

REPORT ON AN ACTUARIAL VALUATION OF THE  
STATE TEACHERS RETIREMENT SYSTEM OF OHIO  
PREPARED AS OF JULY 1, 1989

# BUCK CONSULTANTS

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January 9, 1990

The Retirement Board  
The State Teachers  
Retirement System of Ohio  
275 East Broad Street  
Columbus, Ohio 43215

Ladies and Gentlemen:

This report presents the results of the actuarial valuation of the assets and liabilities of The State Teachers Retirement System of Ohio as of July 1, 1989, prepared in accordance with Section 3307.20 of Chapter 3307 of the Ohio Revised Code.

The valuation reflects the benefit formula improvements as legislated under House Bill 293, and the financing provisions which were implemented in conjunction with House Bill 293 with the objective of attaining an amortization period commencing July 1, 1989 of no greater than 35 years for liquidating the unfunded accrued liability as of July 1, 1989.

The valuation was based on the same actuarial assumptions and methods used in last year's valuation except that the STRS payroll is now assumed to grow annually at 5.875% compared to the previous growth assumption of 5.50%. This change in the payroll growth assumption is part of the financing provisions of House Bill 293, as described below.

The valuation indicates that the unfunded accrued liability of the System, after reflecting the benefit improvements and financing provisions of House Bill 293, is equal to \$7,212 million as of July 1, 1989. Based on the assumption that the STRS payroll will grow in the future at the rate of 5.875% per annum, the unfunded amount of \$7,212 million will be liquidated over a period of 34½ years commencing July 1, 1989.

In addition, the valuation indicates that, after fully reflecting the provisions of House Bill 293, the assets of the System include a reserve of \$53 million which may be used for additional benefits for members.

## Legislated Amendments

The amendments legislated under House Bill 293 provide for:

- (i) a revision in the percentage benefit formula from 2.0% of average final salary multiplied by the years of total Ohio service credit to 2.1% of average final salary multiplied by the years of total Ohio service credit except that, for years of Ohio contributing service credit in excess of 30, a formula percentage of 2.5% will apply,
- (ii) an increase in the lump sum payment upon death after service or disability retirement from \$500 to \$1,000, and

- (iii) a revision in the "pop-up" benefit feature under which it would no longer be an automatic feature of an annuitant's benefit but would be available as a payment option upon retirement for an actuarially computed charge.

As a result of the amendments, the total normal rate of contribution (excluding health care) has been increased from 14.30% of payroll as of July 1, 1988 to 15.03% of payroll as of July 1, 1989. The normal rate of contribution will be financed by an increase in the members' contribution rate from 8.77% to 9.25% effective July 1, 1990 with the balance being met by contributions from employers at a rate of 6.26% of payroll decreasing to 5.78% effective July 1, 1990.

#### Financing Provisions

The following financing provisions were implemented as part of the benefit provisions under House Bill 293:

- (i) Member contribution rate was increased from 8.77% to 9.25% effective July 1, 1990.
- (ii) The assumed growth rate of the STRS membership payroll was increased from 5.50% to 5.875% per annum.
- (iii) Reserves of \$551 million were released in the Employers' Trust Fund to assist in covering the employers' cost of the additional member benefits. The \$551 million reserves were comprised of \$300 million of reserves held from last year's valuation plus \$251 million of the reserves established this valuation prior to reflecting the cost effects of House Bill 293.
- (iv) A revision in the actuarial cost basis used which increased the cost of the various optional plans of payment available to members upon retirement.

The implementation of the benefit provisions of House Bill 293 and the above financing provisions result in an amortization period commencing July 1, 1989 of 34½ years for liquidating the deficiency as of July 1, 1989.

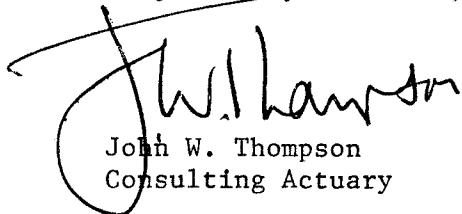
The net financial effect of House Bill 293 was to increase the normal contribution rate of the System from 14.30% to 15.03% of payroll and to increase the deficiency of the System by a net amount of \$640 million less the special reserve released of \$551 million less the \$10 million surplus in the dedicated bond portfolio II, or \$79 million. This \$79 million portion of the deficiency will be fully offset by the additional accrued liability contributions arising from the growth in the total membership payroll being greater than expected.

As we have already noted, after reflecting all of the provisions of House Bill 293, there remains as a portion of the assets of the System a reserve of \$53 million which may be used for additional benefits for members.

The Retirement Board  
The State Teachers  
Retirement System of Ohio  
January 9, 1990  
Page 3

The Table of Contents, which immediately follows, outlines the material contained in the report.

~~Respectfully submitted,~~



John W. Thompson  
Consulting Actuary

THE STATE TEACHERS  
RETIREMENT SYSTEM OF OHIO

TABLE OF CONTENTS

<u>Section</u>	<u>Item</u>	<u>Page</u>
I	Summary of Principal Results	1
II	Membership Data	3
III	Employee Data	5
IV	Valuation Balance Sheet	6
V	Comments on Valuation	9
VI	Gain and Loss Analysis	14
VII	Pension Benefit Obligation Information	18
 <u>Exhibit</u>		
A	Statement of Actuarial Assumptions and Methods	20
B	Summary of Benefit and Contribution Provisions	22
C	Detailed Tabulation of Data	26

REPORT ON AN ACTUARIAL VALUATION OF THE  
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SECTION I - SUMMARY OF PRINCIPAL RESULTS

1. This report presents the results of an actuarial valuation of The State Teachers Retirement System of Ohio prepared as of July 1, 1989. For convenience of reference, the principal results of the valuation and a comparison with the preceding year's results are summarized in Table I below.

TABLE I

<u>Valuation Date</u>	7/1/89	7/1/88
Active members included in valuation:		
Number	153,830	152,200
Annual salaries	\$ 4,624,118,605	\$ 4,336,723,017
Number of inactive members included in valuation:		
Eligible for pensions	15,814	15,587
Eligible for refunds only	67,819	65,520
Retirees and beneficiaries in receipt of benefits as of the valuation date:		
Number	66,453	64,957
Annual allowances	\$ 773,339,143	\$ 713,028,230
Assets (book value)	\$ 16,407,002,188	\$ 14,613,182,194
Normal Contribution Rate (excluding Health Care)	15.03%	14.30%
Health Care Cost Allocation as % of payroll	2.00%	2.00%
Unfunded Accrued Liability (excluding Health Care)	\$ 7,211,686,041	\$ 6,759,786,182
Liquidation Period	34½ years	35 years

2. The valuation reflects the amendments to the Revised Code which provided for (i) a revision in the percentage benefit formula from 2.0% of average final salary multiplied by the years of total Ohio service credit to 2.1% of average final salary multiplied by the years of total Ohio service credit except that for years of Ohio contributing service credit in excess of 30 a formula percentage of 2.5% will apply.
3. The valuation balance sheet showing the results of the valuation is presented in Table V of Section IV.
4. Comments on the valuation results are presented in Section V, while the gain and loss analysis during the valuation year is presented in Section VI.
5. Exhibit A of this report outlines the full set of actuarial assumptions and methods employed. Exhibit B presents a summary of the benefit and contribution provisions of the System.

SECTION II - MEMBERSHIP DATA

Data regarding the membership of the System which was used as a basis for the valuation were furnished by the System's office. The following tables summarize the membership of the System as of July 1, 1989 upon which the valuation was based. Detailed tabulations of the data are given in Exhibit C.

Table II following shows the number and annual salaries of active members as of July 1, 1989.

TABLE II

THE NUMBER AND ANNUAL SALARIES OF ACTIVE  
MEMBERS AS OF JULY 1, 1989

GROUP	NUMBER	ANNUAL SALARIES
Men	55,076	\$ 1,978,298,661
Women	98,754	2,645,819,944
Total	153,830	\$ 4,624,118,605

Table III following shows the number of inactive members as of July 1, 1989.

TABLE III

THE NUMBER OF INACTIVE MEMBERS  
AS OF JULY 1, 1989

GROUP	ELIGIBLE FOR ALLOWANCES	ELIGIBLE FOR REFUNDS ONLY
Men	4,434	21,546
Women	11,380	46,273
Total	15,814	67,819

Table IV on the following page shows the number and annual retirement allowances of retirees and beneficiaries as of July 1, 1989.



TABLE IV

THE NUMBER AND ANNUAL RETIREMENT ALLOWANCES OF  
RETIREES AND BENEFICIARIES AS OF JULY 1, 1989

GROUP	NUMBER	ANNUAL ALLOWANCES AS OF JULY 1, 1989		
		Basic	Cost-of-Living Increases	Total
Superannuation retirees:				
Men	17,987	\$ 257,755,464	\$ 39,263,500	\$ 297,018,964
Women	37,247	301,959,633	63,683,229	365,642,862
Subtotal	55,234	\$ 559,715,097	\$ 102,946,729	\$ 662,661,826
Disability retirees:				
Men	1,632	\$ 23,648,057	\$ 3,610,316	\$ 27,258,373
Women	2,664	27,159,615	4,542,487	31,702,102
Subtotal	4,296	\$ 50,807,672	\$ 8,152,803	\$ 58,960,475
Beneficiaries receiving optional allowances:				
Men	699	\$ 3,128,376	\$ 944,259	\$ 4,072,635
Women	2,870	18,511,704	5,738,097	24,249,801
Subtotal	3,569	\$ 21,640,080	\$ 6,682,356	\$ 28,322,436
Total	63,099	\$ 632,162,849	\$ 117,781,888	\$ 749,944,737
Survivors' Benefit Fund beneficiaries:				
Men	793	\$ 4,020,752	\$ 750,576	\$ 4,771,328
Women	2,170	13,724,168	3,151,764	16,875,932
Orphans	391	1,476,449	270,697	1,747,146
Total	3,354	\$ 19,221,369	\$ 4,173,037	\$ 23,394,406
Grand Total	66,453	\$ 651,384,218	\$ 121,954,925	\$ 773,339,143

In addition, 120 beneficiaries of deceased active members entitled to annual deferred allowances of \$873,328 were included in the valuation.

