
**THE REPORT OF THE
JUNE 30, 2001 ACTUARIAL VALUATION
OF THE
NON-TEACHER SCHOOL EMPLOYEE
RETIREMENT SYSTEM OF MISSOURI**

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October 10, 2001

Board of Trustees
Non-Teacher School Employee Retirement System of Missouri
701 W. Main
PO Box 268
Jefferson City, MO. 65102

Dear Members of the Board:

We are pleased to present the report of the actuarial valuation of the Non-Teacher School Employee Retirement System of Missouri ("NTRS") as of June 30, 2001.

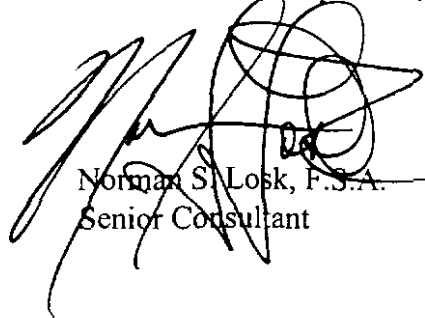
This valuation provides data on the funding status of NTRS and shows that the current contribution level will fund the current benefits of NTRS within the framework of your funding policy.

This valuation is based on the provisions of NTRS in effect as of June 30, 2001, data on the NTRS membership and information on the asset value of the trust fund. All member data and asset information were provided by NTRS staff. While certain checks for reasonableness were performed, the data was used unaudited.

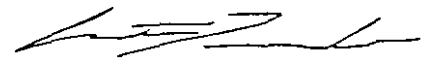
The actuarial cost method is that used in the actuarial valuation of NTRS as of June 30, 2000. The actuarial assumptions used herein are those adopted by the Board at its meeting on January 14, 2001.

To the best of our knowledge, this actuarial statement is complete and accurate, and has been prepared in accordance with generally accepted actuarial principles and practice.

Respectfully submitted,



Norman S. Losk, F.S.A.
Senior Consultant



Scott A. Terando, A.S.A.
Consultant

NSL:cml

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SUMMARY OF THE VALUATION

PURPOSES OF THE ACTUARIAL VALUATION

At your request we have performed the actuarial valuation of the Non-Teacher School Employee Retirement System of Missouri ("NTRS") as of June 30, 2001.

The purposes of an actuarial valuation are as follows:

- To determine the funding status of NTRS as of the valuation date,
- To establish that a contribution level of 10% of pay will fund the current benefit provisions within the framework of your funding policy, and
- To provide accounting and other data required by NTRS.

REPORT HIGHLIGHTS

The key results of the valuation are summarized in the following table:

	June 30, 2000	June 30, 2001
	(\$ in Millions)	
A. SUMMARY OF RESULTS		
(1) Present Value of Future Benefits for:		
(a) Active Members	\$1,638.2	\$1,714.7
(b) Retired members	467.7	565.1
(c) Inactive Members and Other Liabilities	33.3	40.5
(d) Total	\$2,139.2	\$2,320.3
(2) Present Value of Future Normal Costs	\$ 743.9	\$ 684.2
(3) Actuarial Accrued Liability: (1) – (2)	1,395.3	1,636.1
(4) Actuarial Value of Assets	1,522.7	1,686.3
(5) Unfunded Actuarial Accrued Liability: (3) – (4)	(127.4)	(50.2)
(6) Total Contribution Rate, Member + Employer	10.00%	10.00%
(7) Normal Cost Rate	10.50%	10.44%
(8) Approximate Rate Available for Unfunded Actuarial Accrued Liability: (6) – (7)	(.50%)	(.44%)
(9) Number of Years Required to Amortize (5) if Compensation Increases 5.0% per year	NA	NA

June 30, 2000

June 30, 2001

B. HIGHLIGHTS OF REPORT

(1) Actuarial Accrued Liability Funding Ratio:		
(a) Actuarial Value of Assets	\$1,522.7	\$1,686.3
(b) Actuarial Accrued Liability	1,395.3	1,395.3 1,636.1
(c) Funding Ratio: (a) / (b)	109.1%	103.1%
(2) Active Members:		
(a) Number:		
Male	10,837	11,215
Female	<u>32,696</u>	<u>34,302</u>
Total	43,533	45,517
(b) Total Compensation for Fiscal Year (for Active Members at end of year):		
Male	228.5	250.5
Female	<u>506.9</u>	<u>563.7</u>
Total	735.4	814.2
(c) Average Age:		
Male	44.8	45.0
Female	<u>44.4</u>	<u>44.5</u>
Total	44.5	44.6
(d) Average Service:		
Male	6.4	6.3
Female	<u>6.6</u>	<u>6.3</u>
Total	6.5	6.3
(e) Average Compensation for Fiscal Year (not in millions):		
Male	\$21,081	\$22,336
Female	<u>15,505</u>	<u>16,432</u>
Total	\$16,893	\$17,887
(f) Average Amount of Assets per Active Member (based on actuarial value, not in millions)	\$23,470	\$23,741
(3) Retired Members and Beneficiaries		
(a) Number Service Retired:		
Life Annuities	9,926	10,160
Options	<u>2,187</u>	<u>2,472</u>
Total	12,113	12,632
(b) Number Disability Retired	347	378
(c) Number Survivors, Beneficiaries	<u>601</u>	<u>663</u>
(d) Total Persons Receiving Benefits	13,061	13,673
(e) Average Monthly Pension Being Paid at Valuation Date for New Service Retired, Including Options (not in millions)	432	565
(f) Average Amount of Assets per Retired Member (based on actuarial value, not in millions)	\$35,808	\$41,332
(g) Average Amount of Assets per New Service Retired (based on actuarial value, not in millions)	\$65,216	\$81,756

MEMBERSHIP CHARACTERISTICS

Active and Inactive Membership

A total of 59,508 active and inactive members of NTRS are included in this 2001 actuarial valuation.

