

VILLAGE OF ORLAND HILLS  
POLICE PENSION FUND

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

November 28, 2011

	<u><b>Page</b></u>
<b>SECTION I DISCUSSION</b>	
Valuation Objectives	1
Results of Valuation	8
<b>SECTION II SUPPORTING EXHIBITS</b>	
<b>Summary of Results</b>	
Exhibit 1 General Valuation Results	9
Exhibit 2 Summary of Specific Valuation Results	10
Exhibit 3-A Development of Recommended Minimum Village Contribution	13
Exhibit 3-B Development of Statutorily Required Village Contribution	14
Exhibit 3-C Reconciliation of the Change in the Statutorily Required Contribution	15
Exhibit 3-D Derivation of Experience Gain or Loss and Cost Method Change	16
Exhibit 4-A Summary Of Demographic Information	18
Exhibit 4-B Age and Service Distribution	19
Exhibit 5-A Asset Information	20
Exhibit 5-B Development of Actuarial Value of Assets	22
Exhibit 5-C Analysis of Investment Return	24
Exhibit 5-D Thirty - Year Projection of Payments	25
<b>APPENDIX 1 GASB NO. 25 DISCLOSURE INFORMATION</b>	<b>26</b>
<b>APPENDIX 2 STATEMENT OF ACTUARIAL ASSUMPTIONS</b>	<b>28</b>
<b>APPENDIX 3 SUMMARY OF PRINCIPAL PLAN PROVISIONS</b>	<b>31</b>
<b>APPENDIX 4 GLOSSARY</b>	<b>34</b>

Tepfer Consulting Group, Ltd. was retained by the Village of Orland Hills 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, 2012 and indicates a **statutorily required contribution in accordance with 40 ILCS 5/3, Section 125 of \$160,767 or 21.03% of member payroll, a recommended minimum contribution of \$193,586 or 25.32% of payroll, and an Annual Required Contribution in accordance with paragraph 36f of Statement No. 25 of the Governmental Accounting Standards Board of \$183,214 or 23.96% of payroll.** These contributions are net of contributions made by active member police officers during the fiscal year.

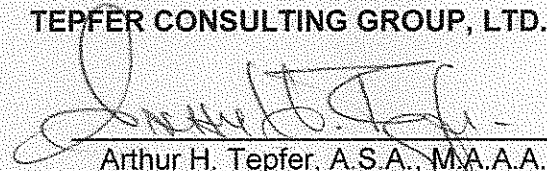
The results shown in this report have been calculated under the supervision of a qualified Actuary as defined in appropriate State statutes. All results are based upon demographic data submitted by the Police Pension Fund, financial data submitted by the Police Pension Fund, applications of actuarial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

TEPFER CONSULTING GROUP, LTD.



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

November 28, 2011

## VALUATION OBJECTIVES

The **Village of Orland Hills Police Pension Fund** 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 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 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 \$578,709 or 14.71% of the accrued liability at the beginning of the plan year. The dollar amount for the plan's current statutorily required contribution is 65.23% of the prior year's contribution. When measured as a percentage of payroll, the contribution level has changed from 35.67% to 21.03%.

**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 **Village of Orland Hills 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.

### 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 **Village of Orland Hills Police Pension Fund** 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 "**Orland Hills-sensitive**", the analysis of the actual historical performance is carefully examined.

#### Experience Analysis

The results of our experience analysis indicate that the fund has experienced a measurable actuarial gain resulting primarily from demographic sources. We have traced this to the return to active service of officer Crull. This indicates that the actuarial assumptions remain appropriate for this fund.

#### Demographic considerations

For this valuation it was noted that the force is reasonably stable as to its size and demographic composition. In the current valuation, it was observed that the number of inactive participants (4, excluding terminated participants who are entitled to a return of contributions) as compared to active participants (12) in the Fund is measurably lower than the State average (25% of the total participants are inactive as compared to a State average of 33%); similarly, on a liability basis the Fund is below the State averages. Approximately 50%-53% of the Fund's total liability is attributed to inactive participants compared to a State average of about 53%. Additionally the average age of the active group is substantially higher than the average State fund. This means that the fund is in a less favorable position compared to other funds in the State.

