

THE WOODLANDS  
FIREFIGHTERS' RETIREMENT SYSTEM

ACTUARIAL VALUATION  
AS OF JANUARY 1, 2016



May 25, 2016

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. The 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. 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.

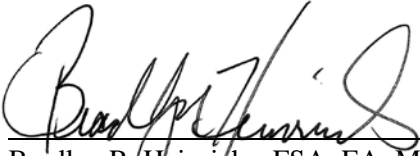
The undersigned is familiar with the immediate and long-term aspects of pension valuations, and meets the Qualification Standards of the American Academy of Actuaries necessary to render the actuarial opinions contained herein. All of the sections of this report are considered an integral part of the 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 #14-6901

BRH/lke

Enclosures

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## SUMMARY OF REPORT

The inaugural actuarial valuation of The Woodlands Firefighters' Retirement System, performed as of January 1, 2016, has been completed and the results are presented in this Report. The pension costs are illustrated below.

Valuation Date	<u>1/1/2016</u>
Normal Cost % of Covered Payroll	22.76%
Expected Member Contributions % of Covered Payroll	12.00%
Township Normal Cost Rate % of Covered Payroll	10.76%
Funding Period To Amortize UAAL (expressed in number of years)	0.00

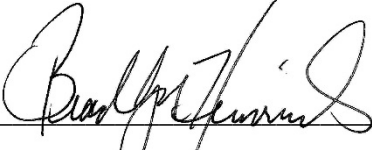
As shown above, the Total Normal Cost Rate determined as of January 1, 2016 is 22.76% of payroll. The current member contribution rate is 12.00% of payroll, leaving 10.76% of payroll required from the Township. Since the Township is currently scheduled to make annual contributions of 12.00% of payroll to the System, this means that there is a 1.24% of payroll annual contribution that is available to pay down any existing Unfunded Actuarial Accrued Liability (UAAL).


As shown in the comparative summary section of this report, the asset value as of January 1, 2016 exceeds the actuarial accrued liabilities, meaning there is no existing UAAL that will require an amortization payment. Therefore, the 1.24% of payroll contribution from the Township will serve as a reserve in the trust fund which will be utilized to assist in offsetting future actuarial losses.

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

By:   
Drew D. Ballard, EA, MAAA

COMPARATIVE SUMMARY OF PRINCIPAL VALUATION RESULTS

1/1/2016

A. Participant Data

Actives	136
Service Retirees	0
Beneficiaries	0
Disability Retirees	0
Terminated Vested	1
Total	<u>137</u>

Covered Payroll 10,625,420

Annual Rate of Payments to:

Service Retirees	0
Beneficiaries	0
Disability Retirees	0
Terminated Vested	0

B. Assets

Actuarial Value 22,184,111  
 Market Value 22,184,111

C. Liabilities

Present Value of Benefits

Active Members	
Retirement + Termination Benefits	48,396,363
Death Benefits	1,016,765
Disability Benefits	2,727,068
Service Retirees	0
Beneficiaries	0
Disability Retirees	0
Terminated Vested	4,040
Total	<u>52,144,236</u>

1/1/2016

C. Liabilities - (Continued)

Present Value of Future Salaries	142,074,787
Normal Cost (Entry Age Normal)	
Retirement + Termination Benefits	2,030,734
Death Benefits	56,833
Disability Benefits	149,057
Total Normal Cost	<u>2,236,624</u>
Present Value of Future Normal Costs	30,062,053
Actuarial Accrued Liability	
Retirement + Termination Benefits	21,026,456
Death Benefits	264,725
Disability Benefits	786,962
Inactives	4,040
Total Actuarial Accrued Liability	<u>22,082,183</u>
Unfunded Actuarial Accrued Liability (UAAL)	(101,928)
Funded Ratio (AVA/AL)	100.5%

