SEPTEMBER, 2003

Analysis of Early Retirement Incentive Program (ERIP)

for the Plymouth County Retirement System

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INTRODUCTION

The Public Employee Retirement Administration Commission (PERAC) is pleased to release our analysis of Chapter 116 of the Acts of 2002. An Act Providing for Local Government Workforce Reduction Through an Early Retirement Incentive Program (ERIP) for Certain Employees for the Plymouth County Retirement System. The ERIP was adopted by the Town of Bridgewater, the Town of Carver, the Town of Hanson, the Town of Plympton, the Town of Rochester, the Town of Wareham, Bridgewater Housing Authority, Bridgewater-Raynham Regional School, East Bridgewater Housing Authority, Middleboro Housing Authority, Onset Fire District, Plymouth County Mosquito Control, Scituate Housing Authority, Wareham Fire District and Whitman Housing Authority. Section 1 of the law directed PERAC to complete an analysis of the costs and liabilities attributable to the additional benefits payable in accordance with the Act and submit a report to the board by December 31, 2003.

The law provides that retirement allowances of members who participated in the ERIP be determined by adding up to 5 years to the member's age and/or creditable service (any combination in full years up to a maximum of 5 years). A member's enhanced benefit cannot exceed 80% of the average rate of annual compensation used in his/her calculation. Members retiring under the program had effective dates of retirement between June 21, 2002 and December 31, 2002.

This study was based on active member data as of December 31, 2001, and additional data for retirees who were eligible for and elected the ERIP. All data was supplied by the board. We previously reviewed the December 31, 2001 data as part of the 2002 data submission process. We reviewed each member's data as both an active and retired member for reasonableness and consistency.

We used the investment return assumption used in the most recent actuarial valuation report. For all other assumptions, we used the standard PERAC assumption set for performing actuarial valuations as of January 1, 2002. These assumptions are generally the same as the assumptions used in your last actuarial valuation performed as of January 1, 2002. The assumptions are shown at the back of this report.

We believe this report represents an accurate appraisal of the costs and liabilities of the ERIP for the retirement system. This analysis was performed in accordance with generally accepted actuarial principles and practices relating to pension plans. In our opinion, the actuarial assumptions used in this report are reasonable, related to plan experience and expectations, and represent our best estimate of anticipated experience.

Respectfully submitted,

Public Employee Retirement Administration Commission

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Executive Director

Dated: September 2, 2003

COST ANALYSIS BY GOVERNMENTAL UNIT

Methodology

The results of our analysis for each governmental unit that accepted the ERIP are presented on the following pages. Participating units had the option to limit the number of years and/or the number of members eligible to retire under the program. Such limitations are noted.

Our analysis of the cost of the ERIP consisted of measuring the change in both the actuarial accrued liability and normal cost before and after the application of the enhanced benefit. The amortization the increase in actuarial accrued liability and the normal cost form the basis of the impact of the ERIP on the plan's funding schedule. These items are discussed below.

Actuarial Accrued Liability

We measured the increase in actuarial accrued liability due to the incentive for each member who retired under the program. First, we valued the group as active members on January 1, 2002 (including any changes to reflect service adjustments made after January 1, 2002, such as service buy-backs). This calculation determines the liability attributable to the employees who elected the ERIP exclusive of the additional liability associated with the incentive program. These results were then brought forward on an actuarial basis to reflect the estimated accrued liability as of the average retirement date as shown for each governmental unit.

We then valued the same group as retirees after the application of the ERIP. These liabilities were determined as of the average retirement date for each governmental unit.

The accrued liability for the members as retirees including the ERIP less the accrued liability for the members as active employees excluding the ERIP represents the increase in accrued liability due to the ERIP. This increase will be amortized as part of the system's funding schedule and will be a component of the system's annual appropriation. We assumed the amortization of the increase in liability would begin with the FY05 appropriation.

