Rhode Island Teachers' Surviviors Benefit Plan

ACTUARIAL VALUATION REPORT

AS OF June 30, 2017

GRS Retirement Consulting

P: 469.524.0000 | F: 469.524.0003 | www.grsconsulting.com

December 22, 2017

Retirement Board
40 Fountain Street, First Floor
Providence, RI 02903-1854

Dear Members of the Board:

Subject: Teachers' Survivors Benefit Plan as of June 30, 2017

This is the June 30, 2017 actuarial valuation of the Rhode Island Teachers' Survivors Benefit Plan (TSB). The TSB provides survivor benefits for teachers who do not participate in Social Security. This report describes the current actuarial condition of TSB. The last valuation was prepared as of June 30, 2016.

Current Actuarial Conditions

As of June 30, 2017, the market value of TSB assets was $311,960,433. The actuarial present value of future benefits under the plan, measured at this same date, is $244,251,385. Therefore, the plan has an asset surplus of $67,709,048. This surplus ignores the present value of future member and employer contributions. These results are summarized in Table 1.

Therefore, if future plan experience followed exactly the expected experience based on the actuarial assumptions, the plan would have more than enough funds to continue paying benefits for the current membership, even if no further contributions were made. The actuarial present value of future member and employer contributions for the current active membership is $13.7 million, and these contributions will serve to increase this surplus.

Contributions to the Fund now cover only about 14% of the benefit payments and refunds. This implies that the funds needed to cover the rest of the benefit payments are coming from investment earnings. This is not necessarily a problem, however, since the intent of prefunding is to use investment earnings to pay part of the cost of the benefit.

Progress toward realization of financing objectives

The actuarial accrued liability (AAL) is $230,838,179. With $311,960,433 in assets, the plan has a funded surplus of $81,122,254, and a funded ratio of 135%. As shown, the plan is very well funded. Please note that the funded status alone is not appropriate for assessing the need for future contributions. The funded status is also not appropriate for assessing the sufficiency of plan assets to cover the estimated cost of settling the plan's benefit obligations.

The normal cost under the entry age normal method is $1,683,107. Because the plan is over-funded (assets are greater than the liabilities), the 30 year amortization payment is a credit of $6,336,537. Therefore, the Actuarially Determined Employer Contribution (ADEC) is $0 because the sum of the normal cost and the amortization credit is less than zero.

Assets

Exhibit 4 summarizes the TSB assets for the last eight years. All assets are shown at fair market value. The TSB is commingled with the assets of ERSRI for investment purposes. It shows a reconciliation of the assets between years, and it shows the funds net rate of return and the ratio of contributions to benefit payments and refunds.

Benefit Provisions

The plan's provisions are summarized in Appendix B. There were two changes to the benefit provisions since the prior report. A one-time 10% increase in base benefit was granted, and the maximum annual contribution, which is split evenly between the employer and employee, was increased from $192 to $230.

Assumptions and Methods

Assumptions and methods are described in Appendix A. Except for the assumptions specific to this plan, they are the same as the assumptions used for the teachers in the Employees' Retirement System of Rhode Island (ERSRI). In particular, a 7.00% investment return assumption is used.

The assumptions have been updated from the last actuarial valuation based on the 2017 Actuarial Experience Investigation Study approved by the Board on May 15, 2017. Please refer to ERSRI report for the changes.

In addition to the demographic and economic assumptions used in the ERSRI report, there are assumptions specific to this plan, including the assumptions about the member's family makeup at the time of death. In conjunction with the 2017 Actuarial Experience Investigation Study, the family makeup at the time of death was also modified so that it changed over the lifespan rather than remaining static up to age 52.

We should note that, unlike ERSRI, we used the level-dollar version of the entry age normal actuarial cost method, because the spouse's benefit is $1,375/month (with 10% one-time increase in base benefit) for almost all active members, and determining a level dollar normal cost seemed more appropriate for a plan with an essentially level benefit and an essentially fixed $115/year employer contribution. The market value of assets was used as the actuarial value, in part because of the fixed nature of the TSB contributions and the significantly overfunded position of the plan. In determining the ADEC (actuarially determined employer contribution) the UAAL, which is actually a surplus, was amortized as a level dollar amount over 30 years. Because the plan is overfunded, the use of a 30-year amortization period is conservative. Appendix A is a summary of the actuarial assumptions and methods used in this valuation report.

