



VILLAGE OF CARPENTERSVILLE
CARPENTERSVILLE POLICE PENSION FUND

Actuarial Valuation Report
For the Year
Beginning May 1, 2015
And Ending December 31, 2015

Timothy W. Sharpe, Actuary, Geneva, IL (630) 262-0600

TABLE OF CONTENTS

	<u>Page</u>
Introduction	3
Summary of Results	4
Actuarial Valuation of Assets	6
Asset Changes During Prior Year	7
Normal Cost	8
Accrued Liability	9
Tax Levy Requirement	10
Summary of Plan Participants	11
Duration	12
Projected Pension Payments	12
Summary of Plan Provisions	13
Actuarial Method	14
Actuarial Assumptions	15
GASB Statements No. 25 & 27 Disclosure	17
GASB Statements No. 67 & 68 Disclosure	20

INTRODUCTION

Police-sworn personnel of the Village of Carpentersville are covered by the Police Pension Plan that is a defined-benefit, single-employer pension plan. The purpose of this report is to provide to the Intended Users of this report, specifically the Intended Users are the Village Officials, the Pension Board and the Village and Pension Board auditors, the reporting requirements of the Illinois Pension Code, the GASB Statements No. 25 & 27 and 67 & 68 financial information and related actuarial information for the year stated in this report. This report is not intended for distribution or usage to or by anyone who is not an Intended User and should not be used for any other purpose.

The valuation results reported herein are based on the employee data, plan provisions and the financial data provided by the Village. The actuary has relied on this information and does not assume responsibility for the accuracy or completeness of this information. I hereby certify that to the best of my knowledge this report is complete and accurate and fairly presents the actuarial position of the Fund in accordance with generally accepted actuarial principles and procedures. In my opinion, the assumptions used are reasonably related to the experience of the Plan and to reasonable expectations. A reasonable request for supplementary information not included in this report should be directed to the undersigned actuary.

The actuary cautions the Intended Users of the possibility of uncertainty or risks in any of the results in this report.

I, Timothy W. Sharpe, am an Enrolled Actuary and a member of the American Academy of Actuaries, and I meet the Qualifications Standards of the American Academy of Actuaries to render the actuarial opinion contained herein.

Respectfully submitted,



Timothy W. Sharpe, EA, MAAA
Enrolled Actuary No. 14-4384

9/30/2015

Date

SUMMARY OF RESULTS

There was a change with respect to Actuarial Assumptions from the prior year to reflect revised expectations with respect to mortality rates, disability rates, turnover rates and retirement rates. The mortality rates, disability rates, turnover rates and retirement rates have been changed to the new rates most recently published by the Illinois Department of Insurance (September 2012).

There were no changes with respect to Plan Provisions or Actuarial Methods from the prior year.

The current Village fiscal year will be the 8-month period from May 1, 2015 through December 31, 2015. The Tax Levy has been adjusted accordingly (prorated for 8 months).

Based on the plan sponsor's funding policy and future expected plan contributions and funded status, the plan is to be expected to produce adequate assets to make benefit payments when they are due.

The benefit payment default risk or the financial health of the plan sponsor was not deemed to be material.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: plan experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the plan's funded status); and changes in plan provisions or applicable law.

Due to the limited scope of the actuary's assignment, the actuary did not perform an analysis of the potential range of such future measurements.

There were no unexpected changes with respect to the participants included in this actuarial valuation (4 new members, 1 termination, 2 retirements, 0 incidents of disability, annual payroll increase 2.0%, average salary increase 2.3%).

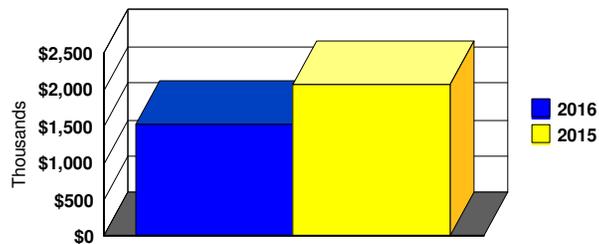
There were no unexpected changes with respect to the Fund's investments from the prior year (annual investment return 6.94%).

