#### April 13, 2015

The Pension Board
Redford Township Police and Fire
Retirement System
Redford Township, Michigan

#### Dear Board Members:

The purpose of the annual actuarial valuation of the Redford Township Police and Fire Retirement System, as of March 31, 2014 is to:

- Compute the liabilities associated with benefits likely to be paid on behalf of current retired and active members of the Retirement System,
- Compare accrued assets with accrued liabilities to assess the funded condition of the Retirement System, and
- Compute the Township's recommended contribution rate for the Fiscal Year beginning April 1, 2015.

This valuation has been conducted in accordance with generally accepted actuarial principles and practices. Data concerning active members, retirees, beneficiaries and assets was provided by the Retirement System Administrator/Accountant. This data has been reviewed for reasonableness, but no attempt has been made to audit such information. The valuation was based on the provisions of the Retirement System as amended through March 31, 2014. The actuarial assumptions used in this valuation are reasonably related to the past experience of the System and represent reasonable expectations of long-term future experience under the System. This report was prepared under the direction of a member of the American Academy of Actuaries who meets the qualification standards of the American Academy of Actuaries to render the actuarial opinion contained herein.

Respectfully submitted,

Janise Myones Sandia MRodwan

Denise M. Jones

Sandra W. Rodwan

Senior Consultant Member, American Academy of Actuaries

## Redford Township Police and Fire Retirement System

Actuarial Valuation as of March 31, 2014

## **Table of Contents**

Section One: valuation Summary	
Valuation Summary	1
Section Two: Actuarial Calculations – Funding	
Computed Contribution Rates	4
Unfunded Actuarial Accrued Liability	5
Section Three: Retirement System Benefit Provisions	
Benefit Provision Summary	8
Section Four: Actuarial Assumptions and Methods	
Actuarial Assumptions	11
Actuarial Methods	16
Section Five: Valuation Data	
Asset Summary	16
Participant Summary	17
Section Six: Accounting Disclosures	
Information for GASB Statement No. 25	20



# Section One: Valuation Summary



#### **Purpose of Valuation**

The purpose of the annual actuarial valuation of the Redford Township Police and Fire Retirement System as of March 31, 2014 is to:

- Compute the liabilities associated with benefits likely to be paid on behalf of current retired and active members of the Retirement System,
- Compare accrued assets with accrued liabilities to assess the funded condition of the Retirement System, and
- Compute the Township's recommended contribution rate for the Fiscal Year beginning April 1, 2015.

#### **Liabilities and Funded Condition of Retirement System**

Accrued liabilities of the Retirement System as of March 31, 2014 were computed to be \$108,128,849. The funding value of accrued assets was \$67,143,889. The ratio of the funding value of accrued assets to accrued liabilities was 62.1%.

#### **Funding Value of Assets**

A smoothed market value of assets was used for the March 31, 2014 valuation. This method, which spreads the difference between actual and expected investment return over four years, is the same as the method used for last year's valuation.

#### **Computed Township's Contribution Rate**

The Township's normal cost contribution rate was computed to be 19.98% of active member payroll (20.45% total normal cost less 0.47% member contributions). The unfunded actuarial accrued liabilities were amortized as a level percent of the future payroll. The amortization of unfunded actuarial accrued liabilities was 44.12% of member payroll based on 19 year amortization. The Township's total contribution for FY beginning April 1, 2015 was computed to be 64.10% of member payroll.

#### **Retirement System Experience**

Overall experience of the Retirement System was less favorable than expected based on the long-term assumptions. Recognized investment income was the primary source of the unfavorable experience (4.91% vs. 7.5% assumed).

#### **Benefit Provision Changes**

There were no benefit changes included in this valuation.

#### **Assumption and Method Changes**

There were no changes in assumptions or actuarial cost methods used for the valuation.

We believe the assumptions used for this valuation were consistent with the assumptions used in the prior year's valuation. The prior actuary's methodology may have been slightly different, (techniques and software between two actuarial firms will rarely be identical). However, we were able to reproduce reasonably consistent results in the total present value of future benefits between 2013 and 2014.

