

**CITY OF EL PASO, TEXAS
AGENDA ITEM
DEPARTMENT HEAD'S SUMMARY FORM**

DEPARTMENT: Office of the Chief Financial Officer
AGENDA DATE: **October 18, 2016**
CONTACT PERSON/PHONE: Mark Sutter, Ph.D., Chief Financial Officer, 212-1063

DISTRICT(S) AFFECTED: All

STRATEGIC GOAL: NO. # 6: Set the Standard for Sound Governance and Fiscal Management

SUBJECT:

Presentation and discussion of the Actuarial Valuation Reports for the El Paso Firemen and Policemen Pension Funds as of January 1, 2016.

BACKGROUND / DISCUSSION:

The primary purposes of the actuarial valuation reports are to determine the adequacy of the current contributions, describe the current financial condition of the Funds, and analyze changes in the Funds' condition. Valuations are prepared biennially, as of January 1 of even years. January 1 is the first day of the Fund's plan year.

Mr. Tyler Grossman, Executive Director of the Fire and Police Pension Fund, will present the reports to the Mayor and Council for discussion purposes.

PRIOR COUNCIL ACTION:

No direct action

AMOUNT AND SOURCE OF FUNDING:

N/A

BOARD / COMMISSION ACTION:

Board reviewed and accepted the reports.

*****REQUIRED AUTHORIZATION*****

DEPARTMENT HEAD: _____

City of El Paso, Texas

El Paso Policemen's Pension Fund

Actuarial Valuation Report
Prepared as of January 1, 2016

August 2016





David Kent
Director, Retirement

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August 2016

Board of Trustees
El Paso Firemen & Policemen's Pension Fund
909 East San Antonio Avenue
El Paso, Texas 79901-2523

Re: El Paso Policemen's Pension Fund Actuarial Valuation as of January 1, 2016

Dear Ladies & Gentlemen:

We certify that the information contained in this report is accurate and fairly presents the actuarial position of the El Paso Policemen's Pension Fund (the Fund) as of January 1, 2016.

Actuarial Valuation

The primary purpose of the valuation report is to determine the adequacy of the current City's contribution rate, to describe the current financial condition of the Fund, and to analyze changes in the Fund's condition. Required reporting for the Fund under Governmental Accounting Standards Board Statement No. 67 will be covered in a separate report.

Use of this report for any other purposes or by anyone other than the Fund and its auditors may not be appropriate and may result in mistaken conclusions because of failure to understand applicable assumptions, methods, or inapplicability of the report for that purpose. Because of the risk of misinterpretation of actuarial results, Buck recommends requesting it to perform an advance review of any statement, document, or filing based on information contained in this report. Buck will accept no liability for any such statement, document or filing made without prior review by Buck.

Valuations are prepared biennially, as of January 1 of even years. January 1 is the first day of the Fund's plan year.

Financing Objectives

The member contributions are set by state statute and the Board of Trustees, and employer contributions are established by state statute and City Ordinance. The City currently contributes 18.50% of total salary, while the Members currently contribute 13.89% of total salary. These rates are intended to be sufficient to pay the normal cost and to amortize the Fund's unfunded actuarial accrued liability.

Progress Toward Realization of Financing Objectives

As of January 1, 2016, the employer contribution rate needed for funding purposes to pay the normal cost and fund the Unfunded Actuarial Accrued Liability (UAAL) over 30 years is 23.62%. This is more than the current rate and therefore the current rate is inadequate to satisfy the 30-year maximum amortization period for the unfunded liability. This does not reflect the lower normal cost rate for participants in the future who will be covered under the second-tier plan. After reflecting that normal cost rate, the period required to amortize the UAAL based on current contribution rates is 33 years.

Section 14A of Article 6243b (Vernon's Annotated Texas Statute) requires that the actuary determine any additional contribution rate necessary to amortize the unfunded actuarial accrued liability, as defined in GASB No. 25, over a 40-year period. If an additional contribution rate is necessary, the contribution rate will be split between the City and the Members in the same proportion as the current contribution rates. However, the contribution rates of the Members shall only increase if the City increases its rate to the 40-year contribution rate. For purposes of Section 14A of Article 6243b (Vernon's Annotated Texas Statute), we have assumed that the return on the market value of assets is 7.75% and used the other assumptions and methods described in Schedule C. Based on this January 1, 2016 valuation, we have determined that the current contribution rates as a percentage of wages would not have to be increased to satisfy the 40-year funding period of Section 14A of Article 6243b (Vernon's Annotated Texas Statute).

Benefit Provisions

The actuarial valuation reflects the benefit and contribution provisions set forth in the Fund's statutes. The benefit provisions used in the valuation are presented in Schedule B. The provisions were changed on June 30, 2007 so that Members of the Fund who entered on or prior to June 30, 2007 are eligible for the Base Plan and Members of the Fund who joined on or after July 1, 2007 are eligible for the Second-Tier Plan.

Effective July 1, 2016, the provisions were changed to allow members to participate in the Forward DROP for an unlimited period of time. Additionally, eligibility to enter into the Back DROP shall terminate on June 30, 2019. Since there were no members in Forward DROP as of the valuation date, these changes do not impact this actuarial valuation report.

Assumptions and Methods

The actuarial assumptions and methods used in the valuation are presented in Schedule C. Following an experience study performed as of December 31, 2015, the assumptions were revised to better reflect the anticipated future experience of the Fund. The assumptions used are individually reasonable and reasonable in the aggregate.

Data

Census data on retired, active, and inactive members, along with data on the Fund's assets, as of January 1, 2016, was supplied by the Fund's staff. We have not subjected this data to any auditing procedures, but have examined it for reasonableness and consistency with the prior year's data.

Actuarial Certification

Future actuarial measurements may differ significantly from current measurements due to plan experience differing from that anticipated by the economic and demographic assumptions, increases or decreases expected as part of the natural operation of the methodology used for these measurements, and changes in plan provisions or applicable law. An analysis of the potential range of such future differences is beyond the scope of this valuation.

I am an Enrolled Actuary, Fellow of the Society of Actuaries and Member of the American Academy of Actuaries. I meet the Qualification Standards of the American Academy of Actuaries to render the actuarial

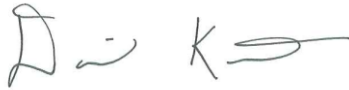
Board of Trustees

August 2016

Page 3

opinion contained herein. To the best of my knowledge, this report is complete and accurate and has been prepared in accordance with generally accepted actuarial principles and practice, and I am available to answer questions about it.

Respectfully submitted,



David Kent, EA, FSA, MAAA
Director, Retirement

DK
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Enclosures

Table of Contents

Section 1

Summary of Principal Results 1

Section 2

Comments on the Valuation 2

Section 3

Actuarial Funding Requirements 4

Section 4

Summary of Asset Information 8

Schedules

A. Membership Data 13
B. Summary of Benefit Provisions 18
C. Summary of Actuarial Methods and Assumptions 24
D. Glossary of Terms 28

Section 1

Summary of Principal Results

	January 1, 2016	January 1, 2014
Membership		
Active	1,005	1,052
Terminated with deferred benefits	16	18
Retired paid from fund	921	853
Compensation		
Total	\$ 69,812,503	\$ 70,817,206
Average	\$ 69,465	\$ 67,317
Assets		
Market value	\$ 740,006,100	\$ 736,491,378
Actuarial value	\$ 772,732,458	\$ 696,437,201
Valuation Results		
Unfunded actuarial accrued liability	\$ 179,938,283	\$ 193,755,713
Funding period	33 years	32 years
30-year funding cost (City)	23.62%	26.45%
Margin	(5.12)%	(7.95)%
Funding		
Actuarial accrued liability (AAL)	\$ 952,670,741	\$ 890,192,914
Assets (actuarial)	\$ 772,732,458	\$ 696,437,201
Funding ratio	81.1%	78.2%
Unfunded AAL	\$ 179,938,283	\$ 193,755,713

Section 2

Comments on the Valuation

Funding Status

There are two significant measures of the funding status of the Fund. The first is the 30-year funding cost. This is the City contribution rate required to pay the normal cost and to amortize the UAAL over a 30-year period. This rate is currently 23.62% compared with the City's actual contribution rate of 18.50% and the 30-year funding cost in 2014 of 26.45%. However, this does not reflect the lower normal cost rate for participants in the future who will be covered under the second-tier plan. Section 3 shows a reconciliation of the changes between the 2014 and 2016 figures.

The other measure is the funding period. This is the length of time in years that will be required to amortize the current UAAL based on the current contribution rate. This period was 32 years in 2014 but is 33 years based on the 2016 valuation. During the 2014 and 2015 plan years the market value of assets earned rates of return falling short of the assumed 7.75% which results in asset losses. However, these losses are being phased in over five years under the asset valuation method so there is a deferred effect on how those losses will impact the funded status. Nevertheless, these losses have now resulted in the situation that the market value of assets is less than the actuarial value of assets and will therefore be a source of future losses being recognized.

The UAAL is the excess of the liability assigned to prior years (the actuarial accrued liability) over the value of assets. Section 3 shows a reconciliation of this amount between 2014 and 2016.

Where presented, references to "funded ratio" and "unfunded accrued liability" typically are measured on an actuarial value of assets basis. It should be noted that the same measurements using market value of assets would result in different funded ratios and unfunded accrued liabilities. Moreover, the funded ratio presented is appropriate for evaluating the need and level of future contributions but makes no assessment regarding the funded status of the plan if the plan were to settle (i.e. purchase annuities) for a portion or all of its liabilities.

Benefit Provisions

Schedule B summarizes all the benefit provisions of the fund. There are no significant benefits which were not taken into account in this valuation.

The provisions were changed on June 30, 2007 so that Members of the Fund on or prior to June 30, 2007 are eligible for the Base Plan and Members of the Fund on or after July 1, 2007 are eligible for the Second-Tier Plan.

Effective July 1, 2016, the provisions were changed to allow members to participate in the Forward DROP for an unlimited period of time. Additionally, eligibility to enter into the Back DROP shall terminate on June 30, 2019. Since there were no members in Forward DROP as of the valuation date, these changes do not impact this actuarial valuation report.

Actuarial Assumptions and Methods

Schedule C describes all of the assumptions used for this valuation. An experience study was performed as of December 31, 2015. As recommended in that study, the Board adopted assumption changes to better reflect anticipated experience of the Fund.

Changes in actuarial assumptions and methods from those used in the prior valuation for the January 1, 2016 valuation are reflected in Schedule C and the impact are shown in Section 3.

Section 2 (continued)

Comments on the Valuation

Financial Data

The financial data used in this report was supplied by the Fund's staff.

Section 4 reconciles the Fund's assets between 2014 and 2016 and shows the development of the actuarial value of assets (AVA). Rather than using the market value for cost calculations, we use an adjusted market value, which phases in gains and losses (compared to the assumed investment return rate) over five years. This method is designed to reduce the volatility of the results with respect to the funded status and the anticipated funding costs emerging in future years.

Historical returns and experience are also summarized in Section 4.

Membership Statistics

Data on active members and on retired members was supplied by the Fund's staff. The active membership decreased from 1,052 to 1,005 between 2014 and 2016, a 4.5% decrease over the two year period, while payroll decreased from \$70.8 million to \$69.8 million over the same period, a 1.4% decrease. Schedule A shows a summary of the membership data.

Section 3

Actuarial Cost, Margin and Funding Period

	January 1, 2016	January 1, 2014
1. Covered Payroll	\$ 69,812,503	\$ 70,817,206
2. Actuarial present value of future pay	\$ 632,377,759	\$ 552,522,898
3. Current contribution rates		
a. City	18.50 %	18.50 %
b. Member	<u>13.89 %</u>	<u>13.89 %</u>
c. Total	32.39 %	32.39 %
4. Normal cost rate		
a. Total (before adjustment for overtime)	25.35 %	27.58 %
b. Total (after adjustment for overtime)	23.05 %	25.54 %
c. Member contribution rate	<u>13.89 %</u>	<u>13.89 %</u>
d. Employer normal cost rate (4b – 4c)	9.16 %	11.65 %
5. Actuarial present value of future benefits	\$ 1,112,978,503	\$ 1,042,578,729
6. Actuarial present value of future normal costs (4a x 2)	\$ 160,307,762	\$ 152,385,815
7. Actuarial accrued liability (5 – 6)	\$ 952,670,741	\$ 890,192,914
8. Actuarial value of assets	\$ 772,732,458	\$ 696,437,201
9. Unfunded actuarial accrued liability (UAAL) (7 – 8)	\$ 179,938,283	\$ 193,755,713
10. 30-year funding cost for City ¹		
a. Employer normal cost rate (4d)	9.16%	11.65%
b. Amortization rate	<u>14.46%</u>	<u>14.80%</u>
c. Total	23.62%	26.45%
11. Margin over/(under) 30-year cost (3a – 10c) ¹	(5.12)%	(7.95)%
12. Funding period to amortize UAAL ¹	33 years	32 years

¹ 30-year funding cost is necessary for Texas PRB purposes only. The actual funding period is calculated based on level contributions and reflects the provisions of the second-tier plan for Members hired after June 30, 2007. The normal cost rate based on the provisions of the second-tier plan is 18.05% (before adjustment for overtime).