The Village's Tax Levy Requirement has decreased from \$2,085,014 last year to \$1,530,352 this year. The decrease in the Tax Levy is due to the 8-month adjustment. If not for the 8-month adjustment, the Tax Levy would have increased to \$2,346,703 (12.6%). The increase in the Tax Levy is due to the increase in salaries and the changes to the assumptions. The Percent Funded has decreased from 54.1% last year to 53.4% this year.

SUMMARY OF RESULTS (Continued)

	For Year Ending April 30	
	<u>12/31/2015</u>	<u>2015</u>
Tax Levy Requirement	\$ 1,530,352	\$ 2,085,014
		as of May 1
	<u>2015</u>	<u>2014</u>
Village Normal Cost	856,002	790,144
Anticipated Employee Contributions	526,587	516,318
Accrued Liability	62,861,669	57,085,108
Actuarial Value of Assets	33,555,912	30,893,465
Unfunded Accrued Liability/(Surplus)	29,305,757	26,191,643
Amortization of Unfunded Accrued Liability/(Surplus)	1,337,178	1,158,467
Percent Funded	53.4%	54.1%
Annual Payroll	\$ 5,313,697	\$ 5,210,073

TAX LEVY REQUIREMENT
as of April 30



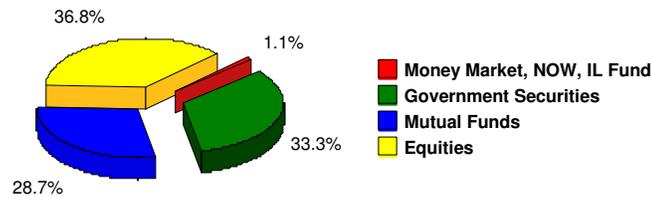
ACTUARIAL VALUATION OF ASSETS

		as of May 1	
		<u>2015</u>	<u>2014</u>
Money Market, NOW, IL Fund	\$	392,049	\$ 901,567
Government Securities		11,369,635	10,630,684
Mutual Funds		9,806,854	9,969,976
Common Stock		12,546,345	10,144,806
Interest Receivable		114,884	83,684
Miscellaneous Receivable/(Payable)		22,421	<u>20,227</u>
Market Value of Assets		<u>34,252,188</u>	<u>31,750,944</u>
Actuarial Value of Assets	\$	33,555,912	30,893,465

FYE 2012-2015 (Gain)/Loss: \$912,652; (\$474,131); (\$1,172,577); \$17,991

SUMMARY OF ASSETS

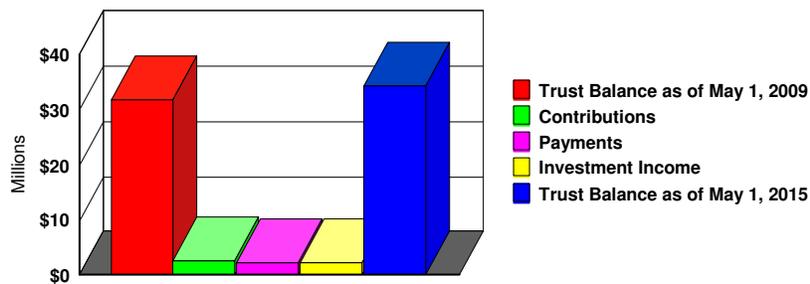
As Of May 1, 2015



ASSET CHANGES DURING PRIOR YEAR

Trust Balance as of May 1, 2014		\$	31,750,944
Contributions			
Village	2,018,731		
Employee	<u>516,271</u>		
Total			2,535,002
Payments			
Benefit Payments	2,215,557		
Expenses	<u>32,809</u>		
Total			2,248,365
Investment Income			<u>2,214,607</u>
Trust Balance as of May 1, 2015		\$	<u>34,252,188</u>
Approximate Annual Rate of Return			6.94%