As of May 1, 2011, there is currently 1 police officer who is eligible to retire and no police officers who will become eligible in the next 5 years. This represents 8% of the current active group. Pension payments are now generally fixed and overall financial planning can be achieved. Absent a large growth in the active force, with proper funding, the fund's position should remain relatively stable for the foreseeable future. We will monitor closely the retirement patterns which emerge in later years to assure that the appropriate retirement rates are in place for our analysis so that cash flow needs can be met.



VALUATION OBJECTIVES  
(Continued)

Financial considerations

In these uncertain times the fund continues to experience short-term investment growth as can be noted in the charts in Section 5B and 5C of this valuation. Furthermore, the fund continues to maintain adequate funded ratios.

The rate of return during the 2011 year was 2.29%. The fund continues to generally earn less than acceptable 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 2.84% . This is a result of the general investment restrictions placed upon funds of this size.

Based upon the comparative rate of funding (approximately 70%) as well as a comparison of actual rates of investment return to salary increases, we have determined that a continuation of the assumed investment return rate of 6.75% remains acceptable as a long-term assumption to be used in determining the funding requirements for the year May 1, 2011 to April 30, 2012.

This rate was chosen to reflect the portfolio composition, investment philosophy and historical performance as compared to other funds in the State. This 6.75% rate includes an inflation component of 1.50%. 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.

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>Orland Hills (2011)</u>		<u>State*</u>
	<u>EANC</u>	<u>PUC</u>	
Funded Ratio	67.04%	70.97%	56.18%
Percentage of Liability for Inactives	50.40%	53.35%	52.55%
Percentage of Total Assets for Inactives (market basis)	85.05%		93.52%

\* Based upon published reports for FYE 2008

**VALUATION OBJECTIVES  
(Continued)**

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 **Village of Orland Hills Police Pension Fund** 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 Village is \$193,586 or 25.32% 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 Village is \$160,767 or 21.03% 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 Village 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:	\$ 182,711
2.	Unfunded Actuarial Accrued Liability (or Surplus):	1,296,395
3.	Actuarial Value of Assets:	2,636,784
4.	Annual Salaries of Active Police Officers:	738,726
5.	Recommended Minimum Contribution from the Village:	193,586
	Contribution Percentage:	25.32%*

Statutory Minimum Contribution

1.	Projected Unit Credit Normal Cost:	\$ 182,815
2.	Unfunded Actuarial Accrued Liability (or Surplus):	1,078,762
3.	Actuarial Value of Assets:	2,636,784
4.	Annual Salaries of Active Police Officers:	738,726
5.	Statutory Minimum Contribution from the Village:	160,767
	Contribution Percentage:	21.03%*

\* 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 Police Officers:	12			
Retirement Pension:		\$2,847,983	\$136,910	\$138,712
Survivors Pension:		104,897	7,350	7,098
Disability Pension:		346,205	32,025	32,118
Withdrawal Pension:		69,097	6,426	4,887
TOTAL .....	12	\$3,368,182	\$182,711	\$182,815
2. Inactive Police Officers and Survivors:				
Normal Retirees:	1	\$715,974		
Widows (Survivors):	0	0		
Children (Survivors):	0	0		
Disabled Retirees:	2	1,078,033		
Deferred Vested:	1	148,199		
Terminated/Separated:	<u>2</u>	<u>40,163</u>		
TOTAL .....	6	\$1,982,369		

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:	\$5,350,551	N/A
4. Actuarial Present Value of Future Normal Costs:	1,417,372	N/A
5. Actuarial Accrued Liability: [(3) - (4)]	3,933,179	3,715,546
6. Actuarial Value of Assets:	2,636,784	2,636,784
7. Unfunded Actuarial Accrued Liability (or Surplus): [(5) - (6)]	1,296,395	1,078,762
8. Funded Ratio Percentage: [(6) ÷ (5)] x 100	67.04%	70.97%

