AUSTIN FIRE FIGHTERS RELIEF AND RETIREMENT FUND

ANNUAL REPORT

2018

AUSTIN FIRE FIGHTERS

RELIEF AND RETIREMENT FUND

2018

ANNUAL REPORT

AND

PENSION PLAN GUIDE FOR MEMBERS

DECEMBER 31, 2018

❖❖❖❖❖❖❖❖❖❖❖❖❖❖❖❖❖❖❖❖❖❖❖❖❖❖❖❖❖❖❖❖❖❖❖❖❖❖

While this report and pension plan guide set forth most of the facts about the plan, it does not attempt to describe all provisions or limitations as they apply in individual situations. In case of any conflict between the report/guide and the statute, the pension statute article 6243e.1, Vernon's Texas Civil Statutes, as amended through the 2015 State Legislature Regular Session, will prevail.

If you have any questions about the plan, please contact the Austin Fire Fighters Relief and Retirement Fund Pension Office, at (512) 454-9567. The Pension Office address is 4101 Parkstone Heights Drive, Suite 270, Austin, Texas 78746. Our email address is: ***Staff@afrs.org***. You can also visit our web site at *AFRS.ORG*.

BOARD		Mayor Steve Adler, Chair
OF		Keith A. Johnson, Vice Chair
TRUSTEES		Belinda Weaver Treasurer
2017		Jeremy E. Burke, Trustee
		Brad Landi , Trustee
ACTUARY		Foster & Foster – Fort Myers, FL
AUDITOR		Montemayor Britton Bender – Austin, TX
FUND CUSTODIAN		State Street – Boston, MA
INVESTMENT CONSULTANT		Meketa Investment Group – Miami, FL
	INVESTMENT MANAGERS	
Aberdeen Asset Mgmt., Inc.	Aether Investment Partners	Baillie Gifford
Philadelphia, Pennsylvania	Denver, Colorado	Edinburgh, Scotland
Silicon Valley Bank	Blue Bay Direct Lending	Clarion Partners
San Francisco, CA	London, England	Auburn, California
Constitution Capital Partners	Cross Creek Capital Partners	Deutsche Alternative Asset Mgmt.
Andover, Massachusetts	Salt Lake City, UT	London, England
Dimensional Fund Advisors	Flag Capital.	57 Stars
Austin, Texas	Stamford, CT	Washington D.C.
Greenspring Associates	HarbourVest	Highclere International
Owings Mills, Maryland	Boston, Massachusetts	London, England
Intech	LGT Capital Partners Inc.	Loomis Sales
Palm Beach Gardens, Florida	New York, New York	Boston, Massachusetts
Metropolitan Real Estate Mgmt.	Partners Group (USA) Inc.	Portfolio Advisors
Boston, Massachusetts	New York, New York	Darien, Connecticut
Private Advisors	Private Equity Investors	Pyramis Global Advisors
Richmond, Virginia	New York, New York	Smithfield, Road Island
Sanderson Asset Management	State Street Global Advisors	Vaughan Nelson Investment Mgmt.
Chicago, Illinois	Boston, Massachusetts	Houston, Texas
Western Asset Management	Westfield Capital Management	Westwood Holdings Group, Inc.
Pasadena, California	Boston, Massachusetts	Dallas, Texas
LEGAL COUNSEL		Jackson Walker
		Austin, Texas
PENSION OFFICE STAFF		
William E. Stefka - Administrator	Linda Adney	Premal Amin

City of Austin
Steve Adler, Mayor
301 W. 2nd St., Austin, TX 78701
(512) 978-2100, Fax (512) 978-2120
steve.adler@austintexas.gov

July 17, 2019

TO OUR MEMBERSHIP:

On behalf of the Austin Fire Fighters Relief and Retirement Fund Pension Board of Trustees I am pleased to present the 2018 annual report to our membership. According to the pension plan's investment consultant, the Fund's annual money-weighted net real rate of return for calendar year 2018 was -2.66%, which was top decile performance relative to similar sized public pension plans.

The latest actuarial valuation dated 12/31/18 shows the pension plan has maintained its financially sound position being 88.0% funded with a 17.90 years amortization period. This compares to the prior year's 12/31/17 valuation when the funded ratio was 88.3%, with a 16.95 years amortization period. These results do include the impact of the most recent cost-of-living adjustments (COLA's), which were approved the past two years as noted below.

With the plan being actuarially sound, the pension board of trustees were able to approve a cost-of-living adjustment (COLA) for all eligible retirees and beneficiaries in the amount of 2.3%, effective January 1, 2018. This follows a COLA approved the prior year in the amount of 2.2%, which was effective January 1, 2017. Those were full-inflation COLA's based on the CPI-U (all items) index for those prior years.

I appreciate the opportunity to serve as Mayor of our amazing city and as Chair of the Austin Firefighters Relief & Retirement Fund for the past 4 years. It's not said enough, but I want to thank all of our firefighters, both active and retired, for the courageous and dedicated service you provide to the citizens of Austin!

Sincerely,

Mayor Steve Adler, Chairman
Austin Fire Fighters Relief and
Retirement Fund Board of Trustees

The City of Austin is committed to compliance with the Americans with Disabilities Act.
Reasonable modifications and equal access to communications will be provided upon request.

Montemayor Britton Bender PC

CERTIFIED PUBLIC ACCOUNTANTS

AUSTIN FIRE FIGHTERS RELIEF AND RETIREMENT FUND

FINANCIAL STATEMENTS
WITH SUPPLEMENTARY INFORMATION
AND
INDEPENDENT AUDITOR'S REPORT

31 DECEMBER 2018

Montemayor Britton Bender PC
CERTIFIED PUBLIC ACCOUNTANTS

Board of Trustees
Austin Fire Fighters Relief and Retirement Fund

INDEPENDENT AUDITOR'S REPORT

We have audited the accompanying statement of fiduciary net position of the Austin Fire Fighters Relief and Retirement Fund (the Fund) as of 31 December 2018, the related statement of changes in fiduciary net position for the year then ended, which collectively comprise the Fund's financial statements, and the related notes to the financial statements.

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 an opinion on these financial statements based on our audit. We conducted our audit in accordance with auditing standards generally accepted in the United States of America. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of 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 judgement, including the assessment of the risk 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 entity's 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 entity's 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.

2525 WALLINGWOOD DRIVE
BUILDING 1, SUITE 200
AUSTIN, TEXAS 78746
PHONE: 512.442.0380
FAX: 512.442.0817
www.montemayor.team

Opinion

In our opinion, the financial statements referred to above present fairly, in all material respects, the financial status of the Fund as of 31 December 2018, and the changes in its financial status for the year then ended, in accordance with accounting principles generally accepted in the United States of America.

Required Supplementary Information

Accounting principles generally accepted in the United States of America require that the management's discussion and analysis on pages 3 through 6 and the supplemental schedules on pages 18 through 23 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.

Montemayor Britton Bender PC

5 July 2019
Austin, Texas

Our discussion and analysis of the Austin Fire Fighters Relief and Retirement Fund's (the Fund) financial performance provides an overview of the Fund's activities for the calender years 2018 and 2017. This information is provided in conjunction with our financial statements that follow.

FINANCIAL HIGHLIGHTS

- Fiduciary net position of the Fund decreased by $44,680,431 or 4.68% in 2018 and by $124,188,031 or 14.97% in 2017. The decrease in 2018 was due to a decline in stock market performance offset by interest and dividends earned as well as realized gains on securities sold. The increase in 2017 was due to positive financial market returns, as well as continued contributions to the Fund.

- Total contributions by the members and the City of Austin increased by 4.38% in 2018 and 1.64% in 2017. The increase for 2018 over 2017 reflects the increase in the participant wages.

- The amount of benefits paid directly to retired members and their beneficiaries increased by $4,090,839 in 2018 and by $6,392,773 in 2017. The number of pension recipients and lump sum distributions increased for both years.

- The funding objective of the Fund is to meet long-term benefit obligations through contributions by the members and the City of Austin as well as from the investment income. As of 31 December 2018, the most recent actuarial measurement date, the Fund's actuarial funded ratio of actuarial assets as a percentage of actuarial liabilities was 88.0%, compared to 88.3% as of 31 December 2017.

OVERVIEW OF THE FINANCIAL STATEMENTS

The Fund's financial statements consist of the Statement of Fiduciary Net Position and the Statement of Changes in Fiduciary Net Position, with accompanying Notes to the Financial Statements. The information available in each is summarized below:

The Statement of Fiduciary Net Position presents the Fund's assets and liabilities and the resulting net position, which are held in trust for pension benefits. This statement provides a snapshot as of year-end of the Fund's investments, stated at fair value, along with cash and short-term investments, receivables, and other assets and liabilities. Over time, increases or decreases in Fund net position may serve as a useful indicator of whether the financial position of the Fund is improving or deteriorating.

The Statement of Changes in Fiduciary Net Position presents information showing additions to and deductions from the Fund during a twelve-month period, using the accrual basis of accounting. Thus, additions are reported when earned and deductions when incurred, regardless of when cash is received or paid.

The Notes to the Financial Statements provide additional information that is essential to a full understanding of the data provided in the financial statements.

FINANCIAL ANALYSIS

Our analysis below focuses on the fiduciary net position and changes in fiduciary net position of the Fund.

Summary of Fiduciary Net Position

31 December 2018, 2017 and 2016

	2018	2017	2016
Cash and receivables	$13,332,934	$11,259,588	$15,896,322
Investments	896,509,406	942,833,000	814,420,021
Other assets	0	235,821	246,201
Total assets	909,842,340	954,328,409	830,562,544
Total liabilities	724,544	530,182	952,348
Fiduciary net position for pension benefits	$909,117,796	$953,798,227	$829,610,196

Net position: The net position of the Fund decreased by $44,680,431 in 2018 and increased by $124,188,031 in 2017. The decrease between 2018 and 2017 reflects the overall poor performance of financial markets in 2018. The increase between 2017 and 2016 reflects positive investment returns due to stronger financial markets, as well as continued contributions to the Fund.

Liabilities: The Fund's liabilities increased by $194,362 in 2018 due to a larger balance of in-transit purchases that were not yet completed at year-end. Year-end liabilities decreased in 2017 by $422,166 due to a smaller accounts payable balance to the investment managers for their investment fees.

Summary of Change in Fiduciary Net Position

31 December 2018, 2017 and 2016

	2018	2017	2016
Additions:			
Contributions	$37,117,830	$35,560,974	$34,988,152
Investment income (loss)	(25,165,684)	141,884,083	55,389,536
Other income	51,620	30,917	74,984
Total additions	12,003,766	177,475,974	90,452,672
Deductions:			
Benefit payments and contribution refunds	55,979,294	51,888,455	45,495,682
Administrative expenses	704,903	1,399,488	557,855
Total deductions	56,684,197	53,287,943	46,053,537
Net increase (decrease)	(44,680,431)	124,188,031	44,399,135
Fiduciary net position for pension benefits			
Beginning of year	953,798,227	829,610,196	785,211,061
End of year	$909,117,796	$953,798,227	$829,610,196

Additions: Total contributions by the members and City of Austin for 2018 and 2017 were $37,117,830 and $35,560,974, respectively. The increase of $1,556,856 in contributions for 2018 represents a 4.38% increase from 2017. The increase of $572,822 in contributions for 2017 represents a 1.64% increase from 2016. The net investment income/(loss) was ($25 million) for 2018 and $142 million for 2017.

Deductions: The expenses paid by the pension plan include the benefit payments, refunds of member contributions, administrative and other expenses. Benefits paid directly to retired members and their beneficiaries in 2018 were $55,979,294 compared to $51,888,455 in 2017. The amount of benefits paid increased by $4,090,839 in 2018 from 2017 and increased by $6,392,773 in 2017 from 2016. The increases in both 2018 and 2017 over prior years were due to the increases in the both the number of retirees receiving benefits and in the amount of lump sum distributions.

Overall Analysis: As of 31 December 2018, fiduciary net position decreased by $44,680,431 or 4.68% over the prior year. As of 31 December 2017, fiduciary net position increased by $124,188,031 or 14.97% over the prior year. The most recent actuarial measurement date of 31 December 2018 shows the Fund's actuarial funded ratio to be 88.0% compared to 88.3% from prior year. This was attributed to the assumed rate of return remaining at 7.70% as adopted by the pension board. The 31 December 2018 valuation shows the Fund continues to be actuarially sound and has taken positive steps to continue that course.

REQUEST FOR INFORMATION

This financial report is intended to provide a general overview of the Fund's finances and to demonstrate the Fund's accountability for the money it receives. Any questions regarding this report may be addressed to the fund administration at: 4101 Parkstone Heights Dr., Suite 270, Austin, TX 78746.

AUSTIN FIRE FIGHTERS RELIEF AND RETIREMENT FUND

STATEMENT OF FIDUCIARY NET POSITION

31 DECEMBER 2018

ASSETS	
Cash and cash equivalents	$13,009,148
Investments at fair value:	
Public domestic equities	162,146,269
Public international equities	161,447,739
Private equity fund investments	183,670,803
Public fixed income	279,541,963
Real estate fund investments	83,442,672
Private natural resources fund investments	26,259,960
	896,509,406
Interest and dividends receivable	167,710
	909,686,264
LIABILITIES	
Due to broker	568,468
FIDUCIARY NET POSITION RESTRICTED FOR PENSION BENEFITS	$909,117,796

The accompanying notes are an integral part of this financial statement presentation.

AUSTIN FIRE FIGHTERS RELIEF AND RETIREMENT FUND

STATEMENT OF CHANGES IN FIDUCIARY NET POSITION

YEAR ENDED 31 DECEMBER 2018

ADDITIONS TO FIDUCIARY NET POSITION	
Contributions:	
Fire fighter contributions	$17,033,213
City of Austin contributions	20,084,617
	37,117,830
Net investment income:	
Net increase/(decrease) in the fair value of investments	(65,286,390)
Interest and dividends	9,864,740
Net gain on sale of investments	32,921,610
Investment expenses	(2,665,644)
	(25,165,684)
Other	51,620
	12,003,766
DEDUCTIONS FROM FIDUCIARY NET POSITION	
Retirement benefit payments	55,979,294
General and administrative expenses	704,903
	56,684,197
NET INCREASE (DECREASE) IN FIDUCIARY NET POSITION	(44,680,431)
BEGINNING OF YEAR FIDUCIARY NET POSITION	953,798,227
END OF YEAR FIDUCIARY NET POSITION	$909,117,796

The accompanying notes are an integral part of this financial statement presentation.

NOTE 1: ORGANIZATION

A. FUND DESCRIPTION

The Board of Trustees of the Austin Fire Fighters Relief and Retirement Fund (the Fund) is the administrator of a single-employer defined benefit pension plan covering fire fighters employed by the City of Austin, Texas. The Fund is open solely to active fire fighters in the City of Austin (the City). The Fund is considered a part of the City of Austin's financial reporting entity and is included in the City's financial statements as a pension fund trust. The Fund was originally established, and may be amended, by acts of the Texas Legislature. The current governing statute is Article 6243e.1, Vernon's Texas Civil Statutes. The Fund is governed by a Board of Trustees, which is composed of five members: the mayor of the municipality; the City's treasurer or, if there is no treasurer, a person who by law, charter provision, or ordinance performs the duty of the City Treasurer, and three active members of the retirement Fund elected by vote of the fire fighters and retirees.

The table below summarizes the membership of the Fund as of 31 December 2018:

Retirees and Beneficiaries Currently Receiving Benefits	822
Terminated Members Entitled to Benefits but Not Yet Receiving Them	8
Active Participants (Vested and Nonvested)	1,102
	1,932

The Fund provides service retirement, death, disability, and termination benefits. When a member has completed ten years of credited service after entrance into the Fund, the member's account becomes vested and non-forfeitable. Under the terms of the Fund agreement, members or their beneficiaries are eligible for distributions of benefits upon attaining a normal retirement age of 50 with ten years of service, or upon completing 25 years of service regardless of age. In addition, members are eligible for early retirement benefits upon reaching age 45 with at least ten years of service or twenty years of creditable service, regardless of age. Distributions to members or their beneficiaries are also available in the event of total and permanent disability or upon death including survivor benefits at 75% of retiree benefits. Members are eligible to enter the Deferred Retirement Option Plan (DROP) upon satisfaction of normal retirement eligibility, not to exceed seven years. DROP provides eligible participants the ability to designate benefits to be disbursed in a single payment or not more than four payments upon leaving active service.

The term of benefit payments are determined by the member's level of earnings and length of service. With the exception of payments under the DROP feature, distributions of payments are made in a series of equal installments over a period of time. Payments to members or their beneficiaries may be increased annually by the amount of increase in the Consumer Price index. Cost-of-living increases must be approved by the Board of Trustees and actuary of the Fund. There was a cost-of-living adjustment (COLA) of 2.2% put into effect for the year ending 31 December 2018. The contribution refunds are paid with 5% interest.

NOTE 1: ORGANIZATION

B. FUNDING POLICY

The contribution provision of this Fund is authorized by Article 6243e.1, Vernon's Texas Civil Statues, which provides the authority and procedure to change the amount of contributions determined as a percentage of pay by each member and a percentage of payroll by the City.

The Fund is maintained by biweekly contributions from the earnings of fire fighters and from the City. For the year ended 31 December 2018 the City's contribution rate was 22.05% and fire fighters contribution rate was 18.70% of their earnings excluding overtime, educational incentive pay, assignment pay and temporary pay in higher classifications.

While the contribution requirements are not actuarially determined, state law requires that each plan of benefits adopted by the Fund be approved by a qualified actuary. The actuary must certify that the contribution commitment by fire fighters and the City provides an adequate financing arrangement.

C. NET PENSION LIABILITY

The Fund's net pension liability was measured as of 31 December 2018 was as follows:

Total pension liability	$1,107,220,715
Plan fiduciary net position	(909,117,796)
Net pension liability	$198,102,919
Plan fiduciary net position as a percentage of the total pension liability	82.11%

1. Actuarial Assumptions

The total pension liability in the 31 December 2017 actuarial valuation, measured as of 31 December 2018, was determined using the following actuarial assumptions, applied to all periods included in the measurement:

Inflation	2.75%
Salary increases	1.00% to 6.00%
Discount rate	7.70%
Investment rate of return	7.70%, net of pension plan investment expense, including inflation

NOTE 1: ORGANIZATION

C. NET PENSION LIABILITY

Mortality rates were based on the RP-2000: Fully Generational using Scale AA set back two years for males and females.

Mortality rates disabled lives: RP-2000 Disability Mortality Table.

The most recent experience study used to review the other significant assumptions was dated 15 June 2015.

The long-term expected rate of return on pension plan investments was determined using a building-block method in which best estimate ranges of expected future real rates of return (expected returns, net of pension plan investment plan investment expenses 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 expected arithmetic net real rates of return for each major asset class are summarized in the following table:

Asset Class	Long-Term Expected Net Real Rate of Return
Public domestic equity	5.3%
Public foreign equity	6.9%
Private equity fund of funds	5.6%
Investment grade bonds	1.1%
TIPS	.8%
High yield/bank loans	3.8%
Emerging market debt	3.6%
Core real estate	3.4%
Non-core real estate	5.0%
Natural resources	5.9%

2. Discount Rate

The Discount Rate used to measure the Total Pension Liability was 7.70%. For purposes of this valuation, the expected rate of return on pension plan investments is 7.70%; the municipal bond rate is 4.10% (based on the weekly rate closest to but not later than the measurement date of the Bond Buyer 20-Bond Index as published by the Federal Reserve); and the resulting single discount rate is 7.70%. The projection of cash flows used to determine the Discount Rate assumed that Fund member contributions will be made at the current contribution rate and that City contributions will be made at rates equal to the difference between actuarially

NOTE 1: ORGANIZATION

C. NET PENSION LIABILITY

determined contribution rates and the member rate. Based on those assumptions, the Fund's fiduciary net position was projected to be available to make all projected future benefit payments of current plan members. Therefore, the long-term expected rate of return on Fund investments was applied to all periods of projected benefit payments to determine the total pension liability.

