



May 16, 2018

Mr. Doug Adams, Chairman The Woodlands Firefighters' Retirement System P.O. Box 130388 The Woodlands, TX 77393

Re: The Woodlands Firefighters' Retirement System

Dear Mr. Adams:

We are pleased to present to the Board this report of the annual actuarial valuation of The Woodlands Firefighters' Retirement System. 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 appropriate preferred funding costs as outlined by the Texas Pension Review Board, as well as to determine 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. 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. 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.

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

The total pension liability, net pension liability, and certain sensitivity information shown in this report are

based on an actuarial valuation performed as of January 1, 2018. It is our opinion that the assumptions used for

this purpose are internally consistent, reasonable, and comply with the requirements under GASB No. 67 and

No. 68.

The undersigned is familiar with the immediate and long-term aspects of pension valuations, and meets the

Qualification Standards of the American Academy of Actuaries necessary to render the actuarial opinions

contained herein. All of the sections of this report are considered an integral part of the actuarial opinions.

To our knowledge, no associate of Foster & Foster Inc. working on valuations of the program has any direct

financial interest or indirect material interest in The Woodlands Township, nor does anyone at Foster & Foster

Inc. act as a member of the Board of Trustees of The Woodlands Firefighters' Retirement System. 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

TABLE OF CONTENTS

Introduction

Summary of Report	5
Changes since Prior Valuation	7
Comparative Summary of Principal Valuation Results	8
Gain/Loss Analysis	10
Report Information	
Actuarial Assumptions and Methods	11
Valuation Notes	13
Statement by Enrolled Actuary	15
Trust Fund	
Statement of Fiduciary Net Position	16
Statement of Changes in Fiduciary Net Position	17
Member Statistics	
Statistical Data	18
Age and Service Distribution	19
Summary of Benefit Provisions	
Summary	20
Governmental Accounting Standards Board Disclosure Statements	
GASB 67	22
GASB 68	32

SUMMARY OF REPORT

The annual actuarial valuation of The Woodlands Firefighters' Retirement System, performed as of January 1, 2018, has been completed and the results are presented in this Report. The pension costs, compared with those developed in the January 1, 2017 actuarial valuation, are illustrated below.

Valuation Date	1/1/2018	<u>1/1/2017</u>
Current Normal Cost Rate ¹		
% of Covered Payroll	22.66%	22.67%
Actuarial Accrued Liability (AAL)	\$30,398,682	\$26,569,468
Actuarial Value of Assets (AVA)	\$32,217,888	\$26,198,326
Unfunded Actuarial Accrued Liability		
(UAAL = AAL - AVA)	(\$1,819,206)	\$371,142
Funded Ratio (AVA / AAL)	106.0%	98.6%
Amortization Period	0.0 years	2.7 years
Expected Township Contribution Rate	12.00%	12.00%
Expected Member Contribution Rate	12.00%	12.00%
Total Expected Contribution Rate	24.00%	24.00%
Total 20-Year Funding Cost	22.66%	22.97%
Total 30-Year Funding Cost ²	22.66%	22.93%
Total 40-Year Funding Cost	22.66%	22.91%

¹ Includes expected administrative expenses of \$100,000 annually.

² 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. Since the system is currently over 100% funded, this amount is equal to the current normal cost rate.

As shown on the following page, the Total Normal Cost Rate determined as of January 1, 2018 is 22.66% of payroll. The current member contribution rate is 12.00% of payroll, leaving 10.66% of payroll required from the Township. Since the Township is currently scheduled to make annual contributions of 12.00% of payroll to the System, this means that there is a 1.34% of payroll annual contribution that is attributed to further build an Unfunded Actuarial Accrued Liability (UAAL) surplus.

During the past year there was net favorable actuarial experience on the basis of the actuarial assumptions. The principal components of actuarial gain resulted from a 12.5% investment return which exceeded the 7.0% assumption and average individual salary increases that were below the assumed rate. There were no material sources of actuarial loss.

The balance of this Report presents additional details of the actuarial valuation and the general operation of the System. 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

Bv:

Drew D. Ballard, EA, MAAA

CHANGES SINCE PRIOR VALUATION

Benefit/Fund Changes

There have been no changes in benefits or contribution rates since the previous valuation.

Actuarial Assumption/Method Changes

There have been no changes to the actuarial assumptions or methods since the previous valuation.

COMPARATIVE SUMMARY OF PRINCIPAL VALUATION RESULTS

	1/1/2018	1/1/2017
A. Participant Data		
Actives	140	136
Service Retirees	0	0
Beneficiaries	0	0
Disability Retirees	0	0
Terminated Vested	1	1
Total	141	137
Covered Payroll	11,904,079	11,383,983
Annual Rate of Payments to:		
Service Retirees	0	0
Beneficiaries	0	0
Disability Retirees	0	0
Terminated Vested	0	0
B. Assets		
Actuarial Value	32,217,888	26,198,326
Market Value	32,217,888	26,198,326
C. Liabilities		
Present Value of Benefits		
Active Members		
Retirement + Termination Benefits	56,646,656	52,963,384
Death Benefits	1,052,504	1,045,760
Disability Benefits	2,923,967	2,855,101
Service Retirees	0	0
Beneficiaries	0	0
Disability Retirees Terminated Vested	0	0
reminated vested	28,170	28,170
Total	60,651,297	56,892,415