HISTORY OF FUNDED PERCENTAGES

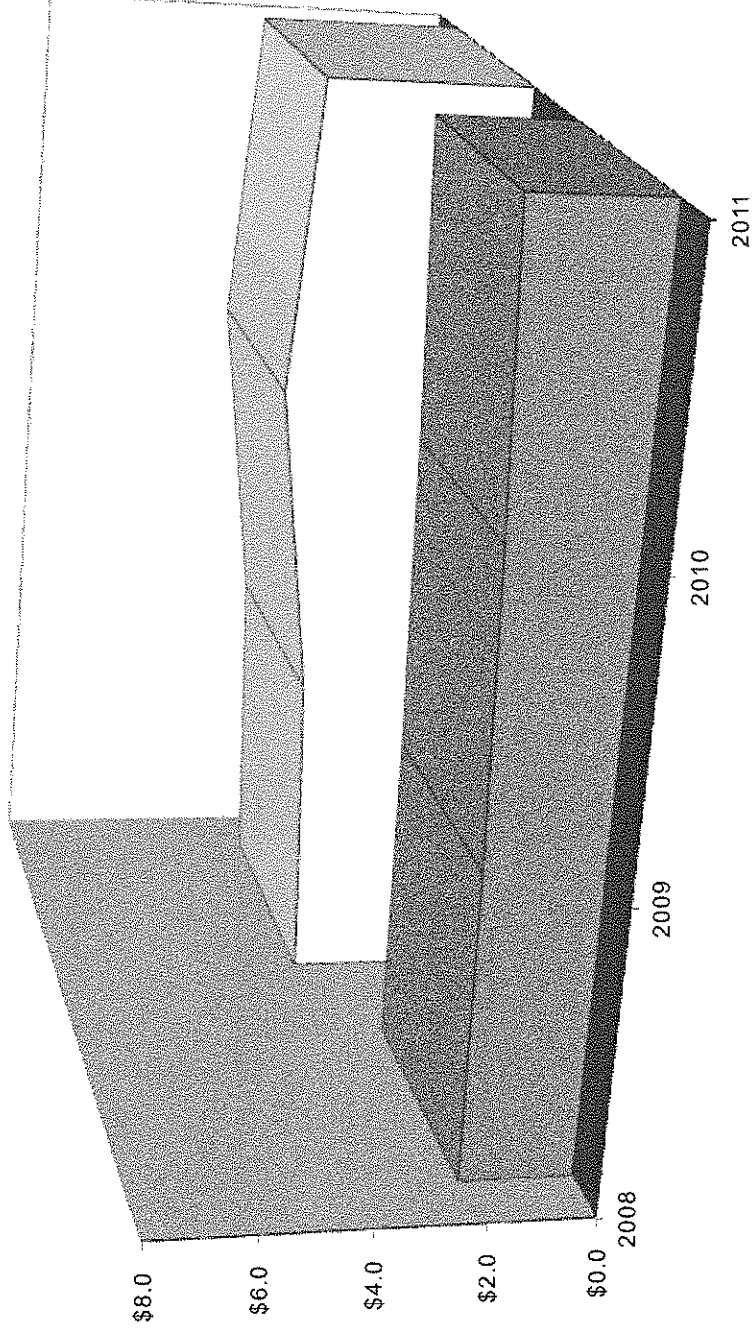
For the Year beginning May 1	<u>Valuation Assets</u>	<u>EAN Accrued Liabilities</u>	<u>EAN Funded Percentage</u>	<u>PUC Accrued Liabilities</u>	<u>PUC Funded Percentage</u>
2011	\$2,636,784	\$3,933,179	67.04%	\$3,715,546	70.97%
2010	2,392,603	4,289,129	55.78%	N/A	N/A
2009	2,224,814	3,499,019	63.58%	N/A	N/A
2008	2,123,374	3,228,417	65.77%	N/A	N/A