Section 3 (continued)

Analysis of Change in UAAL

1. UAAL as of January 1, 2014	\$ 193,755,713
2. Changes due to:	
a. Expected increase (negative amortization)	\$ 19,265,483
b. Actual contributions greater than expected	(1,363,591)
c. Other changes including liability experience	(10,442,494)
d. Asset experience	5,437,907
e. Assumption changes	<u>(26,714,735)</u>
Total Changes	\$ (13,817,430)
3. UAAL as of January 1, 2016	\$ 179,938,283

Section 3 (continued)

Analysis of Change in Funding Cost

1. 30-year funding cost as of January 1, 2014	26.45 %
2. Changes due to:	
a. Actual contributions greater than expected	(0.10)%
b. Other changes including liability experience	0.10%
c. Asset experience	0.42%
d. Assumption changes	<u>(3.25)%</u>
Total	(2.83)%
3. 30-year funding cost as of January 1, 2016	23.62%

Section 3 (continued)

Analysis of Change in Funding Period

1. Funding period as of January 1, 2014	32 years
2. Changes due to:	
a. Passage of time	(2)
b. Actual contributions greater than expected	0
c. Other changes including liability experience	3
d. Asset experience	15
e. Assumption changes	(15)
Total	1
3. Funding period as of January 1, 2016	33 years

Section 4

Reconciliation of Fund Assets

	Period Ending	
	December 31, 2015	December 31, 2014
1. Value of fund at beginning of period	\$ 753,637,428	\$ 736,491,378
2. Contributions		
a. City	14,754,441	14,776,141
b. Member	<u>11,347,467</u>	<u>10,898,003</u>
c. Total	\$ 26,101,908	\$ 25,674,144
3. Benefit payments	(41,472,821)	(38,567,602)
4. Earnings	2,668,957	30,887,426
5. Administrative expenses	(929,372)	(847,918)
6. Value of assets at end of period	\$ 740,006,100	\$ 753,637,428

Section 4 (continued)

Determination of Excess Earnings to be Deferred

	Period Ending	
	December 31, 2015	December 31, 2014
1. Market value at beginning of period	\$ 753,637,428	\$ 736,491,378
2. Net new investments		
a. City contributions	\$ 14,754,441	\$ 14,776,141
b. Member contributions	11,347,467	10,898,003
c. Benefit payments	<u>(41,472,821)</u>	<u>(38,567,602)</u>
d. Total	\$ (15,370,913)	\$ (12,893,458)
3. Weighted new investments (2d x 50%)	\$ (7,685,457)	\$ (6,446,729)
4. Assets available (1 + 3)	\$ 745,951,971	\$ 730,044,649
5. Assumed investment return rate	7.75%	7.75%
6. Expected net return (4 x 5)	\$ 57,811,278	\$ 56,578,460
7. Actual net return		
a. Total investment return	\$ 2,668,957	\$ 30,887,426
b. Administrative expenses	<u>(929,372)</u>	<u>(847,918)</u>
c. Net return	\$ 1,739,585	\$ 30,039,508
8. Gains/(losses) subject to deferral (7c – 6)	\$ (56,071,693)	\$ (26,538,952)

Section 4 (continued)

Calculation of Actuarial Value of Assets

1. Market value of assets as of December 31, 2015				\$ 740,006,100
2. Deferral amounts				
	Year	Total Gain/(Loss)	Percent Deferred	Deferral Amount
a. – 2015		\$ (56,071,693)	80%	\$ (44,857,354)
b. – 2014		(26,538,952)	60%	(15,923,371)
c. – 2013		59,281,659	40%	23,712,664
d. – 2012		21,708,517	20%	4,341,703
e. – Total				\$ (32,726,358)
3. Actuarial value of assets (1 – 2e)				\$ 772,732,458

Section 4 (continued)

Summary of Asset Experience and Yield on Market Value of Assets

Plan Year			Beginning of Year Market Value	Employer Plus Employee Contributions to Fund	Benefit Disbursements from Fund (Including Refund of Contributions)	Net Earnings on Fund	End of Year Market Value	Annualized Yield Based on Market Value
(1)	(2)	(3)	(4)	(5)	(6)-(2)+(4)-(3)	(6)	(7)	
3/1/1966 thru 2/28/1967	\$ 1,346,308	\$ 361,179	\$ 184,683	\$ 82,912	\$ 1,605,716	5.78%		
3/1/1967 thru 2/29/1968	1,605,716	584,433	190,730	84,165	2,083,584	4.67		
3/1/1968 thru 2/28/1969	2,083,584	264,252	93,583	8,238	2,262,491	0.76		
3/1/1969 thru 8/31/1969	2,262,491	725,550	200,351	(7,139)	2,780,551	(0.28)		
9/1/1969 thru 8/31/1970	2,780,551	767,739	235,791	212,068	3,524,567	6.96		
9/1/1970 thru 8/31/1971	3,524,567	932,173	248,250	187,550	4,396,040	4.85		
9/1/1971 thru 8/31/1972	4,396,040	1,142,196	261,876	(344,068)	4,932,292	(7.11)		
9/1/1972 thru 8/31/1973	4,932,292	1,303,600	279,016	(1,094,322)	4,862,554	(20.10)		
9/1/1973 thru 8/31/1974	4,862,554	1,483,345	348,368	1,095,170	7,092,701	20.17		
9/1/1974 thru 8/31/1975	7,092,701	1,696,914	498,619	951,450	9,242,446	12.37		
9/1/1975 thru 8/31/1976	9,242,446	2,014,477	724,487	377,047	10,909,483	3.81		
9/1/1976 thru 8/31/1977	10,909,483	2,308,059	846,390	289,873	12,661,025	2.49		
9/1/1977 thru 8/31/1978	12,661,025	2,636,869	903,826	1,214,002	15,608,070	8.97		
9/1/1978 thru 8/31/1979	15,608,070	2,786,580	1,034,999	1,214,765	18,574,416	7.37		
9/1/1979 thru 8/31/1980	18,574,416	3,116,323	1,334,277	1,362,208	21,718,670	7.00		
9/1/1980 thru 8/31/1981	21,718,670	3,456,323	1,549,185	2,078,992	25,704,800	9.17		
9/1/1981 thru 8/31/1982	25,704,800	3,784,730	1,724,450	3,593,153	31,358,233	13.44		
9/1/1982 thru 8/31/1983	31,358,233	4,222,805	1,978,230	3,734,256	37,337,064	11.50		
9/1/1983 thru 8/31/1984	37,337,064	1,142,330	701,113	2,147,922	39,926,203	18.16		
9/1/1984 thru 12/31/1984	39,926,203	26,060,116	23,848,881	8,500,222	50,637,660	20.72		
1/1/1985 thru 12/31/1985	1,346,308	361,179	184,683	82,912	1,605,716	5.78		
1/1/1986 thru 12/31/1986	50,637,660	7,604,348	6,404,922	10,269,082	62,106,168	20.04		
1/1/1987 thru 12/31/1987	62,106,168	5,456,948	2,797,401	1,602,798	66,368,513	2.53		
1/1/1988 thru 12/31/1988	66,368,513	5,644,747	3,312,657	5,796,220	74,496,823	8.58		
1/1/1989 thru 12/31/1989	74,496,823	6,366,251	3,852,933	12,043,779	89,053,920	15.90		

Section 4 (continued)

Summary of Asset Experience and Yield on Market Value of Assets (continued)

			Beginning of Year Market Value (2)	Employer Plus Employee Contributions to Fund (3)	Benefit Disbursements from Fund (Including Refund of Contributions) (4)	Net Earnings on Fund (6)-(2)+(4)-(3) (5)	End of Year Market Value (6)	Annualized Yield Based on Market Value (7)
Plan Year (1)								
1/1/1990	thru	12/31/1990	\$ 89,053,920	\$ 6,849,721	\$ 4,274,644	\$ 5,387,009	\$ 97,016,006	5.96%
1/1/1991	thru	12/31/1991	97,016,006	7,416,200	4,774,154	19,217,400	118,875,452	19.54
1/1/1992	thru	8/31/1992	118,875,452	5,424,574	3,347,654	3,740,983	124,693,355	4.72
9/1/1992	thru	8/31/1993	124,693,355	8,781,639	5,537,340	16,598,618	144,536,272	13.14
9/1/1993	thru	8/31/1994	144,536,272	9,788,426	6,265,077	7,350,992	155,410,613	5.02
9/1/1994	thru	8/31/1995	155,410,613	10,470,384	7,192,593	18,598,570	177,286,974	11.84
9/1/1995	thru	8/31/1996	177,286,974	11,299,119	7,783,184	13,948,214	194,751,123	7.79
9/1/1996	thru	8/31/1997	194,751,123	11,925,975	9,160,521	40,965,530	238,482,107	20.89
9/1/1997	thru	8/31/1998	238,482,107	12,223,261	10,233,758	(5,940,105)	234,531,505	(2.48)
9/1/1998	thru	6/30/1999	234,531,505	11,054,605	9,504,209	47,918,974	284,000,875	24.90
7/1/1999	thru	6/30/2000	284,000,875	13,665,223	12,748,916	12,831,468	297,748,650	4.51
7/1/2000	thru	6/30/2001	297,748,650	14,658,218	14,103,823	1,347,827	299,650,872	0.45
7/1/2001	thru	6/30/2002	299,650,872	15,353,592	15,436,546	(5,878,531)	293,689,387	(1.96)
7/1/2002	thru	6/30/2003	293,689,387	16,814,226	16,570,261	5,500,957	299,434,309	1.87
7/1/2003	thru	12/31/2003	299,434,309	8,416,586	8,833,981	32,831,843	331,848,757	23.15
1/1/2004	thru	12/31/2004	331,848,757	18,092,242	19,159,910	41,407,492	372,188,581	12.50
1/1/2005	thru	12/31/2005	372,188,581	18,073,981	20,738,555	30,182,882	399,706,889	8.14
1/1/2006	thru	12/31/2006	399,706,889	19,053,835	23,008,976	61,845,264	457,597,012	15.55
1/1/2007	thru	12/31/2007	457,597,012	62,506,379	25,057,295	55,130,450	550,176,546	11.57
1/1/2008	thru	12/31/2008	550,176,546	22,355,985	26,197,467	(139,670,051)	406,665,013	(25.48)
1/1/2009	thru	12/31/2009	406,665,013	64,546,618	28,722,037	108,486,997	550,976,591	25.55
1/1/2010	thru	12/31/2010	550,976,591	22,804,718	30,066,077	61,318,172	605,033,404	11.20
1/1/2011	thru	12/31/2011	605,033,404	23,593,343	32,303,650	(13,887,519)	582,435,578	(2.31)
1/1/2012	thru	12/31/2012	582,435,578	24,350,802	34,101,205	66,469,446	639,154,621	11.51
1/1/2013	thru	12/31/2013	639,154,621	25,178,525	36,229,678	108,387,910	736,491,378	17.11
1/1/2014	thru	12/31/2014	736,491,378	25,674,144	38,567,602	30,039,508	753,637,428	4.11
1/1/2015	thru	12/31/2015	753,637,428	26,101,908	41,472,821	1,739,585	740,006,100	0.23

Schedule A: Membership Data

	January 1, 2016	January 1, 2014
1. Active members		
a. Number of males	889	928
b. Number of females	<u>116</u>	<u>124</u>
c. Total	1,005	1,052
d. Total payroll	\$ 69,812,503	\$ 70,817,206
e. Average annual pay	69,465	67,317
f. Average age	41.4	40.8
g. Average service (years)	13.7	13.1
h. Total accumulated member contributions	98,620,831	90,881,102
i. Average member contributions	98,130	86,389
2. Inactive members		
a. Number currently being paid from fund	921	853
b. Number entitled to deferred benefits	<u>16</u>	<u>18</u>
c. Total number of inactive members	937	871
d. Total current annual benefit	\$ 41,935,784	\$ 36,214,692
e. Average current annual benefit	44,755	41,578
f. Average age	62.8	62.7

Schedule A: (continued)

The Number and Annual Wages of Active Members Distributed by Fifth Age and Service as of January 1, 2016

Attained Age	Years of Credited Service										Total
	Under 1	1 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 to 34	35 to 39	40 & up	
Under 25	0	18	0	0	0	0	0	0	0	0	18
	0	42,818	0	0	0	0	0	0	0	0	
25 to 29	0	81	7	0	0	0	0	0	0	0	88
	0	46,218	58,546	0	0	0	0	0	0	0	
30 to 34	0	46	78	15	0	0	0	0	0	0	139
	0	46,417	61,636	68,545	0	0	0	0	0	0	
35 to 39	0	21	52	89	26	0	0	0	0	0	188
	0	45,890	61,883	68,447	72,249	0	0	0	0	0	
40 to 44	0	8	23	57	102	26	0	0	0	0	216
	0	50,248	64,105	71,407	75,528	76,861	0	0	0	0	
45 to 49	0	2	12	26	44	89	20	0	0	0	193
	0	44,257	63,342	71,828	73,899	77,812	83,075	0	0	0	
50 to 54	0	0	6	12	23	24	36	4	0	0	105
	0	0	66,851	68,558	75,640	80,266	82,196	92,412	0	0	
55 to 59	0	0	3	7	12	1	12	7	1	0	43
	0	0	66,738	70,713	73,718	75,329	80,927	79,233	73,469	0	
60 to 64	0	0	2	1	3	0	0	1	4	0	11
	0	0	70,566	69,868	71,648	0	0	73,469	97,629	0	
65 to 69	0	0	0	0	1	0	0	0	3	0	4
	0	0	0	0	70,968	0	0	0	81,595	0	
70 & up	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	
Total	0	176	183	207	211	140	68	12	8	0	1,005

Schedule A: (continued)

The Number and Annual Retirement Allowances of Retired Members, Disabled Members and Beneficiaries by Age as of January 1, 2016

Age	Number	Benefit	Average Benefit
7	1	\$ 20,719	\$ 20,719
27	1	21,065	21,065
35	1	20,982	20,982
36	3	84,132	28,044
38	1	22,807	22,807
40	1	29,138	29,138
42	3	83,150	27,717
43	5	191,988	38,398
44	6	204,506	34,084
45	7	332,817	47,545
46	12	476,108	39,676
47	25	1,002,157	40,086
48	17	741,620	43,625
49	25	1,081,349	43,254
50	35	1,470,738	42,021
51	30	1,414,244	47,141
52	20	832,290	41,615
53	28	1,285,971	45,928
54	32	1,552,662	48,521
55	37	1,814,242	49,034
56	20	862,418	43,121
57	21	993,963	47,332
58	23	1,314,252	57,141
59	31	1,595,114	51,455
60	28	1,490,503	53,232
61	27	1,302,247	48,231
62	34	1,765,607	51,930
63	29	1,387,099	47,831
64	35	1,920,933	54,884
65	30	1,506,355	50,212
66	41	2,065,968	50,389
67	31	1,619,217	52,233
68	32	1,581,710	49,428
69	20	939,831	46,992
70	16	724,617	45,289
71	18	878,745	48,819
72	20	940,432	47,022
73	13	587,619	45,201
74	12	589,784	49,149
75	6	244,174	40,696

Schedule A: (continued)

The Number and Annual Retirement Allowances of Retired Members, Disabled Members and Beneficiaries by Age as of January 1, 2016 (continued)

Age	Number	Benefit	Average Benefit
76	15	636,605	42,440
77	12	394,330	32,861
78	16	656,717	41,045
79	11	400,506	36,410
80	12	505,362	42,114
81	10	378,912	37,891
82	14	424,493	30,321
83	13	492,457	37,881
84	7	189,177	27,025
85	6	83,639	13,940
86	2	14,913	7,457
87	8	184,589	23,074
88	4	104,490	26,123
89	5	68,294	13,659
90	5	63,823	12,765
91	2	65,185	32,593
94	<u>2</u>	<u>14,053</u>	<u>7,027</u>
TOTAL	921	\$ 41,670,818	\$ 45,245

Schedule A: (continued)

The Number and Future Annual Allowances of Terminated Members, Entitled to a Future Benefit by Age as of January 1, 2016

Age	Number	Benefit	Average Benefit
40	2	\$ 48,605	\$ 24,303
42	2	31,257	15,629
43	2	30,783	15,392
44	4	75,632	18,908
46	3	19,706	6,569
47	1	26,506	26,506
48	1	14,953	14,953
49	1	<u>17,524</u>	<u>17,524</u>
TOTAL	16	\$ 264,966	\$ 16,560

Schedule B: Summary of Benefit Provisions as of January 1, 2016

The Base Plan

Pension Fund

The El Paso Policemen's Pension Fund.

Wages

Base pay, plus longevity pay, incentive pay and overtime.

Final Wages

The average of the monthly wages, excluding overtime pay, on which a Member made contributions to the Pension Fund during the 36-month period preceding retirement, but not less than the 12-month monthly wages preceding June 30, 2007.

Member

Any person who was enrolled as a police officer in the Police Department of the City of El Paso on or prior to June 30, 2007.

Credited Service

The time for which a Member contributes to the Pension Fund.

Qualified Spouse

The widow (widower) of a deceased Member.

Qualified Child or Children

The surviving, dependent children under 19 years of age (23 if a full-time student).

