North Dakota Teachers' Fund for Retirement

Actuarial Valuation and Review as of July 1, 2012

Doc #5294422

SEGAL

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October 17, 2012

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

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, 2012.

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 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 was increased from 7.75% to 9.75% effective July 1, 2012, and is scheduled to increase to 11.75% effective July 1, 2014. The employer rate was increased from 8.75% to 10.75% effective July 1, 2012, and is scheduled to increase to 12.75% effective July 1, 2014. The 11.75% member contribution rate and 12.75% employer contribution rate will remain in effect until TFFR is 90% 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 30 years from the valuation date, although at any given time the statutory rates may be insufficient. A 30-year period is the maximum amortization period allowed by GASB 25 in computing the Annual Required Contribution.

PROGRESS TOWARD REALIZATION OF FINANCING OBJECTIVES

In order to determine the adequacy of the 10.75% statutory employer contribution rate, it is compared to the GASB 25 Annual Required Contribution (ARC). The ARC is equal to the sum of (a) the employer normal cost rate and (b) the level percentage of pay required to amortize the UAAL over a 30-year period. For this calculation, payroll is assumed to increase 3.25% per year. As of July 1, 2012, the ARC is 13.02%, compared to 13.16% last year. This is greater than the 10.75% rate currently required by law. The shortfall (the negative margin) between the rate mandated by law (10.75%) and the rate necessary to fund the UAAL in 30 years is 2.27%.

The funded ratio (the ratio of the actuarial value of assets to the actuarial accrued liability) decreased from last year. The funded ratio at July 1, 2011 was 66.3%, while it is 60.9% as of July 1, 2012. Based on market values rather than actuarial values of assets, the funded ratio decreased to 57.6%, compared to 62.8% last year.

The plan has a net asset loss of $94 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 large market losses during FY 2009 and FY 2012. As these losses are recognized over the next four years, the ARC is expected to continue to increase and the funded ratio is expected to continue decreasing, assuming the plan earns 8.00% in the future. However, the scheduled increases in the employer and member contribution rates are projected to improve the funded status and reduce the ARC.

REPORTING CONSEQUENCES

TFFR is required to report in its Comprehensive Annual Financial Report (CAFR) for the current fiscal year ending June 30, 2012 that actual contributions received in FY 2012 were less than the ARC. The FY 2012 8.75% statutory rate was 66.5% of the 13.16% ARC determined by the last valuation. Next year, the CAFR for FY 2013 will show that the 10.75% statutory rate is 82.6% of the 13.02% 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 valuation.

ASSUMPTIONS AND METHODS

Actuarial assumptions and methods are set by the Board of Trustees, based upon recommendations made by the plan's actuary. On January 21, 2010, the Board adopted new assumptions, effective for the July 1, 2010 valuation. These actuarial assumptions and methods comply with the parameters for disclosure in GASB 25. Further, in our opinion, the assumptions as approved by the Board are reasonably related to the experience of the Plan.

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, 2012, 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,

THE SEGAL COMPANY

By: Kim Nicholl

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

Matthew A. Strom

Matthew A. Strom, FSA, MAAA, EA
Consulting Actuary

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SECTION 1

VALUATION SUMMARY

SECTION 2

VALUATION RESULTS

SECTION 3

SUPPLEMENTAL INFORMATION

SECTION 4

REPORTING INFORMATION

Significant Issues in the Valuation Year

1. The employer statutory contribution rate for the fiscal year beginning July 1, 2012 under the North Dakota Century Code is equal to 10.75% of payroll for employers. Compared to the annual required contribution of 13.02% of payroll, the contribution deficiency is 2.27% of payroll as of July 1, 2012. Each year there is a contribution deficiency leads to an increased deficiency in all future years.
2. The 2011 legislative changes included increases to the statutory contribution rates: 2% each for employer and member effective July 1, 2012 and an additional 2% each for employer and member effective July 1, 2014. Employer and member contributions will be reset to 7.75% each once the Fund reaches a 90% funded ratio, measured using the actuarial value of assets. When including the additional total 4% increase effective July 1, 2014 in the statutory contribution rates and comparing that to the annual required contribution, there would no longer be a contribution deficiency.
3. The funding ratio based on the actuarial value of assets over the actuarial accrued liability as of July 1, 2012 is 60.9%, compared to 66.3% as of July 1, 2011. This ratio is a measure of funding status, its history is a measure of funding progress, and is the ratio required to be reported under GASB 25. The total 8% increase in the statutory contribution rates is expected to improve the funding ratio of the plan over time.
4. For the year ended June 30, 2012, Segal has determined that the asset return on a market value basis was -1.4%. Coincidentally, after gradual recognition of investment gains and losses under the actuarial smoothing method, the actuarial rate of return was also -1.4%. This represents an experience loss when compared to the assumed rate of 8%. As of June 30, 2012, the actuarial value of assets ($1.748 billion) represented 105.7% of the market value ($1.654 billion).
5. The portion of deferred investment gains and losses recognized during the calculation of the July 1, 2012 actuarial value of assets contributed to a loss of $169,448,005. Conversely, the demographic and liability experience resulted in a $9,785,010 gain.
6. As indicated on page 6 of this report, the total investment loss not yet recognized as of June 30, 2012 is $93,931,112. This unrecognized loss will be recognized in the determination of the actuarial value of assets for funding purposes in the next few years, to the extent they are not offset by recognition of gains derived from future experience. This means that earning the assumed rate of investment return of 8% per year (net of investment expenses) on a market value basis will result in investment losses on the actuarial value of assets in the next few years.
7. As mentioned above, the current method used to determine the actuarial value of assets yields an amount that is 105.7% of the market value of assets as of June 30, 2012. Guidelines in Actuarial Standard of Practice No. 44 (Selection and Use of Asset Valuation Methods for Pension Valuations) recommend that asset values fall within a reasonable range around the corresponding market value. The actuarial asset method complies with these guidelines.

8. This actuarial valuation report as of June 30, 2012 is based on financial data as of that date. Changes in the value of assets subsequent to that date are not reflected. Declines in asset values will increase the cost of the plan, while increases in asset values (in excess of expected) will decrease the cost of the plan.

9. The Fund's cash flow (contributions minus benefit payments, refunds, and expenses) as a percentage of the market value of assets is -3.1% as of June 30, 2012, compared to -2.7% as of June 30, 2011. The scheduled increases in the employer and member contribution rates will improve the cash flow percentage, assuming all other experience emerges as expected.

Summary of Key Valuation Results

	2012	2011
Demographic Data for Plan Year Beginning July 1:		
Number of retirees and beneficiaries	7,151	6,933
Number of inactive vested members	1,483	1,463
Number of inactive non-vested members	468	407
Number of active members	10,014	10,004
Total payroll supplied by System	$505,285,069	$488,764,292
Statutory Contributions (% of Payroll) for Plan Year Beginning July 1:		
Employer	10.75%	8.75%
Member	9.75%	7.75%
Assets:		
Market value	$1,654,149,659	$1,726,179,317
Actuarial value	1,748,080,771	1,822,598,871
Return on market value as determined by Segal	-1.4%	23.5%
Return on actuarial value	-1.4%	1.4%
Ratio of actuarial value to market value	105.7%	105.6%
Net cash flow % relative to market value	-3.1%	-2.7%
Actuarial Information:		
Normal cost %	9.83%	9.80%
Normal cost	$52,667,248	$50,760,259
Actuarial accrued liability	2,871,870,286	2,749,751,755
Unfunded actuarial accrued liability	1,123,789,515	927,152,884
Funded ratio	60.9%	66.3%
Effective amortization period*	51 years	Infinite
GASB 25 Information:		
Annual required employer contribution rate for year beginning July 1	13.02%	13.16%
Margin/(Deficit)	-2.27%	-4.41%
Gains/(Losses):		
Asset experience	-$169,448,005	-$120,206,192
Liability experience	9,785,010	-6,164,197
Benefit changes	0	24,298,740
Assumption/method changes	0	0
Total Gain/(Loss)	-$159,662,995	-$102,071,649

**Does not reflect increases in member and employer contribution rates effective in future years (July 1, 2012 and 2014 for 2011 valuation year and July 1, 2014 for 2012 valuation year).*

A. MEMBER DATA

The Actuarial Valuation and Review considers the number and demographic characteristics of covered participants, including active participants, inactive participants, retirees, and beneficiaries.

