

CONNECTICUT STATE EMPLOYEES RETIREMENT SYSTEM

CONTRIBUTION ESTIMATES

	Current Funding Program					
	Actual	1997-98	1998-99	1999-2000	2000-01	2001-02
1 Market Value of Assets	4,624,722,528	4,988,933,951	5,391,120,641	5,922,903,960	6,526,270,402	7,253,265,212
2 Actuarial Value of Assets	4,209,235,026	4,721,202,803	5,248,240,142	5,852,593,450	6,526,270,402	7,253,265,212
3 System Actuarial Liability	7,839,210,805	8,327,135,274	8,852,379,329	9,417,174,830	10,025,076,046	10,679,999,235
4 Unfunded Actuarial Liability	3,628,974,979	3,605,852,471	3,604,139,187	3,564,581,380	3,498,805,644	3,426,728,023
5 UAL Projected to following FY	3,793,725,368	3,971,524,339	4,135,097,881	4,116,590,523	4,140,089,222	4,039,120,455
6 Amortization Period	36	35	34	33	32	31
7 Theoretical Amortization Payment	327,937,209	344,948,484	361,029,247	361,459,199	365,781,535	359,283,286
8 SEBAC Level % of Pay Amort. Pmt.	152,000,000	164,150,000	261,029,247	291,459,199	n/a	n/a
9 Total Normal Cost	214,843,726	233,105,286	252,918,525	274,416,601	297,742,014	323,050,094
10 Theoretical Employer Contribution	542,780,935	578,053,770	613,947,772	635,875,800	663,523,549	682,333,370
11 SEBAC (V) Level % of Pay Asset Method Amort. Pmt.	(17,613,015)	(18,669,796)	(19,789,984)	(20,977,383)	(22,236,026)	(23,570,188)
12 Expected Employer Contribution (SEBAC)	349,230,711	378,585,490	494,157,786	544,898,417	641,287,523	658,763,182
13 Total Projected Payroll	2,541,273,596	2,693,750,012	2,855,375,014	3,026,697,518	3,208,289,369	3,400,797,330
14 Total Employer Contribution %	13.74%	14.05%	17.31%	18.00%	19.99%	19.37%

100 million
70 million

#1

Notes: Level % of pay amortization of UAL projected to following FY (item 5) using 6% payroll growth and 8.5% interest for the amortization period indicated, except that for FY98-99, the resulting payment cannot be more than \$100,000 less than the Theoretical Amortization Payment (item 7).

For FY99-2000, the level % amortization payment cannot be more than \$70,000,000 less than the Theoretical Amortization Payment (item 7). For FY2000-01 and FY2001-02, the level % amortization no longer applies, the amortization payment is based on level \$ only.

CSEMODEL.WK4

MILLIMAN & ROBERTSON, INC.

10/17/96

CONNECTICUT STATE EMPLOYEES RETIREMENT SYSTEM
CONTRIBUTION ESTIMATES

	Assuming Level % of Pay for all years after 1996-97					
	Actual	1996-97	1997-98	1998-99	1999-2000	2000-01
1 Market Value of Assets	4,624,722,528	4,988,933,951	5,398,707,765	5,847,984,647	6,341,435,352	6,893,693,166
2 Actuarial Value of Assets	4,209,235,826	4,721,282,803	5,255,827,266	5,777,674,137	6,341,435,352	6,863,693,168
3 System Actuarial Liability	7,838,210,805	8,327,135,274	8,852,379,329	9,417,174,830	10,025,076,046	10,679,993,235
4 Unfunded Actuarial Liability	3,628,974,979	3,605,852,471	3,596,562,063	3,639,500,693	3,683,640,694	3,796,300,069
5 UAL Projected to following FY	3,793,725,368	3,971,524,339	4,119,302,368	4,280,770,012	4,443,859,504	4,608,605,035
6 Amortization Period	36	35	34	33	32	31
7 Level % of Pay Amortization Payment	160,820,887	171,433,872	181,201,404	192,050,326	203,511,366	215,644,380
8 SEBAC Level % of Pay Amort. Pmt	152,000,000	n/a	n/a	n/a	n/a	n/a
9 Total Normal Cost	214,843,726	233,105,286	252,918,525	274,416,601	297,742,014	323,050,084
10 SEBAC IV Level % of Pay Asset Method Amort. Pmt.	(17,613,015)	(18,669,796)	(19,789,984)	(20,977,383)	(22,236,026)	(23,570,188)
11 Expected Employer Contribution	349,230,711	385,869,362	414,329,945	445,489,544	479,017,354	515,124,276
12 Total Projected Payroll	2,541,273,596	2,693,750,012	2,855,375,014	3,026,697,518	3,208,299,368	3,400,797,330
13 Total Employer Contribution %	13.74%	14.32%	14.51%	14.72%	14.93%	15.15%

