

**PUBLIC SCHOOL RETIREMENT SYSTEM
OF ST. LOUIS**

**ACTUARIAL VALUATION
AS OF JANUARY 1, 2001**

**NOVEMBER
2001**

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SECTION 1

REPORT OF THE ACTUARY

PURPOSE OF THE REPORT

This report is submitted in accordance with Section 169.450-15 Revised Statutes of Missouri (R.S. Mo.) 1997 and amendments that require the actuary to make an annual valuation of the assets and liabilities of the System. The purpose of the actuarial valuation is twofold: (1) to determine the required annual contributions from the Board of Education, the Retirement System and Harris-Stowe State College (or the State of Missouri); and (2) to develop information to measure the relative financial condition of the System.

The required contribution to the Retirement System from the Board of Education, the Retirement System, charter schools and Harris-Stowe State College (or the State of Missouri) is computed in accordance with Section 169.490 R.S. Mo. 1997. The amount of the required contribution is stated in Table C of this report. A description of the actuarial cost method and assumptions appears in Section 3.

Information concerning the financial condition and factors affecting it will be found throughout the report. There is no generally accepted single measure or standard for determining whether or not a retirement system is "actuarially sound." The financial health of a retirement system is measured best on a relative basis. Results are compared over a period of years to determine whether adequate progress is being made in the funding of the system's liabilities. Another

relative measure is the stability of the contribution rate, with recognition for changes in funding requirements due to changes in benefit provisions. The actuarial balance sheet also provides an indication of the relative financial condition of the plan.

COMMENTS

This actuarial valuation reflects the increase in benefits (the 3% COLA effective January 1, 2001 and the DROP effective July 1, 2001). These changes combined with unfavorable actuarial experience for the year ending December 31, 2000 resulted in an increase in the Annual Required Contribution rate from 7.17% to 7.73%. The primary factor producing the unfavorable experience was the unanticipated increase in compensation for members participating in the extended school year program. Offsetting the unfavorable demographic experience was a net investment return on an actuarial basis in excess of the 8.0% assumed rate of return for 2000.

Pursuant to Section 169.471 R.S. Mo. 1997, the Board of Education has adopted an increase in benefits (the DROP). As a part of the package to increase benefits, the Board of Education agreed to fix the employer contribution at 8.00% for 2001 and institute a one-year lag for future years. Therefore, this actuarial valuation is used to determine the actual contribution rate for 2002. The dollar amount of the actual contribution increased from \$17,400,968 to \$17,610,899 for

2001, and will increase to \$18,168,580 for 2002. As a percentage of covered compensation the actual contribution for 2002 will decrease from 8.00% to 7.73%.

Under the actuarial funding method used to determine the contribution, actuarial gains (or losses) result in a decrease (or increase) in the normal cost rate. Actuarial gains (or losses) result from differences between the actual experience of the System and the expected experience projected by the actuarial assumptions. The assumptions are based on the long-term expected experience of the System. Actuarial gains (or losses) reflect short-term deviations between actual and expected experience. Since the normal cost is redetermined on an annual basis, the normal cost will usually fluctuate from year-to-year.

For 2001, the annual normal cost is \$0 or 0.00% of the covered payroll of \$235,087,151.

The actuarial accrued liability contribution is determined as the amount necessary to amortize the remaining Unfunded Frozen Actuarial Accrued Liability (UFAAL) over a specified period of years. This portion of the contribution only changes to reflect changes in benefits or changes in actuarial assumptions and methods. The UFAAL was increased by \$30,413,346 to reflect the effect of the change in benefits.

In our opinion, the Retirement System has been and will continue to be funded on a sound actuarial basis provided the required contributions are made as recommended in this report.

Respectfully submitted,

James S. Rubie, Jr., F.S.A.

SECTION 2

**SUMMARY OF PRINCIPAL RESULTS OF THE
ACTUARIAL VALUATION AS OF JANUARY 1, 2001**

ANNUAL REQUIRED CONTRIBUTION

	<u>Board of Education</u>	<u>Harris-Stowe State College</u>	<u>Retirement System</u>	<u>Charter Schools</u>	<u>Total</u>
<u>2001</u>					
Normal Cost Contribution	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0
Actuarial Accrued Liability Contribution	<u>17,862,598</u>	<u>10,079</u>	<u>30,295</u>	<u>265,608</u>	<u>18,168,580</u>
Annual Required Contribution	\$ 17,862,598	\$ 10,079	\$ 30,295	\$ 265,608	\$ 18,168,580
Covered Payroll	231,127,985	130,420	391,991	3,436,755	235,087,151
ARC as % of Covered Payroll	7.73%	7.73%	7.73%	7.73%	7.73%
<u>2000*</u>					
Normal Cost Contribution	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0
Actuarial Accrued Liability Contribution	<u>15,517,497</u>	<u>9,035</u>	<u>17,453</u>	<u>0</u>	<u>15,543,984</u>
Annual Required Contribution	\$ 15,517,497	\$ 9,035	\$ 17,453	\$ 0	\$ 15,543,984
Covered Payroll	216,330,219	125,957	243,307	0	216,699,483
ARC as % of Covered Payroll	7.17%	7.17%	7.17%	0.00%	7.17%

SYSTEM ASSETS

	<u>January 1, 2000*</u>	<u>January 1, 2001</u>
Expense and Contingency Reserve	\$ 77,995,894	\$ 79,841,519
Market Value, excluding Expense & Contingency Reserve	922,081,344	920,233,350
Actuarial Value	770,090,498	828,097,298

SYSTEM LIABILITIES

Unfunded Actuarial Accrued Liability	\$ 167,578,602	\$ 193,945,521
Actuarial Present Value of Projected Accrued Benefits	771,464,357	810,729,056

FUNDING RATIO

Actuarial Value Funding Ratio	99.8%	102.1%
Market Value Funding Ratio	119.5%	113.5%

* Prior year shown for comparison purposes only.

SECTION 3

ACTUARIAL METHODOLOGY

INTRODUCTION

The actuarial valuation of a defined benefit retirement system is comprised of two separate processes.

First, the actuarial present value, as of the valuation date, of both current and projected benefits to be paid under the plan is determined. In determining the actuarial present value of these benefits, actuarial assumptions must be made as to the number of participants eventually receiving benefits, the amount of benefits to be paid, and the portion of the benefit obligation to be covered by future investment earnings.

Second, the financing of these benefit obligations on an advance basis is established. An actuarial cost method is applied to establish the NORMAL COST, which is the rate at which future costs will accrue annually after the valuation date. The actuarial cost method is applied to determine the ACTUARIAL ACCRUED LIABILITY, which is the amount of cost that has accrued as of the valuation date.

ACTUARIAL ASSUMPTIONS

The true cost of a member's retirement benefit is not known until he or his beneficiary has received the final benefit payment. Consequently, the exact cost of system benefits for the current employee group will not be determinable for 50 to 75 years. Since

provisions for this cost must be made prior to the exact determination, a model is established that will estimate the future cost of system benefits. The model utilizes parameters that require assumptions as to the future occurrences of various events affecting the demographic profile of the employee group and the assets of the system. Such actuarial assumptions include death, retirement, termination, disability, salary increases and investment return. Current and long-term economic factors, the nature of the employer's business and significant features of the system must be considered in the selection of a set of actuarial assumptions to assure the reasonableness of the results predicted by the assumptions.

While care is taken in the selection of actuarial assumptions, actual experience is expected to deviate from these assumptions over the short term. The suitability of actuarial assumptions is measured by how closely the experience of the system, on a long-term basis, conforms to projected results. Deviations from projected results are called actuarial gains and losses. Periodic actuarial valuations measure the extent of these gains and losses as of a valuation date. If either actuarial gains or losses predominate, then it is possible that one or more of the actuarial assumptions is no longer appropriate. Thus, actuarial assumptions must be continually monitored for reasonableness and subsequent cost estimates may be modified accordingly. While individual assumptions are intended to be

representative, it is the aggregate effect of all actuarial assumptions working together that determines their appropriateness.

An analysis of the experience of the Retirement System for the five-year period ending December 31, 1994 was performed. On the basis of that analysis, several actuarial assumptions were changed effective with the January 1, 1996 valuation. The next scheduled experience analysis is for the five-year period ending December 31, 1999.