This section presents a summary of significant statistical data on these participant groups.

More detailed information for this valuation year and the preceding valuation can be found in Section 3, Exhibits A, B, and C.

A historical perspective of how the participant population has changed over the past ten valuations can be seen in this chart.

CHART 1

Member Population: 2003 – 2012

Year Ended June 30	Active Members	Inactive Vested Members	Inactive Non-vested Members	Retirees and Beneficiaries	Ratio of Actives to Retirees and Beneficiaries
2003	9,916	1,276	233	5,177	1.92
2004	9,826	1,346	175	5,373	1.83
2005	9,801	1,377	168	5,586	1.75
2006	9,585	1,409	143	5,893	1.63
2007	9,599	1,439	142	6,077	1.58
2008	9,561	1,459	229	6,317	1.51
2009	9,707	1,490	292	6,466	1.50
2010	9,907	1,472	331	6,672	1.48
2011	10,004	1,463	407	6,933	1.44
2012	10,014	1,483	468	7,151	1.40

Active Members

Plan costs are affected by the age, years of service and compensation of active members. In this year's valuation, there were 10,014 active members with an average age of 43.7 and 13.7 average years of service. The 10,004 active members in the prior valuation had an average age of 43.9 and 13.8 average years of service.

Inactive Members

In this year's valuation, there were 1,483 participants with a vested right to a deferred or immediate vested benefit.

In addition, there were 468 participants entitled to a return of their employee contributions.

These graphs show a distribution of active members by age and by years of service.

CHART 2

Distribution of Active Members by Age as of June 30, 2012

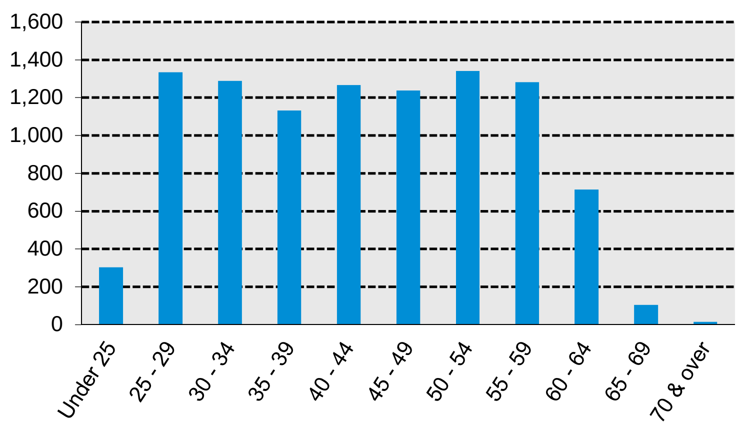
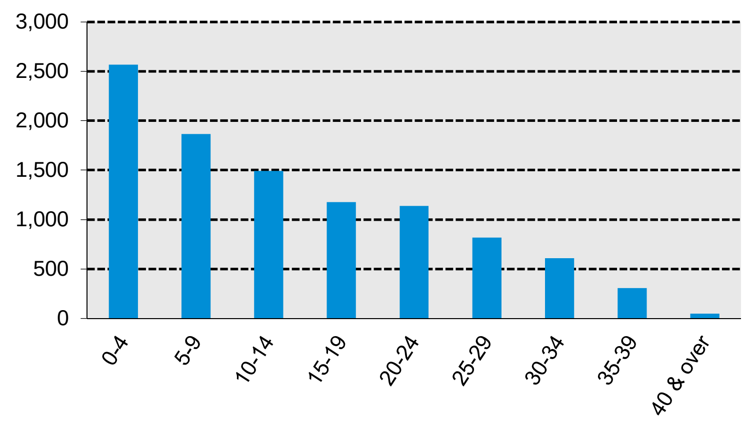


CHART 3

Distribution of Active Members by Years of Service as of June 30, 2012

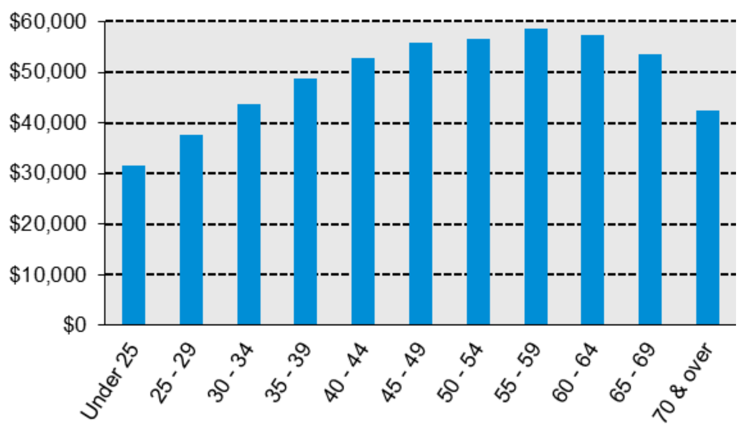


Distribution of Active Members by Age and Average Compensation

In this year's valuation, there were 10,014 active members with an average compensation of $50,458. The 10,004 active members in the prior valuation had an average compensation of $48,857.

CHART 4

Distribution of Active Members by Age and Average Compensation as of June 30, 2012



Retirees and Beneficiaries

As of June 30, 2012, 6,568 retirees and 583 beneficiaries were receiving total monthly benefits of $11,902,594. For comparison, in the previous valuation, there were 6,372 retirees and 561 beneficiaries receiving monthly benefits of $11,134,239.

These graphs show a distribution of the current retirees and beneficiaries based on their monthly amount and age, by type of pension.

CHART 5

Distribution of Retirees and Beneficiaries by Type and by Monthly Amount as of June 30, 2012

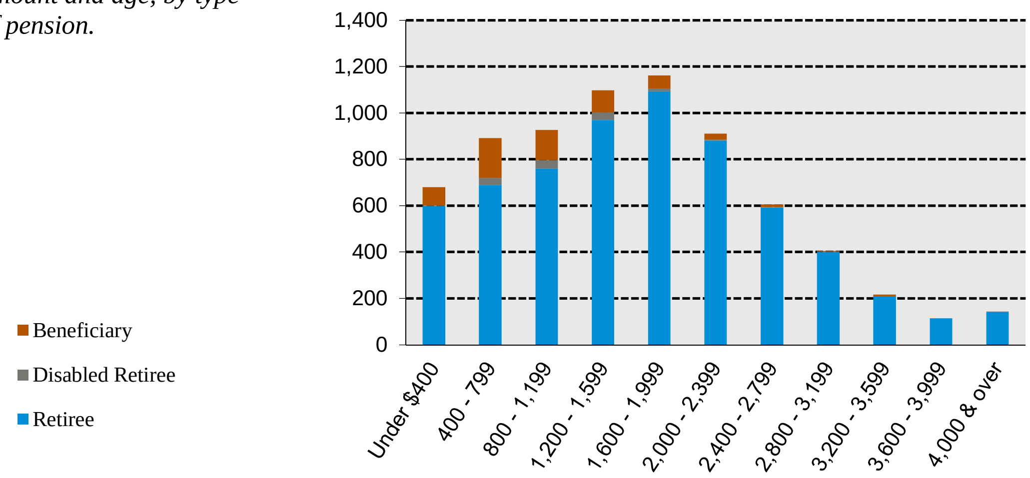
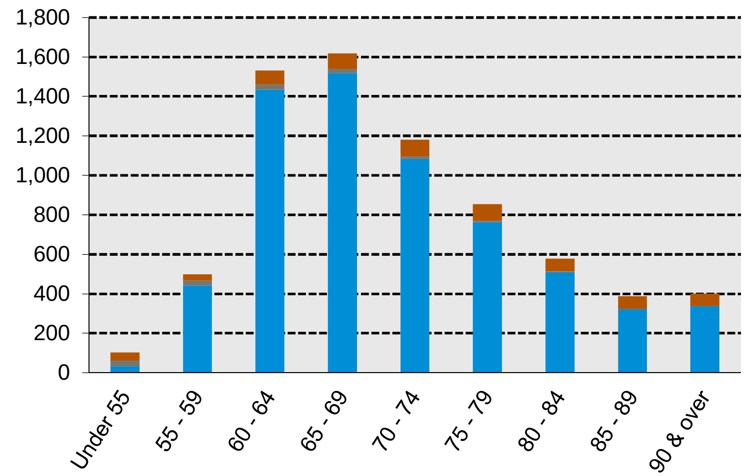


