

NORTH DAKOTA TEACHERS' FUND FOR RETIREMENT
ACTUARIAL VALUATION REPORT
AS OF JULY 1, 2010

October 25, 2010

Board of Trustees
North Dakota Teachers' Fund for Retirement
1930 Burnt Boat Drive
P.O. Box 7100
Bismarck, ND 58507-7100

SUBJECT: ACTUARIAL VALUATION AS OF JULY 1, 2010

We certify that the information contained in this report is accurate and fairly presents the actuarial position of the North Dakota Teachers' Fund for Retirement (TFFR) as of July 1, 2010.

All calculations have been made in conformity with generally accepted actuarial principles and practices, and with the Actuarial Standards of Practice issued by the Actuarial Standards Board. In our opinion the results presented also comply with the North Dakota Century Code, and, where applicable, the Internal Revenue Code, ERISA, and the Statements of the Governmental Accounting Standards Board. The undersigned are independent actuaries. All are Enrolled Actuaries and Members of the American Academy of Actuaries, and all are experienced in performing valuations for large public retirement systems. They all meet the Qualification Standards of the American Academy of Actuaries.

ACTUARIAL VALUATION

The primary purposes of the valuation report are to determine the adequacy of the current employer contribution rate, to describe the current financial condition of TFFR, and to analyze changes in TFFR's condition. In addition, the report provides information required by TFFR in connection with Governmental Accounting Standards Board Statement No. 25 (GASB 25), and it provides various summaries of the data. Valuations are prepared annually, as of July 1 of each year, the first day of TFFR's plan and fiscal year.

FINANCING OBJECTIVES

The member and employer contribution rates are established by statute. The member rate is set at 7.75%. Effective July 1, 2008, the employer rate increased from 7.75% to 8.25%. Effective July 1, 2010, the employer rate increased again from 8.25% to 8.75%. The total addition of 1.00% to the employer contribution rate will remain in effect until TFFR is 90% funded on an actuarial basis.

The rates are intended to be sufficient to pay TFFR's normal cost and to amortize TFFR's unfunded actuarial accrued liability (UAAL) over a period of 30 years from the valuation date;

although at any given time the statutory rates may be insufficient. A thirty-year period is the maximum amortization period allowed by GASB 25 in computing the Annual Required Contribution (ARC). The thirty-year period is in common use for public-sector plans and is considered reasonable by the actuary.

PROGRESS TOWARD REALIZATION OF FINANCING OBJECTIVES

In order to determine the adequacy of the 8.75% statutory employer contribution rate, it is compared to the GASB 25 Annual Required Contribution (ARC). The ARC is equal to the sum of (a) the employer normal cost rate, and (b) the level percentage of pay required to amortize the UAAL over a 30-year period. For this calculation, payroll is assumed to increase 3.25% per year. As of July 1, 2010, the ARC is 12.79%, increased from 10.78% last year. This is greater than the 8.75% rate currently required by law. The shortfall (the negative margin) between the rate mandated by law (8.75%) and the rate necessary to fund the UAAL in 30 years is -4.04%.

The funded ratio (the ratio of the actuarial value of assets to the actuarial accrued liability) decreased from last year. The funded ratio at July 1, 2009 was 77.7%, while it is 69.8% as of July 1, 2010. Based on market values rather than actuarial values of assets, the funded ratio increased to 54.5%, compared to 53.5% last year.

The plan has a net asset loss of \$404 million from previous years which has not yet been recognized in the actuarial value of assets, because of the five-year smoothing. This unrecognized asset loss is due to large market losses during FY 2008 and FY 2009. As the unrecognized loss is recognized over the next three years, the ARC is expected continue to increase and the funded ratio is expected to continue decreasing, assuming the plan earns 8.00% in the future, unless the contribution rates or benefit provisions are changed.

REPORTING CONSEQUENCES

TFFR is required to report in its Comprehensive Annual Financial Report (CAFR) for the current fiscal year ending June 30, 2010 that actual contributions received in FY 2010 were less than the ARC. The FY 2010 8.25% statutory rate was 76.5% of the 10.78% ARC determined by the last valuation. Next year, the CAFR for FY 2011 will show that the 8.75% statutory rate is only 68.4% of the 12.79% ARC. There are no other accounting consequences for the state or the other school districts that sponsor TFFR, since it is a cost-sharing, multiple-employer retirement system.

BENEFIT PROVISIONS

The actuarial valuation reflects the benefit and contribution provisions set forth in the North Dakota Century Code. These have not changed from the prior year's valuation. However, it is worth noting the effect of two pieces of 2009 legislation. First, legislation enacted in 2009 called for a one-time payment to TFFR retirees in December 2009. A payment of \$4.4 million was made due to this legislation. Second, legislation enacted in 2009 increased the employer

contribution rate from 8.25% to 8.75%, effective as of July 1, 2010. Both of these changes were recognized in last year's valuation.

ASSUMPTIONS AND METHODS

Actuarial assumptions and methods are set by the Board of Trustees, based upon recommendations made by the plan's actuary. On January 21, 2010, the Board adopted new assumptions, effective for this valuation. These new assumptions were recommended by the actuary, following an analysis of plan experience for the five-year period ending June 30, 2009. We believe the assumptions are internally consistent and are reasonable, based on the actual experience of TFFR. These actuarial assumptions and methods comply with the parameters for disclosure in GASB 25.

The results of the actuarial valuation are dependent on the actuarial assumptions used. Actual results can and almost certainly will differ, as actual experience deviates from the assumptions. Even seemingly minor changes in the assumptions can materially change the liabilities, calculated contribution rates, and funding periods.

DATA

Member data for retired, active, and inactive participants was supplied as of July 1, 2010, by the staff of the Retirement and Investment Office (RIO). We have not subjected this data to any auditing procedures, but have examined the data for reasonableness and consistency with the prior year's data. Asset information was also supplied by the RIO staff.

Sincerely,

Gabriel, Roeder, Smith & Co.



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SECTION A

EXECUTIVE SUMMARY

Executive Summary

Valuation Date:	07/01/2010	07/01/2009	
		After Assumption Changes	From 2009 Valuation
Membership			
• Number of			
- Active Members	9,907	9,707	9,707
- Retirees and Beneficiaries	6,672	6,466	6,466
- Inactive, Vested	1,472	1,490	1,490
- Inactive, Nonvested	331	292	292
- Total	18,382	17,955	17,955
• Payroll	\$465.0 million	\$440.0 million	\$440.0 million
Statutory contribution rates			
• Employer	8.75%	8.25%	8.25%
• Member	7.75%	7.75%	7.75%
Assets			
• Market value	\$1,437.9 million	\$1,309.7 million	\$1,309.7 million
• Actuarial value	1,842.0 million	1,900.3 million	1,900.3 million
• Return on market value	13.9%	-27.0%	-27.0%
• Return on actuarial value	-0.5%	1.7%	1.7%
• Ratio - actuarial value to market value	128.1%	145.1%	145.1%
• External cash flow %	-3.5%	-3.3%	-3.3%
Actuarial Information			
• Normal cost %	10.57%	10.57%	10.26%
• Unfunded actuarial accrued liability (UAAL)	\$795.2 million	\$610.6 million	\$545.6 million
• Funded ratio	69.8%	75.7%	77.7%
• Funding period	Infinite	Infinite	Infinite
GASB 25 ARC			
• Amortization period	30 years	30 years	30 years
• Amortization method	Level % (3.25%)	Level % (3.25%)	Level % (2.00%)
• Calculated contribution rate	12.79%	10.92%	10.78%
• Margin	-4.04%	-2.67%	-2.53%
Gains/(Losses)			
• Asset experience	\$(159.5) million	\$(118.3) million	\$(118.3) million
• Liability experience	(6.1) million	1.8 million	1.8 million
• Benefit changes	0.0 million	(4.4) million	(4.4) million
• Assumption/method changes	(71.9) million	(65.0) million	0.0 million
• Total	\$(237.5) million	\$(185.9) million	\$(120.9) million

SECTION B

INTRODUCTION

INTRODUCTION

The results of the July 1, 2010 actuarial valuation of the North Dakota Teachers' Fund for Retirement are presented in this report. Actuarial valuations are prepared annually.

The purpose of any actuarial valuation report is to describe the financial condition of the Fund, to assess the adequacy of the current contributions, and to analyze changes in the funding requirements. In addition, this report presents information required by TFFR in connection with Governmental Accounting Standards Board Statement No. 25 (GASB No. 25).

Section C discusses the determination of the current funding requirements and funding periods. Section D analyzes the changes in (i) the unfunded actuarial accrued liability and (ii) the GASB Annual Required Contribution (ARC). This section also discusses the gains and losses resulting from differences between actual experience and the actuarial assumptions. Section E discusses the disclosure requirements of GASB No. 25.

Sections F through I discuss background information used in the preparation of this report—benefit provisions, actuarial assumptions and methods, financial information, and membership data.

All the tables referenced by the other sections appear in Section J. Note that some of the tables show two sets of prior period information:

- One set as it appeared in the July 1, 2009 actuarial valuation report. This is the information reported in the TFFR Comprehensive Annual Financial Report.
- A second set showing results based on the new actuarial assumptions adopted in January 2010, after the 2009 valuation report was completed.

SECTION C
FUNDING STATUS

FUNDING STATUS

Table 1 shows the development of the plan's liabilities and costs. Although the employer contribution rate is set by statute, the Board has defined the GASB Annual Required Contribution (ARC) as the sum of (a) the employer normal cost, and (b) an amount necessary to amortize the unfunded actuarial accrued liability (UAAL) as a level percentage of payroll over a period of 30 years from the valuation date, but the ARC may not be less than the statutory employer contribution rate.