	<u>1/1/2018</u>	1/1/2017
C. Liabilities - (Continued)		
Present Value of Future Salaries	142,910,036	143,503,310
Normal Cost (Entry Age Normal)		
Retirement + Termination Benefits	2,278,745	2,174,322
Death Benefits	62,213	59,832
Disability Benefits	165,652	159,125
Total Normal Cost	2,506,610	2,393,279
Present Value of Future Normal Costs	30,252,615	30,322,947
Actuarial Accrued Liability		
Retirement + Termination Benefits	29,071,968	25,332,902
Death Benefits	316,952	300,200
Disability Benefits	981,592	908,196
Inactives	28,170	28,170
Total Actuarial Accrued Liability	30,398,682	26,569,468
Unfunded Actuarial Accrued Liability (UAAL)	(1,819,206)	371,142
Funded Ratio (AVA / AAL)	106.0%	98.6%
D. Actuarial Present Value of Accrued Benefits		
Inactives	28,170	28,170
Actives	24,101,119	22,762,746
Total Present Value Accrued Benefits	24,129,289	22,790,916
Funded Ratio (MVA / PVAB)	133.5%	115.0%

GAIN/LOSS ANALYSIS

a. Total Gain/(Loss)

 Unfunded Actuarial Accrued Liability as of January 1, 2017 Normal Cost applicable for 2017 Expected Administrative Expenses applicable for 2017 Interest on (1), (2), and (3) Contributions made during 2017 Interest on (5) Expected UAAL as of January 1, 2018: (1)+(2)+(3)+(4)-(5)-(6) Actual UAAL as of January 1, 2018 	371,142 2,393,279 100,000 197,009 2,676,747 93,686 290,997 (1,819,206)
Total Actuarial Gain/(Loss)	2,110,203
b. Gain/(Loss) on Assets	
1. Market Value of Assets as of January 1, 2017	26,198,326
2. Contributions Less Benefit Payments and Administrative Expenses	2,600,251
3. Expected Investment Earnings4. Expected MVA as of January 1, 2018: (1)+(2)+(3)	1,914,814 30,713,391
5. Actual Market Value of Assets as of January 1, 2018	32,217,888
Gain/(Loss) on Assets	1,504,497
c. Gain/(Loss) on Liabilities	
 Expected Actuarial Accrued Liability: a(7)+b(4) Actual Actuarial Accrued Liability 	31,004,388 30,398,682
Gain/(Loss) on Liabilities	605,706

ACTUARIAL ASSUMPTIONS AND METHODS

Accrued Benefit Reduction

Calendar Year	Reduction Percentage
2018	10%
2019+	0%

Death and Disability benefits are not subject to the reduction amount.

Mortality RP-2000 Combined Healthy Mortality Projected

to Valuation Date using Scale AA. We feel this assumption sufficiently accommodates expected

mortality improvements.

<u>Disabled Retiree Mortality</u> RP-2000 Disabled Retiree Mortality.

<u>Interest</u> 7.00% annually, net of investment related

expenses. This is supported by the target asset allocation of the trust and the expected long-

term return by asset class.

<u>Termination</u> Age-based. Sample rates shown below.

<u>Age</u>	<u>Probability</u>
20	9.8%
30	2.8%
40	0.4%
50	0.2%

We feel the assumed rates of termination are reasonable based on long-term expectations.

<u>Disability</u> Age-based. Sample rates shown below.

<u>Age</u>	<u>Probability</u>
20	0.07%
30	0.09%
40	0.15%
50	0.50%

We feel the assumed rates of disablement are reasonable based on long-term expectations.

Retirement (2018-2019)

Calendar Year	Probability
2018	1%
2019	50%

Retirement (2020 and beyond)

<u>Age</u>	<u>Probability</u>
52	35%
53	20%
54	20%
55	20%
56	25%
57	25%
58	30%
59	30%
60	50%
61	50%
62	100%

We feel the assumed rates of retirement are reasonable based on long-term expectations.

Salary Increases

Service *	<u>Increase</u>
0-5	11.5%
6-10	6.3%
11-15	5.0%
16+	4.0%

^{*} Based on actual date of hire. We feel the assumed rates of salary increase are reasonable based on long-term expectations.

Payroll Growth None (for purposes of amortizing the UAAL)

<u>Cost-of-Living Adjustment</u> None

Administrative Expenses \$100,000 annually, as previously approved by

the Board of Trustees.

<u>Marital Status</u> 75% of active participants are assumed to be married.

Males are assumed to be three years older than females.

<u>Actuarial Cost Method</u> Individual Entry Age Normal, Level % of Pay.

Actuarial Asset Method Fair Market Value.

VALUATION NOTES

- <u>Covered Payroll</u> is the projected annual rate of pay for the year beginning on the valuation date for all covered Members.
- <u>Present Value of Benefits</u> 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.
- <u>Entry Age Normal Cost Method</u> 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.

<u>Unfunded Actuarial Accrued Liability (UAAL)</u> is the difference between the actuarial accrued liability (described above) and the actuarial value of assets. Under the Entry Age Normal Actuarial Cost Method, an actuarial gain or loss, based on actual versus expected UAAL, is determined in conjunction with each valuation 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.

