

**CITY OF STERLING
FIREFIGHTERS' PENSION FUND**

**ACTUARIAL VALUATION
AS OF MAY 1, 2011 FOR THE
FISCAL YEAR ENDING APRIL 30, 2012**

December 5, 2011

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Tepfer Consulting Group, Ltd. was retained by the City of Sterling and City of Sterling Firefighters' Pension Plan to perform an independent actuarial valuation for the Firefighters' Pension Fund. This valuation is permitted under 40 ILCS 5/22, Section 503.2.

The actuarial valuation was performed for the year ended April 30, 2012 and indicates a **statutorily required contribution in accordance with 40 ILCS 5/4, Section 118 of \$391,148 or 32.84% of member payroll, a recommended minimum contribution of \$415,260 or 34.87% of payroll, and an Annual Required Contribution in accordance with paragraph 36f of Statement No. 25 of the Governmental Accounting Standards Board of \$406,627 or 34.14% of payroll.** These contributions are net of contributions made by active member firefighters during the fiscal year.

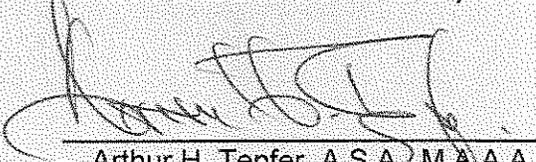
The results shown in this report have been calculated under the supervision of a qualified Actuary as defined in appropriate State statutes. All results are based upon demographic data submitted by the Firefighters' Pension Fund, financial data submitted by the Firefighters' Pension Fund, applications of actuarial assumptions, and generally accepted actuarial methods.

In our opinion, all calculations and procedures are in conformity with generally accepted actuarial principles and practices, and the results presented comply with the requirements of the applicable State statute, Actuarial Standards Board, or Statements of Governmental Accounting Standards, as applicable.

In our opinion, the actuarial assumptions used are reasonable, taking into account the experience of the plan and future expectations, and represent a reasonable and adequate approach to the financing of the retirement program. The costs, actuarial liabilities and other information presented in this report, in our opinion, fully and fairly disclose the actuarial position of the plan.

I, Arthur H. Tepfer, am the President of Tepfer Consulting Group, Ltd. I am a member of the American Academy of Actuaries and I meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinion contained herein. I certify that the results presented in this report are accurate and correct to the best of my knowledge.

TEPFER CONSULTING GROUP, LTD.



Arthur H. Tepfer, A.S.A., M.A.A.A.
Enrolled Actuary #11-02352

December 5, 2011

VALUATION OBJECTIVES

The **City of Sterling Firefighters' Pension Plan** provides benefits to members when they retire, die, become disabled or terminate employment. As with any plan providing these types of benefits, an appropriate budgeting pattern must be established to enable appropriate funds to be accumulated to meet all payments when due. The actual cost of the plan can best be expressed in the following simplistic manner:

ACTUAL COST EQUALS	Benefits Paid
	Plus
	Expenses Paid
	Less
	Investment Income Earned

If the actual cost is incurred on a "pay as you go" basis, then the future generations of members will be paying for the benefits of current plan participants. Proper financial planning calls for budgeting the actual cost of the plan over the working lifetime of current plan membership in order to establish an equitable allocation. An actuarial valuation is the procedure used to determine an appropriate amount to be contributed to the pension plan each year in order to attain this equity.

An actuarial valuation is an estimate at a particular point in time of the predicted incidence of the future benefit costs. Since the actual cost of the plan is essentially unknown, pre-funding (budgeting for future benefit costs) requires certain assumptions about future events. Assumptions are made for such things as salary increases, terminations of participants, disablement of participants, death of participants and anticipated investment earnings. These assumptions although not affecting the actual costs of the plan will affect the incidence of predicted future costs. For proper funding, it is required that the Actuary select assumptions which are appropriate in light of the economic, demographic, and legislative environment as they relate to the pension program. The assumptions we have made concerning these future events are described more fully in Appendix 2 of this report. Based on these assumptions, a projection of future benefits was made and a current contribution level sufficient to provide the anticipated benefit payments was determined through the use of an actuarial cost method.

VALUATION OBJECTIVES
(Continued)

Selection of the Actuarial Cost Method

An actuarial cost method, sometimes called a “funding method”, therefore, is essentially an approach to budgeting the estimated future costs. There are many actuarial cost methods which are available to the actuary and each method operates differently. However, all funding methods accomplish the same objective—to assign to each fiscal year of the employer the portion assumed to have accrued in that year. The portion of the actuarial value of benefits assigned to a particular year in respect of an individual participant or the fund as a whole is called the **normal cost**. All funding methods are described by how the normal cost is calculated.

The actuarial cost method prescribed by the State statutes to determine the **statutorily minimum required contribution** for periods on or after January 1, 2011 is the Projected Unit Credit Cost Method. Under this actuarial cost method, the ongoing cost as a percentage of total payroll will increase. In this method, the normal cost is determined by first calculating the projected dollar amount of each participant’s accumulated benefit under the plan as of both the first day of the fiscal year and as of the last day of the fiscal year and then determining the difference between these two amounts. The second step in deriving the normal cost for a given participant is to multiply the dollar amount of this difference by the actuarial present value of \$1 of benefit.

The actuarial cost method selected by our firm to determine the **recommended plan contribution** is the Entry Age Normal Cost Method. Under this actuarial cost method, ideally, the ongoing cost as a percentage of total payroll should remain fairly stable. In this method, the normal cost is determined by assuming each participant covered by the plan entered the plan under the same conditions that will apply to future plan entrants. The annual normal cost assigned to each year of an employee's career is calculated as a level percentage of the employees assumed earnings each year. These normal costs accumulate to the present value of the employee's benefit at retirement age.

Under both the Entry Age Normal Cost Method and the Projected Unit Credit Cost Method, the total funding of projected benefit costs is allocated between an **unfunded liability**, representing past benefit history, and future normal costs. This allocation is based on the assumption that the municipality will pay the normal cost for each plan year on a regular basis. It should be noted that although the term “unfunded liability” is applied to both funding methods, the resulting amount is different because of the method of calculation. Another feature of these methods is that only the unfunded liability is affected by the experience of the plan, and therefore any adjustments are made in the future amortization payments.

In addition to the methodology changes described above, P.A. 96-1495 also addressed the valuation of pension fund assets—the second component in the determination of the unfunded liability. The statute now provides that the actuarial value of a pension fund’s assets be set equal to the market value of the assets on March 30, 2011 and that, in determining the actuarial value of assets after that date, any actuarial gains or losses from investment returns incurred in a fiscal year be recognized in equal amounts over the 5-year period following that fiscal year.

VALUATION OBJECTIVES
(Continued)

The actuarial valuation process is usually repeated each year and is to a certain extent self-correcting. As part of these actuarial cost methods, any deviation of actual experience from the chosen actuarial assumptions will be reflected in future contributions. A complete description of these actuarial cost methods is explained in Appendix 4 of this report.

Appendix 3 of this report contains a summary of the principal provisions of the applicable statute.

Despite the statutory language which requires an application of the Projected Unit Credit method, we feel that funding under this method as a ***level percentage of payroll*** severely undermines the benefit security of the retirement system and transfers the payment for currently earned pensions to future generations of taxpayers. **For these reasons, our valuation report presents a recommended minimum contribution which will operate to maintain the fundamental fiscal soundness of the retirement program**, although a statutorily required contribution has also been calculated. The calculation of the recommended minimum contribution is based upon an amortization payment of 90% of any unfunded accrued liabilities as a ***level dollar amount*** over 30 years from January 1, 2011, the effective date of P.A. 96-1495. The calculation of the statutorily required contribution is based upon an amortization payment of 90% of any unfunded accrued liabilities as a ***level percentage of payroll*** over 30 years from January 1, 2011, the effective date of P.L. 96-1495.