The calculation of the ARC involves the following steps:

- The actuarial present value of future benefits is determined for the present members, including retired members, beneficiaries, inactive members and active members. This amounts to \$3.114 billion. Table 3 shows the development of this total.
- The entry age normal funding method is used to allocate the actuarial present value of future benefits between that portion due for the current year (the normal cost), prior years (the actuarial accrued liability), and future years. Under the entry age normal cost method, the current and future normal costs are determined as a level percentage of payroll. Table 4 shows an analysis of the normal cost. The amount needed to fund the current and future normal costs is 10.57% of payroll inclusive of member contributions. This is the total (member plus employer) contribution rate needed to pay for the average new member.
- The normal cost rate of 10.57% has increased since last year's normal cost rate of 10.26% due to new actuarial assumptions. In determining the normal cost, we have taken into account the new assumptions adopted July 1, 2010.
- A part of the normal cost is paid by the employee contributions of 7.75%, leaving 2.82% to be funded by the employers, i.e., the current year's employer normal cost is 2.82% of the valuation payroll. This is shown in Line 3 of Table 1.
- The actuarial accrued liability (the portion of the total liability attributed to prior years) is compared with the actuarial value of assets (See Section H). The difference is the unfunded actuarial accrued liability (UAAL), and this is amortized over 30 years assuming a 3.25% annual payroll growth rate. This adds \$49.2 million to the employer portion of the normal cost of \$13.9 million, for a total ARC of \$63.1 million, and is equivalent to 12.79% of pay.

Another way of expressing this is that an employer contribution of 12.79% would be required to meet the 30-year funding schedule, determined as follows:

Employer normal cost	2.82%
Amortization payment	<u>9.97%</u>
Total	12.79%

The above calculations take the position that the 30-year funding period is fixed and the appropriate contribution is to be determined. The situation can be reversed by asking, if the current 8.75% employer rate is left in place, how long does it take to amortize the UAAL? Long term projections show the UAAL will never be fully funded, assuming a market return of 8.00% per year and no other changes or actuarial gains/losses.

SECTION D

ANALYSIS OF CHANGES

ANALYSIS OF CHANGES

Tables 2a and 2b show the impact of a variety of changes on both the UAAL and on the GASB ARC. Table 11 shows the detailed calculation of the asset gain/loss, while Table 12 shows the development of the liability gain/loss. The gains and losses are due to differences between actual experience and anticipated experience determined using the actuarial assumptions.

As shown on Table 2b, the UAAL increased from \$545.6 million to \$795.2 million, an increase of \$249.6 million. This increase was principally due to the fact that the Plan experienced an actuarial asset loss of \$159.5 million. The \$12.1 million increase due to amortization payments arises because the member and employer contributions were not large enough to pay the normal cost and interest on the UAAL. Therefore, the Fund experienced negative amortization. There was also a liability loss of \$6.1 million and a loss of \$71.9 million due to the adoption of new assumptions.

Table 2a shows the impact of these same changes on the GASB ARC, expressed as a percentage of payroll. The most significant item is the 200 basis point increase due to the investment experience loss.

SECTION E

GASB NO. 25 DISCLOSURE

GASB No. 25 DISCLOSURE

Governmental Accounting Standards Board (GASB) Statement No. 25 governs reporting for government-sponsored retirement plans.

This report includes Tables 5a, 5b and 5c which show information required to be reported under GASB 25. Table 5a shows a history of funding progress: a comparison of actuarial assets with the actuarial accrued liability, and a comparison of the UAAL with plan compensation. Table 5b shows the Annual Required Contribution (ARC) as computed under GASB No. 25, and it shows what percent of this amount was actually received. Table 5c shows additional information to be disclosed in the financial statements.

For TFFR, the ARC is defined to be the greater of the statutory contribution rate or the sum of (a) the employer normal cost, and (b) the amount needed to amortize the UAAL as a level percentage of payroll over 30 years.

As you can see on Table 5a, the funded ratio decreased from 77.7% to 69.8%. Table 5b shows that, for FY 2010, the statutory contributions received amounted to 76.5% of the ARC for that year ($8.25\% \div 10.78\%$). When next year's financial report is prepared, this table will show that the contributions received for FY2011 are 68.4% of the ARC ($8.75\% \div 12.79\%$).

The dollar amounts of the ARCs shown on Table 5b differ from the dollar amounts calculated in prior valuations because they are adjusted for differences between expected and actual payroll in each fiscal year. This procedure is permitted under GASB 25; see Q&A 94 in the GASB 25 Implementation Guide. For FY 2010, employers contributed \$39,836,646, which represents 8.25% of actual covered payroll during the fiscal year. This implies actual payroll of \$482,868,364 ($\$39,836,646/0.0825$). The ARC for FY 2010 was calculated in the last valuation report as 10.78% of payroll. Therefore, the dollar ARC shown on Table 5b for FY 2010 is 10.78% of the imputed payroll of \$482,868,364, or \$52,053,217.

The auditor's notes should disclose the following events during the last six years which may affect the comparability of the trend information shown in Tables 5a and 5b: the changes in assumptions made at July 1, 2005 and July 1, 2010, the change in the benefit provisions for new hires employed after July 1, 2008 made at July 1, 2007, and the change in the definition of the ARC made effective July 1, 2005. (For FY 2005 and prior years, the ARC was defined using a 20-year amortization with no payroll increase.) See GASB No. 25, paragraph 40b.

SECTION F

BENEFIT PROVISIONS

BENEFIT PROVISIONS

Table 19 summarizes the provisions of TFFR used in this valuation. Table 20 is a historical record of prior legislative changes made since 1990. The actuarial valuation reflects the benefit and contribution provisions set forth in the North Dakota Century Code. There are no changes to these provisions since the prior valuation date.

This valuation reflects benefits promised to members by TFFR statutes. There are no ancillary benefits. Ancillary benefits are retirement-type benefits not required by TFFR statutes but which might be deemed a TFFR liability if continued beyond the availability of funding by the current funding source.

This valuation reflects the employer contribution rate increase from 8.25% to 8.75% as mandated by HB 1022, enacted in 2009. This increase will only be in force while TFFR's funded ratio remains below 90%. Once the funded ratio reaches 90%, the employer contribution rate will revert to 7.75%. The contribution rate will not automatically increase back to 8.75% if the funded ratio later falls back below 90%.

Also note that a one-time benefit payment was made to annuitants in December 2009 as a result of legislation enacted in 2009. The total of these payments was \$4.4 million.

SECTION G

ACTUARIAL ASSUMPTIONS AND METHODS

ACTUARIAL ASSUMPTIONS AND METHODS

In determining costs and liabilities, actuaries use assumptions about the future, such as rates of salary increase, probabilities of retirement, termination, death and disability, and an investment return assumption. TFFR's Board adopts the assumptions used, taking into account the actuary's recommendations. This report is based upon the assumptions and methods adopted on January 21, 2010, based upon an analysis of plan experience for the preceding five plan years. Changes were made to the salary increase, termination, retirement, disability, and mortality rates, and to the payroll growth rate.

The most significant assumptions are (i) the 8.00% assumed investment return rate, and (ii) the assumption regarding future salary increases, which is based on a table that varies by service and averages about 6.1%. All actuarial assumptions and methods used are summarized in Table 18.

In addition to the actuarial assumptions, the actuary also makes use of an actuarial funding method to allocate costs to particular years. In common with many public-sector plans, TFFR uses the entry age normal method. This method produces a relatively level pattern of funding over time, and thereby provides equity between various generations of taxpayers. We continue to believe this method is appropriate for TFFR.

Finally, TFFR's Board selects the amortization method and the amortization period used in determining the GASB ARC, to which the 8.75% statutory employer contribution rate is compared. In determining the ARC, the UAAL is amortized with level-percentage-of-payroll payments with a 3.25% payroll growth rate over an open 30-year period. By an "open" amortization period, we mean that the 30-year amortization payments are redetermined each year based on a new 30-year period.

SECTION H
FUND ASSETS

FUND ASSETS

TFFR assets are held in trust, and are co-mingled for investment purposes with those of other North Dakota sponsored trusts. Investment decisions lie with the State Investment Board rather than with the TFFR Board, although the TFFR Board sets the investment policy, including the asset allocation guidelines. Asset information used in this valuation has been provided by the Retirement and Investment Office (RIO) staff. Section J contains several tables which summarize, reconcile or analyze this information.

Table 7 presents a summary of the market value of assets held by the fund. About 70% of the assets are held in equities, real estate, and private equity. This has increased from about 68% last year. Table 8 shows a reconciliation of the assets from the beginning of the prior year to the valuation date.

Tables 9a and 9b show the development of the Actuarial Value of Assets (AVA). An actuarial value is used in order to dampen some of the year-to-year fluctuations which would occur if the market value were used instead. The method used phases in differences between actual and expected earnings 20% per year. Expected earnings are determined using market value and the 8.00% investment return assumption. Actual earnings are net of all investment and administrative expenses.

Table 10a shows an estimate of the Fund's yield for the year. This is shown on (i) the market value of assets (reflecting all realized and unrealized gains and losses), and (ii) the actuarial value of assets. While the dollar-weighted market yield this year is about 13.9%, the yield on the actuarial value is -0.5%. The difference between these is due to the smoothing effect of the AVA. Table 10b shows historical fund returns for the last 20+ years.

Table 11 determines the asset gain or loss for the year, based on the difference between the actual fund yield and the assumed rate of 8.00%. The impact of this gain has already been discussed in Section D. Finally, Table 13 shows a history of cash flows to the trust.

SECTION I

MEMBERSHIP DATA

MEMBERSHIP DATA

Membership data was provided on electronic files sent by the RIO staff. Data for active members includes sex, birthdate, service, salary for the prior fiscal year, and accumulated contributions. Data for inactive, nonretired members was similar, but also includes the members' unreduced benefit. For retired members, data includes status (service retiree, disabled retiree or beneficiary), sex, birthdate, pension amount, date of retirement, form of payment, and beneficiary sex and birthdate if applicable.

While not verifying the correctness of the data at the source, we performed various tests to ensure the internal consistency of the data and its overall reasonableness.

Membership statistics are summarized in Table 6a. Table 6b summarizes certain active member data, and the age/service distribution of active members is shown in Table 15. Tables 16a and 16b show the distribution of retirees by option and by benefit amount. Table 17 shows a reconciliation of the member data from last year's valuation to this year's valuation. There are 1,382 Tier 2 members in the data; this is the second year the valuation includes Tier 2 members.

The number of active members increased by 2.1% since last year, from 9,707 to 9,907. Note that normally the actual number of members employed during the year will be somewhat higher than the valuation count, since the July 1 count excludes most June and July retirees but does not include new teachers joining the system for the next school year.

