	
(a) Contributions	9,099,694
(b) Disbursements	<u>14,772,082</u>
(c) Net Cash Flow	
(2)a - (2)b	(5,672,388)
(3) Expected Investment Return [(1) x .0775] + [(2)c x .03875]	18,062,513
(4) Expected Actuarial Value of Assets as of July 1, 2001 (1) + (2)c + (3)	248,291,005
(5) Market Value of Assets as of July 1, 2001	239,904,885
(6) Excess of Market Over Expected (5) - (4)	(8,386,120)
(7) 20% Adjustment Towards Market .20 x (6)	(1,677,224)
(8) Actuarial Value of Assets as of July 1, 2001 (4) + (7)	\$ 246,613,781
(9) Rate of Return on Market Value	(5.69%)
(10) Rate of Return on Actuarial Value	7.03%

**SCHEDULE D****ASSET INFORMATION**

<b>Investment Managers</b>	<b>Type of Investment</b>	<b>Percent Allocation</b>
Evergreen Investment Management Co. LLC	Value Equity – Large Capitalization	16.7%
Boston Partners	Value Equity – Mid Capitalization	7.5
Investment Counselors of Maryland	Value Equity – Small Capitalization	3.7
Alliance Capital Management	Growth Equity – Large Capitalization	13.1
Cadence Capital Management	Growth Equity – Mid Capitalization	7.8
Essex	Growth Equity – Small Capitalization	1.8
Morgan Stanley Dean Witter	International Equity Fund Emerging Markets Equity Fund	13.2 1.0
T. Rowe Price	International Equity Fund	2.1
Metropolitan Life	Real Estate Equity Fund	3.7
Banc of America Capital Management	Fixed Income	12.3
State Street Global Advisors	Fixed Income Index Fund	12.0
Baring Asset Management	International Fixed Income Fund Emerging Debt Fund	4.2 0.4
Internal Management	Money Market	0.4

	<b>June 30, 2001</b>	<b>June 30, 2000</b>	<b>June 30, 1999</b>
Cash	\$ 457,131	\$ 218,141	\$ (191,182)*
Cash Equivalents	6,978,547	8,493,473	4,382,993
Fixed Income Investments	55,837,070	51,351,556	49,385,084
Equity Investments	176,437,942	199,908,775	171,113,090
Other	83,678	90,321	10,111,571
Accrued Income	408,997	501,164	803,629
Accrued Contributions	105,933	95,494	176,217
Accrued Liabilities/Expenses	(404,413)	(445,797)	(605,904)*
<b>Total Market Value</b>	<b>\$ 239,904,885</b>	<b>\$ 260,213,127</b>	<b>\$ 235,175,498*</b>

\* As previously reported



SCHEDULE E**OUTLINE OF ACTUARIAL ASSUMPTIONS AND METHODS**

The assumptions and methods used in the valuation were selected by the Actuary and adopted by the Board April 27, 2000 unless otherwise indicated.

INVESTMENT RATE OF RETURN: 7.75% per year, compounded annually. (adopted 10-26-2000)

SALARY INCREASES: Representative values of the assumed annual rates of salary increases (adopted 10-26-2000) are as follows:

<u>Age</u>	<u>Rate*</u>
20	7.75%
25	7.75
30	7.75
35	7.25
40	6.25
45	4.75
50	4.75
55	4.75

\* Includes inflation of 3.75%

SEPARATIONS FROM ACTIVE SERVICE: For death rates, the UP 1994 Male Table was used. Representative values of the assumed annual rates of separation from active service are as follows:

<u>Age</u>	<u>Annual Rate of</u>		
	<u>Withdrawal</u>	<u>Disability*</u>	<u>Death</u>
20	2.0%	0.05%	.0006%
25	2.0	0.05	.0007
30	2.0	0.09	.0009
35	2.0	0.23	.0009
40	1.7	0.41	.0012
45	0.8	0.61	.0017
50		1.00	.0028
55		1.00	.0048

\* 65% of the disabilities are assumed to be in the line of duty.

