

Employees' Retirement Fund of the City of Fort Worth

Revised Actuarial Valuation and Review as of
January 1, 2014





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December 30, 2014

*Board of Trustees
Employees' Retirement Fund of the City of Fort Worth
3801 Hulen Street, Suite 101
Fort Worth, TX 76107-7202*

Dear Board Members:

We are pleased to submit this revised Actuarial Valuation and Review as of January 1, 2014. It summarizes the actuarial data used in the valuation, analyzes the preceding year's experience and establishes the funding requirements for fiscal 2014-2015. At the request of the City of Fort Worth, the prior year results in this report have been adjusted from the original valuation, dated June 6, 2014, to account for a salary correction in the data of one individual that was uncovered in an actuarial audit completed by Gallagher Benefit Services, Inc.

This report was prepared in accordance with generally accepted actuarial principles and practices at the request of the Board to assist in administering the Retirement Fund. The census information and financial information on which our calculations were based was prepared by the staff of the Fund. That assistance is gratefully acknowledged. Segal Consulting does not audit the data provided; the accuracy and comprehensiveness of the data is the responsibility of those supplying it. To the extent we can, however, Segal Consulting does review the data for reasonableness and consistency. Based on our review of the data, we have no reason to doubt the substantial accuracy of the information on which we have based this report and we have no reason to believe there are facts or circumstances that would affect the validity of these results.

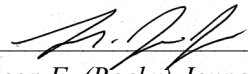
The measurements shown in this actuarial valuation may not be applicable for other purposes. Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: plan experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the smoothing of investment gains and losses); and changes in plan provisions or applicable law.

The actuarial calculations were directed under the supervision of Deborah K. Brigham, FCA, ASA, MAAA, Enrolled Actuary. We are members of the American Academy of Actuaries and we meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinion herein. To the best of our knowledge, the information supplied in the actuarial valuation is complete and accurate. Further, in our opinion, the assumptions as approved by the Board are reasonably related to the experience of and the expectations for the Plan.

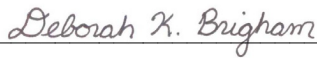
We look forward to reviewing this report at your next meeting and to answering any questions.

Sincerely,

Segal Consulting, a Member of The Segal Group, Inc.

By: 

Leon F. (Rocky) Joyner, Jr., FCA, ASA, MAAA, EA
Vice President and Consulting Actuary



Deborah K. Brigham, FCA, ASA, MAAA, EA
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SECTION 1: Valuation Summary for the Employees' Retirement Fund of the City of Fort Worth

Purpose

This report has been prepared by Segal Consulting to present a valuation of the Employees' Retirement Fund of the City of Fort Worth as of January 1, 2014. The valuation was performed to determine whether the assets and contributions are sufficient to provide the prescribed benefits. The contribution requirements presented in this report are based on:

- The benefit provisions of the Plan, as administered by the Board;
- The characteristics of covered active members, inactive vested members, and retired members and beneficiaries as of January 1, 2014, provided by the Board;
- The assets of the Plan as of December 31, 2013, provided by the Fund;
- Economic assumptions regarding future salary increases and investment earnings; and
- Other actuarial assumptions, regarding employee terminations, retirement, death, etc.

The assumptions and methods used to value the Fund were approved by the Board of Trustees based on a three-year experience study for the period ended December 31, 2012.

Significant Issues in Valuation Year

1. The total recommended plan contribution for 2014 is 31.22% of projected payroll, an increase from last year's calculated rate of 29.60%. As a dollar amount, the recommended contribution has increased from \$111.2 million to \$116.7 million.
2. Included for the first time in this valuation are plan changes that apply to Municipal employees hired before July 1, 2011 and Police employees hired before January 1, 2013. The benefits for these individuals now are bifurcated, with the prior formula applying to pre-October 1, 2013 service, and the new provisions (shown below) applying to service earned on or after October 1, 2013:
 - The compensation base is changed from the highest three years to the highest five years.
 - Overtime earnings are eliminated from the compensation base for determining benefits, and employees no longer contribute on overtime earnings. (The City continues to contribute on overtime.)
 - The multiplier is lowered to 2.50% for standard pension benefits and to 2.25% for non-duty death, non-duty disability and early retirement benefits.
 - The benefit earned on or after October 1, 2013 is subject to an annual 2.00% simple post-retirement cost-of-living adjustment (COLA).

These plan changes decreased the recommended contribution by \$3,806,013 (1.01% of pay).

SECTION 1: Valuation Summary for the Employees' Retirement Fund of the City of Fort Worth

3. The valuation also reflects the results of a COLA election in late 2013, allowing all annuitants and non-firefighter employees who had an ad-hoc COLA provision to change to a 2.00% simple COLA. Approximately 80% of eligible retirees and 55% of eligible active and inactive vested participants elected to switch to the 2.00% option. The recommended contribution increased by \$10,668,955 (2.85% of pay) as a result.
4. The City is expected to contribute 19.74% of pay for Municipal Employees and Firefighters, and 20.46% of pay for Police Officers; the weighted average of these rates is 19.98% of pay. Member contributions are 8.25% of pay for Municipal and Fire, and 8.73% of pay for Police. The weighted average of the member rates is 8.41%, but Municipal and Police employees no longer contribute on overtime; the effective weighted average of member contributions is 8.09% of payroll including overtime. (Note that the decrease in contribution for the City attributable to the plan changes listed in Item 2 above is 0.69% after accounting for the reduction in the effective member rate.) The sum of City and member contributions is 28.07% of pay.
5. The calculated recommended contribution of 31.22% is based on a 30-year level percent-of-pay amortization of the unfunded actuarial accrued liability. Since the expected contribution rate of 28.07% is less than the recommended rate, the unfunded liability is effectively being amortized over a period of 49.3 years as a level percent of pay. This is an increase of over 13 years from an effective period of 36.0 years in the last valuation. Although investment and demographic experience combined with the plan changes decreased the period by about five years, the COLA election had a significant impact, increasing the period by about 18 years.
6. The investment rate of return on the actuarial value of assets for the year ended December 31, 2013 was 9.95%. Since the rate of return was less than the assumed rate of return of 8.00% per year, there was an actuarial investment gain amounting to \$35,755,156. Currently, the actuarial value of assets is \$1,995,112,935, or 98.2% of market value.
7. The Schedule of Funding Progress, provided in Exhibit III of Section 4, shows that the funded ratio has increased from 63.8% as of January 1, 2013 to 63.9% as of January 1, 2014.
8. Under the ad-hoc COLA program, the COLA increase, if any, for the following January 1st is determined based on the prior year's valuation results. Conditions have not been met for an ad-hoc COLA as of January 1, 2015. A 30-year projection of estimated future results is shown in Section 3 of this report.
9. The ARC is based on an open 30-year, level percent-of-payroll amortization. The Board should be aware that this method will never amortize the plan's unfunded actuarial accrued liability unless investment returns are consistently above 8.00%. Based on the City's current contribution rate, the unfunded actuarial accrued liability is expected to grow each year.

SECTION 1: Valuation Summary for the Employees' Retirement Fund of the City of Fort Worth

10. The actuarial valuation report as of January 1, 2014 is based on financial information as of December 31, 2013. Changes in the value of assets subsequent to that date are not reflected and could affect the future actuarial costs of the Fund. We are prepared to work with the Board to model the effected of these and any other subsequent developments.
11. Effective for plan years beginning after June 15, 2013, new GASB disclosures for the Fund are required as set forth in Statement 67. Segal Consulting will work with Fund staff to provide these disclosures at the end of the Plan's fiscal year.
12. Actuarial Standard of Practice No. 4, *Measuring Pension Obligations and Determining Pension Plan Costs or Contributions*, was revised in December 2013, and is effective for actuarial opinions issued for measurement dates on or after December 31, 2014. The new standard requires an actuary to determine how to include "plan provisions that are difficult to value." The Fund's Ad-Hoc COLA program is classified as such a benefit, as it is paid based on the funded status of the Plan, and any recognition of anticipated COLA liability in advance impacts the Plan's status. Currently the Fund's liabilities are calculated assuming that no ad-hoc COLAs are payable in the future, and past practice has been to include the impact of the COLA in the year in which it is paid. Segal Consulting will consider options for recognition, and will share them with Fund Staff and the Board prior to completion of the January 1, 2015 actuarial valuation.
13. This valuation was originally released on June 6, 2014, and the current year results shown herein are unchanged from that report. However, the prior year results have been adjusted, at the request of the City of Fort Worth, to account for a correction in the 2013 salary data of one individual. An actuarial audit completed by Gallagher Benefit Services, Inc. for the City revealed that the salary was reported to Segal Consulting without a decimal point, and therefore was 100 times higher than actual. The impact was an overstatement of less than 1% of the Fund's total actuarial accrued liability.

SECTION 1: Valuation Summary for the Employees' Retirement Fund of the City of Fort Worth

Summary of Key Valuation Results

	2014	2013*
Contributions for plan year beginning January 1:		
Recommended contribution (City plus member)	\$116,713,655	\$111,205,974
Recommended contribution as a percentage of projected payroll	31.22%	29.60%
Funding elements for plan year beginning January 1:		
Total normal cost	\$45,178,499	\$44,325,934
Market value of assets	2,031,484,937	1,851,800,483
Actuarial value of assets	1,995,112,935	1,854,871,487
Actuarial accrued liability	3,124,079,563	2,909,019,272
Unfunded actuarial accrued liability	1,128,966,628	1,054,147,785
GASB disclosure items:		
Annual required contributions (city only) for fiscal year beginning October 1	\$88,570,352	\$81,579,437
Funded ratio as of January 1	63.9%	63.8%
Demographic data for plan year beginning January 1:		
Number of retired members and beneficiaries	3,820	3,706
Number of vested former members	296	277
Number of active members	6,199	6,278
Total projected covered payroll	\$373,848,113	\$375,687,978
Average covered payroll	60,308	59,842

* The 2013 results have been adjusted from those shown in both the January 1, 2013 valuation report and in the initial January 1, 2014 valuation report, to reflect a correction to the reported salary of one active participant.

SECTION 2: Valuation Results for the Employees' Retirement Fund of the City of Fort Worth

A. MEMBER DATA

The Actuarial Valuation and Review considers the number and demographic characteristics of covered members, including active members, vested terminated members, retired members and beneficiaries.

