

ORANGE FIREMEN'S  
RELIEF AND RETIREMENT FUND

ACTUARIAL VALUATION  
AS OF JANUARY 1, 2017



August 8, 2017

Board of Trustees  
Orange Firemen's  
Relief and Retirement Fund

Re: Orange Firemen's Relief and Retirement Fund

Dear Board:

We are pleased to present to the Board this report of the actuarial valuation of the Orange Firemen's Relief and Retirement Fund. The valuation was performed to determine whether the assets and contributions are sufficient to provide the prescribed benefits and to develop the appropriate funding requirements for the applicable plan year(s). Please note that this valuation may not be applicable for any other purposes.

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 the Texas Local Fire Fighters' Retirement Act (TLFFRA) and Vernon's Texas Civil Statutes, as well as applicable federal laws and regulations. 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.

In conducting the valuation, we have relied on personnel, plan design, financial reports, and asset information supplied by the Fund 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 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 Orange, nor does anyone at Foster & Foster Inc. act as a member of the Board of Trustees of the Orange Firemen's Relief and Retirement Fund. 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

BRH/lke

Enclosures

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## SUMMARY OF REPORT

The actuarial valuation of the Orange Firemen’s Relief and Retirement Fund, performed as of January 1, 2017, has been completed and the results are presented in this Report. The pension costs, compared with those developed in the January 1, 2015 actuarial valuation (as performed by John Crider, Jr.), are as follows:

<u>Valuation Date</u>	New Assumptions <u>1/1/2017</u>	Old Assumptions <u>1/1/2017</u>	Old Assumptions <u>1/1/2015</u>
Current Normal Cost Rate % of Covered Payroll	12.76%	13.13%	12.89%
Actuarial Accrued Liability (AAL)	\$16,353,849	\$16,619,214	\$16,345,289
Actuarial Value of Assets (AVA)	\$8,154,674	\$8,968,011	\$9,383,309
Unfunded Actuarial Accrued Liability (UAAL = AAL - AVA)	\$8,199,175	\$7,651,203	\$6,961,980
Funded Ratio (AVA / AAL)	49.9%	54.0%	57.4%
Amortization Period	69.3 years	59.5 years	58.2 years
Expected City Contribution Rate	14.00%	14.00%	14.00%
Expected Member Contribution Rate	12.00%	12.00%	11.00%
Total Expected Contribution Rate	26.00%	26.00%	25.00%
City 20-Year Funding Cost <sup>1</sup>	24.60%	23.40%	
City 30-Year Funding Cost <sup>2</sup>	19.25%	18.40%	
City 40-Year Funding Cost <sup>1</sup>	16.74%	16.05%	

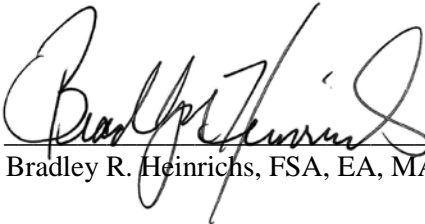
<sup>1</sup> The Texas Pension Review Board Guidelines for Actuarial Soundness state that funding should be adequate to amortize the UAAL over a period not to exceed 40 years, with 15-25 years being a more preferable target.

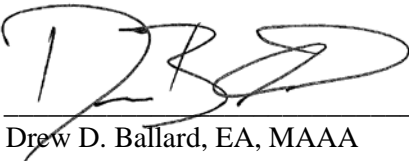
<sup>2</sup> Per Section 802.101(a) of the Texas Government Code, the actuarial valuation must include a recommended contribution rate needed for the system to achieve and maintain an amortization period that does not exceed 30 years.

The balance of this Report presents additional details of the actuarial valuation and the general operation of the Fund. The undersigned would be pleased to meet with the Board of Trustees in order to discuss the Report and answer any pending questions concerning its contents.

Respectfully submitted,

FOSTER & FOSTER INC.

By:   
Bradley R. Heinrichs, FSA, EA, MAAA

By:   
Drew D. Ballard, EA, MAAA

## CHANGES SINCE PRIOR VALUATION

### Benefit/Fund Changes

Since the previous valuation, the member contribution rate was increased from 11.00% to 11.50% effective October 1, 2015 and further increased to 12.00%, effective October 1, 2016.

### Actuarial Assumption/Method Changes

As approved by the Board of Trustees at the July 20<sup>th</sup> meeting, there have been three changes to the actuarial assumptions and methods:

- The assumed rate of DROP election was changed from 95% to 20% to better align with actual plan experience
- The assumed rate of salary increases for members who have completed 25+ years of service was increased from 2.0% per year to 3.0% per year
- The actuarial asset method was changed to eliminate asset smoothing

