**CITY OF STERLING**
**POLICE PENSION FUND**

# ACTUARIAL VALUATION
# AS OF MAY 1, 2015 FOR THE
# FISCAL YEAR ENDING APRIL 30, 2016

**November 2, 2015**

Tepfer Consulting Group, Ltd.
Actuaries and Administrators
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www.TepferConsulting.com

November 2, 2015

Ms. Cindy Von Holten
City of Sterling
212 Third Avenue
Sterling, IL 61081

RE: Sterling Police Pension Fund

Dear Cindy:

Enclosed is our actuarial valuation report for the **Sterling Police Pension Fund** for the fiscal year May 1, 2015 through April 30, 2016.

The results of our valuation indicate that the recommended minimum contribution from the City ("Sponsor") for the next tax year is **$978,830 or 57.63%** of current payroll. This contribution coupled with the anticipated $ 161,083 or 9.91% of current payroll to be collected from participating police officers will be sufficient to meet the State statutory requirements described in 40 ILCS 5/3. Further information is provided within our report.

**Please note that, as a result of the implementation of GASB 67, the recommended contribution has been revised to provide a 100% funding target rather than the former 90%. This contribution is also the Actuarially Determined Employer Contribution (ADEC) in accordance with the adopted funding policy. The increase in recommended contribution because of this change is $172,451**.

**Additionally, as noted in the Valuation Commentary on page 3 of the report, we have changed the mortality assumption to a more modern and appropriate mortality table. The increase in recommended contribution because of this modification is $119,018.**

**Finally, the change in recommended contribution resulting from actual plan experience is $ 15,293 as shown in Exhibit 3-B.**

Alternatively, under the current statute, our valuation results indicate the statutory minimum contribution from the City for the next tax year to be $ 616,897 or 36.32% of current payroll. This remains at a 90% target.

Statement No. 25 of the Governmental Accounting Standards Board is no longer applicable and, therefore, we have revised our report to remove the calculation of the unadjusted Annual Required Contribution. (ARC). GASB 67 and 68 information, if requested, is provided in a separate report.

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 Police Pension Fund** 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.

As part of this process, 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 Police Pension Fund** and a general understanding of the inter-relationships of the actuarial assumptions, the Board, the Sponsor and the Actuary hopefully reach a mutual agreement as to the assumptions which will be used in the current actuarial valuation. The ultimate decision, nonetheless, remains with the actuary who must abide by his professional standards and judgment.

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.

*TCG Public Consulting, Ltd. is affiliated with Tepfer Consulting Group, Ltd.

Experience Analysis

Actuarial assumptions are not sacrosanct. In fact, it is not uncommon for actuarial assumptions to be changed to better reflect a plan's experience and prognosis. Each year the actuarial process examines the experience of the fund. General parameters indicate that a variance of less than 3% of the actuarial accrued liability is acceptable to assure that the assumptions used remain suitable. The measurement compares the actual unfunded liability to the expected unfunded liability. The total gain and loss developed is then analyzed by individual assumption, where available, to assure appropriateness. Based upon the results of this year's analysis, both in aggregate and individually, we have determined that many of the chosen assumptions remain suitable for continued use. A single year deviation is not an automatic trigger for a change in assumptions. Instead, multiple years are monitored and changes in assumptions generally occur only after trends are discovered.

**Approach to Setting Actuarial Assumptions (please see the section in the report beginning on Page 2)**

The complete actuarial assumptions used in this valuation are contained in Appendix 1. Although specific assumptions must be used in the mathematical exercise, actuarial assumptions are better viewed as a range. Actuarial Professional Standards indicate that in the selection of economic assumptions, a "best-estimate" range should be developed. Based upon our analysis of Downstate Police and Fire Pension funds we have developed the following best estimate ranges for economic assumptions:

| | |
|---|---|
| Investment Return | 6.50% - 7.50% |
| Inflation: | 1.50% - 2.50% |
| Compensation Scale | Rates ranging from 4.86% to 1.12% varying by age, plus an inflation factor |
| Payroll Growth | 3.50% - 4.50% |

Actuarial Professional Standards indicate that in the selection of non-economic assumptions, a reliance upon published tables and/or individual experience studies pertinent to the group are acceptable procedures. Based upon our analysis of experience for approximately 70 Downstate Police and Fire Pension funds we have developed the following general rates for non-economic assumptions:

Mortality Rates (active and disabled) - Published tables projected to the current valuation date loaded for public safety employee experience
Termination rates – aged based rates ranging from 7% to 1%
Disability rates - aged based rates ranging from 0.13% to 0.16%
Retirement rates – aged based rates ranging from 36% to 100%

At this point in time, these rates are applied to all participants without regard to tier. It is anticipated that once experience is developed, the retirement rates for tier 2 employees may be modified

Demographic considerations

For this valuation, it was noted that the force continues to remain stable as to its size and demographic composition. In the current valuation, it was observed that the ratio of the number of inactive participants (25, exclusive of terminated employees who are due a refund of their contributions) to the active participants 28 in the Fund is 89.29 which is below many other funds in the State. **However, the average age and service of the active participating group is not unreasonable for a fund of this size. As a percentage of the total pension liabilities, the liabilities for inactive participants represent over 63% of the total liabilities. *This is a positive statistic*.**

Additionally, pension payments have been modestly escalating. Nonetheless, absent a large growth in the active force, with proper funding, the fund's position should become more favorable for the foreseeable future and although steady, the fund is still in a barely acceptable financial condition.