Data

The System's staff supplied member data for covered active members, covered retirees and beneficiaries receiving benefits. This data was prepared as of June 30, 2017. We did not audit this data, but we did apply a number of tests to the data, and we concluded that it was reasonable and consistent. The System's staff also supplied asset data as of June 30, 2017. Exhibits 5 and 6 summarize the member data.

Certification

All of our work conforms with generally accepted actuarial principles and practices, and with the Actuarial Standards of Practice issued by the Actuarial Standards Board. In our opinion, our calculations also comply with the requirements of Rhode Island law, and, where applicable, with the Statements of the Governmental Accounting Standards Board.

The undersigned are independent actuaries. All three are Enrolled Actuaries and/or Members of the American Academy of Actuaries. They all meet the Qualification Standards of the American Academy of Actuaries and they are experienced in performing valuations for large public retirement systems.

Respectfully submitted,

Joseph P. Newton, FSA, MAAA, EA
Pension Market Leader and Actuary

Paul T. Wood, ASA, MAAA, FCA
Consultant

Bradley E. Stewart, ASA, MAAA, EA
Consultant

3014\2017\Val\TSBP\TSBP_VAL17.docx

Table of Contents

EXHIBITS

Summary of Actuarial Valuation Results

Exhibit 1

		06/30/2017
1.	Actuarial present value of future benefits	
	a. Current covered active members	$ 56,803,650
	b. Current covered retired teachers	96,305,263
	c. Beneficiaries receiving benefits	90,395,749
	d. Deferred members	482,343
	e. NonVested Inactive members	264,380
	f. Totals	$ 244,251,385
2.	Actuarial Accrued Liability	
	a. Present value of benefits for active members (Item 1a)	$ 56,803,650
	b. Less: Present value of future normal costs	(13,413,206)
	c. Actuarial accrued liability for active members	$ 43,390,444
	d. Actuarial accrued liability for all other members (Sum of Items 1b, 1c, 1d, and 1e)	187,447,735
	e. Total (Item 1c + Item 1d)	230,838,179
3.	Market value of assets	$ 311,960,433
4.	Unfunded actuarial accrued liability (UAAL) (Item 2.e. - Item 3.)	$ (81,122,254)
5.	Funded Ratio	135%
6.	Actuarially determined employer contribution	
	a. Normal Cost	$ 1,683,107
	b. Amortization of UAAL	(6,336,537)
	c. Total (a + b)	$ (4,653,430)
	d. Employer Contribution (Item 6c, not less than zero)	$ 0

Schedule of Funding Progress

Exhibit 2

Date	Actuarial Value of Assets (AVA)	Actuarial Accrued Liability (AAL)	Unfunded Actuarial Accrued Liability (UAAL) (3) - (2)	Funded Ratio (2)/(3)	Annnual Covered Payroll	UAAL as a Percent of Payroll (4)/(6)
(1)	(2)	(3)	(4)	(5)	(6)	(7)
July 1, 2002	$ 159,723,350	$ 83,399,488	$ (76,323,862)	192%	$ 327,658,099	-23%
July 1, 2005	204,844,810	126,416,468	(78,428,342)	162%	432,219,020	-18%
July 1, 2007	259,851,904	116,599,601	(143,252,303)	223%	466,208,437	-31%
July 1, 2009	186,737,083	129,110,000	(57,627,083)	145%	509,416,780	-11%
July 1, 2011	242,885,805	133,569,376	(109,316,429)	182%	537,264,193	-20%
July 1, 2013	261,365,155	175,233,723	(86,131,432)	149%	544,090,898	-16%
July 1, 2014	293,921,803	192,124,126	(101,797,677)	153%	542,756,917	-19%
July 1, 2016	286,485,057	186,913,175	(99,571,882)	153%	522,968,886	-19%
July 1, 2017	311,960,433	230,838,179	(81,122,254)	135%	544,320,446	-15%