Total payroll increased 5.7% since last year. For all comparative purposes, payroll is the amount supplied by the RIO staff (i.e., the 2009-2010 member pay), annualized. However, this figure is increased by one year's assumed pay increase to determine the member's rate of pay at July 1, 2010. Pay is assumed to change only at the beginning of a school/fiscal year.

Average pay increased by 3.6%, from \$45,327 to \$46,937. This includes the impact of replacing more highly-paid members who retire with new teachers. The average increase in salary for the 9,058 continuing members—members active in both this valuation and the preceding valuation—was 6.5%.

The average age of active members decreased from 44.5 years to 44.2 years, and their average service also decreased from 14.3 years to 14.0 years.

The table below shows additional information about the active membership this year and last year. Tier 2 active members are those hired or rehired after June 30, 2008. July 1, 2010 is the second valuation date at which Tier 2 members were included in the data. All new members in the future years will

enter into this group, so the number will increase over time. The Tier 1 population will decrease each year as members leave due to retirement, termination, death and disability.

Active Statistics		
	July 1, 2010	July 1, 2009
Plan Eligibility		
a. Tier 1	8,525	9,001
b. Tier 2	1,382	706
c. Total Members	9,907	9,707
Benefit Eligibility		
a. Non-Vested	1,551	1,406
b. Vested	6,330	6,177
c. Early Retirement	1,008	1,068
d. Normal Retirement	1,018	1,056
e. Total	9,907	9,707

In addition, this table shows the number of members who are nonvested, those who are vested but not eligible for retirement, those who are eligible only for an early retirement (reduced) benefit, and those eligible for a normal (unreduced) benefit. As of the valuation date, 2,026 members were eligible for either reduced or unreduced retirement, down from 2,124 last year.

SECTION J

TABLES

TABLES

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Development of Employer Cost

	July 1, 2009		
	July 1, 2010	After Assumption Changes	From 2009 Valuation
	(1)	(2)	(3)
1. Payroll			
a. Supplied by System	\$ 465,007,110	\$ 439,986,705	\$ 439,986,705
b. Adjusted for one year's pay increase	493,539,965	466,874,291	465,804,365
2. Present value of future pay	\$4,508,714,855	\$4,230,142,959	\$3,783,701,274
3. Normal cost rate (payable monthly)			
a. Total normal cost rate	10.57%	10.57%	10.26%
b. Less: member contribution rate	<u>-7.75%</u>	<u>-7.75%</u>	<u>-7.75%</u>
c. Employer normal cost rate	2.82%	2.82%	2.51%
4. Actuarial accrued liability for active members			
a. Present value of future benefits	\$1,804,080,507	\$1,726,843,212	\$1,638,775,442
b. Less: present value of future normal costs (Item 3a * Item 2)	<u>(476,571,160)</u>	<u>(447,126,111)</u>	<u>(388,207,751)</u>
c. Actuarial accrued liability	\$1,327,509,347	\$1,279,717,101	\$1,250,567,691
5. Total actuarial accrued liability for:			
a. Retirees and beneficiaries	\$1,246,075,418	\$1,164,963,748	\$1,129,811,973
b. Supplemental retiree benefit payment	0	4,426,352	4,426,352
c. Inactive members	63,580,280	61,864,530	61,090,694
d. Active members (Item 4c)	<u>1,327,509,347</u>	<u>1,279,717,101</u>	<u>1,250,567,691</u>
e. Total	\$2,637,165,045	\$2,510,971,731	\$2,445,896,710
6. Actuarial value of assets	\$1,841,960,219	\$1,900,327,834	\$1,900,327,834
7. Unfunded actuarial accrued liability (UAAL) (Item 5d - Item 6)	\$ 795,204,826	\$ 610,643,897	\$ 545,568,876
8. Funding period set by Board	30 years	30 years	30 years
9. Current employer contribution rate	8.75%	8.25%	8.25%
10. GASB No. 25 Annual Required Contribution (ARC) for fiscal year beginning on valuation date			
a. Payment to amortize UAAL	\$ 49,223,215	37,798,883	\$ 38,527,047
b. Employer normal cost (Item 3c * Item 1b)	<u>13,917,827</u>	<u>13,165,855</u>	<u>11,691,690</u>
c. Contribution requirement (a+b)	63,141,042	50,964,738	50,218,737
d. Contribution as percentage of payroll (10c/1b)	12.79%	10.92%	10.78%
11. Funding period based on current employer contribution	Infinite	Infinite	Infinite

Analysis of Change in GASB ARC

Item	July 1, 2010	July 1, 2009
(1)	(2)	(3)
1. Prior valuation	10.78%	9.24%
2. Increases/(decreases) due to:		
a. Open amortization	-0.13%	-0.09%
b. Growth in covered payroll	-0.18%	-0.21%
c. Employer contributions received at 8.25%, rather than 10.78% for FY2010 or 9.24% for FY2009	0.11%	0.01%
d. Liability experience	0.07%	-0.03%
e. Investment experience	2.00%	1.79%
f. Assumption changes - Experience Study	0.14%	0.00%
g. Changes in amortization method	0.00%	0.00%
h. Legislative changes	0.00%	0.07%
i. Total	2.01%	1.54%
3. Current valuation (1. + 2.i.)	12.79%	10.78%
4. Statutory employer contribution rate	8.75%	8.25%
5. Margin available (4. - 3.)	-4.04%	-2.53%

Analysis of Change in UAAL

Item (1)	Unfunded Actuarial Accrued Liability (\$ in millions) as of	
	July 1, 2010 (2)	July 1, 2009 (3)
1. Prior valuation	\$ 545.6	\$ 421.2
2. Increases/(decreases) due to:		
a. Amortization payments	\$ 12.1	\$ 3.5
b. Investment experience	159.5	118.3
c. Assumption changes	71.9	-
d. Liability experience	6.1	(1.8)
e. Changes in actuarial methods	-	-
f. Legislative changes	-	4.4
g. Total	\$ 249.6	\$ 124.4
3. Current valuation (1. + 2.g.)	\$ 795.2	\$ 545.6

Actuarial Present Value of Future Benefits

	July 1, 2009		
	July 1, 2010	After Assumption Changes	From 2009 Valuation
	(1)	(2)	(3)
1. Active members			
a. Retirement benefits	\$ 1,687,717,495	\$ 1,617,963,748	\$ 1,509,261,689
b. Deferred termination benefits and refunds	77,929,841	72,138,753	88,713,233
c. Death benefits	15,165,023	14,503,877	16,625,807
d. Disability benefits	23,268,148	22,236,834	24,174,713
e. Total	<u>\$ 1,804,080,507</u>	<u>\$ 1,726,843,212</u>	<u>\$ 1,638,775,442</u>
2. Retired members			
a. Service retirement	\$ 1,178,556,861	\$ 1,099,007,141	\$ 1,066,993,515
b. Disability retirement	12,681,741	12,297,140	11,245,584
c. Beneficiaries	54,836,816	53,659,467	51,572,874
d. Supplemental retiree benefit payment	0	4,426,352	4,426,352
e. Total	<u>\$ 1,246,075,418</u>	<u>\$ 1,169,390,100</u>	<u>\$ 1,134,238,325</u>
3. Inactive members			
a. Vested terminations	\$ 62,007,669	\$ 60,764,396	\$ 59,990,560
b. Nonvested terminations	941,049	763,891	763,891
c. Pending refunds and partial lump sums	631,562	336,243	336,243
d. Total	<u>\$ 63,580,280</u>	<u>\$ 61,864,530</u>	<u>\$ 61,090,694</u>
4. Total actuarial present value of future benefits	\$ 3,113,736,205	\$ 2,958,097,842	\$ 2,834,104,461

Analysis of Normal Cost

	July 1, 2010 (1)	July 1, 2009	
		After Assumption Changes (2)	From 2009 Valuation (3)
1. Gross normal cost rate (payable monthly)			
a. Retirement benefits	8.08%	8.08%	7.74%
b. Deferred termination benefits and refunds	2.12%	2.12%	2.01%
c. Death benefits	0.13%	0.13%	0.18%
d. Disability benefits	<u>0.24%</u>	<u>0.24%</u>	<u>0.33%</u>
e. Total	10.57%	10.57%	10.26%
2. Less: member contribution rate	<u>7.75%</u>	<u>7.75%</u>	<u>7.75%</u>
3. Employer normal cost rate	2.82%	2.82%	2.51%

Schedule of Funding Progress

Valuation Date	Actuarial Value of Assets (AVA)	Actuarial Accrued Liability (AAL)	Unfunded Actuarial Accrued Liability (UAAL) (3) - (2)	Funded Ratio (2)/(3)	Annual Covered Payroll	UAAL as % of Payroll (4)/(6)
(1)	(2)	(3)	(4)	(5)	(6)	(7)
July 1, 2001	\$1,414.7	\$1,467.7	\$53.0	96.4%	\$342.2	15.5%
July 1, 2002	\$1,443.5	\$1,575.8	\$132.3	91.6%	\$348.1	38.0%
July 1, 2003	\$1,438.4	\$1,690.3	\$251.9	85.1%	\$367.9	68.5%
July 1, 2004	\$1,445.6	\$1,800.4	\$354.8	80.3%	\$376.5	94.2%
July 1, 2005	\$1,469.7	\$1,965.2	\$495.5	74.8%	\$386.6	128.2%
July 1, 2006	\$1,564.0	\$2,073.9	\$509.9	75.4%	\$390.1	130.7%
July 1, 2007	\$1,750.1	\$2,209.3	\$459.2	79.2%	\$401.3	114.4%
July 1, 2008	\$1,909.5	\$2,330.6	\$421.2	81.9%	\$417.7	100.8%
July 1, 2009	\$1,900.3	\$2,445.9	\$545.6	77.7%	\$440.0	124.0%
July 1, 2010	\$1,842.0	\$2,637.2	\$795.2	69.8%	\$465.0	171.0%

Note: Dollar amounts in millions

Schedule of Employer Contributions

Fiscal Year (1)	GASB 25 Annual Required Contribution (ARC)		Actual Employer Contributions		Percentage of GASB ARC Contributed [(5)/(3)] (6)
	% of Payroll ¹ (2)	Amount ² (3)	% of Payroll (4)	Amount (5)	
2001	7.75%	\$26,289,206	7.75%	\$26,289,206	100.0%
2002	7.75%	\$27,243,542	7.75%	\$27,243,542	100.0%
2003	7.75%	\$28,850,725	7.75%	\$28,850,725	100.0%
2004	8.94%	\$34,186,080	7.75%	\$29,635,584	86.7%
2005	11.34%	\$44,471,740	7.75%	\$30,388,265	68.3%
2006	12.12%	\$48,747,189	7.75%	\$31,170,851	63.9%
2007	12.29%	\$50,532,462	7.75%	\$31,865,466	63.1%
2008	10.15%	\$44,114,585	7.75%	\$33,683,550	76.4%
2009	9.24%	\$41,986,174	8.25%	\$37,487,655	89.3%
2010	10.78%	\$52,053,217	8.25%	\$39,836,646	76.5%

¹ The GASB ARC for each fiscal year is based on the actuarial valuation as of the beginning of the year. Therefore, the FY 2010 ARC is based on the July 1, 2009 actuarial valuation. The ARC is defined as the contribution rate required to pay the employer normal cost and to amortize the UAAL over a 30-year period as a level percent of payroll, but not less than the statutory contribution rate. For FY 2005 and prior years, the UAAL is amortized over a 20-year period as a level dollar amount.