D. Actuarial Present Value of Accrued Benefits

Inactives	4,040
Actives	21,516,455
Total Present Value Accrued Benefits	<u>21,520,495</u>



Valuation Date 1/1/2016

E. Pension Cost

Normal Cost + Administrative Expenses (with interest) % of Covered Payroll *	22.76
Expected Member Contributions % of Covered Payroll *	12.00
Township Normal Cost Rate % of Covered Payroll *	10.76
Funding Period to Amortize UAAL **	0.00

F. PRB Preferred 20-Year Funding Cost

Normal Cost + Administrative Expenses (with interest) % of Covered Payroll *	22.76
Payment Required to Amortize Unfunded Actuarial Accrued Liability over 20 years (with interest) % of Covered Payroll *	0.00
Total 20-Year Funding Cost % of Covered Payroll *	22.76

\* Contributions developed as of 1/1/2016 are expressed as a percentage of covered payroll at 1/1/2016 of \$10,625,420.

\*\* The Township and Members are each currently scheduled to make annual contributions to the Fund of 12.00% of pensionable payroll.

ACTUARIAL ASSUMPTIONS AND METHODS

Accrued Benefit Reduction

<u>Calendar Year</u>	<u>Reduction Percentage</u>
2016	30%
2017	20%
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.

Disabled Retiree Mortality

RP-2000 Disabled Retiree Mortality.

Interest

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.

<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.

Disability

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 (2016-2019)

<u>Calendar Year</u>	<u>Probability</u>
2016	1%
2017	1%
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

<u>Service</u> *	<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)

Cost-of-Living Adjustment

None

Administrative Expenses

\$100,000 annually, as previously approved by the Board of Trustees.

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.

## VALUATION NOTES

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

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.

Unfunded Actuarial Accrued Liability (UAAL) 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.

PRB Preferred Funding Cost is equal to the Normal Cost plus an amount sufficient to amortize the Unfunded Accrued Liability over no more than 20 years. The required amount is adjusted for interest according to the timing of contributions during the year.

## 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 #14-6901

STATEMENT OF FIDUCIARY NET POSITION  
DECEMBER 31, 2015

<u>ASSETS</u>	COST VALUE	MARKET VALUE
Cash and Cash Equivalents:		
Short Term Investments	2,485,831.20	2,485,831.20
Checking Account	4,263.67	4,263.67
Cash	92,035.54	92,035.54
 Total Cash and Equivalents	 2,582,130.41	 2,582,130.41
Receivables:		
Member Contributions in Transit	4,411.90	4,411.90
Township Contributions in Transit	4,411.90	4,411.90
 Total Receivable	 8,823.80	 8,823.80
Investments:		
Exchange Traded Funds	1,895,178.71	1,813,923.79
Fixed Income	6,331,991.33	6,313,308.20
Stocks	11,615,375.07	11,469,156.32
 Total Investments	 19,842,545.11	 19,596,388.31
 Total Assets	 22,433,499.32	 22,187,342.52
 <u>LIABILITIES</u>		
Payables:		
Refunds of Member Contributions	3,232.00	3,232.00
 Total Liabilities	 3,232.00	 3,232.00
 NET POSITION RESTRICTED FOR PENSIONS	 22,430,267.32	 22,184,110.52

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

ADDITIONS

Contributions:		
Member	1,184,257.22	
Buy-Back	20,468,905.44	
Township	1,184,257.22	
 Total Contributions		 22,837,419.88
Investment Income:		
Net Increase in Fair Value of Investments	(588,469.65)	
Interest & Dividends	258,678.32	
Less Investment Expense <sup>1</sup>	(58,203.98)	
 Net Investment Income		 (387,995.31)
 Total Additions		 22,449,424.57
<u>DEDUCTIONS</u>		
Distributions to Members:		
Benefit Payments	0.00	
Refunds of Member Contributions	135,572.96	
 Total Distributions		 135,572.96
 Administrative Expense		 129,741.09
 Total Deductions		 265,314.05
 Net Increase in Net Position		 22,184,110.52
 NET POSITION RESTRICTED FOR PENSIONS		
Beginning of the Year		0.00
 End of the Year		 22,184,110.52
 Market Value Asset Rate of Return		 -2.4%
 Actuarial Gain/(Loss) due to Investment Return		 (1,524,383.25)