This section presents a summary of significant statistical data on these member groups.

More detailed information for this valuation year and the preceding valuation can be found in Section 3, Exhibits A, B, and C.

A historical perspective of how the member population has changed over the past ten valuations can be seen in this chart.

CHART 1
Member Population: 2004 – 2013

Year Ended	Active Members	Vested Terminated Members*	Retired Members and Beneficiaries	Ratio of Non-Actives to Actives
<u>September 30:</u>				
2004	5,581	--	3,029	0.54
2005	5,779	172	3,083	0.56
<u>December 31:</u>				
2006	5,907	199	3,159	0.57
2007	6,399	249	3,204	0.54
2008	6,379	240	3,304	0.56
2009	6,277	290	3,449	0.60
2010	6,144	291	3,517	0.62
2011	6,281	279	3,636	0.62
2012	6,278	277	3,706	0.63
2013	6,199	296	3,820	0.66

* Excludes terminated members due a refund of employee contributions. Data for September 30, 2004 was not available in the actuary's report.

SECTION 2: Valuation Results for the Employees' Retirement Fund of the City of Fort Worth

Active Members

Plan costs are affected by the age, years of service and covered payroll of active members. In this year's valuation, there were 6,199 active members with an average age of 44.5, average years of service of 11.4 years and average covered payroll of \$60,308. The 6,278 active members in the prior valuation had an average age of 44.3, average service of 11.2 years and average covered payroll of \$59,842.

Inactive Members

In this year's valuation, there were 296 members with a vested right to a deferred or immediate vested benefit. In addition, there were 549 members entitled to a return of their employee contributions.

These graphs show a distribution of active members by age and by years of service.

CHART 2
Distribution of Active Members by Age as of December 31, 2013

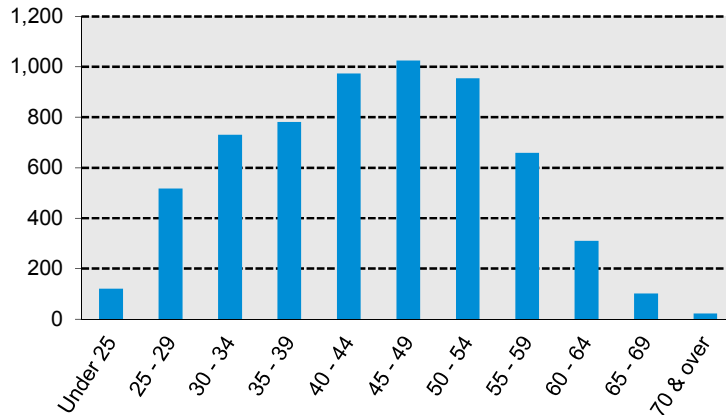
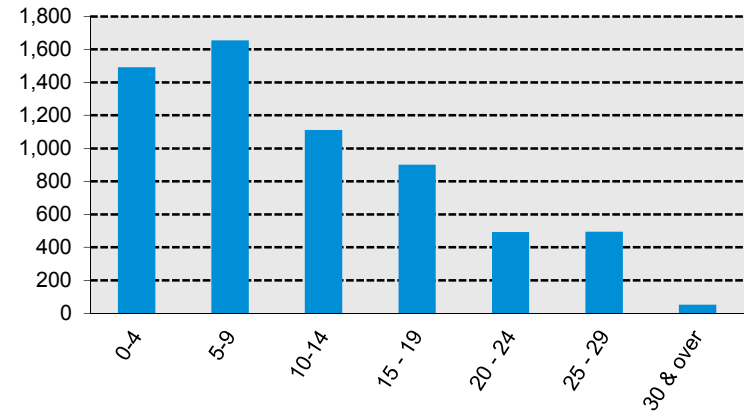


CHART 3
Distribution of Active Members by Years of Service as of December 31, 2013



SECTION 2: Valuation Results for the Employees' Retirement Fund of the City of Fort Worth

Retired Members and Beneficiaries

As of December 31, 2013, 3,070 retired members and 750 beneficiaries were receiving total monthly benefits of \$11,208,075. For comparison, in the previous valuation, there were 2,957 retired members and 749 beneficiaries receiving monthly benefits of \$10,498,601.

These graphs show a distribution of the current retired members based on their monthly amount and age, by type of pension.

CHART 4
Distribution of Retired Members by Type and by Monthly Amount as of December 31, 2013

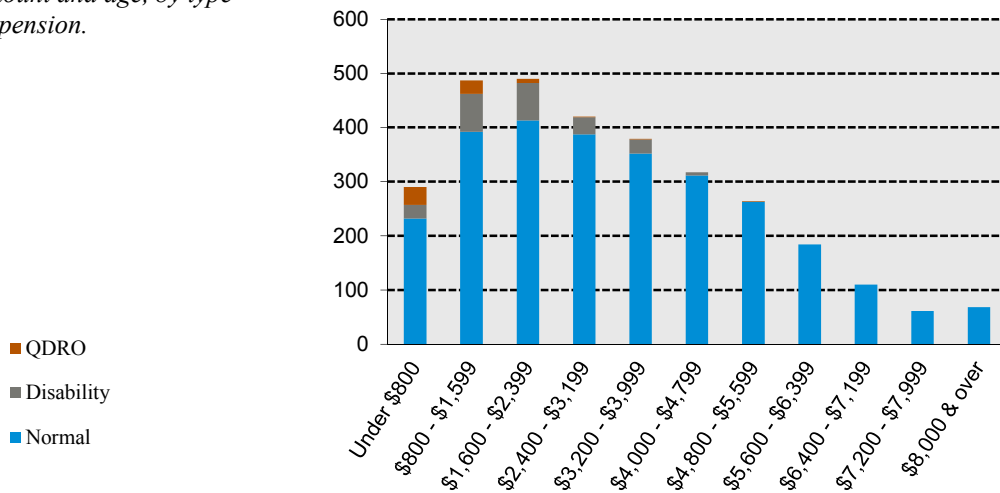
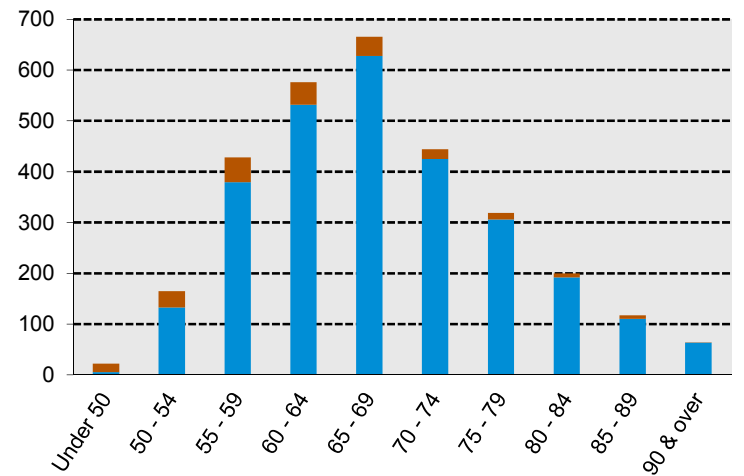


CHART 5
Distribution of Retired Members by Type and by Age as of December 31, 2013



SECTION 2: Valuation Results for the Employees' Retirement Fund of the City of Fort Worth

B. FINANCIAL INFORMATION

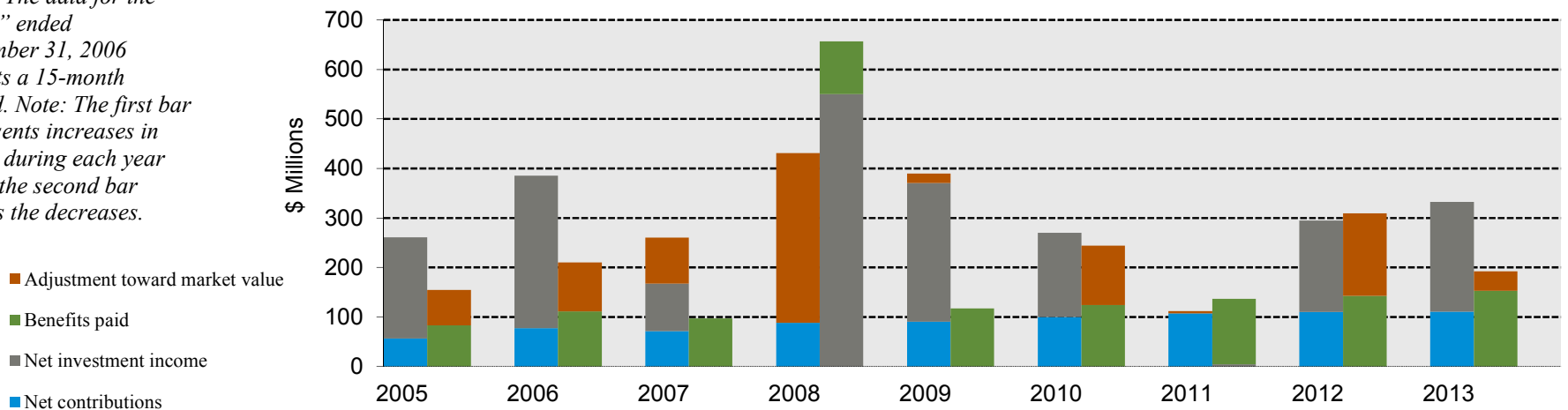
Retirement plan funding anticipates that, over the long term, both contributions and net investment earnings (less investment fees and administrative expenses) will be needed to cover benefit payments.

Retirement plan assets change as a result of the net impact of these income and expense components. Additional financial information, including a summary of these transactions for the valuation year, is presented in Section 3, Exhibits D, E and F.

The chart depicts the components of changes in the actuarial value of assets over the last nine years. The data for the "year" ended December 31, 2006 reflects a 15-month period. Note: The first bar represents increases in assets during each year while the second bar details the decreases.

CHART 6

Comparison of Increases and Decreases in the Actuarial Value of Assets for Years Ended September 30, 2005 and December 31, 2006 – 2013



SECTION 2: Valuation Results for the Employees' Retirement Fund of the City of Fort Worth

It is desirable to have level and predictable plan costs from one year to the next. For this reason, the Board has approved an asset valuation method that gradually adjusts to market value. Under this valuation method, the full value of market fluctuations is not recognized in a single year and, as a result, the asset value and the plan costs are more stable.