SECTION III - EMPLOYEE DATA

1. The valuation was based on detailed data submitted by the System covering 153,830 active members with annual compensation of \$4,624,118,605, 63,099 retired members and beneficiaries in receipt of total annual retirement allowances of \$749,944,737, 3,354 beneficiaries covered under the Survivors' Benefit Fund who are in receipt of annual retirement allowances of \$23,394,406, 120 beneficiaries of deceased active members entitled to annual deferred allowances of \$873,328, 15,814 inactive members eligible for allowances and 67,819 inactive members eligible for refunds only.
2. Tables 1 and 2 of Exhibit C show the number and annual compensation of active members distributed by age and years of service as of July 1, 1989. Table 3 shows the number of inactive members eligible for allowances distributed by age, while Table 4 shows the number of inactive members eligible for refunds distributed by age as of July 1, 1989. Tables 5 through 8 of Exhibit C show the number and annual retirement allowances of retired members and contingent annuitants included in the valuation. Table 9 of Exhibit C shows the number and annual allowances of children without an eligible parent distributed by age as of July 1, 1989.

SECTION IV - VALUATION BALANCE SHEET

The following valuation balance sheet shows the assets and liabilities of the Retirement System as of July 1, 1989.

The liabilities of the funds are equal to the actuarially determined present values of benefits payable.

The valuation balance sheet reflects the changes in benefit provisions incorporated under House Bill 293, and the financing provisions implemented in conjunction with the provisions of House Bill 293.

TABLE V

VALUATION BALANCE SHEET SHOWING THE PRESENT  
AND PROSPECTIVE ASSETS AND LIABILITIES OF THE  
STATE TEACHERS RETIREMENT SYSTEM OF OHIO  
PREPARED AS OF JULY 1, 1989

## TABLE V

VALUATION BALANCE SHEET SHOWING THE PRESENT  
AND PROSPECTIVE ASSETS AND LIABILITIES OF THE  
STATE TEACHERS RETIREMENT SYSTEM OF OHIO  
PREPARED AS OF JULY 1, 1989

ASSETS		:
Present assets:		:
Annuity and Pension		:
Reserve Fund [See Note (1)]	\$ 8,313,978,515	:
Survivors' Benefit Fund	265,499,979	:
Teachers' Savings Fund	3,446,311,610	:
Employers' Trust Fund	<u>4,381,212,084</u>	: \$16,407,002,188
		:
Prospective assets:		:
Present value of future		:
state appropriations		:
to finance House Bills		:
204(1979) and 248(1971):		:
Annuity and Pension		:
Reserve Fund	\$ 35,779,330	:
Survivors' Benefit		:
Fund	<u>1,105,759</u>	: \$ 36,885,089
		:
Present value of members'		:
future contributions to		:
Teachers' Savings Fund	4,601,681,822	:
		:
Present value of employers'		:
future contributions to		:
the Employers' Trust		:
Fund:		:
Normal contributions	\$2,910,147,449	:
Accrued liability		:
contributions	<u>7,211,686,041</u>	: <u>10,121,833,490</u>
		:
Total prospective		:
contributions		: <u>14,760,400,401</u>
		:
Total Assets		: \$31,167,402,589
		:

Note (1): Includes \$107,458,755 attributable to dedicated bond portfolio I, and \$58,349,820 attributable to dedicated bond portfolio II.

## TABLE V

VALUATION BALANCE SHEET SHOWING THE PRESENT  
AND PROSPECTIVE ASSETS AND LIABILITIES OF THE  
STATE TEACHERS RETIREMENT SYSTEM OF OHIO  
PREPARED AS OF JULY 1, 1989

LIABILITIES		
Present value of benefits payable on account of present retirees and beneficiaries from the following funds:		:
Annuity and Pension Reserve Fund		:
[See Note (2)]	\$ 8,352,301,600	:
Survivors' Benefit Fund	266,605,738	:
Total liabilities for retirees and beneficiaries		: \$ 8,618,907,338
Reserves held in the Health Care Premium Stabilization Fund		: 349,681,043
Reserves established for additional members' benefits		: 53,000,000
Present value of benefits payable on account of active and inactive members from contributions to the Teachers' Savings Fund and Employers' Trust Fund:		:
Superannuation allowances	\$ 19,315,570,532	:
Disability allowances	1,344,986,109	:
Survivor benefits	635,398,250	:
Refunds	837,564,435	:
Retirement death benefits	12,294,882	:
Total liabilities for active and inactive members		: \$ 22,145,814,208
Total Liabilities		: \$ 31,167,402,589

Note (2): Includes \$107,458,755 less an amount of \$7,540,165, or a net amount of \$99,918,590 attributable to dedicated bond portfolio I, and \$47,753,335 attributable to dedicated bond portfolio II.

SECTION V - COMMENTS ON VALUATION

The valuation balance sheet gives the following information in regard to the funds of the System as of July 1, 1989.

Annuity and Pension Reserve Fund

The Annuity and Pension Reserve Fund is the fund from which is paid all retirement allowances for which reserves have been transferred from the Teachers' Savings Fund and the Employers' Trust Fund. The present assets credited to the fund as of July 1, 1989 amounted to \$8,313,978,515, which included \$107,458,755 attributable to dedicated bond portfolio I which was established July 1, 1985, and \$58,349,820 attributable to dedicated bond portfolio II which was established July 1, 1988. In addition, future state appropriations to finance House Bills 204 (1979) and 248 (1971) amounted to \$35,779,330. Therefore, the present and future assets amounted to \$8,349,757,845. The liabilities of the fund amounted to \$8,352,301,600 as of July 1, 1989. The difference between the assets and liabilities, or \$2,543,755, represents the deficit in the fund as of July 1, 1989. It should be noted that this deficit represents the effect of inter-fund transfers within STRS. It is recommended that periodic ad hoc transfers be continued between the fund and the Employers' Trust Fund in order to bring the fund more closely into balance. Such transfers would have a neutral effect on the unfunded accrued liability of STRS, since any surplus or deficit in the fund is applied to reduce the unfunded in the Employers' Trust Fund.

Survivors' Benefit Fund

The Survivors' Benefit Fund is the fund from which is paid the benefits to survivors of members who die in active service or after disability retirement. The liabilities of the fund were equal to \$266,605,738 as of July 1,

1989. The present assets credited to the fund as of July 1, 1989 amounted to \$265,499,979 and future state appropriations to finance House Bills 204 (1979) and 248 (1971) amounted to \$1,105,759. Therefore, the total present and future assets were also equal to \$266,605,738. Thus, the Survivors' Benefit Fund is in balance as of July 1, 1989.

#### Health Care Premium Stabilization Fund

The assets of the Health Care Premium Stabilization Fund as of July 1, 1989 are equal to \$349,681,043, which are included in the Employers' Trust Fund. Provisions are made at the rate of 2.00% of payroll to be applied against the one year term cost of health care.

#### Teachers' Savings Fund

The Teachers' Savings Fund is the fund to which members' contributions are credited and from which is paid all refunds of members' contributions upon withdrawal or upon death where no other survivor benefit is payable. Upon retirement a member's contributions are transferred from this fund to the Annuity and Pension Reserve Fund and upon death where a benefit is paid to a survivor, his contributions are transferred to the Survivors' Benefit Fund.

The present assets credited to the Teachers' Savings Fund amounted to \$3,446,311,610 as of July 1, 1989.

#### Employers' Trust Fund

The Employers' Trust Fund is the fund to which the employers' contributions are credited. At retirement or death the reserves necessary to provide the benefits payable less the members' contributions are transferred from this fund to the Annuity and Pension Reserve Fund, or to the Survivors' Benefit



Fund. The assets in the Employers' Trust Fund amounted to \$4,381,212,084 as of July 1, 1989, including the transfer of the Health Care Premium Stabilization Fund amount of \$329,502,202 from the Annuity and Pension Reserve Fund.

Under the financing provisions which were implemented in conjunction with changes in benefit provisions incorporated under House Bill 293, reserves of \$551 million in the Employers' Trust Fund were released.

The reserves released of \$551 million included \$251 million of the special reserves of \$304 million which had been established in this valuation prior to the recognition of the changes in benefit provisions incorporated under House Bill 293 as well as the special reserves of \$300 million which were carried forward from last year's valuation having been set aside for benefit improvements and future purchase of service transactions by the members.

As a result of the release of reserves of \$551 million to assist in financing House Bill 293, there remains a special reserve of \$53 million in the Employers' Trust Fund as of July 1, 1989 which may be used for additional benefits for members.

