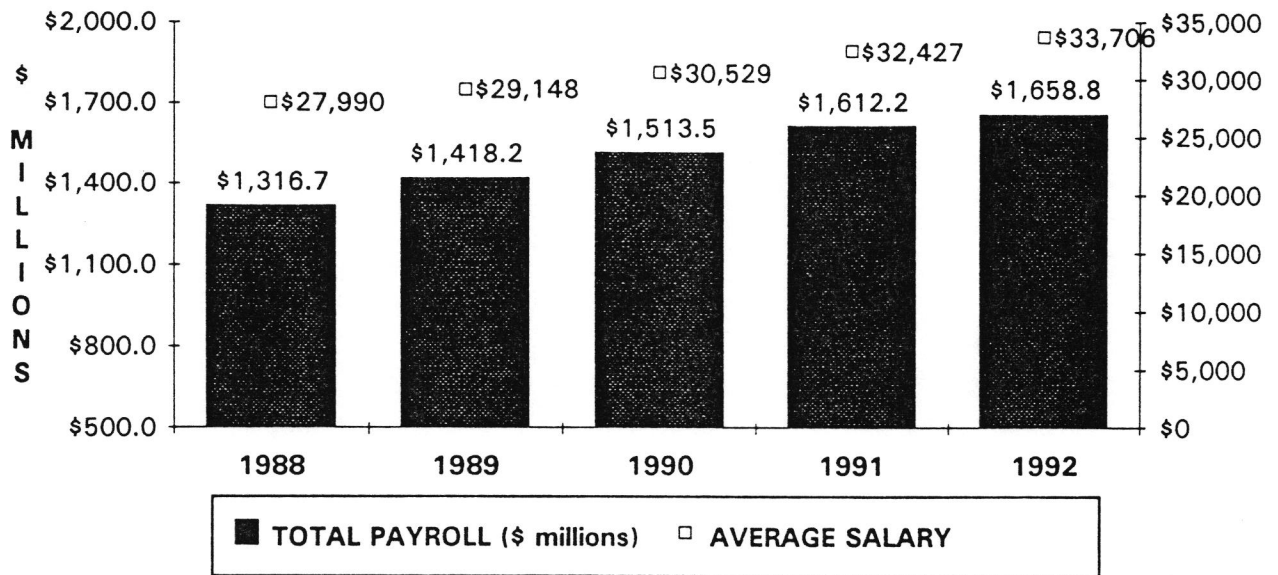


**MINNESOTA STATE
RETIREMENT SYSTEM**

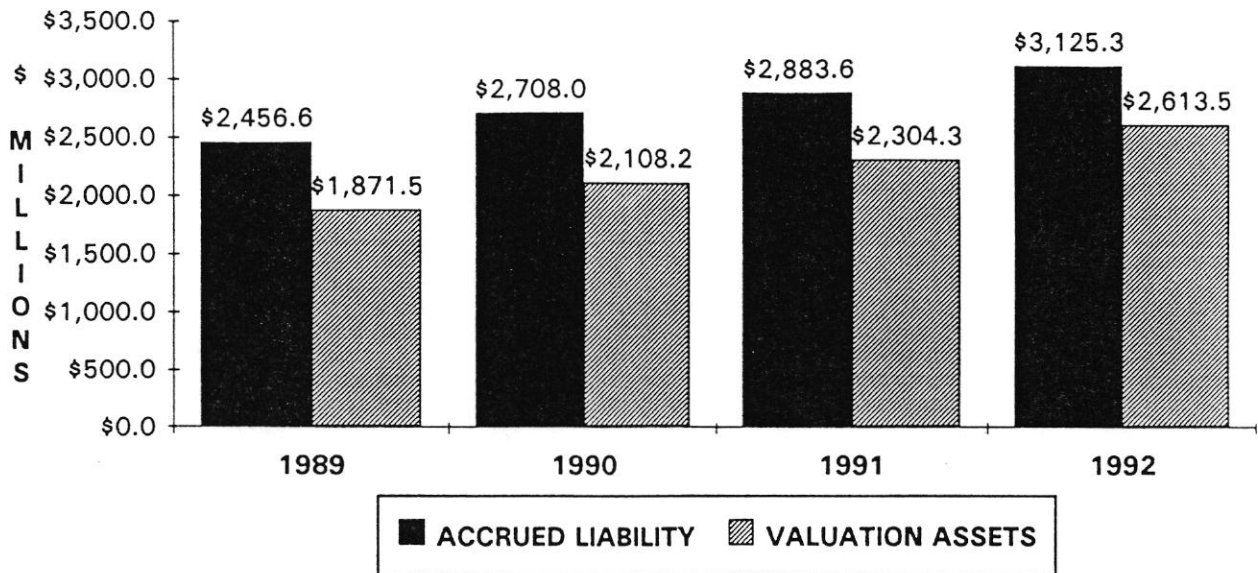
**Review of Actuarial
Valuations as of
June 30, 1992**