COMPARATIVE SUMMARY OF PRINCIPAL VALUATION RESULTS

	New Assums <u>1/1/2017</u>	Old Assums <u>1/1/2017</u>	Old Assums <u>1/1/2015</u>
<b>A. Participant Data</b>			
Actives	37	37	37
Service Retirees + Alt Payees	35	35	32
Beneficiaries	6	6	5
Disability Retirees	1	1	1
Terminated Vested	1	1	1
	<hr/>	<hr/>	<hr/>
Total	80	80	76
Covered Payroll	2,440,054	2,436,910	2,292,120
Payroll Under Assumed Ret. Age	2,246,571	2,245,306	n/a
Annual Rate of Payments to:			
Service Retirees + Alt Payees	973,360	973,360	864,616
Beneficiaries	86,300	86,300	80,158
Disability Retirees	26,690	26,690	26,690
Terminated Vested	38,400	38,400	0
<b>B. Assets</b>			
Actuarial Value	8,154,674	8,968,011	9,383,309
Market Value	8,154,674	8,154,674	9,309,315
<b>C. Liabilities</b>			
Present Value of Benefits			
Active Members			
Retirement Benefits	6,669,259	7,030,129	8,539,296
Termination Benefits	504,908	504,790	413,451
Death Benefits	119,635	118,830	95,681
Disability Benefits	906,329	896,968	470,332
Service Retirees + Alt Payees	10,093,675	10,093,675	9,046,835
Beneficiaries	697,805	697,805	686,118
Disability Retirees	317,129	317,129	322,353
Terminated Vested	409,490	409,490	21,315
	<hr/>	<hr/>	<hr/>
Total	19,718,230	20,068,816	19,595,381



	New Assums <u>1/1/2017</u>	Old Assums <u>1/1/2017</u>	Old Assums <u>1/1/2015</u>
C. Liabilities - (Continued)			
Present Value of Future Salaries	27,442,579	27,259,954	n/a
Normal Cost (Entry Age Normal)			
Retirement Benefits	188,667	196,858	230,601
Termination Benefits	37,753	37,753	33,701
Death Benefits	6,662	6,640	5,733
Disability Benefits	42,927	42,641	25,356
Total Normal Cost	<u>276,009</u>	<u>283,892</u>	<u>295,391</u>
Present Value of Future Normal Costs	3,364,381	3,449,602	3,250,092
Actuarial Accrued Liability			
Retirement Benefits	4,338,159	4,606,068	n/a
Termination Benefits	100,128	100,132	n/a
Death Benefits	36,749	36,572	n/a
Disability Benefits	360,714	358,343	n/a
Inactives	11,518,099	11,518,099	10,076,621
Total Actuarial Accrued Liability	<u>16,353,849</u>	<u>16,619,214</u>	<u>16,345,289</u>
Unfunded Actuarial Accrued Liability (UAAL)	8,199,175	7,651,203	6,961,980
Funded Ratio (AVA/AL)	49.9%	54.0%	57.4%
D. Actuarial Present Value of Accrued Benefits			
Inactives	11,518,099	11,518,099	10,076,621
Actives	4,525,507	4,744,352	n/a
Total Present Value Accrued Benefits	<u>16,043,606</u>	<u>16,262,451</u>	<u>n/a</u>
Funded Ratio (MVA/PVAB)	50.8%	50.1%	n/a

## GAIN/LOSS ANALYSIS

### a. Total Gain/(Loss)

1. Unfunded Actuarial Accrued Liability as of January 1, 2015	6,961,980
2. Normal Cost applicable for 2015	295,391
3. Normal Cost applicable for 2016	312,819
4. Interest on (1), (2) and (3)	1,192,726
5. Contributions made during 2015	551,768
6. Contributions made during 2016	582,788
7. Interest on (5) and (6)	87,953
8. Expected UAAL as of January 1, 2017: (1)+(2)+(3)+(4)-(5)-(6)-(7)	7,540,407
9. Actual UAAL as of January 1, 2017 (Before Changes)	7,651,203
 Total Actuarial Gain/(Loss)	 (110,796)

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

1. Actuarial Value of Assets as of January 1, 2015	9,383,309
2. Contributions Less Benefit Payments	(1,318,410)
3. Expected Investment Earnings	1,397,451
4. Expected AVA as of January 1, 2017: (1)+(2)+(3)	9,462,350
5. Actual Actuarial Value of Assets as of January 1, 2017 (Before Changes)	8,968,011
 Gain/(Loss) on Assets	 (494,339)

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

1. Expected Actuarial Accrued Liability: a(8)+b(4)	17,002,757
2. Actual Actuarial Accrued Liability (Before Changes)	16,619,214
 Gain/(Loss) on Liabilities	 383,543

ACTUARIAL ASSUMPTIONS AND METHODS

**Assumption Rationale**

**Most of the assumptions and methods stated below were utilized by the prior actuary. Since this is our first actuarial valuation, we not do have adequate historical Fund experience to incorporate a sufficient rationale for all of the actuarial assumptions stated below at this time.**

Mortality Rates

RP-2000 projected to 2024 using Scale AA -- Sex Distinct. We feel this sufficiently accommodates for expected mortality improvements.

Retirement Age

		Service	
		20	21+
Age	50	0.2692	0.2692
	51	0.4615	0.1923
	52	0.5385	0.0769
	53	0.5769	0.0385
	54	0.6154	0.0385
	55	0.6923	0.0769
	56	0.8077	0.1154
	57	0.8846	0.0769
	58	0.9231	0.0385
	59	0.9615	0.0385
	60+	1	1

Termination Rates

Table T-1 from the Actuary’s Pension Handbook. Sample rates are displayed below.