Active members	45,517
Inactive members	<u>13,991</u>
Total active and inactive members	59,508

Between the 2000 and 2001 actuarial valuations, the number of active employees increased by 1,984 or 4.6%. The average annual salaries of employees increased by 5.8% to \$17,886.

Summary of Changes in Membership

	Male	Female	Total
Active and Inactive Members 7/1/00	13,827	41,717	55,544
New Membership 7/1/00 to 6/30/01	<u>2,781</u>	<u>7,662</u>	<u>10,443</u>
Total Membership Before Decreases	16,608	49,379	65,987
Decreases:			
Service Retirements	267	711	978
Disability Retirements	20	32	52
Withdrawals	1,268	3,254	4,522
Deaths	28	44	72
Other Terminations	263	479	742
Previous Memberships Voided	37	75	112
Reciprocity	<u>0</u>	<u>1</u>	<u>1</u>
Subtotal	1,883	4,596	6,479
Net membership 6/30/01 (includes Inactive Members)	14,725	44,783	59,508

Benefit Recipients

On June 30, 2001, NTRS was paying benefits to a total of 13,673 retired members, beneficiaries and survivors. The total number of benefit recipients increased 4.7% from 13,061 on June 30, 2000. The benefit recipients were comprised of 12,632 service retirees, 378 disability retirees, 663 beneficiaries and survivors.

There are two classes of retired members – members retired because of service and members retired because of disability.

The changes among the retired group of members during the 2000-01 year were as follows:

	<u>Service Retirements</u>	<u>Disability Retirements</u>	<u>Beneficiaries</u>	<u>Total</u>
Retired Members, July 1, 2000	12,113	347	601	13,061
Added During Year	978	52	76	1,106
Died During Year	(449)	(22)	(14)	(485)
Resumed Retirement During Year	9	1	0	10
Resumed Employment During Year	<u>(19)</u>	<u>0</u>	<u>0</u>	<u>(19)</u>
Retired Members, June 30, 2001	12,632	378	663	13,673

As of June 30, 2001, the average monthly benefit payable to new service retirees was \$565 compared to \$432 as of June 30, 2000. These average benefit amounts and the amounts shown in the tables that follow include all post-retirement benefit increases and the effects of 2001 legislation.

ACTUARIAL ASSUMPTIONS

The actuarial cost method used in this valuation is that disclosed in the actuarial valuation report as of June 30, 2000.

The actuarial assumptions used in this valuation are those adopted by the Board at its January, 2001 meeting. This set of assumptions is described in Appendix E.

The impact of the new assumptions on results of the June 30, 2000 valuation are summarized below:

Impact of Assumption Change on June 30, 2000 Results

	Old Assumptions	New Assumptions
Normal Cost Rate	10.50%	9.68%
AAL (in Millions)	\$1,395.3	\$1,357.1
Act. Val. Assets	1,522.7	1,522.7
UAAL	(127.4)	(165.6)
Funding Ratio	109.13%	112.20%
Total Contribution Rate (30 Yr. Amort.)	9.66%	8.59%

EXPERIENCE DURING FY 2001

Overall the system experienced a net actuarial loss of about \$10.7 million.

While the favorable markets of the prior six years has turned, the use of a smoothing technique in valuation of assets has resulted in a small actuarial gain from investments. The net actuarial loss is the remainder after the gain from assets is applied against the loss from liabilities. The net loss is determined as follows:

	(\$ in Millions)
1. Actuarial Gain on Assets (at actuarial value)	(26.2)
2. Actuarial Loss on Liabilities	<u>37.9</u>
3. Total Actuarial (Gain) or Loss (1+2)	10.7

NTRS BENEFITS

Legislation enacted in 2001 made the following changes in the benefit structure of NTRS:

1. **Benefit Multiplier** – The basic benefit multiplier was increased from 1.51% to 1.61%. Multipliers for special normal retirement benefits under “25 and Out” increased accordingly.
2. **Current Retirees** – Benefits to retirees and survivors of retirees receiving benefits prior to July 1, 2001 were increased by 7.1% across the board.
3. **Temporary Benefit** – Any person retiring prior to age 62 with 30 or more years of service or under the Rule of 80 will receive an additional benefit payable to age 62. This benefit was increased from 0.4% of Final Average Salary for each year of service to 0.8%.
4. **COLA Cap** – The lifetime cap on COLA adjustments is increased from 75% to 80%.

Based on this actuarial valuation, the impact of these changes in NTRS benefit structure on the actuarial accrued liability (“AAL”) of the system is as follows:

	(\$ in Millions)		
	Active Members	Inactive / Retired	Total
AAL Before Changes	\$ 947.4	\$ 562.3	\$ 1,509.7
AAL After Changes	<u>1,030.5</u>	<u>605.6</u>	<u>1,636.1</u>
Impact of Changes	\$ 83.1	\$ 43.3	\$ 126.4

ASSET INFORMATION

The market value of the assets of the fund, which are available for benefits, has been reduced from \$1.625 billion as of June 30, 2000 to \$1.610 billion as of June 30, 2001. Due to the smoothing inherent in the determination of the actuarial value of assets, there was an increase in the actuarial value of assets from \$1.523 billion to \$1.686 billion.

Based on the actuarial value, the assets of the fund returned about 9.7%.

The detailed determinations of asset values utilized in this valuation and asset growth in the last year are set out in Appendix B.

FUNDING STATUS

The funding status of NTRS is measured by the Funding Ratio. The Funding Ratio is the ratio of the assets available for benefits to a benefit liability measure for the System. While there are several such measures that could be appropriately used, the measure that ties most closely to your funding plan is the Actuarial Accrued Liability ("AAL").

The NTRS actuarial accrued liability funding ratio, based on the new set of actuarial assumptions, dropped from 112.2% at June 30, 2000 to 111.7% at June 30, 2001 before the 2001 legislation, and 103.1% including the 2001 legislation.