² The dollar amount of the ARC is based on the actual payroll for the year. The FY 2010 ARC shown above differs from the estimated dollar amount shown in the July 1, 2009 actuarial valuation report (Table 1) because of differences between estimated and actual FY 2010 payroll.

**Notes to Required Supplementary Information
 (as required by GASB #25)**

The information presented in the required supplementary schedules was determined as part of the actuarial valuation at the dates indicated. Additional information as of the latest actuarial valuation follows:

Valuation date	July 1, 2010
Actuarial cost method	Entry Age Normal
Amortization method	Level percentage of payroll
Amortization period for GASB 25 ARC**	30-year open period
Asset valuation method	5-year smoothed market
Actuarial assumptions:	
Investment rate of return*	8.00%
Projected salary increases*	4.50% to 14.75%
*Includes inflation at	3.00%
Cost-of-living adjustments	None

** The GASB Annual Required Contribution (ARC) for this plan is defined as the larger of (a) the sum of (i) the employer normal cost, and (ii) an amount necessary to amortize the UAAL as a level percentage of payroll over an open 30-year amortization period, and (b) the 8.75% statutory employer contribution rate. Payroll is assumed to increase at 3.25% per annum.

Membership Data

	July 1, 2010 (1)	July 1, 2009 (2)
1. Active members		
a. Males	2,557	2,526
b. Females	7,350	7,181
c. Total members	9,907	9,707
d. Total payroll supplied, annualized	\$ 465,007,110	\$ 439,986,705
e. Average salary	\$ 46,937	\$ 45,327
f. Average age	44.2	44.5
g. Average service	14.0	14.3
h. Total contributions with interest	\$ 600,383,691	\$ 576,810,595
i. Average contributions with interest	\$ 60,602	\$ 59,422
2. Vested inactive members		
a. Number	1,472	1,490
b. Total annual deferred benefits	\$ 8,881,616	\$ 8,895,763
c. Average annual deferred benefit	\$ 6,034	\$ 5,970
d. Average age	48.9	48.8
3. Nonvested inactive members		
a. Number	331	292
b. Employee contributions with interest due	\$ 941,049	\$ 763,891
c. Average refund due	\$ 2,843	\$ 2,616
d. Average age	38.3	38.1
4. Service retirees		
a. Number	6,029	5,833
b. Total annual benefits	\$ 117,235,355	\$ 109,694,477
c. Average annual benefit	\$ 19,445	\$ 18,806
d. Average age	70.7	70.8
5. Disabled retirees		
a. Number	111	108
b. Total annual benefits	\$ 1,419,363	\$ 1,357,696
c. Average annual benefit	\$ 12,787	\$ 12,571
d. Average age	60.9	60.3
6. Beneficiaries		
a. Number	532	525
b. Total annual benefits	\$ 6,570,359	\$ 6,386,285
c. Average annual benefit	\$ 12,350	\$ 12,164
d. Average age	72.8	72.5

Historical Summary of Active Member Data

Year Ending June 30,	Active Members		Covered Payroll		Average Salary		Average Age	Average Service
	Number	Percent Increase /(Decrease)	Amount in \$ Millions	Percent Increase /(Decrease)	\$ Amount	Percent Increase /(Decrease)		
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
1992	9,707	1.2%	250.9	6.7%	25,850	5.5%	41.7	12.8
1993	9,808	1.0%	260.4	3.8%	26,549	5.5%	42.2	13.2
1994	9,653	-1.6%	262.4	0.8%	27,187	5.2%	42.4	13.3
1995	9,663	0.1%	268.7	2.4%	27,803	2.3%	42.6	13.4
1996	9,797	1.4%	281.2	4.7%	28,708	3.3%	42.9	13.6
1997	10,010	2.2%	294.1	4.6%	29,382	2.3%	43.4	14.0
1998	9,896	-1.1%	298.4	1.5%	30,156	2.6%	43.5	14.0
1999	10,046	1.5%	314.6	5.4%	31,318	3.9%	44.0	14.4
2000	10,025	-0.2%	323.0	2.7%	32,223	2.9%	43.9	14.1
2001	10,239	2.1%	342.2	5.9%	33,421	3.7%	44.4	14.4
2002	9,931	-3.0%	348.1	1.7%	35,052	4.9%	44.5	14.4
2003	9,916	-0.2%	367.9	5.7%	37,105	5.9%	44.8	14.6
2004	9,826	-0.9%	376.5	2.3%	38,321	3.3%	44.9	14.7
2005	9,801	-0.3%	386.6	2.7%	39,447	2.9%	44.9	14.7
2006	9,585	-2.2%	390.1	0.9%	40,703	3.2%	44.8	14.6
2007	9,599	0.1%	401.3	2.9%	41,810	2.7%	44.7	14.5
2008	9,561	-0.4%	417.7	4.1%	43,684	4.5%	44.6	14.4
2009	9,707	1.5%	440.0	5.3%	45,327	3.8%	44.5	14.3
2010	9,907	2.1%	465.0	5.7%	46,937	3.6%	44.2	14.0

Plan Net Assets
(Assets at Market or Fair Value)

Item (1)	June 30, 2010 (2)	June 30, 2009 (3)
1. Cash and cash equivalents (operating cash)	\$ 12,029,151	\$ 11,434,041
2. Receivables:		
a. Member and employer contributions	\$ 9,804,059	\$ 8,714,975
b. Investment income	6,724,760	6,704,685
c. Due from other funds	0	12
d. Miscellaneous receivables	6,812	4,853
e. Total receivables	\$ 16,535,631	\$ 15,424,525
3. Investments		
a. Invested cash	\$ 31,908,804	\$ 13,627,203
b. Domestic equities	509,476,470	399,737,116
c. International equities	286,954,142	262,546,804
d. Domestic fixed income	299,082,595	304,053,898
e. International fixed income	85,286,972	90,819,182
f. Real estate	135,503,973	142,870,481
g. Alternative investments	63,465,615	71,114,309
h. Total investments	\$ 1,411,678,571	\$ 1,284,768,993
4. Invested securities lending collateral	\$ 7,710,609	\$ 6,829,276
5. Equipment & software (net of depreciation)	\$ 66,013	\$ 311,001
6. Total assets	\$ 1,448,019,975	\$ 1,318,767,836
7. Liabilities		
a. Accounts payable	\$ 1,777,844	\$ 1,655,440
b. Accrued expenses	573,782	556,150
c. Due to other funds	7,897	10,240
d. Securities lending collateral	7,710,609	6,829,276
e. Total liabilities	\$ 10,070,132	\$ 9,051,106
8. Total market value of assets available for benefits (Item 6 - Item 7)	\$ 1,437,949,843	\$ 1,309,716,730
9. Asset allocation (investments)		
a. Invested cash	2.3%	1.1%
b. Domestic equities	36.1%	31.1%
c. International equities	20.3%	20.4%
d. Domestic fixed income	21.2%	23.7%
e. International fixed income	6.0%	7.1%
f. Real estate	9.6%	11.1%
g. Alternative investments	4.5%	5.5%
h. Total investments	100.0%	100.0%

Reconciliation of Plan Net Assets

	Year Ending	
	June 30, 2010 (1)	June 30, 2009 (2)
1. Value of assets at beginning of year		
a. Value reported in prior valuation	\$ 1,309,716,730	\$ 1,846,113,411
b. Prior period adjustments	-	-
c. Revised value	\$ 1,309,716,730	\$ 1,846,113,411
2. Revenue for the year		
a. Contributions		
i. Employee contributions	\$ 36,848,481	\$ 34,712,846
ii. Employer contributions	39,836,646	37,487,655
iii. Purchased service credit	1,413,481	2,176,734
iv. Interest and penalties	7,222	3,745
v. Total	\$ 78,105,830	\$ 74,380,980
b. Income		
i. Interest, dividends, and other income	\$ 32,768,256	\$ 36,668,673
ii. Investment expenses	(6,234,267)	(6,677,763)
iii. Net	\$ 26,533,989	\$ 29,990,910
c. Net realized and unrealized gains (losses)	\$ 152,525,484	\$ (522,732,735)
d. Total revenue	\$ 257,165,303	\$ (418,360,845)
3. Expenditures for the year		
a. Benefits and refunds		
i. Refunds	\$ 2,557,240	\$ 2,362,251
ii. Regular annuity benefits	123,650,676 *	113,070,337
iii. Partial lump-sum benefits paid	821,478	895,742
iv. Total	\$ 127,029,394	\$ 116,328,330
b. Administrative and miscellaneous expenses	1,902,796	1,707,506
c. Total expenditures	\$ 128,932,190	\$ 118,035,836
4. Increase in net assets (Item 2 - Item 3)	\$ 128,233,113	\$ (536,396,681)
5. Value of assets at end of year (Item 1 + Item 4)	\$ 1,437,949,843	\$ 1,309,716,730

* Includes the one-time retiree payment totaling \$4,404,041 paid in December 2009.

