S. Goldstein and Associates
consulting actuaries

SPRINGFIELD POLICE PENSION FUND

ACTUARIAL VALUATION
AS OF FEBRUARY 28, 1989

S. Goldstein and Associates
consulting actuaries

One North LaSalle Street
Suite 4220
Chicago, Illinois 60602
(312) 726-5877

November 22, 1989

Mr. Jim Kane
City Comptroller
City of Springfield
Room 210 - Municipal Building
Springfield, Illinois 62701

Re: Actuarial Valuation of Springfield Police Pension Fund

Dear Mr. Kane:

I am pleased to submit my actuarial report based on an actuarial valuation of the Springfield Police Pension Fund as of February 28, 1989.

The report consists of 10 Sections and 2 Appendices as follows:

I would be pleased to discuss any aspects of this report with you and other interested persons.

Respectfully submitted,

Sandor Goldstein

Sandor Goldstein
Fellow of the Society of Actuaries
Enrolled Actuary No. 3402

A. PURPOSE AND SUMMARY

We have carried out an actuarial valuation of the Springfield Police Pension Fund as of February 28, 1989. The purpose of the valuation was to determine the financial position and the annual actuarial requirements of the pension fund. This report is intended to present the results of the valuation. The results of the valuation are summarized below:

1. Total actuarial liability	$31,671,657
2. Actuarial value of assets	$25,009,072
3. Unfunded actuarial liability	$ 6,662,585
4. Funded Ratio	79.0%
5. Total normal cost	$ 1,583,298
6. Annual actuarial requirement for year beginning March 1, 1989	$ 1,875,009
7. Amount of tax to be levied by City so that total revenue will be sufficient to meet annual actuarial requirement	$ 1,326,871

B. DATA USED FOR THE VALUATION

Participant Data. The participant data required to carry out the valuation was supplied by the pension fund. The participant data for the pension fund as of February 28, 1989 on which the valuation is based is summarized in Exhibit 1. It can be seen that there were 195 active members and 121 members receiving benefits. The total active payroll as of February 28, 1989 was $6,090,423.

Exhibit 1

Summary of Participant Data

1. Number of Members.	
(a) Active Members	195
(b) Members Receiving	
(i) Retirement Pensions	68
(ii) Survivor Pensions	47
(iii) Disability Pensions	6
(c) Total	316
2. Annual Salaries	
(a) Total Salary	$6,090,423
(b) Average Salary	$31,233
3. Total Accumulated Contributions of Active Members	$3,587,049
4. Annual Benefit Payments Currently Being Made	
(a) Retirement Pensions	769,550
(b) Survivor Pensions	260,776
(c) Disability Pensions	75,571

Assets. The asset values used for the valuation were based on the asset information contained in the financial statements of the pension fund as of February 28, 1989. For purposes of the valuation, the book value of the assets of the fund less the amount of current liabilities was used. The resulting actuarial value of assets is $25,009,072. The development of this value is outlined in Exhibit 2.

Exhibit 2

Actuarial Value of Assets

1. Cash	$ 545,065
2. Receivables	1,624,548
3. Prepaid expenses	2,498
4. Investments at Cost or Amortized Cost	22,864,696
5. Total Assets	$25,036,807
6. Current Liabilities	27,735
7. Actuarial Value of Assets (5.-6.)	$25,009,072

C. FUND PROVISIONS

Our valuation was based on the provisions of the fund in effect as of February 28, 1989 as provided in Article 3 of the Illinois Pension Code. A summary of the principal provisions of the Fund is provided in Appendix 1.

D. ACTUARIAL ASSUMPTIONS AND COST METHOD

The actuarial assumptions used for the current valuation are the same as those used for the February 29, 1988 valuation. These actuarial assumptions are based on an experience analysis of the fund that was carried out two years ago. The actuarial assumptions used for the current valuation are outlined below:

Mortality Rates. The UP-1984 Mortality Table, rated up 1 year, was used for the valuation.

