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Cavanaugh Macdonald
CONSULTING, LLC
The experience and dedication you deserve

***BISMARCK FIREFIGHTERS'
RELIEF ASSOCIATION PENSION FUND***

January 1, 2009 Actuarial Report

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A. Highlights

Actuarial computations presented in this report are for the purposes of determining the recommended funding amounts for the Fund. Actuarial computations under GASB Statements No. 25 and 27 are for purposes of fulfilling financial accounting requirements. The computations prepared for these two purposes may differ as disclosed in our report. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and of GASB Statements No. 25 and 27. Determinations for purposes other than meeting these requirements may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

We respectfully submit the following report, and we look forward to discussing it with you. I, John Garrett, am a principal and consulting actuary for Cavanaugh Macdonald Consulting, LLP. I am a member of the American Academy of Actuaries and meet the Qualifications Standards of the Academy to render the actuarial opinion contained herein.

John Garrett, ASA, MAAA, FCA
Consulting Actuary

Todd Green
Senior Consultant

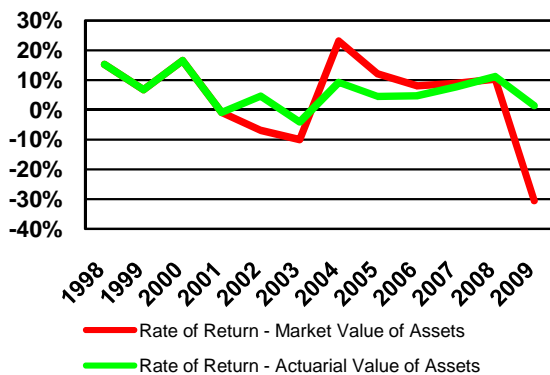
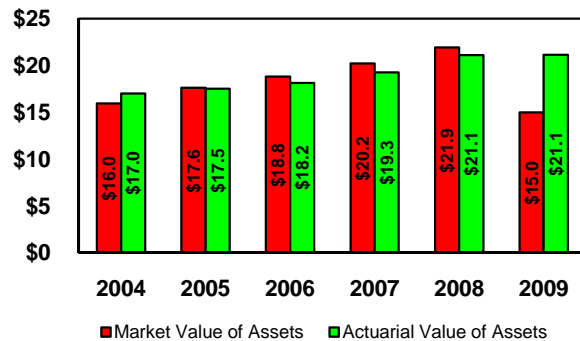
A. Highlights

Assets

There are two different measures of the plan's assets that are used throughout this report. The **Market Value** is a snapshot of the plan's investments as of the valuation date. The **Actuarial Value** is a smoothed asset value intended to dampen the volatility of market value returns.

	<i>Market</i>	<i>Actuarial</i>
Value as of January 1, 2008	\$21,928,532	\$21,126,467
Contributions	799,908	799,908
Investment Income	(6,651,758)	276,216
Benefits & Expenses	<u>(1,056,916)</u>	<u>(1,056,916)</u>
Value as of January 1, 2009	15,019,766	21,145,675

Historical asset levels (in \$ millions) are shown in the graph to the right. The actuarial value currently exceeds the market value of assets by \$6.13 million. This results from there being less investment gains than losses deferred in the asset smoothing technique.



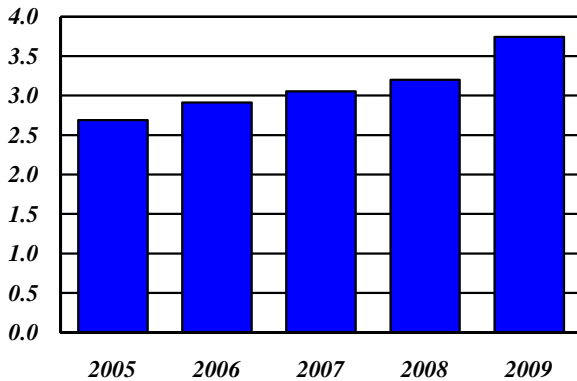
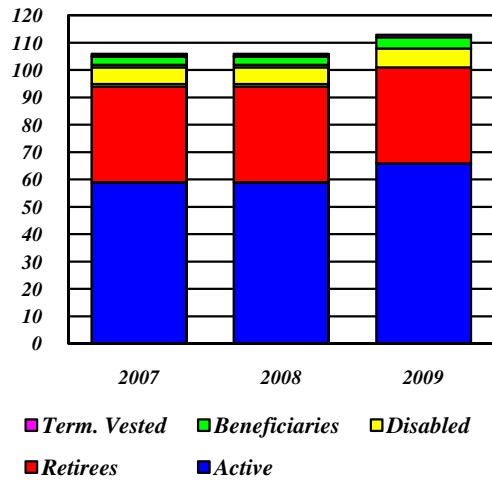
For the 2008 plan year, the plan's assets earned -30.51% on a Market Value basis and 1.38% on an Actuarial Value basis. The actuarial assumed rate of return is 7.50%; the result is an asset loss of \$8.23 million on a Market Value basis and a loss of \$1.30 million on an Actuarial Value basis. Historical returns are shown in the graph to the left.

