ACTUARIAL SECTION

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October 19, 2016

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

Re: Actuarial Valuation as of July 1, 2016

Dear Trustees:

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, 2016.

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 (GASB). The undersigned are independent actuaries. All are Fellows of the Society of Actuaries, 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 financial condition. In addition, the report provides information required by TFFR in connection with the Governmental Accounting Standards Board Statement No. 67 (GASB 67) 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. Member and employer rates are 11.75% and 12.75%, respectively. The 11.75% member contribution rate and 12.75% employer contribution rate will remain in effect until TFFR is 100% funded on an actuarial basis. At that point, the employer and member contribution rates will revert to 7.75%.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 27 years beginning July 1, 2016, although at any given time the statutory rates may be insufficient.

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PROGRESS TOWARD REALIZATION OF FINANCING OBJECTIVES

In order to determine the adequacy of the 12.75% statutory employer contribution rate, it is compared to the actuarially determined contribution (ADC). The ADC 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 the 30-year closed period that began July 1, 2013 (27 years remaining as of July 1, 2016). For this calculation, payroll is assumed to increase 3.25% per year. As of July 1, 2016, the ADC is 13.22%, compared to 11.04% last year. This is greater than the 12.75% rate currently required by law.

The increase in ADC is primarily driven by the actuarial loss on assets.

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, 2015, was 61.6%, while it is 62.1% as of July 1, 2016. Based on the market value of assets rather than the actuarial value of assets, the funded ratio decreased to 59.2%, compared to 62.1% last year.

The Plan has a net investment loss of $105 million from previous years that has not yet been recognized in the actuarial value of assets because of the five-year smoothing. This unrecognized asset loss is due to market losses during FY 2015 and FY 2016 offset by market gains in FY 2013 and FY 2014. As these losses are recognized over the next four years, the funded ratio is expected to decline, assuming the plan earns 7.75% in the future.

REPORTING CONSEQUENCES

TFFR is required to disclose certain actuarial information in its Comprehensive Annual Financial Report (CAFR), including the Net Pension Liability (NPL), the sensitivity of the NPL to changes in the discount rate, a schedule of changes in NPL, and a comparison of actual contributions to the ADC. The State and the school districts need to comply with GASB 68, which also requires disclosure of certain actuarial information in their financial statements. This information will be provided in a separate report.

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 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 April 30, 2015, the Board adopted new assumptions, effective for the July 1, 2015 valuation. In our opinion, the assumptions as approved by the Board are reasonably related to the experience of and the expectation for the Plan.

Effective with the July 1, 2013, actuarial valuation, the Trustees adopted an Actuarial Funding Policy, which provides direction on how to calculate an actuarially determined contribution. The actuarially determined contribution is compared to statutory contribution rates as a measure of funding adequacy.

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.

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DATA

Member data for retired, active, and inactive participants was supplied as of July 1, 2016, by the staff of the Retirement Office. 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 staff. That assistance is gratefully acknowledged.

CAFR SCHEDULES

The undersigned provided the information used to prepare all of the schedules and exhibits in this section except for the Schedule of Retirees and Beneficiaries, which was prepared by the Retirement and Investment Office staff.

We also provided the information shown on the Schedule of Changes in Net Pension Liability and Related Ratios and the Schedule of Employer Contributions in the Financial Section.

Sincerely,

Kim Nicholl, FSA, MAAA, EA, FCA
Senior Vice President and Consulting Actuary

Matthew A. Strom, FSA, MAAA, EA
Vice President and Consulting Actuary

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SUMMARY OF ACTUARIAL VALUATION RESULTS

