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Illinois Municipal Retirement Fund  
1977 ACTUARIAL VALUATION REPORT  
(Census as of December 31, 1976)

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## Illinois Municipal Retirement Fund

### TABLE OF CONTENTS

#### Letter of Transmittal

#### Page No.

#### Glossary

1

#### Status of Funding and Meeting the System's Funding Objective

Exhibit 1 Current Funded Status

2

Exhibit 2 Historical Funded Status

3

#### Actuarial Basis for Determination of the Employer Level Contribution Requirement

Exhibit 3 Actuarial Balance Sheet

4

Exhibit 4 Entry Age Normal Level Contribution Requirement

5

Exhibit 5 40-Year Financing Requirement on Accumulated Unfunded Prior Level Contribution

6

Exhibit 6 Average Employer Rate Requirement Expressed as Percentage of Payroll

7

Exhibit 7 Historical Summary Employer Average Contribution Rate

8

#### Financial Exhibits

Exhibit 8 Financial Balance Sheet

9

Exhibit 9 Reconciliation of Asset Balances

10

#### Supporting Exhibits and Summaries

Exhibit 10 Summary of Plan

11

Exhibit 11 Valuation Assumptions - General Employees

15

Exhibit 12 Valuation Assumptions - SLEP

16

Exhibit 13 Employee Statistics

17

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# Hansen

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A. S. Hansen, inc. 1080 Green Bay Road • Lake Bluff, Illinois 60044 • Telephone 312-234-3400

June 24, 1977

Board of Trustees  
Illinois Municipal Retirement Fund  
100 South Wacker Drive  
Chicago, Illinois 60606

Gentlemen:

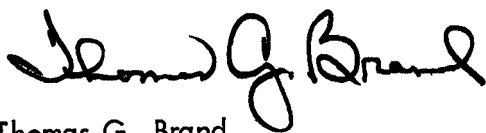
In accordance with your request, we have made an actuarial valuation of the Illinois Municipal Retirement Fund for the year ended December 31, 1976, in order to determine the 1978 contributions to be made to the system.

The results of our analysis are set forth in the following report. The basic financial and employee data are those submitted to us by the Fund Office; the summaries and actuarial figures are those prepared by us from such data.

On the basis of the foregoing, and the assumptions indicated herein, we hereby certify that, to the best of our knowledge and belief, the attached statements are true and correct.

Respectfully submitted,

A. S. HANSEN, INC.



Thomas G. Brand  
Member, American Academy of Actuaries  
Enrolled Actuary No. 1526

RLS:lh  
172-130

STATUS OF FUNDING AND  
MEETING THE SYSTEMS FUNDING OBJECTIVE

## Illinois Municipal Retirement Fund

### GLOSSARY OF TERMS

#### Funding Objective

The funding objective is to accumulate sufficient assets over a period of 20 years; in the event the Fund is terminated, to continue benefit payments to retirees and their beneficiaries; to guarantee payment of all benefits earned to date for members with 8 years or more of service; and to return the accumulated contribution balance to the remaining members.

#### Present Value of All Benefits

The single sum amount which, if accumulated in a fund in accordance with the actuarial assumptions, would be sufficient to pay all benefits expected to be earned by present members for past and future service as they fall due. The Fund would be exhausted upon disbursement of the last benefit payment.

#### Entry Age Normal Contribution Requirement

The level percentage of payroll which, if paid from the average age at entry of a member into the Fund to the average retirement age, will accumulate to the sum required to provide for the benefits earned by his service.

#### Unfunded Prior Level Payroll Contributions Remaining to Be Financed

The amount in excess of the current asset balance that would have been accumulated on January 1, 1977 if the entry age normal cost method had always been employed and the entry age normal contribution requirements for past years had been paid as scheduled.

#### 40-Year Funding Requirement on Unfunded Prior Level Contributions

The amount that is sufficient, with interest, to amortize the unfunded obligation for prior level contributions over a period of 40 years from the current date.