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




## STATISTICAL DATA

	<u>1/1/2016</u>
Actives	136
Average Current Age	38.7
Average Age at Employment	27.7
Average Past Service	11.0
Average Annual Salary	\$78,128

## 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	1	0	0	0	0	0	0	0	0	0	0	1
25 - 34	27	12	2	0	0	0	0	0	0	0	0	41
35 - 44	15	16	24	11	1	0	0	0	0	0	0	67
45 - 49	0	2	4	6	1	1	0	0	0	0	0	14
50	0	0	1	0	0	0	0	0	0	0	0	1
51	0	0	1	0	0	0	0	0	0	0	0	1
52	0	0	1	1	0	0	0	0	0	0	0	2
53	0	1	0	1	0	0	0	0	0	0	0	2
54	0	0	0	0	1	0	0	1	0	0	0	2
55 - 59	0	0	0	5	0	0	0	0	0	0	0	5
60+	0	0	0	0	0	0	0	0	0	0	0	0
Total	43	31	33	24	3	1	0	1	0	0	0	136

 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.
<u>Member Contributions</u>	12.00% of Earnings.
<u>Township Contributions</u>	12.00% of annual payroll.
<u>Normal Retirement</u>	
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.
<u>Vesting</u>	
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).
<u>Disability</u>	
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, 2015

<u>ASSETS</u>	MARKET VALUE
Cash and Cash Equivalents:	
Short Term Investments	2,485,831
Checking Account	4,264
Cash	92,036
Total Cash and Equivalents	2,582,131
Receivables:	
Member Contributions in Transit	4,412
Township Contributions in Transit	4,412
Total Receivable	8,824
Investments:	
Exchange Traded Funds	1,813,924
Fixed Income	6,313,308
Stocks	11,469,156
Total Investments	19,596,388
Total Assets	22,187,343
<u>LIABILITIES</u>	
Payables:	
Refunds of Member Contributions	3,232
Total Liabilities	3,232
NET POSITION RESTRICTED FOR PENSIONS	22,184,111

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

ADDITIONS

## Contributions:

Member	1,184,257	
Buy-Back	20,468,906	
Township	1,184,257	
<b>Total Contributions</b>		<b>22,837,420</b>
 Investment Income:		
Net Increase in Fair Value of Investments	(588,470)	
Interest & Dividends	258,679	
Less Investment Expense <sup>1</sup>	(58,204)	
<b>Net Investment Income</b>		<b>(387,995)</b>
<b>Total Additions</b>		<b>22,449,425</b>

DEDUCTIONS

## Distributions to Members:

Refunds of Member Contributions	135,573	
<b>Total Distributions</b>		<b>135,573</b>
 Administrative Expense		 129,741
<b>Total Deductions</b>		<b>265,314</b>
<b>Net Increase in Net Position</b>		<b>22,184,111</b>
 <b>NET POSITION RESTRICTED FOR PENSIONS</b>		
Beginning of the Year		0
 End of the Year		 22,184,111

<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, 2015)

Plan Description

*Plan Administration*

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.

*Plan Membership as of January 1, 2016:*

Inactive Plan Members or Beneficiaries Currently Receiving Benefits	-
Inactive Plan Members Entitled to But Not Yet Receiving Benefits	1
Active Plan Members	136
	137

*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.