	2016	2015
Demographic Data for Plan Year Beginning July 1:		
• Number of		
- Retirees and Beneficiaries	8,249	8,025
- Inactive, Vested	1,601	1,607
- Inactive, Nonvested	779	660
- Active Members	10,813	10,514
• Payroll (annualized)	$627.0 million	$589.8 million
Statutory Contributions (% of Payroll) for Plan Year Beginning July 1:		
• Employer	12.75%	12.75%
• Member	11.75%	11.75%
• Actuarially determined contribution rate for year beginning July 1	13.22%	13.04%
• Margin/(Deficit)	-0.47%	-0.29%
Assets:		
• Market value	$2,124.3 million	$2,141.9 million
• Actuarial value	2,229.3 million	2,125.0 million
• Return on market value (per actuary)	0.4%	3.5%
• Return on actuarial value	6.2%	10.7%
• Ratio - actuarial value to market value	104.9%	99.2%
• Net cash flow % relative to market value	-1.2%	-1.0%
Actuarial Information:		
• Normal cost %	12.04%	11.63%
• Normal cost	$80.2 million	$72.8 million
• Actuarial accrued liability	$3,589.4 million	$3,449.8 million
• Unfunded actuarial accrued liability (UAAL)	$1,360.1 million	$1,324.8 million
• Funded ratio	62.1%	61.6%
• Effective amortization period	29 years	29 years
GASB Information:		
• Discount rate	7.75%	7.75%
• Total pension liability	$3,589.4 million	$3,449.8 million
• Plan fiduciary net position	$2,124.3 million	$2,141.9 million
• Net pension liability	$1,465.1 million	$1,307.9 million
• Plan fiduciary net position as % of total pension liability	59.2%	62.1%
Gains/(Losses):		
• Asset experience	$(33.6) million	$51.9 million
• Liability experience	(7.6) million	(3.6) million
• Benefit changes	0.0 million	0.0 million
• Assumption/method changes	0.0 million	171.3 million
• Total Gain/(Loss)	$(41.2) million	$(123.1) million

SUMMARY OF ACTUARIAL ASSUMPTIONS AND METHODS

The following actuarial assumptions and methods have been set by the TFFR Board, based upon recommendations made by the Plan's actuary, for both funding and financial reporting purposes. However, the investment return rate used for funding is net of investment expenses and administrative expenses, whereas the rate used for financial reporting is net of investment expenses only (per GASB Statement 67). These actuarial assumptions and methods are based on the results of an experience study dated April 30, 2015, effective for the July 1, 2015 valuation.

ACTUARIAL ASSUMPTIONS

Investment Return Rate

7.75% per annum, compounded annually, equal to an assumed 2.75% inflation rate plus a 5.50% real rate of return, less 0.50% for expected investment and administrative expenses. (Adopted effective July 1, 2015)

Mortality Rates

Post-Retirement Non-Disabled*: RP-2014 Healthy Annuitant Mortality Table set back one year, multiplied by 50% for ages under 75 and grading up to 100% by age 80, projected generationally using Scale MP-2014. (Adopted effective July 1, 2015) Sample 2014 mortality rates are as follows:

Age	Male	Female
50	0.20%	0.14%
55	0.27%	0.17%
60	0.37%	0.24%
65	0.51%	0.37%
70	0.77%	0.58%
75	1.22%	0.95%
80	3.62%	2.82%
85	6.93%	5.40%
90	12.15%	9.56%
95	20.11%	16.30%
100	29.38%	25.11%

The mortality tables were then adjusted to future years using the generational projection to reflect future mortality improvement.

Post-Retirement Disabled*: RP-2014 Disabled Mortality Table set forward 4 years. (Adopted effective July 1, 2015)

Pre-Retirement Non-Disabled*: RP-2014 Employee Mortality Table, projected generationally using Scale MP-2014. (Adopted effective July 1, 2015)

**The mortality rates were based on historical and current demographic data, as used in the experience study dated April 30, 2015. The underlying tables reasonably reflect the mortality experience of the Fund as of the measurement date.*

Summary of Actuarial Assumptions and Methods (continued)

Retirement Rates

The following rates of retirement are assumed for members eligible to retire. (Adopted effective July 1, 2015)

	Unreduced Retirement*		Reduced Retirement
Age	Male	Female	Male/Female
50-54	15.00%	15.00%	
55-57	15.00%	15.00%	2.00%
58	15.00%	15.00%	3.00%
59	15.00%	15.00%	3.50%
60	15.00%	15.00%	4.00%
61	25.00%	25.00%	6.50%
62	35.00%	35.00%	9.00%
63	25.00%	30.00%	12.00%
64	35.00%	40.00%	12.00%
65	40.00%	50.00%	
66	30.00%	40.00%	
67	30.00%	30.00%	
68	25.00%	30.00%	
69	25.00%	30.00%	
70-74	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 (Grandfathered Tier 1) or the Rule of 90/Age 60 (Non-grandfathered Tier 1 and Tier 2), 10% is added to the rate at the age (and only this age) the member first becomes eligible for an unreduced retirement benefit.*