Illinois Municipal Retirement Fund

CURRENT FUNDED STATUS

*2 PRI  
1 608  
16 before  
affect  
of year  
1/2000  
P.S.  
at death*

	<u>Obligation for Benefits Earned to Date*</u>	<u>Percentage Funded</u>		<u>Funding Objective**</u>
		<u>Prior</u>	<u>Current</u>	
Plan 1970	\$ 713,646,898	100	100	\$713,646,898
1971 Amendment	144,871,564	25	30	43,461,469
1972 Amendment	156,360,409	20	25	39,090,102
1973 Amendment	54,426,207	15	20	10,885,241
1975 Amendment	<u>19,600,297</u>	5	10	<u>1,960,030</u>
	<u>\$1,088,905,375</u>			<u>\$809,043,740</u>
Adjusted Book Value of Assets				<u>\$758,549,917</u>
Ratio: Assets/Funding Objective				<u>93.8%</u>
Current Funded Status: Assets/Obligation for Benefits Earned to Date				<u>69.7%</u>

\* The obligation for benefits earned to date represents an amount sufficient to purchase the vested benefits from an insurance company, assuming 1965 group annuity mortality and 4% interest.

\*\* The funding objective is to accumulate sufficient assets to provide for the obligation for benefits earned to date over a period of 20 years from the year in which the benefits were granted.

Illinois Municipal Retirement Fund

HISTORICAL FUNDED STATUS

<u>Year</u>	<u>Funding Objective</u>	<u>Adjusted Book Value of Assets</u>	<u>Ratio Assets/ Funding Objective</u>
1972	\$ 418,157,233	\$431,863,156	103.3%
1973	496,926,945	495,672,934	99.8
1974	576,744,359	557,784,800	96.7
1975	699,367,209	653,885,690	93.5
1976	809,043,740	758,549,917	93.8

<u>Year</u>	<u>Obligation for Benefits Earned to Date</u>	<u>Adjusted Book Value of Assets</u>	<u>Current Funded Status</u>
1972	\$ 668,246,293	\$431,863,156	64.6%
1973	778,706,972	495,672,934	63.7
1974	838,116,171	557,784,800	66.6
1975	963,638,110	653,885,690	67.9
1976	1,088,905,375	758,549,917	69.7



ACTUARIAL BASIS FOR  
DETERMINATION OF THE EMPLOYER LEVEL  
CONTRIBUTION REQUIREMENT

Illinois Municipal Retirement Fund

ACTUARIAL BALANCE SHEET  
(Census as of December 31, 1976)

RESOURCES

Assets		\$ 756,724,343*
Present Value of Future Level Payroll Contributions		
Employee	\$249,495,124	
Employer	<u>526,394,828</u>	775,889,952
Accumulated Prior Level Payroll Contributions to be Financed		<u>609,960,309</u>
Total		<u>\$2,142,574,604</u>

REQUIREMENTS

Present Value of Benefits (Past and Future Service)		
Retired Members and Beneficiaries		\$ 372,735,065
Active Members		<u>1,769,839,539</u>
Total		<u>\$2,142,574,604</u>

775,889,952  
 1,366,874,552

\* Net current assets plus retained earnings less unallocated reserves.

775,889  
 1,366  
 -----  
 2,142

Illinois Municipal Retirement Fund

ENTRY AGE NORMAL LEVEL CONTRIBUTION REQUIREMENT

	<u>General Employees</u>	<u>SLEP</u>
Present Value of Future Level Payroll Requirements	\$ 738,987,928	\$ 36,902,024
Future Employee Contributions	<u>237,377,719</u>	<u>12,117,405</u>
Employer Objective	\$ 501,610,209	\$ 24,784,619
Present Value of Future Payroll of Current Active Members	\$5,274,555,100	\$220,307,600
Level Percentage Contribution Rate	<u>9.51%</u>	<u>11.25%</u>

/

Illinois Municipal Retirement Fund

40-YEAR FINANCING REQUIREMENT ON  
ACCUMULATED UNFUNDED PRIOR LEVEL CONTRIBUTIONS

	<u>General Employees</u>	<u>SLEP</u>
Accumulated Prior Level Payroll Contributions Remaining to be Financed	\$593,214,408	\$16,745,901
40-Year Financing Requirement	34,571,445	975,920
Considered Payroll	825,174,652	25,769,592
Financing Requirement as a Percentage of Covered Payroll	<u>4.19%</u>	<u>3.79%</u>