#### **Participant Data**

	3/31/2014	<u>3/31/2013</u>
Active Members*	95	88
Active Member Payroll	\$6,182,760	\$5,953,537
Retirees and Beneficiaries	161	155
Annual Pensions	\$6,796,631	\$6,383,960
Vested Inactive Members	1	2
Annual Pensions	\$18,899	\$61,563

There is also one alternate payee included in the valuation with an annual benefit of \$5,731.56. \*Includes DROP participants.

#### **Financial Data**

	<u>12/31/2014</u>	<u>12/31/2013</u>
Smoothed Valuation Assets	\$67,143,889	\$65,759,951
Market Value of Assets	67,733,556	63,332,616

**Conclusion:** The Township is funding benefits as they accrue on a level percent of payroll basis. Maintenance of a sound funded condition is dependent upon continued receipt of computed contributions.

### **Section Two:**

# Actuarial Calculations – Funding



#### Computed Contribution Rates for The Year Beginning April 1, 2015

The contribution rates shown below are expressed as level percents of active member payroll.

Accrued liabilities exceeded accrued assets as of March 31, 2014. Unfunded actuarial accrued liability was amortized as a level percent of payroll over 19 years, a 1 year decrease from last year's valuation.

#### **Contribution Recommendation:**

	Percents of Payroll*
Normal Cost	
Regular Retirement	18.77%
Pre-retirement Death	0.32
Disability	0.59
Withdrawal	0.77
Total Normal Cost	20.45%
Member Portion	0.47%
City's Computed Normal Cost	19.98%
Unfunded Actuarial Accrued Liability (UAAL)	44.12
City's Total Contribution Rate	64.10%
Dollar Amount Based on Total Payroll	\$3,963,149

<sup>\*</sup>The contribution rates shown are based on total active member payroll (including that of current DROP participants).

#### **Unfunded Actuarial Accrued Liability**

Actuarial Accrued Liabilities
Assets Allocated to Funding
Unfunded Actuarial Accrued Liabilities

<u>December 31, 2014</u> \$108,128,849 <u>67,143,889</u> \$40,984,960 <u>December 31, 2013</u> \$109,705,590 <u>65,759,951</u> \$43,945,639

#### **Recommended City Contribution**

Valuation	Fiscal Year	Recommended	Percent of
Date	Beginning	Dollar	Valuation
March 31	April 1	Contributions	Payroll
2000	2001	N/A	N/A
2001*	2002	N/A	N/A
2002*	2003	N/A	N/A
2003*	2004	\$3,261,813	100%
2004	2005	3,799,719	100
2005	2006	4,220,496	100
2006	2007	4,732,216	100
2007	2008	2,862,102	100
2008	2009	2,953,180	100
2009	2010	3,902,126	100
2010**	2011	4,407,240	100
2011**	2012	4,070,562	100
2012**	2013	4,257,948	100
2013**	2014	4,560,754	
2014	2015	3,963,149	

<sup>\*</sup>Revised actuarial assumptions or methods.

**Note**: Results shown throughout this report for years prior to 2014 were prepared by the previous actuarial firm.

<sup>\*\*</sup>Retirement System amended.

#### **History of Assets and Accrued Liabilities**

				Unfunded
		Actuarial		Actuarial
Valuation	Valuation	Accrued	Funded	Accrued
Date	Assets	Liabilities	Ratio	Liabilities
3/31/00	\$64,031,949	\$59,438,682	107.7%	\$(4,593,267)
3/31/01*	65,322,504	63,958,142	102.1	(1,364,362)
3/31/02*	64,475,763	65,964,980	97.7	1,489,217
3/31/03*	62,955,370	69,563,622	90.5	6,608,252
3/31/04	62,094,043	73,746,763	84.2	11,652,720
3/31/05	62,665,620	77,249,373	81.1	14,583,753
3/31/06	64,358,035	80,878,263	79.6	16,520,228
3/31/07	68,631,856	83,810,895	81.9	15,179,039
3/31/08	71,243,732	87,432,949	81.5	16,189,217
3/31/09	61,147,561	91,850,858	66.6	30,703,297
3/31/10**	61,367,673	99,566,588	61.6	38,198,915
3/31/11**	62,124,900	102,772,135	60.4	40,647,235
3/31/12**	62,841,470	104,493,338	60.1	41,651,868
3/31/13**	65,759,951	109,705,590	59.9	43,945,639
3/31/14	67,143,889	108,128,849	62.1	40,984,960

<sup>\*</sup>After assumption/amortization changes.