ACTUARIAL LIABILITIES

Actuarial liabilities include the actuarial present value of all future benefits and expenses. To determine the actuarial present value of all future benefits, the probability of future events that establish benefit payments is forecast utilizing the actuarial assumptions. System provisions and current member data are used to forecast the amount of benefits to be paid. Assumptions for survival among retired members and beneficiaries are used to estimate the duration of these benefit payments. Each probable benefit payment is then discounted to the valuation date using the actuarial assumption for investment return. These discounted payments are then summed to arrive at the total actuarial present value of benefits.

ACTUARIAL ASSETS

The actuarial assets at any time are equal to the sum of present assets, valued on an actuarial basis, plus future assets. Future assets will result

from future contributions and future investment return on all assets.

ASSET VALUATION METHOD

The actuarial value of other assets is determined using the assumed yield method of valuing assets, less the Expense and Contingency Reserve. Under the assumed yield asset valuation method, the prior year's actuarial value is increased at the assumed rate of return with appropriate adjustments for contributions and disbursements to produce an expected actuarial value of assets at the end of the year. The expected actuarial value is compared to the market value of assets, and 20% of the difference is added to the expected actuarial value. The Expense and Contingency Reserve is excluded from the calculation to produce the actuarial value of assets.

ACTUARIAL BALANCE SHEET

The actuarial balance sheet of a retirement system displays the fundamental financial status of the system on the valuation date. As stated previously, the system liabilities are the sum of the actuarial present values of all future projected benefit payments to current active and inactive plan members and beneficiaries. Current assets, valued on an actuarial basis, plus the actuarial present value of future employer and employee contributions comprise the total actuarial assets of the system.

The actuarial present value of future employer contributions is the only item on the balance

sheet that is not directly determined by the system provisions, current assets, member data and actuarial assumptions. In fact, the actuarial present value of future employer contributions is the balancing item and reflects the future employer funding requirements based on the existing member population.

ACTUARIAL COST METHOD

To determine the funding requirements of the system, it is necessary to employ an actuarial cost method. The choice of the cost method does not affect the balance sheet financial status, which is a function only of the system provisions, actuarial assumptions, member data and assets. However, the actuarial cost method has a direct impact on the incidence of the funding requirements. The actuarial cost method allocates the actuarial present value of future employer contributions between the past and future, and thus establishes the Unfunded Actuarial Accrued Liability (UFAAL) and the Normal Cost. The actuarial cost method is specified in Section 169.490 of the statutes.

The funding requirement for each plan year is the sum of the "normal cost contribution" (equal to the normal cost for that year), plus the "actuarial accrued liability contribution." The UFAAL as of January 1, 1981 is amortized over the period ending October 13, 2011, while subsequent "supplements" are amortized over a period of 50 years from the year created. The "actuarial accrued liability contribution" is the sum of these amortization payments.

The actuarial cost method is the "frozen entry age actuarial cost method." Entry age is determined at the date each member would have entered the system. On the initial actuarial valuation date for which the cost method is used, in this case January 1, 1981, the annual cost accruals (individual normal costs for each member) are determined as a level percentage of pay for each year from entry age until retirement or termination. The sum of these individual normal costs for all active members whose attained ages are under the assumed retirement age is the normal cost for the initial plan year. The excess of all normal costs falling due prior to the initial actuarial valuation date, accumulated with interest, over the plan assets represents the initial UFAAL.

In subsequent years, the unfunded actuarial accrued liability is frozen, that is, it increases only because of the accrual of interest and additional normal costs, and decreases only as a result of contributions. Supplements to the UFAAL can occur for plan amendments or actuarial assumption changes. Such supplements are determined by computing the change in the actuarial accrued liability as of the valuation date coincident with or next following the change.

Subsequent normal costs are calculated as the level percentage of pay required to fund the excess of the actuarial present value of future benefits over the sum of the actuarial value of assets and the remaining UFAAL.

SECTION 4

ACTUARIAL ASSUMPTIONS

The following actuarial assumptions were used in the valuation:

Interest - 8% per annum, net of expenses.

Salary Scale - Salaries are assumed to increase at rates based on the actual experience of the Retirement System. The rates used are shown in Exhibit F.

Mortality - The 1983 Group Annuity Mortality Table for males and females is used for active members and the same table with ages set up one year for retired members and beneficiaries. Rates used are shown in Exhibits D and E.

Disability Mortality - Disability mortality rates are based on the actual experience of the Retirement System. The rates used are shown in Exhibit F.

Disability - Disabilities are assumed to occur at rates based on the actual experience of the Retirement System. The rates used are shown in Exhibit G.

Withdrawal - Select and ultimate rates based on actual experience of the Retirement System are used. The rates used for members who have completed three or more years of membership are shown in Exhibit G. During the first three years

of membership, the rates for members employed by employers other than Charter Schools are:

<u>Year of Membership</u>	<u>Withdrawal Rate</u>	
	<u>Males</u>	<u>Females</u>
1	17.5%	12.5%
2	15.0%	10.0%
3	10.0%	7.5%

During the first three years of membership, the rates for members at Charter Schools are:

<u>Year of Membership</u>	<u>Withdrawal Rate</u>	
	<u>Males</u>	<u>Females</u>
1	50.0%	50.0%
2	25.0%	25.0%
3	15.0%	15.0%

Retirement - Retirements are assumed to occur at rates based on the actual experience of the Retirement System. Illustrative age-related rates are shown in Exhibit A. For those eligible to retire under the Rule of 85, it is assumed that 50% will retire when first eligible for unreduced benefits unless the age-related rate is greater, but not prior to 30 years of Credited Service.

Family Structure - The probability of a member being married and the probable number of children are based on a table constructed by the Social Security Administration, modified to reflect the experience of the Retirement System. The table used is presented in Exhibit H.

SECTION 5

RESULTS OF THE ACTUARIAL VALUATION AS OF JANUARY 1, 2001

This section of the report shows the development of the principal elements of the actuarial valuation and the analyses of the various elements affecting the results. The actuarial valuation is based on:

- Membership data as of January 1, 2001 -- This data is summarized in Exhibits H and I.
- The statutes in effect on January 1, 2001 -- A summary of the principal provisions governing the System appears in Exhibit A.
- Actuarial assumptions and methods -- The assumptions appear in Section 4 and Exhibits C through G. The actuarial cost method is described in Section 3.
- System assets as of January 1, 2001 -- Fund values and summaries of fund activities and investment performance during 2000 are described later in Section 6 under "Valuation of the System's Assets."

DETERMINATION OF THE ANNUAL REQUIRED CONTRIBUTION

The Annual Required Contribution (ARC) is comprised of two elements -- the "normal cost contribution" and the "actuarial accrued liability contribution." The determination of the unfunded frozen actuarial accrued liability and the actuarial accrued liability contribution follows in Table A. The determination of the normal cost contribution follows in Table B. The determination of the annual required contribution appears in Table C.

ACTUARIAL BALANCE SHEET

As discussed in Section 3, the actuarial balance sheet is a measure of the financial condition of the System and shows the relationship between "actuarial assets" and "actuarial liabilities." The actuarial balance sheet is presented in Table D.