Although, I do not agree with the statutorily required level percentage of payroll methodology of determining the amortization of the unfunded accrued liability, I would be remiss if I did not advise my funds as to a "statutorily" acceptable calculation under the State law. *I patently consider the calculation methodology under the statute to be actuarially unsound for funding of municipal retirement programs.*

Effective for periods beginning after June 15, 1996, the Governmental Accounting Standards Board has issued Statement No. 25 "Financial Reporting for Defined Benefit Pension Plans and Note Disclosures for Defined Contribution Plans". This Statement establishes a financial reporting framework for defined benefit pension plans that distinguishes between two categories of information: (a) current financial information about plan assets and financial activities and (b) actuarially determined information, from a long-term perspective, about the funded status of the plan and the progress being made in accumulating sufficient assets to pay benefits when due. The calculation of the Annual Required Contribution (ARC) is described in paragraph 36f of the Statement and is based upon an amortization payment of any unfunded accrued liabilities as either a level dollar amount or a level percentage of total payroll over a maximum of 40 years from the effective date of the Statement. Any significant increase in the total unfunded actuarial liability resulting from a change in actuarial methodology should be amortized over a period not less than 10 years.

Actuarial experience since the last actuarial valuation

As part of the actuarial valuation process, it is helpful to examine the actual experience of the fund as compared to the experience which is expected by the actuarial assumptions. The measurement of any deviations of actual to expected experience is commonly referred to as a

VALUATION OBJECTIVES
(Continued)

"Gain and Loss Analysis". In performing this analysis, the actuary analyzes each actuarial assumption used in the valuation process. It is highly unlikely that actual experience will follow expected experience on a year-by-year basis. It is hoped that over the long term, if the actuarial assumptions are "reasonable", the total gains and losses will offset each other.

A "gain and loss analysis" is a useful tool to examine whether the actuarial assumptions used to determine the municipal tax levy are suitable. Care must be taken in placing too much credibility in a short-term analysis as the assumptions are more appropriately measured over the long term. Nonetheless, an annual evaluation of the actuarial assumptions will assist in identifying trends which, if unnoticed, can lead to inappropriate conclusions. When these trends are recognized, it is the actuary's responsibility to modify one or more of the assumptions to better anticipate future experience.

Some assumptions are easier to measure than others. In small plans, credible analysis can generally be made regarding the economic (financial) assumptions. These primarily include investment and salary increase assumptions. Unfortunately, it is often impossible to establish credible long term analysis of demographic assumptions (rates of termination, disability, retirement and mortality). Therefore, in choosing demographic assumptions, the actuary generally relies upon standardized tabular assumptions modified only by fund-specific characteristics.

The actuarial gain and loss analysis for the current year is presented in Exhibit 3-C and 3-D of the report. Exhibit 3-C shows the impact of the actuarial gains or losses on the statutorily required contribution through a reconciliation of this contribution from the end of the prior valuation year to the end of the current valuation year. Exhibit 3-D derives the actuarial gain or loss in total as well as separating the individual financial and demographic components.

The overall experience gain (loss) for the year was \$400,588 or 2.48% of the accrued liability at the beginning of the plan year. The dollar amount for the plan's current statutorily required contribution is 94.09% of the prior year's contribution. When measured as a percentage of payroll, the contribution level has changed from 30.34% to 32.84%.

Factors Influencing the Choice of Actuarial Assumptions

As part of the consulting process, it is our policy to talk with selected members of the Board of Trustees and the Sponsor's representatives for the **City of Sterling Firefighters' Pension Plan** in order to obtain information which will enable the Actuary to properly choose the actuarial assumptions which are most appropriate for the current cost determination for the pension fund.

VALUATION OBJECTIVES
(Continued)

Prior to the meeting, statistics are compiled concerning historical investment returns, salary increases, retirement incidence and other factors which are influential in the actuarial assumption setting process. Based upon an analysis of the specifics as they relate to the **City of Sterling Firefighters' Pension Plan** and a general understanding of the inter-relationships of the actuarial assumptions, the Board, the Sponsor and the Actuary reach a mutual agreement as to the assumptions which will be used in the current actuarial valuation.

Published statistics regarding experience for police and firefighters are available from the State of Illinois Department of Insurance. These statistics form the basis of the actuarial assumptions selected by the State Actuary in the valuation of pension funds covered under the Downstate Pension System. We have found in our consulting, that whenever appropriate, the actuarial assumptions used by the State Actuary are relied upon as a starting point. However, in order to make the calculations more "***Sterling-sensitive***", the analysis of the actual historical performance is carefully examined.

Experience Analysis

The results of our experience analysis indicates that the fund has experienced small gains overall . There is no measurable experience present and therefore, we are not recommending a change in actuarial assumptions this year.

Demographic considerations

For this valuation it was noted that the force continues to remain reasonably stable as to its size and demographic composition. In the current valuation, it was observed that the number of inactive participants (25, excluding those who have terminated and are entitled to a return of contributions), as compared to active participants (20) in the Fund is slightly higher than the State average (56% of the total participants are inactive as compared to a State average of 38%); on a liability basis the Fund is also slightly higher than the State averages. Approximately 56%-58% of the Fund's total liability is attributed to inactive participants compared to a State average of about 53%. This means that the fund is in a similar demographic position compared to other funds in the State.

Additionally, over 80% of the assets available for investment have been committed to provide benefits for existing pensioners and beneficiaries. This means that a large percentage of the current assets would be used to provide the benefits for the members currently in receipt. Nonetheless, we are concerned that a rash of retirements could disturb the static situation as there are many individuals who are expected to retire within the foreseeable future.

The average age and service of the active participating group is substantially higher than the State average. As of May 1, 2011, there are 8 active firefighters who are currently eligible to retire, approximately 40% of the active group. Additionally, there are 4 additional active firefighters who will become eligible to retire within the next five years. We will continue to monitor closely the retirement patterns which emerge in later years to assure that the appropriate retirement rates are in place for our analysis.

VALUATION OBJECTIVES
(Continued)

Financial considerations

In these uncertain times, except for the 2009 year, the fund continues to experience limited short-term investment growth as can be noted in the charts in Section 5B and 5C of this valuation. The rate of return during the 2011 year was 11.33%. Please refer to the chart in Exhibit 2 which illustrates the pattern of growth. The funds continue to earn acceptable rates of return over the long term. As shown in Exhibit 5-C of our report, the composite rate of return for the fund since 2002 is 3.03%, but, what is not shown is 6.04% the composite rate since 1988. The fund has been consistently earning acceptable rates of return for the last decade. Earnings generally continue to outpace benefit payments, despite the fact that pension payments have reached almost \$0.8 million, and this provides a solid base for continued success.

Once again the fund experienced an investment gain during the fiscal year ending April 30, 2011 and normally because of the use of the smoothing method for valuing plan assets, this has little effect on the contribution requirement. Nonetheless, the magnitude of the investment gain, coupled with the remaining financial gains had a very positive effect on the 2011 recommended contribution lowering the contribution almost 3% of payroll.

Selection of assumptions

Based mainly upon the comparative rate of funding, as well as a comparison of actual rates of investment return to salary increases, a 7.25% assumed investment return rate was deemed appropriate as a long-term assumption to be used in determining the funding requirements for the 2011 year.

