

**AUSTIN FIREFIGHTERS'  
RELIEF AND RETIREMENT FUND**

ACTUARIAL VALUATION  
AS OF DECEMBER 31, 2019

GASB 67/68 DISCLOSURE INFORMATION  
AS OF DECEMBER 31, 2019



**FOSTER & FOSTER**  
ACTUARIES AND CONSULTANTS

June 16, 2020

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, 2019. 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.

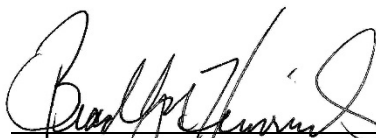
The undersigned are familiar with the immediate and long-term aspects of pension valuations, and meet the Qualification Standards of the American Academy of Actuaries necessary to render the actuarial opinions contained herein. All of the sections of this report are considered an integral part of the 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 #20-6901

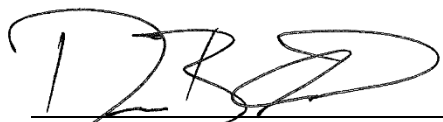
  
Drew D. Ballard, EA, MAAA  
Enrolled Actuary #20-8193

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## SUMMARY OF REPORT

The actuarial valuation of the Austin Firefighters' Relief and Retirement Fund, performed as of December 31, 2019, has been completed and the results are presented in this Report. The pension costs, compared with those developed in the December 31, 2018 actuarial valuation, are as follows:

<u>Valuation Date</u>	<u>New Assump</u> <u>12/31/2019</u>	<u>Old Assump</u> <u>12/31/2019</u>	<u>12/31/2018</u>
Current Normal Cost Rate % of Covered Annual Payroll	28.38%	29.62%	29.52%
<b>Funding Measurements</b>			
Actuarial Accrued Liability (AAL)	1,154,365,629	1,139,423,804	1,084,533,608
Actuarial Value of Assets (AVA)	1,001,980,211	1,001,980,211	954,574,840
Unfunded Actuarial Accrued Liability (UAAL = AAL - AVA)	152,385,418	137,443,593	129,958,768
Funded Ratio (AVA / AAL)	86.8%	87.9%	88.0%
Amortization Period <sup>1</sup>	21.9 years	18.6 years	17.9 years
<b>Contributions</b>			
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%
<b>Funding Costs</b>			
City 20-Year Funding Cost	22.68%	21.53%	21.23%
City 30-Year Funding Cost <sup>2</sup>	20.34%	19.27%	19.02%
City 40-Year Funding Cost	19.31%	18.23%	17.99%

<sup>1</sup> If the actuarial smoothing technique was removed and the market value of assets was utilized to determine the amortization period, the result would be 15.6 years as of December 31, 2019.

<sup>2</sup> 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.

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 7.13% (Actuarial Asset Basis) which fell short of the 7.70% assumption. This loss was offset in part by gains associated with an average salary increase of 3.52% which fell short of the 6.36% assumption and more inactive mortality than expected.

This valuation incorporates many changes to the actuarial assumptions, as described on the following page. Please note that the results under old assumptions throughout this report reflect the update in the mortality improvement scale from MP-2018 to MP-2019, as this will be a common update in future valuation reports as the Society of Actuaries continues to publish new mortality improvement scales.

## 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 1.70% cost-of-living adjustment, effective January 1, 2020, in accordance with the Fund's COLA adjustment policy.

### Actuarial Assumption/Method Changes

As a result of the actuarial experience study dated April 21, 2020, the Board approved of changes to the actuarial assumptions in conjunction with this valuation. The actuarial assumptions that were changed are listed below:

- Price Inflation (lowered from 2.75% to 2.50%)
- Investment Return (lowered from 7.70% to 7.50%)
- Payroll Growth (lowered from 3.50% to 2.00%)
- Mortality Rates (MP-2019 improvement scale)
- Salary Increases
- Retirement Rates
- Retro-DROP Elections
- Withdrawal Rates
- Disability Rates

There have been no changes of methods since the prior valuation.

COMPARATIVE SUMMARY OF PRINCIPAL VALUATION RESULTS

	New Assump <u>12/31/2019</u>	Old Assump <u>12/31/2019</u>	<u>12/31/2018</u>
<b>A. Participant Data</b>			
Actives	1,130	1,130	1,102
Service Retirees + DROP	700	700	679
Beneficiaries + Alt Payees	136	136	125
Disability Retirees	18	18	18
Terminated Vested	10	10	8
	<hr/>	<hr/>	<hr/>
Total	1,994	1,994	1,932
Covered Annual Payroll	95,642,391	95,611,176	92,083,218
Annual Rate of Payments to:			
Service Retirees + DROP	45,668,939	45,668,939	43,116,610
Beneficiaries + Alt Payees	4,371,623	4,371,623	3,807,781
Disability Retirees	768,925	768,925	758,015
Terminated Vested	292,601	292,601	252,192
<b>B. Assets</b>			
Actuarial Value (AVA)	1,001,980,211	1,001,980,211	954,574,840
Market Value (MVA)	1,029,892,806	1,029,892,806	909,117,796
<b>C. Liabilities</b>			
Present Value of Benefits			
Actives			
Retirement + Termination Benefits	748,148,185	730,948,657	710,792,605
Death Benefits	7,882,158	7,313,471	6,746,036
Disability Benefits	6,599,300	27,740,077	26,856,591
Service Retirees + DROP	629,675,807	620,780,336	578,880,785
Beneficiaries + Alt Payees	38,013,700	37,468,436	32,771,736
Disability Retirees	7,696,375	7,576,076	7,656,455
Terminated Vested	2,280,803	2,205,959	1,970,161
	<hr/>	<hr/>	<hr/>
Total	1,440,296,328	1,434,033,012	1,365,674,369