As would be expected in this situation, a very large portion of the assets available for investment has been committed to provide benefits for existing pensioners and beneficiaries. All of the assets in the plan are already dedicated to cover the liabilities for the currently retired participants. Additionally, pension disbursements on an annual basis total approximately $950,000 and investment earnings are currently insufficient to provide for these payments on an ongoing basis.

As indicated last year, municipal contributions and contributions by active police officers are being used to pay current expenses. These funds are generally the major source of new funds for investment purposes to accumulate reserves. Even with improved investment returns, the maturing of the employee group requires that the fund be carefully monitored during the next few years to assure that an orderly funding progress is maintained. If investment income remains insufficient to pay the existing pensioners, then municipal and participant contributions will continue to be used.

As indicated last year, municipal contributions and contributions by active police officers are being used to pay current expenses. These funds are generally the major source of new funds for investment purposes to accumulate reserves. Even with improved investment returns, the maturing of the employee group requires that the fund be carefully monitored during the next few years to assure that an orderly funding progress is maintained. If investment income remains insufficient to pay the existing pensioners, then municipal and participant contributions will continue to be used.

*Financial considerations*

In these uncertain times, the fund continues to experience very limited short-term investment growth. Furthermore, the fund continues to maintain less than adequate funded ratios. The fund has earned marginal rates of return over the short term. As shown in Exhibit 5-C of our report, the composite rate of return for the fund since 2005 is 5.20%, but 6.35% since 1988. The investment smoothing method adopted initially by the fund and now mandated by statute serves to level the contribution and shield against annual investment volatility. However, it is not unnoticed that annual pension payments far exceeded the investment income during fiscal year ending 2015 and an annual investment return of **7.30%** would be needed to cover the outgoing benefit expenses. The Trustees should be advised that this is a potentially dangerous situation regarding the fund. Clearly municipal contributions will remain at current levels until the fund can annually increase its investment return.

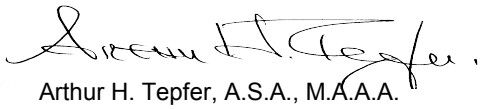
Nonetheless, the ongoing commitment of the City toward making recommended contributions has served the fund well and the positive investment return by the Plan's fiduciaries have provided a strong platform for continued stability and growth,

We ask that you review the section entitled "Actuarial experience since the last actuarial valuation" beginning on page 3 for a further explanation of what has occurred since the last actuarial valuation.

Please do not hesitate to contact us if you have any questions concerning our report.

Sincerely,

**TCG PUBLIC CONSULTING, LTD.**



Arthur H. Tepfer, A.S.A., M.A.A.A.
Consulting Actuary

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**Page**

## ACTUARIAL STATEMENT

**TCG Public Consulting, Ltd**. was retained by the **City of Sterling and the City of Sterling Police Pension Fund** to perform an independent actuarial valuation for the Police 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, 2016 and indicates a **statutorily required contribution in accordance with 40 ILCS 5/3, Section 125 of $616,897 or 36.32% of member payroll, a recommended minimum contribution of $978,830 or 57.63% of payroll.** These contributions are net of contributions made by active member police officers during the fiscal year. The recommended minimum contribution also serves as the Actuarially Determined Employer Contribution (ADEC) for purposes of GASB 67 and 68.

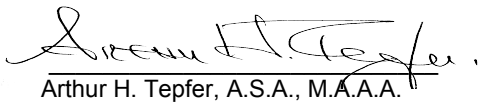
The results shown in this report have been calculated under the supervision of a qualified Actuary as defined in appropriate State statutes. All results are based upon demographic data submitted by the Police Pension Fund, financial data submitted by the Police Pension Fund, applications of actuarial 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 an Enrolled Actuary in good standing under the Employee Retirement Income Security Act of 1974. 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.

**TCG PUBLIC CONSULTING, LTD.**



Arthur H. Tepfer, A.S.A., M.A.A.A.
Enrolled Actuary #14-02352

November 2, 2015

***Statement No. 25* of the Governmental Accounting Standards Board has been replaced by Statement No. 67. Information pertaining to Statement 67 is not included in this valuation report.**

## VALUATION OBJECTIVES

The **City of Sterling Police Pension Fund** provides benefits to members when they retire, die, become disabled or terminate employment. For plans 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 for 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 assumed incidence of the future benefit costs. Since the total 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 calculated 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. Additionally the actuary is bound by Actuarial Standards of Practice ("ASOP's") as published by the Actuarial Standards Board. 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.