CHART 6

Distribution of Retirees and Beneficiaries by Type and by Age as of June 30, 2012

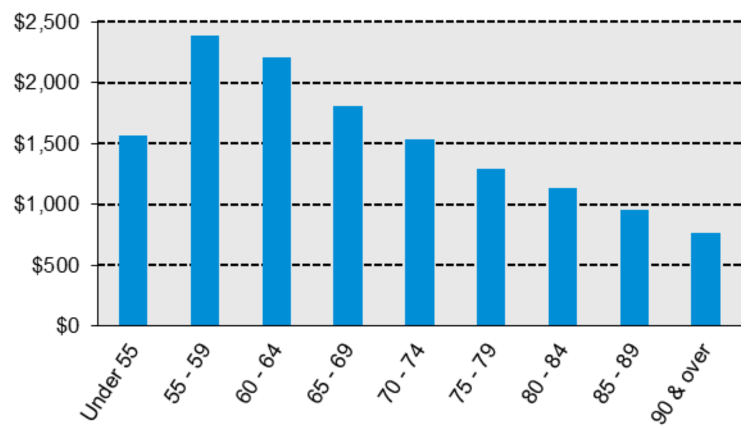


Distribution of Retirees and Beneficiaries by Age and Average Monthly Benefit Amount

As of June 30, 2012, the average monthly benefit amount among 6,568 retirees and 583 beneficiaries was $1,664. In the previous valuation, the average monthly benefit amount among 6,372 retirees and 561 beneficiaries was $1,606.

CHART 7

Distribution of Retirees and Beneficiaries by Age and Average Monthly Amount as of June 30, 2012



B. FINANCIAL INFORMATION

It is desirable to have level and predictable plan costs from one year to the next. For this reason, TFFR's Board utilizes an asset valuation method that gradually adjusts to market value. Under this valuation method, the full value of market fluctuations is not recognized in a single year and, as a result, the asset value and the plan costs are more stable. The amount of the adjustment to recognize market value is treated as income, which may be positive or negative. Realized and unrealized gains and losses are treated equally and, therefore, the sale of assets has no immediate effect on the actuarial value.

The chart shows the determination of the actuarial value of assets as of the valuation date.

CHART 8

Determination of Actuarial Value of Assets for Years Ended June 30, 2012 and June 30, 2011

				2012		2011	
1.	Market value of assets available for benefits				$1,654,149,659		$1,726,179,317
2.	Calculation of unrecognized return*		Original Amount**	% Not Recognized		% Not Recognized	
	(a)	Year ended June 30, 2012	-$159,245,999	80%	-$127,396,799		--
	(b)	Year ended June 30, 2011	219,705,461	60%	131,823,277	80%	$175,764,369
	(c)	Year ended June 30, 2010	74,336,281	40%	29,734,512	60%	44,601,768
	(d)	Year ended June 30, 2009	-640,460,510	20%	-128,092,102	40%	-256,184,204
	(e)	Year ended June 30, 2008	-303,007,436			20%	-60,601,487
	(f)	Total unrecognized return			-$93,931,112		-$96,419,554
3.	Actuarial value of assets (Current Assets): (1) – (2f)				$1,748,080,771		$1,822,598,871
4.	Actuarial value as a percent of market value: (3) ÷ (1)				105.7%		105.6%

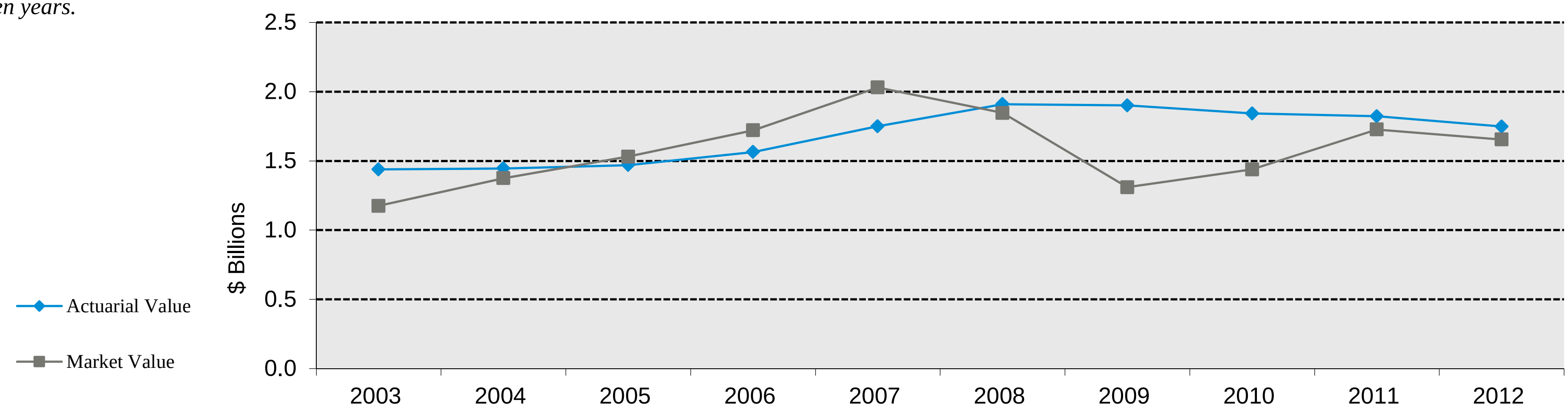
** Recognition at 20% per year over 5 years*
***Total return minus expected return on market value*

Both the actuarial value and market value of assets are representations of the TFFR's financial status. As investment gains and losses are gradually taken into account, the actuarial value of assets tracks the market value of assets. The actuarial asset value is significant because the TFFR's liabilities are compared to these assets to determine what portion, if any, remains unfunded. Amortization of the unfunded actuarial accrued liability is an important element in determining the contribution requirement.

This chart shows the change in the actuarial value of assets versus the market value over the past ten years.

CHART 9

Actuarial Value of Assets vs. Market Value of Assets as of June 30, 2003 – 2012



Investment Rate of Return

A major component of projected asset growth is the assumed rate of return. The assumed return should represent the expected long-term rate of return, based on the TFFR's investment policy. For valuation purposes, the assumed rate of return on the actuarial value of assets is 8.00%. The actual rate of return on an actuarial basis for the Plan Year ended June 30, 2012 was -1.42%.

Since the actual return for the year was less than the assumed return, the TFFR experienced an actuarial loss during the year ended June 30, 2012 with regard to its investments.

This chart shows the gain/(loss) due to investment experience.

CHART 10

Actuarial Value Investment Experience for Year Ended June 30, 2012

1.	Actual return	-$25,596,942
2.	Average value of assets	1,798,138,292
3.	Actual rate of return: (1) ÷ (2)	-1.42%
4.	Assumed rate of return	8.00%
5.	Expected return: (2) x (4)	$143,851,063
6.	Actuarial gain/(loss): (1) – (5)	-$169,448,005

Because actuarial planning is long term, it is useful to see how the assumed investment rate of return has followed actual experience over time. The chart below shows the rate of return on an actuarial basis compared to the market value investment return for the last twenty years, including five-year, ten-year, fifteen-year and twenty-year averages.

