



Comprehensive Annual Financial Report
of the
Charlotte Firefighters' Retirement System -
A Component Unit of the
City of Charlotte, North Carolina



For the Fiscal Years Ended
June 30, 2017 and 2016

**COMPREHENSIVE ANNUAL FINANCIAL REPORT
OF THE
CHARLOTTE FIREFIGHTERS' RETIREMENT SYSTEM –
A COMPONENT UNIT OF THE
CITY OF CHARLOTTE, NORTH CAROLINA**

**FOR THE FISCAL YEARS ENDED
JUNE 30, 2017 AND 2016**

BOARD OF TRUSTEES

Vanessa Heffron, Chairman of the Board, Citizen Appointee
Tim R. Ramsey, Vice Chairman, Elected Member
Scott L. Greer, Treasurer, Ex-Officio
Kevin S. Gordon, Secretary, Elected Member
Cheryl L. Brown, Ex-Officio
Lydia F. Crutchfield, Citizen Appointee
Marvin O. Wilson, Jr., Elected Retiree
Robert Campbell, Ex-Officio
David F. Moore, Elected Member
John M. Carr, Citizen Appointee
Vacant, Citizen Trustee

Prepared by the Charlotte Firefighters' Retirement System Staff
Sandra J. Thiry, Administrator
Tony Bass, Administrative Officer III

WHERE TO WRITE FOR INFORMATION

Charlotte Firefighters' Retirement System
428 East Fourth Street, Suite 205
Charlotte, North Carolina 28202-2434
(704) 626-2728
Fax: (704) 626-7365
Email address: sthiry@charlottenc.gov
Web Site: www.charlottefireretire.com

**Charlotte Firefighters' Retirement System
Charlotte, North Carolina**

Table of Contents

Introductory Section

Letter of Transmittal	1
Board of Trustees and Staff	8
Organizational Chart.....	9
Professional Service Providers	10
Summary of Plan Provisions.....	11

Financial Section

Report of Independent Auditor	15
Management's Discussion and Analysis	17
Basic Financial Statements	
Comparative Statements of Plan Net Position	21
Comparative Statements of Changes in Plan Net Position	22
Notes to the Financial Statements.....	23
Required Supplementary Information	
Schedule of Changes in Net Pension Liability	35
Schedule of Employer Contributions.....	36
Schedule of Investment Returns.....	37
Supplementary Schedules	
Schedule of Cash Receipts and Disbursements	38
Schedule of Administrative Expenses and Depreciation	39
Schedule of Professional Service Expenses.....	40
Schedule of Investment Expenses.....	41
Schedule of Investments	42

Investment Section

Investment Consultant Report.....	43
Investment Policy, Goals, Objectives and Guidelines	44
Investment Goals	45
Investment Performance	47
Investment Results	49
Investment Results- Rolling One, Three and Five Year Periods	50
List of Largest Assets Held.....	51

Actuarial Section

Actuarial Certification	53
Summary of Principal Results	55

Statistical Section	
Participant Information	57
Changes in Net Position.....	58
Schedule of Benefit and Refund Expenses by Type.....	59
Schedule of Retired Members by Type of Benefit	60
Schedule of Average Benefit Payments.....	61
Schedule of Bonus History	62
Glossary of Terms	63



INTRODUCTORY SECTION

The Introductory Section includes a letter of transmittal that includes the responsibilities of the Board of Trustees and its staff, the history, administration and operations of the retirement system and significant activities of the year being reported.

CHARLOTTE FIREFIGHTERS' RETIREMENT SYSTEM

428 East Fourth Street • Suite 205 • Charlotte, North Carolina • (704) 626-2728 • Fax (704) 626-7365

December 9, 2017

Honorable Mayor and Members of City Council, Charlotte, North Carolina,
Members of the Board of Trustees, Charlotte Firefighters' Retirement System,
and Participants of the Charlotte Firefighters' Retirement System:

The Comprehensive Annual Financial Report ("Report") of the Charlotte Firefighters' Retirement System ("System"), a Component Unit of the City of Charlotte, North Carolina, for the fiscal year ended June 30, 2017 is herewith submitted. The Board and the System's staff are responsible for the preparation and presentation of the financial information and all other data contained herein, and believe that the Report is based on accounting principles generally accepted in the United States of America, presents fairly and consistently the System's financial position and results of operations and conforms to the standards of governmental accounting and financial reporting principles as promulgated by the Governmental Accounting Standards Board (GASB). The Report consists of five sections:

- (1) Introductory Section which contains this Letter of Transmittal and general information regarding the system;
- (2) Financial Section consisting of the Independent Auditor's Report, audited financial statements and the accompanying notes to the financial statements, and required supplementary information and schedules which includes Management's Discussion and Analysis pursuant to GASB Statement No. 34;
- (3) Investment Section which contains supportive documentation related to the System's investments;
- (4) Actuarial Section which contains the consulting actuary's opinion and the results of the annual actuarial valuation report, as of July 1, 2017; and
- (5) Statistical Section which contains financial trends and information on membership activity and other statistical information which may be of interest to readers.

HISTORY

The System was organized pursuant to Chapter 926 of the 1947 Session Laws, as amended, of the State of North Carolina, and is officially known as the Charlotte Firefighters' Retirement System Act ("Act"). The System was established on the fifth day of April 1947, for the purpose of providing retirement, disability and survivor benefits to the uniformed employees of the Fire Department of the City of Charlotte. In

January 2016, the System filed for an updated Letter of Determination from the Internal Revenue Service and received a favorable determination on May 10, 2017.

ADMINISTRATION OF THE SYSTEM

The administration and responsibility for the proper operation of the System is vested with the System's Board of Trustees ("Board"), which is comprised by the following Trustees as defined by the Act: (a) a Chairperson who is a Mecklenburg County resident and who is appointed by the Resident Judge of the Superior Court of Mecklenburg County to serve as Chairperson for a three year term; (b) three Citizen Trustees who are Mecklenburg County residents and who are appointed by the Resident Judge of the Superior Court of Mecklenburg County for three year staggered terms; (c) the City Manager, who serves by virtue of his position, or some other City department head or employee as designated by the City Manager; (d) the City Finance Director, who serves by virtue of his position, or a deputy finance director as designated by the Finance Director; (e) the City Treasurer who serves by virtue of his position; (f) three Member Trustees who are elected by the active Members for three year staggered terms; and (g) one Retiree Trustee who is elected by the Retirees for a term of three years.

The current Board is listed on the title page of this report.

COMMITTEES

The Board operationally functions under a committee structure. An Investment Committee and a Benefits Committee are annually appointed by the Chairperson of the Board to monitor, fact-find, and recommend actions for the Board's consideration. Although not required, the committees have generally been comprised of at least three trustees with one committee member being a Citizen Trustee, another a Member Trustee, and the other an ex-officio (i.e., City official) Trustee. During the past fiscal year, Tim R. Ramsey, Member Trustee, served as Chair of the Investment Committee. Kevin Gordon, Member Trustee, served as Chair of the Benefits Committee. Other committees may be appointed for specific projects at the discretion of the Chairperson. A transitional Funding Committee was established at the beginning of fiscal year 2016 to review funding practices. The function of the Funding Committee transitioned to the Investment Committee in fiscal year 2017.

PROFESSIONAL SERVICES

The Board employs the services of various professionals to aid it in its fiduciary responsibility for the effective and prudent management of the System. These professionals include: (a) a full-time Administrator who is responsible for the supervision of System staff and administration and coordination of all System operations and activities in accordance with the rules and regulations of the Act and the policies and direction of the Board; (b) the City Attorney and his staff serve as the legal advisor to the Board although additional outside legal counsel may be engaged by the Board from time to time for specialized services; (c) a consulting actuary who is engaged by the City of

Charlotte to perform such studies and evaluations of the System as may be necessary and/or desirable in connection with the System's administration and funding, including preparation of the Annual Actuarial Valuation to determine the adequacy of the funding of the retirement benefit liabilities accrued by System members); (d) an independent auditor engaged by the Board on an annual basis to determine whether the financial statements present fairly, in all material respects, the financial position of the System and the results of its yearly operations in conformity with generally accepted accounting principles; (e) a Medical Board appointed by the Board to review and evaluate medical evidence and propose recommendations regarding disability retirements; (f) investment management professionals employed to invest the system's assets consistent with the objectives and direction of the Board, and (g) an investment consultant to advise the Board on matters of investment policy and strategy, conduct manager searches and monitor performance of the investment managers.

The Board may engage other professionals with expertise in various fields for specific services as deemed necessary. All of the advisors, consultants and providers of professional services to the System are listed on Page 10. Information related to investment fees may be found on Page 41.

FINANCIAL REPORTING

An annual report of the financial and actuarial condition of the System is prepared and submitted to the City Council. The annual report to City Council contains, but is not limited to, the auditor's opinion, statements contained in the auditor's report, a summary of the annual actuarial valuation and the actuary's valuation certification. Additionally, a copy of the annual report to City Council is provided to each of the fire stations and fire department administrative offices of the City of Charlotte.

MAJOR INITIATIVES

During the year, as its primary duty, the Investment Committee spent considerable time reviewing the performance of all existing managers. The Committee met in person with each manager. As a result of continuing global market and economic volatility, the Committee had in-depth discussions with managers and the investment consultant to review the target asset allocation of the portfolio and to review risk management policies.

Investments and managers will continue to be closely monitored by the Investment Committee on both a proactive and retrospective basis to assure continued success as well as continued commitment to a well-diversified portfolio and prudent asset allocation. The Investment Committee reviewed its Charter as well as the Investment Policy and provided minor update recommendations to the Board for approval. The total portfolio investment return for the year ended June 30, 2017 of 12.88% was greater than the assumed return rate of 7.5% by 538 basis points and reflected the continuing volatility of the global markets and economic conditions. The last 5 and 10 year rates of returns were 10.28% and 5.95% respectively.

Detailed information concerning the System's investments may be found in the *Investment Section* beginning on Page 43.

The Benefits Committee met on a regular basis during the year and reviewed its Charter and recommended minor updates to the Board for approval. Considerable ongoing discussion continued regarding addressing the current unfunded liability has been at the forefront of the meetings. In conjunction with the Investment Committee, the Benefits Committee recommended to the Board the scope of work to be completed by a Service Provider during a comprehensive review of the Act's provisions and the funding level. Collaboration with the City regarding the scope of work provided the foundation to move forward with a search for a Service Provider in the upcoming fiscal year.

The fees to maintain the Arrivos pension administration system were slated to increase dramatically over the next 3 year contract period. The Board of Trustees took initiative to replace the Arrivos pension administration system with IPAS Master, effective January 1, 2018, which will provide additional features and reduce maintenance fees.

FINANCIAL INFORMATION

The System's internal control structure is designed to provide reasonable, but not absolute, assurance for the safeguarding of assets against loss from theft or unauthorized use and to ensure the reliability and adequacy of the accounting records. The concept of reasonable assurance recognizes that: (1) the cost of a control should not exceed the benefits likely to be derived, and (2) the valuation of costs and benefits requires estimates and judgment by the Board. Accounting data are maintained in a manner suitable for preparing financial reports in conformity with generally accepted accounting principles and for providing accurate and timely data to the City Council, Board, participants of the System, citizens, and other interested parties.

Budgetary Controls

The North Carolina General Statutes require the adoption of an annual budget for all funds except those for which expenditures are authorized by project ordinance, fiduciary funds, and internal service funds. The System is a fiduciary fund and is therefore exempt from budgetary requirements. However, the Board considers and adopts a budget for each fiscal year of operations and receives a quarterly budget report from the Administrator.

Accounting and Actuarial Systems

The financial reports of the System are prepared in accordance with U.S. generally accepted principles of governmental accounting and reporting promulgated by GASB. The accrual basis of accounting is used to record assets and liabilities, and revenues and expenses. Revenues and expenses are recorded when earned or incurred,

regardless of collection or disbursement. Capital assets are recorded at cost and depreciated through charges to expense over the estimated useful lives of the assets.

An annual actuarial valuation is performed by the System's actuary Cavanaugh Macdonald Consulting, LLC. The actuarially calculated contribution rates are developed using the entry age cost method. This cost method attempts to allocate the cost of each member's benefit as a level percent of compensation over the member's projected service from date of hire to date of retirement or exit. The calculated contribution rates include a current or "normal" cost for the year plus an amortization amount to reduce any unfunded accrued liability.

Revenues and Funding

Revenues essential to the sound funding of the System flow from three sources:

Contributions by Members: A System Member contributes an amount equal to the Member's eligible compensation multiplied by the current contribution rate of 12.65%. Member contributions are made on a tax-deferred basis. The contributions are posted to individual accounts for each Member. The accumulated amount in each account is used for the Member's benefit if he or she remains in service. If the Member leaves service, he or she may withdraw the amount of his or her accumulated contribution. A Member with five or more years of membership service receives interest on his or her contributions if a refund is requested. A Member may, if he or she has five or more years of membership service, choose to elect a deferred annuity providing lifetime income commencing at age 60.

Contributions by the City of Charlotte: The City of Charlotte contributes an amount equal to the Member's eligible compensation multiplied by the current contribution rate of 12.65%. Any differences between the aggregate City and Member contributions are due to (a) service purchases made by Members for which the City does not make contributions and (b) City contributions for those Members away on military deployments during which Members are not required to make contributions.

Investment Income: Investment income is the third source of System revenues and must be regarded as both a vital and major contributor to the System's strong funding status. Statutorily, since 1947, the Board has exercised responsibility for investing the System's assets in a prudent and diligent manner.

The reader of this Report should note that year-to-year investment return variation is a function of unrealized gains or losses on securities' valuations and the subsequent realization of gains or losses on the sale of investments and is not necessarily reflective of actual investment cash flow or income.

The primary critical concern of the Board is the System's funding adequacy. High funding levels are directly related to benefit security for participants. It is the

responsibility of the Board to make prudent and sound investment decisions in order to increase the assets and thereby the funding level of the System. The Board has a goal of maintaining the funding of the System at or near 100%. Although the market has experienced a recovery since the financial crash of 2008, investment returns have not been sufficient to overcome the current liabilities of the system. The decrease in funding level is also compounded by the change in economic and demographic assumptions. The resulting funding level as of July 1, 2017 of 86.2%, is down from 86.9% as of July 1, 2016.

A more complete discussion of System funding status may be found in the *Actuarial Section* beginning on Page 53.

Expenses

The primary expense of the System relates to the purpose for which it was created, namely, the payment of benefits to retirees and their beneficiaries. Benefit payments and refunds to terminated members were responsible for 98.0% of all deductions from plan assets, compared to 96.3% for the prior year. Administrative costs and depreciation accounted for 2.0% of deductions from plan assets for fiscal year 2017, compared to 2.3% for the prior year. A more detailed discussion of System expenses may be found in the *Financial Section* beginning on Page 15.

The reader may also obtain additional information in *Management's Discussion and Analysis* beginning on Page 17.

OTHER INFORMATION

Independent Audit

Pursuant to North Carolina law, the System is required to undergo an annual audit by a certified public accountant. The Board has selected the independent certified public accounting firm of Cherry Bekaert LLP to provide these services. The auditors' report on the financial statements and required supplementary information is included in the *Financial Section*.

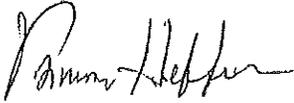
Acknowledgments

The compilation of this Report is intended to provide complete and reliable information regarding the stewardship for the funds contributed by the members of the System and the City of Charlotte.

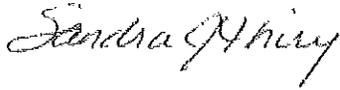
Several individuals assisted with the preparation of this report and we wish to acknowledge their efforts and assistance. Tony Bass, Administrative Officer III; City Finance Staff, Betty Mattos, Chief Accountant; and Kelly Kay, Accountant I; all contributed many hours to insure the accuracy and completeness of this report.

We hope that this year's report will be of interest to you and will be helpful in understanding, evaluating, and assuring the continued success of the Charlotte Firefighters' Retirement System.

Respectfully Submitted,

A handwritten signature in cursive script, appearing to read "Vanessa Heffron".