3. Sensitivity of the Net Pension Liability to Changes in the Discount Rate

The following presents the net pension liability of the Fund, calculated using the discount rate of 7.70%, as well as what the Fund's net pension liability would be if it were calculated using a discount rate that is one percentage point lower (6.70%) or one percentage point higher (8.70%) than the current rate:

	1% Decrease (6.70%)	Current Discount Rate (7.70%)	1% Increase (8.70%)
Fund's net pension liability	$304,086,801	$198,102,919	$108,598,230

NOTE 2: SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES

BASIS OF ACCOUNTING

The Fund's financial statements are prepared using the accrual basis of accounting under which expenses are recorded when the liability is incurred, revenues are recorded in the accounting period in which they are earned and become measurable, and investment purchases and sales are recorded as of their trade date. Fire fighter and City contributions are recognized as revenues in the period which the related employees' payroll is earned. Benefits are recognized when the employee becomes eligible for retirement and elects to retire under the system and is paid a benefit. Employee contribution refunds are recognized when the employee leaves the City and elects to withdraw a contribution.

METHOD USED TO VALUE INVESTMENTS

Cash and short-term investments include deposits in a custodian-managed investment pool from which the Fund may make deposits and withdrawals at any time without prior notice or penalty. The market value of such deposits is equal to cost. The Board of Trustees has adopted a Statement of Investment Policies and Objectives (Investment Policy) to set forth factors involved in the management of investment assets for the Fund. By statue, the Board of Trustees in its sole discretion may invest, reinvest, or change the assets of the Fund. The Board of Trustees shall invest in funds in whatever instruments or investments considered prudent. In making investments for the Fund, the Board of Trustees shall discharge its duties with care, skill, prudence, and diligence under the

NOTE 2: SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES

METHOD USED TO VALUE INVESTMENTS

circumstances then prevailing that a prudent person acting in a similar capacity and familiar with such matters would use in the conduct of an enterprise of a similar character and with similar aims. Investments are reported at fair value. Securities traded on a national or international exchange are valued at the last reported sales price at current exchange rates. Investments that do not have an established market are reported at estimated fair value. Realized and unrealized gains and losses as well as other investment adjustments are reported as net appreciation (depreciation) in the fair value of investments.

ESTIMATES

The preparation of financial statements in conformity with U.S. generally accepted accounting principles requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and disclosure of contingent assets and liabilities at the date of the financial statements and the reported amounts of additions and deductions to the net position restricted for pension benefits during the reporting period. Actual results could differ from those estimates.

FUND EXPENSES

All Fund administrative costs are the responsibility of the Fund and are financed through investment earnings.

SUBSEQUENT EVENTS

Management has evaluated subsequent events through the date of the Independent Auditor's Report, the date the financial statements were available to be issued.

NOTE 3: FEDERAL INCOME TAXES

The Fund is a Public Employee Retirement Fund and is exempt from Federal income taxes and the provisions of the Employee Retirement Income Security Act of 1974.

NOTE 4: DEPOSIT AND INVESTMENT RISK

CUSTODIAL CREDIT RISK

Custodial credit risk for deposits is the risk that, in the event of the failure of a depository financial institution, the Fund will not be able to recover deposits or will not be able to recover collateral securities that are in the possession of an outside party. Deposits are exposed to custodial credit risk if they are uninsured and unsecured. The Fund did not have exposure to custodial credit risk for deposits as of 31 December 2018.

NOTE 4: DEPOSIT AND INVESTMENT RISK

Custodial credit risk for investments is the risk that, in the event of the failure of the counterparty to a transaction, the Fund will not be able to recover the value of investment or collateral securities that are in the possession of an outside party. Investment securities are exposed to custodial credit risk if the securities are uninsured, are not registered in the name of the Fund and are held by either the counterparty or the counterparty's trust department or agent but not in the Fund's name. As of 31 December 2018, the Fund's investment securities are not exposed to custodial credit risk because all securities are held by the Fund's custodial bank in the Fund's name.

CONCENTRATION OF CREDIT RISK

Concentration of credit risk is the risk of loss attributed to the magnitude of the Fund's investment in a single issuer. As of year end, the Fund had no investments with a single issuer that exceeded 5% of the Fund's net position.

The Fund's investment policy established asset allocation targets for major classes of invested assets as listed below. The Fund is authorized to invest in the following:

Class	Target Range
Equity	30-55%
Fixed Income Investments	20-40%
Alternatives	10-40%

INTEREST RATE RISK

Interest rate risk is the risk that changes in interest rates will adversely affect an investment's fair value. Although the Fund does have a formal investment policy, it does not specifically limit investment maturities as a means of managing its exposure to potential fair value losses from future changes in interest rates.

CREDIT RISK

Credit risk is the risk that an issuer or other counter party to an investment will not fulfill its obligations to the Fund. It is the Fund's policy to maintain fixed income securities within its portfolio at an average credit rating of investment grade or better.

As of 31 December 2018, the Fund had the following investments subject to interest rate risk and credit risk:

NOTE 4: DEPOSIT AND INVESTMENT RISK

Investment	Weighted Average Maturity	Weighted Average Credit Rating
SsgA Bond Fund	8.2 years	AAA
Loomis Sayles Core Plus Fixed Income	8.4 years	A
Aberdeen Emerging Markets Bond Fund	9.6 years	BB
SSGA TIPS	7.9 years	AAA
Pyramis Tactical Bond Fund	16.5 years	BBB
WAMCO Floating Rate	4.2 years	B

FOREIGN CURRENCY RISK

Foreign currency risk is the risk that changes in exchange rates will adversely affect the fair value of an investment or deposit. Although the Fund does have a formal investment policy, it does not specifically address the Fund's exposure related to foreign currency risk. The Fund had the following exposure to foreign currency risk as of 31 December 2018:

Denomination by Investment Type	Market Value (USD)
Private Equity Fund Investments	
Euro	$5,620,045
Real Estate Fund Investments	
Euro	3,012,426
Public Fixed Income	
Argentinian Peso	11,064,689
Brazilian Real	33,978,799
Euro	32,279,268
Indian Rupee	15,563,131
Mexican Peso	7,793,457
New Peruvian Sol	9,483,786
South African Rand	7,331,710
	117,494,840
	$126,127,311

NOTE 5: SCHEDULE OF INVESTMENT RETURNS

The money-weighted rate of return expresses investment performance, net of investment expenses, that reflects the estimated effect of the contributions received and the benefits paid during the year.

Fiscal Year	Annual Money-Weighted Net Real Rate of Return
31 December 2018	-2.66%

NOTE 6: FAIR VALUE MEASUREMENT

	Quoted Prices In Active Markets for Identical Assets (Level 1)	Significant Other Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)
Public domestic equities	$162,146,269	$0	$0
Public international equities	$161,447,739	$0	$0
Private equity fund investments	$0	$0	$183,670,803
Public fixed income	$0	$279,541,963	$0
Real estate fund investments	$0	$0	$83,442,672
Private natural resources fund	$0	$0	$26,259,960

Level 2 investments are valued based on quoted market prices in active markets as well as market valuation methodologies using discounted cash flows and observable credit ratings. Level 3 investments include investments in a group of non-registered private equity investment partnerships, private equity real estate and private natural resources funds. Fair value determinations by the underlying funds take into consideration the operating results, financial conditions, real estate appraisals and recent sales prices of issuers' securities.

NOTE 7: SECURITIES LENDING

The Fund is authorized under its investment policy to participate in securities lending programs through State Street Bank and Trust Company (State Street) under which, for an agreed-upon fee, investments owned by the Fund are loaned to a borrowing financial institution. Under this agreement, when the loan closes, the borrowed securities are returned to the Fund and the collateral is returned to the borrower. During the fiscal year, State Street lent, on behalf of the Fund, certain US Equity securities of the Fund held by State Street as custodian and received cash or other collateral including securities issued or guaranteed by the United States government. State Street does not have the ability to pledge or sell collateral securities delivered absent a borrower default. The lending agreement requires securities to be collateralized by cash, US government securities or irrevocable letters of credit with a total market value of at least 100% of the market value of the loaned securities.

NOTE 7: SECURITIES LENDING

Pursuant to the Securities Lending Authorization Agreement, State Street had an obligation to indemnify the Fund in the event of default by a borrower. There were no failures by any borrowers to return loaned securities or pay distributions thereon during the fiscal year that resulted in a declaration or notice of default of the Borrower. During the fiscal year, the Fund and the borrowers maintained the right to terminate securities lending transactions upon notice. There is no formal limit on the amount of loans that can be made, however the securities lending program shall in no way inhibit the trading activities of the Fund's investment managers. The cash collateral received on each loan was invested, together with the cash collateral of other qualified tax-exempt plan lenders, in a collective investment fund comprised of a liquidity pool and a duration pool. As of 31 December 2018 the liquidity pool had an average duration of 27.10 days and an average weighted final maturity of 119.04 days for USD collateral. As of this date, the duration pool had an average duration of 18.06 days and an average weighted final maturity of 1,700.77 days for USD collateral.

Because the securities lending transactions were terminable at will, their duration did not generally match the duration of the investments made with the cash collateral received from the borrower. On 31 December 2018 the Fund had no credit risk exposure to borrowers. The market values of collateral held and the market value (USD) of securities on loan for the Fund as of 31 December 2018 were $12,170,658 and $11,848,347 respectively.

NOTE 8: COMMITMENTS AND CONTINGENCIES

The Fund's investments include investment in partnership interests, which are closed end private markets strategies. In connection with those investments the Fund still has remaining commitments as of 31 December 2018 of $99.2 million pursuant to the terms of the respective interest.

At 31 December 2018 the total accumulated lump sum benefit due to DROP participants was $99,463,578.

AUSTIN FIRE FIGHTERS RELIEF AND RETIREMENT FUND

SCHEDULE OF CHANGES IN NET PENSION LIABILITY AND RELATED RATIOS

Last 10 Years

	12/31/2018	12/31/2017	12/31/2016
Total Pension Liability			
Service Cost	25,130,502	23,830,495	24,322,417
Interest	80,552,018	75,812,099	70,892,708
Changes of benefit terms	10,188,417	8,963,689	5,491,908
Differences between Expected and Actual Experience	13,306,782	4,360,239	8,893,371
Changes of assumptions	(4,778,539)	-	-
Benefit Payments, including Refunds of Employee Contributions	(55,979,294)	(51,888,455)	(45,495,681)
Net Change in Total Pension Liability	68,419,886	61,078,067	64,104,723
Total Pension Liability - Beginning	1,038,800,829	977,722,762	913,618,039
Total Pension Liability - Ending (a)	$1,107,220,715	$1,038,800,829	$ 977,722,762
Plan Fiduciary Net Position			
Contributions - Employer	20,084,617	19,242,205	19,103,891
Contributions - Employee	17,033,213	16,318,769	15,884,261
Net Investment Income	(25,114,064)	141,915,000	55,569,165
Benefit Payments, including Refunds of Employee Contributions	(55,979,294)	(51,888,455)	(45,495,681)
Administrative Expense	(704,903)	(1,399,488)	(662,501)
Net Change in Plan Fiduciary Net Position	(44,680,431)	124,188,031	44,399,135
Plan Fiduciary Net Position - Beginning	953,798,227	829,610,196	785,211,061
Plan Fiduciary Net Position - Ending (b)	$ 909,117,796	$ 953,798,227	$ 829,610,196
Net Pension Liability - Ending (a) - (b)	$ 198,102,919	$ 85,002,602	$ 148,112,566
Plan Fiduciary Net Position as a percentage of the Total Pension Liability	82.11%	91.82%	84.85%
Covered Payroll	$ 91,086,698	$ 87,266,236	$ 86,638,961
Net Pension Liability as a percentage of Covered Payroll	217.49%	97.41%	170.95%

Notes to Schedule:

Changes of benefit terms:

For measurement date 12/31/2018, amounts reported as changes of benefit terms resulted from a cost-of-living adjustment. Eligible retirees receive a 2.3% cost-of-living adjustment, effective January 1, 2019.

For measurement date 12/31/2017, amounts reported as changes of benefit terms resulted from a cost-of-living adjustment. Eligible retirees receive a 2.2% cost-of-living adjustment, effective January 1, 2018.

For measurement date 12/31/2016, amounts reported as changes of benefit terms resulted from a cost-of-living adjustment. Eligible retirees receive a 1.5% cost-of-living adjustment, effective January 1, 2017.

Changes of assumptions:

For measurement date 12/31/2018, amounts reported as changes of assumptions resulted from the following changes:

- The assumed mortality rates were updated to reflect the PubS-2010 (above-median, amount-weighted) tables.
- The price inflation assumption was lowered from 3.50% to 2.75% per year.

See Independent Auditor's Report

AUSTIN FIRE FIGHTERS RELIEF AND RETIREMENT FUND

SCHEDULE OF CHANGES IN NET PENSION LIABILITY AND RELATED RATIOS

Last 10 Years

	12/31/2015	12/31/2014	12/31/2013
Total Pension Liability			
Service Cost	23,309,543	25,318,456	23,497,407
Interest	66,404,730	62,976,839	59,249,151
Changes of benefit terms	-	-	-
Differences between Expected and Actual Experience	7,192,645	-	-
Changes of assumptions	-	4,883,207	-
Benefit Payments, including Refunds of Employee Contributions	(44,756,847)	(37,992,903)	(34,943,917)
Net Change in Total Pension Liability	52,150,071	55,185,599	47,802,641
Total Pension Liability - Beginning	861,467,968	806,282,369	758,479,728
Total Pension Liability - Ending (a)	$ 913,618,039	$ 861,467,968	$ 806,282,369
Plan Fiduciary Net Position			
Contributions - Employer	19,222,329	18,669,944	17,786,494
Contributions - Employee	15,546,979	14,659,946	14,000,514
Net Investment Income	6,328,063	42,005,227	101,289,167
Benefit Payments, including Refunds of Employee Contributions	(44,756,847)	(37,992,903)	(34,943,917)
Administrative Expense	(562,687)	(530,816)	(363,050)
Net Change in Plan Fiduciary Net Position	(4,222,163)	36,811,398	97,769,208
Plan Fiduciary Net Position - Beginning	789,433,224	752,621,826	654,852,618
Plan Fiduciary Net Position - Ending (b)	$ 785,211,061	$ 789,433,224	$ 752,621,826
Net Pension Liability - Ending (a) - (b)	$ 128,406,978	$ 72,034,744	$ 53,660,543
Plan Fiduciary Net Position as a percentage of the Total Pension Liability	85.95%	91.64%	93.34%
Covered Payroll	$ 87,836,040	$ 84,670,948	$ 83,279,101
Net Pension Liability as a percentage of Covered Payroll	146.19%	85.08%	64.43%

Notes to Schedule:

Changes of assumptions:

For measurement date 12/31/2014, amounts reported as changes of assumptions resulted from an actuarial experience study dated June 15, 2015, below a brief overview of the changes:

- A "fresh-start" on the actuarial asset value has been implemented. For all future valuations, the asset valuation method will utilize a new smoothing technique.
- The investment return assumption has been decreased from 7.75% to 7.70% per year compounded annually, net of all expenses.
- The general wage inflation rate has been decreased from 3.5% to 3.0% per year.
- The service-based table attributable to merit and longevity salary increases has been amended.
- The retirement rates have been amended.
- The Retro-DROP election assumptions have been amended.
- The withdrawal rates have been amended.
- The assumed spousal age difference has been amended.

SCHEDULE OF CONTRIBUTIONS

Last 10 Years

Fiscal Year Ended	Actuarially Determined Contribution	Contributions in relation to the Actuarially Determined Contributions	Contribution Deficiency (Excess)	Covered Payroll	Contributions as a percentage of Covered Payroll
12/31/2018	N/A	N/A	N/A	$ 91,086,698	22.05%
12/31/2017	N/A	N/A	N/A	$ 87,266,236	22.05%
12/31/2016	N/A	N/A	N/A	$ 86,638,961	21.36%
12/31/2015	N/A	N/A	N/A	$ 87,836,040	21.36%
12/31/2014	N/A	N/A	N/A	$ 84,670,948	21.36%
12/31/2013	N/A	N/A	N/A	$ 83,279,101	21.36%

Notes to Schedule

Methods and assumptions used to determine liabilities:

Mortality Rates - Healthy Lives	RP-2000 (Fully Generational using Scale AA) set back two years for males and females - Sex Distinct. The assumed rates of mortality sufficiently accommodate expected mortality improvements.
Mortality Rates - Disabled Lives	RP2000 Disability Mortality Table.
Retirement Elections:	See tables on following page. These assumptions were approved in conjunction with an actuarial experience study dated June 15, 2015.
Termination Rates:	See tables below. These assumptions were approved in conjunction with an actuarial experience study dated June 15, 2015.
Disability Rates:	See tables on following pages. These assumptions were reviewed in conjunction with an actuarial experience study dated June 15, 2015.
Interest Rate:	7.70% per year, compounded annually, net of all expenses. This is supported by the target asset allocation of the trust and the expected long-term return by asset class.
Salary Increases:	See tables on following page. These assumptions were approved in conjunction with an actuarial experience study dated June 15, 2015.
General Wage Inflation:	3.00% per year. This assumption was approved in conjunction with an actuarial experience study dated June 15, 2015.
Inflation:	3.50% per year. This is reasonable based upon long-term historical experience.
Payroll Growth:	3.50% per year for amortization of the Unfunded Actuarial Accrued Liability. This is reasonable based upon long-term historical experience.
Asset Valuation Method:	All assets are valued at market value with an adjustment to uniformly spread investment gains and losses (as measured by actual market value investment return against expected market value investment return) over a five-year period.
Marital Status:	100% of actives are assumed to be married at time of benefit commencement. Females are assumed to be 4 years younger than Males. Additionally, 50% are assumed to have dependent children. The age of the youngest child is assumed to be one year. These assumptions were approved in conjunction with an actuarial experience study dated June 15, 2015.
Funding Method:	Entry Age Normal Actuarial Cost Method.

Termination Rates:

Years of Service	Termination Probability
0-4	1.0%
5-13	0.5%
14+	0.0%

See Independent Auditor's Report

Retirement Rates:

Number of Years After First Eligibility for Early Retirement	Probability of Retirement
0	2.0%
1	2.0%
2	2.0%
3	2.0%
4	2.0%
5	5.0%
6	7.5%
7	7.5%
8	10.0%
9	16.7%
10	16.7%
11	16.7%
12	20.0%
13	20.0%
14	30.0%
15	40.0%
16	50.0%
17	75.0%
18	100.0%

Retro-DROP Elections:

Number of Years After First Eligibility for Early Retirement	No-DROP Elected	Duration 1 Election	Duration 2 Election
0	90%	0.5 years (10%)	n/a
1	50%	1 year (50%)	n/a
2	50%	1 year (25%)	2 years (25%)
3	50%	1 year (25%)	2 years (25%)
4	20%	1 year (60%)	3 years (20%)
5	20%	2 years (40%)	4 years (40%)
6	20%	2 years (60%)	5 years (20%)
7	20%	2 years (50%)	5 years (30%)
8	20%	3 years (60%)	6 years (20%)
9	10%	3 years (50%)	6 years (40%)
10	10%	3 years (50%)	6 years (40%)
11	10%	3 years (60%)	6 years (30%)
12	10%	3 years (75%)	6 years (15%)
13	10%	3 years (40%)	6 years (50%)
14	10%	3 years (40%)	6 years (50%)
15	10%	3 years (20%)	6 years (70%)
16	10%	3 years (20%)	6 years (70%)
17	10%	3 years (20%)	6 years (70%)
18	10%	3 years (20%)	6 years (70%)

Disability Rate Table:

Age	Probability of Disablement
20	0.014%
25	0.019%
30	0.031%
35	0.052%
40	0.092%
45	0.209%
50	0.379%
55	0.490%
60	0.911%

% Increase in Salary*:

Years of Service	Increase
0	6.00%
1	8.50%
2	7.50%
3	4.00%
4	1.00%
5	5.00%
10	1.50%
15	1.50%
20	5.50%
21+	1.00%

* Expected increase in salary in addition to general wage inflation assumption.