Normal Cost

The increase in actuarial liability is somewhat offset by a decrease in normal cost. The normal cost, or actuarial cost for the current year for active members, is shown as of January 1, 2002. There is no normal cost for retired members. Any decrease in normal cost for a retiring member would only be expected to last for a few years (the period the member would have remained in active service if the ERIP were not implemented).

Town of Bridgewater - Limited to 20 Employees

Activ	ves
Number of Members	10
Average Service	22.3
Average Compensation	\$44,412

Retirees		
Number of Members	10	
Average Age	60.0	
Average Annual Benefit	\$28,613	

	As Actives	As Retirees
Total Regular Compensation	\$444,100	N/A
Total Normal Cost	\$49,400	N/A
Employee Contributions	\$27,200	N/A
Net Employer Normal Cost	\$22,200	N/A
Actuarial Liability (as of November 30, 2002)	\$2,248,600	\$3,051,700

Increase in Actuarial Liability (as of November 30, 2002)	\$803,100
Amortization of Increase for FY05 (assumed average payment October 1)	
15 year level basis	\$103,600

The above results provide a measure of the increase in actuarial accrued liability and decrease in normal cost due to the ERIP. The actuarial liability and normal cost were determined as active members (before the implementation of the ERIP) and as retired members (with the enhanced ERIP benefit).

Town of Carver

Activ	ves
Number of Members	16
Average Service	21.5
Average Compensation	\$39,612

Retirees		
Number of Members	16	
Average Age	61.1	
Average Annual Benefit	\$24,223	

	As Actives	As Retirees
Total Regular Compensation	\$633,800	N/A
Total Normal Cost	\$84,400	N/A
Employee Contributions	\$41,900	N/A
Net Employer Normal Cost	\$42,500	N/A
Actuarial Liability (as of September 15, 2002)	\$3,156,100	\$4,194,700

Increase in Actuarial Liability (as of September 15, 2002)	\$1,038,600
Amortization of Increase for FY05 (assumed average payment October 1)	
15 year level basis	\$136,200

The above results provide a measure of the increase in actuarial accrued liability and decrease in normal cost due to the ERIP. The actuarial liability and normal cost were determined as active members (before the implementation of the ERIP) and as retired members (with the enhanced ERIP benefit).

Town of Hanson - Limited to 1 Group 4 Employee

Actives		
Number of Members	1	
Average Service	33.3	
Average Compensation	\$84,667	

Retirees		
Number of Members	1	
Average Age	53.9	
Average Annual Benefit	\$66,263	

	As Actives	As Retirees
Total Regular Compensation	\$84,667	N/A
Total Normal Cost	\$11,000	N/A
Employee Contributions	\$4,000	N/A
Net Employer Normal Cost	\$7,000	N/A
Actuarial Liability (as of October 15, 2002)	\$532,900	\$721,800

Increase in Actuarial Liability (as of October 15, 2002)	\$188,900
Amortization of Increase for FY05 (assumed average payment October 1)	
15 year level basis	\$24,600

The above results provide a measure of the increase in actuarial accrued liability and decrease in normal cost due to the ERIP. The actuarial liability and normal cost were determined as active members (before the implementation of the ERIP) and as retired members (with the enhanced ERIP benefit).

Town of Plympton – Limited to 1 Group 4 Employee

Actives		
Number of Members	1	
Average Service	27.5	
Average Compensation	\$51,740	

Retirees		
Number of Members	1	
Average Age	55.1	
Average Annual Benefit	\$41,302	

	As Actives	As Retirees
Total Regular Compensation	\$51,740	N/A
Total Normal Cost	\$8,900	N/A
Employee Contributions	\$3,700	N/A
Net Employer Normal Cost	\$5,200	N/A
Actuarial Liability (as of December 31, 2002)	\$322,200	\$456,400

Increase in Actuarial Liability (as of December 31, 2002)	\$134,200
Amortization of Increase for FY05 (assumed average payment October 1)	
15 year level basis	\$17,200

The above results provide a measure of the increase in actuarial accrued liability and decrease in normal cost due to the ERIP. The actuarial liability and normal cost were determined as active members (before the implementation of the ERIP) and as retired members (with the enhanced ERIP benefit).