<u>Age</u>	<u>Rate</u>
25	4.97%
35	2.49%
45	0.62%
55+	0.00%

Disability Rates

Sample rates are displayed below.

<u>Age</u>	<u>Rate</u>
25	0.111%
35	0.152%
45	0.335%
55	0.858%

Interest Rate

7.75% per year, compounded annually, net of expenses. This is supported by the target asset allocation of the trust and the expected long-term return by asset class.

Salary Increases

<u>Service</u>	<u>Increase</u>
0-4	9.0%
5-9	5.5
10-14	5.0
15-19	4.7
20-24	3.1
25+	3.0

Payroll Growth

4% per year, compounded annually.

Funding Method

Entry Age Normal Actuarial Cost Method

Marital Status

90% of active participants are assumed to be married at the time of retirement. Males are assumed to be three years older than their spouses.

Dependent Children

Each member is assumed to have two children. The first child is assumed to have been born when the member was age 25. The second child is assumed to be two years younger. It is also assumed that benefits will be paid until each child reaches the age of 23.

Contribution Rates

Members – 12.00%  
City – 14.00%

Payment Form

Members' eligible for the DROP are assumed to elect the DROP 20% of the time and straight service retirement 80% of the time. Other members are assumed to receive straight service retirement.

Actuarial Asset Method

Fair Market Value.

## VALUATION NOTES

Covered Payroll is the projected annual rate of pay for the year beginning on the valuation date of all covered Members.

Payroll under Assumed Retirement Age is the projected annual rate of pay for the year beginning on the valuation date of all active participants who are not subject to a 100% probability of retirement on the valuation date.

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. The funding span utilized in determination of the normal cost rate for each benefit is to the last age at which that benefit is payable.

(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 BY ENROLLED ACTUARY

This actuarial valuation was prepared and completed by me or under my direct supervision, and I acknowledge responsibility for the results. To the best of my knowledge, the results are complete and accurate, and in my opinion, the techniques and assumptions used are reasonable and meet the requirements and intent of the Texas Local Fire Fighters' Retirement Act (TLFFRA), Vernon's Texas Civil Statutes, and adhere to the Actuarial Standards of Practice. There is no benefit or expense to be provided by the plan and/or paid from the plan's assets for which liabilities or current costs have not been established or otherwise taken into account in the valuation. All known events or trends which may require a material increase in plan costs or required contribution rates have been taken into account in the valuation.



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

STATEMENT OF FIDUCIARY NET POSITION  
DECEMBER 31, 2016

<u>ASSETS</u>	COST VALUE	MARKET VALUE
Cash and Cash Equivalents:		
Checking Account	166,671.06	166,671.06
Money Market	244,184.12	244,184.12
Cash	447.17	447.17
Total Cash and Equivalents	411,302.35	411,302.35
Receivables:		
From Broker for Investments Sold	22,992.76	22,992.76
Investment Income	7,040.02	7,040.02
Total Receivable	30,032.78	30,032.78
Investments:		
U. S. Bonds and Bills	442,066.72	441,928.11
Federal Agency Guaranteed Securities	31,389.06	44,389.50
Corporate Bonds	640,998.75	640,958.80
Stocks	3,920,261.38	4,516,603.38
Mutual Funds:		
Fixed Income	1,475,395.17	1,419,906.57
Equity	703,952.55	693,189.43
Total Investments	7,214,063.63	7,756,975.79
Total Assets	7,655,398.76	8,198,310.92
<u>LIABILITIES</u>		
Payables:		
To Broker for Investments Purchased	43,636.74	43,636.74
Total Liabilities	43,636.74	43,636.74
NET POSITION RESTRICTED FOR PENSIONS	7,611,762.02	8,154,674.18



STATEMENT OF CHANGES IN FIDUCIARY NET POSITION  
FOR THE YEAR ENDED DECEMBER 31, 2016  
Market Value Basis

ADDITIONS

Contributions:		
Member		264,331.59
City		318,456.76
Total Contributions		582,788.35
Investment Income:		
Net Realized Gain (Loss)	428,687.45	
Unrealized Gain (Loss)	(123,037.37)	
Net Increase in Fair Value of Investments		305,650.08
Interest & Dividends		180,166.64
Less Investment Expense <sup>1</sup>		(92,669.41)
Net Investment Income		393,147.31
Total Additions		975,935.66

DEDUCTIONS

Distributions to Members:		
Benefit Payments		1,093,499.54
Lump Sum DROP Distributions		0.00
Refunds of Member Contributions		22,274.84
Total Distributions		1,115,774.38
Administrative Expense		18,665.77
Total Deductions		1,134,440.15
Net Increase in Net Position		(158,504.49)
NET POSITION RESTRICTED FOR PENSIONS		
Beginning of the Year		8,313,178.67
End of the Year		8,154,674.18

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

ACTUARIAL ASSET VALUATION  
December 31, 2016

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				
		2017	2018	2019	2020	2021
12/31/2012	252,686	0	0	0	0	0
12/31/2013	623,701	124,741	0	0	0	0
12/31/2014	(494,297)	(197,719)	(98,861)	0	0	0
12/31/2015	(901,749)	(541,049)	(360,700)	(180,349)	0	0
12/31/2016	(249,136)	(199,310)	(149,482)	(99,654)	(49,828)	0
Total		(813,337)	(609,043)	(280,003)	(49,828)	0