Notes: After 1996-97, level % of pay amortization of UAL projected to following FY (item 5) using 6% payroll growth and 8.5% interest for the amortization period indicated. IGNORES SEBAC NEGOTIATED PAST SERVICE PAYMENT AND RELATIONSHIP BETWEEN LEVEL % PAYMENT AND LEVEL \$ PAYMENT (for example, \$100,000 difference for 98-99).

Post-it [®] Fax Note	7671	Date	10/21	# of pages	2
To	STEHRNU	From	WILLIAM ROBERTSON		
Co./Dept.		Co.			
Phone #		Phone #			
Fax #	418-6490	Fax #			

CSEM0D98.WK4

MILLIMAN & ROBERTSON, INC.

10/17/96

Balance as 1/22/96 schedule

4.13
100%

CONNECTICUT STATE EMPLOYEES RETIREMENT SYSTEM

CONTRIBUTION ESTIMATES

	1996-97 FY	1997-98 FY	1998-99 FY	1999-2000 FY	2000-01 FY
1 Market Value of Assets	4,624,722,528	4,988,933,951	5,391,120,641	5,922,903,960	6,526,270,402
2 Actuarial Value of Assets	4,209,235,826	4,721,282,803	5,248,240,142	5,852,593,450	6,526,270,402
3 System Actuarial Liability	7,838,210,805	8,327,135,274	8,852,379,329	9,417,174,830	10,025,076,046
4 Unfunded Actuarial Liability	3,628,974,979	3,605,852,471	3,604,139,187	3,564,581,380	3,498,805,644
5 UAL Projected to following FY	3,793,725,368	3,971,524,339	4,135,097,861	4,116,590,523	4,140,089,222
6 Amortization Period	36	35	34	33	32
7 Theoretical Amortization Payment	327,937,209	344,948,484	361,029,247	361,459,199	365,781,535
8 SEBAC level % of Pay Amort. Pmt.	152,000,000	164,150,000	177,281,247	191,484,199	206,781,535
9 Total Normal Cost	214,843,726	233,105,286	252,918,525	274,416,603	297,742,014
10 Theoretical Employer Contribution	542,780,935	578,053,770	613,947,772	635,875,800	663,523,549
11 SEBAC IV Level % of Pay Asset Method Amort. Pmt.	(17,613,015)	(18,669,796)	(19,789,984)	(20,977,383)	(22,236,026)
12 Expected Employer Contribution (SEBAC)	349,230,711	378,585,490	494,157,788	544,898,417	641,287,523
13 Total Projected Payroll	2,541,273,596	2,693,750,012	2,855,375,014	3,026,697,518	3,208,299,368
14 Total Employer Contribution %	13.74%	14.05%	17.31%	18.00%	19.99%

