COST ANALYSIS OF CHAPTER 114 OF THE ACTS OF 2000

an Act Improving Teacher Recruitment, Retention & Retirement

DECEMBER, 2001

COMMONWEALTH OF MASSACHUSETTS | PUBLIC EMPLOYEE RETIREMENT ADMINISTRATION COMMISSION

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INTRODUCTION

The Public Employee Retirement Administration Commission (PERAC) is pleased to release our analysis regarding Chapter 114 of the Acts of 2000, An Act Improving Teacher Recruitment, Retention, and Retirement. Chapter 114 of the Acts of 2000 established an alternative retirement benefit program for members of the State Teachers' Retirement System (TRS) and Boston teachers. Section 3 of the law directed PERAC to complete an analysis of the costs associated with the new benefit structure and submit a report to the Teachers' Retirement Board, the Clerks of the House of Representatives and the Senate, the House and Senate Committees on Ways and Means and the Joint Committee on Public Service prior to December 31, 2001.

The law provides that all members hired after July 1, 2001 be included in the program. Such members would contribute at a rate of 11% of regular compensation. Members of the TRS and Boston teachers who are members prior to July 1, 2001 may elect to participate in the program and would also contribute at the 11% rate. Members must contribute 5 years (or an equivalent) at the 11% rate. The annual amount of retirement allowance for an eligible member retiring under the alternative retirement benefit program who has completed at least 30 years of creditable service is based on a percentage of the average annual rate of compensation at retirement. The percentage is determined based on the standard table of age factors multiplied by the member's creditable service (the same methodology used before consideration of the alternative retirement program) increased by 2% per year for each year of service in excess of 24. The total annual amount of retirement allowance cannot exceed 80% of the average annual rate of regular compensation used in the calculation.

Our analysis was based on member census data as of December 31, 2000 previously supplied by the State Teachers' and Boston Retirement Boards. With the exception of an adjustment to certain retirement rates as part of this study, the actuarial assumptions are the same as those outlined in the January 1, 2001 Commonwealth Actuarial Valuation Report. In our opinion, the actuarial assumptions used in this report are reasonable, are related to plan experience and expectations, and represent our best estimate of anticipated experience.

We gratefully acknowledge the efforts of the State Teachers' Retirement Board and Boston Retirement Board staff in completing this project. These boards have provided monthly updates regarding the members retiring in 2001 under the alternative retirement program. In addition, they provided a complete list of all members electing to participate in this program.

In accordance with the law, PERAC is required to provide an annual cost analysis of the alternative retirement program. This initial report analyzes the cost for members retiring in 2001 as well as the liabilities associated with those members electing the alternative program but not retiring in 2001. Future analyses will focus on only the cost for those members retiring in that particular year.

Respectfully submitted,
Public Employee Retirement Administration Commission

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December 19, 2001

EXECUTIVE SUMMARY

The legislation provides that members of the Teachers' Retirement System or a teacher who is a member of the State-Boston Retirement System before July 1, 2001 may elect whether to participate in the new benefit plan or continue to be subject to the provisions of Chapter 32, Section 5. Information provided to PERAC by the Teachers' Retirement Board and the Boston Retirement Board indicate that as of December 31, 2001, approximately 1,900 members will have retired pursuant to Chapter 114. In addition, approximately 44,400 eligible members have elected to participate under the new benefit structure and will retire after 2001.

In terms of cost impact, the change in the law impacts normal cost expenditures (the amount necessary to be set aside in a particular year to ensure assets are available to pay for the benefits that an active member earns in that year) and amortization of unfunded liability (any enhancement of benefits results in an increase in liability that must be amortized over time). Our estimates are premised on the funding schedule methodology in place as of July 1, 2001 which provided for level funding of amortization payments and retiring the system unfunded liability by Fiscal Year 2018. Only members as of January 1, 2001 and an estimate of new hires in 2001 were considered in performing this study. The cost (or savings) for members hired after December 31, 2001 has not been considered.

There are a number of items that determine the cost of the alternative retirement program. Some of these items serve to increase costs and others serve to decrease costs. The following is a brief summary of the principal items that determine the cost of the program.