Town of Rochester – Limited to 3 Group 1 and 1 Group 4 Employees

Actives		
Number of Members	4	
Average Service	15.7	
Average Compensation	\$35,578	

Retirees		
Number of Members	4	
Average Age	59.4	
Average Annual Benefit	\$12,454	

	As Actives	As Retirees
Total Regular Compensation	\$142,300	N/A
Total Normal Cost	\$33,200	N/A
Employee Contributions	\$11,700	N/A
Net Employer Normal Cost	\$21,500	N/A
Actuarial Liability (as of December 31, 2002)	\$386,600	\$620,300

Increase in Actuarial Liability (as of December 31, 2002)	\$233,700
Amortization of Increase for FY05 (assumed average payment October 1)	
15 year level basis	\$29,900

The above results provide a measure of the increase in actuarial accrued liability and decrease in normal cost due to the ERIP. The actuarial liability and normal cost were determined as active members (before the implementation of the ERIP) and as retired members (with the enhanced ERIP benefit).

Town of Wareham

Actives		
Number of Members	28	
Average Service	21.8	
Average Compensation	\$29,788	

Retirees		
Number of Members	28	
Average Age	61.3	
Average Annual Benefit	\$17,887	

	As Actives	As Retirees
Total Regular Compensation	\$834,100	N/A
Total Normal Cost	\$79,200	N/A
Employee Contributions	\$45,700	N/A
Net Employer Normal Cost	\$33,500	N/A
Actuarial Liability (as of November 30, 2002)	\$4,141,900	\$5,447,300

Increase in Actuarial Liability (as of November 30, 2002)	\$1,305,400
Amortization of Increase for FY05 (assumed average payment October 1)	
15 year level basis	\$168,300

The above results provide a measure of the increase in actuarial accrued liability and decrease in normal cost due to the ERIP. The actuarial liability and normal cost were determined as active members (before the implementation of the ERIP) and as retired members (with the enhanced ERIP benefit).

Bridgewater Housing Authority – Limited to 2 Employees

Actives		
Number of Members	2	
Average Service	15.7	
Average Compensation	\$32,191	

Retirees		
Number of Members	2	
Average Age	62.2	
Average Annual Benefit	\$14,638	

	As Actives	As Retirees
Total Regular Compensation	\$64,400	N/A
Total Normal Cost	\$8,600	N/A
Employee Contributions	\$4,700	N/A
Net Employer Normal Cost	\$3,900	N/A
Actuarial Liability (as of November 30, 2002)	\$242,300	\$324,400

Increase in Actuarial Liability (as of November 30, 2002)	\$82,100
Amortization of Increase for FY05 (assumed average payment October 1)	
15 year level basis	\$10,600

The above results provide a measure of the increase in actuarial accrued liability and decrease in normal cost due to the ERIP. The actuarial liability and normal cost were determined as active members (before the implementation of the ERIP) and as retired members (with the enhanced ERIP benefit).

Bridgewater-Raynham Regional School – Limited to 10 Employees

Actives		
Number of Members	10	
Average Service	23.5	
Average Compensation	\$30,592	

Retirees		
Number of Members	10	
Average Age	60.5	
Average Annual Benefit	\$16,527	

	As Actives	As Retirees
Total Regular Compensation	\$305,900	N/A
Total Normal Cost	\$30,100	N/A
Employee Contributions	\$19,000	N/A
Net Employer Normal Cost	\$11,100	N/A
Actuarial Liability (as of November 15, 2002)	\$1,514,400	\$1,867,000

Increase in Actuarial Liability (as of November 15, 2002)	\$352,600
Amortization of Increase for FY05 (assumed average payment October 1)	
15 year level basis	\$45,600

The above results provide a measure of the increase in actuarial accrued liability and decrease in normal cost due to the ERIP. The actuarial liability and normal cost were determined as active members (before the implementation of the ERIP) and as retired members (with the enhanced ERIP benefit).