	New Assump <u>12/31/2019</u>	Old Assump <u>12/31/2019</u>	<u>12/31/2018</u>
C. Liabilities - (Continued)			
Present Value of Future Salaries	1,048,081,656	1,040,539,753	996,580,825
Normal Cost (Entry Age Normal)			
Retirement + Termination Benefits	25,073,812	25,315,020	24,313,431
Death Benefits	531,590	518,189	460,259
Disability Benefits	555,327	1,467,576	1,403,765
Total Normal Cost	<u>26,160,729</u>	<u>27,300,785</u>	<u>26,177,455</u>
Present Value of Future Normal Costs	285,930,699	294,609,208	281,140,761
Actuarial Accrued Liability			
Retirement + Termination Benefits	473,974,567	457,583,903	449,546,961
Death Benefits	2,133,475	1,805,862	1,866,269
Disability Benefits	590,902	12,003,232	11,841,241
Inactives	677,666,685	668,030,807	621,279,137
Total Actuarial Accrued Liability (AAL)	<u>1,154,365,629</u>	<u>1,139,423,804</u>	<u>1,084,533,608</u>
Unfunded Actuarial Accrued Liability (UAAL)	152,385,418	137,443,593	129,958,768
Funded Ratio (AVA / AAL)	86.8%	87.9%	88.0%
D. Actuarial Present Value of Accrued Benefits			
Inactives	677,666,685	668,030,807	621,279,137
Actives	349,681,286	358,511,302	348,743,560
Total Present Value Accrued Benefits (PVAB)	<u>1,027,347,971</u>	<u>1,026,542,109</u>	<u>970,022,697</u>
Funded Ratio (MVA / PVAB)	100.2%	100.3%	93.7%

## GAIN/LOSS ANALYSIS

### a. Total (Gain)/Loss

1. Unfunded Actuarial Accrued Liability as of December 31, 2018	\$129,958,768
2. Normal Cost applicable for 2019	26,177,455
3. Interest on (1) and (2)	12,022,489
4. Contributions made during 2019	38,916,162
5. Interest on (4)	1,498,272
6. Expected UAAL as of December 31, 2019: (1)+(2)+(3)-(4)-(5)	127,744,278
7. Actual UAAL as of December 31, 2019 (Before Changes)	137,443,593
 Total Actuarial (Gain)/Loss <sup>1</sup>	 9,699,315

### b. (Gain)/Loss on Assets

1. Actuarial Value of Assets as of December 31, 2018	954,574,840
2. Contributions Less Benefit Payments	(19,908,230)
3. Expected Investment Earnings	72,735,796
4. Expected AVA as of December 31, 2019: (1)+(2)+(3)	1,007,402,406
5. Actual Actuarial Value of Assets as of December 31, 2019	1,001,980,211
 (Gain)/Loss on Assets	 5,422,195

### c. (Gain)/Loss on Liabilities

1. Expected Actuarial Accrued Liability: a(6)+b(4)	1,135,146,684
2. Actual Actuarial Accrued Liability (Before Changes)	1,139,423,804
 (Gain)/Loss on Liabilities <sup>1</sup>	 4,277,120

<sup>1</sup> Includes increase in liabilities associated with the 1.7% cost-of-living adjustment that was granted to eligible retirees, effective January 1, 2020.

COMPARISON OF CONTRIBUTION RATES TO  
ACTUARIALLY DETERMINED CONTRIBUTION BENCHMARK

Pursuant to the adopted Funding Policy, an Actuarially Determined Contribution (ADC) benchmark has been created for comparative purposes only and was constructed under the actuarial assumptions and methods identical to those disclosed in this report, except as follows:

Amortization Period – The ADC benchmark is determined in conjunction with each actuarial valuation by determining the fixed-rate contribution rates that would result in a 30-year amortization period as of the valuation date.

Payroll Growth Assumption – The ADC benchmark is calculated using a payroll growth assumption that is the lesser of 3.0% and the average payroll growth of the Austin Fire Department over the last ten (10) years.

**Determination of ADC Benchmark Payroll Growth Assumption**

Covered Payroll as of:

12/31/2019	95,642,391
12/31/2009	78,979,991

(a) Average Annual Rate	1.93%
(b) ADC Assumption	3.00%

**Lesser of (a) and (b)            1.93%**

<u>Valuation as of December 31,</u>	<u>City of Austin Contribution Rate</u>	<u>30-Year ADC Benchmark</u>	<u>City Contribution Excess/(Shortfall)</u>
2019	22.05%	20.42%	1.63%

STATEMENT OF FIDUCIARY NET POSITION  
DECEMBER 31, 2019

<u>ASSETS</u>	MARKET VALUE
Cash and Cash Equivalents:	
Cash Equivalents	6,346,250
Cash	7,705,012
Total Cash and Equivalents	14,051,262
Receivables:	
Investment Income	106,266
Total Receivable	106,266
Investments:	
Domestic Equity	175,449,930
International Equity	225,577,138
Private Equities	190,947,581
Fixed Income	309,484,849
Real Estate Funds	88,664,414
Natural Resources Funds	25,995,144
Total Investments	1,016,119,056
Total Assets	1,030,276,584
<u>LIABILITIES</u>	
Payables:	
To Broker for Investments Purchased	383,778
Total Liabilities	383,778
NET POSITION RESTRICTED FOR PENSIONS	1,029,892,806

STATEMENT OF CHANGES IN FIDUCIARY NET POSITION  
FOR THE YEAR ENDED DECEMBER 31, 2019  
Market Value Basis

ADDITIONS

Contributions:

Member	17,858,397
City	21,057,765

Total Contributions 38,916,162

Investment Income:

Miscellaneous Income	88,367	
Net Realized Gain (Loss)	23,503,520	
Unrealized Gain (Loss)	113,178,654	
Net Increase in Fair Value of Investments		136,770,541
Interest & Dividends		7,260,261
Less Investment Expense <sup>1</sup>		(2,495,370)

Net Investment Income 141,535,432

Total Additions 180,451,594

DEDUCTIONS

Distributions to Members:

Benefit Payments	48,883,659
Lump Sum DROP Distributions	9,714,211
Refunds of Member Contributions	226,522

Total Distributions 58,824,392

Administrative Expense 852,192

Total Deductions 59,676,584

Net Increase in Net Position 120,775,010

NET POSITION RESTRICTED FOR PENSIONS

Beginning of the Year 909,117,796

End of the Year 1,029,892,806

<sup>1</sup>Investment related expenses include investment advisory, custodial and performance monitoring fees.