GENERALS ACTIVE MEMBERS TOTAL PAYROLL AND AVERAGE SALARY



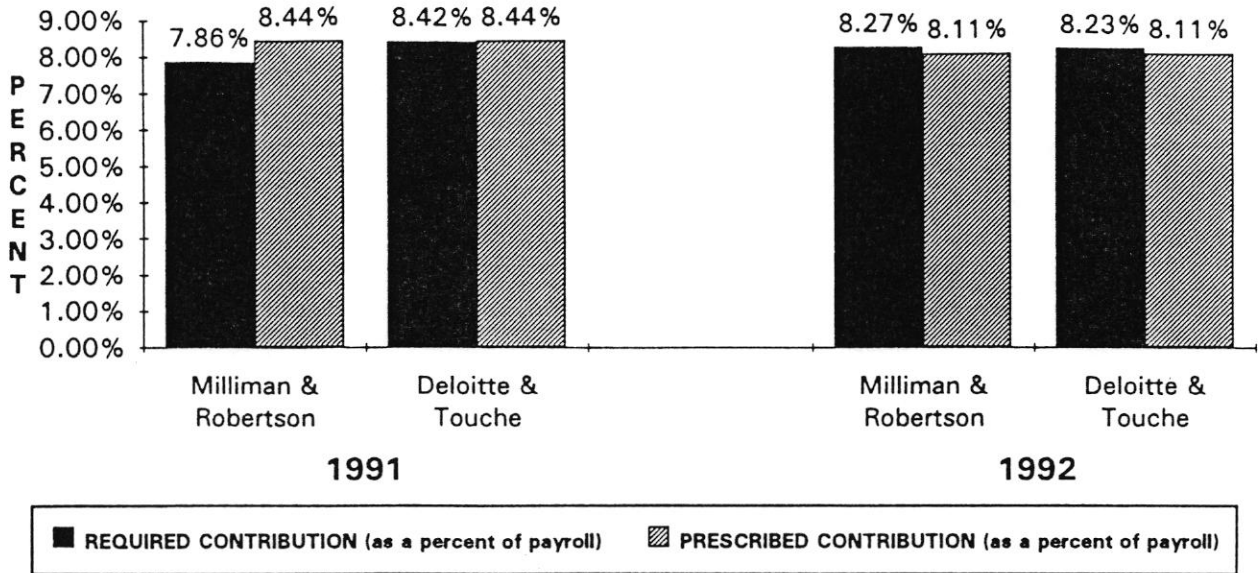
Members	47,040	48,653	49,576	49,718	49,214
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**GENERAL STATE EMPLOYEES' PLAN
TABLE A**



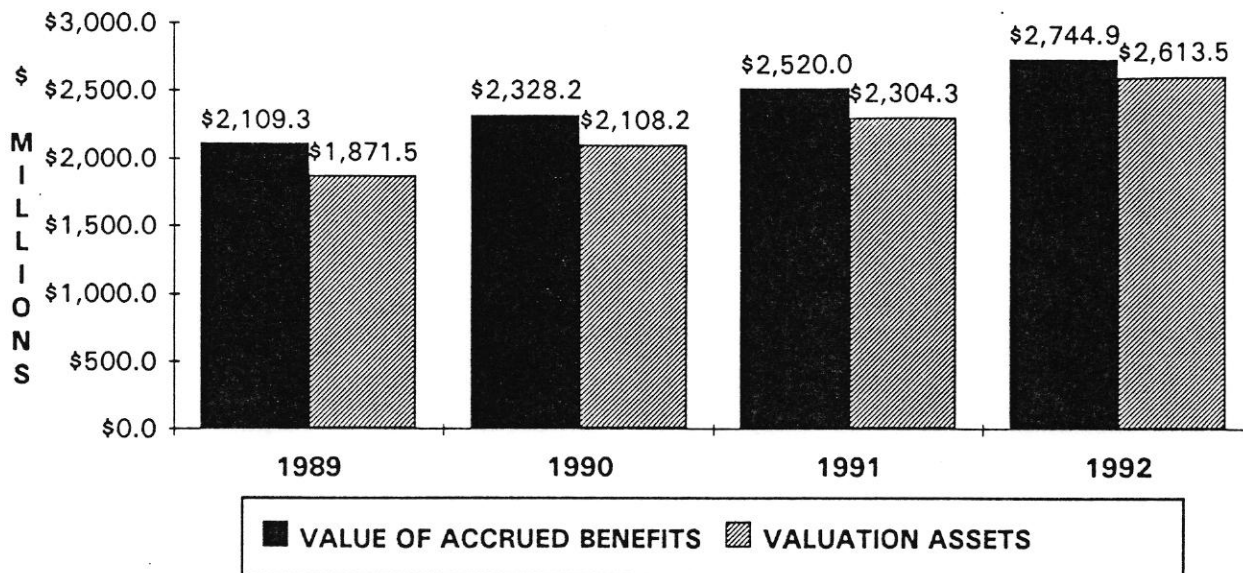
	<u>1989</u>	<u>1990</u>	<u>1991</u>	<u>1992</u>
Accrued Liability	\$2,456.6	\$2,708.0	\$2,883.6	\$3,125.3
Valuation Assets	1,871.5	2,108.2	2,304.3	2,613.5
Unfunded Accrued Liability	585.1	599.8	579.3	511.8
Funded Ratio	76.2%	77.9%	79.9%	83.6%