Vanessa Heffron, Chairperson, Board of Trustees

A handwritten signature in cursive script, appearing to read "Sandra J. Thiry".

Sandra J. Thiry, Administrator

CHARLOTTE FIREFIGHTERS' RETIREMENT SYSTEM

CHARLOTTE, NORTH CAROLINA

BOARD OF TRUSTEES

Vanessa Heffron, Chairman of the Board, Citizen Appointee

Tim R. Ramsey, Vice Chairman, Elected Member

Scott L. Greer, Treasurer, Ex-Officio

Kevin S. Gordon, Secretary, Elected Member

Cheryl L. Brown, Ex-Officio

Lydia F. Crutchfield, Citizen Appointee

Marvin O. Wilson, Jr. , Elected Retiree

Robert Campbell, Ex-Officio

David F. Moore, Elected Member

John M. Carr, Citizen Appointee

Vacant, Citizen Appointee

STAFF

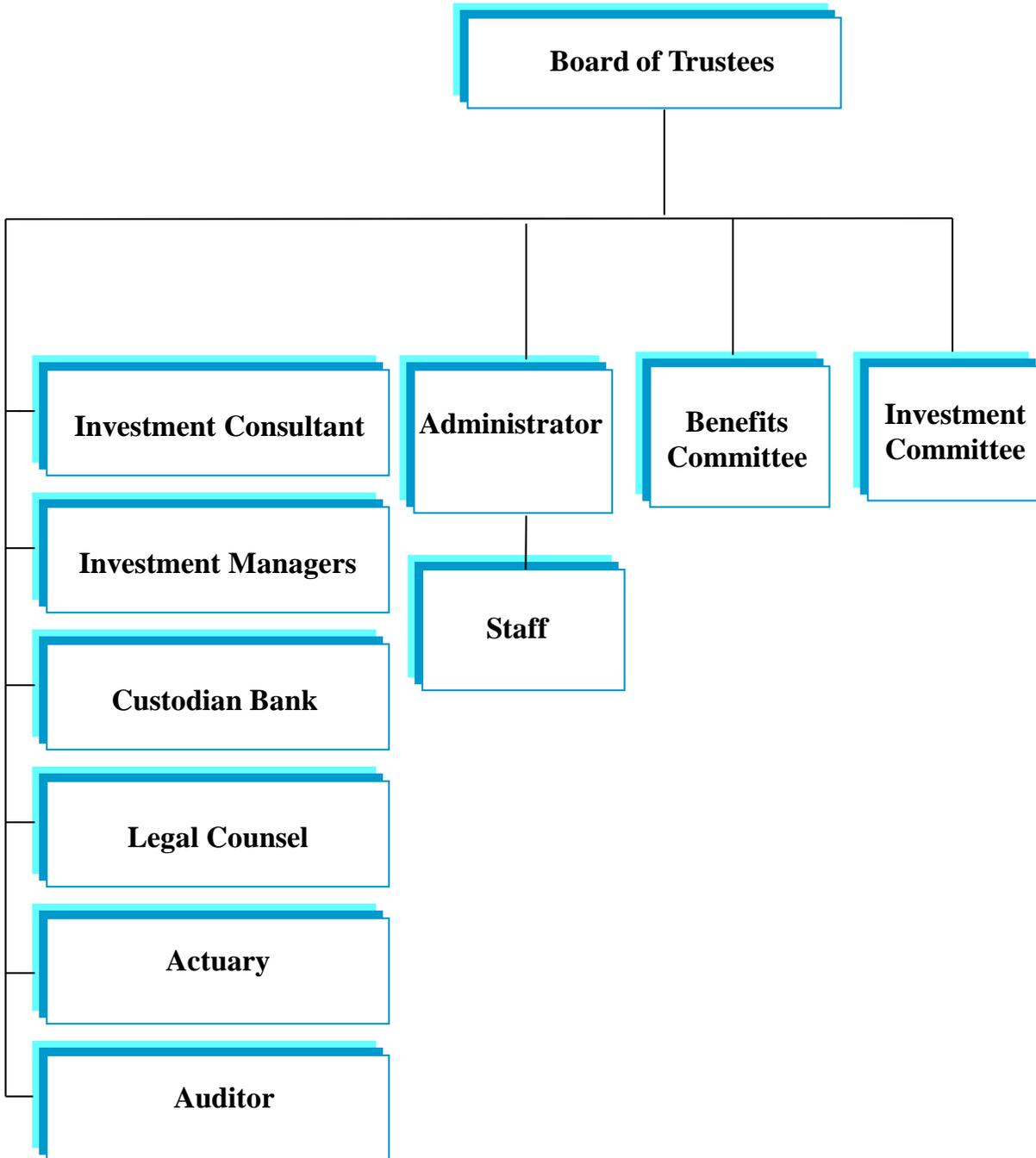
Sandra J. Thiry, Administrator

Tony Bass, Administrative Officer III

Kaisha Barron, Administrative Officer I

Tyralyn Phelps, Office Assistant

CHARLOTTE FIREFIGHTERS' RETIREMENT SYSTEM ORGANIZATIONAL CHART



**PROFESSIONAL SERVICE PROVIDERS
TO THE
CHARLOTTE FIREFIGHTERS' RETIREMENT SYSTEM**

ACTUARY

Cavanaugh Macdonald Consulting, LLC

CUSTODIAN BANK

USBank

INDEPENDENT AUDITORS

Cherry Bekaert LLP, Raleigh, NC

INVESTMENT ADVISORS

AJO, L.P., Domestic Equities
Barrow, Hanley, Mewhinney & Strauss, Inc., Core Plus Domestic Fixed Income
Colchester Global Investors Limited, Non-U.S. Fixed Income
Eagle Asset Management, Domestic Equities
Investment Counselors of Maryland, Domestic Equities
JP Morgan Chase Asset Management, Real Estate
Morgan Stanley, Non-U.S. Equities
Robeco Investment Management, Domestic Equities
State Street Global Advisors, Domestic Fixed Income Index, Equities Index &
International Equity
T. Rowe Price International, Inc., Non-U.S. Equities
UBS Realty Investors LLC, Real Estate
Winslow Capital Management, Inc., Domestic Equities
William Blair & Company, Domestic Equities

INVESTMENT CONSULTANT

Callan Associates, Inc.

MEDICAL ADVISORS

Novant Health Urgent Care & Occupational Medicine, Charlotte, North Carolina

CHARLOTTE FIREFIGHTERS' RETIREMENT SYSTEM

SUMMARY OF PLAN PROVISIONS

1. Eligibility for Membership

Membership is mandatory for all employees of the Charlotte Fire Department who are subject to the provisions of the Civil Service Act.

2. Normal Service Retirement

A member may elect to retire at any time after attaining age 50 with 25 or more years of service, age 60 with 5 or more years of service or at any age with 30 or more years of service.

3. Normal Service Retirement Benefit

A member receives 2.6% of final average salary per year of credited service not to exceed the limit imposed by Section 415 of the IRS Code. Final average salary is defined as the higher amount of: (a) the monthly average Compensation received during the two highest consecutive Plan Years of the Member's last five years of Membership Service; or (b) the monthly average Compensation received during the one hundred and four (104) weeks preceding the end of a Member's Membership Service.

4. Early Retirement

A member may retire early before age 50 at any time after completion for 25 years of membership service.

5. Early Retirement Benefit

The early retirement benefit is calculated in the same manner as for normal service retirement, but reduced by .25% for each month the early retirement date precedes age 50.

6. Disability Retirement Benefits

(a) In Line of Duty No minimum age or service requirements. Disability retirement benefits are the greater of 78% of final average salary determined

as of date of total and permanent disability incurred in the line of duty or 2.6% of final average salary times membership service. (b) Not In Line of Duty Payable in the event of total and permanent disability after 10 years of service. Disability retirement benefit is 39% of final average salary, plus 1.95% of such salary for each year of service in excess of 10 years, maximum benefit not to exceed the limits imposed by Section 415 of the IRS Code determined as of date of disability.

7. Retirement Bonus Payment

A retiree may receive an annual bonus payment in the month of January following an annual actuarial valuation when the actuary recommends such a payment and provides the Board with a fiscal note which evaluates the effect of such a payment on the System's funded status. A retiree must have been retired for at least one year as of December 31, preceding the distribution, in order to be eligible for a bonus payment.

8. Benefit Upon Termination of Employment

(a) Less Than 5 Years Lump-sum distribution of member's contributions.

(b) 5 Or More Years Normal service retirement benefits payable at age 60 or lump sum distribution of member's contribution plus interest compounded at 4.0 % per plan year of participation.

9. Death Benefits

(a) Prior to Retirement Member's contributions, plus those made by City on his or her behalf, together with interest at 4.0 % per year, are payable to the named beneficiary in a lump sum or annuity. Under certain conditions, the beneficiary may elect to receive an actuarial equivalent monthly benefit

CHARLOTTE FIREFIGHTERS' RETIREMENT SYSTEM SUMMARY OF PLAN PROVISIONS

under the 66 2/3% Joint and Survivor Option.

(b) After Retirement Pre-retirement death benefit as of date of retirement, less any retirement benefits already received, is paid to retiree's named beneficiary.

10. Optional Benefits (Other Than Lifetime Benefits) All optional benefits are actuarially equivalent to lifetime retirement benefits.

Option 1 - 10 Years Certain and Life Thereafter Reduced lifetime monthly benefit to member. If member dies within 10 years following retirement, benefit continues to the named beneficiary for balance of 10 year period.

Option 2 - 100% Joint & Survivor Reduced monthly lifetime benefit which continues after retiree's death to the designated beneficiary for beneficiary's lifetime.

Option 3 - 75% Joint & Survivor Similar to Option 2, but 75% of retiree's benefit continues to the designated beneficiary after retiree's death.

Option 4 - 66 2/3% Joint & Survivor Similar to Option 2, but 66 2/3% of retiree's benefit continues to the designated beneficiary after retiree's death.

Option 5 - 50% Joint and Survivor Similar to Option 2, but 50% of retiree's benefit continues to the designated beneficiary after retiree's death.

Option 6 A retiree may elect any of the Options 2-5 with an added provision which allows the benefit to revert to the

amount of the lifetime benefit (pre-option reduced amount) in the event the beneficiary predeceases the retiree.

11. Requirements for Electing Optional Benefits

Any of the options may be elected at any time between 30 and 90 days prior to early or normal retirement. A disability retiree may elect to receive the benefit under Option 5, subject to approval by the Board of the disability retirement application.

12. Purchase of Membership Service Credit for Prior Active Military Duty

Up to five years of additional service may be purchased upon completion of 5 years in the Charlotte Firefighters' Retirement System, for active duty served prior to CFRS membership. This service may be used to qualify for normal service retirement, but not early retirement.

13. Return from Active Military Duty

Membership service credit is granted to a member who returns to CFRS membership from active duty served during any period of national emergency condition or entry at any time through the operation of the compulsory military service law of the United States of America.

14. Accumulated Sick Leave and Vacation at Retirement

Membership service is credited for the balance of any unpaid sick leave and/or vacation at the time of retirement. Also, a member receives the inclusion of the amount of lump sum payoff at retirement for any vacation and/or sick leave

CHARLOTTE FIREFIGHTERS' RETIREMENT SYSTEM SUMMARY OF PLAN PROVISIONS

attributable to the member's period of final average salary.

15. Purchase of Membership Service for Prior Government Service

Up to five years of additional service may be purchased upon completion of 5 years of service in the CFRS, for prior service with another government employer. 50% of prior government service may be purchased up to the maximum. The cost of such service is calculated at full actuarial cost and may be used to qualify for normal service requirement but not early retirement.

16. Purchase of Membership Service for Withdrawn Service

Prior service with the Charlotte Fire Department and contributions withdrawn from the CFRS may be purchased in total at full actuarial cost upon completion of 5 years of service in the CFRS.

This summary of plan provisions is intended for information purposes and is in no way intended to supplant or replace the language of the Charlotte Firefighters' Retirement System Act which is the controlling document relating to benefits and any disputes regarding same. The CFRS Act should be reviewed prior to applying for or selecting benefits from the system.



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FINANCIAL SECTION

The purpose of the Financial Section is to provide the reader the present financial position and condition of the system. This section includes audited financial statements, notes to financial statements, required supplementary information and schedules as well as additional supplementary information which includes Management's Discussion and Analysis.

Report of Independent Auditor

To the Board of Trustees of
Charlotte Firefighters' Retirement System
Charlotte, North Carolina

Report on Financial Statements

We have audited the accompanying financial statements of the Charlotte Firefighters' Retirement System (the "CFRS"), a component unit of the City of Charlotte, North Carolina, as of and for the years ended June 30, 2017 and 2016, and the related notes to the financial statements, which collectively comprise the CFRS' basic financial statements as listed in the table of contents.

Management's Responsibility for the Financial Statements

Management is responsible for the preparation and fair presentation of these financial statements in accordance with accounting principles generally accepted in the United States of America; this includes the design, implementation, and maintenance of internal control relevant to the preparation and fair presentation of financial statements that are free from material misstatement, whether due to fraud or error.

Auditor's Responsibility

Our responsibility is to express opinions on these financial statements based on our audits. We conducted our audits in accordance with auditing standards generally accepted in the United States of America. Those standards require that we plan and perform the audits to obtain reasonable assurance about whether the financial statements are free from material misstatement.

An audit involves performing procedures to obtain audit evidence about the amounts and disclosures in the financial statements. The procedures selected depend on the auditor's judgment, including the assessment of the risks of material misstatement of the financial statements, whether due to fraud or error. In making those risk assessments, the auditor considers internal control relevant to the CFRS' preparation and fair presentation of the financial statements in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the CFRS' internal control. Accordingly, we express no such opinion. An audit also includes evaluating the appropriateness of accounting policies used and the reasonableness of significant accounting estimates made by management, as well as evaluating the overall presentation of the financial statements.

We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinion.

Opinion

In our opinion, the financial statements referred to above present fairly, in all material respects, the respective net position of the CFRS as of June 30, 2017 and 2016, and the respective changes in plan net position for the years then ended in accordance with accounting principles generally accepted in the United States of America.

OTHER MATTERS

Required Supplementary Information

Accounting principles generally accepted in the United States of America require that the Management's Discussion and Analysis and the Required Supplementary Information as listed in the table of contents be presented to supplement the basic financial statements. Such information, although not a part of the basic financial statements, is required by the Governmental Accounting Standards Board, who considers it to be an essential part of financial reporting for placing the basic financial statements in an appropriate operational, economic, or historical context. We have applied certain limited procedures to the Required Supplementary Information in accordance with auditing standards generally accepted in the United States of America, which consisted of inquiries of management about the methods of preparing the information and comparing the information for consistency with management's responses to our inquiries, the basic financial statements, and other knowledge we obtained during our audit of the basic financial statements. We do not express an opinion or provide any assurance on the information because the limited procedures do not provide us with sufficient evidence to express an opinion or provide any assurance.

Supplementary Schedules and Other Information

Our audits were conducted for the purpose of forming opinions on the financial statements that collectively comprise the CFRS' basic financial statements. The Supplementary Schedules as listed in the table of contents are presented for purposes of additional analysis and are not a required part of the basic financial statements.

Such information is the responsibility of management and was derived from and relates directly to the underlying accounting and other records used to prepare the basic financial statements. Such information has been subjected to the auditing procedures applied in the audit of the basic financial statements and certain additional procedures, including comparing and reconciling such information directly to the underlying accounting and other records used to prepare the basic financial statements or to the basic financial statements themselves, and other additional procedures in accordance with auditing standards generally accepted in the United States of America. In our opinion, the Supplementary Schedules are fairly stated, in all material respects, in relation to the basic financial statements as a whole.

The Introductory, Investment, Actuarial, and Statistical sections, as well as the glossary of terms as listed in the table of contents have not been subjected to the auditing procedures applied in the audit of the basic financial statements and, accordingly, we do not express an opinion or provide any assurance on them.

Handwritten signature in cursive script that reads "Cherry Roubert LLP".

