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SCHOOL EMPLOYEES RETIREMENT SYSTEM
OF OHIO

ACTUARIAL VALUATION
JUNE 30, 1975

Based on 1970-1975
Experience Factors

HUGGINS
& COMPANY, INC.

CONSULTING ACTUARIES • EMPLOYEE BENEFIT PLAN CONSULTANTS

PHILADELPHIA

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& COMPANY, INC.

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March 17, 1976

The Retirement Board
School Employees Retirement System of Ohio
88 East Broad Street
Columbus, Ohio 43215

Gentlemen:

We are pleased to present herein the report on our actuarial revaluation of the School Employees Retirement System of Ohio as of June 30, 1975, based on the recommendations in our Eighth Actuarial Investigation report, and 5% interest.

In the interest of brevity, we show only the important portions of our valuation report dated November 5, 1975 which were affected by the changes in actuarial assumptions.

Respectfully submitted,

HUGGINS & COMPANY, INC.

By

E. Howard Hill

E. HOWARD HILL, F.C.A.

Member American Academy of Actuaries

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PART I - ACTUARIAL BALANCE SHEET

Using the various monetary tables developed in connection with the 1975 Investigation and the data prepared by the staff and submitted to us, a complete valuation of the system was made as of June 30, 1975 in which the present and prospective assets and liabilities were calculated, based on the contributions and benefits in effect on that date. The results are shown in the actuarial balance sheet on the following page.

It will be noted that the assets in the balance sheet consist of not only the present assets but also future assets represented by prospective contributions and future State appropriations to fund House Bill 284. The various fund balances included in the total present assets of \$572,354,953 obtained from the financial reports of the Board are shown in the balance sheet and the physical distribution of the present assets according to cash, investments, accrual items and furniture and equipment is shown in the footnote. The present value of the future employee contributions of the present members and the present value of the future employer contributions is shown in a combined total of \$867,919,832. In Part II we discuss the proper allocation of this total between the normal and deficiency contributions.

On the liability side of the balance sheet the main division of the total liability of \$1,451,924,250 is between the liability for the benefits presently payable on account of present retirants and beneficiaries amounting to \$392,820,334 and the liabilities for present active and inactive members amounting to \$1,058,956,085. In addition, there is a minor reserve of \$147,831. An analysis of the various liability items and a comparison of liabilities with the corresponding fund balances follow the balance sheet, beginning on page 3.

ACTUARIAL BALANCE SHEET SHOWING PRESENT AND PROSPECTIVE ASSETS AND LIABILITIES
 OF THE SCHOOL EMPLOYEES RETIREMENT SYSTEM - JUNE 30, 1975

A S S E T S

L I A B I L I T I E S

Present assets:

Employees' Savings Fund	\$ 180,574,679
Interest Reserve Fund	4,674
Annuity and Pension Reserve Fund	200,968,036
Survivors' Benefit Fund	37,661,189
Employers' Trust Fund	152,998,543
General Fixed Assets	<u>147,831</u>
 Total present assets	 \$ 572,354,953

Future assets

Present value of future state appro- priations to finance House Bill 284	\$ 11,649,465
 Present value of prospective employee and employer contributions	 <u>867,919,832</u>
 Total future assets	 \$ 879,569,297

TOTAL ASSETS \$1,451,924,250

: Present value of benefits	
: payable on account of pre-	
: sent retirants and benefi-	
: ciaries from the -	
: <u>Annuity and Pension Reserve Fund:</u>	
: Superannuation retirants	\$267,612,045
: Beneficiaries under options .	11,904,511
: Disability retirants	23,486,951
: Health care	40,465,435
: Death Benefit	<u>4,781,546</u>
: : Total A & PRF	 \$348,250,488
: : Survivors' Benefit Fund	 <u>44,569,846</u>
: : Total retirants and beneficiaries ...	 \$ 392,820,334
: Present value of benefits	
: payable on account of active	
: <u>and inactive members -</u>	
: Superannuation pensions	\$715,333,414
: Disability pensions	33,784,781
: Survivor benefits	43,007,688
: Refunds	145,431,713
: Health care	115,254,316
: Retirant death benefit	<u>6,144,173</u>
: : Total active and inactive members ...	 1,058,956,085
: Reserve for contingencies; miscellaneous ..	<u>147,831</u>
: : TOTAL LIABILITIES	 <u>\$1,451,924,250</u>