Members Retiring in 2001

Normal cost for members retiring in 2001
There is a **decrease** in plan cost to reflect that members who retire in 2001 no longer have a normal cost. The general expectation is that members will retire 2-5 years earlier under this program than they would have retired under the prior provisions.

Normal cost for replacement hires
There is an initial **increase** in net normal cost that roughly offsets the decrease in normal cost for those members retiring. Over time we expect employee contributions (at the 11% rate) to exceed the total normal cost.

Actuarial liability for members retiring in 2001
There is an **increase** in liability to reflect the retirement provisions of the alternative retirement program. To measure this liability, the actuarial accrued liability for a member who has retired is determined (after retirement with the alternative retirement program). This liability is compared to the actuarial accrued liability for that same member as an active employee. The difference represents the additional liability created by the alternative retirement program. The increase in actuarial accrued liability is then amortized in accordance with the current schedule. This amount would remain level until 2018.

Additional employee contributions for members retiring in 2001
Since members are required to make 5 years' worth of employee contribution (or its equivalent) under the new program, members retiring in 2001 are required to make the equivalent of five years of employee contributions in one calendar year. This means that there is an influx of cash to the plan that **decreases** the total plan cost. In fact, there is savings in the first year for members retiring in 2001 since the 5 years' worth of employee contributions exceeds the increase in benefits for these members.

Members Retiring after 2001

Normal cost for continuing active members
There is a normal cost **increase** for members who elected to participate in the program.

Actuarial liability for continuing active members
There is an **increase** in the actuarial accrued liability (past service liability) for continuing active members. The increase in liability is amortized in accordance with the funding schedule. This amount would remain level until 2018.

Retirement rate assumption change
In November, 2000 we released our Experience Study Analysis for the State Teachers' Retirement System. As part of that study, we determined new retirement rate assumptions to be used going forward. As part of the alternative retirement program analysis, we had to reconsider this assumption because of the additional benefit upon attaining 30 years of service. We modified the retirement assumption in certain cases based on our review of the members who elected to participate and who specifically retired in 2001. This change **increases** the plan's liability and contributes to the increase described in the previous paragraph. The methodology we used with regard to the retirement rate assumption is discussed in more detail in the Retirement Rate Assumption section of this report.

Employee contributions for continuing active members
There is a **decrease** in plan cost that reflects each members' increase in employee contribution from either 5%, 7%, 8% or 9% (plus 2% in excess of $30,000 where applicable) to 11%.

Additional employee contributions for members retiring in 2002-2005
Like members retiring in 2001, members who retire in the next 4 years will be required to contribute additional amounts to complete the 5-year requirement. These additional amounts serve to **decrease** the overall cost of the program in 2002-2005. We will review the 2002 decrease in our report next year.

The number of items impacting the overall cost make the task of estimating an annual cost of the program difficult. For example, there is a significant difference in the cost using the assumptions directly from the experience study compared to the modified assumptions we actually used. Only time will tell whether the modified assumptions will continue to be used in our future analyses. Therefore, although we are showing the estimated costs as a dollar figure, more reasonably it would

be shown as a range. The total figures below could be adjusted by $20 million per year (plus or minus) to create a reasonable cost range.
The development of the cost estimates is shown in more detail in Exhibits 1 and 2 of this report. For these breakouts, all figures have been annualized.

2001 Estimated Total Cost of Alternative Retirement Program (in thousands)

For Members Retiring in 2001	$(13,111)	[see Exhibit 1 for detail]
For Members Retiring after 2001	$69,597	[see Exhibit 2 for detail]
TOTAL	**$56,486**	

RETIREMENT RATE ASSUMPTION

Before estimated costs under the alternative retirement program could be determined, a review of the actuarial assumptions was necessary. In the fall of 2000, we released our Experience Study Analysis of the State Teachers' Retirement System and Boston teachers. As part of that analysis we performed a comprehensive 5-year review of retirement rates at each age. When our review was complete, we adopted a new set of retirement rate assumptions to use going forward.