Charlotte, North Carolina
December 9, 2017

MANAGEMENT’S DISCUSSION AND ANALYSIS

This section presents Management’s Discussion and Analysis of the Charlotte Firefighters’ Retirement System’s (“System”) financial statements and the significant events, conditions and decisions which affected the operations and performance of the Charlotte Firefighters’ Retirement System during the years ended June 30, 2017 and 2016.

Overview of the Financial Statements and Accompanying Information

- 1) Fund Financial Statements. The System presents Statements of Plan Net Position as of June 30, 2017 and 2016 and Statements of Changes in Plan Net Position for the years then ended. These statements reflect resources available for payment of benefits as of year-end and the sources and uses of those funds during the year. For purposes of discussion and analysis, the condensed information shown below includes three fiscal years.
- 2) Notes to the Financial Statements. The notes to the financial statements are an integral part of the financial statements and have additional detailed information to provide a better understanding of the financial statements. Information in the notes discloses the System organization, benefits and contributions, how the asset values are determined, contingencies and commitments.
- 3) Required Supplementary Information. The required supplementary information consists of a schedule concerning the funding status of the System, employer contributions and this Management’s Discussion and Analysis.
- 4) Other Supplementary Schedules. Other schedules include detailed information on administrative expenses incurred by the System, a schedule of investment manager fees by asset class and fees paid to consultants for professional services.

Comparative Statements of Plan Net Position

(in thousands)

	Years ended June 30		
	2017	2016	2015
Cash and Cash equivalents	\$ 4,633	\$ 5,516	\$ 8,605
Investments	514,639	468,928	475,352
Capital assets	145	158	196
Other assets	872	1,079	1,060
Total assets	520,289	475,681	485,213
Liabilities	(525)	(561)	(638)
Net Position	\$ 519,764	\$ 475,120	\$ 484,575

Comparative Statements of Changes in Plan Net Position

(in thousands)

	Years ended June 30		
	2017	2016	2015
Contributions	\$ 18,742	\$ 17,685	\$ 17,727
Net Investment Gain/(Loss)	57,681	2,295	20,421
Total Additions/(Loss)	76,423	19,980	38,148
Benefits	(31,075)	(28,333)	(26,406)
Other deductions	(704)	(1,102)	(742)
Total Deductions	(31,779)	(29,435)	(27,148)
Change in Net Position	\$ 44,644	\$ (9,455)	\$ 11,000

Financial Analysis

The Charlotte Firefighters' Retirement System provides retirement benefits to the uniformed firefighters of the City of Charlotte. The System benefits are funded through member and employer contributions and investment income. As reflected in the Comparative Statements of Changes in Plan Net Position on *Page 22*, the net position of the System increased approximately \$44.6 million during the year ended June 30, 2017, decreased approximately \$9.4 million and increased \$11.0 million during the years ended June 30, 2016 and June 30, 2015, respectively. These results reflect the extremely volatile Global Market environment.

Funded Ratio

The funded ratio of the plan measures the ratio of actuarially determined assets against actuarial liabilities and is a good indicator of the fiscal strength of a pension fund's ability to meet obligations to its members. The System is required by the Act to perform an annual actuarial valuation. The valuation as of July 1, 2017 showed the funded status of the System decreasing to 86.2% from 86.9% at July 1, 2016 and 92.7% at July 1, 2015. The System valuations use a 5-year smoothed market basis. The System had an unfunded liability of \$84 million, \$74 million and \$37 million for the years ended June 30, 2017, 2016 and 2015, respectively. Although the Rate of Return was greater than the assumed Rate of Return, the number of actual retirements was greater than the assumed, thereby resulting in the decrease in the funded ratio.

Contributions and Income

Additions to Plan Net Position include employer and member contributions and net income from investment activities. Member contributions were approximately \$9.6 million, \$8.9 million and \$9.1 million for the years ended June 30, 2017, 2016 and 2015, respectively, an annual increase of \$654,000 for fiscal year 2017 and a decrease of \$147,000 and increase \$415,000 for fiscal years 2016 and 2015 respectively. The member rate is 12.65% of eligible compensation, set by statute and made on a tax-deferred basis. The employer rate is set at 12.65% by statute. Employer contributions were approximately \$9.1 million, \$8.7 million and \$8.6 million for the years ended June 30, 2017, 2016 and 2015, respectively. The variances between employer and member contributions may be attributed to significant prior government and military service purchases made by members and contributions not made by members who have been placed on military deployment during the past years.

Net investment gains of approximately \$58 million during fiscal 2017, \$2.3 million during fiscal 2016 and \$20.4 million during fiscal 2015, resulted in returns of 12.88%, 1.05% and 4.87%, respectively as measured by Callan Associates, Inc. The positive returns in investment income in 2017 were largely the result of strong US and International Equity market performance. The System outperformed its composite benchmark on a relative basis by 72 basis points and outperformed the Callan Public Fund Sponsor Database median return by 46 basis points. For the 5-year period ended June 30, 2017, the System returns were 10.28% compared to its composite benchmark returns of 9.81% and its actuarial assumed rate of return of 7.5%.

The most significant deduction from investment income is investment manager fees. The System's assets are managed 100% by external investment advisors hired by the Board of Trustees. Many of these managers are paid a fee based on the assets under management. Some

of the active managers are paid a base fee plus the possibility of performance incentive. Some of the managers were generally compensated less than in prior years because of the effect of lower asset values during a portion of the year. Investment expenses for the years ended June 30, 2017, 2016 and 2015 were approximately \$2.7 million, \$2.6 million and \$2.8 million, respectively.

Prudent investment of the System's assets, diligent monitoring of investment advisors and a commitment to periodic allocation rebalancing in addition to conservative administrative costs has enabled the System to achieve a modest funded status. The Board of Trustees is committed to maintaining the System at or near 100% funding and will dedicate its efforts to that goal.

Benefits, Refunds and Expenses

The most significant recurring deduction to Plan Net Position is benefit payments. During fiscal 2017, the System paid approximately \$31.1 million, up from \$28.3 million in fiscal 2016 and \$26.4 million in fiscal 2015, in benefits and refunds. The increased level of payments in fiscal year 2017 was due primarily to new retirements. The System does not provide an automatic Cost of Living Adjustment (COLA). Due to the funding ratio of the System, the Board of Trustees was unable to provide a bonus payment for retirees and beneficiaries receiving benefits as of January 1, 2016.

The administrative costs of the System represented approximately .12% of the ending net position in fiscal year 2017, decreased from .14% from fiscal year 2016.

Plan Assets

During fiscal year 2017, investments allocated to domestic and international equity portfolios increased approximately \$47.5 million, after experiencing an decrease of \$39.1 million and an increase of \$6.3 million in fiscal years 2016 and 2015, respectively. The System does not invest in alternative classes of investments such as hedge funds, venture capital and private equity. It also does not have a securities lending program at this time. During fiscal years 2017, 2016 and 2015, investments allocated to domestic and non-U.S. fixed income decreased approximately \$1.3 million, and increased \$7.8 million and decreased \$0.7 million, respectively. These results are attributable to investment results and continuing volatility of global bond markets combined with historically low interest rates and global currency issues during this period.

The System values its assets at "fair value" as discussed in accounting policies footnote 2(f) (*Page 30*) to the financial statements. Fair value is the value the System expects to receive in a current sale between a willing buyer and a willing seller that are equally motivated; that is, other than a forced or liquidation sale. The value of publicly traded securities, stocks and bonds, are determined using the latest quote from national exchanges or pricing services. These prices reflect the securities' pricing at the close of business and can be affected by such factors as liquidity, current events and the size of lots being traded. Real Estate is valued using appraisal values by approved appraisers who meet professional qualifications. The appraisal process involves a significant amount of judgment and estimates. As a result, the ultimate value on the sale of the asset may differ from the appraised value.

Contacting the CFRS Management

This financial report is designed to provide the City Council, participants of the System, citizens, taxpayers and other interested parties with an overview of its operations and financial position and to demonstrate its accountability. Questions concerning this report or requests for additional information should be directed to the Administrator, Charlotte Firefighters' Retirement System, 428 East 4th Street, Suite 205, Charlotte, NC 28202.

**CHARLOTTE FIREFIGHTERS' RETIREMENT SYSTEM, A COMPONENT UNIT OF
THE CITY OF CHARLOTTE, NORTH CAROLINA**
COMPARATIVE STATEMENTS OF PLAN NET POSITION
(Dollar amounts In Thousands)

	June 30	
	2017	2016
ASSETS:		
Cash and cash equivalents	\$ 4,633	\$ 5,516
Receivables:		
Employer contributions	171	297
Member contributions	171	297
Interest and dividends	530	485
Total receivables	<u>872</u>	<u>1,079</u>
Investments, at fair value:		
Equity securities - stocks	136,440	115,579
Fixed income securities - bonds	100,176	75,810
Mutual funds	<u>278,023</u>	<u>277,539</u>
Total investments	<u>514,639</u>	<u>468,928</u>
Capital assets, at cost, net of accumulated depreciation of \$409 - 2017 and \$429 - 2016	<u>145</u>	<u>158</u>
Total assets	<u>520,289</u>	<u>475,681</u>
LIABILITIES:		
Accounts payable	<u>525</u>	<u>561</u>
NET POSITION RESTRICTED FOR PENSIONS	<u>\$ 519,764</u>	<u>\$ 475,120</u>

The notes to the financial statements are an integral part of this statement.

**CHARLOTTE FIREFIGHTERS' RETIREMENT SYSTEM, A COMPONENT UNIT OF
THE CITY OF CHARLOTTE, NORTH CAROLINA**
COMPARATIVE STATEMENTS OF CHANGES IN PLAN NET POSITION
(Dollar amounts In Thousands)

	Years Ended June 30	
	2017	2016
ADDITIONS:		
Contributions:		
Member	\$ 9,636	\$ 8,991
Employer	9,106	8,694
Total contributions	<u>18,742</u>	<u>17,685</u>
Investment income:		
Net appreciation (depreciation) in fair value of investments	54,521	(542)
Interest	2,133	2,443
Dividends	3,762	3,039
	<u>60,416</u>	<u>4,940</u>
Less investment expense	<u>2,735</u>	<u>2,645</u>
Net investment income	<u>57,681</u>	<u>2,295</u>
Total additions	<u>76,423</u>	<u>19,980</u>
DEDUCTIONS:		
Benefits	31,075	28,333
Refunds	70	416
Administration	621	657
Depreciation	13	29
Total deductions	<u>31,779</u>	<u>29,435</u>
Net increase (decrease) in plan net position	44,644	(9,455)
Net position - beginning	<u>475,120</u>	<u>484,575</u>
Net position - ending	<u>\$ 519,764</u>	<u>\$ 475,120</u>

The notes to the financial statements are an integral part of this statement.

**CHARLOTTE FIREFIGHTERS' RETIREMENT SYSTEM, A COMPONENT UNIT OF
THE CITY OF CHARLOTTE, NORTH CAROLINA**
NOTES TO THE FINANCIAL STATEMENTS
FOR THE YEARS ENDED JUNE 30, 2017 AND 2016
(Dollar Amounts in Thousands)

1. PLAN DESCRIPTION:

The Charlotte Firefighters' Retirement System (the System), a single-employer, defined benefit plan, was organized pursuant to the 1947 Session Laws of the State of North Carolina, for the purpose of providing retirement, disability and death benefits to civil service employees of the Charlotte Fire Department. Membership is mandatory at the date of employment. The System is administered by an eleven member Board of Trustees. The City of Charlotte's (City) payroll for members covered by the System for the years ended June 30, 2017 and 2016 was \$71 million and \$67 million, respectively.

At June 30, the System's membership consisted of:

	<u>2017</u>	<u>2016</u>
Inactive members or beneficiaries		
currently receiving benefits	684	647
Inactive members entitled to but not yet		
receiving benefits	14	14
Active plan members	<u>1,037</u>	<u>1,030</u>
Total	<u>1,735</u>	<u>1,691</u>

Benefits vest after five years of credited service. The requirements for normal service retirement are: (a) any age with 30 years of service credit, (b) age 50 with 25 years of service credit, or (c) age 60 with 5 years of service credit. The normal service retirement monthly benefits are 2.6 percent of final average salary multiplied by the years of credited service. Salary in the final year includes portions of cashed-in vacation and sick days. Final average salary is the monthly average received by the member during any 2 consecutive years of membership which produces the highest average and is contained within the last 5 years of membership. The minimum monthly benefit is \$902.75. Members less than age 50 may elect early retirement with 25 years of service credit. Early retirement benefits are reduced by 3 percent for each year the early retirement date precedes age 50.

If an employee ceases employment with less than 5 years of service credit, accumulated employee contributions are refunded to the employee or designated beneficiary. After 5 or more years of service, the employee may elect to receive a refund of the employee's accumulated contributions with interest compounded annually at 4 percent or receive an accrued benefit at age 60.

Death and disability benefits are also available. Benefit and contribution provisions are established by State law and may be amended only by the North Carolina legislature.

**CHARLOTTE FIREFIGHTERS' RETIREMENT SYSTEM, A COMPONENT UNIT OF
THE CITY OF CHARLOTTE, NORTH CAROLINA**
NOTES TO THE FINANCIAL STATEMENTS – (Continued)
FOR THE YEARS ENDED JUNE 30, 2017 AND 2016
(Dollar Amounts in Thousands)

Pursuant to the Act that established the System, the City is required to match the member's contribution. The Act establishes the contribution rate pursuant to the Board of Trustees' recommendation and approval by the Charlotte City Council. The current rate is 12.65 percent. Administrative costs are funded through contributions and investment earnings.

The contributions made by the City and the members of the System were as follows:

	<u>In Dollars</u>		<u>Percent of Covered Payroll</u>	
	<u>2017</u>	<u>2016</u>	<u>2017</u>	<u>2016</u>
Contributions made by -				
City	\$ 9,106	\$ 8,694	12.90%	13.02%
Members	<u>9,636</u>	<u>8,991</u>	<u>13.65</u>	<u>13.46</u>
Total	<u>\$18,742</u>	<u>\$17,685</u>	<u>26.55%</u>	<u>26.48%</u>

2. SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES:

a. Basis of Presentation

The System provides services exclusively to the City; therefore, the System is included as a blended component unit and reported as a Fiduciary Pension Trust Fund in the City's basic financial statements.

The financial statements are presented in accordance with Governmental Accounting Standards Board (GASB) Statement No. 67, Financial Reporting for Pension Plans an amendment of GASB Statement No. 25, which establishes standards of financial reporting for state and local government pension plans administered through trusts that meet certain criteria.

GASB Statement No. 9, Reporting Cash Flows of Proprietary and Nonexpendable Trust Funds and Governmental Entities That Use Proprietary Fund Accounting, as amended by GASB Statement No. 25, exempts pension plans from presenting a statement of cash flows. As a result, the System has chosen not to present this statement.

b. Basis of Accounting

The financial statements are presented on the accrual basis of accounting. Property is stated at historical cost. Depreciation is computed using the straight-line method over an estimated useful life of twenty-five years for buildings and five years for intangible assets. Contributions are recognized in the period in which the contributions are due. Benefits and refunds are recognized when due and payable in accordance with the terms of the plan. Interest and dividend income is

**CHARLOTTE FIREFIGHTERS' RETIREMENT SYSTEM, A COMPONENT UNIT OF
THE CITY OF CHARLOTTE, NORTH CAROLINA
NOTES TO THE FINANCIAL STATEMENTS – (Continued)
FOR THE YEARS ENDED JUNE 30, 2017 AND 2016
(Dollar Amounts in Thousands)**

reported as earned. The net appreciation in the fair value of investments includes realized gains and losses on investments that were both bought and sold during the year.

c. Cash and Cash Equivalents/Investments

Short-term, highly liquid investments are considered cash equivalents. Short-term refers to investments with an original maturity of three months or less at date of acquisition. Highly liquid investments are those that are readily convertible to known amounts of cash and so near their maturity that the risk of changes in value because of changes in interest rates is insignificant.

The carrying amounts of deposits and investments were \$4,633 and \$514,639 at June 30, 2017 and \$5,516 and \$468,928 at June 30, 2016, respectively.