Chart 11
Investment Return

Year Ended June 30	Market Value	Actuarial Value
1993	14.7%	8.1%
1994	1.2%	7.0%
1995	13.6%	9.1%
1996	15.6%	11.3%
1997	18.5%	12.6%
1998	13.2%	12.6%
1999	11.5%	13.5%
2000	11.6%	13.3%
2001	-7.6%	8.6%
2002	-8.6%	3.0%
2003	2.1%	0.6%
2004	18.9%	1.9%
2005	13.3%	3.3%
2006	14.6%	8.5%
2007	20.4%	14.4%
2008	-7.0%	11.6%
2009	-27.0%	1.7%
2010	13.9%	-0.5%
2011	23.5%*	1.4%
2012	-1.4%*	-1.4%
Average Returns		
Last 5 years:	-1.8%	2.5%
Last 10 years:	5.5%	4.0%
Last 15 years:	5.2%	6.0%
Last 20 years:	7.0%	6.9%

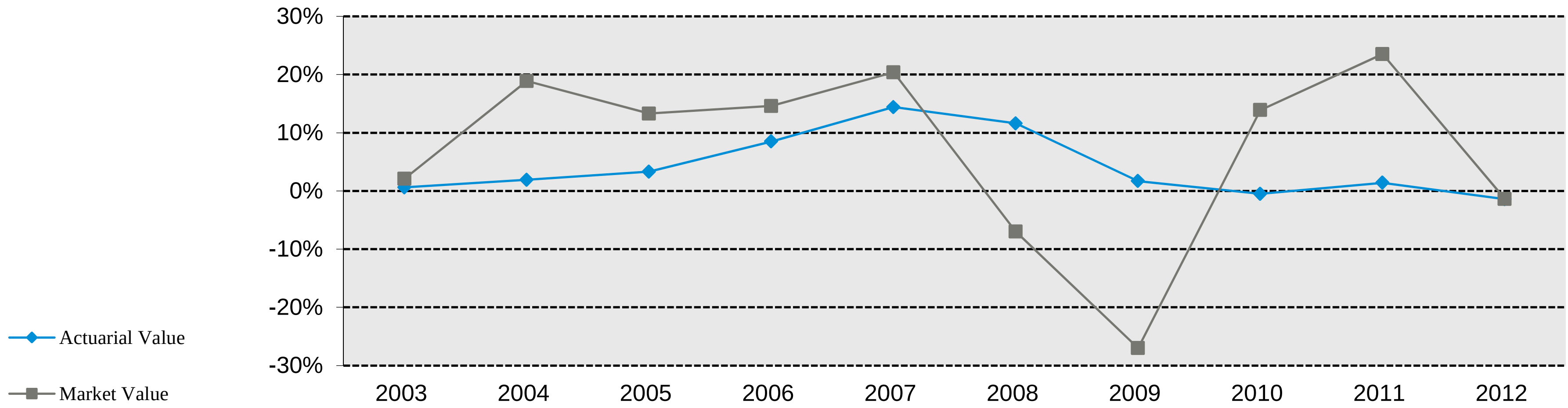
** As determined by Segal.*

Subsection B described the actuarial asset valuation method that gradually takes into account fluctuations in the market value rate of return. The effect of this is to stabilize the actuarial rate of return, which contributes to leveling pension plan costs.

This chart illustrates how this leveling effect has actually worked over the years 2003 - 2012.

CHART 12

Market and Actuarial Rates of Return for Years Ended June 30, 2003 - 2012



Cash Flow

Cash flow is the difference between contributions and benefit payments, refunds, and expenses. Negative cash flow indicates that the payments made from the Fund exceed contributions made to the Fund.

The scheduled increases in the employer and member contribution rates will improve the cash flow percentage, assuming all other experience emerges as expected.

Chart 13

History of Cash Flow

		Disbursements or Expenditures						
Year Ending June 30,	**Contributions[1]**	**Benefit Payments**	**Refunds**	**Administrative Expenses**	**Total**	**Net Cash Flow for the Year[2]**	**Market Value of Assets**	**Net Cash Flow as Percent of Market Value**
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
2003	$60,210,068	($72,044,977)	($1,729,764)	($1,056,611)	($74,831,352)	($14,621,284)	$1,175,258,478	-1.2%
2004	63,655,362	(77,153,054)	(5,800,100)	(1,513,788)	(84,466,942)	(20,811,580)	1,374,679,677	-1.5%
2005	64,072,881	(84,498,130)	(2,733,407)	(2,086,849)	(89,318,386)	(25,245,505)	1,530,194,427	-1.6%
2006	65,577,828	(91,818,092)	(2,697,308)	(1,484,591)	(95,999,991)	(30,422,163)	1,720,324,948	-1.8%
2007	66,362,099	(99,737,905)	(3,328,931)	(1,592,060)	(104,658,896)	(38,296,797)	2,029,777,412	-1.9%
2008	70,573,389	(106,456,334)	(5,500,476)	(1,639,521)	(113,596,331)	(43,022,942)	1,846,113,411	-2.3%
2009	74,380,980	(113,966,079)	(2,362,251)	(1,707,506)	(118,035,836)	(43,654,856)	1,309,716,730	-3.3%
2010	78,105,830	(124,472,154)	(2,557,240)	(1,902,796)	(128,932,190)	(50,826,360)	1,437,949,843	-3.5%
2011	84,923,250	(127,435,564)	(2,210,738)	(2,003,705)	(131,650,007)	(46,726,757)	1,726,179,317	-2.7%
2012	88,808,604	(135,250,568)	(2,479,194)	(1,596,976)	(139,326,738)	(50,518,134)	1,654,149,659	-3.1%

[1] Column (2) includes employee and employer contributions, as well as any purchased service credits during the year.
[2] Column (7) = Column (2) + Column (6).

Other Experience

There are other differences between the expected and the actual experience that appear when the new valuation is compared with the projections from the previous valuation. These include, but are not limited to:

- the extent of turnover among the participants,
- retirement experience (earlier or later than expected),
- mortality (more or fewer deaths than expected),
- the number of disability retirements, and
- salary increases different than assumed

The net gain from this other experience for the year ended June 30, 2012 amounted to $9,785,010, which is approximately 0.3% of the actuarial accrued liability.

The chart shows elements of the experience gain/(loss) for the most recent year.

CHART 14

Experience Due to Changes in Demographics for Year Ended June 30, 2012

1.	Turnover	-$3,574,553
2.	Retirement	6,743,557
3.	Deaths among retired members and beneficiaries	-1,733,313
4.	Salary/service increase for continuing actives	7,558,733
5.	Other decrements	3,818,113
6.	Miscellaneous	-3,027,527
7.	Total	$9,785,010

C. DEVELOPMENT OF EMPLOYER COSTS

The amount of Annual Required Contribution as defined by GASB is comprised of an employer normal cost payment and a payment on the unfunded actuarial accrued liability. This total amount is then divided by the projected payroll for active members to determine the Annual Required Contribution of 13.02% of payroll.

GASB allows that the unfunded actuarial accrued liability be amortized over 30 years. This period is reset to 30 each year.

The chart compares this valuation's recommended contribution with the prior valuation.

CHART 15

Annual Required Contribution

	Year Beginning July 1			
	2012		2011	
	Amount	% of Compensation	Amount	% of Compensation
1. Total normal contribution rate	$52,667,248	9.83%	$50,760,259	9.80%
2. Less: member contribution rate	52,247,477	-9.75%	40,160,208	-7.75%
3. Employer normal contribution rate	$419,771	0.08%	$10,600,051	2.05%
4. Employer normal contribution rate, adjusted for timing*	436,131	0.08%	11,013,197	2.12%
5. Actuarial accrued liability	2,871,870,286		2,749,751,755	
6. Actuarial value of assets	1,748,080,771		1,822,598,871	
7. Unfunded actuarial accrued liability: (5) - (6)	1,123,789,515		927,152,884	
8. Payment on unfunded actuarial accrued liability, adjusted for timing*	69,339,912	12.94%	57,207,064	11.04%
9. Annual Required Contribution (4) + (8)	$69,776,043	13.02%	$68,220,261	13.16%
10. Payroll supplied by System	$505,285,069		$488,764,292	
11. Payroll adjusted for one year's pay increase	$535,871,564		$518,196,234	

** Contributions are assumed to be paid at the middle of every month.*

The annual required contribution as of July 1, 2012 is based on all of the data described in the previous sections, the actuarial assumptions described in Section 4, and the Plan provisions adopted at the time of preparation of the Actuarial Valuation. It includes all changes affecting future costs, adopted benefit changes, actuarial gains and losses, and changes in the actuarial assumptions.

Reconciliation of Annual Required Contribution

The chart below details the changes in the annual required contribution from the prior valuation to the current year's valuation.

The chart reconciles the annual required contribution from the prior valuation to the amount determined in this valuation.

