



***Village of Clarendon Hills
Police Pension Fund***

*May 1, 2016
Actuarial Valuation Report*

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At the request of the plan sponsor, this report summarizes the Village of Clarendon Hills Police Pension Fund as of May 1, 2016. The purpose of this report is to communicate the following results of the valuation:

- Funded Status;
- Recommended Village Contribution;

This report has been prepared in accordance with the applicable Federal and State laws. Consequently, it may not be appropriate for other purposes. Please contact Nyhart prior to disclosing this report to any other party or relying on its content for any purpose other than that explained above. Failure to do so may result in misrepresentation or misinterpretation of this report.

The results in this report were prepared using information provided to us by other parties. The census information has been provided to us by the employer. Asset information has been provided to us by the administrator. We have reviewed the provided data for reasonableness when compared to prior information provided, but have not audited the data. Where relevant data may be missing, we have made assumptions we believe to be reasonable. We are not aware of any significant issues with and have relied on the data provided. Any errors in the data provided may result in a different result than those provided in this report. A summary of the data used in the valuation is included in this report.

The actuarial assumptions and methods were chosen by the employer. In our opinion, all actuarial assumptions and methods are individually reasonable and in combination represent our best estimate of anticipated experience of the plan. Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following:

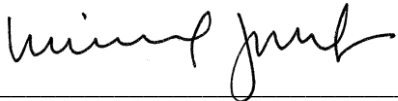
- plan experience differing from that anticipated by the economic or demographic assumptions;
- changes in economic or demographic assumptions;
- increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period); and
- changes in plan provisions or applicable law.

We did not perform an analysis of the potential range of future measurements due to the limited scope of our engagement. This report has been prepared in accordance with generally accepted actuarial principles and practice.

Neither Nyhart nor any of its employees have any relationship with the plan or its sponsor which could impair or appear to impair the objectivity of this report. To the extent that this report or any attachment concerns tax matters, it is not intended to be used and cannot be used by a taxpayer for the purpose of avoiding penalties that may be imposed by law.

The undersigned are compliant with the continuing education requirements of the Qualification Standards for Actuaries Issuing Statements of Actuarial Opinion in the United States and are available for any questions.

Nyhart



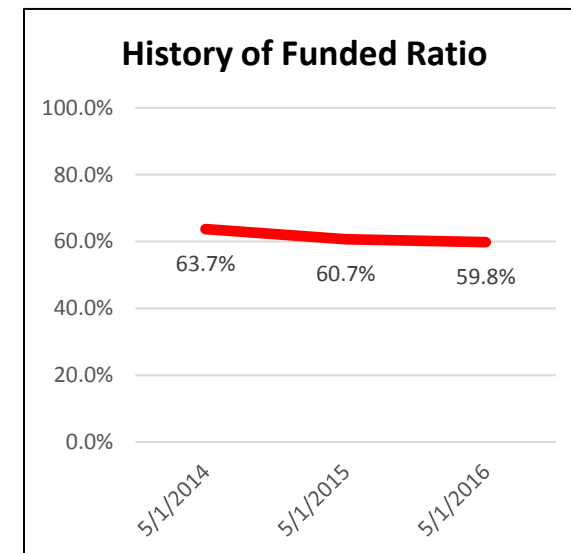
Michael Zurek, EA, FCA, MAAA

July 28, 2016
Date

Summary Results

The actuarial valuation's primary purpose is to produce a scorecard measure displaying the funding progress of the plan toward the ultimate goal of paying benefits at retirement. The accrued liability is based on the entry age normal level percentage of pay actuarial cost method.

	May 1, 2015	May 1, 2016
Funded Status Measures		
Accrued Liability	\$14,553,080	\$15,356,935
Actuarial Value of Assets	8,836,074	9,179,750
Unfunded Accrued Liability	\$5,717,006	\$6,177,185
Funded Percentage (AVA)	60.7%	59.8%
Funded percentage (MVA)	60.8%	56.7%
Cost Measures		
Recommended Total Village Contribution	\$565,457	\$578,669
Expected Employee Contributions	(129,933)	(116,680)
Recommended Net Village Contribution	\$435,524	\$461,989
- as a Percentage of Payroll	35.5%	40.6%
Asset Performance		
Market Value of Assets (MVA)	\$8,849,646	\$8,714,636
Actuarial Value of Assets (AVA)	\$8,836,074	\$9,179,750
Actuarial Value/Market Value	99.8%	105.3%
Participant Information		
Active Participants	14	13
Terminated Vested Participants	1	1
Retirees, Beneficiaries, and Disabled Participants	11	12
Total	26	26
Payroll	\$1,228,224	\$1,138,965



Changes since Prior Valuation and Key Notes

There have been no changes to the plan provisions since the last valuation.

The mortality assumption was changed in 2016 from the RP-2000 mortality table with blue collar adjustment to the RP-2000 mortality table with blue collar adjustment projected to 2016 using scale AA. The change resulted in an increase in benefit obligations and an increase in the recommended contribution.

Present Value of Future Benefits

The Present Value of Future Benefits represents the future benefits payable to the existing participants.