#### Employers' Future Contributions

The present value of the liabilities to be covered by contributions to the Teachers' Savings Fund and Employers' Trust Fund amounts to \$22,145,814,208 for active and inactive members, plus \$349,681,043 for health care payments, plus \$53,000,000, as previously mentioned, to be used for additional members' benefits, or a total of \$22,548,495,251. If the present assets of \$3,446,311,610 in the Teachers' Savings Fund plus \$4,381,212,084 in the Em-

employers' Trust Fund, or a total of \$7,827,523,694, are subtracted from these liabilities, there remains \$14,720,971,557 to be met by future contributions of members and employers. The present value of members' future contributions was \$4,601,681,822 as of the valuation date, which reflects the increase in the members' contribution rate from 8.77% to 9.25% effective July 1, 1990, leaving \$10,119,289,735 to be met by future contributions of the employers.

The normal contribution rate payable based upon the entry age of members with less than two years of service is equal to the rate of 15.03%, determined as of July 1, 1989, which reflects the inclusion of changes in benefit provisions incorporated under House Bill 293. This results in a total normal rate payable equal to 15.03%, of which 8.77% of payroll is to be met by members' contributions increasing to 9.25% of payroll as of July 1, 1990, and the remainder, or 6.26% of payroll decreasing to 5.78% of payroll effective July 1, 1990, is included in the employer contribution rate. A detailed breakdown of the normal contribution rate by liability category is presented below.

TABLE VI

NORMAL CONTRIBUTION RATE

CATEGORY	:	RATE AS % OF PAYROLL
Superannuation Allowances	:	11.58%
Disability Allowances	:	1.30
Survivor Benefits	:	.64
Refunds	:	1.49
Retirement Death Benefits	:	.02
Total	:	15.03%

Future normal contributions by employers have a present value of \$2,910,147,449. If this amount is subtracted from \$10,119,289,735, the present value of future contributions by employers, there remains \$7,209,142,286 as the total amount of unfunded accrued liability exclusive of the deficit in the Annuity and Pension Reserve Fund. If the deficit of \$2,543,755 in the Annuity and Pension Reserve Fund is added to the amount of \$7,209,142,286, the resulting total unfunded accrued liability is equal to \$7,211,686,041. Employers pay 14.00% of payroll, of which 6.26% decreasing to 5.78% effective July 1, 1990 is payable toward the normal contribution and 2.00% is payable for health care, leaving 5.74% of payroll increasing to 6.22% effective July 1, 1990 available to liquidate the unfunded accrued liability. Based upon an assumed increase in payroll of 5.875% per annum, the unfunded accrued liability would be liquidated in 34½ years.

The net effect of House Bill 293 was to increase the unfunded accrued liability by \$640 million minus the release of \$551 million of special reserves and \$10 million of surplus assets in dedicated bond portfolio II, or a net amount of \$79 million which will be fully offset by the additional accrued liability contributions arising from the growth in the total membership payroll being greater than expected.

After the implementation of House Bill 293 and its financing provisions, there remains a reserve as of July 1, 1989 of \$53 million in the Employers' Trust Fund for additional members' benefits.

SECTION VI - GAIN AND LOSS ANALYSIS

The expected unfunded accrued liability as of July 1, 1989 amounts to \$6,992 million, based on an expected deficiency period equal to last year's period of 35 years less 1 year, or 34 years. The actual unfunded accrued liability prior to the recognition of the changes in benefit provisions incorporated under House Bill 293 amounted to \$7,133 million, where this unfunded amount reflects the special reserves of \$304 million established as of this valuation as part of the financing provisions of House Bill 293. Thus, there is an increase of \$7,133 million minus \$6,992 million, or \$141 million in the expected deficiency arising from actuarial gains or losses during the year ended June 30, 1989 before reflecting the financial effects of House Bill 293. The sources of this increase are analyzed below.

(1) Investment Income

Income on investments during the year ended June 30, 1989, net of expenses, was earned at a rate of 10.87% based on book value of assets, but excluding the effect of the dedicated bond portfolios I and II.

As part of the financing provisions of House Bill 293, \$304 million of the investment income, after meeting the valuation rate of 7.75%, is to be established as an additional reserve as described under the Employers' Trust Fund subsection of Section V.

After considering all the liabilities, the investment income in excess of the required obligations less the special reserves of \$304 million amounts to \$150 million. Of this excess investment income, approximately \$37 million will be paid out to eligible retirees and beneficiaries in December, 1989, leaving a net gain of \$113 million.

(ii) Salary Increases

Salary increases to active members were in excess of those expected and increased the unfunded accrued liability by approximately \$52 million.

(iii) Retiree Mortality

Mortality and termination experience among retirees and beneficiaries resulted in a loss of approximately \$6 million.

(iv) Separation Experience Among Active Members and New Entrants

The actual number of members who retired on account of both service and disability was greater than expected. In addition, the actual number of withdrawals and deaths was less than expected. This overall experience resulted in net losses to the System of approximately \$103 million.

There was a loss of approximately \$58 million from new entrants.

(v) Purchase of Service

The purchase of service by members during the year ended June 30, 1989 produced an additional liability to the System not covered by the premiums paid by the members of approximately \$35 million.

A summary of the gain and loss analysis is presented on the following page.

Summary of Gain and Loss Analysis

	<u>Amount in Millions</u>
Items that <u>increased</u> the unfunded accrued liability:	
Salary increases above those expected	\$ 52
Separation experience	103
New entrants	58
Purchase of service	35
Experience among retirees and beneficiaries	<u>6</u>
Total increases	\$ 254
Items that <u>decreased</u> the unfunded accrued liability:	
Excess investment earnings	\$ 113
Total decreases	<u>113</u>
Net increase in unfunded accrued liability	\$ 141

Deficiency Period

If there had been no actuarial gains or losses during the year ended June 30, 1989, the expected remaining period to fund the unfunded accrued liability as of July 1, 1989 would have been 34 years, i.e., one year less than the period of 35 years as of June 30, 1988.

The net actuarial loss of \$141 million described above has the effect of increasing the funding period by approximately 1.0 years. In addition, because the payroll of the total membership increased at a rate (6.6%) greater than the expected rate of 5.5%, the application of the accrued liability rate of 6.47%, which is prior to the impact of House Bill 293, to the increased payroll base will generate contribution income greater than expected in the future. This actuarial gain in the form of increased income has the effect of reducing the required funding period by approximately .5

years. The net effect of these two factors is to increase the expected funding period by 1.0 years less .5 years, or .5 years. This produces a funding period as of July 1, 1989 of 34.0 years plus .5 years, or 34½ years before reflecting the cost effects and financing provisions of House Bill 293. The net effect of implementing House Bill 293 and its financing provisions is to leave the funding period unchanged at 34½ years and to leave as part of the assets of the System a special reserve of \$53 million.

These points may be summarized as follows:

	<u>Funding Period</u>
Expected period as of July 1, 1989	34.0 years
Increase due to actuarial loss of \$141 million	1.0
Decrease due to additional accrued liability contribution income	(.5)
Funding period prior to implementation of House Bill 293 and its financing provisions	<u>34.5 years</u>
Implementation of House Bill 293 and its financing provisions	<u>Nil</u>
Actual funding period	34.5 years

SECTION VII - PENSION BENEFIT OBLIGATION INFORMATION

1. Statement No. 5 of the Governmental Accounting Standards Board (GASB) requires in part that a computation and disclosure of a standardized measure of the pension obligation for public employee retirement systems, and state and local governmental employers be made for purposes of assessing the funding status and funding progress of these systems and employers.

This measure is the actuarial present value (APV) as of the valuation date of credited projected benefits prorated on service, which is referred to in Statement No. 5 as of the "pension benefit obligation" (PBO).

2. The determination of the pension benefit obligation as of July 1, 1989 includes an adjustment for the effects of projected salary increases, estimated to be payable in the future as a result of employee service to July 1, 1989.

Significant actuarial assumptions used to determine the pension benefit obligation as of July 1, 1989 include the following:

- (1) An assumed rate of return on the investment of present and future assets of 7-3/4% per annum, compounded annually.
- (2) Assumed projected annual salary increases ranging from 10.50% at age 20 to 4.50% at age 65, which reflect an allowance for inflation and merit or seniority increases.
- (3) Assumed annual post-retirement benefit increases equal to 3% of the member's benefit at retirement, based on the assumption that the change in Consumer Price Index will equal or exceed 3% each year in the future.



The relevant amounts as of July 1, 1989 are shown below:

Pension benefit obligation:

Retirees and beneficiaries currently receiving benefits	\$ 8,618,907,338
Terminated vested members not yet receiving benefits	<u>1,107,809,606</u>
Sub-total	\$ 9,726,716,944
Current members -	
Accumulated member contributions with interest	\$ 3,230,662,428
Employer-financed vested	3,456,248,482
Employer-financed non-vested	<u>5,564,849,207</u>
Sub-total	\$12,251,760,117
Total pension benefit obligation	\$21,978,477,061

The actuarial present value of credited projected benefits for active members is the portion of the total projected benefits allocated to the accrued liability using the unit credit actuarial cost method.

The pension benefit obligation shown above reflects the effect of the benefit improvements under House Bill 293 which increased the obligation by \$607.5 million.

EXHIBIT A

## STATEMENT OF ACTUARIAL ASSUMPTIONS AND METHODS

INTEREST RATE: 7-3/4% per annum, compounded annually.