CHART 16

Reconciliation of GASB Annual Required Contribution from July 1, 2011 to July 1, 2012

Analysis of Change in GASB Annual Required Contribution

		July 1, 2012		**July 1, 2011**
1. Prior Valuation		13.16%		12.79%
2. Increases/(decreases) due to:				
a. Open amortization	-0.21%		-0.18%	
b. Change in covered payroll and normal cost	0.02%		-0.61%	
c. Employer contributions received at 8.75% rather than 13.16% for FY2012 or 12.79% for FY 2011	0.26%		0.23%	
d. Liability experience	-0.11%		0.07%	
e. Investment experience	1.98%		1.46%	
f. Legislative changes	-2.08%		-0.60%	
g. Total		-0.14%		0.37%
3. Current valuation (1. + 2.g.)		13.02%		13.16%
4. Statutory employer contribution rate		10.75%		8.75%
5. Margin available [contribution sufficiency/(deficiency)] (4. – 3.)		-2.27%		-4.41%

D. INFORMATION REQUIRED BY THE GASB

Governmental Accounting Standards Board (GASB) reporting information provides standardized information for comparative purposes of governmental pension plans. This information allows a reader of the financial statements to compare the funding status of one governmental plan to another on relatively equal terms.

Critical information to the GASB is the historical comparison of the GASB required contribution to the actual contributions. This comparison demonstrates whether a plan is being funded within the range of GASB reporting requirements. Chart 17 below presents a graphical representation of this information for TFFR.

The other critical piece of information regarding TFFR's financial status is the funded ratio. This ratio compares the actuarial value of assets to the actuarial accrued liabilities of the Plan as calculated under GASB standards. High ratios indicate a well-funded plan with assets sufficient to cover the plan's actuarial accrued liabilities. Lower ratios may indicate recent changes to benefit structures, funding of the plan below actuarial requirements, poor asset performance, or a variety of other factors.

Although the GASB requires that the actuarial value of assets be used to determine the funded ratio, Chart 18 shows the funded ratio calculated using both the actuarial value of assets and the market value of assets.

The details regarding the calculations of these values and other GASB numbers may be found in Section 4, Exhibits III, IV, and VI.

These graphs show key GASB factors.

CHART 17

Required Versus Actual Employer Contributions, Years Ended June 30

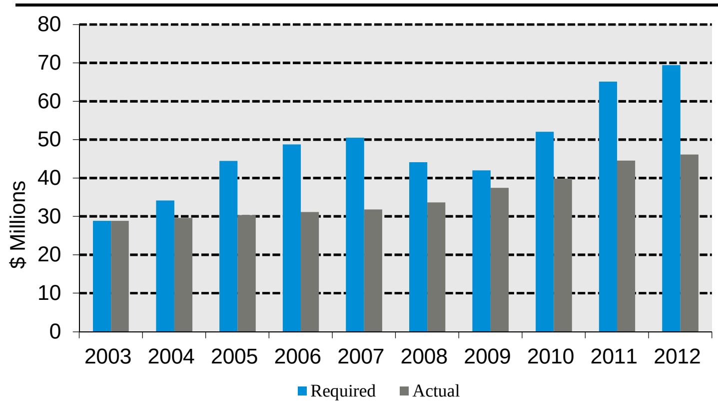
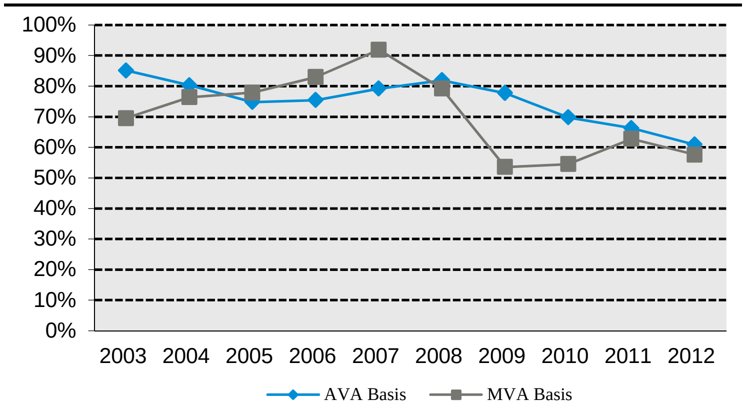


CHART 18

Funded Ratio, Years Ended June 30



Membership Data

Membership data was provided on electronic files sent by the RIO staff. Data for active members includes sex, birth date, service, salary for the prior fiscal year, and accumulated contributions. Data for inactive members was similar, but also includes the members' unreduced benefit. For retired members, data includes status (service retiree, disabled retiree or beneficiary), sex, birth date, pension amount, date of retirement, form of payment, and beneficiary sex and birth date 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 Exhibit A. Exhibit B summarizes certain active member data, and the age/service distribution of active members among tiers is shown in Exhibit C. Exhibit D-1 and Exhibit D-2 show the distribution of retirees by option and by benefit amount. Exhibit E shows a reconciliation of the member data from last year’s valuation to this year’s valuation.

The number of active members increased by 0.1% since last year, from 10,004 to 10,014. 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 3.4% since last year. For all comparative purposes, payroll is the amount supplied by the RIO staff (i.e., the 2011-2012 member pay), annualized. However, this figure is increased by one year’s assumed pay increase to determine the member’s rate of pay (and thus, total projected payroll) at July 1, 2012. Pay is assumed to change only at the beginning of a school/fiscal year.

Average pay increased by 3.3%, from $48,857 to $50,458. This includes the impact of replacing more highly paid members who retire with new teachers. The average increase in salary for the 9,259 continuing members (members active in both this valuation and the preceding valuation) was 5.4%.

The average age of active members decreased from 43.9 years to 43.7 years, and their average service decreased from 13.8 years to 13.7 years.

The table below shows additional information about the active membership this year and last year. Tier 1 Grandfathered members are those who will have 65 points as of June 30, 2013, or are at least age 55 and vested. Current Tier 1 members that do not meet these criteria are considered Tier 1 Non-grandfathered members. Tier 2 members are those hired or rehired after June 30, 2008. All new members in future years will enter as Tier 2 members, so the number will increase over time. The Tier 1 Grandfathered and Non-grandfathered population will decrease each year as members leave due to retirement, termination, death, and disability.

Active Statistics

	July 1, 2012	July 1, 2011
Plan Eligibility*		
a. Tier 1 Grandfathered	4,028	4,405
b. Tier 1 Non-grandfathered	3,592	3,680
c. Tier 2	2,394	1,919
d. Total	10,014	10,004
Benefit Eligibility		
a. Non-Vested	2,444	1,991
b. Vested	5,476	5,830
c. Early Retirement	973	945
d. Normal Retirement	1,121	1,134
e. Total	10,014	10,004

* *Number of Tier 1 Grandfathered and Non-grandfathered members is estimated based on the June 30, 2012 census data and eligibility requirements specified above.*

In addition, this table shows the number of members who are non-vested, those who are vested but not eligible for retirement, those who are eligible only for an early retirement (reduced) benefit, and those eligible for a normal (unreduced) benefit. As of the valuation date, 2,094 members were eligible for either reduced or unreduced retirement, an increase over last year's figure of 2,079.

EXHIBIT A
Member Data

Member Data	July 1, 2012	July 1, 2011
1. Active members		
a. Males	2,578	2,590
b. Females	7,436	7,414
c. Total members	10,014	10,004
d. Total payroll supplied, annualized	$505,285,069	$488,764,292
e. Average salary	$50,458	$48,857
f. Average age	43.7	43.9
g. Average service	13.7	13.8
h. Total contributions with interest	$647,935,914	$626,002,547
i. Average contribution with interest	$64,703	$62,575
2. Vested inactive members		
a. Number	1,483	1,463
b. Total annual deferred benefits	$9,268,229	$8,984,442
c. Average annual deferred benefit	$6,250	$6,141
d. Average age	49.0	48.7
3. Non-vested inactive members		
a. Number	468	407
b. Employee contributions with interest due	$1,540,967	$1,178,287
c. Average refund due	$3,293	$2,895
d. Average age	38.5	38.6
4. Service retirees		
a. Number	6,448	6,252
b. Total annual benefits	$133,723,928	$124,977,333
c. Average annual benefit	$20,739	$19,990
d. Average age	70.8	70.7
5. Disabled retirees		
a. Number	120	120
b. Total annual benefits	$1,634,376	$1,586,544
c. Average annual benefit	$13,620	$13,221
d. Average age	61.2	61.1
6. Beneficiaries		
a. Number	583	561
b. Total annual benefits	$7,472,820	$7,046,988
c. Average annual benefit	$12,818	$12,561
d. Average age	73.2	72.8

EXHIBIT B
Historical Summary of Active Member Data

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

EXHIBIT C

Members in Active Service as of June 30, 2012
By Age, Years of Service, and Average Compensation

