

OHIO POLICE & FIRE PENSION FUND

**January 1, 2012
Actuarial Valuation of
Retiree Health Care Benefits
Under GASB 43**

October 2012

Oct. 24, 2012

Board of Trustees
Ohio Police & Fire Pension Fund
140 East Town Street
Columbus, Ohio 43215

Members of the Board:

This report presents the results of the Jan. 1, 2012 actuarial valuation of the Ohio Police & Fire Pension Fund (OP&F) retiree health care benefits. The valuation was prepared in accordance with, and for the purpose of financial disclosure under, Governmental Accounting Standards Board Statement No. 43 (GASB 43).

Plan benefits include medical and prescription drug benefits and OP&F's reimbursement of Medicare Part B premiums.

The actuarial assumptions and methods used in the valuation were selected in compliance with the requirements under GASB 43. The demographic assumptions are consistent with the assumptions used in the Jan. 1, 2012 actuarial valuation of OP&F's pension plan benefits. The discount rate (interest rate) is 6.00 percent, selected in accordance with GASB 43.

The results of our calculations and analysis indicate that the Annual Required Contribution (ARC) for 2012 is 12.81 percent of payroll. This can be compared to OP&F's allocation of employer contribution toward health care benefits equal to 6.75 percent of payroll. Thus, the contribution allocation is approximately 57 percent of the ARC for 2012. The funded status (i.e., the ratio of assets to liabilities) of retiree health care benefits is 21.09 percent.

Detailed summaries of the financial results of the valuation are shown in this report. To the best of our knowledge, this report is complete and accurate and has been prepared in accordance with generally accepted actuarial principles and practice. It should be recognized, however, that significant differences between actual experience and these assumptions could occur. Moreover, other sets of reasonable assumptions can yield materially lesser or greater results.

Respectfully submitted,



Larry Langer, ASA, EA, MAAA
Principal, Consulting Actuary



Bob Besenhofer, ASA, MAAA
Director, Health and Productivity





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MEMORANDUM

Date: November 1, 2012

To: The Honorable John Kasich, Governor
The Ohio Retirement Study Council
The Honorable William G. Batchelder, Speaker of the House
The Honorable Thomas Niehaus, Senate President
The Honorable Lynn R. Wachtmann, Chair House Health & Aging
The Honorable William Coley, Chair Government Oversight & Reform
The Honorable Kirk Schuring, Chair Health & Aging Subcommittee on Retirement & Pensions

From: William J. Estabrook, Executive Director 

Subject: January 1, 2012 Actuarial Valuation Results and 5Year Review

In accordance with Section 742.14 of the Ohio Revised Code, the Ohio Police and Fire Pension Fund shall have prepared annually by or under the supervision of an actuary an actuarial valuation of the pension assets, liabilities, and funding requirements of the Ohio Police and Fire Pension Fund.

The reports must be submitted annually by November 1 to the Governor, Ohio Retirement Study Commission (ORSC) and Chairpersons of the standing committees and subcommittees of the Senate and House with primary responsibility for retirement legislation. The actuary shall complete the valuation in accordance with actuarial standards of practice promulgated by the actuarial standards board of the American academy of actuaries and prepare a report of the valuation.



**OHIO POLICE & FIRE
PENSION FUND
RETIREE HEALTH CARE BENEFITS**

**GASB 43 ACTUARIAL VALUATION
JANUARY 1, 2012**

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II – Summary of Valuation Results

This section presents detailed results of the January 1, 2012 GASB 43 actuarial valuation of the Ohio Police & Fire retiree health care benefits and consists of Tables 1 to 4, as described below. All liabilities and contribution rates reflect plan costs net of retiree premiums.

- **Table 1** presents a summary of the actuarial valuation results, including the number of active and inactive members, and members and dependents currently receiving benefits as of the valuation date, plan liabilities, assets and the annual contribution rate.
- **Table 2** shows the market value of assets in the Health Care Stabilization Fund available to pay benefits as of December 31, 2011, reconciled with the value as of the end of the prior year. The actuarial value of assets is the market value.
- **Table 3** shows a reconciliation of the Unfunded Accrued Liability as of January 1, 2012.
- **Table 4** shows the Schedule of Funding Progress under GASB 43. The Schedule of Funding Progress shows the history of the plan's funded status since the initial application of GASB 43. The initial application of GASB 43 for Ohio Police & Fire is the fiscal year beginning January 1, 2006.
- **Table 5** shows the Schedule of Employer Contributions under GASB 43. The Schedule of Employer Contributions shows the history of employer contributions compared to the Annual Required Contribution for health care. The initial year is the fiscal year beginning January 1, 2006.