This represents a major change in assumption. This rate was chosen to reflect the portfolio composition, investment philosophy and historical performance as compared to other funds in the State. This 7.25% rate includes an inflation component of 2½%. The actuarial smoothing method used in prior years has also been retained. The actuarial smoothing methodology used in the valuation of assets will be changed for next year as required by State law.

The demographic actuarial assumptions used for this valuation represent no change from those used in the prior valuation performed by our firm. These include, as a result of the publication of a recent independent study analyzing demographic experience among police and fire pension funds in the Downstate System, changes in the retirement, disability and withdrawal assumptions, as well as the use of a more modern mortality table from those used by the State Actuary.

VALUATION OBJECTIVES
 (Continued)

Comparison with Other Funds

We are including a comparison to certain State averages which may prove helpful in assessing how the fund compares to similarly situated programs.

	<u>Sterling (2011)</u>		<u>State*</u>
	<u>EANC</u>	<u>PUC</u>	
Funded Ratio	74.70%	77.32%	55.07%
Percentage of Liability for Inactives	56.44%	58.41%	52.94%
Percentage of Total Assets for Inactives (market basis)	82.34%		96.13%

* Based upon published reports for FYE 2008

Thirty-year Projection of Liabilities

The final section of our report illustrates projected payments from the Trust Fund for a 30-year period commencing with the valuation date. These projections are based upon the actuarial assumptions selected for the fund concerning death, disability and retirement actually occurring. Care should be taken in interpreting or relying on these results—particularly for Funds with fewer than 200 participants. The credibility of this type of projection is rarely realized beyond 10 years. Exhibit 5D presents this projection.

RESULTS OF VALUATION

The following exhibits present the results of our actuarial valuation of the **City of Sterling Firefighters' Pension Plan** for the fiscal year May 1, 2011 through April 30, 2012.

Exhibit 1 indicates that the recommended minimum contribution, calculated using the Entry Age Normal Cost method (EANC), from the City is \$415,260 or 34.87% of total participating payroll. **Under the Entry Age Normal actuarial cost method selected, this percentage of payroll should remain reasonably level over the lifetime of the plan.**

Exhibit 1 also indicates that the statutory minimum contribution, calculated using the Projected Unit Credit method (PUC), from the City is \$391,148 or 32.84% of total participating payroll. **Under the Projected Unit Credit actuarial cost method selected, this percentage of payroll should increase over the lifetime of the plan.**

Exhibits 2 and 3 provide specific information used to develop the recommended minimum and statutorily required City contribution.

Exhibit 4 presents a brief description of the demographic characteristics of the current member group.

Exhibit 5 shows information relating to the pension assets.

Appendix 1 provides information in accordance with the Governmental Accounting Standards Board relating to financial disclosure of pension costs in the auditor's report.

GENERAL VALUATION RESULTS FOR FISCAL YEAR
MAY 1, 2011 THROUGH APRIL 30, 2012

Recommended Minimum Contribution

1.	Entry Age Normal Cost:	\$ 295,744
2.	Unfunded Actuarial Accrued Liability (or Surplus):	4,078,630
3.	Actuarial Value of Assets:	12,045,211
4.	Annual Salaries of Active Firefighters:	1,139,747
5.	Recommended Minimum Contribution from the City:	415,260
	Contribution Percentage:	34.87%*

Statutory Minimum Contribution

1.	Projected Unit Credit Normal Cost:	\$ 369,516
2.	Unfunded Actuarial Accrued Liability (or Surplus):	3,532,288
3.	Actuarial Value of Assets:	12,045,211
4.	Annual Salaries of Active Firefighters:	1,139,747
5.	Statutory Minimum Contribution from the City:	391,148
	Contribution Percentage:	32.84%*

* Projected for the fiscal year ending April 30, 2012.

SUMMARY OF SPECIFIC VALUATION RESULTS

	<u>Number</u>	<u>Actuarial Present Value of Projected Benefits</u>	<u>Entry Age Normal Cost</u>	<u>Projected Unit Credit Normal Cost</u>
1. Active Firefighters:	20			
Retirement Pension:		\$7,331,702	\$194,711	\$274,826
Survivors Pension:		262,328	15,178	13,205
Disability Pension:		1,584,039	80,477	79,197
Withdrawal Pension:		33,453	5,378	2,288
		<hr/>	<hr/>	<hr/>
TOTAL	20	\$9,211,522	\$295,744	\$369,516
2. Inactive Firefighters and Survivors:				
Normal Retirees:	15	\$7,828,241		
Widows (Survivors):	3	231,962		
Children (Survivors):	5	1,935		
Disabled Retirees:	2	1,016,485		
Deferred Vested:	0	0		
Terminated/Separated:	<u>2</u>	<u>20,844</u>		
		<hr/>		
TOTAL	27	\$9,099,467		

SUMMARY OF SPECIFIC VALUATION RESULTS
(Continued)

	<u>Entry Age Normal (EAN)</u>	<u>Projected Unit Credit (PUC)</u>
3. Total Actuarial Present Value of Projected Benefits:	\$18,310,989	N/A
4. Actuarial Present Value of Future Normal Costs:	2,187,148	N/A
5. Actuarial Accrued Liability: [(3) - (4)]	16,123,841	15,577,499
6. Actuarial Value of Assets:	12,045,211	12,045,211
7. Unfunded Actuarial Accrued Liability (or Surplus): [(5) - (6)]	4,078,630	3,532,288
8. Funded Ratio Percentage: [(6) ÷ (5)] x 100	74.70%	77.32%