<sup>\*\*</sup>After benefit changes.

#### **Comments and Conclusion**

**Comment:** Although the investment return on the market value of assets was favorable, the recognized rate of return on the smoothed funding value of assets was less than the assumed rate (4.91% vs. 7.5%). The funding value includes carry-forwards experience from the prior 3 years.

**Conclusion:** The Township is funding benefits as they accrue on a level percent of payroll basis. Maintenance of a sound funded condition is dependent upon continued receipt of computed contributions.

### Section Three:

## Retirement System Benefit Provisions



#### **Benefit Provision Summary**

#### Service Retirement

*Eligibility*:

Fire, Police Patrol hired before 9/1/2011 and Police Command: Any age with 25 or more years of service or age 60 with 10 years of service.

**Police Patrol hired after 9/1/2011:** Age 50 with 25 or more years of service or age 60 with 10 years of service.

#### Annual Benefit:

Fire hired before June 1, 2010, Police Patrol hired before 9/1/2011 and Police Command: Straight life pension equals 2.8% of 3 year final average compensation (FAC) times first 25 years of service plus 1% of FAC times years of service in excess of 25 years. The maximum pension is 75% of FAC.

**Fire hired after June 1, 2010 and after:** Straight life pension equals 2.25% of 3 year final average compensation (FAC) times first 25 years of service plus 1% of FAC times years of service in excess of 25 years. The maximum pension is 61.25% of FAC.

**Police Patrol hired after 9/1/2011 and after:** Straight life pension equals 2.25% of 3 year final average compensation (FAC) times first 25 years of service plus 1% of FAC times years of service in excess of 25 years. Maximum of 240 hours of unused leave. The maximum pension is 75% of FAC.

#### Deferred Retirement Option Plan (DROP)

#### *Eligibility:*

Fire hired before June 1, 2010: 20 years of service.

Fire hired after June 1, 2010: 25 years of service.

**Police Patrol:** Members hired July 12, 2013 and before are eligible to enter the DROP with 22 years of service. The DROP is closed to new members hired after July 12, 2013.

**Police Command:** The DROP is closed to new members.

#### Annual Benefit:

**Fire hired before June 1, 2010:** 3.0% of 2 year final average compensation (FAC) times service up to 20 years. Maximum pension is 60% of FAC and the maximum time in DROP is 60 months. DROP account vesting is 100% at termination.

**Fire hired after June 1, 2010:** 2.25% of 3 year final average compensation (FAC) times service up to 25 years. Maximum pension is 56.25% of FAC and the maximum time in DROP is 60 months. DROP account vesting is 100% at termination.

**Police Patrol hired on or before 7/12/2013:** 3.0% of 2 year final average compensation (FAC) times service. Maximum pension is 60% of FAC and the maximum time in DROP is 84 months. DROP account vesting: termination prior to 12 months will receive 20% of the accumulated DROP balance, termination between 12 months and 24 months will receive 75% of the accumulated DROP balance, and after 24 months the participant will receive 100% of the accumulated DROP balance.

#### Deferred Retirement

*Eligibility:* 

10 or more years of service.

#### Annual Benefit:

Computed as service retirement but based upon service, FAC and benefit provisions in effect at termination. Benefit begins at date retirement would have occurred had member remained in employment.

#### **Duty Disability Retirement**

Eligibility:

Payable upon the total and permanent disability of a member in the line of duty.

#### Annual Benefit:

To age 55: 50% of FAC. Fire members: If the disabled retiree had 10 or more years of active service and dies before age 55 the surviving spouse's pension equals 60% of the disability pension at the time of death.

At age 55: Same as Service Retirement Pension with service credit from date of disability to age 55.

