

**NORTH DAKOTA TEACHERS' FUND FOR RETIREMENT**  
*ACTUARIAL VALUATION REPORT*  
*AS OF JULY 1, 2008*

October 7, 2008

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, 2008

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, 2008.

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. Both are Enrolled Actuaries and Members of the American Academy of Actuaries and are experienced in performing valuations for large public retirement systems. Both 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%. The addition of 0.50% 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. 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 8.25% 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 2.00% per annum. As of July 1, 2008, the ARC is 9.24%, decreased from 10.15% last year. This is greater than the 8.25% rate currently required by law. The shortfall (the negative margin) between the rate mandated by law and the rate necessary to fund the UAAL in 30 years is -0.99%.

The plan had a net asset loss of \$63 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 a large market loss during FY 2008.

The funded ratio (the ratio of the actuarial value of assets to the actuarial accrued liability) increased from last year. The funded ratio at July 1, 2007 was 79.2%, while it is 81.9% as of July 1, 2008. Based on market values rather than actuarial values of assets, the funded ratio decreased to 79.2% from 91.9% last year.

#### **REPORTING CONSEQUENCES**

TFFR is required to report in its Comprehensive Annual Financial Report (CAFR) for the current fiscal year ending June 30, 2008 that actual contributions received in FY 2008 were less than the ARC. The FY 2008 7.75% statutory rate was 76.4% of the 10.15% ARC determined by the last valuation. Next year, the CAFR for FY 2009 will show that the 8.25% statutory rate is only 89.3% of the 9.24% 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.

In addition to making the employer contribution rate increase discussed above, SB 2046, enacted in 2007, created a new tier of benefits for members hired on or after July 1, 2008. These provisions are described in detail on Table 19. These future hires are called Tier 2 members. There are no Tier 2 members in the data used for this valuation, but the Tier 2 provisions were used in calculating the normal cost, as they were in last year's valuation.

In FY 2008, sixteen employees of the Career and Technical Education department transferred to the Public Employees' Retirement System (PERS), and in conjunction with this, \$3.2 million in assets were transferred to PERS at the same time. This did not materially affect TFFR.

#### ASSUMPTIONS AND METHODS

Actuarial assumptions and methods are set by the Board of Trustees, based upon recommendations made by the plan's actuary. These assumptions and procedures were last changed in 2005, following an analysis of plan experience for the five-year period ending June 30, 2004. The Board adopted the assumptions and methods recommended by the actuary. 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.

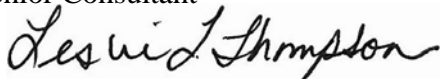
#### DATA

Member data for retired, active, and inactive participants was supplied as of July 1, 2008, 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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## TABLE OF CONTENTS

<u>SECTION</u>	<u>PAGE</u> <u>NUMBER</u>	
SECTION A	1	EXECUTIVE SUMMARY
SECTION B	3	INTRODUCTION
SECTION C	5	FUNDING STATUS
SECTION D	8	ANALYSIS OF CHANGES
SECTION E	10	GASB NO. 25 DISCLOSURE
SECTION F	12	BENEFIT PROVISIONS
SECTION G	14	ACTUARIAL ASSUMPTIONS AND METHODS
SECTION H	16	FUND ASSETS
SECTION I	18	MEMBERSHIP DATA
SECTION J	20	TABLES

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## **SECTION A**

### **EXECUTIVE SUMMARY**

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## Executive Summary

Valuation Date:	07/01/2008	07/01/2007
Fiscal Year Ending:	06/30/2009	06/30/2008
Membership		
• Number of		
- Active Members	9,561	9,599
- Retirees and Beneficiaries	6,317	6,077
- Inactive, Vested	1,459	1,439
- Inactive, Nonvested	229	142
- Total	17,566	17,257
• Payroll	\$417.7 million	\$401.3 million
Statutory contribution rates		
• Employer	8.25%	7.75%
• Member	7.75%	7.75%
Assets		
• Market value	\$1,846.1 million	\$2,029.8 million
• Actuarial value	1,909.5 million	1,750.1 million
• Return on market value	-7.0%	20.4%
• Return on actuarial value	11.6%	14.4%
• Ratio - actuarial value to market value	103.4%	86.2%
• External cash flow %	-2.3%	-1.9%
Actuarial Information		
• Normal cost %	10.26%	10.26%
• Unfunded actuarial accrued liability (UAAL)	\$421.2 million	\$459.2 million
• Funded ratio	81.9%	79.2%
• Funding period	57.0 years	Infinite
GASB 25 ARC		
• Amortization period	30 years	30 years
• Amortization method	Level % (2.00%)	Level % (2.00%)
• Calculated contribution rate	9.24%	10.15%
• Margin	-0.99%	-2.40%
Gains/(Losses)		
• Asset experience	\$62.4 million	\$99.2 million
• Liability experience	(15.7) million	7.8 million
• Benefit changes	0.0 million	(36.0) million
• Assumption/method changes	0.0 million	0.0 million
• Total	\$46.7 million	\$71.0 million

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## **SECTION B**

### INTRODUCTION

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## **INTRODUCTION**

The results of the July 1, 2008 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.

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## **SECTION C**

### **FUNDING STATUS**

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## 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 \$2.698 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 10.26% 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 10.26% is the same as last year's normal cost rate. In determining the normal cost, we have taken into account the new benefit provisions that will be applicable to members joining TFFR after June 30, 2008 (Tier 2 members).
- A part of the normal cost is paid by the employee assessments of 7.75%, leaving 2.51% to be funded by the employers, i.e., the current year's employer normal cost is 2.51% 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 2.00% annual payroll growth rate. This adds \$29.7 million to the employer portion of the normal cost of \$11.1 million, for a total ARC of \$40.8 million, and is equivalent to 9.24% of pay.

Another way of expressing this is that an employer contribution of 9.24% would be required to meet the 30-year funding schedule, determined as follows:

Employer normal cost	2.51%
Amortization payment	<u>6.73%</u>
Total	9.24%

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 8.25% employer rate is left in place, how long does it take to amortize the UAAL? The calculated funding period, assuming 8.00% returns on the actuarial value of assets, is 57 years.