May 1, 2016

Present Value of Future Benefits

Active participants

Retirement	\$7,591,864
Disability	639,729
Death	175,950
Termination	336,330
Total active	<u>\$8,743,873</u>

Inactive participants

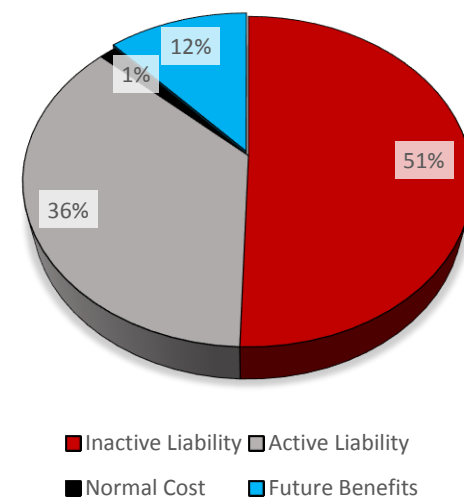
Retired participants	\$8,006,146
Beneficiaries	464,377
Disabled participants	430,354
Terminated vested participants	<u>27,078</u>
Total inactive	<u>\$8,927,955</u>

Total \$17,671,828

Present value of future payrolls \$11,178,380

Present value of future employee contributions \$1,107,066

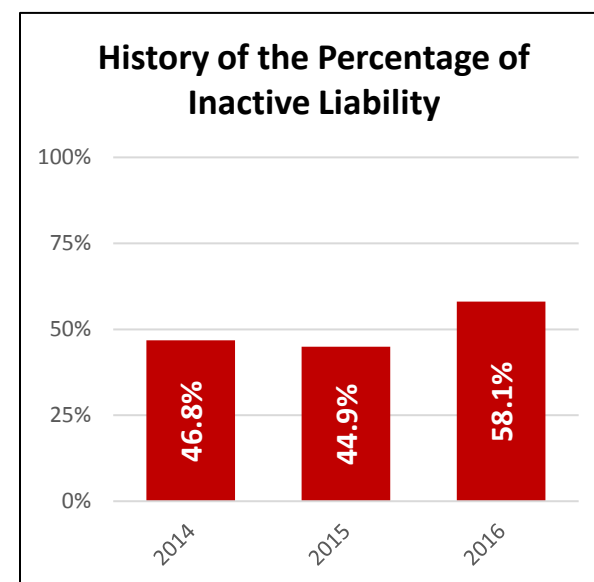
Breakdown of Present Value of Future Benefits



Accrued Liability

The Funding Liability measures the present value of benefits earned as of the valuation date, using a specified set of actuarial assumptions.

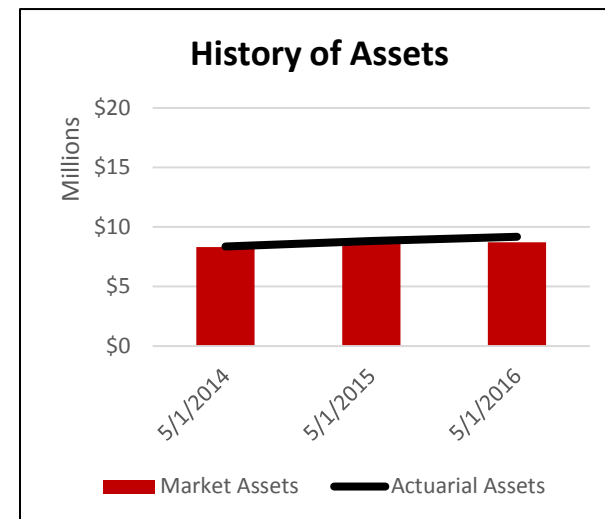
	May 1, 2016
Funding Liabilities	
Active participants	
Retirement	\$5,874,795
Disability	328,794
Death	67,190
Termination	158,201
Total Active	\$6,428,980
Inactive participants	
Retired participants	\$8,006,146
Beneficiaries	464,377
Disabled participants	430,354
Terminated vested participants	27,078
Total Inactive	\$8,927,955
Total	\$15,356,935
 Normal Cost	 \$252,602



Asset Information

The amount of assets backing the pension promise is the most significant driver of volatility and future costs within a pension plan. The investment performance of the assets directly offsets the ultimate cost.

	May 1, 2016
Market Value Reconciliation	
Market value of assets, beginning of prior year	\$8,849,646
Contributions	
Employer contributions	\$447,880
Member contributions	114,365
Total	\$562,245
Investment income	(44,756)
Benefit payments	(635,479)
Administrative expenses	(17,020)
Market value of assets, beginning of current year	\$8,714,636
Return on Market Value	(0.5)%
Actuarial value of assets	
Value at beginning of current year	\$9,179,750



Asset Information (continued)

Plan Assets are used to develop funded percentages and contribution requirements.