#### Non-Duty Disability

Eligibility:

Payable upon the total and permanent disability of a member with 5 or more years of service

#### Annual Benefit:

To Age 55: 1.5% of AFC times years of service.

At Age 55: Same as Service Retirement Pension.

#### Duty Death in Service Survivor's Pension

Eligibility:

Payable upon the expiration of a worker's compensation to the survivors of a member who died in the line of duty.

Annual Benefit:

Same amount that was paid by worker's compensation.

#### Non-Duty Death in Service Survivor's Pension

Eligibility:

Payable to a surviving spouse, if any, upon the death of a member with 10 or more years of service.

Annual Benefit:

Accrued straight life pension actuarially reduced in accordance with an Option I election.

#### Death After Retirement Survivor's Pension

*Eligibility:* 

Payable to a surviving spouse, if any, upon the death of a retired member who was receiving a straight life pension which was effective July 1, 1975 or later.

Annual Benefit:

Spouse's pension equals 60% of the straight life pension the deceased retiree was receiving.

#### Member Contributions

Fire hired prior to 6/1/2010, Police Patrol and Police Command: None (5% of pay is paid by the Township to individual member accounts).

**Fire hired after 5/31/2010:** 5% of pay.

Member contributions cease upon entry into the DROP.

#### **Covered Compensation**

For Retirement System purposes, compensation includes base pay plus longevity pay, unused sick leave, pay in lieu of holiday or vacation time, and incentive pay. For Police Patrol hired after September 1, 2011, the maximum of 240 hours of paid leave can be rolled into FAC.

### **Section Four:**

# Actuarial Assumptions And Methods



#### **Actuarial Assumptions**

#### **Economic Assumptions**

(i) Interest Rate 7.5% (net of expenses)

(ii) Salary Increases

Across-the-Board 4.5%

Merit and Longevity Age-related rates

#### **Sample Annual Rates of Salary Increase**

Age	Inflation	Merit and Longevity	Total
20	4.50%	4.40%	8.90%
25	4.50%	3.18	7.68
30	4.50%	2.59	7.09
35	4.50%	2.09	6.59
40	4.50%	1.44	5.94
45	4.50%	0.68	5.18
50	4.50%	0.12	4.62
55	4.50%	0.00	4.50
60	4.50%	0.00	4.50

#### **Demographic Assumptions**

#### (i) Mortality

1983 Group Annuity (No projection for future mortality improvements)

Sample	Value of \$1 Monthly for Life		Futur Expectano	e Life cy (Years)
Ages	Men	Women	Men	Women
50	\$139.75	\$148.49	30.19	35.86
55	131.78	142.39	25.79	31.15
60	121.78	134.43	21.55	26.56
65	109.54	124.32	17.54	22.13
70	95.97	111.74	13.96	17.93
75	81.66	97.28	10.84	14.10
80	67.39	82.31	8.23	10.84

#### (ii) Disability

Sample Ages	Percent Becoming Disabled Within Next Year		
Ages	Male Female		
20	0.07%	0.03%	
25	0.09	0.05	
30	0.10	0.07	
35	0.14	0.13	
40	0.21	0.19	
45	0.32	0.28	
50	0.52	0.45	
55	0.92	0.76	
60	1.53	1.10	
65	1.65	0.98	
70	1.65	0.98	

#### (iii) Termination of Employment

Service related rates for first 5 years of employment. Age related rates after first 5 years of employment

Sample Ages	Years of Service	Percent Terminating
All	0	7.0%
	1	5.5
	2	4.0
	3	4.0
	4	3.5
25	5 & Over	3.5
30		2.9
35		1.5
40		0.6
45		0.5
50		0.5
55		0.5
60		0.5

#### (iv) Retirement Rates

#### Age-related rates

## Active Members Retiring within Year\* Following Attainment of Indicated Retirement Age Non-DROP Command Members and All Others Who Do Not Elect DROP

Years of Service	Percent Retiring
25	40%
26	25
27	20
28	15
29	15
30	60
31	15
32	30
33	15
34	15
35	100

<sup>\*</sup>Members are eligible to retire at any age (age 50 for Patrol hired after 9/1/2011) with 25 years of service or at age 60 with 10 years of service.