## GASB 67

### Investments

#### *Investment Policy:*

The following was the Board's adopted asset allocation policy as of December 31, 2015:

<u>Asset Class</u>	<u>Target Allocation</u>
Equities	65%
Fixed Income	34%
Cash	1%
<u>Total</u>	<u>100%</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, 2015, the annual money-weighted rate of return on Pension Plan investments, net of Pension Plan investment expense, was -2.39 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, 2015 were as follows:

Total Pension Liability	\$ 21,902,613
Plan Fiduciary Net Position	\$ (22,184,111)
Sponsor's Net Pension Liability	<u>\$ (281,498)</u>
Plan Fiduciary Net Position as a percentage of Total Pension Liability	101.29%

*Actuarial Assumptions:*

The Total Pension Liability was determined by an actuarial valuation as of January 1, 2016 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.

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 was determined using a building-block method in which best-estimate ranges of expected future real rates of return (expected returns, net of Pension Plan investment expenses and inflation) are developed for each major asset class.

These ranges are combined to produce the Long-Term Expected Rate of Return by weighting the expected future real rates of return by the target asset allocation percentage and by adding expected inflation.

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, 2015 are summarized in the following table:

Asset Class	Long Term Expected Real 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 3.57% (based on the weekly rate closest to but not later than the measurement date of the Bond Buyer 20-Bond Index as published by the Federal Reserve); and the resulting single discount rate is 7.00%.

	Current Discount		
	1% Decrease 6.00%	Rate 7.00%	1% Increase 8.00%
Sponsor's Net Pension Liability	\$ 3,572,240	\$ (281,498)	\$ (3,477,003)

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

	12/31/2015
Total Pension Liability	
Service Cost	2,082,564
Interest	141,034
Changes of benefit terms	-
Differences between Expected and Actual Experience	(654,318)
Changes of assumptions	-
Contributions - Buy Back	20,468,906
Benefit Payments, including Refunds of Employee Contributions	(135,573)
Net Change in Total Pension Liability	21,902,613
Total Pension Liability - Beginning	-
Total Pension Liability - Ending (a)	\$ 21,902,613
Plan Fiduciary Net Position	
Contributions - Employer	1,184,257
Contributions - Employee	1,184,257
Contributions - Buy Back	20,468,906
Net Investment Income	(387,995)
Benefit Payments, including Refunds of Employee Contributions	(135,573)
Administrative Expense	(129,741)
Net Change in Plan Fiduciary Net Position	22,184,111
Plan Fiduciary Net Position - Beginning	-
Plan Fiduciary Net Position - Ending (b)	\$ 22,184,111
Net Pension Liability - Ending (a) - (b)	\$ (281,498)
Plan Fiduciary Net Position as a percentage of the Total Pension Liability	101.29%
Covered Employee Payroll	\$ 9,868,808
Net Pension Liability as a percentage of Covered Employee Payroll	-2.85%

**Notes to Schedule:**

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

SCHEDULE OF CONTRIBUTIONS

Last 10 Years

	<u>12/31/2015</u>
Contractually Required Contribution	1,184,257
Contributions in relation to the	
Contractually Required Contributions	<u>1,184,257</u>
Contribution Deficiency (Excess)	<u>\$ -</u>
Covered Employee Payroll	\$ 9,868,808
Contributions as a percentage of Covered	
Employee Payroll	12.00%

Notes to Schedule

Methods and assumptions used to determine contribution rates:

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

Accrued Benefit Reduction	<u>Calendar Year</u>	<u>Reduction Percentage</u>
	2016	30%
	2017	20%
	2018	10%
	2019+	0%

Mortality Rate: 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: RP-2000 Disabled Retiree Mortality.

Interest: 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.

<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.

Disability: 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.

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Retirement (2016-2019):	<u>Calendar Year</u>	<u>Probability</u>
	2016	1.00%
	2017	1.00%
	2018	1.00%
	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:	<u>Service*</u>	<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).

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 Asset Method: Fair Market Value.