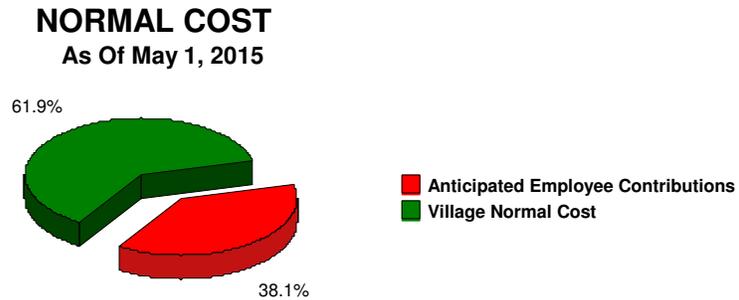
ASSET CHANGES DURING PRIOR YEAR



NORMAL COST

The Normal Cost is the actuarial present value of the portion of the projected benefits that are expected to accrue during the year based upon the actuarial valuation method and actuarial assumptions employed in the valuation.

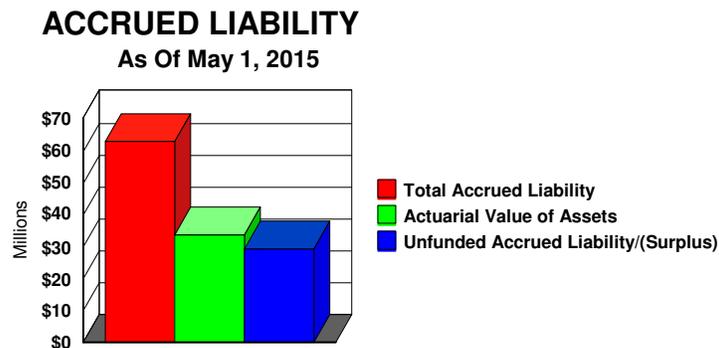
	as of May 1	
	<u>2015</u>	<u>2014</u>
Total Normal Cost	\$ 1,382,589	\$ 1,306,462
Anticipated Employee Contributions	<u>526,587</u>	<u>516,318</u>
Village Normal Cost	<u>856,002</u>	<u>790,144</u>
Normal Cost Payroll	\$ 5,313,697	\$ 5,210,073
Village Normal Cost Rate	16.11%	15.17%
Total Normal Cost Rate	26.02%	25.08%



ACCRUED LIABILITY

The Accrued Liability is the actuarial present value of the portion of the projected benefits that has been accrued as of the valuation date based upon the actuarial valuation method and actuarial assumptions employed in the valuation. The Unfunded Accrued Liability is the excess of the Accrued Liability over the Actuarial Value of Assets.

	as of May 1	
Accrued Liability	<u>2015</u>	<u>2014</u>
Active Employees	\$ 33,809,688	\$ 30,175,187
Children Annuities	0	0
Disability Annuities	6,543,207	6,252,652
Retirement Annuities	21,246,092	19,552,763
Surviving Spouse Annuities	205,127	157,773
Terminated Vested Annuities	<u>1,057,555</u>	<u>946,733</u>
Total Annuities	29,051,981	26,909,921
 Total Accrued Liability	 62,861,669	 57,085,108
 Actuarial Value of Assets	 <u>33,555,912</u>	 <u>30,893,465</u>
 Unfunded Accrued Liability/(Surplus)	 \$ <u>29,305,757</u>	 \$ <u>26,191,643</u>
 Percent Funded	 53.4%	 54.1%



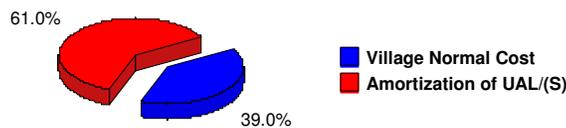
TAX LEVY REQUIREMENT

The Public Act 096-1495 Tax Levy Requirement is determined as the annual contribution necessary to fund the normal cost, plus the amount to amortize the excess (if any) of ninety percent (90%) of the accrued liability over the actuarial value of assets as a level percentage of payroll over a thirty (30) year period which commenced in 2011, plus an adjustment for interest. The 100% amortization amount is equal to the amount to amortize the unfunded accrued liability as a level percentage of payroll over a thirty (30) year period which commenced in 2011.