Deposits

All deposits of the System are made in board-designated official depositories and are insured or collateralized with securities held by the System's agent in the System's name. The System has no formal policy regarding custodial credit risk for deposits. The bank balances at June 30, 2017 and 2016 were \$263 and \$449, respectively.

Investments

The North Carolina Act (Act) which established the System requires the Board of Trustees to act with the same care, skill, prudence and diligence under the circumstances then prevailing, that a prudent person acting in a similar capacity and familiar with those matters would use in the conduct of a similar enterprise with similar aims. The Act requires the Trustees to design an investment plan to further the purpose of the System by giving consideration to the following: (a) diversification of investments, (b) liquidity and return relative to cash flow needs and (c) projected return. In accordance with the Act, the Board of Trustees has developed and periodically revises a policy statement of investment goals, objectives, and guidelines, which specifically define vehicles that may be used for the investment of System funds. The System invests in United States government securities, corporate bonds, common stocks and mutual funds.

**CHARLOTTE FIREFIGHTERS' RETIREMENT SYSTEM, A COMPONENT UNIT OF
THE CITY OF CHARLOTTE, NORTH CAROLINA**
NOTES TO THE FINANCIAL STATEMENTS – (Continued)
FOR THE YEARS ENDED JUNE 30, 2017 AND 2016
(Dollar Amounts in Thousands)

The investments and maturities at June 30, 2017, were as follows:

<u>Investment Type</u>	<u>Fair Value</u>	<u>Investment Maturities (in Years)</u>			
		<u>Less than 1</u>	<u>1 - 5</u>	<u>6 - 10</u>	<u>More than 10</u>
U.S. Treasuries	\$ 15,172	\$ -	\$ 6,607	\$ 2,705	\$ 5,860
U.S. Agencies	20,485	-	-	931	19,554
Corporate Bonds	40,283	1,054	14,486	11,250	13,493
Common Stocks	136,440	N/A	N/A	N/A	N/A
Mutual Funds	302,259	N/A	N/A	N/A	N/A
Total	<u>\$ 514,639</u>	<u>\$ 1,054</u>	<u>\$ 21,093</u>	<u>\$ 14,886</u>	<u>\$ 38,907</u>

The investments and maturities at June 30, 2016, were as follows:

<u>Investment Type</u>	<u>Fair Value</u>	<u>Investment Maturities (in Years)</u>			
		<u>Less than 1</u>	<u>1 - 5</u>	<u>6 - 10</u>	<u>More than 10</u>
U.S. Treasuries	\$ 8,189	\$ -	\$ -	\$ 2,544	\$ 5,645
U.S. Agencies	25,253	-	-	11	25,242
Corporate Bonds	42,368	999	24,902	8,806	7,661
Common Stocks	115,579	N/A	N/A	N/A	N/A
Mutual Funds	277,539	N/A	N/A	N/A	N/A
Total	<u>\$ 468,928</u>	<u>\$ 999</u>	<u>\$ 24,902</u>	<u>\$ 11,361</u>	<u>\$ 38,548</u>

**CHARLOTTE FIREFIGHTERS' RETIREMENT SYSTEM, A COMPONENT UNIT OF
THE CITY OF CHARLOTTE, NORTH CAROLINA**
NOTES TO THE FINANCIAL STATEMENTS – (Continued)
FOR THE YEARS ENDED JUNE 30, 2017 AND 2016
(Dollar Amounts in Thousands)

The System categorizes its fair value measurements within the fair value hierarchy established by generally accepted accounting principles. The hierarchy is based on the valuation inputs used to measure fair value of the assets. Level 1 inputs are quoted prices in an active market for identical assets; Level 2 inputs are significant other observable inputs; and Level 3 inputs are significant unobservable inputs. The following is a summary of the fair value hierarchy of the fair value of investments as of June 30, 2017:

	6/30/2017	Fair Value Measurements Using Quoted Prices in Active Markets for Identical Assets (Level 1)	Fair Value Measurements Using Either Directly or Indirectly Observable Inputs (Level 2)	Fair Value Measurements Using Unobservable Inputs (Level 3)
Investments by fair value level				
US Treasuries	\$ 15,172	\$ 15,172	\$ -	\$ -
US Agencies	20,485	-	20,485	-
Corporate Bonds	40,283	-	34,089	6,194
Common Stocks	136,440	136,440	-	-
Mutual Funds	302,259	-	18,440	283,819
Total investments by fair value level	<u>514,639</u>	<u>\$ 151,612</u>	<u>\$ 73,014</u>	<u>\$ 290,013</u>
Investments measured at the net asset value (NAV)				
Money Markets	4,374			
Total investments measured at fair value	<u>\$ 519,013</u>			

The following is a summary of the fair value hierarchy of the fair value of investments as of June 30, 2016:

	6/30/2016	Fair Value Measurements Using Quoted Prices in Active Markets for Identical Assets (Level 1)	Fair Value Measurements Using Either Directly or Indirectly Observable Inputs (Level 2)	Fair Value Measurements Using Unobservable Inputs (Level 3)
Investments by fair value level				
US Treasuries	\$ 8,189	\$ 8,189	\$ -	\$ -
US Agencies	25,253	-	25,253	-
Corporate Bonds	42,368	-	33,798	8,570
Common Stocks	115,579	115,579	-	-
Mutual Funds	277,539	-	17,174	260,365
Total investments by fair value level	<u>468,928</u>	<u>\$ 123,768</u>	<u>\$ 76,225</u>	<u>\$ 268,935</u>
Investments measured at the net asset value (NAV)				
Money Markets	5,378			
Total investments measured at fair value	<u>\$ 474,306</u>			

**CHARLOTTE FIREFIGHTERS' RETIREMENT SYSTEM, A COMPONENT UNIT OF
THE CITY OF CHARLOTTE, NORTH CAROLINA**
NOTES TO THE FINANCIAL STATEMENTS – (Continued)
FOR THE YEARS ENDED JUNE 30, 2017 AND 2016
(Dollar Amounts in Thousands)

Interest Rate Risk. The System does not have a formal investment policy that limits investment maturities.

Credit Risk. The System is authorized to invest in bonds with a quality rating of no less than investment grade and unrated U.S. Treasuries and Agencies. The quality ratings of investments in fixed income securities as described by nationally recognized statistical rating organizations at June 30, 2017 are as follows:

<u>Quality Rating</u>	<u>Fair Value</u>	<u>Percentage of Portfolio</u>
AAA	\$ 5,437	7.16%
Baa>AA	28,652	37.73%
Total credit risk debt securities	<u>34,089</u>	<u>44.89%</u>
US Government fixed income securities:		
Government National Mortgage Association	4,667	6.15%
U.S. Treasury	15,172	19.98%
Not Rated	22,012	28.98%
Total fixed income securities	<u>\$ 75,940</u>	<u>100.00%</u>

The quality ratings of investments in fixed income securities as described by nationally recognized statistical rating organizations at June 30, 2016 are as follows:

<u>Quality Rating</u>	<u>Fair Value</u>	<u>Percentage of Portfolio</u>
AAA	\$ 6,662	8.79%
Baa>AA	27,136	35.79%
Total credit risk debt securities	<u>33,798</u>	<u>44.58%</u>
US Government fixed income securities:		
Government National Mortgage Association	4,410	5.82%
U.S. Treasury	8,189	10.80%
Not Rated	29,413	38.80%
Total fixed income securities	<u>\$ 75,810</u>	<u>100.00%</u>

Custodial Credit Risk. The System has no formal policy regarding custodial credit risk for investments.

Concentration of Credit Risk. The System limits the amount of equity holdings in any one company to 8 percent of the market value of the portfolio; the amount of equity holdings in any one sector to 30 percent of the market value of the portfolio; and the amount of fixed-income

**CHARLOTTE FIREFIGHTERS' RETIREMENT SYSTEM, A COMPONENT UNIT OF
THE CITY OF CHARLOTTE, NORTH CAROLINA
NOTES TO THE FINANCIAL STATEMENTS – (Continued)
FOR THE YEARS ENDED JUNE 30, 2017 AND 2016
(Dollar Amounts in Thousands)**

securities in any one corporation to 5 percent of the market value of the portfolio. There is no limit on securities backed by the full faith and credit of the U.S. Government or any of its instrumentalities.

In accordance with the Act, the System has invested in collateralized mortgage obligations (CMO) and mortgage backed securities. CMO and mortgage backed securities are based on cash flows from principal and interest payments on underlying mortgages. CMO rates trade in sympathy with treasury rates. The System held \$821 and \$2,893 of these securities at June 30, 2017 and 2016, respectively.

d. Concentrations

The System had individual fixed income or equity investments at June 30 managed by the following organizations that represented 5 percent or more of the System's net assets:

	<u>2017</u>	<u>2016</u>
State Street Global Advisors	21%	22%
Barrow, Hanley, MeWhinney & Strauss	15	16
Morgan Stanley Dean Witter	14	13
Winslow Capital Management	8	7
Aronson + Johnson + Ortiz	7	7
UBS Trumbull Property Fund	6	7
Colchester	5	-
T Rowe Price International	5	-
Baring Asset Management	-	5

**CHARLOTTE FIREFIGHTERS' RETIREMENT SYSTEM, A COMPONENT UNIT OF
THE CITY OF CHARLOTTE, NORTH CAROLINA**
NOTES TO THE FINANCIAL STATEMENTS – (Continued)
FOR THE YEARS ENDED JUNE 30, 2017 AND 2016
(Dollar Amounts in Thousands)

In addition, the System owned individual assets at June 30 that represented 5 percent or more of the System's net assets:

	<u>2017</u>	<u>2016</u>
State Street Global Advisors MSCI EAFE Index	10%	8%
Morgan Stanley Core	9	8
State Street Global Advisors Russell 1000 Index SL	8	7
UBS Trumbull Properties	6	6
State Street Global Advisors Bond Market Index Fund	6	6
Morgan Stanley Emerging Markets	6	5
T. Rowe Int Small Cap	5	-
ICM Small Company Portfolio	4	-
JPMCB Strategic Prop Fund	4	-
Barings Group Trust F	-	5

e. Rate of Return

For the years ended June 30, 2017 and 2016, respectively, the annual money-weighted rates of return on the system's investments, net of pension plan investment expense, were 1.55 and .78 percent. The money-weighted rate of return expresses investment performance, net of investment expense, adjusted for the changing amounts actually invested.

f. Method Used to Value Investments

Investments are reported at fair value. Securities and mutual funds traded on a national or international exchange are valued at the last reported sales price at current exchange rates. Mortgages are valued on the basis of future principal and interest payments and are discounted at prevailing interest rates for similar instruments. The fair value of real estate investments is based on independent appraisals. Investments that do not have an established market are reported at estimated fair value.

g. Use of Estimates

The preparation of financial statements in conformity with accounting principles generally accepted in the United States of America requires management to make estimates and assumptions that affect the reported amounts of assets, liabilities and changes therein, disclosure of contingent assets and liabilities, and the actuarial present value of accumulated plan benefits at the date of the financial statements. Actual results could differ from those estimates.

**CHARLOTTE FIREFIGHTERS' RETIREMENT SYSTEM, A COMPONENT UNIT OF
THE CITY OF CHARLOTTE, NORTH CAROLINA**
NOTES TO THE FINANCIAL STATEMENTS – (Continued)
FOR THE YEARS ENDED JUNE 30, 2017 AND 2016
(Dollar Amounts in Thousands)

h. Capital Assets

Capital asset activity for the year ended June 30, 2017, was as follows:

	Beginning Balance	Increase	Decrease	Ending Balance
Capital assets, being depreciated:				
Buildings	\$ 407	\$ -	\$ -	\$ 407
Intangibles	<u>160</u>	<u>-</u>	<u>-</u>	<u>160</u>
Total capital assets being depreciated	<u>567</u>	<u>-</u>	<u>-</u>	<u>567</u>
Less accumulated depreciation for:				
Buildings	249	13	-	262
Intangibles	<u>160</u>	<u>-</u>	<u>-</u>	<u>160</u>
Total accumulated depreciation	<u>409</u>	<u>13</u>	<u>-</u>	<u>422</u>
Capital assets, net	<u>\$ 158</u>	<u>\$ (13)</u>	<u>\$ -</u>	<u>\$ 145</u>

Capital asset activity for the year ended June 30, 2016, was as follows:

	Beginning Balance	Increase	Decrease	Ending Balance
Capital assets, being depreciated:				
Buildings	\$ 465	\$ -	\$ 58	\$ 407
Intangibles	<u>160</u>	<u>-</u>	<u>-</u>	<u>160</u>
Total capital assets being depreciated	<u>625</u>	<u>-</u>	<u>58</u>	<u>567</u>
Less accumulated depreciation for:				
Buildings	285	-	36	249
Intangibles	<u>144</u>	<u>16</u>	<u>-</u>	<u>160</u>
Total accumulated depreciation	<u>429</u>	<u>16</u>	<u>36</u>	<u>409</u>
Capital assets, net	<u>\$ 196</u>	<u>\$ (16)</u>	<u>\$ 22</u>	<u>\$ 158</u>

3. NET PENSION LIABILITY:

The components of the net pension liability were as follows:

	<u>2017</u>	<u>2016</u>
Total pension liability	\$729,845	\$737,823
Plan net position	<u>(519,764)</u>	<u>(475,120)</u>
Net pension liability	<u>\$210,081</u>	<u>\$262,703</u>

**CHARLOTTE FIREFIGHTERS' RETIREMENT SYSTEM, A COMPONENT UNIT OF
THE CITY OF CHARLOTTE, NORTH CAROLINA**
NOTES TO THE FINANCIAL STATEMENTS – (Continued)
FOR THE YEARS ENDED JUNE 30, 2017 AND 2016
(Dollar Amounts in Thousands)

	<u>2017</u>	<u>2016</u>
Plan fiduciary net position as a percentage of the total liability	71.22%	64.39%

Actuarial assumptions. The total pension liability was determined by an actuarial valuation as of July 1, 2017, using the following actuarial assumptions, applied to all periods included in the measurement:

Inflation	3.00%
Salary increases	3.75-9.00%, including inflation
Investment rate of return	7.50%, net of pension plan investment expense, including inflation

Mortality rates were based on the RP-2000 Combined Mortality Table projected generationally with Scale AA for the period after service retirement. The RP-2000 Combined Mortality Table set forward 1 year for males and set forward 2 years for females, and projected generationally with Scale AA is used for dependent beneficiaries. The RP-2000 Disabled Mortality set back 6 years for males and set forward 1 year for females is used for the period after disability retirement. The RP-2000 Employee Mortality Table set back 2 years for males and projected generationally with Scale AA is used for deaths in active service.

The actuarial assumptions used in the July 1, 2017 valuation were based on the results of an actuarial experience study for the period July 1, 2009 – June 30, 2014.

The long-term expected rate of return on the system's investments was determined using a log-normal distribution analysis in which best-estimate ranges of expected future real rates of return (expected returns, net of pension plan investment expense and inflation) are developed for each major asset class. These ranges are combined to produce the long-term expected rate of return by weighting the expected future real rates of return by the target asset allocation percentage and by adding expected inflation. The target asset allocation and best estimates of arithmetic real rates of return for each major asset class are summarized in the following table:

<u>Asset Class</u>	<u>Target Allocation</u>	<u>Long-Term Expected Real Rate of Return</u>
Broad Domestic Equity	36.0%	7.6%
International Equity	26.0%	7.5%
Domestic Fixed Income	23.0%	3.0%
Non US Fixed Income	5.0%	2.3%
Real Estate	<u>10.0%</u>	6.2%
Total	<u>100.0%</u>	

**CHARLOTTE FIREFIGHTERS' RETIREMENT SYSTEM, A COMPONENT UNIT OF
THE CITY OF CHARLOTTE, NORTH CAROLINA
NOTES TO THE FINANCIAL STATEMENTS – (Continued)
FOR THE YEARS ENDED JUNE 30, 2017 AND 2016
(Dollar Amounts in Thousands)**

Discount rate. The discount rate used to measure the total pension liability was 5.86 percent. The projection of cash flows used to determine the discount rate assumed that plan member and employer contributions will be made at the current contribution rates. Based on those assumptions, the system's fiduciary net position was projected to be available to make all projected future benefit payments of current plan members until the plan year ending June 30, 2054. Therefore, the long-term expected rate of return on pension plan investments of 7.50 percent was applied to all periods of projected benefit payments through June 30, 2054 and the applicable municipal bond index rate of 3.56 percent, based on the Bond Buyer General Obligation 20-year Municipal Bond Index published monthly by the Board of Governors of the Federal Reserve System as of June 30, 2017, was applied to all periods of projected benefit payments after June 30, 2054. The Single Equivalent Interest Rate (SEIR) of 5.86 percent that discounts the entire projected benefit stream to the same amount as the sum of the present values of the two separate benefit payment streams was used to determine the total pension liability as of June 30, 2017.