<u>Development of Investment Gain/(Loss)</u>	
Market Value of Assets, 12/31/2015	8,313,179
Contributions Less Benefit Payments	(532,986)
Expected Investment Earnings*	623,618
Actual Net Investment Earnings	374,482
2016 Actuarial Investment Gain/(Loss)	<u>(249,136)</u>

\*Expected Investment Earnings =  $0.0775 * [8,313,179 + 0.5 * (532,986)]$

<u>Development of Actuarial Value of Assets</u>	
(1) Market Value of Assets, 12/31/2016	8,154,674
(2) Gains/(Losses) Not Yet Recognized	(813,337)
(3) Actuarial Value of Assets, 12/31/2016, (1) - (2)	<u>8,968,011</u>
(A) 12/31/2015 Actuarial Assets:	9,031,139
(I) Net Investment Income:	
1. Interest, Dividends and Misc Income	180,167
2. Realized Gains (Losses)	428,687
3. Change in Actuarial Value	(27,660)
4. Investment & Administrative Expenses	(111,335)
Total	<u>469,859</u>
(B) 12/31/2016 Actuarial Assets:	8,968,011
Actuarial Asset Rate of Return = $2I/(A+B-I)$ :	5.36%
Market Value of Assets Rate of Return:	4.65%
12/31/2016 Limited Actuarial Assets:	8,968,011
Actuarial Gain/(Loss) due to Investment Return (Actuarial Asset Basis)	(209,401)

CHANGES IN NET ASSETS AVAILABLE FOR BENEFITS  
 DECEMBER 31, 2016  
 Actuarial Asset Basis

REVENUES

Contributions:		
Member	264,331.59	
City	318,456.76	
Total Contributions		582,788.35
Earnings from Investments:		
Interest & Dividends	180,166.64	
Net Realized Gain (Loss)	428,687.45	
Change in Actuarial Value	(27,660.37)	
Total Earnings and Investment Gains		581,193.72

EXPENDITURES

Distributions to Members:		
Benefit Payments	1,093,499.54	
Lump Sum DROP Distributions	0.00	
Refunds of Member Contributions	22,274.84	
Total Distributions		1,115,774.38
Expenses:		
Investment related <sup>1</sup>	92,669.41	
Administrative	18,665.77	
Total Expenses		111,335.18
Change in Net Assets for the Year		(63,127.49)
Net Assets Beginning of the Year		9,031,138.67
Net Assets End of the Year <sup>2</sup>		8,968,011.18

<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.

STATEMENT OF FIDUCIARY NET POSITION  
DECEMBER 31, 2015

<u>ASSETS</u>	COST VALUE	MARKET VALUE
Cash and Cash Equivalents:		
Checking Account	164,082.55	164,082.55
Money Market	140,579.71	140,579.71
Cash	88.27	88.27
 Total Cash and Equivalents	 304,750.53	 304,750.53
Receivables:		
From Broker for Investments Sold	97.84	97.84
Investment Income	9,607.20	9,607.20
 Total Receivable	 9,705.04	 9,705.04
Investments:		
U. S. Bonds and Bills	712,997.04	709,839.62
Federal Agency Guaranteed Securities	52,356.84	72,625.50
Corporate Bonds	927,916.96	936,604.73
Stocks	4,031,110.55	4,711,174.20
Mutual Funds:		
Fixed Income	995,550.39	963,147.73
Equity	643,595.30	610,692.52
 Total Investments	 7,363,527.08	 8,004,084.30
 Total Assets	 7,677,982.65	 8,318,539.87
 <u>LIABILITIES</u>		
Payables:		
To Broker for Investments Purchased	5,361.20	5,361.20
 Total Liabilities	 5,361.20	 5,361.20
 NET POSITION RESTRICTED FOR PENSIONS	 7,672,621.45	 8,313,178.67

STATEMENT OF CHANGES IN FIDUCIARY NET POSITION  
FOR THE YEAR ENDED DECEMBER 31, 2015  
Market Value Basis

ADDITIONS

Contributions:

Member	244,463.82	
City	307,304.14	

Total Contributions		551,767.96
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Investment Income:

Net Realized Gain (Loss)	345,756.65		
Unrealized Gain (Loss)	(612,917.87)		
Net Increase in Fair Value of Investments		(267,161.22)	
Interest & Dividends		177,868.13	
Less Investment Expense <sup>1</sup>		(97,217.15)	

Net Investment Income		(186,510.24)
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Total Additions		365,257.72
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DEDUCTIONS

Distributions to Members:

Benefit Payments	1,056,447.84	
Lump Sum DROP Distributions	65,014.51	
Refunds of Member Contributions	215,729.50	

Total Distributions		1,337,191.85
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Administrative Expense		24,201.76
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Total Deductions		1,361,393.61
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Net Increase in Net Position		(96,135.89)
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NET POSITION RESTRICTED FOR PENSIONS

Beginning of the Year		9,309,314.56
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End of the Year		8,313,178.67
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<sup>1</sup>Investment related expenses include investment advisory, custodial and performance monitoring fees.