Clearly, the addition of the alternative retirement plan will require some adjustment to the assumptions. The new plan offers an enhanced benefit to members with 30 years of service. We fully expect that the retirement rates will change to reflect this new benefit. However, we have little past experience to review to help revise the retirement rate assumption.

To modify the retirement rates we used two data sources. First, we used the actual experience for those members electing the alternative retirement program **and** retiring in 2001. We found that over 80% of the active members who retired in 2001 under the program were between the ages of 55 and 59. We believe the bulk of retirements each year will be from this group. Second, we used a survey completed by the Teachers' Retirement Board that asked members when they would likely retire under the program. The results were fairly consistent for the number of retirements over the first five years of the program. The projected number of retirements is actually somewhat higher in most years than 2001, but we expect the actual number of retirements to be less than that shown in the survey.

Based on this data, we adjusted the experience study rates at ages 56, 57, 58, and 59 for members with 30 or more years of service. The adjusted rates are as follows:

Age	**Experience Study**		**Alternative Program**
	Male	**Female**	
56	.03	.04	.075
57	.05	.05	.250
58	.07	.07	.250
59	.10	.11	.250

The new assumptions maintain the experience study rates at other ages. We will continue to monitor the reasonableness of this assumption change each year.

DATA FOR MEMBERS RETIRING IN 2001

Based on information we have received to date, 1,801 members retired as of December 1, 2001 under the alternative retirement program. These included 1,680 members of the Teachers' Retirement System and 121 members of the Boston Retirement System. The average member had a salary of $65,400, was 58 years of age and had 33.5 years of creditable service.

It is our understanding that by December 31, 2001, 1,900 members will have retired in 2001 under the alternative retirement plan. Our estimated costs take into account all those expected to retire in 2001.

Cost Analysis of Chapter 114 of the Acts of 2000 — Exhibit 1

Members Retiring in 2001 under Alternative Retirement Program

Includes State & Boston Teachers

	Before Change *(as actives)*	After Change *(as retirees)*	Cost Impact
DATA SUMMARY ITEMS (a)			
1. Number of active members	1,801	1,801	
2. 2000 pay	117,668,597	NA	
3. Average pay	65,335	NA	
4. Annual benefit payments	NA	76,434,000	
5. Average benefit payment	NA	42,440	
PLAN COST ITEMS (b)	Dollars in Thousands		
6a. Total normal cost	8,530	0	(8,530)
6b. Employee contributions	5,975	0	(5,975)
6c. Employer (net) normal cost	2,555	0	(2,555)
7. Decrease in employer normal cost: (6c)			(2,555)
8. Employer normal cost for replacement hires			2,600
9. Actuarial accrued liability	703,600	907,200	203,600
10. Amortization of increase in accrued liability level dollar 2018 (17 yrs)			22,694
11. Employee repayments (equivalent of 5 years)			(35,850)
12. Total cost for members retiring in 2001: (7) + (8) + (10) + (11)			**(13,111)**

NOTES

(a) Data summary (items 1-5 above) reflect 1,801 members electing the alternative retirement program and reported to PERAC as of December 15, 2001.

(b) Actuarial cost and liability reflect 1,900 members assumed to be retired by December 31, 2001.

Cost Analysis of Chapter 114 of the Acts of 2000 — Exhibit 2

Members Retiring in 2001 under Alternative Retirement Program

Includes State & Boston Teachers

	Before Change	After Change	Cost Impact
DATA SUMMARY ITEMS			
1. Number of active members	44,439	44,439	
2. 2000 pay (in thousands)	2,239,950	2,239,950	
3. Average pay	50,400	50,400	
PLAN COST ITEMS	Dollars in Thousands		
4a. Total normal cost	200,600	227,480	26,880
4b. Employee contributions	161,010	257,400	96,390
4c. Employer (net) normal cost	39,590	(29,920)	(69,510)
5. Decrease in employer normal cost: (4c)			(69,510)
6. Actuarial accrued liability	7,486,800	8,734,800	1,248,000
7. Amortization of increase in accrued liability level dollar 2018 (17 yrs)			139,107
8. Total cost for members retiring after 2001: (5)+(7)			**69,597**