		Years of Credited Service								
Age	**Total**	**0-4**	**5-9**	**10-14**	**15-19**	**20-24**	**25-29**	**30-34**	**35-39**	**40 & over**
Under 25	302	302	- -	- -	- -	- -	- -	- -	- -	- -
	$31,521	$31,521	- -	- -	- -	- -	- -	- -	- -	- -
25 - 29	1,334	1,061	273	- -	- -	- -	- -	- -	- -	- -
	37,738	36,711	$41,731	- -	- -	- -	- -	- -	- -	- -
30 - 34	1,288	432	701	155	- -	- -	- -	- -	- -	- -
	43,732	38,130	45,859	$49,728	- -	- -	- -	- -	- -	- -
35 - 39	1,132	235	292	495	110	- -	- -	- -	- -	- -
	48,788	38,923	47,995	52,596	$54,832	- -	- -	- -	- -	- -
40 - 44	1,266	182	209	280	456	139	- -	- -	- -	- -
	52,829	40,319	47,989	53,557	57,431	$59,920	- -	- -	- -	- -
45 - 49	1,238	108	134	188	222	425	158	3	- -	- -
	55,905	39,895	48,195	52,924	57,509	60,301	$62,942	$51,573	- -	- -
50 - 54	1,341	119	102	150	151	241	367	209	2	- -
	56,538	41,081	46,947	51,760	56,325	60,325	61,417	60,597	$64,284	- -
55 - 59	1,281	59	93	128	144	205	188	317	147	- -
	58,490	43,386	47,933	50,883	57,642	60,278	61,881	63,579	60,883	- -
60 - 64	713	49	53	75	77	110	96	72	143	38
	57,257	36,567	49,369	53,284	55,051	57,498	60,301	61,257	63,658	$67,190
65 - 69	104	14	6	20	16	14	7	5	13	9
	53,585	31,708	52,432	47,607	55,339	60,611	54,651	68,212	64,895	62,332
70 & over	15	8	1	- -	- -	2	1	2	- -	1
	42,315	33,442	31,143	- -	- -	51,146	62,800	57,315	- -	56,325
Total	10,014	2,569	1,864	1,491	1,176	1,136	817	608	305	48
	$50,458	$37,247	$46,272	$52,256	$56,902	$59,972	$61,631	$62,237	$62,378	$66,052

EXHIBIT D-1

Schedule of Annuitants by Type of Benefit as of June 30, 2012

Type of Benefits/ Form of Payment	Number	Annual Benefits Amount	Average Monthly Benefits
Service:			
Straight Life	2,801	$48,184,578	$1,434
100% J&S	2,279	56,645,049	2,071
50% J&S	515	11,944,306	1,933
5 Years C&L	23	303,549	1,100
10 Years C&L	178	3,070,635	1,438
20 Years C&L	73	1,497,690	1,710
Level	579	12,078,121	1,738
Subtotal:	6,448	$133,723,928	$1,728
Disability:			
Straight Life	96	$1,334,694	$1,159
100% J&S	13	162,433	1,041
50% J&S	8	102,333	1,066
5 years C&L	2	25,253	1,052
10 Years C&L	0	0	0
20 Years C&L	1	9,663	805
Level	0	0	0
Subtotal:	120	$1,634,376	$1,135
Beneficiaries:			
Straight Life	571	$7,320,669	$1,068
5 Years Certain Only	2	42,878	1,787
10 Years Certain Only	9	70,362	652
20 Years Certain Only	1	38,911	3,243
Subtotal:	583	$7,472,820	$1,068
Total:	7,151	$142,831,124	$1,664

EXHIBIT D-2

Schedule of Annuitants by Monthly Benefit as of June 30, 2012

Monthly Benefit Amount	Number of Members	Female	Male	Average Service
Under $200	215	154	61	6.47
200 - 399	464	359	105	12.54
400 - 599	473	375	98	18.17
600 - 799	418	322	96	22.75
800 - 999	409	304	105	24.31
1,000 - 1,199	518	383	135	27.37
1,200 - 1,399	525	353	172	28.81
1,400 - 1,599	573	373	200	30.13
1,600 - 1,799	592	390	202	29.97
1,800 - 1,999	570	358	212	30.97
2,000 - 2,199	501	324	177	30.81
2,200 - 2,399	409	240	169	32.07
2,400 - 2,599	325	199	126	32.61
2,600 - 2,799	281	162	119	33.52
2,800 - 2,999	227	121	106	33.53
3,000 - 3,199	178	99	79	34.47
3,200 - 3,399	124	57	67	34.26
3,400 - 3,599	92	38	54	34.34
3,600 - 3,799	72	29	43	34.90
3,800 - 3,999	42	16	26	36.18
4,000 & over	143	44	99	36.70
Total:	7,151	4,700	2,451	27.44

EXHIBIT E

Reconciliation of Member Data by Status for the Year Ending June 30, 2012

	Active Members	Vested Terminated Members	Non-Vested Terminated Members	Service Retirees	Disabled Retirees	Beneficiaries	Total
A. Number as of July 1, 2011	10,004	1,463	407	6,252	120	561	18,807
B. Additions and new hires	679	0	0	0	0	0	679
C. Participant movement							
1. Retirement	-318	-49	-4*	371	0	0	0
2. Disability	-7	0	0	0	7	0	0
3. Died with beneficiary	-5	-1	0	-29	-1	37**	1
4. Died without beneficiary	-3	-2	0	-126	-6	-27	-164
5. Terminated vested	-150	150	0	0	0	0	0
6. Terminated non-vested	-125	0	125	0	0	0	0
7. Refunds	-136	-38	-26	0	0	0	-200
8. Rehired as active	76	-40	-33	-3	0	0	0
9. Expired benefits	0	0	0	0	0	-6	-6
10. Alternate payee	0	0	0	-17	0	18***	1
D. Data adjustments	-1	0	-1	0	0	0	-2
E. Number as of June 30, 2012	10,014	1,483	468	6,448	120	583	19,116

* *Vested members under ND PERS*
** *Includes two beneficiaries from one deceased active member*
****Includes one new alternate payee*

EXHIBIT F

Statement of Change in Plan Net Assets for Year Ended June 30, 2012

	As of June 30	
	2012	**2011**
A. Assets available at beginning of year	$1,726,179,317	$1,437,949,843
B. Revenue for the year		
1. Contributions		
a. Employee contributions	$40,254,562	$38,869,260
b. Employer contributions	46,126,193	44,545,433
c. Purchased service credit	2,417,995	1,499,748
d. Interest and penalties	9,854	8,809
e. Total	$88,808,604	$84,923,250
2. Income		
a. Interest, dividends, and other income	$39,968,709	$36,055,355
b. Investment expenses	-5,661,973	-6,430,327
c. Net	$34,306,736	$29,625,028
3. Net realized and unrealized gains/(losses)	-$55,818,260	$305,331,203
4. Total revenue: (1e) + (2c) + (3)	$67,297,080	$419,879,481
C. Expenditures for the year		
1. Benefits and refunds		
a. Refunds	$2,479,194	$2,210,738
b. Regular annuity benefits	134,718,464	126,484,335
c. Partial lump-sum benefits paid	532,104	951,229
d. Total	$137,729,762	$129,646,302
2. Administrative and miscellaneous expenses	1,596,976	2,003,705
3. Total expenditures	$139,326,738	$131,650,007
D. Increase/(decrease) in net assets: (B4 – C3)	-$72,029,658	$288,229,474
E. Value of assets at end of year: (A + D)	$1,654,149,659	$1,726,179,317

EXHIBIT G

Statement of Plan Net Assets (Assets at Market or Fair Value)

	As of June 30	
	2012	**2011**
1. Cash and cash equivalents (operating cash)	$14,370,170	$12,365,575
2. Receivables:		
a. Member and employer contributions	$11,076,423	$10,871,495
b. Investment income	6,832,046	7,419,806
c. Miscellaneous receivables	5,472	7,651
d. Total receivables	$17,913,941	$18,298,952
3. Investments		
a. Invested cash	$21,082,755	$15,900,962
b. Domestic equities	539,857,054	653,723,804
c. International equities	272,892,686	395,756,180
d. Domestic fixed income	286,000,423	311,805,434
e. International fixed income	84,045,239	83,199,718
f. Real assets	315,768,906	174,937,685
g. Private equity	104,823,271	63,012,510
h. Total investments	$1,624,470,334	$1,698,336,293
4. Due from other funds	$1,461	$0
5. Equipment & software (net of depreciation)	$762	$3,050
6. Total assets: (1) + (2d) + (3h) + (4) + (5)	$1,656,756,668	$1,729,003,870
7. Liabilities		
a. Accounts payable	$1,985,912	$2,196,925
b. Accrued expenses	607,086	616,348
c. Due to other funds	14,011	11,280
d. Total liabilities	$2,607,009	$2,824,553
8. Total market value of assets available for benefits: (6) – (7d)	$1,654,149,659	$1,726,179,317