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%

Summary of Actuarial Assumptions and Methods (continued)

Termination Rates

Termination rates based on service, for causes other than death, disability, or retirement. (Adopted effective July 1, 2015)

Years of Service	Male	Female
0	20.00%	20.00%
1	14.00%	12.00%
2	11.00%	9.00%
3	8.00%	7.00%
4	6.50%	6.00%
5	5.00%	5.00%
6	4.00%	4.00%
7	3.50%	3.50%
8	3.00%	3.00%
9	2.50%	2.50%
10	2.50%	2.50%
11	2.00%	2.50%
12	2.00%	2.50%
13	2.00%	2.50%
14	2.00%	2.50%
15-18	1.50%	2.00%
19	0.75%	2.00%
20-24	0.75%	1.50%
25 and over	0.75%	0.75%

Termination rates cut out at first retirement eligibility.

Salary Increase Rates

Inflation rate of 2.75% plus productivity increase rate of 1.50%, plus step-rate/promotional increase as shown below. (Adopted effective July 1, 2015)

Years of Service	Annual Step-Rate Promotional Component	Annual Total Salary Increase
0	10.25%	14.50%
1	3.50%	7.75%
2	3.25%	7.50%
3	3.00%	7.25%
4	2.75%	7.00%
5	2.50%	6.75%
6	2.25%	6.50%
7	2.00%	6.25%
8-9	1.75%	6.00%
10-11	1.50%	5.75%
12-13	1.25%	5.50%
14-15	1.00%	5.25%
16-18	0.75%	5.00%
19-22	0.50%	4.75%
23-24	0.25%	4.50%
25 & over	0.00%	4.25%

Summary of Actuarial Assumptions and Methods (continued)

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)
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)
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)
Loading Factor for New Retirees	The liability includes a 3% load for members who retired during the year ended June 30, 2016, to reflect that their benefit is not finalized as of the valuation date.
Annual Administrative Expenses	Administrative expenses of $1,902,577 (actual expenses for the previous year, increased with inflation) are expected to be paid for the year beginning July 1, 2016.
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. The actuarial value is further adjusted, if necessary, to be within 20% of the market value.
Actuarial Cost Method	Normal cost and actuarial accrued liability are calculated on an individual basis and are allocated by salary. Entry age is determined as the age at member's enrollment in TFFR. 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. The actuarial cost method used is the same for funding and financial reporting.
Amortization Period and Method	The actuarially determined contribution (ADC) 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 the 30-year closed period that began July 1, 2013.