Bradley R. Heinrichs, FSA, EA, MAAA

Bear Spectrum

Enrolled Actuary #17-6901

STATEMENT OF FIDUCIARY NET POSITION DECEMBER 31, 2017

<u>ASSETS</u>	COST VALUE	MARKET VALUE
Cash and Cash Equivalents:		
Short Term Investments	793,992.65	793,992.65
Checking Account	6,716.53	6,716.53
Cash	3,099.78	3,099.78
Total Cash and Equivalents	803,808.96	803,808.96
Receivables:		
Member Contributions in Transit	55,042.59	55,042.59
Township Contributions in Transit	55,042.59	55,042.59
Total Receivable	110,085.18	110,085.18
Investments:		
Exchange Traded Funds	4,029,700.03	4,693,538.89
Fixed Income	7,451,988.61	7,399,197.55
Stocks	15,381,111.50	19,211,257.72
Total Investments	26,862,800.14	31,303,994.16
Total Assets	27,776,694.28	32,217,888.30
<u>LIABILITIES</u>		
Total Liabilities	0.00	0.00
NET POSITION RESTRICTED FOR PENSIONS	27,776,694.28	32,217,888.30

STATEMENT OF CHANGES IN FIDUCIARY NET POSITION FOR THE YEAR ENDED DECEMBER 31, 2017

Market Value Basis

ADDITIONS

Contributions:

Member 1,338,373.38 1,338,373.38 Township

Total Contributions 2,676,746.76

Investment Income:

Net Realized Gain (Loss) 150,595.20

Unrealized Gain (Loss) 2,767,646.12

Net Increase in Fair Value of Investments 2,918,241.32 Interest & Dividends 612,936.85 Less Investment Expense¹ (111,866.60)

Net Investment Income 3,419,311.57

Total Additions 6,096,058.33

DEDUCTIONS

Distributions to Members:

Benefit Payments 0.00 **Refunds of Member Contributions** 0.00

Total Distributions 0.00

76,496.46 Administrative Expense

Total Deductions 76,496.46

Net Increase in Net Position 6,019,561.87

NET POSITION RESTRICTED FOR PENSIONS

Beginning of the Year 26,198,326.43

End of the Year 32,217,888.30

12.5% Actuarial Asset Rate of Return

Actuarial Gain/(Loss) due to Investment Return 1,504,497.09

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

STATISTICAL DATA

	1/1/2016	1/1/2017	1/1/2018
Actives	136	136	140
Average Current Age	38.7	39.7	40.4
Average Age at Employment	27.7	27.7	27.8
Average Past Service	11.0	12.0	12.6
Average Annual Salary	\$78,128	\$83,706	\$85,029

AGE AND SERVICE DISTRIBUTION

PAST BENEFIT SERVICE

AGE	0-4	5-9	10-14	15-19	20	21	22	23	24	25-29	30+	Total
15 - 24	0	0	0	0	0	0	0	0	0	0	0	0
25 - 34	26	5	3	0	0	0	0	0	0	0	0	34
35 - 44	16	11	22	15	0	2	0	0	0	0	0	66
45 - 49	2	2	5	9	2	0	2	0	0	0	0	22
50	0	0	1	1	1	0	0	1	0	0	0	4
51	0	0	1	0	0	0	0	0	0	0	0	1
52	0	0	1	0	0	0	0	0	0	0	0	1
53	0	0	0	1	0	0	0	0	0	0	0	1
54	0	0	0	2	0	0	0	0	0	0	0	2
55 - 59	0	0	1	4	0	1	1	0	0	1	0	8
60+	0	0	0	0	1	0	0	0	0	0	0	1
Total	44	18	34	32	4	3	3	1	0	1	0	140

Illustrates members who have attained Normal Retirement eligibility.

SUMMARY OF BENEFIT PROVISIONS

<u>Credited Service</u> Total years and months of years during which a

Member makes contributions to the System, including years of prior service purchased.

<u>Earnings</u> Base pay, including standard overtime pay.

<u>Average Final Compensation</u> Average Earnings for the highest consecutive 36

months over the last 120 months of service.

Member Contributions 12.00% of Earnings.

<u>Township Contributions</u> 12.00% of annual payroll.

Normal Retirement

Date Attainment of age 52 and 20 years of Credited

Service.

Benefit Accrual Rate 2.50% of Average Final Compensation times

Credited Service for first 20 years, plus 3.00% of Average Final Compensation times Credited

Service thereafter.

Normal Form of Benefit 10-Year Certain and Life Annuity.

Vesting

Schedule Not applicable -- Members will only be vested

in an annuity benefit upon attaining Normal

Retirement eligibility.

Benefit Amount Non-vested Members are always entitled to a

refund of their accumulated contributions

(without interest).

Disability

Eligibility Total and permanent as determined by the

Board.

Benefit 2.50% of Average Final Compensation times

Credited Service, but not less than 50% of

Average Final Compensation.

Form of Benefit 10-Year Certain and Life Annuity.

Pre-Retirement Death

Eligibility Covered from the Member's participation date.

Benefit 75% of the Member's accrued benefit at date of

death (utilizing at least 20 years of service).

Form of Benefit Married: 10-Year Certain and Life Annuity to

Surviving Spouse.

Single: 10-Year Certain Only Annuity.