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## **SECTION D**

### **ANALYSIS OF CHANGES**

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## 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 decreased from \$459.2 million to \$421.2 million, a decrease of \$38.0 million. This decrease was principally due to the fact that the Plan experienced an actuarial asset gain of \$62.4 million. The \$8.7 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 \$15.7 million.

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 100 basis point decrease due to the investment experience gain.

This is the first valuation that reflects the 0.50% increase in the employer contribution rate, from 7.75% to 8.25%. If the employer contribution rate had remained at 7.75%, the calculated funding period would be 'infinite' rather than 57.0 years, and the margin shown on Table 2a, item 5, would have been -1.49% rather than -0.99%.

The Tier 1 and Tier 2 changes were already reflected in the calculation of the normal cost in the prior valuation, so these changes have no additional impact on this valuation.

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**SECTION E**

**GASB NO. 25 DISCLOSURE**

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## **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 increased from 79.2% to 81.9%. Table 5b shows that, for FY 2008, the statutory contributions received amounted to 76.4% of the ARC for that year ( $7.75\% \div 10.15\%$ ). When next year's financial report is prepared, this table will show that the contributions received for FY 2009 are only 89.3% of the ARC ( $8.25\% \div 9.24\%$ ).

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 2008, employers contributed \$33,683,550, which represents 7.75% of actual covered payroll during the fiscal year. This implies actual payroll of \$434,626,452 ( $\$33,683,550/0.0775$ ). The ARC for FY 2008 was calculated in the last valuation report as 10.15% of payroll. Therefore, the dollar ARC shown on Table 5b for FY 2008 is 10.15% of the imputed payroll of \$434,626,452, or \$44,114,585.

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 change in the benefit provisions for new hires employed after July 1, 2008 made at July 1, 2007, the change in assumptions made at July 1, 2005, 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.



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**SECTION F**

**BENEFIT PROVISIONS**

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## **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.

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 is the first to reflect the employer contribution rate increase from 7.75% to 8.25% as mandated by SB 2046, enacted in 2007. 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%.

SB 2046 changed the benefit provisions for members who join TFFR on or after July 1, 2008, called Tier 2 members. Differences between Tier 1 and Tier 2 benefits can be found in Table 19. The new benefit provisions for Tier 2 members are reflected in the determination of the plan's normal cost.

Also as a result of SB 2046, employers had to begin making contributions on the salaries of reemployed retirees during FY 2008.

During FY 2008, sixteen members employed by the Department of Career and Technical Education transferred to the North Dakota Public Employees' Retirement System (PERS). At the same time, TFFR transferred \$3.2 million to PERS. The transfer of assets and liabilities to PERS roughly offset each other.

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## **SECTION G**

### **ACTUARIAL ASSUMPTIONS AND METHODS**

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## 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 same assumptions and methods used in preparing last year's report. Assumptions were last changed in 2005, based upon an analysis of plan experience for the preceding five years.

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 5.7%. 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 8.25% statutory employer contribution rate is compared. In determining the ARC, the UAAL is amortized with level-percentage-of-payroll payments with a 2.00% 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.

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## **SECTION H**

### **FUND ASSETS**

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## 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 75% of the assets are held in equities, real estate, and private equity. This has decreased from about 78% 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 -7.0%, the yield on the actuarial value is 11.6%. The difference between these is due to the smoothing effect of the AVA.

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%. The impact of this gain has already been discussed in Section D. Finally, Table 13 shows a history of cash flows to the trust.

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## **SECTION I**

### **MEMBERSHIP DATA**

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## 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 were no Tier 2 members in the data, since Tier 2 members are those hired on or after July 1, 2008.

The number of active members decreased by 0.4% since last year, from 9,599 to 9,561. Part of this decrease was due to the election by all 16 employees of the Department of Career and Technical Education to transfer to the North Dakota Public Employees' Retirement System. 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 4.1% since last year. For all comparative purposes, payroll is the amount supplied by the RIO staff (i.e., the 2007-2008 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, 2008. Pay is assumed to change only at the beginning of a school/fiscal year.

Average pay increased by 4.5%, from \$41,810 to \$43,684. This includes the impact of replacing more highly-paid members who retire with new teachers. The average increase in salary for the 8,870 continuing members—members active in both this valuation and the preceding valuation—was 6.6%.

The average age of active members decreased from 44.7 years to 44.6 years, while their average service decreased from 14.5 years to 14.4 years.



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**SECTION J**  
**TABLES**

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## TABLES

<u>TABLE NUMBER</u>	<u>PAGE</u>	<u>CONTENT OF TABLE</u>
1	22	DEVELOPMENT OF EMPLOYER COST
2A	23	ANALYSIS OF CHANGE IN GASB ARC
2B	24	ANALYSIS OF CHANGE IN UAAL
3	25	ACTUARIAL PRESENT VALUE OF FUTURE BENEFITS
4	26	ANALYSIS OF NORMAL COST
5A	27	SCHEDULE OF FUNDING PROGRESS
5B	28	SCHEDULE OF EMPLOYER CONTRIBUTIONS
5C	29	NOTES TO REQUIRED SUPPLEMENTARY INFORMATION
6A	30	MEMBERSHIP DATA
6B	31	HISTORICAL SUMMARY OF ACTIVE MEMBER DATA
7	32	PLAN NET ASSETS
8	33	RECONCILIATION OF PLAN NET ASSETS
9A	34	DETERMINATION OF EXCESS EARNINGS TO BE DEFERRED
9B	35	DEVELOPMENT OF ACTUARIAL VALUE OF ASSETS
10A	36	ESTIMATION OF YIELDS
10B	37	HISTORY OF INVESTMENT RETURN RATES
11	38	INVESTMENT EXPERIENCE GAIN OR LOSS
12	39	TOTAL EXPERIENCE GAIN OR LOSS
13	40	HISTORY OF CASH FLOW
14A	41	ACTUARIAL BALANCE SHEET
14B	42	SOLVENCY TEST
15	43	DISTRIBUTION OF ACTIVE MEMBERS BY AGE AND SERVICE
16A	44	SCHEDULE OF RETIRED MEMBERS BY TYPE OF BENEFIT
16B	45	SCHEDULE OF RETIRED MEMBERS BY MONTHLY BENEFIT
17	46	RECONCILIATION OF MEMBERS BY STATUS
18	47	STATEMENT OF ACTUARIAL METHODS AND ASSUMPTIONS
19	53	SUMMARY OF BENEFIT PROVISIONS
20	58	SUMMARY OF PLAN CHANGES
21	62	GLOSSARY