II – Summary of Valuation Results

TABLE 1

RETIREE HEALTH CARE BENEFITS SUMMARY OF RESULTS OF ACTUARIAL VALUATION AS OF JANUARY 1, 2011 (\$ Amounts in Thousands)

Item	January 1, 2012	January 1, 2011
Membership Data		
1. Number of Members		
a) Active Members	27,463	28,073
b) Inactive Members	106	151
c) Retirees, Spouses, and Beneficiaries	25,003	24,334
d) Children of Current Retirees	1,041	1,062
e) Waivers to Elect Coverage	3,049	N/A
f) Total	56,662	53,620
2. Membership Payroll	\$ 1,897,413	\$ 1,868,502
Valuation Results		
3. Present Value of Future Benefits		
a) Active Members	\$ 2,817,647	\$ 3,011,688
b) Inactive Members	20,790	24,229
c) Retirees, Spouses, and Beneficiaries	2,160,139	1,590,802
d) Total	\$ 4,998,576	\$ 4,626,719
4. Accrued Liability		
a) Active Members	\$ 1,517,848	\$ 1,680,282
b) Inactive Members	20,790	24,229
c) Retirees, Spouses, and Beneficiaries	2,160,139	1,590,802
d) Total	\$ 3,698,777	\$ 3,295,313
5. Assets	\$ 780,142	\$ 717,730
6. Unfunded Liability	\$ 2,918,635	\$ 2,577,583
7. Funded Ratio	21.09%	21.78%
8. Annual Required Contribution		
a) Normal Cost	\$ 111,747	\$ 123,109
b) Unfunded Accrued Liability	134,100	118,430
c) Total Cost	\$ 245,847	\$ 241,539
9. Annual Required Contribution as a Percentage of Payroll		
a) Normal Cost Rate	5.89%	6.59%
b) Unfunded Accrued Liability Amortization Rate	<u>6.92%</u>	<u>6.10%</u>
c) Total Cost Rate	12.81%	12.69%
10. Employer Contribution to Health Care Stabilization Fund	6.75%	6.75%

II – Summary of Valuation Results

TABLE 2

**HEALTH CARE STABILIZATION FUND
AS OF DECEMBER 31, 2011
(\$ Amounts in Thousands)**

Item	Amount
1. Market Value as of December 31, 2010	\$ 717,730
2. Contributions in 2011	
(a) Employer	\$ 129,298
(b) Member Premiums	62,528
(c) Total	\$ 191,826
3. Benefits and Administrative Expenses in 2011	\$ 177,056
4. Investment Income in 2011	\$ 18,995
5. Other Income in 2011	
(a) Recoveries and Rebates	\$ 19,912
(b) Medicare Part D Reimbursements	8,735
(c) Total	\$ 28,647
6. Market Value as of December 31, 2011 (1) + (2) - (3) + (4) + (5)	\$ 780,142
7. Rate of Return (per 2011 Comprehensive Financial Report)	2.60%

II – Summary of Valuation Results

TABLE 3

**ANALYSIS OF CHANGE IN UNFUNDED ACCRUED LIABILITY
AS OF JANUARY 1, 2012
(\$ Amounts in Thousands)**

Item	Amount
1. Unfunded Accrued Liability at January 1, 2011	\$ 2,577,583
2. Normal Cost	123,109
3. Contributions*	138,032
4. Interest Credit at 6.00% to December 31, 2011	<u>154,208</u>
5. Expected Unfunded Accrued Liability at December 31, 2011 (1) + (2) - (3) + (4) + (5)	\$ 2,716,868
6. Actual Unfunded Accrued Liability at January 1, 2012	<u>2,918,636</u>
7. Net Loss (6) - (7)	\$ (201,768)
8. Reasons for Net Loss	
(a) Loss from Investment Return on Actuarial Value of Assets	\$ (25,371)
(b) Loss from Demographic Change	(2,115)
(c) Gain from Claim Experience	321,305
(d) Loss from Disability, Termination, Retirement and Mortality Rate Change	(73,869)
(e) Loss from Participation and Covered Dependent Assumption Change	<u>(421,718)</u>
(f) Grand Total	\$ (201,768)

* Employer contribution and Medicare Part D reimbursement

II – Summary of Valuation Results

TABLE 4

**SCHEDULE OF FUNDING PROGRESS
GASB STATEMENT NO. 43 DISCLOSURE
(\$ Amounts in Thousands)**

Valuation as of January 1	Actuarial Value of Assets	Actuarial Accrued Liability	Unfunded Actuarial Accrued Liability	Funded Ratio	Covered Payroll	UAAL as a % of Payroll
2012	\$780,142	\$3,698,777	\$2,918,635	21.09%	\$1,897,413	153.8%
2011	\$717,730	\$3,295,313	\$2,577,583	21.78%	\$1,868,502	137.9%
2010	\$573,399	\$3,232,391	\$2,658,992	17.74%	\$1,895,196	140.3%
2009	\$438,658	\$3,163,622	\$2,724,964	13.87%	\$1,900,935	143.3%
2008	\$526,999	\$3,623,484	\$3,096,485	14.54%	\$1,831,438	169.1%
2007	\$436,598	\$3,273,690	\$2,837,092	13.30%	\$1,782,851	159.1%

The above information needs to be included in the GASB 43 disclosure as of December 31, 2012.