ACTUARIAL ASSET VALUATION  
December 31, 2019

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.

Plan Year Ending	Gain/(Loss)	<u>Gains/(Losses) Not Yet Recognized</u>				
		Amounts Not Yet Recognized by Valuation Year				
		2020	2021	2022	2023	2024
12/31/2015	(54,636,462)	0	0	0	0	0
12/31/2016	(5,150,047)	(1,030,011)	0	0	0	0
12/31/2017	77,264,135	30,905,654	15,452,827	0	0	0
12/31/2018	(98,535,264)	(59,121,158)	(39,414,105)	(19,707,052)	0	0
12/31/2019	71,447,637	57,158,110	42,868,583	28,579,056	14,289,529	0
Total		27,912,595	18,907,305	8,872,004	14,289,529	0

<u>Development of Investment Gain/(Loss)</u>	
Market Value of Assets, 12/31/2018	909,117,796
Contributions Less Benefit Payments	(19,908,230)
Expected Investment Earnings*	69,235,603
Actual Net Investment Earnings	140,683,240
Actuarial Investment Gain/(Loss)	<u>71,447,637</u>

\*Expected Investment Earnings =  $0.077 * [909,117,796 + 0.5 * (19,908,230)]$

<u>Development of Actuarial Value of Assets</u>	
(1) Market Value of Assets, 12/31/2019	1,029,892,806
(2) Gains/(Losses) Not Yet Recognized	<u>27,912,595</u>
(3) Actuarial Value of Assets, 12/31/2019, (1) - (2)	1,001,980,211
(A) 12/31/2018 Actuarial Assets:	954,574,840
(I) Net Investment Income:	
1. Interest and Dividends	7,348,628
2. Realized Gains (Losses)	23,503,520
3. Unrealized Gains (Losses)	113,178,654
4. Change in Actuarial Value	(73,369,639)
5. Investment & Administrative Expenses	<u>(3,347,562)</u>
Total	67,313,601
(B) 12/31/2019 Actuarial Assets:	1,001,980,211
Actuarial Assets Rate of Return = $2I/(A+B-I)$ :	7.13%
Market Value of Assets Rate of Return:	15.65%
Actuarial Gain/(Loss) due to Investment Return (Actuarial Asset Basis)	(5,422,195)
12/31/2019 Limited Actuarial Assets:	1,001,980,211

CHANGES IN NET ASSETS AVAILABLE FOR BENEFITS  
 DECEMBER 31, 2019  
 Actuarial Asset Basis

REVENUES

Contributions:		
Member	17,858,397	
City	21,057,765	
<b>Total Contributions</b>		<b>38,916,162</b>
Earnings from Investments:		
Interest & Dividends	7,260,261	
Miscellaneous Income	88,367	
Net Realized Gain (Loss)	23,503,520	
Unrealized Gain (Loss)	113,178,654	
Change in Actuarial Value	(73,369,639)	
<b>Total Earnings and Investment Gains</b>		<b>70,661,163</b>

EXPENDITURES

Distributions to Members:		
Benefit Payments	48,883,659	
Lump Sum DROP Distributions	9,714,211	
Refunds of Member Contributions	226,522	
<b>Total Distributions</b>		<b>58,824,392</b>
Expenses:		
Investment related <sup>1</sup>	2,495,370	
Administrative	852,192	
<b>Total Expenses</b>		<b>3,347,562</b>
<b>Change in Net Assets for the Year</b>		<b>47,405,371</b>
<b>Net Assets Beginning of the Year</b>		<b>954,574,840</b>
<b>Net Assets End of the Year<sup>2</sup></b>		<b>1,001,980,211</b>

<sup>1</sup>Investment related expenses include investment advisory, custodial and performance monitoring fees.

<sup>2</sup>Net Assets may be limited for actuarial consideration.

STATISTICAL DATA

	<u>12/31/2016</u>	<u>12/31/2017</u>	<u>12/31/2018</u>	<u>12/31/2019</u>
<u>Actives</u>				
Number	990	1,045	1,102	1,130
Average Current Age	43.1	42.5	41.9	41.8
Average Age at Employment	28.6	28.9	29.0	29.1
Average Past Service	14.5	13.6	12.9	12.7
Average Annual Salary	\$90,088	\$89,026	\$87,933	\$88,328
<u>Service Retirees + DROP</u>				
Number			679	700
Average Current Age			64.3	64.7
Average Annual Benefit			\$63,500	\$65,241
<u>Beneficiaries + Alt Payees</u>				
Number			125	136
Average Current Age			67.4	67.6
Average Annual Benefit			\$30,462	\$32,144
<u>Disability Retirees</u>				
Number			18	18
Average Current Age			64.9	66.3
Average Annual Benefit			\$42,112	\$42,718
<u>Terminated Vested</u>				
Number			8	10
Average Current Age			42.3	41.1
Average Annual Benefit <sup>1</sup>			\$31,524	\$32,511

<sup>1</sup> Average Annual Benefit for Terminated Vested members reflects the benefit for members entitled to a future annual benefit from the plan.