The amount of the adjustment to recognize market value is treated as income, which may be positive or negative. Realized and unrealized gains and losses are treated equally and, therefore, the sale of assets has no immediate effect on the actuarial value.

The chart shows the determination of the actuarial value of assets as of the valuation date.

CHART 7

Determination of Actuarial Value of Assets for Year Ended December 31, 2013

1. Market value of assets, December 31, 2013				\$2,031,484,937
2. Calculation of unrecognized return	<u>Original Amount</u> *	<u>Percent Deferred</u>	<u>Unrecognized Return</u> **	
(a) Year ended December 31, 2013	\$75,443,843	80%	\$60,355,074	
(b) Year ended December 31, 2012	45,442,271	60	27,265,363	
(c) Year ended December 31, 2011	-146,304,833	40	-58,521,933	
(d) Year ended December 31, 2010	36,367,489	20	7,273,498	
(e) Year ended December 31, 2009	169,055,415	0	<u>0</u>	
(f) Total unrecognized return				36,372,002
3. Preliminary actuarial value: (1) - (2f)				1,995,112,935
4. Adjustment to be within 20% corridor				0
5. Final actuarial value of assets as of December 31, 2013: (3) + (4)				<u>\$1,995,112,935</u>
6. Actuarial value as a percentage of market value: (5) ÷ (1)				98.2%
7. Amount deferred for future recognition: (1) - (5)				\$36,372,002

*Total return minus expected return on a market value basis

**Recognition at 20% per year over five years

***Deferred return as of December 31, 2013 recognized in each of the next four years:

(a) Amount recognized on December 31, 2014	\$2,189,754	(c) Amount recognized on December 31, 2016	\$24,177,223
(b) Amount recognized on December 31, 2015	-5,083,744	(d) Amount recognized on December 31, 2017	15,088,769

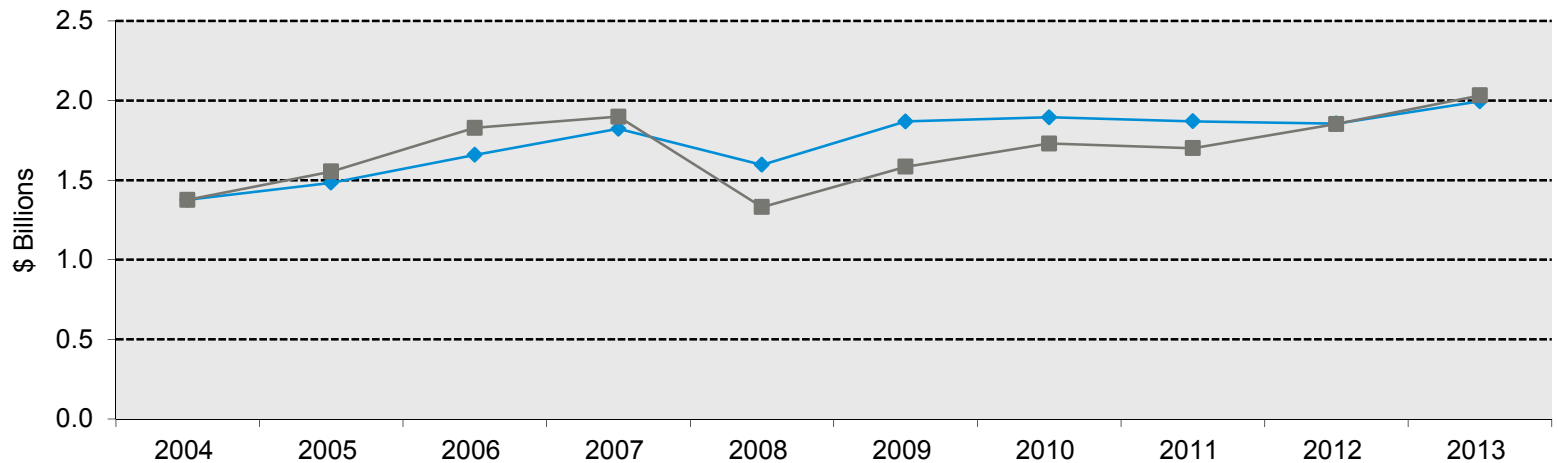
SECTION 2: Valuation Results for the Employees' Retirement Fund of the City of Fort Worth

Both the actuarial value and market value of assets are representations of the Fund's financial status. As investment gains and losses are gradually taken into account, the actuarial value of assets tracks the market value of assets. The actuarial asset value is significant because the Fund's liabilities are compared to these assets to determine what portion, if any, remains unfunded. Amortization of the unfunded actuarial accrued liability is an important element in determining the contribution requirement.

This chart shows the change in the actuarial value of assets versus the market value over the past ten years.

CHART 8

Actuarial Value of Assets vs. Market Value of Assets as of September 30, 2004 - 2005 and December 31, 2006 – 2013



SECTION 2: Valuation Results for the Employees' Retirement Fund of the City of Fort Worth

C. ACTUARIAL EXPERIENCE

To calculate the required contribution, assumptions are made about future events that affect the amount and timing of benefits to be paid and assets to be accumulated. Each year actual experience is measured against the assumptions. If overall experience is more favorable than anticipated (an actuarial gain), the contribution requirement will decrease from the previous year. On the other hand, the contribution requirement will increase if overall actuarial experience is less favorable than expected (an actuarial loss).

Taking account of experience gains or losses in one year without making a change in assumptions reflects the belief that the single year's experience was a short-term

development and that, over the long term, experience will return to the original assumptions. For contribution requirements to remain stable, assumptions should approximate experience.

If assumptions are changed, the contribution requirement is adjusted to take into account a change in experience anticipated for all future years.

The total gain is \$47,379,201, including a gain of \$35,755,156 from investments and \$11,624,045 in net gains from all other sources. The net experience variation from individual sources other than investments was 0.4% of the actuarial accrued liability. A discussion of the major components of the actuarial experience is on the following pages.

This chart provides a summary of the actuarial experience during the past year.

CHART 9
Actuarial Experience for Year Ended December 31, 2013

1. Net gain from investments*	\$35,755,156
2. Net gain from other experience	<u>11,624,045</u>
3. Net experience gain: (1) + (2)	\$47,379,201

* Details in Chart 10

SECTION 2: Valuation Results for the Employees' Retirement Fund of the City of Fort Worth

Investment Rate of Return

A major component of projected asset growth is the assumed rate of return. The assumed return should represent the expected long-term rate of return, based on the Fund's investment policy. For valuation purposes, the assumed rate of return on the actuarial value of assets is 8.00%. The actual rate of return on an actuarial basis for the 2013 plan year was 9.95%.

Since the actual return for the year was greater than the assumed return, the Fund experienced an actuarial gain during the year ended December 31, 2013 with regard to its investments.

This chart shows the gain due to investment experience.

CHART 10

Actuarial Value Investment Experience for Year Ended December 31, 2013

1. Actual return	\$182,456,282
2. Average value of assets	1,833,764,070
3. Actual rate of return: (1) ÷ (2)	9.95%
4. Assumed rate of return	8.00%
5. Expected return: (2) x (4)	\$146,701,126
6. Actuarial gain: (1) – (5)	<u>\$35,755,156</u>

SECTION 2: Valuation Results for the Employees' Retirement Fund of the City of Fort Worth

Because actuarial planning is long term, it is useful to see how the assumed investment rate of return has followed actual experience over time. The chart below shows the rate of return on an actuarial basis compared to the market value investment return for the last nine years, including five-year and nine-year averages.

Based upon the Fund's investment policy and current capital market assumptions, we have maintained the assumed rate of return of 8.00%.

This chart provides a history of actuarial and market value rates of return.

CHART 11

Investment Return – Actuarial Value vs. Market Value: September 30, 2005 and December 31, 2006 - 2013

Year Ended	Net Interest and Dividend Income		Recognition of Capital Appreciation		Actuarial Value Investment Return		Market Value Investment Return	
	Amount	Percent	Amount	Percent	Amount	Percent	Amount	Percent
September 30:								
2005	\$204,465,868	15.00%	-\$71,282,424	-5.23%	\$133,183,444	9.77%	\$204,465,868	15.00%
December 31:								
2006*	307,924,015	16.48	-98,530,505	-5.21	209,393,510	11.27	307,924,015	15.73
2007	96,169,030	5.84	92,929,333	5.65	189,098,363	11.49	96,169,030	5.30
2008	-550,332,779	-30.36	342,949,028	18.92	-207,383,751	-11.44	-550,332,779	-29.12
2009	280,265,055	17.70	18,769,841	1.19	299,034,896	18.89	280,265,055	21.28
2010	169,972,824	9.15	-119,752,670	-6.45	50,220,154	2.70	169,972,824	10.81
2011	-4,639,951	-0.24	4,570,907	0.24	-69,044	0.00	-4,639,951	-0.27
2012	184,349,728	9.95	-166,582,504	-8.99	17,767,222	0.96	184,349,728	10.95
2013	<u>221,899,288</u>	12.10	<u>-39,443,006</u>	-2.15	<u>182,456,282</u>	9.95	<u>221,899,288</u>	12.12
Total	\$910,073,078		-\$36,372,002		\$873,701,077		\$910,073,078	
					Five-year average return	6.10%		10.49%
					Nine-year average return	5.71%		5.95%

Note: Each year's yield is weighted by the average asset value in that year.