ACTUARIAL ASSET VALUATION  
December 31, 2015

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				
		2016	2017	2018	2019	2020
12/31/2011	(769,258)	0	0	0	0	0
12/31/2012	252,686	50,538	0	0	0	0
12/31/2013	623,701	249,480	124,741	0	0	0
12/31/2014	(494,297)	(296,578)	(197,719)	(98,861)	0	0
12/31/2015	(901,749)	(721,400)	(541,049)	(360,700)	(180,349)	0
Total		(717,960)	(614,027)	(459,561)	(180,349)	0

<u>Development of Investment Gain/(Loss)</u>	
Market Value of Assets, 12/31/2014	9,309,315
Contributions Less Benefit Payments	(785,424)
Expected Investment Earnings*	691,037
Actual Net Investment Earnings	(210,712)
2015 Actuarial Investment Gain/(Loss)	<u>(901,749)</u>

\*Expected Investment Earnings =  $0.0775 * [9,309,315 + 0.5 * (785,424)]$

<u>Development of Actuarial Value of Assets</u>	
(1) Market Value of Assets, 12/31/2015	8,313,179
(2) Gains/(Losses) Not Yet Recognized	(717,960)
(3) Actuarial Value of Assets, 12/31/2015, (1) - (2)	<u>9,031,139</u>
(A) 12/31/2014 Actuarial Assets:	9,383,309
(I) Net Investment Income:	
1. Interest, Dividends and Misc Income	177,868
2. Realized Gains (Losses)	345,757
3. Change in Actuarial Value	31,048
4. Investment & Administrative Expenses	(121,419)
Total	<u>433,254</u>
(B) 12/31/2015 Actuarial Assets:	9,031,139
Actuarial Asset Rate of Return = $2I/(A+B-I)$ :	4.82%
Market Value of Assets Rate of Return:	-2.36%
12/31/2015 Limited Actuarial Assets:	9,031,139
Actuarial Gain/(Loss) due to Investment Return (Actuarial Asset Basis)	(263,517)

CHANGES IN NET ASSETS AVAILABLE FOR BENEFITS  
 DECEMBER 31, 2015  
 Actuarial Asset Basis

REVENUES

Contributions:		
Member	244,463.82	
City	307,304.14	
Total Contributions		551,767.96
Earnings from Investments:		
Interest & Dividends	177,868.13	
Net Realized Gain (Loss)	345,756.65	
Change in Actuarial Value	31,047.69	
Total Earnings and Investment Gains		554,672.47

EXPENDITURES

Distributions to Members:		
Benefit Payments	1,056,447.84	
Lump Sum DROP Distributions	65,014.51	
Refunds of Member Contributions	215,729.50	
Total Distributions		1,337,191.85
Expenses:		
Investment related <sup>1</sup>	97,217.15	
Administrative	24,201.76	
Total Expenses		121,418.91
Change in Net Assets for the Year		(352,170.33)
Net Assets Beginning of the Year		9,383,309.00
Net Assets End of the Year <sup>2</sup>		9,031,138.67

<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>1/1/2015</u>	<u>1/1/2017</u>
Actives	37	37
Average Current Age	36.8	34.0
Average Age at Employment	25.2	24.4
Average Past Service	11.6	9.6
Average Annual Salary	\$61,949	\$65,947



## AGE AND SERVICE DISTRIBUTION

### PAST SERVICE

AGE	0	1	2	3	4	5-9	10-14	15-19	20-24	25-29	30+	Total
15 - 19	0	0	0	0	0	0	0	0	0	0	0	0
20 - 24	3	4	0	0	0	0	0	0	0	0	0	7
25 - 29	1	2	1	2	0	7	0	0	0	0	0	13
30 - 34	0	0	0	0	2	3	1	0	0	0	0	6
35 - 39	0	0	1	0	0	1	0	0	0	0	0	2
40 - 44	0	0	0	0	0	0	0	2	0	0	0	2
45 - 49	0	0	0	0	0	0	0	0	0	1	0	1
50 - 54	0	0	0	0	0	0	0	0	1	1	0	2
55 - 59	0	0	0	0	0	0	0	0	0	2	0	2
60 - 64	0	0	0	0	0	0	0	0	0	1	0	1
65+	0	0	0	0	0	0	0	0	0	0	1	1
Total	4	6	2	2	2	11	1	2	1	5	1	37

## SUMMARY OF BENEFIT PROVISIONS

<u>Credited Service</u>	Period of continuous employment covered by the Fund during which a member pays into, and keeps on deposit in the Fund, the contributions required by the Fund. A fund member also receives service credit for those periods during which the member received a disability benefit from the fund. Credited Service will be calculated in completed years and months.
<u>Compensation</u>	Total pay including regular, longevity and overtime compensation and compensation received during a period of sick leave or vacation/holiday leave, but excluding lump sum distributions for unused sick leave or vacation/holiday leave.
<u>Average Salary</u>	Average Compensation for the highest 60-month average salary.
<u>Member Contributions</u>	12.00% of Compensation.
<u>Service Retirement</u>	
Date	Attainment at age 50 and 20 years of Credited Service.
Benefit	Sum of a. and b., below, where: <ul style="list-style-type: none"><li>a. 2.60 percent of the member's Average Salary multiplied by his or her number of years of service not in excess of 20, and</li><li>b. \$91.00 per month for each year of service in excess of 20.</li></ul>
Form of Benefit	Life Annuity with two-thirds (2/3) continued to Surviving Spouse for married members and Life Annuity for unmarried members at retirement.
<u>Disability</u>	A member who qualifies for a disability retirement benefit will receive a monthly retirement income equal to their accrued benefit. Members who retire under a non-service related disability will be subject to a reduction of their accrued benefit unless they have completed 15 or more years of service.