**GENERAL STATE EMPLOYEES' PLAN
TABLE B**



	1991		1992	
	Milliman & Robertson	Deloitte & Touche	Milliman & Robertson	Deloitte & Touche
Required Contribution	\$126.9 (7.86%)	\$135.8 (8.42%)	\$137.5 (8.27%)	\$136.5 (8.23%)
Prescribed Contribution	\$136.1 (8.44%)	\$136.1 (8.44%)	\$134.5 (8.11%)	\$134.5 (8.11%)
Sufficiency/(Deficiency)	0.58%	0.02%	(0.16%)	(0.12%)

**GENERAL STATE EMPLOYEES' PLAN
TABLE C**



	<u>1989</u>	<u>1990</u>	<u>1991</u>	<u>1992</u>
Value of Accrued Benefits	\$2,109.3	\$2,328.2	\$2,520.0	\$2,744.9
Valuation Assets	\$1,871.5	\$2,108.2	\$2,304.3	\$2,613.5
Depth of Funding	88.7%	90.6%	91.4%	95.2%
Depth of Funding, Excluding MPRI Members	83.0%	85.9%	86.9%	92.6%

GENERAL STATE EMPLOYEES' PLAN

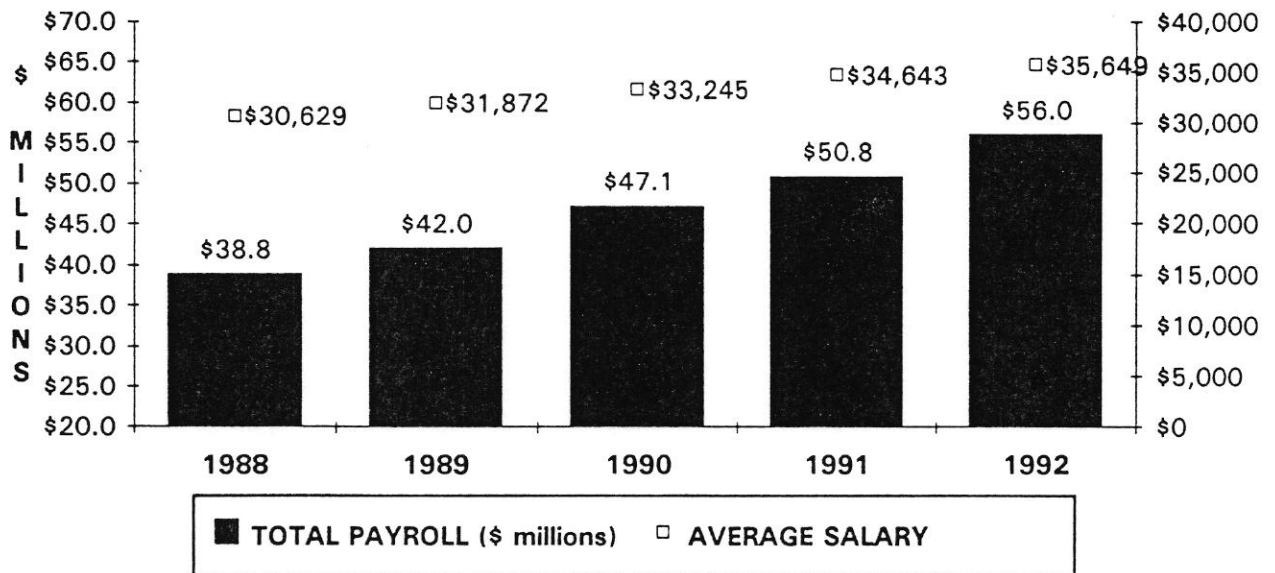
TABLE D

(\$ IN MILLIONS)