II – Summary of Valuation Results

TABLE 5

**SCHEDULE OF EMPLOYER CONTRIBUTIONS
GASB STATEMENT NO. 43 DISCLOSURE
(\$ Amounts in Thousands)**

Year Ended December 31	Annual Required Contribution	Percentage Contributed
2011	\$241,539	57.15%
2010	\$248,912	54.32%
2009	\$256,297	52.08%
2008	\$285,844	48.84%
2007	\$250,163	51.62%

The information presented above was determined as part of the actuarial valuation as of one year prior to the dates indicated (i.e., the contribution determined by the valuation completed as of January 1, 2011 was contributed in the year ending December 31, 2011). The actual percentage contributed includes employer contributions and Medicare Part D reimbursement that Ohio Police & Fire has elected to contribute to the Health Care Stabilization Fund.

Additional information as of the latest actuarial valuation follows:

Valuation Date:	January 1, 2012
Actuarial Cost Method:	Entry Age
Amortization Method:	Level Percent of Payroll, Open
Amortization Period:	30 Years
Asset Valuation Method:	Fair Value

Actuarial Assumptions:

— Investment Return (Discount Rate)	6.00%
— Projected Salary Increases	4.25% - 11.00%
— Payroll Increases	3.75%
— Inflation Assumption	3.25%
— Trend Rates:	

	<u>Initial Rate 3 Years</u>	<u>Ultimate Rate</u>	<u>Ultimate Year</u>
• Non-Medicare	6.00%, 9.19%, 6.50%	5.00%	2017
• Non-AARP	6.00%, 9.19%, 6.50%	5.00%	2017
• AARP	6.50%, 6.25%, 6.00%	5.00%	2018
• Rx Drug	0.00%, 7.00%, 6.50%	5.00%	2017
• Medicare Part B	5.70%, 5.60%, 5.50%	5.00%	2019

The Ohio Police & Fire retiree health care plan is partially funded. The discount rate is a blended rate based on the plan and employer rates of return, using the plan rate times the percentage of the ARC contributed and the employer rate times the percentage not contributed.

III – Retiree Health Care Benefit Provisions

Eligibility for Coverage

All pension benefit recipients are eligible to enroll in the plan. Members are eligible to receive a pension at age 48 with 25 years of service or 62 with 15 years of service. In addition, a member is eligible to enroll in the plan if they are receiving a disability pension or they are the survivor of a member. A member may enroll a spouse, dependent children, generally until age 28, and sponsored dependents. Only benefit recipients are eligible for reimbursement of Medicare Part B reimbursement.

Coverage begins at the time of OP&F retirement or the first of the following month, if the member requests this effective date.

Types of Plans

For 2012, Ohio Police & Fire offers one medical plan for members not eligible for AARP coverage and one prescription drug plan as summarized below.

Medical Coverage		Prescription Drug Coverage	
In Network Coverage		Retail Option	
Deductible	\$500/\$1,000	Days Supply (as prescribed)	30
Coinsurance	80%	Tier 1	\$5
Out-of-Pocket Maximum	\$1,500/\$3,000	Tier 2	\$20
Office Visit Copay	\$30	Tier 3	\$30
Admission Copay	\$250	Mail Service Option	
Out-of-Network Coverage		Days Supply (as prescribed)	90
Deductible	\$1,000/\$2,000	Tier 1	\$10
Coinsurance	50%	Tier 2	\$40
Out-of-Pocket Maximum	\$5,000/\$10,000	Tier 3	\$60
Office Visit Copay	50%		
Admission Copay	\$250		

III – Retiree Health Care Benefit Provisions

The prescription drug plan tiers are described below:

Tier 1: Includes primarily generic drug; however, some generic drugs may fall into other tiers.

Tier 2: Middle copay level includes many brand-name drugs.

Tier 3: Includes several prescriptions with a Tier 1 or Tier 2 alternative.

Drugs are sorted into the 3 tiers, based on the overall clinical and pharmacoeconomic value of each particular drug and how it stacks up against other drugs in the same therapy class. Therefore, where each drug is placed within the 3 tiers is based on the effectiveness and cost of that drug.