TABLE A

**DETERMINATION OF THE UNFUNDED FROZEN
ACTUARIAL ACCRUED LIABILITY**

(1)	Unfunded Frozen Actuarial Accrued Liability as of January 1, 2000	\$ 167,578,602
(2)	Normal Cost due January 1, 2000	0
(3)	Interest on (1) and (2) at 8.0% to December 31, 2000	13,406,288
(4)	Employer contributions for 2000	17,452,715
(5)	Interest on (4) at 8.0% to December 31, 2000	0
(6)	Supplement for changes in actuarial assumptions, methods or benefits	30,413,346
(7)	Unfunded Frozen Actuarial Accrued Liability as of January 1, 2001: (1) + (2) + (3) - (4) - (5) + (6)	193,945,521
(8)	Actuarial Accrued Liability contribution for 2001	18,168,580

TABLE B

DETERMINATION OF THE NORMAL COST CONTRIBUTION

(1) Actuarial present value of all future benefits		
(a) Active members		
(i) Retirement benefits	\$ 541,215,919	
(ii) Vested withdrawal benefits	21,130,049	
(iii) Refund of contributions	1,488,648	
(iv) Survivor benefits	14,319,451	
(v) Disability benefits	23,855,989	
Total		\$ 602,010,056
(b) Retired members and beneficiaries		403,164,800
(c) Inactive members		
(i) Members on leave of absence without pay	1,404,794	
(ii) Terminated members	9,482,699	
Total		10,887,493
(d) Total actuarial present value of future benefits		\$ 1,016,062,349
(2) Unfunded Frozen Actuarial Accrued Liability as of January 1, 2001		193,945,521
(3) Actuarial Value of Assets as of January 1, 2001		828,097,298
(4) Actuarial present value of future member contributions		100,632,820
(5) Actuarial present value of future employer Normal Costs: (1)(d) - (2) - (3) - (4), not less than \$0		0
(6) Actuarial present value of future covered Compensation		2,012,656,400
(7) Employer Normal Cost rate: (5) / (6)		0.0000%
(8) Total covered Compensation		235,087,151
(9) Normal Cost due January 1, 2001: (7) x (8)		0
(10) Normal Cost Contribution due by December 31, 2001: (9) adjusted for interest at 8%		0

TABLE C

ANNUAL REQUIRED CONTRIBUTION

	Board of Education	Harris- Stowe State College	Retirement System	Charter Schools	Total
Normal Cost Contribution	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0
Actuarial Accrued Liability Contribution	17,862,598	10,079	30,295	265,608	18,168,580
Annual Required Contribution (ARC) Covered	\$ 17,862,598	\$ 10,079	\$ 30,295	\$ 265,608	\$ 18,168,580
Compensation ARC as % of Covered Compensation	231,127,985 7.73%	130,420 7.73%	391,991 7.73%	3,436,755 7.73%	235,087,151 7.73%
Actual Contribution for 2001	\$ 17,306,417	\$ 10,077	\$ 19,465	\$ 274,940	\$ 17,610,899
Actual Contribution as % of Covered Compensation	8.00%	8.00%	8.00%	8.00%	8.00%

TABLE D
ACTUARIAL BALANCE SHEET AS OF
JANUARY 1, 2001

ACTUARIAL ASSETS

Actuarial value of present assets	\$ 828,097,298
Actuarial present value of future member contributions	100,632,820
Actuarial present value of future employer contributions for:	
Normal Costs	(106,613,290)
Actuarial Accrued Liability	193,945,521
	\$ 1,016,062,349
Total present and future assets	\$ 1,016,062,349

ACTUARIAL LIABILITIES

Actuarial present value of benefits now payable	\$ 403,164,800
Actuarial present value of benefits payable in the future	
Active members – New Plan	601,846,179
Active members -- Old Plan	163,877
Members on leave of absence without pay	1,404,794
Terminated members	9,482,699
	612,897,549
Total payable in the future	612,897,549
Total liabilities for benefits	\$ 1,016,062,349

TABLE E

PROJECTED BENEFIT OBLIGATION FUNDED STATUS

At January 1, 2001, the Projected Benefit Obligation was as follows:

Retired members and beneficiaries currently receiving benefits and terminated members not yet receiving benefits	\$ 414,052,293
Current active members:	
Accumulated member contributions, including interest	127,086,325
Employer-financed vested benefits	267,865,362
Employer-financed non-vested benefits	1,725,076
Total Projected Benefit Obligation	\$ 810,729,056

At January 1, 2001 the Projected Benefit Obligation was funded as follows:

Net assets available for benefits at actuarial value	\$ 828,097,298
Unfunded Projected Benefit Obligation	(17,368,242)
Actuarial value funding ratio	102.1%
Net assets available for benefits at market value	\$ 920,233,350
Unfunded Projected Benefit Obligation	(109,504,294)
Market value funding ratio	113.5%

TABLE F**PRIORITIZED SOLVENCY TEST**

The funding objective of the Retirement System is to meet long-term benefit promises through contributions that remain approximately level from year to year as a percentage of covered Compensation. If the contributions are level in concept and realistically determined, the System will pay all benefits when due -- the ultimate test of financial soundness. Testing for level contribution rates is the long-term solvency test.

A prioritized solvency test is an additional means of checking a system's progress under its funding program. In a prioritized solvency test, the plan's present assets (cash and investments) are compared with:

- active member contributions, accumulated with interest;
- the liabilities for future benefits to present inactive members and beneficiaries; and
- the liabilities for service already rendered by active members.

In a system that has been following the discipline of level percent of payroll financing, the liabilities for active member accumulated contributions (liability 1) and the liabilities for future benefits to inactive members and beneficiaries (liability 2) will be fully covered by assets (except in unusual circumstances). In addition, the liabilities for service already rendered by active members (liability 3) are normally partially covered by the remainder of the present assets. Generally, if the system has been using level cost financing, the funded portion of liability 3 will increase over time. Liability 3 being fully funded does not necessarily result from level percent of payroll funding methods.

The schedule below illustrates the history of the liabilities of the system and is indicative of the system following the discipline of level percent of compensation funding.

Valuation Date	Actuarial Present Value of Credited Projected Benefits			Actuarial Value of Assets	Percent of Present Value Covered by Valuation Assets		
	(1) Active Members' Accumulated Contributions	(2) Retirants, Inactive Members & Beneficiaries	(3) Active Members (Employer-Financed)		(1)	(2)	(3)
January 1							
1992	88,975,156	163,137,064	214,404,373	427,706,455	100	100	82
1993	96,350,532	176,391,424	216,680,909	458,279,727	100	100	86
1994	104,202,541	189,651,537	222,503,913	487,385,302	100	100	87
1995	108,933,074	204,234,143	226,947,717	519,088,399	100	100	91
1996	114,061,708	236,007,330	250,659,986	562,177,274	100	100	85
1997	118,041,749	272,393,748	251,827,653	598,638,356	100	100	83
1998	122,227,173	296,455,647	252,445,749	644,429,672	100	100	90
1999	130,705,014	276,290,128	303,953,494	694,250,672	100	100	95
2000	129,398,364	353,852,977	288,213,016	770,090,498	100	100	100
2001	127,086,325	414,052,293	269,590,438	828,097,298	100	100	100

TABLE G

INFORMATION FOR ACCOUNTING PURPOSES

The following information is required to satisfy the reporting requirements of the Governmental Accounting Standards Board Statement No. 25 on Financial Reporting for Deferred Benefit Plans.

<u>Actuarial Valuation Date</u>	<u>Actuarial Value of Assets</u>	<u>Actuarial Accrued Liability</u>	<u>Unfunded Actuarial Accrued Liability (UAAL)</u>	<u>Funded Ratio</u>	<u>Covered Payroll</u>	<u>UAAL as a % of Payroll</u>
	(a)	(b)	(b) - (a)	(a) / (b)	(c)	((b) - (a)) / (c)
1/1/1990	373,300,585	460,682,008	87,381,423	81.0%	194,623,888	44.9%
1/1/1991	395,749,015	472,543,374	76,794,359	83.7%	198,536,661	38.7%
1/1/1992	427,706,455	501,997,792	74,291,337	85.2%	194,190,353	38.3%
1/1/1993	458,279,727	530,766,832	72,487,105	86.3%	194,555,489	37.3%
1/1/1994	487,385,302	557,941,103	70,555,801	87.4%	202,384,485	34.9%
1/1/1995	519,088,399	588,157,615	69,069,216	88.3%	207,113,839	33.3%
1/1/1996	562,177,274	664,807,425	102,630,151	84.6%	206,935,682	49.6%
1/1/1997	598,638,356	716,727,527	118,089,171	83.5%	210,228,288	56.2%
1/1/1998	644,429,672	759,687,878	115,258,206	84.8%	210,843,186	54.7%
1/1/1999	694,250,672	846,891,006	152,640,034	82.0%	215,602,351	70.8%
1/1/2000	770,090,498	937,669,100	167,578,602	82.1%	216,699,483	77.3%
1/1/2001	828,097,298	1,022,042,819	193,945,521	81.0%	235,087,151	82.5%

<u>Year Ended 12/31</u>	<u>Annual Required Contribution</u>	<u>Percentage Contributed</u>
1990	13,147,093	94.0%
1991	14,020,492	94.9%
1992	14,970,746	97.2%
1993	14,098,562	98.4%
1994	15,441,488	99.2%
1995	15,087,519	99.6%
1996	16,619,187	100.1%
1997	16,876,759	100.2%
1998	15,328,067	111.1%
1999	13,906,270	124.5%
2000	15,543,984	112.3%
2001	18,168,580	*

* To be determined at the end of the year.