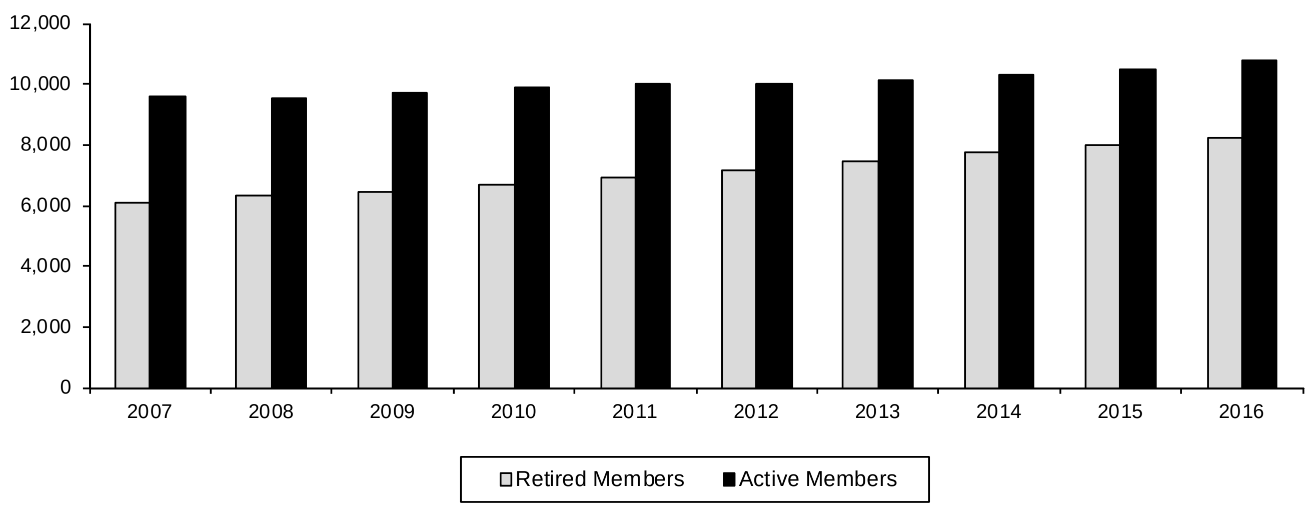
SCHEDULE OF ACTIVE MEMBERS

Valuation Year	Active Members: Number	Active Members: Percent Increase	Covered Payroll (annualized): Amount in $ Millions	Covered Payroll (annualized): Percent Increase	Average Salary: $ Amount	Average Salary: Percent Increase	Average Age	Average Service
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
2011	10,004	1.0	488.8	5.1	48,857	4.1	43.9	13.8
2012	10,014	0.1	505.3	3.4	50,458	3.3	43.7	13.7
2013	10,138	1.2	526.7	4.2	51,953	3.0	43.2	13.2
2014	10,305	1.6	557.2	5.8	54,073	4.1	42.9	12.8
2015	10,514	2.0	589.8	5.8	56,095	3.7	42.5	12.4
2016	10,813	2.8	627.0	6.3	57,986	3.4	42.3	12.1

SCHEDULE OF RETIREES AND BENEFICIARIES

Valuation Year	Number Added During Year	Annual Benefits Added (in mils)	Number Removed During Year	Annual Benefits Removed (in mils)	Number Receiving End of Year	Average Annual Benefit	Annual Pension Benefits (in mils)	Percent Increase In Annual Benefits
2007	380	$ 8.8	196	$ 1.9	6,077	$ 17,208	$99.7	8.6
2008	406	9.4	166	1.9	6,317	17,724	106.5	6.8
2009	346	7.9	197	2.5	6,466	18,168	114.0	7.0
2010	406	10.1	200	2.0	6,672	18,768	124.5	9.2
2011	426	9.9	165	2.0	6,933	19,272	127.4	2.3
2012	416	10.2	198	2.3	7,151	19,968	135.3	6.1
2013	480	13.7	142	1.9	7,489	20,664	145.9	7.8
2014	461	14.3	203	2.5	7,747	21,396	158.4	8.5
2015	463	13.7	185	2.5	8,025	22,104	168.3	6.3
2016	427	12.6	203	3.1	8,249	22,692	180.6	7.3

ACTIVE MEMBERS VS RETIRED MEMBERS
10-YEAR SUMMARY



ANALYSIS OF CHANGE IN ACTUARIALLY DETERMINED CONTRIBUTION (ADC)

	7/1/2016	7/1/2015
Prior valuation	13.04 %	11.57 %
Increases/(decreases) due to:		
Change in remaining amortization period	0.00 %	0.00 %
Change in covered payroll and normal cost	(0.39)%	(0.23)%
Employer contributions received at 12.75% rather than 13.04% for FY2016 and rather than 11.57% for FY2015	(0.06)%	(0.15)%
Liability experience	0.07 %	0.04 %
Investment experience	0.32 %	(0.53)%
Legislative changes	0.00 %	0.00 %
Change in actuarial assumptions	0.00 %	2.34 %
Change to valuation software as a result of the actuarial audit	0.24 %	0.00 %
Total	0.18 %	1.47 %
Current valuation	13.22 %	13.04 %
Statutory employer contribution rate	12.75 %	12.75 %
Margin available [contribution sufficiency/(deficiency)]	(0.47)%	(0.29)%

DEVELOPMENT OF UNFUNDED ACTUARIAL ACCRUED LIABILITY (UAAL)

	($ in millions)	
	7/1/2016	7/1/2015
UAAL at beginning of year	$ 1,324.7	$ 1,198.3
Normal cost	70.1	60.6
Total contributions	(161.9)	(152.4)
Interest on:		
UAAL and normal cost	108.1	100.7
Total contributions	(5.7)	(5.5)
Expected UAAL	$ 1,335.3	$ 1,201.7
Changes due to (gain)/loss from:		
Investments	$ 33.6	$ (51.9)
Demographics	7.6	3.6
Change due to actuarial audit	(16.4)	-
Change in actuarial assumptions	-	171.3
UAAL at end of year	$ 1,360.1	$ 1,324.7