A. Highlights

Membership

There are three basic categories of plan members included in the actuarial valuation: (1) active employees who have met the eligibility requirements for membership, (2) former employees who have a vested right to benefits but have not yet started collecting, and (3) members who are receiving monthly pension benefits.

From January 1, 2008 to January 1, 2009, the overall membership increased from 106 to 113. Active members increased by 7 while there were no changes to the retiree, terminated vested, beneficiary, or disabled populations.



The graph to the left shows total payroll (in \$ millions) for the current year and past three years. Since the 2004 valuation, overall payroll has grown at an annualized rate of 6.80%. The salary of first class firefighters' grew by 5.1% last year.

A. Highlights***Liabilities - (Gain)/Loss******Determination of Liability (Gain)/Loss***

1. Expected Actuarial Liability at 1/1/2009	\$22,843,005
2. Actual Actuarial Liability at 1/1/2009	\$23,103,873
3. Liability (Gain)/Loss (2) - (1)	\$260,868

For the prior plan year, the Plan experienced a non-investment related loss of \$260,868. This loss was primarily attributable to larger than assumed salary increases and was partially offset by gains from retirement experience. The total liability loss represents 1.1% of the accrued liability as of the valuation date.

Gain Share Plan

The Board has decided to deplete all the remaining gainshare accounts and reflect those amounts in the plan assets. This increases the plan assets by \$356,763.

Changes in Actuarial Methods

None.

Changes in Actuarial Assumptions

None.

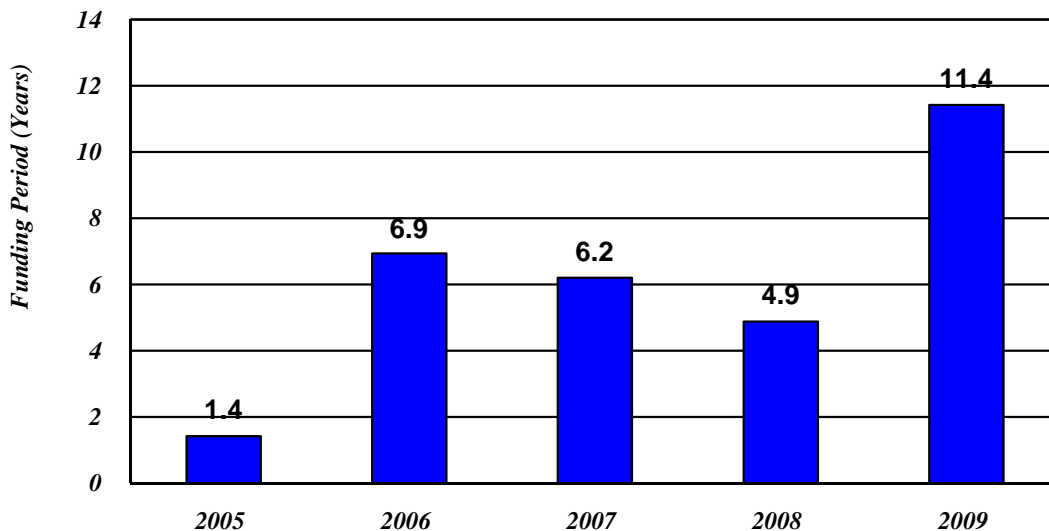
A. Highlights

Contribution

The City's contribution consists of 10.1% of total payroll assuming all members are paid at the salary rate of a first class firefighter plus an additional \$160,688. It is important to note that without the additional \$160,688 contribution, the employer's contribution is not sufficient to meet the GASB minimum annual required contribution.