**Development of Employer Cost**

	<u>July 1, 2008</u>	<u>July 1, 2007</u>
	(1)	(2)
1. Payroll		
a. Supplied by System	\$ 417,661,822	\$ 401,329,919
b. Adjusted for one year's pay increase	441,894,914	424,504,016
2. Present value of future pay	\$ 3,581,283,570	\$ 3,428,003,011
3. Normal cost rate (payable monthly)		
a. Total normal cost rate	10.26%	10.26%
b. Less: member assessment rate	<u>-7.75%</u>	<u>-7.75%</u>
c. Employer normal cost rate	2.51%	2.51%
4. Actuarial accrued liability for active members		
a. Present value of future benefits	\$ 1,565,412,460	\$ 1,508,099,420
b. Less: present value of future normal costs (Item 3a * Item 2)	<u>(367,439,694)</u>	<u>(351,713,109)</u>
c. Actuarial accrued liability	\$ 1,197,972,766	\$ 1,156,386,311
5. Total actuarial accrued liability for:		
a. Retirees and beneficiaries	\$ 1,074,756,700	\$ 1,000,127,740
b. Inactive members	57,903,343	52,831,254
c. Active members (Item 4c)	<u>1,197,972,766</u>	<u>1,156,386,311</u>
d. Total	\$ 2,330,632,809	\$ 2,209,345,305
6. Actuarial value of assets	\$ 1,909,470,630	\$ 1,750,145,515
7. Unfunded actuarial accrued liability (UAAL) (Item 5d - Item 6)	\$ 421,162,179	\$ 459,199,790
8. Funding period set by Board	30 years	30 years
9. Current employer contribution rate	8.25%	7.75%
10. GASB No. 25 Annual Required Contribution (ARC) for fiscal year beginning on valuation date		
a. Payment to amortize UAAL	\$ 29,741,680	\$ 32,427,824
b. Employer normal cost (Item 3c * Item 1b)	<u>11,091,562</u>	<u>10,655,051</u>
c. Contribution requirement (a+b)	40,833,242	43,082,875
d. Contribution as percentage of payroll (10c/1b)	9.24%	10.15%
11. Funding period based on current employer contribution	57.0 years	Infinite

**Analysis of Change in GASB ARC**

Item (1)	July 1, 2008 (2)	July 1, 2007 (3)
1. Prior valuation	10.15%	12.29%
2. Increases/(decreases) due to:		
a. Open amortization	(0.10%)	(0.12%)
b. Growth in covered payroll	(0.15%)	(0.07%)
c. Employer contributions received at 7.75%, rather than 10.15% for FY2008 or 12.29% for FY2007	0.09%	0.28%
d. Liability experience	0.25%	(0.13%)
e. Investment experience	(1.00%)	(1.65%)
f. Assumption changes	0.00%	0.00%
g. Changes in amortization method	0.00%	0.00%
h. Legislative changes	0.00%	(0.45%)
i. Total	(0.91%)	(2.14%)
3. Current valuation (1. + 2.i.)	9.24%	10.15%
4. Statutory employer contribution rate	8.25%	7.75%
5. Margin available (4. - 3.)	(0.99%)	(2.40%)

**Analysis of Change in UAAL**

Item (1)	Unfunded Actuarial Accrued Liability (\$ in millions) as of	
	July 1, 2008 (2)	July 1, 2007 (3)
1. Prior valuation	\$ 459.2	\$ 509.9
2. Increases/(decreases) due to:		
a. Amortization payments	\$ 8.7	\$ 20.3
b. Investment experience	(62.4)	(99.2)
c. Assumption changes	-	-
d. Liability experience	15.7	(7.8)
e. Changes in actuarial methods	-	-
f. Legislative changes	-	36.0
g. Total	\$ (38.0)	\$ (50.7)
3. Current valuation (1. + 2.g.)	\$ 421.2	\$ 459.2

**Actuarial Present Value of Future Benefits**

	<u>July 1, 2008</u>	<u>July 1, 2007</u>
	(1)	(2)
1. Active members		
a. Retirement benefits	\$ 1,442,581,647	\$ 1,391,159,003
b. Deferred termination benefits and refunds	84,147,778	79,627,741
c. Death benefits	15,748,965	15,189,096
d. Disability benefits	22,934,070	22,123,580
e. Total	<u>\$ 1,565,412,460</u>	<u>\$ 1,508,099,420</u>
2. Retired members		
a. Service retirement	\$ 1,014,598,596	\$ 944,333,555
b. Disability retirement	10,630,013	9,345,628
c. Beneficiaries	49,528,091	46,448,557
d. Total	<u>\$ 1,074,756,700</u>	<u>\$ 1,000,127,740</u>
3. Inactive members		
a. Vested terminations	\$ 56,724,238	\$ 52,264,205
b. Nonvested terminations	576,899	424,697
c. Pending refunds and partial lump sums	602,206	142,352
d. Total	<u>\$ 57,903,343</u>	<u>\$ 52,831,254</u>
4. Total actuarial present value of future benefits	\$ 2,698,072,503	\$ 2,561,058,414

**Analysis of Normal Cost**

	<u>July 1, 2008</u>	<u>July 1, 2007</u>
	(1)	(2)
1. Gross normal cost rate (payable monthly)		
a. Retirement benefits	7.74%	7.74%
b. Deferred termination benefits and refunds	2.01%	2.01%
c. Death benefits	0.18%	0.18%
d. Disability benefits	0.33%	0.33%
e. Total	10.26%	10.26%
2. Less: member assessment rate	7.75%	7.75%
3. Employer normal cost rate	2.51%	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, 1996	\$733.3	\$851.6	\$118.3	86.1%	\$281.2	42.1%
July 1, 1997	\$823.4	\$977.1	\$153.6	84.3%	\$294.1	52.2%
July 1, 1998	\$928.0	\$1,033.0	\$105.0	89.8%	\$298.4	35.2%
July 1, 1999	\$1,053.1	\$1,188.4	\$135.3	88.6%	\$314.6	43.0%
July 1, 2000	\$1,308.5	\$1,287.9	(\$20.6)	101.6%	\$323.0	-6.4%
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%