HISTORY OF FUNDED PERCENTAGES

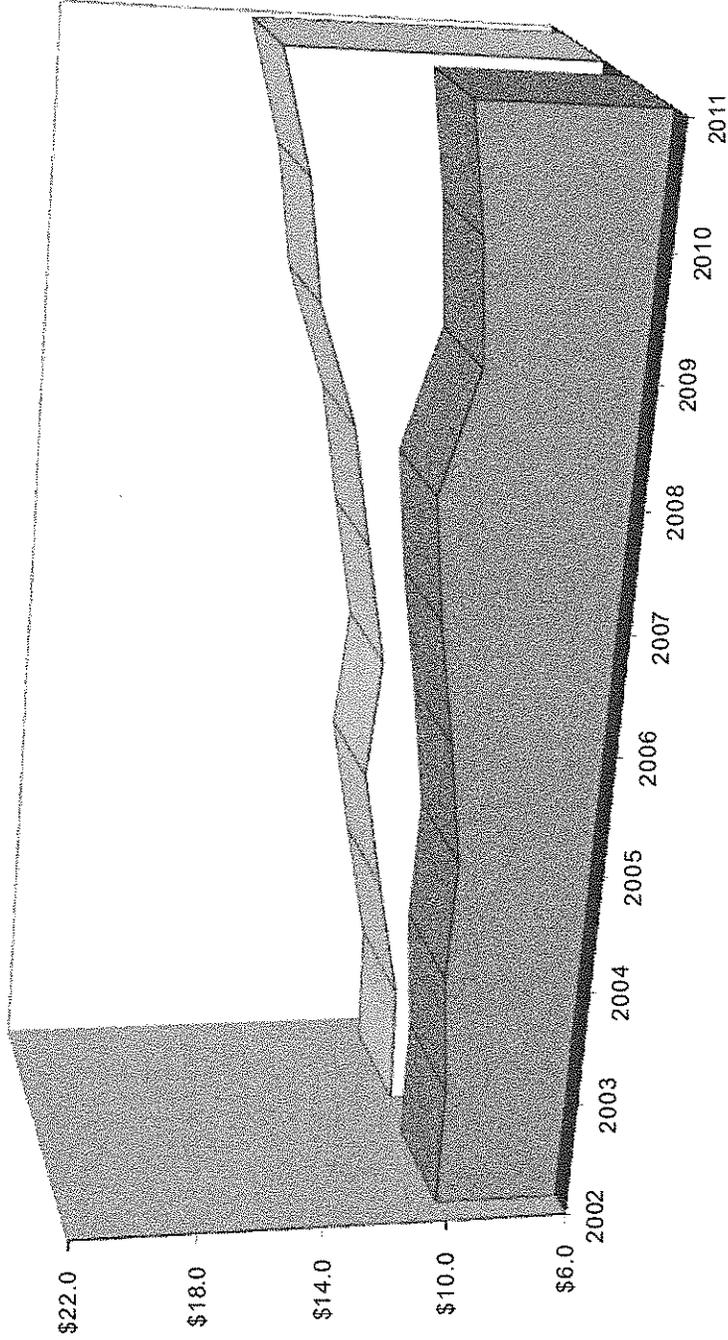
For the Year beginning May 1	EAN		PUC	
	<u>Valuation Assets</u>	<u>Accrued Liabilities</u>	<u>Accrued Liabilities</u>	<u>Funded Percentage</u>
2011	\$12,045,211	\$16,123,841	\$15,577,499	77.32%
2010	11,418,452	14,998,010	N/A	N/A
2009	11,047,973	14,379,011	N/A	N/A
2008	12,102,168	12,965,609	N/A	N/A
2007	11,603,090	12,217,303	N/A	N/A
2006	10,931,479	11,415,611	N/A	N/A
2005	10,348,794	11,675,282	N/A	N/A
2004	10,427,747	10,866,978	N/A	N/A
2003	10,055,687	9,991,767	N/A	N/A
2002	10,026,179	9,832,051	N/A	N/A

14The chart on the following page presents a progression of these percentages in graphical form.

COMPARISON OF ASSETS AND LIABILITIES

(amount in millions)

■ Valuation Assets □ Accrued Liabilities



DEVELOPMENT OF RECOMMENDED MINIMUM CITY CONTRIBUTION

	Fiscal Year May 1, 2011 through <u>April 30, 2012</u>
1. Entry Age Normal Cost:	\$295,744
Interest to April 30, 2012:	<u>21,441</u>
(a) Total	\$317,185
(b) 17½% of Projected Payroll	199,456
(c) Minimum Cost Payable, greater of (a) and (b):	\$317,185
2. Recommended Minimum Payment to Amortize 90 % of the Entry Age Normal Unfunded Accrued Liability <u>as a level dollar amount</u> over 29.00205 Years from May 1, 2011 with interest to April 30, 2012 :	205,838
3. Credit for Surplus:	0
4. Initial Recommended Minimum Contribution for Fiscal Year 2012: [(1) + (2) + (3)]	523,023
5. Statutory Minimum Contribution (Exhibit 3B line 5)	498,911
6. Total Recommended Minimum Contribution for Fiscal Year 2012: [Greater of Line 4 and Line 5]	523,023
7. Active Member Contributions (9.91% of Salaries):	107,763
8. Net Recommended Minimum City Contribution: [(6) - (7)]	415,260

DEVELOPMENT OF STATUTORILY REQUIRED CITY CONTRIBUTION
 (NOTE THAT THIS CONTRIBUTION CALCULATION IS NOT RECOMMENDED)

	Fiscal Year May 1, 2011 through <u>April 30, 2012</u>
1. Projected Unit Credit Normal Cost:	\$369,516
Interest to April 30, 2012:	<u>26,790</u>
(a) Total	\$396,306
(b) 17½% of Projected Payroll	199,456
(c) Minimum Cost Payable, greater of (a) and (b):	\$396,306
2. Minimum Payment to Amortize 90% of the Projected Unit Credit Unfunded Accrued Liability <u>as a level percentage of payroll</u> over 29.00205 Years from May 1, 2011 with interest to April 30, 2012:	102,605
3. Credit for Surplus:	0
4. Total Statutorily Required Contribution for Fiscal Year April 30, 2012: [(1) + (2) + (3)]	498,911
5. Active Member Contributions (9.455% of Salaries):	107,763
6. Statutorily Required City Contribution: [(4) - (5)]	391,148

RECONCILIATION OF THE CHANGE
IN THE STATUTORILY REQUIRED CITY CONTRIBUTION

1.	Statutorily Required Contribution for Year ending April 30, 2011:	\$415,706
2.	Increase in Normal Cost and Amortization Payment due to anticipated pay changes:	16,331
3.	Increase/(Decrease) in Normal Cost resulting from actual pay changes:	(32,909)
4.	Effect of Asset Smoothing:	0
5.	Increase/(Decrease) resulting from changes in assumptions:	21,042
6.	Increase/(Decrease) resulting from other demographic and financial sources (retirements, deaths, new entrants, salary changes, etc.):	(7,932)
7.	Increase/(Decrease) resulting from change in actuarial cost method	\$ (21,090)
8.	Statutorily Required Contribution for Year ending April 30, 2012:	\$391,148

DERIVATION OF EXPERIENCE GAIN(LOSS) AND COST METHOD CHANGE
AS OF MAY 1, 2011

1.	Unfunded Actuarial Accrued Liability at May 1, 2010:	\$3,579,558
2.	Normal Cost Due at May 1, 2010:	306,929
3.	Interest on (1) and (2) to May 1, 2011 (at 7.75% per year):	301,203
4.	Contributions made for the prior year with interest to May 1, 2011:	544,901
5.	Expected Unfunded Actuarial Accrued Liability at May 1, 2011 Before Assumption Changes [(1) + (2) + (3) - (4)]:	3,642,789
6.	Change in Unfunded Actuarial Accrued Liability due to Assumptions Change at May 1, 2011:	836,429
7.	Expected Unfunded Actuarial Accrued Liability at May 1, 2011 [(5) + (6)]:	4,479,218
8.	Actual Unfunded Actuarial Accrued Liability at May 1, 2011:	4,078,630
9.	Gain (Loss) for the prior Plan Year [(7) - (8)]:	<u>\$400,588</u>
10.	Actual PUC Unfunded Actuarial Liability at May 1, 2011	\$3,532,288
11.	Additional liability resulting from Cost Method change (10) -(8)	\$ (546,342)

DERIVATION OF EXPERIENCE GAIN(LOSS) AS OF MAY 1, 2011

The experience gain (loss) reported above is the net result of the following:

1.	<u>FINANCIAL SOURCES</u>	
	a) Investment experience (based upon market value of assets):	\$ 425,299
	b) Contribution experience:	(19,734)
	c) Benefit Payments experience:	99,306
	d) Salary increases (greater)/lower than expected:	<u>230,541</u>
	Total from Financial Sources:	735,412
2.	<u>DEMOGRAPHIC SOURCES</u>	
	Mortality, retirement, disability, termination, etc.:	170,047
3.	<u>ACTUARIAL ADJUSTMENTS</u>	
	Market value adjustment for asset smoothing, including expenses	(504,871)
4.	<u>GAIN (LOSS) ALL SOURCES</u>	
	Total Gain (Loss) for the prior Plan Year [(1) + (2) + (3)]	\$400,588

SUMMARY OF DEMOGRAPHIC INFORMATION AS OF MAY 1, 2011

	<u>Number</u>	<u>Projected Annual Salaries (Fiscal Year 2012)</u>
Active Firefighters:	20	\$1,139,747

	<u>Number</u>	<u>Total Monthly Benefits</u>
Normal Retirees:	15	\$ 54,676
Survivors (Widows):	3	4,855
Survivors (Children):	5	113
Disabled Retirees:	2	5,680
Deferred Vested:	0	0
Terminated/Separated:	2	20,844 *

* Return of Contributions

The actuarial valuation was performed as of May 1, 2011 to determine contribution requirements for fiscal year 2012.