Illinois Municipal Retirement Fund

AVERAGE EMPLOYER RATE REQUIREMENT  
EXPRESSED AS A PERCENTAGE OF PAYROLL

	<u>General Employees</u>	<u>SLEP</u>
Level Percentage Contribution Rate	9.51%	11.25%
40-Year Financing Requirement	4.19	3.79
Death, Disability and Expense Rate	<u>1.35</u>	<u>1.35</u>
Total Contribution Requirement	<u>15.05%</u>	<u>16.39%</u>

Illinois Municipal Retirement Fund

HISTORICAL SUMMARY  
EMPLOYER AVERAGE CONTRIBUTION RATE

<u>Valuation Year</u>	<u>Employer Percentage Contribution Rate</u>	
	<u>General Employees</u>	<u>SLEP</u>
1972	13.79%*	N/A
1973	14.90 *	18.84%
1974	14.87	17.49
1975	14.88	16.86
1976	15.05	16.39

\*Plan Amended.

FINANCIAL EXHIBITS

Illinois Municipal Retirement Fund

FINANCIAL BALANCE SHEET  
(December 31, 1976)

ASSETS

	<u>Book Value</u>	<u>Market Value</u>
Cash	\$ 1,233,613	\$ 1,233,613
Receivables	34,242,593	34,242,593
Investments		
Bonds and Notes	593,213,918	593,213,918
Stocks	159,986,096	177,632,873
Equipment	<u>637,960</u>	<u>637,960</u>
Total Real Assets	\$789,314,180	\$806,960,957
Current Liabilities	<u>30,764,263</u>	<u>30,764,263</u>
Net Current Assets	<u>\$758,549,917</u>	<u>\$776,196,694</u>

RESERVES

Reserves	
Retired Members	\$372,735,065
Employee Contributions	208,465,087
Employer Balances	157,877,414
Unallocated Reserves	<u>19,472,351</u>
Total	<u>\$758,549,917</u>



Illinois Municipal Retirement FundRECONCILIATION OF ASSET BALANCES

	<u>Book Value</u>	<u>Market Value</u>
Asset Balance - December 31, 1975	\$653,885,690	\$652,080,136

REVENUES

Contributions		
Employee	\$ 93,331,759	\$ 93,331,759
Employer	133,312,346	133,312,346
Annuitant	5,075	5,075
Investment Income		
Interest	38,074,181	38,074,181
Dividends	5,248,313	5,248,313
Realized Gain (Loss)	392,687	392,687
Unrealized Appreciation Balance	-	19,452,331
Miscellaneous Revenue	<u>55,648</u>	<u>55,648</u>
Total	<u>\$270,420,009</u>	<u>\$289,872,340</u>

EXPENSES

Benefit Payments		
Retirement	\$ 31,460,520	\$ 31,460,520
Survivor	7,947,387	7,947,387
Disability	2,627,441	2,627,441
Refunds	9,410,465	9,410,465
Social Security	111,956,940	111,956,940
Administrative Expense	2,272,215	2,272,215
Miscellaneous	<u>80,814</u>	<u>80,814</u>
Total	<u>\$165,755,782</u>	<u>\$165,755,782</u>
Asset Balance - December 31, 1976	<u>\$758,549,917</u>	<u>\$776,196,694</u>

SUPPORTING EXHIBITS  
AND SUMMARIES

Illinois Municipal Retirement Fund

SUMMARY OF PLAN

1. Type of Plan

Self-insured fund coordinated with Social Security and administered by a seven-member board of trustees, elected by the participating employees and employers.

2. Participating Employers

All counties, school districts, and cities, villages, and incorporated towns of 5,000 or more population, except those specifically excluded in the Plan. Other local government units may elect to participate.

3. Employees Included

All appointed employees of a participating employer, who are employed in a position normally requiring performance of duty for 600 hours or more a year and who are not of an age greater than 59 when entering employment. Elected officials and hospital employees who satisfy requirements may also participate. Employees who do not participate are covered for Social Security only. They are referred to as non-participating employees.