Members who enroll in an Ohio Police & Fire health care plan are responsible for paying all or part of the cost of health care coverage through a monthly premium deduction, copayments/coinsurance and deductibles. Ohio Police & Fire pays the remaining cost. The monthly premium rates differ depending on the person's date of retirement and Medicare status. Member premiums are a percentage of the OP&F full cost premiums. The applicable percentage is 75 percent for members, 50 percent for spouses and children of members who retired on or before July 24, 1986 and 25 percent for spouses and children of members who retired after July 24, 1986.

Plan	Monthly Member Premiums					
	Pre-7/25/86 Retirees			Post-7/24/86 Retirees		
	Benefit Recipient	Spouse	Child(ren)	Benefit Recipient	Spouse	Child(ren)
Medical 2012 –						
Non-Medicare Eligible	\$ 173.02	\$ 229.07	\$ 119.72	\$ 173.02	\$ 343.60	\$ 179.59
Non-AARP Eligible	56.07	94.54	94.54	56.07	141.80	141.80
Prescription Drug 2012	66.37	125.04	37.16	66.37	187.55	55.75
Medical 2013 –						
Non-Medicare Eligible	\$ 183.40	\$ 242.82	\$ 126.91	\$ 183.40	\$ 364.22	\$ 190.37
Non-AARP Eligible	59.44	100.21	100.21	59.44	150.31	150.31
Prescription Drug 2013	66.37	125.04	37.16	66.37	187.55	55.75

III – Retiree Health Care Benefit Provisions

Effective January 1, 2008, Ohio Police & Fire replaced its self-insured medical plan for members and dependents age 65 or older and enrolled in Medicare Parts A and B with a choice of the B, F, or L fully insured MediGap plans offered by AARP/UHC. Ohio Police & Fire subsidizes the participant's premiums by an amount equal to a percentage of the AARP/UHC Plan L premium for the State of Ohio. The applicable percentage is 75 percent for members, 50 percent for spouses and children of members who retired on or before July 24, 1986 and 25 percent for spouses and children of members who retired after July 24, 1986.

For members who have been enrolled in Medicare Part B for less than 3 years, AARP/UHC applies a 30 percent discount to the base premium (3-6 year level) upon initial enrollment. This discount will decrease by 3 percent each year for 10 years until the premium is equal to the base premium level.

Members who have been enrolled in Medicare Part B for more than 6 years upon initial coverage with AARP/UHC receive a 10 percent surcharge to the base premium. This surcharge will continue to be applied for the full time the member is covered under the AARP/UHC plans.

There are 16 states in which AARP/UHC does not vary its premium rates by length of Medicare Part B coverage at initial enrollment. For these states, the OP&F subsidy will be set at the subsidy for the 6+ year level.

Time from Medicare Part B Effective Date	2012 Monthly Subsidy for AARP/UHC					
	State of Ohio Plan L Monthly Premium		OP&F Subsidy Pre-7/25/86 Retirees		OP&F Subsidy Post-7/24/86 Retirees	
	Benefit Recipient	Spouse	Benefit Recipient	Spouse	Benefit Recipient	Spouse
< 3 Years *	\$ 86.97	\$ 86.97	\$ 65.23	\$ 43.49	\$ 65.23	\$ 21.74
3- 6 Years	124.25	124.25	93.19	62.13	93.19	31.06
6+ Years	136.67	136.67	102.50	68.34	102.50	34.17

* Illustrated rates reflect 30 percent discount for a new retiree in 2012

III – Retiree Health Care Benefit Provisions

Medicare Part B Premium Reimbursement

For service and disability retirements, as well as survivors, Ohio Police & Fire reimburses the standard Medicare Part B premium (\$99.90 per month for 2012) provided the retiree is not eligible for reimbursement from any other sources.

IV – Participant Data

The participant data as of January 1, 2012 is summarized in the following tables:

- **Table 6** summarizes the number of participants by status.
- **Table 7** summarizes the number of active members by age and years of service.
- **Table 8** summarizes the number of retired members — including spouses and surviving spouses of retirees — by health care plan enrollment (for those participants currently enrolled in retiree health care coverage).

IV – Participant Data

TABLE 6

NUMBER OF PARTICIPANTS AS OF JANUARY 1, 2012

Status	Number
Active Members	27,463
Inactive Members	
Eligible for Allowances	106
Retirees and Beneficiaries	
Retirees and Spouses	
Retirees	9,428
Spouses	5,047
Total	14,475
Disability Retirees	
Retirees	4,352
Spouses	1,916
Total	6,268
Children of Current Retirees	1,041
Survivors	4,218
Orphans	42
Waivers to Elect Coverage	3,049
Total	29,093
Grand Total	56,662

There are also 946 participants who receive Medicare Part B reimbursements only.