SCHEDULE OF INVESTMENT RETURNS  
Last 10 Years

	<u>12/31/2015</u>
Annual Money-Weighted Rate of Return	
Net of Investment Expense	-2.39%

**NOTES TO THE FINANCIAL STATEMENTS**  
(For the Year Ended December 31, 2015)

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, 2016:*

Inactive Plan Members or Beneficiaries Currently Receiving Benefits	-
Inactive Plan Members Entitled to But Not Yet Receiving Benefits	1
Active Plan Members	136
	137
	137

*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, 2015.

The measurement period for the pension expense was January 1, 2015 to December 31, 2015.

The reporting period is January 1, 2015 through December 31, 2015.

The Sponsor's Net Pension Liability was measured as of December 31, 2015.

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, 2016 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.

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 was determined using a building-block method in which best-estimate ranges of expected future real rates of return (expected returns, Net of Pension Plan investment expenses and inflation) are developed for each major asset class.

These ranges are combined to produce the Long-Term Expected Rate of Return by weighting the expected future real rates of return by the target asset allocation percentage and by adding expected inflation.

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, 2015 are summarized in the following table:

Asset Class	Target Allocation	Long Term Expected Real Rate of Return
Equities	65%	6.21%
Fixed Income	34%	4.05%
Cash	1%	0.00%
Total	100%	

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 3.57% (based on the weekly rate closest to but not later than the measurement date of the Bond Buyer 20-Bond Index as published by the Federal Reserve); and the resulting single discount rate is 7.00%.

CHANGES IN NET PENSION LIABILITY

	Increase (Decrease)		
	Total Pension Liability	Plan Fiduciary Net Position	Net Pension Liability
	(a)	(b)	(a)-(b)
Balances as of January 1, 2015	\$ -	\$ -	\$ -
Changes for a Year:			
Service Cost	2,082,564	-	2,082,564
Interest	141,034	-	141,034
Differences between Expected and Actual Experience	(654,318)	-	(654,318)
Changes of assumptions	-	-	-
Changes of benefit terms	-	-	-
Contributions - Employer	-	1,184,257	(1,184,257)
Contributions - Employee	-	1,184,257	(1,184,257)
Contributions - Buy Back	20,468,906	20,468,906	-
Net Investment Income	-	(387,995)	387,995
Benefit Payments, including Refunds of Employee Contributions	(135,573)	(135,573)	-
Administrative Expense	-	(129,741)	129,741
Net Changes	21,902,613	22,184,111	(281,498)
Balances as of December 31, 2015	\$ 21,902,613	\$ 22,184,111	\$ (281,498)

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

	Current Discount		
	1% Decrease	Rate	1% Increase
	6.00%	7.00%	8.00%
Sponsor's Net Pension Liability	\$ 3,572,240	\$ (281,498)	\$ (3,477,003)

*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, 2015, the Sponsor will recognize a Pension Expense of \$573,767.

On December 31, 2015, 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	-	613,424
Changes of assumptions	-	-
Net difference between Projected and Actual Earnings on Pension Plan investments	942,416	-
<b>Total</b>	<b>\$ 942,416</b>	<b>\$ 613,424</b>

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:	
2016	\$ 194,709
2017	\$ 194,709
2018	\$ 194,709
2019	\$ 194,710
2020	\$ (40,895)
Thereafter	\$ (408,950)

**Payable to the Pension Plan**

On December 31, 2015, the Sponsor reported a payable of \$4,412 for the outstanding amount of contributions of the Pension Plan required for the year ended December 31, 2015.