GASB DISCLOSURE

NTRS is now producing its accounting statements under the terms of GASB Statement Number 25. In Table 16, you will find Required Supplemental Information mandated by that statement.

APPENDICES

APPENDIX A
MEMBERSHIP DATA

Table 1

**Number, Average Age-Service-Salary, and Total Payroll
of Active Members Included in Actuarial Valuations**

MALE

Item	Actuarial Valuation as of June 30				
	1997	1998	1999	2000	2001
Number	9,338	9,864	10,479	10,837	11,215
Average Age	45.3	43.7	44.7	44.8	45.0
Average Years of Service	6.8	6.5	6.4	6.3	6.3
Average Annual Salary	\$ 19,531	\$ 19,997	\$ 20,564	\$ 21,081	\$ 22,336
Total Payroll (000's)	\$182,378	\$197,253	\$215,488	\$228,453	\$250,497

FEMALE

Item	Actuarial Valuation as of June 30				
	1997	1998	1999	2000	2001
Number	26,644	28,808	31,120	32,696	34,302
Average Age	45.0	43.8	44.5	44.4	44.5
Average Years of Service	7.3	6.8	6.6	6.4	6.3
Average Annual Salary	\$ 14,059	\$ 14,546	\$ 5,096	\$ 15,505	\$ 16,432
Total Payroll (000's)	\$374,594	\$419,050	\$469,784	\$506,948	\$563,661

TOTAL

Item	Actuarial Valuation as of June 30				
	1997	1998	1999	2000	2001
Number	35,982	38,672	41,599	43,533	45,517
Average Age	45.1	43.8	44.6	44.5	44.6
Average Years of Service	7.2	6.7	6.5	6.4	6.3
Average Annual Salary	\$ 15,479	\$ 15,937	\$ 16,473	\$ 16,893	\$ 17,887
Total Payroll (000's)	\$556,972	\$616,303	\$685,272	\$735,400	\$814,158

Table 2

Employee Distribution by Age and Years of Service
June 30, 2001

Age	Years of Service							Total
	0-4	5-9	10-14	15-19	20-24	25-29	30 & Over	
Under 20	365	-	-	-	-	-	-	365
20-24	1,996	9	-	-	-	-	-	2,005
25-29	2,551	171	5	-	-	-	-	2,727
30-34	3,025	478	120	5	-	-	-	3,628
35-39	4,814	1,047	345	158	12	-	-	6,376
40-44	4,566	1,811	657	273	206	5	-	7,518
45-49	3,494	1,878	1,070	428	222	93	7	7,192
50-54	2,344	1,418	1,122	655	400	152	37	6,128
55-59	1,652	869	764	645	543	212	52	4,737
60-64	962	581	447	380	361	211	88	3,030
65 & Over	664	334	224	156	148	122	95	1,743
Unknown	61	2	3	1	1	-	-	68
Total	26,494	8,598	4,757	2,701	1,893	795	279	45,517

Table 3
Salary Distribution
Employees in Active Service
on June 30, 2001

Annual Salary	Number	Percent
Under \$10,000	10,713	23.5%
\$10,000 - 12,499	5,474	12.0%
\$12,500 - 14,999	5,072	11.1%
\$15,000 - 17,499	4,246	9.3%
\$17,500 - 19,999	3,623	8.0%
\$20,000 - 22,499	3,388	7.4%
\$22,500 - 24,999	2,726	6.0%
\$25,000 - 27,499	2,472	5.4%
\$27,500 - 29,999	1,882	4.1%
\$30,000 & Over	<u>5,921</u>	<u>13.0%</u>
Total	45,517	100.0%

Based on compensation actually paid during the plan year.

Table 4

**Salary Increase Rates by Service Group
Employees in Both 2000 & 2001 Actuarial Valuations**

Service in 2000	Number	Percent Increase In Average Salary	
		Actual	Expected
1-4	15,774	9.18%	6.61%
5-9	7,685	6.03%	5.00%
10-14	4,641	5.45%	5.00%
15-19	2,442	5.33%	5.00%
20 & Over	2,737	<u>5.47%</u>	<u>5.00%</u>
Total	33,279	7.04%	5.63%

Table 5

Pensions in Force on June 30, 2001
by Type and Monthly Amount

Monthly Amount	Service	Disability	Beneficiary	Total
Less than \$100	2,501	67	176	2,744
\$100 - 199	3,322	122	198	3,642
\$200 - 299	2,155	76	112	2,343
\$300 - 399	1,413	41	77	1,531
\$400 - 499	921	32	39	992
\$500 - 999	1,888	39	52	1,979
\$1,000 - 1,499	353	1	9	363
\$1,500 & Over	<u>79</u>	<u>0</u>	<u>-</u>	<u>79</u>
Total	12,632	378	663	13,673

Table 6

**Pensions in Force on June 30, 2001
by Type and Age**

Age	Service	Disability	Beneficiary	Total
Under 55	55	92	19	166
55-59	416	102	17	535
60-64	1,712	75	52	1,839
65-69	2,705	57	100	2,862
70-74	2,659	31	122	2,812
75-79	2,202	10	141	2,353
80-84	1,612	9	126	1,747
85-89	873	2	71	946
90 & Over	<u>398</u>	<u>-</u>	<u>15</u>	<u>413</u>
Total	12,632	378	663	13,673