STATEMENT OF FIDUCIARY NET POSITION DECEMBER 31, 2017

<u>ASSETS</u>	MARKET VALUE
Cash and Cash Equivalents:	
Short Term Investments	793,993
Checking Account	6,716
Cash	3,100
Total Cash and Equivalents	803,809
Receivables:	
Member Contributions in Transit	55,043
Township Contributions in Transit	55,042
Total Receivable	110,085
Investments:	
Exchange Traded Funds	4,693,539
Fixed Income	7,399,197
Stocks	19,211,258
Total Investments	31,303,994
Total Assets	32,217,888
Total Liabilities	0
NET POSITION RESTRICTED FOR PENSIONS	32,217,888

STATEMENT OF CHANGES IN FIDUCIARY NET POSITION FOR THE YEAR ENDED DECEMBER 31, 2017

Market Value Basis

|--|

Cont	tril	ant	in	ne
COII	1111	Jui	10	113

Member 1,338,373 Township 1,338,373

Total Contributions 2,676,746

Investment Income:

Net Increase in Fair Value of Investments

2,918,241
Interest & Dividends
612,937
Less Investment Expense¹
(111,866)

Net Investment Income 3,419,312

Total Additions 6,096,058

DEDUCTIONS

Distributions to Members:

Refunds of Member Contributions 0

Total Distributions 0

Administrative Expense 76,496

Total Deductions 76,496

Net Increase in Net Position 6,019,562

NET POSITION RESTRICTED FOR PENSIONS

Beginning of the Year 26,198,326

End of the Year 32,217,888

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

NOTES TO THE FINANCIAL STATEMENTS

(For the Year Ended December 31, 2017)

Plan Description

Plan Administration

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

- (1) The mayor of the municipality or the mayor's designated representative or the chief operating officer of the political subdivision or the chief operating officer's designated representative, as applicable;
- (2) The chief financial officer of the municipality or other political subdivision or, if there is no officer denominated as chief financial officer, the person who performs the duties of chief financial officer or a person designated by the chief financial officer or by the person performing the duties of chief financial officer.
- (3) Three members of the retirement system elected by participating members; and
- (4) Two persons who reside in this state in the municipality or other political subdivision or within the extraterritorial jurisdiction of the municipality, who are not officers or employees of the municipality or other political subdivision, and who are elected by a majority vote of the members of the board of trustees.

Plan Membership as of January 1, 2018:

Inactive Plan Members or Beneficiaries Currently Receiving Benefits Inactive Plan Members Entitled to But Not Yet Receiving Benefits Active Plan Members

-
1
140
141

Benefits Provided

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

Normal Retirement:

Date: Attainment of age 52 and 20 years of Credited Service.

Benefit Accrual Rate: 2.50% of Average Final Compensation times Credited Service for first 20 years, plus 3.00% of Average Final Compensation times Credited Service thereafter.

Vesting:

Schedule: Not applicable. Members will only be vested in an annuity benefit upon attaining Normal Retirement Benefit Amount: Non-vested Members are always entitled to a refund of their accumulated contributions (without Disability:

Eligibility: Total and permanent as determined by the Board.

Benefit: 2.50% of Average Final Compensation times Credited Service, but not less than 50% of Average Final Pre-Retirement Death Benefits:

Eligibility: Covered from the Member's participation date.

Benefit: 75% of the Member's accrued benefit at date of death (utilizing at least 20 years of service).

Contributions

Member Contributions: 12.00% of Earnings. Township Contributions: 12.00% of annual payroll.

Investments

Investment Policy:

The following was the Board's adopted asset allocation policy as of December 31, 2017:

Asset Class	Target Allocation
Equities	75%
Fixed Income	24%
Cash	1%
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, 2017, the annual money-weighted rate of return on Pension Plan investments, net of Pension Plan investment expense, was 12.50 percent.

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

NET PENSION LIABILITY OF THE SPONSOR

The components of the Net Pension Liability of the Sponsor on December 31, 2017 were as follows:

Total Pension Liability\$ 30,264,890Plan Fiduciary Net Position\$ (32,217,888)Sponsor's Net Pension Liability\$ (1,952,998)Plan Fiduciary Net Position as a percentage of Total Pension Liability106,45%

Actuarial Assumptions:

The Total Pension Liability was determined by an actuarial valuation as of January 1, 2018 using the following actuarial assumptions:

Inflation	2.50%
Salary Increases	4.00% - 11.50%
Discount Rate	7.00%
Investment Rate of Return	7.00%

Mortality Rate:

RP-2000 Combined Healthy Mortality Projected to Valuation Date using Scale AA. We feel this assumption sufficiently accommodates expected mortality improvements.

Disabled Retiree Mortality:

RP-2000 Disabled Retiree Mortality.

The date of the most recent experience study for which significant assumptions are based upon is 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 2017, the inflation rate assumption of the investment advisor was 3.00%.

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 arithmetic real rates of return for each major asset class included in the Pension Plan's target asset allocation as of December 31, 2017 are summarized in the following table:

	Long Term
	Expected Real
Asset Class	Rate of Return
Equities	6.21%
Fixed Income	4.05%
Cash	0.00%

Discount Rate:

The Discount Rate used to measure the Total Pension Liability was 7.00 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 be made at rates equal to the difference between actuarially determined contribution rates and the Member rate. 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 7.00%; the municipal bond rate is 3.44% (based on the weekly rate closest to but not later than the measurement date of the Bond Buyer 20-Bond Index as published by the Bond Buyer); and the resulting single discount rate is 7.00%.