Selection of the Actuarial Cost Method

An actuarial cost method, sometimes called a "funding method", is essentially an approach to budgeting for the calculated 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 Sponsor the portion of the expected actuarial value of benefits 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 expressed 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 expressed 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.

**VALUATION OBJECTIVES**
**(Continued)**

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 Sponsor 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 (not the Normal Cost) is affected by the experience of the plan, and, therefore, any adjustments are made only 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.

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.

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 also presents a **recommended minimum contribution** that 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 100% 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.A. 96-1495.

Although, we do not agree with the statutorily required level percentage of payroll methodology of determining the amortization of the unfunded accrued liability, we would be remiss if we did not advise our clients as to a "statutorily" acceptable calculation under the State law.

Approach to Setting Actuarial Assumptions

In February, 2014, the Society of Actuaries released a "Report of the Blue Ribbon Panel on Public Pension Plan Funding" which focuses on the development of recommendation for strengthening public plan funding. Some of the recommendations are as follows:

Adequacy: Funding entities and plan trustees should strive to fund 100% of the obligation for benefits using assumptions that are estimated to be realizable 50% of the time.

Intergenerational Equity: Fully funding pension benefits over the average future service period of employee reasonably aligns the cost of the benefits of the public services with the taxpayers who benefit from those services.

Cost Stability and Predictability: Level costs over an intermediate period is often at odds with the goals of adequacy and intergenerational equity. Funding by allocating a significant portion to higher- risk, more volatile assets will tend to undermine the goal of cost stability. Adequacy and intergenerational equity should take precedence over the goal of cost stability and predictability.

**VALUATION OBJECTIVES**
**(Continued)**

Regarding the choice of interest rate, the following is helpful:

According to the report, public retirement systems should use a forward-looking rate to discount pension liabilities rather than actual plan returns.

The new rate would replace the actual long-term rate of return on plan assets generally used now to discount liabilities and set contribution levels

The panel rejected use of a risk-free rate — or rates on the Treasury yield curve — to discount liabilities despite the basis in economic theory to balance generational risks, instead

"Plans should be using rates of return that they believe can be achieved over the next 20- to 30-year period with a 50% probability," the report said.

"The panel does not believe the rate should be aggressively conservative, as doing so may lead to a surplus." When making assumptions, "it is important to consider the extent to which future economic and market conditions may differ from those of today or of the past," … noting that "the long-term secular decline in interest rates … strongly suggests that the robust fixed-income performance of the past is not likely to be repeated in the future."

It is our opinion that other specific factors in the Downstate System must also be considered in the choice of a "funding interest rate" assumption. The Police and Fire Pension funds in the Downstate System are limited in their investment opportunities by State Statutes. Depending upon the current amount of assets in the fund, various investments are not permitted. Unfortunately, in our opinion, these limitations have a negative impact on fund growth.

We believe that these statutory limitations are counter-productive to fund growth. Additionally, the newly applicable GASB disclosure rules require Financial Reporting under lower interest rate assumptions than historically used for funding calculations.

It is anticipated that many Pension Boards will reassess the overall investment portfolio in order to balance the competing funding requirements and the financial disclosure rules. We hope that the Legislature also will respond to the increasing need of more investment latitude to the Pension Fund Trustees.

Change in Mortality Assumption

The mortality assumption can be viewed in one of two ways:

1. How long will a participant and or beneficiary continue to participate in the plan? – probability of surviving.

2. When will benefit accruals or payments cease? – probability of not surviving.

Mortality studies are generally performed based upon the experience of large populations and are published by the Society of Actuaries In our opinion, **there are no *credible* published tables for the Downstate Police and Fire Pension System**, **despite the recent experience study completed by the Department of Insurance.** With the publication of the RP-2014 Mortality Table, we found it necessary to examine our existing mortality assumption (based upon the RP-2000 table issued in the early portion of this century).

The Downstate System contains many small funds which are not suitable for a mortality study (despite the DOI promulgation). We reject the use of the unloaded RP-2000 Blue Collar table and instead assume an increased mortality risk for public safety personnel. The RP-2014 table is unsuitable because it excluded any experience from public plans. The RP-2000 mortality table, in our opinion, is a more appropriate table to use as a base. The RP-2000 table, although a static table, comes with a generational approximation technique using a mortality projection scale. Two scales are provided by the study scale AA and Scale BB. Scale AA has been proven to be non-predictive and is no longer suggested. Scale BB is now the preferred projection scale. Therefore, we are changing our mortality assumption to the following:

**RP-2000 Combined Healthy Male with Blue Collar adjustment,**

**projected to 2015 by Scale BB and loaded 150% for ages 20-49.**

**VALUATION OBJECTIVES**
**(Continued)**

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 that is expected by the actuarial assumptions. The measurement of any deviations of actual to expected experience is commonly referred to as a "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 that, 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 recommended minimum 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 $ (163,043) or 0.75% of the accrued liability at the beginning of the plan year. The dollar amount for the plan's current **recommended minimum contribution** is 145.64% of the prior year's contribution. When measured as a percentage of payroll, the contribution level has changed from 37.06% to 57.63%. Please note that these changes include the change in funding target from 90% to 100% and the adoption of the new mortality table

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 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. Exhibit 5D presents this projection.