Notes for Financing Statements

Exhibit 3

Valuation Date	June 30, 2017
Actuarial cost method	Entry Age Normal
Amortization method	Level dollar, open
Remaining amortization period	30 Years
Asset valuation method	Market
Actuarial assumptions:	
Investment rate of return *	7.00%
Projected salary increase *	3.00% to 13.00%
* Includes inflation at:	2.50%
Cost-of-living adjustment:	2.50%

Fund Assets

Exhibit 4

Fiscal Year Ended June 30:	2010	2011	2012	2013	2014	2015	2016	2017
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Market value (beginning of year)	$ 186,737,083	$ 207,795,343	$ 242,885,805	$ 240,635,808	$ 261,365,155	$ 293,921,803	$ 293,811,653	$ 286,485,057
Current year prior period adjustments	-	-	-	-	(435,451)	-	-	0
Adjusted market value of assets at BOY	$ 186,737,083	$ 207,795,343	$ 242,885,805	$ 240,635,808	$ 260,929,704	$ 293,921,803	$ 293,811,653	$ 286,485,057
Member contributions	637,451	617,434	664,900	630,222	609,168	603,388	642,276	589,883
Employer contributions	637,451	589,503	664,899	654,781	609,168	603,388	642,276	589,883
Misc.	18	-	35	-	-	-	-	4
Total contributions	1,274,920	1,206,937	1,329,834	1,285,003	1,218,336	1,206,776	1,284,552	1,179,770
Benefits paid	(6,118,256)	(6,528,540)	(6,708,490)	(7,127,856)	(7,421,004)	(7,750,955)	(8,097,068)	(8,405,648)
Refunds	(276,270)	(235,943)	(369,108)	(341,232)	(74,619)	(241,426)	(195,600)	(266,523)
Total benefits and refunds	(6,394,526)	(6,764,483)	(7,077,598)	(7,469,088)	(7,495,623)	(7,992,381)	(8,292,668)	(8,672,171)
Net investment income	26,177,865	40,648,008	3,497,767	26,913,432	39,269,386	6,675,455	(318,480)	32,967,777
Market value (end of year)	$ 207,795,343	$ 242,885,805	$ 240,635,808	$ 261,365,155	$ 293,921,803	$ 293,811,653	$ 286,485,057	$ 311,960,433
Net return	-20.3%	19.8%	1.5%	11.3%	15.2%	2.3%	-0.1%	11.7%
Ratio of contributions to disbursements	19.2%	17.8%	18.8%	17.2%	16.3%	15.1%	15.5%	13.6%

Distribution of Covered Active Members by Age and by Years of Service

As of 06/30/2017

Exhibit 5

Attained Age	Years of Credited Service												
	0	1	2	3	4	5-9	10-14	15-19	20-24	25-29	30-34	35 & Over	Total
Under 25	9	24	4	0	0	0	0	0	0	0	0	0	37
25-29	23	111	112	90	56	70	0	0	0	0	0	0	462
30-34	11	36	55	53	50	364	76	0	0	0	0	0	645
35-39	13	40	22	34	31	204	446	143	0	0	0	0	933
40-44	8	22	17	23	18	117	271	565	63	0	0	0	1,104
45-49	8	21	22	19	24	105	177	420	377	68	1	0	1,242
50-54	3	10	10	11	18	83	126	234	193	266	43	0	997
55-59	2	4	3	6	8	39	94	218	165	184	117	13	853
60-64	1	4	4	2	5	20	64	178	142	141	49	19	629
65 & Over	0	2	2	2	1	11	25	44	44	48	22	18	219
Total	78	274	251	240	211	1,013	1,279	1,802	984	707	232	50	7,121

Average:	Age	45.98	Number of employees:	Males	1,531
	Service	15.01		Females	5,590