Sensitivity of the net pension liability to changes in the discount rate. The following presents the net pension liability of the System, calculated using the discount rate of 5.86 percent, as well as what the System's net pension liability would be if it were calculated using a discount rate that is 1-percentage-point lower (4.86 percent) or 1-percentage-point higher (6.86 percent) than the current rate (\$ thousands):

	1% Decrease (4.86%)	Current Discount Rate (5.86%)	1% Increase (6.86%)
System's net pension liability	\$ 307,533	\$ 210,081	\$ 129,136

4. INTERNAL REVENUE STATUS:

The Internal Revenue Service (IRS) has determined that the System meets the requirements of Section 401(a) of the Internal Revenue Code and is exempt from Federal income tax under Section 501(a) of the Code.

5. VOLUNTARY CORRECTION PROGRAM:

A Voluntary Correction Program (VCP) was submitted to the IRS in FY16 requesting that plan language for the definition of Final Average Salary be retroactively amended to correct a typographical error made in the Charlotte Firefighters' Retirement System's Act's language. The IRS has approved the VCP.

**CHARLOTTE FIREFIGHTERS' RETIREMENT SYSTEM, A COMPONENT UNIT OF
THE CITY OF CHARLOTTE, NORTH CAROLINA
NOTES TO THE FINANCIAL STATEMENTS – (Continued)
FOR THE YEARS ENDED JUNE 30, 2017 AND 2016
(Dollar Amounts in Thousands)**

6. CHANGE IN ACCOUNTING PRINCIPLES

During the year ended June 30, 2016, the System implemented Governmental Accounting Standards Board (GASB) Statement 72, Fair Value Measurement and application.

Statement No. 72 requires the System to use valuation techniques which are appropriate under the circumstances and are either a market approach, a cost approach or an income approach. Statement No. 72 establishes a hierarchy of inputs used to measure fair value consisting of three levels. Level 1 inputs are quoted prices in active markets for identical assets or liabilities. Level 2 inputs are inputs, other than quoted prices included within Level 1, that are observable for the asset or liability, either directly or indirectly. Level 3 inputs are unobservable inputs, such as management's assumption of the default rate among underlying mortgages of a mortgage-backed security.

Statement No. 72 also contains note disclosure requirements regarding the hierarchy of valuation inputs and valuation techniques that were used for the fair value measurements. There was no material impact on the System's financial statement as a result of the implementation of Statement No. 72. All required disclosures were added to Note 2.c.

**CHARLOTTE FIREFIGHTERS' RETIREMENT SYSTEM, A COMPONENT UNIT OF
THE CITY OF CHARLOTTE, NORTH CAROLINA**
SCHEDULE OF CHANGES IN THE NET PENSION LIABILITY
(Dollar Amounts in Thousands)

	2017	2016	2015	2014
Total pension liability				
Service Cost	\$ 26,438	\$ 15,387	\$ 15,049	\$ 13,967
Interest	37,701	37,984	36,036	34,249
Difference between expected and actual experience	19,244	(2,503)	1,664	-
Changes of assumptions or other inputs	(60,216)	211,217	-	-
Benefit payments	(31,075)	(28,333)	(26,406)	(23,928)
Refunds of contributions	(70)	(416)	(69)	67
Net change in total pension liability	<u>(7,978)</u>	<u>233,336</u>	<u>26,274</u>	<u>24,355</u>
Total pension liability - beginning	737,823	504,487	478,213	453,858
Total pension liability - ending (a)	<u>\$ 729,845</u>	<u>\$ 737,823</u>	<u>\$ 504,487</u>	<u>\$ 478,213</u>
Plan fiduciary net position				
Contributions - employer	\$ 9,106	\$ 8,694	\$ 8,589	\$ 8,348
Contributions - member	9,636	8,991	9,138	8,723
Net investment income	57,681	2,295	20,421	73,607
Benefit payments	(31,075)	(28,333)	(26,406)	(23,928)
Administrative expense	(621)	(657)	(625)	(691)
Refunds of contributions	(70)	(416)	(69)	67
Depreciation	(13)	(29)	(48)	(48)
Net change in plan fiduciary net position	<u>44,644</u>	<u>(9,455)</u>	<u>11,000</u>	<u>66,078</u>
Plan net position - beginning	475,120	484,575	473,575	407,497
Plan net position - ending (b)	<u>\$ 519,764</u>	<u>\$ 475,120</u>	<u>\$ 484,575</u>	<u>\$ 473,575</u>
Net pension liability - ending (a) - (b)	<u>\$ 210,081</u>	<u>\$ 262,703</u>	<u>\$ 19,912</u>	<u>\$ 4,638</u>
Plan net position as a percentage of the total pension liability	71.22%	64.39%	96.05%	99.03%
Covered employee payroll	\$ 70,610	\$ 66,797	\$ 65,821	\$ 64,190
Net pension liability as a percentage of covered employee payroll	297.52%	393.29%	30.25%	7.22%

Note to Schedule:

In 2014, the System began reporting in accordance with GASB Statement 67 which requires 10 years of information. Additional years will be displayed as they become available.

**CHARLOTTE FIREFIGHTERS' RETIREMENT SYSTEM, A COMPONENT UNIT OF
THE CITY OF CHARLOTTE, NORTH CAROLINA
REQUIRED SUPPLEMENTARY INFORMATION
SCHEDULE OF EMPLOYER CONTRIBUTIONS
(Dollar Amounts in Thousands)**

	<u>2017</u>	<u>2016</u>	<u>2015</u>	<u>2014</u>	<u>2013</u>	<u>2012</u>	<u>2011</u>	<u>2010</u>	<u>2009</u>	<u>2008</u>
Actuarially determined employer contribution	\$ 9,495	\$ 10,206	\$ 11,454	\$ 10,849	\$ 9,214	\$ 8,409	\$ 8,131	\$ 7,440	\$ 6,703	\$ 6,918
Actual employer contributions	9,106	8,694	8,589	8,348	8,100	7,720	7,670	7,440	7,341	6,918
Annual contribution deficiency (excess)	\$ 389	\$ 1,512	\$ 2,865	\$ 2,501	\$ 1,114	\$ 689	\$ 461	\$ -	\$ (638)	\$ -
Covered-employee payroll	\$ 71,984	\$ 68,727	\$ 67,897	\$ 65,992	\$ 64,032	\$ 61,028	\$ 60,632	\$ 58,814	\$ 58,032	\$ 54,688
Actual contributions as a percentage of covered-employee payroll	12.65%	12.65%	12.65%	12.65%	12.65%	12.65%	12.65%	12.65%	12.65%	12.65%

Notes to Schedule

Valuation Date: Actuarially determined contribution rates are calculated as of June 30, two years prior to the end of the fiscal year in which contributions are reported

Methods and assumptions used to determine contribution rates:

Actuarial cost method	Entry age
Amortization method	Level percent of pay, open
Remaining amortization period	30 years
Asset valuation method	5-year smoothed market value
Inflation	3.25%
Salary increases	4.25 - 11.25%, including inflation
Investment rate of return	7.75%, net of pension plan investment expense, including inflation
Mortality	Mortality rates were based on the RP-2000 Combined Mortality Table projected generationally with Scale AA for the period after service retirement. The RP-2000 Combined Mortality Table set forward 1 year for males and set forward 2 years for females, and projected generationally with Scale AA is used for dependent beneficiaries. The RP-2000 Disabled Mortality Table set back 6 years for males and set forward 1 year for females is used for the period after disability retirement. The RP-2000 Employee Mortality Table set back 2 years for males and projected generationally with Scale AA is used for deaths in active service.

**CHARLOTTE FIREFIGHTERS' RETIREMENT SYSTEM, A COMPONENT UNIT OF
 THE CITY OF CHARLOTTE, NORTH CAROLINA
 REQUIRED SUPPLEMENTARY INFORMATION
 SCHEDULE OF INVESTMENT RETURNS
 (Dollar Amounts in Thousands)**

	<u>2017</u>	<u>2016</u>	<u>2015</u>	<u>2014</u>
Annual money-weighted rate of return, net of investment expense	1.55%	0.78%	4.66%	18.60%

Note to Schedule:

In 2014, the System began reporting in accordance with GASB Statement 67 which requires 10 years of information. Additional years will be displayed as they become available.

**CHARLOTTE FIREFIGHTERS' RETIREMENT SYSTEM, A COMPONENT UNIT OF
THE CITY OF CHARLOTTE, NORTH CAROLINA
SCHEDULE OF CASH RECEIPTS AND DISBURSEMENTS
(Dollar Amounts in Thousands)**

	Years Ended June 30	
	<u>2017</u>	<u>2016</u>
CASH RECEIPTS:		
Contributions:		
Member	\$ 9,762	\$ 8,920
Employer	<u>9,232</u>	<u>8,623</u>
Total contributions	18,994	17,543
Investing activities:		
Sale of capital assets	-	8
Sales of investments	140,989	307,363
Interest	2,096	2,574
Dividends	<u>3,762</u>	<u>3,039</u>
Total investing activities	<u>146,847</u>	<u>312,984</u>
Total cash receipts	<u>165,841</u>	<u>330,527</u>
CASH DISBURSEMENTS:		
Benefits	31,075	28,333
Refunds	56	419
Administration	655	748
Investing activities:		
Purchase of investments	132,179	301,481
Investment expense	<u>2,759</u>	<u>2,635</u>
Total investing activities	<u>134,938</u>	<u>304,116</u>
Total cash disbursements	<u>166,724</u>	<u>333,616</u>
Net decrease in cash and cash equivalents	(883)	(3,089)
CASH AND CASH EQUIVALENTS, beginning of year	<u>5,516</u>	<u>8,605</u>
CASH AND CASH EQUIVALENTS, end of year	<u>\$ 4,633</u>	<u>\$ 5,516</u>

**CHARLOTTE FIREFIGHTERS' RETIREMENT SYSTEM, A COMPONENT UNIT OF
THE CITY OF CHARLOTTE, NORTH CAROLINA**
SCHEDULE OF ADMINISTRATIVE EXPENSES AND DEPRECIATION
Year Ended June 30, 2017
(Dollar Amounts in Thousands)

PERSONAL SERVICES:		
Staff Salaries	\$250	
Insurance	38	
Retirement	18	
Social Security	17	
401 (k) Contributions	<u>6</u>	
Total Personal Services		<u>\$329</u>
PROFESSIONAL SERVICES:		
Other	96	
Actuarial Services	5	
Audit	12	
Legal Counsel	35	
Medical	<u>8</u>	
Total Professional Services		<u>156</u>
COMMUNICATION:		
Travel and Training	46	
Postage	4	
Printing	10	
Telecommunications	3	
Meetings	5	
Books and Subscriptions	1	
Parking	<u>1</u>	
Total Communication		<u>70</u>
MISCELLANEOUS:		
Depreciation	13	
Office Condominium Fees	21	
Insurance	21	
Building Improvements	2	
Office and Computer Supplies	6	
Professional Memberships	5	
Annual Retiree Reunion	5	
Miscellaneous and Contingency	1	
Office Equipment Maintenance	2	
Office Furniture and Equipment	<u>3</u>	
Total Miscellaneous		<u>79</u>
TOTAL ADMINISTRATIVE EXPENSES AND DEPRECIATION		<u><u>\$634</u></u>

**CHARLOTTE FIREFIGHTERS' RETIREMENT SYSTEM, A COMPONENT UNIT OF
THE CITY OF CHARLOTTE, NORTH CAROLINA
SCHEDULE OF PROFESSIONAL SERVICE EXPENSES
Year Ended June 30, 2017
(Dollar Amounts in Thousands)**

Type of Service	Name	Expenses
Actuary	Cavanaugh Macdonald Consulting	\$ 5
Audit	Cherry Bekaert LLP	12
Consulting	Tegrit Financial	73
	CBIZ Benefits & Insurance Services, Inc	<u>10</u>
		83
Court Reporting	Adkins Court Reporting	2
IT	ProFIT/CS, LLC	11
Legal	Parker, Poe, Adams & Berstein LLP	31
	Womble, Carlyle, Sandridge & Rice	<u>4</u>
		35
Medical	Novant Health	8
TOTAL PROFESSIONAL SERVICE EXPENSES		\$ <u><u>156</u></u>

**CHARLOTTE FIREFIGHTERS' RETIREMENT SYSTEM, A COMPONENT UNIT OF
THE CITY OF CHARLOTTE, NORTH CAROLINA
SCHEDULE OF INVESTMENT EXPENSES
Year Ended June 30, 2017
(Dollar Amounts in Thousands)**

		<u>ASSETS UNDER MANAGEMENT</u>
INVESTMENT MANAGEMENT FEES:		
Equity:		
Morgan Stanley	\$ 579	\$ 73,806
Robeco Investment Management, Inc.	196	19,994
T. Rowe Price	220	23,881
William Blair & Company	152	19,446
Eagle Asset Management	145	20,808
Investment Counselors of Maryland	130	18,440
Winslow Capital Management	92	40,352
AJO (Aronson + Johnson + Ortiz)	51	37,469
State Street Global Advisors	33	111,590
Fixed Income:		
Barrow, Hanley, Mewhinney & Strauss	204	77,498
Baring Asset Management	50	-
Colchester	71	24,236
Real Estate:		
JPMorgan Chase Asset Management	197	20,443
UBS Trumbull Property Fund	326	30,105
	<u>2,446</u>	<u>\$ 518,068</u>
TRUST AND BANK FEES:		
State Street Bank and Trust Company NA	1	
USBank	108	
Bank of America	4	
	<u>113</u>	
INVESTMENT CONSULTING FEES - Callan Associates Inc.	<u>176</u>	
	<u>\$2,735</u>	

**CHARLOTTE FIREFIGHTERS' RETIREMENT SYSTEM, A COMPONENT UNIT OF
THE CITY OF CHARLOTTE, NORTH CAROLINA**

SCHEDULE OF INVESTMENTS

Years Ended June 30, 2017 and 2016

(Dollar Amounts in Thousands)

Type of Investment	June 30, 2017	Percentage	June 30, 2016	Percentage
	Fair Value	Fair Value	Fair Value	Fair Value
FIXED INCOME	\$ 75,940	14.62%	\$ 75,810	15.98%
COMMON AND PREFERRED STOCK	136,440	26.28%	115,579	24.36%
MUTUAL FUNDS:				
Domestic Equities	55,793	10.74%	51,427	10.84%
Fixed Income Bond Index	27,053	5.21%	27,137	5.72%
International Equities	144,871	27.90%	122,291	25.78%
International Fixed Income	24,236	4.67%	25,995	5.48%
Real Estate	50,306	9.69%	50,689	10.68%
Total mutual funds	302,259	58.21%	277,539	58.49%
TOTAL INVESTMENTS	514,639	99.11%	468,928	98.83%
CASH & CASH EQUIVALENTS	4,633	0.89%	5,516	1.16%
	<u>\$ 519,272</u>	<u>100.00%</u>	<u>\$ 474,444</u>	<u>100.00%</u>



INVESTMENT SECTION

The purpose of the Investment Section is to provide the reader with data reflecting investment policy and the investment operations of the system. This section includes a consultant report, a list of investment goals for the system, an explanation of the investment performance analysis, a schedule of investment results and the system's return on investments. Also included is a schedule of largest assets held, schedule of fees, and a schedule of investment summary.



October 25, 2017

The Charlotte Firefighters' Retirement System ("CFRS") investment program's objective is to provide plan participants with retirement benefits. This is accomplished by the implementation of a carefully planned and executed long-term investment program. The Board of Trustees ("Board") has exclusive control of all retirement system investments and is responsible for establishing investment objectives, strategies, and policies.