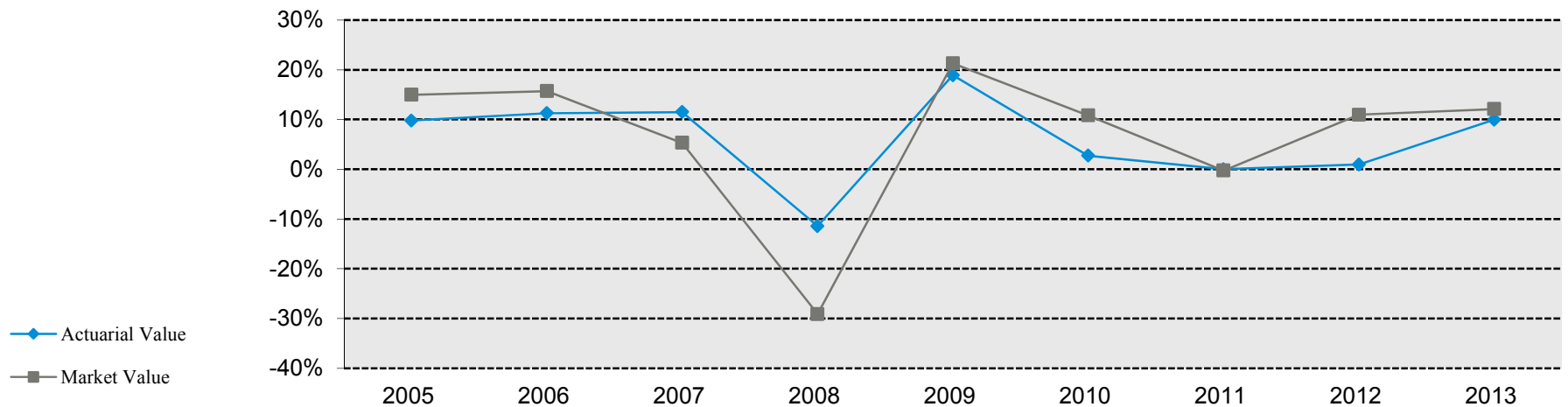
* For the 15-month period ending December 31, 2006, yields were converted to an annualized return.

SECTION 2: Valuation Results for the Employees' Retirement Fund of the City of Fort Worth

Subsection B described the actuarial asset valuation method that gradually takes into account fluctuations in the market value rate of return. The effect of this is to stabilize the actuarial rate of return, which contributes to leveling pension plan costs.

This chart illustrates how this leveling effect has actually worked over the years 2005 - 2013.

CHART 12
Market and Actuarial Rates of Return for Years Ended September 30, 2005 and December 31, 2006 - 2013



SECTION 2: Valuation Results for the Employees' Retirement Fund of the City of Fort Worth

Other Experience

There are other differences between the expected and the actual experience that appear when the new valuation is compared with the projections from the previous valuation. These include:

- the extent of turnover among the participants,
- retirement experience (earlier or later than expected),
- mortality (more or fewer deaths than expected),
- the number of disability retirements, and
- salary increases different than assumed.

The net gain from this other experience for the year ended December 31, 2013 amounted to \$11,624,045, which is 0.4% of the actuarial accrued liability.

SECTION 2: Valuation Results for the Employees' Retirement Fund of the City of Fort Worth

D. RECOMMENDED CONTRIBUTION

The amount of annual contribution required to fund the Plan is comprised of an employer normal cost payment and a payment on the unfunded actuarial accrued liability. This total amount is then divided by the projected covered payroll for active members to determine the funding rate of 31.22% of covered payroll.

The recommended contribution is based on an open 30-year amortization of the unfunded actuarial accrued liability as a level percentage of payroll. The City contributes 19.74% of pay for Municipal and Fire members and 20.46% of pay for Police Officers, as set by City

ordinance. Based on the current composition of the active plan population, the average rate is 19.98% of covered payroll. The Fund also receives member contributions of 8.25% for non-Police members and 8.73% of pay for Police members. The weighted average of the member rates is 8.41%, but Municipal and Police employees no longer contribute on overtime; the effective weighted average of member contributions is 8.09% of payroll including overtime. Thus the total contribution rate is 28.07%. As the total actuarially calculated recommended contribution is 31.22% of covered payroll, there is a deficit of 3.15% of covered payroll.

The chart compares this valuation's recommended contribution with the prior valuation.

**CHART 13
Recommended Contribution**

	Year Beginning January 1			
	2014		2013*	
	Amount	% of Covered Payroll	Amount	% of Covered Payroll
1. Entry age normal cost, adjusted for timing	\$46,985,639	12.57%	\$46,098,971	12.27%
2. Actuarial accrued liability	3,124,079,563		2,909,019,272	
3. Actuarial value of assets	<u>1,995,112,935</u>		<u>1,854,871,487</u>	
4. Unfunded actuarial accrued liability: (2) - (3)	\$1,128,966,628		\$1,054,147,785	
5. Payment on unfunded actuarial accrued liability, adjusted for timing	69,728,016	18.65	65,107,003	17.33%
6. Total recommended contribution** (1) + (5)	<u>\$116,713,655</u>	<u>31.22%</u>	<u>\$111,205,974</u>	<u>29.60%</u>
7. Projected covered payroll	\$373,848,113		\$375,687,978	

* The 2013 results have been adjusted from those shown in both the January 1, 2013 valuation report and in the initial January 1, 2014 valuation report, to reflect a correction to the reported salary of one active participant.

** Recommended contributions are assumed to be paid at the middle of every year.

SECTION 2: Valuation Results for the Employees' Retirement Fund of the City of Fort Worth

The calculated normal cost is 12.57% of covered payroll. The remaining 15.50% of covered payroll in City and member contributions will amortize the unfunded actuarial accrued liability over a period of 49.3 years. This exceeds current Texas Pension Review Board guidelines.

The contribution requirements as of January 1, 2014 are based on all of the data described in the previous sections, the actuarial assumptions described in Section 4, and the Plan provisions adopted at the time of preparation of the Actuarial Valuation. They include all changes affecting future costs, adopted benefit changes, actuarial gains and losses and changes in the actuarial assumptions.

Reconciliation of Recommended Contribution

The chart below details the changes in the recommended contribution from the prior valuation to the current year's valuation.

The chart reconciles the contribution from the prior valuation to the amount determined in this valuation.

CHART 14

Reconciliation of Recommended Contribution from January 1, 2013 to January 1, 2014

Recommended Contribution as of January 1, 2013	\$111,205,974
Effect of COLA election	10,668,955
Effect of changes in plan provisions	-3,806,013
Effect of investment gain	-2,244,504
Effect of other gains and losses on accrued liability	-729,691
Effect of expected change in amortization payment due to payroll growth	2,115,978
Effect of maintaining a 30-year amortization period	-1,036,249
Effect of contributions less than recommended contribution	56,772
Net effect of other changes	<u>482,433</u>
Total change	<u>\$5,507,681</u>
Recommended Contribution as of January 1, 2014	\$116,713,655

SECTION 2: Valuation Results for the Employees' Retirement Fund of the City of Fort Worth

E. INFORMATION REQUIRED BY THE GASB

Governmental Accounting Standards Board (GASB) reporting information provides standardized information for comparative purposes of governmental pension plans. This information allows a reader of the financial statements to compare the funding status of one governmental plan to another on relatively equal terms.

Critical information to the GASB is the historical comparison of the GASB required contribution to the actual contributions. This comparison demonstrates whether a plan is being funded within the range of the GASB reporting requirements. Chart 15 below presents a graphical representation of this information for the Plan.

The other critical piece of information regarding the Plan's financial status is the funded ratio. This ratio compares the

actuarial value of assets to the actuarial accrued liabilities of the Plan as calculated under the GASB Standards. High ratios indicate a well-funded plan with assets sufficient to cover the plan's actuarial accrued liabilities. Lower ratios may indicate recent changes to benefit structures, funding of the plan below actuarial requirements, poor asset performance, or a variety of other factors.

Although the GASB requires that the actuarial value of assets be used to determine the funded ratio, Chart 16 shows the funded ratio calculated using both the actuarial value of assets and the market value of assets.

The details regarding the calculations of these values and other GASB numbers may be found in Section 4, Exhibits II, III, and IV.

These graphs show key GASB factors.

CHART 15
Required Versus Actual Contributions for Fiscal Years Ending September 30

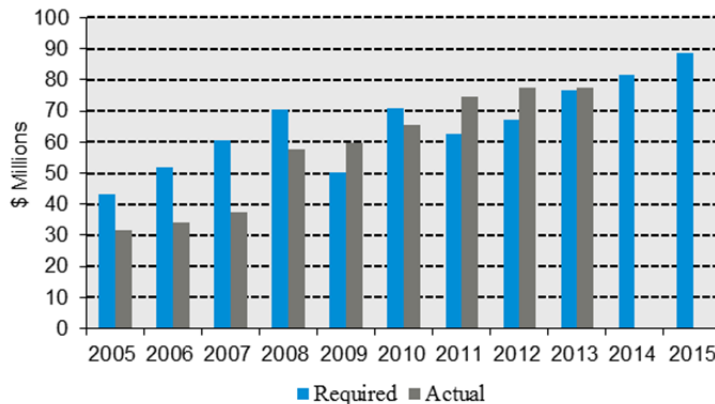
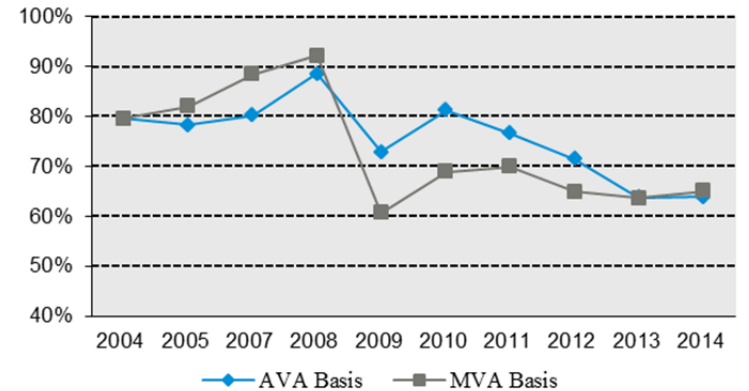


CHART 16
Funded Ratio as of the Actuarial Valuation Date: October 1, 2004 – 2005 and January 1, 2007 - 2014



SECTION 3: Supplemental Information for the Employees' Retirement Fund of the City of Fort Worth