AGE AND SERVICE DISTRIBUTION

ATTAINED AGE	PAST SERVICE											TOTAL
	0	1-4	5-9	10-19	20-24	25	26	27	28	29	30+	
15 - 24	3	3	0	0	0	0	0	0	0	0	0	6
25 - 34	53	156	39	4	0	0	0	0	0	0	0	252
35 - 44	11	102	125	186	13	0	0	0	0	0	0	437
45 - 49	0	0	5	112	57	12	2	0	0	0	0	188
50	0	0	1	12	15	3	0	0	0	0	0	31
51	0	0	0	12	17	12	1	2	2	0	0	46
52	0	0	0	10	13	4	4	1	0	3	0	35
53	0	0	0	0	10	4	1	1	0	3	4	23
54	0	0	0	2	4	8	2	0	1	2	1	20
55 - 59	0	0	0	2	18	15	7	3	8	6	22	81
60+	0	0	0	0	0	0	0	0	0	0	11	11
TOTAL	67	261	170	340	147	58	17	7	11	14	38	1,130

VALUATION PARTICIPANT RECONCILIATION

1. Active lives

a. Number in prior valuation 12/31/2018	1,102
b. Terminations	
i. Vested (partial or full) with deferred benefits	(2)
ii. Non-vested, full lump sum distribution received	(2)
iii. Non-vested, awaiting refund	(1)
c. Deaths	
i. Beneficiary receiving benefits	0
ii. No future benefits payable	(1)
d. Disabled	(1)
e. Retired	<u>(32)</u>
g. Continuing participants	1,063
h. New entrants	<u>67</u>
i. Total active life participants in valuation	1,130

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

	Service Retirees, DROP Receiving <u>Benefits</u>	Receiving Death <u>Benefits</u>	Receiving Disability <u>Benefits</u>	Receiving QDRO <u>Benefits</u>	Vested Deferred	<u>Total</u>
a. Number prior valuation	679	76	18	49	8	830
Retired	33	0	0	0	(1)	32
Vested Deferred	0	0	(1)	0	3	2
Death, With Survivor	(12)	12	0	0	0	0
Death, No Survivor	0	(3)	0	0	0	(3)
Disabled	0	0	1	0	0	1
Refund of Contributions	0	0	0	0	0	0
Rehires	0	0	0	0	0	0
Expired Annuities	0	0	0	0	0	0
Data Corrections	0	0	0	0	0	0
New QDRO	0	0	0	2	0	2
b. Number current valuation	700	85	18	51	10	864

ACTUARIAL ASSUMPTIONS AND METHODS  
(Effective December 31, 2019)

Mortality Rates

*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-2019 (previously 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 April 21, 2020.

Termination Rates

See tables below. These assumptions were approved in conjunction with an actuarial experience study dated April 21, 2020.

Disability Rates

See tables below. These assumptions were approved in conjunction with an actuarial experience study dated April 21, 2020.

Interest Rate

7.50% (previously 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 April 21, 2020.

General Wage Inflation

3.00% per year. This assumption was reviewed in conjunction with an actuarial experience study dated April 21, 2020.

Inflation

2.50% (previously 2.75%) per year. This assumption was approved in conjunction with an actuarial experience study dated April 21, 2020.

Payroll Growth

2.00% (previously 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

<u>Years of Service</u>	<u>Termination Probability</u>
0-7	1.0%
8-13	0.5
14+	0

Retirement Rates

<u>Number of Years After First Eligibility for Early Retirement</u>	<u>Probability of Retirement</u>
0	1.5%
1	1.5
2	1.5
3	1.5
4	2.0
5	4.0
6	5.0
7	5.0
8	7.5
9	10.0
10	16.7
11	16.7
12	20.0
13	20.0
14	30.0
15	30.0
16	30.0
17	50.0
18	100.0

Retro-DROP Elections

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

Disability Rates

<u>Age</u>	<u>Probability of Disablement</u>
<30	0.020%
30-39	0.060
40-49	0.100
50+	0.050

% Increase in Salary\*

<u>Years of Service</u>	<u>Increase</u>
0	5.50%
1	7.00
2	7.00
3	2.50
4	0.50
5	4.00
10	1.00
15	1.00
20	4.50
21	0.50
22+	0.25

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

## SUMMARY OF BENEFIT PROVISIONS

<u>Service</u>	Total years and completed months during which a Member makes contributions to the Fund.
<u>Average Monthly Compensation</u>	Average Salary for the highest 36 months of service.
<u>Member Contributions</u>	18.70% of Salary.
<u>City Contributions</u>	22.05% or payroll.
<u>Normal Retirement</u>	
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 <u>times</u> 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	<u>Married</u> : Life Annuity with 75% continued to Surviving Spouse  <u>Single</u> : Life Annuity with 75% continued to designated beneficiary.
<u>Early Retirement</u>	
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	<u>Married</u> : Life Annuity with 75% continued to Surviving Spouse  <u>Single</u> : 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 actuarial assumptions. 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. It is possible that actual plan experience will differ from anticipated experience in an unfavorable manner that will negatively impact the plan's funded position.

Below are 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, is 130.8% and has stayed about the same over the last four years.
- The Accrued Liability Ratio, determined as the ratio of the Inactive Accrued Liability, which is the liability associated with members who are no longer employed but are due a benefit from the plan (inclusive of DROP Balances), to the Total Accrued Liability, has increased from 52.8% to 58.7% 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 88.3% to 86.8% over the last four years. If all actuarial assumptions are realized, the funded ratio is expected to increase in the next few years as the most recent investment experience gain 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 8.4% to 11.2% over the last four years.
- The Net Cash Flow Ratio, determined as the ratio of the Net Cash Flow (contributions minus benefit payments and administrative expenses) to the Market Value of Assets, is -2.0%. This indicates that contributions are not currently covering the plan’s benefit payments and administrative expenses.

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. Additional 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

	<u>12/31/2016</u>	<u>12/31/2017</u>	<u>12/31/2018</u>	<u>12/31/2019</u>
<u>Support Ratio</u>				
Total Actives	990	1,045	1,102	1,130
Total Inactives	757	795	830	864
Actives / Inactives	130.8%	131.4%	132.8%	130.8%
<u>Accrued Liability (AL) Ratio</u>				
Inactive Accrued Liability	517,895,701	574,008,210	621,279,137	677,666,685
Total Accrued Liability	981,771,267	1,038,118,085	1,084,533,608	1,154,365,629
Inactive AL / Total AL	52.8%	55.3%	57.3%	58.7%
<u>Funded Ratio</u>				
Actuarial Value of Assets (AVA)	866,512,111	916,931,534	954,574,840	1,001,980,211
Total Accrued Liability	981,771,267	1,038,118,085	1,084,533,608	1,154,365,629
AVA / Total Accrued Liability	88.3%	88.3%	88.0%	86.8%
<u>DROP Asset Ratio</u>				
Accumulated DROP Balances	69,354,195	86,322,683	99,360,841	115,350,197
Market Value of Assets (MVA)	829,610,196	953,798,227	909,117,796	1,029,892,806
DROP Balances / MVA	8.4%	9.1%	10.9%	11.2%
<u>Net Cash Flow Ratio</u>				
Net Cash Flow <sup>1</sup>	(11,170,031)	(17,726,969)	(19,566,367)	(20,760,422)
Market Value of Assets (MVA)	829,610,196	953,798,227	909,117,796	1,029,892,806
Ratio	-1.3%	-1.9%	-2.2%	-2.0%

<sup>1</sup> Determined as total contributions minus benefit payments and administrative expenses.