Membership Data

Exhibit 6

	06/30/2017	06/30/2016
1. Covered active members		
a. Number	7,121	7,028
b. Total payroll	$ 544,320,446	$ 522,968,886
c. Average salary	$ 76,439	$ 74,412
d. Average age	45.98	45.88
e. Average service	15.01	14.81
f. Total of member contribution accounts	$ 9,068,290	$ 8,836,898
g. Average contributions	$ 1,273	$ 1,257
2. Covered retired members		
a. Number	3,789	3,685
b. Average age	71.79	71.04
c. Total annual benefits	$ 61,741,350	$ 54,561,000
d. Average annual benefit	$ 16,295	$ 14,806
3. Survivors receiving benefits		
a. Number	573	517
b. Average age	77.44	77.44
c. Total benefits	$ 10,504,912	$ 8,259,464
d. Average benefit	$ 18,333	$ 15,976
4. Inactive, nonretired vested members		
a. Number	440	401
b. Average age	50.36	50.61
c. Total of member contribution accounts	$ 482,343	$ 442,273
d. Average contributions	$ 1,096	$ 1,103
5. Inactive, nonretired nonvested members		
a. Number	1,176	1,182
b. Average age	46.85	46.55
c. Total of member contribution accounts	$ 264,380	$ 268,195
d. Average contributions	$ 225	$ 227

APPENDIX A

SUMMARY OF ACTUARIAL ASSUMPTIONS AND METHODS

Summary of Actuarial Methods and Assumptions

A. Basic Actuarial Assumptions

Except for special assumptions that are specific to the Teachers' Survivors Benefit Plan, described below, the actuarial assumptions used in this valuation are the same as the ones used for Teachers in the June 30, 2017 actuarial valuation of the Employees' Retirement System of Rhode Island (ERSRI). I.e., this valuation uses the same 7.00% investment return rate, the same salary increase rates, the same mortality, disability, and retirement rates used in that valuation.

B. Special TSB Assumptions

1. Family Makeup: The following schedule shows the assumptions about the makeup of the member's family at the time of death:

Family Makeup	Probability (By Attained Age)								
	20	25	30	35	40	45	50	60	65
Spouse Only	5%	14%	14%	10%	11%	15%	32%	75%	70%
Spouse and 1 Child	5%	12%	20%	17%	22%	23%	18%	0%	0%
Spouse and 2 or More Children	4%	13%	36%	46%	41%	35%	24%	0%	0%
One Child Alone	5%	6%	3%	7%	8%	10%	6%	0%	0%
Two Children Alone	3%	7%	4%	7%	6%	3%	1%	0%	0%
Three or More Children Alone	1%	4%	4%	5%	4%	1%	1%	0%	0%
Dependent Parent Alone	0%	0%	0%	0%	0%	0%	0%	0%	0%
No Dependents	77%	44%	19%	8%	8%	13%	18%	25%	30%
Total	100%	100%	100%	100%	100%	100%	100%	100%	100%

2. Ages: Male members are assumed to be three years older than their spouses, and female members are assumed to be three years younger than their spouses. Parents are assumed to be 30 years older than the member, and children are assumed to be 30 years younger than the member. All children are assumed to remain in school until age 23.

3. Remarriage: It was assumed that no spouses would remarry after the member's death.

4. Refunds at Retirement: Please refer to the Family Makeup grid above for the assumed percentage of members will elect a refund at retirement. (it is the proportion of the membership assumed to be without an eligible dependent.)

5. Deferred beneficiaries: No specific data was available for deferred beneficiaries—those spouses of deceased members who are not yet age 60 and who are not receiving family benefits. They will be entitled to receive a spouse's benefit upon reaching age 60. To estimate this liability, we assumed that these members would receive an immediate refund of their TSB contributions.

6. Inactive members with contributions on deposit: It was assumed that 100% of members who are inactive, nonretired, and nonvested would receive an immediate refund of their TSB contributions.

7. Cost-of-living adjustment (COLA): COLAs are assumed to be 2.50% per year, since that is the ERSRI inflation assumption.

C. Actuarial Methods

1. Valuation date: The TSB plan is valued as of June 30, the last day of the plan's fiscal year. Valuations in the future will be done biennially, in every odd year.