SECTION 6

VALUATION OF THE SYSTEM'S ASSETS

This section of the report shows the development of the actuarial value of the assets of the System and provides information regarding the Expense and Contingency Reserve, investment results and the various assets of the System.

The amount of assets used in the actuarial valuation is known as the "actuarial value of assets." The method is discussed in Section 3 and the development of the actuarial value of assets is shown in Table H. An important element in the development of the actuarial value of assets is the Expense and Contingency Reserve (called the Expense Fund prior to 1988). The amount of the Reserve is determined pursuant to a policy adopted by the Board of

Trustees. The history of the Reserve is presented in Table I.

As shown in Table J, the fund had a rate of return of 11.08% on an actuarial value basis, 3.08% above the assumed rate of return of 8.0% for 2000. The rate of return on an actuarial value basis is intended to be a stable rate of return and fluctuate less than rates of return on book or market value basis. Thus, the rate of return on an actuarial basis is not always a fair measure of the investment performance of the fund. Another indicator of actual performance during the year is the rate of return on a market value basis of 2.52%, also presented in Table J.

TABLE H

DEVELOPMENT OF THE ACTUARIAL VALUE OF ASSETS

(1)	Actuarial value of assets as of January 1, 2000	\$ 770,090,498
(2)	Member contributions	12,151,198
(3)	Employer contributions	17,452,715
(4)	Benefit payments and expenses	54,542,706
(5)	Investment increment at 8.0%	59,911,580
(6)	Expected actuarial value on January 1, 2001:	
	(1) + (2) + (3) - (4) + (5)	805,063,285
(7)	Market value of assets on January 1, 2001	1,000,074,869
(8)	Expense and Contingency Reserve on January 1, 2001	79,841,519
(9)	Excess of market value over expected actuarial value: (7) – (8) – (6)	115,170,065
(10)	Market value adjustment: 20% x (9)	23,034,013
(11)	Actuarial Value of Assets as of January 1, 2001: (6) + (10)	828,097,298

TABLE I

THE EXPENSE AND CONTINGENCY RESERVE

Effective January 1, 1996 the Board of Trustees revised Rule XI, which governs the determination of the amount of the Expense and Contingency Reserve. The expense portion of the Reserve is the sum of:

- (1) The estimated annual operating expenses for the ensuing year;
- (2) An amount equal to the liability for non-insurance supplements;
- (3) An amount equal to the liability for insurance supplements for those members participating in the program on January 1; and
- (4) The estimated amount of insurance supplements to be paid for members expected to retire and participate in the program during the ensuing year.

The contingency portion of the Reserve is intended to cover significant shortfall in the rate of return. When a significant shortfall occurs, the Reserve is used to reduce the amount of the shortfall. When the rate of return exceeds the assumed rate of return by more than 1%, an addition is made to the Reserve according to a formula in Rule XI.

Below is a history of the Expense and Contingency Reserve:

<u>January 1</u>	<u>Expense Reserve</u>	<u>Investment Contingency Reserve</u>	<u>Total Expense and Contingency Reserve</u>
1996	\$ 33,702,346	\$ 0	\$ 33,702,346
1997	25,403,190	5,220,821	30,624,011
1998	30,891,555	24,100,041	54,991,596
1999	22,142,759	45,972,067	68,114,826
2000	27,992,032	50,003,862	77,995,894
2001	29,837,776	50,003,743	79,841,519

TABLE J

INVESTMENT PERFORMANCE

There are several different methods of approximating the rates of return on investments of the Trust Fund. Following is a brief comparison of the actuarial assumed rate of return as compared with rates of return on Market and Actuarial Value bases:

(a) Market Value Basis

The rate of return on a Market Value Basis is the ratio of the appreciation (or depreciation) of assets less contributions plus disbursements to the Market Value at the beginning of the year plus the average of the receipts and disbursements made during the year. This may be approximated as follows:

(i)	A = Market Value of Assets as of January 1, 2000	\$1,000,077,238
(ii)	B = Market Value of Assets as of January 1, 2001	1,000,074,869
(iii)	C = Contributions during the period	29,603,913
(iv)	D = Disbursements during the period	54,542,706
(v)	Rate of Return: $\frac{B - A + D - C}{A + \frac{1}{2}(C - D)}$	2.52%
(vi)	Actuarial Assumed Rate of Return for 2000	8.00%
(vii)	Difference between actual and assumed rates of return: (v) – (vi)	-5.48%

(b) Actuarial Value Basis

The rate of return on an Actuarial Value Basis is approximated using the same method as the Market Value Basis:

(i)	A = Actuarial Value of Assets as of January 1, 2000	\$770,090,498
(ii)	I = Income Allocated as of January 1, 2001	82,945,593
(iii)	C = Contributions during the period, time-weighted	6,075,599
(iv)	D = Disbursements during the period, time-weighted	27,271,353
(v)	Rate of Return: $\frac{I}{A + C - D}$	11.08%
(vi)	Actuarial Assumed Rate of Return for 2000	8.00%
(vii)	Difference between actual and assumed rates of return: (v) – (vi)	3.08%

SECTION 7

EXHIBITS AND APPENDIX

OUTLINE OF PROVISIONS OF CURRENT LAW

1. Members - All persons regularly employed by the Board of Education and employees of the Board of Trustees are in the System. Certain employees of Harris-Stowe State College elected to remain in the System when Harris-Stowe came under the state retirement systems. A few employees elected to remain out of System when it started January 1, 1944. Some members elected to remain under old law as of October 13, 1961.
2. Board of Trustees - The Board consists of eleven members. Four members are appointed by Board of Education, three teacher members (two active and one retired), three non-teacher members (two active and one retired) and one active member who is a school administrator are elected by members of System.
3. Retirement Age
 - (a) Normal - Age 65 or any age if age plus the years of Credited Service equals or exceeds 85 (Rule of 85).
 - (b) Early - Age 60 in all cases, with reduced benefits.
4. Service Retirement Allowance
 - (a) 2% (1-1/4% prior to July 1, 1999) of Average Final Compensation (AFC), times
 - (b) Years of Creditable Service.
 - (i) Compensation is the regular compensation for a period.
 - (ii) AFC is the highest average compensation for any three consecutive years of the last ten years of service.
 - (iii) Minimum monthly benefit, retirement age 65 and over is \$10.00 for each year of creditable service, up to 15 years.
 - (iv) Unused sick leave is added to a member's creditable service and age.
 - (c) Subject to a maximum of 60% of AFC.
5. Early Retirement Benefit - A reduced benefit using the same reduction factors as in the Social Security Law, from age 65 or the age at which the Rule of 85 would be satisfied, if earlier than age 65. For example, for a Member who could not satisfy the Rule of 85 before age 65, the age 60 factor is 66.67% and the age 62 factor is 80%. These factors are applied to the accrued benefit.
6. Disability Benefit - Accrued benefit for actual service, or 25% of AFC if larger, provided that in no case will the benefit exceed that payable if service had continued to age 65.
 - (a) Disability must be incurred while and employee.
 - (b) The member must have a minimum of five years of creditable service and be under age 65.
 - (c) May be examined by doctor annually in first five years and every three years thereafter.
7. Withdrawal Benefit - Accumulated Contributions of member with interest credited to the member's account.
8. Vested Benefit - Full vesting on termination of employment after at least five years of

service is provided if contributions are left with the System. The full accrued benefit is payable at age 65 or a reduced early retirement benefit prior to age 65.

9. Retirement Options - A reduced benefit payable for life of member with:

Option 1 - Same retirement allowance continued after death to the beneficiary.

Option 2 - One-half of the retirement allowance continued after death to the beneficiary.

Option 3 - Same retirement allowance continued after death to the beneficiary. If the beneficiary predeceases the member, the retirement allowance is adjusted back to the unreduced allowance.

Option 4 - One-half of retirement allowance continued after death to the beneficiary. If the beneficiary predeceases the member, the retirement allowance is adjusted back to the unreduced allowance.

10. Survivor Benefits - If a member dies after 18 months of service and before service retirement or during disability retirement, survivor benefits are payable in lieu of a lump sum refund of member contributions.