IV – Participant Data

TABLE 7

ACTIVE MEMBERSHIP DATA AS OF JANUARY 1, 2012

Age	Years of Service									Total	
	0-4	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40+		
Under 25	375 \$44,886										375 \$44,886
25-29	1,783 \$50,913	435 \$65,326									2,218 \$53,740
30-34	1,191 \$53,405	1,536 \$65,348	649 \$69,732	5 \$71,730							3,381 \$61,992
35-39	552 \$50,925	1,079 \$64,996	2,278 \$68,743	644 \$72,385	13 \$76,571						4,566 \$66,239
40-44	259 \$49,733	636 \$63,072	1,755 \$67,551	2,449 \$71,523	823 \$75,812	11 \$70,267					5,933 \$69,084
45-49	93 \$48,288	206 \$62,081	587 \$66,087	1,294 \$69,414	2,149 \$75,274	732 \$79,551	16 \$78,689				5,077 \$72,316
50-54	46 \$51,210	69 \$61,143	175 \$64,719	475 \$68,120	950 \$72,353	1,203 \$77,499	595 \$81,165	13 \$87,512			3,526 \$74,207
55-59	21 \$53,541	29 \$61,171	60 \$63,415	159 \$65,923	311 \$69,863	523 \$75,042	657 \$78,819	91 \$81,812			1,851 \$74,224
60-64	4 \$59,782	9 \$59,139	19 \$57,770	46 \$62,128	75 \$67,640	107 \$72,186	120 \$74,822	79 \$82,619	12 \$85,795		471 \$72,312
Over 64	1 \$38,110	2 \$70,812	6 \$56,317	8 \$64,873	11 \$61,869	10 \$65,987	5 \$74,386	6 \$77,424	16 \$72,797		65 \$67,358
Total	4,325 \$50,972	4,001 \$64,606	5,529 \$67,962	5,080 \$70,506	4,332 \$74,185	2,586 \$77,288	1,393 \$79,459	189 \$82,402	28 \$78,367		27,463 \$67,821

IV – Participant Data

TABLE 8

CURRENT ENROLLMENT OF RETIRED PARTICIPANTS AS OF JANUARY 1, 2012

(excludes those non-Medicare eligible retirees who waived coverage who will return when Medicare eligible)

	UHC	AARP	Prescription Drug Only	Total
Not Eligible For Medicare				
Benefit Recipients	5,691	-	101	5,792
Spouses	2,682	-	31	2,713
Children	882	-	11	893
Eligible For Medicare				
Benefit Recipients	504	11,490	254	12,248
Spouses	190	4,001	59	4,250
Children	147	1	-	148
Total	10,096	15,492	456	26,044

V – Assumptions and Methods

ASSUMPTIONS

DISCOUNT RATE: 6.00 percent per annum, compounded annually.

The development of the discount rate used in the valuation is summarized below:

Investment Returns

Plan Assets (Long-Term Return)	=	8.25%
Employer Assets (Estimated Short-Term Return)	=	4%

Based on Percentage of ARC Contributed

1. Contribution Allocated to Health Care	=	6.75%
2. Annual Required Contribution (2010)	=	13.01%
3. Portion of ARC Contributed: (1) / (2)	=	51.88%
4. Multiplied by long-term investment return	=	4.28%
5. Portion of ARC not Contributed: 100% - (3)	=	48.12%
6. Multiplied by short-term investment return	=	1.92%
7. Total: (4) + (6)	=	6.20%

Based on the methodology above, Ohio Police & Fire has selected a discount rate of 6.00 percent.

SALARY INCREASE RATES: Assumed annual salary increases are as follows:

Years of Service	Salary Increase Rate
less than 1	11.00%
1	9.50%
2	8.50%
3	6.50%
4	5.00%
5 or more	4.25%

V – Assumptions and Methods

HEALTH CARE COST TREND RATES: The trend rate is the annual rate at which the cost of covered medical services is assumed to increase from the current year to the next year. The valuation reflects costs and premiums established for 2012 and 2013 for Non-Medicare, Non-AARP and Rx. Thus, the trend rates for 2012 and 2013 for those benefits reflect actual increases from 2012 to 2013 and expected increases from 2013 to 2014. Beginning in 2012, the per-capita costs are assumed to increase by the following percentages each year.