## Death Benefits

Surviving Spouse of Member:

Sum of a.) 34.67% of the member's Average Salary, and b.) \$60.67 per month for each year of service in excess of 20. The death benefit will be subject to a reduction for non-service related deaths unless the member had completed 15 or more years of service.

Dependent Children of Member:

Each unmarried child is entitled to 6.93% of the member's Average Salary. If member's spouse subsequently dies or if there is no spouse, each eligible child is entitled to 13.86% of the member's Average Salary, payable until age 18 or until age 25 as long as the child remains a full-time student.

## Deferred Retirement Option Program

Eligibility

The later of a.) attainment age 53 and 23 years of Credited Service or b.) the date 36 months prior to retirement date in the member's DROP benefit calculation.

Participation Period

Not to exceed 36 months.

Payment

Sum of monthly Service Retirement benefit the member would have received if had retired on the DROP election date plus an amount equal to the member contributions to the fund while a DROP participant.

## Termination Benefits

Members with <20 years of Credited Service:

Refund of member contributions, without interest.

Members with 20+ years of Credited Service (prior to age 50):

Accrued benefit as described in the Service Retirement section, payable at age 50.

STATEMENT OF FIDUCIARY NET POSITION  
DECEMBER 31, 2016

<u>ASSETS</u>	MARKET VALUE
Cash and Cash Equivalents:	
Checking Account	166,671
Money Market	244,184
Cash	447
Total Cash and Equivalents	411,302
Receivables:	
From Broker for Investments Sold	22,993
Investment Income	7,040
Total Receivable	30,033
Investments:	
U. S. Bonds and Bills	441,928
Federal Agency Guaranteed Securities	44,390
Corporate Bonds	640,959
Stocks	4,516,603
Mutual Funds:	
Fixed Income	1,419,907
Equity	693,189
Total Investments	7,756,976
Total Assets	8,198,311
<u>LIABILITIES</u>	
Payables:	
To Broker for Investments Purchased	43,637
Total Liabilities	43,637
NET POSITION RESTRICTED FOR PENSIONS	8,154,674

STATEMENT OF CHANGES IN FIDUCIARY NET POSITION  
FOR THE YEAR ENDED DECEMBER 31, 2016  
Market Value Basis

ADDITIONS

## Contributions:

Member	264,331	
City	318,457	
Total Contributions		582,788
Investment Income:		
Net Increase in Fair Value of Investments	305,650	
Interest & Dividends	180,167	
Less Investment Expense <sup>1</sup>	(92,670)	
Net Investment Income		393,147
Total Additions		975,935

DEDUCTIONS

## Distributions to Members:

Benefit Payments	1,093,499	
Lump Sum DROP Distributions	0	
Refunds of Member Contributions	22,275	
Total Distributions		1,115,774
Administrative Expense		18,666
Total Deductions		1,134,440
Net Increase in Net Position		(158,505)
NET POSITION RESTRICTED FOR PENSIONS		
Beginning of the Year		8,313,179
End of the Year		8,154,674

<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, 2016)

Plan Description

*Plan Administration*

The Plan is a single-employer defined benefit pension plan administered by the Plan's Board of Trustees. The Board is made up of three members elected from and by fund members, two representatives of the City of Orange, Texas, and two citizen members.

*Plan Membership as of January 1, 2017:*

Inactive Plan Members or Beneficiaries Currently Receiving Benefits	42
Inactive Plan Members Entitled to But Not Yet Receiving Benefits	1
Active Plan Members	37
	80

*Benefits Provided*

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

Service Retirement:

Date: Attainment at age 50 and 20 years of Credited Service.

Benefit: Sum of a. and b., below, where:

- a. 2.60 percent of the member's Average Salary multiplied by his or her number of years of service not in excess of 20, and
- b. \$91.00 per month for each year of service in excess of 20.

Disability:

A member who qualifies for a disability retirement benefit will receive a monthly retirement income equal to their accrued benefit. Members who retire under a non-service related disability will be subject to a reduction of their accrued benefit unless they have completed 15 or more years of service.

Death Benefits:

Surviving Spouse of Member: Sum of a.) 34.67% of the member's Average Salary, and b.) \$60.67 per month for each year of service in excess of 20. The death benefit will be subject to a reduction for non-service related deaths unless the member had completed 15 or more years of service.

Dependent Children of Member: Each unmarried child is entitled to 6.93% of the member's Average Salary. If member's spouse subsequently dies or if there is no spouse, each eligible child is entitled to 13.86% of the member's Average Salary, payable until age 18 or until age 25 as long as the child remains a full-time student.