SEPARATIONS FROM ACTIVE SERVICE: Representative values of the assumed rates of separation and annual rates of salary increase are as follows:

<u>Age</u>	<u>Withdrawal</u>	<u>Death</u>	<u>Disability</u>	<u>ANNUAL RATES OF</u>			<u>Salary Increase</u>
				<u>Superannuation</u>			
				<u>30</u> <u>Years</u> <u>Service</u>	<u>25-29</u> <u>Years</u> <u>Service</u>	<u>Under</u> <u>25 Years</u> <u>Service</u>	
<u>MEN</u>							
20	.0855	.0009	-	-	-	-	.1050
30	.0655	.0010	.0003	-	-	-	.0850
40	.0295	.0016	.0009	-	-	-	.0650
50	.0150	.0035	.0054	.2250	-	-	.0530
55	.0153	.0054	.0077	.2070	.0495	-	.0500
60	.0163	.0096	-	.2475	.0675	.0765	.0475
65	.0163	.0177	-	.3825	.3600	.2565	.0450
70	-	.0309	-	.3600	.3600	.3150	.0450
<u>WOMEN</u>							
20	.0566	.0003	-	-	-	-	.1050
30	.0599	.0004	.0005	-	-	-	.0850
40	.0248	.0007	.0012	-	-	-	.0650
50	.0149	.0016	.0048	.2250	-	-	.0530
55	.0126	.0029	.0070	.2250	.0900	-	.0500
60	.0117	.0054	-	.2610	.1305	.1440	.0475
65	.0123	.0099	-	.4050	.3600	.2970	.0450
70	-	.0174	-	.3600	.3150	.2700	.0450

DEATH AFTER RETIREMENT: According to the 1955 American Annuity Table with ages set back two years for men and seven years for women. Special mortality tables are used for the period after disability retirement.

VALUATION METHOD: Projected benefit method with level percentage entry age normal cost and open-end unfunded accrued liability. Gains and losses are reflected in the accrued liability.

ASSET VALUATION METHOD: Cost value.

PAYROLL GROWTH: Assumed to grow at 5.875% per annum for purposes of determining the liquidation period of the unfunded accrued liability.

EXHIBIT A

## STATEMENT OF ACTUARIAL ASSUMPTIONS AND METHODS

(Continued)

PENSION BENEFIT OBLIGATION: The measure of the actuarial present value (APV) as of the valuation date of credited projected benefits prorated on service, or pension benefit obligation (PBO) as referred to in Statement No. 5 of the Governmental Accounting Standards Board (GASB), includes an adjustment for the effects of projected salary increases, estimated to be payable in the future as a result of employee service to July 1, 1989. Significant actuarial assumptions used to determine the pension benefit obligation as of July 1, 1989 include the following:

- (1) An assumed rate of return on the investment of present and future assets of 7-3/4% per annum, compounded annually.
- (2) Assumed projected annual salary increases ranging from 10.50% at age 20 to 4.50% at age 65, which reflect an allowance for inflation and merit or seniority increases.
- (3) Assumed annual post-retirement benefit increases equal to 3% of the member's benefit at retirement, based on the assumption that the change in Consumer Price Index will equal or exceed 3% each year in the future.

EXHIBIT B

## SUMMARY OF BENEFIT AND CONTRIBUTION PROVISIONS

Eligibility for membership      Immediate

Service Retirement

    Eligibility                      Age 60 with 5 years of service, or age 55 with 25 years of service, or 30 years of service regardless of age.

    Benefits                         Greater of (i) 2.1% of final average salary for the three highest paid years, multiplied by years of total Ohio service credit, except that for years of Ohio contributing service credit in excess of 30 a formula percentage of 2.5% will apply, or (ii) \$86 multiplied by years of service credit, and adjusted by the following percentage:

<u>Attained Age</u>	or	<u>Years of Ohio Service Credit</u>	<u>% of Base Amount</u>
58		25	75%
59		26	80
60		27	85
61		28	88
62		29	91
63		30	94
64		31	97
65		30 or more	100

Maximum benefit - 100% of average annual salary for three highest paid years.

Minimum benefit - the sum of the annuity provided by the member's accumulated contributions, a pension equal to the annuity and an additional pension of \$40 multiplied by the number of years of prior and military service.

Optional Forms of Benefit      Option 1 - 100% joint and survivorship. Reduced retirement allowance payable to the member continuing for life to the member's sole beneficiary named at retirement after the member's death.

EXHIBIT B

## SUMMARY OF BENEFIT AND CONTRIBUTION PROVISIONS

(Continued)

Option 2 - A joint and survivorship annuity payable during the lifetime of the member, with the member's sole beneficiary named at retirement to receive some other portion of the member's annuity after the member's death.

Option 3 - The member's reduced retirement allowance provided under Option 1 or Option 2 is to be paid for life to the member's sole beneficiary named at retirement after the member's death, except that in the event of the death of the sole beneficiary or termination of marriage between the retirant and the sole beneficiary, the retirant may elect to return to his single lifetime benefit equivalent which would be available for an actuarially computed charge as determined by the Board. In the case of termination of marriage the election may be made with the written consent of the beneficiary or by court order.

Option 4 - A life annuity payable during the lifetime of the member, with a guarantee that upon the member's death before the expiration of a certain period, his benefit will continue for the remainder of such period to his beneficiary. Joint beneficiaries may receive the present value of any remaining payments in a lump sum settlement. If all beneficiaries die before the expiration of the certain period, the present value of all payments that remain to be paid are to be paid to the estate of the beneficiary last receiving.

Option 5 - A plan of payment established by the Board combining any of the features of Option 1, 2, and 4.

## Disability Retirement

## Eligibility

Completion of 5 or more years of service, under age 60 and permanently incapacitated for the performance of duty.

## Benefits

(1) Annuity with a reserve equal to the member's accumulated contributions, plus

EXHIBIT B

## SUMMARY OF BENEFIT AND CONTRIBUTION PROVISIONS

(Continued)

(2) The difference between (1) and the greater of 2.1% of the average salary during the 3 highest paid years except that for that service in excess of 30 years 2.5% will apply or \$86 times total service plus years and months from date of disability to age 60. Maximum allowance is 75% of final average salary. Minimum allowance is 30% of final average salary.

## Death after Retirement

Lump sum payment of \$1,000 upon death after service or disability retirement.

## Survivor's Benefit

## Eligibility

Upon death after at least 1-1/2 years of credit for Ohio service with at least 1/4 year of such service in the 2-1/2 years preceding death or upon death of a disability retirant.

## Benefits

If member eligible for retirement, spouse or other sole dependent beneficiary may elect to receive option 1 benefit in lieu of return of contributions.

If member not eligible for retirement certain designated beneficiaries may elect to receive following benefits in lieu of return of contributions.

<u>Number of Qualified Dependents</u>	<u>% of Average Annual Salary for 3 Highest Paid Years</u>	<u>Minimum Annual Benefit</u>
1	25%	\$1,152
2	40	2,232
3	50	2,832
4	55	2,832
5 or more	60	2,832

Qualified beneficiaries are spouse, dependent children and/or dependent parents over age 65.

## Refund of Contributions

A member's contributions are refunded upon termination of employment where no other benefit is payable. Upon death after retirement or upon death of a survivor in receipt of benefits, the member's accumulated contributions at retirement less payments made are returned to the designated beneficiary.

EXHIBIT B

SUMMARY OF BENEFIT AND CONTRIBUTION PROVISIONS

(Continued)

Cost-of-living Benefits	The basic benefit is increased by 3% each year provided the change in Consumer Price Index equals or exceeds 3%.
Health Care	Retirants, their spouses and dependent children are covered by comprehensive medical expense health care plan.
Contribution:	
By Members	8.77% increasing to 9.25% of salary effective July 1, 1990.
By Employers	14.00% of salaries of their employees who are members.

EXHIBIT C

DISTRIBUTIONS OF  
ACTIVE MEMBERS, INACTIVE MEMBERS,  
RETIRED MEMBERS AND BENEFICIARIES



THE NUMBER AND ANNUAL SALARIES  
OF ACTIVE MEMBERS DISTRIBUTED BY  
AGE AS OF JULY 1, 1989

AGE	MEN		WOMEN	
	NUMBER	AMOUNT	NUMBER	AMOUNT
19	\$		1	\$ 576
20			4	67,477
21	1	3,245	1	6,405
22	4	19,210	59	650,705
23	190	2,619,923	912	12,218,379
24	376	5,723,470	1,354	19,800,106
25	483	8,240,141	1,558	25,028,616
26	588	10,892,101	1,733	30,635,584
27	647	12,823,634	1,782	33,419,183
28	723	15,273,043	1,833	35,715,738
29	752	16,587,420	1,745	34,814,514
30	797	18,235,782	1,777	36,725,732
31	898	22,769,044	1,920	41,800,115
32	1,121	30,044,601	2,225	50,520,698
33	1,216	33,288,892	2,328	54,636,492
34	1,342	38,484,731	2,769	67,826,554
35	1,457	43,471,067	2,908	72,113,669
36	1,665	51,684,776	3,249	83,219,832
37	1,984	62,980,781	4,004	104,653,515
38	2,214	74,451,676	4,395	117,539,744
39	2,301	78,056,649	4,587	123,480,594
40	2,577	90,651,409	4,808	129,598,632
41	2,615	93,248,984	4,540	125,599,270
42	3,158	116,185,482	5,084	140,540,434
43	2,677	100,143,379	4,204	118,315,629
44	2,147	82,010,586	3,256	93,299,463
45	2,040	79,569,404	3,138	90,570,526
46	2,235	88,203,755	3,356	97,995,438
47	2,145	85,848,757	3,270	96,806,535
48	1,912	78,386,789	2,803	83,012,739
49	1,702	70,074,815	2,434	73,703,227
50	1,587	66,805,322	2,278	69,600,968
51	1,486	63,996,466	2,280	70,406,885
52	1,358	58,576,400	2,037	62,766,748
53	1,233	52,547,348	1,850	58,149,625
54	1,066	47,724,686	1,621	50,525,150
55	974	42,258,594	1,516	47,568,058
56	794	34,696,586	1,216	38,035,907
57	746	32,635,100	1,231	39,537,035
58	726	32,086,332	1,196	37,782,513
59	658	28,805,689	1,193	37,636,027
60	551	24,190,590	956	30,433,972