Year	Non-Medicare	Non-AARP	AARP	Rx	Medicare Part B
2012	6.0%	6.0%	6.50%	0.0%	5.7%
2013	9.2%	9.1%	6.25%	7.0%	5.6%
2014	6.5%	6.5%	6.00%	6.5%	5.5%
2015	6.0%	6.0%	5.75%	6.0%	5.4%
2016	5.5%	5.5%	5.50%	5.5%	5.3%
2017	5.0%	5.0%	5.25%	5.0%	5.2%
2018	5.0%	5.0%	5.00%	5.0%	5.1%
2019	5.0%	5.0%	5.00%	5.0%	5.0%
2020	5.0%	5.0%	5.0%	5.0%	5.0%
2021	5.0%	5.0%	5.00%	5.0%	5.0%
2022	5.0%	5.0%	5.00%	5.0%	5.0%

V – Assumptions and Methods

PER CAPITA HEALTH CARE COSTS: Average costs for the self-insured medical and prescription drug plans were developed based on claims experience and current enrollment, taking into consideration trend and any changes in the plans. Retiree contributions were calculated based on the average costs and the applicable subsidy percentages under the plan. For the valuation, age-specific per capita gross costs were used. Shown below are sample age-specific amounts.

2012 Age-Specific Monthly Gross Costs

Age	Non-Medicare Eligible Medical			Non-AARP Eligible Medical			Prescription Drugs		
	Benefit Recipient	Spouse	Child(ren)	Benefit Recipient	Spouse	Child(ren)	Benefit Recipient	Spouse	Child(ren)
20			\$ 249			\$ 163			\$ 74
50	\$ 552	\$ 367		\$ 98	\$ 114		\$ 142	\$ 145	
55	646	429		115	134		166	170	
60	764	507		136	158		197	200	
65				293	341		236	240	
70				343	400		276	281	
75				386	450		311	317	
80				422	492		340	346	
85				451	525		363	369	

AARP/UHC OUT-OF-STATE PERCENTAGE: There are 20 states in which AARP/UHC does not vary its premium rates by length of Medicare Part B coverage at initial enrollment. For these states, the OP&F subsidy will be set at the subsidy for the 6+ year level. Based on current retiree demographics, it is assumed that 10 percent of new retirees will reside in one of these states.

V – Assumptions and Methods

WITHDRAWAL RATES: The following sample withdrawal rates are based on age and service (for causes other than death, disability, or retirement).

Police

Age	Years of Service										
	0	1	2	3	4	5	6	7	8	9	10+
25	10.3%	6.3%	3.5%	4.4%	3.9%	2.2%	2.1%	2.0%	1.8%	1.8%	1.5%
30	10.4%	5.8%	4.4%	3.5%	3.2%	3.0%	2.9%	2.5%	2.2%	1.8%	1.5%
35	13.0%	5.3%	3.2%	3.8%	3.5%	3.4%	3.2%	3.1%	2.5%	1.7%	1.3%
40	14.0%	6.0%	4.6%	4.5%	4.1%	3.9%	3.3%	3.2%	1.8%	1.5%	0.9%
45	16.0%	6.3%	6.1%	5.9%	5.2%	4.3%	3.5%	3.5%	2.1%	1.2%	0.8%
50	18.0%	8.3%	8.1%	7.5%	6.5%	5.3%	4.1%	4.0%	3.9%	3.1%	1.5%
55	20.0%	12.0%	10.0%	9.4%	8.0%	6.5%	5.2%	5.1%	4.9%	4.5%	1.7%
60	20.0%	12.0%	10.0%	9.4%	8.0%	6.5%	5.2%	5.1%	4.9%	4.5%	1.7%

Firefighters

Age	Years of Service										
	0	1	2	3	4	5	6	7	8	9	10+
25	2.8%	2.2%	1.6%	1.5%	1.2%	1.1%	1.0%	1.0%	0.9%	0.9%	0.8%
30	3.8%	1.6%	1.8%	1.7%	1.6%	1.3%	1.2%	1.1%	1.0%	1.0%	0.9%
35	4.2%	3.4%	2.1%	2.0%	1.9%	1.4%	1.3%	1.25%	1.1%	0.9%	0.8%
40	4.5%	3.6%	2.2%	2.1%	2.0%	1.5%	1.4%	1.3%	1.2%	1.0%	0.6%
45	4.6%	3.8%	2.7%	2.6%	2.5%	1.9%	1.6%	1.4%	1.3%	1.1%	0.5%
50	6.1%	4.4%	4.0%	3.8%	3.5%	2.7%	2.4%	2.2%	2.1%	1.5%	0.7%
55	6.1%	5.0%	5.0%	5.0%	4.0%	3.5%	2.4%	2.2%	2.0%	1.5%	1.1%
60	6.1%	5.0%	5.0%	5.0%	4.0%	3.5%	2.4%	2.2%	2.0%	1.5%	1.1%

RATES OF DISABILITY: The following are sample rates of disability.