SENSITIVITY TO ASSUMPTIONS

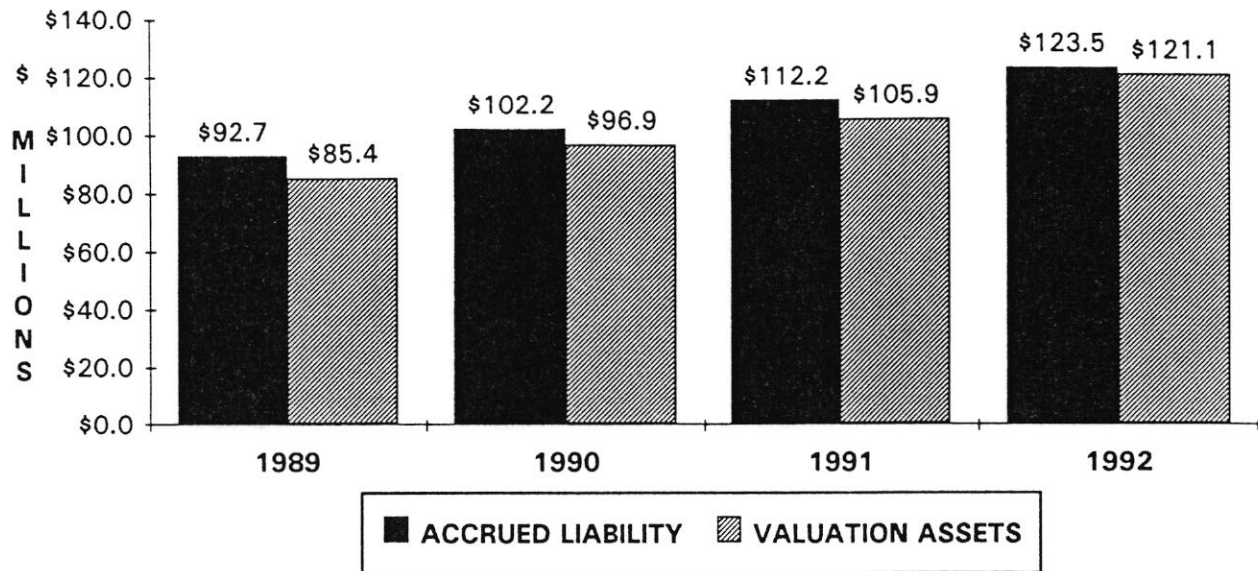
		Value After Change		
	<u>Current</u>	<u>7.5% Interest</u>	<u>6% Salary Increase</u>	<u>Level \$ Amortization</u>
A. Required Contribution				
(Amount)	\$136.5	\$158.7	\$129.9	\$163.6
(Percent)	8.23%	9.57%	7.83%	9.86%
(Sufficiency)	(0.12%)	(1.46%)	0.28%	(1.75%)
B. Value of Accrued Benefits	\$2,773.2	\$2,968.9	\$2,721.1	\$2,773.2
C. Depth of Funding	94.2%	88.0%	96.1%	94.2%

**CORRECTIONAL ACTIVE MEMBERS
TOTAL PAYROLL AND AVERAGE SALARY**



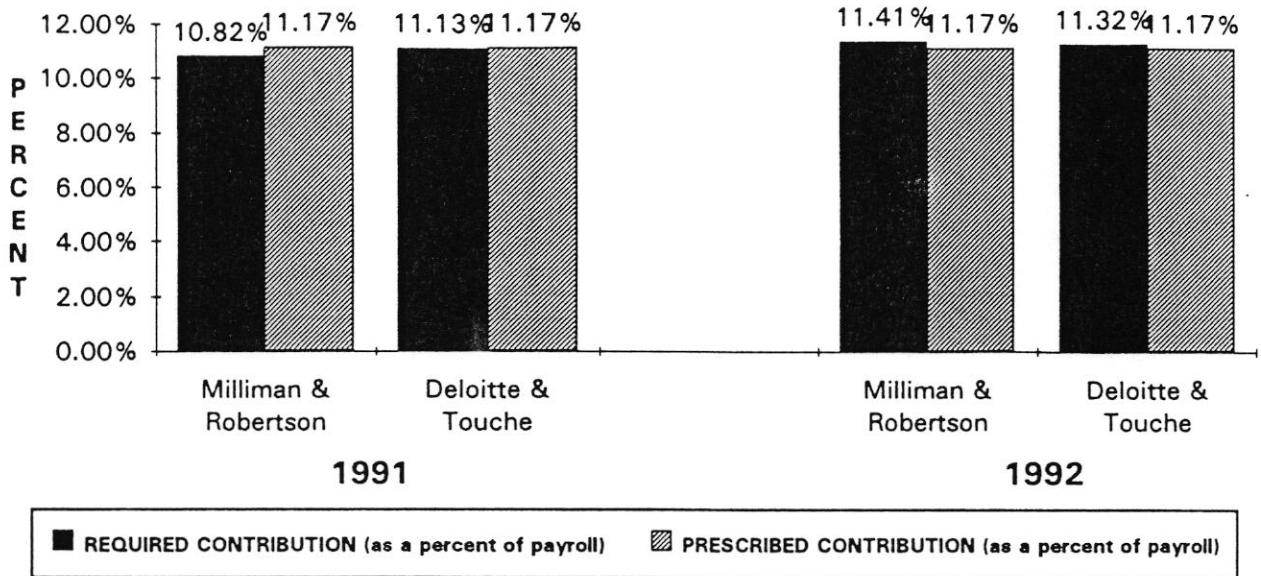
Members	1,267	1,317	1,416	1,467	1,572
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**CORRECTIONAL EMPLOYEES' PLAN
TABLE A**