The Board is charged with the responsibility of investing CFRS' assets to provide for the benefits of the members of the System. To achieve that goal, the Board follows a policy of preserving capital, while seeking means of enhancing revenues and protecting against undue losses in any particular investment area. The Board diversifies the investment of the assets among classes of securities to reduce risk while maximizing the long-range return.

Asset Allocation Policy

Based on its analysis of capital and money market return patterns, both historical and projected, the Board considers the following asset allocation targets to be consistent with the return requirements and risk tolerance of the fund:

Asset Class	Target Weight	Asset Class Benchmark
Domestic Equity	36%	Russell 3000 Stock Index
International Equity	26%	MSCI All Country World Index ex US IMI
Real Estate	10%	NCREIF Open-End Diversified Core Index
Domestic Fixed Income	23%	Bloomberg Aggregate Bond Index
International Fixed Income	5%	Citicorp Non-U.S. Government Bond Index

Total Fund Goals

The System's primary funding goal is to achieve a return of at least 7.50% and maintain a funded status that provides for the security of retirement income to participants in the plan. The fund's investment goal is to attain an annualized total return over a rolling period of five years which exceeds the fund benchmark by 75 basis points. The fund benchmark assumes a passive implementation of the asset allocation policy.

Total Fund Returns

For the fiscal year 2017, CFRS produced a return of 12.88% which outperformed the fund benchmark, as described above, by 0.72%.

The five-year annualized return of 10.28% outperformed the fund benchmark of 9.81%. In the Callan Public Fund Universe, CFRS' total fund performance ranks at the 7th percentile for the trailing five-year period and at the 12th percentile since inception (29 years). The performance calculations presented above were prepared by the Systems' consultant using the custodial bank statements. The performance is calculated using a time-weighted rate of return methodology based upon the market value of assets.

Kind regards,

Todd Carabasi, CFA

Elizabeth Hood, CFA

CHARLOTTE FIREFIGHTERS' RETIREMENT SYSTEM INVESTMENT POLICY, GOALS, OBJECTIVES & GUIDELINES

BACKGROUND

The Charlotte Firefighters' Retirement System is the primary retirement income vehicle for its members and is co-sponsored by the City of Charlotte and the uniformed Civil Service employees of the Charlotte Fire Department. The System's investment performance is monitored on a continuous basis to ensure that the objectives and direction of the Board are being fulfilled. The investment consulting firm of Callan Associates, Inc. has been employed since 1987 to fulfill this obligation and providing other investment consulting services. The Board will discharge its investment responsibilities and make all decisions solely in the interest of plan participants and their beneficiaries.

Funding Philosophy

The Board's funding goal for the System is to be as fully funded as prudently possible so that:

- the ability to pay all benefit obligations when due is ensured;
- the City of Charlotte and the Board have maximum flexibility in determining the future level of contributions; and
- a funding "cushion" is maintained for unexpected developments and for possible future changes in retirement benefit levels.

Investment results are considered to be a critical element in achieving the System's funding goal stated above.

Risk Tolerance

In establishing investment objectives and guidelines that are consistent with the Board's funding goal, several factors were examined to determine the System's financial ability to withstand variability of investment return. The Board analyzed the System's financial and legal characteristics, work force demographics, actuarial and funding policies as well as actual experience.

The assets of the System should be invested with a risk orientation that is consistent with a moderate ability to assume risk. The Board defines a moderate risk orientation as:

- a willingness to tolerate some interim fluctuations in market value and rates of return in order to achieve the asset allocation objective stated below; and
- a desire to limit the volatility in the Fund's rate of return to a level that approximates the average volatility experienced by other U.S. defined benefit retirement plans.

INVESTMENT OBJECTIVES & GUIDELINES

Asset Allocation

The System's risk tolerance is, in large part, a function of the asset mix established for the Fund. Based on its analysis of capital and money market return patterns, both historical and projected, the Board considers the following asset allocation to be consistent with the risk tolerance previously defined.

**CHARLOTTE FIREFIGHTERS' RETIREMENT SYSTEM
INVESTMENT POLICY, GOALS, OBJECTIVES & GUIDELINES**

Total Fund Asset Mix Guidelines

The Total Fund Asset Mix Guidelines will be implemented and maintained by the following distribution through a combination of “Specialist” Investment Managers and internal management in each of the asset class categories as follows:

<u>"Specialist" Managers</u>	<u>Target Allocation</u>	<u>Acceptable Range</u>
Domestic Equity	36%	+/-5%
Non-U.S. Equity	26%	+/-4%
Real Estate	10%	+/-3%
Domestic Fixed Income	23%	+/-4%
Non-U.S. Fixed	5%	+/-2%

Total Fund Asset Mix Ranges

This distribution of assets among the aforementioned investment managers and the individual manager guidelines will produce the following Total Fund Asset Mix Ranges:

<u>Asset Class</u>	<u>Market Value Exposure</u>	
	<u>Maximum</u>	<u>Minimum</u>
Domestic Equities	41%	31%
Non-U.S. Equities	30%	22%
Real Estate	13%	7%
Domestic Fixed Income	27%	19%
Non-U.S. Fixed	7%	3%

These guidelines are to be pursued by the Fund on a long term basis (five year goal) but will be revised if significant changes occur within the economic and/or capital market environments.

INVESTMENT GOALS

In formulating investment goals for the System's assets, the Board placed primary emphasis on the following:

- Achieving investment results that will accomplish the stated funding goal for the System. Inflation is the key factor driving the cost of retirement programs. The primary function of a retirement plan investment program is to help pay the cost of providing retirement benefits by offsetting the impact of inflation on costs. Therefore, investment performance that exceeds the rate of inflation, thereby providing a real rate of return, will contribute to the proper funding of the System.
- Receiving from its investment managers, performance that is above average compared to other comparably styled managers.
- Annual income production sufficient to cover benefit payments, administrative costs and investment manager, trustee, actuary, performance measurement and consultant fees.

Accordingly, the specific goals set forth below reflect the above general goals.

Total Fund Goals

As noted in a prior section, the System's primary funding goal is to achieve and maintain a funded status that provides for the security of retirement income to participants in the plan.

Given the impact of inflation on retirement plan funding, the primary total fund investment goal is to achieve a positive inflation adjusted (real) return. The Board recognizes that over short and intermediate periods of time its goal may

CHARLOTTE FIREFIGHTERS' RETIREMENT SYSTEM INVESTMENT POLICY, GOALS, OBJECTIVES & GUIDELINES

be difficult to achieve because rapid increases or decreases in the level of inflation tend to adversely impact the capital markets. For this reason, the total fund inflation adjusted goal is established in the context of a longer-term time horizon:

- The Fund's overall annualized total return (price change plus income) should exceed the return available from a policy of "rolling over" 91-day Treasury Bills (as a proxy for the inflation rate) by at least 325 basis points per year measured over a period of 10 years. A 325 basis points annual premium above "risk free" Treasury Bill rates is consistent with the desired risk tolerance.
- The Fund's annualized total return over a rolling period of five years should exceed by 75 basis points the return that would have been achieved if the Fund had been invested 36.0% in the Russell 3000 Stock Index, 26.0% in the Morgan Stanley Capital International (MSCI) All Country World ex USA Investable Market Index (MSCI ACWI ex US IMI), 23.0% in the Barclays Aggregate Bond Index (Barclays Aggregate), 10% in the National Council of Real Estate Investment Fiduciaries (NCREIF) Open-End DCE Index, and 5% in the Citigroup Non-US Government Bond Index.

Domestic Equity Segment Goals

The following performance goals have been established for the Fund's domestic equity segment:

- The domestic equity segment total return should rank in the upper 50% compared to the domestic equity results of other retirement fund portfolios measured over a period of five years.
- The domestic equity segment total return should exceed the total return of the Russell 3000 Stock Index by at least 50 basis points per year measured over a period of five years.

Non-Domestic Equity Segment Goals

The following performance goals have been established for the Non-domestic equity segment of the System's assets:

- The non-domestic equity segment total return should rank in the upper 50% compared to the non-domestic equity results of other retirement fund portfolios measured over a period of five years.
- The non-domestic equity segment total return should exceed the total return of the Morgan Stanley Capital International (MSCI) All Country World ex USA Investable Market Index (MSCI ACWI ex US IMI) by at least 100 basis points per year measured over a period of five years.

CHARLOTTE FIREFIGHTERS' RETIREMENT SYSTEM INVESTMENT POLICY, GOALS, OBJECTIVES & GUIDELINES

Real Estate Segment Goals

The following performance goals have been established for the real estate segment of the System's assets:

- The total real estate segment return should rank in the upper 50% compared to the real estate results of other retirement fund portfolios measured over a period of five years.
- The total real estate segment return should exceed the NCREIF Open-End DCE Index by at least 25 basis points per year over a period of five years.

Domestic Fixed Income Segment Goals

The following performance goals have been established for the domestic fixed income segment of the System's assets:

- The total domestic fixed income segment return should rank in the upper 50% compared to the fixed income results of other retirement fund portfolios measured over a period of five years.
- The total domestic fixed income return should exceed the total return of the Barclays Aggregate Bond Index by at least 25 basis points per year measured over a period of five years.

Non-Domestic Fixed Income Segment Goals

The following performance goals have been established for the Fund's non-

domestic fixed income segment of the System's assets:

- The total non-domestic fixed income segment should rank in the upper 50% compared to the non-domestic fixed income results of other retirement fund portfolios measured over a period of five years.
- The total non-domestic fixed income return should exceed the total return of the Citicorp Non-US Government Bond Index by at least 50 basis points per year measured over a period of five years.

Internal Account

The following performance goals have been established for the Fund's Internal Account segment of the System's assets:

The internal account is used solely for payment of benefit payments and administrative expenses and shall be invested in a U.S. Treasury Money Market account with the Fund's Custodian at all times.

INVESTMENT PERFORMANCE

The investment performance of the System is being monitored by Callan Associates, Inc., a highly respected portfolio evaluation service provider and consultant in the United States.

A summary of the Charlotte Firefighters' Retirement System's performance results, along with a brief description of issues to be considered in interpreting the results follow. Since the purpose of

CHARLOTTE FIREFIGHTERS' RETIREMENT SYSTEM INVESTMENT POLICY, GOALS, OBJECTIVES & GUIDELINES

the summary is to provide an overview, the reader is cautioned against forming conclusions that may be premature.

The information provided is prepared for the Charlotte Firefighters' Retirement System Comprehensive Annual Financial Report to provide a profile of the System's performance.

Total Annualized Rate of Return

This shows how the Charlotte Firefighters' Retirement System performed over multi-year periods compared with a customized portfolio of asset class investments invested in the same proportion as the CFRS fund targets.

Segment Annualized Rate of Return

This shows how each asset class component of the Charlotte Firefighters' Retirement System performed over the multi-year periods. Since the System's total return is comprised of the combination of each segment, reviews are important because academic studies have clearly shown that the asset allocation decision (the decision on what segments and proportion invested in each) determines between 70% to 95% of the total annualized rate of return.

Percentile rank indicates the annualized rate of return of a comparable portfolio that attained that level of performance in each segment component as measured by the Callan Associates, Inc. universe. A low percentage indicates a relatively higher return. The reader can choose a time period of particular interest and examine the return the CFRS earned for that period. For any time period one

chooses to examine, the median serves as an effective standard for determining what a "reasonable" return for that period would have been (the median is that return which outranked 50% of the funds in the Callan Associates, Inc. universe and which was outranked by 50% of the funds).

This summary should be regarded only as an introduction to evaluating the Charlotte Firefighters' Retirement System's investment performance results. Nevertheless, it is hoped that this brief overview will be of some assistance.

RETURN ON INVESTMENT

The return on investments, which is defined as the income plus or minus the appreciation or depreciation in value, is analyzed each quarter. The Charlotte Firefighters' Retirement System return on investments is compared with the returns of the Callan Associates, Inc. universe which is comprised of over 80% of the professionally managed investments in the United States. Evaluation for the various time periods ended June 30, 2016 are shown on subsequent pages. All returns are "time weighted", annualized "total" rates of return in and are based on market values.

**CHARLOTTE FIREFIGHTERS' RETIREMENT SYSTEM, A COMPONENT UNIT OF
THE CITY OF CHARLOTTE, NORTH CAROLINA
INVESTMENT RESULTS
Periods Ended June 30**

RATE OF RETURN	FISCAL YEAR										Annualized	Cumulative
	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	Return Over Last 10 Years	10-Year Rate
CFRS	-4.49%	-19.23%	10.90%	26.22%	1.14%	14.82%	18.73%	4.87%	1.05%	12.88%	5.95%	78.24%
Composite Benchmark	-5.18%	-17.91%	11.95%	23.50%	2.72%	13.65%	18.33%	3.67%	2.08%	12.16%	5.71%	74.25%
Market Indicators												
Citicorp Non-US Govt Bond	18.72%	3.53%	1.52%	13.95%	0.44%	-5.72%	8.88%	-13.49%	13.85%	-5.01%	3.21%	37.16%
JP Morgan Emer Mkts Debt Plus	5.16%	2.43%	17.44%	11.75%	11.15%	0.07%	10.73%	-2.08%	13.22%	3.75%	7.19%	100.24%
Bloomberg Aggregate Index	7.12%	6.05%	9.50%	3.90%	7.47%	-0.69%	4.37%	1.86%	6.00%	-0.31%	4.48%	55.00%
MSCI EAFE Index	-10.61%	-31.35%	5.92%	30.36%	-13.83%	18.62%	23.57%	-4.22%	-10.16%	20.27%	1.03%	10.79%
MSCI Emerging Markets Free	4.89%	-27.82%	23.48%	28.17%	-15.67%	3.23%	14.68%	-4.77%	-11.71%	24.17%	2.25%	24.92%
Russell 1000 Growth	-5.96%	-24.50%	13.62%	35.01%	5.76%	17.07%	26.92%	10.56%	3.02%	20.42%	8.91%	134.79%
Russell 1000 Index	-12.36%	-26.69%	15.24%	31.93%	4.37%	21.24%	25.35%	7.37%	2.93%	18.03%	7.29%	102.11%
Russell 1000 Value	-18.78%	-29.03%	16.92%	28.94%	3.01%	25.32%	23.81%	4.13%	2.86%	15.53%	5.57%	71.95%
Russell 2000 Growth	-10.83%	-24.85%	17.96%	43.50%	-2.71%	23.67%	24.73%	12.34%	-10.75%	24.40%	7.82%	112.32%
Russell 2000 Value	-21.63%	-25.24%	25.07%	31.35%	-1.44%	24.76%	22.54%	78.00%	-2.58%	24.86%	5.92%	77.74%
Russell Mid Cap Growth	-6.42%	-30.33%	21.30%	43.25%	-1.65%	25.41%	26.85%	9.45%	-2.14%	17.05%	7.87%	113.31%
Russell Mid Cap Value	-17.09%	-30.52%	28.91%	34.28%	-0.37%	27.65%	26.62%	4.46%	-0.82%	17.21%	7.23%	100.98%
S&P Global ex-US Small Cap Index	-13.08%	-29.89%	15.06%	35.68%	-16.34%	17.11%	25.70%	-2.25%	-4.97%	21.47%	2.45%	27.39%
Treasury Bills + 3.25%	6.88%	4.20%	3.41%	3.41%	3.31%	3.36%	3.30%	3.27%	3.44%	3.74%	3.83%	45.62%

Investment results are shown on a time-weighted rate of return based on the market rate of return.

See Glossary for explanation of the Market Indices shown in this Table.