## RESULTS OF VALUATION

The following exhibits present the results of our actuarial valuation of the **City of Sterling Police Pension Fund** for the fiscal year May 1, 2015 through April 30, 2016.

Exhibit 1 indicates that the recommended minimum contribution, calculated using the Entry Age Normal Cost method (EANC), from the City is $978,830 or 57.63% 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 $616,897 or 36.32% 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 the City contribution.

Contribution amounts presented in this report have not been adjusted for interest to the date of payment. All values were determined on the basis of the actuarial assumptions and methods as more fully described in Appendix 1 of this report.

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

Exhibit 5 shows information relating to the pension assets.

**GENERAL VALUATION RESULTS FOR FISCAL YEAR**
**MAY 1, 2015 THROUGH APRIL 30, 2016**

Recommended Minimum Contribution

| | | |
|---|---|---|
| 1. | Entry Age Normal Cost: | $ 381,325 |
| 2. | Unfunded Actuarial Accrued Liability (or Surplus): | 8,655,391 |
| 3. | Actuarial Value of Assets: | 13,166,179 |
| 4. | Annual Salaries of Active Police Officers: | 1,625,458 |
| 5. | Recommended Minimum Contribution from the City: | 978,830 |
| | Contribution Percentage: | 57.63%* |

Statutory Minimum Contribution

| | | |
|---|---|---|
| 1. | Projected Unit Credit Normal Cost: | $ 449,847 |
| 2. | Unfunded Actuarial Accrued Liability (or Surplus): | 7,517,157 |
| 3. | Actuarial Value of Assets: | 13,166,179 |
| 4. | Annual Salaries of Active Police Officers: | 1,625,458 |
| 5. | Statutory Minimum Contribution from the City: | 616,897 |
| | Contribution Percentage: | 36.32%* |

* Projected for the fiscal year ending April 30, 2016.

**SUMMARY OF SPECIFIC VALUATION RESULTS**

| | | Number | Actuarial Present Value of Projected Benefits | Entry Age Normal Cost | Projected Unit Credit Normal Cost |
|---|---|---|---|---|---|
| 1. | Active Police Officers: | 28 | | | |
| | Retirement Pension: | | $9,818,661 | $268,920 | $350,819 |
| | Survivors Pension: | | 210,109 | 10,725 | 10,237 |
| | Disability Pension: | | 1,102,452 | 68,552 | 61,035 |
| | Withdrawal Pension: | | 378,703 | 33,128 | 27,756 |
| | TOTAL . . . . . | 28 | $11,509,925 | $381,325 | $449,847 |
| 2. | Inactive Police Officers and Survivors: | | | | |
| | Normal Retirees: | 16 | $10,318,672 | | |
| | Widows (Survivors): | 4 | 1,036,114 | | |
| | Children (Survivors): | 0 | 0 | | |
| | Disabled Retirees: | 3 | 1,906,059 | | |
| | Deferred Vested: | 2 | 639,252 | | |
| | Terminated/Separated: | 1 | 167 | | |
| TOTAL . . . . . | | 26 | $13,900,264 | | |

## SUMMARY OF SPECIFIC VALUATION RESULTS
## (Continued)

| | | Entry Age Normal (EAN) | Projected Unit Credit (PUC) |
|---|---|---|---|
| 3. | Total Actuarial Present Value of Projected Benefits: | $25,410,189 | N/A |
| 4. | Actuarial Present Value of Future Normal Costs: | 3,588,619 | N/A |
| 5. | Actuarial Accrued Liability: [(3) - (4)] | 21,821,570 | 20,683,336 |
| 6. | Actuarial Value of Assets: | 13,166,179 | 13,166,179 |
| 7. | Unfunded Actuarial Accrued Liability (or Surplus) [(5) - (6)] | 8,655,391 | 7,517,157 |
| 8. | Funded Ratio Percentage: [(6) ÷ (5)] x 100 | 60.34% | 63.66% |

## HISTORY OF FUNDED PERCENTAGES

| For the Year beginning May 1 | Valuation Assets | EAN Accrued Liabilities | EAN Funded Percentage | PUC Accrued Liabilities | PUC Funded Percentage |
|---|---|---|---|---|---|
| 2015 | $13,166,179 | $21,821,570 | 60.34% | $20,683,336 | 63.66% |
| 2014 | 12,674,779 | 19,589,919 | 64.70% | 18,436,969 | 68.75% |
| 2013 | 12,195,316 | 18,769,772 | 64.97% | 17,574,151 | 69.39% |
| 2012 | 11,828,918 | 18,014,751 | 65.66% | 16,823,580 | 70.31% |
| 2011 | 12,313,112 | 17,231,453 | 71.46% | 16,104,972 | 76.46% |
| 2010 | 11,682,418 | 15,310,099 | 76.31% | N/A | N/A |
| 2009 | 11,113,057 | 14,499,049 | 76.65% | N/A | N/A |
| 2008 | 11,967,931 | 13,519,812 | 88.52% | N/A | N/A |
| 2007 | 11,537,623 | 12,432,905 | 92.80% | N/A | N/A |
| 2006 | 10,778,895 | 11,544,004 | 93.37% | N/A | N/A |