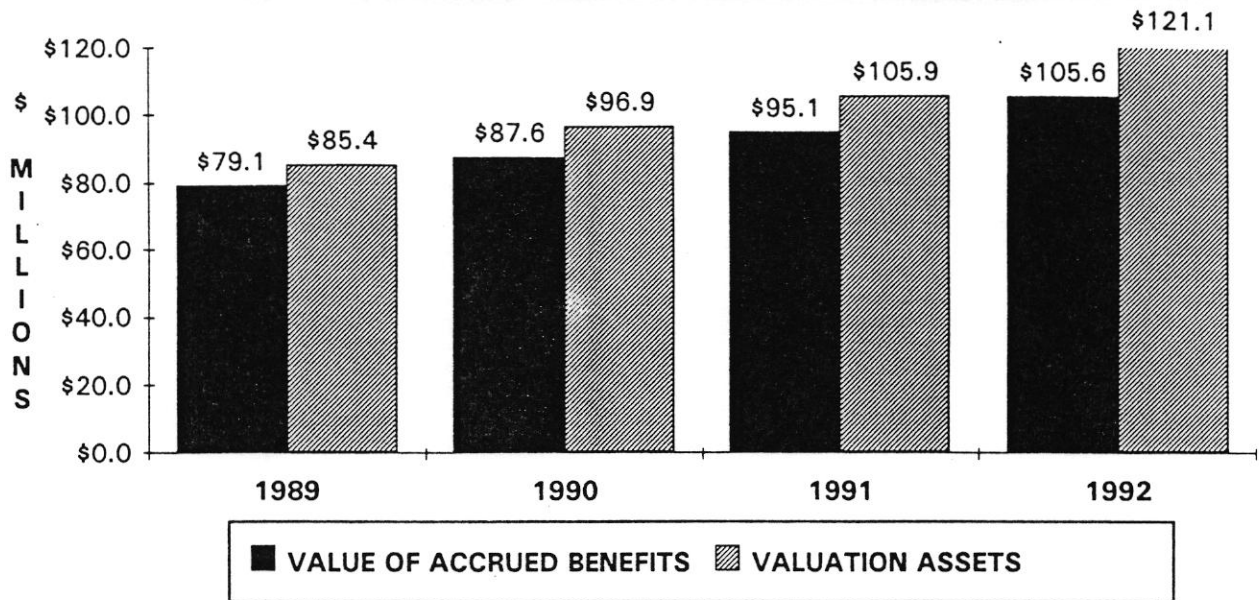
	<u>1989</u>	<u>1990</u>	<u>1991</u>	<u>1992</u>
Accrued Liability	\$92.6	\$102.2	\$112.2	\$123.5
Valuation Assets	85.4	96.9	105.9	121.1
Unfunded Accrued Liability	7.2	5.3	6.3	2.5
Funded Ratio	92.2%	94.8%	94.4%	98.0%

**CORRECTIONAL EMPLOYEES' PLAN
TABLE B**



	1991		1992	
	Milliman & Robertson	Deloitte & Touche	Milliman & Robertson	Deloitte & Touche
Required Contribution	\$5.5 (10.82%)	\$5.7 (11.13%)	\$6.4 (11.41%)	\$6.3 (11.32%)
Prescribed Contribution	\$5.7 (11.17%)	\$5.7 (11.17%)	\$6.3 (11.17%)	\$6.3 (11.17%)
Sufficiency/(Deficiency)	0.35%	0.04%	(0.24%)	(0.15%)

**CORRECTIONAL EMPLOYEES' PLAN
TABLE C**



	<u>1989</u>	<u>1990</u>	<u>1991</u>	<u>1992</u>
Value of Accrued Benefits	\$79.1	\$87.6	\$95.1	\$105.6
Valuation Assets	\$85.4	\$96.9	\$105.9	\$121.1
Depth of Funding	108.0%	110.7%	111.4%	114.7%
Depth of Funding, Excluding MPRI Members	112.4%	116.7%	117.7%	122.5%

CORRECTIONAL EMPLOYEES' PLAN

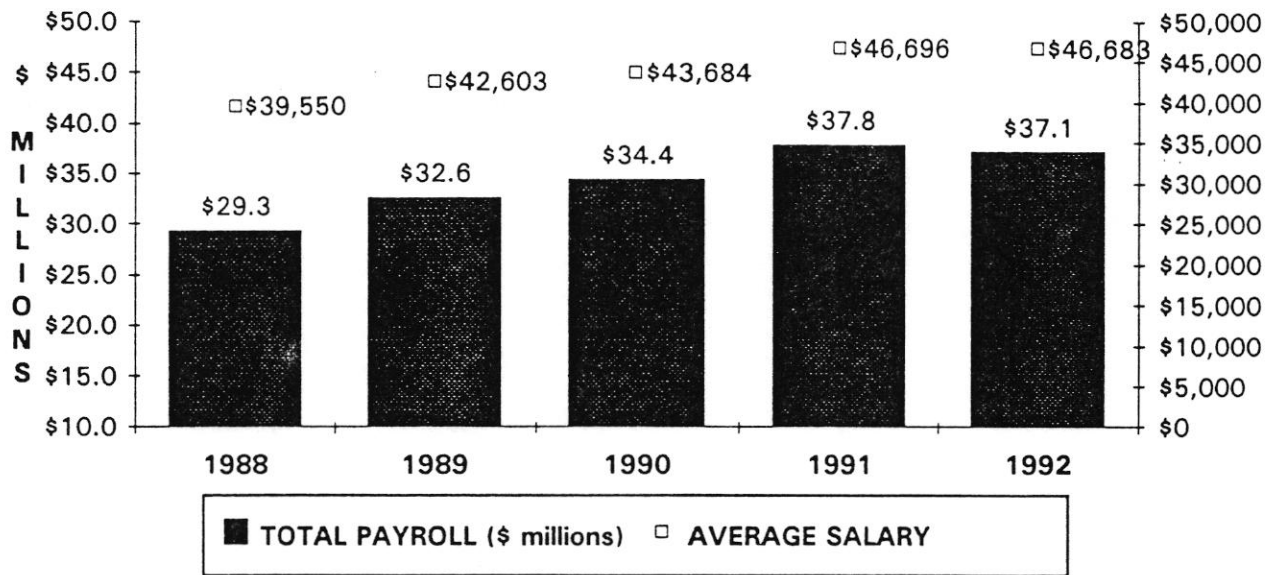
TABLE D

(\$ IN MILLIONS)