EXHIBIT A

Table of Plan Coverage

Category	Year Ended December 31		Change From Prior Year
	2013	2012	
Active members in valuation:			
Number	6,199	6,278	-1.3%
Average age	44.5	44.3	N/A
Average years of service	11.4	11.2	N/A
Total covered payroll	\$373,848,113	\$375,687,978	-0.5%
Average covered payroll	60,308	59,842	0.8%
Total active vested members	4,707	4,692	0.3%
Vested terminated members	296	277	6.9%
Retired members:			
Number in pay status	2,842	2,717	4.6%
Average age	68.2	68.1	N/A
Average monthly benefit	\$3,344	\$3,252	2.8%
Disabled members:			
Number in pay status	228	240	-5.0%
Average age	62.4	61.5	N/A
Average monthly benefit	\$1,939	\$1,918	1.1%
Beneficiaries in pay status:			
Number in pay status	750	749	0.1%
Average age	74.8	74.9	N/A
Average monthly benefit	\$1,683	1,607	4.7%
Terminated members due a refund of employee contributions	549	553	-0.1%

SECTION 3: Supplemental Information for the Employees' Retirement Fund of the City of Fort Worth

EXHIBIT B

**Members in Active Service as of December 31, 2013
By Age, Years of Service, and Average Covered Payroll**

Age	Years of Service								
	Total	0-4	5-9	10-14	15 - 19	20 - 24	25 - 29	30 - 34	35 - 39
Under 25	121	117	4	--	--	--	--	--	--
	\$38,704	\$38,228	\$52,638	--	--	--	--	--	--
25 - 29	518	310	203	5	--	--	--	--	--
	50,522	47,541	55,134	\$48,044	--	--	--	--	--
30 - 34	731	250	349	131	1	--	--	--	--
	55,795	46,567	59,656	63,185	\$47,340	--	--	--	--
35 - 39	781	202	266	237	76	--	--	--	--
	59,563	46,064	58,249	69,570	68,834	--	--	--	--
40 - 44	973	190	229	257	237	59	1	--	--
	63,711	41,573	53,691	68,748	80,729	\$83,244	\$84,307	--	--
45 - 49	1,026	151	189	167	228	179	108	4	--
	65,368	41,344	49,109	60,647	74,903	84,706	82,300	\$71,580	--
50 - 54	955	113	150	118	160	134	256	24	--
	65,728	41,534	47,796	55,965	63,365	75,938	86,166	80,454	--
55 - 59	659	95	136	112	116	75	109	13	3
	59,882	43,990	47,509	55,032	61,165	67,654	83,817	81,260	\$98,980
60 - 64	311	44	85	60	61	37	17	7	--
	56,193	46,887	49,609	58,066	53,758	67,231	80,858	81,541	--
65 - 69	102	14	39	20	17	8	3	1	--
	55,072	38,054	57,190	56,918	58,252	62,063	50,088	78,717	--
70 & over	22	6	5	4	5	1	1	--	--
	59,340	35,394	38,258	63,354	68,983	61,936	241,562	--	--
Total	6,199	1,492	1,655	1,111	901	493	495	49	3
	\$60,308	\$44,222	\$54,117	\$63,407	\$70,297	\$77,829	\$84,714	\$80,063	\$98,980

SECTION 3: Supplemental Information for the Employees' Retirement Fund of the City of Fort Worth

EXHIBIT C

Reconciliation of Member Data

	Active Members	Vested Former Members	Disableds	Retired Members	Beneficiaries	Total
Number as of January 1, 2013	6,278	277	240	2,717	749	10,261
New participants	415	N/A	N/A	N/A	62	477
Terminations – with vested rights	-72	72	N/A	N/A	N/A	0
Terminations – without vested rights	-49	N/A	N/A	N/A	N/A	-49
Retirements	-183	-25	N/A	208	N/A	0
New disabilities	0	0	0	N/A	N/A	0
Return to work	2	-2	0	0	N/A	0
Deceased	-5	-2	-12	-94	-51	-164
Return of contributions	-187	-24	0	0	0	-211
Certain period expired	N/A	N/A	0	0	-5	-5
QDRO shared payment ended	N/A	N/A	N/A	-2	N/A	-2
Data adjustments	<u>0</u>	<u>0</u>	<u>0</u>	<u>13</u>	<u>-5</u>	<u>8</u>
Number as of January 1, 2014	6,199	296	228	2,842	750	10,315

SECTION 3: Supplemental Information for the Employees' Retirement Fund of the City of Fort Worth

EXHIBIT D

Summary Statement of Income and Expenses on an Actuarial Value Basis

	Year Ended December 31, 2013	Year Ended December 31, 2012
Net assets at actuarial value at the beginning of the year:	\$1,854,871,487	\$1,869,656,263
Contribution income:		
Employer contributions	\$77,573,903	\$77,441,167
Employee contributions	<u>33,006,556</u>	<u>32,814,208</u>
Net contribution income	110,580,459	110,255,375
Investment income:		
Net investment income	\$221,899,288	\$184,349,728
Recognition of capital appreciation	<u>-39,443,006</u>	<u>-166,582,504</u>
Total actuarial net investment income	<u>182,456,282</u>	<u>17,767,222</u>
Total income available for benefits	\$293,036,741	\$128,022,597
Less benefit payments:		
Retirement benefits	-\$148,444,348	-\$138,447,586
Refunds paid	<u>-4,350,945</u>	<u>-4,359,787</u>
Net benefit payments	-\$152,795,293	-\$142,807,373
Change in reserve for future benefits	\$140,241,448	-\$14,784,776
Net assets at actuarial value at the end of the year:	\$1,995,112,935	\$1,854,871,487

SECTION 3: Supplemental Information for the Employees' Retirement Fund of the City of Fort Worth

EXHIBIT E

Summary Statement of Income and Expenses on a Market Value Basis

	Year Ended December 31, 2013	Year Ended December 31, 2012
Net assets at market value at the beginning of the year:	\$1,851,800,483	\$1,700,002,753
Contribution income:		
Employer contributions	\$77,573,903	\$77,441,167
Employee contributions	<u>33,006,556</u>	<u>32,814,208</u>
Net contribution income	\$110,580,459	\$110,255,375
Net investment income	<u>221,899,288</u>	<u>184,349,728</u>
Total income available for benefits	\$332,479,747	\$294,605,103
Less benefit payments:		
Retirement benefits	-\$148,444,348	-\$138,447,586
Refunds paid	<u>-4,350,945</u>	<u>-4,359,787</u>
Net benefit payments	-\$152,795,293	-\$142,807,373
Change in reserve for future benefits	\$179,684,454	\$151,797,730
Net assets at market value at the end of the year:	\$2,031,484,937	\$1,851,800,483

SECTION 3: Supplemental Information for the Employees' Retirement Fund of the City of Fort Worth

EXHIBIT F

Summary Statement of Plan Assets

	Year Ended December 31, 2013	Year Ended December 31, 2012
Cash equivalents	\$41,581,810	\$53,745,913
Accounts receivable	405,915	409,318
Investments:		
Alternative investments – hedge fund program	\$354,106,209	\$320,433,160
Domestic equity	334,833,571	292,614,815
International equity	320,213,391	274,811,772
Real estate	249,268,296	186,810,109
Domestic fixed income	239,757,095	235,339,315
Alternative investments – real return	184,360,487	186,810,109
Alternative investments – private equity	180,076,994	186,396,300
International fixed income	123,345,429	160,802,992
Net property and equipment	<u>3,535,740</u>	<u>3,635,363</u>
Total investments at market value	1,989,497,212	1,797,645,252
Total assets	\$2,031,484,937	\$1,851,800,483
Net assets at market value	<u>\$2,031,484,937</u>	<u>\$1,851,800,483</u>
Net assets at actuarial value	<u>\$1,995,112,935</u>	<u>\$1,854,871,487</u>

SECTION 3: Supplemental Information for the Employees' Retirement Fund of the City of Fort Worth

EXHIBIT G

Development of the Fund Through December 31, 2013

Year Ended December 31	Employer Contributions	Employee Contributions	Net Investment Return*	Benefit Payments	Actuarial Value of Assets at End of Year
September 30:					
2005	\$31,747,430	\$25,043,044	\$133,183,444	\$83,378,412	\$1,482,940,173
December 31:					
2006	43,835,723	33,582,455	209,393,510	111,570,748	1,658,181,113
2007	42,054,697	29,383,524	189,098,363	97,029,317	1,821,688,380
2008	57,755,888	30,505,262	-207,383,751	106,173,188	1,596,392,591
2009	59,300,818	31,398,194	299,034,896	117,320,930	1,868,805,569
2010	68,773,306	31,420,459	50,220,154	124,479,411	1,894,740,077
2011	75,002,652	32,227,054	-69,044	132,244,476	1,869,656,263
2012	77,441,167	32,814,208	17,767,222	142,807,373	1,854,871,487
2013	77,573,903	33,006,556	182,456,282	152,795,293	1,995,112,935

* Net of investment fees and administrative expenses

SECTION 3: Supplemental Information for the Employees' Retirement Fund of the City of Fort Worth

EXHIBIT H

Development of Unfunded Actuarial Accrued Liability for Year Ended December 31, 2013

1. Unfunded actuarial accrued liability at beginning of year		\$1,054,147,785
2. Normal cost at beginning of year		44,325,934
3. Total contributions		-110,580,459
4. Interest		
(a) For whole year on (1) + (2)	\$87,877,898	
(b) On (3), assuming monthly contributions	<u>-3,998,281</u>	
(c) Total interest		<u>83,879,617</u>
5. Expected unfunded actuarial accrued liability		\$1,071,772,877
6. Changes due to:		
(a) Net experience gains	-\$47,379,201	
(b) Changes in plan provisions	-68,168,135	
(c) COLA election	<u>172,741,087</u>	
(d) Total changes		<u>57,193,751</u>
7. Unfunded actuarial accrued liability at end of year		<u>\$1,128,966,628</u>

SECTION 3: Supplemental Information for the Employees' Retirement Fund of the City of Fort Worth