AGE AND SERVICE DISTRIBUTION

Attained Age	COMPLETED YEARS OF SERVICE										Total	Average Salaries
	0-1	2-4	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40+		
15-19											0	-
20-24											0	-
25-29											0	-
30-34		1	3								4	48,140
35-39		1									1	37,935
40-44			1	1	1						3	56,403
45-49					2	1					3	60,753
50-54					1	3	3				7	59,193
55-59						1					1	69,422
60-64									1		1	74,004
65+											0	-
TOTAL	0	2	4	1	4	5	3	0	1	0	20	56,987

Age = 46.50 Years

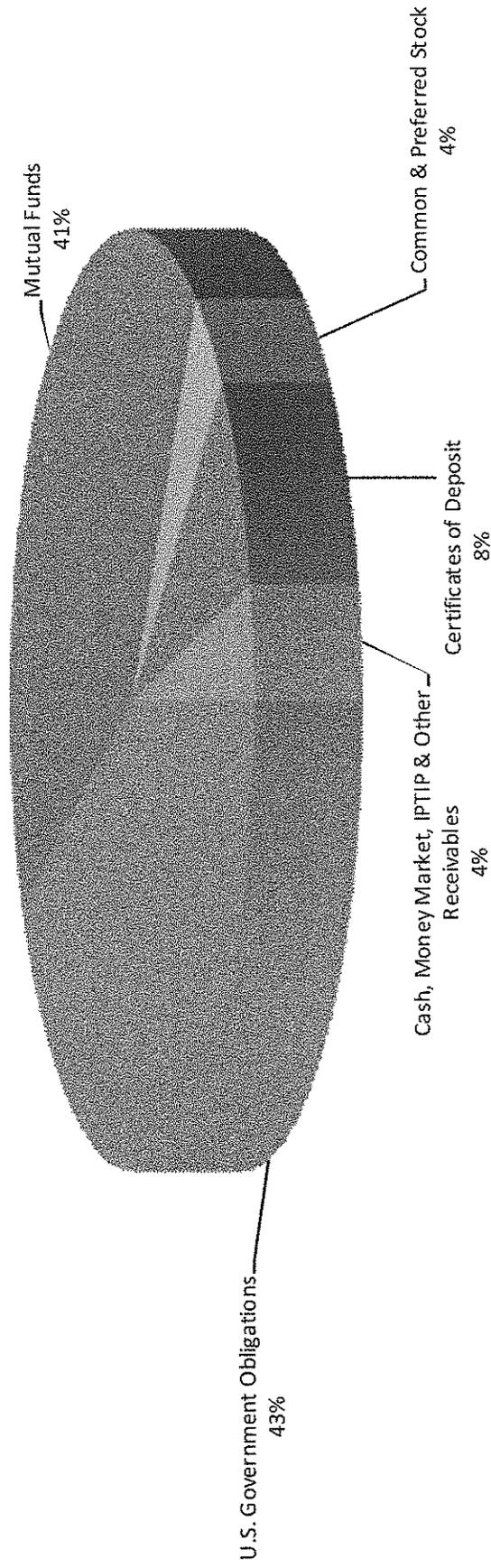
Service = 18.05 Years

ASSET INFORMATION

Cash, Money Market, IPTIP	\$403,406
Certificates of Deposit	865,093
State and Local Obligations	0
U.S. Government Obligations	4,723,783
Insurance Company Contracts	0
Pooled Investment Accounts	0
Mutual Funds	4,540,200
Common & Preferred Stock	487,780
Taxes Receivable	0
Accrued Interest	0
Other Receivables	30,982
Net Liabilities	0
	<hr/>
Net Present Assets at Market Value	\$11,051,244

The chart on the following page shows a percentage of invested assets.

ASSET INFORMATION



DEVELOPMENT OF ACTUARIAL VALUE OF ASSETS

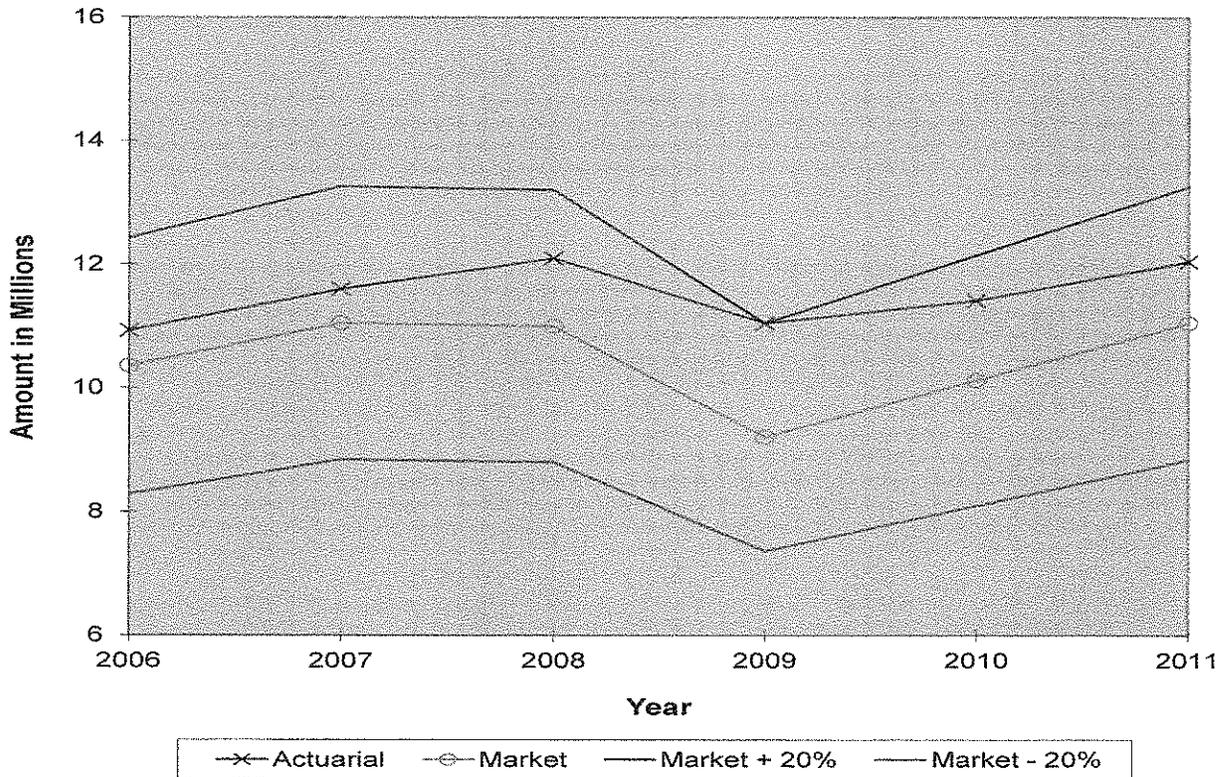
1.	Actuarial Value of Assets, May 1, 2010*	\$11,418,452
2.	Contributions Received During 2010-2011	526,210
3.	Benefit Payments and Expenses Made During 2010-2011	775,525
4.	Assumed Interest at 7.75% on (1), (2) and (3)	876,074
5.	Preliminary Actuarial Value of Assets: [(1) + (2) - (3) + (4)]	12,045,211
6.	Market Value, May 1, 2011*	11,051,244
7.	Preliminary Adjustment Account:	
	a) Amount: [(5) - (6)]	993,967
	b) Percentage: [(7a) ÷ (6) x 100%]	8.99%
8.	Final Adjustment Amount	
	a) Amount	993,967
	b) Percentage	8.99%
	c) Taxes receivable	0
9.	Adjusted Actuarial Value of Assets, May 1, 2011: [(6) + (8a) + (8c)]	12,045,211
10.	Final Actuarial Value of Assets for funding purposes May 1, 2011 [Greater of (6) and (9)]:	12,045,211
11.	Final Actuarial Value of Assets for GASB reporting [(10)-(8c)]*	12,045,211