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 <sup>1</sup> (2)	Amount <sup>2</sup> (3)	% of Payroll (4)	Amount (5)	
1996	6.75%	\$18,988,538	6.75%	\$18,988,538	100.0%
1997	6.75%	\$19,693,130	6.75%	\$19,693,130	100.0%
1998	7.75%	\$23,326,328	7.75%	\$23,326,328	100.0%
1999	7.75%	\$24,257,091	7.75%	\$24,257,091	100.0%
2000	7.75%	\$25,527,734	7.75%	\$25,527,734	100.0%
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%

<sup>1</sup> The GASB ARC for each fiscal year is based on the actuarial valuation as of the beginning of the year. Therefore, the FY 2008 ARC is based on the July 1, 2007 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.

<sup>2</sup> The dollar amount of the ARC is based on the actual payroll for the year. The FY 2007 ARC shown above differs from the estimated dollar amount shown in the July 1, 2006 actuarial valuation report because of differences between estimated and actual FY 2007 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, 2008
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 14.00%
*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 8.25% statutory employer contribution rate. Payroll is assumed to increase at 2.00% per annum.

**Membership Data**

	July 1, 2008 (1)	July 1, 2007 (2)
1. Active members		
a. Males	2,519	2,570
b. Females	7,042	7,029
c. Total members	9,561	9,599
d. Total payroll supplied, annualized	\$ 417,661,822	\$ 401,329,919
e. Average salary	\$ 43,684	\$ 41,810
f. Average age	44.6	44.7
g. Average service	14.4	14.5
h. Total assessments with interest	\$ 547,289,608	\$ 526,923,376
i. Average assessments with interest	\$ 57,242	\$ 54,894
2. Vested inactive members		
a. Number	1,459	1,439
b. Total annual deferred benefits	\$ 8,490,365	\$ 8,029,813
c. Average annual deferred benefit	\$ 5,819	\$ 5,580
d. Average age	48.8	48.7
3. Nonvested inactive members		
a. Number	229	142
b. Employee assessments with interest due	\$ 576,899	\$ 424,696
c. Average refund due	\$ 2,519	\$ 2,991
d. Average age	40.0	41.1
4. Service retirees		
a. Number	5,695	5,484
b. Total annual benefits	\$ 104,567,067	\$ 97,716,426
c. Average annual benefit	\$ 18,361	\$ 17,818
d. Average age	70.8	70.9
5. Disabled retirees		
a. Number	102	93
b. Total annual benefits	\$ 1,275,270	\$ 1,104,798
c. Average annual benefit	\$ 12,503	\$ 11,880
d. Average age	59.8	59.6
6. Beneficiaries		
a. Number	520	500
b. Total annual benefits	\$ 6,145,277	\$ 5,747,790
c. Average annual benefit	\$ 11,818	\$ 11,496
d. Average age	72.4	71.8

**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

**Plan Net Assets**  
**(Assets at Market or Fair Value)**

Item (1)	June 30, 2008 (2)	June 30, 2007 (3)
1. Cash and cash equivalents (operating cash)	\$ 11,156,236	\$ 9,950,883
2. Receivables:		
a. Member and employer contributions	\$ 8,065,995	\$ 8,058,323
b. Investment income	7,971,796	8,366,495
c. Due from other funds	38	112
d. Miscellaneous receivables	5,361	3,064
e. Total receivables	<u>\$ 16,043,190</u>	<u>\$ 16,427,994</u>
3. Investments		
a. Invested cash	\$ 4,421,123	\$ 16,588,981
b. Domestic equities	656,594,517	770,492,688
c. International equities	381,460,498	490,001,433
d. Domestic fixed income	368,635,792	344,949,636
e. International fixed income	90,585,955	84,675,151
f. Real estate	218,557,672	212,437,075
g. Private equity	101,316,753	87,610,571
h. Total investments	<u>\$ 1,821,572,310</u>	<u>\$ 2,006,755,535</u>
4. Invested securities lending collateral	\$ 21,349,349	\$ 143,933,101
5. Equipment & software (net of depreciation)	\$ 555,989	\$ 789,382
6. Total assets	\$ 1,870,677,074	\$ 2,177,856,895
7. Liabilities		
a. Accounts payable	\$ 2,693,157	\$ 3,653,900
b. Accrued expenses	514,856	483,601
c. Due to other funds	6,301	8,881
d. Securities lending collateral	21,349,349	143,933,101
e. Total liabilities	<u>\$ 24,563,663</u>	<u>\$ 148,079,483</u>
8. Total market value of assets available for benefits (Item 6 - Item 7)	\$ 1,846,113,411	\$ 2,029,777,412
9. Asset allocation (investments)		
a. Invested cash	0.2%	0.8%
b. Domestic equities	36.1%	38.4%
c. International equities	20.9%	24.4%
d. Domestic fixed income	20.2%	17.2%
e. International fixed income	5.0%	4.2%
f. Real estate	12.0%	10.6%
g. Private equity	5.6%	4.4%
h. Total investments	<u>100.0%</u>	<u>100.0%</u>