East Bridgewater Housing Authority – Limited to 1 Employee

Actives		
Number of Members	1	
Average Service	9.0	
Average Compensation	\$34,020	

Retirees		
Number of Members	1	
Average Age	66.4	
Average Annual Benefit	\$10,190	

	As Actives	As Retirees
Total Regular Compensation	\$34,020	N/A
Total Normal Cost	\$5,000	N/A
Employee Contributions	\$2,700	N/A
Net Employer Normal Cost	\$2,300	N/A
Actuarial Liability (as of December 31, 2002)	\$76,400	\$124,600

Increase in Actuarial Liability (as of December 31, 2002)	\$48,200
Amortization of Increase for FY05 (assumed average payment October 1)	
15 year level basis	\$6,200

The above results provide a measure of the increase in actuarial accrued liability and decrease in normal cost due to the ERIP. The actuarial liability and normal cost were determined as active members (before the implementation of the ERIP) and as retired members (with the enhanced ERIP benefit).

Middleboro Housing Authority

Activ	ves
Number of Members	1
Average Service	10.8
Average Compensation	\$20,002

Reti	rees
Number of Members	1
Average Age	55.9
Average Annual Benefit	\$4,924

	As Actives	As Retirees
Total Regular Compensation	\$20,002	N/A
Total Normal Cost	\$2,900	N/A
Employee Contributions	\$1,500	N/A
Net Employer Normal Cost	\$1,400	N/A
Actuarial Liability (as of December 31, 2002)	\$53,800	\$67,900

Increase in Actuarial Liability (as of December 31, 2002)	\$14,100
Amortization of Increase for FY05 (assumed average payment October 1)	
15 year level basis	\$1,800

The above results provide a measure of the increase in actuarial accrued liability and decrease in normal cost due to the ERIP. The actuarial liability and normal cost were determined as active members (before the implementation of the ERIP) and as retired members (with the enhanced ERIP benefit).

Onset Fire District

Activ	/es
Number of Members	1
Average Service	31.7
Average Compensation	\$45,316

Reti	rees
Number of Members	1
Average Age	59.3
Average Annual Benefit	\$34,051

	As Actives	As Retirees
Total Regular Compensation	\$45,316	N/A
Total Normal Cost	\$3,100	N/A
Employee Contributions	\$3,800	N/A
Net Employer Normal Cost	(\$600)	N/A
Actuarial Liability (as of September 30, 2002)	\$270,600	\$362,000

Increase in Actuarial Liability (as of September 30, 2002)	\$91,400
Amortization of Increase for FY05 (assumed average payment October 1)	
15 year level basis	\$11,900

The above results provide a measure of the increase in actuarial accrued liability and decrease in normal cost due to the ERIP. The actuarial liability and normal cost were determined as active members (before the implementation of the ERIP) and as retired members (with the enhanced ERIP benefit).

Plymouth County Mosquito Control

Actives		
Number of Members	2	
Average Service	25.8	
Average Compensation	\$59,746	

Retirees		
Number of Members	2	
Average Age	63.0	
Average Annual Benefit	\$36,803	

	As Actives	As Retirees
Total Regular Compensation	\$119,500	N/A
Total Normal Cost	\$12,500	N/A
Employee Contributions	\$6,800	N/A
Net Employer Normal Cost	\$5,700	N/A
Actuarial Liability (as of July 15, 2002)	\$570,500	\$734,300

Increase in Actuarial Liability (as of July 15, 2002)	\$163,800
Amortization of Increase for FY05 (assumed average payment October 1)	
15 year level basis	\$21,800

The above results provide a measure of the increase in actuarial accrued liability and decrease in normal cost due to the ERIP. The actuarial liability and normal cost were determined as active members (before the implementation of the ERIP) and as retired members (with the enhanced ERIP benefit).