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

	12/31/2015
Total Pension Liability	
Service Cost	2,082,564
Interest	141,034
Changes of benefit terms	-
Differences between Expected and Actual Experience	(654,318)
Changes of assumptions	-
Contributions - Buy Back	20,468,906
Benefit Payments, including Refunds of Employee Contributions	(135,573)
Net Change in Total Pension Liability	21,902,613
Total Pension Liability - Beginning	-
Total Pension Liability - Ending (a)	\$ 21,902,613
Plan Fiduciary Net Position	
Contributions - Employer	1,184,257
Contributions - Employee	1,184,257
Contributions - Buy Back	20,468,906
Net Investment Income	(387,995)
Benefit Payments, including Refunds of Employee Contributions	(135,573)
Administrative Expense	(129,741)
Net Change in Plan Fiduciary Net Position	22,184,111
Plan Fiduciary Net Position - Beginning	-
Plan Fiduciary Net Position - Ending (b)	\$ 22,184,111
Net Pension Liability - Ending (a) - (b)	\$ (281,498)
Plan Fiduciary Net Position as a percentage of the Total Pension Liability	101.29%
Covered Employee Payroll	\$ 9,868,808
Net Pension Liability as a percentage of Covered Employee Payroll	-2.85%

**Notes to Schedule:**

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

**SCHEDULE OF CONTRIBUTIONS**  
Last 10 Years

	12/31/2015
Contractually Required Contribution	1,184,257
Contributions in relation to the Contractually Required Contributions	1,184,257
Contribution Deficiency (Excess)	\$ -
Covered Employee Payroll	\$ 9,868,808
Contributions as a percentage of Covered Employee Payroll	12.00%

Notes to Schedule

Methods and assumptions used to determine contribution rates:

Funding Method: Individual Entry Age Normal, Level % of Pay. □

Accrued Benefit Reduction	<u>Calendar Year</u>	<u>Reduction Percentage</u>
	2016	30%
	2017	20%
	2018	10%
	2019+	0%

Mortality Rate: 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: RP-2000 Disabled Retiree Mortality.  
Interest: 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.

<u>Age</u>	<u>Probability</u>
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.

Disability: 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.

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Retirement (2016-2019):	<u>Calendar Year</u>	<u>Probability</u>
	2016	1%
	2017	1%
	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:	<u>Service*</u>	<u>Increase</u>
	0-5	0.115
	6-10	0.063
	11-15	0.05
	16+	0.04

\* 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 Asset Method:	Fair Market Value.

**COMPONENTS OF PENSION EXPENSE**  
**YEAR DECEMBER 31, 2015**

	Net Pension Liability	Deferred Inflows	Deferred Outflows	Pension Expense
Balances as of January 1, 2015	\$ -	\$ -	\$ -	\$ -
<b>Total Pension Liability Factors:</b>				
Service Cost	2,082,564	-	-	2,082,564
Interest	141,034	-	-	141,034
Changes in benefit terms	-	-	-	-
Contributions - Buy Back	20,468,906	-	-	20,468,906
Differences between Expected and Actual Experience with regard to economic or demographic assumptions	(654,318)	654,318	-	-
Current year amortization of experience difference	-	(40,894)	-	(40,894)
Change in assumptions about future economic or demographic factors or other inputs	-	-	-	-
Current year amortization of change in assumptions	-	-	-	-
Benefit Payments	(135,573)	-	-	(135,573)
Net change	<u>21,902,613</u>	<u>613,424</u>	<u>-</u>	<u>22,516,037</u>
<b>Plan Fiduciary Net Position:</b>				
Contributions - Employer	1,184,257	-	-	-
Contributions - Employee	1,184,257	-	-	(1,184,257)
Contributions - Buy Back	20,468,906	-	-	(20,468,906)
Net Investment Income	790,024	-	-	(790,024)
Difference between projected and actual earnings on Pension Plan investments	(1,178,019)	-	1,178,019	-
Current year amortization	-	-	(235,603)	235,603
Benefit Payments	(135,573)	-	-	135,573
Administrative Expenses	(129,741)	-	-	129,741
Net change	<u>22,184,111</u>	<u>-</u>	<u>942,416</u>	<u>(21,942,270)</u>
Balances as of December 31, 2015	<u>\$ (281,498)</u>	<u>\$ 613,424</u>	<u>\$ 942,416</u>	<u>\$ 573,767</u>