## 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.

STATEMENT OF FIDUCIARY NET POSITION  
DECEMBER 31, 2019

<u>ASSETS</u>	MARKET VALUE
Cash and Cash Equivalents:	
Cash Equivalents	6,346,250
Cash	7,705,012
Total Cash and Equivalents	14,051,262
Receivables:	
Investment Income	106,266
Total Receivable	106,266
Investments:	
Domestic Equity	175,449,930
International Equity	225,577,138
Private Equities	190,947,581
Fixed Income	309,484,849
Real Estate Funds	88,664,414
Natural Resources Funds	25,995,144
Total Investments	1,016,119,056
Total Assets	1,030,276,584
<u>LIABILITIES</u>	
Payables:	
To Broker for Investments Purchased	383,778
Total Liabilities	383,778
NET POSITION RESTRICTED FOR PENSIONS	1,029,892,806

STATEMENT OF CHANGES IN FIDUCIARY NET POSITION  
FOR THE YEAR ENDED DECEMBER 31, 2019  
Market Value Basis

ADDITIONS

## Contributions:

Member	17,858,397	
City	21,057,765	
Total Contributions		38,916,162
Investment Income:		
Net Increase in Fair Value of Investments	136,770,541	
Interest & Dividends	7,260,261	
Less Investment Expense <sup>1</sup>	(2,495,370)	
Net Investment Income		141,535,432
Total Additions		180,451,594

DEDUCTIONS

## Distributions to Members:

Benefit Payments	48,883,659	
Lump Sum DROP Distributions	9,714,211	
Refunds of Member Contributions	226,522	
Total Distributions		58,824,392
Administrative Expense		852,192
Total Deductions		59,676,584
Net Increase in Net Position		120,775,010
NET POSITION RESTRICTED FOR PENSIONS		
Beginning of the Year		909,117,796
End of the Year		1,029,892,806

<sup>1</sup>Investment related expenses include investment advisory, custodial and performance monitoring fees.

**NOTES TO THE FINANCIAL STATEMENTS**  
(For the Year Ended December 31, 2019)

*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, 2018:*

Inactive Plan Members or Beneficiaries Currently Receiving Benefits	822
Inactive Plan Members Entitled to But Not Yet Receiving Benefits	8
Active Plan Members	1,102
	1,932

*Benefits Provided*

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

The Plan provisions can be found in the December 31, 2018 Actuarial Valuation Report for the Austin Firefighters' Relief and Retirement Fund prepared by Foster & Foster Actuaries and Consultants.

Incorporated are the benefit changes for measurement date 12/31/2019 as noted under the Notes to Schedule of Changes in Net Pension Liability and Related Ratios.

*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, 2019:

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, 2019, the annual money-weighted rate of return on Pension Plan investments, net of Pension Plan investment expense, was 15.75 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, 2019 is \$115,350,197.

## NET PENSION LIABILITY OF THE SPONSOR

The components of the Net Pension Liability of the Sponsor on December 31, 2019 were as follows:

Total Pension Liability	\$ 1,156,024,838
Plan Fiduciary Net Position	<u>\$ (1,029,892,806)</u>
Sponsor's Net Pension Liability	<u>\$ 126,132,032</u>
Plan Fiduciary Net Position as a percentage of Total Pension Liability	89.09%

*Actuarial Assumptions:*

The Total Pension Liability was determined by an actuarial valuation as of December 31, 2018 updated to December 31, 2019 using the following actuarial assumptions:

Inflation	2.50%
General Wage Inflation	3.00%
Salary Increases	Service based
Discount Rate	7.50%
Investment Rate of Return	7.50%

## 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-2019 and a base year of 2010. We feel these assumptions sufficiently accommodate anticipated future mortality improvements.

The most recent actuarial experience study used to review the other significant assumptions was dated April 21, 2020.

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 2019, the inflation rate assumption of the investment advisor was 2.60%.

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, 2019 are summarized in the following table:

Asset Class	Long Term Expected Real Rate of Return <sup>1</sup>
Public Domestic Equity	5.5%
Public Foreign Equity	6.9%
Private Equity Fund of Funds	6.3%
Investment Grade Bonds	1.3%
TIPS	1.0%
High Yield/Bank Loans	3.7%
Emerging Market Debt	2.7%
Core Real Estate	3.2%
Non-Core Real Estate	4.9%
Natural Resources	6.9%

<sup>1</sup> Source: Meketa Investment Group, Inc.

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### Discount Rate:

The Discount Rate used to measure the Total Pension Liability was 7.50 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 7.50%; the municipal bond rate is 3.26% (based on the weekly rate closest to but not later than the measurement date of the S&P Municipal Bond 20 Year High Grade Rate Index); and the resulting single discount rate is 7.50%.