EXHIBIT I

Estimated 30-Year Projection of Future Valuation Results and Ad-Hoc COLAs

Actuarial Valuation Date	Contribution Rate for Calendar Year Following	Covered Payroll (in Millions)	Calculated Contribution Rate	Contribution (Shortfall)/ Excess	Funding Period in Years	Potential Ad Hoc COLA	Contributions (in Millions)	Actuarial Accrued Liability (in Millions)*	Actuarial Value of Assets (in Millions)	Funded Ratio
01/01/2014	28.07%	\$373.8	31.22%	-3.15%	49.3	0.0%	\$104.9	\$3,124.1	\$1,995.1	63.9%
01/01/2015	28.07	386.0	31.03	-2.96	47.5	0.0	108.3	3,230.1	2,076.2	64.3
01/01/2016	28.07	398.5	30.95	-2.88	46.8	0.0	111.9	3,354.9	2,168.8	64.6
01/01/2017	28.07	411.5	30.42	-2.35	42.6	0.0	115.5	3,474.4	2,285.0	65.8
01/01/2018	28.07	424.9	30.04	-1.97	40.0	0.0	119.3	3,595.5	2,393.6	66.6
01/01/2019	28.07	438.7	29.88	-1.81	39.0	0.0	123.1	3,733.6	2,504.1	67.1
01/01/2020	28.07	452.9	29.71	-1.64	38.0	0.0	127.1	3,876.2	2,619.2	67.6
01/01/2021	28.07	467.7	29.53	-1.46	37.0	0.0	131.3	4,020.4	2,736.0	68.1
01/01/2022	28.07	482.9	29.35	-1.28	36.0	0.0	135.5	4,165.3	2,853.6	68.5
01/01/2023	28.07	498.5	29.15	-1.08	35.0	0.0	139.9	4,309.5	2,970.8	68.9
01/01/2024	28.07	514.7	28.95	-0.88	34.0	0.0	144.5	4,453.6	3,088.2	69.3
01/01/2025	28.07	531.5	28.74	-0.67	33.0	0.0	149.2	4,595.8	3,204.4	69.7
01/01/2026	28.07	548.8	28.52	-0.45	32.0	0.0	154.0	4,739.0	3,322.0	70.1
01/01/2027	28.07	566.6	28.28	-0.21	31.0	0.0	159.0	4,882.7	3,440.9	70.5
01/01/2028	28.07	585.0	28.04	0.03	30.0	0.0	164.2	5,023.8	3,558.1	70.8
01/01/2029	28.07	604.0	27.79	0.28	29.0	0.0	169.5	5,165.9	3,677.4	71.2
01/01/2030	28.07	623.6	27.52	0.55	28.0	0.0	175.1	5,309.1	3,799.0	71.6
01/01/2031	28.07	643.9	27.25	0.82	27.0	2.0	180.7	5,453.7	3,923.4	71.9
01/01/2032	28.07	664.8	27.14	0.93	26.5	2.0	186.6	5,617.8	4,049.2	72.1
01/01/2033	28.07	686.4	27.04	1.03	26.1	2.0	192.7	5,784.7	4,176.3	72.2
01/01/2034	28.07	708.8	26.95	1.12	25.8	2.0	198.9	5,954.8	4,304.9	72.3
01/01/2035	28.07	731.8	26.86	1.21	25.5	2.0	205.4	6,127.9	4,434.6	72.4
01/01/2036	28.07	755.6	26.78	1.29	25.3	2.0	212.1	6,306.1	4,567.6	72.4
01/01/2037	28.07	780.1	26.71	1.36	25.0	2.0	219.0	6,490.7	4,704.9	72.5
01/01/2038	28.07	805.5	26.64	1.43	24.8	2.0	226.1	6,682.4	4,847.0	72.5
01/01/2039	28.07	831.7	26.59	1.48	24.6	2.0	233.4	6,882.8	4,995.3	72.6
01/01/2040	28.07	858.7	26.54	1.53	24.5	2.0	241.0	7,094.3	5,151.9	72.6
01/01/2041	28.07	886.6	26.50	1.57	24.4	2.0	248.9	7,320.3	5,320.1	72.7
01/01/2042	28.07	915.4	26.47	1.60	24.3	2.0	257.0	7,565.7	5,504.5	72.8
01/01/2043	28.07	945.2	26.46	1.61	24.2	2.0	265.3	7,832.8	5,707.5	72.9

SECTION 3: Supplemental Information for the Employees' Retirement Fund of the City of Fort Worth

EXHIBIT J

Definitions of Pension Terms

The following list defines certain technical terms for the convenience of the reader:

Assumptions or Actuarial

Assumptions:

The estimates on which the cost of the Plan is calculated including:

- (a) Investment return — the rate of investment yield that the Plan will earn over the long-term future;
- (b) Mortality rates — the death rates of employees and pensioners; life expectancy is based on these rates;
- (c) Retirement rates — the rate or probability of retirement at a given age;
- (d) Withdrawal rates — the rates at which employees of various ages are expected to leave employment for reasons other than death, disability, or retirement.

Normal Cost:

The amount of contributions required to fund the benefit allocated to the current year of service.

Actuarial Accrued Liability

For Actives:

The value of all projected benefit payments for current members less the portion that will be paid by future normal costs.

Actuarial Accrued Liability

For Pensioners:

The single-sum value of lifetime benefits to existing pensioners. This sum takes account of life expectancies appropriate to the ages of the pensioners and the interest that the sum is expected to earn before it is entirely paid out in benefits.

Unfunded Actuarial Accrued

Liability:

The extent to which the actuarial accrued liability of the Plan exceeds the assets of the Plan. There is a wide range of approaches to paying off the unfunded actuarial accrued liability, from meeting the interest accrual only to amortizing it over a specific period of time.

SECTION 3: Supplemental Information for the Employees' Retirement Fund of the City of Fort Worth

Amortization of the Unfunded

Actuarial Accrued Liability: Payments made over a period of years equal in value to the Plan's unfunded actuarial accrued liability.

Investment Return:

The rate of earnings of the Plan from its investments, including interest, dividends and capital gain and loss adjustments, computed as a percentage of the average value of the fund. For actuarial purposes, the investment return often reflects a smoothing of the capital gains and losses to avoid significant swings in the value of assets from one year to the next.

SECTION 4: Reporting Information for the Employees' Retirement Fund of the City of Fort Worth

EXHIBIT I

Summary of Actuarial Valuation Results

The valuation was made with respect to the following data supplied to us:

1. Retired members as of the valuation date (including 750 beneficiaries in pay status)		3,820
2. Members inactive during year ended December 31, 2013 with vested rights		296
3. Members active during the year ended December 31, 2013		6,199
Fully vested	4,707	
Not vested	1,492	
4. Former members due a refund of contributions		549

The actuarial factors as of the valuation date are as follows:

1. Entry age normal cost, adjusted for timing		\$46,985,639
2. Actuarial accrued liability		3,124,079,563
Retired members and beneficiaries	\$1,469,007,750	
Inactive members with vested rights	45,273,538	
Active members	1,608,414,672	
Former members due a refund of contributions	1,383,603	
3. Actuarial value of assets (\$2,031,484,937 at market value as reported by the Fund)		1,995,112,935
4. Unfunded actuarial accrued liability		\$1,128,966,628

The determination of the recommended contribution is as follows:

1. Entry age normal cost, adjusted for timing		\$46,985,639
2. Payment on unfunded actuarial accrued liability, adjusted for timing		69,728,016
3. Total recommended contribution: (1) + (2)		<u>\$116,713,655</u>
4. Projected covered payroll		\$373,848,113
5. Total recommended contribution as a percentage of projected covered payroll: (3) ÷ (4)		31.22%

SECTION 4: Reporting Information for the Employees' Retirement Fund of the City of Fort Worth

EXHIBIT II

Supplementary Information Required by the GASB - Schedule of Employer Contributions

Fiscal Year Ended September 30	Annual Required Contributions*	Actual Contributions	Percentage Contributed
2005	\$43,276,150	\$31,747,430	73.4%
2006	52,057,475	34,267,263	65.8%
2007	60,489,969	37,308,388	61.7%
2008	70,524,021	57,485,361	81.5%
2009	50,304,451	59,559,276	118.4%
2010	70,969,666	65,627,115	92.5%
2011	62,707,431	74,577,052	118.9%
2012	67,210,268	77,264,739	115.0%
2013	76,781,551	77,992,863	101.6%
2014	81,579,437	--	--
2015	88,570,352	--	--

**Calculated as a percentage of projected covered payroll. Final amount is adjusted based on actual covered payroll.*

SECTION 4: Reporting Information for the Employees' Retirement Fund of the City of Fort Worth

EXHIBIT III

Supplementary Information Required by the GASB - Schedule of Funding Progress

Actuarial Valuation Date	Actuarial Value of Assets (a)	Actuarial Accrued Liability (AAL) (b)	Unfunded AAL (UAAL) (b) - (a)	Funded Ratio (a) / (b)	Covered Payroll (c)	UAAL as a Percentage of Covered Payroll [(b) - (a)] / (c)
10/01/2004	\$1,376,344,667	\$1,732,166,780	\$355,822,113	79.46%	\$286,702,728	124.11%
10/01/2005	1,482,940,173	1,894,272,081	411,331,908	78.29%	317,064,222	129.73%
01/01/2007	1,658,181,113	2,068,842,669	410,661,556	80.15%	338,457,592	121.33%
01/01/2008	1,821,688,380	2,059,232,093	237,543,713	88.46%	359,308,283	66.11%
01/01/2009	1,596,392,591	2,192,128,182	595,735,591	72.82%	372,942,445	159.74%
01/01/2010	1,868,805,569	2,300,542,572	431,737,003	81.23%	368,334,524	117.21%
01/01/2011	1,894,740,077	2,473,704,487	578,964,410	76.60%	367,639,226	157.48%
01/01/2012	1,869,656,263	2,617,862,133	748,205,870	71.42%	383,801,802	194.95%
01/01/2013	1,854,871,487	2,909,019,272	1,054,147,785	63.76%	375,687,978	280.59%
01/01/2014	1,995,112,935	3,124,079,563	1,128,966,628	63.86%	373,848,113	301.99%

SECTION 4: Reporting Information for the Employees' Retirement Fund of the City of Fort Worth

EXHIBIT IV

Supplementary Information Required by the GASB

Valuation date	January 1, 2014
Actuarial cost method	Entry Age Normal Cost Method
Amortization method	Level percent of covered payroll, open
Remaining amortization period	30 years remaining as of January 1, 2014
Asset valuation method	Market value of assets less unrecognized returns in each of the last five years. Unrecognized return is equal to the difference between the actual market return and the expected return on the market value, and is recognized over a five-year period, further adjusted, if necessary, to be within 20% of the market value.
Actuarial assumptions:	
Investment rate of return	8.00%
Inflation rate	3.00%
Projected salary increases	3.50% - 18.00%
Cost of living adjustments	2.00%*
Payroll growth rate	3.25% per annum, used to amortize unfunded actuarial accrued liabilities
Plan membership:	
Retired members and beneficiaries receiving benefits	3,820
Terminated members entitled to, but not yet receiving benefits	296
Active members	<u>6,199</u>
Total	10,315

* A 2% cost-of-living adjustment (COLA) is assumed for members receiving the guaranteed COLA and for benefits accrued on or after October 1, 2013 by Municipal employees hired prior to July 1, 2011 and Police employees hired prior to January 1, 2013. No future COLAs are assumed for members participating in the ad-hoc COLA program.