Determination of Excess Earnings to be Deferred

Year ended :		<u>June 30, 2007</u>	<u>June 30, 2008</u>	<u>June 30, 2009</u>	<u>June 30, 2010</u>
		(1)	(2)	(3)	(4)
1.	MVA at beginning of year	\$ 1,720,324,948	\$ 2,029,777,412	\$ 1,846,113,411	\$ 1,309,716,730
2.	Net new investments				
	a. Contributions	\$ 66,362,099	\$ 70,573,389	\$ 74,380,980	\$ 78,105,830
	b. Benefits and refunds paid	<u>(103,066,836)</u>	<u>(111,956,810)</u>	<u>(116,328,330)</u>	<u>(127,029,394)</u>
	c. Subtotal	\$ (36,704,737)	\$ (41,383,421)	\$ (41,947,350)	\$ (48,923,564)
3.	MVA at end of year	\$ 2,029,777,412	\$ 1,846,113,411	\$ 1,309,716,730	\$ 1,437,949,843
4.	Net MVA earnings (3 - 1 - 2)	\$ 346,157,201	\$ (142,280,580)	\$ (494,449,331)	\$ 177,156,677
5.	Assumed investment return rate	8.00%	8.00%	8.00%	8.00%
6.	Expected return	\$ 136,157,806	\$ 160,726,856	\$ 146,011,179	\$ 102,820,396
7.	Excess return (4 - 6)	\$ 209,999,395	\$ (303,007,436)	\$ (640,460,510)	\$ 74,336,281
8.	Excess return deferral percent	20%	40%	60%	80%
9.	Amount deferred	\$ 41,999,879	\$ (121,202,974)	\$ (384,276,306)	\$ 59,469,025

Note: MVA is market value of assets

Development of Actuarial Value of Assets

1. Market value of assets as of valuation	\$ 1,437,949,843
2. Deferred amounts for fiscal year ending June 30,	
a. 2010	\$ 59,469,025
b. 2009	\$ (384,276,306)
c. 2008	\$ (121,202,974)
d. 2007	<u>\$ 41,999,879</u>
e. Total	\$ (404,010,376)
3. Actuarial value of assets (1) - (2)	\$ 1,841,960,219
4. Ratio of actuarial value to market value	128.1%

Estimation of Yields

	Year Ending	
	June 30, 2010	June 30, 2009
	(1)	(2)
A. Market value yield		
1. Beginning of year market assets	\$1,309,716,730	\$ 1,846,113,411
2. Investment income (including realized and unrealized gains and losses)		
a. Interest and dividends net of investment expenses	\$ 26,533,989	\$ 29,990,910
b. Realized and unrealized gains/(losses)	<u>152,525,484</u>	<u>(522,732,735)</u>
c. Total investment income based on market value	\$ 179,059,473	\$ (492,741,825)
3. End of year market assets	\$1,437,949,843	\$ 1,309,716,730
4. Estimated dollar weighted market value yield	13.9%	-27.0%
B. Actuarial value yield		
1. Beginning of year actuarial assets	\$1,900,327,834	\$ 1,909,470,630
2. Investment income (based on asset valuation method)		
a. Interest and dividends net of investment expenses	\$ 26,533,989	\$ 29,990,910
b. Realized and unrealized gains/(losses)	(34,075,244)	4,521,150
c. Less: administrative expenses	<u>(1,902,796)</u>	<u>(1,707,506)</u>
d. Net investment income based on asset valuation method	\$ (9,444,051)	\$ 32,804,554
3. End of year actuarial assets	\$1,841,960,219	\$ 1,900,327,834
4. Estimated actuarial value yield	-0.5%	1.7%

History of Investment Return Rates

Plan Year Ending June 30 of	Market	Actuarial
(1)	(2)	(3)
1990	6.7%	7.7%
1991	7.5%	5.8%
1992	12.4%	6.5%
1993	14.7%	8.1%
1994	1.2%	7.0%
1995	13.6%	9.1%
1996	15.6%	11.3%
1997	18.5%	12.6%
1998	13.2%	12.6%
1999	11.5%	13.5%
2000	11.6%	13.3%
2001	-7.6%	8.6%
2002	-8.6%	3.0%
2003	2.1%	0.6%
2004	18.9%	1.9%
2005	13.3%	3.3%
2006	14.6%	8.5%
2007	20.4%	14.4%
2008	-7.0%	11.6%
2009	-27.0%	1.7%
2010	13.9%	-0.5%
Average Returns		
Last 5 years:	1.3%	7.0%
Last 10 years:	2.2%	5.2%
Last 15 years:	6.0%	7.6%
Last 20 years:	6.9%	7.5%

Investment Experience Gain or Loss

Item (1)	Year Ending	
	June 30, 2010 (2)	June 30, 2009 (3)
1. Actuarial assets, beginning of year	\$ 1,900,327,834	\$ 1,909,470,630
2. Total contributions during year	\$ 78,105,830	\$ 74,380,980
3. Benefits and refunds paid	\$ (127,029,394)	\$ (116,328,330)
4. Assumed net investment income at 8%		
a. Beginning of year assets	\$ 152,026,227	\$ 152,757,650
b. Contributions	3,124,233	2,975,239
c. Benefits and refunds paid	<u>(5,081,176)</u>	<u>(4,653,133)</u>
d. Total	\$ 150,069,284	\$ 151,079,756
5. Expected actuarial assets, end of year (Sum of Items 1 through 4)	\$ 2,001,473,554	\$ 2,018,603,036
6. Actual actuarial assets, end of year	\$ 1,841,960,219	\$ 1,900,327,834
7. Asset gain (loss) for year (Item 6 - Item 5)	\$ (159,513,335)	\$ (118,275,202)

Total Experience Gain or Loss

Item (1)	Year Ending	
	June 30, 2010 (2)	June 30, 2009 (3)
A. Calculation of total actuarial gain or loss		
1. Unfunded actuarial accrued liability (UAAL), previous year	\$ 545,568,876	\$ 421,162,179
2. Normal cost for the year (employer and employee)	\$ 47,791,528	\$ 45,338,418
3. Less: contributions for the year	\$ (78,105,830)	\$ (74,380,980)
4. Interest at 8 %		
a. On UAAL	\$ 43,645,510	\$ 33,692,974
b. On normal cost	1,911,661	1,813,537
c. On contributions	(3,124,233)	(2,975,239)
d. Total	\$ 42,432,938	\$ 32,531,272
5. Expected UAAL (Sum of Items 1 - 4)	\$ 557,687,512	\$ 424,650,889
6. Actual UAAL	\$ 795,204,826	\$ 545,568,876
7. Total gain (loss) for the year (Item 5 - Item 6)	\$ (237,517,314)	\$ (120,917,987)
B. Source of gains and losses		
8. Asset gain (loss) for the year (Table 11)	\$ (159,513,335)	\$ (118,275,202)
9. Liability gain (loss) for the year	\$ (6,103,587)	\$ 1,783,567
10. Change in benefit provisions *	\$ -	\$ (4,426,352)
11. Change in actuarial assumptions - experience study	\$ (71,900,392)	\$ -
12. Total	\$ (237,517,314)	\$ (120,917,987)

* Estimated Supplemental retiree benefit payment

History of Cash Flow

Year Ending June 30,	Contributions ¹	Disbursements or Expenditures				External Cash Flow for the Year ²	Market Value of Assets	External Cash Flow as Percent of Market Value
		Benefit Payments	Refunds	Administrative Expenses	Total			
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
2001	54,522,507	(57,740,914)	(3,127,841)	(1,099,331)	(61,968,086)	(7,445,579)	1,290,662,140	-0.6%
2002	56,415,165	(67,482,482)	(2,743,408)	(1,066,309)	(71,292,199)	(14,877,034)	1,165,369,565	-1.3%
2003	60,210,068	(72,044,977)	(1,729,764)	(1,056,611)	(74,831,352)	(14,621,284)	1,175,258,478	-1.2%
2004	63,655,362	(77,153,054)	(5,800,100)	(1,513,788)	(84,466,942)	(20,811,580)	1,374,679,677	-1.5%
2005	64,072,881	(84,498,130)	(2,733,407)	(2,086,849)	(89,318,386)	(25,245,505)	1,530,194,427	-1.6%
2006	65,577,828	(91,818,092)	(2,697,308)	(1,484,591)	(95,999,991)	(30,422,163)	1,720,324,948	-1.8%
2007	66,362,099	(99,737,905)	(3,328,931)	(1,592,060)	(104,658,896)	(38,296,797)	2,029,777,412	-1.9%
2008	70,573,389	(106,456,334)	(5,500,476)	(1,639,521)	(113,596,331)	(43,022,942)	1,846,113,411	-2.3%
2009	74,380,980	(113,966,079)	(2,362,251)	(1,707,506)	(118,035,836)	(43,654,856)	1,309,716,730	-3.3%
2010	78,105,830	(124,472,154)	(2,557,240)	(1,902,796)	(128,932,190)	(50,826,360)	1,437,949,843	-3.5%

¹ Column (2) includes employee and employer contributions, as well as any purchased service credits during the year.

² Column (7) = Column (2) - Column (6).