(a) A widow age 62 who was married to a member for at least one year receives \$60 a month.

(b) A widow with dependent, unmarried children under age 22 receives \$60 a month plus \$60 per child, not to exceed \$240. The benefit ceases when youngest child is age 22 and resumes again under (a) at age 62.

(c) If no benefits are payable under (a) or

(b), minor children may receive a benefit of \$60 per child or \$180 divided among them if more than three children.

(d) If no benefits are payable under (a), (b) or (c), a dependent parent or parents may receive \$60 per month.

11. Death Benefit Before Retirement

(a) Under age 65 - If survivor benefits are not payable, contributions are refunded.

(b) With five years of service - Benefits may be paid as if member was at least age 55 and had retired as of the date of death under Option 1 in lieu of survivor benefits.

12. If a member dies before receiving benefits at least as great as accumulated contributions, the difference is paid to his beneficiary. This minimum guarantee also applies to survivor benefits under options.

13. DROP – Effective July 1, 2001, active members may elect to enter the Deferred Retirement Option Plan (DROP) for up to four years. Upon entering the DROP, the member's retirement benefit is frozen and credited to the member's DROP account. At the end of the DROP, or upon earlier termination of employment, the DROP account is paid in a lump sum or installments, at the member's option. During the DROP, the member continues as an active member, but does not pay contributions. To enter the DROP the member must be age 65 or meet the Rule of 85.

14. Special Contributions - A member may contribute additional amounts that will be used to provide additional benefits (tax sheltered annuities).

15. Contributions by Members - 5% of compensation.

16. Contributions by Employers - As needed to

keep System actuarially sound.

17. Expenses - Administration expenses paid out of investment income.

LEGISLATIVE HISTORY OF THE RETIREMENT SYSTEM

On and after January 1, 1944, all persons employed by the Board of Education on a full-time permanent basis are members of the System as a condition of employment. In 1961, provisions regarding benefits and employee contribution levels were revised for all future employees of the Board of Education. Members of the System at that time were granted the right to remain under the "Old Plan" and have their membership governed by the provisions of the law in effect prior to 1961. These Old Plan members have both benefits and contributions based on a \$3,000 maximum annual compensation. Old Plan members have been given the option to transfer into the revised plan at various times since 1961.

Effective October 13, 1969, legislation permitted the reinstatement of credited service lost during the years 1944 to 1947 inclusive when the married women teachers rule was in effect.

Effective August 31, 1972, legislation resulted in the following changes:

- Purchase of past service credit by paying contributions for service claimed plus interest.
- Service as Extended Substitute Teacher.
- Service of re-employed members lost on prior terminations.
- Service out-state Missouri and outside the State of Missouri.
- Service lost by those who elected to stay out

of the retirement plan either temporarily or to date.

- Old Plan members who wished to become New Plan members could do so by paying the differential in member contributions under the new and old plans, plus interest.
- Dependent beneficiary on death of member before retirement but after age 60 or age 55 with 30 years service may receive Option 1 benefit as if member had retired under such option.
- A member with five or more years of service and prior to age 65 may be retired with a disability benefit if the medical board certifies that such member is mentally or physically totally incapacitated for further performance of duty.
- Minimum retirement benefit at age 65 or after ten years service is \$50.00 per month.

On February 10, 1975, the Missouri Supreme Court handed down a decision supporting HB 613 (Section 169.585 of state statutes), which granted increased benefits to retired teachers. The increases apply to those teachers who retired after June 30, 1957 and prior to January 1, 1971. Technically, those retirees are retained as "advisors and supervisor" and receive a "salary" of \$5 per month for each year of service, with a maximum of \$75. This salary plus the regular retirement benefit cannot exceed \$150 per month. To the extent that assets are depleted because of this law, future district

contributions will increase. Because these benefits are paid as "salaries," coming out of investment income along with other expenses of operation, there will be less money available for crediting of interest to the various funds at the end of the year.

Effective August 13, 1978 legislation resulted in the following changes:

- The service retirement allowance and projected service retirement allowance was changed to 1-1/4% of average final compensation per year of creditable service. The member's allowance plus his Social Security primary insurance amount could not exceed 80% of his average final compensation. Members born before 1917 receive the larger of the allowances calculated under the new formula and the formula in effect immediately before it.
- Creditable service no longer limited to a maximum of 35 years.
- Two new joint and survivor optional forms of payment were added which provide for the member's pension to be adjusted back to his unreduced pension in the event his spouse predeceases him.
- Contributions from members shall be 3% of compensation.
- End of period for purchasing prior service or outside service extended from December 31, 1973 to December 31, 1980. Deleted requirement of electing to purchase out-state or outside the State of Missouri service within one year of completing five years of creditable service.
- Gives Board of Trustees the power to establish regulations, methods and factors

that may be needed to calculate primary Social Security benefits.

- Dependent beneficiary on death of member before retirement with five or more years of creditable service may receive Option 1 benefit as if the member had retired under that option as of the date of his death.
- Allow retired educational secretaries to serve as part-time or temporary substitute educational secretary up to a maximum of 360 hours per school year without a reduction in the retired employee's retirement allowance or requiring the retired employees to contribute to the Retirement System.

Effective September 28, 1979, legislation resulted in the following changes:

- Accumulated and unused days of sick leave shall be included in computing a member's age and creditable service at retirement.
- Members who have attained age 62 and who have 30 or more years of creditable service may retire and receive a service retirement allowance without reduction for early retirement. The early retirement reduction for members who retire with 30 or more years of creditable service but who have not attained age 62 on their retirement date shall be determined on the basis of the number of months by which their age at retirement is less than age 62.
- Benefits to survivors of a member who dies while an employee and after having at least 18 months of creditable service are as follows:
 - (a) Surviving spouse age 62 or over: \$60 per month.
 - (b) Surviving spouse with unmarried

dependent children under age 22: \$60 per month, plus \$30 per month for each eligible child, with a maximum of \$150 per month.

(c) Unmarried dependent children under age 22: \$60 per month for each eligible child, with a maximum of \$120 per month. This benefit is payable if the benefit in (b) is not payable.

(d) Dependent parent(s): \$60 per month, provided no benefits are payable under (a), (b) or (c) above.

Effective September 28, 1981, legislation resulted in the following changes:

- The provision limiting service retirement and projected service retirement allowances to 80% of average final compensation less Social Security was removed for future retirees.
- The minimum monthly benefit payable to members retiring on or after age 65 with ten or more years of service was increased to \$75.
- Old plan members were extended the option to transfer into the current system by paying the difference in member contributions plus interest. Such election to be made on or before December 31, 1984. Retired members who retired prior to January 1, 1955 may be employed as "special school advisors and supervisors" at a "salary" of \$250 per month less their retirement benefits.
- Retired members who retired prior to January 1, 1976 may be employed as "school consultants" at a "salary" equal to \$4 for each year of retirement prior to January 1,

1982. Total "salaries" as a "school consultant" and "special school advisor and supervisor" are limited to \$250 per month.

- The Retirement System may contribute as part of its administrative expenses toward health, life and similar insurance for retirees.
- The actuarial cost method was changed from the "entry age cost method" to the "frozen entry age cost method." The period for amortizing "supplements" to the unfunded actuarial accrued liability was set at 50 years from the time the "supplement" is created.
- Several changes were made dealing with the administration and operation of the System.
- Investment powers were broadened.

Effective September 28, 1984, legislation resulted in the following changes:

- Dependent beneficiary on death of employed, active member before retirement with five or more years of service may receive Option 1 benefit as if the member had attained age 55 (if less than 55 at his death) and had retired under Option 1 as of the date of his death.
- In addition to the Option 1 death benefit, a surviving spouse may receive \$30 per month for each unmarried dependent child, provided that the total benefit does not exceed the greater of \$150 or the Option 1 benefit.
- Surviving spouse benefits do not cease on remarriage.
- Dependent children's benefits do not require that the child remain a full-time student.
- Members retired on disability may elect to receive an actuarial equivalent benefit under Options 1 through 4.

- Retired members who retired on or after January 1, 1976 may be employed as school consultants and receive a salary and insurance benefits provided other retirants.

