# City of Kansas City, Missouri Firefighters' Pension Plan

Actuarial Valuation as of May 1, 2007

**Produced by Cheiron** 

August 2007

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August 14, 2007

Board of Pension Trustees City of Kansas City, Missouri Firefighters' Pension Plan 12<sup>th</sup> Floor, City Hall 414 East 12<sup>th</sup> Street Kansas City, MO 64106

Dear Members of the Board:

At your request, we have conducted an actuarial valuation of the City of Kansas City, Missouri Firefighters' Pension Plan (KC-FPS) as of May 1, 2007. The results of this valuation are based on the same actuarial assumptions used in the May 1, 2006 valuation, and are organized in this report as follows:

- In Section I, the **Board Summary** we describe the purpose of an actuarial valuation and summarize the key results found in this valuation;
- The **Main Body** of the report presents details on the System's;
  - o Section II Assets
  - Section III Liabilities
  - o Section IV- Contributions
  - Section V- Required Accounting Disclosures (GASB)
- In the **Appendices** we conclude our report with detailed information describing system membership (Appendix A), actuarial assumptions and methods employed (Appendix B), and a summary of pertinent plan provisions (Appendix C).

The results of this report rely on future plan experience conforming to the underlying assumptions. To the extent that actual plan experience deviates from the underlying assumptions, the results would vary accordingly.

In preparing our report, we relied without audit, on information supplied by KC-FPS staff. This information includes, but is not limited to, plan provisions, employee data, and financial information. In addition, we certify that, to the best of our knowledge, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices which are consistent with the Code of Professional Conduct and applicable Actuarial Standards of Practice as set out by the Actuarial Standards Board.

Finally, as a Member of the American Academy of Actuaries, I, Gene Kalwarski, certify that I meet the Qualification Standards to render the opinions contained herein.

Sincerely, Cheiron

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Gene Kalwarski, FSA Consulting Actuary

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Katie Dobbs, ASA Assistant Actuary

#### SECTION I BOARD SUMMARY

The primary purpose of the actuarial valuation and this report is to measure, describe and identify as of the valuation date:

- The financial condition of the Plan,
- Past and expected trends in the financial progress of the Plan,
- The City's contributions for Fiscal Year 2008, and
- Information required by the Governmental Accounting Standards Board (GASB).

In the balance of this Board Summary we present (A) the basis upon which this year's valuation was completed, (B) the key findings of this valuation including a summary of all key financial results, (C) an examination of the historical trends, and (D) the projected financial outlook for the System.

### A. Valuation Basis

This valuation represents Cheiron's first valuation performed for KC-FPS. Before completing this valuation, it was necessary to recalculate the prior year's valuation performed by the prior actuary and be able to replicate those results within tolerable limits. Our recalculation produced costs and liabilities within 0.9% of the prior valuation results. This is well within the range of permitted tolerance required by the IRS (5%) for matching a prior actuary's valuation work in the private sector.

Our next step in performing the May 1, 2006 valuation was to evaluate the methods and assumptions used and benefits valued in the prior valuation. In making this evaluation we considered the following:

- Our independent assessment of the reasonableness of the actuarial assumptions and methods,
- Whether the methods and assumptions used would produce annual required contributions (ARC) meeting the parameters set forth by GASB Statement No. 25, and
- Whether the methods and assumptions are reasonable when compared to other similar large public sector retirement systems.

Our analyses of these factors lead us to conclude and recommend to the Board that this May 1, 2007 actuarial valuation be performed on the same basis as the May 1, 2006 valuation.



#### SECTION I BOARD SUMMARY

# **B.** Key Findings of this Valuation

The key results of the May 1, 2007 actuarial valuation are as follows:

- The actuarially determined City contribution rate decreased from 20.03% as of May 1, 2006 to 17.67% as of May 1, 2007. The actual rate that the City is scheduled to use for Fiscal Year 2008 however is 19.60% of payroll.
- The FPS's unfunded actuarial liability decreased from \$53 million on May 1, 2006 to \$36 million on May 1, 2007.
- The FPS's funding ratio, the ratio of assets over liabilities increased from 87.9% to 92.1% as of May 1, 2007.
- The primary factors in the improvement in the plan's funded status was an overall experience gain of \$18 million.
  - During the year ended April 30, 2007, the Plan's assets earned 10.58% on a market value basis. The return on the actuarial asset value (i.e. incorporating asset smoothing) was 10.86% (as compared to 8.00% assumed). This resulted in an actuarial gain on investments of \$11 million.
  - On the liability side the System experienced an actuarial gain of \$7 million. This gain would be attributable to assumptions made on pay increases and rates of mortality, retirement, disability and withdrawal.

Following is Table I-1 which summarizes all the key results of the valuation with respect to system membership, assets and liabilities, and contributions. The results are presented and compared for both the current and prior plan year.



### SECTION I BOARD SUMMARY

City of Kansas City, Missouri Firefighters' Pension Plan Summary of Principal Plan Results						
Valuation as of:		fay 1, 2006		fay 1, 2007	% Change	
Participant Counts						
Active Participants		908		928	2.20%	
Disabled Participants		245		250	2.04%	
Retirees and Beneficiaries		647		624	(3.55%)	
Terminated Vested Participants		0		0	0.00%	
Inactive Participants		11		9	(18.18%)	
Total		1,811		1,811	0.00%	
Annual Salaries of Active Members	\$	47,022,072	\$	49,420,823	5.10%	
Annual Retirement Allowances for Retired Members and Beneficiaries	\$	23,090,724	\$	23,705,813	2.66%	
Assets and Liabilities						
Actuarial Liability (AL)	\$	434,033,285	\$	447,939,116	3.20%	
Actuarial Value of Assets		381,404,249		412,407,949	8.13%	
Unfunded Actuarial Liability (UAL)		52,629,036		35,531,167	(32.49%)	
Funded Ratio		87.9%		92.1%		
Present Value of Accrued Benefits (PVAB) <sup>1</sup>		N/A	\$	423,701,959	N/A	
Market Value of Assets	_	423,782,498		458,231,054	8.13%	
Unfunded PVAB <sup>1</sup>		N/A		(34,529,095)	N/A	
Accrued Benefit Funding Ratio <sup>1</sup>		N/A		108.1%	N/A	
Contributions as a Percentage of Payroll	Fise	cal Year 2007	Fisc	al Year 2008		
Normal Cost Contribution		13.03%		13.17%		
Unfunded Actuarial Liability Contribution		7.00%		4.50%		
Total City Contribution		20.03%		17.67%		

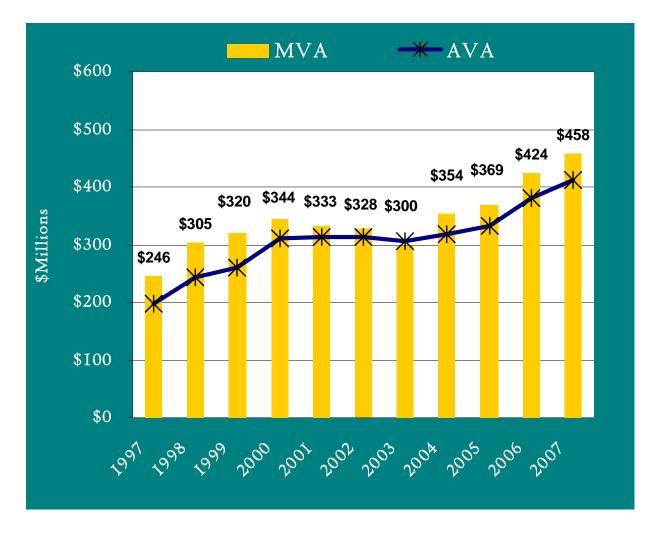
<sup>&</sup>lt;sup>1</sup> PVAB not available for prior plan year

#### SECTION I BOARD SUMMARY

# **C. Historical Trends**

Despite the fact that for most retirement systems the greatest attention is given to the current valuation results and in particular the size of the current unfunded actuarial liability and the City's contribution, it is important to remember that each valuation is merely a snapshot in the long-term progress of a pension fund. It is more important to judge a current year's valuation result relative to historical trends, as well as trends expected into the future.