SCHEDULE OF INVESTMENT RETURNS
Last 10 Years

Fiscal Year Ended	Annual Money-Weighted Rate of Return Net of Investment Expense
12/31/2018	-2.66%
12/31/2017	17.29%
12/31/2016	7.13%
12/31/2015	0.81%
12/31/2014	5.60%
12/31/2013	13.30%

See Independent Auditor's Report

AUSTIN
FIREFIGHTERS' RELIEF AND RETIREMENT FUND

ACTUARIAL VALUATION
AS OF DECEMBER 31, 2018

GASB 67/68 DISCLOSURE INFORMATION
AS OF DECEMBER 31, 2018

FOSTER & FOSTER
ACTUARIES AND CONSULTANTS

FOSTER & FOSTER
ACTUARIES AND CONSULTANTS

June 27, 2019

Mr. William E. Stefka
Austin Firefighters'
Relief and Retirement Fund
4101 Parkstone Heights Drive, Suite 270
Austin, TX 78746

Re: Austin Firefighters' Relief and Retirement Fund

Dear Bill:

We are pleased to present to the Board this report of the annual actuarial valuation of the Austin Firefighters' Relief and Retirement Fund (AFRRF). Included are the related results for GASB Statements No. 67 and No. 68. The funding valuation was performed to determine whether the assets and contributions are sufficient to provide the prescribed benefits and to develop the funding period required to amortize any existing Unfunded Actuarial Accrued Liability. The calculation of the liability for GASB results was performed for the purpose of satisfying the requirements of GASB Statements No. 67 and No. 68. Use of the results for other purposes may not be applicable and may produce significantly different results.

The valuation has been conducted in accordance with generally accepted actuarial principles and practices, including the applicable Actuarial Standards of Practice as issued by the Actuarial Standards Board, and reflects laws and regulations issued to date pursuant to the provisions of Article 6243e.1, Vernon's Texas Civil Statutes, as well as applicable federal laws and regulations. In our opinion, the assumptions used in this valuation, as adopted by the Board of Trustees, represent reasonable expectations of anticipated plan experience. Future actuarial measurements may differ significantly from the current measurements presented in this report for a variety of reasons including: changes in applicable laws, changes in plan provisions, changes in assumptions, or plan experience differing from expectations. Due to the limited scope of the valuation, we did not perform an analysis of the potential range of such future measurements.

In conducting the valuation, we have relied on personnel, plan design, financial reports, and asset information supplied by the AFRRF staff, and the actuarial assumptions and methods described in the Actuarial Assumptions section of this report. While we cannot verify the accuracy of all this information, the supplied information was reviewed for consistency and reasonableness. As a result of this review, we have no reason to doubt the substantial accuracy of the information and believe that it has produced appropriate results. This information, along with any adjustments or modifications, is summarized in various sections of this report.

The total pension liability, net pension liability, and certain sensitivity information shown in this report are based on an actuarial valuation performed as of January 1, 2018. It is our opinion that the assumptions used for this purpose are internally consistent, reasonable, and comply with the requirements under GASB No. 67 and No. 68.

The undersigned is familiar with the immediate and long-term aspects of pension valuations, and meets the Qualification Standards of the American Academy of Actuaries necessary to render the actuarial opinions contained herein. All of the sections of this report are considered an integral part of the actuarial opinions.

To our knowledge, no associate of Foster & Foster Inc. working on valuations of the program has any direct financial interest or indirect material interest in the city of Austin, nor does anyone at Foster & Foster Inc. act as a member of the Board of Trustees of the AFRRF. Thus, there is no relationship existing that might affect our capacity to prepare and certify this actuarial report.

If there are any questions, concerns, or comments about any of the items contained in this report, please contact me at 239-433-5500.

Respectfully submitted,

Foster & Foster Inc.

By: ______________________________ ______________________________

Bradley R. Heinrichs, FSA, EA, MAAA
Enrolled Actuary #17-6901

Drew D. Ballard, EA, MAAA
Enrolled Actuary #17-8193

TABLE OF CONTENTS

SUMMARY OF REPORT

The actuarial valuation of the Austin Firefighters' Relief and Retirement Fund, performed as of December 31, 2018, has been completed and the results are presented in this Report. The pension costs, compared with those developed in the December 31, 2017 actuarial valuation, are as follows:

	New Assump	Old Assump	
Valuation Date	12/31/2018	12/31/2018	12/31/2017
Current Normal Cost Rate % of Covered Annual Payroll	29.52%	29.74%	29.46%
Funding Measurements			
Actuarial Accrued Liability (AAL)	1,084,533,608	1,088,890,599	1,038,118,085
Actuarial Value of Assets (AVA)	954,574,840	954,574,840	916,931,534
Unfunded Actuarial Accrued Liability (UAAL = AAL - AVA)	129,958,768	134,315,759	121,186,551
Funded Ratio (AVA / AAL)	88.0%	87.7%	88.3%
Amortization Period [2]	17.9 years	19.3 years	17.0 years
Contributions			
Expected City Contribution Rate	22.05%	22.05%	22.05%
Expected Member Contribution Rate	18.70%	18.70%	18.70%
Total Expected Contribution Rate	40.75%	40.75%	40.75%
Funding Costs			
City 20-Year Funding Cost	21.23%	21.80%	20.85%
City 30-Year Funding Cost [1]	19.02%	19.51%	18.71%
City 40-Year Funding Cost	17.99%	18.46%	17.71%

[1] Per Section 802.101(a) of the Texas Government Code, the actuarial valuation must include a recommended contribution rate needed for the system to achieve and maintain an amortization period that does not exceed 30 years.

[2] If the actuarial smoothing technique was removed and the market value of assets was utilized to determine the amortization period, the result would be 29.2 years as of December 31, 2018.

Plan experience was unfavorable overall on the basis of the plan's actuarial assumptions. The primary source of unfavorable experience was an investment return of 6.23% (Actuarial Asset Basis) which fell short of the 7.70% assumption. This loss was offset in part by a gain associated with an average salary increase of 2.99% which fell short of the 5.72% assumption.

Please note that this valuation incorporates two changes to the actuarial assumptions, as described on the following page.

CHANGES SINCE PRIOR VALUATION

Benefit/Fund Changes

There have been no changes in benefit provisions or contribution rates since the prior valuation. It is important to point out that eligible retirees received a 2.30% cost-of-living adjustment, effective January 1, 2019, in accordance with the Fund's COLA adjustment policy.

Actuarial Assumption/Method Changes

The valuation reflects the following changes to the actuarial assumptions:

- The assumed mortality rates were updated to reflect the PubS-2010 (above-median, amount-weighted) tables with mortality improvements projected five (5) years beyond the valuation date using scale MP-2018. Previously, the RP-2000 (fully generational using scale AA) with a set-back of two years for males and females was used for healthy lives and the RP-2000 disability mortality table was used for disabled lives. Given the recent release of a report by the Society of Actuaries on public pension mortality, we feel that these tables are the most representative of the population in question.
- The price inflation assumption was lowered from 3.50% to 2.75% per year.

COMPARATIVE SUMMARY OF PRINCIPAL VALUATION RESULTS

	New Assump 12/31/2018	Old Assump 12/31/2018	12/31/2017
A. Participant Data			
Actives	1,102	1,102	1,045
Service Retirees + DROP	679	679	650
Beneficiaries + Alt Payees	125	125	118
Disability Retirees	18	18	18
Terminated Vested	8	8	9
Total	1,932	1,932	1,840
Covered Annual Payroll	92,083,218	92,058,633	88,209,122
Annual Rate of Payments to:			
Service Retirees + DROP	43,116,610	43,116,610	39,941,555
Beneficiaries + Alt Payees	3,807,781	3,807,781	3,744,765
Disability Retirees	758,015	758,015	744,706
Terminated Vested	252,192	252,192	317,466
B. Assets			
Actuarial Value (AVA)	954,574,840	954,574,840	916,931,534
Market Value (MVA)	909,117,796	909,117,796	953,798,227
C. Liabilities			
Present Value of Benefits			
Actives			
Retirement + Termination Benefits	710,792,605	715,607,490	692,205,014
Death Benefits	6,746,036	8,652,384	8,369,038
Disability Benefits	26,856,591	25,095,404	23,971,186
Service Retirees + DROP	578,880,785	580,997,027	532,178,906
Beneficiaries + Alt Payees	32,771,736	33,168,153	32,477,563
Disability Retirees	7,656,455	6,563,842	6,568,655
Terminated Vested	1,970,161	1,990,447	2,783,086
Total	1,365,674,369	1,372,074,747	1,298,553,448

	New Assump 12/31/2018	Old Assump 12/31/2018	12/31/2017
C. Liabilities - (Continued)			
Present Value of Future Salaries	996,580,825	995,314,422	918,035,842
Normal Cost (Entry Age Normal)			
Retirement + Termination Benefits	24,313,431	24,470,503	23,316,755
Death Benefits	460,259	580,164	563,692
Disability Benefits	1,403,765	1,315,006	1,250,055
Total Normal Cost	26,177,455	26,365,673	25,130,502
Present Value of Future Normal Costs	281,140,761	283,184,148	260,435,363
Actuarial Accrued Liability			
Retirement + Termination Benefits	449,546,961	452,340,137	450,208,818
Death Benefits	1,866,269	2,805,755	2,865,171
Disability Benefits	11,841,241	11,025,238	11,035,886
Inactives	621,279,137	622,719,469	574,008,210
Total Actuarial Accrued Liability (AAL)	1,084,533,608	1,088,890,599	1,038,118,085
Unfunded Actuarial Accrued Liability (UAAL)	129,958,768	134,315,759	121,186,551
Funded Ratio (AVA / AAL)	88.0%	87.7%	88.3%

D. Actuarial Present Value of Accrued Benefits

Inactives	621,279,137	622,719,469	574,008,210
Actives	348,743,560	351,225,611	345,230,441
Total Present Value Accrued Benefits (PVAB	970,022,697	973,945,080	919,238,651
Funded Ratio (MVA / PVAB)	93.7%	93.3%	103.8%

GAIN/LOSS ANALYSIS

a. Total (Gain)/Loss

1. Unfunded Actuarial Accrued Liability as of December 31, 2017	$121,186,551
2. Normal Cost applicable for 2017	25,130,502
3. Interest on (1) and (2)	11,266,413
4. Contributions made during 2017	37,117,830
5. Interest on (4)	1,429,036
6. Expected UAAL as of December 31, 2018: (1)+(2)+(3)-(4)-(5)	119,036,600
7. Actual UAAL as of December 31, 2018 (Before Assump Change)	134,315,759
Total Actuarial (Gain)/Loss [1]	15,279,159

b. (Gain)/Loss on Assets

1. Actuarial Value of Assets as of December 31, 2017	916,931,534
2. Contributions Less Benefit Payments	(18,861,464)
3. Expected Investment Earnings	69,877,562
4. Expected AVA as of December 31, 2018: (1)+(2)+(3)	967,947,632
5. Actual Actuarial Value of Assets as of December 31, 2018	954,574,840
(Gain)/Loss on Assets	13,372,792

c. (Gain)/Loss on Liabilities

1. Expected Actuarial Accrued Liability: a(6)+b(4)	1,086,984,232
2. Actual Actuarial Accrued Liability (Before Assump Change)	1,088,890,599
(Gain)/Loss on Liabilities [1]	1,906,367

[1] Includes increase in liabilities associated with the 2.3% cost-of-living adjustment that was granted to eligible retirees, effective January 1, 2019.

STATEMENT OF FIDUCIARY NET POSITION
DECEMBER 31, 2018

ASSETS	MARKET VALUE
Total Cash and Equivalents	13,009,148.00
Receivables:	
From Broker for Investments Sold	156,076.00
Investment Income	167,710.00
Total Receivable	323,786.00
Investments:	
Public Equities	323,594,008.00
Private Equities	183,670,803.00
Public Fixed Income	279,541,963.00
Real Estate Funds	83,442,672.00
Private Natural Resources Funds	26,259,960.00
Total Investments	896,509,406.00
Total Assets	909,842,340.00
LIABILITIES	
Payables:	
To Broker for Investments Purchased	724,544.00
Total Liabilities	724,544.00
NET POSITION RESTRICTED FOR PENSIONS	909,117,796.00

STATEMENT OF CHANGES IN FIDUCIARY NET POSITION
FOR THE YEAR ENDED DECEMBER 31, 2018
Market Value Basis

ADDITIONS			
Contributions:			
Member		17,033,213	
City		20,084,617	
Total Contributions			37,117,830
Investment Income:			
Miscellaneous Income	51,620		
Net Realized Gain (Loss)	32,921,610		
Unrealized Gain (Loss)	(65,286,390)		
Net Increase in Fair Value of Investments		(32,313,160)	
Interest & Dividends		9,864,740	
Less Investment Expense[1]		(2,665,644)	
Net Investment Income			(25,114,064)
Total Additions			12,003,766
DEDUCTIONS			
Distributions to Members:			
Benefit Payments		45,808,645	
Lump Sum DROP Distributions		9,936,387	
Refunds of Member Contributions		234,262	
Total Distributions			55,979,294
Administrative Expense			704,903
Total Deductions			56,684,197
Net Increase in Net Position			(44,680,431)
NET POSITION RESTRICTED FOR PENSIONS			
Beginning of the Year			953,798,227
End of the Year			909,117,796

[1]Investment related expenses include investment advisory, custodial and performance monitoring fees.

ACTUARIAL ASSET VALUATION
December 31, 2018

Actuarial Assets for funding purposes are developed by recognizing the total actuarial investment gain or loss for each Plan Year over a five year period. In the first year, 20% of the gain or loss is recognized. In the second year 40%, in the third year 60%, in the fourth year 80%, and in the fifth year 100% of the gain or loss is recognized. The actuarial investment gain or loss is defined as the actual return on investments minus the actuarial assumed investment return. Actuarial Assets shall not be less than 80% nor greater than 120% of Market Value of Assets.

		Gains/(Losses) Not Yet Recognized				
Plan Year		Amounts Not Yet Recognized by Valuation Year				
Ending	Gain/(Loss)	2019	2020	2021	2022	2023
12/31/2014	N/A	0	0	0	0	0
12/31/2015	(54,636,462)	(10,927,294)	0	0	0	0
12/31/2016	(5,150,047)	(2,060,020)	(1,030,011)	0	0	0
12/31/2017	77,264,135	46,358,481	30,905,654	15,452,827	0	0
12/31/2018	(98,535,264)	(78,828,211)	(59,121,158)	(39,414,105)	(19,707,052)	0
Total		(45,457,044)	(29,245,515)	(23,961,278)	(19,707,052)	0

Development of Investment Gain/(Loss)

Market Value of Assets, 12/31/2017	953,798,227
Contributions Less Benefit Payments	(18,861,464)
Expected Investment Earnings*	72,716,297
Actual Net Investment Earnings	(25,818,967)
Actuarial Investment Gain/(Loss)	(98,535,264)

*Expected Investment Earnings = 0.077 * [953,798,227 + 0.5 * (18,861,464)]

Development of Actuarial Value of Assets

(1) Market Value of Assets, 12/31/2018	909,117,796
(2) Gains/(Losses) Not Yet Recognized	(45,457,044)
(3) Actuarial Value of Assets, 12/31/2018, (1) - (2)	954,574,840
(A) 12/31/2017 Actuarial Assets:	916,931,534
(I) Net Investment Income:	
1. Interest and Dividends	9,916,360
2. Realized Gains (Losses)	32,921,610
3. Unrealized Gains (Losses)	(65,286,390)
4. Change in Actuarial Value	82,323,737
5. Investment & Administrative Expenses	(3,370,547)
Total	56,504,770
(B) 12/31/2018 Actuarial Assets:	954,574,840
Actuarial Assets Rate of Return = 2I/(A+B-I):	6.23%
Market Value of Assets Rate of Return:	-2.73%
Actuarial Gain/(Loss) due to Investment Return (Actuarial Asset Basis)	(13,372,792)
12/31/2018 Limited Actuarial Assets:	954,574,840

CHANGES IN NET ASSETS AVAILABLE FOR BENEFITS
DECEMBER 31, 2018
Actuarial Asset Basis

REVENUES		
Contributions:		
Member	17,033,213	
City	20,084,617	
Total Contributions		37,117,830
Earnings from Investments:		
Interest & Dividends	9,864,740	
Miscellaneous Income	51,620	
Net Realized Gain (Loss)	32,921,610	
Unrealized Gain (Loss)	(65,286,390)	
Change in Actuarial Value	82,323,737	
Total Earnings and Investment Gains		59,875,317
EXPENDITURES		
Distributions to Members:		
Benefit Payments	45,808,645	
Lump Sum DROP Distributions	9,936,387	
Refunds of Member Contributions	234,262	
Total Distributions		55,979,294
Expenses:		
Investment related[1]	2,665,644	
Administrative	704,903	
Total Expenses		3,370,547
Change in Net Assets for the Year		37,643,306
Net Assets Beginning of the Year		916,931,534
Net Assets End of the Year[2]		954,574,840

[1]Investment related expenses include investment advisory, custodial and performance monitoring fees.
[2]Net Assets may be limited for actuarial consideration.

STATISTICAL DATA

	12/31/2015	12/31/2016	12/31/2017	12/31/2018
Actives				
Number	1,050	990	1,045	1,102
Average Current Age	42.6	43.1	42.5	41.9
Average Age at Employment	28.4	28.6	28.9	29.0
Average Past Service	14.2	14.5	13.6	12.9
Average Annual Salary	$86,181	$90,088	$89,026	$87,933
Service Retirees + DROP				
Number				679
Average Current Age				64.3
Average Annual Benefit				$63,500
Beneficiaries + Alt Payees				
Number				125
Average Current Age				67.4
Average Annual Benefit				$30,462
Disability Retirees				
Number				18
Average Current Age				64.9
Average Annual Benefit				$42,112
Terminated Vested				
Number				8
Average Current Age				42.3
Average Annual Benefit				$31,524

AGE AND SERVICE DISTRIBUTION

ATTAINED AGE	PAST SERVICE 0	1-4	5-9	10-19	20-24	25	26	27	28	29	30+	TOTAL
15 - 24	8	1	0	0	0	0	0	0	0	0	0	9
25 - 34	80	94	60	4	0	0	0	0	0	0	0	238
35 - 44	12	68	147	185	5	0	0	0	0	0	0	417
45 - 49	0	0	8	135	49	2	0	0	0	0	0	194
50	0	0	0	17	24	1	2	2	0	0	0	46
51	0	0	0	15	12	4	1	0	3	0	0	35
52	0	0	0	4	11	2	1	0	3	2	3	26
53	0	0	0	3	11	2	0	1	2	0	2	21
54	0	0	0	4	12	2	1	3	4	0	3	29
55 - 59	0	0	0	5	18	5	2	5	4	2	36	77
60+	0	0	0	0	0	0	0	0	0	1	9	10
TOTAL	100	163	215	372	142	18	7	11	16	5	53	1,102

VALUATION PARTICIPANT RECONCILIATION

1. Active lives

a. Number in prior valuation 12/31/2017	1,045
b. Terminations	
i. Vested (partial or full) with deferred benefits	(1)
ii. Non-vested or full lump sum distribution received	(3)
c. Deaths	
i. Beneficiary receiving benefits	0
ii. No future benefits payable	0
d. Disabled	0
e. Retired	(39)
g. Continuing participants	1,002
h. New entrants	100
i. Total active life participants in valuation	1,102

2. Non-Active lives (including beneficiaries receiving benefits)

	Service Retirees, DROP Receiving Benefits	Receiving Death Benefits	Receiving Disability Benefits	Receiving QDRO Benefits	Vested Deferred	Total
a. Number prior valuation	650	74	18	44	9	795
Retired	39	0	0	0	0	39
Vested Deferred	0	0	0	0	1	1
Death, With Survivor	(5)	5	0	0	0	0
Death, No Survivor	(5)	(6)	0	0	0	(11)
Disabled	0	0	0	0	0	0
Refund of Contributions	0	0	0	0	(2)	(2)
Rehires	0	0	0	0	0	0
Expired Annuities	0	0	0	0	0	0
New Dependent Child	0	3	0	0	0	3
New QDRO	0	0	0	5	0	5
b. Number current valuation	679	76	18	49	8	830

ACTUARIAL ASSUMPTIONS AND METHODS
(Effective December 31, 2018)

Mortality Rates – Healthy Lives	*Active Lives:* PubS-2010(A) Mortality Table for Employees. *Retiree and Vested Terminated Lives:* PubS-2010(A) Mortality Table for Healthy Retirees. *Contingent Survivor Lives:* PubS-2010(A) Mortality Table for Contingent Survivors. *Disabled Lives:* PubS-2010(A) Mortality Table for Disabled Retirees. The mortality rates for all participants are sex distinct with mortality improvement projected 5 years beyond the valuation date using scale MP-2018 and a base year of 2010. We feel these assumptions sufficiently accommodate anticipated future mortality improvements.
Retirement Elections	See tables below. These assumptions were approved in conjunction with an actuarial experience study dated June 15, 2015.
Termination Rates	See tables below. These assumptions were approved in conjunction with an actuarial experience study dated June 15, 2015.
Disability Rates	See tables below. These assumptions were reviewed in conjunction with an actuarial experience study dated June 15, 2015.
Interest Rate	7.70% per year, compounded annually, net of all expenses. This is supported by the target asset allocation of the trust and the expected long-term return by asset class.
Salary Increases	See tables below. These assumptions were approved in conjunction with an actuarial experience study dated June 15, 2015.
General Wage Inflation	3.00% per year. This assumption was approved in conjunction with an actuarial experience study dated June 15, 2015.
Inflation	2.75% per year. We feel this is reasonable based upon long-term historical experience.