Effective August 13, 1986, legislation resulted in the following changes:

- A member with 30 years of creditable service who is between the ages of 55 and 62, upon certification by the Board of Education, is eligible for a supplemental early retirement benefit payable to age 62. This provision remains in effect until December 31, 1991.
- Benefits to a surviving spouse for dependent children are increased from \$30 to \$60 per month, with a maximum of \$240 per month, including the \$60 for the surviving spouse.
- Supplemental pay to retired members employed as "school consultants" is increased by \$2 per month for each year between the member's date of retirement and December 31, 1986

Effective June 19, 1987 legislation resulted in the following changes:

- Reinstated the option for "old plan" members to elect "new plan" membership by paying the difference in contributions accumulated with interest.
- Increased the minimum benefit for members retiring on or after age 65 to \$10 per month for each year of creditable service, up to a maximum of 15 years.
- Several changes were made dealing with the accounting, administration and operation of the System.

Effective August 13, 1988, legislation resulted in the following changes:

- Made provisions for children's benefits uniform, providing \$60 per month per child, up to a maximum of \$180 per month, under both subsections 169.460(13) and (15) survivor benefits.
- Supplemental pay to retired members of \$2 per month for each year of retirement up to December 31, 1988.

Effective June 14, 1989, legislation resulted in the following changes:

- The maximum on compensation was removed.
- Average Final Compensation is based on the highest three consecutive years, rather than the highest five consecutive years.
- Members may retire with unreduced benefits at any age, if their age plus Credited Service equals or exceeds 85 (the "Rule of 85").

Effective May 31, 1990, legislation resulted in the following change:

- Supplemental pay of \$2 per month for each year of retirement up to December 31, 1990.

Effective August 28, 1993, legislation resulted in the following change:

- Supplemental pay of \$3 per month for each year of retirement up to December 31, 1993.

Effective August 28, 1996, legislation resulted in the following changes:

- Provision was added for the purchase of service for certain periods of layoff.
- The investment trustee position was eliminated and the position of school

administrator trustee was added.

- Cost-of-living increases for members who retired prior to August 28, 1996 with at least fifteen years of Creditable Service. The cost-of-living increases are up to 3% in one year, with a cumulative maximum of 10%.
- The Board of Education is authorized to increase retirement benefits and the member contribution rate, subject to several conditions.

Effective August 28, 1997, legislation resulted in the following change:

- Cost-of-living increases extended to members who retired prior to August 28, 1997 with at least fifteen years of Creditable Service. The cost-of-living increases are up to 3% in one year, with a cumulative maximum of 10%.

In accordance with the statutory authority granted the Board of Education in 1996, the Board of Education made the following changes:

- Member contributions were increased to 4.5%, *effective July 1, 1998*; to 5.0%, *effective July 1, 1999*; and, if necessary to 5.5%, *effective July 1, 2000*.
- The service retirement allowance was changed to 2.00% of average final compensation per year of creditable service, subject to a maximum of 60% of average final compensation, effective for members who retired *after June 29, 1999*.
- A “catch-up” Cost-of-Living Adjustment (Cola) is provided for members who retired prior to June 30, 1999 and survivors of

members who retired or died prior to June 30, 1999. The amount of the “catch-up” Cola is equal to 65% of the amount by which the member’s original benefit would have increased due to increases in the CPI, in excess of any supplements or Cola increases being received by the member. The “catch-up” Cola is *effective July 1, 2000*.

- The Board of Education agreed to contribute 8.03% of covered compensation for 1998, 1999 and 2000, in order to fund the benefit increase and the “catch-up” Cola.

In accordance with the statutory authority granted the Board of Education in 1996, the Board of Education made the following changes:

- *Effective January 1, 2001*, all members who retired prior to January 1, 2000 received a 3% cost-of-living increase.
- *Effective July 1, 2001*, a DROP was made available until June 30, 2005, at which time the program will be evaluated to determine whether or not it should be extended. Eligible members may elect to enter the DROP for up to four years.
- In conjunction with the DROP, employers will contribute at 8.00% of covered compensation for 2001. The contribution rate for subsequent years will be based on the rate determined by the actuarial valuation for the January 1 of the year preceding the year the contribution is due, but not to exceed 8.00% for 2002 to 2005.

ACTIVE LIFE MORTALITY RATES

Death Rate			Death Rate		
Male	Age	Female	Male	Age	Female
.000377	20	.000189	.015592	65	.007064
.000392	21	.000201	.017579	66	.007817
.000408	22	.000212	.019804	67	.008681
.000424	23	.000225	.022229	68	.009702
.000444	24	.000238	.024817	69	.010921
.000464	25	.000253	.027530	70	.012385
.000488	26	.000268	.030354	71	.014128
.000513	27	.000283	.033370	72	.016159
.000542	28	.000301	.036680	73	.018481
.000572	29	.000320	.040388	74	.021091
.000607	30	.000342	.044597	75	.023992
.000645	31	.000364	.049388	76	.027184
.000687	32	.000388	.054758	77	.030672
.000734	33	.000414	.060678	78	.034459
.000785	34	.000443	.067125	79	.038549
.000860	35	.000476	.074070	80	.042945
.000907	36	.000502	.081484	81	.047655
.000966	37	.000535	.089320	82	.052691
.001039	38	.000573	.097525	83	.058071
.001128	39	.000617	.106047	84	.063807
.001238	40	.000665	.114836	85	.069918
.001370	41	.000716	.124170	86	.076570
.001527	42	.000775	.133870	87	.084459
.001715	43	.000841	.144073	88	.091935
.001932	44	.000919	.154859	89	.101354
.002183	45	.001010	.166307	90	.111750
.002471	46	.001117	.178214	91	.123076
.002790	47	.001237	.190460	92	.135630
.003138	48	.001366	.203007	93	.149577
.003513	49	.001505	.217904	94	.165103
.003909	50	.001647	.234086	95	.182419
.004324	51	.001793	.248436	96	.201757
.004755	52	.001948	.263954	97	.222043
.005200	53	.002119	.280803	98	.243899
.005660	54	.002315	.299154	99	.268185
.006131	55	.002541	.319185	100	.295187
.006618	56	.002803	.341086	101	.325225
.007139	57	.003103	.365052	102	.358897
.007719	58	.003442	.393102	103	.395842
.008384	59	.003821	.427255	104	.438360
.009158	60	.004241	.469531	105	.487816
.010064	61	.004702	.521945	106	.545886
.011133	62	.005210	.586518	107	.614309
.012391	63	.005769	.665268	108	.694884
.013868	64	.006385	.760215	109	.789474
			1.000000	110	1.00000

**RETIREE LIFE MORTALITY RATES OF
SERVICE PENSIONERS AND BENEFICIARIES**

Death Rate			Death Rate		
Male	Age	Female	Male	Age	Female
.006618	55	.002803	.124170	85	.076570
.007139	56	.003103	.133870	86	.084459
.007719	57	.003442	.144073	87	.091935
.008384	58	.003821	.154859	88	.101354
.009158	59	.004241	.166307	89	.111750
.010064	60	.004702	.178214	90	.123076
.011133	61	.005210	.190460	91	.135630
.012391	62	.005769	.203007	92	.149577
.013868	63	.006385	.217904	93	.165103
.015592	64	.007064	.234086	94	.182419
.017579	65	.007817	.248436	95	.201757
.019804	66	.008681	.263954	96	.222043
.022229	67	.009702	.280803	97	.243899
.024817	68	.010921	.299154	98	.268185
.027530	69	.012385	.319185	99	.295187
.030354	70	.014128	.341086	100	.325225
.033370	71	.016159	.365052	101	.358897
.036680	72	.018481	.393102	102	.395842
.040388	73	.021091	.427255	103	.438360
.044597	74	.023992	.469531	104	.487816
.049388	75	.027184	.521945	105	.545886
.054758	76	.030672	.586518	106	.614309
.060678	77	.034459	.665268	107	.694884
.067125	78	.038549	.760215	108	.789474
.074070	79	.042945	1.000000	109	1.000000
.081484	80	.047655			
.089320	81	.052691			
.097525	82	.058071			
.106047	83	.063807			
.114836	84	.069918			