SENSITIVITY TO ASSUMPTIONS

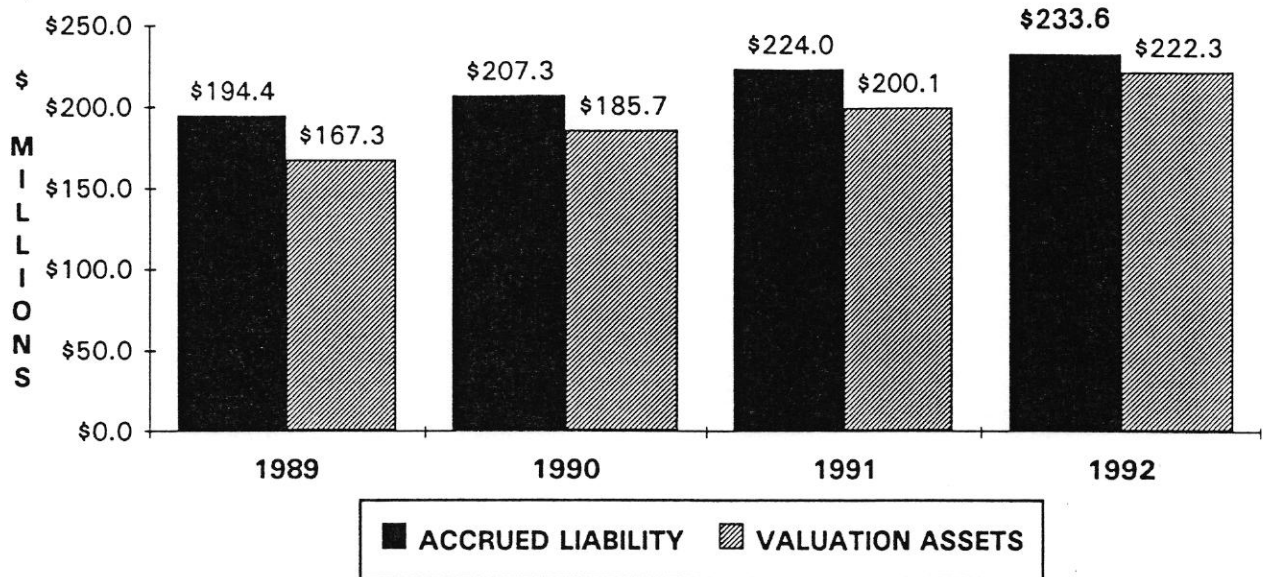
	<u>Value After Change</u>			
	<u>Current</u>	<u>7.5% Interest</u>	<u>6% Salary Increase</u>	<u>Level \$ Amortization</u>
A. Required Contribution				
(Amount)	\$6.3	\$7.6	\$5.9	\$6.5
(Percent)	11.32%	13.52%	10.61%	11.59%
(Sufficiency)	(0.15%)	(2.35%)	0.56%	(0.42%)
B. Value of Accrued Benefits	\$106.3	\$114.4	\$104.3	\$106.3
C. Depth of Funding	113.8%	105.8%	116.1%	113.8%

STATE PATROL ACTIVE MEMBERS TOTAL PAYROLL AND AVERAGE SALARY



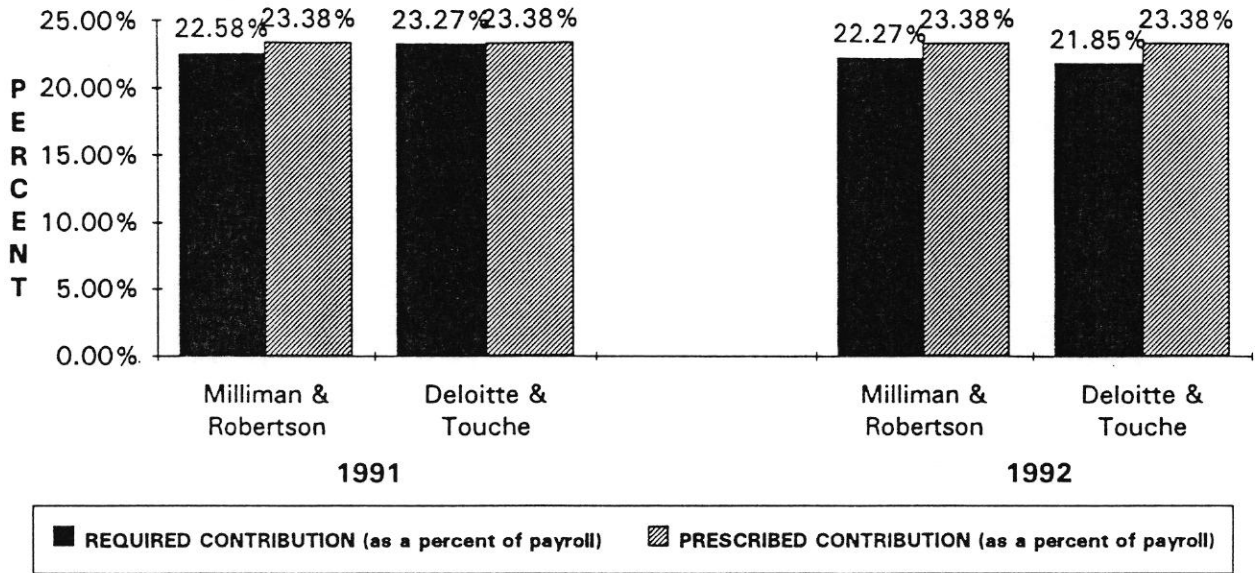
Members	740	765	788	809	795
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**STATE PATROL PLAN
TABLE A**