**Reconciliation of Plan Net Assets**

	Year Ending	
	June 30, 2008 (1)	June 30, 2007 (2)
1. Value of assets at beginning of year		
a. Value reported in prior valuation	\$ 2,029,777,412	\$ 1,720,324,948
b. Prior period adjustments	-	983,275
c. Revised value	\$ 2,029,777,412	\$ 1,721,308,223
2. Revenue for the year		
a. Contributions		
i. Employee contributions	\$ 33,237,677	\$ 31,865,772
ii. Employer contributions	33,683,550	31,865,466
iii. Purchased service credit	3,636,528	2,629,006
iv. Interest and penalties	15,634	1,855
v. Total	\$ 70,573,389	\$ 66,362,099
b. Income		
i. Interest, dividends, and other income	\$ 49,249,798	\$ 48,733,376
ii. Investment expenses	(11,359,487)	(10,547,809)
iii. Net	\$ 37,890,311	\$ 38,185,567
c. Net realized and unrealized gains (losses)	\$ (178,531,370)	\$ 308,580,419
d. Total revenue	\$ (70,067,670)	\$ 413,128,085
3. Expenditures for the year		
a. Benefits and refunds		
i. Refunds	\$ 5,500,476	\$ 3,328,931
ii. Regular annuity benefits	105,764,195	98,784,161
iii. Partial lump-sum benefits paid	692,139	953,744
iv. Total	\$ 111,956,810	\$ 103,066,836
b. Administrative and miscellaneous expenses	1,639,521	1,592,060
c. Total expenditures	\$ 113,596,331	\$ 104,658,896
4. Increase in net assets (Item 2 - Item 3)	\$ (183,664,001)	\$ 308,469,189
5. Value of assets at end of year (Item 1 + Item 4)	\$ 1,846,113,411	\$ 2,029,777,412

**Determination of Excess Earnings to be Deferred**

Year ended :		<u>June 30, 2005</u>	<u>June 30, 2006</u>	<u>June 30, 2007</u>	<u>June 30, 2008</u>
		(1)	(2)	(3)	(4)
1.	MVA at beginning of year	\$ 1,374,679,677	\$ 1,530,194,427	\$ 1,720,324,948	\$ 2,029,777,412
2.	Net new investments				
	a. Contributions	\$ 64,072,881	\$ 65,577,828	\$ 66,362,099	\$ 70,573,389
	b. Benefits and refunds paid	<u>(87,231,537)</u>	<u>(94,515,400)</u>	<u>(103,066,836)</u>	<u>(111,956,810)</u>
	c. Subtotal	\$ (23,158,656)	\$ (28,937,572)	\$ (36,704,737)	\$ (41,383,421)
3.	MVA at end of year	\$ 1,530,194,427	\$ 1,720,324,948	\$ 2,029,777,412	\$ 1,846,113,411
4.	Net MVA earnings ( 3 - 1 - 2)	\$ 178,673,406	\$ 219,068,093	\$ 346,157,201	\$ (142,280,580)
5.	Assumed investment return rate	8.00%	8.00%	8.00%	8.00%
6.	Expected return	\$ 109,048,028	\$ 121,258,051	\$ 136,157,806	\$ 160,726,856
7.	Excess return ( 4 - 6)	\$ 69,625,378	\$ 97,810,042	\$ 209,999,395	\$ (303,007,436)
8.	Excess return deferral percent	20%	40%	60%	80%
9.	Amount deferred	\$ 13,925,076	\$ 39,124,017	\$ 125,999,637	\$ (242,405,949)

Note: MVA is market value of assets

### Development of Actuarial Value of Assets

1.	Market value of assets as of valuation	\$	1,846,113,411
2.	Deferred amounts for fiscal year ending June 30,		
	a. 2008	\$	(242,405,949)
	b. 2007	\$	125,999,637
	c. 2006	\$	39,124,017
	d. 2005	\$	<u>13,925,076</u>
	e. Total	\$	(63,357,219)
3.	Actuarial value of assets (1) - (2)	\$	1,909,470,630
4.	Ratio of actuarial value to market value		103.4%



**Estimation of Yields**

	Year Ending	
	June 30, 2008	June 30, 2007
	(1)	(2)
<b>A. Market value yield</b>		
1. Beginning of year market assets	\$ 2,029,777,412	\$ 1,720,324,948
2. Investment income (including realized and unrealized gains and losses)		
a. Interest and dividends net of investment expenses	\$ 37,890,311	\$ 38,185,567
b. Realized and unrealized gains/(losses)	<u>(178,531,370)</u>	<u>308,580,419</u>
c. Total investment income based on market value	\$ (140,641,059)	\$ 346,765,986
3. End of year market assets	\$ 1,846,113,411	\$ 2,029,777,412
4. Estimated dollar weighted market value yield	-7.0%	20.4%
<b>B. Actuarial value yield</b>		
1. Beginning of year actuarial assets	\$ 1,750,145,515	\$ 1,563,957,955
2. Investment income (based on asset valuation method)		
a. Interest and dividends net of investment expenses	\$ 37,890,311	\$ 38,185,567
b. Realized and unrealized gains/(losses)	164,457,746	186,298,790
c. Less: administrative expenses	<u>(1,639,521)</u>	<u>(1,592,060)</u>
d. Net investment income based on asset valuation method	\$ 200,708,536	\$ 222,892,297
3. End of year actuarial assets	\$ 1,909,470,630	\$ 1,750,145,515
4. Estimated actuarial value yield	11.6%	14.4%

**History of Investment Return Rates**

Plan Year Ending June 30 of (1)	Market (2)	Actuarial (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%
Average Returns		
Last 5 years	11.6%	7.8%
Last 10 years	6.4%	7.7%
Last 15 years	8.3%	8.7%

**Investment Experience Gain or Loss**

Item (1)	Year Ending	
	June 30, 2008 (2)	June 30, 2007 (3)
1. Actuarial assets, beginning of year	\$ 1,750,145,515	\$ 1,563,957,955
2. Total assessments and contributions during year	\$ 70,573,389	\$ 66,362,099
3. Benefits and refunds paid	\$ (111,956,810)	\$ (103,066,836)
4. Assumed net investment income at 8%		
a. Beginning of year assets	\$ 140,011,641	\$ 125,116,636
b. Assessments and contributions	2,822,936	2,654,484
c. Benefits and refunds paid	<u>(4,478,272)</u>	<u>(4,122,673)</u>
d. Total	\$ 138,356,305	\$ 123,648,447
5. Expected actuarial assets, end of year (Sum of Items 1 through 4)	\$ 1,847,118,399	\$ 1,650,901,665
6. Actual actuarial assets, end of year	\$ 1,909,470,630	\$ 1,750,145,515
7. Asset gain (loss) for year (Item 6 - Item 5)	\$ 62,352,231	\$ 99,243,850