Termination Rates. Termination rates based on the recent experience of the fund. The following is a sample of the termination rates that were used:

Age	Rate of Termination
25	.078
30	.054
35	.030
40	.012
45	.003
50	.000

Disability Rates. Disability rates based on the recent experience of the fund and on published disability rate tables. The following is a sample of the disability rates that were used:

Age	Rate of Disability
25	.0025
30	.0031
35	.0044
40	.0064
45	.0097
50	.0158

Retirement Rates. Rates of retirement for each age from 50 to 60 based on the recent experience of the fund were used. The following is a sample of the retirement rates that were used for the valuation:

Age	Rate of Retirement
50	.1
55	.1
60	1.0

Salary Progression. 6.0% per year, compounded annually.

Investment Return Rate. 8.0% per year, compounded annually.

Marital Status. 85% of participants were assumed to be married.

Spouse's Age. The age of the spouse was assumed to be 4 years younger than the age of the employee.

Actuarial Value of Assets. The book value of the assets of the fund was used.

Actuarial Cost Method. The entry age actuarial cost method was used, with costs allocated on the basis of earnings.

E. ACTUARIAL LIABILITY

The actuarial liability as determined under the valuation for the various classes of members is summarized in Exhibit 3. The total actuarial liability is then compared with the actuarial value of assets in order to arrive at the unfunded actuarial liability. (The actuarial terms used in this report are defined in Appendix 2.)

As of February 28, 1989 the total actuarial liability is $31,671,657, the actuarial value of assets is $25,009,072, and the unfunded actuarial liability is $6,662,585. The ratio of the actuarial value of assets to the actuarial liability, or funded ratio, is 79.0%.

Exhibit 3

Actuarial Liability as of February 28, 1989

1. Actuarial Liability For Members Receiving Benefits	
(a) Retirement Pensions	$ 10,027,546
(b) Survivor Pensions	2,064,110
(d) Disability Pensions	1,035,414
(e) Total	$ 13,127,070
2. Actuarial Liability For Active Members	$ 18,049,040
3. Actuarial Liability For Inactive Members	495,547
4. Total Actuarial Liability	$ 31,671,657
4. Actuarial Value of Assets	$ 25,009,072
5. Unfunded Actuarial Liability	$ 6,662,585
6. Funded Ratio	79.0%

F. RECONCILIATION OF CHANGE IN UNFUNDED LIABILITY

The net actuarial experience during the period March 1, 1988 to February 28, 1989 resulted in a decrease in the fund's unfunded liability of $946,622. This decrease in unfunded liability is a result of several kinds of gains and losses. The financial effect of the most significant gains and losses is illustrated in Exhibit 4.

The net rate of investment return earned by the fund during the year was approximately 8.1%, in comparison to the assumed rate of 8.0%. This resulted in a decrease in the unfunded liability of $22,000

Salaries increased at an average rate of approximately 2.5% during year, in comparison to the assumed rate of 6.0%. This resulted in a decrease in the unfunded liability of $687,000.

The various other aspects of the fund's experience results in a net decrease in the unfunded liability of $237,622. The aggregate financial experience of the fund resulted in an decrease in the unfunded liability of $946,622. Thus, the primary reason for the decrease in the unfunded liability was lower than assumed salary increases.

Exhibit 4

Reconciliation of Change in Unfunded Actuarial Liability
Over the Period March 1, 1988 to February 28, 1989

1.	Unfunded liability as of March 1, 1988	$7,609,207
2.	Decrease in unfunded liability due to investment return higher than assumed	22,000
3.	Decrease in unfunded liability due to salary increases lower than assumed	687,000
4.	Decrease in unfunded liability due to other sources	237,622
5.	Net decrease in unfunded liability for the year (2+3+4)	946,622
6.	Unfunded liability as of February 28, 1989 (1-5)	$6,662,585

G. NORMAL COST

The normal cost for the year beginning March 1, 1989 is developed in Exhibit 5. For the year beginning March 1, 1989, the total normal cost is estimated to be $1,583,298, which can be expressed as 26.00% of payroll.