Age	Police	Firefighters
20	.002%	.004%
30	.255%	.063%
40	.732%	.454%
50	1.126%	.891%
55	.933%	1.350%
60	.966%	1.331%
64	1.441%	3.126%

V – Assumptions and Methods

RETIREMENT RATES: The following rates of retirement apply to members not in DROP.

Age	Police	Firefighters
48	10%	10%
49-52	5%	5%
53-54	11%	5%
55-57	11%	10%
58-59	5%	13%
60	15%	20%
61	25%	20%
62	25%	50%
63	25%	20%
64	25%	25%
65-69	35%	25%
70	100%	100%

DEFERRED RETIREMENT OPTION PLAN (DROP) ELECTIONS: 90 percent of members who do not retire when first eligible are assumed to elect DROP.

DROP RETIREMENT RATES: The following rates of retirement apply to members in DROP.

Police

Age	Years in DROP								
	0	1	2	3	4	5	6	7	8
48	5%								
49	5%	5%							
50	4%	5%	5%						
51	4%	5%	5%	10%					
52	4%	5%	5%	10%	10%				
53	4%	5%	5%	10%	10%	12%			
54	4%	5%	5%	10%	10%	12%	14%		
55	5%	5%	5%	15%	15%	12%	17%	30%	
56	5%	5%	5%	15%	15%	12%	17%	30%	100%
57	5%	5%	5%	15%	15%	12%	17%	30%	100%
58	5%	5%	5%	15%	15%	12%	17%	30%	100%
59	16%	5%	5%	15%	16%	15%	18%	32%	100%
60	16%	5%	5%	15%	16%	15%	18%	32%	100%
61	16%	5%	5%	15%	16%	15%	18%	32%	100%
62	16%	5%	5%	15%	16%	15%	18%	32%	100%
63	16%	5%	5%	15%	16%	15%	18%	32%	100%
64	19%	5%	5%	17%	17%	16%	19%	35%	100%
65-69	19%	5%	5%	17%	17%	16%	19%	35%	100%
70	100%	100%	100%	100%	100%	100%	100%	100%	100%

V – Assumptions and Methods

Firefighters

Age	Years in DROP								
	0	1	2	3	4	5	6	7	8
48	5%								
49	5%	5%							
50	4%	5%	5%						
51	4%	5%	5%	10%					
52	4%	5%	5%	10%	10%				
53	4%	5%	5%	10%	10%	12%			
54	4%	5%	5%	10%	10%	12%	14%		
55	5%	5%	5%	15%	15%	12%	17%	30%	
56	5%	5%	5%	15%	15%	12%	17%	30%	100%
57	5%	5%	5%	15%	15%	12%	17%	30%	100%
58	5%	5%	5%	15%	15%	12%	17%	30%	100%
59	16%	5%	5%	15%	16%	15%	18%	32%	100%
60	16%	5%	5%	15%	16%	15%	18%	32%	100%
61	16%	5%	5%	15%	16%	15%	18%	32%	100%
62	16%	5%	5%	15%	16%	15%	18%	32%	100%
63	16%	5%	5%	15%	16%	15%	18%	32%	100%
64	19%	5%	5%	17%	17%	16%	19%	35%	100%
65-69	19%	5%	5%	17%	17%	16%	19%	35%	100%
70	100%	100%	100%	100%	100%	100%	100%	100%	100%

RETIREMENT AGE FOR INACTIVE VESTED PARTICIPANTS: Commencement at age 48 and 25 years of service from full-time hire date, whichever is later.

MORTALITY: Rates of death are based on the RP2000 Combined Table, age-adjusted as follows. For active members, set back six years. For disability retirements, set forward five years for police and three years for firefighters. For service retirements, set back zero years for police and two years for firefighters. For beneficiaries, set back zero years. The rates are applied on a fully generational basis, with a base year of 2009, using mortality improvement Scale AA.

V – Assumptions and Methods

MEMBER PARTICIPATION: 60 percent of eligible non-Medicare members are assumed to elect coverage and 90 percent of Medicare eligible members are assumed to elect coverage. 50 percent of non-Medicare members who elect coverage are assumed to elect coverage for their spouses and children, and 70 percent of Medicare members who elect coverage are assumed to elect coverage for their spouses and children. Additionally, 75 percent of all non-Medicare members who waived coverage are assumed to elect plan coverage once they become Medicare eligible.

SPOUSE'S AGE: Wives are assumed to be three years younger than their husbands.

DEPENDENT CHILDREN: Each member is assumed to have two children, born when the member was age 26.

ADMINISTRATIVE EXPENSE: Per-capita costs include administrative expenses.

UNKNOWN DATA FOR MEMBERS: Same as those exhibited by members with similar known characteristics.