DISABLED LIFE MORTALITY
RATES PER 1,000 OF DISABLED PENSIONERS

Death Rate			Death Rate		
Male	Age	Female	Male	Age	Female
51.0	36	51.0	76.9	71	62.2
51.0	37	51.0	81.1	72	64.8
51.0	38	51.0	85.6	73	67.4
49.8	39	51.0	90.6	74	70.3
48.7	40	51.0	96.1	75	73.5
47.7	41	51.0	102.4	76	76.9
46.9	42	51.0	109.0	77	81.1
46.1	43	51.0	116.0	78	85.6
45.5	44	49.8	123.3	79	90.6
44.8	45	48.7	131.5	80	96.1
44.4	46	47.7	140.1	81	102.4
44.0	47	46.9	149.3	82	109.0
43.7	48	46.1	159.1	83	116.0
43.4	49	45.5	169.7	84	123.3
43.2	50	44.8	180.9	85	131.5
43.0	51	44.4	192.9	86	140.1
42.9	52	44.0	206.5	87	149.3
42.9	53	43.7	221.1	88	159.1
43.0	54	43.4	236.6	89	169.7
43.1	55	43.2	252.9	90	180.9
43.7	56	43.0	270.4	91	192.9
44.4	57	42.9	288.7	92	206.5
45.3	58	42.9	307.8	93	221.1
46.9	59	43.0	327.7	94	236.6
48.7	60	43.1	348.1	95	252.9
50.8	61	43.7	368.4	96	270.4
52.9	62	44.4	399.1	97	288.7
55.2	63	45.3	461.2	98	307.8
57.5	64	46.9	570.1	99	327.7
59.8	65	48.7	785.7	100	348.1
62.2	66	50.8	1000.0	101	1000.0
64.8	67	52.9			
67.4	68	55.2			
70.3	69	57.5			
73.5	70	59.8			

**ACTIVE MEMBER RATES OF
DECREMENT AND SALARY INCREASE**

Attained Age	Withdrawal Rate		Disability Rate		Retirement Rate	Salary Increase Rate
	Males	Females	Males	Females		
20	15.00%	10.00%	.00%	.00%	0.0%	6.0%
21	14.50%	9.50%	.00%	.00%	0.0%	6.0%
22	14.00%	9.00%	.00%	.00%	0.0%	6.0%
23	13.50%	8.50%	.00%	.00%	0.0%	6.0%
24	13.00%	8.00%	.00%	.00%	0.0%	6.0%
25	12.50%	7.50%	.00%	.00%	0.0%	6.0%
26	12.00%	7.20%	.00%	.00%	0.0%	5.9%
27	11.50%	6.90%	.00%	.00%	0.0%	5.8%
28	11.00%	6.60%	.00%	.00%	0.0%	5.7%
29	9.50%	6.30%	.00%	.00%	0.0%	5.6%
30	9.00%	6.00%	.08%	.07%	0.0%	5.5%
31	8.60%	5.70%	.08%	.07%	0.0%	5.4%
32	8.20%	5.40%	.08%	.07%	0.0%	5.3%
33	7.80%	5.10%	.08%	.07%	0.0%	5.2%
34	7.40%	4.80%	.08%	.07%	0.0%	5.1%
35	7.00%	4.50%	.08%	.07%	0.0%	5.0%
36	6.50%	4.20%	.09%	.09%	0.0%	5.0%
37	6.00%	3.90%	.10%	.11%	0.0%	5.0%
38	5.50%	3.60%	.12%	.13%	0.0%	4.9%
39	5.00%	3.30%	.14%	.14%	0.0%	4.9%
40	4.50%	3.00%	.16%	.15%	0.0%	4.8%
41	4.20%	2.80%	.19%	.16%	0.0%	4.8%
42	3.90%	2.60%	.22%	.17%	0.0%	4.8%
43	3.60%	2.40%	.25%	.18%	0.0%	4.8%
44	3.30%	2.20%	.28%	.19%	0.0%	4.7%
45	3.00%	2.00%	.30%	.20%	0.0%	4.7%
46	2.80%	1.90%	.32%	.22%	0.0%	4.7%
47	2.60%	1.80%	.34%	.24%	0.0%	4.6%
48	2.40%	1.70%	.36%	.26%	0.0%	4.6%
49	2.20%	1.60%	.38%	.28%	0.0%	4.6%
50	2.00%	1.50%	.40%	.30%	0.0%	4.5%
51	1.90%	1.44%	.50%	.34%	0.0%	4.5%
52	1.80%	1.38%	.60%	.38%	0.0%	4.5%
53	1.70%	1.32%	.70%	.42%	0.0%	4.5%
54	1.60%	1.26%	.80%	.46%	0.0%	4.5%

**ACTIVE MEMBER RATES OF
DECREMENT AND SALARY INCREASE
(Continued)**

Attained Age	Withdrawal Rate		Disability Rate		Retirement Rate	Salary Increase Rate
	Males	Females	Males	Females		
55	1.50%	1.20%	.90%	.50%	5.0%	4.5%
56	1.40%	1.18%	.94%	.53%	5.0%	4.5%
57	1.30%	1.16%	.98%	.56%	5.0%	4.5%
58	1.20%	1.14%	1.02%	.59%	5.0%	4.5%
59	1.10%	1.12%	1.06%	.62%	7.5%	4.5%
60	1.000%	1.00%	1.10%	.65%	7.5%	4.5%
61	0.00%	0.00%	1.20%	.66%	12.5%	4.5%
62	0.00%	0.00%	1.30%	.67%	25.0%	4.5%
63	0.00%	0.00%	1.40%	.68%	17.5%	4.5%
64	0.00%	0.00%	1.50%	.70%	25.0%	4.5%
65	0.00%	0.00%	.00%	.00%	35.0%	4.5%
66	0.00%	0.00%	.00%	.00%	20.0%	4.5%
67	0.00%	0.00%	.00%	.00%	20.0%	4.5%
68	0.00%	0.00%	.00%	.00%	20.0%	4.5%
69	0.00%	0.00%	.00%	.00%	25.0%	4.5%
70	0.00%	0.00%	.00%	.00%	100.0%	4.5%

FAMILY STRUCTURE

<u>Age</u>		<u>Age of Youngest Child</u>	<u>Average Number of Children</u>	<u>Probability of Being Married</u>	<u>Probability of Children if Married</u>
<u>Male</u>	<u>Female</u>				
20	17	2	.90	.30	.50
21	18	2	.90	.35	.50
22	19	2	.98	.40	.50
23	20	2	.98	.46	.53
24	21	3	1.05	.53	.56
25	22	3	1.13	.60	.59
26	23	4	1.20	.67	.62
27	24	4	1.28	.74	.65
28	25	4	1.35	.76	.67
29	26	5	1.43	.78	.69
30	27	5	1.50	.80	.71
31	28	6	1.58	.82	.73
32	29	6	1.65	.84	.75
33	30	7	1.80	.85	.76
34	31	7	1.95	.86	.77
35	32	8	2.10	.87	.78
36	33	8	2.10	.87	.79
37	34	9	2.10	.87	.80
38	35	9	2.30	.87	.79
39	36	10	1.95	.87	.78
40	37	10	1.88	.87	.77
41	38	11	1.80	.87	.76
42	39	11	1.73	.87	.75
43	40	11	1.73	.87	.72
44	41	12	1.65	.87	.69
45	42	12	1.65	.86	.66
46	43	12	1.58	.86	.63
47	44	12	1.58	.86	.60
48	45	12	1.50	.85	.56
49	46	12	1.43	.85	.52
50	47	13	1.43	.85	.48
51	48	13	1.35	.85	.44
52	49	13	1.35	.85	.40
53	50	13	1.35	.85	.37
54	51	13	1.35	.84	.34
55	52	13	1.28	.84	.31
56	53	13	1.28	.83	.28
57	54	13	1.28	.83	.25
58	55	13	1.28	.83	.23
59	56	13	1.20	.82	.21

FAMILY STRUCTURE
(Continued)

<u>Age</u>		<u>Age of Youngest Child</u>	<u>Average Number of Children</u>	<u>Probability of Being Married</u>	<u>Probability of Children if Married</u>
<u>Male</u>	<u>Female</u>				
60	57	13	1.20	.81	.19
61	58	13	1.20	.80	.17
62	59	13	1.20	.79	.15
63	60	13	1.20	.78	.13
64	61	13	1.20	.77	.11
65	62	13	1.13	.76	.09
66	63	13	1.13	.75	.07
67	64	13	1.13	.74	.05
68	65	13	1.13	.73	.04
69	66	13	1.05	.72	.03
70	67	13	1.05	.71	.02
71	68	13	1.05	.70	.01