Contribution Rates

The active Member contributes 13.89% of their pre-tax wages per year. The City contributes 18.50% of the Member's wages per year (18.00% base contribution plus 0.50% contribution for Members hired after age 29).

Service Retirement Benefits

Normal Retirement Benefit

Eligibility

Age 45 with 20 years of Credited Service.

Benefit

2.75% of Final Wages times years of Credited Service, not to exceed 77% of Final Wages.

Early Retirement Benefit

Eligibility

20 years of Credited Service.

Schedule B: (continued)

Summary of Benefit Provisions as of January 1, 2016 (continued)

Benefit

2.75% of Final Wages times years of Credited Service, not to exceed 28 years, multiplied by the appropriate actuarial reduction factor. The actuarial reduction factors are as follows:

Age	Factor
44	.95
43	.90
42	.84
41	.78
40	.71
39	.63
38	.55

Other factors may be obtained by interpolation.

Deferred Retirement Benefit

Eligibility

At least 10 years of Credited Service.

Benefit

2.75% of Final Wages for each year of Credited Service not to exceed 28 years. This benefit is payable commencing at age 50, or immediately upon termination of service if at least age 50 at termination.

Withdrawal (Refund) of Contributions

Eligibility

5 years of Credited Service.

Benefit

Total employee contributions without interest. No other benefits are payable under the Plan once the contributions are withdrawn.

Survivor Benefits

Qualified Surviving Spouse Benefit

Eligibility

Death of a Member who was active, retired, or eligible for a deferred retirement benefit.

Benefit

100% of Member's earned benefit at date of death, but not less than 50% of Final Wages. If there are qualified surviving children or Member was eligible for a deferred retirement benefit, the surviving spouse's benefit is reduced to 66-2/3%.

Qualified Surviving Children Benefit

Eligibility

Death of a Member who was active, retired, or eligible for a deferred retirement benefit.

Benefit

Two-thirds of the Member's earned benefit at date of death if there is no surviving spouse. If a surviving spouse is receiving a benefit, the above fraction is reduced to one-third.

Schedule B: (continued)

Summary of Benefit Provisions as of January 1, 2016 (continued)

Disability Retirement Benefit

Eligibility

Total and permanent disability from an injury in the line of duty or any injury not due to the Member's own fault.

Benefit

2.75% of Final Wages times Credited Service, not to exceed 28 years, with a minimum benefit of 50% of Final Wages.

Minimum Benefits

Minimum pension benefit for any retiree or qualified spouse is \$500 per month.

Cost of Living Adjustment

Cost of living adjustments are applicable to those retiring after March 23, 1980. If the Member retires at age 60 or later, the retirement income will be increased by 3% per year beginning on the date of retirement and then on each January 1 thereafter. If the retirement age is 58 through 59, the 3% annual increase will begin when the Member reaches age 60. A 3% increase will also be given on each subsequent January 1. If the retirement age is prior to 58, the 3% annual increase will begin two years after the retirement date. The first increase begins on the anniversary date of the Member's retirement; thereafter increases will occur on each January 1. Cost-of-living increases are not granted for deferred retirements. For beneficiaries of an active member who dies in service, the initial increase will occur two years after the Member's death. Increases will occur on each January 1 thereafter.

Normal Form of Retirement Benefit

Single Member

Life Annuity.

Married Member

100% joint-and-survivor annuity.

Back Deferred Retirement Option Program (Back DROP)

Members who are 50 years old and have over 20 and one half years of service can elect the Back DROP. The Back DROP benefit is a lump sum and a reduced monthly benefit. The reduced monthly benefit equals the benefit calculated at the beginning of the Back DROP period. The lump sum equals the number of months in the Back DROP period multiplied by the monthly benefit. The Back DROP period must be at least six months and not more than 36 months. After deducting the period of the Back DROP the member must still have 20 years of Credited Service for the calculation of their benefit. After June 30, 2019, the option for a member to elect to participate in the Back DROP is discontinued, and no Member may elect to participate in the Back DROP after such date.

Forward Deferred Retirement Option Program (Forward DROP)

Members who are 45 years old and have at least 20 years of service can elect the Forward DROP. The Forward DROP benefit is a lump sum and a reduced monthly benefit at retirement. The reduced monthly benefit equals the benefit calculated at the beginning of the Forward DROP period. The lump sum equals the number of months in the Forward DROP period multiplied by the monthly benefit.

Schedule B: (continued)

Summary of Benefit Provisions as of January 1, 2016 (continued)

The Second-Tier Plan

Pension Fund

The El Paso Policemen's Pension Fund.

Wages

Base pay, plus longevity pay, incentive pay and overtime.

Final Wages

The average of the monthly wages, excluding overtime pay, on which a Member made contributions to the Pension Fund during the 36-month period preceding retirement.

Member

Any person who has been or becomes enrolled as a police officer in the police Department of the City of El Paso on or after July 1, 2007.

Credited Service

The time for which a Member contributes to the Pension Fund.

Qualified Spouse

The widow (widower) of a deceased Member.

Qualified Child or Children

The surviving, dependent children under 19 years of age (23 if a full-time student).

Contribution Rates

The active Member contributes 13.89% of their pre-tax wages per year. The City contributes 18.50% of the Member's wages per year (18.00% base contribution plus 0.50% contribution for Members hired after age 29).

Service Retirement Benefits

Normal Retirement Benefit

Eligibility

Age 50 with 25 years of Credited Service.

Benefit

2.50% of Final Wages times years of Credited Service.

Deferred Retirement Benefit

Eligibility

At least 10 years of Credited Service.

Benefit

2.50% of Final Wages for each year of Credited Service. This benefit is payable commencing at age 50, or immediately upon termination of service if at least age 50 at termination.

Schedule B: (continued)

Summary of Benefit Provisions as of January 1, 2016 (continued)

Withdrawal (Refund) of Contributions

Eligibility

5 years of Credited Service.

Benefit

Total employee contributions without interest. No other benefits are payable under the Plan once the contributions are withdrawn.

Survivor Benefits

Qualified Surviving Spouse Benefit

Eligibility

Death of a Member who was active, retired, or eligible for a deferred retirement benefit.

Benefit

75% of Member's earned benefit at date of death, but not less than 50% of Final Wages. If there are qualified surviving children or Member was eligible for a deferred retirement benefit, the surviving spouse's benefit is reduced to 50%.

Qualified Surviving Children Benefit

Eligibility

Death of a Member who was active, retired, or eligible for a deferred retirement benefit.

Benefit

50% of the Member's earned benefit at date of death if there is no surviving spouse. If a surviving spouse is receiving a benefit, the surviving children's benefit is reduced to 25%.

Disability Retirement Benefit

Eligibility

Total and permanent disability from an injury in the line of duty or any injury not due to the Member's own fault.

Benefit

2.50% of Final Wages times Credited Service with a minimum benefit of 50% of Final Wages.

Minimum Benefits

Minimum pension benefit for any retiree or qualified spouse is \$400 per month.

Cost of Living Adjustment

None.

Normal Form of Retirement Benefit

Single Member

Life Annuity

Married Member

75% joint and survivor annuity

Schedule B: (continued)

Summary of Benefit Provisions as of January 1, 2016 (continued)

Back Deferred Retirement Option Program (Back DROP)

Members who are 50 and one half years old and have over 25 and one half years of service can elect the Back DROP. The Back DROP benefit is a lump sum and a reduced monthly benefit. The reduced monthly benefit equals the benefit calculated at the beginning of the Back DROP period. The lump sum equals the number of months in the Back DROP period multiplied by the monthly benefit. The Back DROP period must be at least six months and not more than 36 months. After deducting the period of the Back DROP the member must still have 25 years of credited service for the calculation of their benefit. After June 30, 2019, the option for a member to elect to participate in the Back DROP is discontinued, and no Member may elect to participate in the Back DROP after such date.

Forward Deferred Retirement Option Program (Forward DROP):

Members who are 50 years old and have at least 25 years of service and had not elected to participate in the Back DROP can elect the Forward DROP. The Forward DROP benefit is a lump sum and a reduced monthly benefit at retirement. The reduced monthly benefit equals the benefit calculated at the beginning of the Forward DROP period. The lump sum equals the number of months in the Forward DROP period multiplied by the monthly benefit.

Summary of Changes from January 1, 2014 Valuation

- Changes were made to the Deferred Retirement Option Program effective July 1, 2016, these changes do not impact the January 1, 2016 valuation.

Schedule C:

Summary of Actuarial Methods and Assumptions (Effective as of January 1, 2016)

Basis for Assumptions

The economic and demographic assumptions used in the valuation were adopted by the Board in consultation with Buck Consultants. The Board's established practice is to review the experience of the Fund periodically to determine if any changes to the valuation assumptions are warranted. In general, the assumptions used in the valuation are based on recommendations made and approved by the Board as part of an Experience Study covering plan years from July 1, 2010 through December 31, 2015.

Investment Return

7.75% per annum, compounded annually, net all expenses including administrative expenses. This rate reflects an underlying inflation rate of 3.00% and a real rate of return of 4.25%.

Demographic Assumptions

Representative values of the assumed annual rates of withdrawal and disability are as follows:

Annual Rate per 1,000 Members		
Age	Withdrawal	Disability
20	50.0	1.00
25	45.0	1.00
30	35.0	1.00
35	15.0	1.00
40	15.0	3.00
45	10.0	3.50
50	10.0	3.50
60	10.0	0.00
70	10.0	N/A
80	10.0	N/A

Mortality rates for active and non-disabled participants are based on the RP-2014 employee tables with Blue Collar adjustment projected to 2030 using Scale BB. Mortality rates for disabled participants are based on the RP-2014 Tables for Disabled Lives.

Salary Increases

Representative values of the assumed annual rates of future salary increase attributable to longevity and promotion are as follows:

Years of Service	Annual Rate of Salary Increase
1	12.00%
11	7.00
21	4.00
31	4.00
41	3.00

Schedule C: (continued)

Summary of Actuarial Methods and Assumptions (Effective as of January 1, 2016) (continued)

Total payroll is assumed to increase 3.00% per year. New hires are assumed to replace terminations.

Overtime is assumed to be 10.00% of base, incentive, and longevity pay. The City and Members contribute on total pay including overtime.

Retirement Rates

The percentage of population assumed to retire at various ages is as follows:

The Base Plan

Age	Rate		Age	Rate		Age	Rate
42	5.0%		52	15.0%		62	10.0%
43	10.0		53	30.0		63	10.0
44	10.0		54	10.0		64	10.0
45	15.0		55	10.0		65	10.0
46	20.0		56	10.0		66	25.0
47	20.0		57	20.0		67	25.0
48	15.0		58	20.0		68	25.0
49	15.0		59	20.0		69	25.0
50	20.0		60	15.0		70	100.0
51	15.0		61	10.0			

The Second-Tier Plan

Age	Rate		Age	Rate		Age	Rate
50	30.0%		57	25.0%		64	20.0
51	15.0		58	25.0		65	20.0
52	15.0		59	25.0		66	30.0
53	15.0		60	20.0		67	30.0
54	15.0		61	20.0		68	30.0
55	15.0		62	20.0		69	30.0
56	15.0		63	20.0		70	100.0

Spouses

100% of active members are assumed to be married with the male three years older than the female. No children's benefits were valued because of the assumption that 100% of members are married.

Post Retirement Cost Of Living

3% of pension annually for Members in the Base Plan, as defined in the Summary of Plan Provisions.

Back Drop Election

Participants who meet the eligibility requirements for the Back DROP option are assumed to elect the maximum Back DROP period.

Schedule C: (continued)

Summary of Actuarial Methods and Assumptions (Effective as of January 1, 2016) (continued)

Future Expenses

All expenses, investment and administration, are paid from the Fund. The 7.75% assumed rate of return is net of these expenses.

Valuation Method

The method used to determine Normal Cost and Accrued Actuarial Liability is the Entry Age Normal Cost Method. Under the Entry Age Normal Cost Method, an annual Normal Cost is determined for each covered active Member which is the contribution required to provide all the projected pension benefits assuming this contribution is payable over a period ending on the date of retirement (separation from active service) and expressed as a level percentage of compensation. The Actuarial Accrued Liability is determined as the excess of the total present value of all pension benefits over the total present value of future Normal Costs. The Unfunded Actuarial Accrued Liability as of the valuation date is determined as the excess of the Actuarial Accrued Liability over the assets of the Fund.

The Normal Cost and Accrued Actuarial Liability are derived by making certain assumptions as to the rates of interest, mortality, turnover, etc., which are assumed to reflect experience for many years into the future. Since actual experience will differ from the assumptions, the costs determined must be regarded as estimates of the true costs of the Plan. The effects of any actuarial gains or losses are immediately reflected in the Unfunded Actuarial Accrued Liability and the Normal Cost.

Actuarial Value Of Assets

The actuarial value of assets is calculated based on the following formula:

$$MV - (8/10) \times G/(L)_1 - (6/10) \times G/(L)_2 \\ - (4/10) \times G/(L)_3 - (2/10) \times G/(L)_4$$

where:

MV = the market value of assets as of the valuation date

$G/(L)_i$ = the asset gain or (loss) (i.e., actual return on assets less expected return on assets) for the i-th year preceding the valuation date.

Schedule C: (continued)

Summary of Actuarial Methods and Assumptions (Effective as of January 1, 2016) (continued)

Summary of Changes from January 1, 2014 Valuation

- An experience study covering the six-year period ending December 31, 2015 was presented to the board on July 20, 2016. Pursuant to the recommendations of this experience study, the following valuation assumptions were updated from the January 1, 2014 valuation:

Demographic Assumptions

- Mortality rates for active and non-disabled participants are based on the RP-2014 employee tables with Blue Collar adjustment projected to 2030 using Scale BB. Mortality rates for disabled participants are based on the RP-2014 Tables for Disabled Lives backed off to 2006.
- Retirement, disability, and termination rates were adjusted to reflect experience.

Economic Assumptions:

- The assumed payroll growth rate was changed to 3.00% to reflect revised inflation expectations.
 - Overtime as a percentage of actual pay was adjusted to 10%.
- Impact of Changes: Assumptions changed due to the experience study decreased the Actuarial Accrued Liability by \$26.7M.

Schedule D:

Glossary of Terms

Following is a glossary of some of the commonly used actuarial terms.

Actuarial Accrued Liability

The portion, as determined by a particular cost method, of the total present value of benefits that is attributable to past service credit.

Actuarial Assumptions

Estimates of future experience with respect to rates of mortality, disability, turnover, retirement rate or rates of investment income and salary increases. Actuarial assumptions (rates of mortality, disability, turnover and retirement) are generally based on past experience, often modified for projected changes in conditions. Economic assumptions (salary increases and investment income) consist of an underlying rate in an inflation-free environment plus a provision for a long-term average rate of inflation.

Actuarial Gain (Loss) or Liability/Asset Experience

A measure of the difference between actual and expected experience based upon a set of actuarial assumptions. Examples include higher than expected salary increases (loss) and a higher return on fund assets than anticipated (gain).

Actuarial Present Value of Future Benefits

Also referred to as the present value of benefits. It is the value, as of a specified date, of an amount payable in the future, where the amount has been adjusted to reflect both the time value of money and the probability that the payment is actually made.