#### System Assets



The market value of assets (MVA) continues to rebound since the market slide of 2000-2002. Due to the asset smoothing method in place, the actuarial value of assets has tracked a much smoother path through those volatile years. As can be seen in the graph, the actuarial value of assets (AVA) is greater than market value (MVA) during the down investment years and the reverse in strong investment periods.



#### SECTION I BOARD SUMMARY

#### Assets and Liabilities



The above chart compares the actuarial value of assets to the actuarial liabilities as well as the funded ratio, sometimes referred to as the benefit security ratio. This chart shows that the Plan now has the highest funded ratio since 2001.



#### SECTION I BOARD SUMMARY

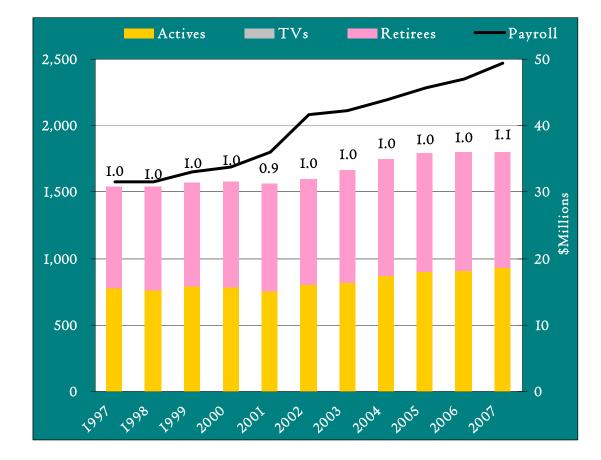
#### **Contribution Rates**

The stacked bars in this graph show the dollar amount of contributions made by the City and the members (depicted on the left hand scale) since Fiscal Year Ending 2000. The green line shows the City's actuarial contribution rate as a percent of payroll (depicted on the right hand scale). The black line shows the City's scheduled contribution rate as a percent of payroll (depicted on the right hand scale). The member contribution rate is set by the City law at 9.55% of payroll. The City contribution rate is currently scheduled to be 19.60% of payroll.





#### SECTION I BOARD SUMMARY



#### **Participant Trends**

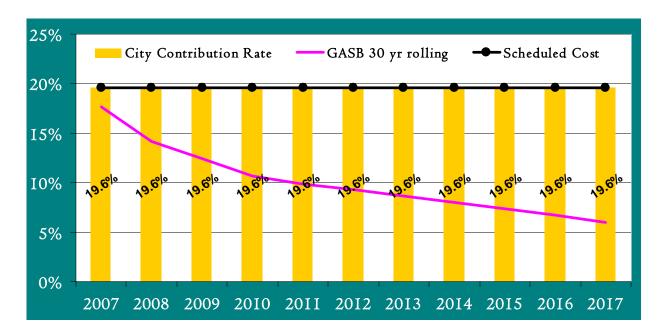
This next chart provides a measure for the maturity in the plan, by comparing the ratio of active members to inactive members (retirees and terminated vesteds). As with many funds in this country, there has been a steady growth in the number of retired members as the Plan has matured. The active-to-inactive ratio has increased since 2001 from 0.9 actives supporting each inactive member to 1.1 actives supporting each inactive member today.



#### SECTION I BOARD SUMMARY

# **D.** Future Expected Financial Trends

The analysis of projected financial trends is perhaps the most important component of this valuation. In this Section, we present our assessment of the implications of the May 1, 2007 valuation results in terms of benefit security (assets over liabilities). As far as the City's scheduled cost progression, the employer's rate is projected, under each scenario, to be the same regardless of the investment return scenario.



#### **Contribution Rate Projections:**

Our projections of assets to liabilities which follow are shown on three different bases, expected investment returns of 8.0%, the current assumed rate, returns of 9.50%, and returns of 6.50%.



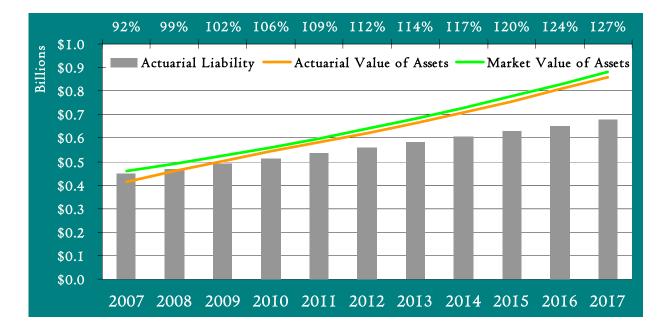
#### SECTION I BOARD SUMMARY

#### 92% 98% 101% 104% 106% 106% 107% 108% 109% 110% 111% \$1.0 Billions Actuarial Liability — Actuarial Value of Assets — Market Value of Assets \$0.9 \$0.8 \$0.7 \$0.6 \$0.5 \$0.4 \$0.3 \$0.2 \$0.I \$0.0 2007 2008 2009 2010 2011 2012 2013 2014 2015 2016 2017

#### Asset and Liability Projections: Baseline 8.0% return

The graph above shows the projected funding status increasing over 100% over the next 10 years.

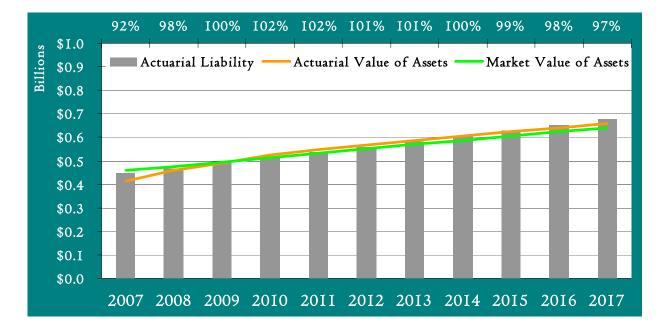
#### **Projections With Asset Returns of 9.5%**



With superior returns of 9.5% each year, the Plan would reach 127% funding by 2017.



#### SECTION I BOARD SUMMARY



#### **Projections With Asset Returns of 6.5%**

Despite earnings of only 6.5%, this projection still shows an increase in the Plan's funded status from the current 92% up to 97% by the end of the period. The key driver of this result is that the scheduled contributions being projected remain unchanged regardless of the investment scenario.



#### SECTION II ASSETS

Pension Plan assets play a key role in the financial operation of the Plan and in the decisions the Trustees may make with respect to future deployment of those assets. The level of assets, the allocation of assets among asset classes, and the methodology used to measure assets will likely impact upon benefit levels, City contributions, and the ultimate security of participants' benefits.

In this section, we present detailed information on Plan assets including:

- **Disclosure** of Plan assets as of May 1, 2006 and May 1, 2007;
- Statement of the **changes** in market values during the year;
- Development of the Actuarial Value of Assets;
- An assessment of **investment performance**; and
- A projection of the Plan's expected **cashflows** for the next ten years.

# Disclosure

There are two types of asset values disclosed in the valuation, the market value of assets and the actuarial value of assets. The market value represents "snap-shot" or "cash-out" values which provide the principal basis for measuring financial performance from one year to the next. Market values, however, can fluctuate widely with corresponding swings in the marketplace. As a result, market values are usually not as suitable for long-range planning as are the actuarial value of assets which reflect smoothing of annual investment returns.