Notes: Level % of pay amortization of UAL projected to following FY (item 5) using 6% payroll growth and 8.5% interest for the amortization period indicated, except that for FY98-99, the resulting payment cannot be more than \$100,000 less than the Theoretical Amortization Payment (item 7).
 For FY99-2000, the level % amortization payment cannot be more than \$70,000,000 less than the Theoretical Amortization Payment (item 7).
 For FY2000-01, the level % amortization no longer applies; the amortization payment is based on level \$ only

CONNECTICUT JUDGES AND COMPENSATION COMMISSIONERS' RETIREMENT SYSTEM

CONTRIBUTION ESTIMATES

	Actual	Projected	Projected	Projected	Projected	Projected
	1996-97	1997-98	1998-99	1999-2000	2000-01	2001-02
1 Market Value of Assets	76,109,947	83,451,865	91,762,273	101,232,817	111,791,936	123,660,959
2 Actuarial Value of Assets	70,473,662	80,267,999	90,037,056	101,232,817	111,791,936	123,660,959
3 System Past Service Liability	154,656,281	170,755,297	188,483,882	207,998,195	229,227,351	252,301,878
4 Unfunded Past Service Liability (3)-(2)	84,182,619	90,487,298	98,446,826	106,765,378	117,435,415	128,640,919
5 Amortization Period	35	34	33	32	31	30
6 Amortization Payment	4,039,449	4,417,275	4,893,103	5,407,551	6,066,717	6,784,893
7 Total Normal Cost	6,283,981	6,818,119	7,397,659	7,804,530	8,233,779	8,686,637
8 Expected Employee Contributions	981,693	1,035,686	1,092,649	1,152,745	1,216,146	1,283,034
9 Employer Normal Cost (7)-(8)	5,302,288	5,782,433	6,305,010	6,651,785	7,017,633	7,403,603
10 Total Employer Contribution (6)+(9)	9,341,737	10,199,708	11,198,113	12,059,336	13,084,350	14,188,496
11 Total Payroll	19,175,691	20,230,354	21,343,023	22,516,889	23,755,318	25,051,860
12 Total Employer Contribution % (10)/(11)	48.7%	50.4%	52.5%	53.6%	55.1%	56.6%

CONNECTICUT STATE EMPLOYEES RETIREMENT SYSTEM

CONTRIBUTION ESTIMATES

Post-Net Fax Note	7671	Date	11/29	# of pages	1
To	NANCY STEARNS	From	WELLS FARGO BANK		
Co/Dept		Co.			
Phone #		Phone #			
Fax #		Fax #			

Certification	Projected	Projected	Projected
1996-97	1997-98	1998-99	1999-00

1. Market Value of Assets	\$4,624,722,528	\$4,988,933,951	7.88%	\$5,391,120,641	8.06%	\$5,922,903,960	9.86%
2. Actuarial Value of Assets	4,209,235,826	4,538,130,879	7.81%	4,901,999,308	9.02%	5,392,207,314	10.1%
3. System Actuarial Liability	7,838,210,805	8,327,135,274	6.24%	8,852,379,329	6.31%	9,417,174,830	6.38%
4. Unfunded Actuarial Liability: (3)-(2)	3,628,974,979	3,789,004,395		3,950,380,021		4,024,967,516	
5. Unfunded Actuarial Liability Projected to following FY	3,793,725,368	3,971,524,339		4,135,097,861		4,116,590,523	
6. Amortization Period	36	35		34		33	
7. Theoretical Amortization Payment	327,937,209	344,948,484		361,029,247		361,459,199	
8. SEBAC Level % of Pay Amortization Payment	152,000,000*	164,150,000*		261,029,247*		291,459,199*	
9. Total Normal Cost	214,843,726	233,105,286	8.5%	252,918,525	8.5%	274,416,601	8.5%
10. Theoretical Employer Contribution: (7)+(9)	542,780,935	578,053,770		613,947,772		635,875,800	
11. SEBAC IV Asset Method Level % of Pay Amortization Payment	(17,613,015)	(18,669,796)		(19,789,984)		(20,977,383)	
12. Expected Employer Contribution (SEBAC): (8)+(9)+(11)	349,230,711	378,585,490		494,157,788		544,898,417	
13. Total Projected Payroll	2,541,273,596	2,693,750,012		2,855,375,014		3,026,697,518	
14. Total Employer Cost Percent (12)/(13)	13.74%	14.05%		17.31%		18.00%	