Actuarial Present Value of Future Normal Costs

The value, as of a specified date, of future normal costs, equal to the employer normal cost rate times the actuarial present value of future pay.

Actuarial Present Value of Future Pay

The value, as of a specified date, of future pay where the amount has been adjusted to reflect both the future value of money and the probability that the payment is actually made.

Amortization Rate or UAAL Payment

That portion of the pension plan contribution which is designed to pay off (amortize) the unfunded actuarial accrued liability in a systematic fashion. Equivalently, it is a series of periodic payments required to pay off a debt.

Covered Payroll

The rate of pay as of a specified date adjusted with a half-year salary increase based on the assumed salary increase assumptions.

Entry Age Actuarial Cost Method

This method assumes that the annual costs are the level premiums needed from entry age until retirement age to fund the ultimate retirement benefit. These premiums are expressed as a percentage of salary. The portion of this actuarial present value allocated to a valuation year is called the normal cost.

Schedule D: (continued)

Glossary of Terms (continued)

Funding Policy

The policy for the amounts and timing of contributions to be made by the employer, members and any other sources to provide the benefits promised by the pension plan.

Noneconomic Actuarial Assumptions

Probabilities that members will separate from active service for causes such as retirement, disability, death and withdrawal, as well as rates of post-retirement mortality. The probabilities reflect the experience of the Plan's membership.

Unfunded Actuarial Accrued Liability

The excess of the actuarial accrued liability over the actuarial value of assets.

Vested Benefit

The benefit an employee is entitled to even if the employee separates from active service prior to normal retirement age.

City of El Paso, Texas

El Paso Firemen's Pension Fund

Actuarial Valuation Report
Prepared as of January 1, 2016

August 2016





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August 2016

Board of Trustees
El Paso Firemen & Policemen's Pension Fund
909 East San Antonio Avenue
El Paso, Texas 79901-2523

Re: El Paso Firemen's Pension Fund Actuarial Valuation as of January 1, 2016

Dear Ladies & Gentlemen:

We certify that the information contained in this report is accurate and fairly presents the actuarial position of the El Paso Firemen's Pension Fund (the Fund) as of January 1, 2016.

Actuarial Valuation

The primary purpose of the valuation report is to determine the adequacy of the current City's contribution rate, to describe the current financial condition of the Fund, and to analyze changes in the Fund's condition. Required reporting for the Fund under Governmental Accounting Standards Board Statement No. 67 will be covered in a separate report.

Use of this report for any other purposes or by anyone other than the Fund and its auditors may not be appropriate and may result in mistaken conclusions because of failure to understand applicable assumptions, methods, or inapplicability of the report for that purpose. Because of the risk of misinterpretation of actuarial results, Buck recommends requesting it to perform an advance review of any statement, document, or filing based on information contained in this report. Buck will accept no liability for any such statement, document or filing made without prior review by Buck.

Valuations are prepared biennially, as of January 1 of even years. January 1 is the first day of the Fund's plan year.

Financing Objectives

The member contributions are set by state statute and the Board of Trustees, and employer contributions are established by state statute and City Ordinance. The City currently contributes 18.50% of total salary, while the Members currently contribute 15.28% of total salary. These rates are intended to be sufficient to pay the normal cost and to amortize the Fund's unfunded actuarial accrued liability.

Progress Toward Realization of Financing Objectives

As of January 1, 2016, the employer contribution rate needed for funding purposes to pay the normal cost and fund the Unfunded Actuarial Accrued Liability (UAAL) over 30 years is 20.84%. This is more than the current rate and therefore the current rate is inadequate to satisfy the 30-year maximum amortization period for the unfunded liability. However, this does not reflect the lower normal cost rate for participants in the future who will be covered under the second-tier plan. After reflecting that normal cost rate, the period required to amortize the UAAL based on current contribution rates is 26 years.

Section 14A of Article 6243b (Vernon's Annotated Texas Statute) requires that the actuary determine any additional contribution rate necessary to amortize the unfunded actuarial accrued liability, as defined in GASB No. 25, over a 40-year period. If an additional contribution rate is necessary, the contribution rate will be split between the City and the Members in the same proportion as the current contribution rates. However, the contribution rates of the Members shall only increase if the City increases its rate to the 40-year contribution rate. For purposes of Section 14A of Article 6243b (Vernon's Annotated Texas Statute), we have assumed that the return on the market value of assets is 7.75% and used the other assumptions and methods described in Schedule C. Based on this January 1, 2016 valuation, we have determined that the current contribution rates as a percentage of wages would not have to be increased to satisfy the 40-year funding period of Section 14A of Article 6243b (Vernon's Annotated Texas Statute).

Benefit Provisions

The actuarial valuation reflects the benefit and contribution provisions set forth in the Fund's statutes. The benefit provisions used in the valuation are presented in Schedule B. The provisions were changed on June 30, 2007 so that Members of the Fund who entered on or prior to June 30, 2007 are eligible for the Base Plan and Members of the Fund who joined on or after July 1, 2007 are eligible for the Second-Tier Plan.

Effective July 1, 2016, the provisions were changed to allow members to participate in the Forward DROP for an unlimited period of time. Additionally, eligibility to enter into the Back DROP shall terminate on June 30, 2019. Since there were no members in Forward DROP as of the valuation date, these changes do not impact this actuarial valuation report.

Assumptions and Methods

The actuarial assumptions and methods used in the valuation are presented in Schedule C. Following an experience study performed as of December 31, 2015, the assumptions were revised to better reflect the anticipated future experience of the Fund. The assumptions used are individually reasonable and reasonable in the aggregate.

Data

Census data on retired, active, and inactive members, along with data on the Fund's assets, as of January 1, 2016, was supplied by the Fund's staff. We have not subjected this data to any auditing procedures, but have examined it for reasonableness and consistency with the prior year's data.

Actuarial Certification

Future actuarial measurements may differ significantly from current measurements due to plan experience differing from that anticipated by the economic and demographic assumptions, increases or decreases expected as part of the natural operation of the methodology used for these measurements, and changes in plan provisions or applicable law. An analysis of the potential range of such future differences is beyond the scope of this valuation.

I am an Enrolled Actuary, Fellow of the Society of Actuaries and Member of the American Academy of Actuaries. I meet the Qualification Standards of the American Academy of Actuaries to render the actuarial

Board of Trustees

August 2016

Page 3

opinion contained herein. To the best of my knowledge, this report is complete and accurate and has been prepared in accordance with generally accepted actuarial principles and practice, and I am available to answer questions about it.

Respectfully submitted,



David Kent, EA, FSA, MAAA
Director, Consulting Actuary

DK

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Enclosures

Table of Contents

Section 1

Summary of Principal Results.....	1
-----------------------------------	---

Section 2

Comments on the Valuation.....	2
--------------------------------	---

Section 3

Actuarial Funding Requirements.....	4
-------------------------------------	---

Section 4

Summary of Asset Information.....	8
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Schedules

A. Membership Data.....	13
B. Summary of Benefit Provisions.....	18
C. Summary of Actuarial Methods and Assumptions.....	24
D. Glossary of Terms.....	27

Section 1

Summary of Principal Results

	January 1, 2016	January 1, 2014
Membership		
Active	867	871
Terminated with deferred benefits	6	8
Retired paid from fund	699	644
Compensation		
Total	\$ 55,619,321	\$ 53,872,177
Average	\$ 64,151	\$ 61,851
Assets		
Market value	\$ 505,209,625	\$ 506,891,867
Actuarial value	\$ 528,803,372	\$ 479,228,995
Valuation Results		
Unfunded actuarial accrued liability	\$ 138,989,515	\$ 114,707,333
Funding period	26 years	23 years
30-year funding cost (City)	20.84 %	21.81 %
Margin	(2.34)%	(3.31)%
Funding		
Actuarial accrued liability (AAL)	\$ 667,792,887	\$ 593,936,328
Assets (actuarial)	\$ 528,803,372	\$ 479,228,995
Funding ratio	79.2 %	80.7 %
Unfunded AAL	\$ 138,989,515	\$ 114,707,333

Section 2

Comments on the Valuation

Funding Status

There are two significant measures of the funding status of the Fund. The first is the 30-year funding cost. This is the City contribution rate required to pay the normal cost and to amortize the UAAL over a 30-year period. This rate is currently 20.84% compared with the City's actual contribution rate of 18.50% and the 30-year funding cost in 2014 of 21.81%. However, this does not reflect the lower normal cost rate for participants in the future who will be covered under the second-tier plan. Section 3 shows a reconciliation of the changes between the 2014 and 2016 figures.

The other measure is the funding period. This is the length of time in years that will be required to amortize the current UAAL based on the current contribution rate. This period was 23 years in 2014 but is 26 years based on the 2016 valuation. During the 2014 and 2015 plan years the market value of assets earned rates of return falling short of the assumed 7.75% which results in asset losses. However, these losses are being phased in over five years under the asset valuation method so there is a deferred effect on how those losses will impact the funded status. Nevertheless, these losses have now resulted in the situation that the market value of assets is less than the actuarial value of assets and will therefore be a source of future losses being recognized.

The UAAL is the excess of the liability assigned to prior years (the actuarial accrued liability) over the value of assets. Section 3 shows a reconciliation of this amount between 2014 and 2016.

Where presented, references to "funded ratio" and "unfunded accrued liability" typically are measured on an actuarial value of assets basis. It should be noted that the same measurements using market value of assets would result in different funded ratios and unfunded accrued liabilities. Moreover, the funded ratio presented is appropriate for evaluating the need and level of future contributions but makes no assessment regarding the funded status of the plan if the plan were to settle (i.e. purchase annuities) for a portion or all of its liabilities.

Benefit Provisions

Schedule B summarizes all the benefit provisions of the fund. There are no significant benefits which were not taken into account in this valuation

The provisions were changed on June 30, 2007 so that Members of the Fund on or prior to June 30, 2007 are eligible for the Base Plan and Members of the Fund on or after July 1, 2007 are eligible for the Second-Tier Plan.

Effective July 1, 2016, the provisions were changed to allow members to participate in the Forward DROP for an unlimited period of time. Additionally, eligibility to enter into the Back DROP shall terminate on June 30, 2019. Since there were no members in Forward DROP as of the valuation date, these changes do not impact this actuarial valuation report.

Actuarial Assumptions and Methods

Schedule C describes all of the assumptions used for this valuation. An experience study was performed as of December 31, 2015. As recommended in that study, the Board adopted assumption changes to better reflect anticipated experience of the Fund.

Changes in actuarial assumptions and methods from those used in the prior valuation for the January 1, 2016 valuation are reflected in Schedule C and the impact are shown in Section 3.

Section 2 (continued)

Comments on the Valuation

Financial Data

The financial data used in this report was supplied by the Fund's staff.

Section 4 reconciles the Fund's assets between 2014 and 2016 and shows the development of the actuarial value of assets (AVA). Rather than using the market value for cost calculations, we use an adjusted market value, which phases in gains and losses (compared to the assumed investment return rate) over five years. This method is designed to reduce the volatility of the results with respect to the funded status and the anticipated funding costs emerging in future years.

Historical returns and experience are also summarized in Section 4.

Membership Statistics

Data on active members and on retired members was supplied by the Fund's staff. The active membership decreased from 871 to 867 between 2014 and 2016, a 0.5% decrease over the two year period, while payroll grew from \$53.9 million to \$55.6 million over the same period, a 3.2% increase. Schedule A shows a summary of the membership data.

Section 3

Actuarial Cost, Margin and Funding Period

	January 1, 2016	January 1, 2014
1. Covered Payroll	\$ 55,619,321	\$ 53,872,177
2. Actuarial present value of future pay	\$ 517,090,173	\$ 537,230,571
3. Current contribution rates		
a. City	18.50%	18.50%
b. Member	<u>15.28%</u>	<u>15.28%</u>
c. Total	33.78%	33.78%
4. Normal cost rate		
a. Total (before adjustment for overtime)	22.14%	26.13%
b. Total (after adjustment for overtime)	21.29%	25.13%
c. Member contribution rate	<u>15.28%</u>	<u>15.28%</u>
d. Employer normal cost rate (4b - 4c)	6.01%	9.85%
5. Actuarial present value of future benefits	\$ 782,276,651	\$ 734,314,676
6. Actuarial present value of future normal costs (4a x 2)	\$ 114,483,764	\$ 140,378,348
7. Actuarial accrued liability (5 - 6)	\$ 667,792,887	\$ 593,936,328
8. Actuarial value of assets	\$ 528,803,372	\$ 479,228,995
9. Unfunded actuarial accrued liability (UAAL) (7 - 8)	\$ 138,989,515	\$ 114,707,333
10. 30-year funding cost for City ¹		
a. Employer normal cost rate (4d)	6.01%	9.85%
b. Amortization rate	<u>14.83%</u>	<u>11.96%</u>
c. Total	20.84%	21.81%
11. Margin over/(under) 30-year cost (3a - 10c) ¹	(2.34)%	(3.31)%
12. Funding period to amortize UAAL ¹	26 years	23 years

¹ 30-year funding cost is necessary for Texas PRB purposes only. The actual funding period is calculated based on level contributions and reflects the provisions of the second-tier plan for Members hired after June 30, 2007. The normal cost rate based on the provisions of the second-tier plan is 17.16% (before adjustment for overtime).