			Cur	rent Discount		
	19	% Decrease		Rate	1	% Increase
		6.00%		7.00%		8.00%
Sponsor's Net Pension Liability	\$	3,066,912	\$	(1,952,998)	\$	(6,129,857)

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

	12/31/2017	12/31/2016	12/31/2015
Total Pension Liability			
Service Cost	2,339,051	2,231,125	2,082,564
Interest	2,014,981	1,689,051	141,034
Changes of benefit terms	-	-	-
Differences between Expected and Actual Experience	(535,534)	632,469	(654,318)
Changes of assumptions	-	-	-
Contributions - Buy Back	-	-	20,468,906
Benefit Payments, including Refunds of Employee Contributions	-	(8,867)	(135,573)
Net Change in Total Pension Liability	3,818,498	4,543,778	21,902,613
Total Pension Liability - Beginning	26,446,391	21,902,613	-
Total Pension Liability - Ending (a)	\$ 30,264,890	\$ 26,446,391	\$ 21,902,613
Plan Fiduciary Net Position			
Contributions - Employer	1,338,373	1,282,518	1,184,257
Contributions - Employee	1,338,373	1,282,518	1,184,257
Contributions - Buy Back	-	-	20,468,906
Net Investment Income	3,419,312	1,538,922	(387,995)
Benefit Payments, including Refunds of Employee Contributions	-	(8,867)	(135,573)
Administrative Expense	(76,496)	(80,876)	(129,741)
Net Change in Plan Fiduciary Net Position	6,019,562	4,014,215	22,184,111
Plan Fiduciary Net Position - Beginning	26,198,326	22,184,111	-
Plan Fiduciary Net Position - Ending (b)	\$ 32,217,888	\$ 26,198,326	\$ 22,184,111
Net Pension Liability - Ending (a) - (b)	\$ (1,952,998)	\$ 248,065	\$ (281,498)
Plan Fiduciary Net Position as a percentage of the Total Pension Liability	106.45%	99.06%	101.29%
Covered Employee Payroll	\$ 11,153,108	10,687,650	9,868,808
Net Pension Liability as a percentage of Covered Employee Payroll	-17.51%	2.32%	-2.85%

Notes to Schedule:

The Woodlands Firefighters' Retirement System became effective as of January 1, 2015.

SCHEDULE OF CONTRIBUTIONS

Last 10 Years

		Contributions in relation to			Contributions
		the			as a percentage
	Contractually	Contractually	Contribution	Covered	of Covered
	Required	Required	Deficiency	Employee	Employee
Fiscal Year Ended	Contribution	Contributions	(Excess)	Payroll	Payroll
12/31/2017	\$ 1,338,373	\$ 1,338,373	\$ -	\$ 11,153,108	12.00%
12/31/2016	\$ 1,282,518	\$ 1,282,518	\$ -	\$ 10,687,650	12.00%
12/31/2015	\$ 1,184,257	\$ 1,184,257	\$ -	\$ 9,868,808	12.00%

Notes to Schedule

Methods and assumptions used to determine contribution rates:

<u>Calendar Year</u>	Reduction Percentage		
2018	10%		
2019+	0%		
Death and Disability	benefits are not subject to the rec	duction amount.	
RP-2000 Combined I	Healthy Mortality Projected to V	aluation Date using Scale AA.	
We feel this assumption sufficiently accommodates expected mortality			
improvements.			
RP-2000 Disabled Re	etiree Mortality.		
	2018 2019+ Death and Disability RP-2000 Combined I We feel this assumpti improvements.	2018 10% 2019+ 0% Death and Disability benefits are not subject to the re-RP-2000 Combined Healthy Mortality Projected to V We feel this assumption sufficiently accommodates ex-	

7.00% annually, net of investment related expenses. This is supported by the target asset allocation of the trust and the expected long-term return by asset class. Age-based. Sample rates shown below.

Age Probability
20 9.8%
30 2.8%

30 2.8% 40 0.4% 50 0.2%

We feel the assumed rates of termination are reasonable based on long-term expectations.

Age-based. Sample rates shown below.

Age	Probability
20	0.07%
30	0.09%
40	0.15%
50	0.50%

We feel the assumed rates of disablement are reasonable based on long-term expectations.

Disability:

Interest:

Termination:

Retirement (2018-2019):	Calendar Year 2018	Probability
		1.00%
	2019	50%
Retirement (2020 and beyond):	Age	Probability
	52	35%
	53	20%
	54	20%
	55	20%
	56	25%
	57	25%
	58	30%
	59	30%
	60	50%
	61	50%
	62	100%

We feel the assumed rates of retirement are reasonable based on long-term expectations.

Salary Increases:

Service*	Increase
0-5	11.5%
6-10	6.3%
11-15	5.0%
16+	4.0%

^{*} Based on actual date of hire. We feel the assumed rates of salary increase are reasonable based on long-term expectations.

Payroll Growth: None (for purposes of amortizing the UAAL).

Cost-of-Living Adjustment: None.

Marital Status: 75% of active participants are assumed to be married. Males are assumed to be three

years older than females.

Actuarial Cost Method: Individual Entry Age Normal, Level % of Pay.