<u>Annual Rate of Retirement*</u>			
<u>Age</u>	<u>Rate</u>	<u>Age</u>	<u>Rate</u>
50-54	20%	60	20%
55	20	61	20
56	20	62	20
57	20	63	20
58	20	64	20
59	20	65	100

\* An additional 30% are assumed to retire at the age when first eligible for unreduced retirement and 100% are assumed to retire after completing 30 years of membership service.

**DEATHS AFTER RETIREMENT:** The UP 1994 Male Table is used for the period after retirement and for dependent beneficiaries. The same table is used for the period after disability set forward five years.

**EXPENSES:** 0.75% of payroll.

**PERCENT MARRIED:** 100% of active members are assumed to be married with the male three years older than his spouse.

**ASSETS:** Actuarial value, as developed in Schedule B. The actuarial value of assets recognizes a portion of the difference between the market value of assets and the expected actuarial value of assets, based on the assumed valuation rate of return. The amount recognized each year is 20% of the difference between market value and expected actuarial value. (adopted 10-26-2000)

**VALUATION METHOD:** Entry age actuarial cost method (adopted 7-1-98). See Schedule F for a brief description of this method.

SCHEDULE F

## ACTUARIAL COST METHOD

1. The valuation is prepared on the projected benefit basis, under which the present value, at the interest rate assumed to be earned in the future (currently 7.75 per cent), of each member's expected benefits at retirement or death is determined, based on age, service and sex. The calculations take into account the probability of a member's death or termination of employment prior to becoming eligible for a benefit, as well as the possibility of his terminating with a service, disability or survivor's benefit. The present value of the expected benefits payable on account of the active members is added to the present value of the expected future payments to retired members and beneficiaries to obtain the present value of all expected benefits payable from the System on account of the present group of members and beneficiaries.
2. The employer contributions required to support the benefits of the System are determined following a level funding approach, and consist of a normal contribution and an accrued liability contribution.
3. The normal contribution is determined using the entry age actuarial cost method. Under this method, a calculation is made to determine the level percentage of payroll which, if applied for the average new member during the entire period of his anticipated covered service, would be required in addition to the contributions of the member to meet the cost of all benefits payable on his behalf.
4. The unfunded accrued liability is determined by subtracting the present value of prospective employer normal contributions and member contributions, together with the current actuarial value of assets held, from the present value of expected benefits to be paid from the System.



SCHEDULE G**SUMMARY OF MAIN SYSTEM PROVISIONS  
AS INTERPRETED FOR VALUATION PURPOSES**

Member	An employee of the Charlotte Fire Department who is subject to the provisions of the Civil Service Act.
Membership Service Credit	Service for all periods of employment with the Charlotte Fire Department for which contributions have been paid.
Final Average Salary	A member's average monthly compensation for any 2 consecutive years within the last 5 years of membership service.
Accrued Benefit	The monthly amount of retirement benefits earned by a member as of any date computed on his Final Average Salary and Membership Service Credit at that date.
Service Retirement Benefit	
Eligibility	Age 50 and 25 years of membership service credit, age 60 and 5 years of membership service credit or 30 years of membership service credit.
Benefit	Monthly benefit is 2.6% of final average salary multiplied by years of membership service credit. Salary in the final year includes cashed-in vacation and sick days. The minimum monthly benefit is \$902.75.
Early Retirement Benefit	
Eligibility	25 years of membership service credit.
Benefit	Accrued benefit reduced by 3% for each year member is under age 50.
In the Line of Duty Disability Retirement Benefit	
Eligibility	No requirements.
Benefit	78% of final average salary or normal retirement benefit if greater.
Not in the Line of Duty Disability Retirement Benefit	
Eligibility	10 years of service.
Benefit	39% of final average salary plus 1.95% of such salary for each year of membership service credit in excess of 10 years, not less than \$902.75 per month.