Table II-1 below discloses and compares each asset value as of May 1, 2006 and 2007.

TABLE II-1Statement of Assets at Market Value, May 1.							
2006 2007							
Assets							
Cash	\$	11,090,667	\$	10,636,157			
Stock and Collective Trusts		415,310,456		450,026,168			
Accounts Receivable		2,653,482		1,625,072			
Interest and Dividends		146,335		165,154			
Contributions Received		418,988		469,354			
Expenses		(525,097)		(1,053,725)			
Purchase of Investments		(3,513,913)		(1,866,318)			
Health Assets		(1,798,420)		(1,770,808)			
Market Value of Assets	\$	423,782,498	\$	458,231,054			



#### SECTION II ASSETS

# **Changes in Market Value**

Table II-2 below shows the components of change between the market value of assets as of May 1, 2006 and May 1, 2007.

TABLE II-2 Changes in Market Values					
Value of Assets – May 1, 2006		\$	423,782,498		
Additions					
Member Contributions	4,579,055				
Employer Contributions	9,466,685				
Interest and Dividends	2,750,067				
Investment Return	44,175,226				
Total Additions	60,971,033				
Deductions					
Benefit Payments	(23,928,242)				
Administrative Expenses	(2,594,235)				
Total Deductions	(26,522,477)				
Value of Assets – May 1, 2007		\$	458,231,054		



#### SECTION II ASSETS

# **Actuarial Value of Assets**

The next table, Table II-3 shows how the actuarial value of assets are developed.

A preliminary actuarial value of assets is calculated as the sum of the beginning of the year actuarial value of assets, the net new money and the expected return on an actuarial basis. The gains and losses over the last 4 years are recognized over the next 5 year period. The gain or loss of each year is the excess of market value of assets over the preliminary value of assets, minus the sum of the unrecognized gains and losses from each of the 4 years. Finally, an adjustment is made so that the final actuarial value of assets is within 10% corridor of market value.

	TABLE II-3         Development of Actuarial Value of Assets						
1.	Actuarial Value of Assets at	t May	1,2006		\$	381,404,249	
2.	Employer Contributions				\$	14,045,740	
3.	Benefit Payments					(23,928,242)	
4.	Expenses					(2,594,235)	
5.	Net Cash Flow (2+3+4)				\$	(12,476,737)	
6.	Expected Value of investme	ent ret	urn at 8.00%			30,022,871	
7.	Actual investment return on	Mark	tet Value			44,331,058	
8.	Investment gain/(loss) for th	ne yea	r (7-6)		\$	14,308,187	
9.	Investment gain/(loss) from	curre	nt and prior years to	be recognized			
	in the plan year ending Apri	1 30, 2	2007				
			Total Gain/	Deferral		Deferred to	
	Plan Year End		(Loss)	Percentage		Future Years	
	April 30, 2007	\$	14,308,187	80%	\$	11,446,549	
	April 30, 2006		36,535,226	60%		21,921,136	
	April 30, 2005		(1,944,981)	40%		(777,992)	
	April 30, 2004		70,114,301	20%		14,022,860	
	April 30, 2003		(43,964,235)	0%		0	
	Total	\$	75,048,498		\$	46,612,553	
10.	Market Value of Assets for	\$	458,231,054				
11.	Preliminary Actuarial Value	7 (10 - 9 deferred):		411,618,501			
12.	110% of MV, Upper Limit		504,054,159				
13. 90% of MV, Lower Limit for Actuarial Value						412,407,949	
14.	Actuarial Value of Assets	on Ma	ay 1, 2007		\$	412,407,949	



#### SECTION II ASSETS

# **Investment Performance**

The market value of assets (MVA) returned 10.58% during 2007, which is greater than the assumed 8.00% return. A return of 10.86% on the actuarial value of assets (AVA) is primarily the result of the asset smoothing method being utilized for the calculation of the actuarial value of assets.

### **Projection of Plan's Future Cash Flows**

Projection of Plan's Benefit Payments							
Expected BenefitExpectedYear Beginning May 1,PaymentsContributions*Net Cash Flow							
2007	\$ (25,699,215)	\$ 14,406,170	\$ (11,293,045)				
2008	(26,985,800)	14,838,355	(12,147,445)				
2009	(28,586,507)	15,283,506	(13,303,001)				
2010	(29,855,527)	15,742,011	(14,113,516)				
2011	(30,979,622)	16,214,271	(14,765,351)				
2012	(32,006,610)	16,700,699	(15,305,911)				
2013	(32,977,657)	17,201,720	(15,775,937)				
2014	(34,009,825)	17,717,772	(16,292,053)				
2015	(35,202,440)	18,249,305	(16,953,135)				
2016	(36,678,671)	18,796,784	(17,881,887)				

\* Expected contributions include City contributions and Member contributions. For illustration purposes, we have assumed the City contribution rate will be based on the scheduled contribution rates and that payroll will increase at the actuarially assumed rate of 3.00% per year.



#### SECTION III LIABILITIES

In this section, we present detailed information on Plan liabilities including:

- **Disclosure** of Plan liabilities at May 1, 2006 and May 1, 2007;
- Statement of **changes** in these liabilities during the year.

### **Disclosure**

Several types of liabilities are calculated and presented in this report. Each type is distinguished by the people ultimately using the figures and the purpose for which they are using them.

- **Present Value of All Future Benefits:** Used for measuring all future System obligations, represents the amount of money needed today to fully pay off all benefits of the System both earned as of the valuation date and those to be earned in the future by current plan participants, under the current Plan provisions.
- Actuarial Liability: Used for funding calculations and GASB disclosures, this liability is calculated taking the Present Value of Benefits and subtracting the present value of future Member Contributions and future Employer Normal Costs under an acceptable actuarial funding method. This method is referred to as the Entry Age Normal funding method.
- **Present Value of Accrued Benefits:** Used for communicating the current level of liabilities, this liability represents the total amount of money needed today to fully pay off the current accrued obligations of the Plan, assuming no future accruals of benefits. These liabilities are also required for accounting purposes (FAS 35) and used to assess whether the Plan can meet its current benefit commitments.

Table III-1 which follows discloses each of these liabilities for the current and prior valuations. With respect to each disclosure, a subtraction of the appropriate value of Plan assets yields, for each respective type, a **net surplus** or an **unfunded liability**.



# SECTION III LIABILITIES

TABLE III-1							
Liabilities/Net (Surplus)/	'Unfu	nded					
May 1, 2006 May 1, 2007							
Present Value of Future Benefits							
Active Participant Benefits	\$	280,398,171	\$	292,899,506			
Retiree and Inactive Benefits	_	263,498,745	_	268,351,609			
Present Value of Future Benefits (PVB)	\$	543,896,916	\$	561,251,115			
Actuarial Liability							
Present Value of Future Benefits (PVB)	\$	543,896,916	\$	561,251,115			
Present Value of Future Normal Costs (PVFNC)		109,863,631		113,311,999			
Actuarial Liability (AL = PVB – PVFNC)		434,033,285		447,939,116			
Actuarial Value of Assets (AVA)		381,404,249		412,407,949			
Net (Surplus)/Unfunded (AL – AVA)	\$	52,629,036	\$	35,531,167			
Present Value of Accrued Benefits <sup>1</sup>							
Present Value of Future Benefits (PVB)		N/A	\$	561,251,115			
Present Value of Future Benefit Accruals (PVFBA)		N/A		137,549,156			
<b>Present Value of Accrued Benefits (PVAB=PVB-PVFBA)</b>		N/A		423,701,959			
Market Value of Assets (MVA)		423,782,498		458,231,054			
Net Unfunded/(Surplus)		N/A	\$	(34,529,095)			



<sup>&</sup>lt;sup>1</sup> PVAB not available for the prior year

### SECTION III LIABILITIES

# **Changes in Liabilities**

Each of the Liabilities disclosed in the prior table are expected to change at each valuation. The components of that change, depending upon which liability is analyzed, can include:

- New hires since the last valuation
- Benefits accrued since the last valuation
- Plan amendments increasing benefits
- Passage of time which adds interest to the prior liability
- Benefits paid to retirees since the last valuation
- Participants retiring, terminating, or dying at rates different than expected
- A change in actuarial or investment assumptions
- A change in the actuarial funding method

Unfunded liabilities will change because of all of the above, and also due to changes in Plan assets resulting from:

- Employer contributions different than expected
- Investment earnings different than expected
- A change in the method used to measure plan assets

In each valuation, we report on those elements of change which are of particular significance, potentially affecting the long-term financial outlook of the Plan. Below we present key changes in liabilities since the last valuation.