Table 7
Cost of Living Increases to Retired Members
June 30, 2001

Retirement In	First Increase Effective Date	Percentage Increase	Total Increases Through January 2000	January 2001 Increase	Total Increases Through January 2001	Number of Retired Members at 6/30/01
1978&Earlier	Jan.1982	4.0%	75.00%	2.9%	80.00%	786
1979	Jan.1983	4.0	75.00	2.9	80.00	165
1980	Jan.1984	2.6	69.69	3.3	75.29	207
1981	Jan.1985	4.0	66.13	3.3	71.61	272
1982	Jan.1986	3.7	60.64	3.3	65.94	300
1983	Jan.1987	1.7	55.56	3.3	60.69	263
1984	Jan.1988	3.7	53.23	3.3	58.29	318
1985	Jan.1989	4.0	48.16	3.3	53.05	415
1986	Jan.1990	4.0	42.67	3.3	47.38	438
1987	Jan.1991	4.0	37.17	3.3	41.70	409
1988	Jan.1992	4.0	31.91	3.3	36.26	525
1989	Jan.1993	3.1	26.83	3.3	31.02	533
1990	Jan.1994	3.0	23.02	3.3	27.08	601
1991	Jan.1995	2.5	19.44	3.3	23.38	568
1992	Jan.1996	3.0	16.52	3.3	20.37	648
1993	Jan.1997	2.8	13.13	3.3	16.86	600
1994	Jan.1998	2.3	10.05	3.3	13.68	692
1995	Jan.1999	1.7	7.57	3.3	11.12	735
1996	Jan.2000	2.0	5.77	3.3	9.26	750
1997	Jan.2001	3.7	3.70	3.3	7.12	824
1998	Jan.2002	3.3		3.3	3.30	831
1999						930
2000						995
2001						<u>205</u>
Total						13,010

Notes:

1. Total Increases are expressed as a percentage of the original benefit amount.
2. Number of Retired Members does not include beneficiaries of deceased Members.
3. The Total Increase was limited by the 44 maximum through August 27, 1993, and by the 56 maximum through August 27, 1996.
4. 1991 was the first year of compounding increases.

Table 8

**Analysis of Retired Membership by Type of Benefit
(Dollar Amounts in Millions)
June 30, 2001**

Type of Benefit	Number	Annual Benefit	Total Liability
Service Retirees			
Option 1 (Life Only)	10,160	37.5	381.9
Option 2 (100% J&S with Pop-Up)	1,213	5.5	66.7
Option 3 (75% J&S with Pop-Up)	113	0.8	10.3
Option 4 (50% J&S with Pop-Up)	289	1.9	21.7
Option 5 (10 Years Certain & Life)	212	1.0	11.8
Option 6 (5 Years Certain & Life)	54	0.3	4.1
Option 7 (100% J&S)	370	1.2	9.4
Option 8 (75% J&S)	1	0.0	0.0
Option 9 (50% J&S)	50	0.2	1.6
Accelerated Payment	<u>170</u>	<u>2.0</u>	<u>24.8</u>
 Total	 12,632	 \$50.5	 \$532.3
 Disability Retirees	 378	 \$1.2	 \$12.3
 Beneficiaries of Retiree Deaths	 663	 \$2.0	 \$18.6

Note: Excludes retirees returned to work.

APPENDIX B
ASSET INFORMATION

Table 9

**Market Value of Assets
Balance Sheet**

	<u>June 30, 2000</u>	<u>June 30, 2001</u>
ASSETS:		
Cash	\$ 12,693,585	\$ 16,845,042
Contribution Receivable	6,460,853	7,607,027
Accrued Interest and Dividends	6,402,445	6,325,405
Investments	1,647,305,081	1,613,032,996
Securities Lending Collateral	147,355,457	129,926,251
Investment Sales – Receivable	85,521,770	40,053,421
Other Assets	3,554	3,953
Prepaid Expenses	<u>272</u>	<u>4,027</u>
Total	\$1,905,742,987	\$1,813,798,152
LIABILITIES:		
Accounts Payable	403,281	440,991
Securities Lending Collateral	147,355,427	129,926,251
Investment Purchases – Payable	133,209,698	73,286,180
Other Liabilities	<u>103,546</u>	<u>99,565</u>
Total	\$ 281,071,952	\$ 203,752,987
NET ASSETS	\$1,624,671,035	\$1,610,045,165

Table 10

Statement of Revenue and Expenses
Market Value Reconciliation For Fiscal Year Ended June 30, 2001

OPERATING REVENUES	<u>Amount</u>
<i>Contributions:</i>	
Employers	\$ 37,500,243
Members	<u>37,933,940</u>
Total Contributions	75,434,183
<i>Net Investment Income:</i>	
Interest	32,203,781
Dividends	6,591,617
Net Income from Security Lending Activities	<u>1,006,220</u>
Total Investment Income	37,986,266
Net Capital Appreciation (Depreciation)	(67,633,629)
Less: Investment Expenses	<u>(1,815,352)</u>
Total Investment Return	(29,647,363)
<i>Other Income</i>	<u>72,786</u>
Total Operating Revenues	<u>45,859,606</u>
OPERATING EXPENSES	
Benefit Payments	49,038,279
Refunds to Members	9,201,092
Administrative Expenses	2,241,991
Other Expense	<u>4,114</u>
Total Operating Expenses	<u>60,485,476</u>
EXCESS OF REVENUES OVER EXPENSES	(14,625,870)
FUND BALANCE, JUNE 30, 2000	\$1,624,671,035
FUND BALANCE, JUNE 30, 2001	<u>\$1,610,045,165</u>

Table 11
Growth of Cash Flow
(In Thousands)