*Distributed as follows:

Cash	\$ 248,074
Investments (at Book Value)	550,142,110
Accounts Receivable (including \$21,702,654 due from employers)	21,742,041
Furniture and equipment	<u>222,727</u>
	<u>\$572,354,952</u>

Liability related to present retirants and beneficiaries \$392,820,334

A breakdown of the \$392,820,334 of liability related to present retirants and beneficiaries according to the type of benefit payment is shown in the following table. The costs of providing the Health Care Benefit and the Death Benefit are shown separately.

	<u>Liability for Retirants and Beneficiaries</u>			
	<u>Total</u>	<u>Health</u>	<u>Death</u>	<u>Total</u>
	<u>Allowance</u>	<u>Care</u>	<u>Benefit</u>	
Superannuation retirants .	\$267,612,045	\$30,552,209	\$4,481,725	\$302,645,979
Beneficiaries receiving optional allowances	11,904,511	1,716,859	-	13,621,370
Disability retirants	<u>23,486,951</u>	<u>4,303,218</u>	<u>299,821</u>	<u>28,089,990</u>
Sub-total	\$303,003,507	\$36,572,286	\$4,781,546	\$344,357,339
Survivors' Benefit Fund beneficiaries	<u>44,569,846</u>	<u>3,893,149</u>	<u>-</u>	<u>48,462,995</u>
Total Liability	<u>\$347,573,353</u>	<u>\$40,465,435</u>	<u>\$4,781,546</u>	<u>\$392,820,334</u>

Included in the \$303,003,507 of liability for present retirants and beneficiaries is \$13,705,253 related to House Bills 284 and 214, \$20,101,922 related to House Bill 1476 and \$7,546,823 related to past cost-of-living increases. Included in the \$44,569,846 of liability for present survivors is \$2,066,539 related to House Bills 377 and 214, \$3,375,354 related to House Bill 1476 and \$980,763 related to past cost-of-living increases.

It is informative to compare the above liabilities with the corresponding fund balances shown in the actuarial balance sheet. The liabilities charged against the Annuity and Pension Reserve Fund result from the allowances payable to superannuation and disability retirants, the optional allowances payable to surviving beneficiaries of deceased retirants and retirant death benefits.

The total of these liabilities is \$307,785,053 related to benefits to be paid from the Annuity and Pension Reserve Fund, which compares with \$212,617,501 (the total of the A & PRF balance of \$200,968,036 and the anticipated House Bill 284 state appropriation), leading to a deficiency of \$95,167,552. The corresponding deficiency prior to the changes in assumptions was \$102,248,009, so there was a decrease in this deficiency of \$7,080,457.

It will also be noted that the Survivors' Benefit Fund had a fund balance of \$37,661,189 as compared with the liability of \$44,569,846, indicating a deficit of \$6,908,657 in that Fund compared with a deficit of \$7,743,391 prior to the changes in assumptions, a decrease of \$834,734.

The total deficiency in these two Funds is \$102,076,209.

Liability related to present active and inactive members \$1,058,956,085

The \$1,058,956,085 of liability related to the active and inactive members of the system compares with \$1,006,855,564 prior to the changes in assumptions.

Reserve for contingencies; miscellaneous \$ 147,831

This is the Investment in General Fixed Assets.

Total liabilities \$1,451,924,250

The total liability represents the present value of all obligations of the System for all future benefits, both those related to service prior to June 30, 1975 and those that will be related to subsequent service, based on the benefits in effect on that date.

The actuarial assumptions used in this valuation are summarized in Schedule A at the end of this report.