Payroll Growth

3.50% per year for amortization of the Unfunded Actuarial Accrued Liability. We feel this is reasonable based upon long-term historical experience.

Asset Valuation Method

All assets are valued at market value with an adjustment to uniformly spread investment gains and losses (as measured by actual market value investment return against expected market value investment return) over a five-year period.

Marital Status

100% of actives are assumed to be married at time of benefit commencement. Females are assumed to be 4 years younger than Males. Additionally, 50% are assumed to have dependent children. The age of the youngest child is assumed to be one year.

These assumptions were approved in conjunction with an actuarial experience study dated June 15, 2015.

Funding Method

Entry Age Normal Actuarial Cost Method.

Termination Rates

Years of Service	Termination Probability
0-4	1.0%
5-13	0.5
14+	0

Retirement Rates

Number of Years After First Eligibility for Early Retirement	Probability of Retirement
0	2.0%
1	2.0
2	2.0
3	2.0
4	2.0
5	5.0
6	7.5
7	7.5
8	10.0
9	16.7
10	16.7
11	16.7
12	20.0
13	20.0
14	30.0
15	40.0
16	50.0
17	75.0
18	100.0

Retro-DROP Elections

Number of Years After First Eligibility for Early Retirement	No-DROP Elected	Duration 1 Election	Duration 2 Election
0	90%	0.5 years (10%)	n/a
1	50%	1 year (50%)	n/a
2	50%	1 year (25%)	2 years (25%)
3	50%	1 year (25%)	2 years (25%)
4	20%	1 year (60%)	3 years (20%)
5	20%	2 years (40%)	4 years (40%)
6	20%	2 years (60%)	5 years (20%)
7	20%	2 years (50%)	5 years (30%)
8	20%	3 years (60%)	6 years (20%)
9	10%	3 years (50%)	6 years (40%)
10	10%	3 years (50%)	6 years (40%)
11	10%	3 years (60%)	6 years (30%)
12	10%	3 years (75%)	6 years (15%)
13	10%	3 years (40%)	6 years (50%)
14	10%	3 years (40%)	6 years (50%)
15	10%	3 years (20%)	6 years (70%)
16	10%	3 years (20%)	6 years (70%)
17	10%	3 years (20%)	6 years (70%)
18	10%	3 years (20%)	6 years (70%)

Disability Rates

Age	Probability of Disablement
20	0.014%
25	0.019
30	0.031
35	0.052
40	0.092
45	0.209
50	0.379
55	0.490
60	0.911

% Increase in Salary*

Years of Service	Increase
0	6.00%
1	8.50
2	7.50
3	4.00
4	1.00
5	5.00
10	1.50
15	1.50
20	5.50
21+	1.00

* Expected increase in salary in addition to general wage inflation assumption.

SUMMARY OF BENEFIT PROVISIONS

Service	Total years and completed months during which a Member makes contributions to the Fund.
Average Monthly Compensation	Average Salary for the highest 36 months of service.
Member Contributions	18.70% of Salary.
City Contributions	22.05% or payroll.
Normal Retirement	
Date	Earlier of age 50 and 10 years of Service, or 25 years of Service, regardless of age.
Benefit	3.30% of Average Monthly Compensation times Service ($1,200 minimum). Effective July 1, 2012, the minimum benefit was increased to $2,000 per month for all retirees and surviving spouses currently receiving normal or disability retirement benefits which commenced prior to January 1, 1994.
Form of Benefit	Married: Life Annuity with 75% continued to Surviving Spouse Single: Life Annuity with 75% continued to designated beneficiary.
Early Retirement	
Date	Earlier of age 45 and 10 years of Service, or 20 years of Service, regardless of age.
Benefit	Same for Normal Retirement as shown above. Members who retire under Early Retirement are not eligible to receive any COLA adjustments until the date they would have met Normal Retirement eligibility requirements.

Vesting

Schedule	100% after 10 years of Service.
Benefit Amount	Member will receive his (her) accrued benefit payable at age 50 or the date they would have completed 25 years of Service had they remained employed. Non-vested members receive a refund of member contributions accumulated with 5.0% interest.

Disability

Eligibility	Disability preventing the Member from performing the duties of a firefighter during the two and one-half years after becoming disabled or any employment after the two and one-half years after becoming disabled.
Benefit	Accrued benefit at date of disability, but not less than 66% of Average Monthly Compensation.
Form of Benefit	Married: Life Annuity with 75% continued to Surviving Spouse Single: Life Annuity

Death Benefits

Surviving Spouse of Member:	75% of Member's accrued benefit at date of death, but not less than 49.5% of Average Monthly Compensation.
Surviving Non-Spousal Beneficiary of Member:	75% of Member's accrued benefit at date of death, but may be actuarially reduced based on the age difference between the Member and the designated beneficiary.
Dependent Children of Member: (with Surviving Spouse)	Each child is entitled to 15% of Member's accrued benefit at date of death, but not less than 9.9% of Average Monthly Compensation.
Dependent Children of Member: (with no Surviving Spouse)	75% of Member's accrued benefit at date of death, but not less than 49.5% of Average Monthly Compensation, split equally among each dependent child.

Cost of Living Adjustment

Eligibility	Normal Retirement.
Amount	Determined by the actuary if providing a COLA will not impair financial stability of the Fund.

Retroactive DROP

Eligibility	Satisfaction of Early or Normal Retirement Eligibility.
Participation Period	Upon election to retroactively enter DROP, the Retro DROP period will not exceed 84 months.
Rate of Return	5.0%, compounded annually, on monthly benefits that would have been deposited into a DROP account and Member contributions deposited into the fund between the effective DROP entry date and the actual date of termination.

DISCUSSION OF RISK

ASOP No. 51, Assessment and Disclosure of Risk Associated with Measuring Pension Obligations and Determining Pension Plan Contributions, states that the actuary should identify risks that, in the actuary's professional judgment, may reasonably be anticipated to significantly affect the plan's future financial condition.

Throughout this report, actuarial results are determined under various assumption scenarios. These results are based on the premise that all future plan experience will align with the plan's actuarial assumptions; however, there is no guarantee that actual plan experience will align with the plan's assumptions.

Below are some examples of ways in which plan experience can deviate from assumptions and the potential impact of that deviation. Typically, this results in an actuarial gain or loss representing the current-year financial impact on the plan's unfunded liability of the experience differing from assumptions; this gain or loss impacts the plan's amortization period. When assumptions are selected that adequately reflect plan experience, gains and losses typically offset one another in the long term, resulting in a relatively low impact on the plan's amortization period. When assumptions are too optimistic, losses can accumulate over time and the plan's amortization period could potentially grow to an unmanageable level.

- Investment Return: When the rate of return on the Actuarial Value of Assets falls short of the assumption, this produces a loss representing assumed investment earnings that were not realized. Further, it is unlikely that the plan will experience a scenario that matches the assumed return in each year as capital markets can be volatile from year to year. Therefore, amortization periods can vary in the future.

- Salary Increases: When a plan participant experiences a salary increase that was greater than assumed, this produces a loss representing the cost of an increase in anticipated plan benefits for the participant as compared to the previous year. The total gain or loss associated with salary increases for the plan is the sum of salary gains and losses for all active participants.

- Payroll Growth: The plan's payroll growth assumption, if one is used, causes a predictable annual increase in the plan's amortization payment in order to produce an amortization payment that remains constant as a percentage of payroll if all assumptions are realized. If payroll does not increase according to the plan's payroll growth assumption, the plan's amortization period can increase significantly even if all assumptions other than the payroll growth assumption are realized since anticipated contributions rely upon membership payroll.

- Demographic Assumptions: Actuarial results take into account various potential events that could happen to a plan participant, such as retirement, termination, disability, and death. Each of these potential events is assigned a liability based on the likelihood of the event and the financial consequence of the event for the plan. Accordingly, actuarial liabilities reflect a blend of financial consequences associated with various possible outcomes (such as retirement at one of various possible ages). Once the outcome is known (e.g. the participant retires) the liability is adjusted to reflect the known outcome. This adjustment produces a gain or loss depending on whether the outcome was more or less favorable than other outcomes that could have occurred.

- DROP Liquidity Risk: This risk results from the provision which allows retired members to continue to accrue a guaranteed rate of interest on their accumulated DROP balances following separation of employment with the City. The ratio of the accumulated DROP balances to the market value of assets as of each valuation date can present potential fund liquidity and actuarial liability risks.

- Amortization Period: Risks associated with the items outlined above will inherently create varying liabilities and assets resulting in volatility in the amortization period. Actuarial losses on assets and liabilities will lead to longer amortization periods, while actuarial gains on assets and liabilities will lead to shorter amortization periods.

- Contribution Risk: This risk results from the potential that the total annual contributions, based on fixed-rates for the City and membership, may deviate from actuarially determined contributions, as illustrated on page 5. The actuarially determined contributions are adjusted in conjunction with each actuarial valuation to take into account the deviation in actual versus expected experience between valuation dates. Fixed-rate contribution structures include the risk that scheduled contributions do not reflect the actual cost of plan benefits, meaning that in order to maintain actuarially sound funding levels, contribution rate increases or benefit reductions may be required.

Impact of Plan Maturity on Risk

For newer pension plans, most of the participants and associated liabilities are related to active members who have not yet reached retirement age. As pension plans continue in operation and active members reach retirement ages, liabilities begin to shift from being primarily related to active members to being shared among active and retired members. Plan maturity is a measure of the extent to which this shift has occurred. It is important to understand that plan maturity can have an impact on the risk characteristics and risk tolerance of the plan. For example, plans with a large amount of liability attributable to retirees have a shorter time horizon to recover from losses (such as investment experience losses due to lower than expected investment returns) than plans where the majority of the liability is attributable to active members. For this reason, highly mature plans with a substantial liability due to retirees and inactive members have less tolerance for risk. Similarly, mature plans paying substantial retirement benefits resulting in a small positive or negative net cash flow can be more sensitive to near term investment volatility, particularly if the size of the fund is shrinking, which can result in less assets being available for investment in the market.

To assist with determining the maturity of the plan and assessing risk, we have provided some relevant metrics in the section titled "Plan Maturity Measures and Other Risk Metrics". Highlights of this information are discussed below:

- The Support Ratio, determined as the ratio of active to inactive members has decreased from 147.9% to 132.8% over the last four years.
- The Accrued Liability Ratio, determined as the ratio of the Inactive Accrued Liability, which is the accrued liability associated with those receiving payments (inclusive of DROP Balances), to the Total Accrued Liability, has increased from 49.1% to 57.1% over the last four years.
- The Funded Ratio, determined as the ratio of the Actuarial Value of Assets to the Total Accrued Liability has decreased from 89.9% to 88.0% over the last four years. If all actuarial assumptions are realized, the funded ratio is expected to decrease in the next few years as the most recent investment experience loss is gradually recognized.
- The DROP Asset Ratio, determined as the ratio of the Accumulated DROP Balances to the Market Value of Assets has increased from 6.5% to 10.9% over the last four years.

It is important to note that the we have identified the risks above as the most significant risks based on the characteristics of the plan and the nature of the actuarial valuation, however, it is not an exhaustive list of potential risks that could be considered. Advanced modelling, as well as the identification of additional risks, can be helpful and can be provided upon request of the Board.

PLAN MATURITY MEASURES AND OTHER RISK METRICS

	12/31/2015	12/31/2016	12/31/2017	12/31/2018
Support Ratio				
Total Actives	1050	990	1045	1,102
Total Inactives	710	757	795	830
Actives / Inactives	147.9%	130.8%	131.4%	132.8%
Accrued Liability (AL) Ratio				
Inactive Accrued Liability [1]	452,302,712	515,619,455	571,225,124	619,308,976
Total Accrued Liability	921,875,579	981,771,267	1,038,118,085	1,084,533,608
Inactive AL / Total AL	49.1%	52.5%	55.0%	57.1%
Funded Ratio				
Actuarial Value of Assets (AVA)	828,920,231	866,512,111	916,931,534	954,574,840
Total Accrued Liability	921,875,579	981,771,267	1,038,118,085	1,084,533,608
AVA / Total Accrued Liability	89.9%	88.3%	88.3%	88.0%
DROP Asset Ratio				
Accumulated DROP Balances	51,207,560	69,354,195	86,322,683	99,360,841
Market Value of Assets (MVA)	785,211,061	829,610,196	953,798,227	909,117,796
DROP Balances / MVA	6.5%	8.4%	9.1%	10.9%

[1] Excludes liability attributable to terminated vested members.

VALUATION NOTES

Covered Annual Payroll is the projected rate of pay as of the valuation date of all active participants who are not subject to a 100% probability of retirement in the first year following the valuation date, discounted to take into account the probability of remaining an active participant.

Present Value of Benefits is the single sum value on the valuation date of all future benefits to be paid to current Members, Retirees, Beneficiaries, Disability Retirees and Vested Terminations.

Entry Age Normal Cost Method - Under this method, the normal cost is the sum of the individual normal costs for all active participants. For an active participant, the normal cost is the participant's normal cost accrual rate, multiplied by the participant's current compensation.

(a) The normal cost accrual rate equals:
   - (i) the present value of future benefits for the participant, determined as of the participant's entry age, divided by
   - (ii) the present value of the compensation expected to be paid to the participant for each year of the participant's anticipated future service, determined as of the participant's entry age.

(b) In calculating the present value of future compensation, the salary scale is applied both retrospectively and prospectively to estimate compensation in years prior to and subsequent to the valuation year based on the compensation used for the valuation.

(c) The accrued liability is the sum of the individual accrued liabilities for all participants and beneficiaries. A participant's accrued liability equals the present value, at the participant's attained age, of future benefits less the present value at the participant's attained age of the individual normal costs payable in the future. A beneficiary's accrued liability equals the present value, at the beneficiary's attained age, of future benefits. The unfunded accrued liability equals the total accrued liability less the actuarial value of assets.

(d) Under this method, the entry age used for each active participant is the participant's age at the time he or she would have commenced participation if the plan had always been in existence under current terms, or the age as of which he or she first earns service credits for purposes of benefit accrual under the current terms of the plan.

GASB 67

STATEMENT OF FIDUCIARY NET POSITION
DECEMBER 31, 2018

ASSETS	MARKET VALUE
Cash and Cash Equivalents:	
Money Market	13,009,148
Total Cash and Equivalents	13,009,148
Receivables:	
From Broker for Investments Sold	156,076
Investment Income	167,710
Total Receivable	323,786
Investments:	
Public Equities	323,594,008
Private Equities	183,670,803
Public Fixed Income	279,541,963
Real Estate Funds	83,442,672
Private Natural Resources Funds	26,259,960
Total Investments	896,509,406
Total Assets	909,842,340
LIABILITIES	
Payables:	
To Broker for Investments Purchased	724,544
Total Liabilities	724,544
NET POSITION RESTRICTED FOR PENSIONS	909,117,796

STATEMENT OF CHANGES IN FIDUCIARY NET POSITION
FOR THE YEAR ENDED DECEMBER 31, 2018
Market Value Basis

<u>ADDITIONS</u>			
Contributions:			
Member		17,033,213	
City		20,084,617	
Total Contributions			37,117,830
Investment Income:			
Miscellaneous Income	51,620		
Net Realized Gain (Loss)	32,921,610		
Unrealized Gain (Loss)	(65,286,390)		
Net Increase in Fair Value of Investments		(32,313,160)	
Interest & Dividends		9,864,740	
Less Investment Expense[1]		(2,665,644)	
Net Investment Income			(25,114,064)
Total Additions			12,003,766
<u>DEDUCTIONS</u>			
Distributions to Members:			
Benefit Payments		45,808,645	
Lump Sum DROP Distributions		9,936,387	
Refunds of Member Contributions		234,262	
Total Distributions			55,979,294
Administrative Expense			704,903
Total Deductions			56,684,197
Net Increase in Net Position			(44,680,431)
NET POSITION RESTRICTED FOR PENSIONS			
Beginning of the Year			953,798,227
End of the Year			909,117,796

[1]Investment related expenses include investment advisory, custodial and performance monitoring fees.

NOTES TO THE FINANCIAL STATEMENTS

(For the Year Ended December 31, 2018)

Plan Description

Plan Administration

The Plan is a single-employer defined benefit pension plan administered by the Plan's Board of Trustees comprised of:

a. The Mayor of the municipality,

b. The city treasurer or, if there is no treasurer, the person who by law, charter provision, or ordinance performs the duty of city treasurer,

c. Three Members of the fund to be selected by vote of the firefighters and retirees.

Plan Membership as of December 31, 2017:

Inactive Plan Members or Beneficiaries Currently Receiving Benefits	786
Inactive Plan Members Entitled to But Not Yet Receiving Benefits	9
Active Plan Members	1,045
	1,840

Benefits Provided

The Plan provides retirement, disability, termination and death benefits.

<u>Normal Retirement:</u>

Earlier of age 50 and 10 years of Service, or 25 years of Service, regardless of age.

Benefit: 3.30% of Average Monthly Compensation times Service ($1,200 minimum). Effective July 1, 2012, the minimum benefit was increased to $2,000 per month for all retirees and surviving spouses currently receiving normal or disability retirement benefits which commenced prior to January 1, 1994.

<u>Early Retirement:</u>

Earlier of age 45 and 10 years of Service, or 20 years of Service, regardless of age.

Benefit: Same for Normal Retirement as shown above. Members who retire under Early Retirement are not eligible to receive any COLA adjustments until the date they would have met Normal Retirement eligibility requirements.

<u>Vesting:</u>

Schedule: 100% after 10 years of Service.

Benefit Amount: Member will receive his (her) accrued benefit payable at age 50 or the date they would have completed 25 years of Service had they remained employed.

Non-vested members receive a refund of member contributions accumulated with 5.0% interest.