Termination Benefits:

Members with <20 years of Credited Service: Refund of member contributions, without interest.

Members with 20+ years of Credited Service (prior to age 50): Accrued benefit as described in the Service Retirement section, payable at age 50.

*Contributions*

Members: 12.00%.

City: 14.00%.

## GASB 67

### Investments

#### *Investment Policy:*

The following was the Board's adopted asset allocation policy as of December 31, 2016:

<u>Asset Class</u>	<u>Target Allocation</u>
Domestic Equity Large Cap Growth	13.00%
Domestic Equity Large Cap Value	13.00%
Domestic Equity Smid Cap	9.00%
International Equity	20.00%
Emerging Markets	10.00%
<u>Domestic Fixed Income</u>	<u>35.00%</u>
Total	<u>100.00%</u>

#### *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, 2016, the annual money-weighted rate of return on Pension Plan investments, net of Pension Plan investment expense, was 4.84 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

Eligibility: The later of a.) attainment age 53 and 23 years of Credited Service or b.) the date 36 months prior to retirement date in the member's DROP benefit calculation.

Participation Period: Not to exceed 36 months.

Payment: Sum of monthly Service Retirement benefit the member would have received if had re-tired on the DROP election date plus an amount equal to the member contributions to the fund while a DROP participant.

The DROP balance as December 31, 2016 is \$0.

## NET PENSION LIABILITY OF THE SPONSOR

The components of the Net Pension Liability of the Sponsor on December 31, 2016 were as follows:

Total Pension Liability	\$ 19,344,058
Plan Fiduciary Net Position	\$ (8,154,674)
Sponsor's Net Pension Liability	<u>\$ 11,189,384</u>
Plan Fiduciary Net Position as a percentage of Total Pension Liability	42.16%

*Actuarial Assumptions:*

The Total Pension Liability was determined by an actuarial valuation as of January 1, 2017 using the following actuarial assumptions:

Inflation	2.00%
Salary Increases	Service based
Discount Rate	6.01%
Investment Rate of Return	7.75%

Mortality Rates:RP-2000 projected to 2024 using Scale AA - Sex Distinct. We feel this sufficiently accommodates for expected mortality improvements.

The most recent actuarial experience study used to review the other significant assumptions was not available.

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 2016, the inflation rate assumption of the investment advisor was 2.00%.

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 geometric real rates of return for each major asset class included in the Pension Plan's target asset allocation as of December 31, 2016 are summarized in the following table:

Asset Class	Long Term Expected Real Rate of Return
Domestic Equity Large Cap Growth	8.30%
Domestic Equity Large Cap Value	8.00%
Domestic Equity Smid Cap	9.25%
International Equity	8.20%
Emerging Markets	10.80%
Domestic Fixed Income	3.00%



## GASB 67

### Discount Rate:

The projection of cash flows used to determine the Discount Rate assumed that current Plan Member and Sponsor contributions will be made at the current contribution rate. Future Member's contributions in excess of their normal cost were also included. Based on those assumptions, the Pension Plan's Fiduciary Net Position was projected to provide future benefit payments for 37 years. These payments were discounted using a Discount Rate of 7.75%. Future benefits payments beyond 37 years were discounted using a high quality municipal bond rate of 3.78%. The high quality municipal bond rate was based on the week closest to, but not later than, the measurement date of the Bond Buyer 20-Bond Index as published by the Bond Buyer. The single equivalent discount rate was 6.01%.

	1% Decrease 5.01%	Current Discount Rate 6.01%	1% Increase 7.01%
Sponsor's Net Pension Liability	\$ 13,513,788	\$ 11,189,384	\$ 9,256,980

**SCHEDULE OF CHANGES IN NET PENSION LIABILITY AND RELATED RATIOS**  
Last 10 Years

	12/31/2016	12/31/2015 <sup>1</sup>	12/31/2014 <sup>1</sup>
Total Pension Liability			
Service Cost	275,111	266,423	256,176
Interest	1,256,298	1,235,592	1,240,296
Changes of benefit terms	10,200	-	-
Differences between Expected and Actual Experience	(513,493)	-	(455,247)
Changes of assumptions	2,748,186	173,418	587,758
Benefit Payments, including Refunds of Employee Contributions	(1,115,774)	(1,337,192)	(1,084,609)
Net Change in Total Pension Liability	2,660,528	338,241	544,374
Total Pension Liability - Beginning	16,683,530	16,345,289	15,800,915
Total Pension Liability - Ending (a)	<u>\$ 19,344,058</u>	<u>\$ 16,683,530</u>	<u>\$ 16,345,289</u>
Plan Fiduciary Net Position			
Contributions - Employer	318,457	307,304	319,060
Contributions - Employee	264,331	244,464	250,694
Net Investment Income	393,147	(186,511)	251,513
Benefit Payments, including Refunds of Employee Contributions	(1,115,774)	(1,121,462)	(1,052,659)
Administrative Expense	(18,666)	(239,931)	(54,112)
Net Change in Plan Fiduciary Net Position	(158,505)	(996,136)	(285,504)
Plan Fiduciary Net Position - Beginning	8,313,179	9,309,315	9,594,819
Plan Fiduciary Net Position - Ending (b)	<u>\$ 8,154,674</u>	<u>\$ 8,313,179</u>	<u>\$ 9,309,315</u>
Net Pension Liability - Ending (a) - (b)	<u>\$ 11,189,384</u>	<u>\$ 8,370,351</u>	<u>\$ 7,035,974</u>
Plan Fiduciary Net Position as a percentage of the Total Pension Liability	42.16%	49.83%	56.95%
Covered Employee Payroll	\$ 2,274,689	\$ 2,195,029	\$ 2,279,000
Net Pension Liability as a percentage of Covered Employee Payroll	491.91%	381.33%	308.73%