Funding Period

The Funding Period is determined by solving for the number of years required to fully amortize the unfunded actuarial liability (UAL) with the amount of contributions in excess of the normal cost. During the 2008 plan year, the UAL increased from \$1,037,857 to \$1,958,198. The increase was \$1,086,366 larger than expected due to net actuarial losses. The funding period is affected by both the size of the UAL and the amount of the available amortization payment.



The resulting funding period for this valuation is 11.5 years. In order to comply with GASB Statement Nos. 25 & 27 parameters, the annual required contributions are determined based upon an amortization period not to exceed 30 years. The amount that the GASB annual required contribution exceeds the expected City contribution, if any, is a Net Pension Obligation to be reported as a liability in the City's financial report.

SECTION I: EXECUTIVE SUMMARY**B. Summary of Principal Results**

	<u>1/1/2009</u>	<u>1/1/2008</u>
Membership		
Active Members	66	59
Terminated Vested Members	1	1
Members in Pay Status	46	46
Total Compensation	\$3,744,354	\$3,197,801
Average Compensation	54,246	51,605
Assets and Liabilities		
Market Value of Assets	\$15,019,766	\$21,928,532
Actuarial Value of Assets	21,145,675	20,686,343
Accrued Liability for Active Members	\$11,769,496	\$10,176,979
Accrued Liability for Terminated Vested Members	123,626	117,362
Accrued Liability for Members in Pay Status	<u>11,210,751</u>	<u>11,429,859</u>
Total Accrued Liability	\$23,103,873	\$21,724,200
Unfunded Accrued Liability	\$1,958,198	\$1,037,857
Expected City Contribution	\$522,292	\$468,201
Development of the Funding Period		
City Normal Cost (includes Expenses)	\$ 419,343	\$341,013
Excess of City Contribution over Normal Cost	102,949	127,188
Expected Insurance Rebate	<u>117,071</u>	<u>111,890</u>
Expected Amortization Payment	\$ 220,020	\$239,078
Funding Period (years)	11.4	4.9

Annual Required Contribution

Since the calculated funding period satisfies GASB parameters, the expected City contribution is also the annual required contribution.

A. Reconciliation of Market Value of Assets

	2008	2007
1. Market Value of Assets as of January 1	\$21,928,532	\$20,216,547
2. Income During Year		
a. City Contributions	446,548	442,696
b. Member Contributions	236,084	213,806
c. Insurance Rebate	117,071	111,890
d. Other	205	910
e. Dividends and Interest	583,180 *	608,116
f. Realized Gains	<u>(583,810)</u>	<u>468,595</u>
g. Total	\$799,277	\$1,846,013
3. Disbursements During Year		
a. Benefit Payments and Refunds	(1,023,733)	(1,082,811)
b. Investment Expenses	(112,333)	(122,600)
c. Administrative Expenses	<u>(33,183)</u>	<u>(50,673)</u>
d. Total	(\$1,169,249)	(\$1,256,084)
4. Unrealized Gains (Losses)	(\$6,538,794)	\$1,122,057
5. Net Change in Plan Assets (2) + (3) + (4)	(\$6,908,766)	\$1,711,985
6. Market Value of Assets as of December 31	\$15,019,766	\$21,928,532

* Includes accrued interest of \$14,905.

B. Development of Actuarial Value of Assets

In order to minimize the impact of market fluctuations on the contribution level, we use an Actuarial Value of Assets that recognizes gains and losses over a five year period. The Actuarial Value of Assets as of January 1, 2009 is determined below and includes Gain Share Accounts.

1. Actuarial Value of Assets as of January 1, 2008 with Gain Shares	\$21,126,467		
2. Market Value of Assets as of January 1, 2008	\$21,928,532		
3. Market Value of Assets as of January 1, 2009	\$15,019,766		
4. Non-Investment Net Cash Flow (Total Contributions - Total Deductions)	(\$257,008)		
5. 2008 Market Gain/(Loss)			
a. Investment Income on Market Value: (3) - (2) - (4)	(\$6,651,758)		
b. Expected Investment Return Based on 7.50% Interest	\$1,574,847		
c. Market Gain/(Loss): (5a) - (5b)	(\$8,226,605)		
6. Delayed Recognition of Market Gains/(Losses):			
	Percent Amount		
<u>Plan Year End</u>	<u>Gain/(Loss)</u>	<u>Recognized</u>	<u>Recognized</u>
12/31/2008	(\$8,226,605)	20%	(\$1,645,321)
12/31/2007	642,332	20%	128,466
12/31/2006	330,984	20%	66,197
12/31/2005	104,702	20%	20,940
12/31/2004	655,437	20%	<u>131,087</u>
Total			(\$1,298,631)
7. Preliminary Actuarial Value of Assets: (1) + (4) + (5b) + (6)	\$21,145,675		
8. Corridor Limit: The Board has removed the corridors used in this method.			
9. Actuarial Value of Assets as of January 1, 2009 with Gain Shares	\$21,145,675		