**DEVELOPMENT OF RECOMMENDED MINIMUM CITY CONTRIBUTION**

| | | Fiscal Year May 1, 2015 through April 30, 2016 |
|---|---|---|
| 1. | Entry Age Normal Cost: | $381,325 |
| 2. | Recommended Minimum Payment to Amortize **100 % of the Entry Age Normal Unfunded Accrued Liability as a level dollar amount** over 26.00137 Years from May 1, 2015: | 684,014 |
| 3. | Interest on (1) and (2): | 74,574 |
| 4. | Credit for Surplus: | 0 |
| 5. | Total Recommended Minimum Contribution for Fiscal Year 2016: [(1) + (2) + (3) + (4)], but not less than Statutorily Required | 1,139,913 |
| 6. | Active Member Contributions (9.91% of Salaries): | 161,083 |
| 7. | Net Recommended Minimum City Contribution: [(5) - (6)] | 978,830 |

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

| | | Fiscal Year May 1, 2015 through April 30, 2016 |
|---|---|---|
| 1. | Projected Unit Credit Normal Cost: | $449,847 |
| 2. | Minimum Payment to Amortize **90% of the Projected Unit Credit Unfunded Accrued Liability as a level percentage of payroll** over 26.00137 Years from May 1, 2015: | 277,237 |
| 3. | Interest on (1) and (2): | 50,896 |
| 4. | Credit for Surplus: | 0 |
| 5. | Total Statutorily Required Contribution for Fiscal Year 2016: [(1) + (2) + (3) + (4)] | 777,980 |
| 6. | Active Member Contributions (9.91% of Salaries): | 161,083 |
| 7. | Net Statutorily Required City Contribution: [(5) - (6)] | 616,897 |

**RECONCILIATION OF THE CHANGE IN THE RECOMMENDED MINIMUM CITY CONTRIBUTION**

| | | |
|---|---|---|
| 1. | Recommended Minimum Contribution for Year ending 4/30/2015: | $672,068 |
| 2. | Increase in Normal Cost and Amortization Payment due to anticipated pay changes: | 30,131 |
| 3. | Increase/ (Decrease) in Normal Cost resulting from actual pay changes: | ( 24,405) |
| 4. | Effect of Asset Smoothing: | ( 2,278) |
| 5. | Increase/ (Decrease) resulting from changes in assumptions: | 119,018 |
| 6. | Increase/ (Decrease) resulting from other demographic and financial sources (retirements, deaths, new entrants, salary changes, etc.): | 184,296 |
| 7. | Recommended Minimum Contribution for Year ending April 30, 2016: | $ 978,830 |

**DERIVATION OF EXPERIENCE GAIN (LOSS) AND COST METHOD CHANGE**
**AS OF MAY 1, 2015**

| | | |
|---|---|---|
| 1. | EANC Unfunded Actuarial Accrued Liability at May 1, 2014: | $6,915,140 |
| 2. | Entry Age Normal Cost due at May 1, 2014: | 397,161 |
| 3. | Interest on (1) and (2) to May 1, 2015 (at 7.00% per year): | 511,861 |
| 4. | Contributions made for the prior year with interest to May 1, 2015: | 837,851 |
| 5. | Expected EANC Unfunded Actuarial Accrued Liability at May 1, 2015 Before Assumption Changes [(1) + (2) + (3) - (4)]: | 6,986,311 |
| 6. | Change in EANC Unfunded Actuarial Accrued Liability due to Assumptions Change at May 1, 2015: | 1,506,037 |
| 7. | Expected EANC Unfunded Actuarial Accrued Liability at May 1, 2015 [(5) + (6)]: | 8,492,348 |
| 8. | Actual EANC Unfunded Actuarial Accrued Liability at May 1, 2015: | 8,655,391 |
| 9. | Gain (Loss) for the prior Plan Year [(7) – (8)]: | $ (163,043) |

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

| | | | |
|---|---|---|---|
| 1. | | FINANCIAL SOURCES | |
| | a) | Investment experience (based upon market value of assets): | $ (158,094) |
| | b) | Contribution experience: | ( 41,238) |
| | c) | Benefit Payments experience: | 28,339 |
| | d) | Salary increases (greater)/lower than expected: | 187,801 |
| | | Total from Financial Sources: | 16,808 |
| 2. | | DEMOGRAPHIC SOURCES | |
| | | Mortality, retirement, disability, termination, etc.: | (208,672) |
| 3. | | ACTUARIAL ADJUSTMENTS | |
| | | Market value adjustment for asset smoothing, including expenses | 28,821 |
| 4. | | GAIN (LOSS) ALL SOURCES | |
| | | Total Gain (Loss) for the prior Plan Year [(1) + (2) + (3)] | $ (163,043) |