2. Actuarial cost method: The Entry Age Normal actuarial cost method is used to determine the normal cost and actuarial accrued liability. The normal cost is the level dollar amount (not the level percentage of pay used for ERSRI) required to fund a members benefit from entry age to ultimate retirement. The level-dollar version of the Entry Age Normal method was used for consistency with the current contribution requirement of $115.00/year for almost all members.

3. Actuarial asset method: The market value of fund assets is used as the actuarial value, rather than using a smoothed value.

D. Participant Data

Participant data was supplied on electronic files. There were separate files for (i) covered active and inactive, nonretired members, (ii) retirees who had left their contributions on deposit, and (iii) survivors receiving benefits. For active and inactive/nonretired members, we used the same participant data that we used for the valuation of ERSRI, but excluded members not covered under the TSB. For covered retirees, we received a file showing each member's date of birth, sex, TSB contribution account balance (without interest), and final average salary. For beneficiaries receiving benefits, we received a file that included for each deceased member the spouse's (or child's) date of birth, sex, the amount of the monthly benefit, and a code indicating the kind of benefit being paid (e.g., spouse's benefit, family benefit with two or more children, child's benefit, etc.).

APPENDIX B

SUMMARY OF BENEFIT PROVISIONS

Summary of Benefit Provisions

1. Plan: The Teachers' Survivors Benefit Plan (TSB) is a qualified governmental plan designed to provide death benefits in the form of a monthly annuity to survivors of covered employees and retirees.

2. Authority: Benefits under the TSB are established by the Rhode Island General Laws, Sections 16-16-25 through 16-16-38

3. Administration: The TSB is administered by the Retirement Board for the Employees' Retirement System of Rhode Island (ERSRI). However, the State investment commission is responsible for the investment of the trust assets, including the establishment of the asset allocation policy.

4. Trust Fund: All contributions are credited to the Teachers' Survivors Benefits Fund, and all benefit payments and refunds are paid from this fund. The fund is commingled with ERSRI for investment purposes.

5. Plan Year: A twelve-month period ending June 30.

6. Coverage and Eligibility: The TSB covers Rhode Island teachers who are (i) covered by the Employees' Retirement System of Rhode Island (ERSRI) but (ii) are not covered under Social Security. State employees, school support personnel, and teachers whose employment is covered by Social Security may not participate. Participation is mandatory for eligible teachers, and all teachers covered by the plan must make contributions. Survivors are eligible for benefits if the member has made contributions for at least six months prior to death or retirement. A covered teacher remains covered after retirement unless the teacher withdraws his or her contributions.

7. Districts Covered: The following school districts are not covered under Social Security, so all of their teachers participate in this plan:

Barrington	Johnston
Bristol/Warren Regional	Lincoln
Burrillville	Little Compton
Central Falls Collaborative	Middletown
Coventry	Newport
Cranston	North Smithfield
Cumberland	Northern RI Collaborative
East Greenwich	Portsmouth
East Providence	Scituate
Foster	Smithfield
Foster-Glocester	Tiverton
Glocester	Westerly

In addition, there are a number of active teachers who teach for districts that are now covered by Social Security, but at one time were not covered. When the district elected to be covered by Social Security, some teachers opted to remain outside that system. These teachers continue to participate in the TSB.

8. Contributions: An annual contribution of 2% of salary, up to $230 per year, is required. This contribution is divided equally between members and their employers. I.e., members contribute 1.00% of salary, up to $115 per year.

9. Salary: For TSB, the salary used for contribution purposes and to determine the amount of the survivor benefit is the same salary used for ERSRI.

10. Benefit Schedule: Benefits are paid as a monthly annuity to survivors upon the death of a covered active teacher or a covered retiree. To determine the benefit payable in any situation, the basic monthly spouse's benefit must first be determined. The basic monthly spouse's benefit is a function of the member's highest annual salary, as shown in the following schedule:

Highest Annual Salary	Basic Monthly Spouse's Benefit
$17,000 or less	$ 825.00
$17,001 - $25,000	$ 962.50
$25,001 - $33,000	$ 1,100.00
$33,001 - $40,000	$ 1,237.50
More than $40,000	$ 1,375.00

If the member is retired at the time of death, the salary used is the highest annual salary that the member earned while teaching.