<u>Disability:</u>

Disability preventing the Member from performing the duties of a firefighter during the two and one-half years after becoming disabled or any employment after the two and one-half years after becoming disabled.

Accrued benefit at date of disability, but not les than 66% of Average Monthly Compensation.

<u>Death Benefits:</u>

Surviving Spouse of Member: 75% of Member's accrued benefit at date of death, but not less than 49.5% of Average Monthly Compensation.

Surviving Non-Spousal Beneficiary of Member: 75% of Member’s accrued benefit at date of death, but may be actuarially reduced based on the age difference between the Member and the designated beneficiary.

Dependent Children of Member (with Surviving Spouse): Each child is entitled to 15% of Member's accrued benefit at date of death, but not less than 9.9% of Average Monthly Compensation.

Dependent Children of Member (with no Surviving Spouse): 75% of Member's accrued benefit at date of death, but no less than 49.5% of Average Monthly Compensation, split equally among each dependent child.

<u>Cost of Living Adjustment:</u>

Eligibility: Normal Retirement

Amount: Determined by the actuary if providing a COLA will not impair financial stability of the Fund.

Contributions

Member Contributions: 18.70% of Salary.

City Contributions: 22.05% of payroll.

Investments

Investment Policy:

The following was the Board's adopted asset allocation policy as of December 31, 2018:

Asset Class	Target Allocation
Public Domestic Equity	20%
Public Foreign Equity	22%
Private Equity Fund of Funds	15%
Investment Grade Bonds	13%
TIPS	5%
High Yield/Bank Loans	5%
Emerging Market Debt	7%
Core Real Estate	5%
Non-Core Real Estate	5%
Natural Resources	3%
Total	100%

Concentrations:

The Plan did not hold investments in any one organization that represent 5 percent or more of the Pension Plan's Fiduciary Net Position.

Rate of Return:

For the year ended December 31, 2018, the annual money-weighted rate of return on Pension Plan investments, net of Pension Plan investment expense, was -2.66 percent.

The money-weighted rate of return expresses investment performance, net of investment expense, adjusted for the changing amounts actually invested.

Deferred Retirement Option Program

Retroactive DROP

Eligibility: Satisfaction of Early or Normal Retirement Eligibility.

Participation Period: Upon election to retroactively enter DROP, the Retro DROP period will not exceed 84 months.

Rate of Return: 5.0%, compounded annually, on monthly benefits that would have been deposited into a DROP account and Member contributions deposited into the fund between the effective DROP entry date and the actual date of termination.

The DROP balance as December 31, 2018 is $99,360,841.

NET PENSION LIABILITY OF THE SPONSOR

The components of the Net Pension Liability of the Sponsor on December 31, 2018 were as follows:

Total Pension Liability	$1,107,220,715
Plan Fiduciary Net Position	$ (909,117,796)
Sponsor's Net Pension Liability	$ 198,102,919
Plan Fiduciary Net Position as a percentage of Total Pension Liability	82.11%

Actuarial Assumptions:
The Total Pension Liability was determined by an actuarial valuation as of December 31, 2017 updated to December 31, 2018 using the following actuarial assumptions:

Inflation	2.75%
General Wage Inflation	3.00%
Salary Increases	1.00% - 6.00%
Discount Rate	7.70%
Investment Rate of Return	7.70%

Mortality Active Lives:
PubS-2010 (Above-median, amount-weighted) employee rates with mortality improvement projected 5 years past the valuation date using Scale MP-2018.
Mortality Retiree and Vested Terminated Lives:
PubS-2010 (Above-median, amount-weighted) healthy retiree rates with mortality improvement projected 5 years past the valuation date using Scale MP-2018.
Mortality Contingent Survivor Lives:
PubS-2010 (Above-median, amount-weighted) contingent survivor rates with mortality improvement projected 5 years past the valuation date using Scale MP-2018.
Mortality Disabled Lives:
PubS-2010 (amount-weighted) disabled retiree rates with mortality improvement projected 5 years past the valuation date using Scale MP-2018.

The most recent actuarial experience study used to review the other significant assumptions was dated June 15, 2015.

The Long-Term Expected Rate of Return on Pension Plan investments can be determined using a building-block method in which best-estimate ranges of expected future real rates of return (expected returns, net of Pension Plan investment expenses and inflation) are developed for each major asset class.
For 2018, the inflation rate assumption of the investment advisor was 2.70%.
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.

Best estimates of arithmetic real rates of return for each major asset class included in the Pension Plan's target asset allocation as of December 31, 2018 are summarized in the following table:

Asset Class	Long Term Expected Real Rate of Return
Public Domestic Equity	5.3%
Public Foreign Equity	6.9%
Private Equity Fund of Funds	5.6%
Investment Grade Bonds	1.1%
TIPS	0.8%
High Yield/Bank Loans	3.8%
Emerging Market Debt	3.6%
Core Real Estate	3.4%
Non-Core Real Estate	5.0%
Natural Resources	5.9%

Discount Rate:
The Discount Rate used to measure the Total Pension Liability was 7.70 percent.
The projection of cash flows used to determine the Discount Rate assumed that Plan Member contributions will be made at the current contribution rate and that Sponsor contributions will continue at the currently negotiated rate of 22.05% of payroll each year. Based on those assumptions, the Pension Plan's Fiduciary Net Position was projected to be available to make all projected future benefit payments of current plan members. Therefore, the Long-Term Expected Rate of Return on Pension Plan investments was applied to all periods of projected benefit payments to determine the Total Pension Liability.
For purpose of this valuation, the expected rate of return on pension plan investments is 7.70%; the municipal bond rate is 4.10% (based on the weekly rate closest to but not later than the measurement date of the Bond Buyer 20-Bond Index as published by the Bond Buyer); and the resulting single discount rate is 7.70%.

	1% Decrease 6.70%	Current Discount Rate 7.70%	1% Increase 8.70%
Sponsor's Net Pension Liability	$ 304,086,801	$ 198,102,919	$ 108,598,230

GASB 67

SCHEDULE OF CHANGES IN NET PENSION LIABILITY AND RELATED RATIOS

Last 10 Years

	12/31/2018	12/31/2017	12/31/2016
Total Pension Liability			
Service Cost	25,130,502	23,830,495	24,322,417
Interest	80,552,018	75,812,099	70,892,708
Changes of benefit terms	10,188,417	8,963,689	5,491,908
Differences between Expected and Actual Experience	13,306,782	4,360,239	8,893,371
Changes of assumptions	(4,778,539)	-	-
Benefit Payments, including Refunds of Employee Contributions	(55,979,294)	(51,888,455)	(45,495,681)
Net Change in Total Pension Liability	68,419,886	61,078,067	64,104,723
Total Pension Liability - Beginning	1,038,800,829	977,722,762	913,618,039
Total Pension Liability - Ending (a)	$1,107,220,715	$1,038,800,829	$ 977,722,762
Plan Fiduciary Net Position			
Contributions - Employer	20,084,617	19,242,205	19,103,891
Contributions - Employee	17,033,213	16,318,769	15,884,261
Net Investment Income	(25,114,064)	141,915,000	55,569,165
Benefit Payments, including Refunds of Employee Contributions	(55,979,294)	(51,888,455)	(45,495,681)
Administrative Expense	(704,903)	(1,399,488)	(662,501)
Net Change in Plan Fiduciary Net Position	(44,680,431)	124,188,031	44,399,135
Plan Fiduciary Net Position - Beginning	953,798,227	829,610,196	785,211,061
Plan Fiduciary Net Position - Ending (b)	$ 909,117,796	$ 953,798,227	$ 829,610,196
Net Pension Liability - Ending (a) - (b)	$ 198,102,919	$ 85,002,602	$ 148,112,566
Plan Fiduciary Net Position as a percentage of the Total Pension Liability	82.11%	91.82%	84.85%
Covered Payroll	$ 91,086,698	$ 87,266,236	$ 86,638,961
Net Pension Liability as a percentage of Covered Payroll	217.49%	97.41%	170.95%

Notes to Schedule:

Changes of benefit terms:

For measurement date 12/31/2018, amounts reported as changes of benefit terms resulted from a cost-of-living adjustment. Eligible retirees receive a 2.3% cost-of-living adjustment, effective January 1, 2019.

For measurement date 12/31/2017, amounts reported as changes of benefit terms resulted from a cost-of-living adjustment. Eligible retirees receive a 2.2% cost-of-living adjustment, effective January 1, 2018.

For measurement date 12/31/2016, amounts reported as changes of benefit terms resulted from a cost-of-living adjustment. Eligible retirees receive a 1.5% cost-of-living adjustment, effective January 1, 2017.

Changes of assumptions:

For measurement date 12/31/2018, amounts reported as changes of assumptions resulted from the following changes:

- The assumed mortality rates were updated to reflect the PubS-2010 (above-median, amount-weighted) tables.
- The price inflation assumption was lowered from 3.50% to 2.75% per year.

GASB 67

SCHEDULE OF CHANGES IN NET PENSION LIABILITY AND RELATED RATIOS

Last 10 Years

	12/31/2015	12/31/2014	12/31/2013
Total Pension Liability			
Service Cost	23,309,543	25,318,456	23,497,407
Interest	66,404,730	62,976,839	59,249,151
Changes of benefit terms	-	-	-
Differences between Expected and Actual Experience	7,192,645	-	-
Changes of assumptions	-	4,883,207	-
Benefit Payments, including Refunds of Employee Contributions	(44,756,847)	(37,992,903)	(34,943,917)
Net Change in Total Pension Liability	52,150,071	55,185,599	47,802,641
Total Pension Liability - Beginning	861,467,968	806,282,369	758,479,728
Total Pension Liability - Ending (a)	$ 913,618,039	$ 861,467,968	$ 806,282,369
Plan Fiduciary Net Position			
Contributions - Employer	19,222,329	18,669,944	17,786,494
Contributions - Employee	15,546,979	14,659,946	14,000,514
Net Investment Income	6,328,063	42,005,227	101,289,167
Benefit Payments, including Refunds of Employee Contributions	(44,756,847)	(37,992,903)	(34,943,917)
Administrative Expense	(562,687)	(530,816)	(363,050)
Net Change in Plan Fiduciary Net Position	(4,222,163)	36,811,398	97,769,208
Plan Fiduciary Net Position - Beginning	789,433,224	752,621,826	654,852,618
Plan Fiduciary Net Position - Ending (b)	$ 785,211,061	$ 789,433,224	$ 752,621,826
Net Pension Liability - Ending (a) - (b)	$ 128,406,978	$ 72,034,744	$ 53,660,543
Plan Fiduciary Net Position as a percentage of the Total Pension Liability	85.95%	91.64%	93.34%
Covered Payroll	$ 87,836,040	$ 84,670,948	$ 83,279,101
Net Pension Liability as a percentage of Covered Payroll	146.19%	85.08%	64.43%

Notes to Schedule:

Changes of assumptions:

For measurement date 12/31/2014, amounts reported as changes of assumptions resulted from an actuarial experience study dated June 15, 2015, below a brief overview of the changes:

- A "fresh-start" on the actuarial asset value has been implemented. For all future valuations, the asset valuation method will utilize a new smoothing technique.
- The investment return assumption has been decreased from 7.75% to 7.70% per year compounded annually, net of all expenses.
- The general wage inflation rate has been decreased from 3.5% to 3.0% per year.
- The service-based table attributable to merit and longevity salary increases has been amended.
- The retirement rates have been amended.
- The Retro-DROP election assumptions have been amended.
- The withdrawal rates have been amended.
- The assumed spousal age difference has been amended.

SCHEDULE OF CONTRIBUTIONS
Last 10 Years

Fiscal Year Ended	Actuarially Determined Contribution	Contributions in relation to the Actuarially Determined Contributions	Contribution Deficiency (Excess)	Covered Payroll	Contributions as a percentage of Covered Payroll
12/31/2018	N/A	N/A	N/A	$ 91,086,698	22.05%
12/31/2017	N/A	N/A	N/A	$ 87,266,236	22.05%
12/31/2016	N/A	N/A	N/A	$ 86,638,961	21.36%
12/31/2015	N/A	N/A	N/A	$ 87,836,040	21.36%
12/31/2014	N/A	N/A	N/A	$ 84,670,948	21.36%
12/31/2013	N/A	N/A	N/A	$ 83,279,101	21.36%

<u>Notes to Schedule</u>

Methods and assumptions used to determine liabilities:

Mortality Rates - Healthy Lives: RP-2000 (Fully Generational using Scale AA) set back two years for males and females - Sex Distinct.
The assumed rates of mortality sufficiently accommodate expected mortality improvements.

Mortality Rates - Disabled Lives: RP2000 Disability Mortality Table.

Retirement Elections: See tables on following page. These assumptions were approved in conjunction with an actuarial experience study dated June 15, 2015.

Termination Rates: See tables below. These assumptions were approved in conjunction with an actuarial experience study dated June 15, 2015.

Disability Rates: See tables on following pages. These assumptions were reviewed in conjunction with an actuarial experience study dated June 15, 2015.

Interest Rate: 7.70% per year, compounded annually, net of all expenses. This is supported by the target asset allocation of the trust and the expected long-term return by asset class.

Salary Increases: See tables on following page. These assumptions were approved in conjunction with an actuarial experience study dated June 15, 2015.

General Wage Inflation: 3.00% per year. This assumption was approved in conjunction with an actuarial experience study dated June 15, 2015.

Inflation: 3.50% per year. This is reasonable based upon long-term historical experience.

Payroll Growth: 3.50% per year for amortization of the Unfunded Actuarial Accrued Liability. This is reasonable based upon long-term historical experience.

Asset Valuation Method: All assets are valued at market value with an adjustment to uniformly spread investment gains and losses (as measured by actual market value investment return against expected market value investment return) over a five-year period.

Marital Status: 100% of actives are assumed to be married at time of benefit commencement. Females are assumed to be 4 years younger than Males. Additionally, 50% are assumed to have dependent children. The age of the youngest child is assumed to be one year.
These assumptions were approved in conjunction with an actuarial experience study dated June 15, 2015.

Funding Method: Entry Age Normal Actuarial Cost Method.

Termination Rates:

Years of Service	Termination Probability
0-4	1.0%
5-13	0.5%
14+	0.0%

Retirement Rates:

Number of Years After First Eligibility for Early Retirement	Probability of Retirement
0	2.0%
1	2.0%
2	2.0%
3	2.0%
4	2.0%
5	5.0%
6	7.5%
7	7.5%
8	10.0%
9	16.7%
10	16.7%
11	16.7%
12	20.0%
13	20.0%
14	30.0%
15	40.0%
16	50.0%
17	75.0%
18	100.0%

Retro-DROP Elections:

Number of Years After First Eligibility for Early Retirement	No-DROP Elected	Duration 1 Election	Duration 2 Election
0	90%	0.5 years (10%)	n/a
1	50%	1 year (50%)	n/a
2	50%	1 year (25%)	2 years (25%)
3	50%	1 year (25%)	2 years (25%)
4	20%	1 year (60%)	3 years (20%)
5	20%	2 years (40%)	4 years (40%)
6	20%	2 years (60%)	5 years (20%)
7	20%	2 years (50%)	5 years (30%)
8	20%	3 years (60%)	6 years (20%)
9	10%	3 years (50%)	6 years (40%)
10	10%	3 years (50%)	6 years (40%)
11	10%	3 years (60%)	6 years (30%)
12	10%	3 years (75%)	6 years (15%)
13	10%	3 years (40%)	6 years (50%)
14	10%	3 years (40%)	6 years (50%)
15	10%	3 years (20%)	6 years (70%)
16	10%	3 years (20%)	6 years (70%)
17	10%	3 years (20%)	6 years (70%)
18	10%	3 years (20%)	6 years (70%)

Disability Rate Table:

Age	Probability of Disablement
20	0.014%
25	0.019%
30	0.031%
35	0.052%
40	0.092%
45	0.209%
50	0.379%
55	0.490%
60	0.911%

% Increase in Salary*:

Years of Service	Increase
0	6.00%
1	8.50%
2	7.50%
3	4.00%
4	1.00%
5	5.00%
10	1.50%
15	1.50%
20	5.50%
21+	1.00%

* Expected increase in salary in addition to general wage inflation assumption.

SCHEDULE OF INVESTMENT RETURNS

Last 10 Years

Fiscal Year Ended	Annual Money-Weighted Rate of Return Net of Investment Expense
12/31/2018	-2.66%
12/31/2017	17.29%
12/31/2016	7.13%
12/31/2015	0.81%
12/31/2014	5.60%
12/31/2013	13.30%

NOTES TO THE FINANCIAL STATEMENTS
(For the Year Ended September 30, 2019)

General Information about the Pension Plan

Plan Description

The Plan is a single-employer defined benefit pension plan administered by the Plan's Board of Trustees comprised of:

a. The Mayor of the municipality,

b. The city treasurer or, if there is no treasurer, the person who by law, charter provision, or ordinance performs the duty of city treasurer,

c. Three Members of the fund to be selected by vote of the firefighters and retirees.

A person who begins service as a firefighter in a municipality to which this Act applies and who is not ineligible for Membership in the fund becomes a member of the fund as a condition of that person's appointment.

Plan Membership as of December 31, 2017:

Inactive Plan Members or Beneficiaries Currently Receiving Benefits	786
Inactive Plan Members Entitled to But Not Yet Receiving Benefits	9
Active Plan Members	1,045
	1,840

Benefits Provided

The Plan provides retirement, disability, termination and death benefits.

Normal Retirement:

Earlier of age 50 and 10 years of Service, or 25 years of Service, regardless of age.

Benefit: 3.30% of Average Monthly Compensation times Service ($1,200 minimum). Effective July 1, 2012, the minimum benefit was increased to $2,000 per month for all retirees and surviving spouses currently receiving normal or disability retirement benefits which commenced prior to January 1, 1994.

Early Retirement:

Earlier of age 45 and 10 years of Service, or 20 years of Service, regardless of age.

Benefit: Same for Normal Retirement as shown above. Members who retire under Early Retirement are not eligible to receive any COLA adjustments until the date they would have met Normal Retirement eligibility requirements.

Vesting:

Schedule: 100% after 10 years of Service.

Benefit Amount: Member will receive his (her) accrued benefit payable at age 50 or the date they would have completed 25 years of Service had they remained employed.

Non-vested members receive a refund of member contributions accumulated with 5.0% interest.

Disability:

Disability preventing the Member from performing the duties of a firefighter during the two and one-half years after becoming disabled or any employment after the two and one-half years after becoming disabled.

Accrued benefit at date of disability, but not les than 66% of Average Monthly Compensation.

Death Benefits:

Surviving Spouse of Member: 75% of Member's accrued benefit at date of death, but not less than 49.5% of Average Monthly Compensation.

Surviving Non-Spousal Beneficiary of Member: 75% of Member’s accrued benefit at date of death, but may be actuarially reduced based on the age difference between the Member and the designated beneficiary.

Dependent Children of Member (with Surviving Spouse): Each child is entitled to 15% of Member's accrued benefit at date of death, but not less than 9.9% of Average Monthly Compensation.

Dependent Children of Member (with no Surviving Spouse): 75% of Member's accrued benefit at date of death, but no less than 49.5% of Average Monthly Compensation, split equally among each dependent child.

Cost of Living Adjustment:

Eligibility: Normal Retirement

Amount: Determined by the actuary if providing a COLA will not impair financial stability of the Fund.

Contributions
Member Contributions: 18.70% of Salary.
City Contributions: 22.05% of payroll.

Net Pension Liability

The measurement date is December 31, 2018.
The measurement period for the pension expense was December 31, 2017 to December 31, 2018.
The reporting period is September 30, 2018 through September 30, 2019.

The Sponsor's Net Pension Liability was measured as of December 31, 2018.
The Total Pension Liability used to calculate the Net Pension Liability was determined as of that date.