Year Ending June 30	Contributions for the Year	Payments During the Year		External Cash Flow for the Year	Covered Payroll	Payments as Percent of Covered Payroll	
		Benefit Payments and Refund of Contributions	Expenses				Total
1985	\$18,956	\$(7,333)	\$(424)	\$(7,757)	\$11,199	\$228,781	3.4%
1986	20,140	(8,974)	(411)	(9,385)	10,755	245,407	3.8
1987	21,986	(9,641)	(500)	(10,141)	11,845	268,173	3.8
1988	23,927	(10,886)	(538)	(11,424)	12,503	304,029	3.8
1989	26,110	(12,567)	(585)	(13,152)	12,958	331,352	4.0
1990	28,176	(14,643)	(712)	(15,355)	12,821	359,577	4.3
1991	30,505	(16,634)	(721)	(17,355)	13,150	389,080	4.5
1992	31,470	(18,858)	(813)	(19,671)	11,799	398,147	4.9
1993	32,640	(21,025)	(821)	(21,846)	10,794	415,672	5.3
1994	35,298	(23,772)	(901)	(24,673)	10,625	452,339	5.5
1995	38,706	(27,067)	(905)	(27,972)	10,734	495,449	5.6
1996	42,122	(30,338)	(1,233)	(31,571)	10,551	538,022	5.9
1997	49,009	(34,425)	(1,950)	(36,375)	12,634	556,534	6.5
1998	54,844	(38,460)	(2,652)	(41,112)	13,732	616,303	6.7
1999	60,385	(41,813)	(1,604)	(43,417)	16,967	685,272	6.3
2000	68,684	(51,432)	(1,920)	(53,352)	15,332	735,362	7.3
2001	75,434	(58,239)	(2,246)	(60,485)	14,949	814,158	7.4

Table 12

Development of the Actuarial Value of Assets

1. Valuation Assets June 30, 2000		\$1,522,660,195
2. Activity for FY 2001		
a. Contributions	\$ 75,434,183	
b. Benefits and Expenses	<u>(60,485,476)</u>	
c. Net Cash Flow	14,948,707	
3. Expected Returns	122,399,261	
4. Assets Before Allocation of G/L (1+2+3)		1,660,008,162
5. Actual Returns for 2001	(29,647,363)	
6. Excess Returns for 2001 (5-3)	(152,046,624)	
7. Recognized Excess Returns		
2001	(30,409,325)	
2000	1,305,548	
1999	8,893,768	
1998	23,649,056	
1997	22,795,218	
Total		<u>26,234,265</u>
8. Actuarial Value of Assets June 30, 2001		\$1,686,242,427

Note: Excess returns are total return on assets at market in excess of expected investment return at 8% on actuarial value.

APPENDIX C
ACTUARIAL DETERMINATIONS

Table 13
Ten Year Historical Summary
(All Dollar Figures in Thousands)

	<u>1992</u>	<u>1993</u>	<u>1994</u>	<u>1995</u>	<u>1996</u>	<u>1997</u>	<u>1998</u>	<u>1999</u>	<u>2000</u>	<u>2001</u>
Active Members	28,410	29,055	0,662	32,598	34,153	35,982	38,672	41,599	43,533	45,517
Retired Members	9,100	9,472	9,792	10,216	10,643	10,811	11,218	12,461	13,061	13,673
Actuarial Assets	\$513,693	\$583,058	\$698,988	\$778,325	\$876,886	\$1,001,035	\$1,150,311	\$1,335,308	\$1,522,660	\$1,686,242
UAAL	\$26,175	\$32,361	(\$12,908)	\$8,074	\$2,675	(\$36,823)	(\$113,965)	(\$166,796)	(127,360)	(50,166)
Benefit Payments And Refunds	\$18,858	\$21,025	\$23,772	\$27,067	\$30,338	\$34,425	\$38,460	\$41,813	\$51,432	\$58,239
Accumulated Members' Contributions	\$127,335	\$140,790	\$155,238	\$169,846	\$185,763	\$204,757	\$225,373	\$250,327	\$274,167	\$301,936
APV of Retirees' Benefits	\$163,586	\$196,936	\$224,650	\$252,034	\$293,937	\$312,390	\$350,860	\$396,846	\$467,653	\$565,126

Table 14**Determination of Normal Cost
June 30, 2001
For the 2001-2002 Plan Year**

	<u>Before Legislation</u>		<u>After Legislation</u>	
	<u>Dollar</u>	<u>Rate</u>	<u>Dollar</u>	<u>Rate</u>
Active Members				
Retirement Benefits	\$61,632,599	8.01%	\$66,762,339	8.67%
Termination Benefits	10,555,809	1.37	10,792,813	1.40
Death Benefits	1,378,801	0.18	1,474,842	0.19
Disability Benefits	<u>1,156,798</u>	<u>0.15</u>	<u>1,368,186</u>	<u>0.18</u>
Total Normal Cost	74,724,007	9.71%	80,398,180	10.44%
Estimated Employee Contributions	<u>38,496,295</u>		<u>38,496,295</u>	
Employer Normal Cost				
(Total Normal Cost less Employee Contributions)	\$36,227,712		\$41,901,885	

Table 15

**Determination of the Unfunded Actuarial Accrued Liability
June 30, 2001**

	Before Legislation	After Legislation
Active Members:		
Service Retirement	\$923,198,262	1,002,081,111
Death Benefits	17,616,843	18,853,777
Disability Benefits	10,763,319	12,973,654
Termination Benefits	(4,183,156)	(3,435,166)
Inactives	<u>38,435,728</u>	<u>40,476,874</u>
Total for Active and Inactive Members	985,830,996	1,070,950,250
 Pay Status Members:		
Service Retirees	495,228,291	534,198,560
Disability Retirees	11,412,448	12,301,959
Survivors	<u>17,231,925</u>	<u>18,625,195</u>
Total for Pay Status Members	523,872,664	565,125,714
 Total Actuarial Accrued Liability	1,509,703,660	1,636,075,964
 Actuarial Value of Assets	<u>1,686,242,427</u>	<u>1,686,242,427</u>
 Total Unfunded Actuarial Accrued Liability	\$ (176,538,767)	\$ (50,166,463)

Table 16
GASB 25 Exhibits

Schedule of Funding Progress
(In Thousands)