Summary of Benefit Provisions (Continued)

11. Spouse's benefit: If a covered, married, active or retired member dies, the spouse is entitled to receive the basic monthly spouse's benefit. If there are other survivors entitled to benefits, as described below, this benefit may be increased. The benefit paid to the spouse may not begin prior to age 60, unless family benefits are payable. Benefits to the spouse cease if the spouse remarries.

12. Family Benefit: If at the time of the member's death, the member is married and there are one or more eligible children, then a monthly benefit is payable to the spouse, even if younger than age 60. An eligible child is one under age 18, or under age 23 if a full-time student, or any age, if disabled prior to age 18. The family benefit is a multiple of the basic monthly spouse's benefit. If there is only one eligible child, then the multiple is 150%. If there are two or more eligible children, the multiple is 175%. The benefit continues as long as the spouse is alive and there is at least one eligible child. If the spouse remarries, benefits cease, although children's benefits will be due if there are still eligible children. If family benefits cease because there are no children who remain eligible, spouse's benefits will be paid when the spouse reaches age 60, if he or she has not remarried.

13. Children's Benefits: If a covered member dies, and there is no eligible spouse but there are one or more eligible children, then a child's benefit is payable. The amount payable by the plan is a multiple of the basic monthly spouse's benefit: 75% if there is only one eligible child, 150% if there are two eligible children, and 175% if there are three or more eligible children. Benefits cease when there are no children eligible.

14. Dependent Parent's Benefits: If a member dies with no surviving spouse and no eligible children, but the member has a dependent parent, a benefit equal to the basic monthly spouse's benefit is paid to the dependent parent for life. For this purpose, a dependent parent is one who:

   a. Is at least 60 years of age,
   b. Was dependent on the member for at least half his or her support,
   c. Has not remarried since the member's death, and
   d. Is not entitled to Social Security benefit from his or her own earnings equal to or greater the TSB benefit

15. Summary of benefits: The following table summarizes the benefit multiples that apply in the different family situations:

Recipients	Multiple of Basic Spouse's Benefit
Spouse alone	100%
Spouse and 1 Child	150%
Spouse and 2 or More Children	175%
One Child Alone	75%
Two Children Alone	150%
Three or More Children Alone	175%
Dependent Parent	100%

16. Refunds: If, prior to retirement, a member terminates service in ERSRI or ceases to be covered under TSB for any other reason, a refund equal to the sum of the member's TSB contributions will be paid to him or her. No interest is credited on these contributions.

If a covered, active teacher dies without an eligible spouse, eligible child or dependent parent, the accumulated member contribution balance, with interest credited at 5.00%, is refunded to the member's beneficiary or estate.

At the time a member retires, the member must choose whether or not to remain covered under the TSB during retirement. If the member chooses not to remain covered, then a refund of the member's contributions, accumulated with interest at 5.00%, is paid to the member. If the member chooses to remain covered, no action is necessary. Retired members who do not elect a refund at the time of retirement may not later elect a refund.

If a covered retired teacher dies without an eligible spouse, eligible child or dependent parent, no benefit is payable, and the member's contribution account remains in the fund.

17. Post-retirement Benefit Increases: Spouses over age 60 receive a cost-of-living adjustment (COLA), each year, in January. The COLA is expressed as a percentage increase in the benefit, equal to the percentage cost-of-living increase provided to Social Security recipients. This increase is a function of increases in the Consumer Price Index. No COLA is paid on children's or family benefits.

GLOSSARY

Glossary

Actuarial Accrued Liability (AAL): That portion, as determined by a particular Actuarial Cost Method, of the Actuarial Present Value of Future Plan Benefits which is not provided for by future Normal Costs. It is equal to the Actuarial Present Value of Future Plan Benefits minus the actuarial present value of future Normal Costs.