MEMBERSHIP AS OF JANUARY 1, 2001

	<u>Males</u>	<u>Females</u>	<u>Total</u>
<u>Active Members</u>			
Old Plan	1	4	5
New Plan	<u>1,738</u>	<u>4,447</u>	<u>6,185</u>
Total Active	1,739	4,451	6,190
<u>Inactive Members (Terminated or Leave of Absence Without Pay)</u>			
	<u>139</u>	<u>290</u>	<u>429</u>
Total Members Not Retired	1,878	4,741	6,619
<u>Retired Members and Beneficiaries</u>			
Retired Members and Contingent Annuitants	869	2,136	3,005
Survivors	43	231	274
Disabled Members	<u>73</u>	<u>177</u>	<u>250</u>
Total Retired Members and Beneficiaries	<u>985</u>	<u>2,544</u>	<u>3,529</u>
<u>Total Membership</u>	2,863	7,285	10,148

RETIRED MEMBERS AND BENEFICIARIES
AS OF JANUARY 1, 2001

TABLE 1**Number of Members and Beneficiaries**

Option	Service Benefit	Disability Benefit	Survivor Benefit	TSA Benefit	Supplements
0	2,628	234	274	54	1,658
1	98	10	0	1	54
2	68	0	0	3	39
3	108	2	0	0	51
4	103	4	0	0	44
Total	3,005	250	274	58	1,846

TABLE 2**Amount of Annual Benefit**

Option	Service Benefit	Disability Benefit	Survivor Benefit	TSA Benefit	Supplements
0	\$38,143,752	\$1,884,260	\$1,910,726	\$51,188	\$1,641,503
1	1,356,431	93,034	0	3,034	30,568
2	1,125,476	0	0	2,398	31,683
3	1,595,771	16,401	0	0	30,005
4	1,965,829	44,844	0	0	23,975
Total	\$44,187,259	\$2,038,539	\$1,910,726	\$56,620	\$1,757,734

APPENDIX

DEFINITIONS OF ACTUARIAL TERMS

Accrued Benefit is the benefit earned by a *participant* as of the date at which the determination is made payable in the form of an annual benefit commencing at *Normal Retirement Age*. The *accrued benefit* also includes the eligibility provisions, factors and optional forms of payment associated with it.

Accumulated Plan Benefits are the *accrued benefits* and any other benefits, whether vested or not, that have been earned by the *participants* covered by the plan as of the date at which the determination is made. These other benefits include any death, early retirement or disability benefits provided under the plan. The *present value* of *accumulated plan benefits* as of the valuation date is determined for purposes of financial reporting.

Actuarial Accrued Liability is equal to the *actuarial present value* of future benefits less the *present value* of future annual *normal costs* (see *Annual Normal Cost*.)

Actuarial Assumptions are the bases for estimates of future events affecting pension costs. These assumptions include projections of mortality, withdrawals, disability, ages at retirement, rates of investment earnings, plan expenses and other relevant factors.

Actuarial Cost Method is the method for allocating the *actuarial present value* of a

pension plan's benefits and expenses to various time periods. The allocation is usually in the form of an *annual normal cost* and *amortization* of an *actuarial accrued liability*. An *actuarial cost method* is also referred to as a "funding method."

Actuarial Gain/(Loss) is the difference between the plan's actual experience and that expected based upon a set of *actuarial assumptions*. It is determined in accordance with a particular *actuarial cost method* for the period between two *actuarial valuation dates*. A gain occurs when the experience of the plan is more favorable (in terms of cost) than the assumptions projected; a loss occurs when experience is less favorable.

Actuarial gains/(losses) are also referred to as *experience gains/(losses)*.

Actuarial Present Value -- See *Present Value*.

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

Actuarial Value of Assets is the value of cash, investments and other property belonging to a pension plan determined by the actuary for the purpose of an *actuarial valuation*.

Amortization is the spreading of a *present value*

or a cost over a period of years. A plan's *unfunded actuarial accrued liability* is amortized over a period of years.

Annual Normal Cost is that portion of the *actuarial present value* of pension plan benefits and expenses that is allocated to a valuation year by the *actuarial cost method*. The *annual normal cost* may differ depending upon the *actuarial cost method* used.

Contribution Amounts

(a) The *Minimum Contribution** is the contribution required for a plan year in order to ensure funding which satisfies the funding requirements of *ERISA*. It normally consists of the *annual normal cost* plus the *amortization* payment for the *unfunded actuarial accrued liability* as determined by the *actuarial cost method*. The *Absolute Minimum Contribution* is the contribution required to avoid a *funding deficiency* in the *Funding Standard Account*.

(b) The *Maximum Deduction** is the largest contribution to the plan which is currently deductible. The law limits how rapidly the *unfunded actuarial accrued liabilities* may be amortized. The *Maximum Deduction* normally consists of the *annual normal cost* plus the *amortization* payment (limit adjustment) based on the shortest period permitted by law.

Credit Balance* is the cumulative excess of credits over charges to the *Funding Standard Account*.

Current Liability* means the *present value* of all liabilities to *participants* and beneficiaries under the plan determined as if the plan terminated and

based on the plan's *actuarial assumptions* including reasonable withdrawal and mortality rates. The interest rate used to determine *current liability* must be within a specified permissible range and may or may not equal the actuarial assumed rate of interest for purposes of determining *contribution amounts*.

ERISA is the Employee Retirement Income Security Act of 1974, as amended to date--the primary federal act governing pension and welfare plans.

Fiscal Year is the year on which the plan sponsor maintains its financial records.

Funded means provided by plan assets. A liability is "fully funded" when assets exceed or equal the liability.

Funding Deficiency* is an excess of cumulative charges over credits in the plan's *Funding Standard Account*. The deficiency must be eliminated, under penalty of an excise tax, unless the Internal Revenue Service grants a funding waiver under special procedures.

Funding Standard Account* is the account a plan is required to maintain in compliance with the minimum funding standards set by *ERISA*.

Future Service is service with the employer after the *valuation date*.

Maximum / Minimum Deduction* -- See *Contribution Amounts*.

Member -- See *participant*.

Normal Retirement Age is an age defined in the

plan for purposes of establishing when benefits must be paid and the amount of benefit that is to be treated as non-forfeitable.

Normal Retirement Benefit is the benefit payable when it commences at the *normal retirement age*.

Offsettable Bases* are the charge and credit *amortization* bases which are established as the result of the establishment of the plan and plan amendments. Bases created as a result of *actuarial gains/(losses)* or changes in *actuarial assumptions* are not *offsettable bases*.

Participant is a person covered by a pension plan in accordance with its terms including active participants, retired participants and beneficiaries, vested terminations and vested transfers.

Plan Year is the year on which the plan maintains its financial records.

Present Value is the value of an amount or series of amounts payable at various times, determined as of a given date by the application based on a particular set of *actuarial assumptions*. It is a single sum that reflects the time value of money (through discounts for investment yield) and the probabilities of payment (taking into account death, disability, withdrawal and age at retirement).

Rate of Return is the actual or expected investment income (including interest, dividends, realized gains/(losses) and unrealized appreciation/(depreciation)) as a percentage of a

plan's average assets. The rate can be measured on various bases--for example, an actuarial rate based on the *actuarial value of assets*, a market rate based on the market value of assets, etc.

Unfunded means not provided by the value of assets.

Unfunded Actuarial Accrued Liability is the excess of the *actuarial accrued liability* over the *actuarial value of assets*.

Unfunded Old Liability* is the *unfunded current liability* of the plan as of the beginning of the first *plan year* beginning after 1987, determined without regard to any plan amendment adopted after October 16, 1987 that increases plan liabilities.

Unfunded Old Liability Amount* is the amount necessary to amortize the *unfunded old liability* under the plan in equal annual installments over a period of 18 *plan years* beginning with the first *plan year* beginning after 1988.

Valuation -- See *Actuarial Valuation*.

Valuation Date is the date as of which the actuarial status of the plan is determined.

Vested Benefit is a benefit that is not forfeited if the *participant* has a permanent break in service.

* -- These terms are used primarily for private plans covered by *ERISA*.