Actuarial Assumptions:
The Total Pension Liability was determined by an actuarial valuation as of December 31, 2017 updated to December 31, 2018 using the following actuarial assumptions:

Inflation	2.75%
Salary Increases	1.00% - 6.00%
Discount Rate	7.70%
Investment Rate of Return	7.70%

Mortality Active Lives:
PubS-2010 (Above-median, amount-weighted) employee rates with mortality improvement projected 5 years past the valuation date using Scale MP-2018.
Mortality Retiree and Vested Terminated Lives:
PubS-2010 (Above-median, amount-weighted) healthy retiree rates with mortality improvement projected 5 years past the valuation date using Scale MP-2018.
Mortality Contingent Survivor Lives:
PubS-2010 (Above-median, amount-weighted) contingent survivor rates with mortality improvement projected 5 years past the valuation date using Scale MP-2018.
Mortality Disabled Lives:
PubS-2010 (amount-weighted) disabled retiree rates with mortality improvement projected 5 years past the valuation date using Scale MP-2018.

The most recent actuarial experience study used to review the other significant assumptions was dated June 15, 2015.

The Long-Term Expected Rate of Return on Pension Plan investments can be determined using a building-block method in which best-estimate ranges of expected future real rates of return (expected returns, net of Pension Plan investment expenses and inflation) are developed for each major asset class.
For 2018, the inflation rate assumption of the investment advisor was 2.70%.
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.

Best estimates of arithmetic real rates of return for each major asset class included in the Pension Plan's target asset allocation as of December 31, 2018 are summarized in the following table:

Asset Class	Target Allocation	Long Term Expected Real Rate of Return
Public Domestic Equity	20%	5.3%
Public Foreign Equity	22%	6.9%
Private Equity Fund of Funds	15%	5.6%
Investment Grade Bonds	13%	1.1%
TIPS	5%	0.8%
High Yield/Bank Loans	5%	3.8%
Emerging Market Debt	7%	3.6%
Core Real Estate	5%	3.4%
Non-Core Real Estate	5%	5.0%
Natural Resources	3%	5.9%
Total	100%	

Discount Rate:
The Discount Rate used to measure the Total Pension Liability was 7.70 percent.
The projection of cash flows used to determine the Discount Rate assumed that Plan Member contributions will be made at the current contribution rate and that Sponsor contributions will continue at the currently negotiated rate of 22.05% of payroll each year. Based on those assumptions, the Pension Plan's Fiduciary Net Position was projected to be available to make all projected future benefit payments of current plan members. Therefore, the Long-Term Expected Rate of Return on Pension Plan investments was applied to all periods of projected benefit payments to determine the Total Pension Liability.
For purpose of this valuation, the expected rate of return on pension plan investments is 7.70%; the municipal bond rate is 4.10% (based on the weekly rate closest to but not later than the measurement date of the Bond Buyer 20-Bond Index as published by the Bond Buyer); and the resulting single discount rate is 7.70%.

CHANGES IN NET PENSION LIABILITY

	Increase (Decrease)				
	Total Pension Liability (a)		Plan Fiduciary Net Position (b)		Net Pension Liability (a)-(b)
Reporting Period Ending September 30, 2018	$1,038,800,829	$	953,798,227	$	85,002,602
Changes for a Year:					
Service Cost	25,130,502		-		25,130,502
Interest	80,552,018		-		80,552,018
Differences between Expected and Actual Experience	13,306,782		-		13,306,782
Changes of assumptions	(4,778,539)		-		(4,778,539)
Changes of benefit terms	10,188,417		-		10,188,417
Contributions - Employer	-		20,084,617		(20,084,617)
Contributions - Employee	-		17,033,213		(17,033,213)
Net Investment Income	-		(25,114,064)		25,114,064
Benefit Payments, including Refunds of Employee Contributions	(55,979,294)		(55,979,294)		-
Administrative Expense	-		(704,903)		704,903
Net Changes	68,419,886		(44,680,431)		113,100,317
Reporting Period Ending September 30, 2019	$1,107,220,715	$	909,117,796	$	198,102,919

Sensitivity of the Net Pension Liability to changes in the Discount Rate.

		1% Decrease 6.70%		Current Discount Rate 7.70%		1% Increase 8.70%
Sponsor's Net Pension Liability	$	304,086,801	$	198,102,919	$	108,598,230

Pension Plan Fiduciary Net Position.

Detailed information about the pension Plan's Fiduciary Net Position is available in a separately issued Plan financial report.

FINAL PENSION EXPENSE AND DEFERRED OUTFLOWS OF RESOURCES AND DEFERRED INFLOWS OF RESOURCES RELATED TO PENSIONS

FISCAL YEAR SEPTEMBER 30, 2018

For the year ended September 30, 2018, the Sponsor has recognized a Pension Expense of $32,774,398.
On September 30, 2018, the Sponsor reported Deferred Outflows of Resources and Deferred Inflows of Resources related to pensions from the following sources:

	Deferred Outflows of Resources	Deferred Inflows of Resources
Differences between Expected and Actual Experience	14,902,778	-
Changes of assumptions	2,712,891	-
Net difference between Projected and Actual Earnings on Pension Plan investments	-	35,526,598
Employer contributions subsequent to the measurement date	14,558,110	-
Total	$ 32,173,779	$ 35,526,598

The outcome of the Deferred Outflows of resources related to pensions resulting from Employer contributions subsequent to the measurement date has been recognized as a reduction of the Net Pension Liability in the year ended September 30, 2018.
Other amounts reported as Deferred Outflows of Resources and Deferred Inflows of Resources related to pensions will be recognized in Pension Expense as follows:

Year ended September 30:	
2019	$ 2,284,890
2020	$ (864,450)
2021	$ (11,674,872)
2022	$ (12,567,280)
2023	$ 3,176,221
Thereafter	$ 1,734,562

PRELIMINARY PENSION EXPENSE AND DEFERRED OUTFLOWS OF RESOURCES AND DEFERRED INFLOWS OF RESOURCES RELATED TO PENSIONS

FISCAL YEAR SEPTEMBER 30, 2019

For the year ended September 30, 2019, the Sponsor will recognize a Pension Expense of $49,765,031.
On September 30, 2019, the Sponsor reported Deferred Outflows of Resources and Deferred Inflows of Resources related to pensions from the following sources:

	Deferred Outflows of Resources	Deferred Inflows of Resources
Differences between Expected and Actual Experience	23,912,570	-
Changes of assumptions	2,170,312	4,181,219
Net difference between Projected and Actual Earnings on Pension Plan investments	43,607,311	-
Employer contributions subsequent to the measurement date	TBD	-
Total	TBD	$ 4,181,219

The outcome of the Deferred Outflows of resources related to pensions resulting from Employer contributions subsequent to the measurement date will be recognized as a reduction of the Net Pension Liability in the year ended September 30, 2019.
Other amounts reported as Deferred Outflows of Resources and Deferred Inflows of Resources related to pensions will be recognized in Pension Expense as follows:

Year ended September 30:	
2020	$ 19,762,225
2021	$ 8,951,803
2022	$ 8,059,395
2023	$ 23,802,896
2024	$ 2,800,593
Thereafter	$ 2,132,062

SCHEDULE OF CHANGES IN NET PENSION LIABILITY AND RELATED RATIOS

Last 10 Fiscal Years

Reporting Period Ending	09/30/2019	09/30/2018	09/30/2017
Measurement Date	12/31/2018	12/31/2017	12/31/2016
Total Pension Liability			
Service Cost	25,130,502	23,830,495	24,322,417
Interest	80,552,018	75,812,099	70,892,708
Changes of benefit terms	10,188,417	8,963,689	5,491,908
Differences between Expected and Actual Experience	13,306,782	4,360,239	8,893,371
Changes of assumptions	(4,778,539)	-	-
Benefit Payments, including Refunds of Employee Contributions	(55,979,294)	(51,888,455)	(45,495,681)
Net Change in Total Pension Liability	68,419,886	61,078,067	64,104,723
Total Pension Liability - Beginning	1,038,800,829	977,722,762	913,618,039
Total Pension Liability - Ending (a)	$1,107,220,715	$1,038,800,829	$ 977,722,762
Plan Fiduciary Net Position			
Contributions - Employer	20,084,617	19,242,205	19,103,891
Contributions - Employee	17,033,213	16,318,769	15,884,261
Net Investment Income	(25,114,064)	141,915,000	55,569,165
Benefit Payments, including Refunds of Employee Contributions	(55,979,294)	(51,888,455)	(45,495,681)
Administrative Expense	(704,903)	(1,399,488)	(662,501)
Net Change in Plan Fiduciary Net Position	(44,680,431)	124,188,031	44,399,135
Plan Fiduciary Net Position - Beginning	953,798,227	829,610,196	785,211,061
Plan Fiduciary Net Position - Ending (b)	$ 909,117,796	$ 953,798,227	$ 829,610,196
Net Pension Liability - Ending (a) - (b)	$ 198,102,919	$ 85,002,602	$ 148,112,566
Plan Fiduciary Net Position as a percentage of the Total Pension Liability	82.11%	91.82%	84.85%
Covered Payroll	$ 91,086,698	$ 87,266,236	$ 86,638,961
Net Pension Liability as a percentage of Covered Payroll	217.49%	97.41%	170.95%

Notes to Schedule:

Changes of benefit terms:

For measurement date 12/31/2018, amounts reported as changes of benefit terms resulted from a cost-of-living adjustment. Eligible retirees receive a 2.3% cost-of-living adjustment, effective January 1, 2019.

For measurement date 12/31/2017, amounts reported as changes of benefit terms resulted from a cost-of-living adjustment. Eligible retirees receive a 2.2% cost-of-living adjustment, effective January 1, 2018.

For measurement date 12/31/2016, amounts reported as changes of benefit terms resulted from a cost-of-living adjustment. Eligible retirees receive a 1.5% cost-of-living adjustment, effective January 1, 2017.

Changes of assumptions:

For measurement date 12/31/2018, amounts reported as changes of assumptions resulted from the following changes:

- The assumed mortality rates were updated to reflect the PubS-2010 (above-median, amount-weighted) tables.
- The price inflation assumption was lowered from 3.50% to 2.75% per year.

GASB 68

SCHEDULE OF CHANGES IN NET PENSION LIABILITY AND RELATED RATIOS

Last 10 Fiscal Years

Reporting Period Ending	09/30/2016	09/30/2015	09/30/2014
Measurement Date	12/31/2015	12/31/2014	12/31/2013
Total Pension Liability			
Service Cost	23,309,543	25,318,456	23,497,407
Interest	66,404,730	62,976,839	59,249,151
Changes of benefit terms	-	-	-
Differences between Expected and Actual Experience	7,192,645	-	-
Changes of assumptions	-	4,883,207	-
Benefit Payments, including Refunds of Employee Contributions	(44,756,847)	(37,992,903)	(34,943,917)
Net Change in Total Pension Liability	52,150,071	55,185,599	47,802,641
Total Pension Liability - Beginning	861,467,968	806,282,369	758,479,728
Total Pension Liability - Ending (a)	$ 913,618,039	$ 861,467,968	$ 806,282,369
Plan Fiduciary Net Position			
Contributions - Employer	19,222,329	18,669,944	17,786,494
Contributions - Employee	15,546,979	14,659,946	14,000,514
Net Investment Income	6,328,063	42,005,227	101,289,167
Benefit Payments, including Refunds of Employee Contributions	(44,756,847)	(37,992,903)	(34,943,917)
Administrative Expense	(562,687)	(530,816)	(363,050)
Net Change in Plan Fiduciary Net Position	(4,222,163)	36,811,398	97,769,208
Plan Fiduciary Net Position - Beginning	789,433,224	752,621,826	654,852,618
Plan Fiduciary Net Position - Ending (b)	$ 785,211,061	$ 789,433,224	$ 752,621,826
Net Pension Liability - Ending (a) - (b)	$ 128,406,978	$ 72,034,744	$ 53,660,543
Plan Fiduciary Net Position as a percentage of the Total Pension Liability	85.95%	91.64%	93.34%
Covered Payroll	$ 87,836,040	$ 84,670,948	$ 83,279,101
Net Pension Liability as a percentage of Covered Payroll	146.19%	85.08%	64.43%

Notes to Schedule:

Changes of assumptions:

For measurement date 12/31/2014, amounts reported as changes of assumptions resulted from an actuarial experience study dated June 15, 2015, below a brief overview of the changes:

- A "fresh-start" on the actuarial asset value has been implemented. For all future valuations, the asset valuation method will utilize a new smoothing technique.
- The investment return assumption has been decreased from 7.75% to 7.70% per year compounded annually, net of all expenses.
- The general wage inflation rate has been decreased from 3.5% to 3.0% per year.
- The service-based table attributable to merit and longevity salary increases has been amended.
- The retirement rates have been amended.
- The Retro-DROP election assumptions have been amended.
- The withdrawal rates have been amended.
- The assumed spousal age difference has been amended.

SCHEDULE OF CONTRIBUTIONS

Last 10 Fiscal Years

Fiscal Year Ended	Actuarially Determined Contribution	Contributions in relation to the Actuarially Determined Contributions	Contribution Deficiency (Excess)	Covered Payroll	Contributions as a percentage of Covered Payroll
09/30/2019	N/A	N/A	N/A	TBD by City	22.05%
09/30/2018	N/A	N/A	N/A	TBD by City	22.05%
09/30/2017	N/A	N/A	N/A	TBD by City	22.05%
09/30/2016	N/A	N/A	N/A	TBD by City	22.05%
09/30/2015	N/A	N/A	N/A	TBD by City	22.05%

Notes to Schedule

Methods and assumptions used to determine liabilities:

Mortality Rates - Healthy Lives	RP-2000 (Fully Generational using Scale AA) set back two years for males and females - Sex Distinct. The assumed rates of mortality sufficiently accommodate expected mortality improvements.
Mortality Rates - Disabled Lives	RP2000 Disability Mortality Table.
Retirement Elections:	See tables on following page. These assumptions were approved in conjunction with an actuarial experience study dated June 15, 2015.
Termination Rates:	See tables below. These assumptions were approved in conjunction with an actuarial experience study dated June 15, 2015.
Disability Rates:	See tables on following pages. These assumptions were reviewed in conjunction with an actuarial experience study dated June 15, 2015.
Interest Rate:	7.70% per year, compounded annually, net of all expenses. This is supported by the target asset allocation of the trust and the expected long-term return by asset class.
Salary Increases:	See tables on following page. These assumptions were approved in conjunction with an actuarial experience study dated June 15, 2015.
General Wage Inflation:	3.00% per year. This assumption was approved in conjunction with an actuarial experience study dated June 15, 2015.
Inflation:	3.50% per year. This is reasonable based upon long-term historical experience.
Payroll Growth:	3.50% per year
Asset Valuation Method:	All assets are valued at market value with an adjustment to uniformly spread investment gains and losses (as measured by actual market value investment return against expected market value investment return) over a five-year period.
Marital Status:	100% of actives are assumed to be married at time of benefit commencement. Females are assumed to be 4 years younger than Males. Additionally, 50% are assumed to have dependent children. The age of the youngest child is assumed to be one year. These assumptions were approved in conjunction with an actuarial experience study dated June 15, 2015.
Funding Method:	Entry Age Normal Actuarial Cost Method.

Termination Rates:

Years of Service	Termination Probability
0-4	1.00%
5-13	0.50%
14+	0.00%

Retirement Rates:

Number of Years After First Eligibility for Early Retirement	Probability of Retirement
0	2.00%
1	2.00%
2	2.00%
3	2.00%
4	2.00%
5	5.00%
6	7.50%
7	7.50%
8	10.00%
9	16.70%
10	16.70%
11	16.70%
12	20.00%
13	20.00%
14	30.00%
15	40.00%
16	50.00%
17	75.00%
18	100.00%

Retro-DROP Elections:

Years After First Eligibility for Early	No-DROP Elected	Duration 1 Election	Duration 2 Election
0	90%	0.5 years (10%)	n/a
1	50%	1 year (50%)	n/a
2	50%	1 year (25%)	2 years (25%)
3	50%	1 year (25%)	2 years (25%)
4	20%	1 year (60%)	3 years (20%)
5	20%	2 years (40%)	4 years (40%)
6	20%	2 years (60%)	5 years (20%)
7	20%	2 years (50%)	5 years (30%)
8	20%	3 years (60%)	6 years (20%)
9	10%	3 years (50%)	6 years (40%)
10	10%	3 years (50%)	6 years (40%)
11	10%	3 years (60%)	6 years (30%)
12	10%	3 years (75%)	6 years (15%)
13	10%	3 years (40%)	6 years (50%)
14	10%	3 years (40%)	6 years (50%)
15	10%	3 years (20%)	6 years (70%)
16	10%	3 years (20%)	6 years (70%)
17	10%	3 years (20%)	6 years (70%)
18	10%	3 years (20%)	6 years (70%)

Disability Rate Table:

Age	Probability of Disablement
20	0.014%
25	0.019%
30	0.031%
35	0.052%
40	0.092%
45	0.209%
50	0.379%
55	0.490%
60	0.911%

% Increase in Salary*:

Years of Service	Increase
0	6.00%
1	8.50%
2	7.50%
3	4.00%
4	1.00%
5	5.00%
10	1.50%
15	1.50%
20	5.50%
21+	1.00%

* Expected increase in salary in addition to general wage inflation assumption.

EXPENSE DEVELOPMENT AND AMORTIZATION SCHEDULES

The following information is not required to be disclosed but is provided for informational purposes.

FINAL COMPONENTS OF PENSION EXPENSE
FISCAL YEAR SEPTEMBER 30, 2018

	Net Pension Liability	Deferred Inflows	Deferred Outflows	Pension Expense
Beginning balance	$ 148,112,566	$ -	$ 77,835,932	$ -
Employer Contributions made after 12/31/2017	-	-	14,558,110	-
Total Pension Liability Factors:				
Service Cost	23,830,495	-	-	23,830,495
Interest	75,812,099	-	-	75,812,099
Changes in benefit terms	8,963,689	-	-	8,963,689
Differences between Expected and Actual Experience with regard to economic or demographic assumptions	4,360,239	-	4,360,239	-
Current year amortization of experience difference	-	-	(2,633,645)	2,633,645
Change in assumptions about future economic or demographic factors or other inputs	-	-	-	-
Current year amortization of change in assumptions	-	-	(542,579)	542,579
Benefit Payments, including Refunds of Employee Contributions	(51,888,455)	-	-	-
Net change	61,078,067	-	15,742,125	111,782,507
Plan Fiduciary Net Position:				
Contributions - Employer	19,242,205	-	(19,104,704)	-
Contributions - Employee	16,318,769	-	-	(16,318,769)
Projected Net Investment Income	63,197,497	-	-	(63,197,497)
Difference between projected and actual earnings on Pension Plan investments	78,717,503	78,717,503	-	-
Current year amortization	-	(15,743,499)	(14,852,168)	(891,331)
Benefit Payments, including Refunds of Employee Contributions	(51,888,455)	-	-	-
Administrative Expenses	(1,399,488)	-	-	1,399,488
Net change	124,188,031	62,974,004	(33,956,872)	(79,008,109)
Ending Balance	$ 85,002,602	$ 62,974,004	$ 59,621,185	$ 32,774,398

PRELIMINARY COMPONENTS OF PENSION EXPENSE
FISCAL YEAR SEPTEMBER 30, 2019

	Net Pension Liability	Deferred Inflows	Deferred Outflows	Pension Expense
Beginning balance	$ 85,002,602	$ 62,974,004	$ 59,621,185	$ -
Employer Contributions made after 12/31/2018	-	-	TBD*	-
Total Pension Liability Factors:				
Service Cost	25,130,502	-	-	25,130,502
Interest	80,552,018	-	-	80,552,018
Changes in benefit terms	10,188,417	-	-	10,188,417
Differences between Expected and Actual Experience with regard to economic or demographic assumptions	13,306,782	-	13,306,782	-
Current year amortization of experience difference	-	-	(4,296,990)	4,296,990
Change in assumptions about future economic or demographic factors or other inputs	(4,778,539)	4,778,539	-	-
Current year amortization of change in assumptions	-	(597,320)	(542,579)	(54,741)
Benefit Payments, including Refunds of Employee Contributions	(55,979,294)	-	-	-
Net change	68,419,886	4,181,219	8,467,213	120,113,186
Plan Fiduciary Net Position:				
Contributions - Employer	20,084,617	-	(14,558,110)	-
Contributions - Employee	17,033,213	-	-	(17,033,213)
Projected Net Investment Income	72,689,158	-	-	(72,689,158)
Difference between projected and actual earnings on Pension Plan investments	(97,803,222)	-	97,803,222	-
Current year amortization	-	(15,743,501)	(34,412,814)	18,669,313
Benefit Payments, including Refunds of Employee Contributions	(55,979,294)	-	-	-
Administrative Expenses	(704,903)	-	-	704,903
Net change	(44,680,431)	(15,743,501)	48,832,298	(70,348,155)
Ending Balance	$ 198,102,919	$ 51,411,722	TBD	$ 49,765,031

* Employer Contributions subsequent to the measurement date made after December 31, 2018 but made on or before September 30, 2019 need to be added.