EXHIBIT G (continued)

Statement of Plan Net Assets (Assets at Market or Fair Value)

	As of June 30	
	2012	**2011**
9. Asset allocation (investments)		
a. Invested cash	1.3%	0.9%
b. Domestic equities	33.2%	38.5%
c. International equities	16.8%	23.3%
d. Domestic fixed income	17.6%	18.4%
e. International fixed income	5.2%	4.9%
f. Real assets	19.4%	10.3%
g. Private equity	6.5%	3.7%
h. Total investments	100.0%	100.0%

EXHIBIT H

Development of Unfunded Actuarial Accrued Liability

	Year Ending June 30			
	2012		2011	
1. Unfunded actuarial accrued liability at beginning of year		$927,152,884		$795,204,826
2. Normal cost at beginning of year		50,760,259		52,167,174
3. Total contributions		88,808,604		84,923,250
4. Interest on:				
(a) Unfunded actuarial accrued liability and normal cost	$78,233,051		$65,703,073	
(b) Total contributions	3,211,070		3,070,588	
(c) Total interest: (4a) – (4b)		$75,021,981		62,632,485
5. Expected unfunded actuarial accrued liability: (1) + (2) – (3) + (4c)		$964,126,520		$825,081,235
6. Changes due to (gain)/loss from:				
(a) Investments	169,448,005		$120,206,192	
(b) Demographics	-9,785,010		6,164,197	
(c) Total changes due to (gain)/loss: (6a) + (6b)		159,662,995		$126,370,389
7. Change due to plan amendments		0		-24,298,740
8. Change in actuarial assumptions		0		0
9. Unfunded actuarial accrued liability at end of year: (5) + (6c) + (7) + (8)		1,123,789,515		$927,152,884

EXHIBIT I

Definitions of Pension Terms

The following list defines certain technical terms for the convenience of the reader:

Actuarial Accrued Liability For Actives:	The equivalent of the accumulated normal costs allocated to the years before the valuation date.
Actuarial Accrued Liability For Pensioners:	The single-sum value of lifetime benefits to existing pensioners. This sum takes account of life expectancies appropriate to the ages of the pensioners and the interest that the sum is expected to earn before it is entirely paid out in benefits.
Actuarial Cost Method:	A procedure 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 that are used to determine the Annual Required Contribution.
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., TFFR's assets earn more than projected, salary increases are less than 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 yield in actuarial liabilities that 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. 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 benefit amounts 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, anticipated future compensation, and future service credits. The Actuarial Present Value of Future Plan Benefits includes the liabilities for active members, retired members, beneficiaries receiving benefits, and inactive members entitled to either 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 Statement No. 25, such as the funded ratio and the ARC.

Actuarial Value of 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 plans 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 that 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: The portion of the pension plan contribution, or ARC, that 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 Statement No. 25. The ARC consists of the Employer Normal Cost and the Amortization Payment.

Assumptions or Actuarial Assumptions: The estimates on which the cost of the Fund is calculated including:

(a) Investment return - the rate of investment yield that the Fund will earn over the long-term future;

(b) Mortality rates - the death rates of employees and pensioners; life expectancy is based on these rates;

(c) Retirement rates - the rate or probability of retirement at a given age;

(d) Turnover rates - the rates at which employees of various ages are expected to leave employment for reasons other than death, disability, or retirement;

(e) Salary increase rates - the rates of salary increase due to inflation and productivity growth.

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 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, 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 that 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. First, it is the period used in calculating the Amortization Payment as a component of the ARC. Second, 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.

Investment Return: The rate of earnings of the Fund from its investments, including interest, dividends and capital gain and loss adjustments, computed as a percentage of the average value of the fund. For actuarial purposes, the investment return often reflects a smoothing of the capital gains and losses to avoid significant swings in the value of assets from one year to the next.

Margin: The difference, whether positive or negative, between the statutory employer contribution rate and the Annual Required Contribution (ARC) as defined by GASB 25.

Normal Cost: That portion of the Actuarial Present Value of pension plan benefits and expenses 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 that 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. 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, if the actuarial assumptions are realized.

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.

EXHIBIT I

Summary of Actuarial Valuation Results

The valuation was made with respect to the following data supplied to us:

1.	Pensioners as of the valuation date (including 583 beneficiaries in pay status)		7,151
2.	Members inactive during year ended June 30, 2012 with vested rights		1,483
3.	Members active during the year ended June 30, 2012		10,014
	Fully vested	7,570	
	Not vested	2,444	
4.	Other non-vested inactive members as of June 30, 2012		468

EXHIBIT I (continued)

Summary of Actuarial Valuation Results

	Actuarial Present Value of Projected Benefits	Actuarial Present Value of Future Normal Costs	Actuarial Accrued Liability
A. Determination of Actuarial Accrued Liability			
1. Active members			
a. Retirement benefits	$1,763,051,627	$394,376,573	$1,368,675,054
b. Disability benefits	25,988,951	11,576,400	14,412,551
c. Death benefits	18,489,856	7,469,631	11,020,225
d. Withdrawal benefits	95,159,204	115,989,537	-20,830,333
e. Total	$1,902,689,638	$529,412,141	$1,373,277,497
2. Inactive vested members	68,033,440	--	68,033,440
3. Inactive non-vested members	1,540,967	--	1,540,967
4. Retirees and beneficiaries	1,429,018,382	--	1,429,018,382
5. Total	$3,401,282,427	$529,412,141	$2,871,870,286
B. Determination of Unfunded Actuarial Accrued Liability			
1. Actuarial accrued liability			$2,871,870,286
2. Actuarial value of assets			1,748,080,771
3. Unfunded actuarial accrued liability: (1) – (2)			$1,123,789,515

EXHIBIT II

Actuarial Balance Sheet

	July 1, 2012	July 1, 2011
A. Assets		
1. Current Assets		
a. Market Value	$1,654,149,659	$1,726,179,317
b. Adjustment for actuarial value	93,931,112	96,419,554
c. Actuarial value of assets	$1,748,080,771	$1,822,598,871
2. Actuarial present value of future contributions		
a. Member contributions*	$614,031,279	$565,581,978
b. Employer normal costs	-84,619,138	-62,405,305
c. Unfunded actuarial accrued liability	1,123,789,515	927,152,884
d. Total	$1,653,201,656	$1,430,329,557
3. Total (lc + 2d)	$3,401,282,427	$3,252,928,428
B. Liabilities (Present Value of Projected Benefits)		
1. Retirees and beneficiaries	$1,429,018,382	$1,332,125,929
2. Inactive members	69,574,407	65,871,877
3. Active members	1,902,689,638	1,854,930,622
4. Total	$3,401,282,427	$3,252,928,428

**Reflects member contribution rate increases from 7.75% to 9.75% effective July 1, 2012, and to 11.75% effective July 1, 2014.*

EXHIBIT III

Schedule of Employer Contributions (GASB)

	GASB 25 Annual Required Contribution (ARC)		Actual Employer Contribution		Percentage of GASB ARC Contributed
Fiscal Year	% of Payroll[1]	Amount[2]	% of Payroll	Amount	[(5)/(3)]
(1)	(2)	(3)	(4)	(5)	(6)
2003	7.75%	$28,850,725	7.75%	$28,850,725	100.0%
2004	8.94%	34,186,080	7.75%	29,635,584	86.7%
2005	11.34%	44,471,740	7.75%	30,388,265	68.3%
2006	12.12%	48,747,189	7.75%	31,170,851	63.9%
2007	12.29%	50,532,462	7.75%	31,865,466	63.1%
2008	10.15%	44,114,585	7.75%	33,683,550	76.4%
2009	9.24%	41,986,174	8.25%	37,487,655	89.3%
2010	10.78%	52,053,217	8.25%	39,836,646	76.5%
2011	12.79%	65,112,696	8.75%	44,545,433	68.4%
2012	13.16%	69,373,794	8.75%	46,126,193	66.5%

1. The GASB ARC for each fiscal year is based on the actuarial valuation as of the beginning of the year. Therefore, the FY 2012 ARC is based on the July 1, 2011 valuation. The ARC is defined as the contribution rate required to pay the employer normal cost and to amortize the unfunded actuarial accrued liability over a 30-year period as a level percentage of payroll, but not less than the statutory contribution rate. For FY 2005 and prior years, the unfunded actuarial accrued liability is amortized over a 20-year period as a level dollar amount.
2. The dollar amount of the ARC is based on actual payroll for the year. The FY 2012 ARC shown above differs from the estimated dollar amount shown in the July 1, 2011 actuarial valuation report because of differences between estimated and actual FY 2012 payroll.