#### **Actuarial Method Used for the Valuation**

**Normal Cost.** Normal cost and the allocation of actuarial present values between service rendered before and after the valuation date were determined using an individual entry-age actuarial cost method having the following characteristics:

- ❖ The annual normal costs for each individual active member, payable from date of hire to date of retirement, are sufficient to accumulate the value of the member's benefit at the time of retirement;
- ❖ Each annual normal cost is a constant percentage of the member's year-by-year projected covered pay.

*Financing of Unfunded Actuarial Accrued Liability*. Remaining unfunded actuarial accrued liability as of March 31, 2014 was amortized as a level percent of payroll over a closed period of 19 years.

Active member payroll was assumed to increase 4.5% a year for the purpose of determining the level percent of payroll amortization payment.

# Section Five: Valuation Data



#### **Asset Summary**

As of March 31, 2014 the market value of assets was reported to be \$67,733,556. The funding value of assets (smoothed market value) was computed to be \$67,143,889.

#### **Funding Value of Assets**

A. Funding Value Beginning of Year	\$65,759,951
B. Market Value End of Year	67,733,556
C. Market Value Beginning of Year	63,232,616
D. Non-Investment Net Cash Flow	(3,056,062)
E. Investment Income	
E1. Market Total B-C-D	7,557,002
E2. Amount for Immediate Recognition	4,817,394
E3. Amount for Phased-In Recognition E1-E2	2,739,608
F. Phased-In Recognition of Investment Income	
F1. Current Year 0.25 x E3	684,902
F2. First Prior Year	(175,146)
F3. Second Prior Year	(1,114,744)
F4. Third Prior Year	227,594
F5. Total Phased-In Amount	(377,394)
G. Funding Value End of Year A+D+E2+F5	67,143,889
G1. 120% of Market Value End of Year	81,280,267
G2. 80% of Market Value End of Year	54,186,845
G3. Funding Value End of Year: G, but not greater	
Than G1, nor less than G2	67,143,889
H. Difference Between Market and Funding Value	\$589,667
I. Nominal Rate of Return	4.91%

#### **Participant Summary**

#### **Retirees and Beneficiaries Included in the Valuation**

There were 161 retirees and beneficiaries included in the valuation, with annual pensions totaling \$6,796,630.56. Also included in the valuation is 1 alternate payee receiving benefits totaling \$5,731.56.

There were 8 new retirements during 2014. One from Police, 5 from Police DROP, 1 from Fire DROP and 1 from deferred vested. There were 5 retirees removed and 3 beneficiaries added.

#### Pensions Being Paid Historical Schedule

Valuation Date		Annual	Average	Discounted Valu	e of Pensions
March 31	No.	Pensions	Pension	Total	Average
2000	111	\$3,254,903	\$29,323	\$37,307,532	\$336,104
2001	109	3,279,310	30,085	37,166,574	340,978
2002	111	3,327,646	29,979	36,225,413	326,355
2003	121	3,834,356	31,689	42,072,331	347,705
2004	122	3,910,722	32,055	42,373,898	347,327
2005	124	4,028,259	32,486	43,219,439	348,544
2006	131	4,305,867	32,869	45,856,926	350,053
2007	134	4,592,205	34,270	49,011,805	365,760
2008	139	4,844,754	34,854	51,495,188	370,469
2009	141	5,078,265	36,016	53,629,584	380,352
2010	150	5,715,024	38,100	60,818,182	405,455
2011	156	6,116,410	39,208	65,014,652	416,761
2012	156	6,252,975	40,083	66,041,774	423,345
2013	155	6,383,960	41,187	67,215,583	433,649
2014	161	6,796,631	42,215	69,088,594	429,122

Retirees and Beneficiaries - March 31, 2014

Attained		Annual
Ages	No.	Pensions
30-34	1	\$21,833
40-44	3	191,784
45-49	15	955,193
50-54	15	960,156
55-59	16	774,876
60-64	23	1,128,231
<i>(5</i>	_	170 751
65	5	170,751
66	6	319,924
67	5	197,991
68	5	227,650
69	4	151,394
70	2	120.802
70	2 8	120,802 260,895
	o 1	
72 73		50,065
73 74	8	171,061
74	8	211,933
75	4	159,101
76	8	220,802
77	3	58,740
78	1	22,216
79	2	59,135
80	2	63,609
81	2	41,151
82	1	8,105
83	4	68,215
84	1	21,095
85	3	59,756
86	2	47,406
87	3	52,761
Totals	161	\$6,796,631

In addition, there is 1 alternate payee receiving a benefit totaling \$5,732 pursuant to an Eligible Domestic Relations Order.