In the table that follows, we show the components of change in the actuarial liability between May 1, 2006 and May 1, 2007.

IABLE III-2				
	Actuarial Liability			
Liabilities May 1, 2006	\$ 434,033,285			
Liabilities May 1, 2007	447,939,116			
Liability Increase (Decrease)	13,905,831			
Change Due to:				
Plan Amendments	0			
Actuarial (Gain)/Loss	(7,563,514)			
Benefits Accumulated and Other				
Sources	21,469,345			

 TABLE III-2

#### SECTION IV CONTRIBUTIONS

In the process of evaluating the financial condition of any pension plan, the actuary analyzes the assets and liabilities to determine what level (if any) of contributions is needed to properly maintain the funding status of the Plan. Typically, the actuarial process will use a funding technique that will result in a pattern of contributions that are both stable and predictable.

For this Plan, the funding method employed is the **Entry Age Actuarial Cost Method**. Under this method, there are two primary components to the total contribution: the **normal cost rate** (**employee and employer**), and the **unfunded actuarial liability rate** (UAL rate). The normal cost rate is determined in the following steps. First, for a typical new entrant an individual normal cost rate is determined by taking the value, as of entry age into the plan, of that member's projected future benefits. This value is then divided by the value, also at entry age, of the member's expected future salary. Finally, the total normal cost rate is reduced by the member contribution rate to produce the employer normal cost rate.

The unfunded actuarial liability is amortized over an open 30-year period as a level percentage of payroll, recognizing monthly payments. Payroll is expected to increase 3.0% per year.

Table IV-1 below presents and compares the employer contribution rates for the Plan for this valuation and the prior one.

Table IV-1 Employer Contribution Rate					
	May 1, 2006	May 1, 2007			
Entry Age Normal Cost Rate	13.03%	13.17%			
Amortization Payment	7.00%	4.50%			
Actuarially Determined Contribution	20.03%	17.67%			



# SECTION IV CONTRIBUTIONS

TABLE IV-2 Development of Plan Contribution Rate as of May 1, 2007	
	As % of Payroll
1. Normal Cost (Monthly):	
a. Total Normal Cost	22.72%
b. Expected Members Contribution	9.55%
c. Employer Paid Normal Cost (a) – (b)	13.17%
2. Amortization of Unfunded Liability	
a. Actuarial Liability	\$ 447,939,116
b. Actuarial Value of Assets	412,407,949
c. Unfunded Liability (a) – (b)	\$ 35,531,167
d. Amortization of Unfunded Liability	4.50%
3. Total Employer Contribution Rate (1) + (2d)	17.67%
4. Scheduled City Contributions (19.6% of payroll)	19.60%



#### SECTION V ACCOUNTING STATEMENT INFORMATION

Statement No. 35 of the Financial Accounting Standards Board requires the Plan to disclose certain information regarding its funded status. Statement No. 25 of the Governmental Accounting Standards Board (GASB) establishes standards for disclosure of pension information by public employee retirement systems (PERS) and governmental employers in notes to financial statements and supplementary information.

The FASB-35 disclosures provide a quasi "snap shot" view of how the Plan's assets compare to its liabilities if contributions stopped and accrued benefit claims had to be satisfied. However, due to potential legal requirements and the possibility that alternative interest rates would have to be used to determine the liabilities, these values may not be a good indication of the amount of money it would take to buy the benefits for all members if the Plan were to terminate.

The GASB-25 actuarial liability is the same as the actuarial liability amount calculated for funding purposes.

Both the present value of accrued benefits (FASB-35) and the actuarial liability (GASB-25) are determined assuming that the Plan is on-going and participants continue to terminate employment, retire, etc., in accordance with the actuarial assumptions. Liabilities are discounted at the assumed valuation interest rate of 8% per annum.

FASB Statement No. 35 specifies that a comparison of the present value of accrued (accumulated) benefits with the market value of the assets as of the valuation date must be provided. GASB Statement No. 25 requires the actuarial liability be compared with the actuarial value of assets for funding purposes. The relevant amounts as of May 1, 2007 are exhibited in Table V-1. Finally, Table V-2 reconciles the FASB-35 liabilities determined as of the prior valuation, May 1, 2006, to the liabilities as of May 1, 2007.

Tables V-3 through V-5 are exhibits to be used with the City CAFR report. Table V-3 is the Note to Required Supplementary Information, Table V-4 is a history of gains and losses in Actuarial Liability, and Table V-5 is the Solvency Test which shows the portion of Actuarial Liability covered by Assets.



#### SECTION V ACCOUNTING STATEMENT INFORMATION

	Table V-1						
		Accounting Statement In		mation May 1, 2006		May 1, 2007	
A.		<b>ASB No. 35 Basis</b> Present Value of Benefits Accrued and Vested to Date <sup>1</sup>		•			
		<ul><li>a. Members Currently Receiving Payments</li><li>b. Former Vested Members</li><li>c. Active Members</li></ul>		N/A N/A N/A	\$	267,977,444 374,165 155,350,350	
	2.	Total Present Value of Accrued Benefits $(1 (a) + 1(b) + 1(c))$		N/A	\$	423,701,959	
	3.	Assets at Market Value		423,782,498		458,231,054	
	4.	Unfunded Present Value of Accrued Benefits $(2-3)$		N/A	\$	(34,529,095)	
	5.	Ratio of Assets to Present Value of Benefits (3 / 2)		N/A		108.1%	
B.	G	ASB No. 25 Basis					
	1.	Actuarial Liabilities for retirees and beneficiaries currently receiving benefits and terminated employees not yet receiving benefits	\$	263,498,745	\$	268,351,609	
	2.	Actuarial Liabilities for current employees		170,534,540		179,587,507	
	3.	Total Actuarial Liability (1 + 2)	\$	434,033,285	\$	447,939,116	
	4.	Net Actuarial Assets available for benefits		381,404,249		412,407,949	
	5.	Unfunded Actuarial Liability (3 – 4)	\$	52,629,036	\$	35,531,167	

<sup>&</sup>lt;sup>1</sup> PVAB is not available for prior year.

#### SECTION V ACCOUNTING STATEMENT INFORMATION

Table V-2 Statement of Changes in Total Actuarial Present Value of All Accrued Benefits	
	Accumulated Benefit Obligation (FASB 35)
Actuarial Present Value of Accrued Benefits at April 30, 2006 <sup>1</sup>	N/A
Increase (Decrease) During Years Attributable to:	
Passage of Time	N/A
Benefit Paid – FY 2006	(24,252,945)
Benefits Accrued, Other Gains/Losses	9,359,547
Net Increase (Decrease)	N/A
Actuarial Present Value of Accrued Benefits at April 30, 2007	423,701,959

<sup>&</sup>lt;sup>1</sup> 2006 PVAB information is not available



#### SECTION V ACCOUNTING STATEMENT INFORMATION

# Table V-3NOTE TO REQUIRED SUPPLEMENTARY INFORMATION

The information presented in the required supplementary schedules was determined as part of the actuarial valuation at the date indicated. Additional information as of the latest actuarial valuation follows.