* Level percent of pay amortization of UAL projected to following FY (item 5) using 6% payroll growth & 8 1/2% interest for the amortization period indicated, except that for FY98-99, the resulting payment cannot be more than \$100,000,000 less than the Theoretical Amortization Payment (item 7). For FY99-2000, the level % amortization payment cannot be more than \$70,000,000 less than the Theoretical Amortization Payment (item 7).

MILLIMAN & ROBERTSON, INC.

January 26, 1996

CONNECTICUT STATE EMPLOYERS' RETIREMENT SYSTEM

Current Part

CONTRIBUTION PROJECTION

	Estimate 1995-96	Projected 1996-97	Revised 1997-98	Revised 1998-99	Revised 1999-2000
1. Market Value of Assets	\$4,150,379,946	\$4,484,724,902	\$5,022,460,712	\$5,576,086,908	\$6,170,342,076
2. Actuarial Value of Assets	3,944,521,448	4,350,480,241	4,965,741,095	5,573,827,430	6,170,347,076
3. System Actuarial Liability	7,329,181,104	7,780,542,928	8,266,476,429	8,790,268,688	9,355,558,296
4. Unfunded Actuarial Liability: (3)-(2)	3,384,659,736	3,430,062,687	3,300,735,334	3,216,441,258	3,185,216,220
5. Amortization Period	37	36	35	34	33
6. Amortization Payment	304,396,657	309,281,311	283,161,299	279,021,274	278,012,171
7. Total Normal Cost	196,711,971	213,404,275	231,512,884	251,158,402	272,671,293
8. Theoretical Employer Contribution: (6)+(7)	501,108,628	522,685,586	514,674,183	530,179,676	550,483,464
9. Expected Employer Contribution (SEBAC)	335,111,971	322,685,586	314,674,183	330,179,676	350,483,464
10. Total Projected Payroll	2,354,174,358	2,507,587,393	2,671,064,388	2,845,270,071	3,030,912,380
11. Total Employer Cost Percent: (9)/(10)	14.23%	20.84%	19.27%	18.63%	18.16%

*10.2 ERP?
Pr 5/1/97
9/1/97*

July 2000 6/1/97 10/1/97

10/12/94

**Level Percent of Payroll Funding Method
Summary of Savings (a)
All Funds (In Millions of Dollars)**

	Fiscal Year			
	1996-97	1997-98	1998-99	1999-2000
Pre-SEBAC IV Level \$ Funding Requirement	327.90	339.5* 345.00	361.00	361.50
SEBAC IV Capped Level % Requirement	<u>152.00</u>	<u>164.20</u>	<u>261.00</u>	<u>291.50</u>
SEBAC IV Savings (1997-99 included in Current Services Budget) (b)	175.90	180.80	100.00	70.00
Savings Using Actual Level % Funding (Uncapped)	<u>175.90</u>	<u>180.80</u>	<u>179.80</u>	<u>169.40</u>
Additional Level % Savings above SEBAC IV	0.00	0.00	79.80	99.40

* 6/30/96 valuation

- (a) Analysis per Milliman & Robertson (actuarial firm for State Employees Retirement System)
 (b) 1998-99 Savings capped at \$100 million less than the Level \$ Payment; 1999-00 Savings capped at \$70 million less than the Level \$ Payment.