PART II - RATES OF CONTRIBUTIONS

In connection with the 1975 valuation, a New Entrant study was made in order to determine the normal contribution rate. The results of that study, adjusted for changes in benefits and assumed future interest, indicate a total normal rate of 15.49% of salary, compared with 16.92% prior to the change in assumptions, with the breakdown shown in the table below:

Superannuation retirement benefit	8.98%
Disability retirement benefit62
Survivor benefit	1.10
Refund of contributions	3.09
Health care	1.56
Retirant death benefit	<u>.14</u>
Total normal contribution rate	<u>15.49%</u>

In order to determine what portion of the future asset item of \$867,919,832 will be funded by the total normal contribution rate of 15.49% of salary, we have determined that the present value of 1% of the present members' future salaries is \$39,097,898. The present value of future normal contributions is, therefore, 15.49 times \$39,097,898, or \$605,626,440. This leaves a deficiency of \$262,323,392 to be funded by the remainder of the future contributions compared with \$285,708,544 prior to the change in assumptions - a decrease of \$23,385,152.

In order to analyze the deficiency funding, let us start with the present total contribution rate of 20.50% of payroll, of which the member pays 8.00% and the State 12.50%. If we deduct the normal contribution rate of 15.49%, we are left with a balance of 5.01% available for funding the deficiency. The question to be answered is over how long a period will this rate of 5.01% be required in order to fund the deficiency of \$262,323,392.

Our calculations indicate that, for the present total contribution rate of 20.50% of payroll, of which 15.49% is on account of the normal cost and 5.01% is on account of the deficiency, the funding periods on three different assumptions as to future payrolls are as follows:

	<u>Assumptions as to Future Payrolls</u>		
	<u>No</u>	<u>3% Annual</u>	<u>5% Annual</u>
	<u>Increase</u>	<u>Increase</u>	<u>Increase</u>
Period of deficiency funding ..	23.7	16.7 years	14.4 years

The corresponding periods prior to the change in assumptions were: Never, 28.1 years and 21.9 years.

PART III - SUMMARY

We recommend that, unless changes are made by 1975-1976 legislation, the contribution rates be continued at the present level, namely:

Rate of member contribution	8.00%
Rate of employer contribution	<u>12.50</u>
Total rate of contribution	<u>20.50%</u>

SCHOOL EMPLOYEES RETIREMENT SYSTEM OF OHIO

NEW ACTUARIAL ASSUMPTIONS - JUNE 30, 1975

SUPERANNUATION RETIRANTS, BENEFICIARIES,
AND SURVIVOR BENEFICIARIES

INTEREST: 5% per annum, compounded annually.

MORTALITY: 1955 American Annuity Table, with ages set up one year for men and set back three years for women.

DISABILITY RETIRANTS

INTEREST: 5% per annum, compounded annually.

MORTALITY: Rates developed in 1975 Investigation, based on 1970-1975 experience.

ACTIVE AND INACTIVE MEMBERS

INTEREST: 5% per annum, compounded annually.

RATES OF WITHDRAWAL, MORTALITY, DISABILITY, SUPERANNUATION AND COMPENSATION INCREASE: Rates developed in 1975 Investigation, based on 1970-1975 experience. Values at specimen ages are shown in the table below.

	AGE	RATES OF SEPARATION DUE TO:				RATES OF COMPENSATION INCREASE
		<u>Withdrawal</u>	<u>Death</u>	<u>Disability</u>	<u>Superannuation</u>	
<u>MEN</u>	20	.1691	.0008	-	-	.0689
	30	.0826	.0011	.0002	-	.0567
	40	.0581	.0020	.0005	-	.0473
	50	.0394	.0049	.0038	.0002	.0387
	55	.0331	.0083	.0059	.0072	.0347
	60	.0288	.0123	-	.0544	.0307
	65	.0288	.0163	-	.1711	.0267
	70	-	.0203	-	.1436	.0227
	75	-	-	-	1.0000	-
<u>WOMEN</u>	20	.1507	.0002	-	-	.0879
	30	.0858	.0003	-	-	.0823
	40	.0620	.0006	.0002	-	.0691
	50	.0396	.0023	.0015	.0003	.0498
	55	.0315	.0041	.0030	.0016	.0399
	60	.0267	.0060	-	.1171	.0311
	65	.0246	.0072	-	.1406	.0248
	70	-	.0096	-	.1739	.0189
	75	-	-	-	1.0000	-

SCHEDULE A