**Deferred Vested  
Retirement Benefit**

Eligibility	5 years of service. Member contributions not withdrawn.
Benefit	Accrued benefit payable at age 60. A member may choose a refund of contributions with 4% interest in lieu of this benefit.
Termination Benefit	If a member is terminated with less than 5 years of membership service credit, he is entitled to a return of his accumulated contributions.
Death Benefit	If a member dies in service, his beneficiary is entitled to a return of the member's accumulated contributions, plus those contributions made by the City on his behalf, plus interest of 4% per year. May elect to receive actuarial equivalent monthly benefit under the 66-2/3% Joint and Survivor Option.
Optional Forms of Benefit	<ol style="list-style-type: none"><li>(1) 10 year certain and life annuity.</li><li>(2) 100%, 75%, 66-2/3% or 50% joint and survivorship annuity.</li><li>(3) Joint and survivorship annuity with a pop-up provision.</li></ol>
Contributions	The City and the members each contribute 12.65%.

**SCHEDULE H****TABLE 1****AGE - SERVICE TABLE**

Distribution of Active Members as of July 1, 2001 by Age and Service Groups

<i>Attained Age</i>	<i>Completed Years of Service</i>									<i>Total</i>
	0	1 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 to 34	35 to 39	
24 & under	33	33	-	-	-	-	-	-	-	66
Total Pay	961,488	1,050,786	-	-	-	-	-	-	-	2,012,274
Avg. Pay	29,136	31,842	-	-	-	-	-	-	-	30,489
25 to 29	30	58	24	-	-	-	-	-	-	112
Total Pay	871,680	1,941,608	987,984	-	-	-	-	-	-	3,801,272
Avg. Pay	29,056	33,476	41,166	-	-	-	-	-	-	33,940
30 to 34	17	53	40	56	-	-	-	-	-	166
Total Pay	492,048	1,829,348	1,686,960	2,794,960	-	-	-	-	-	6,803,316
Avg. Pay	28,944	34,516	42,174	49,910	-	-	-	-	-	40,984
35 to 39	6	27	20	103	21	1	-	-	-	178
Total Pay	175,854	935,658	862,240	5,085,522	1,120,434	46,182	-	-	-	8,225,890
Avg. Pay	29,309	34,654	43,112	49,374	53,354	46,182	-	-	-	46,213
40 to 44	1	7	11	50	65	17	-	-	-	151
Total Pay	28,352	231,777	480,447	2,454,500	3,465,410	882,810	-	-	-	7,543,296
Avg. Pay	28,352	33,111	43,677	49,090	53,314	51,930	-	-	-	49,956
45 to 49	-	7	5	16	20	66	16	-	-	123
Total Pay	-	231,777	230,215	816,144	1,038,260	3,588,552	880,336	-	-	6,553,507
Avg. Pay	-	33,111	46,043	51,009	51,913	54,372	55,021	-	-	53,281
50 to 54	-	-	-	8	-	23	16	2	-	49
Total Pay	-	-	-	380,720	-	1,223,324	895,200	102,234	-	2,601,478
Avg. Pay	-	-	-	47,590	-	53,188	55,950	51,117	-	53,091
55 to 59	-	-	-	1	-	-	1	2	1	5
Total Pay	-	-	-	43,983	-	-	60,345	107,716	83,656	295,700
Avg. Pay	-	-	-	43,983	-	-	60,345	53,858	83,656	59,140
60 to 64	-	-	-	1	-	-	-	1	1	3
Total Pay	-	-	-	41,889	-	-	-	83,656	116,746	242,291
Avg. Pay	-	-	-	41,889	-	-	-	83,656	116,746	80,764
<b>Total</b>	<b>87</b>	<b>178</b>	<b>100</b>	<b>235</b>	<b>106</b>	<b>107</b>	<b>33</b>	<b>5</b>	<b>2</b>	<b>853</b>
<b>Total Pay</b>	<b>2,529,422</b>	<b>5,989,177</b>	<b>4,247,846</b>	<b>11,617,718</b>	<b>5,624,104</b>	<b>5,740,868</b>	<b>1,835,881</b>	<b>293,606</b>	<b>200,402</b>	<b>38,079,024</b>
<b>Avg. Pay</b>	<b>29,074</b>	<b>33,647</b>	<b>42,478</b>	<b>49,437</b>	<b>53,058</b>	<b>53,653</b>	<b>55,633</b>	<b>58,721</b>	<b>100,201</b>	<b>44,641</b>