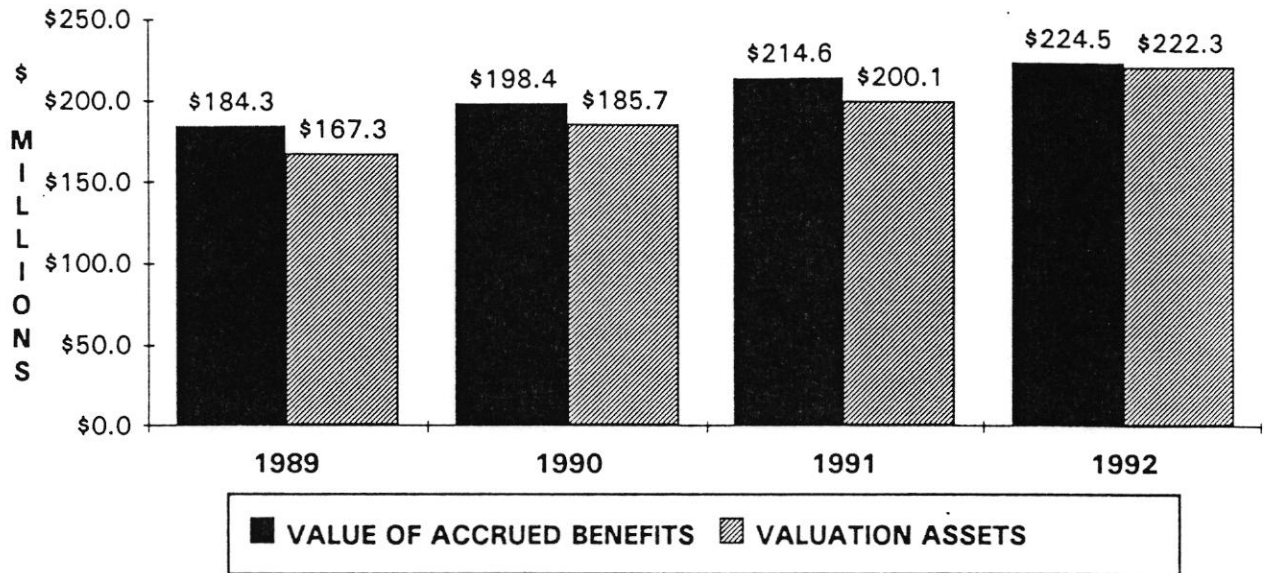
	<u>1989</u>	<u>1990</u>	<u>1991</u>	<u>1992</u>
Accrued Liability	\$194.4	\$207.3	\$224.0	\$233.6
Valuation Assets	167.3	185.7	200.1	222.3
Unfunded Accrued Liability	27.1	21.6	24.0	11.3
Funded Ratio	86.0%	89.6%	89.3%	95.2%

**STATE PATROL PLAN
TABLE B**



	1991		1992	
	Milliman & Robertson	Deloitte & Touche	Milliman & Robertson	Deloitte & Touche
Required Contribution	\$8.5 (22.58%)	\$8.8 (23.27%)	\$8.3 (22.27%)	\$8.1 (21.85%)
Prescribed Contribution	\$8.8 (23.38%)	\$8.8 (23.38%)	\$8.7 (23.38%)	\$8.7 (23.38%)
Sufficiency/(Deficiency)	0.80%	0.11%	1.11%	1.53%

**STATE PATROL PLAN
TABLE C**



	<u>1989</u>	<u>1990</u>	<u>1991</u>	<u>1992</u>
Value of Accrued Benefits	\$184.3	\$198.4	\$214.6	\$224.5
Valuation Assets	\$167.3	\$185.7	\$200.1	\$222.3
Depth of Funding	90.8%	93.6%	93.2%	99.0%
Depth of Funding, Excluding MPRI Members	83.8%	88.8%	87.9%	98.2%