Interest rate 0.085
 Salary Scale 0.06
 amortization Period 35
 (1+Interest rate)/(1+Salary Scale) 1.023584906
 1-(1+interest rate)/(1+Salary Scale) 0.023584906

factor 23.64874653
 Adjustment for pmt at end of period 22.31013824 131.60 5.898664

#3

①
 - Active & Deprived Liability 3,947.9 ✓
 Cola = 20% 789.6 ✓
 .5% Cola 131.6 ✓

6%	.5	Normal Cost	Total
1998	5.90 ✓	7.61	13.51 ✓
1999	6.25	8.06 ✓	14.32 ✓
2000	6.63	8.55	15.18 ✓
2001	7.03	9.06	16.09
2002	7.45	9.60	17.05
2003	7.89	10.18	18.07
2004	8.37	10.79	19.16
2005	8.87	11.44	20.31
2006	9.40	12.12	21.53
2007	9.97	12.85	22.82
2008	10.56	13.62	24.19
2009	11.20	14.44	25.64
2010	11.87	15.31	27.18
2011	12.58	16.23	28.81
2012	13.34	17.20	30.54
2013	14.14	18.23	32.37
2014	14.98	19.33	34.31
2015	15.88	20.48	36.37
2016	16.84	21.71	38.55
2017	17.85	23.02	<u>40.86</u>
2018	18.92	24.40	43.32
2019	20.05	25.86	45.91
2020	21.26	27.41	48.67
2021	22.53	29.06	51.59
2022	23.88	30.80	54.68
2023	25.32	32.65	57.97
2024	26.84	34.61	61.44
2025	28.45	36.68	65.13
2026	30.15	38.89	69.04
2027	31.96	41.22	73.18
2028	33.88	43.69	77.57
2029	35.91	46.31	82.23
2030	38.07	49.09	87.16
2031	40.35	52.04	92.39
2032	42.77	55.16	97.93

= 2.5 more

②
 Normal Cost 228.2 ✓
 Cola = 20% 45.6 ✓
 .5% Cola 7.6 ✓

out years grow by
6%

2a Normal Cost 228.2
 Cola 26.5 57.05
 could be 9.5

Interest rate	0.085		
Salary Scale	0.06		
amortization Period	35		
(1+Interest rate)/(1+Salary Scale)	1.023584906		
1-(1+interest rate)/(1+Salary Scale)	0.023584906		
factor	23.64874653		
Adjustment for pmt at end of period	22.31013824	<u>363.74</u>	16.30375

#4

80% of 95-96 gain
not recognized
in 6/30/96 valuation

363,739,852

	6%	
1998	16.30375	✓
1999	17.28198	✓
2000	18.3189	
2001	19.41803	
2002	20.58311	
2003	21.8181	
2004	23.12719	
2005	24.51482	
2006	25.98571	
2007	27.54485	
2008	29.19754	
2009	30.94939	
2010	32.80636	
2011	34.77474	
2012	36.86122	
2013	39.07289	
2014	41.41727	
2015	43.9023	
2016	46.53644	
2017	49.32863	
2018	52.28835	
2019	55.42565	
2020	58.75119	
2021	62.27626	
2022	66.01283	
2023	69.9736	
2024	74.17202	
2025	78.62234	
2026	83.33968	
2027	88.34006	
2028	93.64047	
2029	99.25889	
2030	105.2144	
2031	111.5273	
2032	118.2189	

6

SEBAC IV Smoothing

6/30/95

6/30/97

6/30/95 Market Val	4,624,722,528	
6/30/95 Actuarial Val	4,209,235,826	
Amount Smoothed	415,486,702	368,739,852