The 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 VILLAGE CONTRIBUTION

	Fiscal Year May 1, 2011 through <u>April 30, 2012</u>
1. Entry Age Normal Cost:	\$182,711
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:	67,213
3. Interest on (1) and (2):	16,870
4. Credit for Surplus:	0
5. Initial Recommended Minimum Contribution for Fiscal Year 2012: [(1) + (2) + (3) + (4)]	266,794
6. Statutory Minimum Contribution (Exhibit 3B line 5)	233,975
7. Total Recommended Minimum Contribution for Fiscal Year 2012: [Greater of Line 5 and Line 6]	266,794
8. Active Member Contributions (9.91% of Salaries):	73,208
9. Net Recommended Minimum Village Contribution: [(7) - (8)]	193,586



**DEVELOPMENT OF STATUTORILY REQUIRED VILLAGE 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:	\$182,815
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:	36,365
3. Interest on (1) and (2):	14,795
4. Credit for Surplus:	0
5. Total Statutorily Required Contribution for Fiscal Year 2012: [(1) + (2) + (3) + (4)]	233,975
6. Active Member Contributions (9.91% of Salaries):	73,208
7. Net Statutorily Required Village Contribution: [(5) - (6)]	160,767

**RECONCILIATION OF THE CHANGE  
IN THE STATUTORILY REQUIRED VILLAGE CONTRIBUTION**

1.	Statutorily Required Contribution for Year ending April 30, 2011:	\$246,478
2.	Increase in Normal Cost and Amortization Payment due to anticipated pay changes:	9,872
3.	Increase/(Decrease) in Normal Cost resulting from actual pay changes:	8,647
4.	Effect of Asset Smoothing:	1,024
5.	Increase/(Decrease) resulting from changes in assumptions:	( 2,448)
6.	Increase/(Decrease) resulting from other demographic and financial sources (retirements, deaths, new entrants, salary changes, etc.):	( 70,824)
7.	Increase/(Decrease) resulting from change in actuarial cost method	\$ ( 31,982)
8.	Statutorily Required Contribution for Year ending April 30, 2012:	\$160,767

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

1.	EANC Unfunded Actuarial Accrued Liability at May 1, 2010:	\$1,896,526
2.	Normal Cost Due at May 1, 2010:	186,303
3.	Interest on (1) and (2) to May 1, 2011 (at 6.75% per year):	140,591
4.	Contributions made for the prior year with interest to May 1, 2011:	261,043
5.	Expected EANC Unfunded Actuarial Accrued Liability at May 1, 2011 Before Assumption Changes [(1) + (2) + (3) - (4)]:	1,962,377
6.	Change in EANC Unfunded Actuarial Accrued Liability due to Assumptions Change at May 1, 2011:	( 87,273)
7.	Expected EANC Unfunded Actuarial Accrued Liability at May 1, 2011 [(5) + (6)]:	1,875,104
8.	Actual EANC Unfunded Actuarial Accrued Liability at May 1, 2011:	1,296,395
9.	Gain (Loss) for the prior Plan Year [(7) - (8)]:	<u>\$578,709</u>
10.	Actual PUC Unfunded Actuarial Liability at May 1, 2011	\$1,078,762
11.	Additional liability resulting from Cost Method change (10) -(8)	\$ (217,633)

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

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):	\$ (105,334)
b) Contribution experience:	( 63,664)
c) Benefit Payments experience:	65,316
d) Salary increases (greater)/lower than expected:	<u>( 47,663)</u>
Total from Financial Sources:	(151,345)

2. DEMOGRAPHIC SOURCES

Mortality, retirement, disability, termination, etc.:	662,860
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3. ACTUARIAL ADJUSTMENTS

Market value adjustment for asset smoothing, including expenses	67,194
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4. GAIN (LOSS) ALL SOURCES

Total Gain (Loss) for the prior Plan Year [(1) + (2) + (3)]	\$578,709
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SUMMARY OF DEMOGRAPHIC INFORMATION AS OF MAY 1, 2011