**SUMMARY OF DEMOGRAPHIC INFORMATION AS OF MAY 1, 2015**

| | Number | Projected Annual Salaries (Fiscal Year 2016) |
|---|---|---|
| Active Police Officers: | 28 | $1,625,458 |

| | Number | Total Monthly Benefits |
|---|---|---|
| Normal Retirees: | 16 | $ 60,402 |
| Survivors (Widows): | 4 | 10,617 |
| Survivors (Children): | 0 | 0 |
| Disabled Retirees: | 3 | 9,813 |
| Deferred Vested: | 2 | 0 |
| Terminated/Separated: | 1 | 167 * |

* Return of Contributions

AVERAGE AGE OF ACTIVE EMPLOYEES

37.07

AVERAGE SERVICE OF ACTIVE EMPLOYEES

12.25

AVERAGE ANNUAL COMPENSATION

$58,052

The actuarial valuation was performed as of May 1, 2015 to determine contribution requirements for fiscal year 2016.

According to the information provided by the Annual Filing with the Department of Insurance the following is provided:

The development of the Actuarial Value of Assets is shown in Exhibit 5-B

| | |
|---|---|
| Net Present Assets at Market Value | $13,010,644 |

## DEVELOPMENT OF ACTUARIAL VALUE OF ASSETS

| | | | | |
|---|---|---|---|---|
| 1. | Market Value of Assets, May 1, 2014* | | | $ 12,548,066 |
| 2. | Actual Income and Disbursements in prior year weighted for timing | | | |
| | **Item** | **Amount** | **Timing** | **Weight for Amount** / **Weighted Amount** |
| | Contributions Received During 2014-2015 | 811,806 | 50.00% | 405,903 |
| | Miscellaneous Revenue | 20 | 50.00% | 10 |
| | Benefit Payments and Expenses Made During 2014-2015 | 1,060,804 | (50.00)% | ( 530,402) |
| | Total | | | ( 124,489) |
| 3. | Market Value of assets adjusted for actual income disbursements [(1) + 2(d)] | | | 12,423,577 |
| 4. | Assumed rate of return on plan assets for the year | | | 7.00% |
| 5. | Expected return on assets [(3) x (4)] | | | 869,650 |
| 6. | Market Value of Assets, May 1, 2014* | | | 12,548,066 |
| 7. | Income (less investment income) for prior year | | | 811,826 |
| 8. | Disbursements paid in prior year | | | 1,060,804 |
| 9. | Market Value of Assets, May 1, 2015* | | | $13,010,644 |
| 10. | Actual Return [(9) + (8) – (7) – (6)] | | | 711,556 |
| 11. | Investment Gain/(Loss) for Prior Year [(10) – (5)] | | | ( 158,094) |

**DEVELOPMENT OF ACTUARIAL VALUE OF ASSETS**
**(Continued)**

12. Market Value of Assets, May 1, 2015:* $13,010,644

13. Deferred investment gains and (losses) for last 4 years:

| | Plan Year Beginning | Gain/(Loss) | Percent Deferred | Deferred Amount |
|---|---|---|---|---|
| a) | 2015** | $ ( 158,094) | 80% | $ ( 126,475) |
| b | 2014 | $ 139,026 | 60% | $ 83,416 |
| c) | 2013 | $ 64,919 | 40% | $ 25,968 |
| d) | 2012 | $ ( 692,215) | 20% | $ ( 138,443) |
| e) | Total | $ ( 646,364) | | $ ( 155,535) |

14. Actuarial value of plan assets for funding, May 1, 2015: Item (12) less item 13(e)**: $ 13,166,179

Notes: * excluding taxes receivable

* *The calculated value is determined by adjusting the market value of assets to reflect investment gains and losses (the difference between the actual investment return and the expected investment return) during each of the last five years at the rate of 20% per year.

**ANALYSIS OF INVESTMENT RETURN**

| Fiscal Year Ending April 30 | Annual Rate of Return |
|---|---|
| 2015 | **4.81%** |
| 2014 | 7.60 |
| 2013 | 6.77 |
| 2012 | 0.53 |
| 2011 | 9.72 |
| 2010 | 16.84 |
| 2009 | -13.14 |
| 2008 | 1.66 |
| 2007 | 8.73 |
| 2006 | 11.45 |
| 2005 | 4.77 |