*excluding taxes receivable

ASSET HISTORY

<u>For the Year beginning May 1</u>	<u>Actuarial Value of Assets</u>	<u>Market Value of Assets</u>
2011	\$12,045,211	\$11,051,244
2010	11,418,452	10,125,434
2009	11,047,973	9,206,644
2008	12,102,168	11,001,971
2007	11,603,090	11,053,316
2006	10,931,479	10,359,281

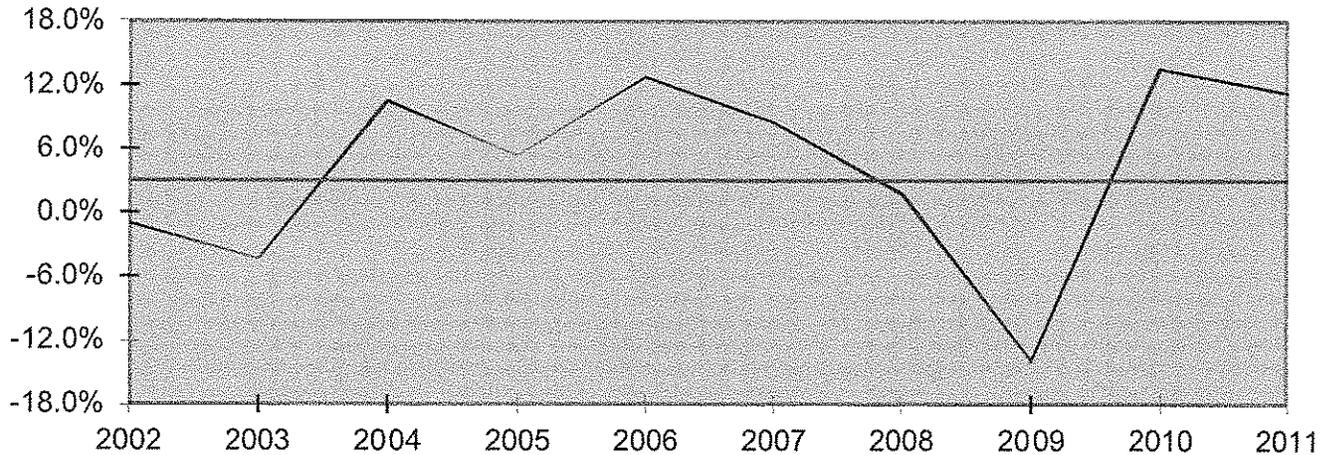
The chart below presents a comparison between the Actuarial Value of Assets and the Market Value of Assets for the current year and the five preceding years. The chart also illustrates the corridor 20% above and 20% below the Market Value of Assets.



ANALYSIS OF INVESTMENT RETURN

<u>Fiscal Year Ending April 30</u>	<u>Annual Rate of Return</u>
2011	11.33%
2010	13.48
2009	-13.85
2008	1.78
2007	8.51
2006	12.62
2005	5.37
2004	10.52
2003	-4.35
2002	-0.94
<u>Composite</u>	
2002-2011	3.03%

The following chart presents a progression of these percentages in graphical form.



CITY OF STERLING
FIREFIGHTERS' PENSION FUND

SUMMARY OF RESULTS
EXHIBIT 5-D

THIRTY - YEAR PROJECTION OF PAYMENTS

Year	Termination		Payouts from Active Group Upon		Death	Retirement	Disability	Payouts from		Total
	Lump Sum	Deferred Pension	Retired Group	Deferred Pensioners						
2011	498	0	5,341	69,121	10,579	782,541	20,844	888,924		
2012	108	0	7,570	122,473	21,754	775,768	0	927,673		
2013	0	0	7,567	170,810	33,731	768,204	0	980,312		
2014	0	0	9,689	211,088	45,090	759,830	0	1,025,697		
2015	0	0	11,856	255,705	56,940	750,445	0	1,074,946		
2016	0	0	13,631	301,891	68,160	739,952	0	1,123,634		
2017	0	0	15,700	348,763	79,554	728,185	0	1,172,202		
2018	0	0	17,171	392,548	87,964	715,066	0	1,212,749		
2019	0	0	19,261	434,883	96,475	700,560	0	1,251,179		
2020	0	0	20,474	480,928	104,513	684,429	0	1,290,344		
2021	0	0	22,309	520,561	112,262	666,750	0	1,321,882		
2022	0	0	23,348	552,435	119,281	647,583	0	1,342,647		
2023	0	0	24,807	581,952	125,402	626,837	0	1,358,998		
2024	0	0	25,628	608,251	131,700	604,584	0	1,370,163		
2025	0	0	26,771	631,826	138,117	580,884	0	1,377,598		
2026	0	0	27,249	658,370	144,937	555,801	0	1,386,357		
2027	0	0	28,150	686,611	151,301	529,342	0	1,395,404		
2028	0	0	28,490	725,683	156,401	518,178	0	1,428,752		
2029	0	0	29,193	750,459	161,561	489,862	0	1,431,075		
2030	0	0	29,396	765,910	167,211	460,510	0	1,423,027		
2031	0	0	29,737	782,133	171,734	430,372	0	1,413,976		
2032	0	0	29,723	798,485	176,132	399,763	0	1,404,103		
2033	0	0	29,855	816,208	181,253	369,049	0	1,396,365		
2034	0	0	29,535	829,808	184,521	338,625	0	1,382,489		
2035	0	0	29,532	840,322	187,090	308,737	0	1,365,681		
2036	0	0	28,936	845,763	189,907	279,724	0	1,344,330		
2037	0	0	28,754	845,922	191,413	251,910	0	1,317,999		
2038	0	0	27,819	840,868	193,270	225,496	0	1,287,453		
2039	0	0	27,356	831,297	190,462	200,640	0	1,249,755		
2040	0	0	26,328	816,410	186,952	177,476	0	1,207,166		

GASB STATEMENT NO. 25 DISCLOSURE INFORMATION

DEVELOPMENT OF THE ANNUAL REQUIRED CONTRIBUTION OF THE MUNICIPALITY

	Fiscal Year May 1, 2011 through <u>April 30, 2012</u>
1. Entry Age Normal Cost	\$295,744
2. Actuarial Accrued Liability	16,123,841
3. Actuarial Value of Assets*	12,045,211
4. Unfunded Actuarial Accrued Liability	4,078,630
5. Payment to Amortize Unfunded Actuarial Accrued Liability Over 40 Years from the Effective Date of Application of GASB 25 (26 years remaining)	218,646
6. Total Annual Required Contribution for Fiscal Year April 30, 2012: [(1) + (5)]	514,390
7. Active Member Contributions (9.455% of Salaries):	107,763
8. Annual Required Contribution (ARC) payable at the beginning of the current fiscal year: [(6) - (7)]	406,627