4. Service Considered

All periods of participating employment, plus all periods for which prior service credit was granted. Service is also credited for periods during which an employee is receiving disability benefits.

5. Earnings Considered

Those amounts paid and considered as wages. Average monthly wage is determined by averaging the wages received during the 48 consecutive month period within an employee's last 120 consecutive month period of service in which his total wages were the highest.

6. Employer Contributions

An amount sufficient to pay the normal cost for the year (which includes Social Security taxes), the 40-year amortization cost of the unfunded past service cost, the term cost of life coverage, and a pro rata share of the disability and administrative costs.

## 7. Employee Contributions

Participating employees contribute:

- (i) 5-1/2% of earnings for sheriffs' law enforcement employees
- (ii) 4-1/2% of earnings for all other employees

for purposes of providing retirement and spouses' annuities, plus Social Security taxes.

## 8. Normal Retirement Benefit

- (i) After completion of 20 years of service for sheriffs' law enforcement employees.
- (ii) After attainment of at least age 60 and completion of eight years of service for all other employees.

Monthly annuity equal to:

- (i) for sheriffs' law enforcement employees — 2% of average monthly wages for each of the first 10 years of service, plus 2-1/4% of average earnings for each year of service in excess of 10 years, but less than 20 years, plus 2-1/2% of average earnings for each year of service in excess of 20.
- (ii) for all other employees — 1-2/3% of average monthly wages for the first 15 years of service and 2% of average monthly wages for each year of service in excess of 15 years.

Maximum benefit equal to 75% of final earnings.

In no event will this formula benefit be less than the benefit which may be purchased by the employee's accumulated credit or other minimum guaranteed benefits.

## 9. Early Retirement Benefit

After attainment of age 55 and completion of eight years of service.

The early retirement annuity will be equal to the normal retirement annuity otherwise payable based upon the employee's credited service and earnings and reduced by 1/2% for each month that the employee is under age 60 when his early retirement benefit commences. However, this reduction does not apply to employees with 35 or more years of service.

## 10. Post-Retirement Increase

Employee annuitants receive a post-retirement increase of 2% of their original retirement benefit on January 1 of each year.

### 11. Temporary Disability Benefits

In event of temporary disability after one year of service and prior to age 65.

Monthly temporary disability benefit equal to 1/12th of 50% of his annual rate of earnings less any amount payable under Social Security. Benefit payable for period equal to one-half of credited service, maximum 30 months.

### 12. Total and Permanent Disability Benefit

Upon determination of total and permanent disability, prior to age 65, and after temporary disability benefits have been exhausted. Monthly total and permanent disability benefit equal to 1/12th of 50% of annual earnings less any amount payable under Social Security. At age 65, the disability benefit will cease and if he has more than 8 years of service, he will be paid a benefit computed as for normal retirement.

### 13. Spouse Annuity

A spouse annuity of one-half of the employee's retirement annuity at death is payable if a married employee is survived by a spouse who is eligible for such benefit. The spouse also receives a \$1,000 death benefit. In the event there is no surviving spouse, an annuity will be paid to children under 18 years of age.

### 14. Death Benefits (payable only if no spouse's benefit is payable)

Upon the death of an employee with at least one year of service, lump sum benefit equal to one year's average annual earnings and a refund of all the employee's contributions with interest.

If the employee dies prior to the completion of one year of service, lump sum benefit equal to a refund with interest of all the employee's contributions. In the event that an employee's death is job connected, a lump sum equal to one year's average annual earnings is payable regardless of the length of service completed by the deceased employee.

Upon the death of an employee annuitant, a death benefit consisting of \$1,000 plus the difference between the amount of contribution by the employee (plus interest), and the amount paid by the Fund as a pension.

### 15. Separation Benefits

Any participating employee, upon termination of participation who is not entitled to a retirement annuity, may, upon application, obtain a separation benefit.

15. Separation Benefits (Continued)

The separation benefit is a lump sum equal to (a) the employee's accumulated normal and widow's credits, without interest, plus (b) the employee's accumulated additional credits including interest credited thereon to the end of the preceding year.

If employee does not elect a refund and accumulated credits are sufficient to provide a \$10 per month annuity, employee may elect to receive such annuity.