**Total Experience Gain or Loss**

Item (1)	Year Ending	
	June 30, 2008 (2)	June 30, 2007 (3)
<b>A. Calculation of total actuarial gain or loss</b>		
1. Unfunded actuarial accrued liability (UAAL), previous year	\$ 459,199,790	\$ 509,922,448
2. Normal cost for the year (employer and employee)	\$ 43,554,112	\$ 46,655,268
3. Less: contributions and assessments for the year	\$ (70,573,389)	\$ (66,362,099)
4. Interest at 8 %		
a. On UAAL	\$ 36,735,983	\$ 40,793,796
b. On normal cost	1,742,164	1,866,211
c. On contributions	(2,822,936)	(2,654,484)
d. Total	\$ 35,655,211	\$ 40,005,523
5. Expected UAAL (Sum of Items 1 - 4)	\$ 467,835,724	\$ 530,221,140
6. Actual UAAL	\$ 421,162,179	\$ 459,199,790
7. Total gain (loss) for the year (Item 5 - Item 6)	\$ 46,673,545	\$ 71,021,350
<b>B. Source of gains and losses</b>		
8. Asset gain (loss) for the year (Table 11)	\$ 62,352,231	\$ 99,243,850
9. Liability gain (loss) for the year	\$ (15,678,686)	\$ 7,771,532
10. Change in benefit provisions	\$ -	\$ (35,994,032)
11. Change in actuarial assumptions	\$ -	\$ -
12. Total	\$ 46,673,545	\$ 71,021,350

**History of Cash Flow**

Year Ending June 30,	Contributions <sup>1</sup>	Disbursements or Expenditures				External Cash Flow for the Year <sup>2</sup>	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)
1990	32,491,026	(19,363,427)	(3,116,128)	(620,373)	(23,099,928)	9,391,098	449,961,104	2.1%
1991	32,276,625	(21,591,216)	(3,782,578)	(606,298)	(25,980,092)	6,296,533	490,424,458	1.3%
1992	34,326,788	(26,164,266)	(2,782,003)	(768,580)	(29,714,849)	4,611,939	556,086,158	0.8%
1993	35,474,901	(27,710,231)	(2,614,160)	(780,865)	(31,105,256)	4,369,645	642,418,007	0.7%
1994	36,106,560	(34,093,075)	(2,293,299)	(719,777)	(37,106,151)	(999,591)	649,345,245	-0.2%
1995	37,214,707	(36,001,717)	(2,186,791)	(788,743)	(38,977,251)	(1,762,544)	736,009,925	-0.2%
1996	38,552,876	(38,546,098)	(2,644,413)	(858,258)	(42,048,769)	(3,495,893)	847,339,136	-0.4%
1997	40,157,287	(39,522,935)	(2,590,766)	(832,223)	(42,945,924)	(2,788,637)	1,001,037,886	-0.3%
1998	47,411,761	(43,706,492)	(2,671,933)	(789,830)	(47,168,255)	243,506	1,133,469,244	0.0%
1999	49,158,925	(46,120,317)	(2,877,423)	(944,654)	(49,942,394)	(783,469)	1,262,584,076	-0.1%
2000	53,571,777	(53,583,271)	(2,788,019)	(1,015,549)	(57,386,839)	(3,815,062)	1,405,246,440	-0.3%
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%

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

<sup>2</sup> Column (7) = Column (2) - Column (6).

**Actuarial Balance Sheet**

	<u>July 1, 2008</u>	<u>July 1, 2007</u>
	(1)	(2)
A. Assets		
1. Current assets		
a. At market value	\$ 1,846,113,411	\$ 2,029,777,412
b. Adjustment for actuarial value	<u>63,357,219</u>	<u>(279,631,897)</u>
c. Actuarial value of assets	\$ 1,909,470,630	\$ 1,750,145,515
2. Actuarial present value of future contributions		
a. Member assessments	\$ 277,549,475	\$ 265,670,229
b. Employer normal costs	89,890,219	86,042,880
c. Unfunded actuarial accrued liability	<u>421,162,179</u>	<u>459,199,790</u>
d. Total	\$ 788,601,873	\$ 810,912,899
3. Total (1c + 2d)	<u><u>\$ 2,698,072,503</u></u>	<u><u>\$ 2,561,058,414</u></u>
B. Liabilities - present value of future benefits		
1. Retirees and beneficiaries	\$ 1,074,756,700	\$ 1,000,127,740
2. Inactive members	57,903,343	52,831,254
3. Active members	<u>1,565,412,460</u>	<u>1,508,099,420</u>
4. Total	<u><u>\$ 2,698,072,503</u></u>	<u><u>\$ 2,561,058,414</u></u>

**Solvency Test**

	<u>July 1, 2008</u>	<u>July 1, 2007</u>
	(1)	(2)
1. Actuarial accrued liability (AAL)		
a. Active member contributions	\$ 547,289,608	\$ 526,923,376
b. Retirees and beneficiaries	1,074,756,700	1,000,127,740
c. Active and inactive members (employer financed)	<u>708,586,501</u>	<u>682,294,189</u>
d. Total	\$ 2,330,632,809	\$ 2,209,345,305
2. Actuarial value of assets	\$ 1,909,470,630	\$ 1,750,145,515
3. Cumulative portion of AAL covered		
a. Active member contributions	100.0%	100.0%
b. Retirees and beneficiaries	100.0%	100.0%
c. Active and inactive members (employer financed)	40.6%	32.7%