TABLE 1

THE NUMBER AND ANNUAL SALARIES  
OF ACTIVE MEMBERS DISTRIBUTED BY  
AGE AS OF JULY 1, 1989

CONTINUED

AGE	MEN		WOMEN	
	NUMBER	AMOUNT	NUMBER	AMOUNT
61	430\$	18,961,061	784\$	25,800,431
62	382	16,372,429	694	22,229,798
63	256	11,227,489	496	16,207,329
64	238	10,329,998	426	14,269,540
65	205	9,189,919	301	10,004,709
66	133	5,975,356	199	6,683,533
67	84	3,799,228	146	4,756,162
68	74	3,331,489	93	2,913,747
69	60	2,693,941	70	2,175,280
70	24	915,480	55	1,797,686
71	12	443,175	36	1,094,059
72	7	321,323	23	713,476
73	4	72,125	4	125,448
74	5	70,787	4	118,619
75	9	177,648	6	107,266
76	2	16,190	2	5,987
77	1	19,950	1	48,936
78			2	4,423
79	1	4,857	1	4,506
80	2	32,923		
85	1	46,634		
TOTAL	55,076\$	1,978,298,661	98,754\$	2,645,819,944

THE NUMBER AND ANNUAL SALARIES  
OF ACTIVE MEMBERS DISTRIBUTED BY  
AGE AS OF JULY 1, 1989

AGE	NUMBER	AMOUNT
19	1	576
20	4	67,477
21	2	9,650
22	63	669,915
23	1,102	14,838,302
24	1,730	25,523,576
25	2,041	33,268,757
26	2,321	41,527,685
27	2,429	46,242,817
28	2,556	50,988,781
29	2,497	51,401,934
30	2,574	54,961,514
31	2,818	64,569,159
32	3,346	80,565,299
33	3,544	87,925,384
34	4,111	106,311,285
35	4,365	115,584,736
36	4,914	134,904,608
37	5,988	167,634,296
38	6,609	191,991,420
39	6,888	201,537,243
40	7,385	220,250,041
41	7,155	218,848,254
42	8,242	256,725,916
43	6,881	218,459,008
44	5,403	175,310,049
45	5,178	170,139,930
46	5,591	186,199,193
47	5,415	182,655,292
48	4,715	161,399,528
49	4,136	143,778,042
50	3,865	136,406,290
51	3,766	134,403,351
52	3,395	121,343,148
53	3,083	110,696,973
54	2,687	98,249,836
55	2,490	89,826,652
56	2,010	72,732,493
57	1,977	72,172,135
58	1,922	69,868,845
59	1,851	66,441,716
60	1,507	54,624,562

THE NUMBER AND ANNUAL SALARIES  
OF ACTIVE MEMBERS DISTRIBUTED BY  
AGE AS OF JULY 1, 1989

## CONTINUED

AGE	NUMBER	AMOUNT
61	1,214\$	44,761,492
62	1,076	38,602,227
63	752	27,434,818
64	664	24,599,538
65	506	19,194,628
66	332	12,658,889
67	230	8,555,390
68	167	6,245,236
69	130	4,869,221
70	79	2,713,166
71	48	1,537,234
72	30	1,034,799
73	8	197,573
74	9	189,406
75	15	284,914
76	4	22,177
77	2	68,886
78	2	4,423
79	2	9,363
80	2	32,923
85	1	46,634
TOTAL	153,830\$	4,624,118,605

TABLE 2

THE NUMBER AND ANNUAL SALARIES  
OF ACTIVE MEMBERS DISTRIBUTED BY  
YEARS OF SERVICE AS OF JULY 1, 1989

YEARS OF SERVICE	MEN		WOMEN	
	NUMBER	AMOUNT	NUMBER	AMOUNT
0	699\$	7,762,750	1,728\$	15,434,373
1	3,097	57,678,161	7,285	94,669,642
2	2,520	59,378,737	5,676	96,686,681
3	2,151	57,392,154	5,150	100,643,734
4	2,008	58,646,114	4,708	98,075,474
5	1,817	54,121,326	4,493	98,884,970
6	1,524	48,785,410	3,835	86,319,365
7	1,187	39,695,545	3,087	71,084,340
8	1,207	40,865,360	3,024	72,346,818
9	1,532	53,495,269	3,600	92,359,070
10	1,599	56,700,050	3,870	104,832,590
11	1,759	64,039,241	4,132	116,663,388
12	1,680	61,092,706	3,896	113,720,103
13	1,743	64,459,705	3,560	107,038,290
14	1,799	67,187,304	3,659	113,485,347
15	1,919	71,642,501	3,767	119,592,893
16	2,027	78,060,861	3,999	129,546,897
17	2,339	90,753,159	3,686	122,283,184
18	2,079	82,978,577	3,175	106,155,155
19	2,034	82,623,844	3,166	107,434,692
20	2,487	102,168,784	2,997	103,512,349
21	2,235	91,550,827	2,540	87,822,192
22	2,018	84,770,574	2,233	77,695,433
23	1,777	74,487,213	1,929	67,921,808
24	1,550	66,022,345	1,720	60,940,797
25	1,434	60,739,240	1,444	50,854,898
26	1,264	54,193,475	1,255	44,776,278
27	1,061	45,407,432	1,059	37,872,881
28	927	40,098,483	974	34,497,377
29	767	33,516,492	761	27,216,568
30	702	31,000,489	717	25,700,363
31	499	21,984,369	471	17,175,627
32	422	19,497,198	333	12,217,188
33	325	14,543,774	248	8,966,684
34	237	10,723,970	160	5,820,339
35	193	8,553,154	100	3,759,103
36	106	4,906,634	78	3,035,006
37	98	4,471,740	65	2,417,229
38	79	3,620,577	55	1,934,639
39	64	3,141,800	37	1,422,089
40	33	1,634,355	24	835,796

THE NUMBER AND ANNUAL SALARIES  
OF ACTIVE MEMBERS DISTRIBUTED BY  
YEARS OF SERVICE AS OF JULY 1, 1989

CONTINUED

YEARS OF SERVICE	MEN		WOMEN	
	NUMBER	AMOUNT	NUMBER	AMOUNT
41	29	1,415,162	15	572,244
42	24	1,184,397	10	392,922
43	8	419,912	13	465,386
44	9	519,212	3	101,628
45	2	104,796	5	199,717
46	3	138,047	4	140,303
47	2	103,133	3	119,342
48	1	22,303		
49			1	38,537
50			3	99,098
52			1	39,117
TOTAL	55,076	\$1,978,298,661	98,754	\$2,645,819,944

THE NUMBER AND ANNUAL SALARIES  
OF ACTIVE MEMBERS DISTRIBUTED BY  
YEARS OF SERVICE AS OF JULY 1, 1989

YEARS OF SERVICE	NUMBER	AMOUNT
0	2,427\$	23,197,123
1	10,382	152,347,803
2	8,196	156,065,418
3	7,301	158,035,888
4	6,716	156,721,588
5	6,310	153,006,296
6	5,359	135,104,775
7	4,274	110,779,885
8	4,231	113,212,178
9	5,132	145,854,339
10	5,469	161,532,640
11	5,891	180,702,629
12	5,576	174,812,809
13	5,303	171,497,995
14	5,458	180,672,651
15	5,686	191,235,394
16	6,026	207,609,094
17	6,025	213,035,007
18	5,254	189,133,732
19	5,200	190,058,536
20	5,484	205,681,133
21	4,775	179,373,019
22	4,251	162,466,007
23	3,706	142,409,021
24	3,270	126,963,142
25	2,878	111,594,138
26	2,519	98,969,753
27	2,120	83,280,313
28	1,901	74,595,860
29	1,528	60,733,060
30	1,419	56,700,852
31	970	39,159,996
32	755	31,714,386
33	573	23,510,458
34	397	16,544,309
35	293	12,312,257
36	184	7,941,640
37	163	6,888,969
38	134	5,555,216
39	101	4,563,889
40	57	2,470,151

THE NUMBER AND ANNUAL SALARIES  
OF ACTIVE MEMBERS DISTRIBUTED BY  
YEARS OF SERVICE AS OF JULY 1, 1989

CONTINUED

YEARS OF SERVICE	NUMBER	AMOUNT
41	44\$	1,987,406
42	34	1,577,319
43	21	885,298
44	12	620,840
45	7	304,513
46	7	278,350
47	5	222,475
48	1	22,303
49	1	38,537
50	3	99,098
52	1	39,117
TOTAL	153,830\$	4,624,118,605