Scituate Housing Authority – Limited to 2 Employees

Actives		
Number of Members	2	
Average Service	24.5	
Average Compensation	\$40,467	

Retirees		
Number of Members	2	
Average Age	61.0	
Average Annual Benefit	\$28,071	

	As Actives	As Retirees
Total Regular Compensation	\$80,900	N/A
Total Normal Cost	\$7,900	N/A
Employee Contributions	\$5,400	N/A
Net Employer Normal Cost	\$2,500	N/A
Actuarial Liability (as of November 30, 2002)	\$456,300	\$595,600

Increase in Actuarial Liability (as of November 30, 2002)	\$139,300
Amortization of Increase for FY05 (assumed average payment October 1)	
15 year level basis	\$18,000

The above results provide a measure of the increase in actuarial accrued liability and decrease in normal cost due to the ERIP. The actuarial liability and normal cost were determined as active members (before the implementation of the ERIP) and as retired members (with the enhanced ERIP benefit).

Wareham Fire District

Actives		
Number of Members	1	
Average Service	27.4	
Average Compensation	\$48,570	

Retirees		
Number of Members	1	
Average Age	56.1	
Average Annual Benefit	\$39,897	

	As Actives	As Retirees
Total Regular Compensation	\$48,570	N/A
Total Normal Cost	\$8,600	N/A
Employee Contributions	\$3,200	N/A
Net Employer Normal Cost	\$5,400	N/A
Actuarial Liability (as of December 31, 2002)	\$306,400	\$430,800

Increase in Actuarial Liability (as of December 31, 2002)	\$124,400
Amortization of Increase for FY05 (assumed average payment October 1)	
15 year level basis	\$15,900

The above results provide a measure of the increase in actuarial accrued liability and decrease in normal cost due to the ERIP. The actuarial liability and normal cost were determined as active members (before the implementation of the ERIP) and as retired members (with the enhanced ERIP benefit).

Whitman Housing Authority

Actives		
Number of Members	1	
Average Service	26.1	
Average Compensation	\$32,994	

Retirees		
Number of Members	1	
Average Age	71.1	
Average Annual Benefit	\$27,384	

	As Actives	As Retirees
Total Regular Compensation	\$32,994	N/A
Total Normal Cost	\$0	N/A
Employee Contributions	\$0	N/A
Net Employer Normal Cost	\$0	N/A
Actuarial Liability (as of November 30, 2002)	\$206,400	\$239,100

Increase in Actuarial Liability (as of November 30, 2002)	\$32,700
Amortization of Increase for FY05 (assumed average payment October 1)	
15 year level basis	\$4,200

The above results provide a measure of the increase in actuarial accrued liability and decrease in normal cost due to the ERIP. The actuarial liability and normal cost were determined as active members (before the implementation of the ERIP) and as retired members (with the enhanced ERIP benefit).

EFFECT ON FUNDING SCHEDULE

Amortization of the Increase in Actuarial Accrued Liability

The bottom section of the cost page for each governmental unit shows the amortization of the increase in actuarial accrued liability on a 15-year, level amortization basis. This basis requires an annual funding amount of \$615,800 from FY05 through FY19. The allocation to each governmental unit is summarized below. Future system appropriations will reflect these unit costs.

	Level, 15-year
Governmental Unit	Effective FY05
Town of Bridgewater	\$103,600
Town of Carver	\$136,200
Town of Hanson	\$24,600
Town of Plympton	\$17,200
Town of Rochester	\$29,900
Town of Wareham	\$168,300
Bridgewater Housing Authority	\$10,600
Bridgewater-Raynham Regional School	\$45,600
East Bridgewater Housing Authority	\$6,200
Middleboro Housing Authority	\$1,800
Onset Fire District	\$11,900
Plymouth County Mosquito Control	\$21,800
Scituate Housing Authority	\$18,000
Wareham Fire District	\$15,900
Whitman Housing Authority	\$4,200
Total	\$615,800

The legislation did not specify how the increased cost should be amortized under the schedule. The Board indicated that the ERIP will be funded on a 15–year level basis.