Actuarial Assumptions: Assumptions as to future experience under the Fund. These include assumptions about the occurrence of future events affecting costs or liabilities, such as:

- mortality, withdrawal, disablement, and retirement;
- future increases in salary;
- future rates of investment earnings and future investment and administrative expenses;
- characteristics of members not specified in the data, such as marital status;
- characteristics of future members;
- future elections made by members; and
- other relevant items.

Actuarial Cost Method or ***Funding Method:*** A procedure for allocating the Actuarial Present Value of Future Benefits to various time periods; a method used to determine the Normal Cost and the Actuarial Accrued Liability. These items are used to determine the ARC.

Actuarial Gain or ***Actuarial Loss:*** A measure of the difference between actual experience and that expected based upon a set of Actuarial Assumptions, during the period between two Actuarial Valuation dates. Through the actuarial assumptions, rates of decrements, rates of salary increases, and rates of fund earnings have been forecasted. To the extent that actual experience differs from that assumed, Actuarial Accrued Liabilities emerge which may be the same as forecasted, or may be larger or smaller than projected. Actuarial gains are due to favorable experience, e.g., the Fund's assets earn more than projected, salaries do not increase as fast as assumed, members retire later than assumed, etc. Favorable experience means actual results produce actuarial liabilities not as large as projected by the actuarial assumptions. On the other hand, actuarial losses are the result of unfavorable experience, i.e., actual results that produce actuarial liabilities which are larger than projected. Actuarial gains will shorten the time required for funding of the actuarial balance sheet deficiency while actuarial losses will lengthen the funding period.

Actuarially Equivalent: Of equal actuarial present value, determined as of a given date and based on a given set of Actuarial Assumptions.

Actuarial Present Value (APV): The value of an amount or series of amounts payable or receivable at various times, determined as of a given date by the application of a particular set of Actuarial Assumptions. For purposes of this standard, each such amount or series of amounts is:

a. adjusted for the probable financial effect of certain intervening events (such as changes in compensation levels, marital status, etc.)

b. multiplied by the probability of the occurrence of an event (such as survival, death, disability, termination of employment, etc.) on which the payment is conditioned, and

c. discounted according to an assumed rate (or rates) of return to reflect the time value of money.

Actuarial Present Value of Future Plan Benefits: The Actuarial Present Value of those benefit amounts which are expected to be paid at various future times under a particular set of Actuarial Assumptions, taking into account such items as the effect of advancement in age and past and anticipated future compensation and service credits. The Actuarial Present Value of Future Plan Benefits includes the liabilities for active members, retired members, beneficiaries receiving benefits, and inactive, nonretired members either entitled to a refund or a future retirement benefit. Expressed another way, it is the value that would have to be invested on the valuation date so that the amount invested plus investment earnings would be provide sufficient assets to pay all projected benefits and expenses when due.

Actuarial Valuation: The determination, as of a valuation date, of the Normal Cost, Actuarial Accrued Liability, Actuarial Value of Assets, and related Actuarial Present Values for a plan. An Actuarial valuation for a governmental retirement system typically also includes calculations of items needed reporting purposes, such as the funded ratio and the ADEC.

Actuarial Value of Assets or ***Valuation Assets:*** The value of the Fund's assets as of a given date, used by the actuary for valuation purposes. This may be the market or fair value of plan assets, but commonly actuaries use a smoothed value in order to reduce the year-to-year volatility of calculated results, such as the funded ratio and the ARC.

Actuarially Determined: Values which have been determined utilizing the principles of actuarial science. An actuarially determined value is derived by application of the appropriate actuarial assumptions to specified values determined by provisions of the law.

Amortization Method: A method for determining the Amortization Payment. The most common methods used are level dollar and level percentage of payroll. Under the Level Dollar method, the Amortization Payment is one of a stream of payments, all equal, whose Actuarial Present Value is equal to the UAAL. Under the Level Percentage of Pay method, the Amortization payment is one of a stream of increasing payments, whose Actuarial Present Value is equal to the UAAL. Under the Level Percentage of Pay method, the stream of payments increases at the assumed rate at which total covered payroll of all active members will increase.