Actuarial Balance Sheet

	<u>July 1, 2010</u> (1)	<u>July 1, 2009</u> (2)
A. Assets		
1. Current assets		
a. At market value	\$1,437,949,843	\$ 1,309,716,730
b. Adjustment for actuarial value	<u>404,010,376</u>	<u>590,611,104</u>
c. Actuarial value of assets	\$1,841,960,219	\$ 1,900,327,834
2. Actuarial present value of future contributions		
a. Member contributions	\$ 349,425,401	\$ 293,236,851
b. Employer normal costs	127,145,759	94,970,900
c. Unfunded actuarial accrued liability	<u>795,204,826</u>	<u>545,568,876</u>
d. Total	\$1,271,775,986	\$ 933,776,627
3. Total (1c + 2d)	<u><u>\$3,113,736,205</u></u>	<u><u>\$ 2,834,104,461</u></u>
B. Liabilities - present value of future benefits		
1. Retirees and beneficiaries	\$1,246,075,418	\$ 1,134,238,325
2. Inactive members	63,580,280	61,090,694
3. Active members	<u>1,804,080,507</u>	<u>1,638,775,442</u>
4. Total	<u><u>\$3,113,736,205</u></u>	<u><u>\$ 2,834,104,461</u></u>

Solvency Test

	<u>July 1, 2010</u>	<u>July 1, 2009</u>
	(1)	(2)
1. Actuarial accrued liability (AAL)		
a. Active member contributions	\$ 600,383,691	\$ 576,810,595
b. Retirees and beneficiaries	1,246,075,418	1,134,238,325
c. Active and inactive members (employer financed)	<u>790,705,936</u>	<u>734,847,790</u>
d. Total	\$ 2,637,165,045	\$ 2,445,896,710
2. Actuarial value of assets	\$ 1,841,960,219	\$ 1,900,327,834
3. Cumulative portion of AAL covered		
a. Active member contributions	100.0%	100.0%
b. Retirees and beneficiaries	99.6%	100.0%
c. Active and inactive members (employer financed)	0.0%	25.8%

Distribution of Active Members by Age and by Years of Service

Attained Age	Years of Credited Service													Total Count & Avg. Comp.
	0	1	2	3	4	5-9	10-14	15-19	20-24	25-29	30-34	35 & Over		
	Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.		
Under 20	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0
20-24	40 \$15,182	126 \$31,520	27 \$33,304	1 \$35,509	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	194 \$28,420
25-29	72 \$15,031	249 \$32,672	288 \$34,904	219 \$35,899	157 \$38,489	182 \$39,555	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	1,167 \$34,596
30-34	42 \$15,909	104 \$32,365	93 \$36,365	109 \$37,240	98 \$40,391	605 \$42,047	107 \$45,029	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	1,158 \$39,456
35-39	24 \$15,795	59 \$34,663	49 \$39,094	62 \$41,710	64 \$41,750	275 \$44,263	503 \$47,840	81 \$48,939	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	1,117 \$44,582
40-44	23 \$17,277	36 \$29,835	40 \$37,614	40 \$39,828	41 \$44,006	193 \$44,957	339 \$49,866	429 \$52,923	116 \$56,098	1 \$44,011	0 \$0	0 \$0	0 \$0	1,258 \$48,657
45-49	18 \$19,366	39 \$32,922	34 \$40,753	26 \$41,503	31 \$40,292	139 \$43,637	179 \$48,511	215 \$53,055	415 \$55,826	151 \$55,969	1 \$57,071	0 \$0	0 \$0	1,248 \$50,624
50-54	9 \$19,345	32 \$39,492	27 \$39,252	18 \$40,363	20 \$46,179	118 \$43,573	161 \$48,819	199 \$52,690	238 \$55,075	432 \$55,978	193 \$55,570	1 \$61,018	1 \$52,287	1,448 \$52,287
55-59	13 \$18,130	22 \$35,419	17 \$38,366	14 \$36,584	16 \$39,157	115 \$43,707	139 \$47,370	179 \$52,591	211 \$52,555	252 \$56,885	383 \$59,423	133 \$58,640	133 \$53,422	1,494 \$53,422
60-64	9 \$16,027	17 \$33,853	14 \$44,461	5 \$44,479	6 \$32,379	54 \$48,269	76 \$49,265	90 \$50,039	115 \$55,087	102 \$56,677	76 \$60,499	150 \$62,027	714 \$54,105	714 \$54,105
65 & Over	11 \$16,799	3 \$28,167	9 \$32,811	4 \$34,020	1 \$28,383	8 \$55,945	13 \$41,723	11 \$52,498	8 \$50,712	15 \$51,163	10 \$56,572	16 \$65,872	109 \$46,691	109 \$46,691
Total	261 \$16,175	687 \$32,866	598 \$36,403	498 \$37,775	434 \$40,321	1,689 \$43,087	1,517 \$48,253	1,204 \$52,371	1,103 \$54,953	953 \$56,203	663 \$58,378	300 \$60,727	9,907 \$46,937	9,907 \$46,937

Schedule of Annuitants by Type of Benefit

Type of Benefit/ Form of Payment (1)	Number (2)	Annual Benefits Amount (3)	Average Monthly Benefit (4)
Service :			
Straight Life	2,583	\$ 39,992,538	\$ 1,290
100% J&S	2,095	49,046,934	1,951
50% J&S	500	10,963,226	1,827
5 Years C&L	32	396,102	1,032
10 Years C&L	179	2,933,737	1,366
20 Years C&L	55	1,073,289	1,626
Level	<u>585</u>	<u>12,829,528</u>	<u>1,828</u>
Subtotal:	6,029	\$ 117,235,355	1,620
Disability:			
Straight Life	88	\$ 1,162,160	\$ 1,101
100% J&S	11	108,456	822
50% J&S	7	82,804	986
5 Years C&L	2	25,253	1,052
10 Years C&L	2	31,027	1,293
20 Years C&L	1	9,663	805
Level	<u>0</u>	<u>0</u>	<u>0</u>
Subtotal:	111	\$ 1,419,363	1,066
Beneficiaries			
Straight Life	522	\$ 6,467,993	\$ 1,033
5 Years Certain Only	6	30,911	429
10 Years Certain Only	3	32,544	904
20 Years Certain Only	<u>1</u>	<u>38,911</u>	<u>3,243</u>
Subtotal:	532	\$ 6,570,359	1,029
Total:	<u><u>6,672</u></u>	<u><u>\$ 125,225,077</u></u>	<u><u>\$ 1,564</u></u>

Schedule of Annuitants by Monthly Benefit

Monthly Benefit Amount			Number of Members	Female	Male	Average Service
(1)			(2)	(3)	(4)	(5)
Under \$200			199	146	53	6.66
\$	200	- 399	466	357	109	12.94
	400	- 599	500	405	95	18.88
	600	- 799	446	352	94	23.84
	800	- 999	410	305	105	25.55
	1000	- 1199	527	387	140	27.90
	1200	- 1399	514	344	170	29.39
	1400	- 1599	556	350	206	30.51
	1600	- 1799	550	357	193	30.50
	1800	- 1999	526	322	204	31.52
	2000	- 2199	445	270	175	31.30
	2200	- 2399	381	217	164	32.42
	2400	- 2599	287	165	122	33.22
	2600	- 2799	237	120	117	33.75
	2800	- 2999	178	74	104	33.91
	3000	- 3199	124	59	65	34.33
	3200	- 3399	84	30	54	34.13
	3400	- 3599	72	25	47	34.03
	3600	- 3799	46	12	34	34.64
	3800	- 3999	34	14	20	35.51
	4000	& Over	90	21	69	36.78
Total			6,672	4,332	2,340	27.51

North Dakota Teachers' Fund for Retirement

Reconciliation of Members by Status for Year Ending July 1, 2010

	Active Members	Inactive, Nonretired Members		Annuitants			Grand Total
		Vested	Nonvested	Service Retirees	Disabled Retirees	Beneficiaries	
Number at beginning of year	9,707	1,490	292	5,833	108	525	17,955
Refund paid (non-death)	(105)	(33)	(13)				(151)
Transfer Out	0						0
Termination, refund due	(84)		84				0
Deferred terminations	(140)	140					0
Retirements (nondisabled)	(312)	(49)	(4)	365			0
Disabled retirements	(6)	(2)			8		0
Death before retirement - refund	(2)	(3)					(5)
Death before retirement - annuity		(1)				1	0
Death of annuitant - survivor benefit due				(27)	(4)	31	0
Death of annuitant - no further benefits due				(140)	(1)	(23)	(164)
Payments ceased - certain period ended						(4)	(4)
New hires	748						748
New alternate payees				1			1
Reemployments	101	(70)	(28)	(3)			0
Adjustments and corrections						2	2
Number at end of year	9,907	1,472	331	6,029	111	532	18,382

SUMMARY OF ASSUMPTIONS AND METHODS

ACTUARIAL ASSUMPTIONS

1. Investment Return Rate 8.00% per annum, compounded annually, equal to an assumed 3.00% inflation rate plus a 5.65% real rate of return, less 0.65% for expected investment and administrative expenses. (Adopted July 1, 1990; allocation among inflation, real rate of return, and expenses modified effective July 1, 2010.)

2. Mortality Rates

a. Post-Termination

Nondisabled..... GRS tables as shown below. (Adopted effective July 1, 2010.)

- i. 80% of GRS Table 378
- ii. 75% of GRS Table 379

b. Post-Retirement

Disabled..... RP-2000 Disabled-Life tables for Males and Females multiplied by 80% and 95% respectively. (Adopted effective July 1, 2010.)

Number of Deaths per 100				
Age	Male Annuitants		Female Annuitants	
	Nondisabled	Disabled	Nondisabled	Disabled
20	0.044	1.806	0.023	0.708
25	0.057	1.806	0.023	0.708
30	0.069	1.806	0.028	0.708
35	0.073	1.806	0.039	0.708
40	0.092	1.806	0.057	0.708
45	0.136	1.806	0.078	0.708
50	0.222	2.318	0.115	1.096
55	0.381	2.835	0.283	1.572
60	0.358	3.363	0.354	2.075
65	0.457	4.014	0.327	2.662
70	1.198	5.007	0.672	3.575

c. Active Mortality The nondisabled post-termination mortality rates multiplied by 60% for males and 40% for females. (Adopted effective July 1, 2010.)

3. Retirement Rates The following rates of retirement are assumed for members eligible to retire. (Adopted effective July 1, 2010.)