SOLVENCY TEST

	Actuarial Accrued Liability (AAL) (in millions)				Portion of AAL Covered by Valuation Assets		
Valuation Year	Active Member Contributions	Retirees and Beneficiaries	Active/Inactive Members (Employer Financed)	Actuarial Value of Assets ($ in millions)	Active Member Contributions	Retirees and Beneficiaries	Active/Inactive Members (Employer Financed)
2007	$526.9	$1,001.1	$ 682.3	$1,750.1	100.0%	100.0%	32.7%
2008	547.3	1,074.8	708.6	1,909.5	100.0	100.0	40.6
2009	576.8	1,134.2	734.8	1,900.3	100.0	100.0	25.8
2010	600.4	1,246.1	790.7	1,842.0	100.0	99.6	0.0
2011	626.0	1,332.1	791.6	1,822.6	100.0	89.8	0.0
2012	647.9	1,429.0	794.9	1,748.1	100.0	77.0	0.0
2013	671.1	1,551.7	774.3	1,762.3	100.0	77.6	0.0
2014	698.2	1,661.6	779.0	1,940.5	100.0	74.8	0.0
2015	737.5	1,874.7	837.6	2,125.0	100.0	74.0	0.0
2016	792.8	1,976.3	820.3	2,229.3	100.0	51.4	0.0

SCHEDULE OF FUNDING PROGRESS

Actuarial Valuation Date July 1	Actuarial Value of Assets (AVA)	Actuarial Accrued Liability (AAL)	Unfunded/ Accrued Liability (UAAL)	Funded Ratio	Total Payroll (annualized)	UAAL as a % of Compensation
2007	$1,750.1	$2,209.3	$ 459.2	79.2%	$401.3	114.4%
2008	1,909.5	2,330.6	421.1	81.9	417.7	100.8
2009	1,900.3	2,445.9	545.6	77.7	440.0	124.0
2010	1,842.0	2,637.2	795.2	69.8	465.0	171.0
2011	1,822.6	2,749.8	927.2	66.3	488.8	189.7
2012	1,748.1	2,871.9	1,123.8	60.9	505.3	222.4
2013	1,762.3	2,997.1	1,234.8	58.8	526.7	234.4
2014	1,940.5	3,138.8	1,198.3	61.8	557.2	215.1
2015	2,125.0	3,449.8	1,324.8	61.6	589.8	224.6
2016	2,229.3	3,589.4	1,360.1	62.1	627.0	216.9

Please also refer to the Schedule of Employer Contributions in the required supplementary information to the financial statements on page 57.

SUMMARY OF PLAN PROVISIONS

Effective Date: July 1, 1971.

Plan Year: Twelve-month period ending June 30th.

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 TFFR Board is also responsible for establishing and maintaining a funding policy. The Retirement and Investment Office is the administrative agency for TFFR.

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.

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.

Member Contributions: All active members contribute 11.75% of their salary per year. The employer may "pick up" the member's contributions under the provisions of Internal Revenue Code Section 414(h). The member contribution rate was increased from 7.75% to 9.75% effective July 1, 2012, and was increased to 11.75% effective July 1, 2014. The total addition of 4% to the member contribution rate will remain in effect until TFFR is 100% funded on an actuarial basis. At that point, the member contribution rate will revert to 7.75%.

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.

Employer Contributions: The district or other employer that 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%
July 1, 2012	3.00%	10.75%
July 1, 2014	5.00%	12.75%

However, the additions are subject to a "sunset" provision, so the contribution rate will revert to 7.75% once the funded ratio reaches 100%, measured using the actuarial value of assets. The contribution rate will not automatically increase if the funded ratio later falls back below 100%.

Summary of Plan Provisions (continued)

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.

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. As of June 30, 2013, Tier 1 members who are at least age 55 and vested (3 years of service) as of the effective date, or the sum of the member's age and service is at least 65, are considered Grandfathered, and previous plan provisions will not change. Tier 1 members who do not fit these criteria as of June 30, 2013, are considered Non-grandfathered. These members, along with Tier 2, will have new plan provisions, as described below.

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.

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. Effective as of June 30, 2013, Tier 1 members who are at least age 55 and vested (3 years of service) as of the effective date, or the sum of the member's age and service is at least 65, normal retirement eligibility will not change (participants are Grandfathered). For those who do not meet this criteria as of June 30, 2013 (Non-grandfathered), 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 90, with a minimum age of 60.