Glossary (Continued)

Amortization Payment: That portion of the pension plan contribution or ARC which is designed to pay interest on and to amortize the Unfunded Actuarial Accrued Liability.

Actuarially Determined Employer Contribution (ADEC): The employer's periodic required contributions, expressed as a dollar amount or a percentage of covered plan compensation. The ADEC consists of the Employer Normal Cost and the Amortization Payment

Closed Amortization Period: A specific number of years that is counted down by one each year, and therefore declines to zero with the passage of time. For example if the amortization period is initially set at 30 years, it is 29 years at the end of one year, 28 years at the end of two years, etc. See Funding Period and Open Amortization Period.

Decrements: Those causes/events due to which a member's status (active-inactive-retiree-beneficiary) changes, that is: death, retirement, disability, or termination.

Defined Benefit Plan: A retirement plan that is not a Defined Contribution Plan. Typically a defined benefit plan is one in which benefits are defined by a formula applied to the member's compensation and/or years of service.

Defined Contribution Plan: A retirement plan, such as a 401(k) plan, a 403(b) plan, or a 457 plan, in which the contributions to the plan are assigned to an account for each member, and the plan's earnings are allocated to each account, and each member's benefits are a direct function of the account balance.

Employer Normal Cost: The portion of the Normal Cost to be paid by the employers. This is equal to the Normal Cost less expected member contributions.

Experience Study: A periodic review and analysis of the actual experience of the Fund which may lead to a revision of one or more actuarial assumptions. Actual rates of decrement and salary increases are compared to the actuarially assumed values and modified as deemed appropriate by the Actuary.

Funded Ratio: The ratio of the actuarial value of assets (AVA) to the actuarial accrued liability (AAL). Plans sometimes calculate a market funded ratio, using the market value of assets (MVA), rather than the AVA.

Funding Period or ***Amortization Period:*** The term "Funding Period" is used it two ways. In the first sense, it is the period used in calculating the Amortization Payment as a component of the ARC. This funding period is chosen by the Board of Trustees. In the second sense, it is a calculated item: the number of years in the future that will theoretically be required to amortize (i.e., pay off or eliminate) the Unfunded Actuarial Accrued Liability, based on the statutory employer contribution rate, and assuming no future actuarial gains or losses.

Glossary (Continued)

GASB: Governmental Accounting Standards Board.

GASB 67 and ***GASB 68***: Governmental Accounting Standards Board Statements No. 67 and No. 68. These are the governmental accounting standards that set the accounting rules for public retirement systems and the employers that sponsor or contribute to them. Statement No. 68 sets the accounting rules for the employers that sponsor or contribute to public retirement systems, while Statement No. 67 sets the rules for the systems themselves.

Normal Cost: That portion of the Actuarial Present Value of pension plan benefits and expenses which is allocated to a valuation year by the Actuarial Cost Method. Any payment in respect of an Unfunded Actuarial Accrued Liability is not part of Normal Cost (see Amortization Payment). For pension plan benefits which are provided in part by employee contributions, Normal Cost refers to the total of employee contributions and employer Normal Cost unless otherwise specifically stated. Under the entry age normal cost method, the Normal Cost is intended to be the level cost (when expressed as a percentage of pay) needed to fund the benefits of a member from hire until ultimate termination, death, disability or retirement.

Open Amortization Period: An open amortization period is one which is used to determine the Amortization Payment but which does not change over time. In other words, if the initial period is set as 30 years, the same 30-year period is used in determining the Amortization Period each year. In theory, if an Open Amortization Period is used to amortize the Unfunded Actuarial Accrued Liability, the UAAL will never completely disappear, but will become smaller each year, either as a dollar amount or in relation to covered payroll.

Unfunded Actuarial Accrued Liability: The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. This value may be negative in which case it may be expressed as a negative Unfunded Actuarial Accrued Liability, also called the Funding Surplus.

Valuation Date or Actuarial Valuation Date: The date as of which the value of assets is determined and as of which the Actuarial Present Value of Future Plan Benefits is determined. The expected benefits to be paid in the future are discounted to this date.