16. Other Benefits and Options

- (a) Orphan's annuity
- (b) Reversionary annuity option
- (c) Beneficiary annuity option
- (3) Level Income option

17. Actuarial Funding Method

Entry age level normal cost method; 40-year amortization of unfunded past service liability.

Illinois Municipal Retirement Fund

VALUATION ASSUMPTIONS

General Employees

The following assumptions were used in the valuations for this report:

- (a) Investment Return - 5% per annum, compounded annually.
- (b) Experience - Actives.
  - 1. Retirement - Age 65.
  - 2. Mortality - Group Annuity Table for 1951.
  - 3. Disability - Graduated rates. See Table below for sample values.
  - 4. Separation - Graduated rates. See Table below for sample values of ultimate rates.
  - 5. Earnings Progression - Graduated rates. See Table below for sample values.
- (c) Experience - Pensioners.
  - 1. Mortality - Retired Male - Group Annuity Table for 1951
  - Retired Female - Group Annuity Table for 1951 set back two (2) years.
  - 2. Mortality - Disabled - 1944 Disabled Railway Employees Select Mortality Table.
- (d) Loading - None.
- (e) Asset Valuation - Cost plus retained earnings, not greater than market value.

Age	Annual Rate Per 100 Employees						Earnings Progression (Ratio to Final Pay) All
	Mortality		Disability		Separation		
	Male	Female	Male	Female	Male	Female	
20	.0616	.0371	.0690	.0079	19.0	27.7	.5900
30	.0991	.0669	.1220	.0383	9.2	14.2	.7565
40	.2000	.1338	.2230	.1173	5.5	7.3	.8655
50	.6475	.3070	.4610	.2794	3.7	3.8	.9430
60	1.5555	.7837	1.0690	.5679	-	-	.9893
65	2.4418	1.3597	-	-	-	-	1.0000

Illinois Municipal Retirement Fund

VALUATION ASSUMPTIONS

SLEP

The following assumptions were used in the valuations for this report:

- (a) Investment Return - 5% per annum, compounded annually.
- (b) Experience - Actives.
  - 1. Retirement - Age 58.
  - 2. Mortality - Group Annuity Table for 1951 projected through 1965. See Table below for sample values.
  - 3. Disability - Graduated rates. See Table below for sample values.
  - 4. Separation - Graduated rates. See Table below for sample values of ultimate rates.
  - 5. Earnings Progression - Graduated rates. See Table below for sample values.
- (c) Experience - Pensioners.
  - 1. Mortality - Retired Male - Group Annuity Table for 1951.
  - Retired Female - Group Annuity Table for 1951 set back two (2) years.
  - 2. Mortality - Disabled - 1944 Disabled Railway Employees Select Mortality Table.
- (d) Loading - None.
- (e) Asset Valuation - Cost plus retained earnings, not greater than market value.

Age	Annual Rate per 100 Employees			Earnings Progression (Ratio to Final Pay)
	Mortality	Disability	Separation	
20	.0517	.07	14.06	.7463
30	.0831	.10	6.97	.8344
40	.1677	.20	2.85	.8958
50	.5429	.52	.85	.9503
60	1.3043	1.74	-	.9895
65	2.0475	2.85	-	1.0000



Illinois Municipal Retirement Fund

EMPLOYEE STATISTICS  
(as of December 31, 1976)

Distribution of Employees

	<u>Male</u>	<u>Female</u>	<u>Total</u>
Active	42,247	52,705	94,952
Inactive	<u>13,161</u>	<u>16,298</u>	<u>29,459</u>
Total	55,408	69,003	124,411
Annuitants			<u>23,927</u>
Total Participants			<u>148,338</u>

Average Employee Statistics

	<u>Male</u>	<u>Female</u>	<u>Total</u>
Number of Active Employees	42,247	52,705	94,952
Total Annualized	\$481,355,276	\$342,119,691	\$823,474,967
Average Salary	\$ 11,394	\$ 6,491	\$ 8,673
Average Attained Age	43.0	42.8	42.9
Average Service	6.1	5.5	5.8
Average Entry Age	36.9	37.3	37.1
Average Service at Age 65	28.1	27.7	27.9