TABLE 3  
 THE NUMBER OF INACTIVE MEMBERS ELIGIBLE FOR  
 FUTURE ALLOWANCES DISTRIBUTED BY  
 AGE AS OF JULY 1, 1989

AGE	MEN	WOMEN
27		1
28	4	18
29	4	36
30	9	82
31	15	162
32	30	202
33	57	260
34	57	307
35	65	396
36	73	404
37	98	477
38	116	519
39	143	551
40	162	527
41	172	535
42	235	524
43	205	422
44	162	355
45	198	369
46	228	425
47	193	405
48	167	404
49	165	337
50	152	338
51	192	332
52	167	374
53	159	314
54	150	332
55	165	291
56	148	268
57	141	297
58	160	288
59	157	330
60	113	244
61	51	66
62	30	53
63	24	32
64	18	28
65	16	20
66	12	16
67	7	10
68	11	8
69	1	4
70		4
71		6

THE NUMBER OF INACTIVE MEMBERS ELIGIBLE FOR  
FUTURE ALLOWANCES DISTRIBUTED BY  
AGE AS OF JULY 1, 1989

CONTINUED

AGE	MEN	WOMEN
72	1	
73	1	1
74		1
75		2
79		1
81		1
83		1
TOTAL	4,434	11,380

TABLE 3A  
THE NUMBER OF INACTIVE MEMBERS ELIGIBLE FOR  
FUTURE ALLOWANCES DISTRIBUTED BY  
AGE AS OF JULY 1, 1989

AGE	NUMBER
27	1
28	22
29	40
30	91
31	177
32	232
33	317
34	364
35	461
36	477
37	575
38	635
39	694
40	689
41	707
42	759
43	627
44	517
45	567
46	653
47	598
48	571
49	502
50	490
51	524
52	541
53	473
54	482
55	456
56	416
57	438
58	448
59	487
60	357
61	117
62	83
63	56
64	46
65	36
66	28
67	17
68	19
69	5
70	4
71	6

THE NUMBER OF INACTIVE MEMBERS ELIGIBLE FOR  
FUTURE ALLOWANCES DISTRIBUTED BY  
AGE AS OF JULY 1, 1989

CONTINUED

AGE	NUMBER
72	1
73	2
74	1
75	2
79	1
81	1
83	1
TOTAL	15,814

TABLE 4  
 THE NUMBER OF INACTIVE MEMBERS ELIGIBLE FOR  
 REFUNDS ONLY DISTRIBUTED BY  
 AGE AS OF JULY 1, 1989

AGE	MEN	WOMEN
18	1	
20	6	3
21	2	12
22	19	89
23	83	378
24	161	550
25	241	743
26	306	793
27	375	909
28	382	1,034
29	396	1,106
30	450	1,158
31	482	1,227
32	606	1,327
33	602	1,339
34	662	1,355
35	768	1,523
36	738	1,751
37	869	1,903
38	887	1,967
39	942	1,889
40	1,000	1,998
41	1,012	1,988
42	1,105	2,259
43	870	1,963
44	690	1,545
45	648	1,462
46	623	1,524
47	572	1,421
48	517	1,147
49	405	1,017
50	390	847
51	360	742
52	341	724
53	337	696
54	307	550
55	297	562
56	254	448
57	288	475
58	231	426
59	283	437
60	221	369
61	218	347
62	202	279
63	175	260
64	146	215
65	133	199

THE NUMBER OF INACTIVE MEMBERS ELIGIBLE FOR  
REFUNDS ONLY DISTRIBUTED BY  
AGE AS OF JULY 1, 1989

CONTINUED

AGE	MEN	WOMEN
66	142	137
67	108	138
68	104	134
69	102	120
70	79	105
71	63	93
72	56	69
73	42	58
74	37	64
75	37	58
76	27	38
77	27	42
78	15	31
79	17	35
80	13	33
81	15	28
82	16	15
83	6	18
84	10	20
85	1	17
86	5	17
87	4	15
88	6	7
90	3	11
91	3	8
92	4	4
93	1	2
TOTAL	21,546	46,273

TABLE 4A

THE NUMBER OF INACTIVE MEMBERS ELIGIBLE FOR  
REFUNDS ONLY DISTRIBUTED BY  
AGE AS OF JULY 1, 1989

AGE	NUMBER
18	1
20	9
21	14
22	108
23	461
24	711
25	984
26	1,099
27	1,284
28	1,416
29	1,502
30	1,608
31	1,709
32	1,933
33	1,941
34	2,017
35	2,291
36	2,489
37	2,772
38	2,854
39	2,831
40	2,998
41	3,000
42	3,364
43	2,833
44	2,235
45	2,110
46	2,147
47	1,993
48	1,664
49	1,422
50	1,237
51	1,102
52	1,065
53	1,033
54	857
55	859
56	702
57	763
58	657
59	720
60	590
61	565
62	481
63	435
64	361
65	332

THE NUMBER OF INACTIVE MEMBERS ELIGIBLE FOR  
REFUNDS ONLY DISTRIBUTED BY  
AGE AS OF JULY 1, 1989

## CONTINUED

AGE	NUMBER
66	279
67	246
68	238
69	222
70	184
71	156
72	125
73	100
74	101
75	95
76	65
77	69
78	46
79	52
80	46
81	43
82	31
83	24
84	30
85	18
86	22
87	19
88	13
90	14
91	11
92	8
93	3
TOTAL	67,819



TABLE 5

THE NUMBER AND ANNUAL RETIREMENT  
ALLOWANCES OF BENEFICIARIES  
DISTRIBUTED BY AGE AS OF JULY 1, 1989

SUPERANNUATION RETIREES

AGE	MEN		WOMEN	
	NUMBER	ANNUAL ALLOWANCE	NUMBER	ANNUAL ALLOWANCE
49	1	\$ 21,007	2	\$ 31,980
50	5	120,793	5	85,446
51	35	889,831	28	547,461
52	84	2,027,281	71	1,400,809
53	211	4,975,841	141	2,779,357
54	284	6,472,864	172	3,349,826
55	351	7,653,511	219	4,103,505
56	439	9,536,594	272	5,065,807
57	540	11,853,286	310	5,706,639
58	565	12,399,654	414	7,241,253
59	621	13,527,029	433	7,502,654
60	678	14,174,442	604	9,302,185
61	781	15,008,311	858	10,291,668
62	862	16,214,979	995	11,919,426
63	876	15,886,292	1,050	12,304,005
64	931	16,950,733	1,093	12,791,286
65	876	15,262,555	1,083	12,508,643
66	837	14,428,695	1,151	12,631,993
67	791	13,075,776	1,211	13,883,994
68	754	12,249,785	1,327	14,170,707
69	699	10,913,238	1,307	13,765,155
70	520	8,153,712	1,246	12,714,861
71	573	8,590,761	1,399	14,051,184
72	545	7,505,612	1,367	13,024,996
73	451	5,863,034	1,343	12,540,042
74	474	6,362,528	1,309	12,120,384
75	434	5,413,541	1,294	11,602,234
76	419	5,454,712	1,328	11,329,322
77	379	4,547,085	1,371	11,396,853
78	350	4,062,240	1,247	9,940,086
79	317	3,603,120	1,314	10,780,870
80	340	3,899,589	1,256	10,066,989
81	305	3,365,238	1,409	10,813,578
82	307	3,175,282	1,238	9,561,646
83	247	2,572,209	1,150	8,577,433
84	223	2,277,524	1,170	8,812,919
85	190	1,815,016	985	7,215,234

THE NUMBER AND ANNUAL RETIREMENT  
ALLOWANCES OF BENEFICIARIES  
DISTRIBUTED BY AGE AS OF JULY 1, 1989

SUPERANNUATION RETIREES

CONTINUED

AGE	MEN		WOMEN	
	NUMBER	ANNUAL ALLOWANCE	NUMBER	ANNUAL ALLOWANCE
86	160	\$ 1,605,848	861	\$ 6,265,418
87	122	1,182,358	716	5,049,514
88	123	1,224,065	582	4,195,598
89	67	642,289	442	3,233,722
90	53	510,182	333	2,395,071
91	49	497,072	309	2,262,080
92	30	282,293	204	1,595,522
93	23	223,494	182	1,389,369
94	24	201,198	133	1,003,527
95	14	129,308	89	707,340
96	5	47,553	83	645,751
97	6	55,390	55	376,518
98	6	28,976	32	207,986
99	9	81,975	24	159,701
100	1	3,263	17	142,267
101			7	40,902
102			3	24,193
103			2	8,897
104			1	7,056
TOTAL	17,987	\$297,018,964	37,247	\$365,642,862

SUMMARY

NO OPTION	4,477	\$ 61,636,797	26,924	\$254,333,962
OPTION 1	7,277	122,925,268	3,989	36,720,408
OPTION 2	3,567	61,257,918	2,298	26,280,728
OPTION 3	2,063	41,175,263	2,898	36,999,227
OPTION 4	603	10,023,718	1,138	11,308,537