Actuarial Valuation Date	Actuarial Value of Assets (a)	Actuarial Accrued Liability (AAL) Entry Age (b)	Unfunded AAL(UAAL) (b-a)	Funded Ratio (a/b)	Covered Payroll (c)	UAAL as a Percentage of Covered Payroll ((b-a)/c)
6/30/95	778,325	786,399	8,074	99.0	495,449	1.6
6/30/96	876,886	879,561	2,675	99.7	538,022	0.5
6/30/97	1,001,035	964,212	(36,823)	103.8	556,534	(6.6)
6/30/98	1,150,311	1,036,347	(113,965)	111.0	616,303	(18.5)
6/30/99	1,335,308	1,168,511	(166,796)	114.3	685,272	(24.3)
6/30/00	1,522,660	1,395,300	(127,360)	109.1	735,400	(17.3)
6/30/01	1,686,242	1,636,076	(50,166)	103.1	814,158	(6.2)

Schedule of Employer Contributions

Actuarial Valuation Date	Annual Required Contribution	Percentage Contributed
6/30/95	19,248,692	100.0
6/30/96	20,966,576	100.0
6/30/97	24,393,542	100.0
6/30/98	27,315,729	100.0
6/30/99	30,012,859	100.0
6/30/00	34,185,605	100.0
6/30/01	37,500,243	100.0

Notes in Trend Data

Information:

Valuation Date
Actuarial Cost Method
Amortization Method
Remaining Amortization Period (years)
Asset Valuation Method

Data

6/30/01
Entry Age Normal
Level Percent, Open
N/A
5-Year Smoothed Market

Actuarial Assumptions:

Investment rate of return
Projected salary increases
Cost-of-living adjustments

8.0%
5.0%-10.0%
3.5%

Table 17

**Calculation of Unfunded Actuarial Accrued Liability
June 30, 2001**

	<u>Amount</u>
(1) Present Value of Future Benefits for:	
Active Members	\$1,714,706,702
Service Retirees	534,198,560
Disability Retirees	12,301,959
Survivors	18,625,195
Inactive Members	40,476,874
Total	<u>2,320,309,290</u>
(2) Present Value of Future Normal Costs	<u>684,233,326</u>
(3) Actuarial Accrued Liability ((1)-(2))	1,636,075,964
(4) Actuarial Value of Assets	<u>1,686,242,427</u>
(5) Unfounded Actuarial Accrued Liability ((3)-(4))	\$ (50,166,463)

**Required Contribution Rate & Amortization of Unfunded Liability
June 30, 2001**

	<u>Percentage of Payroll</u>
(1) Total Contribution Rate, Member + Employer	10.00%
(2) Normal Cost Rate	10.44
(3) Approximate Rate Available for Unfunded Actuarial Accrued Liability ((1)-(2))	(.44)
(4) Number of Years Required to Amortize Unfunded Actuarial Accrued Liability	N/A

Table 18

Analysis of Actuarial Gains and Losses

	<u>Amount</u>
1. Unfunded Actuarial Liability as of June 30, 2000	\$ (127,360,172)
2. Effect of Change in Actuarial Assumptions	(38,247,372)
3. UAAL New Assumptions – June 30, 2000	(165,607,545)
4. Normal Cost for 2001 Plan Year	67,347,230
5. Contribution Received during Year	(75,434,183)
6. Interest to Year End @ 8.00% on 1., 2., and 3.	(13,565,859)
7. Expected Unfunded Actuarial Liability as of June 30, 2001	(187,260,357)
8. Actuarial (Gain)/Loss During the Year	
a. From Investment	(26,234,265)
b. From Actuarial Liabilities	36,955,854
c. Total	<u>10,721,590</u>
9. Actual Unfunded Actuarial Liability as of June 30, 2001 Before Benefit Changes	(176,538,767)
10. Effect of 2001 Legislation	126,372,304
11. Actual UAAL as of June 30, 2001 After Benefit Changes	(50,166,463)

APPENDIX D
ADDITIONAL DATA

Table 19

Schedule of Active Member Valuation Data

Actuarial Valuation Date	Number of Members	Covered Annual Payroll (000)	Average Annual Salary	% Increase in Average Salary	Average Attained Age	Average Years of Service
6/30/91	28,554	\$389,080	\$13,626	5.1%	45.5	7.4
6/30/92	28,410	398,147	14,014	2.8	45.7	7.6
6/30/93	29,055	415,672	14,306	2.1	45.7	7.7
6/30/94	30,662	452,339	14,752	3.1	45.5	7.6
6/30/95	32,598	495,449	15,119	3.0	45.3	7.3
6/30/96	34,153	538,022	15,753	3.6	45.2	7.2
6/30/97	35,982	556,534	15,467	(1.8)	45.1	7.1
6/30/98	38,672	616,303	15,937	3.0	44.8	6.7
6/30/99	41,599	685,272	16,473	3.4	44.6	6.5
6/30/00	43,533	735,400	16,893	2.5	44.5	6.4
6/30/01	45,517	814,158	17,887	5.9	44.6	6.3

Table 20
Solvency Test
(\$ in 000's)

Actuarial Valuation Date	Actuarial Accrued Liability			Net Assets Available For Benefits	Percentage of Actuarial Liabilities Covered by Net Assets for:		
	Member Contributions (1)	Current Retirees & Beneficiaries (2)	Active & Inactive Members, Employer Financed Portion (3)		(1)	(2)	(3)
6/30/91	\$113,462	\$144,240	\$244,839	\$453,722	100.0%	100.0%	80.1%
6/30/92	127,335	163,586	248,947	513,693	100.0	100.0	89.5
6/30/93	140,790	196,936	277,693	583,058	100.0	100.0	88.3
6/30/94	155,238	224,650	306,192	698,988	100.0	100.0	104.2
6/30/95	169,846	252,034	364,519	778,325	100.0	100.0	97.8
6/30/96	185,763	293,937	399,861	876,886	100.0	100.0	99.3
6/30/97	204,757	312,390	447,065	1,001,035	100.0	100.0	100.0
6/30/98	225,454	350,860	460,033	1,150,311	100.0	100.0	125.8
6/30/99	231,252	396,846	540,413	1,335,308	100.0	100.0	130.9
6/30/00	274,167	467,653	653,480	1,522,660	100.0	100.0	119.5
6/30/00	301,936	565,126	769,014	1,686,242	100.0	100.0	106.5