SECTION 4: Reporting Information for the Employees' Retirement Fund of the City of Fort Worth

EXHIBIT V

Development of the Net Pension Obligation (NPO) and the Annual Pension Cost Pursuant to GASB 27

Fiscal Year September 30	Employer Annual Required Contribution* (a)	Employer Amount Contributed (b)	Interest on NPO (h) x 8.00%** (c)	ARC Adjustment (h) / (e) (d)	Amortization Factor (e)	Pension Cost (a) + (c) – (d) (f)	Change in NPO (f) – (b) (g)	NPO Balance NPO + (g) (h)
2005	\$43,276,150	\$31,747,430	\$956,765	\$651,965	17.2648	\$43,580,950	\$11,833,520	\$23,089,579
2006	52,057,475	34,267,263	1,962,614	1,337,377	17.2648	52,682,712	18,415,449	41,505,029
2007	60,489,969	37,308,388	3,527,927	2,663,226	15.5845	61,354,670	24,046,282	65,551,311
2008	70,524,021	57,485,361	5,571,861	3,883,648	16.8788	72,212,234	14,726,873	80,278,184
2009	50,304,451	59,559,276	6,823,646	4,756,155	16.8788	52,371,942	-7,187,334	73,090,850
2010	70,969,666	65,627,115	6,212,722	4,330,335	16.8788	72,852,053	7,224,938	80,315,788
2011	62,707,431	74,577,052	6,826,842	4,888,243	16.4304	64,646,030	-9,931,022	70,384,766
2012	67,210,268	77,264,739	5,806,743	4,174,957	16.8588	68,842,054	-8,422,685	61,962,081
2013	76,781,551	77,992,863	5,111,872	3,675,355	16.8588	78,218,068	225,205	62,187,286
2014	81,579,437	--	--	--	--	--	--	--
2015	88,570,352	--	--	--	--	--	--	--

* Calculated as a percentage of projected covered payroll. Final amount is adjusted based on actual covered payroll.

**Fiscal years through September 30, 2011 are based on 8.50%, and fiscal years ending September 30, 2012 and 2013 are based on 8.25%.

SECTION 4: Reporting Information for the Employees' Retirement Fund of the City of Fort Worth

**EXHIBIT VI
Actuarial Assumptions and Actuarial Cost Method**

Mortality Rates:

Healthy: RP-2000 Combined Healthy Mortality, set forward one year, and projected generationally with Scale AA

Disabled: RP-2000 Disabled Retiree Mortality Table, reduced by 20% for males and loaded by 50% for females, and adjusted using generational projection under Scale AA

The RP-2000 tables, with the adjustments noted and projected to 2014 under Scale AA, reasonably reflect the projected mortality experience of the Fund as of the measurement date based on a three-year experience study for the period ended December 31, 2012. The tables are adjusted to future years using generational projection to reflect future mortality improvement.

Termination Rates before Retirement:

Age	Rate (%)				
	Mortality*		Disability	Withdrawal	
	Male	Female	All	Municipal Male	Municipal Female
20	0.04	0.02	0.01	10.60	13.20
25	0.04	0.02	0.01	8.85	10.85
30	0.05	0.03	0.02	7.01	8.50
35	0.08	0.05	0.03	5.75	5.98
40	0.11	0.08	0.04	4.60	4.84
45	0.16	0.12	0.05	3.37	4.14
50	0.24	0.19	0.09	2.50	3.63
55	0.42	0.31	0.15	2.50	3.23
60	0.77	0.58	0.20	2.50	2.91

*Note: Generational projection is not reflected in tabular rates.

SECTION 4: Reporting Information for the Employees' Retirement Fund of the City of Fort Worth

Withdrawal Rates (continued): For the first five years of employment, the following rates apply to Municipal employees, in place of the age-related rates shown above.

Years of Service	Rate (%)	
	Male	Female
1	16.00	15.50
2	13.75	13.25
3	11.00	11.00
4	9.00	8.75
5	7.00	6.50

The following service-based rates apply to Police and Fire employees:

Years of Service	Police Officers	Firefighters
1	4.00	4.00
2	3.75	2.00
3	3.50	0.75
4	3.25	0.75
5	3.00	0.75
6	2.75	0.75
7	2.50	0.75
8	2.25	0.75
9	2.00	0.75
10	1.75	0.75
11	1.50	0.75
12	1.25	0.30
13+	1.00	0.30

Note: Rates of termination are assumed to be zero once a member is eligible for unreduced retirement.

SECTION 4: Reporting Information for the Employees' Retirement Fund of the City of Fort Worth

Retirement Rates:

Rates for Unreduced Pension (Municipal and Fire)

Age	Municipal Employees	Firefighters
50	18%	0%
51-55	18	10
55-59	18	22
60-61	18	33
62-63	24	33
64	55	100
65	40	100
66-69	9	100
70+	100	100

Rates for Unreduced Pension (Police)

Years of Service	Police Officers
25-30	15%
31-34	50
35+	100

Note: Rate is 40% at first eligibility for unreduced retirement only, if eligible with less than 25 years of service. 100% are assumed to retire at age 65.

Rates for Reduced Pension

Age	Municipal Employees
50-59	2.5%
60-61	3.0
62	10.0
63-64	6.0

Note: Police Officers and Firefighters have zero assumed probability of retiring prior to eligibility for unreduced retirement.

SECTION 4: Reporting Information for the Employees' Retirement Fund of the City of Fort Worth

Retirement Age for Inactive Vested Participants:	100% at first eligibility for an unreduced pension
Utilization of DROP:	50% of Municipal Employees are assumed to elect a three-year DROP and 90% of Police Officers and Firefighters are assumed to elect a four-year DROP
Duty Death Percentages:	The percentage of pre-retirement deaths assumed to be in the line of duty are: <i>Municipal Employees:</i> 0% <i>Police Officers:</i> 25% <i>Firefighters:</i> 10%
Duty Disability Percentages:	The percentage of disability retirements assumed to be in the line of duty are: <i>Municipal Employees:</i> 0% <i>Police Officers:</i> 40% <i>Firefighters:</i> 15%
Unknown Data for Participants:	Same as those exhibited by Members with similar known characteristics. If not specified, Members are assumed to be male.
Percent Married:	90%, assumption set to cover the cost of pre-retirement death benefits for spouses and dependents.
Age of Spouse:	Females three years younger than males
Net Investment Return:	8.00%
Cost-of-Living Adjustment:	Benefits with the guaranteed annual 2% cost-of-living adjustment receive an annual 2% increase in the base pension amount. Benefits under the ad-hoc cost-of-living adjustment program are assumed to receive no cost-of-living adjustments.

SECTION 4: Reporting Information for the Employees' Retirement Fund of the City of Fort Worth

Salary Increases:

Years of Service	Rate (%)		
	Municipal Employees	Police Officers	Firefighters
1	7.00	16.00	18.00
2	6.65	10.00	12.00
3	6.30	8.00	10.00
4	5.95	6.00	8.00
5	5.60	5.50	6.00
6	5.25	3.50	5.00
7	4.90	5.50	4.00
8	4.55	3.50	3.50
9	4.20	5.50	3.50
10	3.85	3.50	3.50
11	3.50	5.50	3.50
12	3.50	3.50	3.50
13	3.50	5.50	3.50
14	3.50	3.50	3.50
15	3.50	5.50	3.50
16	3.50	3.50	3.50
17	3.50	5.50	3.50
18	3.50	3.50	3.50
19	3.50	5.50	3.50
20+	3.50	3.50	3.50

Note: Salary increases include an underlying inflation component of 3.00% and a productivity component of 0.50%.

SECTION 4: Reporting Information for the Employees' Retirement Fund of the City of Fort Worth

Overtime and Other Pay: Active member's gross salary for the upcoming year includes the following load to their base salary rate:

Load (%)		
Municipal Employees	Police Officers	Firefighters
3.50	8.00	18.00

Final Average Salary: Benefits for active members are loaded by the following percentage due to potentially higher overtime worked in the final average earnings period:

Benefit Load (%)		
Municipal Employees	Police Officers	Firefighters
0.50	2.75	4.00

Payroll Growth Rate: 3.25% per annum, used to amortize the unfunded actuarial accrued liabilities.

Sick-Leave Service Conversions: Due to sick-leave service conversions, retirement benefits and terminated vested benefits are increased by 3.25%, 2.00% and 1.50% respectively, for Municipal Employees, Police Officers and Firefighters.

Actuarial Value of Assets: Market value of assets less unrecognized returns in each of the last five years. Unrecognized return is equal to the difference between the actual market return and the expected return on the market value, and is recognized over a five-year period, further adjusted, if necessary, to be within 20% of the market value.

Actuarial Cost Method: Entry Age Normal Actuarial Cost Method. Entry Age is the age at the time the participant commenced employment. Normal Cost and Actuarial Accrued Liability are calculated on an individual basis and are allocated by service, with Normal Cost determined as if the current benefit accrual rate had always been in effect.

Changes in Assumptions: There have been no changes in assumptions since the last valuation.

SECTION 4: Reporting Information for the Employees' Retirement Fund of the City of Fort Worth

EXHIBIT VII

Summary of Plan Provisions

This exhibit summarizes the major provisions of the Fund included in the valuation. It is not intended to be, nor should it be interpreted as, a complete statement of all plan provisions.