	For Year Ending April 30	
	<u>12/31/2015</u>	<u>2015</u>
Village Normal Cost as of Beginning of Year ¹ \$	570,668	\$ 790,144
Amortization of Unfunded Accrued Liability/(Surplus) ¹	891,452	1,158,467
Interest for One Year ¹	<u>68,232</u>	<u>136,403</u>
Tax Levy Requirement as of End of Year \$	<u>1,530,352</u>	<u>2,085,014</u>
 Public Act 096-1495 Tax Levy Requirement		
1) Normal Cost (PUC) ¹	752,939	1,072,208
2) Accrued Liability (PUC) ¹	60,813,311	54,222,842
3) Amortization Payment	644,155	792,038
4) Interest for One Year ¹	65,198	130,497
5) PA 096-1495 Tax Levy Requirement \$ (1 + 3 + 4)	1,462,292	1,994,743

¹ Prorated to reflect 8-month fiscal year.

TAX LEVY REQUIREMENT For Fiscal Year Ending April 30, 2016



SUMMARY OF PLAN PARTICIPANTS

The actuarial valuation of the Plan is based upon the employee data furnished by the Village.
 The information provided for Active participants included:

- Name
- Sex
- Date of Birth
- Date of Hire
- Compensation
- Employee Contributions

The information provided for Inactive participants included:

- Name
- Sex
- Date of Birth
- Date of Pension Commencement
- Monthly Pension Benefit
- Form of Payment

Membership	<u>2015</u>	<u>2015</u>	<u>2014</u>	<u>2014</u>
Current Employees				
Vested	50		49	
Nonvested	<u>10</u>		<u>10</u>	
Total	<u>60</u>		<u>59</u>	
Inactive Participants		<u>Annual Benefits</u>		<u>Annual Benefits</u>
Children	0 \$	0	0 \$	0
Disabled Employees	10	463,705	10	456,808
Retired Employees	27	1,657,863	27	1,609,347
Surviving Spouses	2	38,278	2	38,278
Terminated Vesteds	<u>3</u>	<u>83,433</u>	<u>2</u>	<u>61,886</u>
Total	<u>42</u>	<u>2,243,279</u>	<u>41</u>	<u>2,166,319</u>
Annual Payroll	\$	5,313,697	\$	5,210,073

SUMMARY OF PLAN PARTICIPANTS (Continued)

Age and Service Distribution

Service Age	0-4	5-9	10-14	15-19	20-24	25-29	30+	Total	Salary
20-24	2							2	60,973
25-29	2	1						3	67,800
30-34		3	3					6	84,375
35-39		4	6	1				11	85,505
40-44		2	8	4				14	89,517
45-49			2	3	8	1		14	94,342
50-54				4		2	1	7	98,436
55-59					1	1		2	86,186
60+						1		1	106,099
Total	4	10	19	12	9	5	1	60	88,562
Salary	59,951	84,834	87,088	91,394	93,918	108,540	86,186		

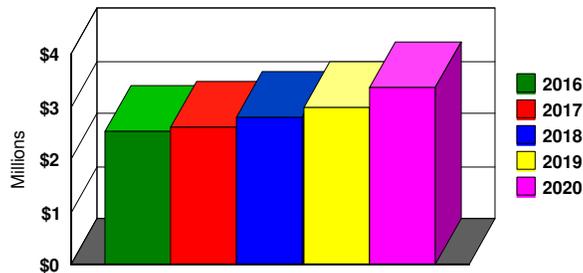
Average Age: 41.7 Average Service: 14.3

DURATION (years) Active Members: 18.4 Retired Members: 10.6 All Members: 14.8

PROJECTED PENSION PAYMENTS

<u>2016</u>	<u>2017</u>	<u>2018</u>	<u>2019</u>	<u>2020</u>
\$2,564,090	\$2,610,448	\$2,819,976	\$3,000,743	\$3,358,593

PROJECTED PENSION PAYMENTS
2016-2020



SUMMARY OF PLAN PROVISIONS

The Plan Provisions have not been changed from the prior year.