	<u>Number</u>	<u>Projected Annual Salaries (Fiscal Year 2012)</u>
Active Police Officers:	12	\$738,726

	<u>Number</u>	<u>Total Monthly Benefits</u>
Normal Retirees:	1	\$ 3,694
Survivors (Widows):	0	0
Survivors (Children):	0	0
Disabled Retirees:	2	5,207
Deferred Vested:	1	0
Terminated/Separated:	2	40,163 *

\* Return of Contributions

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

## SUMMARY OF RESULTS

### EXHIBIT 4-B

Attained Age		COMPLETED YEARS OF SERVICE										Average Salaries
	0-1	2-4	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40+	Total	
15-19											0	-
20-24	1										1	46,633
25-29		1									1	54,017
30-34											0	-
35-39			1								1	60,652
40-44			1		1						2	65,769
45-49		1	1								2	60,652
50-54		1		1							2	72,830
55-59		2				1					3	59,640
60-64											0	-
65+											0	-
TOTAL	1	5	3	1	1	1	0	0	0	0	12	61,561

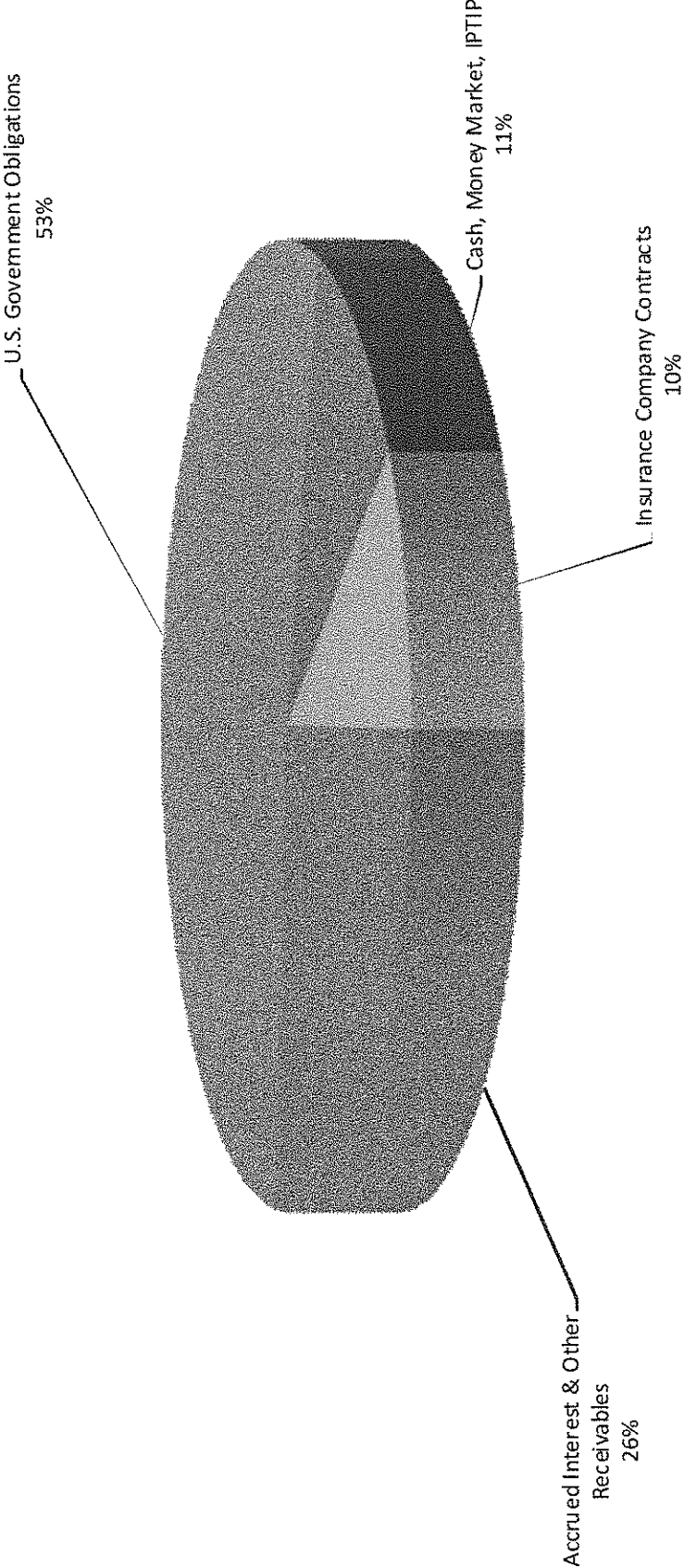
Service = 7.58 Years

ASSET INFORMATION

Cash, Money Market, IPTIP	\$259,858
Certificates of Deposit	0
State and Local Obligations	0
U.S. Government Obligations	1,228,346
Insurance Company Contracts	223,470
Pooled Investment Accounts	0