C. Determination of Asset (Gain) / Loss

The asset (gain) / loss is the difference between the expected and actual values of the Actuarial Value of Assets. An asset gain is 'negative' since it represents a decrease in the otherwise expected Unfunded Accrued Liability / (Surplus). The asset (gain) / loss for the fiscal year ending December 31, 2008 is determined below and excludes the gain share accounts.

1. Actuarial Value of Assets as of January 1, 2008 net of Gain Share:	\$20,686,343
2. Contributions	
a. Employer	\$446,548
b. Member	236,084
c. Insurance Rebate	117,071
d. Other	<u>205</u>
e. Total	\$799,908
3. Deductions	
a. Benefit Payments	(\$1,023,733)
b. Administrative Expenses	<u>(33,183)</u>
c. Total	(\$1,056,916)
4. Expected Investment Return Based on 7.50% Interest	\$1,541,838
5. Expected Actuarial Value of Assets as of January 1, 2009	\$21,971,173
6. Actuarial Value of Assets as of January 1, 2009 net of Gain Share:	\$20,788,912
7. Net Return on Investment	\$276,216
8. Approximate Net Rate of Return	1.38%
9. Asset (Gain)/ Loss (5) - (6)	\$1,182,261

SECTION III: DEVELOPMENT OF FUNDING PERIOD**A. Actuarial Present Value of Future Benefits**

The present value of future benefits is calculated by applying the assumptions and plan provisions to the membership data. The result is the value of all benefits expected to be paid from the Plan and takes into account all past and future years of service, projected salaries, probabilities of termination, death, disability, and retirement, and the benefit provisions of the Plan. If the assets of the plan are in excess of the present value of future benefits there would be no contributions required from any source.

	January 1,	
	2009	2008
1. Active Members Attributable to:		
Retirement	\$16,122,182	\$13,657,392
Withdrawal	237,518	217,282
Death	419,412	334,780
Disability	762,370	626,745
Total Active Present Value of Future Benefits	<u>17,541,484</u>	<u>14,836,199</u>
2. Terminated Vested Members*	123,626	117,362
3. Retired Members in Pay Status	9,007,709	9,186,268
4. Disabled Members In Pay Status	1,669,131	1,711,767
5. Beneficiaries of Former Members In Pay Status	<u>533,911</u>	<u>531,824</u>
6. Total Present Value of Future Benefits		
(1) + (2) + (3) + (4) + (5) =	\$28,875,861	\$26,383,420

* Includes reserve established for 1 firefighter on active duty military.

SECTION III: DEVELOPMENT OF FUNDING PERIOD**B. Funding Period Based on Entry Age Funding Method**

Under the entry age normal actuarial cost method the actuarial present value of the projected benefits of each individual included in the valuation is allocated as a level percentage of the individual's projected compensation between entry age and the assumed exit from the plan. The portion of this actuarial present value allocated to the current and future years of service is called the present value of future normal costs. The normal cost is the portion of the actuarial present value for the current year only. The portion of this actuarial present value allocated to the years of service up to the valuation date is the actuarial liability. An unfunded actuarial liability/(surplus) exists to the extent the actuarial value of assets differs from the actuarial liability. The unfunded actuarial liability is amortized as a level percentage of payroll. The amortization amount is the City's annual required contribution in excess of the City's normal cost plus the State Insurance Rebate contribution. The number of years to fully amortize the unfunded actuarial liability/(surplus) is the funding period. The calculation of the funding period is shown below.