Valuation date	May 1, 2007
Actuarial cost method	Entry age
Amortization method	Open 30-year amortization, level percent
Remaining amortization period	30 years
Asset valuation method	5-Year smoothed market
Actuarial assumptions: Investment rate of return Projected salary increases Cost-of-living adjustments	8.0% 3.0% 3.0% simple

The actuarial assumptions used have been recommended by the actuary and adopted by the Plan's Board of Trustees.

The rate of employer contributions to the Plan is composed of the normal cost, amortization of the unfunded actuarial liability and an allowance for administrative expenses. The normal cost is a level percent of payroll cost which, along with member contributions, will pay for projected benefits at retirement for the average plan participant. The actuarial liability is that portion of the present value of projected benefits that will not be paid by future employer normal costs or member contributions. The difference between this liability and the funds accumulated as of the same date is the unfunded actuarial liability. The allowance for administrative expenses is based upon the Plan's actual administrative expenses.



#### APPENDIX A MEMBERSHIP INFORMATION

Table V-4 ANALYSIS OF FINANCIAL EXPERIENCE							
Gain and Loss in Actuarial Resulting from Differences Betwee		Experience a	nd Actu or Loss)		ng April	30,	
Type of Activity		2005	(expres	2006	ius)	2007	
Investment Income on Actuarial Assets Combined Liability Experience (Loss)/Gain During Year from Financial Experience	\$ <del>\$</del>	(1,683) <u>8,627</u> 6,944	\$ \$	32,655 7,349 40,004	\$	10,762 7,563 18,325	

	Table V-5 SOLVENCY TEST Aggregate Actuarial Liabilities for (expressed in thousands)							
Valuation Date April 30	Active Member Contributions (1)	Retirants & Beneficiaries (2)	Active Member Employer Financed Contributions (3)	Actuarial Value of Reported Assets		n of Actuarial Lia red by Reported A (2)		
2007	52,254	268,352	127,333	412,408	100%	100%	72%	

#### APPENDIX A MEMBERSHIP INFORMATION

# Kansas City Firefighters' Pension Plan Distribution of Active Members by Age and Service as of May 1, 2007

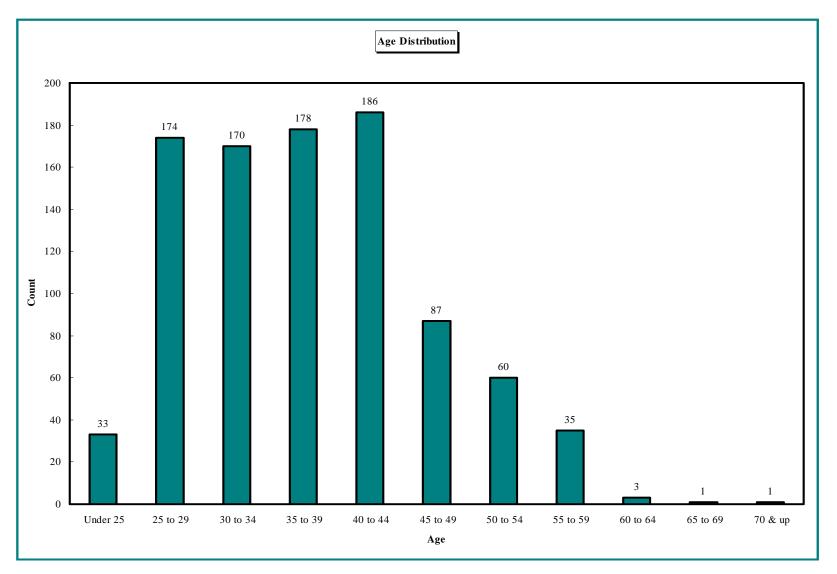
				0	UNTS BY AG	E/SERVICE					
					Servic	e					
Age	Under 1	1 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 to 34	35 to 39	40 & up	Total
Under 25	14	19	0	0	0	0	0	0	0	0	33
25 to 29	20	126	28	0	0	0	0	0	0	0	174
30 to 34	9	70	58	33	0	0	0	0	0	0	170
35 to 39	0	21	52	84	21	0	0	0	0	0	178
40 to 44	0	7	17	52	86	24	0	0	0	0	186
45 to 49	0	1	5	4	34	27	16	0	0	0	87
50 to 54	0	0	1	1	0	4	31	23	0	0	60
55 to 59	0	0	1	0	0	2	10	17	5	0	35
60 to 64	0	0	0	1	0	0	0	0	1	1	3
65 to 69	0	0	0	0	0	0	0	0	1	0	1
70 & up	0	0	0	0	0	0	0	0	0	1	1
Total	43	244	162	175	141	57	57	40	7	2	928

COUNTS BY AGE/SERVICE



APPENDIX A MEMBERSHIP INFORMATION

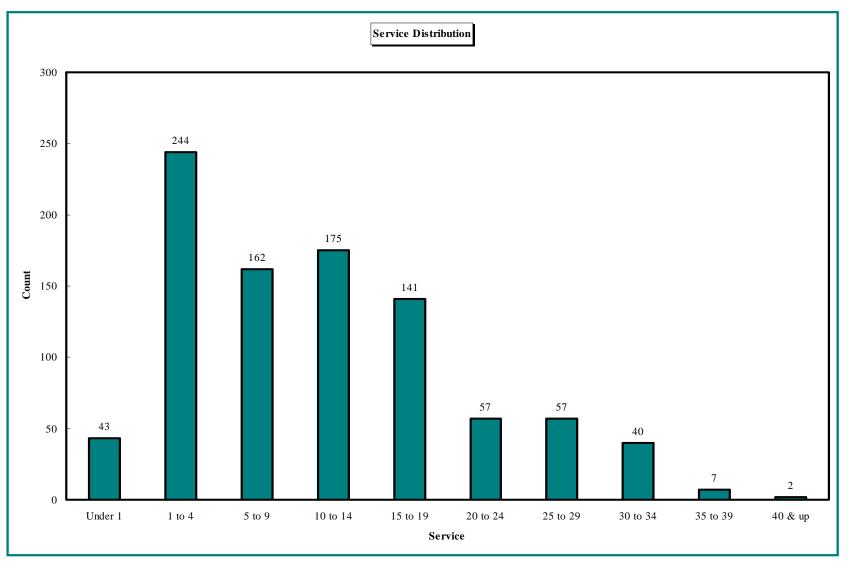
# Kansas City Firefighters' Pension Plan Distribution of Active Members by Age as of May 1, 2007





APPENDIX A MEMBERSHIP INFORMATION

# Kansas City Firefighters' Pension Plan Distribution of Active Members by Service as of May 1, 2007



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#### APPENDIX A MEMBERSHIP INFORMATION