**CHARLOTTE FIREFIGHTERS' RETIREMENT SYSTEM, A COMPONENT UNIT OF
THE CITY OF CHARLOTTE, NORTH CAROLINA
INVESTMENT RESULTS
Periods Ended June 30**

	Last Year	Last 3 Years	Last 5 Years
Domestic Equity	19.82%	8.78%	14.60%
Russell 3000	18.51%	9.10%	14.58%
SSgA Russell 1000 Index	18.08%	0.00%	0.00%
Russell 1000 Index	18.03%	9.26%	14.67%
Winslow Capital Management	22.04%	10.63%	15.13%
Russell 1000 Growth	20.42%	11.11%	15.30%
Aronson + Johnson + Ortiz	18.20%	5.45%	13.41%
Russell 1000 Value	15.53%	7.36%	13.94%
Robeco Boston Partners	19.50%	10.79%	18.04%
Russell Mid Cap Value	17.21%	7.35%	14.64%
Eagle Asset Management	23.25%	9.30%	14.84%
Russell 2000 Growth	24.40%	7.64%	13.98%
Investment Counselors of Maryland	25.27%	8.84%	14.65%
Russell 2000 Value	24.86%	7.02%	13.39%
Domestic Fixed-Income	0.51%	2.78%	2.64%
Barrow, Hanley, MeWhinney & Strauss	0.80%	2.89%	2.83%
SSgA Bond Market Fund	-0.31%	2.50%	2.24%
Bloomberg Aggregate Index	-0.31%	2.48%	2.21%
International Equity	20.79%	3.49%	9.65%
Morgan Stanley International Equity	17.87%	2.08%	8.98%
MSCI EAFE Index	20.27%	1.15%	8.69%
Morgan Stanley Emerging Markets	21.13%	2.33%	5.37%
MSCI Emerging Markets Free	24.17%	1.44%	4.33%
T. Rowe Price	26.62%	8.52%	13.84%
Blended Benchmark	21.47%	4.11%	10.68%
SSgA EAFE Index Fund	20.69%	0.00%	0.00%
MSCI EAFE Index	20.27%	1.15%	8.69%
International Fixed Income	-6.55%	-3.41%	-1.48%
Colchester	0.00%	0.00%	0.00%
Citi WGBI Non-US Index	-5.01%	-2.20%	-0.80%
Total Fund	12.88%	6.15%	10.28%
Treasury Bill + 3.25%	3.74%	3.48%	3.42%
Composite Benchmark	12.16%	5.88%	9.81%
Public PlnSponsor DB	12.42%	5.30%	8.78%

Returns for periods longer than one year are annualized.

Investment results are shown on a time-weighted rate of return based on the market rate of return.

For performance purposes, blended benchmarks will be used until 36 months of rolling periods have expired.

See Glossary for explanation of the Market Indices shown in this Table.

**CHARLOTTE FIREFIGHTERS' RETIREMENT SYSTEM, A COMPONENT UNIT OF
THE CITY OF CHARLOTTE, NORTH CAROLINA**
LIST OF LARGEST ASSETS HELD
(Dollar and Share Amounts in Thousands)

Largest Stock Holdings (By Fair Value)
June 30, 2017

	Shares	Stock	Fair Value
1)	517	SSgA MSCI EAFE Index SL Fund	\$47,184
2)	161	Morgan Stanley Core	45,746
3)	445	SSgA Russell 1000 Index SL Fund	37,353
4)	362	Morgan Stanley Emerging Markets International Growth Trust	28,059
5)	1,477	T Rowe Price International Small Cap Equity Trust	23,881
6)	572	ICM Small Company Portfolio	18,440
7)	2	Amazon Com Inc	1,941
8)	27	Microsoft Corp	1,857
9)	12	Apple Inc	1,686
10)	17	VISA Inc Class A Shares	1,622

Largest Bond Holdings (By Fair Value)
June 30, 2017

	Par/Units	Bond	Fair Value
1)	909	SSgA Bond Market Index Fund	\$27,053
2)	2,180	Colchester International Bond Fund	24,236
3)	314	Barrow Hanley High Yield Fund	6,194
4)	4,330	US Treasury Bond 3.125% due 11/15/2041 Rating AAA	4,585
5)	2,485	US Treasury Notes 2.000% due 2/15/2022 Rating AAA	2,504
6)	2,170	US Treasury Notes .750% due 7/15/2019 Rating AAA	2,142
7)	2,065	US Treasury Notes 2.375% due 8/15/2024 Rating AAA	2,096
8)	1,945	US Treasury Notes 2.000% due 11/15/2021 Rating AAA	1,961
9)	1,370	US Treasury Notes 2.500% due 5/15/2046 Rating AAA	1,275
10)	1,032	GS Mortgage 3.033% due 11/10/46	1,047

A portfolio listing is available for review at the System's office. Please note that the lists consists of individual stocks and bonds, as well as the System's share of ownership in collective investment vehicles such as mutual funds and institutional comingled funds.



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ACTUARIAL SECTION

The purpose of the Actuarial Section is to provide the reader with the results of the actuarial valuation and various other actuarial information related to the Charlotte Firefighters' Retirement System. This section includes an actuarial certification, valuation results, asset and contribution information, actuarial assumptions, a summary of plan provisions, long-range funding adequacy information and membership data. The reader of this component unit financial report may note differences between the actuarial valuation of assets contained in this section and the valuation of assets contained in the financial section. The financial statements value assets at the fair value which conforms with generally accepted accounting principles. The actuarial long term yield asset valuation method values assets through a smoothing process of the actual market values for the prior five fiscal years.



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The experience and dedication you deserve

November 2, 2017

Board of Trustees
Charlotte Firefighters' Retirement System
428 East Fourth Street
Suite 205
Charlotte, NC 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, 2017. The purpose of this report is to provide a summary of the funded status of the System as of July 1, 2017 and to recommend rates of contribution. In performing the valuation, we relied on data provided by the System. While not verifying the data at source, the actuary performed tests for consistency and reasonability.

The asset values used to determine unfunded liabilities are not market values but less volatile market related values. A smoothing technique is applied to market values to determine the market related values. The unfunded liability amounts using the market value of assets would be different. The interest rate used for determining liabilities is based on the expected return on assets. Therefore, liability amounts in the report cannot be used to assess a settlement of the obligation.

The promised benefits of the System are included in the actuarially calculated contribution rates which are developed using the entry age cost method. A five-year smoothed market value of plan assets was used for the actuarial value of assets. 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 30-year period, on the assumption that payroll will increase by 3.00% annually. The actuarially determined employer contribution rate is 18.15% of payroll for the fiscal year ending June 30, 2019.

There have been no changes to assumptions, methods, or plan provisions since the previous valuation.

Separate reports will be issued to provide the disclosure information required under GASB Statements No. 67 and 68.

We have prepared the Schedule of Active Member Valuation Data, Schedule of Retired Members 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.

3550 Busbee Pkwy, Suite 250, Kennesaw, GA 30144

Phone (678) 388-1700 • Fax (678) 388-1730

www.CavMacConsulting.com

Offices in Englewood, CO • Kennesaw, GA • Bellevue, NE



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 System and on actuarial assumptions that are internally consistent and reasonably based on the actual experience of the System.

Future actuarial results may differ significantly from the current results 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. Since the potential impact of such factors is outside the scope of a normal annual actuarial valuation, an analysis of the range of results is not presented herein.

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

Respectfully submitted,

A handwritten signature in blue ink that reads 'Todd B. Green' followed by a long horizontal flourish.

Todd B. Green, ASA, FCA, MAAA
Principal and Consulting Actuary

A handwritten signature in blue ink that reads 'Cathy Turcot'.

Cathy Turcot
Principal and Managing Director



**CHARLOTTE FIREFIGHTERS' RETIREMENT SYSTEM
REPORT OF THE ACTUARY
ON THE ANNUAL VALUATION
PREPARED AS OF JULY 1, 2017**

SECTION I – SUMMARY OF PRINCIPAL RESULTS

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

Valuation Date	July 1, 2017	July 1, 2016
Active members:		
Number	1,037	1,030
Annualized compensation	\$70,610,001	\$66,796,599
Retired members and beneficiaries:		
Number	684	647
Annual allowances	\$32,289,898	\$29,422,479
Number of terminated vested members*	14	14
Assets:		
Market Value	\$519,764,363	\$475,120,239
Actuarial Value	520,579,663	490,864,184
Unfunded actuarial accrued liability	\$83,589,774	\$73,681,887
Funded Ratio	86.2%	86.9%
Amortization Period (ADEC)	30 years	30 years
Amortization Period (Statutory)	N/A	N/A
Fiscal Year Ending	June 30, 2019	June 30, 2018
City actuarially determined employer contribution rate (ADEC):		
Normal (including expenses of 0.75%)	10.99%	11.07%
Accrued liability	<u>7.16</u>	<u>6.67</u>
Total	18.15%	17.74%
Employer Statutory contribution rate	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. There have been no changes since the previous valuation.



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STATISTICAL SECTION

The purpose of the Statistical Section is to provide the reader with additional data reflecting financial and demographic trends. This section includes a schedule of average benefit payments, a schedule of retired members by type of benefit and a schedule of benefit expenses by type. It also includes information on certain participant activity during the year being reported.

**CHARLOTTE FIREFIGHTERS' RETIREMENT SYSTEM, A COMPONENT UNIT OF
THE CITY OF CHARLOTTE, NORTH CAROLINA
PARTICIPANT INFORMATION
Year Ended June 30, 2017**

SERVICE RETIREMENTS

Name	Date of Retirement
Thomas, James D.	07/03/2016
Mahaley Sr., Benjamin Rhett	07/16/2016
Lail, Jeffrey B.	07/16/2016
Teague, Timothy W.	07/16/2016
Moore, Daniel C.	07/30/2016
Bell, Terry W.	08/20/2016
Kendrick, Timothy E.	09/03/2016
Mingus, Christopher L.	09/10/2016
Montgomery, Thomas J.	09/10/2016
Kinniburgh, Robert D	09/24/2016
Keistler, Gregg A.	10/01/2016
Carter, Michael F.	10/22/2016
Jamison, Ernest M.	10/29/2016
Wilson, Michael H.	11/05/2016
Auten Sr., Charles C.	11/12/2016
Stiles, Bradford S.	11/26/2016
Brown Jr., Andy	12/17/2016
Cochran, Arthur K	12/17/2016
Cuff, Dale A.	12/17/2016
Johnston, Timothy G.	12/17/2016
McBryde, Teresa L.	12/17/2016
Petrea, William F.	12/17/2016
Maver, Quentin M.	12/18/2016
Davis, Dolph	12/31/2016
Hamilton, Hoyt D.	12/31/2016
McCormick, Garry E.	12/31/2016
Owen, David W.	12/31/2016
Rogers, Keith	12/31/2016
Tish, Hubert H.	12/31/2016
Steele, Levi V.	01/02/2017
Lasco, Syviney C.	01/07/2016
Homme, Kimberly J.	01/07/2017
Helms, Tony L.	02/04/2017
Monteith, Nicky Charles	02/25/2017
Stewart, David M	02/25/2017
Stroup, Michael T	03/11/2017
Wilkes, Jackie	04/01/2017
Nastase, Robert T	04/15/2017
Jackson, Kenney F	04/22/2017
McGuire, Kevin J	04/22/2017
Ashe, Michael A	04/29/2017
King, Paul S	04/29/2017
Ligon, William M	06/03/2017

EARLY RETIREMENTS

Wright, Larry D.	11/17/2016
Blake, Eric B.	12/24/2016
Ussery, Barry C	03/11/2017
Flowers, Tony K	04/01/2017

DISABILITY RETIREMENTS

Betts, Ralph M.	07/07/2016
Chaput, Gabriel	09/08/2016

**IN MEMORIAM
Retiree Deaths**

Name	Date of Death
DeRhodes, Theresa	09/27/2016
Wentz, Robert	10/09/2016
Starnes, Erwin	10/12/2016
Beam, Barbara	10/14/2016
Horne Jr., Horace	10/17/2016
King, Paul	10/24/2016
Westmoreland, Joseph	11/24/2016
Lands, Edward	01/24/2017
Hopkins II, James D.	02/02/2017
Davis, William W.	02/04/2017
Wilson, Howard L.	02/11/2017
Plyler, Oscar M	03/23/2017
Rhom, James E	06/10/2017

**CHARLOTTE FIREFIGHTERS' RETIREMENT SYSTEM, A COMPONENT UNIT OF
THE CITY OF CHARLOTTE, NORTH CAROLINA**

**CHANGES IN NET POSITION
for Fiscal Years Ended June 30
(Dollar Amounts in Thousands)**

Revenues by Source and Expenses by Type

Fiscal Year	Revenues by Source				Expenses by Type				Change in Net Position
	Employee Contributions	Employer Contributions	Investment Income	Total Revenues	Benefits	Administrative Expenses	Refunds	Total Expenses	
2007	\$ 6,772	\$ 6,574	\$ 56,552	\$ 69,898	\$ 16,609	\$ 441	\$ 241	\$ 17,291	\$ 52,607
2008	7,327	6,918	(17,818)	(3,573)	17,081	489	112	17,682	(21,255)
2009	7,711	7,341	(67,070)	(52,018)	18,146	490	138	18,774	(70,792)
2010	7,758	7,440	28,394	43,592	19,210	601	200	20,011	23,581
2011	8,288	7,670	75,299	91,257	20,080	544	248	20,872	70,385
2012	8,374	7,720	2,434	18,528	21,135	566	505	22,206	(3,678)
2013	8,320	8,100	51,854	68,274	22,423	618	128	23,169	45,105
2014	8,723	8,348	73,607	90,678	23,928	739	(67)	24,600	66,078
2015	9,138	8,589	20,421	38,148	26,406	673	69	27,148	11,000
2016	8,991	8,694	2,295	19,980	28,333	686	416	29,435	(9,455)
2017	9,636	9,106	57,681	76,423	31,075	634	70	31,779	44,644

**CHARLOTTE FIREFIGHTERS' RETIREMENT SYSTEM, A COMPONENT UNIT OF
THE CITY OF CHARLOTTE, NORTH CAROLINA**
SCHEDULE OF BENEFIT AND REFUND EXPENSES BY TYPE
for Fiscal Years Ended June 30
(Dollar Amounts in Thousands)

Fiscal Year Ending	Age & Service Benefits			Death in Service Benefits	Retiree Disability Benefits			Refunds Death	Refunds Separation	Total
	Retirees	Survivors	QDROs		Duty	Non-duty	Survivor			
2008	\$15,379	\$ 258	\$ 61	\$ 22	\$ 526	\$ 757	\$ 78	\$ -	\$ 112	\$ 17,193
2009	16,395	273	67	36	553	743	79	-	138	18,284
2010	17,439	260	115	46	545	725	80	-	200	19,410
2011	18,316	265	112	46	500	682	159	-	248	20,328
2012	19,429	267	125	46	475	635	158	186	319	21,640
2013	20,771	268	135	46	457	576	170	-	128	22,551
2014	22,260	388	140	62	434	553	91	-	(67)	23,861
2015	24,767	421	154	63	402	506	68	25	69	26,475
2016	26,652	367	181	20	504	530	79	259	157	28,749
2017	29,210	461	209	26	498	579	79	- *	83	31,145

* Refunds Separation: Custodian USBank accounts for the taxes for refunds from the Benefit Payment account

**CHARLOTTE FIREFIGHTERS' RETIREMENT SYSTEM, A COMPONENT UNIT OF
THE CITY OF CHARLOTTE, NORTH CAROLINA
SCHEDULE OF RETIRED MEMBERS BY TYPE OF BENEFIT
as of June 30, 2017**

Amount of Monthly Benefit	Number of Retirees	Type of Retirement									Option Selected						
		1	2	3	4	5	6	7	8	9	Basic	Opt.1	Opt.2	Opt.3	Opt.4	Opt.5	Opt.6
Deferred	14								14		14						
\$ 1 - 500	6	1		1		1					3	4	1				1
501 - 600	3										3	3					
601 - 700	2			1				1				1					1
701 - 800	3			2						1	1	1					2
801 - 900	3						1	1		1	1	2					1
901-1000	4							3		1	4	4					
Over 1000	663	516	85	16	1	17	21	2		5	429	23	19	13	34	111	34
Totals	698	517	85	20	1	18	23	6	14	14	458	24	19	13	34	116	34

Type of Retirement

- 1 - Service retirement
- 2 - Early retirement
- 3 - Survivor payment - normal or early retirement
- 4 - Survivor payment - death in service
- 5 - Duty disability retirement
- 6 - Non-duty disability retirement
- 7 - Survivor payment - disability retirement
- 8 - Former member with deferred future benefit
- 9 - Spouse payment - QDRO