STATE PATROL PLAN

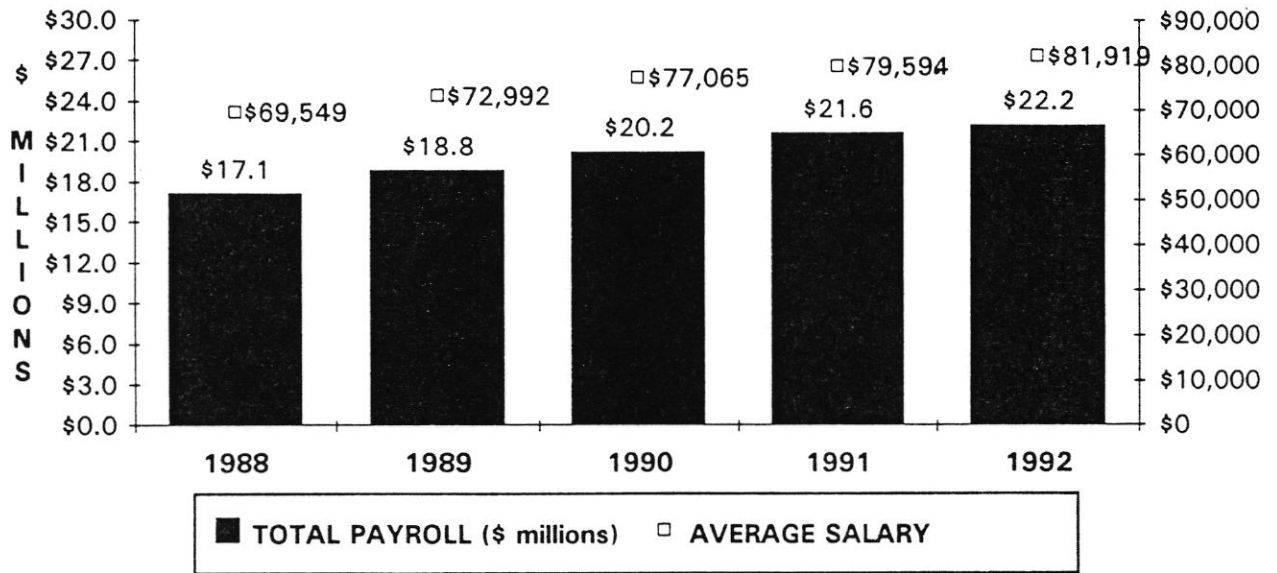
TABLE D

(\$ IN MILLIONS)

SENSITIVITY TO ASSUMPTIONS

	<u>Value After Change</u>			
	<u>Current</u>	<u>7.5% Interest</u>	<u>6% Salary Increase</u>	<u>Level \$ Amortization</u>
A. Required Contribution				
(Amount)	\$8.1	\$9.5	\$7.6	\$8.6
(Percent)	21.85%	25.64%	20.50%	23.14%
(Sufficiency)	1.53%	(2.26%)	2.88%	0.24%
B. Value of Accrued Benefits	\$224.5	\$236.5	\$220.8	\$224.5
C. Depth of Funding	99.0%	94.0%	100.7%	99.0%

JUDGES ACTIVE MEMBERS TOTAL PAYROLL AND AVERAGE SALARY



Members	246	257	262	271	271
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JUDGES' PLAN

COMPARISON OF VALUATION RESULTS

(\$ IN MILLIONS)

	<u>1991</u>		<u>1992</u>	
	<u>Milliman & Robertson</u>	<u>Deloitte & Touche</u>	<u>Milliman & Robertson</u>	<u>Deloitte & Touche</u>
A. Accrued Liability	\$78.4	\$74.2	\$84.0	\$84.2
B. Valuation Assets	\$33.6	\$33.6	\$37.8	\$37.8
C. Unfunded Accrued Liability	\$44.9	\$40.7	\$46.2	\$46.4
D. Funded Ratio	42.8%	45.2%	45.0%	44.9%
E. Required Contribution	\$5.4 (25.10%)	\$5.1 (23.46%)	\$5.9 (26.59%)	\$6.1 (27.62%)
F. Prescribed Contribution	\$5.7 (26.34%)	\$5.7 (26.34%)	\$6.3 (28.38%)	\$6.3 (28.33%)
G. Contribution Sufficiency/ (Deficiency)	1.24%	2.88%	1.79%	0.72%

CONTRIBUTION SUFFICIENCY


	<u>Milliman & Robertson</u>	<u>Deloitte & Touche</u>
General	(0.16%)	(0.12%)
Correctional	(0.24%)	(0.15%)
State Patrol	1.11%	1.53%
Judges	1.79%	0.72%

OFFICE MEMORANDUM

MINNESOTA STATE RETIREMENT SYSTEM

175 W. Lafayette Frontage Road
St. Paul, MN 55107-1425

DATE: January 21, 1993

FROM: David Bergstrom 
Executive Director

Tel. (612) 296-2761
Toll Free 800-657-5757
Fax (612) 297-5238

SUBJECT: Actuarial Information

TO: Mr. Lawrence Martin, Executive Director
Legislative Commission on Pensions & Retirement
55 State Office Building
St. Paul, MN 55155

Jim Verlautz, Deloitte & Touche, made a presentation to the MSRS Board at their January 15, 1993 meeting. A copy of his report comparing the findings of Deloitte & Touche to those of Milliman & Robertson is enclosed. In most cases, the results were fairly close.

Under the terms of their contract, Deloitte & Touche will not be preparing a full actuarial valuation based on June 30, 1992 statistics.

Let me know if you have any questions or would like additional information.

DKB:jb
Enc.

JAN 25 1993