Mutual Funds	0
Common & Preferred Stocks	0
Taxes Receivable	0
Accrued Interest	6,972
Other Receivables	612,110
Net Liabilities	0
	<hr/>
Net Present Assets at Market Value	\$2,330,756

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

ASSET INFORMATION





DEVELOPMENT OF ACTUARIAL VALUE OF ASSETS

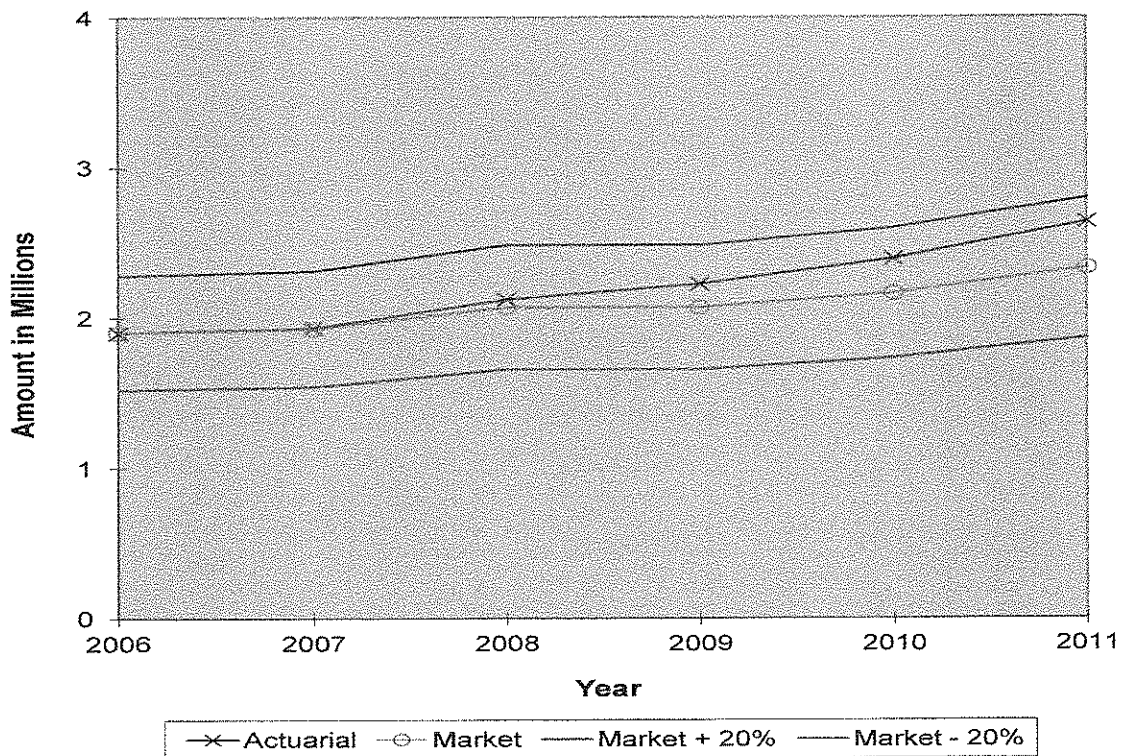
1.	Actuarial Value of Assets, May 1, 2010*	\$2,392,603
2.	Contributions Received During 2010-2011	253,209
3.	Benefit Payments and Expenses Made During 2010-2011	137,617
4.	Assumed Interest at 6.75% on (1), (2) and (3)	165,077
5.	Preliminary Actuarial Value of Assets: [(1) + (2) - (3) + (4)]	2,673,272
6.	Market Value, May 1, 2011*	2,330,756
7.	Preliminary Adjustment Account:	
	a) Amount: [(5) - (6)]	342,516
	b) Percentage: [(7a) ÷ (6) x 100%]	14.70%
8.	Final Adjustment Amount	
	a) Amount	306,028
	b) Percentage	13.13%
	c) Taxes receivable	0
9.	Adjusted Actuarial Value of Assets, May 1, 2011: [(6) + (8a) + (8c)]	2,636,784
10.	Final Actuarial Value of Assets for funding purposes May 1, 2011 [Greater of (6) and (9)]:	2,636,784
11.	Final Actuarial Value of Assets for GASB reporting [(10)-(8c)]*	2,636,784