Exhibit 5

Normal Cost For Year Beginning March 1, 1989

	Dollar Amount	Per Cent Of Payroll
1. Basic Retirement Pension	$ 611,763	10.04%
2. Annual Increases in Pension	172,288	2.83
3. Survivor's Pension	259,652	4.26
4. Disability Pension	474,014	7.78
5. Refunds	32,327	.53
6. Adminstrative Expenses	33,254	.55
7. Total Normal Cost	$1,583,298	26.00%

Note. The above normal cost figures have been adjusted to include interest to the end of the year, as payments will not be made until the end of the year. The figures are based on a total active payroll of $6,090,423 as of March 1, 1989.

H. ANNUAL ACTUARIAL REQUIREMENTS FOR YEAR BEGINNING MARCH 1, 1989

According to Section 3-125 of the Illinois Pension Code, the City Council shall annually levy a tax which, when added to employee contributions, will produce an amount sufficient to meet the annual actuarial requirements of the pension fund. Section 3-125 defines the annual actuarial requirements of the pension fund to be equal to (1) the normal cost of the pension fund, plus (2) the annual amount required to amortize the fund's unfunded actuarial liability over a period of 40 years subsequent to January 1, 1980.

The annual actuarial requirements of the pension fund for the year beginning March 1, 1989 and the amount of tax to be levied for the year are developed in Exhibit 6. The annual actuarial requirements have been determined using a level percentage of payroll approach for amortizing the fund's unfunded liability.

As can be seen from Exhibit 6, for the year beginning March 1, 1989, the annual actuarial requirements of the pension fund amount to $1,875,009, or 30.79% of payroll. Employee contributions for the year are estimated to be $548,138, or 9.0% of payroll. The amount of tax to be levied by the City so that total revenues will be sufficient to meet the annual actuarial requirement is therefore $1,326,871, or 21.79% of payroll.

Exhibit 6

Annual Actuarial Requirements For Year Beginning March 1, 1989

	Annual Amount	Per Cent Of Payroll
1. Total normal cost	$1,583,298	26.00%
2. Annual amount required to amortize unfunded liability over 40 years subsequent to January 1, 1980 as a level percent of payroll	291,711	4.79
3. Annual actuarial requirement for year beginning March 1, 1989 (1.+2.)	$1,875,009	30.79%
4. Employee contributions for year	548,138	9.00
5. Amount of tax to be levied by City so that total revenue will be sufficient to meet annual actuarial requirement (3-4)	$1,326,871	21.79%

Note. The above figures have been adjusted to include interest to the end of the year, as payments will not be made until the end of the year.

I. Actuarial Present Value of Credited Projected Benefits

In November 1986, the Governmental Accounting Standards Board (GASB) issued Statement No. 5 entitled Disclosure of Pension Information by Public Employee

Retirement Systems and State and Local Governmental Employers. The statement established standards of disclosure of pension information by public employee retirement systems.

GASB Statement No. 5 requires the disclosure of the actuarial present value of credited projected benefits as the standardized measure of the accrued pension obligation. This measure represents the discounted value of the amount of benefits estimated to be payable in the future as a result of employee service to date, computed by attributing an equal benefit amount to each year of service of the employee.

We have therefore calculated the actuarial present value of credited projected benefits as part of the actuarial valuation. The results of our calculations are shown in Exhibit 7. It can be seen from Exhibit 7 that the actuarial present value of credited projected benefits as of February 28, 1989 amounts the $31,672,057, and the unfunded actuarial present value of credited projected benefits amounts to $7,981,598.

Exhibit 7

Actuarial Present Value of Credited Projected Benefits

1.	For members in receipt of benefits and for inactive members	$ 13,623,017
2.	For current employees	
	Accumulated employee contributions	3,587,049
	Employer-financed vested	3,530,108
	Employer-financed nonvested	10,931,883
3.	Total actuarial present value of credited projected benefits	$ 31,672,057
4.	Net assets available for benefits, at cost (Market value is $22,955,208)	$ 23,690,459
5.	Unfunded actuarial present value of credited projected benefits	$ 7,981,598

J. CERTIFICATION

This actuarial report has been prepared in accordance with generally accepted actuarial principles and practices and to the best of my knowledge, fairly represents the financial condition of the Springfield Police Pension Fund as of February 28, 1989.