Retirements Per 100 Members				
	Unreduced Retirement *		Reduced Retirement	
Age	Male	Female	Male	Female
50	25.00%	15.00%		
51	25.00%	15.50%		
52	25.00%	16.00%		
53	25.00%	16.50%		
54	25.00%	17.00%		
55	20.00%	17.50%	1.50%	1.50%
56	20.00%	18.00%	1.50%	1.50%
57	20.00%	18.50%	1.50%	1.50%
58	20.00%	19.00%	1.50%	1.50%
59	20.00%	19.50%	1.50%	1.50%
60	20.00%	20.00%	4.00%	3.00%
61	20.00%	20.00%	4.00%	3.00%
62	45.00%	35.00%	9.00%	8.00%
63	35.00%	30.00%	7.00%	12.00%
64	35.00%	30.00%	10.00%	15.00%
65	40.00%	30.00%		
66	30.00%	30.00%		
67	30.00%	30.00%		
68	30.00%	30.00%		
69	30.00%	30.00%		
70	25.00%	25.00%		
71	25.00%	25.00%		
72	25.00%	25.00%		
73	25.00%	25.00%		
74	25.00%	25.00%		
75	100.00%	100.00%		

* If a member reaches eligibility for unreduced retirement before age 65 under the rule of 85 (under Tier 1) or the Rule of 90 (under Tier 2), 10% is added to the rate just at the age the member becomes first eligible for an unreduced retirement benefit.

4. Disability Rates..... Shown below for selected ages. (Adopted effective July 1, 2010.)

Disabilities per 100 Members	
Age	Number
20	0.011
25	0.011
30	0.011
35	0.011
40	0.033
45	0.055
50	0.088
55	0.154
60	0.297

5. Termination Rates..... Termination rates based on service, for causes other than death, disability, or retirement. (Adopted effective July 1, 2010.)

Termination Rates		
Service	Male	Female
0	33.00%	30.00%
1	15.00%	15.00%
2	12.00%	10.00%
3	9.00%	8.50%
4	8.00%	7.00%
5	7.00%	6.00%
6	6.00%	5.00%
7	5.00%	4.50%
8	4.00%	4.25%
9	3.75%	4.00%
10	3.50%	3.50%
11	3.25%	3.25%
12	3.00%	3.00%
13	2.75%	2.75%
14	2.50%	2.50%
15-19	1.25%	2.00%
20-24	1.25%	1.50%
25-28	1.25%	0.75%
29 and over	0.00%	0.00%

6. Salary Increase Rates Inflation rate of 3.00% plus productivity increase rate of 1.50%, plus step-rate/promotional increase as shown below. (Adopted effective July 1, 2010.)

Years of Service	Annual Step-Rate Promotional Component	Annual Total Salary Increase
0	10.25%	14.75%
1	3.50%	8.00%
2	3.25%	7.75%
3	3.00%	7.50%
4	2.75%	7.25%
5	2.50%	7.00%
6	2.25%	6.75%
7	2.00%	6.50%
8	1.75%	6.25%
9	1.75%	6.25%
10	1.50%	6.00%
11	1.50%	6.00%
12	1.25%	5.75%
13	1.25%	5.75%
14	1.00%	5.50%
15	1.00%	5.50%
16	0.75%	5.25%
17	0.75%	5.25%
18	0.75%	5.25%
19	0.50%	5.00%
20	0.50%	5.00%
21	0.50%	5.00%
22	0.50%	5.00%
23	0.25%	4.75%
24	0.25%	4.75%
25+	0.00%	4.50%

7. Payroll Growth Rate 3.25% per annum. This assumption does not include any allowance for future increase in the number of members. (Adopted effective July 1, 2010.)

8. Percent Married..... For valuation purposes 75% of members are assumed to be married. 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. (Adopted effective July 1, 1992.)
9. Percent Electing a Deferred Termination Benefit..... Terminating members are assumed to elect the most valuable benefit at the time of termination. Termination benefits are assumed to commence at the first age at which unreduced benefits are available. (Adopted effective July 1, 1990.)
10. Provision for Expenses The assumed investment return rate represents the anticipated net rate of return after payment of all administrative and investment expenses. These expenses are expected to reduce the gross investment return rate by 0.65%. (Adopted effective July 1, 2010.)

ASSET VALUATION METHOD

The actuarial value of assets is based on the market value of assets with a five-year phase-in of actual investment return in excess of (or less than) expected investment income. Expected investment income is determined using the assumed investment return rate and the market value of assets (adjusted for receipts and disbursements during the year). The actual investment return for this purpose is determined net of all investment and administrative expenses.

ACTUARIAL COST METHOD

The GASB Annual Required Contribution (ARC) is determined using the Entry Age Normal actuarial cost method. This method assigns the plan's total actuarial present value of future benefits to various periods. The actuarial accrued liability is assigned to years prior to the valuation, and the normal cost is assigned to the year following the valuation. The remaining costs are assigned to future years.

The normal cost rate is determined as a level percentage of payroll for a hypothetical group of new entrants, based on the characteristics (age at hire, sex, pay at hire) of actual new members joining TFFR during FY 2005 through FY 2009. The normal cost is determined on an aggregate basis for this group of hypothetical new entrants by dividing the total actuarial present value of future benefits by the actuarial present value of their future pay. Entry age is determined as the age at member's enrollment in TFFR. In the calculation of the normal cost, the benefit provisions applicable to future Tier 2 members were used. The actuarial accrued liability is the difference between the total present value of future benefits and the actuarial present value of future normal costs. The unfunded actuarial accrued liability (UAAL) is the excess of the actuarial accrued liability over the actuarial value of assets.

AMORTIZATION PERIOD AND METHOD

The GASB Annual Required Contribution (ARC) is determined as the sum of (a) the employer normal cost rate, and (b) a level percentage of payroll required to amortize the unfunded actuarial accrued liability over 30 years. If the calculated ARC is less than the 8.75% statutory employer contribution rate, the 8.75% rate will be treated as the ARC. The 30-year period is an open period, and does not decrease in subsequent valuations.

SUMMARY OF BENEFIT PROVISIONS

1. Effective Date: July 1, 1971.
2. Plan Year: Twelve-month period ending June 30th.
3. Administration: The Teachers' Fund for Retirement (TFFR) is administered by a Board of Trustees. A separate State Investment Board is responsible for the investment of the trust assets, although the TFFR Board establishes the asset allocation policy. The Retirement and Investment Office is the administrative agency for TFFR.
4. Type of Plan: TFFR is a qualified governmental defined benefit retirement plan. For Governmental Accounting Standards Board purposes, it is a cost-sharing multiple-employer public employee retirement system.
5. Eligibility: All certified teachers of any public school in North Dakota participate in TFFR. This includes teachers, supervisors, principals, administrators, etc. Non-certified employees such as teacher's aides, janitors, secretaries, drivers, etc. are not allowed to participate in TFFR. Eligible employees become members at their date of employment.
6. Employee Contributions: All active members contribute 7.75% of their salary per year. The employer may "pick up" the member's contributions under the provisions of Internal Revenue Code Section 414(h).
7. Salary: The member's total earnings are used for salary purposes, including overtime, etc., and including nontaxable wages under a Section 125 plan, but excluding certain extraordinary compensation, such as fringe benefits or unused sick and vacation leave.
8. Employer Contributions: The district or other employer which employs a member contributes a percentage of the member's salary. This percentage consists of a base percentage of 7.75%, plus, since July 1, 2008, additions as shown below.

Effective Date	Addition to 7.75% Base Rate	Employer Contribution Rate
July 1, 2008	0.50%	8.25%
July 1, 2010	1.00%	8.75%

However, the additions are subject to a "sunset" provision, so the contribution rate will revert to 7.75% once the funded ratio reaches 90%, measured using the actuarial value of assets. The

contribution rate will not automatically increase back to 8.75% if the funded ratio later falls back below 90%.

9. Service: Employees receive credit for service while a member. A member may also purchase credit for certain periods, such as time spent teaching at a public school in another state, by paying the actuarially determined cost of the additional service. Special rules and limits govern the purchase of additional service.
10. Tiers: Members who join TFFR by June 30, 2008 are in Tier 1, while members who join later are in Tier 2. If a Tier 1 member terminates, takes a refund, and later rejoins TFFR after June 30, 2008, that member will be in Tier 2 after being reemployed.
11. Final Average Compensation (FAC): The average of the member's highest three (Tier 1 members) or five (Tier 2 members) plan year salaries. Monthly benefits are based on one-twelfth of this amount.

12. Normal Retirement

a. Eligibility:

- Tier 1 members may retire upon Normal Retirement on or after age 65 with credit for 3 years of service, or if earlier, when the sum of the member's age and service is at least 85.
- Tier 2 members may retire upon Normal Retirement on or after age 65 with credit for 5 years of service, or if earlier, when the sum of the member's age and service is at least 90.

b. Monthly Benefit: 2.00% of FAC (monthly) times years of service.

- ##### c. Payment Form: Benefits are paid as a monthly life annuity, with a guarantee that if the payments made do not exceed the member's contributions plus interest, determined as of the date of retirement, the balance will be paid in a lump-sum to the member's beneficiary. Optional forms of payment are available; see below.

13. Early Retirement

- ##### a. Eligibility: Tier 1 members may retire early after reaching age 55 with credit for three years of service, while Tier 2 members may retire early after reaching age 55 with credit for five years of service.

- b. Monthly Benefit: 2.00% of FAC (monthly) times years of service, multiplied by a factor which reduces the benefit 6% for each year from the earlier of (i) age 65, or (ii) the age at which current service plus age equals 85 (Tier 1 members) or 90 (Tier 2 members).
- c. Payment Form: Same as for Normal Retirement above.

14. Disability Retirement

- a. Eligibility: A member is eligible provided he/she has credit for at least one year of service.
- b. Monthly Benefit: 2.00% of FAC (monthly) times years of service with a minimum 20 years of service.
- c. Payment Form: The disability benefit commences immediately upon the member's retirement. Benefits cease upon recovery or reemployment. Disability benefits are payable as a monthly life annuity with a guarantee that, at the member's death, the sum of the member's contributions plus interest as of the date of retirement that is in excess of the sum of payments already received will be paid in a lump sum to the member's beneficiary.
- d. All alternative forms of payment other than option 5 and the partial lump-sum option are also permitted in the case of disability retirement. Disability benefits are converted to normal retirement benefits when the member reaches normal retirement age or age 65, whichever is earlier.