TABLE 2

**NUMBER OF RETIRED MEMBERS AND BENEFICIARIES  
AND THEIR BENEFITS BY AGE**

<u>Attained Age</u>	<u>Number of Members</u>	<u>Total Annual Benefits</u>	<u>Average Annual Benefit</u>
50 & Under	24	\$ 585,888	\$ 24,412
51-55	79	2,874,666	36,388
56-60	88	3,078,231	34,980
61-65	61	2,408,079	39,477
66-70	60	1,953,252	32,554
71-75	33	930,755	28,205
76-80	31	731,147	23,585
Over 80	13	262,875	20,221
Total	389	\$ 12,824,893	\$ 32,969

TABLE 3

**SCHEDULE OF ACTIVE MEMBER VALUATION DATA**

<u>Valuation Date</u>	<u>Number Prior Year</u>	<u>Exits</u>	<u>New Entrants</u>	<u>Number Current Year</u>	<u>Annual Payroll</u>	<u>Annual Average Pay</u>	<u>% Increase in Average Pay</u>
7/1/01	780	15	88	853	\$38,079,024	\$44,641	5.3%
7/1/00	783	35	32	780	33,079,899	42,410	2.3
7/1/99	778	31	36	783	32,462,456*	41,459	11.4
7/1/98	749	30	59	778	28,963,868	37,229	3.6
7/1/97	721	29	57	749	26,922,035	35,944	-0.6
7/1/96	709	25	37	721	26,072,828	36,162	3.7
7/1/95	N/A	N/A	N/A	709	24,723,956	34,872	4.7
7/1/94	N/A	N/A	N/A	724	24,120,362	33,315	2.4
7/1/93	N/A	N/A	N/A	721	23,448,153	32,522	0.0
7/1/92	N/A	N/A	N/A	733	23,840,153	32,524	3.2

Results prior to the 7/1/99 valuation were provided by the prior actuary.

\* Reflects all pay raises granted to firefighters effective July 7, 1999.

**TABLE 4**  
**SCHEDULE OF RETIRED MEMBERS AND BENEFICIARIES**  
**ADDED TO AND REMOVED FROM ROLLS**

Year Ended	Rolls – Beginning of Year		Added to Rolls		Removed from Rolls		Rolls – End of Year		% Increase in Annual Allowances	Average Annual Allowances
	No.	Annual Allowances	No.	Annual Allowances	No.	Annual Allowances	No.	Annual Allowances		
7/1/01	394	\$13,000,973**	11	\$ 287,966	16	\$464,046	389	\$12,824,893	(1.4)	\$32,969
7/1/00	377	9,946,747*	28	3,260,650**	11	\$206,424	394	13,000,973**	30.7	32,997
7/1/99	358	8,882,634	26	950,857	7	119,640	377	9,946,747*	12.0	26,384
7/1/98	337	8,199,997	24	762,314	3	79,677	358	8,882,634	8.3	24,812
7/1/97	321	7,602,561	22	698,791	6	101,335	337	8,199,997	7.9	24,332
7/1/96	307	7,046,272	19	616,589	5	60,300	321	7,602,561	7.9	23,684
7/1/95	298	6,552,767	18	613,085	9	119,580	307	7,046,272	7.5	22,952
7/1/94	N/A	N/A	N/A	N/A	N/A	N/A	298	6,552,767	0.4	21,989
7/1/93	N/A	N/A	N/A	N/A	N/A	N/A	301	6,524,697	30.1	21,677
7/1/92	N/A	N/A	N/A	N/A	N/A	N/A	261	5,016,837	N/A	19,222

Results prior to the 7/1/99 valuation were provided by the prior actuary.

- \* Includes 8.33% benefit adjustment effective July 1, 1998 for members retired prior to July 1, 1989.
- \*\* Includes ad hoc benefit adjustments granted since the previous valuation.