Section 3 (continued)

Analysis of Change in UAAL

1. UAAL as of January 1, 2014	\$ 114,707,333
2. Changes due to:	
a. Expected increase (negative amortization)	\$ 7,430,890
b. Actual contributions greater than expected	(1,007,633)
c. Other changes including liability experience	5,659,688
d. Asset experience	4,056,965
e. Assumption changes	<u>8,142,272</u>
Total Changes	\$ 24,282,182
3. UAAL as of January 1, 2016	\$ 138,989,515

Section 3 (continued)

Analysis of Change in Funding Cost

1. 30-year funding cost as of January 1, 2014	21.81 %
2. Changes due to:	
a. Actual contributions greater than expected	(0.10)%
b. Other changes including liability experience	0.03%
c. Asset experience	0.41%
d. Assumption changes	<u>(1.31)%</u>
Total	(0.97)%
3. 30-year funding cost as of January 1, 2016	20.84%

Section 3 (continued)

Analysis of Change in Funding Period

1. Funding period as of January 1, 2014	23 years
2. Changes due to:	
a. Passage of time	(2)
b. Actual contributions greater than expected	(1)
c. Other changes including liability experience	2
d. Asset experience	8
e. Assumption changes	(4)
Total	3
3. Funding period as of January 1, 2016	26 years

Section 4

Reconciliation of Fund Assets

	Period Ending	
	December 31, 2015	December 31, 2014
1. Value of fund at beginning of period	\$ 517,224,488	\$ 506,891,867
2. Contributions		
a. City	10,785,306	10,853,759
b. Member	<u>9,133,372</u>	<u>8,749,488</u>
c. Total	\$ 19,918,678	\$ 19,603,247
3. Benefit payments	(31,487,924)	(29,886,861)
4. Earnings	483,754	21,198,166
5. Administrative expenses	(929,371)	(581,931)
6. Value of assets at end of period	\$ 505,209,625	\$ 517,224,488

Section 4 (continued)

Determination of Excess Earnings to be Deferred

	Period Ending	
	December 31, 2015	December 31, 2014
1. Market value at beginning of period	\$ 517,224,488	\$ 506,891,867
2. Net new investments		
a. City contributions	\$ 10,785,306	\$ 10,853,759
b. Member contributions	9,133,372	8,749,488
c. Benefit payments	<u>(31,487,924)</u>	<u>(29,886,861)</u>
d. Total	\$ (11,569,246)	\$ (10,283,614)
3. Weighted new investments (2d x 50%)	\$ (5,784,623)	\$ (5,141,807)
4. Assets available (1 + 3)	\$ 511,439,865	\$ 501,750,060
5. Assumed investment return rate	7.75%	7.75%
6. Expected net return (4 x 5)	\$ 39,636,590	\$ 38,885,630
7. Actual net return		
a. Total investment return	\$ 483,754	\$ 21,198,166
b. Administrative expenses	<u>(929,371)</u>	<u>(581,931)</u>
c. Net return	\$ (445,617)	\$ 20,616,235
8. Gains/(losses) subject to deferral (7c - 6)	\$ (40,082,207)	\$ (18,269,395)

Section 4 (continued)

Calculation of Actuarial Value of Assets

1. Market value of assets as of December 31, 2015				\$ 505,209,625
2. Deferral amounts				
	Year	Total Gain/(Loss)	Percent Deferred	Deferral Amount
a. – 2015		\$ (40,082,207)	80%	\$ (32,065,766)
b. – 2014		(18,269,395)	60%	(10,961,637)
c. – 2013		40,761,310	40%	16,304,524
d. – 2012		15,645,658	20%	3,129,132
e. – Total				\$ (23,593,747)
3. Actuarial value of assets (1 – 2e)				\$ 528,803,372

Section 4 (continued)

Summary of Asset Experience and Yield on Market Value of Assets

Plan Year			Beginning of Year Market Value	Employer Plus Employee Contributions to Fund	Benefit Disbursements from Fund (Including Refund of Contributions)	Net Earnings on Fund	End of Year Market Value	Annualized Yield Based on Market Value
(1)	(2)	(3)	(4)	(5)	(6)-(2)+(4)-(3)	(6)	(7)	
3/1/1966 thru 2/28/1967	\$ 1,547,208	\$ 370,095	\$ 182,298	\$ 32,663	\$ 1,767,668	1.99%		
3/1/1967 thru 2/29/1968	1,767,668	380,444	192,195	86,728	2,042,645	4.66		
3/1/1968 thru 2/28/1969	2,042,645	593,198	208,366	121,904	2,549,381	5.45		
3/1/1969 thru 8/31/1969	2,549,381	280,772	106,614	(6,609)	2,716,930	(0.50)		
9/1/1969 thru 8/31/1970	2,716,930	768,543	227,417	(30,712)	3,227,344	(1.03)		
9/1/1970 thru 8/31/1971	3,227,344	799,479	234,759	296,867	4,088,931	8.46		
9/1/1971 thru 8/31/1972	4,088,931	893,998	251,884	211,612	4,942,657	4.80		
9/1/1972 thru 8/31/1973	4,942,657	1,055,881	272,197	(295,827)	5,430,514	(5.55)		
9/1/1973 thru 8/31/1974	5,430,514	1,113,313	318,569	(1,123,014)	5,102,244	(19.27)		
9/1/1974 thru 8/31/1975	5,102,244	1,207,931	390,572	1,137,268	7,056,871	20.64		
9/1/1975 thru 8/31/1976	7,056,871	1,337,359	493,835	1,044,645	8,945,040	13.97		
9/1/1976 thru 8/31/1977	8,945,040	1,577,958	609,556	263,996	10,177,438	2.80		
9/1/1977 thru 8/31/1978	10,177,438	1,776,875	763,734	95,253	11,285,832	0.89		
9/1/1978 thru 8/31/1979	11,285,832	1,972,493	862,797	1,093,021	13,488,549	9.23		
9/1/1979 thru 8/31/1980	13,488,549	1,004,483	1,003,091	2,363,277	15,853,218	17.52		
9/1/1980 thru 8/31/1981	15,853,218	2,420,405	1,233,471	925,838	17,965,990	5.63		
9/1/1981 thru 8/31/1982	17,965,990	2,839,208	1,567,891	1,810,233	21,047,540	9.73		
9/1/1982 thru 8/31/1983	21,047,540	3,086,224	1,892,082	3,085,445	25,327,127	14.26		
9/1/1983 thru 8/31/1984	25,327,127	3,373,113	2,000,420	3,000,669	29,700,489	11.54		
9/1/1984 thru 12/31/1984	29,700,489	915,457	720,809	1,780,169	31,675,306	19.01		
1/1/1985 thru 12/31/1985	31,675,306	24,605,901	22,995,801	7,284,906	40,570,312	22.43		
1/1/1986 thru 12/31/1986	40,570,312	6,238,743	5,833,057	8,054,718	49,030,716	19.75		
1/1/1987 thru 12/31/1987	49,030,716	4,399,173	2,623,305	1,272,708	52,079,292	2.55		
1/1/1988 thru 12/31/1988	52,079,292	4,332,419	3,358,360	3,938,446	56,991,797	7.49		
1/1/1989 thru 12/31/1989	56,991,797	4,613,241	3,980,955	10,755,980	68,380,063	18.77		

Section 4 (continued)

Summary of Asset Experience and Yield on Market Value of Assets (continued)

Plan Year			Beginning of Year Market Value	Employer Plus Employee Contributions to Fund	Benefit Disbursements from Fund (Including Refund of Contributions)	Net Earnings on Fund	End of Year Market Value	Annualized Yield Based on Market Value
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
1/1/1990	thru 12/31/1990	68,380,063	4,964,139	4,364,185	3,223,512	72,203,529	4.69	
1/1/1991	thru 12/31/1991	72,203,529	5,370,948	4,731,758	13,537,940	86,380,659	18.67	
1/1/1992	thru 8/31/1992	86,380,659	3,984,655	3,408,292	2,245,838	89,202,860	3.91	
9/1/1992	thru 8/31/1993	89,202,860	6,114,853	5,731,676	11,379,020	100,965,057	12.73	
9/1/1993	thru 8/31/1994	100,965,057	6,370,197	6,467,470	3,826,728	104,694,512	3.79	
9/1/1994	thru 8/31/1995	104,694,512	6,378,848	6,977,688	11,150,010	115,245,682	10.68	
9/1/1995	thru 8/31/1996	115,245,682	6,871,024	7,459,968	8,855,917	123,512,655	7.70	
9/1/1996	thru 8/31/1997	123,512,655	7,236,916	8,380,348	25,587,041	147,956,264	20.81	
9/1/1997	thru 8/31/1998	147,956,264	7,438,353	9,394,749	(3,494,009)	142,505,859	(2.38)	
9/1/1998	thru 6/30/1999	142,505,859	6,480,485	8,376,426	29,017,367	169,627,285	25.08	
7/1/1999	thru 6/30/2000	169,627,285	8,087,144	10,577,992	7,740,233	174,876,670	4.60	
7/1/2000	thru 6/30/2001	174,876,670	8,814,568	11,098,252	529,864	173,122,850	0.30	
7/1/2001	thru 6/30/2002	173,122,850	9,581,909	12,265,846	(6,232,926)	164,205,987	(3.63)	
7/1/2002	thru 6/30/2003	164,205,987	10,681,239	13,312,583	5,409,823	166,984,466	3.32	
7/1/2003	thru 12/31/2003	166,984,466	5,965,660	6,867,584	18,137,881	184,220,423	22.97	
1/1/2004	thru 12/31/2004	184,220,423	13,397,445	14,368,403	22,696,133	205,945,598	12.35	
1/1/2005	thru 12/31/2005	205,945,598	14,060,139	15,278,655	16,456,483	221,183,565	8.01	
1/1/2006	thru 12/31/2006	221,183,565	14,652,563	16,791,226	34,067,233	253,112,135	15.48	
1/1/2007	thru 12/31/2007	253,112,135	70,379,603	18,378,936	32,175,561	337,288,363	11.53	
1/1/2008	thru 12/31/2008	337,288,363	16,137,223	20,047,854	(85,447,754)	247,929,978	(25.48)	
1/1/2009	thru 12/31/2009	247,929,978	85,174,157	21,308,978	69,536,975	381,332,132	24.85	
1/1/2010	thru 12/31/2010	381,332,132	17,635,517	23,563,764	42,598,666	418,002,551	11.26	
1/1/2011	thru 12/31/2011	418,002,551	18,199,916	24,288,106	(10,312,220)	401,602,141	(2.49)	
1/1/2012	thru 12/31/2012	401,602,141	18,475,797	25,652,521	46,491,726	440,917,143	11.68	
1/1/2013	thru 12/31/2013	440,917,143	19,202,391	27,825,895	74,598,228	506,891,867	17.09	
1/1/2014	thru 12/31/2014	506,891,867	19,603,247	29,886,861	20,616,235	517,224,488	4.11	
1/1/2015	thru 12/31/2015	517,224,488	19,918,678	31,487,924	(445,617)	505,209,625	(0.09)	

Schedule A: Membership Data

	January 1, 2016	January 1, 2014
1. Active members		
a. Number of males	850	855
b. Number of females	<u>17</u>	<u>16</u>
c. Total	867	871
d. Total payroll	\$ 55,619,321	\$ 53,872,177
e. Average annual pay	64,151	61,851
f. Average age	38.3	38.2
g. Average service (years)	11.5	11.3
h. Total accumulated member contributions	78,642,118	72,899,227
i. Average member contributions	90,706	83,696
2. Inactive members		
a. Number currently being paid from fund	699	644
b. Number entitled to deferred benefits	<u>6</u>	<u>8</u>
c. Total number of inactive members	705	652
d. Total current annual benefit	\$ 31,564,104	\$ 27,471,809
e. Average current annual benefit	44,772	42,135
f. Average age	65.7	65.6

Schedule A: (continued)

The Number and Annual Wages of Active Members Distributed by Fifth Age and Service as of January 1, 2016

Attained Age	Years of Credited Service										Total
	Under 1	1 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 to 34	35 to 39	40 & up	
Under 25	19 37,983	36 42,025	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	55
25 to 29	13 37,994	83 43,363	37 57,765	1 63,033	0 0	0 0	0 0	0 0	0 0	0 0	134
30 to 34	4 37,957	44 45,783	63 58,787	36 67,632	0 0	0 0	0 0	0 0	0 0	0 0	147
35 to 39	1 37,957	11 42,807	18 59,559	61 67,042	42 70,573	1 82,084	0 0	0 0	0 0	0 0	134
40 to 44	0 0	11 46,835	9 58,306	40 67,372	76 70,390	25 78,795	0 0	0 0	0 0	0 0	161
45 to 49	0 0	1 42,448	7 55,947	32 70,030	39 71,705	70 78,371	3 79,483	0 0	0 0	0 0	152
50 to 54	0 0	0 0	1 61,216	27 72,364	10 67,875	22 72,987	10 86,737	1 94,827	0 0	0 0	71
55 to 59	0 0	0 0	0 0	4 73,607	4 65,811	0 0	4 86,947	0 0	0 0	0 0	12
60 to 64	0 0	0 0	0 0	1 70,792	0 0	0 0	0 0	0 0	0 0	0 0	1
65 to 69	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0
70 & up	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0
Total	37	186	135	202	171	118	17	1	0	0	867

Schedule A: (continued)

The Number and Annual Retirement Allowances of Retired Members, Disabled Members and Beneficiaries by Age as of January 1, 2016

Age	Number	Benefit	Average Benefit
20	1	\$ 80,027	\$ 80,027
37	1	2,760	2,760
44	4	186,975	46,744
45	3	99,429	33,143
46	9	394,706	43,856
47	9	430,551	47,839
48	13	572,734	44,056
49	6	309,443	51,574
50	15	632,540	42,169
51	12	512,168	42,681
52	21	1,033,868	49,232
53	13	656,778	50,521
54	20	872,044	43,602
55	25	1,299,769	51,991
56	24	1,213,894	50,579
57	24	1,180,916	49,205
58	16	761,356	47,585
59	17	725,767	42,692
60	26	1,225,084	47,119
61	30	1,429,593	47,653
62	25	1,135,818	45,433
63	25	1,208,623	48,345
64	25	1,245,423	49,817
65	18	960,865	53,381
66	16	879,375	54,961
67	18	913,570	50,754
68	19	898,688	47,299
69	14	727,866	51,990
70	10	509,101	50,910
71	12	541,012	45,084
72	15	658,449	43,897
73	14	689,271	49,234
74	19	772,759	40,672
75	19	837,560	44,082
76	15	628,270	41,885
77	23	1,052,555	45,763
78	17	740,918	43,583
79	17	725,196	42,659
80	17	721,217	42,425
81	12	352,157	29,346
82	10	277,165	27,717
83	9	347,722	38,636

Schedule A: (continued)

The Number and Annual Retirement Allowances of Retired Members, Disabled Members and Beneficiaries by Age as of January 1, 2016 (continued)

Age	Number	Benefit	Average Benefit
84	7	160,891	22,984
85	7	160,209	22,887
86	9	329,782	36,642
87	5	183,524	36,705
88	2	41,920	20,960
89	3	85,502	28,501
91	7	103,224	14,746
93	1	<u>4,800</u>	<u>4,800</u>
TOTAL	699	\$ 31,513,834	\$ 45,084

Schedule A: (continued)

The Number and Future Annual Allowances of Terminated Members, Entitled to a Future Benefit by Age as of January 1, 2016

Age	Number	Benefit	Average Benefit
34	1	\$ 0	\$ 0
37	2	0	0
41	1	34,534	34,534
49	<u>2</u>	<u>15,736</u>	<u>7,868</u>
TOTAL	6	\$ 50,270	\$ 8,378

Note that the monthly benefits for some terminated members are zero since they have elected to hold their contributions. For those members, we are valuing the member contributions.

Schedule B: Summary of Benefit Provisions as of January 1, 2016

The Base Plan

Pension Fund

The El Paso Firemen's Pension Fund.

Wages

Base pay, plus longevity pay, incentive pay and overtime.

Final Wages

The average of the monthly wages, excluding overtime pay, on which a Member made contributions to the Pension Fund during the 36-month period preceding retirement, but not less than the 12-month monthly wages preceding June 30, 2007.

Member

Any person who was enrolled as a fire fighter in the Fire Department of the City of El Paso on or prior to June 30, 2007.

Credited Service

The time for which a Member contributes to the Pension Fund.

Qualified Spouse

The widow (widower) of a deceased Member.

Qualified Child or Children

The surviving, dependent children under 19 years of age (23 if a full-time student).

Contribution Rates

The active Member contributes 15.28% of their pre-tax wages per year. The City contributes 18.50% of the Member's wages per year (18.00% base contribution plus 0.50% contribution for Members hired after age 29).

Service Retirement Benefits

Normal Retirement Benefit

Eligibility

Age 45 with 20 years of Credited Service.

Benefit

2.75% of Final Wages times years of Credited Service, not to exceed 77% of Final Wages.