EXHIBIT IV

Schedule of Funding Progress (GASB)

Valuation Date	Actuarial Value of Assets (AVA)	Actuarial Accrued Liability (AAL)	Unfunded/ Accrued Liability (UAAL) (3) – (2)	Funded Ratio (2) / (3)	Annual Covered Compensation	UAAL as a % of Compensation (4) / (6)
(1)	(2)	(3)	(4)	(5)	(6)	(7)
07/01/2003	1,438,400,000	1,690,300,000	251,900,000	85.1%	367,900,000	68.5%
07/01/2004	1,445,600,000	1,800,400,000	354,800,000	80.3%	376,500,000	94.2%
07/01/2005	1,469,700,000	1,965,200,000	495,500,000	74.8%	386,600,000	128.2%
07/01/2006	1,564,000,000	2,073,900,000	509,900,000	75.4%	390,100,000	130.7%
07/01/2007	1,750,100,000	2,209,300,000	459,200,000	79.2%	401,300,000	114.4%
07/01/2008	1,909,500,000	2,330,600,000	421,200,000	81.9%	417,700,000	100.8%
07/01/2009	1,900,327,834	2,445,896,710	545,568,876	77.7%	439,986,705	124.0%
07/01/2010	1,841,960,220	2,637,165,045	795,204,825	69.8%	465,007,110	171.0%
07/01/2011	1,822,598,871	2,749,751,755	927,152,884	66.3%	488,764,292	189.7%
07/01/2012	1,748,080,771	2,871,870,286	1,123,789,515	60.9%	505,285,069	222.4%

Note: Numbers for 7/1/2003 – 7/1/2009 valuation dates are rounded

Exhibit V

Determination of Contribution Sufficiency

	July 1, 2012	
A. Statutory Contributions	**Percent of Payroll**	**Dollar Amount**
1. Member contributions	9.75%	$52,247,477
2. Employer contributions	10.75%	57,606,193
3. Total	20.50%	$109,853,670
B. Required Contributions	**Percent of Payroll**	**Dollar Amount**
1. Gross Normal Cost:		
(a) Retirement	7.40%	$39,629,249
(b) Disability	0.22%	1,186,580
(c) Death	0.14%	739,626
(d) Deferred termination benefit and refunds	2.07%	11,111,793
(e) Total	9.83%	52,667,248
2. Less member contribution rate	9.75%	$52,247,477
3. Employer normal cost rate: (1e) – (2)	0.08%	419,771
4. Employer normal cost rate, adjusted for timing	0.08%	436,131
5. Unfunded actuarial accrued liability rate, adjusted for timing	12.94%	69,339,912
6. Total: (4) + (5)	13.02%	69,776,043
C. Contribution Sufficiency / (Deficiency): (A.2) – (B.6)	-2.27%	-$12,169,850
Projected annual payroll for fiscal year beginning on the valuation date		535,871,564

EXHIBIT VI

Solvency Test

	July 1, 2012	July 1, 2011
1. Actuarial accrued liability (AAL)		
a. Active member contributions	$647,935,914	$626,002,547
b. Retirees and beneficiaries	1,429,018,382	1,332,125,929
c. Active and inactive members (employer financed)	794,915,990	791,623,279
d. Total	$2,871,870,286	$2,749,751,755
2. Actuarial value of assets	1,748,080,771	1,822,598,871
3. Cumulative portion of AAL covered		
a. Active member contribution	100.0%	100.0%
b. Retirees and beneficiaries	77.0%	89.8%
c. Active and inactive members (employer financed)	0.0%	0.0%

EXHIBIT VII

Supplementary Information Required by the GASB

Valuation date	July 1, 2012
Actuarial cost method	Entry Age Normal cost method
Amortization method	Level percent of payroll, assuming payroll increases of 3.25% per annum
Amortization period	30-year open period
Asset valuation method	Market value of assets less unrecognized returns in each of the last five years. Unrecognized return is equal to the difference between the actual market return and the expected return on the market value, and is recognized over a five-year period.
Actuarial assumptions:	
Investment rate of return	8.00% per annum
Projected salary increases	Rates of 4.50% to 14.75%
Inflation	3.00%
Cost of living adjustments	None

EXHIBIT VIII
Summary of Assumptions and Methods

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

Mortality Rates:

Post-Termination Non-Disabled*: GRS tables as shown below. (Adopted effective July 1, 2010)
i. 80% of GRS Table 378
ii. 75% of GRS Table 379

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

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

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

*The mortality tables above reasonably reflect the projected mortality experience of the Fund as of the measurement date. As of the most recent experience study, the ratio of actual to the expected deaths was 118% for males and 115% for females (116% and 121% for males and females for post-disabled mortality). This provides a sufficient margin for future mortality improvement.

Retirement Rates:

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

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

* If a member reaches eligibility for unreduced retirement before age 65 under the rule of 85 (Grandfathered Tier 1) or the Rule of 90/Age 60 (Non-grandfathered Tier 1 and Tier 2), 10% is added to the rate just at the age the member becomes first eligible for an unreduced retirement benefit.

Disability Rates:

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

Age	Rates
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%

Termination Rates:

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

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

** Termination rates cut out at first retirement eligibility*

Salary Increase Rates:

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

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

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.)
Provision for Expenses:	The assumed investment return rate represents the anticipated net rate of return after payment of all administrative and investment expenses. These expenses are expected to reduce the gross investment return rate by 0.65%. (Adopted effective July 1, 2010.)
Asset Valuation Method:	The actuarial value of assets is based on the market value of assets with a five-year phase-in of actual investment return in excess of (or less than) expected investment income. Expected investment income is determined using the assumed investment return rate and the market value of assets (adjusted for receipts and disbursements during the year). The actual investment return for this purpose is determined net of all investment and administrative expenses.
Actuarial Cost Method:	Normal cost and actuarial accrued liability are calculated on an individual basis and are allocated by service, with normal cost determined as if the current benefit provisions had always been in effect. 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 10.75% statutory employer contribution rate, the 10.75% rate will be treated as the ARC. The 30-year period is an open period, and does not decrease in subsequent valuations.

EXHIBIT IX
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 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 9.75% 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 is scheduled to increase to 11.75% effective July 1, 2014. The total addition of 4.00% to the member contribution rate will remain in effect until TFFR is 90% 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 90%, measured using the actuarial value of assets. The contribution rate will not automatically increase if the funded ratio later falls back below 90%.

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 will not meet these 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 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.

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 that 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 that 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 sum of 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.

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:

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.

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.

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.)

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.)

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.

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.

EXHIBIT X

Summary of Plan Changes

1991 Legislative Session:

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

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

1993 Legislative Session:

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

   Minimum increase is $5 per month. Maximum increase is $100 per month.
3. Minimum retirement benefit increased to $10 times years of service up to 25, plus $15 times years of service greater than 25. (Previously was $6 up to 25 years of service plus $7.50 over 25 years of service.)
4. Disability benefit changed to 1.55% of FAC times years of service using a minimum of 20 years of service.

1995 Legislative Session:

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

1997 Legislative Session:

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

1999 Legislative Session:

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

2001 Legislative Session:

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

2003 Legislative Session:

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

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

2005 Legislative Session:

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

2007 Legislative Session:

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

2009 Legislative Session:

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

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. For 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 will not meet this criteria as of June 30, 2013, are considered a Tier 1 Non-grandfathered member.
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 after 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 a 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 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. Effective 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.

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