| Composite | |
|---|---|
| 2006-2015 | 5.20% |
| 1988-2015 | 6.35% |

## THIRTY - YEAR PROJECTION OF PAYMENTS

| | Payouts from Active Group Upon | | | | | Payouts from | | Total |
|---|---|---|---|---|---|---|---|---|
| | Termination | | Death | Retirement | Disability | Retired Group | Deferred Pensioners | |
| Year | Lump Sum | Deferred Pension | | | | | | |
| **2015** | 5,445 | 0 | 4,403 | 63,372 | 4,358 | 969,997 | 39,899 | 1,087,474 |
| **2016** | 4,493 | 0 | 4,981 | 135,939 | 9,067 | 968,873 | 39,641 | 1,162,994 |
| **2017** | 5,406 | 0 | 5,195 | 187,836 | 14,052 | 969,668 | 39,537 | 1,221,694 |
| **2018** | 6,012 | 0 | 6,315 | 219,606 | 19,103 | 966,285 | 39,424 | 1,256,745 |
| **2019** | 5,429 | 0 | 7,794 | 246,300 | 24,401 | 975,680 | 39,299 | 1,298,903 |
| **2020** | 2,246 | 0 | 9,244 | 281,697 | 30,034 | 971,653 | 39,162 | 1,334,036 |
| **2021** | 664 | 0 | 10,216 | 341,187 | 35,620 | 965,715 | 40,176 | 1,393,578 |
| **2022** | 0 | 0 | 11,192 | 411,404 | 41,185 | 957,905 | 41,184 | 1,462,870 |
| **2023** | 0 | 0 | 13,192 | 453,193 | 46,758 | 948,164 | 42,195 | 1,503,502 |
| **2024** | 0 | 0 | 13,882 | 485,520 | 52,442 | 936,606 | 43,203 | 1,531,653 |
| **2025** | 0 | 0 | 14,614 | 534,469 | 58,104 | 923,362 | 44,204 | 1,574,753 |
| **2026** | 0 | 0 | 15,534 | 571,864 | 64,192 | 908,563 | 45,191 | 1,605,344 |
| **2027** | 0 | 0 | 16,394 | 606,685 | 69,766 | 892,428 | 46,158 | 1,631,431 |
| **2028** | 0 | 0 | 17,237 | 649,031 | 75,181 | 875,038 | 47,095 | 1,663,582 |
| **2029** | 0 | 0 | 18,291 | 686,425 | 80,809 | 856,504 | 47,995 | 1,690,024 |
| **2030** | 0 | 0 | 19,112 | 750,392 | 87,165 | 836,937 | 48,856 | 1,742,462 |
| **2031** | 0 | 0 | 19,980 | 788,944 | 94,704 | 816,549 | 49,669 | 1,769,846 |
| **2032** | 0 | 0 | 20,793 | 819,948 | 103,203 | 795,287 | 50,422 | 1,789,653 |
| **2033** | 0 | 0 | 21,604 | 849,782 | 109,209 | 773,231 | 51,113 | 1,804,939 |
| **2034** | 0 | 0 | 22,280 | 894,323 | 115,244 | 750,296 | 51,736 | 1,833,879 |
| **2035** | 0 | 0 | 23,008 | 982,479 | 122,679 | 726,207 | 52,271 | 1,906,644 |
| **2036** | 0 | 0 | 23,519 | 1,045,638 | 128,455 | 700,851 | 52,691 | 1,951,154 |
| **2037** | 0 | 0 | 24,195 | 1,087,074 | 134,019 | 674,071 | 53,003 | 1,972,362 |
| **2038** | 0 | 0 | 24,617 | 1,153,751 | 141,383 | 667,245 | 53,192 | 2,040,188 |
| **2039** | 0 | 0 | 25,137 | 1,207,786 | 147,510 | 638,372 | 53,241 | 2,072,046 |
| **2040** | 0 | 0 | 25,362 | 1,265,471 | 155,348 | 608,078 | 53,131 | 2,107,390 |
| **2041** | 0 | 0 | 25,747 | 1,329,151 | 158,465 | 576,297 | 52,844 | 2,142,504 |
| **2042** | 0 | 0 | 25,829 | 1,369,432 | 161,052 | 543,175 | 62,670 | 2,162,158 |
| **2043** | 0 | 0 | 26,024 | 1,406,023 | 162,633 | 508,860 | 62,206 | 2,165,746 |
| **2044** | 0 | 0 | 25,985 | 1,433,189 | 166,225 | 473,551 | 61,516 | 2,160,466 |

## ACTUARIAL ASSUMPTIONS

### (Economic)

***Investment Return***
7.00% per annum, compounded annually (net of expenses).

***Salary Increases***
Representative values of assumed salary increases are as follows:

| Age | Increase % |
|---|---|
| 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.

***Cost of Living Adjustments***
It was assumed that the Consumer Price Index – Urban (CPI-U) would increase 2.50% per year

***Actuarial Asset Basis***
The actuarial value of assets recognizes future gains and losses based on a 5-year smoothed market method as prescribed by Statute

In a 5-year smoothed market method, the current market value of assets is reduced (increased) for the current year and each of three succeeding years, by a portion of the gain/(loss) in market value during the prior year. Such gain/(loss) is determined as the excess/(deficit) of the current market value of assets over the market value of assets as of the prior year, increased to reflect interest at the actuarial rate and adjusted to reflect contributions and benefit payments during the prior year. The portion of such gain/(loss) by which the current market value of assets is reduced (increased) shall be 80% in the current year, 60% in the first succeeding year, 40% in the second succeeding year and 20% in the third succeeding year.