C. 5.5 5?

1997	1	17,613,015	
1998	2	18,669,796	16,844,564
1999	3	19,789,984	
2000	4	20,977,383	
2001	5	22,236,026	
2002	6	23,570,187	
2003	7	24,984,398	
2004	8	26,483,462	
2005	9	28,072,470	
2006	10	29,756,818	
2007	11	31,542,227	
2008	12	33,434,761	
2009	13	35,440,847	
2010	14	37,567,297	
2011	15	39,821,335	
2012	16	42,210,615	
2013	17	44,743,252	
2014	18	47,427,847	
2015	19	50,273,518	
2016	20	53,289,929	
2017	21	56,487,325	
2018	22	59,876,565	
2019	23	63,469,159	
2020	24	67,277,308	
2021	25	71,313,947	
2022	26	75,592,783	
2023	27	80,128,350	
2024	28	84,936,051	
2025	29	90,032,214	
2026	30	95,434,147	
2027	31	101,160,196	
2028	32	107,229,808	
2029	33	113,663,596	
2030	34	120,483,412	
2031	35	127,712,417	
2032	36	135,375,162	
		<u>2,098,077,611</u>	

level

106

Interest rate	0.085		
Salary Scale	0.05		
amortization Period	35		
(1+Interest rate)/(1+Salary Scale)	1.033333333		
1-(1+interest rate)/(1+Salary Scale)	0.033333333		
factor	20.47848873		
Adjustment for pmt at end of period	19.5033226	3730.90	191.2956

	6%	5.5%	5%
1998	167.23	179.02	191.2956
1999	177.26	188.87	200.8604
2000	187.90	199.26	210.9034
2001	199.17	210.22	221.4486
2002	211.12	221.78	232.521
2003	223.79	233.98	244.1471
2004	237.22	246.85	256.3544
2005	251.45	260.42	269.1721
2006	266.54	274.75	282.6307
2007	282.53	289.86	296.7623
2008	299.48	305.80	311.6004
2009	317.45	322.62	327.1804
2010	336.50	340.36	343.5394
2011	356.69	359.08	360.7164
2012	378.09	378.83	378.7522
2013	400.77	399.67	397.6898
2014	424.82	421.65	417.5743
2015	450.31	444.84	438.453
2016	477.33	469.31	460.3757
2017	505.97	495.12	483.3945
2018	536.33	522.35	507.5642
2019	568.51	551.08	532.9424
2020	602.62	581.39	559.5895
2021	638.77	613.37	587.569
2022	677.10	647.10	616.9475
2023	717.72	682.69	647.7948
2024	760.79	720.24	680.1846
2025	806.44	759.85	714.1938
2026	854.82	801.65	749.9035
2027	906.11	845.74	787.3987
2028	960.48	892.25	826.7686
2029	1018.11	941.32	868.107
2030	1079.19	993.10	911.5124
2031	1143.94	1047.72	957.088
2032	1212.58	1105.34	1004.942

SERS LIABILITY AS OF JUNE 30, 1992

	With COLA 1993-94 Certification	Without COLA Active Only	Without COLA All Members
1. Actuarial Liability:			
a. Active Members	\$3,045,852,614	\$2,382,944,971	\$2,382,944,971
b. Retired Members and Beneficiaries	3,586,975,212	3,586,975,212	2,825,613,313
c. Vested Former Members	<u>35,857,508</u>	<u>35,857,508</u>	<u>23,720,654</u>
d. Total	6,668,685,334	6,005,777,691	5,232,278,938
2. Assets in Fund (at adjusted cost value)	3,425,886,181	3,425,886,181	3,425,886,181
3. Unfunded Liability: (1d)-(2)	3,242,799,153	2,579,891,510	1,806,392,757

Cola 21.8%

SERS COSTS FOR FY 1993-94

	With COLA 1993-94 Certification	Without COLA Active Only	Without COLA All Members
1. Employer Normal Cost	\$188,906,351	\$138,903,013	\$138,903,013
2. Payment on Unfunded Liability*			
a. Negotiated Payment (SEBAC III)	121,300,000	121,300,000	121,300,000
b. Actuarially Determined Payment	291,448,924	230,021,888	158,347,144
3. Total Employer Contribution for Fiscal Year beginning July 1, 1993 (1) + (2a)	310,206,351	260,203,013	260,203,013

Cola 26.5%

MILLIMAN & ROBERTSON, INC.