	1% Decrease 6.50%	Current Discount Rate 7.50%	1% Increase 8.50%
Sponsor's Net Pension Liability	\$ 236,670,658	\$ 126,132,032	\$ 32,630,263

SCHEDULE OF CHANGES IN NET PENSION LIABILITY AND RELATED RATIOS  
Last 2 Years

	12/31/2019	12/31/2018
Total Pension Liability		
Service Cost	26,191,723	25,130,502
Interest	84,547,315	80,552,018
Changes of benefit terms	8,058,934	10,188,417
Differences between Expected and Actual Experience	(9,834,830)	(735,314)
Changes of assumptions	12,707,469	(4,778,539)
Benefit Payments, including Refunds of Employee Contributions	(58,824,392)	(55,979,294)
Net Change in Total Pension Liability	62,846,219	54,377,790
Total Pension Liability - Beginning	1,093,178,619	1,038,800,829
Total Pension Liability - Ending (a)	<u>\$1,156,024,838</u>	<u>\$1,093,178,619</u>
Plan Fiduciary Net Position		
Contributions - Employer	21,057,765	20,084,617
Contributions - Employee	17,858,397	17,033,213
Net Investment Income	141,535,432	(25,114,064)
Benefit Payments, including Refunds of Employee Contributions	(58,824,392)	(55,979,294)
Administrative Expense	(852,192)	(704,903)
Net Change in Plan Fiduciary Net Position	120,775,010	(44,680,431)
Plan Fiduciary Net Position - Beginning	909,117,796	953,798,227
Plan Fiduciary Net Position - Ending (b)	<u>\$1,029,892,806</u>	<u>\$ 909,117,796</u>
Net Pension Liability - Ending (a) - (b)	<u>\$ 126,132,032</u>	<u>\$ 184,060,823</u>
Plan Fiduciary Net Position as a percentage of the Total Pension Liability	89.09%	83.16%
Covered Payroll	\$ 95,500,068	\$ 91,086,698
Net Pension Liability as a percentage of Covered Payroll	132.08%	202.07%

**Notes to Schedule:***Changes of benefit terms:*

For measurement date 12/31/2019, amounts reported as changes of benefit terms resulted from a cost-of-living adjustment. Eligible retirees receive a 1.7% cost-of-living adjustment, effective January 1, 2020

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.

*Changes of assumptions:*

For measurement date 12/31/2019, as a result of the actuarial experience study dated April 21, 2020, the Board approved the following changes:

- Price Inflation (lowered from 2.75% to 2.50%)
- Investment Return (lowered from 7.70% to 7.50%)
- Mortality Rates (MP-2019 improvement scale)
- Salary Increases
- Retirement Rates
- Retro DROP Elections
- Withdrawal Rates
- Disability Rates

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.

**SCHEDULE OF CONTRIBUTIONS**  
Last 2 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
12/31/2019	N/A	N/A	N/A	\$ 95,500,068	22.05%
12/31/2018	N/A	N/A	N/A	\$ 91,086,698	22.05%

SCHEDULE OF INVESTMENT RETURNS  
Last 2 Years

Fiscal Year Ended	Annual Money-Weighted Rate of Return Net of Investment Expense
12/31/2019	15.75%
12/31/2018	-2.66%

**NOTES TO THE FINANCIAL STATEMENTS**  
(For the Year Ended September 30, 2020)

*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, 2018:*

Inactive Plan Members or Beneficiaries Currently Receiving Benefits	822
Inactive Plan Members Entitled to But Not Yet Receiving Benefits	8
Active Plan Members	<u>1,102</u>
	<u><u>1,932</u></u>

*Benefits Provided*

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

The Plan provisions can be found in the December 31, 2018 Actuarial Valuation Report for the Austin Firefighters' Relief and Retirement Fund prepared by Foster & Foster Actuaries and Consultants.

Incorporated are the benefit changes for measurement date 12/31/2019 as noted under the Notes to Schedule of Changes in Net Pension Liability and Related Ratios.

*Contributions*

Member Contributions: 18.70% of Salary.

City Contributions: 22.05% of payroll.

**Net Pension Liability**

The measurement date is December 31, 2019.

The measurement period for the pension expense was December 31, 2018 to December 31, 2019.

The reporting period is October 1, 2019 through September 30, 2020.

The Sponsor's Net Pension Liability was measured as of December 31, 2019.

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, 2018 updated to December 31, 2019 using the following actuarial assumptions:

Inflation		2.50%
Salary Increases	Service based	
Discount Rate		7.50%
Investment Rate of Return		7.50%

*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-2019 and a base year of 2010. We feel these assumptions sufficiently accommodate anticipated future mortality improvements.

The most recent actuarial experience study used to review the other significant assumptions was dated April 21, 2020.

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 2019, the inflation rate assumption of the investment advisor was 2.60%.

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, 2019 are summarized in the following table:

Asset Class	Target Allocation	Long Term Expected Real Rate of Return <sup>1</sup>
Public Domestic Equity	20%	5.5%
Public Foreign Equity	22%	6.9%
Private Equity Fund of Funds	15%	6.3%
Investment Grade Bonds	13%	1.3%
TIPS	5%	1.0%
High Yield/Bank Loans	5%	3.7%
Emerging Market Debt	7%	2.7%
Core Real Estate	5%	3.2%
Non-Core Real Estate	5%	4.9%
Natural Resources	3%	6.9%
Total	100%	

<sup>1</sup> Source: Meketa Investment Group, Inc.

**Discount Rate:**

The Discount Rate used to measure the Total Pension Liability was 7.50 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 7.50%; the municipal bond rate is 3.26% (based on the weekly rate closest to but not later than the measurement date of the S&P Municipal Bond 20 Year High Grade Rate Index); and the resulting single discount rate is 7.50%.



## CHANGES IN NET PENSION LIABILITY

	Increase (Decrease)		
	Total Pension	Plan Fiduciary	Net Pension
	Liability	Net Position	Liability
	(a)	(b)	(a)-(b)
Reporting Period Ending September 30, 2019	\$1,093,178,619	\$ 909,117,796	\$ 184,060,823
Changes for a Year:			
Service Cost	26,191,723	-	26,191,723
Interest	84,547,315	-	84,547,315
Differences between Expected and Actual Experience	(9,834,830)	-	(9,834,830)
Changes of assumptions	12,707,469	-	12,707,469
Changes of benefit terms	8,058,934	-	8,058,934
Contributions - Employer	-	21,057,765	(21,057,765)
Contributions - Employee	-	17,858,397	(17,858,397)
Net Investment Income	-	141,535,432	(141,535,432)
Benefit Payments, including Refunds of Employee Contributions	(58,824,392)	(58,824,392)	-
Administrative Expense	-	(852,192)	852,192
Net Changes	62,846,219	120,775,010	(57,928,791)
Reporting Period Ending September 30, 2020	\$1,156,024,838	\$ 1,029,892,806	\$ 126,132,032

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

	Current Discount		
	1% Decrease	Rate	1% Increase
	6.50%	7.50%	8.50%
Sponsor's Net Pension Liability	\$ 236,670,658	\$ 126,132,032	\$ 32,630,263

*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, 2019**

For the year ended September 30, 2019, the Sponsor has recognized a Pension Expense of \$48,009,769.