TABLE 5A

THE NUMBER AND ANNUAL RETIREMENT  
ALLOWANCES OF BENEFICIARIES  
DISTRIBUTED BY AGE AS OF JULY 1, 1989

## SUPERANNUATION RETIREES

AGE	NUMBER	AMOUNT
49	3	\$ 52,987
50	10	206,239
51	63	1,437,292
52	155	3,428,090
53	352	7,755,198
54	456	9,822,690
55	570	11,757,016
56	711	14,602,401
57	850	17,559,925
58	979	19,640,907
59	1,054	21,029,683
60	1,282	23,476,627
61	1,639	25,299,979
62	1,857	28,134,405
63	1,926	28,190,297
64	2,024	29,742,019
65	1,959	27,771,198
66	1,988	27,060,688
67	2,002	26,959,770
68	2,081	26,420,492
69	2,006	24,678,393
70	1,766	20,868,573
71	1,972	22,641,945
72	1,912	20,530,608
73	1,794	18,403,076
74	1,783	18,482,912
75	1,728	17,015,775
76	1,747	16,784,034
77	1,750	15,943,938
78	1,597	14,002,326
79	1,631	14,383,990
80	1,596	13,966,578
81	1,714	14,178,816
82	1,545	12,736,928
83	1,397	11,149,642
84	1,393	11,090,443
85	1,175	9,030,250

THE NUMBER AND ANNUAL RETIREMENT  
ALLOWANCES OF BENEFICIARIES  
DISTRIBUTED BY AGE AS OF JULY 1, 1989

SUPERANNUATION RETIREES

CONTINUED

AGE	NUMBER	AMOUNT
86	1,021	\$ 7,871,266
87	838	6,231,872
88	705	5,419,663
89	509	3,876,011
90	386	2,905,253
91	358	2,759,152
92	234	1,877,815
93	205	1,612,863
94	157	1,204,725
95	103	836,648
96	88	693,304
97	61	431,908
98	38	236,962
99	33	241,676
100	18	145,530
101	7	40,902
102	3	24,193
103	2	8,897
104	1	7,056
TOTAL	55,234	\$662,661,826

SUMMARY

NO OPTION	31,401	\$315,970,759
OPTION 1	11,266	159,645,676
OPTION 2	5,865	87,538,646
OPTION 3	4,961	78,174,490
OPTION 4	1,741	21,332,255

TABLE 6

THE NUMBER AND ANNUAL RETIREMENT  
ALLOWANCES OF BENEFICIARIES  
DISTRIBUTED BY AGE AS OF JULY 1, 1989

## DISABILITY RETIREES

AGE	MEN		WOMEN	
	NUMBER	ANNUAL ALLOWANCE	NUMBER	ANNUAL ALLOWANCE
28			1	\$ 15,166
30	1	\$ 17,354	1	14,077
31			1	14,256
32			4	50,254
33			6	84,376
34	3	48,052	11	161,451
35	2	30,085	19	293,396
36	5	82,022	10	134,029
37	5	81,620	33	490,503
38	10	186,259	24	386,858
39	12	209,125	23	374,241
40	13	228,974	47	719,880
41	25	418,730	35	539,624
42	23	396,354	40	588,350
43	22	442,887	37	566,170
44	20	396,238	36	596,457
45	27	490,030	36	574,969
46	37	624,306	54	815,374
47	35	652,047	59	929,124
48	33	564,040	41	617,391
49	26	473,181	44	639,476
50	40	874,586	57	845,854
51	37	682,788	59	878,397
52	38	711,063	69	976,334
53	50	948,932	51	787,007
54	58	1,205,282	67	1,005,875
55	59	1,046,532	81	1,177,913
56	68	1,270,097	71	1,064,794
57	74	1,363,573	77	1,146,809
58	75	1,435,153	91	1,205,586
59	82	1,522,388	94	1,197,637
60	71	1,169,811	97	1,087,758
61	85	1,438,250	102	1,260,347
62	69	1,159,870	115	1,342,910
63	80	1,220,721	101	1,086,419
64	74	1,164,517	94	1,027,716
65	56	833,733	83	840,881

TABLE 6

THE NUMBER AND ANNUAL RETIREMENT  
ALLOWANCES OF BENEFICIARIES  
DISTRIBUTED BY AGE AS OF JULY 1, 1989

## DISABILITY RETIREES

## CONTINUED

AGE	MEN		WOMEN	
	NUMBER	ANNUAL ALLOWANCE	NUMBER	ANNUAL ALLOWANCE
66	48	\$ 756,573	80	\$ 801,206
67	47	633,955	80	764,997
68	58	757,627	73	709,855
69	23	324,014	72	659,618
70	29	381,788	66	536,827
71	22	256,813	71	549,963
72	23	194,646	43	289,909
73	10	89,655	45	320,674
74	12	100,681	48	309,828
75	10	114,868	25	168,288
76	4	42,712	30	176,784
77	2	11,738	28	181,444
78	3	27,202	15	82,170
79	2	10,018	20	119,894
80	2	23,083	8	48,426
81			10	52,313
82	5	37,678	15	75,781
83	2	8,545	14	61,335
84	2	9,786	12	62,615
85	3	18,391	9	44,653
86	1	9,642	11	65,154
87	4	23,575	5	25,186
88	3	24,441	3	11,992
89			2	6,562
90			2	14,127
91			3	12,173
92			1	3,051
93	1	7,133		
94			1	6,693
96			1	2,925
97	1	5,209		
TOTAL	1,632	\$ 27,258,373	2,664	\$ 31,702,102

TABLE 6A

THE NUMBER AND ANNUAL RETIREMENT  
ALLOWANCES OF BENEFICIARIES  
DISTRIBUTED BY AGE AS OF JULY 1, 1989

DISABILITY RETIREES

AGE	NUMBER	AMOUNT
28	1 \$	15,166
30	2	31,431
31	1	14,256
32	4	50,254
33	6	84,376
34	14	209,503
35	21	323,481
36	15	216,051
37	38	572,123
38	34	573,117
39	35	583,366
40	60	948,854
41	60	958,354
42	63	984,704
43	59	1,009,057
44	56	992,695
45	63	1,064,999
46	91	1,439,680
47	94	1,581,171
48	74	1,181,431
49	70	1,112,657
50	97	1,720,440
51	96	1,561,185
52	107	1,687,397
53	101	1,735,939
54	125	2,211,157
55	140	2,224,445
56	139	2,334,891
57	151	2,510,382
58	166	2,640,739
59	176	2,720,025
60	168	2,257,569
61	187	2,698,597
62	184	2,502,780
63	181	2,307,140
64	168	2,192,233
65	139	1,674,614
66	128	1,557,779
67	127	1,398,952
68	131	1,467,482
69	95	983,632

THE NUMBER AND ANNUAL RETIREMENT  
ALLOWANCES OF BENEFICIARIES  
DISTRIBUTED BY AGE AS OF JULY 1, 1989

## DISABILITY RETIREES

## CONTINUED

AGE	NUMBER	AMOUNT
70	95 \$	918,615
71	93	806,776
72	66	484,555
73	55	410,329
74	60	410,509
75	35	283,156
76	34	219,496
77	30	193,182
78	18	109,372
79	22	129,912
80	10	71,509
81	10	52,313
82	20	113,459
83	16	69,880
84	14	72,401
85	12	63,044
86	12	74,796
87	9	48,761
88	6	36,433
89	2	6,562
90	2	14,127
91	3	12,173
92	1	3,051
93	1	7,133
94	1	6,693
96	1	2,925
97	1	5,209
TOTAL	4,296 \$	58,960,475



TABLE 7

THE NUMBER AND ANNUAL RETIREMENT  
ALLOWANCES OF BENEFICIARIES  
DISTRIBUTED BY AGE AS OF JULY 1, 1989

CONTINGENT ANNUITANTS

AGE	MEN		WOMEN	
	NUMBER	ANNUAL ALLOWANCE	NUMBER	ANNUAL ALLOWANCE
6			1 \$	7,590
29	1 \$	5,442		
30			2	57,898
34			2	6,128
35	1	7,146	2	4,502
36			1	2,472
37	1	966	1	1,738
38	1	2,826		
39			3	20,054
40			2	8,789
41			3	24,450
42	1	1,912	2	5,010
43	1	4,278	1	6,270
44	1	3,058	1	8,740
45	3	34,768	1	11,888
46	2	6,866	2	40,511
47			1	8,956
48			3	27,817
49	1	6,407	3	9,758
50			4	94,157
51			2	16,125
52	2	24,105	4	73,482
53	2	24,522	8	75,517
54			9	134,981
55	3	28,786	8	91,843
56			12	184,045
57	6	79,896	10	102,015
58			17	265,440
59			26	313,214
60	6	38,970	26	416,221
61	2	36,558	36	407,064
62	6	22,002	34	399,507
63	10	86,475	43	543,871
64	10	64,405	55	553,852
65	8	41,504	57	688,959
66	7	43,708	55	512,827
67	11	96,010	58	609,275
68	18	114,617	59	666,896
69	23	140,455	77	736,001
70	22	127,115	63	530,128