Early Retirement Benefit

Eligibility

20 years of Credited Service.

Schedule B: (continued)

Summary of Benefit Provisions as of January 1, 2016 (continued)

Benefit

2.75% of Final Wages times years of Credited Service, not to exceed 28 years, multiplied by the appropriate actuarial reduction factor. The actuarial reduction factors are as follows:

Age	Factor
44	.95
43	.90
42	.84
41	.78
40	.71
39	.63
38	.55

Other factors may be obtained by interpolation.

Deferred Retirement Benefit

Eligibility

At least 10 years of Credited Service.

Benefit

2.75% of Final Wages for each year of Credited Service not to exceed 28 years. This benefit is payable commencing at age 50, or immediately upon termination of service if at least age 50 at termination.

Withdrawal (Refund) of Contributions

Eligibility

5 years of Credited Service.

Benefit

Total employee contributions without interest. No other benefits are payable under the Plan once the contributions are withdrawn.

Survivor Benefits

Qualified Surviving Spouse Benefit

Eligibility

Death of a Member who was active, retired, or eligible for a deferred retirement benefit.

Benefit

100% of Member's earned benefit at date of death, but not less than 50% of Final Wages. If there are qualified surviving children or Member was eligible for a deferred retirement benefit, the surviving spouse's benefit is reduced to 66-2/3%.

Qualified Surviving Children Benefit

Eligibility

Death of a Member who was active, retired, or eligible for a deferred retirement benefit.

Benefit

Two-thirds of the Member's earned benefit at date of death if there is no surviving spouse. If a surviving spouse is receiving a benefit, the above fraction is reduced to one-third.

Schedule B: (continued)

Summary of Benefit Provisions as of January 1, 2016 (continued)

Disability Retirement Benefit

Eligibility

Total and permanent disability from an injury in the line of duty or any injury not due to the Member's own fault.

Benefit

2.75% of Final Wages times Credited Service, not to exceed 28 years, with a minimum benefit of 50% of Final Wages.

Minimum Benefits

Minimum pension benefit for any retiree or qualified spouse is \$400 per month.

Cost of Living Adjustment

Cost of living adjustments are applicable to those retiring after March 23, 1980. If the Member retires at age 60 or later, the retirement income will be increased by 3% per year beginning on the date of retirement and then on each January 1 thereafter. If the retirement age is 55 through 59, the 3% annual increase will begin when the Member reaches age 60. A 3% increase will also be given on each subsequent January 1. If the retirement age is prior to 55, the 3% annual increase will begin five years after the retirement date. The first increase begins on the anniversary date of the Member's retirement; thereafter increases will occur on each January 1. Cost-of-living increases are not granted for deferred retirements. For beneficiaries of an active member who dies in service, the initial increase will occur five years after the Member's death. Increases will occur on each January 1 thereafter.

Normal Form of Retirement Benefit

Single Member

Life Annuity.

Married Member

100% joint-and-survivor annuity.

Back Deferred Retirement Option Program (Back DROP)

Members who are 50 years old and have over 20 and one half years of service can elect the Back DROP. The Back DROP benefit is a lump sum and a reduced monthly benefit. The reduced monthly benefit equals the benefit calculated at the beginning of the Back DROP period. The lump sum equals the number of months in the Back DROP period multiplied by the monthly benefit. The Back DROP period must be at least six months and not more than 36 months. After deducting the period of the Back DROP the member must still have 20 years of Credited Service for the calculation of their benefit. After June 30, 2019, the option for a member to elect to participate in the Back DROP is discontinued, and no Member may elect to participate in the Back DROP after such date.

Forward Deferred Retirement Option Program (Forward DROP)

Members who are 45 years old and have at least 20 years of service can elect the Forward DROP. The Forward DROP benefit is a lump sum and a reduced monthly benefit at retirement. The reduced monthly benefit equals the benefit calculated at the beginning of the Forward DROP period. The lump sum equals the number of months in the Forward DROP period multiplied by the monthly benefit.

Schedule B: (continued)

Summary of Benefit Provisions as of January 1, 2016 (continued)

The Second-Tier Plan

Pension Fund

The El Paso Firemen's Pension Fund.

Wages

Base pay, plus longevity pay, incentive pay and overtime.

Final Wages

The average of the monthly wages, excluding overtime pay, on which a Member made contributions to the Pension Fund during the 36-month period preceding retirement.

Member

Any person who has been or becomes enrolled as a fire fighter in the Fire Department of the City of El Paso on or after July 1, 2007.

Credited Service

The time for which a Member contributes to the Pension Fund.

Qualified Spouse

The widow (widower) of a deceased Member.

Qualified Child or Children

The surviving, dependent children under 19 years of age (23 if a full-time student).

Contribution Rates

The active Member contributes 15.28% of their pre-tax wages per year. The City contributes 18.50% of the Member's wages per year (18.00% base contribution plus 0.50% contribution for Members hired after age 29).

Service Retirement Benefits

Normal Retirement Benefit

Eligibility

Age 50 with 25 years of Credited Service.

Benefit

2.50% of Final Wages times years of Credited Service.

Deferred Retirement Benefit

Eligibility

At least 10 years of Credited Service.

Benefit

2.50% of Final Wages for each year of Credited Service. This benefit is payable commencing at age 50, or immediately upon termination of service if at least age 50 at termination.

Schedule B: (continued)

Summary of Benefit Provisions as of January 1, 2016 (continued)

Withdrawal (Refund) of Contributions

Eligibility

5 years of Credited Service.

Benefit

Total employee contributions without interest. No other benefits are payable under the Plan once the contributions are withdrawn.

Survivor Benefits

Qualified Surviving Spouse Benefit

Eligibility

Death of a Member who was active, retired, or eligible for a deferred retirement benefit.

Benefit

75% of Member's earned benefit at date of death, but not less than 50% of Final Wages. If there are qualified surviving children or Member was eligible for a deferred retirement benefit, the surviving spouse's benefit is reduced to 50%.

Qualified Surviving Children Benefit

Eligibility

Death of a Member who was active, retired, or eligible for a deferred retirement benefit.

Benefit

50% of the Member's earned benefit at date of death if there is no surviving spouse. If a surviving spouse is receiving a benefit, the surviving children's benefit is reduced to 25%.

Disability Retirement Benefit

Eligibility

Total and permanent disability from an injury in the line of duty or any injury not due to the Member's own fault.

Benefit

2.50% of Final Wages times Credited Service with a minimum benefit of 50% of Final Wages.

Minimum Benefits

Minimum pension benefit for any retiree or qualified spouse is \$400 per month.

Cost of Living Adjustment

None.

Normal Form of Retirement Benefit

Single Member

Life Annuity

Married Member

75% joint and survivor annuity

Schedule B: (continued)

Summary of Benefit Provisions as of January 1, 2016 (continued)

Back Deferred Retirement Option Program (Back DROP)

Members who are 50 and one half years old and have over 25 and one half years of service can elect the Back DROP. The Back DROP benefit is a lump sum and a reduced monthly benefit. The reduced monthly benefit equals the benefit calculated at the beginning of the Back DROP period. The lump sum equals the number of months in the Back DROP period multiplied by the monthly benefit. The Back DROP period must be at least six months and not more than 36 months. After deducting the period of the Back DROP the member must still have 25 years of credited service for the calculation of their benefit. After June 30, 2019, the option for a member to elect to participate in the Back DROP is discontinued, and no Member may elect to participate in the Back DROP after such date.

Forward Deferred Retirement Option Program (Forward DROP):

Members who are 50 years old and have at least 25 years of service and had not elected to participate in the Back DROP can elect the Forward DROP. The Forward DROP benefit is a lump sum and a reduced monthly benefit at retirement. The reduced monthly benefit equals the benefit calculated at the beginning of the Forward DROP period. The lump sum equals the number of months in the Forward DROP period multiplied by the monthly benefit.

Summary of Changes from January 1, 2014 Valuation

- Changes were made to the Deferred Retirement Option Program effective July 1, 2016, these changes do not impact the January 1, 2016 valuation.

Schedule C:

Summary of Actuarial Methods and Assumptions (Effective as of January 1, 2016)

Basis for Assumptions

The economic and demographic assumptions used in the valuation were adopted by the Board in consultation with Buck Consultants. The Board's established practice is to review the experience of the Fund periodically to determine if any changes to the valuation assumptions are warranted. In general, the assumptions used in the valuation are based on recommendations made and approved by the Board as part of an Experience Study covering plan years from July 1, 2010 through December 31, 2015.

Investment Return

7.75% per annum, compounded annually, net all expenses including administrative expenses. This rate reflects an underlying inflation rate of 3.00% and a real rate of return of 4.75%.

Demographic Assumptions

Representative values of the assumed annual rates of withdrawal and disability are as follows:

Annual Rate per 1,000 Members		
Age	Withdrawal	Disability
20	20.0	1.00
25	20.0	1.00
30	15.0	1.00
35	10.0	1.00
40	10.0	3.00
45	5.0	3.50
50	0.0	3.50
60	N/A	0.00
70	N/A	N/A
80	N/A	N/A

Mortality rates for active and non-disabled participants are based on the RP-2014 employee tables with Blue Collar adjustment projected to 2030 using Scale BB. Mortality rates for disabled participants are based on the RP-2014 Tables for Disabled Lives.

Salary Increases

Representative values of the assumed annual rates of future salary increase attributable to longevity and promotion are as follows:

Years of Service	Annual Rate of Salary Increase
1	12.50%
11	4.60
21	3.50
31	3.00
41	3.00

Schedule C: (continued)

Summary of Actuarial Methods and Assumptions (Effective as of January 1, 2016) (continued)

Total payroll is assumed to increase 3.00% per year. New hires are assumed to replace terminations.

Overtime is assumed to be 4.00% of base, incentive, and longevity pay. The City and Members contribute on total pay including overtime.

Retirement Rates

The percentage of population assumed to retire at various ages is as follows:

The Base Plan

Age	Rate		Age	Rate		Age	Rate
42	5.0%		50	15.0%		58	50.0%
43	10.0		51	20.0		59	50.0
44	10.0		52	20.0		60	50.0
45	12.0		53	20.0		61	50.0
46	15.0		54	30.0		62	50.0
47	15.0		55	30.0		63	100.0
48	15.0		56	50.0			
49	15.0		57	50.0			

The Second-Tier Plan

Age	Rate		Age	Rate
50	40.0%		57	50.0%
51	25.0		58	50.0
52	25.0		59	50.0
53	25.0		60	50.0
54	35.0		61	50.0
55	35.0		62	50.0
56	50.0		63	100.0

Spouses

100% of active members are assumed to be married with the male three years older than the female. No children's benefits were valued because of the assumption that 100% of members are married.

Post Retirement Cost Of Living

3% of pension annually for Members in the Base Plan, as defined in the Summary of Plan Provisions.

Back Drop Election

Participants who meet the eligibility requirements for the Back DROP option are assumed to elect the maximum Back DROP period.

Future Expenses

All expenses, investment and administration, are paid from the Fund. The 7.75% assumed rate of return is net of these expenses.

Schedule C: (continued)

Summary of Actuarial Methods and Assumptions (Effective as of January 1, 2016) (continued)

Valuation Method

The method used to determine Normal Cost and Accrued Actuarial Liability is the Entry Age Normal Cost Method. Under the Entry Age Normal Cost Method, an annual Normal Cost is determined for each covered active Member which is the contribution required to provide all the projected pension benefits assuming this contribution is payable over a period ending on the date of retirement (separation from active service) and expressed as a level percentage of compensation. The Actuarial Accrued Liability is determined as the excess of the total present value of all pension benefits over the total present value of future Normal Costs. The Unfunded Actuarial Accrued Liability as of the valuation date is determined as the excess of the Actuarial Accrued Liability over the assets of the Fund.

The Normal Cost and Accrued Actuarial Liability are derived by making certain assumptions as to the rates of interest, mortality, turnover, etc., which are assumed to reflect experience for many years into the future. Since actual experience will differ from the assumptions, the costs determined must be regarded as estimates of the true costs of the Plan. The effects of any actuarial gains or losses are immediately reflected in the Unfunded Actuarial Accrued Liability and the Normal Cost.

Actuarial Value Of Assets

The actuarial value of assets is calculated based on the following formula:

$$MV - (8/10) \times G/(L)_1 - (6/10) \times G/(L)_2 \\ - (4/10) \times G/(L)_3 - (2/10) \times G/(L)_4$$

where:

MV = the market value of assets as of the valuation date

$G/(L)_i$ = the asset gain or (loss) (i.e., actual return on assets less expected return on assets) for the i-th year preceding the valuation date.

Summary of Changes from January 1, 2014 Valuation

- An experience study covering the six-year period ending December 31, 2015 was presented to the board on July 20, 2016. Pursuant to the recommendations of this experience study, the following valuation assumptions were updated from the January 1, 2014 valuation:

Demographic Assumptions

- Mortality rates for active and non-disabled participants are based on the RP-2014 employee tables with Blue Collar adjustment projected to 2030 using Scale BB. Mortality rates for disabled participants are based on the RP-2014 Tables for Disabled Lives.
- Retirement, disability, and termination rates were adjusted to reflect experience.

Economic Assumptions:

- The assumed payroll growth rate was changed to 3.00% to reflect revised inflation expectations.
- Impact of Changes: Assumptions changed due to the experience study increased the Actuarial Accrued Liability by \$8.1M.

Schedule D:

Glossary of Terms

Following is a glossary of some of the commonly used actuarial terms.

Actuarial Accrued Liability

The portion, as determined by a particular cost method, of the total present value of benefits that is attributable to past service credit.

Actuarial Assumptions

Estimates of future experience with respect to rates of mortality, disability, turnover, retirement rate or rates of investment income and salary increases. Actuarial assumptions (rates of mortality, disability, turnover and retirement) are generally based on past experience, often modified for projected changes in conditions. Economic assumptions (salary increases and investment income) consist of an underlying rate in an inflation-free environment plus a provision for a long-term average rate of inflation.

Actuarial Gain (Loss) or Liability/Asset Experience

A measure of the difference between actual and expected experience based upon a set of actuarial assumptions. Examples include higher than expected salary increases (loss) and a higher return on fund assets than anticipated (gain).

Actuarial Present Value of Future Benefits

Also referred to as the present value of benefits. It is the value, as of a specified date, of an amount payable in the future, where the amount has been adjusted to reflect both the time value of money and the probability that the payment is actually made.

Actuarial Present Value of Future Normal Costs

The value, as of a specified date, of future normal costs, equal to the employer normal cost rate times the actuarial present value of future pay.

Actuarial Present Value of Future Pay

The value, as of a specified date, of future pay where the amount has been adjusted to reflect both the future value of money and the probability that the payment is actually made.

Amortization Rate or UAAL Payment

That portion of the pension plan contribution which is designed to pay off (amortize) the unfunded actuarial accrued liability in a systematic fashion. Equivalently, it is a series of periodic payments required to pay off a debt.

Covered Payroll

The rate of pay as of a specified date adjusted with a half-year salary increase based on the assumed salary increase assumptions.

Entry Age Actuarial Cost Method

This method assumes that the annual costs are the level premiums needed from entry age until retirement age to fund the ultimate retirement benefit. These premiums are expressed as a percentage of salary. The portion of this actuarial present value allocated to a valuation year is called the normal cost.