Plan Year:	January 1 through December 31
Fiscal Year:	October 1 through September 30
Plan Status:	Ongoing

Categories of Employees:

<i>Group I</i>	Municipal Employees hired prior to July 1, 2011
<i>Group II</i>	Municipal Employees hired on or after July 1, 2011
<i>Group III</i>	Police Officers hired prior to January 1, 2013
<i>Group IV</i>	Police Officers hired on or after January 1, 2013
<i>Firefighters</i>	All Firefighters, regardless of hire date

Normal Retirement:

<i>Age and Service Requirements</i>	Age 65 and five years of Credited Service, or age plus years of Credited Service equal to 80 points ("Rule of 80"). Group II employees have a minimum retirement age of 55. Groups III and IV (Police Officers) are also eligible with 25 Years of Credited Service.
<i>Amount</i>	<u>Groups I and III</u> : 3.00% of the Final Average Compensation multiplied by years of Credited Service before October 1, 2013 plus 2.50% of the Final Average Compensation multiplied by years of Credited Service on or after October 1, 2013 <u>Groups II and IV</u> : 2.50% of the Final Average Compensation multiplied by years of Credited Service <u>Firefighters</u> : 3.00% of the Final Average Compensation multiplied by total years of Credited Service
<i>Final Average Compensation</i>	<u>Firefighters, and Groups I and III for service prior to October 1, 2013</u> : Average of member's highest three calendar years' earnings, including overtime <u>Groups II and IV, and Groups I and III for service on or after October 1, 2013</u> : Average of member's highest five calendar years' earnings, excluding overtime

SECTION 4: Reporting Information for the Employees' Retirement Fund of the City of Fort Worth

Early Retirement:

<i>Age and Service Requirements</i>	Age 50 (Age 55 for Group II) and five years of Credited Service
<i>Amount</i>	<u>Groups I and III</u> : 2.75% of the Final Average Compensation multiplied by years of Credited Service before October 1, 2013 plus 2.25% of the Final Average Compensation multiplied by years of Credited Service on or after October 1, 2013 <u>Groups II and IV</u> : 2.25% of the Final Average Compensation multiplied by years of Credited Service <u>Firefighters</u> : 2.75% of the Final Average Compensation multiplied by total years of Credited Service
<i>Reduction</i>	5/12% for each month the commencement date precedes the member's projected Normal Retirement date

Disability (in the line of duty):

<i>Age and Service Requirements</i>	None
<i>Amount</i>	<u>Groups I and III, and Firefighters</u> : 2.75% of the Final Average Compensation multiplied by total years of Credited Service projected to member's Normal Retirement date <u>Groups II and IV</u> : 2.25% of the Final Average Compensation multiplied by total years of Credited Service projected to member's Normal Retirement date
<i>Minimum</i>	\$250 per month

Disability (not in the line of duty):

<i>Service Requirement</i>	Five years of Credited Service
<i>Amount</i>	<u>Groups I and III</u> : 2.75% of the Final Average Compensation multiplied by years of Credited Service before October 1, 2013 plus 2.25% of the Final Average Compensation multiplied by years of Credited Service on or after October 1, 2013 <u>Groups II and IV</u> : 2.25% of the Final Average Compensation multiplied by years of Credited Service <u>Firefighters</u> : 2.75% of the Final Average Compensation multiplied by total years of Credited Service
<i>Minimum</i>	None

SECTION 4: Reporting Information for the Employees' Retirement Fund of the City of Fort Worth

Vesting:

<i>Age Requirement</i>	None
<i>Service Requirement</i>	Five years of Credited Service
<i>Amount</i>	Normal pension accrued, based on Credited Service at termination
<i>Normal Retirement Age</i>	Age 65, or age plus years of Credited Service projected to Normal Retirement date equal to 80 points

Termination Benefits:

<i>Age & Service Requirement</i>	None
<i>Amount</i>	A member fewer than five years of Credited Service who withdraws from the plan is eligible to receive a refund of contributions accumulated with 5.25% interest, compounded annually while an active member. A member who terminates with five or more years of Credited Service is entitled to a Vested Pension, but may receive a refund of contributions with 5.25% interest, compounded annually while an active member, instead of the Vested Pension.

Spouse's Pre-Retirement Death Benefit (death in the line of duty):

<i>Age and Service Requirements</i>	None
<i>Amount</i>	<u>Groups I and III, and Firefighters:</u> 75% of the Normal Retirement benefit, based on a 3.00% multiplier and with years of Credited Service projected to the member's Normal Retirement date. <u>Groups II and IV:</u> 75% of the Normal Retirement benefit, based on a 2.50% multiplier and with years of Credited Service projected to the member's Normal Retirement date.
<i>Minimum</i>	\$250 per month
<i>Child Benefits</i>	Each dependent child under 18 receives \$100 per month; if there is no surviving spouse, the children share equally in the 75% survivor amount

SECTION 4: Reporting Information for the Employees' Retirement Fund of the City of Fort Worth

Spouse's Pre-Retirement Death Benefit (death not in the line of duty):

<i>Service Requirement</i>	Five years of Credited Service
<i>Amount</i>	<u>Groups I and III</u> : 75% of the accrued benefit at death, calculated as 2.75% of the Final Average Compensation multiplied by years of Credited Service before October 1, 2013 plus 2.25% of the Final Average Compensation multiplied by years of Credited Service on or after October 1, 2013 <u>Groups II and IV</u> : 75% of the accrued benefit at death, calculated as 2.25% of the Final Average Compensation multiplied by years of Credited Service <u>Firefighters</u> : 75% of the accrued benefit at death, calculated as 2.75% of the Final Average Compensation multiplied by total years of Credited Service
<i>Minimum</i>	\$150 per month
<i>Child Benefits</i>	Each dependent child under 18 receives \$100 per month; if there is no surviving spouse, the children share equally in the 75% survivor amount

Post-Retirement Death Benefit: If married, pension benefits are paid in the form of a 75% joint and survivor annuity unless this form is rejected by the participant and spouse. For Groups II and IV, the retirement benefit amount is actuarially reduced to reflect the joint and survivor coverage.

Contributions:

<i>Member Contributions</i>	8.25% for Municipal Employees and Firefighters 8.73% for Police Officers
<i>City Contributions</i>	19.74% for Municipal Employees and Firefighters 20.46% for Police Officers

Overtime Contribution Account: Only available for municipal employees hired after July 1, 2011, and prior to January 1, 2013. Member contributions made for overtime worked in that period are credited to the Overtime Contribution Account. Upon retirement, the member is entitled to a refund of this account with 5.25% interest, compounded annually. The City will match 100% of the balance of the account. Upon termination the member is entitled to a refund of this account with 5.25% interest, compounded annually.

SECTION 4: Reporting Information for the Employees' Retirement Fund of the City of Fort Worth

Cost-of-living Adjustments (COLA):

Ad-Hoc COLA Program

In general, pensioners and vested members who elected the Ad-Hoc COLA Program, non-vested members as of January 1, 2008, and Firefighters or members in Groups I or III who were hired after January 1, 2008 are participants in the Ad-Hoc COLA program. However, in the fourth quarter of 2013 a one-time election was made available to participants in the Ad-Hoc COLA program to switch to a 2% guaranteed COLA. (Active firefighters were not included in this COLA election.)

Participants in the program who retire prior to September 30 of the preceding year may receive a compound COLA on benefits earned prior to October 1, 2013. The amount of the COLA is determined based on the prior year's valuation results. The initial COLA percentage is determined by selecting the appropriate percentage from the following table based on the Fund's Funding Period:

Tier	Funding Period	COLA Percentage Increase
#1	28.1 or greater	0.0%
#2	24.1 to 28.0	2.0%
#3	18.1 to 24.0	3.0%
#4	18.0 or less	4.0%

Next, the initial COLA percentage is applied to the benefits of the participants of the program to determine the increase in the liability. Using the new liability the Funding Period is re-calculated. If the tier of the Funding Period does not change, then the initial COLA percentage will be the proposed percentage for the following January 1. However, if the tier does change, then the COLA percentage is changed to the percentage shown in the new tier. Then the liability and Funding period are recalculated to check that the tier does not change. This process is repeated until the proposed COLA percentage does not change the Tier of the Funding Period.

2% Guaranteed

Vested members hired before January 1, 2008 who elected the 2% Guaranteed COLA, and also those who elected to opt out of the Ad-Hoc COLA program during the fourth quarter of 2013, receive a simple COLA of 2% of their Base Pension Amount every January 1. Benefits earned for service on or after October 1, 2013 by members in Group I and Group III also receive a 2% simple COLA.

None

Groups II and IV are not eligible for a COLA.

SECTION 4: Reporting Information for the Employees' Retirement Fund of the City of Fort Worth

Deferred Retirement Option Program (DROP):

Eligibility

Participants eligible for Normal Retirement may elect to enroll in DROP.

DROP Enrollment

A member may participate in DROP for up to 60 months. There is no minimum length of time a member must stay in the DROP. A member who elects a DROP must stay in the DROP for at least two years to be eligible for a retroactive cost-of-living increase at the time of actual retirement.

Amount

Enrollment in DROP freezes a member's Credited Service and Final Average Compensation for purposes of calculating the monthly annuity. The DROP provides a lump sum payment for the number of months enrolled based on the monthly annuity calculated at the member's DROP enrollment date.

Contributions

Member and employer contributions continue during the DROP period but are not credited to the member's DROP account.

Changes in Plan Provisions:

Included for the first time in this valuation are plan changes that apply to Municipal employees hired before July 1, 2011 and Police employees hired before January 1, 2013 (Groups I and III). The benefits for these individuals now are bifurcated, with the prior formula applying to pre-October 1, 2013 service, and the new provisions applying to service earned on or after October 1, 2013:

- The Final Average Compensation is changed from the highest three years to the highest five years.
- Overtime earnings are eliminated from the Final Average Compensation for determining benefits, and employees no longer contribute on overtime earnings. (The City continues to contribute on overtime.)
- The multiplier is lowered to 2.50% for standard pension benefits and to 2.25% for non-duty death, non-duty disability, and early retirement benefits.
- The benefit earned on or after October 1, 2013 is subject to an annual 2.00% simple post-retirement cost-of-living adjustment (COLA).

The valuation also reflects the reinstatement of post-termination service accruals for "Rule of 80" eligibility for Groups II and IV. The final legislation outlining plan modifications for these groups did not include the elimination of this provision.