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	12,269,134	643,398
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	15,364,310	-
Total	\$ 73,411,067	\$ 4,824,617

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, 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		\$ 18,006,963
2021		\$ 7,196,541
2022		\$ 6,304,133
2023		\$ 22,047,634
2024		\$ 1,045,331
Thereafter		\$ (1,378,462)

**PRELIMINARY PENSION EXPENSE AND DEFERRED OUTFLOWS OF RESOURCES AND  
DEFERRED INFLOWS OF RESOURCES RELATED TO PENSIONS  
FISCAL YEAR SEPTEMBER 30, 2020**

For the year ended September 30, 2020, the Sponsor will recognize a Pension Expense of \$36,488,489.

On September 30, 2020, the Sponsor reported Deferred Outflows of Resources and Deferred Inflows of Resources related to pensions from the following sources:

	<u>Deferred Outflows of Resources</u>	<u>Deferred Inflows of Resources</u>
Differences between Expected and Actual Experience	9,635,491	9,156,962
Changes of assumptions	12,746,772	3,583,902
Net difference between Projected and Actual Earnings on Pension Plan investments	-	29,778,774
Employer contributions subsequent to the measurement date	<u>TBD</u>	<u>-</u>
Total	<u><u>TBD</u></u>	<u><u>\$ 42,519,638</u></u>

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, 2020.

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:	
2021	\$ (6,910,907)
2022	\$ (7,803,315)
2023	\$ 7,940,186
2024	\$ (13,062,117)
2025	\$ (330,151)
Thereafter	\$ 28,929

**SCHEDULE OF CHANGES IN NET PENSION LIABILITY AND RELATED RATIOS**  
Last 2 Fiscal Years

Reporting Period Ending	09/30/2020	09/30/2019
Measurement Date	12/31/2019	12/31/2018
Total Pension Liability		
Service Cost	26,191,723	25,130,502
Interest	84,547,315	80,552,018
Changes of benefit terms	8,058,934	10,188,417
Differences between Expected and Actual Experience	(9,834,830)	(735,314)
Changes of assumptions	12,707,469	(4,778,539)
Benefit Payments, including Refunds of Employee Contributions	(58,824,392)	(55,979,294)
Net Change in Total Pension Liability	62,846,219	54,377,790
Total Pension Liability - Beginning	1,093,178,619	1,038,800,829
Total Pension Liability - Ending (a)	<u>\$1,156,024,838</u>	<u>\$1,093,178,619</u>
Plan Fiduciary Net Position		
Contributions - Employer	21,057,765	20,084,617
Contributions - Employee	17,858,397	17,033,213
Net Investment Income	141,535,432	(25,114,064)
Benefit Payments, including Refunds of Employee Contributions	(58,824,392)	(55,979,294)
Administrative Expense	(852,192)	(704,903)
Net Change in Plan Fiduciary Net Position	120,775,010	(44,680,431)
Plan Fiduciary Net Position - Beginning	909,117,796	953,798,227
Plan Fiduciary Net Position - Ending (b)	<u>\$1,029,892,806</u>	<u>\$ 909,117,796</u>
Net Pension Liability - Ending (a) - (b)	<u>\$ 126,132,032</u>	<u>\$ 184,060,823</u>
Plan Fiduciary Net Position as a percentage of the Total Pension Liability	89.09%	83.16%
Covered Payroll	\$ 95,500,068	\$ 91,086,698
Net Pension Liability as a percentage of Covered Payroll	132.08%	202.07%

**Notes to Schedule:***Changes of benefit terms:*

For measurement date 12/31/2019, amounts reported as changes of benefit terms resulted from a cost-of-living adjustment. Eligible retirees receive a 1.7% cost-of-living adjustment, effective January 1, 2020

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.

*Changes of assumptions:*

For measurement date 12/31/2019, as a result of the actuarial experience study dated April 21, 2020, the Board approved the following changes:

- Price Inflation (lowered from 2.75% to 2.50%)
- Investment Return (lowered from 7.70% to 7.50%)
- Mortality Rates (MP-2019 improvement scale)
- Salary Increases
- Retirement Rates
- Retro DROP Elections
- Withdrawal Rates

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.

**SCHEDULE OF CONTRIBUTIONS**  
Last 2 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
09/30/2020	N/A	N/A	N/A	TBD by City	22.05%
09/30/2019	N/A	N/A	N/A	TBD by City	22.05%

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, 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	-	-	15,364,310	-
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	(735,314)	735,314	-	-
Current year amortization of experience difference	-	(91,916)	(2,633,644)	2,541,728
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	<u>54,377,790</u>	<u>4,824,617</u>	<u>12,188,087</u>	<u>118,357,924</u>
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	<u>(44,680,431)</u>	<u>(15,743,501)</u>	<u>48,832,298</u>	<u>(70,348,155)</u>
Ending Balance	<u><u>\$ 184,060,823</u></u>	<u><u>\$ 52,055,120</u></u>	<u><u>\$ 120,641,570</u></u>	<u><u>\$ 48,009,769</u></u>