Additionally, in accordance with government accounting standards, the actuarial value of assets is adjusted to remove any contributions receivable on the reporting date.

***Expenses***
None assumed.

**(Demographic)**

***Mortality***
Active Lives
RP-2000 Combined Healthy Mortality Table (male) with blue collar adjustment projected by Scale BB to 2015 and with a 150% load for participants under age 50 . Five percent (5%) of deaths amongst active police officers are assumed to be in the performance of their duty.

Non-Active Lives
RP-2000 Combined Healthy Mortality Table (male) with blue collar adjustment projected by Scale BB and with a 150% load for participants under age 50.

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

| Age | Rate of Withdrawal |
|---|---|
| 25 | .0734 |
| 30 | .0416 |
| 35 | .0223 |
| 40 | .0119 |
| 45 | .0102 |

It is assumed that terminated police officers will not be rehired.

***Disability Rates***
Incidence of disability amongst police officers eligible for disability benefits:

| Age | Rate |
|---|---|
| 25 | .0013 |
| 30 | .0026 |
| 35 | .0044 |
| 40 | .0071 |
| 45 | .0108 |
| 50 | .0159 |

15% of disabilities amongst active police officers 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:

| Age | Rate of Retirement | Age | Rate of Retirement |
|---|---|---|---|
| 50 | .36 | 60 | .22 |
| 51 | .22 | 61 | .30 |
| 52 | .18 | 62 | .39 |
| 53 | .19 | 63 | .48 |
| 54 | .19 | 64 | .57 |
| 55 | .20 | 65 | .65 |
| 56 | .20 | 66 | .74 |
| 57 | .20 | 67 | .83 |
| 58 | .21 | 68 | .91 |
| 59 | .21 | 69 | 1.00 |

**(Additional)**

***Marital Status***
85% of police officers are assumed to be married.

***Spouse's Age***
Wives are assumed to be 3 years younger than their husbands.

***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 Police Officers first entering Article 3 prior to January 1, 2011**

**Tier 2 – For Police Officers first entering Article 3 after December 31, 2010**

Police Officer (3-106): Any person appointed to the police force and sworn and commissioned to perform police duties.

Persons excluded from Fund (3-109): Part-time officers, special police officer, night watchmen, traffic guards, clerks and civilian employees of the department. Also, police officers who fail to pay the required fund contributions or who elect the Self-Managed Plan option.

Creditable Service (3-110): Time served by a police officer, excluding furloughs in excess of 30 days, but including leaves of absences for illness or accident and periods of disability where no disability pension payments have been received and also including up to 3 years during which disability payments have been received provided contributions are made.

***Pension (3-111)***

***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%. Salary for valuations beginning in 2014 is $110,631.26.

Minimum Monthly Benefit: $1,000

Maximum Benefit Percentage: 75% of salary

***Termination Retirement Pension Date***
Separation of service after completion of between 8 and 20 years of creditable service.

***Termination Pension Amount***
Commencing at age 60, 2½% of annual salary held in the year preceding termination times years of creditable service or refund of contributions, or for persons terminating on or after July 1, 1987, 2½% of annual salary held on the last day of service times years of credible service, whichever is greater.

***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 1 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.

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

**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.

***Disabled***
3% increase of the original pension amount after attainment of age 60 for each year he or she received pension payments, followed by an additional 3% of the original pension amount in each January 1 thereafter.

***Pension to Survivors (3-112)***

***Death of Retired Member***
**Tier 1** - 100% of pension amount to surviving spouse (or dependent children).

**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.

***Death While in Service (Not in line of duty)***
With 20 years of creditable service, the pension amount earned as of the date of death.

With between 10 and 20 years of creditable service, 50% of the salary attached to the rank for the year prior to the date of death.

***Death in Line of Duty***
100% of the salary attached to the rank for the last day of service year prior to date of death.

***Minimum Survivor Pension***
$1,000 per month to all surviving spouses.

***Disability Pension - Line of Duty (3-114.1)***

***Eligibility***
Suspension or retirement from police 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 $1,000 per month.

***Disability Pension - Not on Duty (3-114.2)***

***Eligibility***
Suspension or retirement from police service for any cause other than while on duty.

***Pension***
50% of salary attached to rank at date of suspension or retirement. Minimum $1,000 per month.

***Other Provisions***

***Marriage After Retirement (3-120)***
No surviving spouse benefit available.

***Refund (3-124)***
At death prior to completion of 10 years of service, contributions are returned without interest to widow.

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

***Contributions by Police Officers (3-125.1)***
Beginning January 1, 2001, 9.91% of salary including longevity, but excluding overtime pay, holiday pay, bonus pay, merit pay or other cash benefit.

## 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.

***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.

**GLOSSARY**
**(Continued)**

***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.*

# NOTES