**Notes to Schedule:**

<sup>1</sup> The 2014 and 2015 results were provided by the prior actuary, John M. Crider, Jr.

*Changes of benefit terms:*

For measurement date 12/1/2016, amounts reported as changes of benefits terms resulted from the following:

- The member contribution rate was increased from 11.00% to 11.50% effective October 1, 2015 and further increased to 12.00%, effective October 1, 2016.

*Changes of assumptions:*

For purposes of determining the GASB Discount Rate at the 12/31/2016 measurement date, a depletion date projection as of that date have been performed. The results of this projection showed a single Discount Rate of 6.01%. The Discount Rate was decreased from 7.66% to 6.01%. Other changes of assumptions in the 2016 year were the following:

- The assumed rate of DROP election was changed from 95% to 20% to better align with actual plan experience.
- The assumed rate of salary increases for members who have completed 25+ years of service was increased from 2.0% per year to 3.0% per year.
- The inflation assumption rate was lowered from 3.00% to 2.00%, matching the long-term inflation assumption utilized by the Plan's investment consultant.

**SCHEDULE OF CONTRIBUTIONS**  
Last 10 Years

	12/31/2016	12/31/2015 <sup>1</sup>	12/31/2014 <sup>1</sup>
Actuarially Determined Contribution	318,457	307,304	319,060
Contributions in relation to the Actuarially Determined Contributions	318,457	307,304	319,060
Contribution Deficiency (Excess)	\$ -	\$ -	\$ -
Covered Employee Payroll	\$ 2,274,689	\$ 2,195,029	\$ 2,279,000
Contributions as a percentage of Covered Employee Payroll	14.00%	14.00%	14.00%

<sup>1</sup> The 2014 and 2015 results were provided by the prior actuary, John M. Crider, Jr.

Notes to Schedule

Methods and assumptions used to determine liabilities:

**Assumption Rationale:**

**Most of the assumptions and methods stated below were utilized by the prior actuary. Since this is our first actuarial valuation, we not do have adequate historical Fund experience to incorporate a sufficient rationale for all of the actuarial assumptions stated below at this time.**

Mortality Rates:

RP-2000 projected to 2024 using Scale AA -- Sex Distinct. We feel this sufficiently accommodates for expected mortality improvements.

Retirement Age:

		<b>Service</b>	
		20	21+
<b>Age</b>	50	0.2692	0.2692
	51	0.4615	0.1923
	52	0.5385	0.0769
	53	0.5769	0.0385
	54	0.6154	0.0385
	55	0.6923	0.0769
	56	0.8077	0.1154
	57	0.8846	0.0769
	58	0.9231	0.0385
	59	0.9615	0.0385
	60+	1	1

Termination Rates:

Table T-1 from the Actuary's Pension Handbook. Sample rates are displayed below.

Age	Rate
25	4.97%
35	2.49%
45	0.62%
55+	0.00%

Disability Rates:

Sample rates are displayed below.

Age	Rate
25	0.111%
35	0.152%
45	0.335%
55	0.858%

## GASB 67

Interest Rate: target asset allocation of the trust and the expected long-term return by asset class.

Salary Increases:	<u>Service</u>	<u>Increase</u>
	0-4	9.0%
	5-9	5.5%
	10-14	5.0%
	15-19	4.7%
	20-24	3.1%
	25+	3.0%

Payroll Growth: 4% per year, compounded annually.

Funding Method: Entry Age Normal Actuarial Cost Method.

Marital Status: 90% of active participants are assumed to be married at the time of retirement. Males are assumed to be three years older than their spouses.

Dependent Children: Each member is assumed to have two children. The first child is assumed to have been born when the member was age 25. The second child is assumed to be two years younger. It is also assumed that benefits will be paid until each child reaches the age of 23

Payment Form: Members' eligible for the DROP are assumed to elect the DROP 20% of the time and straight service retirement 80% of the time. Other members are assumed to receive straight service retirement.

Actuarial Asset Method: Fair Market Value.

SCHEDULE OF INVESTMENT RETURNS  
Last 10 Years

	<u>12/31/2016</u>	<u>12/31/2015<sup>1</sup></u>	<u>12/31/2014<sup>1</sup></u>
Annual Money-Weighted Rate of Return			
Net of Investment Expense	4.84%	-2.08%	2.69%

<sup>1</sup> The 2014 and 2015 results were provided by the prior actuary, John M. Crider, Jr.