GASB 68

AMORTIZATION SCHEDULE - INVESTMENT

Plan Year Ending	Differences Between Projected and Actual Earnings	Recognition Period (Years)	Increase (Decrease) in Pension Expense Arising from the Recognition of the of Differences Between Projected and Actual Earnings on Pension Plan Investments									
			2018	2019	2020	2021	2022	2023	2024	2025	2026	2027
2014	$ 15,746,691	5	$ 3,149,338	$ 3,149,338	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2015	$ 54,052,112	5	$ 10,810,422	$ 10,810,422	$ 10,810,422	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2016	$ 4,462,041	5	$ 892,408	$ 892,408	$ 892,408	$ 892,408	$ -	$ -	$ -	$ -	$ -	$ -
2017	$ (78,717,503)	5	$ (15,743,499)	$ (15,743,501)	$ (15,743,501)	$ (15,743,501)	$ (15,743,501)	$ -	$ -	$ -	$ -	$ -
2018	$ 97,803,222	5	$ -	$ 19,560,646	$ 19,560,644	$ 19,560,644	$ 19,560,644	$ 19,560,644	$ -	$ -	$ -	$ -
Net Increase (Decrease) in Pension Expense			$ (891,331)	$ 18,669,313	$ 15,519,973	$ 4,709,551	$ 3,817,143	$ 19,560,644	$ -	$ -	$ -	$ -

GASB 68

AMORTIZATION SCHEDULE - CHANGES OF ASSUMPTIONS

Increase (Decrease) in Pension Expense Arising from the Recognition of the Effects of Changes of Assumptions

Plan Year Ending	Changes of Assumptions	Recognition Period (Years)	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027
2014	$ 4,883,207	9	$ 542,579	$ 542,579	$ 542,578	$ 542,578	$ 542,578	$ 542,578	$ -	$ -	$ -	$ -
2018	$ (4,778,539)	8	$ -	$ (597,320)	$ (597,317)	$ (597,317)	$ (597,317)	$ (597,317)	$ (597,317)	$ (597,317)	$ (597,317)	$ -
Net Increase (Decrease) in Pension Expense			$ 542,579	$ (54,741)	$ (54,739)	$ (54,739)	$ (54,739)	$ (54,739)	$ (597,317)	$ (597,317)	$ (597,317)	$ -

AMORTIZATION SCHEDULE - EXPERIENCE

Plan Year Ending	Differences Between Expected and Actual Experience	Recognition Period (Years)	Increase (Decrease) in Pension Expense Arising from the Recognition of the Effects of Differences between Expected and Actual Experience								
			2018	2019	2020	2021	2022	2023	2024	2025	2026
2015	$ 7,192,645	8	$ 899,080	$ 899,081	$ 899,081	$ 899,081	$ 899,081	$ 899,081	$ -	$ -	$ -
2016	$ 8,893,371	8	$ 1,111,672	$ 1,111,672	$ 1,111,671	$ 1,111,671	$ 1,111,671	$ 1,111,671	$ 1,111,671	$ -	$ -
2017	$ 4,360,239	7	$ 622,893	$ 622,891	$ 622,891	$ 622,891	$ 622,891	$ 622,891	$ 622,891	$ -	$ -
2018	$ 13,306,782	8	$ -	$ 1,663,346	$ 1,663,348	$ 1,663,348	$ 1,663,348	$ 1,663,348	$ 1,663,348	$ 1,663,348	$ 1,663,348
Net Increase (Decrease) in Pension Expense			$ 2,633,645	$ 4,296,990	$ 4,296,991	$ 4,296,991	$ 4,296,991	$ 4,296,991	$ 3,397,910	$ 1,663,348	$ 1,663,348

PENSION PLAN GUIDE

GOVERNING PENSION LAW

In 1937 an Act of the 45th Texas State Legislature founded a statewide network for firefighter pension plans under Article 6243e, Vernon's Texas Civil Statutes. The Austin firefighters joined this group in 1942 which officially established the Austin Fire Fighters Relief and Retirement Fund. In 1975 a pension bill was passed during the 64th Texas State Legislature which created the current governing statute that pertains only to the Austin firefighters' pension plan under Article 6243e.1, Vernon's Texas Civil Statutes. The pension plan currently provides retirement, disability, death, and survivor benefits to over 1,800 active and retired participants and their beneficiaries.

ADMINISTRATION

The fund is administered by a Board of Trustees consisting of five (5) members. Per the pension plan's governing statute, the Mayor serves as the pension board Chairman and the City Treasurer serves as the Treasurer of the Board. Members of the fund, both active and retired, elect three (3) fellow members to serve on the Board. The Board elects a Vice-Chairman annually from among their number.

An administrative pension office and staff have been established to better serve the firefighters, retirees, and their beneficiaries. Administrative costs and expenses for professional services rendered are paid by the fund.

INVESTMENT OF FUNDS

The Board is required by law to keep separate from all other city funds all money for the use and benefit of the Firefighters Relief and Retirement Fund. The purpose of the fund is to accumulate adequate financial reserves to provide for the retirement benefits set forth in the plan's governing statute.

The fund hired an investment consultant to advise and assist the Board in setting the fund's investment policy and guidelines. The investment consultant is instrumental in the selection of the fund's investment managers.

The fund's holdings include a variety of investments to achieve its performance objective over the long term. The fund's holdings include domestic, international and emerging market equities, fixed income and private equity as well.

The fund has an investment custody account agreement with State Street designating their bank as the master trust custodian for the fund. State Street's home office is in Boston, Massachusetts and has branch offices in Kansas City, Missouri and Jacksonville, Florida which provide various services to our fund.

ELIGIBILITY

All commissioned civil service and Texas state-certified firefighters with at least six (6) months of service who are employed by the fire department pursuant to the Firemen's and Policemen's Civil Service Statute.

CONTRIBUTIONS

The Austin firefighters contribute 18.70% of their salary (compensation) into their pension fund. The City of Austin contributes 22.05% of the firefighters' salary on behalf of the firefighters. According to the firefighters' governing statute and for purposes of this section, compensation means a firefighter's salary including base pay and longevity. It excludes overtime pay, any temporary pay while in higher classifications, bilingual pay, educational incentive pay, assignment pay, Christmas Day bonus pay, and pay for automobile and clothing allowance if applicable.

SERVICE CONSIDERED

The time served in the fire department for which a member is required to make and does make prescribed pension contributions. Military service, only which interrupts fire department service, may also be considered under certain circumstances.

COMPENSATION CONSIDERED IN DETERMINING AVERAGE SALARY

The Austin firefighters and the City of Austin contribute a percentage of the firefighters' salary (compensation) which includes base pay and longevity pay. Overtime, any temporary pay in a higher classification, bilingual pay, educational incentive pay, and lump sum payments for accrued sick leave or vacation are not considered. Also excluded is any assignment pay, Christmas Day bonus pay, and any pay for automobile and clothing allowance, if applicable.

NORMAL RETIREMENT BENEFIT

A firefighter is eligible for a standard Normal Retirement Benefit (Joint and Survivor 75% Annuity) once they either attain age fifty (50) or accrue twenty-five (25) years of service, regardless of age. The monthly annuity, payable for life, is 3.30% of the highest three years' average salary (compensation) multiplied by years of service considered. Average salary is the monthly average of the firefighter's salary (compensation) for the highest thirty-six (36) months of service, excluding overtime pay, any temporary pay in higher classifications, bilingual pay, educational incentive pay, Christmas Day bonus pay, and any automobile and clothing allowances, if applicable.

SINGLE LIFE ANNUITY

Instead of the standard Normal Retirement Benefit a firefighter upon retirement may elect to choose a life annuity with no survivor benefits, or (Single Life Annuity). A Single Life Annuity will provide the retiree a monthly pension (annuity) benefit that is *payable only during the retiree's lifetime.* Since the Single Life Annuity does not provide for any spousal or survivor benefits, the amount of the monthly annuity under the Single Life Annuity form of benefit will be greater than the standard Normal Retirement Benefit. The Single Life Annuity will be actuarially calculated; individually based on the retiree's age. By electing the Single Life Annuity, the retiree is waiving their right to any survivor benefits available under the standard Normal Retirement Benefit. A married retiree must obtain their spouse's consent to elect a Single Life Annuity. No change is allowed once this option has been selected.

EARLY RETIREMENT BENEFIT

A firefighter is eligible for an Early Retirement Benefit at age forty-five (45), with at least (10) years of service, or twenty (20) years of service regardless of age. The early retirement benefit does not include a reduction in the factor. However, firefighters who retire early or who participate in a deferred retirement option plan (DROP), do not become eligible for cost-of-living adjustments (COLA's) until reaching what would have been normal service retirement eligibility (age fifty (50) with at least ten (10) years of service, or twenty-five (25) years of service credit regardless of age; whichever occurs first.)

DEFERRED RETIREMENT OPTION PLAN

Under this program a member eligible for service retirement may elect to continue in active service as a firefighter but have the fund begin crediting "payments" to a deferred retirement option plan (DROP) account in the member's name as of their eligible retirement (DROP) date. The monthly "payments" would be an amount equal to what the member's monthly annuity would have been if the member had retired as of that eligible DROP date. Any eligible cost-of-living adjustments (COLAS) would be applied to the monthly annuity during this DROP period. In addition, during the DROP period, the member would have all their appropriate pension contributions and applicable annual interest of 5% compounded monthly credited to their account during the DROP period as well. When the member retires, by terminating their active service in the fire department, an accumulated lump sum balance may be available to be distributed (all or part) to the member from the DROP account if the retiree is eligible for such direct distribution by meeting age requirements according to pension Board policy. Certain penalties could apply for "early distributions," so the pension Board encourages seeking tax advisement when in doubt. A second option is that the DROP account lump sum (all or part) may be "rolled over" into a qualified Individual Retirement Account (IRA). A third option is for the DROP account lump sum (all or part) to remain in the fund in the member's name continuing to draw 5% interest compounded monthly until the retiree is ready to have the funds moved elsewhere. At the time of termination for retirement, the member will then begin receiving their ongoing monthly pension benefit payments from the fund as well.

A member who has remained in active service after becoming eligible for service retirement can retroactively establish such a DROP account. That is, in lieu of electing to participate in the DROP before actual retirement, a member who is eligible for normal service retirement may elect to terminate active service as a firefighter and establish the DROP account at termination. This is commonly referred to as a "RETRO or BACK DROP," whereby the firefighter's DROP account reflects the accrual from theactual termination date back to a date on or after the date which they becomeeligible for normal service retirement. The maximum period under which a firefighter can participate in a DROP is 7 years. A firefighter may elect to establish a DROP account after reaching normal or early service retirement eligibility.

Currently there are a total of8 draws allowed while the retiree's DROP account balance remains in the pension plan. The number ofdraws can be set by pension board policy as determined feasible. Thedraws can either be in the form of a distribution to the retiree(provided the retiree reached agefifty (50) before retiring), or a rollover into a qualified IRA. The entire DROP balance must be withdrawn from the fund by April 1 ofthe calendar year following the year the retiree reaches age 70 ½. This can simply be done by rolling the funds over into an IRA which would not be a taxable event. Any firefighter eligible for a DROP whodies before retirement, andwho is survived by a spouse, shall have such DROP options extended to their surviving spouse.

DISABILITY BENEFIT

A firefighter is eligible for a disability retirement benefit during the first thirty (30) months oftheir disability ifthey are unable to perform their duties as a firefighter. After this initial thirty (30) month period, a disability retirement benefit may be continued, reduced, or discontinued according to criteria as established by the American Medical Association and as adopted by the pension Board. The annuity is equal to the firefighter's accrued unreduced pension based on the greater of(1) their years ofservice at time ofdisability, or (2) twenty (20) years ofservice.

It is the policy ofthe Board that no disability retirement benefit shall commence retroactively more than ninety (90) days prior to the date on which the application is filed with the fund.

DEATH BENEFIT

If a firefighter dies either before or after retirement: Surviving Beneficiary benefit is equal to a percentage ofi the benefiit that you were receiving befiore your death. Your surviving spouse or dependent child will receive 75% of the benefiit you were receiving befiore your death regardless of their age. For a designated benefiiciary the survivor benefiit will typically be 75% of the benefiit that you were receiving upon your death, but may be actuarially reduced based on the difiference in age between you and your designated benefiiciary.

Dependent Children of Member (with Surviving Spouse): Each child is entitled to 15% of Member's accrued benefiit at date of death, but not less than 9.9% of Average Monthly Compensation.

Dependent Children of Member (with no Surviving Spouse): 75% of Member's accrued benef it at date ofi death, but no less than 49.5% of Average Monthly Compensation, split equally among each dependent child.

If the member's employment is terminated by death before retirement and they leave no surviving beneficiary entitled to pension benefits, then the member's estate shall receive their contributions with interest. Any lump sum payments to the member's estate will include 5% interest based on a method of application approved by the Board.

VESTED BENEFIT

If the member has at least ten (10) years ofservice and has terminated their employment with the fire department before reaching early or normal retirement eligibility with the pension plan, the member may elect to leave their accumulated deposits (pension contributions and interest) in the fund to be eligible for a future pension benefit. The member will then be entitled to receive a vested pension benefit upon reaching what wouldhavebeen normal retirement eligibility (age fifty (50) with at least ten (10) years ofservice, or twenty-five (25) years ofservice regardless of age, whichever occurs first.

SEVERANCE

The severance benefit ofa firefighter who subsequently terminates their employment before being eligible for retirement shall be an amount equal to the total of their pension contributions, with interest, which were made while a participating member ofthe fund. Severance benefits for such terminating members will include their pension contributions along with 5% interest and will be based on a method ofapplication approved by the Board.

COST-OF-LIVING ADJUSTMENTS

Eligible pension recipients are entitled to annual cost-of-living adjustments (COLA's) when deemed affordable. COLA's are to be based on the annual percentage increase in the Consumer Price Index (CPI-U) which measures inflation.

COST-OF-LIVING ADJUSTMENTS (Continued)

COLA's are approved only when the fund's actuary has advised the Board that the adjustment would not impair the financial stability of the fund. To offset the effects of inflation on the retirees' pension benefits, providing COLA's, when affordable, remains a top priority of the Board.

BEFORE-TAX CONTRIBUTIONS

Funds available to pay benefits come from three (3) sources....

- Your contributions
- City of Austin contributions, and
- Investment earnings

Firefighters contribute 18.70% of their salary (compensation) into the pension fund. The City of Austin contributes 22.05% of salary (compensation) for each plan participant. For example, if your annual pay is $50,000.00, you will contribute $9,350.00 (18.70%) a year and the City of Austin will contribute $11,025.00 (22.05%). Since January 1, 1986, all firefighter contributions into the plan are being made before taxes are figured. This reduces your taxable income, so you pay less federal income tax and your take-home pay is greater. An example follows:

	BEFORE TAX	AFTER TAX
Assume your pay is	$50,000.00	$50,000.00
Pre-Tax Contributions	-9,350.00	-0.00
Federal Taxes (Assume 15% taxes)	-6,097.50	-7,500.00
	$34,552.50	$42,500.00
After-Tax Contributions	- .00	-9,350.00
Take Home Pay	$34,552.50	$33,150.00

RETIREMENT BENEFIT EXAMPLE

Your retirement benefit is based upon three (3) components...

- Years of credited service in plan, multiplied by
- Retirement factor of 3.30%, multiplied by
- Your highest thirty-six (36) months average salary as of date of retirement

Assume you are a retiring firefighter who is fifty-five (55) years old with twenty-seven (27) years of credited service, and whose highest thirty-six (36) months average salary is $5,000.00. Your pension would be calculated as follows:

- Years	27
- Factor	3.30%
- Salary	$5,000.00
- Monthly Benefit	$4,455.00

EARLY RETIREMENT BENEFIT EXAMPLE

A firefighter is eligible for an early retirement benefit at age forty-five (45), with at least ten (10) years of service, or twenty (20) years of credited service regardless of age. The early retirement benefit does not include a reduction in the factor. However, firefighters who retire early or who participate in a deferred retirement option plan (DROP) do not become eligible for cost-of-living adjustments (COLA's) until reaching normal service retirement eligibility (age fifty (50) with at least (10) years of service, or twenty-five (25) years of service regardless of age; whichever occurs first).

EARLY RETIREMENT BENEFIT EXAMPLE (Continued)

Assume you joined the fire department and pension plan at age twenty-five (25). At age forty-five (45), with twenty (20) years of service, you elect to terminate service to begin receiving an early retirement benefit. Also assume your highest thirty-six (36) months average salary is $5,000.00. The benefit is then calculated as follows:

- Years	20
- Factor	3.30%
- Salary	$5,000.00
- Monthly Retirement Benefit	$3,300.00

DISABILITY RETIREMENT EXAMPLE

If a firefighter is eligible for disability benefits but has less than twenty (20) years of credited service, then twenty (20) years is used in the calculation. A disability benefit is calculated the same way a regular retirement benefit is, using the same three (3) components as follows:

- Years (assume 20 if less)	20
- Factor	3.30%
- Salary (assumed)	$4,000.00
- Monthly Disability	$2,640.00

SURVIVORS BENEFIT

Benefits are available to eligible dependents of all plan participants should such participant die before or after retirement. Eligible dependents include...

- Spouse, if married to you at time of retirement.
- Spouse, if married to you after retirement and you remained married for at least 24 consecutivemonths prior to your death.
- Spouse, if married to you at time of your death; and you die before retirement.
- All unmarried children under age twenty-two (22), unless the Board determines to the contrary.
- Dependent parent, if no surviving spouse or children are eligible.
- Designated surviving beneficiaries other than a spouse, child, or dependent parent as explained below.

Spousal benefits are paid for life even after remarriage. Spousal benefits eligibility will apply to those who become married to the retiree after such retiree's retirement and remain married to such retiree at least 24 consecutive months prior to the retiree's death. After all payments cease, any remaining balance of the member's total contributions including interest at the date of the member's death, which exceeds any retirement and death benefits paid, shall go to the member's estate.

Active members who are married and/or have dependent children may not designate anyone other than their spouse and/or dependent children for survivor benefits. Active members, who are unmarried with no dependent children, may designate or change beneficiaries under Section 7.09 of the statute as often as they wish. The amount of the survivor benefit for the designated beneficiary is based on the age difference between the retiree and such designated beneficiary.

Single retirees can name anyone but age matters. After retirement if still single can make change 2 times with a cost.

If this same firefighter chooses to marry they can make changes as many times as they choose to marry but will have to wait for coverage for 24 months. But most importantly it will NOT cost the firefighter.