Table 21

**Schedule of Retirees and Beneficiaries Added to
and Removed From Retirement rolls**

Actuarial Valuation Date	Service Retirees			Disability Retirees			Beneficiaries		
	Added to Rolls	Removed from Rolls	Rolls End of Year	Added to Rolls	Removed from Rolls	Rolls End of Year	Added to Rolls	Removed from Rolls	Rolls End of Year
6/30/89	703	272	7,645	24	14	151	30	1	148
6/30/90	678	253	8,070	23	10	164	29	8	169
6/30/91	712	277	8,505	24	13	175	54	4	219
6/30/92	715	316	8,904	28	7	196	46	5	260
6/30/93	689	336	9,257	26	10	215	40	7	293
6/30/94	658	358	9,557	29	9	235	60	9	344
6/30/95	782	372	9,967	33	19	249	54	12	386
6/30/96	799	390	10,376	26	8	267	47	18	415
6/30/97	823	388	10,811	22	13	276	63	18	460
6/30/98	841	424	11,218	29	17	288	59	22	497
6/30/99	813	431	11,600	35	7	316	67	19	545
6/30/00	945	432	12,113	45	14	347	76	20	601
6/30/01	987	468	12,632	53	22	378	76	14	663

Table 22

Schedule of Retirees by Type
(\$ in 000's)

Actuarial Valuation Date	Service Retirees		Disability Retirees		Beneficiaries	
	Number	Benefits	Number	Benefits	Number	Benefits
6/30/91	8,505	12,616	175	232	219	318
6/30/92	8,904	14,403	196	287	260	414
6/30/93	9,257	16,464	215	347	293	478
6/30/94	9,557	18,534	235	417	344	572
6/30/95	9,967	20,842	249	481	383	699
6/30/96	10,376	23,785	267	550	415	820
6/30/97	10,811	27,250	276	616	460	1,007
6/30/98	11,218	30,240	288	672	497	1,126
6/30/99	11,600	35,395	316	826	545	1,384
6/30/00	12,113	41,091	347	1,002	601	1,653
6/30/01	12,632	50,512	378	1,232	663	2,038

Average Retiree Statistics

Actuarial Valuation Date	New Service Retirees	Average New Benefit	% Change From Previous Year
6/30/91	606	228.87	3
6/30/92	609	242.19	6
6/30/93	597	275.23	12
6/30/94	571	306.20	11
6/30/95	679	298.76	(3)
6/30/96	797	330.40	11
6/30/97	823	327.16	(1)
6/30/98	805	324.82	(1)
6/30/99	813	366.42	13
6/30/00	945	431.89	18
6/30/01	987	565.29	31

APPENDIX E
ACTUARIAL METHOD AND ASSUMPTIONS

Statement of Funding Policy

In order to establish long-term, consistent methods in the funding of the System, the Board of Trustees has adopted this statement of its funding policy. The funding of the System shall be carried out in such a way that the burden of paying retirement costs shall be shared equitably by present and succeeding generations of members and taxpayers. To this end, the following principles shall apply:

1. The Board of Trustees shall adopt actuarial assumptions, each of which individually represents a reasonable long-term estimate of anticipated experience under the System, derived from experience studies conducted every fifth year.
2. The actuarial funding method used shall be the Entry Age Normal Method with normal costs calculated as a percentage of payroll.
3. It shall be the general objective to maintain an amortization period of 30 years or less in the funding of the Unfunded Actuarial Accrued Liability. Whenever a change is made in the System's benefit and contribution rate structures, the amortization period for the System after this change should not exceed 30 years initially.
4. If an escalation in future payroll is assumed in determining the amortization payments toward the Unfunded Actuarial Accrued Liability, then the annual rate of such escalation shall not exceed the expected rate of expansion in total System payroll based upon the actuarial assumptions.
5. Assets used in the actuarial valuation shall be valued using adjusted market values averaged over a period of five years.
6. Annual actuarial valuations shall be made of the System's assets and liabilities. The contribution rate shall be established based on the results of these valuations.

Actuarial Assumptions

(Adopted for Use with the June 30, 2001 Valuation)

Investment Return

It is assumed that investments of the System will return, on average, a yield of 8% per annum compound, net of system expenses.

Salary and Payroll Increases

Salaries are assumed to increase each year at the rate of 5%. Longevity adjustments are made for those with less than 5 years of service.

Service	Longevity Adjustment	Total Increase
0	5.00%	10.00%
1	2.50	7.50
2	1.75	6.75
3	1.00	6.00
4	.75	5.75
5 and Over	0.00	5.00

Total covered payroll of the entire membership is assumed to increase 5.0% per year in the future.

Average Work Year

It is assumed that the average term of employment is ten months per year for members who entered during the last plan year, and that this will continue in the future. For all other members, it is assumed that their current term of employment will continue in the future.