\*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	\$2,636,784	\$2,330,756
2010	2,392,603	2,164,272
2009	2,224,814	2,069,875
2008	2,123,374	2,071,493
2007	1,932,547	1,926,175
2006	1,900,646	1,900,646

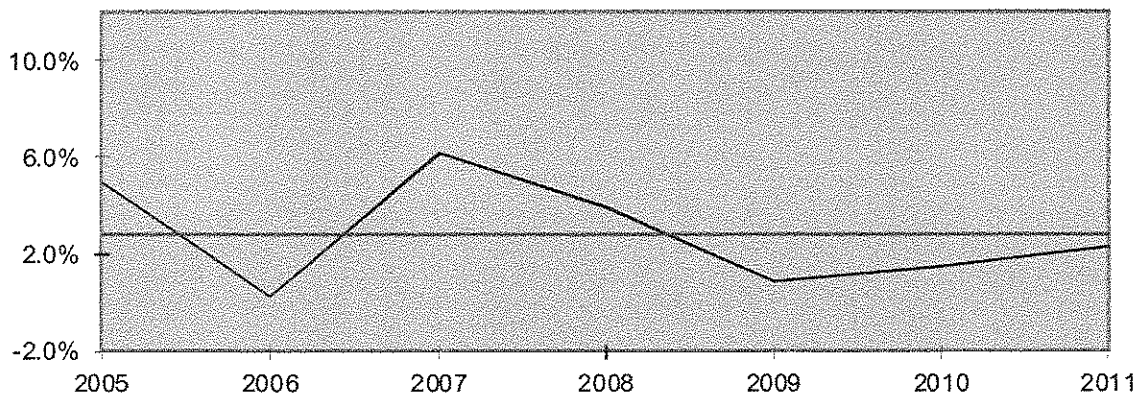
The chart below presents a comparison between the Actuarial Value of Assets and the Market Value of Assets for the current year and the five preceding years. The chart also illustrates the corridor 20% above and 20% below the Market Value of Assets.



ANALYSIS OF INVESTMENT RETURN

<u>Fiscal Year</u> <u>Ending April 30</u>	<u>Annual Rate</u> <u>of Return</u>
2011	2.29%
2010	1.49
2009	0.91
2008	3.97
2007	6.15
2006	0.25
2005	4.97
<u>Composite</u>	
2005-2011	2.84%