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

Attained Age	Years of Credited Service												Total
	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
20-24	33 \$15,145	98 \$28,554	23 \$31,536	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	154 \$26,126
25-29	61 \$14,624	216 \$29,779	231 \$32,818	190 \$33,356	179 \$35,090	161 \$35,941	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	1,038 \$32,091
30-34	18 \$14,406	100 \$30,870	88 \$35,968	69 \$34,688	83 \$36,372	544 \$38,436	116 \$42,456	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	1,018 \$37,090
35-39	13 \$15,408	59 \$32,131	55 \$34,368	40 \$35,703	45 \$35,420	292 \$39,753	503 \$43,995	101 \$47,704	1 \$53,190	0 \$0	0 \$0	0 \$0	1,109 \$41,133
40-44	14 \$16,976	40 \$30,286	45 \$37,223	29 \$38,254	40 \$36,328	214 \$40,649	284 \$46,879	414 \$48,609	118 \$51,271	0 \$0	0 \$0	0 \$0	1,198 \$44,969
45-49	8 \$17,394	32 \$28,054	34 \$36,810	20 \$38,494	28 \$33,163	166 \$39,356	161 \$45,977	251 \$48,411	402 \$50,483	161 \$49,816	3 \$56,263	0 \$0	1,266 \$46,253
50-54	12 \$16,045	23 \$33,630	18 \$34,518	25 \$38,692	23 \$36,332	140 \$41,139	168 \$46,103	203 \$48,173	259 \$49,165	515 \$51,795	221 \$51,978	0 \$0	1,607 \$48,270
55-59	18 \$18,791	19 \$29,000	18 \$31,220	17 \$39,594	25 \$35,439	131 \$39,671	140 \$43,894	196 \$48,225	213 \$49,847	280 \$52,858	359 \$55,132	102 \$56,539	1,518 \$49,263
60-64	4 \$20,674	7 \$28,178	3 \$50,230	6 \$40,596	3 \$37,021	51 \$38,876	70 \$44,707	70 \$45,868	109 \$51,523	73 \$52,712	75 \$55,334	104 \$56,628	575 \$49,759
65 & Over	2 \$11,312	3 \$22,902	4 \$29,417	1 \$51,615	2 \$44,438	9 \$47,040	10 \$32,108	14 \$49,379	8 \$46,776	9 \$53,603	4 \$47,675	12 \$60,650	78 \$45,646
Total	183 \$15,652	597 \$30,005	519 \$34,181	397 \$35,199	428 \$35,507	1,708 \$39,167	1,452 \$44,843	1,249 \$48,220	1,110 \$50,215	1,038 \$51,855	662 \$54,062	218 \$56,808	9,561 \$43,684



**Schedule of Retired Members by Type of Benefit**

Type of Benefit/ Form of Payment (1)	Number (2)	Annual Benefits Amount (3)	Average Monthly Benefit (4)
<b>Service :</b>			
Straight Life	2,578	\$ 36,537,755	\$ 1,181
100% J&S	1,836	41,434,855	1,881
50% J&S	458	9,603,542	1,747
5 Years C&L	32	408,218	1,063
10 Years C&L	169	2,680,897	1,322
20 Years C&L	38	717,131	1,573
Level	<u>584</u>	<u>13,184,669</u>	<u>1,881</u>
Subtotal:	5,695	\$ 104,567,067	1,530
<b>Disability:</b>			
Straight Life	81	\$ 1,044,324	\$ 1,074
100% J&S	12	133,179	925
50% J&S	5	54,861	914
5 Years C&L	2	25,253	1,052
10 Years C&L	1	7,992	666
20 Years C&L	1	9,663	805
Level	<u>0</u>	<u>0</u>	<u>0</u>
Subtotal:	102	\$ 1,275,270	1,042
<b>Beneficiaries</b>			
Straight Life	506	\$ 6,070,286	\$ 1,000
5 Years Certain Only	9	55,910	518
10 Years Certain Only	5	19,080	318
20Years Certain Only	<u>0</u>	<u>0</u>	<u>0</u>
Subtotal:	520	\$ 6,145,277	985
<b>Total:</b>	<u><u>6,317</u></u>	<u><u>\$ 111,987,614</u></u>	<u><u>\$ 1,477</u></u>

**Schedule of Retired Members by Monthly Benefit**

Monthly Benefit Amount			Total	Female	Male
(1)			(2)	(3)	(4)
Under \$100			48	39	9
\$	100	- 199	137	95	42
	200	- 299	207	147	60
	300	- 399	263	220	43
	400	- 499	269	224	45
	500	- 599	270	219	51
	600	- 699	267	221	46
	700	- 799	239	192	47
	800	- 899	189	142	47
	900	- 999	230	173	57
	1000	- 1199	538	387	151
	1200	- 1399	498	327	171
	1400	- 1599	534	328	206
	1600	- 1799	510	317	193
	1800	- 1999	499	298	201
	2000	- 2199	377	213	164
	2200	- 2399	329	174	155
	2400	- 2599	250	130	120
	2600	- 2799	185	87	98
	2800	- 2999	144	55	89
	3000	& Over	334	96	238
Total			6,317	4,084	2,233

North Dakota Teachers' Fund for Retirement

Reconciliation of Members by Status for Year Ending July 1, 2008

	Active Members	Inactive, Nonretired Members		Annuitants			Grand Total
		Vested	Nonvested	Service Retirees	Disabled Retirees	Beneficiaries	
Number at beginning of year	9,599	1,439	142	5,484	93	500	17,257
Refund paid (non-death)	(107)	(36)	(11)				(154)
Transfer Out	(16)						(16)
Termination, refund due	(113)		114				1
Deferred terminations	(164)	164					0
Retirements (non-disabled)	(305)	(52)		357			0
Disabled retirements	(8)	(2)			10		0
Death before retirement - refund	(4)	(2)					(6)
Death before retirement - annuity	(11)	(3)				14	0
Death of annuitant - survivor benefit due				(25)		25	0
Death of annuitant - no further benefits due				(118)	(1)	(15)	(134)
Payments ceased - certain period ended						(4)	(4)
New hires	623						623
New alternate payees							0
Reemployments	68	(49)	(16)	(3)			0
Adjustments and corrections	(1)						(1)
Number at end of year	9,561	1,459	229	5,695	102	520	17,566

## SUMMARY OF ASSUMPTIONS AND METHODS

### ACTUARIAL ASSUMPTIONS

1. Investment Return Rate ..... 8.00% per annum, compounded annually, composed of an assumed 3.00% inflation rate and a 5.00% real rate of return. (Adopted July 1, 1990; allocation between inflation and real rate of return modified July 1, 2000.)

2. Mortality Rates

a. Post-Termination

Non-Disabled ..... 1994 Uninsured Pensioner Mortality Table set back three years for males and two years for females. (Adopted July 1, 2005.)

b. Post-Retirement

Disabled..... Pension Benefit Guaranty Corporation Disabled Life Mortality Tables Va and VIa. (Adopted July 1, 1990.)