*Excluding Contributions Receivable

GASB STATEMENT NO. 25 DISCLOSURE INFORMATION
(Continued)

NOTES:

- The Annual Required Contribution as of May 1, 2011 has been determined under the Governmental Accounting Standards Board Statement No. 25 and is required disclosure for the fiscal year ending April 30, 2012. The Entry Age Normal Cost and the Actuarial Accrued Liability were determined using the Entry Age Normal Cost Actuarial Cost Method.
- The Entry Age Normal Cost has been determined as a level percentage of projected payroll of the active members of the group. The amortization method for the Unfunded Actuarial Accrued Liability is determined as a level percentage of payroll amount over a closed Amortization Period as permitted in Governmental Accounting Standards Board Statement No. 25.
- All values were determined on the basis of the actuarial assumptions and methods as more fully described in Appendix 2 of this report.

ACTUARIAL ASSUMPTIONS
(Economic)

Investment Return

7.25% per annum, compounded annually (net of expenses).

Salary Increases

Representative values of assumed salary increases are as follows:

<u>Age</u>	<u>Increase %</u>
25	4.8611
30	2.9848
35	2.0341
40	1.5239
45	1.3083
50	1.1846
55	1.1220

An additional inflation allowance of 2.50% per year is added to the above.

Payroll Growth

It was assumed that payroll will grow 4.50% per year.

Actuarial Asset Basis

A preliminary actuarial value of assets is calculated by accumulating the prior year's actuarial value with adjustments for contributions and benefit payments at the valuation interest rate. The market value is subtracted from the preliminary actuarial value. The difference, the preliminary adjustment account, is divided by the market value. Then using the following table, the final actuarial value of assets is calculated by adding the final adjustment account to the market value.

<u>Percentage of Market Value (Plus or Minus)</u>	
<u>Preliminary Adjustment Account</u>	<u>Final Adjustment Account</u>
0% to 10%	Preliminary adjustment account
10% to 20%	0% plus 1/3 of the excess over 10%
20% to 30%	16 2/3% plus 1/3 of the excess over 20%
Over 30%	20%

**ACTUARIAL ASSUMPTIONS
(Demographic)**

Effective May 1, 2013, a 5-year cumulative analysis of the actuarial value of assets will be made. If the final actuarial value differentiates by more than 10% (plus or minus) from the market value of assets, the final actuarial value of assets will be further adjusted to equal 90% or 110% of the market value of assets.

Mortality

Active Lives

RP-2000 Combined Healthy Mortality Table (male) with blue collar adjustment and with a 200% load for participants under age 50 and 125% for participants age 50 and over. Five percent (5%) of deaths amongst active firefighters are assumed to be in the performance of their duty.

Non-Active Lives

RP-2000 Combined Healthy Mortality Table (male) with blue collar adjustment and with a 200% load for participants under age 50 and 125% for participants age 50 and over.

Termination

Illustrative rates of withdrawal from the plan for reasons other than death or disability are as follows:

<u>Age</u>	<u>Rate of Withdrawal</u>
20	.0397
25	.0250
30	.0146
35	.0079
40	.0042
45	.0029
50	---

It is assumed that terminated firefighters will not be rehired.

**ACTUARIAL ASSUMPTIONS
 (Demographic)**

Disability Rates

Incidence of disability amongst firefighters eligible for disability benefits:

<u>Age</u>	<u>Rate</u>
25	.0009
30	.0025
35	.0046
40	.0065
45	.0097
50	.0166
55	.0314

15% of disabilities amongst active firefighters are assumed to be in the performance of their duty.

Retirement Rates

Retirements are assumed to occur between the ages of 50 and 69 in accordance with the following table:

<u>Age</u>	<u>Rate of Retirement</u>	<u>Age</u>	<u>Rate of Retirement</u>
50	.19	60	.28
51	.12	61	.36
52	.04	62	.44
53	.06	63	.52
54	.09	64	.60
55	.12	65	.68
56	.15	66	.76
57	.19	67	.84
58	.22	68	.92
59	.25	69	1.00

Marital Status

85% of firefighters are assumed to be married.

**ACTUARIAL ASSUMPTIONS
(Demographic)**

Spouse's Age

Wives are assumed to be 3 years younger than their husbands.

**ACTUARIAL ASSUMPTIONS
(Additional)**

Expenses

None assumed.

Actuarial Cost Method

Projected Unit Credit for statutory minimum

Entry Age Normal for recommended and GASB reporting

SUMMARY OF PRINCIPAL PLAN PROVISIONS

Definitions

Tier 1 – For Firefighters first entering Article 4 prior to January 1, 2011

Tier 2 – For Firefighters first entering Article 4 after December 31, 2010

Firefighter (4-106): Any person employed in the municipality's fire service as a firefighter, fire engineer, marine engineer, fire pilot, bomb technician or scuba diver.

Creditable Service (4-108): Time served by a firefighter, excluding furloughs and leaves of absence in excess of 30 days, but including leaves of absence for illness or accident and periods of disability where no disability pension payments are received and also including up to 3 years during which disability payments have been received provided contributions are made.

Creditable Service from other specified agencies is also included. Combined service credit option is available on a voluntary basis.

Pension (4-109)

Normal Pension Age

Tier 1 - Age 50 with 20 or more years of creditable service.

Tier 2 - Age 55 with 10 or more years of creditable service.

Normal Pension Amount

Tier 1 - 50% of the greater of the annual salary held in the year preceding retirement or the annual salary held on the last day of service, plus 2½% of such annual salary for service from 20 to 30 year (maximum 25%).

Tier 2 - 2½% of Final Average salary for each year of service. Final Average Salary is the highest salary based on the highest consecutive 96 months of the final 120 months of service

Early Retirement at age 50 with 10 or more years of service but with a penalty of ½% for each month prior to age 55.

Annual Salary capped at \$106,800 increased yearly by the lesser of ½ of the Consumer Price Index- Urban (CPI-U) or 3%.

Minimum Monthly Benefit: \$1,000

SUMMARY OF PRINCIPAL PLAN PROVISIONS
(Continued)

Maximum Benefit Percentage: 75% of salary

Minimum Monthly Benefit: Annual step rate increases from \$1,030.00 to \$1,159.27.

Maximum Benefit Percentage: 75% of salary except line of duty.

Termination Pension Amount

Any firefighter who retires or is separated from service with at least 10, but less than 20 years of credited service, shall be entitled to a monthly pension commencing at age 60 equal to the monthly rate of compensation based on rank at separation multiplied by the applicable percentage below:

<u>Years of Credited Service</u>	<u>Applicable Percentage</u>
10	15.0 %
11	17.6
12	20.4
13	23.4
14	26.6
15	30.0
16	33.6
17	37.4
18	41.4
19	45.6

Pension Increase

Non-Disabled

Tier 1 - 3% increase of the original pension amount after attainment of age 55 for each year elapsed since retirement, followed by an additional 3% of the original pension amount on each January thereafter. Effective July 1, 1993, 3% of the amount of pension payable at the time of the increase including increases previously granted, rather than 3% of the originally granted pension amount.

Tier 2 - The lesser of ½ of the Consumer Price Index- Urban (CPI-U) or 3% increase of the original pension amount after attainment of age 60, followed by an additional 3% of the original pension amount on each January 1 thereafter.