The Village of Carpentersville Police Pension Fund was created and is administered as prescribed by "Article 3. Police Pension Fund - Municipalities 500,000 and Under" of the Illinois Pension Code (Illinois Compiled Statutes, 1992, Chapter 40). A brief summary of the plan provisions is provided below.

Employees attaining the age of (50) or more with (20) or more years of creditable service are entitled to receive an annual retirement benefit of (2.5%) of final salary for each year of service up to (30) years, to a maximum of (75%) of such salary.

Employees with at least (8) years but less than (20) years of credited service may retire at or after age (60) and receive a reduced benefit of (2.5%) of final salary for each year of service.

Surviving spouses receive the greater of (50%) of final salary or the employee's retirement benefit.

Employees disabled in the line of duty receive (65%) of final salary.

The monthly pension of a covered employee who retired with (20) or more years of service after January 1, 1977, shall be increased annually, following the first anniversary date of retirement and be paid upon reaching the age of at least (55) years, by (3%) of the originally granted pension. Beginning with increases granted on or after July 1, 1993, the second and subsequent automatic annual increases shall be calculated as (3%) of the amount of the pension payable at the time of the increase.

Employees are required to contribute (9.91%) of their base salary to the Police Pension Plan. If an employee leaves covered employment with less than (20) years of service, accumulated employee contributions may be refunded without accumulated interest.

For Employees hired after January 1, 2011, the Normal Retirement age is attainment of age 55 and completion of 10 years of service; Early Retirement age is attainment of age 50, completion of 10 years of service and the Early Retirement Factor is 6% per year; the Employee's Accrued Benefit is based on the Employee's final 8-year average salary not to exceed \$106,800 (as indexed); Cost-of-living adjustments are simple increases (not compounded) of the lesser of 3% or 50% of CPI beginning the later of the anniversary date and age 60; Surviving Spouse's Benefits are 66 2/3% of the Employee's benefit at the time of death.

ACTUARIAL METHODS

The Actuarial Methods employed for this valuation are as follows:

Projected Unit Credit Cost Method (for years beginning on or after 2011 for PA 096-1495)

Under the Projected Unit Credit Cost Method, the Normal Cost is the present value of the projected benefit (including projected salary increases) earned during the year.

The Accrued Liability is the present value of the projected benefit (including projected salary increases) earned as of the actuarial valuation date. The Unfunded Accrued Liability is the excess of the Accrued Liability over the plan's assets. Experience gains or losses adjust the Unfunded Accrued Liability.

Entry Age Normal Cost Method

Under the Entry Age Normal Cost Method the Normal Cost for each participant is computed as the level percentage of pay which, if paid from the earliest age the participant is eligible to enter the plan until retirement or termination, will accumulate with interest to sufficiently fund all benefits under the plan. The Normal Cost for the plan is determined as the sum of the Normal Costs for all active participants.

The Accrued Liability is the theoretical amount that would have accumulated had annual contributions equal to the Normal Cost been paid. The Unfunded Accrued Liability is the excess of the Accrued Liability over the plan's assets. Experience gains or losses adjust the Unfunded Accrued Liability.

ACTUARIAL ASSUMPTIONS

The Actuarial Assumptions used for determining the Tax Levy Requirement and GASB Statements No. 25 & 27 and 67 & 68 Disclosure Information are the same (except where noted) and have been changed from the prior year (discussion on page 4). The methods and assumptions disclosed in this report may reflect statutory requirements and may reflect the responsibility of the Principal and its advisors. Unless specifically noted otherwise, each economic and demographic assumption was selected in accordance with Actuarial Standards of Practice 27 and 35 and may reflect the views and advice of advisors to the Principal. In the event a method or assumption conflicts with the actuary's professional judgment, the method or assumption is identified in this report. The Actuarial Assumptions employed for this valuation are as follows:

Valuation Date	May 1, 2015
Asset Valuation Method	5-year Average Market Value (PA 096-1495)
Investment Return	7.00% net of investment expenses.
Salary Scale	5.50%
Mortality	RP 2000 Mortality Table (CHBCA). There is no margin for future mortality improvement beyond the valuation date.
Withdrawal	Based on studies of the Fund and the Department of Insurance, Sample Rates below
Disability	Based on studies of the Fund and the Department of Insurance, Sample Rates below
Retirement	Based on studies of the Fund and the Department of Insurance, Sample Rates below (100% by age 70)
Marital Status	80% Married, Female spouses 3 years younger

ACTUARIAL ASSUMPTIONS *(Continued)*

<u>Sample Annual Rates Per 100 Participants</u>				
<u>Age</u>	<u>Mortality</u>	<u>Withdrawal</u>	<u>Disability</u>	<u>Retirement</u>
20	0.03	10.00	0.05	
25	0.04	7.50	0.05	
30	0.07	5.00	0.22	
35	0.11	3.00	0.26	
40	0.14	2.00	0.40	
45	0.18	2.00	0.65	
50	0.24	3.50	0.95	20.00
55	0.42	3.50	1.30	25.00
60	0.83	3.50	1.65	33.00
65	1.55	3.50	2.00	50.00
70	2.68			100.00

GASB STATEMENTS NO. 25 & 27 DISCLOSURE INFORMATION

The Governmental Accounting Standards Board (GASB) issued Statements No. 25 & 27 that established generally accepted accounting principles for the annual financial statements for defined benefit pension plans. The required information is as follows:

Membership in the plan consisted of the following as of:

	<u>April 30, 2015</u>	<u>April 30, 2014</u>
Retirees and beneficiaries receiving benefits	39	39
Terminated plan members entitled to but not yet receiving benefits	3	2
Active vested plan members	50	49
Active nonvested plan members	<u>10</u>	<u>10</u>
Total	<u>102</u>	<u>100</u>
Number of participating employers	1	1

SCHEDULE OF FUNDING PROGRESS

Actuarial Valuation Date	Actuarial Value of Assets (a)	Actuarial Accrued Liability (AAL) -Entry Age (b)	Unfunded AAL (UAAL) (b-a)	Funded Ratio (a/b)	Covered Payroll (c)	UAAL as a Percentage of Covered Payroll ((b-a)/c)
04/30/13	28,591,725	51,911,261	23,319,536	55.1%	5,021,547	464.4%
04/30/14	31,750,944	57,085,108	25,334,164	55.6%	5,210,073	486.3%
04/30/15	34,252,188	62,861,669	28,609,481	54.5%	5,313,697	538.4%

GASB STATEMENTS NO. 25 & 27 DISCLOSURE INFORMATION (Continued)

ANNUAL PENSION COST AND NET PENSION OBLIGATION

	<u>April 30, 2015</u>	<u>April 30, 2014</u>
Annual required contribution	2,018,729	1,914,114
Interest on net pension obligation	169,636	155,346
Adjustment to annual required contribution	<u>(108,710)</u>	<u>(96,634)</u>
Annual pension cost	2,079,655	1,972,826
Contributions made	<u>2,018,731</u>	<u>1,768,692</u>
Increase (decrease) in net pension obligation	60,924	204,134
Net pension obligation beginning of year	<u>2,423,367</u>	<u>2,219,233</u>
Net pension obligation end of year	<u>2,484,291</u>	<u>2,423,367</u>

THREE-YEAR TREND INFORMATION

Fiscal Year <u>Ending</u>	Annual Pension Cost (APC) <u>Cost (APC)</u>	Percentage of APC <u>Contributed</u>	Net Pension Obligation <u>Obligation</u>
04/30/13	1,760,530	87.1%	2,219,233
04/30/14	1,972,826	89.7%	2,423,367
04/30/15	2,079,655	97.1%	2,484,291

GASB STATEMENTS NO. 25 & 27 DISCLOSURE INFORMATION (Continued)

FUNDING POLICY AND ANNUAL PENSION COST

Contribution rates:

Village	37.99%	33.95%
Plan members	9.91%	Same
Annual pension cost	2,079,655	1,972,826
Contributions made	2,018,731	1,768,692
Actuarial valuation date	04/30/2015	04/30/2014
Actuarial cost method	Entry age	same
Amortization period	Level percentage of pay, closed	same
Remaining amortization period	26 years	27 years
Asset valuation method	Market	same
Actuarial assumptions:		
Investment rate of return*	7.00%	same
Projected salary increases*	5.50%	same
*Includes inflation at	3.00%	same
Cost-of-living adjustments	Tier 1: 3.00% per year, compounded Tier 2: 2.00% per year, simple	same

STATEMENTS NO. 67 & 68 DISCLOSURE INFORMATION

Plan Membership	April 30, 2015
Inactive plan members or beneficiaries currently receiving benefits	39
Inactive plan members entitled to but not yet receiving benefits	3
Active plan members	<u>60</u>
Total	<u>102</u>

Net Pension Liability of the Village	
Total pension liability	62,861,669
Plan fiduciary net position	34,252,188
Village's net pension liability	28,609,481
Plan fiduciary net position as a percentage of the total pension liability	54.49%

Actuarial Assumptions	
Inflation	3.00%
Salary increases	5.50%
Investment rate of return	7.00% net of expenses

The projection of cash flows used to determine the discount rate assumed that plan member contributions will be made at the current contribution rate and that Village contributions will be made at rates equal to the difference between actuarially determined contribution rates and the member rate. Based on those assumptions, the pension plan's fiduciary net position was projected to be available to make all projected future benefit payments of current members. Therefore, the long-term expected rate of return on pension plan investments was applied to all periods of projected benefit payments to determine the total pension liability.

Based on those assumptions, the discount rate was determined in accordance with paragraphs 40-45. Therefore, the discount rate was applied to all periods of projected benefit payments to determine the total pension liability.

Sensitivity of the Net Pension Liability to Changes in the Discount Rate			
	1% Decrease	Current Discount Rate	1% Increase
	6.00%	7.00%	8.00%
Net Pension Liability	37,290,155	28,609,481	21,437,315

STATEMENTS NO. 67 & 68 DISCLOSURE INFORMATION (continued)

Schedule of Changes in the Village's Net Pension Liability and Related Ratios

Total Pension Liability	April 30, 2015
Service cost	1,397,914
Interest	3,918,413
Changes of benefit terms	0
Differences between expected and actual experience	(1,402,369)
Changes of assumptions	4,078,160
Benefit payments, including refunds of member contributions	2,215,557
Net change in total pension liability	5,776,561
Total pension liability - beginning	57,085,108
Total pension liability - ending	62,861,669
Plan Fiduciary Net Position	
Contributions - employer	2,018,731
Contributions - member	516,271
Net investment income	2,214,607
Benefit payments, including refunds of member contributions	2,215,557
Administrative expense	32,809
Other	0
Net change in plan fiduciary net position	2,501,244
Plan fiduciary net position - beginning	31,750,944
Plan fiduciary net position - ending	34,252,188
Village's net pension liability	28,609,481
Plan fiduciary net position as a percentage of the total pension liability	54.49%
Covered-employee payroll	5,313,697
Village's net pension liability as a percentage of covered-employee payroll	538.41%

STATEMENTS NO. 67 & 68 DISCLOSURE INFORMATION (continued)

Schedule of Village Contributions

	April 30, 2015
Actuarially determined contribution	1,890,507
Contributions in relation to the actuarially determined contribution	2,018,731
Contribution deficiency (Excess)	(128,224)
Covered-employee payroll	5,313,697
Contributions as a percentage of covered-employee payroll	37.99%

Notes to schedule

Valuation date April 30, 2015

Methods and assumptions used to
determine contribution rates:

Actuarial cost method	Entry Age Normal
Amortization method	Level Percentage of Pay
Remaining amortization period	26 years
Asset valuation method	Market Value
Inflation	3.00%
Salary increases	5.50%
Investment rate of return	7.00%
Retirement age	50-70
Mortality	RP 2000 CHBCA
Other	

Mortality rates were based on the RP-2000 CHBCA Mortality Table. The actuarial assumptions used in the April 30, 2015 valuation were based on the results of an actuarial experience study conducted by the Illinois Department of Insurance dated September 26, 2012.