TABLE 7

THE NUMBER AND ANNUAL RETIREMENT  
ALLOWANCES OF BENEFICIARIES  
DISTRIBUTED BY AGE AS OF JULY 1, 1989

## CONTINGENT ANNUITANTS

## CONTINUED

AGE	MEN		WOMEN	
	NUMBER	ANNUAL ALLOWANCE	NUMBER	ANNUAL ALLOWANCE
71	34	\$ 193,192	77	\$ 719,049
72	24	131,442	88	752,400
73	39	196,167	88	816,859
74	28	129,395	98	779,019
75	35	186,495	102	846,793
76	37	208,051	119	926,772
77	25	171,651	114	821,105
78	26	148,611	117	854,243
79	32	164,790	138	984,207
80	23	125,815	124	932,969
81	29	180,110	125	949,057
82	32	199,183	117	823,211
83	30	156,437	105	773,831
84	34	163,568	133	948,761
85	28	169,931	98	762,861
86	22	107,589	98	742,080
87	13	60,590	85	607,313
88	11	68,279	67	499,499
89	12	70,307	58	442,904
90	7	35,628	54	407,195
91	14	88,832	42	286,838
92	4	16,736	30	224,848
93			24	168,645
94	3	16,457	20	147,332
95	3	16,522	18	120,269
96	1	6,965	15	107,321
97	2	9,585	7	43,840
98	1	3,049	8	61,725
99	1	4,461	1	6,938
100			4	15,452
101			1	1,315
102			1	7,159
TOTAL	699	\$ 4,072,635	2,870	\$ 24,249,801

TABLE 7A

THE NUMBER AND ANNUAL RETIREMENT  
ALLOWANCES OF BENEFICIARIES  
DISTRIBUTED BY AGE AS OF JULY 1, 1989

## CONTINGENT ANNUITANTS

AGE	NUMBER	AMOUNT
6	1 \$	7,590
29	1	5,442
30	2	57,898
34	2	6,128
35	3	11,648
36	1	2,472
37	2	2,704
38	1	2,826
39	3	20,054
40	2	8,789
41	3	24,450
42	3	6,922
43	2	10,548
44	2	11,798
45	4	46,656
46	4	47,377
47	1	8,956
48	3	27,817
49	4	16,165
50	4	94,157
51	2	16,125
52	6	97,587
53	10	100,039
54	9	134,981
55	11	120,629
56	12	184,045
57	16	181,911
58	17	265,440
59	26	313,214
60	32	455,191
61	38	443,622
62	40	421,509
63	53	630,346
64	65	618,257
65	65	730,463
66	62	556,535
67	69	705,285
68	77	781,513
69	100	876,456
70	85	657,243

THE NUMBER AND ANNUAL RETIREMENT  
ALLOWANCES OF BENEFICIARIES  
DISTRIBUTED BY AGE AS OF JULY 1, 1989

## CONTINGENT ANNUITANTS

## CONTINUED

AGE	NUMBER	AMOUNT
71	111	\$ 912,241
72	112	883,842
73	127	1,013,026
74	126	908,414
75	137	1,033,288
76	156	1,134,823
77	139	992,756
78	143	1,002,854
79	170	1,148,997
80	147	1,058,784
81	154	1,129,167
82	149	1,022,394
83	135	930,268
84	167	1,112,329
85	126	932,792
86	120	849,669
87	98	667,903
88	78	567,778
89	70	513,211
90	61	442,823
91	56	375,670
92	34	241,584
93	24	168,645
94	23	163,789
95	21	136,791
96	16	114,286
97	9	53,425
98	9	64,774
99	2	11,399
100	4	15,452
101	1	1,315
102	1	7,159
TOTAL	3,569	\$ 28,322,436

TABLE 8

THE NUMBER AND ANNUAL RETIREMENT  
ALLOWANCES OF BENEFICIARIES  
DISTRIBUTED BY AGE AS OF JULY 1, 1989

BENEFICIARIES RECEIVING ALLOWANCES  
UNDER SURVIVORS BENEFIT FUND

AGE	MEN		WOMEN	
	NUMBER	ANNUAL ALLOWANCE	NUMBER	ANNUAL ALLOWANCE
21			1	\$ 18,743
26			1	16,943
27			1	5,819
28			3	19,530
29			1	7,100
30			1	7,540
31	1	\$ 5,808	2	12,053
34	3	13,319	1	7,132
35	1	4,513	3	18,482
36	3	11,010	3	15,836
37	1	3,976	6	43,779
38	4	19,218	8	49,753
39	6	31,855	10	61,688
40	3	13,939	9	85,593
41	2	14,074	15	111,936
42	6	28,541	18	125,975
43	4	12,493	13	96,926
44	5	37,506	22	174,628
45	6	33,794	21	176,892
46	12	55,600	24	176,146
47	9	52,191	24	213,301
48	9	58,808	25	238,387
49	7	36,900	27	277,364
50	6	37,104	25	237,318
51	14	70,268	32	270,023
52	14	80,148	41	371,618
53	5	33,186	35	277,334
54	13	81,404	34	376,649
55	13	77,493	32	342,292
56	10	69,153	25	241,795
57	13	83,806	53	574,155
58	17	133,938	56	575,948
59	17	115,568	44	476,264
60	22	171,385	65	635,873
61	18	137,605	60	547,947
62	26	181,993	66	643,806
63	37	281,107	81	719,832
64	31	196,551	83	609,354
65	32	183,208	59	502,955
66	32	203,597	65	498,869
67	28	174,410	69	568,851

THE NUMBER AND ANNUAL RETIREMENT  
ALLOWANCES OF BENEFICIARIES  
DISTRIBUTED BY AGE AS OF JULY 1, 1989

BENEFICIARIES RECEIVING ALLOWANCES  
UNDER SURVIVORS BENEFIT FUND

CONTINUED

AGE	MEN		WOMEN	
	NUMBER	ANNUAL ALLOWANCE	NUMBER	ANNUAL ALLOWANCE
68	34	\$ 210,334	70	\$ 586,412
69	32	169,835	55	439,165
70	28	155,027	48	379,070
71	21	160,686	49	329,142
72	23	128,387	60	393,132
73	24	143,391	44	256,921
74	34	199,052	47	252,891
75	18	95,348	48	331,256
76	11	63,390	54	335,217
77	22	100,409	46	269,739
78	15	77,899	52	270,414
79	15	70,365	53	314,165
80	11	65,617	46	262,401
81	14	71,937	64	383,858
82	7	32,882	54	308,179
83	11	51,773	37	203,187
84	9	46,571	32	179,139
85	8	32,648	33	207,455
86	5	35,623	33	199,715
87	5	30,510	19	127,403
88	4	35,497	17	107,519
89	3	10,517	10	67,659
90	4	16,603	9	67,522
91	5	21,558	6	41,000
92			7	47,486
93			3	16,777
94			3	24,010
95			1	8,351
96			3	15,820
97			1	2,490
98			1	7,164
100			1	8,844
TOTAL	793	\$ 4,771,328	2,170	\$ 16,875,932

TABLE 8A

THE NUMBER AND ANNUAL RETIREMENT  
ALLOWANCES OF BENEFICIARIES  
DISTRIBUTED BY AGE AS OF JULY 1, 1989

BENEFICIARIES RECEIVING ALLOWANCES  
UNDER SURVIVORS BENEFIT FUND

AGE	NUMBER	AMOUNT
21	1 \$	18,743
26	1	16,943
27	1	5,819
28	3	19,530
29	1	7,100
30	1	7,540
31	3	17,861
34	4	20,451
35	4	22,995
36	6	26,846
37	7	47,755
38	12	68,971
39	16	93,543
40	12	99,532
41	17	126,010
42	24	154,516
43	17	109,419
44	27	212,134
45	27	210,686
46	36	231,746
47	33	265,492
48	34	297,195
49	34	314,264
50	31	274,422
51	46	340,291
52	55	451,766
53	40	310,520
54	47	458,053
55	45	419,785
56	35	310,948
57	66	657,961
58	73	709,886
59	61	591,832
60	87	807,258

THE NUMBER AND ANNUAL RETIREMENT  
ALLOWANCES OF BENEFICIARIES  
DISTRIBUTED BY AGE AS OF JULY 1, 1989

BENEFICIARIES RECEIVING ALLOWANCES  
UNDER SURVIVORS BENEFIT FUND

CONTINUED

AGE	NUMBER	AMOUNT
61	78	\$ 685,552
62	92	825,799
63	118	1,000,939
64	114	805,905
65	91	686,163
66	97	702,466
67	97	743,261
68	104	796,746
69	87	609,000
70	76	534,097
71	70	489,828
72	83	521,519
73	68	400,312
74	81	451,943
75	66	426,604
76	65	398,607
77	68	370,148
78	67	348,313
79	68	384,530
80	57	328,018
81	78	455,795
82	61	341,061
83	48	254,960
84	41	225,710
85	41	240,103
86	38	235,338
87	24	157,913
88	21	143,016
89	13	78,176
90	13	84,125
91	11	62,558
92	7	47,486
93	3	16,777
94	3	24,010
95	1	8,351
96	3	15,820
97	1	2,490
98	1	7,164
100	1	8,844
TOTAL	2,963	\$ 21,647,260



TABLE 9

THE DISTRIBUTION OF THE NUMBER AND ANNUAL ALLOWANCES BY AGE CHILDREN WITHOUT AN ELIGIBLE PARENT

AGE OF YOUNGEST CHILD	NUMBER OF CHILDREN AGE																						TOTAL #	ANNUAL ALLOWANCES
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22		
1	-																						-	0
2	-																						-	0
3	-																						-	0
4				5		1	1								1			1	1	1			11	\$ 46,529
5					4																		5	20,841
6							3			2	1												7	21,126
7																							9	48,312
8									4	1													6	29,397
9																							24	89,074
10																							22	89,423
11																							16	65,628
12																							19	82,673
13																							22	97,381
14																							35	156,874
15																							21	93,076
16																							37	159,625
17																							38	185,384
18																							48	222,453
19																							28	136,202
20																							25	125,030
21																							16	69,931
22 & OVER																							2	8,187
TOTAL																							391	\$1,747,146