#### Active Members as of March 31, 2014 Age and Service Distribution

Attained		Service			Totals		
Age	0-4	5-9	10-14	15-19	20-24	No.	Payroll
20-24	3					3	\$129,329
25-29	7					7	324,786
30-34	10	6				16	827,294
35-39	2	4	5			11	671,209
40-44	5	1	3	8		17	1,134,062
45-49	19		1	8	2	30	2,206,977
50-54	6			2		8	648,763
55-59	3					3	240,340
Totals	55	11	9	18	2	95*	\$6,182,760*

#### **Group Averages:**

Age: 41.3 years Service: 12.7 years Annual Pay: \$65,082

#### **Active Members – Three-Year Summary**

	2014	2013	2012
Active Members	95	88	85
Valuation Payroll	\$6,182,760	\$5,953,537	\$5,871,250
Average Compensation	\$65,082	\$67,654	\$69,074
Average Age (yrs.)	41.3	42.2	42.0
Average Service (yrs.)	12.7	15.3	15.4

<sup>\*</sup>Includes 27 DROP members receiving \$2,273,082 in annual pays.

### **Section Six:**

## **Accounting Disclosures**



#### GASB Statement No. 25 Supplementary Information

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

Valuation Date: March 31, 2014

Actuarial Cost Method: Individual Entry Age

Amortization method: Level percent of payroll

Remaining amortization period: 19 years closed.

Asset valuation method: 4-year smoothed market value

Actuarial assumptions:

Investment rate of return 7.5%

Projected salary increases 4.4% - 8.9%

Includes inflation at 4.5%

Membership data as of March 31, 2014, indicated in Section Five of this report.

## Analysis of Funding Progress (\$ amounts in millions)

Valuation Date 3/31	(1) Funding Value of Assets	(2) Actuarial Accrued Liability	(3) Percent Funded (1)/(2)	(4) Unfunded UAAL# (2)-(1)	(5) Annual Covered Payroll	(6) UAAL As a % Of Covered Payroll
2004	\$62.1	\$73.7	84.3%	\$11.6	\$6.5	178.5%
2005	62.7	77.2	81.1	14.6	6.7	217.2
2006	64.4	80.9	79.6	16.5	6.8	242.3
2007	68.6	83.8	81.9	15.2	6.7	227.2
2008	71.2	87.4	81.5	16.2	6.7	240.1
2009	61.1	91.9	66.5	30.7	6.9	443.3
2010	61.4	99.6	61.6	38.2	6.5	583.5
2011	62.1	102.8	60.4	40.6	5.8	700.0
2012	62.8	104.5	60.1	41.7	5.9	706.8
2013	65.8	109.7	59.9	43.9	6.0	738.1
2014	67.1	108.1	62.1	41.0	6.2	662.9

<sup>#</sup>Figures may differ due to rounding.

*Note*: Results shown throughout this report for years prior to 2014 were prepared by the previous actuarial firm.

## **Required Supplementary Information Schedule of Employer Contributions**

FY Ended	Computed	Actual Annual	
3/31	<b>Annual Contribution</b>	Contributions	
2006	\$3,799,719	\$3,799,719	
2007	4,220,496	4,220,496	
2008	4,732,216	4,732,216	
2009	2,862,102	2,862,102	
2010	2,953,180	2,953,180	
2011	3,902,126	3,902,126	
2012	4,407,240	4,407,240	
2013	4,082,568	4,082,568	
2014	4,257,948	4,257,948	
2015	4,560,754		
2016	3,963,149		