Respectfully submitted,

Sandor Goldstein

Sandor Goldstein
Fellow of the Society of Actuaries
Enrolled Actuary No. 3402

Appendix 1

Summary of Principal Provisions

Pension Benefits

A police officer age 50 or over who has at least 20 years of creditable service and is no longer in service as a police officer is entitled to a pension of 1/2 of the salary attached to the rank held on the last day of service. The pension is increased by 2% of such salary for each additional year over 20 years of service through 30 years of service, and 1% of such salary for each additional year over 30 years of service, to a maximum of 75% of such salary.

Separation Benefits

A police officer who is separated from service having at least 8 but less than 20 years of creditable service is entitled upon attainment of age 60 to a pension of 2.5% of the salary attached to the rank held on the last day of service by the officer for each year of creditable service.

Annual Increases In Pension

The monthly pension of a police officer who retires after January 1, 1977, shall, upon either the first of the month following the first anniversary of the date of retirement, if 55 years of age or over at retirement date, or upon the first day of the month following attainment of age 55 if it occurs after the first anniversary of retirement, be increased by 3% of the originally granted monthly pension for each full year that has elapsed since the pension began, and by an additional 3% in each January thereafter.

The monthly pension of a police officer who is receiving a disability pension shall be increased in January of the year following the year the officer attains age 60 by 3% of the originally granted monthly pension for each year that pension payments have been made. In each January thereafter, the firefighter shall receive an additional increase of 3% of the original monthly pension.

Disability Pension

If a police officer, as a result of an act of duty, is found to be disabled for service in the police department, the officer shall be granted a disability pension of 65% of the salary attached to the rank by the officer at the date of suspension of duty. If the disability is the result of any cause other than an act of duty, the disability pension is 50% of salary.

Pension To Survivors

(a) Upon the death of a police officer in receipt of a pension, the surviving spouse of the police officer is entitled to the pension that the police officer was receiving as of the time of death.

(b) Upon the death of a police officer while in service, having at least 20 years of creditable service, the surviving spouse shall be entitled to the pension earned by the police officer as of the date of death.

(c) Upon the death of a police officer while in service, having at least 10 but less than 20 years of service, the surviving spouse shall be entitled to a pension of 1/2 of the salary attached to the rank held by the officer for one year immediately prior to the date of death. If death occurs as a result of the performance of duty, the 10 year requirement shall not apply.

Contributions By Police Officers

Police officers are required to contribute to the pension fund 9% of their salary, as a condition of participation in the pension fund.

Appendix 2

Glossary of Terms used in Report

1. Actuarial Present Value. The value of an amount or series of amounts payable at various times, determined as of a given date by the application of a particular set of actuarial assumptions.

2. Actuarial Cost Method or Funding Method. A procedure for determining the actuarial present value of pension plan benefits and for determining an actuarially equivalent allocation of such value to time periods, usually in the form of a normal cost and an actuarial accrued liability.

3. Normal Cost. That portion of the actuarial present value of pension plan benefits which is allocated to a valuation year by the actuarial cost method.

4. Actuarial Accrued Liability or Accrued Liability. That portion, as determined by a particular actuarial cost method, of the actuarial present value of pension benefits which is not provided for by future normal costs.

5. Actuarial Value of Assets. The value assigned by the actuary to the assets of the pension plan for purposes of an actuarial valuation.

6. Unfunded Actuarial Liability. The excess of the actuarial liability over the actuarial value of assets.

7. Entry Age Actuarial Cost Method. A method under which the actuarial present value of the projected benefits of each individual included in an actuarial valuation is allocated on a level basis over the earnings or service of the individual between entry age and assumed exit age. 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 at a valuation date by the actuarial present value of future normal costs is called the actuarial liability.

8. Actuarial Assumptions. Assumptions as to future events affecting pension costs.

9. Actuarial Valuation. The determination, as of a valuation date, of the normal cost, actuarial liability, actuarial value of assets, and related actuarial present values for a pension plan.

10. Accrued Benefit or Accumulated Plan Benefits. The amount of an individual's benefit as of a specific date determined in accordance with the terms of a pension plan and based on compensation and service to that date.

11. Vested Benefits. Benefits that are not contingent on an employee's service.