	<i>January 1, 2009</i>
1. Actuarial Present Value of Future Benefits (See Section III A)	\$28,875,861
2. Present Value of Future Normal Costs	5,771,988
3. Total Actuarial Liability: (1) - (2)	23,103,873
4. Actuarial Value of Assets (see Section II B)	21,145,675
5. Unfunded Actuarial Liability / (Surplus): (3) - (4)	1,958,198
6. Calculation of Funding Period	
A. Total Expense Loaded Normal Cost for 2009	681,448
B. Expected Member Contribution	262,105
C. City Normal Cost for 2009 (A) - (B)	419,343
D. City Annual Required Contribution*	522,292
E. Expected State Insurance Rebate	117,071
Contributions Available to Amortize UAL (D) - (C) + (E)	220,020
Funding Period	11.4 Years
*Based upon expected payroll	

SECTION III: DEVELOPMENT OF FUNDING PERIOD

C. Changes in Unfunded Accrued Liability / (Surplus)

1. Unfunded Accrued Liability as of January 1, 2008	\$1,037,857
2. Total Normal Cost as of January 1, 2008	564,859
3. Interest on (1) + (2) *	99,021
4. Contributions for the 2008 Fiscal Year	799,908
5. Interest on (4) *	29,997
6. Expected UAL as of December 31, 2008: (1) + (2) + (3) - (4) - (5)	871,832
7. Asset (Gain)/Loss (see Section II C)	1,182,261
8. Liability (Gain)/Loss (see Section I A)	260,868
9. Change in Unfunded Accrued Liability / (Surplus) as of January 1, 2009 due to reversion of Gain Share Accounts to Plan Assets.	(356,763)
10. Actual Unfunded Accrued Liability / (Surplus) as of January 1, 2009 (6) + (7) + (8) + (9)	1,958,198

* Assumes mid-year payment of normal cost and contributions.

SECTION IV: ACCOUNTING INFORMATION

A. Schedule of Funding Progress

<i>Actuarial Valuation Date</i>	<i>For Fiscal Year Ending</i>	<i>(1) Actuarial Value of Assets</i>	<i>(2) Actuarial Accrued Liability (AAL)</i>	<i>(3) Unfunded AAL (UAAL) (2) - (1)</i>	<i>(4) Funded Ratio (1) / (2)</i>	<i>(5) Covered Payroll</i>	<i>(6) UAAL as a Percentage of Covered Payroll (3) / (5)</i>
1/1/1998	12/31/1998	\$12,706,700	\$11,879,900	(\$826,800)	107.0%	\$2,265,218	0.0%
1/1/2000	12/31/2000	15,938,785	13,450,232	(2,488,553)	118.5%	2,471,818	0.0%
1/1/2002	12/31/2002	16,497,550	16,023,443	(474,107)	103.0%	2,488,124	0.0%
1/1/2003	12/31/2003	15,705,316	16,881,672	1,176,356	93.0%	2,555,299	46.0%
1/1/2004	12/31/2004	17,010,385	16,853,048	(157,337)	100.9%	2,692,120	0.0%
1/1/2005	12/31/2005	17,521,450	17,800,722	279,272	98.4%	2,689,777	10.4%
1/1/2006	12/31/2006	18,157,634	19,596,973	1,439,339	92.7%	2,913,896	49.4%
1/1/2007	12/31/2007	19,258,217	20,543,826	1,285,609	93.7%	3,054,625	42.1%
1/1/2008	12/31/2008	20,686,343	21,724,200	1,037,857	95.2%	3,197,801	32.5%
1/1/2009	12/31/2009	21,145,675	23,103,873	1,958,198	91.5%	3,744,354	52.3%

B. Schedule of Employer Contributions

<i>Fiscal Year Ending December 31,</i>	<i>Annual Required Contribution</i>	<i>Percent Funded</i>
2002	\$141,877	279%
2003	\$293,561	132%
2004	\$401,393	99%
2005	\$285,326	109%
2006	\$425,581	100%
2007	\$426,491	100%
2008	\$442,696	100%
2008	\$446,548 *	100%
2009	\$522,292 **	TBD

* The Annual Required Contribution for Fiscal Year Ending December 31, 2008 is adjusted to reflect actual covered payroll.

** The Annual Required Contribution for Fiscal Year Ending December 31, 2009 is based upon expected covered payroll.

C. Notes to Required Supplementary Information

The information presented in Section IV A and Section IV B was determined as part of the actuarial valuations at the dates indicated. Additional information as of the latest actuarial valuation follows:

Valuation Date	January 1, 2009
Actuarial Cost Method	Entry Age Normal
Amortization Method	Level Percentage of Payroll
Amortization Period	Variable - Not more than 30 years
Asset Valuation Method	5-year Smoothed Market Value Method
Actuarial Assumptions:	
Investment Rate of Return	7.50%
Projected Salary Increases	4.50%
Includes Inflation at	3.50%
Payroll Growth	3.00%