SURVIVORS BENEFIT EXAMPLE (Designated)

Assume you are retired drawing $4,455.00 per month and pass away, leaving a designated beneficiary who is eligible for benefits and have no children. Your beneficiary will receive the following percent of your benefit as follows: -

Your monthly benefit:	$4,455.00	Your monthly benefit:	$4,455.00
Less than 10 years age difference:	75%	Difference of 15-19 years:	40%
Your beneficiary's monthly benefit	$3,341.25	Your beneficiary's monthly benefit:	$1782.00

* May NOT designate a beneficiary if married

**Percentages can be located on *APPENDIX B of the Austin Firefighters Relief and Retirement Fund Rules as amended on August 20, 2017.*

SURVIVORS BENEFIT EXAMPLE (Spouse)

Assume you are retired drawing $4,455.00 per month and pass away, leaving a spouse who is eligible for benefits and have no children. Your spouse will receive seventy-five (75) percent of your benefit as follows:

- Your monthly benefit	$4,455.00
	75.00%
- Your spouse's monthly benefit	$3,341.25

SURVIVORS BENEFIT EXAMPLE (Spouse and Child)

Assume you pass away before retirement and you are survived by an eligible spouse and child. Suppose your average salary for the highest thirty-six (36) months averaged $5,000.00, and you had eight (8) years of service at the time of death.

You first calculate the benefit you would have been entitled to at the date of death and then determine the appropriate amount to be paid to your spouse and child.

Your benefit would have been...

	- Years (assume 20 if less)	20
Your spouse's benefit is...	- Factor	3.30%
	- Salary	$5,000.00
	- Monthly benefit	$3,300.00
	- Firefighter base benefit	$3,300.00
	- Factor	75.00%
	- Spousal monthly benefit	$2,475.00
	- Years (assume 20 if less)	20
Your child's benefit is...	- Child's benefit factor	.495%
	- Average salary	$5,000.00
	- Child's monthly benefit	$495.00

In 1994 the minimum monthly pension was increased from $1,000 to $1,200 for all eligible retirees and spouses. In 2012 the minimum monthly pension was increased to $2,000.00 for those that were on the rolls in 1994 when the last adjustment was approved. This minimum benefit applied only to those eligible per above and does not necessarily apply to benefits paid according to court orders, divorce decrees, qualified domestic relations orders, and for disability and early or vested terminated annuitants, in some instances.

The retirement factor for the child is actuarially designed to be fifteen (15) percent of the regular retirement factor (3.30%), which is .495 percent. The child receives .495 percent (.00495) of the fire fighter's average salary, multiplied by the number of years of service, assuming twenty (20) years if less. The eligible children, collectively, will be entitled to a total amount of seventy-five (75) percent of the fire fighter's accrued benefit at the time of death, if there is no surviving spouse.

PERSONNEL RECORDS

A personnel record (Form 500) is to be completed by all active firefighters. This information furnishes the pension office necessary data regarding age, years of service, beneficiaries, birth dates, social security numbers and marital status. There are other forms available for designating and changing beneficiaries for both active and retired firefighters for various purposes. You can visit our website at AFRS.ORG for all the forms available at the pension office.

RETIREMENT PROCESS

When a firefighter is ready to retire, there are forms available at the pension office to be completed. There will probably be other information to be furnished to the AFD administrative office as well. Upon retirement, the firefighter will receive a monthly annuity. Deductions can be made for withholding tax, as well as any health, dental, and vision insurance available through the City of Austin which the firefighter chooses. Direct deposit is also available. Please contact the pension office with any questions you have regarding your retirement. You can visit our web site at AFRS.ORG for more information about your retirement.

FUND HISTORY

An Act of the 45th Legislature of the State of Texas in 1937 created a statewide network for firefighter pension plans under Article 6243e Vernon's Texas Civil Statutes. This network covered approximately 38 paid and part paid fire departments around the state (known today as TLFFRA or the Texas Local Fire Fighters Retirement Act). The Austin firefighters joined this group in 1942 which officially established the Austin Fire Fighters Relief and Retirement Fund. Through the years, when benefit or eligibility requirement changes were being considered for the Austin firefighters, it was difficult to legislatively revise wording which would not disrupt the other pension funds operating under the same statute. In 1975 the Austin firefighters pension board of trustees went to the State Legislature and passed a pension bill, creating Article 6243e.1, which would pertain only to the Austin Fire Fighters Relief and Retirement Fund. The Austin firefighters pension plan currently provides retirement, disability, death, and survivor benefits to approximately 1,800 active and retired participants and their eligible beneficiaries.

In 1984 an actuarial study was conducted to adjust all the current retirees' benefits based upon the effect of inflation from their original date of retirement. There were some annuitants on the rolls that retired at the original monthly pension of $100. Although these retirees had received cost-of-living increases through the years, they were still losing ground to inflation. After the actuarial changes were made, if a retiree's adjusted monthly benefit was less than $500, then a minimum monthly pension of $500 was implemented. This was approved by the pension board in December 1984 and went into effect March 31, 1985. Since 1985, while they are not automatic, pre-approved, or guaranteed; a full inflation cost-of-living adjustment (COLA) has been approved for all eligible retirees and beneficiaries most of those years. COLA affordability, as determined by the Fund' actuary, is reviewed annually on an ad-hoc basis based on the prior year's inflation. Mitigating the erosion of our retirees' pension benefits due to inflation remains a top priority of the pension board of trustees.

CHRONOLOGY OF PENSION PLAN CHANGES

Significant plan changes and benefit enhancements since 1975 are as follows:

1975

A 2.0% COLA approved.

The retirement calculations changed from using the highest 5 years' average salary to using the highest 3 years' average salary.

The minimum monthly disability benefit changed from $100 to $200.

State statute Article 6243e.1 is created pertaining only to the Austin Firefighters Pension Fund, allowing the plan to branch away from the former statewide system.

1976

A 2.0% COLA approved.

1977

A 2.0% COLA approved.

1978

A 2.0% COLA approved.

The retirement multiplier increased from 2.0% to 2.1%

1979

A 2.0% COLA approved.

The minimum monthly spousal benefit increased from $100 to $200.

The minimum children's benefit increased from $50 to $100.

1980

A 2.0% COLA approved.

CHRONOLOGY OF PENSION PLAN CHANGES

1981

A 2.0% COLA approved.

1982

A 2.0% COLA approved.

The retirement multiplier increased from 2.1% to 2.2%.

1983

A 2.0% COLA approved.

1984

A 2.0% COLA approved.

The retirement multiplier increased from 2.2% to 2.3%.

An actuarial study is conducted to adjust all then current retirees' benefits upward to offset the erosion of their benefits to inflation from their date of original retirement.

1985

A 4.0% COLA approved.

Early retirement eligibility set at age 50 and 25 years of service. (Normal retirement eligibility remained at age 55 or 35 years of service, regardless of age, which had been in effect for many years.)

Contribution rate by city increased from 14.0% to 14.05%.

The retirement multiplier increased from 2.3% to 2.5%

Employee contributions treated as employer contributions (pre-taxed) for federal income tax purposes. Contributions are paid pre-taxed creating more take home pay.

A special increase for all current retirees to "catch their benefits up" with inflation from the time of their original retirement. If the resulting monthly benefit was less than $500, then a $500 minimum monthly benefit was approved where applicable.

1986

A 3.0% COLA approved.

1987

A 1.5% COLA approved.

The retirement multiplier increased from 2.50% to 2.65%.

Normal retirement eligibility lowered from age 55 or 35 years of service, regardless of age to age 55 or 30 years of service, regardless of age.

1988

A 4.0% COLA approved.

The retirement multiplier increased from 2.65% to 2.90%.

1989

A 4.25% COLA approved.

The workers' compensation offset for disability benefits was eliminated.

CHRONOLOGY OF PENSION PLAN CHANGES

Actuarially, an assumption adopted that 12% of firefighters were assumed to be single at retirement.

1990

A 4.50% COLA approved.

1991

A 6.30% COLA approved.

The minimum monthly pension benefit increased from $500 to $850.

Normal retirement eligibility reduced from age 55 or 30 years of service, regardless of age to age 53 or 28 years of service, regardless of age.

Surviving children eligible for full spousal benefits in the event there is no surviving spouse.

Actuarially, across the board salary increases assumption was decreased from 6.50% to 5.50% annually.

1992

A 2.90% COLA approved.

The minimum monthly pension benefit increased from $850 to $1000.

Actuarially, a 5% anticipated COLA is extended through 1996.

1993

A 3.20% COLA is approved.

Normal retirement eligibility lowered from age 53 or 28 years of service, regardless of age to age 52 or 27 years of service, regardless of age.

Early retirement eligibility lowered from age 50 with 25 years of service to age 50 or 25 years of service, regardless of age.

The survivor (spousal) benefit is changed to a flat 75% of retiree's benefit.

Contribution refunds are paid with 5% interest.

Actuarially, growth in payroll no longer assumes 1% growth in membership annually.

Actuarially, a 5% anticipated COLA is extended through 1998.

1994

A 2.80% COLA is approved.

The minimum monthly pension benefit for eligible retirees and beneficiaries is increased from $1,000 to $1,200.

City of Austin contributions increased from 14.05% to 16.05% of pay, while the contribution rate by the firefighters remains at 13.70%.

1995

A 2.60% COLA is approved.

CHRONOLOGY OF PENSION PLAN CHANGES

Normal retirement eligibility reduced from age 52 to 50 (with at least 10 years of service) or with 25 years of service, regardless of age, down from 27 years of service.

Early retirement eligibility reduced from age 50 to age 48 (with at least 10 years of service) or with 23 years of service regardless of age, down from 25 years of service.

The retirement multiplier was increased from 2.90% to 3.0%.

A deferred retirement option plan (DROP) feature was added allowing up to 2 years of service designated for DROP participation.

City of Austin contributions increased from 16.05% to 18.05% of pay, while the contribution rate by the firefighters remains at 13.70%.

Actuarially, a 5% anticipated COLA is extended through 2002.

1996

A 2.90% COLA is approved.

1997

A 3.0% COLA is approved.

Early retirement eligibility (unreduced by the retirement multiplier) lowered from age 48 to age 45 (with at least 10 years of service), or with 20 years of service regardless of age, down from 23 years of service.

COLAs delayed until normal retirement eligibility is met.

The deferred retirement option plan (DROP) feature is extended from a maximum of 2 years to a maximum of 5 years of service designated for DROP participation.

Benefits made available to surviving spouses of retirees married after retirement.

Eliminate the requirement that a spouse's benefit terminate after remarriage.

Firefighter contributions "bought down" by 2% to 11.70%, while the city contributions increase to 20.05% due to the "meet and confer" agreement. (Firefighters continue to get credit for 13.70% per statute requirements.)

Actuarially, a 5% anticipated COLA is extended through 2004.

1998

A 2.10% COLA is approved.

Actuarially, the retirement incident rate revised to 100% of the members to retire and elect a 5 year DROP one year following the age first eligible for a 5 year DROP.

1999

A 1.50% COLA is approved.

A 3.33% benefit increase is approved September 1, 1999 to all then current retirees at the time based on the percentage increase of the retirement multiplier from 3.0% to 3.10%.

The retirement multiplier increased from 3.0% to 3.10%, effective September 1, 1999.
All DROP calculations including "BACKDROPS" will use a 3.10% multiplier after September 1, 1999, regardless of the DROP date.

The deferred retirement option plan (DROP) benefits made available to eligible survivors of members who die before retirement but after becoming eligible for a DROP.

In November 1999, a new "meet and confer" agreement is set whereby firefighters are to receive a 3% salary increase in November 1999 and every six months going forward, beginning in March of 2000 through March 2002.

After 2004, annual COLAs of 0.5% are provided for retirees and beneficiaries going forward (should inflation be at least 0.5%). This does not limit the COLA to 0.5%, but sets the funding in advance. If the needed adjustment exceeds 0.5%, the Board and actuary must approve the portion above 0.5% based on the current financial status of the fund.

Actuarially, mortality tables for actives and non-disabled annuitants were updated to the 1994 Group Annuity Mortality tables, reflecting current industry standards.

Actuarially, a 3.50% anticipated COLA is approved through 2004 (lowered from a 5% anticipated COLA previously assumed, recognizing recent inflation trends.)

2000

A 2.60% COLA approved.

2001

A 3.40% COLA approved.A 6.45% benefit increase is approved September 1, 2001 to all then current retirees at the time based on the percentage increase of the

retirement multiplier from 3.10% to 3.30%.

The retirement multiplier increased from 3.10% to 3.30%.

All DROP calculations including "BACKDROPS" will use a 3.30% multiplier after September 1, 2001, regardless of the DROP date.

Effective September 1, 2001, the deferred retirement option plan (DROP) feature is extended from a maximum of 5 years to a maximum of 7 years of service designated for DROP participation.

A survivor benefit is made available for all unmarried retirees, and for unmarried firefighters who die after becoming eligible to retire, per statute provisions. The percentage will be an actuarial equivalent of 75% of the firefighter's accrued benefit and will be tied to the age difference of the firefighter and the designated beneficiary.

2002

A 2.1% COLA approved.

2003

Effective June 1, 2003 the contribution rate by the firefighters increased from 13.70% to 15.70% of pay, while the contribution rate by the City of Austin remains at 18.05%.

2004

No changes

2005

$32.00 per month increase in benefits for all eligible retirees

CHRONOLOGY OF PENSION PLAN CHANGES

2006

$100.00 per month increase in benefits for all eligible retirees

2007

No changes

2008

No changes

2009

No changes

2010

As a result of an agreement between the firefighters and the City of Austin, the City's pension contributions will increase from 18.05% to 22.05% in a total of four 1% increments by the year 2013. The firefighters' pension contributions will also increase from 15.70% to 18.70% in a total of six ½% increments by the year 2016.

2011

No changes

2012

No changes

The minimum monthly pension is increased to $2,000 for all current annuitants who were on the rolls in 1994 when the last adjustment of this type was made.

2013

$93.00 per month increase in benefits for all eligible retirees.

2014

$64.00 per month increase in benefits for all eligible retirees.

2015

A 1.3% COLA approved

2016

No COLA approved since the prior year had no inflation based on the CPI-U (all items) index
New fund rules (Section VI of Fund Rules as posted on website) were adopted for both active and retired firefighters regarding survivor and beneficiary designations. New optional forms of benefits (Section X of Fund Rules as posted on website) were adopted which now include the Single Life Annuity (SLA) option.

For the purpose of calculating the Death Benefits for a designated surviving beneficiary please see **APPENDIX B** of the Austin Firefighters Relief and Retirement Fund Rules as *amended on September 20, 2016.*

**For a designated beneficiary, the survivor benefit will typically be 75% of the benefit that you were receiving upon your death, but may be actuarially reduced based on the difference in age between you and your designated beneficiary.*

2016 (continued)

VI. Beneficiary Designations (as amended, September 20, 2016)

1. Background. Section 7.09 of the Act provides that a retiree or member eligible to retire may designate a beneficiary for a survivor benefit on a form provided by the Fund if the Act does not otherwise provide a benefit payable to a spouse or child of the member or retiree upon his or her death. Pursuant to Section 2.11 of the Act, the Board may adopt rules it considers necessary or desirable for the efficient administration of the Fund. In addition, Section 7.09 of the Act provides that the Board may adopt rules to establish procedures for and requirements governing beneficiary designations. Through this Section VI, the Board adopts rules and procedures for designating beneficiaries under Section 7.09 of the Act, including limiting the circumstances under which such designations can be made. This Section VI is intended to replace and supersede any previous policy relating to beneficiary designations established by the Board.
2. Form. A form established by the staff of the Fund shall be utilized for purposes of designating a beneficiary under-Section 7.09 of the Act, and such form shall be the only method by which a beneficiary may be designated under such section. Any attempt by the member to designate a beneficiary other than through the form established by the Fund's staff, whether electronically, in writing or verbally, shall have no effect.
3. Eligibility-Active Members. An active member may designate or change a beneficiary under Section 7.09 if such member (A) is unmarried and (B) does not have a living child who is unmarried and under the age of twenty-two (a "Dependent Child"). Any form submitted to the Fund following September 1, 2012 that is executed on a date on which the member submitting the form is either married or has a Dependent Child shall have no effect and be null and void. An active member is not subject to a benefit reduction described in paragraph 4 below.
4. Eligibility-Retired Members. Effective November 1, 2016, if such member agrees to the benefit adjustment described in the paragraph below, a retired member may designate or change a beneficiary under Section 7.09 if such member (A) is unmarried,(B) married, but only if the retiree's marriage occurred after retirement and the term of the marriage is less than twenty-four-months, and

(C) does not have a Dependent Child. Notwithstanding the above, a retiree will not be eligible to designate or change a beneficiary after retirement if such retiree has already made two designations or changes following his or her date of retirement, and such two designations or changes occurred on or after January 1, 2017.
A retiree who designates or changes a beneficiary must agree to a benefit reduction for the designation or change to take effect. The benefit reduction will be determined by treating the monthly benefit amount that the retiree is receiving at the time of the designation or change of beneficiary as a single life annuity for the life of the retiree and converting such single life annuity into the form of benefit that the retiree was receiving under the Fund at the time of the designation or change, taking into account the current age of the beneficiary. The method of the conversion described above will be determined by the Fund's actuary and based on the actuarial assumptions in effect under the Fund at the time of the designation or change. The reduction described in this paragraph will apply to any designations or changes in beneficiaries on or after January 1, 2017.

5. Requirements for Beneficiaries. A beneficiary may be any living person selected by the member.
6. Termination of Beneficiary Designation. In the event a member who has previously submitted a valid beneficiary designation subsequently becomes married or has Dependent Children, the previously-submitted form shall be null and void as of (i) in the event of a subsequent marriage, the date that the member's spouse would be eligible for survivor benefits under Article 7 of the Fund (which, in the case of a spouse who married a retiree after his or her retirement, would be twenty-four months following the date of such marriage), or (ii) in the event of the birth or adoption of a Dependent Child, the date that the member's Dependent Child would be eligible for survivor benefits under Article 7 of the Fund. The nullification of a beneficiary designation pursuant to this paragraph 6 shall be permanent and shall not be reinstated.
7. Reduction of Benefit for Beneficiary 10 or More Years Younger. The reduction of a beneficiary's benefit as described in Section 7.09(c) for a beneficiary of a member (active or retired) who is 10 or more years younger than the member at the time of the member's death will determined in accordance with tables provided by the Fund's actuary and approved by the Board, as may be updated from time to time at the recommendation of the Fund's actuary. The tables as approved by the Board are set forth in Appendix B.
8. Administration. The application, administration and interpretation of this Section VI shall be at the full and absolute discretion of the Fund. Any decision relating to a beneficiary designation under this policy by the Fund shall be final and binding.
9. Termination of Provisional Beneficiary Designation. All provisional beneficiary designations made by members during the period beginning May 1, 2016 through June 1, 2016, on the special form provided by the Fund for such purpose (the "Provisional Designations") will expire at 12:00 am on November 1, 2016 (the "Expiration Date") and be null and void. No individual named under Provisional Designations will have any right or interest in the Fund following the Expiration Date solely by virtue of being named in such Provisional Designation. The Board did through action at its meeting of August 18, 2016 extend the survival period for Provisional Designations through the Expiration Date.

2017

A 1.5% COLA approved. New fund rules (Section VI of Fund Rules as posted on website) were adopted regarding the number of beneficiary designation changes allowed for unmarried retirees. New fund rules (Section XI of Fund Rules as posted on website) were adopted regarding possible retirement benefits and procedures upon indefinite suspension.

2018

A 2.2% COLA approved

APPENDIX B

Reduction of Benefit for Beneficiary 10 or More Years Younger

10-Year Rule Joint & Survivor Benefit Forms

Age Difference (Retiree minus Beneficiary)	Percent Continued to Beneficiary
Less than 10	75%
10 - 14	45%
15 - 19	40%
20 - 34	35%
35+	30%

Please note the above table represents the percentage of the retiree's accrued benefit that is payable if the retiree predeceases the selected beneficiary.

18941540v.2