   - 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. Effective July 1, 2013, 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, with a minimum age of 60.

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 assessments 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.

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.

Summary of Plan Provisions (continued)

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). Effective July 1, 2013, for members who are either Non-grandfathered Tier 1 or Tier 2: 2.00% of FAC (monthly) times years of service, multiplied by a factor which reduces the benefit 8% for each year from the earlier of (i) age 65, or (ii) the age at which current service plus age equals 90 with a minimum age of 60.

c. Payment Form: Same as for Normal Retirement above.

Disability Retirement:

a. Eligibility: A member is eligible provided he/she has credit for at least one year of service. Effective July 1, 2013, a member is eligible provided he/she has credit for at least five years of service.

b. Monthly Benefit: 2.00% of FAC (monthly) times years of service with a minimum 20 years of service. Effective July 1, 2013, 2.00% of FAC (monthly) times 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 level income and the partial lump-sum option are also permitted in the case of disability retirement. For basis recovery only, disability benefits are converted to normal retirement benefits when the member reaches normal retirement age or age 65, whichever is earlier.

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 member's age and service is 85 (Grandfathered Tier 1 members) or 90 with a minimum age of 60 (Non-grandfathered Tier 1 and Tier 2 members). Reduced benefits may commence at or after age 55 if the member is not eligible for an unreduced benefit. Reductions are the same as for Early Retirement.

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.

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.

Summary of Plan Provisions (continued)

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).

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, or (ii) 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.

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 (ten years), the payments will be continued to a beneficiary for the balance of the ten-year period.

f. Option 5 - A non-level 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.

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 assessment 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.

Summary of Plan Changes (continued)

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 per month for each year of service plus $1 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-year 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 FY2004. 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.

Summary of Plan Changes (continued)

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 years 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 reset to 7.75% once the Fund reaches a 90% funded ratio, measured using the actuarial value of asset. (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%.)

2011 Legislative Session:

1. The employer contribution rate increases from 8.75% to 10.75% effective July 1, 2012, and increases thereafter to 12.75% effective July 1, 2014. The member contribution rate increases from 7.75% to 9.75% effective July 1, 2012, and increases thereafter to 11.75% effective July 1, 2014. Employer and member contributions will be reset to 7.75% once the Fund reaches a 90% funded ratio, measured using the actuarial value of assets.

2. Current Tier 1 members who, as of June 30, 2013, are vested (at least 3 years of service), and at least age 55, OR the sum of the member's age and service is at least 65, are considered a Tier 1 Grandfathered member. Current Tier 1 members, who do not meet this criteria as of June 30, 2013, are considered a Tier 1 Non-grandfathered member.

Summary of Plan Changes (continued)

3. Eligibility for normal/unreduced retirement benefits do not change for Tier 1 Grandfathered members. For Tier 1 Non-grandfathered and Tier 2 members, effective June 30, 2013, unreduced retirement benefits start when the member reaches age 65 and is vested (3 years for Tier 1 Non-grandfathered, 5 years for Tier 2); or if earlier, when the sum of the member's age and service is at least 90, with a minimum age of 60.

4. Early retirement benefits do not change for Tier 1 Grandfathered members. For Tier 1 Non-grandfathered and Tier 2 members, effective after June 30, 2013, the normal retirement benefit will be reduced by 8% per year from the earlier of age 65 OR the age at which the sum of the member's age and service is at least 90, with the minimum age of 60.

5. Effective after June 30, 2013, all members may retire on disability after a period of at least five years of service (rather than one year of service). The amount of the benefit is based on a 2% multiplier and actual service (rather than a minimum of twenty years of service in the current calculation).

6. Effect July 1, 2012, re-employed retirees are required to pay member contributions.

7. Effective August 1, 2011, beneficiary and death benefit provisions were updated, and the 60-month death payment benefit was removed.

<u>2013 Legislative Session:</u>

1. Employer and member contribution rates will be reset to 7.75% once the Fund reaches a 100% funded ratio (rather than the 90% funded ratio enacted with the 2011 Legislation), measured using the actuarial value of assets.

2. Various technical and administrative changes that do not have an actuarial effect on the Plan were enacted.

<u>2015 Legislative Session:</u>

1. Various technical and administrative changes that do not have an actuarial effect on the Plan were enacted