Retirement Rates

Retirement is assumed in accordance with the following rates per 1,000 eligible members:

For All Members With at Least Five Years of Service	
Age	Male and Female
Below Age 60	0
60	100
61	125
62	300
63	250
64	150
65	350
66-74	250
75 and Over	1000

For Members Who Are Below Age 60 With 30 Years of Service

Service	Males and Females
30 and Over	100

For Members Below Age 60 with Less Than 30 Years but with at Least 25 Years of Service, Who are at Least Age 55

Males and Females
All Years Eligible
135

For Members who have at least 25 years of service and are below age 55, during the July 1, 1998- July 1, 2000 Period:

Service	Males and Females
25	45
26	60
27	75
28	90
29	100

For Members who do not fall into the above categories but are at least age 55 with 5 years of Service

Males and Females
All Years Eligible
35

Withdrawal Rates

Termination of membership prior to eligibility for retirement from all causes other than death, disability or retirement is assumed in accordance with the following illustrative rates per 1,000 members:

Service	Rate
0	300.0
1	175.0
2	125.0
3	105.0
4	85.0
5	75.0
10	43.5
15	28.0
20	20.0
25	0.0

Disability Rates

Retirement for disability prior to age 60 is assumed in accordance with the following illustrative rates per 1,000 eligible members:

<u>Age</u>	<u>Male and Female Rates</u>
35	-
40	0.465
45	0.697
50	1.395
55	2.557

Mortality Rates

Mortality Rates for retirees, beneficiaries, and survivors are based on the GAM94 Table with male ages set forward one year. Rates for active members are 70% of retiree rates for males and 64% of retiree rates for females. Illustrative rates per 1,000 for retirees and disabled members at various ages are as follows:

<u>Service Retired Members, Beneficiaries and Survivors</u>		
<u>Age</u>	<u>Male</u>	<u>Female</u>
20	0.530	0.284
30	0.821	0.351
40	1.156	0.709
50	2.872	1.428
60	8.986	4.439
70	25.951	13.730
80	68.615	39.396
90	167.260	116.265
100	333.461	276.427
110	496.356	482.325

<u>Disability Retired Members, Male and Female</u>	
<u>Age</u>	<u>Rate</u>
40	24.075
50	26.175
60	31.500
70	44.625
80	76.650
90	173.276
100	507.128

Cost of Living Adjustments

The cost of living adjustment assumed in the valuation is 3.5% per year. The total lifetime COLA cannot exceed 75% of the original benefit.

Asset Valuation Method

The Actuarial Value of Assets is based on a five-year average of adjusted market value returns. The actuarial value for a year is computed by taking the actuarial value at June 30 of the prior year, subtracting all expenses (including benefit payments), and adding contributions and expected investment return at 8%. The difference between the actual returns at market value for the year and expected returns is determined. Twenty percent (20%) of that difference is added to the actuarial value along with corresponding amounts from each of the prior four years.

Provisions for Expenses

There is no specific provision for expenses. The implicit assumption is that administrative expenses are paid from investment income in excess of 8% per annum.

APPENDIX F
SUMMARY OF BENEFIT PROVISIONS OF
NTRS

Member Contributions

Half the total NTRS contribution rate. The current NTRS contribution rate is 10.0% of pay.

Normal (Unreduced) Retirement

ELIGIBILITY

Attainment of age 60 with at least five years of Creditable Service, or
Attainment of age 55 with at least 25 years of Creditable Service, or
Completion of 30 years of Creditable Service at any age.
Age plus Creditable Service is at least 80.

BENEFIT

1.61% of Final Average Salary for each year of Membership Service. A year of Prior Service is treated as .6 year of Membership Service. Any person retiring prior to age 62 under the Rule of 80 or with 30 years of creditable service will receive an additional benefit payable to attainment of age 62. This benefit is equal to .8% of Final Average Salary for each year of Membership Service.

FINAL AVERAGE SALARY

Average monthly salary over the Member's three highest consecutive years of service.

MEMBERSHIP SERVICE

Service while a participating member of NTRS. Service is measured each year in relation to minimum salary for 20 hours per week in the position for that year.

Prior Service

Service rendered in a covered position prior to November 1, 1965.

CREDITABLE SERVICE

Membership Service plus any Prior Service.

NORMAL FORM OF BENEFIT

Single Life Annuity

Options available include joint and survivor (50%, 75%, or 100%) and term certain (60 or 120 months) and life thereafter.

Early (Age Reduced) Retirement

Eligibility

Attainment of age 55 and under age 60 with at least five years of creditable service.

Benefit

Normal retirement benefit accrued to the date of early retirement, actuarially reduced from age 60.

Special Normal Retirement – Under Modified Formula

Eligibility

Retirement on or before 7-1-2003 at an age under 55 and with at least 25 years of creditable service but less than 30.

Benefit

Based on a percentage of final average salary per year of creditable service. Percentages are as follows:

<u>Years of Service</u>	<u>Benefit Percentage</u>
25-25.9	1.51%
26-26.9	1.53
27-27.9	1.55
28-28.9	1.57
29-29.9	1.59

COLA Adjustments

In any year in which the Board determines that the CPI has increased, the Board may provide for annual increases in the current benefit of up to 5%. For any member such adjustments commence in the fourth January after commencement of benefits. The total of such increases may not exceed 80% of the original benefit for any member.

Disability Benefits

DEFINITION OF DISABILITY

Incapacity for performance of gainful employment after completion of five years of creditable service and before age 60.

BENEFIT

Lifetime benefit equal to 90% of accrued normal retirement benefit.

FORM OF BENEFIT

If eligible, surviving spouse may elect a survivor benefit. COLA adjustments similar to those provided retirees are provided on this benefit.

Vesting

ELIGIBILITY

Completion of five years of creditable service.

BENEFIT

Accrued normal retirement benefit payable at earliest retirement age based on service at date of termination. Benefit is based on formula in effect at commencement of benefit.

Death / Survivor Benefits

REFUND

Refund of accumulated member contributions with interest

SURVIVOR BENEFITS

If the member has at least 5 years of creditable service at date of death, the spouse may receive a survivor benefit based on 100% J & S equivalent of the benefit accrued to date of death. The benefit may commence:

1. immediately if member is eligible to retire at date of death, or
2. at a future retirement date of the deceased member.

The benefit may be reduced for early commencement if the deceased member would not have been eligible for unreduced retirement at that date based on service to date of death. COLA adjustments similar to those provided retirees are provided on these benefits.