Actuarial Asset Method: Fair Market Value.

SCHEDULE OF INVESTMENT RETURNS Last 10 Years

Annual Money-Weighted Rate of Return

Fiscal Year Ended	Net of Investment Expense
12/31/2017	12.50%
12/31/2016	6.61%
12/31/2015	-2.39%

NOTES TO THE FINANCIAL STATEMENTS

(For the Year Ended December 31, 2017)

General Information about the Pension Plan

Plan Description

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

- (1) The mayor of the municipality or the mayor's designated representative or the chief operating officer of the political subdivision or the chief operating officer's designated representative, as applicable;
- (2) The chief financial officer of the municipality or other political subdivision or, if there is no officer denominated as chief financial officer, the person who performs the duties of chief financial officer or a person designated by the chief financial officer or by the person performing the duties of chief financial officer.
- (3) Three members of the retirement system elected by participating members; and
- (4) Two persons who reside in this state in the municipality or other political subdivision or within the extraterritorial jurisdiction of the municipality, who are not officers or employees of the municipality or other political subdivision, and who are elected by a majority vote of the members of the board of trustees.

An individual who was an Employee upon the Original Effective Date became a Member, unless such Employee was 36 years old or older and affirmatively made an irrevocable election in writing to not participate. An individual who is under the age of 36 and becomes an Employee after the Original Effective Date shall become a Member as a condition of employment upon the first date of Employee's employment with the Fire Department. An individual who is 36 years old or older and becomes an Employee after the Original Effective Date shall only become a Member pursuant to Section 9(f) of TLFFRA.

Plan Membership as of January 1, 2018:

Inactive Plan Members or Beneficiaries Currently Receiving Benefits Inactive Plan Members Entitled to But Not Yet Receiving Benefits Active Plan Members

1
 140
141

Benefits Provided

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

Normal Retirement:

Date: Attainment of age 52 and 20 years of Credited Service.

Benefit Accrual Rate: 2.50% of Average Final Compensation times Credited Service for first 20 years, plus 3.00% of Average Final Compensation times Credited Service thereafter.

Vesting:

Schedule: Not applicable. Members will only be vested in an annuity benefit upon attaining Normal Retirement eligibility.

Benefit Amount: Non-vested Members are always entitled to a refund of their accumulated contributions (without interest).

Disability:

Eligibility: Total and permanent as determined by the Board.

Benefit: 2.50% of Average Final Compensation times Credited Service, but not less than 50% of Average Final Compensation.

Pre-Retirement Death Benefits:

Eligibility: Covered from the Member's participation date.

Benefit: 75% of the Member's accrued benefit at date of death (utilizing at least 20 years of service).

Contributions

Member Contributions: 12.00% of Earnings. Township Contributions: 12.00% of annual payroll.

Net Pension Liability

The measurement date is December 31, 2017.

The measurement period for the pension expense was January 1, 2017 to December 31, 2017.

The reporting period is January 1, 2017 through December 31, 2017.

The Sponsor's Net Pension Liability was measured as of December 31, 2017.

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 January 1, 2018 using the following actuarial assumptions:

Inflation	2.50%
Salary Increases	4.00% - 11.50%
Discount Rate	7.00%
Investment Rate of Return	7.00%

Mortality Rate:

RP-2000 Combined Healthy Mortality Projected to Valuation Date using Scale AA. We feel this assumption sufficiently accommodates expected mortality improvements.

Disabled Retiree Mortality:

RP-2000 Disabled Retiree Mortality.

The date of the most recent experience study for which significant assumptions are based upon is 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 2017, the inflation rate assumption of the investment advisor was 3.00%.

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 arithmetic real rates of return for each major asset class included in the Pension Plan's target asset allocation as of December 31, 2017 are summarized in the following table:

		Long Term
		Expected Real
Asset Class	Target Allocation	Rate of Return
Equities	75%	6.21%
Fixed Income	24%	4.05%
Cash	1%	0.00%
Total	100.00%	- -

GASB 68

Discount Rate:

The Discount Rate used to measure the Total Pension Liability was 7.00 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 be made at rates equal to the difference between actuarially determined contribution rates and the Member rate. 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 7.00%; the municipal bond rate is 3.44% (based on the weekly rate closest to but not later than the measurement date of the Bond Buyer 20-Bond Index as published by the Bond Buyer); and the resulting single discount rate is 7.00%.

CHANGES IN NET PENSION LIABILITY

	Increase (Decrease)					
	Total Pension Plan Fiduciary			Net Pension		
		Liability	Net Position		Liability	
		(a)		(b)		(a)-(b)
Balances as of December 31, 2016	\$	26,446,391	\$	26,198,326	\$	248,065
Changes for a Year:						
Service Cost		2,339,051		-		2,339,051
Interest		2,014,981		-		2,014,981
Differences between Expected and Actual Experience		(535,534)		-		(535,534)
Changes of assumptions		-		-		-
Changes of benefit terms		-		-		-
Contributions - Employer		-		1,338,373		(1,338,373)
Contributions - Employee		-		1,338,373		(1,338,373)
Net Investment Income		-		3,419,312		(3,419,312)
Benefit Payments, including Refunds of Employee Contributions		-		-		-
Administrative Expense		-		(76,496)		76,496
Net Changes		3,818,498		6,019,562		(2,201,064)
Balances as of December 31, 2017	\$	30,264,890	\$	32,217,888	\$	(1,952,998)

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

	Current Discount					
	1% Decrease Rate 1% Inc			% Increase		
		6.00%		7.00%		8.00%
Sponsor's Net Pension Liability	\$	3,066,912	\$	(1,952,998)	\$	(6,129,857)

Pension Plan Fiduciary Net Position.