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



THIRTY - YEAR PROJECTION OF PAYMENTS

Year	Termination-----		Payouts from Active Group Upon-----		Retirement	Disability	Retired Group-----		Payouts from-----		Total
	Lump Sum	Deferred Pension	Death				Retired Group	Deferred Pensioners			
2011	1,256	0	2,123		14,362	3,007	106,818	40,163			167,729
2012	1,497	0	2,364		27,019	4,265	107,536	0			142,681
2013	1,793	0	3,343		37,414	6,071	108,210	0			156,831
2014	1,981	0	3,813		44,160	8,306	108,826	0			167,086
2015	934	0	4,515		49,421	10,719	119,508	0			185,097
2016	987	0	5,005		52,347	13,380	120,782	0			192,501
2017	0	0	5,850		86,786	16,398	121,923	15,160			246,117
2018	0	0	6,627		124,060	18,087	133,568	15,471			297,813
2019	0	0	7,503		136,099	19,716	135,157	15,771			314,246
2020	0	0	8,633		144,008	21,465	136,548	16,054			326,708
2021	0	0	9,263		150,414	22,565	137,673	16,317			336,232
2022	0	0	10,036		156,192	23,672	138,491	16,559			344,950
2023	0	0	10,328		223,653	25,933	139,013	16,783			415,710
2024	0	0	10,936		259,115	26,756	139,230	16,968			453,005
2025	0	0	10,960		283,309	27,608	139,052	17,119			478,048
2026	0	0	11,756		299,166	29,723	138,470	17,235			496,350
2027	0	0	11,782		310,487	30,692	137,457	17,310			507,728
2028	0	0	12,058		320,855	32,623	135,970	17,335			518,841
2029	0	0	12,072		328,071	33,345	133,949	17,306			524,743
2030	0	0	12,130		333,366	34,058	131,368	17,218			528,140
2031	0	0	12,087		336,845	34,769	128,193	17,060			528,954
2032	0	0	12,060		338,647	35,472	124,404	16,828			527,411
2033	0	0	11,977		338,839	37,895	119,990	16,513			525,214
2034	0	0	11,877		352,345	38,686	114,946	16,112			533,966
2035	0	0	11,675		350,879	39,339	109,284	15,622			526,799
2036	0	0	11,578		349,251	39,953	103,004	15,042			518,828
2037	0	0	11,318		359,710	40,499	96,139	14,372			522,038
2038	0	0	11,102		357,933	40,864	88,767	13,612			512,278
2039	0	0	10,703		357,914	40,836	80,991	12,757			503,201
2040	0	0	10,438		355,646	40,662	72,918	11,818			491,482

**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	\$182,711
2. Actuarial Accrued Liability	3,933,179
3. Actuarial Value of Assets	2,636,784
4. Unfunded Actuarial Accrued Liability	1,296,395
5. Payment to Amortize Unfunded Actuarial Accrued Liability Over 40 Years from Effective Date of Application of GASB 25 (26 years remaining)	73,711
6. Total Annual Required Contribution for Fiscal Year April 30, 2012: [(1) + (5)]	256,422
7. Active Member Contributions (9.91% of Salaries):	73,208
8. <b>Annual Required Contribution (ARC) payable at the beginning of the current fiscal year: [(6) - (7)]</b>	<b>183,214</b>

**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**

6.75% 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 1.50% per year is added to the above.

**Payroll Growth**

It was assumed that payroll will grow 3.50% 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%

Effective May 1, 2014, 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.

**ACTUARIAL ASSUMPTIONS**  
**(Demographic)**

***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 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 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>
25	.0734
30	.0416
35	.0223
40	.0119
45	.0102
50	---

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

***Disability Rates***

Incidence of disability amongst police officers eligible for disability benefits:

<u>Age</u>	<u>Rate</u>
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.



**ACTUARIAL ASSUMPTIONS  
(Demographic)**

***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	.40	60	.53
51	.05	61	.58
52	.11	62	.63
53	.16	63	.68
54	.21	64	.74
55	.26	65	.79
56	.32	66	.84
57	.37	67	.89
58	.42	68	.95
59	.47	69	1.00

***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 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 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%.

Minimum Monthly Benefit: \$1,000

Maximum Benefit Percentage: 75% of salary

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

***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 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.

**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.

SUMMARY OF PRINCIPAL PLAN PROVISIONS  
(Continued)

***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.

**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*.