Decrease in Normal Cost

There is a decrease in employer normal cost for all units of approximately \$163,600 in FY03 for retiring members since normal cost accrues only for active members. This decrease is only expected to last a few years (the period the member would have remained in service if the ERIP were not implemented). This decrease will be partially offset by the normal cost for any members hired to replace retiring members. Any decrease in employer normal cost will be reflected in future actuarial valuations and corresponding funding schedules. We have not estimated the normal cost for new hires as part of this study.

ACTUARIAL ASSUMPTIONS

Actuarial Cost Method Entry Age Normal

Investment Return 8.5% per year

Interest Rate credited to the

Annuity Savings Fund 3.5% per year

Assumed rate of Cost of Living

Increases (COLA) 3% per year

Mortality RP- 2000 Healthy Annuitant table (gender distinct). This is

applicable to both pre-retirement and post-retirement benefits. For disabled members, the mortality rate is assumed to be in accordance with the RP- 2000 Table (gender distinct) set forward 3 years for males. It is assumed that 55% of pre-retirement deaths are job-related for Group 1 and 2 members and 90% are job-related for Group 4 members. For members retired under an Accidental Disability, 40% of deaths are assumed to be

from the same cause as the disability.

Salary Increase

Based on an analysis of past experience. Annual rates are shown below.

Service	Group 1	Group 2	Group 4
0	7.00%	7.00%	8.00%
1	6.50%	6.50%	7.50%
2	6.50%	6.50%	7.00%
3	6.00%	6.00%	6.50%
4	6.00%	6.00%	6.00%
5	5.50%	5.50%	6.00%
6	5.50%	5.50%	5.50%
7	5.00%	5.00%	5.50%
8	5.00%	5.00%	5.25%
9	4.75%	5.00%	5.25%
10+	4.75%	5.00%	5.25%

ACTUARIAL ASSUMPTIONS (continued)

Retirement

	Groups 1 & 2		
Age	Male	Female	Group 4
45	0.000	0.000	0.010
46	0.000	0.000	0.010
47	0.000	0.000	0.010
48	0.000	0.000	0.010
49	0.000	0.000	0.010
50	0.010	0.015	0.020
51	0.010	0.015	0.020
52	0.010	0.020	0.020
53	0.010	0.025	0.050
54	0.020	0.025	0.075
55	0.020	0.055	0.150
56	0.025	0.065	0.100
57	0.025	0.065	0.100
58	0.050	0.065	0.100
59	0.065	0.065	0.150
60	0.120	0.050	0.200
61	0.200	0.130	0.200
62	0.300	0.150	0.250
63	0.250	0.125	0.250
64	0.220	0.180	0.300
65	0.400	0.150	1.000
66	0.250	0.200	1.000
67	0.250	0.200	1.000
68	0.300	0.250	1.000
69	0.300	0.200	1.000
70	1.000	1.000	1.000

ACTUARIAL ASSUMPTIONS (continued)

Disability Based on an analysis of past experience. Sample annual rates are shown below.

Age	Groups 1 & 2	Group 4
20	0.00010	0.0010
30	0.00030	0.0030
40	0.00101	0.0030
50	0.00192	0.0125
60	0.00280	0.0085

Based on an analysis of past experience. It is also assumed that the percentage of job-related disabilities is 55% for Groups 1 & 2 and 90% for Group 4.

Withdrawal

Based on analysis of past experience. Annual rates are based on years of service. Sample annual rates for Groups 1 and 2 are shown below. For Group 4 members the rate is 0.015 each year for service up to and including 10 years. No withdrawal is assumed thereafter.

Groups 1 & 2

Service	Groups 1 & 2
0	0.150
5	0.076
10	0.054
15	0.033
20	0.020

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