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

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

For the year ended December 31, 2017, the Sponsor will recognize a Pension Expense of \$1,089,666. On December 31, 2017, the Sponsor reported Deferred Outflows of Resources and Deferred Inflows of Resources related to pensions from the following sources:

	Deferred	Deferred
	Outflows of	Inflows of
	Resources	Resources
Differences between Expected and Actual Experience	548,141	1,031,463
Changes of assumptions	-	-
Net difference between Projected and Actual Earnings on Pension Plan investments		663,967
Total	\$ 548,141	\$ 1,695,430

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 December 31:	
2019	\$ (77,592)
2020	\$ (313,197)
2021	\$ (333,317)
2022	\$ (34,432)
2023	\$ (34,432)
Thereafter	\$ (354,319)

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

	12/31/2017	12/31/2016	12/31/2015
Total Pension Liability			
Service Cost	2,339,051	2,231,125	2,082,564
Interest	2,014,981	1,689,051	141,034
Changes of benefit terms	-	-	-
Differences between Expected and Actual Experience	(535,534)	632,469	(654,318)
Changes of assumptions	-	-	=
Contributions - Buy Back	-	-	20,468,906
Benefit Payments, including Refunds of Employee Contributions		(8,867)	(135,573)
Net Change in Total Pension Liability	3,818,498	4,543,778	21,902,613
Total Pension Liability - Beginning	26,446,391	21,902,613	-
Total Pension Liability - Ending (a)	\$ 30,264,890	\$ 26,446,391	\$ 21,902,613
Plan Fiduciary Net Position			
Contributions - Employer	1,338,373	1,282,518	1,184,257
Contributions - Employee	1,338,373	1,282,518	1,184,257
Contributions - Buy Back	=	-	20,468,906
Net Investment Income	3,419,312	1,538,922	(387,995)
Benefit Payments, including Refunds of Employee Contributions	=	(8,867)	(135,573)
Administrative Expense	(76,496)	(80,876)	(129,741)
Net Change in Plan Fiduciary Net Position	6,019,562	4,014,215	22,184,111
Plan Fiduciary Net Position - Beginning	26,198,326	22,184,111	-
Plan Fiduciary Net Position - Ending (b)	\$ 32,217,888	\$ 26,198,326	\$ 22,184,111
Net Pension Liability - Ending (a) - (b)	\$ (1,952,998)	\$ 248,065	\$ (281,498)
Plan Fiduciary Net Position as a percentage of the Total Pension Liability	106.45%	99.06%	101.29%
Covered Employee Payroll	\$ 11,153,108	\$ 10,687,650	\$ 9,868,808
Net Pension Liability as a percentage of Covered Employee Payroll	-17.51%	2.32%	-2.85%

Notes to Schedule:

The Woodlands Firefighters' Retirement System became effective as of January 1, 2015.

SCHEDULE OF CONTRIBUTIONS

Last 10 Years

		Contributions			
		in relation to			Contributions
		the			as a percentage
	Contractually	Contractually	Contribution	Covered	of Covered
	Required	Required	Deficiency	Employee	Employee
Fiscal Year Ended	Contribution	Contributions	(Excess)	Payroll	Payroll
12/31/2017	\$ 1,338,373	\$ 1,338,373	\$ -	\$ 11,153,108	12.00%
12/31/2016	\$ 1,282,518	\$ 1,282,518	\$ -	\$ 10,687,650	12.00%
12/31/2015	\$ 1,184,257	\$ 1,184,257	\$ -	\$ 9,868,808	12.00%

Notes to Schedule

Methods and assumptions used to determine contribution rates:

Death and Disability benefits are not subject to the reduction amount.

RP-2000 Combined Healthy Mortality Projected to Valuation Date using Scale AA. We feel this assumption sufficiently accommodates expected mortality improvements.

Disabled Retiree Mortality:

Interest:

Mortality Rate:

RP-2000 Disabled Retiree Mortality.

7.00% annually, net of investment related expenses. This is supported by the target asset allocation of the trust and the expected long-term return by asset class.

Termination: Age-based. Sample rates shown below.

Age	Probability
20	9.80%
30	2.80%
40	0.40%
50	0.20%

We feel the assumed rates of termination are reasonable based on long-term expectations.

Age-based. Sample rates shown below.

Age	Probability
20	0.07%
30	0.09%
40	0.15%
50	0.50%

We feel the assumed rates of disablement are reasonable based on long-term expectations.

Disability:

Retirement (2018-2019):	Calendar Year	Probability	
	2018	1%	•
	2019	50%	
Retirement (2020 and beyond):	Age	Probability	
•	52	35%	•
	53	20%	
	54	20%	
	55	20%	
	56	25%	
	57	25%	
	58	30%	
	59	30%	
	60	50%	
	61	50%	
	62	100%	
	We feel the assur	ned rates of reti	rement are reasonable based on long-term
	expectations.		Ç
Salary Increases:	Service*	Increase	
	0-5	0.115	
	6-10	0.063	
	11-15	0.05	
	16+	0.04	
	di 75 di 1		

reasonable based on long-term expectations.