15. Deferred Termination Benefit

- a. Eligibility: A Tier 1 member with at least three years of service, or a Tier 2 member with at least five years of service, who does not withdraw his/her contributions from the fund, is eligible for a deferred termination benefit.
- b. Monthly Benefit: 2.00% of FAC (monthly) times years of service. Both FAC and service are determined at the time the member leaves active employment. Benefits may commence unreduced at age 65 or when the sum of the member's age and services is 85 (Tier 1 members) or 90 (Tier 2 members). Reduced benefits may commence at or after age 55 if the member is not eligible for an unreduced benefit.
- c. Payment Form: The form of payment is the same as for Normal Retirement above.
- d. Death Benefit: A member who dies after leaving active service but before retiring is entitled to receive a benefit as described below in 17b.

16. Withdrawal (Refund) Benefit

- a. Eligibility: Tier 1 members leaving covered employment with less than three years of service, and Tier 2 members leaving covered employment with less than five years of service, are eligible. Optionally, vested members may withdraw their contributions plus interest in lieu of the deferred benefits otherwise due.
- b. Benefit: The member who withdraws receives a lump-sum payment of his/her employee contributions, plus the interest credited on these contributions. Interest is credited at 6% per year (0.5% per month).

17. Death Benefit

- a. Eligibility: Death must have occurred while an active or an inactive, non-retired member.
- b. Benefit: Upon the death of a nonvested member, a refund of the member's contributions and interest is paid. Upon the death of a vested member, the beneficiary may elect (i) the refund benefit above, (ii) payment for 60 months of the normal retirement benefit, based on FAC and service determined at the date of death, or (iii) a life annuity of the normal retirement benefit, determined under Option One below, based on FAC and service as of the date of death, but without applying any reduction for the member's age at death. In determining the reduction for Option One, members not eligible for normal retirement benefits use the Fund's option tables for disabled members.

18. Optional Forms of Payment: There are optional forms of payment available on an actuarially equivalent basis, as follows:

- a. Option 1 - A life annuity payable while either the participant or his beneficiary is alive, "popping-up" to the original life annuity if the beneficiary predeceases the member.
- b. Option 2 - A life annuity payable to the member while both the member and beneficiary are alive, reducing to 50% of this amount if the member predeceases the beneficiary, and "popping-up" to the original life annuity if the beneficiary predeceases the member.
- c. Option 3a - A life annuity payable to the member, with a guarantee that, should the member die prior to receiving 60 payments (five years), the payments will be continued to a beneficiary for the balance of the five-year period. (This option has been replaced by Option 3b. It is not available to employees who retire on or after August 1, 2003. Retirees who elected this option prior to that date are unaffected.)

- d. Option 3b - A life annuity payable to the member, with a guarantee that, should the member die prior to receiving 240 payments (twenty years), the payments will be continued to a beneficiary for the balance of the twenty-year period. (This option replaced Option 3a effective August 1, 2003.)
- e. Option 4 - A life annuity payable to the member, with a guarantee that, should the member die prior to receiving 120 payments (10 years), the payments will be continued to a beneficiary for the balance of the ten-year period.
- f. Option 5 - A nonlevel annuity payable to the member, designed to provide a level total income when combined with the member's Social Security benefit. This option is not available to disabled retirees.

In addition, members may elect a partial lump-sum option (PLSO) at retirement. Under this option, a member receives an immediate lump-sum equal to 12 times the monthly life annuity benefit and a reduced annuity. The reduction is determined actuarially. The member can then elect to receive the annuity benefit in one of the other optional forms, except that members who receive a PLSO may not elect Option 5 – the level income option. The PLSO is not available to disabled retirees or retirees who are not eligible for an unreduced retirement benefit

Actuarial equivalence is based on tables adopted by the Board of Trustees.

- 19. Cost-of-living Increase: From time to time, TFFR has been amended to grant certain post-retirement benefit increases. However, TFFR has no automatic cost-of-living increase features.

SUMMARY OF PLAN CHANGES

1991 Legislative Session:

1. Benefit multiplier increased from 1.275% to 1.39% for all future retirees.
2. Provide a post-retirement benefit increase for all annuitants receiving a monthly benefit on June 30, 1991. The monthly increase is the greater of a 10% increase or a level increase based on years of service and retirement date:
 - a. \$3 per year of service for retirements before 1980
 - b. \$2 per year of service for retirements between 1980 and 1983
 - c. \$1 per year of service for retirements from 1984 through June 30, 1991

Minimum increase is \$5 per month. Maximum increase is \$75 per month.

1993 Legislative Session:

1. Benefit multiplier increased from 1.39% to 1.55% for all future retirees.
2. Provide a post-retirement benefit increase for all annuitants receiving a monthly benefit on June 30, 1993. The monthly increase is the greater of a 10% increase or a level increase based on years of service and retirement date:
 - a. \$3 per year of service for retirements before 1980
 - b. \$2.50 per year of service for retirements between 1980 and 1983
 - c. \$1 per year of service for retirements from 1984 through June 30, 1993

Minimum increase is \$5 per month. Maximum increase is \$100 per month.

3. Minimum retirement benefit increased to \$10 times years of service up to 25, plus \$15 times years of service greater than 25. (Previously was \$6 up to 25 years of service plus \$7.50 over 25 years of service.)
4. Disability benefit changed to 1.55% of FAC times years of service using a minimum of 20 years of service.

1995 Legislative Session:

There were no material changes made during the 1995 legislative session.

1997 Legislative Session:

1. Benefit multiplier increased from 1.55% to 1.75% for all future retirees.
2. Member contribution rate and employer contribution rate increased from 6.75% to 7.75%.
3. A \$30.00/month benefit improvement was granted to all retirees and beneficiaries.

1999 Legislative Session:

1. Active members will now be fully vested after three years (rather than five years) of service.
2. Early retirement benefits will be reduced 6% per year from the earlier of (i) age 65, or (ii) the date as of which age plus service equals 85 (rather than from age 65 in all cases).
3. An ad hoc COLA was provided for all retirees and beneficiaries. This increase is equal to an additional \$2.00 per month for each year of service plus \$1.00 per month for each year since the member's retirement.
4. The formula multiplier was increased from 1.75% to 1.88% effective July 1, 1999.

2001 Legislative Session:

1. An ad hoc COLA was provided for all retirees and beneficiaries. The ad hoc COLA increase is equal to an additional \$2.00 per month for each year of service plus \$1.00 per month for each year since the member's retirement. Retirees and beneficiaries will also receive two additional increases equal to 0.75% times the monthly benefit, payable July 1, 2001 and July 1, 2002. The two 0.75% increases are conditional. If the actuarial margin is a shortfall, i.e., is negative, by 60 basis points or more, or if the margin has been negative by 30 or more basis points for two years, the Board could elect to suspend the increase.
2. The formula multiplier was increased from 1.88% to 2.00% effective July 1, 2001.

2003 Legislative Session:

1. Partial lump-sum option adopted, equal to twelve times the monthly life annuity benefit. Not available if level-income option is elected. Not available for reduced retirement or disability retirement.
2. Five-year certain and life option replaced with 20-year certain and life. This does not impact retirees who retired under the five-years certain and life option.

3. Employer service purchase authorized.
4. Active members of the Department of Public Instruction are permitted to make a one-time irrevocable election to transfer to the North Dakota Public Employees Retirement System in FY 2004. Both assets and liabilities for all TFFR service will be transferred for electing employees. Transferred assets will be based on the actuarial present value of the member's accrued TFFR benefit, or the member's contribution account balance if larger.

2005 Legislative Session:

There were no material changes made during the 2005 legislative session.

2007 Legislative Session:

1. For active members hired on or after July 1, 2008 (called Tier 2 members):
 - a. Members will be eligible for an unreduced retirement benefit when they reach age 65 with at least five years of service (rather than three years of service); or if earlier, when the sum of the member's age and service is at least 90 (rather than 85).
 - b. Members will be eligible for a reduced (early) retirement benefit when they reach age 55 with five years of service, rather than three years of service.
 - c. Members will be fully vested after five years of service (rather than three year of service).
 - d. The Final Average Compensation for Tier 2 members is the average of the member's highest five plan year salaries, rather than the average of the three highest salaries.
2. The employer contribution rate increases from 7.75% to 8.25% effective July 1, 2008, but this rate will be reset to 7.75% once the Fund reaches a 90% funded ratio, measured using the actuarial value of assets. (If the funded ratio later falls below 90% again, the contribution rate will not automatically return to 8.25%.)
3. Employer contributions are required on the salary of reemployed retirees.
4. Active members of the Department of Career and Technical Education are permitted to make a one-time irrevocable election to transfer to the North Dakota Public Employees Retirement System in FY 2008. Both assets and liabilities for all TFFR service will be transferred for electing employees. Transferred assets will be the actuarial present value of the member's accrued TFFR benefit, or the member's contribution account balance, if larger.

2009 Legislative Session:

1. An individual who retired before January 1, 2009, and is receiving monthly benefits is entitled to receive a supplemental payment from the fund. The supplemental payment is equal to an amount determined by taking twenty dollars multiplied by the member's number of years of service credit plus fifteen dollars multiplied by the number of years since the member's retirement as of January 1, 2009. The supplemental payment may not exceed the greater of 10% of the member's annual annuity or \$750.00. TFFR will make the supplemental payment in December 2009.
2. The employer contribution rate increases from 8.25% to 8.75% effective July 1, 2010, but this rate will be reset to 7.75% once the Fund reaches a 90% funded ratio, measured using the actuarial value of assets. (If the funded ratio later falls below 90% again, the contribution rate will not automatically return to 8.75 %.)

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 for compliance with GASB 25, such as the funded ratio and the ARC.

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.

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.

Annual Required Contribution (ARC): The employer's periodic required contributions, expressed as a dollar amount or a percentage of covered plan compensation, determined under GASB 25. The ARC 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, although GASB 25 reporting requires the use of the AVA.

Funding Period or Amortization Period: The term "Funding Period" is used in 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.

GASB: Governmental Accounting Standards Board.

GASB 25 and GASB 27: Governmental Accounting Standards Board Statements No. 25 and No. 27. 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. 27 sets the accounting rules for the employers that sponsor or contribute to public retirement systems, while Statement No. 25 sets the rules for the systems themselves.

Margin: The difference, whether positive or negative, between the statutory employer contribution rate and the Annual Required Contribution (ARC), determined under parameters set by the Board of Trustees, as constrained by GASB 25.

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.