Schedule D: (continued)

Glossary of Terms (continued)

Funding Policy

The policy for the amounts and timing of contributions to be made by the employer, members and any other sources to provide the benefits promised by the pension plan.

Noneconomic Actuarial Assumptions

Probabilities that members will separate from active service for causes such as retirement, disability, death and withdrawal, as well as rates of post-retirement mortality. The probabilities reflect the experience of the Plan's membership.

Unfunded Actuarial Accrued Liability

The excess of the actuarial accrued liability over the actuarial value of assets.

Vested Benefit

The benefit an employee is entitled to even if the employee separates from active service prior to normal retirement age.



City of El Paso Firemen & Policemen's Pension Fund

2016 Actuarial Valuation
Presentation to the Board

August 2016

Agenda

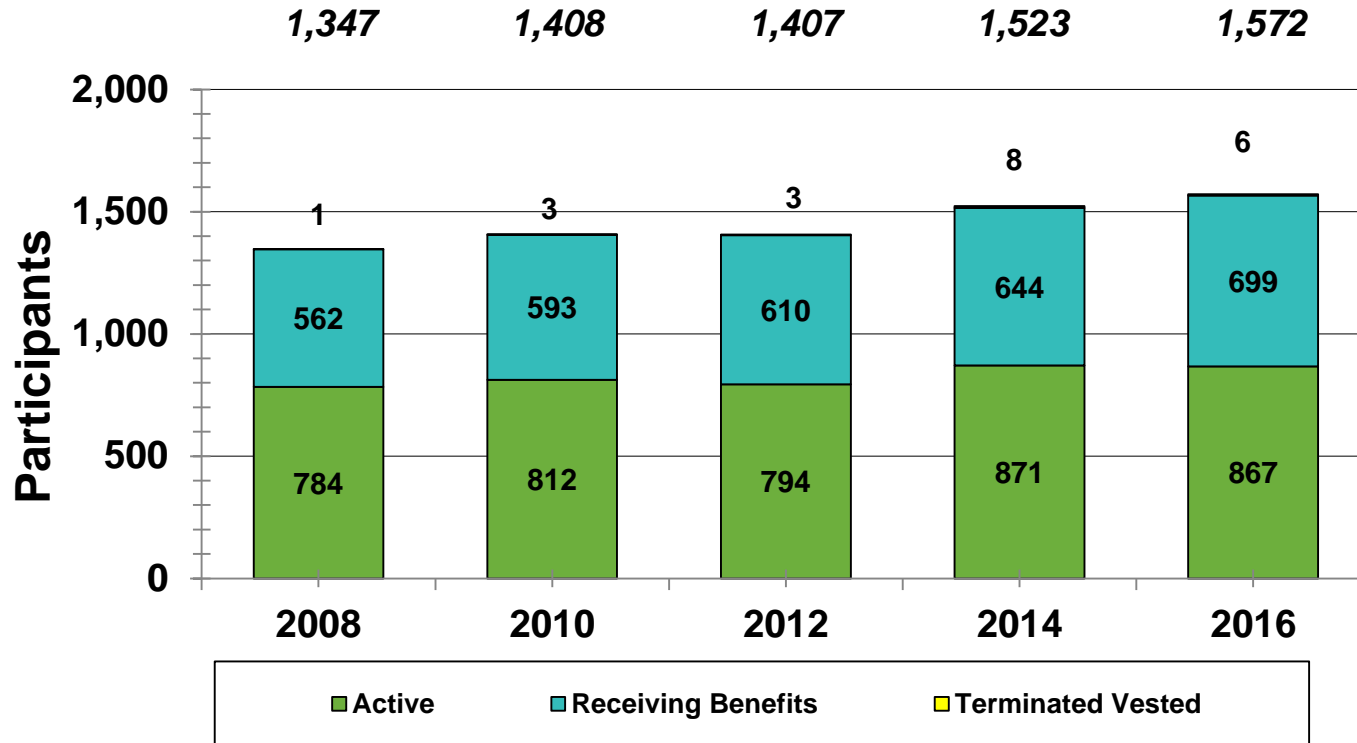
- Major Findings of 2016 Valuation
- Valuation Results
 - Members
 - Assets
 - Funded Status
 - Contributions

Major Findings of 2016 Valuation

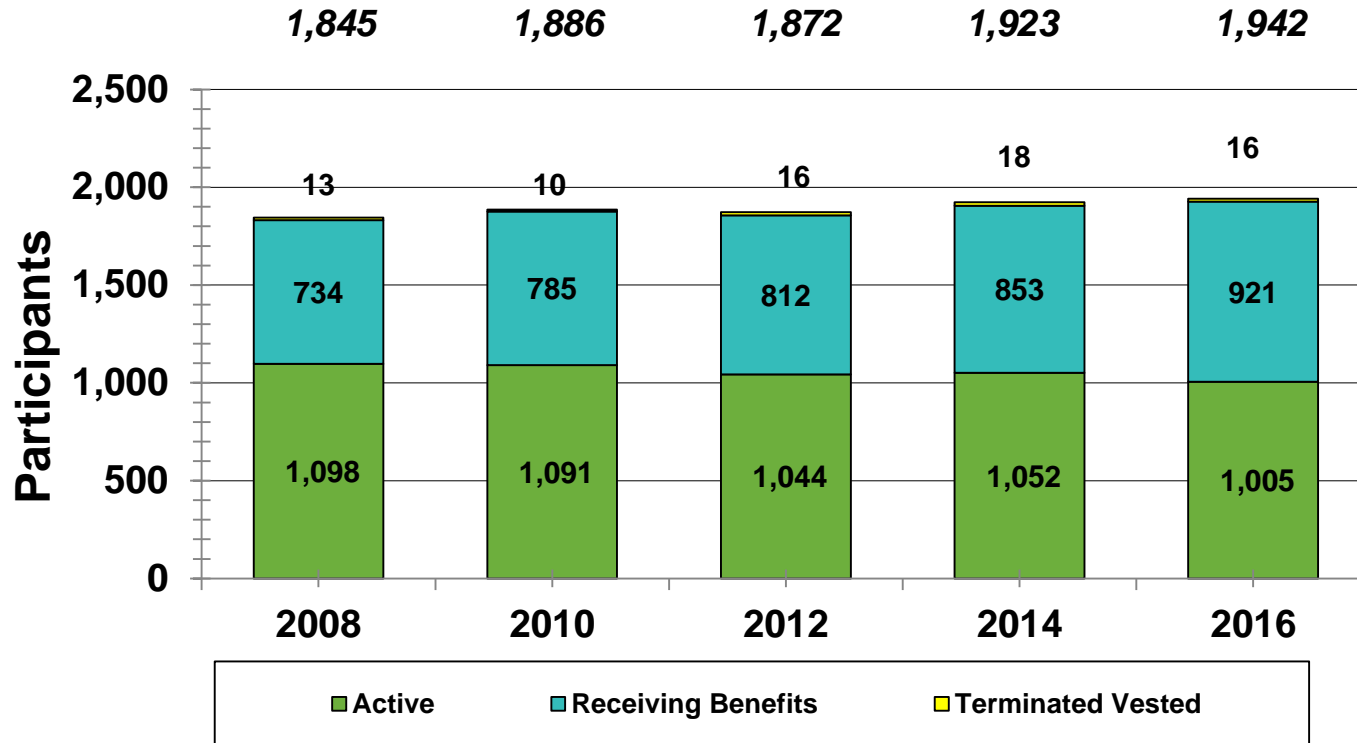
- Based on the same methods as the prior valuation
 - Plan provision changes to Deferred Retirement Option Program effective July 1, 2016
 - No impact since no Future DROP members as of valuation date
- Assumptions updated pursuant to experience study
- Census data as of December 31, 2015
- Funding:

	Funded Ratio		Years to Fund	
Plan/Year	2016	2014	2016	2014
Fire	79.2%	80.7%	26 years	23 years
Police	81.1%	78.2%	33 years	32 years

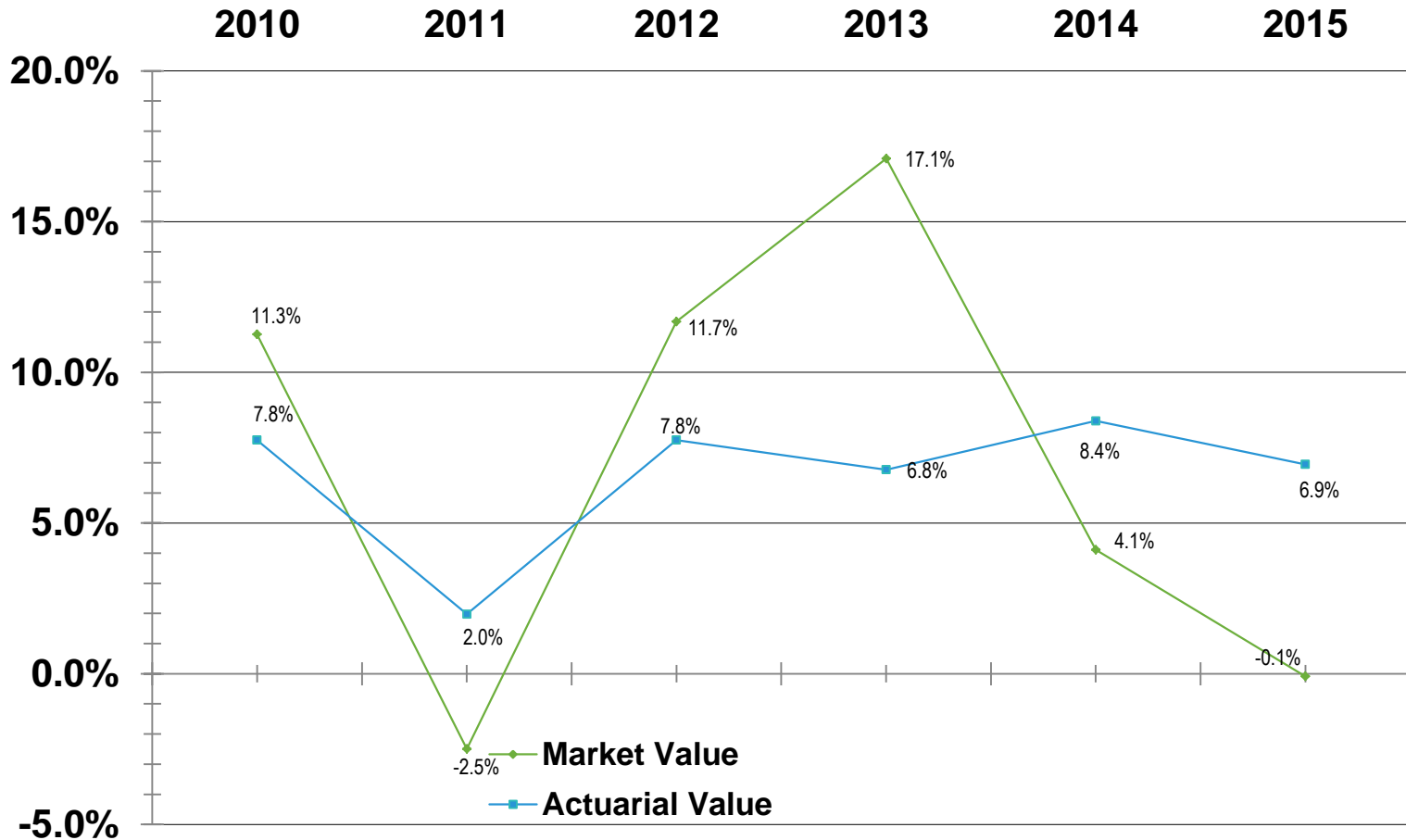
Member Numbers – Fire



Member Numbers – Police

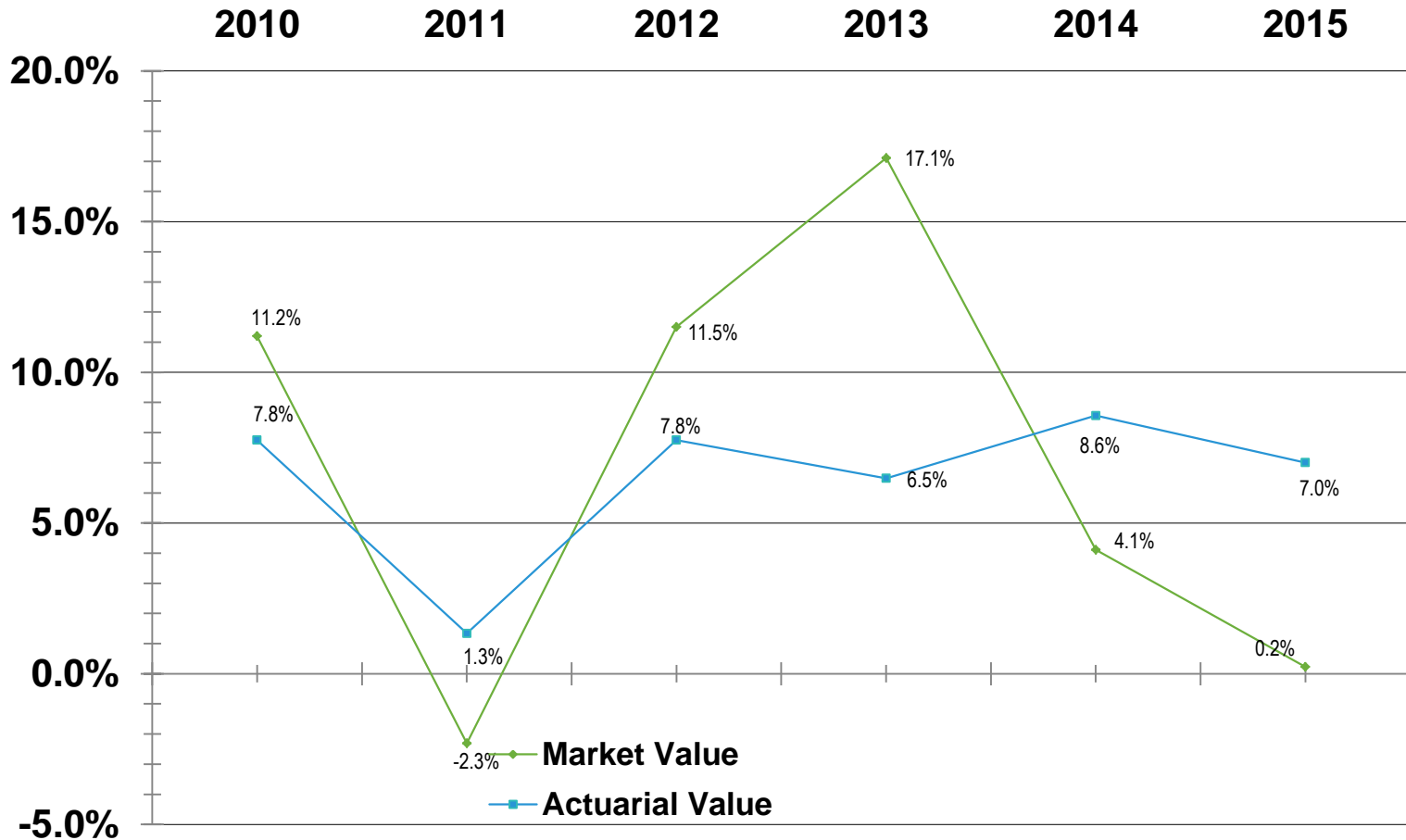


Rates of Return – 7.75% Assumed Return – Fire



- Returns are for the plan year ending December 31.