For firefighters who retire after January 1, 1986, 3% increase of the original pension amount after attainment of age 55 for each year elapsed since retirement, followed by an additional 3% in each January thereafter.

**SUMMARY OF PRINCIPAL PLAN PROVISIONS
(Continued)**

For firefighters who retire prior to January 1, 1986, but after July 1, 1971, the 3% increase commences at age 60, and for firefighters who retire before July 1, 1971, the 3% increase commences at age 65.

Disabled

3% increase of the original pension amount after attainment of age 60, followed by an additional 3% of the original pension amount in each January thereafter.

Pension to Survivors (4-114)

Eligibility

Death of a firefighter:

- (1) on active duty as a result of any illness or accident;
- (2) on disability retirement;
- (3) on retirement with 20 years of service;
- (4) as a terminated member who has rights to a benefit at age 60; and
- (5) as a deferred pensioner.

Death Benefit

Tier 1 - 54% of annual salary based on attained rank at date of separation of service to surviving spouse, plus 12% of such salary to dependent children under 18.

100% of annual salary if death occurs in the line of duty.

Depending upon the survival of the spouse, dependent children benefits may increase to a level of 20% of firefighter's salary.

Greater of 100% of monthly retirement benefit or 54% of annual salary if completed 20 years of service or on disability retirement.

Tier 2 – 66 2/3% of pension amount to surviving spouse (or dependent children), subject to the following increase: the lesser of ½ of the Consumer Price Index- Urban (CPI-U) or 3% increase of the original pension amount after attainment of age 60, followed by an additional 3% of the original pension amount on each January 1 thereafter.

Minimum Monthly Survivor Pension

Annual step rate increases from \$1,030.00 to \$1,159.27.

Maximum Survivor Pension

75% of such firefighter's salary.

SUMMARY OF PRINCIPAL PLAN PROVISIONS
(Continued)

Disability Pension - Line of Duty (4-110)

Eligibility

Suspension or retirement from fire service due to sickness, accident or injury while on duty.

Pension

Greater of 65% of salary attached to rank at date of suspension or retirement and the retirement pension available.

Minimum Monthly Benefit: Annual step rate increases from \$1,030.00 to \$1,159.27.

For each dependent child under 18, an additional \$20 per month increased annually is granted each disabled member. Maximum total benefit is 75% of salary.

Disability Pension - Not on Duty (4-111)

Eligibility

Suspension or retirement from fire service for any cause other than while on duty. Member must have at least 7 years of credited service.

Pension

50% of salary attached to rank at date of suspension or retirement.

Disability Pension - Occupational Disease (4-110.1)

Eligibility

Suspension or retirement from service after 5 years of service from causes of heart disease, cancer, tuberculosis or other lung disease.

Pension

Same pension as in line of duty.

SUMMARY OF PRINCIPAL PLAN PROVISIONS
(Continued)

Disability Pension Option A (4-113(a))

Eligibility

Member receiving a disabled pension who attains age 50 and whose years of creditable service and years of disablement total 20 years.

Pension Option

Eligible for pension increase upon conversion to retirement. Pension amount remains the same at date of conversion but subject to annual pension increases.

Disability Pension Option B (4-113(b))

Eligibility

Member receiving disability pension who attains age 50 and who had 20 years of creditable service at date of disablement.

Pension Option

Convert to normal pension based upon years of service at disablement and salary attached to rank on date of election.

Other Provisions

Refund (4-116)

At death with no survivors, contributions are returned to estate.

At termination with less than 20 years of service, contributions are refunded upon request.

Contributions by Firefighters (4.118.1)

9.455% of salary, including longevity, but excluding overtime pay, holiday pay, bonus pay, merit pay or other cash benefit. Additional 1% of salary if combined service credit option is selected.

GLOSSARY

Actuarial Accrued Liability

See *Entry Age Normal Cost Method* and *Projected Unit Credit Cost Method*.

Actuarial Assumptions

The economic and demographic predictions used to estimate the present value of the plan's future obligations. They include estimates of investment earnings, salary increases, mortality, withdrawal and other related items. The *Actuarial Assumptions* are used in connection with the *Actuarial Cost Method* to allocate plan costs over the working lifetimes of plan participants.

Actuarial Cost Method

The method used to allocate the projected obligations of the plan over the working lifetimes of the plan participants. Also referred to as an *Actuarial Funding Method*.

Actuarial Funding Method

See *Actuarial Cost Method*

Actuarial Gain (Loss)

The excess of the actual *Unfunded Actuarial Accrued Liability* over the expected *Unfunded Actuarial Accrued Liability* represents an *Actuarial Loss*. If the expected *Unfunded Actuarial Accrued Liability* is greater, an *Actuarial Gain* has occurred.

Actuarial Present Value

The value of an amount or series of amounts payable or receivable at various times, determined as of a given date by the application of a particular set of *Actuarial Assumptions*.

Actuarial Value of Assets

The asset value derived by using the plan's *Asset Valuation Method*.

Asset Valuation Method

A valuation method designed to smooth random fluctuations in asset values. The objective underlying the use of an asset valuation method is to provide for the long-term stability of employer contributions.

Employee Retirement Income Security Act of 1974 (ERISA)

The primary federal legislative act establishing funding, participation, vesting, benefit accrual, reporting, and disclosure standards for pension and welfare plans.

GLOSSARY
(Continued)

Entry Age Normal Cost Method

One of the standard actuarial funding methods in which the *Present Value of Projected Plan Benefits* of each individual included in the *Actuarial Valuation* is allocated on a level basis over the earnings of the individual between entry age and assumed exit age(s). The portion of this *Actuarial Present Value* allocated to a valuation year is called the *Normal Cost*. The portion of this *Actuarial Present Value* not provided for at a valuation date by the *Actuarial Present Value* of future *Normal Costs* is called the *Actuarial Accrued Liability*.

Normal Cost

The portion of the *Present Value of Projected Plan Benefits* that is allocated to a particular plan year by the *Actuarial Cost Method*. See *Entry Age Normal Cost Method* for a description of the *Normal Cost* under the *Entry Age Normal Cost Method*. See *Projected Unit Credit Cost Method* for a description of the *Normal Cost* under the *Projected Unit Credit Cost Method*.

Present Value of Future Normal Costs

The present value of future normal costs determined based on the *Actuarial Cost Method* for the plan. Under the *Entry Age Normal Cost Method*, this amount is equal to the excess of the *Present Value of Projected Plan Benefits* over the sum of the *Actuarial Value of Assets* and *Unfunded Actuarial Accrued Liability*.

Present Value of Projected Plan Benefits

The present value of future plan benefits reflecting projected credited service and salaries. The present value is determined based on the plan's actuarial assumptions.

Projected Unit Credit Cost Method

One of the standard actuarial funding methods in which the *Present Value of Projected Plan Benefits* of each individual included in the *Actuarial Valuation* is allocated by a consistent formula to valuation years. The *Actuarial Present Value* allocated to a valuation year is called the *Normal Cost*. The *Actuarial Present Value* of benefits allocated to all periods prior to a valuation year is called the *Actuarial Accrued Liability*.

Statement No. 25 of the Governmental Accounting Standards Board (GASB No. 25)

The accounting statement that established the standards of financial accounting and reporting for the financial statements of defined benefit pension plans.

Unfunded Actuarial Accrued Liability

The excess of the *Actuarial Accrued Liability* over the *Actuarial Value of Assets*.