Option Selected

- Basic - Basic Benefit
- Option 1 - 10CC
- Option 2 - 100% Joint Survivor
- Option 3 - 75% Joint Survivor
- Option 4 - 66.67% Joint Survivor
- Option 5 - 50% Joint Survivor
- Option 6 - Joint Survivor with Reversion to Basic

**CHARLOTTE FIREFIGHTERS' RETIREMENT SYSTEM, A COMPONENT UNIT OF
THE CITY OF CHARLOTTE, NORTH CAROLINA
SCHEDULE OF AVERAGE BENEFIT PAYMENTS
for Fiscal Years Ended June 30**

	Membership Service Credit					
	<u>5-10</u>	<u>11-15</u>	<u>16-20</u>	<u>21-25</u>	<u>26-30</u>	<u>31 +</u>
Period 7/1/2007 to 6/30/2008						
Average Monthly Benefit	\$ 396	\$ 1,315	\$ 1,704	\$ 2,316	\$ 3,084	\$ 4,124
Average Final Average Salary	1,556	2,115	2,928	3,548	4,082	4,294
Number of Active Retirants	2	17	17	37	281	115
Period 7/1/2008 to 6/30/2009						
Average Monthly Benefit	\$ 396	\$ 1,408	\$ 1,704	\$ 2,345	\$ 3,134	\$ 4,241
Average Final Average Salary	1,556	2,230	2,928	3,562	4,206	4,460
Number of Active Retirants	2	18	17	36	291	118
Period 7/1/2009 to 6/30/2010						
Average Monthly Benefit	\$ 396	\$ 1,377	\$ 1,704	\$ 2,387	\$ 3,215	\$ 4,272
Average Final Average Salary	1,556	2,246	2,928	3,708	4,369	4,561
Number of Active Retirants	2	17	17	39	299	123
Period 7/1/2010 to 6/30/2011						
Average Monthly Benefit	\$ 396	\$ 1,380	\$ 1,687	\$ 2,388	\$ 3,286	\$ 4,339
Average Final Average Salary	1,556	2,285	2,843	3,679	4,531	4,676
Number of Active Retirants	2	16	16	35	310	126
Period 7/1/2011 to 6/30/2012						
Average Monthly Benefit	\$ 930	\$ 1,326	\$ 1,835	\$ 2,815	\$ 3,455	\$ 4,535
Average Final Average Salary	1,865	2,354	2,946	4,397	4,675	4,897
Number of Active Retirants	2	16	15	39	324	126
Period 7/1/2012 to 6/30/2013						
Average Monthly Benefit	\$ 930	\$ 1,363	\$ 2,157	\$ 3,403	\$ 3,524	\$ 4,591
Average Final Average Salary	1,865	2,354	3,615	5,143	4,710	4,763
Number of Active Retirants	2	16	15	40	345	128
Period 7/1/2013 to 6/30/2014						
Average Monthly Benefit	\$ 930	\$ 1,486	\$ 1,774	\$ 3,056	\$ 3,625	\$ 4,732
Average Final Average Salary	1,865	2,378	3,142	4,696	4,978	5,262
Number of Active Retirants	4	17	17	95	328	112
Period 7/1/2014 to 6/30/2015						
Average Monthly Benefit	\$ 930	\$ 1,395	\$ 1,757	\$ 3,146	\$ 3,751	\$ 4,781
Average Final Average Salary	1,865	2,677	2,943	4,917	5,190	5,361
Number of Active Retirants	4	15	18	110	353	114
Period 7/1/2015 to 6/30/2016						
Average Monthly Benefit	\$ 1,416	\$ 1,795	\$ 1,816	\$ 3,145	\$ 3,822	\$ 4,870
Average Final Average Salary	2,382	3,520	3,082	4,929	5,320	5,536
Number of Active Retirants	5	17	17	115	383	124
Period 7/1/2016 to 6/30/2017						
Average Monthly Benefit	\$ 1,416	\$ 1,438	\$ 1,865	\$ 3,189	\$ 3,954	\$ 5,241
Average Final Average Salary	2,382	3,044	3,223	5,077	5,537	6,038
Number of Active Retirants	5	16	18	120	394	131

**CHARLOTTE FIREFIGHTERS' RETIREMENT SYSTEM, A COMPONENT UNIT OF
THE CITY OF CHARLOTTE, NORTH CAROLINA
SCHEDULE OF BONUS HISTORY
for Fiscal Years Ended June 30
(Dollar Amounts in Thousands)**

<u>Year</u>	<u>Bonus Distribution</u>	<u>Annual Benefits</u>	<u>Retirees</u>	<u>Bonus Percentage</u>	<u>Consumer Price Index*</u>
1993	90	4,892	255	1.84%	2.9%
1994	69	6,339	292	1.09%	2.7%
1995	65	6,429	292	1.01%	2.7%
1996	109	6,641	294	1.64%	2.5%
1997	366	7,388	312	4.95%	3.3%
1998	600	7,948	331	7.55%	1.6%
1999	734	8,753	357	8.39%	1.9%
2000	808	9,733	371	8.30%	3.2%
2001	1,070	12,998	398	8.23%	1.3%
▶ 2002	197	13,064	395	1.51%	0.7%
**2003	-	-	-	-	2.1%
**2004	-	-	-	-	3.2%
**2005	-	-	-	-	2.6%
**2006	-	-	-	-	4.5%
▶▶ 2007	266	15,966	454	1.67%	2.7%
**2008	-	-	-	-	5.6%
**2009	-	-	-	-	-2.0%
**2010	-	-	-	-	1.4%
**2011	-	-	-	-	4.1%
**2012	-	-	-	-	1.4%
**2013	-	-	-	-	1.8%
**2014	-	-	-	-	2.1%
**2015	-	-	-	-	2.0%
**2016	-	-	-	-	1.0%
**2017	-	-	-	-	1.6%

Average Percentage of Bonus Amount Per Retiree over 25-year Period: 1.85%
Average Percentage of Bonus Amount Per Retiree over 5-year Period : -

*Source: Callan Associates, Inc.

▶In 2002, each eligible retiree received a \$500 bonus.

**Pursuant to the Actuary's recommendations, the Board of Trustees did not approve bonuses for 2003 - 2006, 2008 - 2017.

▶▶In 2007, each eligible retiree received a \$600 bonus.



GLOSSARY OF TERMS

This section is to provide the reader with definitions and/or explanations of key financial, actuarial and investment terms used or referenced throughout the report.

CHARLOTTE FIREFIGHTERS' RETIREMENT SYSTEM GLOSSARY OF KEY ACTUARIAL, FINANCIAL AND INVESTMENT TERMS

ACCRUED BENEFIT

The amount of a pension plan participant's benefit (whether or not vested) as of a specified date, determined in accordance with the terms of the pension plan and based on compensation (if applicable) and service to that date.

ACTIVE PARTICIPANTS

Eligible individuals who have hours of service and make contributions to a retirement plan.

ACTUARIAL ACCRUED LIABILITY

The difference between the actuarial present value of system benefits and the actuarial value of future normal costs. Sometimes referred to as "accrued liability".

ACTUARIAL ASSUMPTIONS

Estimates of future experience with respect to rates of mortality, disability, turnover, retirement, rate or rates of investment income and salary increases. Decrement assumptions (rates of mortality, disability, turnover 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 in an inflation-free environment plus a provision for a long-term average rate of inflation.

ACTUARIAL PRESENT VALUE (APV)

The discounted value of an amount or series of amounts payable or receivable at various times, determined as of a given date by the application of a particular set of actuarial assumptions.

ACTUARIAL VALUATION

An examination by an actuary of a group of people, with regard to certain characteristics of the people in that group. Some of the characteristics are age, service, salary, rate of turnover by death or termination. The actuary can then determine whether contributions are sufficient to fund liabilities earned.

AMORTIZE

To pay off an interest-discounted amount with periodic payments of interest and principal as opposed to paying off with a lump sum payment.

AUDIT

An examination by someone or some firm outside an organization of the accounting records developed by the staff of the organization. Recommendations and suggestions for better record keeping and management are often part of an audit.

AUDITOR

A certified public accountant who examines an organization's accounting records according to a set of procedures and issues a report.

BARCLAYS U.S. AGGREGATE INDEX

(formerly Lehman Brothers Aggregate Bond Index) This index represents securities that are SEC-registered, taxable and dollar denominated. The index covers the U.S. investment grade fixed rate bond market, with index components for government and corporate securities, mortgage pass-through securities and asset-backed securities. These major sectors are subdivided into more specific indices that are calculated and reported on a regular basis.

BENEFICIARY/BENEFICIARIES

The person(s) to whom a share of a deceased participant's account balance is payable.

BENEFITS

Payments to which participants may be entitled under a pension plan, including pension benefits, death benefits and benefits due on termination of employment.

CALLAN PUBLIC FUND SPONSOR DATABASE

A database comprised totally of the open-end funds of banks and insurance companies.

CITICORP NON-US GOVERNMENT BOND INDEX

An index of fixed rate government bonds with a maturity of one year or longer and amounts outstanding of at least U.S. \$25 million.

COMPENSATION

The amount of a participant's taxable and nontaxable wages that is considered for purposes of a certain employee benefit requirement.

CHARLOTTE FIREFIGHTERS' RETIREMENT SYSTEM GLOSSARY OF KEY ACTUARIAL, FINANCIAL AND INVESTMENT TERMS

CONSUMER PRICE INDEX (CPI)

A measure of the average change in prices for a fixed market basket of goods and services. This market basket is based on the spending patterns of urban wage earners and clerical workers, who represent 40 percent of the total civilian population.

COST-OF-LIVING ADJUSTMENT (COLA)

Provision for the adjustment of payment designed to offset changes in the cost of living, usually as measured by the consumer price index.

DEFINED BENEFIT PENSION PLAN

A pension plan that defines an amount of pension benefit to be provided, usually as a function of one or more factors, such as age, years of service and/or compensation.

DISABILITY

Inability to pursue an occupation because of physical or mental impairment.

DISCOUNT RATE

The rate used to adjust a series of future payments to reflect the time value of money. For the purpose of calculating the pension benefit obligation defined by G.A.S.B., this rate is equal to the estimated long-term rate of return on current and future investments of the pension plan.

DIVERSIFICATION

The practice of investing in several different businesses, industries and classes of investment securities in order to minimize total portfolio risks.

EARLY RETIREMENT

Provision made in a retirement plan to allow employees who have met certain conditions, such as length of service and specified age, to retire prior to their regularly scheduled retirement age. In general, in case of such early retirement, the benefits which a participant can expect to receive from the plan will be less than those offered at full retirement age.

FIDUCIARY FUND TYPE

The trust and agency funds used to account for assets held by a government unit in a trustee capacity or as an agent for individuals, private organizations, other government units and/or other funds.

FUNDED RATIO

The actuarial value of benefit obligations accrued to date, compared to the pension plan assets expressed as a percentage.

GASB

Governmental Accounting Standards Board is the body which creates the various accounting standards for governmental and non-profit organizations.

INVESTMENT POLICY

A formal statement outlining the broad investment objectives of the plan.

J. P. MORGAN EMERGING MARKETS BOND INDEX PLUS

An index that tracks total returns for traded external debt instruments in the emerging markets. The instruments include external currency-denominated Brady bonds, loans and Eurobonds, as well as U.S. dollar local markets instruments.

MSCI EMERGING MARKETS INDEX

The MSCI Emerging Markets Index is a free float-adjusted market capitalization index that is designed to measure equity market performance of emerging markets. This index consists of the following 21 emerging market country indices: Brazil, Chile, China, Colombia, Czech Republic, Egypt, Hungary, India, Indonesia, Korea, Malaysia, Mexico, Morocco, Peru, Philippines, Poland, Russia, South Africa, Taiwan, Thailand and Turkey. The index is market capitalization-weighted and is expressed in terms of U.S. dollars.

CHARLOTTE FIREFIGHTERS' RETIREMENT SYSTEM GLOSSARY OF KEY ACTUARIAL, FINANCIAL AND INVESTMENT TERMS

NCREIF INDEX

The National Council of Real Estate Investment Fiduciaries (NCREIF) calculates a number of real estate benchmarks. This core index is comprised of return series of various properties in each region of the U.S. The index comprises properties by type and subtype by region and division. The return series analyzes appreciation, income, market value and total return. This benchmark is compiled on a one-quarter lag basis.

NET PENSION OBLIGATION (NPO)

The standardized measure of funding status and progress required by the GASB to be disclosed in the notes to the financial statements. It is the actuarial present value of credited projected benefits, prorated on service and is counted at a rate equal to the expected return on present and future plan assets.

NORMAL COST

The actuarial present value of retirement system benefits allocated to the current year by the actuarial cost method. This amount does not include any payment related to an unfunded actuarial accrued liability. For plans financed in part by employee contributions, normal cost ordinarily refers to the total of employee contributions and employer normal cost.

PENSION CONTRIBUTION

The amount paid into a pension plan by an employer (or employee), pursuant to the terms of the plan, state law, actuarial calculations or some other basis of determination.

PORTFOLIO

The total of all investments held.

PRUDENT PERSON

Requires that a plan fiduciary use the "care, skill and diligence" that would be used by a reasonably prudent person familiar with "such matters". While essentially an extension of the common-law requirement of good faith in handling other people's money, it creates a "prudent expert" test that places an additional burden on the plan sponsor---to know what a person in this position of responsibility should

know, rather than a reliance on the knowledge level of the general populace.

QUALIFIED DOMESTIC RELATIONS ORDER (QDRO)

A domestic relations order that creates or recognizes the existence of an alternate payee's right or assigns an alternate payee the right to receive all or a portion of the benefits payable with respect to a participant under a qualified retirement plan, and that it complies with certain special requirements. Only a spouse, former spouse or dependent can be the alternate payee.

RISK

The possibility that the expected rate of return may not be attained for the total portfolio or for specific asset classes.

RUSSELL 1000 INDEX

An index which measures the performance of the 1,000 largest companies in the Russell 3000 Index, which represents approximately, 92% of the total market capitalization of the Russell 3000 Index.

RUSSELL 1000 GROWTH INDEX

Measures the performance of the large-cap growth segment of the U.S. equities.

RUSSELL 1000 VALUE INDEX

Measures the performance of the large-cap value segment of U.S. equities.

RUSSELL 2000 GROWTH INDEX

Measures the performance of the small-cap growth segment of the U.S. Equities.

RUSSELL 2000 VALUE INDEX

Measures the performance of the small-cap value segment of the U.S. equities.

RUSSELL MIDCAP INDEX

Measures the performance of the 800 smallest companies in the Russell 1000 index, which represent approximately 35% of the total market capitalization of the Russell 1000 Index.

CHARLOTTE FIREFIGHTERS' RETIREMENT SYSTEM GLOSSARY OF KEY ACTUARIAL, FINANCIAL AND INVESTMENT TERMS

SECTION 415

Sets out the maximum contribution and benefit limitations of the Internal Revenue Code for qualified plans.

TOTAL RATE OF RETURN

Cash income plus capital appreciation, less capital depreciation, realized and unrealized, adjusted for capital contributions and withdrawals expressed as a percentage on an accrual basis.

TOTAL REAL ESTATE FUNDS

A database that consists of both open and closed-end commingled funds managed by real estate firms. The returns represent the overall performance of commingled institutional capital invested in real estate properties.

TREASURY BILLS

Short-term direct obligations of the U.S. Government, usually issued with maturities of three months, six months, or one year. Because of their safety and liquidity, Treasury bills are often used as risk-free proxies in portfolio analytics.

TRUSTEE

A fiduciary holding property on behalf of another. An individual with the responsibility of administering all aspects of a pension fund.

UNFUNDED ACTUARIAL ACCRUED LIABILITIES

The difference between actuarial accrued liabilities and valuation assets. Sometimes referred to as "unfunded actuarial liability" or "unfunded accrued liability".

VESTED BENEFIT

A benefit for which the employer has an obligation to make payment even if an employee terminates; thus, the benefit is not contingent on an employee's future service.