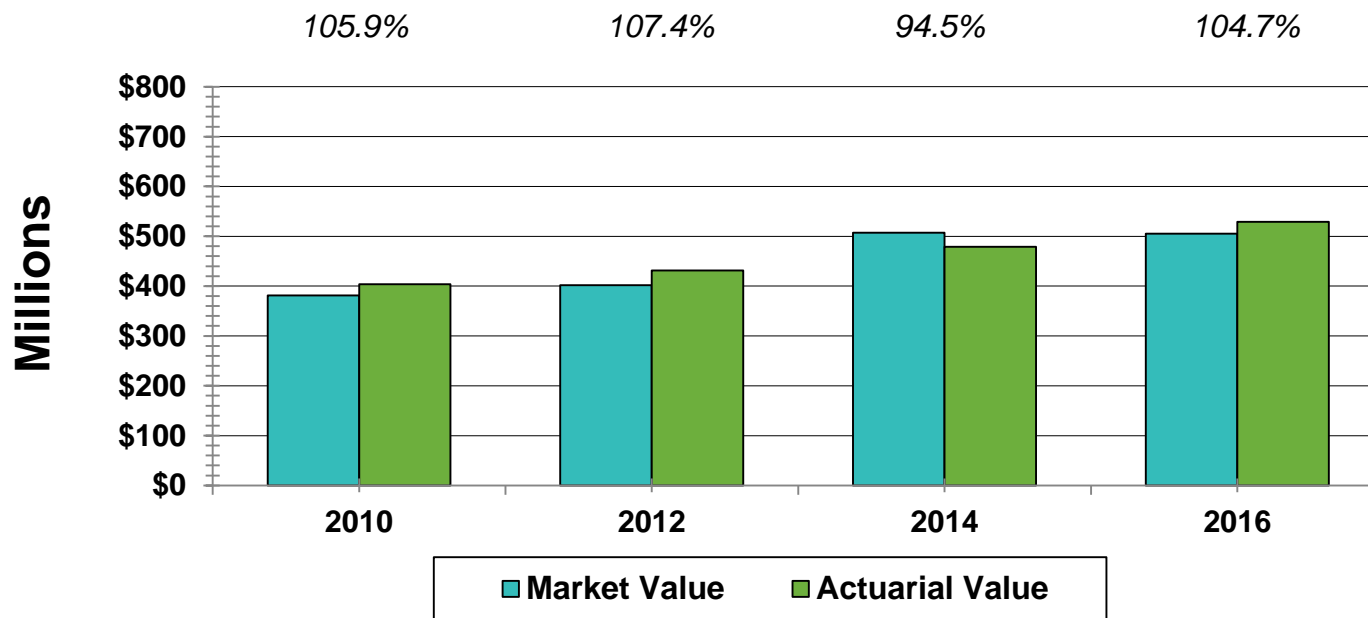
Rates of Return – 7.75% Assumed Return – Police



- Returns are for the plan year ending December 31.

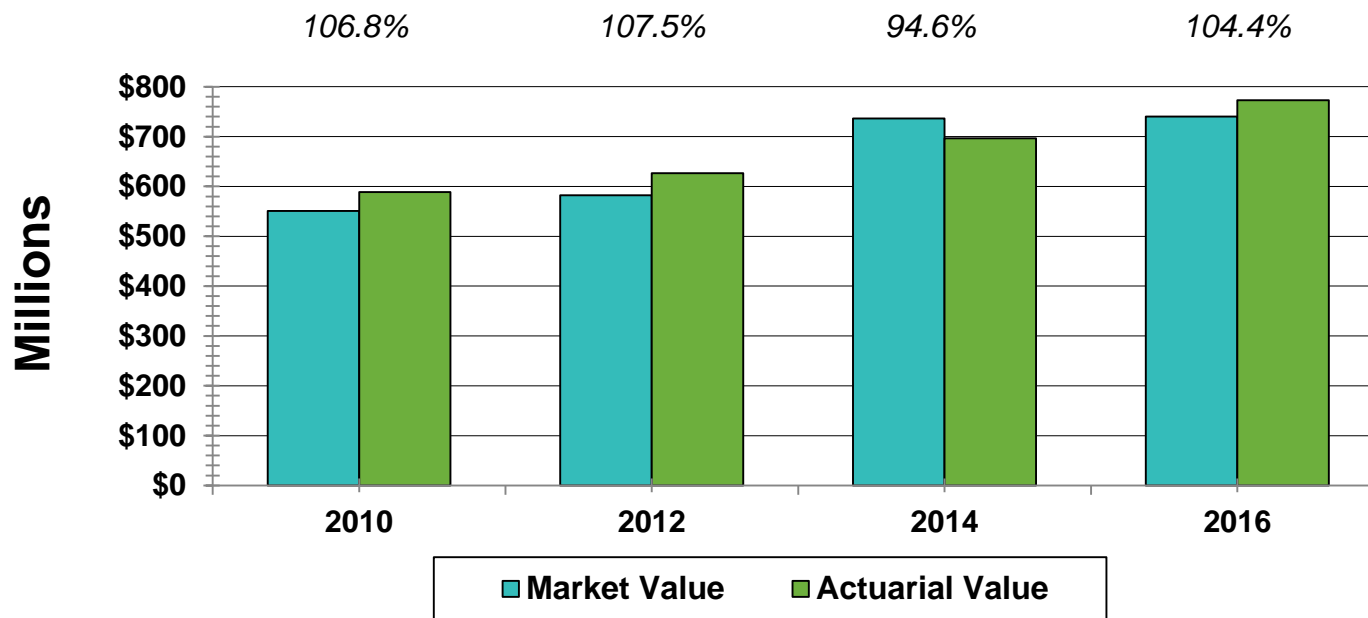
Asset Values – Fire

*Plan Year Ending December 31
(Actuarial Value as a Percent of Market Value)*



Asset Values – Police

*Plan Year Ending December 31
(Actuarial Value as a Percent of Market Value)*



Actuarial Value of Assets – Fire

(\$ thousands)

1. Market Value as of December 31, 2015 \$ 505,210
2. Determination of Deferred Gain/(Loss)

Year	Gain/(Loss)	Percentage Deferred	Amount Deferred
2015	\$ (40,082)	80%	\$(32,066)
2014	(18,269)	60%	(10,962)
2013	40,761	40%	16,305
2012	15,646	20%	<u>3,130</u>
Total			\$(23,593)

3. Actuarial Value as of December 31, 2015 (1) - (2) \$ 528,803

Actuarial Value of Assets – Police

(\$ thousands)

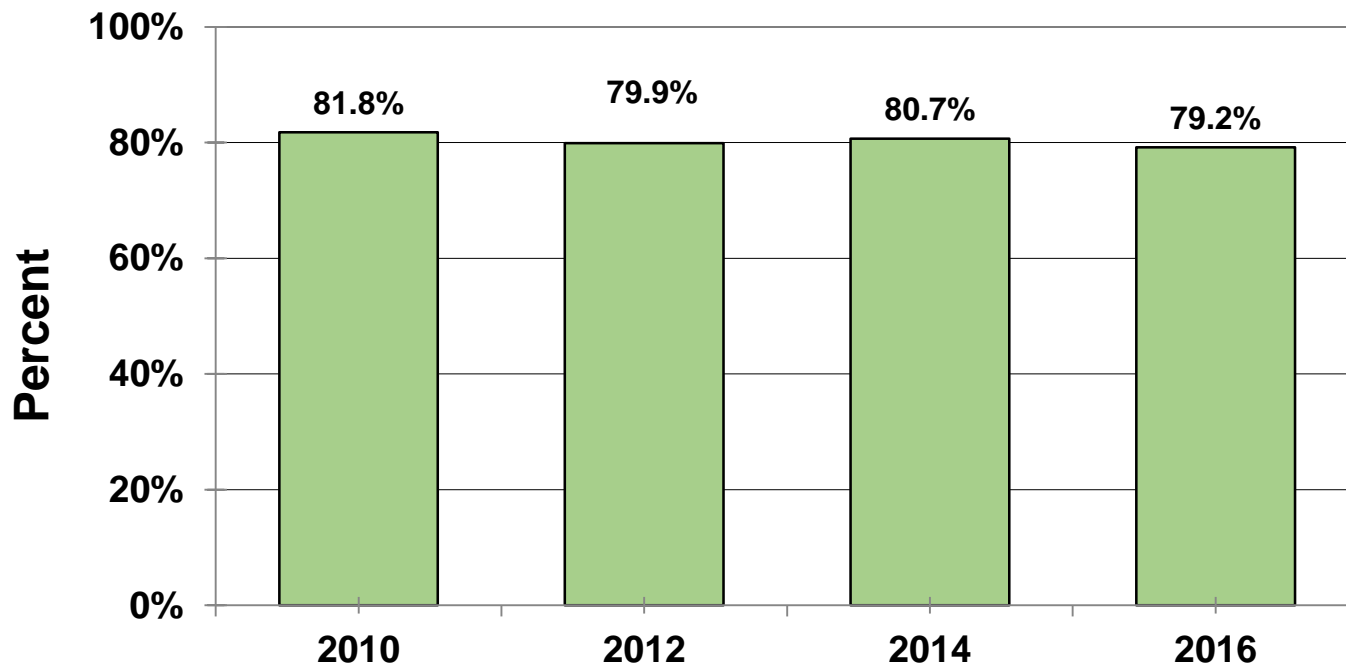
1. Market Value as of December 31, 2015 \$ 740,006
2. Determination of Deferred Gain/(Loss)

Year	Gain/(Loss)	Percentage Deferred	Amount Deferred
2015	\$ (56,072)	80%	\$(44,857)
2014	(26,539)	60%	(15,923)
2013	59,282	40%	23,713
2012	21,709	20%	<u>4,341</u>
Total			\$(32,726)

3. Actuarial Value as of December 31, 2015 (1) - (2) \$ 772,732

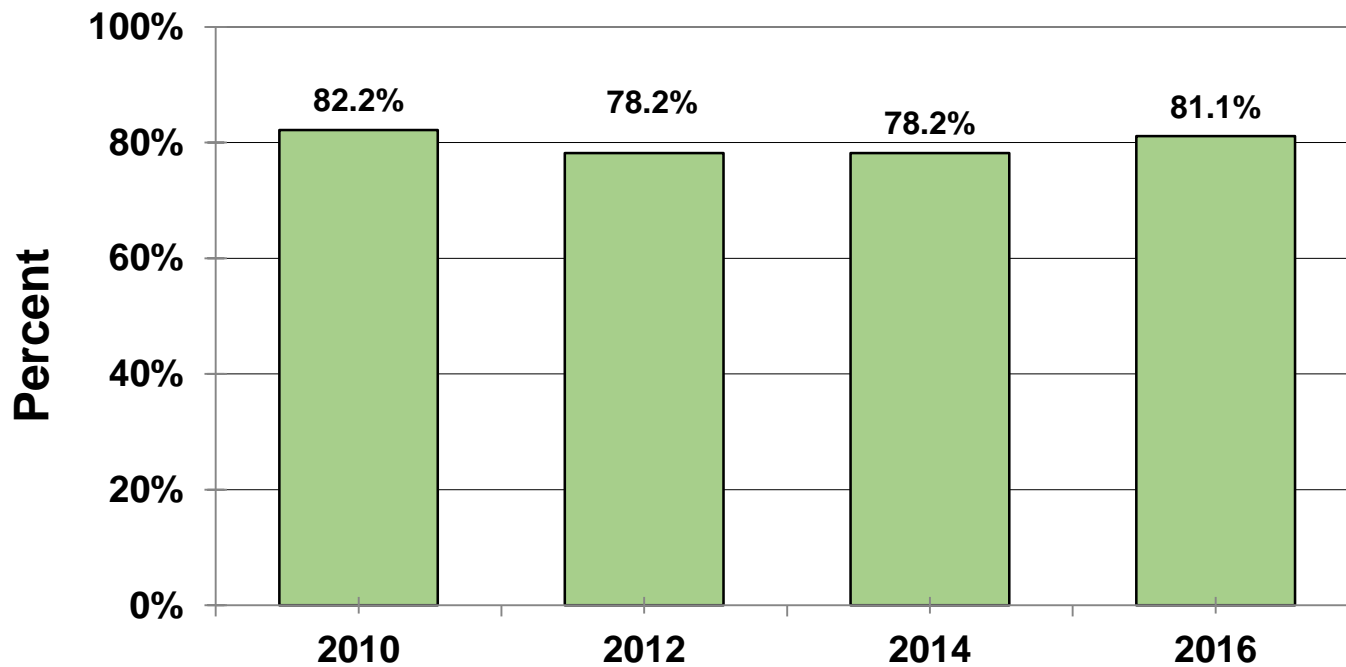
Funded Ratio – Fire

Actuarial Value of Assets as a Percent of Actuarial Accrued Liability



Funded Ratio – Police

Actuarial Value of Assets as a Percent of Actuarial Accrued Liability



Contributions - Fire

As of January 1, 2016	
City Contribution Rate	18.50%
Member Contribution Rate	15.28%
Total	33.78%
Normal Cost Rate *	22.14%
Normal Cost Rate (after adj. for overtime)	21.29%
Member Contribution Rate	15.28%
Employer Normal Cost Rate	6.01%
Employer Amortization Rate	14.83%
Years to Fund	26 years
* Normal Cost Rate for second tier is 17.16%	

Contributions - Police

As of January 1, 2016	
City Contribution Rate	18.50%
Member Contribution Rate	13.89%
Total	32.39%
Normal Cost Rate *	25.35%
Normal Cost Rate (after adj. for overtime)	23.05%
Member Contribution Rate	13.89%
Employer Normal Cost Rate	9.16%
Employer Amortization Rate	14.46%
Years to Fund	33 years
* Normal Cost Rate for second tier is 18.05%	

Certification

Future actuarial measurements may differ significantly from current measurements due to plan experience differing from that anticipated by the economic and demographic assumptions, increases or decreases expected as part of the natural operation of the methodology used for these measurements, and changes in plan provisions or applicable law. An analysis of the potential range of such future differences is beyond the scope of this report.

Use of this report for any other purposes or by anyone other than the Fund and its auditors may not be appropriate and may result in mistaken conclusions because of failure to understand applicable assumptions, methods, or inapplicability of the report for that purpose. Because of the risk of misinterpretation of actuarial results, Buck recommends requesting it to perform an advance review of any statement, document, or filing based on information contained in this report. Buck will accept no liability for any such statement, document or filing made without prior review by Buck.

Certification

The results were prepared under the direction of David Kent who meets the Qualification Standards of the American Academy of Actuaries to render the actuarial opinions contained herein. These results have been prepared in accordance with all applicable Actuarial Standards of Practice, and we are available to answer questions about them.

David Kent, FSA, EA, MAAA
Director, Consulting Actuary