Age	Deaths per 100 Lives			
	Male Participants		Female Participants	
	Non-Disabled	Disabled	Non-Disabled	Disabled
20	.0463	4.83	.0293	2.63
25	.0598	4.83	.0313	2.63
30	.0782	3.62	.0338	2.37
35	.0902	2.78	.0454	2.14
40	.0958	2.82	.0643	2.09
45	.1346	3.22	.0943	2.24
50	.2042	3.83	.1297	2.57
55	.3455	4.82	.2051	2.95
60	.6001	6.03	.3612	3.31
65	1.0911	6.78	.7179	3.70
70	1.9391	7.39	1.2648	4.11

c. Active Mortality ..... 65% of non-disabled post-termination mortality rates. (Adopted July 1, 2005.)

3. Retirement Rates ..... The following rates of retirement are assumed for members eligible to retire. (Adopted July 1, 2005.)

Age	Retirements Per 100 Members			
	Unreduced Retirement Ultimate Rate*		Reduced Retirement	
	Male	Female	Male	Female
50	20.0%	25.0%	0.0%	0.0%
51	20.0%	25.0%	0.0%	0.0%
52	20.0%	25.0%	0.0%	0.0%
53	20.0%	25.0%	0.0%	0.0%
54	20.0%	25.0%	0.0%	0.0%
55	20.0%	25.0%	2.0%	1.5%
56	20.0%	25.0%	2.0%	1.5%
57	20.0%	25.0%	2.0%	1.5%
58	20.0%	25.0%	2.0%	1.5%
59	20.0%	20.0%	2.0%	1.5%
60	25.0%	25.0%	5.0%	2.0%
61	30.0%	30.0%	5.0%	2.0%
62	30.0%	50.0%	20.0%	10.0%
63	25.0%	25.0%	5.0%	5.0%
64	20.0%	50.0%	25.0%	20.0%
65	65.0%	50.0%	--	--
66	35.0%	30.0%	--	--
67	35.0%	30.0%	--	--
68	35.0%	30.0%	--	--
69	35.0%	30.0%	--	--
70	100.0%	100.0%	--	--

\*If a member reaches eligibility for unreduced retirement under the rule of 85 before age 65, a retirement rate of 50.0% (for males) or 65.0% (for females) is used for that age only.

4. Disability Rates..... As shown below for selected ages. (Adopted July 1, 2000.)

Age	Disabilities Per 100 Members
20	0.016
25	0.016
30	0.016
35	0.016
40	0.048
45	0.080
50	0.128
55	0.224
60	0.432
65	0.000

5. Termination Rates..... 80% of the following withdrawal rates are used based on age and service, for causes other than death, disability, or retirement. (Adopted July 1, 2005.)

Males											
Years of Service											
Age	0	1	2	3	4	5	6	7	8	9	10+
25	0.1420	0.1379	0.1366	0.1339	0.1220	0.1067	0.0896	0.0878	0.0860	0.0842	0.0598
30	0.1416	0.1376	0.1363	0.1336	0.1210	0.1053	0.0907	0.0889	0.0871	0.0853	0.0470
35	0.1359	0.1321	0.1308	0.1282	0.1141	0.0988	0.0867	0.0849	0.0832	0.0815	0.0343
40	0.1317	0.1280	0.1267	0.1243	0.1074	0.0928	0.0824	0.0808	0.0791	0.0775	0.0252
45	0.1282	0.1246	0.1234	0.1210	0.1002	0.0868	0.0777	0.0761	0.0746	0.0730	0.0196
50	0.1246	0.1211	0.1199	0.1176	0.0916	0.0809	0.0725	0.0710	0.0696	0.0681	0.0188
55	0.1444	0.1403	0.1390	0.1362	0.0974	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
60	0.1588	0.1544	0.1529	0.1499	0.1071	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
65	0.1747	0.1698	0.1681	0.1648	0.1178	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Females											
Years of Service											
Age	0	1	2	3	4	5	6	7	8	9	10+
25	0.1654	0.1607	0.1592	0.1560	0.1307	0.1119	0.0952	0.0806	0.0790	0.0774	0.0352
30	0.1373	0.1334	0.1321	0.1295	0.1107	0.0964	0.0836	0.0738	0.0723	0.0708	0.0312
35	0.1143	0.1110	0.1100	0.1078	0.0926	0.0820	0.0732	0.0672	0.0658	0.0645	0.0275
40	0.0978	0.0951	0.0941	0.0923	0.0779	0.0695	0.0637	0.0607	0.0595	0.0583	0.0242
45	0.0910	0.0885	0.0876	0.0859	0.0686	0.0593	0.0553	0.0545	0.0535	0.0524	0.0220
50	0.0967	0.0940	0.0931	0.0912	0.0670	0.0519	0.0480	0.0484	0.0475	0.0465	0.0227
55	0.1455	0.1414	0.1400	0.1373	0.0742	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
60	0.1885	0.1831	0.1814	0.1778	0.0907	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
65	0.2498	0.2428	0.2404	0.2357	0.1167	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

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 July 1, 2005.)

<u>Years of Service</u>	<u>Annual Step-Rate/ Promotional Component</u>	<u>Annual Total Salary Increase</u>
0	9.50%	14.00%
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	1.50%	6.00%
10	1.25%	5.75%
11	1.00%	5.50%
12	1.00%	5.50%
13	1.00%	5.50%
14	0.75%	5.25%
15 or more	0.00%	4.50%

7. Payroll Growth Rate ..... 2.00% per annum. This assumption does not include any allowance for future increase in the number of members. (Adopted July 1, 2005.)

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 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 July 1, 1990.)



10. Provision for Expense ..... The assumed investment return rate represents the anticipated net rate of return after payment of all administrative and investment expenses. (Adopted July 1, 1992.)

**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 2000 through FY 2004. 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 7.75% statutory employer contribution rate, the 7.75% 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 7.75% of the member's salary. Effective July 1, 2008, 0.50% of the member's salary will be added to the employer contribution, making it 8.25%. However, the contribution rate will revert to 7.75% once the funded ratio reaches 90%, measured using the actuarial value of assets.
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.

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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.)

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- 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.

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**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.



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**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.

## 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.

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**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.