# Kansas City Firefighters' Pension Plan Distribution of Active Members by Age and Service as of May 1, 2007

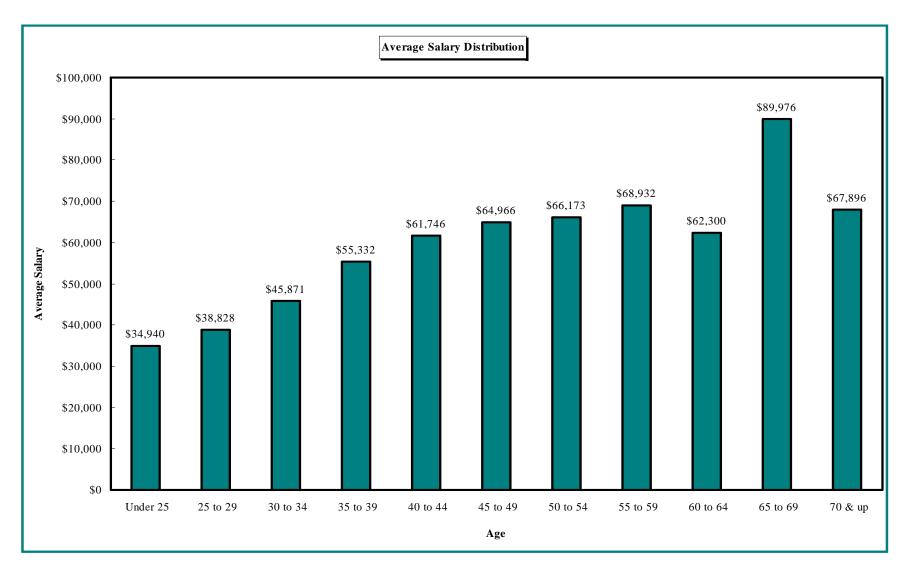
						THOE/BER					
					Servic	e					
Age	Under 1	1 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 to 34	35 to 39	40 & up	Total
Under 25	\$32,064	\$37,060	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$34,940
25 to 29	\$32,423	\$38,333	\$45,630	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$38,828
30 to 34	\$32,064	\$39,186	\$48,706	\$58,832	\$0	\$0	\$0	\$0	\$0	\$0	\$45,871
35 to 39	\$0	\$41,992	\$49,137	\$59,799	\$66,142	\$0	\$0	\$0	\$0	\$0	\$55,332
40 to 44	\$0	\$43,214	\$49,546	\$59,701	\$64,831	\$69,168	\$0	\$0	\$0	\$0	\$61,746
45 to 49	\$0	\$41,736	\$52,555	\$57,414	\$64,234	\$68,045	\$68,545	\$0	\$0	\$0	\$64,966
50 to 54	\$0	\$0	\$55,224	\$59,892	\$0	\$72,867	\$64,448	\$68,084	\$0	\$0	\$66,173
55 to 59	\$0	\$0	\$141,660	\$0	\$0	\$61,272	\$66,275	\$67,919	\$66,211	\$0	\$68,932
60 to 64	\$0	\$0	\$0	\$56,868	\$0	\$0	\$0	\$0	\$67,896	\$62,136	\$62,300
65 to 69	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$89,976	\$0	\$89,976
70 & up	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$67,896	\$67,896
Total	\$32,231	\$38,947	\$49,134	\$59,517	\$64,882	\$68,619	\$65,919	\$68,014	\$69,847	\$65,016	\$53,255

AVERAGE SALARY BY AGE/SERVICE



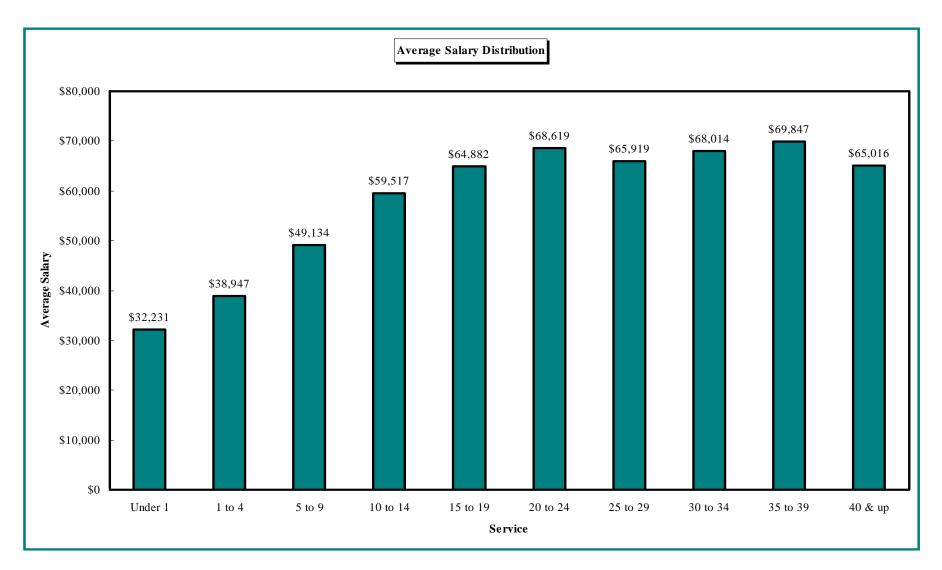
#### APPENDIX A MEMBERSHIP INFORMATION

# Kansas City Firefighters' Pension Plan Distribution of Active Members by Age as of May 1, 2007



#### APPENDIX A MEMBERSHIP INFORMATION

# Kansas City Firefighters' Pension Plan Distribution of Active Members by Service as of May 1, 2007



#### APPENDIX A MEMBERSHIP INFORMATION

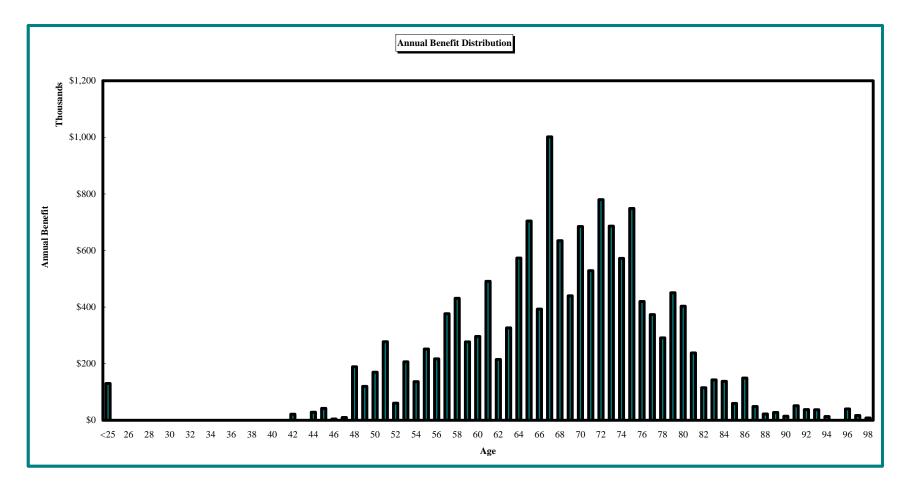
# Kansas City Firefighters' Pension Plan Distribution of Retired Members and Survivors as of May 1, 2007