METHODS

ACTUARIAL COST METHOD: Projected benefit method with level percentage entry age normal cost and open-end unfunded accrued liability. Gains and losses are reflected in the accrued liability. Normal cost is expressed as a mid-year amount.

ASSET VALUATION METHOD: Market value of assets.

PAYROLL GROWTH: Inflation rate of 3.25 percent plus productivity increase rate of 0.75 percent.

DATA

CENSUS AND ASSETS: The valuation was based on members of OP&F as of January 1, 2012 and does not take into account future members. All census and asset data was supplied by OP&F.

VI – Glossary of Terms

Accrued Liability

The present value as of the valuation date of all of the prior normal costs of the plan. It is the portion of the present value of future plan benefits attributable to service accrued as of the valuation date. If all assumptions were realized and contributions equal to the normal cost were made annually from the inception of the plan, the accrued liability would equal the plan assets. Mathematically, the accrued liability is equal to the difference between (a) the present value of future plan benefits, and (b) the present value of future normal cost. Sometimes referred to as “actuarial accrued liability.”

Actuarial Assumptions

Estimates of future plan experience with respect to rates of mortality, disability, turnover, retirement, investment income and salary increases. Decrement assumptions (rates of mortality, disability, turnover and retirement) are generally based on past experience, often modified for projected changes in conditions. Economic assumptions (salary increases and investment income) consist of an underlying rate in an inflation-free environment plus a provision for a long-term average rate of inflation.

Actuarial Cost Method

The cost of a pension or retiree health care plan should be recognized during the working lifetime of the members who are ultimately going to receive benefits, preferably by actually funding amounts sufficient to provide completely for each member’s benefit at the time of retirement. The mathematical budgeting procedure for allocating the cost of benefits is called the “actuarial cost method.” The cost method allocates the dollar amount of the “present value of future plan benefits” between the “present value of future normal cost” and the “accrued liability.” Sometimes referred to as the “actuarial funding method.”

Actuarially Required Contribution Rate

The contribution rate necessary to advance fund benefits. In this valuation, that rate is equal to the normal cost plus amortization of the unfunded accrued liability over a 30-year period.

Advance Funding

Funding on a full reserve basis. See definition of full reserve basis.

Amortization

Paying off an interest-bearing liability by means of periodic payments of interest and principal, as opposed to paying it off with a lump sum payment.

VI – Glossary of Terms

Entry Age Normal Cost Method	A funding method based upon the premise that if all assumptions are realized, the annual contribution as a percentage of payroll will remain level from year to year. This premise means that the present value of all future normal costs at a member's hire age (i.e., entry age) is exactly equal to the present value of all future benefits.
Experience Gain (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, in accordance with the actuarial cost method being used.
Full Reserve Basis	The philosophy behind every proper funding method is that benefits should be funded during the working lifetime of the members. This means that at retirement, contributions plus interest on those contributions are sufficient to provide completely for the benefits expected to be paid out. This advance funding is called funding on a full reserve basis.
Funded Status	The percentage of the total accrued liability that the assets represent.
Market Value of Assets	The value of assets segregated in the trust fund to provide benefits. The market value is the amount that the plan could reasonably expect to receive for its investments as of the valuation date in a current sale between a willing buyer and a willing seller, that is, other than in a forced or liquidation sale.
Normal Cost	The annual cost of the benefits that accrue during the year. The normal cost is the amount necessary to be contributed to pay for the benefits that are earned during the year. It is the cost of keeping the fund at the desired level if the assumptions are realized and if the assets equal the accrued liability (i.e., the cost under "normal" circumstances). Sometimes referred to as "current service cost."
Present Value	The amount of funds presently required to provide a payment or series of payments in the future. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.
Present Value of Future Plan Benefits	The value as of the valuation date of all of the benefits expected to be paid in the future based upon the actuarial assumptions.

VI – Glossary of Terms

Present Value of Future Normal Cost	The value as of the valuation date of all of the future normal costs of the plan based upon the actuarial assumptions.
Set Back in Age	Used in applying rates of mortality. Set back in age means assuming that the age of a member is younger than it actually is. For example, if the male mortality is setback by one year that means a male age 50 is assumed to be age 49 for purposes of applying the mortality table.
Set Forward in Age	Used in applying rates of mortality. Set forward in age means assuming that the age of a member is older than it actually is. For example, if the female mortality is set forward by one year that means a female age 50 is assumed to be age 51 for purposes of applying the mortality table.
Trend Rates	The annual rates at which the cost of covered medical services and prescription drugs are assumed to increase.
Unfunded Accrued Liability	The difference between the actuarial accrued liability and the valuation assets.