**PRELIMINARY COMPONENTS OF PENSION EXPENSE**  
**FISCAL YEAR SEPTEMBER 30, 2020**

	Net Pension Liability	Deferred Inflows	Deferred Outflows	Pension Expense
Beginning balance	\$ 184,060,823	\$ 52,055,120	\$ 120,641,570	\$ -
Employer Contributions made after 12/31/2019	-	-	TBD*	-
Total Pension Liability Factors:				
Service Cost	26,191,723	-	-	26,191,723
Interest	84,547,315	-	-	84,547,315
Changes in benefit terms	8,058,934	-	-	8,058,934
Differences between Expected and Actual Experience with regard to economic or demographic assumptions	(9,834,830)	9,834,830	-	-
Current year amortization of experience difference	-	(1,321,266)	(2,633,643)	1,312,377
Change in assumptions about future economic or demographic factors or other inputs	12,707,469	-	12,707,469	-
Current year amortization of change in assumptions	-	(597,317)	(2,131,009)	1,533,692
Benefit Payments, including Refunds of Employee Contributions	(58,824,392)	-	-	-
Net change	<u>62,846,219</u>	<u>7,916,247</u>	<u>7,942,817</u>	<u>121,644,041</u>
Plan Fiduciary Net Position:				
Contributions - Employer	21,057,765	-	(15,364,310)	-
Contributions - Employee	17,858,397	-	-	(17,858,397)
Projected Net Investment Income	69,202,794	-	-	(69,202,794)
Difference between projected and actual earnings on Pension Plan investments	72,332,638	72,332,638	-	-
Current year amortization	-	(30,210,027)	(31,263,474)	1,053,447
Benefit Payments, including Refunds of Employee Contributions	(58,824,392)	-	-	-
Administrative Expenses	(852,192)	-	-	852,192
Net change	<u>120,775,010</u>	<u>42,122,611</u>	<u>(46,627,784)</u>	<u>(85,155,552)</u>
Ending Balance	<u>\$ 126,132,032</u>	<u>\$ 102,093,978</u>	<u>TBD</u>	<u>\$ 36,488,489</u>

\* Employer Contributions subsequent to the measurement date made after December 31, 2019 but made on or before September 30, 2020 need to be added.



AMORTIZATION SCHEDULE - INVESTMENT

Increase (Decrease) in Pension Expense Arising from the Recognition of the of Differences Between Projected and Actual Earnings on Pension Plan Investments

Plan Year Ending	Differences Between Projected and Actual Earnings	Recognition Period (Years)	2019	2020	2021	2022	2023	2024	2025	2026	2027
2019	\$ (72,332,638)	5	\$ -	\$ (14,466,526)	\$ (14,466,528)	\$ (14,466,528)	\$ (14,466,528)	\$ (14,466,528)	\$ -	\$ -	\$ -
2018	\$ 97,803,222	5	\$ 19,560,646	\$ 19,560,644	\$ 19,560,644	\$ 19,560,644	\$ 19,560,644	\$ -	\$ -	\$ -	\$ -
2017	\$ (78,717,503)	5	\$ (15,743,501)	\$ (15,743,501)	\$ (15,743,501)	\$ (15,743,501)	\$ -	\$ -	\$ -	\$ -	\$ -
2016	\$ 4,462,041	5	\$ 892,408	\$ 892,408	\$ 892,408	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
2015	\$ 54,052,112	5	\$ 10,810,422	\$ 10,810,422	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
2014	\$ 15,746,691	5	\$ 3,149,338	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Net Increase (Decrease) in Pension Expense			\$ 18,669,313	\$ 1,053,447	\$ (9,756,977)	\$ (10,649,385)	\$ 5,094,116	\$ (14,466,528)	\$ -	\$ -	\$ -

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)	2019	2020	2021	2022	2023	2024	2025	2026	2027
2019	\$ 12,707,469	8	\$ -	\$ 1,588,431	\$ 1,588,434	\$ 1,588,434	\$ 1,588,434	\$ 1,588,434	\$ 1,588,434	\$ 1,588,434	\$ 1,588,434
2018	\$ (4,778,539)	8	\$ (597,320)	\$ (597,317)	\$ (597,317)	\$ (597,317)	\$ (597,317)	\$ (597,317)	\$ (597,317)	\$ (597,317)	\$ -
2014	\$ 4,883,207	9	\$ 542,579	\$ 542,578	\$ 542,578	\$ 542,578	\$ 542,578	\$ -	\$ -	\$ -	\$ -
Net Increase (Decrease) in Pension Expense			\$ (54,741)	\$ 1,533,692	\$ 1,533,695	\$ 1,533,695	\$ 1,533,695	\$ 991,117	\$ 991,117	\$ 991,117	\$ 1,588,434
Average future working lifetime of actives:			13.73								

AMORTIZATION SCHEDULE - EXPERIENCE

Increase (Decrease) in Pension Expense Arising from the Recognition of the Effects of Differences between Expected and Actual Experience

Plan Year Ending	Differences Between Expected and Actual Experience	Recognition Period (Years)	2019	2020	2021	2022	2023	2024	2025	2026	2027
2019	\$ (9,834,830)	8	\$ -	\$ (1,229,352)	\$ (1,229,354)	\$ (1,229,354)	\$ (1,229,354)	\$ (1,229,354)	\$ (1,229,354)	\$ (1,229,354)	\$ (1,229,354)
2018	\$ (735,314)	8	\$ (91,916)	\$ (91,914)	\$ (91,914)	\$ (91,914)	\$ (91,914)	\$ (91,914)	\$ (91,914)	\$ (91,914)	\$ -
2017	\$ 4,360,239	7	\$ 622,891	\$ 622,891	\$ 622,891	\$ 622,891	\$ 622,891	\$ 622,891	\$ -	\$ -	\$ -
2016	\$ 8,893,371	8	\$ 1,111,672	\$ 1,111,671	\$ 1,111,671	\$ 1,111,671	\$ 1,111,671	\$ 1,111,671	\$ -	\$ -	\$ -
2015	\$ 7,192,645	8	\$ 899,081	\$ 899,081	\$ 899,081	\$ 899,081	\$ 899,081	\$ -	\$ -	\$ -	\$ -
Net Increase (Decrease) in Pension Expense			\$ 2,541,728	\$ 1,312,377	\$ 1,312,375	\$ 1,312,375	\$ 1,312,375	\$ 413,294	\$ (1,321,268)	\$ (1,321,268)	\$ (1,229,354)

Average future working lifetime of actives: 13.73