Age	Count	Annual Benefit	Age	Count	Annual Benefit
<25	23	\$130,097	73	25	\$686,089
25	0	\$0	74	23	\$571,913
26	0	\$0	75	32	\$748,620
27	0	\$0	76	20	\$420,024
28	0	\$0	77	20	\$373,578
29	0	\$0	78	13	\$291,063
30	0	\$0	79	32	\$450,954
31	0	\$0	80	25	\$403,032
32	0	\$0	81	10	\$238,204
33	0	\$0	82	8	\$114,929
34	0	\$0	83	9	\$142,846
35	0	\$0	84	9	\$137,469
36	0	\$0	85	5	\$59,790
37	0	\$0	86	12	\$149,098
38	0	\$0	87	6	\$48,302
39	0	\$0	88	3	\$22,444
40	0	\$0	89	2	\$27,390
41	0	\$0	90	1	\$14,142
42	1	\$21,607	91	4	\$51,464
43	0	\$0	92	2	\$37,774
44	1	\$28,344	93	1	\$37,221
45	1	\$41,968	94	2	\$13,287
46	1	\$4,268	95	0	\$0
47	1	\$10,000	96	2	\$39,762
48	6	\$189,115	97	1	\$16,730
49	4	\$119,518	98	1	\$8,251
50	4	\$169,670	99	0	\$0
51	9	\$277,514	100	0	\$0
52	2	\$60,663	101	0	\$0
53	8	\$206,745	102	0	\$0
54	5	\$136,304	103	0	\$0
55	7	\$251,804	104	0	\$0
56	7	\$217,116	105	0	\$0 \$0
57	13	\$376,421	106	0	\$0 * 0
58	11	\$431,157	107	0	\$0 \$0
59	7	\$277,022	108	0	\$0 \$0
60	10	\$296,182	109	0	\$0 \$0
61	17	\$491,080	110	0	\$0 \$0
62 62	8	\$214,953 \$226,572	111	0	\$0 \$0
63	11	\$326,572	112	0	\$0 \$0
64	18	\$573,530	113	0	\$0 \$0
65	21	\$704,048	114	0	\$0 \$0
66 67	14	\$392,931 \$1,001,662	115	0	\$0 \$0
67 68	29 24	\$1,001,662 \$634,033	116	0	\$0 \$0
	24	\$634,933 \$440,167	117	0	\$0 \$0
69 70	18 27	\$440,167 \$685,054	118 119	0 0	\$0 \$0
70 71	19	\$685,034 \$528,903	119	0	\$0 \$0
71	19 29	\$328,903 \$779,490	120	0	φU
12	29	φ <i>117</i> ,470	Totals	624	\$15,123,214



#### APPENDIX A MEMBERSHIP INFORMATION

# Kansas City Firefighters' Pension Plan Distribution of Retired Members and Survivors as of May 1, 2007





#### APPENDIX A MEMBERSHIP INFORMATION

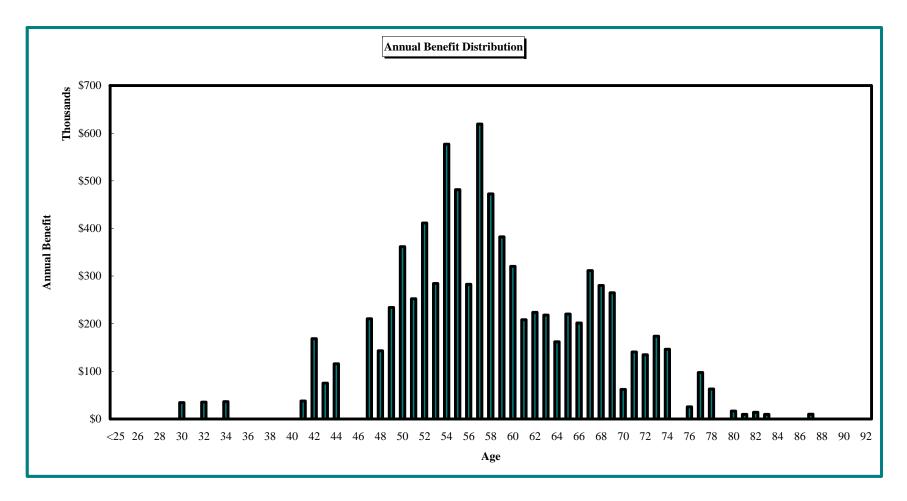
# Kansas City Firefighters' Pension Plan Distribution of Disabled Members as of May 1, 2007

Age	Count	Annual Benefit	Age	Count	Annual Benefit
<25	0	\$0	73	6	\$173,601
25	0	\$0	74	7	\$146,361
26	0	\$0	75	0	\$0
27	0	\$0	76	2	\$25,396
28	0	\$0	77	3	\$97,560
29	0	\$0	78	2	\$62,859
30	1	\$34,492	79	0	\$0
31	0	\$0	80	1	\$16,546
32	1	\$35,496	81	1	\$9,606
33	0	\$0	82	1	\$14,069
34	1	\$36,501	83	1	\$9,719
35	0	\$0	84	0	\$0
36	0	\$0	85	0	\$0
37	0	\$0	86	0	\$0
38	0	\$0	87	1	\$9,918
39	0	\$0	88	0	\$0
40	0	\$0	89	0	\$0
41	1	\$37,752	90	0	\$0
42	4	\$168,749	91	0	\$0
43	2	\$75,105	92	0	\$0
44	3	\$115,965	93	0	\$0
45	0	\$0	94	0	\$0
46	0	\$0	95	0	\$0
47	5	\$210,345	96	0	\$0
48	4	\$143,242	97	1	\$51,142
49	6	\$234,108	98	0	\$0
50	10	\$361,654	99	0	\$0
51	7	\$252,468	100	0	\$0
52	12	\$411,291	101	0	\$0
53	7	\$284,621	102	0	\$0
54	14	\$576,971	103	0	\$0
55	12	\$481,447	104	0	\$0
56	9	\$282,833	105	0	\$0
57	17	\$619,202	106	0	\$0
58	12	\$472,592	107	0	\$0
59	9	\$382,354	108	0	\$0 \$0
60	8	\$320,498	109	0	\$0 ©0
61	6	\$208,345	110	0	\$0 \$0
62	7	\$223,955	111	0	\$0 ©0
63	6	\$217,959	112	0	\$0 \$0
64	5	\$161,961	113	0	\$0 \$0
65	6	\$220,332 \$201,487	114	0	\$0 \$0
66 67	5	\$201,487 \$211,482	115	0	\$0 \$0
67	10	\$311,482	116		\$0 \$0
68	10	\$280,098 \$264,050	117	0	\$0 \$0
69 70	9	\$264,950 \$62,006	118	0	\$0 \$0
70 71	3	\$62,096 \$140,692	119	0	\$0 \$0
71 72	5 7	\$140,692 \$134,776	120	0	\$0
12	/	\$134,776	Totolo	250	¢0 500 500
			Totals	250	\$8,582,599



#### APPENDIX A MEMBERSHIP INFORMATION

# Kansas City Firefighters' Pension Plan Distribution of Disabled Members as of May 1, 2007



#### APPENDIX B ACTUARIAL ASSUMPTIONS AND METHODS

#### A. Demographic Assumptions

#### 1. Mortality Rates

#### a. Rates before Retirement

Healthy: 1983 Group Annuity Mortality Table with 5% of deaths assumed to be Duty related

### Disabled: 1983 Group Annuity Mortality Table

	Rates before Retirement (Sample rates shown below):						
	Mor	tality	Rat	te (%)			
Age	Male	Female	Disability	Withdrawal			
20	0.04%	0.02%	0.03%	2.50%			
25	0.05%	0.03%	0.05%	2.50%			
30	0.06%	0.03%	0.13%	1.69%			
35	0.09%	0.05%	0.30%	1.05%			
40	0.12%	0.07%	0.60%	0.75%			
45	0.22%	0.10%	1.12%	0.75%			
50	0.39%	0.16%	1.90%	0.52%			
55	0.61%	0.25%	4.50%				
60	0.92%	0.42%	7.60%				

# 2. Percentage of Disability Retirements that are Duty Related

Disability Retirement Rates (Duty Related)						
AgeAnnual Rate (%)						
20 - 24	75.0%					
25 - 29	66.7					
30 - 34	70.6					
35 - 39	78.9					
40 - 44	81.1					
45 - 49	81.9					
50 - 54	80.3					
55 – 59	78.2					
60 and up	75.4					



#### APPENDIX B ACTUARIAL ASSUMPTIONS AND METHODS

#### **3.** Retirement Rates for Active Employees

Rates of Active Employees						
Years of Service	<b>Rate</b> (%)					
25	10%					
26	10					
27	5					
28	5					
29	15					
30	25					
31	50					
32	50					
33	50					
34	50					
35 years, or age 65 if earlier	100					

### 4. Retirement Age for Inactive Vested Members

50

#### 5. Unknown Data for Members

Same as those exhibited by members with similar known characteristics.