Payroll Growth: None (for purposes of amortizing the UAAL).

Cost-of-Living Adjustment: None.

Marital Status: 75% of active participants are assumed to be married. Males are assumed to be three

years older than females.

Actuarial Cost Method: Individual Entry Age Normal, Level % of Pay.

Actuarial Asset Method: Fair Market Value.

^{*} Based on actual date of hire. We feel the assumed rates of salary increase are

COMPONENTS OF PENSION EXPENSE YEAR ENDING DECEMBER 31, 2017

	Net Pension Liability	Deferred Inflows	Deferred Outflows	Pension Expense
Balances as of December 31, 2016	\$ 248,065	\$ 572,530	\$ 1,377,598	\$ -
Total Pension Liability Factors:				
Service Cost	2,339,051	-	-	2,339,051
Interest	2,014,981	-	-	2,014,981
Changes in benefit terms	-	-	-	-
Differences between Expected and Actual Experience				
with regard to economic or demographic assumptions	(535,534)	535,534	-	-
Current year amortization of experience difference	-	(76,601)	(42,164)	(34,437)
Change in assumptions about future economic or				
demographic factors or other inputs	-	-	-	-
Current year amortization of change in assumptions	-	_	-	-
Benefit Payments, including Refunds of Employee				
Contributions	-	-	-	-
Net change	3,818,498	458,933	(42,164)	4,319,595
Plan Fiduciary Net Position:				
Contributions - Employer	1,338,373	_	-	-
Contributions - Employee	1,338,373	_	-	(1,338,373)
Projected Net Investment Income	1,924,892	_	-	(1,924,892)
Difference between projected and actual earnings on	, ,			, , , ,
Pension Plan investments	1,494,420	1,494,420	-	-
Current year amortization	=	(298,884)	(255,724)	(43,160)
Benefit Payments, including Refunds of Employee		, , ,	, , ,	, , ,
Contributions	-	_	-	-
Administrative Expenses	(76,496)	_	-	76,496
Net change	6,019,562	1,195,536	(255,724)	(3,229,929)
Balances as of December 31, 2017	\$ (1,952,998)	\$ 2,226,999	\$ 1,079,710	\$ 1,089,666

AMORTIZATION SCHEDULE - INVESTMENTS

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 Expected and Actual Earnings	Recognition Period (Years)	2017	2018	2019	2020	2021	2022		2023	2024		2025		2026	2027	2	2028
2015	\$ 1,178,019	5	\$ 235,604	\$ 235,604	\$ 235,605	\$ -	\$ -	\$	- \$	- 9	3	- \$		- \$	-	\$	- \$	-
2016	\$ 100,601	5	\$ 20,120	\$ 20,120	\$ 20,120	\$ 20,120	\$ -	\$	- \$	- 5	S	- \$		- \$	-	\$	- \$	-
2017	\$ (1,494,420)	5	\$ (298,884)	\$ (298,884)	\$ (298,884)	\$ (298,884)	\$ (298,884)	\$	- \$	- 3	S	- \$		- \$	-	\$	- \$	-
Net Increase	(Decrease) in Pension E	Expense	\$ (43,160)	\$ (43,160)	\$ (43,159)	\$ (278,764)	\$ (298,884)	\$	- \$	- 9	S	- \$		- \$	-	\$	- \$	-

AMORTIZATION SCHEDULE - EXPERIENCE

		Increase (Decrease) in Pension Expense Arising from the Recognition of the Effects of Differences between Expected and Actual Experience															
	Differences Between																
	Expected and 1	Recognition															
Plan Year	Actual	Period															
Ending	Experience	(Years)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
2015	\$ (654,318)	16	\$ (40,895)	\$ (40,895)	\$ (40,895)	\$ (40,895)	\$ (40,895)	\$ (40,895)	\$ (40,895)	\$ (40,895)	\$ (40,895)	\$ (40,895)	\$ (40,895)	\$ (40,895)	\$ (40,895)	\$ (40,895)	\$ -
2016	\$ 632,469	15	\$ 42,164	\$ 42,164	\$ 42,164	\$ 42,164	\$ 42,164	\$ 42,165	\$ 42,165	\$ 42,165	\$ 42,165	\$ 42,165	\$ 42,165	\$ 42,165	\$ 42,165	\$ 42,165	\$ -
2017	\$ (535,534)	15	\$ (35,706)	\$ (35,702)	\$ (35,702)	\$ (35,702)	\$ (35,702)	\$ (35,702)	\$ (35,702)	\$ (35,702)	\$ (35,702)	\$ (35,702)	\$ (35,702)	\$ (35,702)	\$ (35,702)	\$ (35,702)	\$ (35,702)
Net Increa	se (Decrease) in	Pension															
Expense	, , , , ,		\$ (34.437)	\$ (34 433)	\$ (34 433)	\$ (34 433)	\$ (34 433)	\$ (34 432)	\$ (34 432)	\$ (34 432)	\$ (34 432)	\$ (34 432)	\$ (34,432)	\$ (34.432)	\$ (34,432)	\$ (34.432)	\$ (35,702)