#### 6. Percent Married

94% of active participants

#### 7. Age of Spouse

Females four years younger than males

#### 8. Eligible Children

None

#### 9. Net Investment Return

8.00% net of investment fees and administrative expenses, including inflation at 3.00%.



#### APPENDIX B ACTUARIAL ASSUMPTIONS AND METHODS

#### **10. Salary Increase**

Age	Rate (%)
Less than 25	3.0%
25 - 29	8.0 %
30 - 34	6.0%
35 - 39	5.0%
40 - 44	4.0%
45 - 49	3.5%
50 - 54	3.5%
55 – 59	3.5%
60 - 64	3.5%
65 and up	3.0%

#### **B.** Actuarial Methods

#### 1. Funding Method

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

#### 2. Actuarial Value of Assets

A preliminary actuarial value of assets is calculated as the sum of the beginning of the year actuarial value of assets, the net new money and the expected return on an actuarial basis. The gains and losses over the last 4 years are recognized over the next 5 year period. The gain or loss of each year is the excess of market value of assets over the preliminary value of assets, minus the sum of the unrecognized gains and losses from each of the 4 years. Finally, an adjustment is made so that the final actuarial value of assets is within 10% corridor of market value.

#### 3. Amortization of Unfunded Actuarial liability(Surplus)

Open 30 year amortization period; level percentage of payroll, recognizing monthly payments. Payroll is expected to increase 3.0% per year.

#### 4. Changes in Assumptions

None.



#### APPENDIX C SUMMARY OF PLAN PROVISIONS

#### 1. Plan Year

May 1 through April 30.

#### 2. Membership

All Firefighters become members as a condition of employment. Membership begins on the first day of employment.

#### 3. Creditable Service

Total creditable service is defined as the sum of the service as a Firefighter after becoming a member after July 1, 1953, plus any service earned prior to July 1, 1953, if continuous.

#### 4. Contributions

Pension System:	Employees contribute 9.55% of base salary. The City currently contributes 19.6% of payroll.	
Interest on Employee Contributions:	3.0% per year.	
Health Insurance Subsidy:	Effective January 1, 2000, the City contribution is 2% of base salary and the employee contribution is 1% of base salary.	
	Contributions and benefits for the Health Insurance Subsidy are separately accounted for under the plan. The assets, liabilities, contributions, and benefits of the Health Insurance Subsidy are excluded from this Valuation.	
Normal Retirement		

#### 5. Normal Retirement

Age Requirement:	None.
------------------	-------

Service Requirement: 25 years of service.

Amount: The base pension is 2.5% of average final compensation per year of credible service to a maximum of 80%. Average final compensation is defined as the average of the two highest years of base compensation in the last ten years. The minimum retirement benefit is \$600 per month.



#### APPENDIX C SUMMARY OF PLAN PROVISIONS

#### 6. Duty Disability Benefit

7.

8.

Age Requirement:	None.
Service Requirement:	None.
Amount:	The pension is 62.5% of average final compensation at disability with a minimum 62.5% of the current maximum salary payable to the rank of a firefighter. The current maximum monthly salary as of May 1, 2007 is \$4,554.
Non-duty Disability:	
Age Requirement:	Less than 65.
Service Requirement:	10 years of service.
Amount:	The pension is 25% of the average final compensation plus 2.5% of average final compensation per year of creditable service in excess of 10 years, not to exceed 80% of average final compensation.
Vesting	
Age Requirement:	None.
Service Requirement:	10 years of service.
Amount:	2.5% of average final compensation per year of creditable service, not to exceed 62.5% of average final compensation, payable at age 50.
	If the employee dies in a deferred status, before age 50, the beneficiary receives a lump sum equal to member contributions

If the employee dies in a deferred status, before age 50, the beneficiary receives a lump sum equal to member contributions with interest. If such death occurs after age 50, the widow and children receive the same benefits as for pre-retirement non-duty death, but reduced by the ratio of the member's service to 25 years.



#### APPENDIX C SUMMARY OF PLAN PROVISIONS

#### 9. Withdrawal (Refund) Benefits

Age Requirement: None.

Service Requirement: Less than 10 years of creditable service.

Amount: If an employee terminates before becoming eligible for a deferred pension, he or she receives a return of member contributions with interest. This benefit is reduced by a service charge of 10%, 8%, 6%, 4% or 2% if employee withdrawals with less than one year, two year, three years, four years, or five years of employment respectively.

#### **10. Pre-Retirement Duty Death Benefits**

Age Requirement:	None.
Service Requirement:	None.
Funeral Benefit	A lump-sum payment of \$2,000.
Surviving Spouse Benefit:	100% of the accrued pension is paid with a minimum of 62.5% of the average final compensation. The surviving spouse's benefit for spouses of active firefighters eligible for a service pension is 100% of the regular pension reduced for the election of optional 100% joint and survivor coverage. The minimum benefit is \$275 per month.
Child's Benefit:	If there is no surviving spouse or the spouse dies or remarries, the spouse's benefit is divided equally to the children and paid until age 18 (or 21 if a student). If a surviving spouse exists, \$100 per month is paid until age 18 (or age 21 if a student).
Return of Contribution:	A return of accumulated contributions is guaranteed. If there is no surviving spouse or dependent children, or if the spouse remarries, the accumulated contributions or the unpaid balance thereof shall be paid to the City or to a named beneficiary.

#### 11. Pre-Retirement Non-duty Death Benefits

Age Requirement:	None.
------------------	-------

Service Requirement: None.



#### APPENDIX C SUMMARY OF PLAN PROVISIONS

Funeral Benefit:	A lump-sum payment of \$2,000.
Surviving Spouse Benefit:	50% of the accrued pension is paid with a minimum of 25% of average final compensation payable for the life of the surviving spouse. The surviving spouse's benefit for active firefighters eligible for a service pension is 100% of the regular pension, reduced for the election of optional 100% joint and survivor coverage. The minimum benefit is \$275 per month.
Child's Benefit:	If no surviving spouse or the spouse dies, the spouse's benefit is divided equally to the children and paid until age 18 (or 21 if student). If a surviving spouse exists, \$100 per month is paid until age 18 (or 21 if student).
Return of Contributions:	A return of accumulated contributions is guaranteed. If there is no surviving spouse or dependent children, or if the surviving spouse is no longer eligible to receive payments because of remarriage, the accumulated contributions or the unpaid balance thereof shall be paid to the City or to a named beneficiary.

#### 12. Post-Retirement Death Benefit

Age Requirement:	None.
------------------	-------

Service Requirement: None.

Amount: If married, pension benefits are paid in the form of a Joint and 50% Survivor annuity or in any other available optional form elected by the member and spouse in an actuarially equivalent amount. The minimum benefit is \$275. Payments equal to the amount of the member's accumulated contribution are guaranteed. In addition, a lump-sum funeral benefit of \$2,000 is paid.

#### 13. Cost-of-Living Adjustment (COLA)

A maximum increase of 3% of the original pension (prior to election of option) will be made annually. This does not apply to funeral benefits. Members must retire on or before January  $1^{st}$ , in order to receive a COLA in the next year.

#### 14. Changes Since Last Valuation

There have been no changes in the plan provisions since the preceding actuarial valuation.