	May 1, 2016
1. Expected market value of assets	
(a) Market value of assets, beginning of prior year	\$8,849,646
(b) Contributions	562,245
(c) Benefit payments	(635,479)
(d) Expenses	0
(e) Expected return	594,879
(f) Expected market value of assets, beginning of current year	<u>\$9,371,291</u>
2. Market value of assets, beginning of current year	\$8,714,636
3. Actual return on market value (net of expenses)	(\$61,776)
4. Amount subject to phase in [(3)-(1e)]	(\$656,655)
5. Phase in of asset gain/(loss)	
(a) Current year [80% x (\$656,655)]	(\$525,324)
(b) First prior year [60% x \$8,199]	4,919
(c) Second prior year [40% x \$95,519]	38,208
(d) Third prior year [20% x \$85,415]	17,083
(e) Total phase-in	<u>(\$465,114)</u>
6. Actuarial value of assets, beginning of current year [(2)-(5e)]	\$9,179,750
7. Return on actuarial value of assets	4.7%

Reconciliation of Gain/Loss

May 1, 2016

Liability (gain)/loss

Actuarial liability, beginning of prior year	\$14,553,080
Normal cost	253,957
Benefit payments	(635,479)
Expected interest	<u>978,028</u>
Expected actuarial liability, beginning of current year	\$15,149,586
Actual actuarial liability, before changes	\$15,011,206
Liability (gain)/loss	(\$138,380)

Asset (gain)/loss

Actuarial value of assets, beginning of prior year	\$8,836,074
Contributions	562,245
Benefit payments and expenses	(635,479)
Expected return	<u>593,963</u>
Expected actuarial value of assets, beginning of current year	\$9,356,803
Actual actuarial value of assets, beginning of current year	\$9,179,750
Asset (gain)/loss	\$177,053

Total (gain)/loss

\$38,673

Development of Recommended Contribution

The minimum required contribution is the annual amount necessary to fund the plan according to funding policies and/or applicable laws.

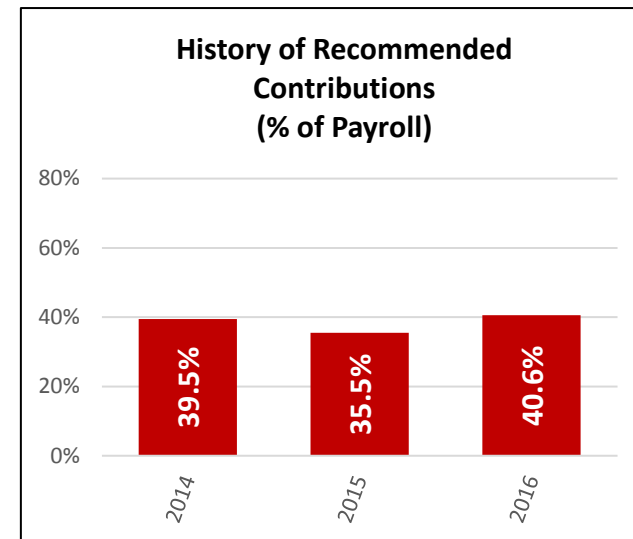
May 1, 2016

Funded Position

1. Entry age accrued liability	\$15,356,935
2. Actuarial value of assets	9,179,750
3. Unfunded actuarial accrued liability (UAAL)	\$6,177,185

Employer Contributions

1. Normal Cost	\$252,602
2. Administrative expenses	0
3. Amortization of UAAL	307,175
4. Applicable interest	18,892
5. Total recommended contribution	\$578,669
6. Expected employee contributions	116,680
7. Net employer recommended contribution (5 – 6)	\$461,989
8. Minimum contribution (Public Act 096-1495 Tax Levy Requirement)	\$405,501
9. Final recommended contribution [max (7,8)]	\$461,989
As a percentage of expected payroll	40.6%



Demographic Information

The foundation of a reliable actuarial report is the participant information provided by the plan sponsor. Monitoring trends in demographic information is crucial for long-term pension planning.

May 1, 2016

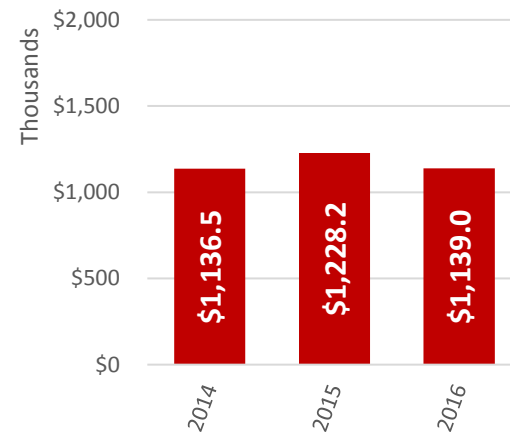
Participant Counts

Active Participants	13
Retired Participants	9
Beneficiaries	2
Disabled Participants	1
Terminated Vested Participants	1
Total Participants	26

Active Participant Demographics

Average Age	39.5
Average Service	14.1
Average Compensation	\$87,613
Covered Payroll	\$1,138,965

History of Covered Payroll



Demographic Information (continued)

	May 1, 2016
Retiree Statistics	
Average Age	67.7
Average Monthly Benefit	\$4,995
Beneficiary Statistics	
Average Age	77.8
Average Monthly Benefit	\$2,657
Disabled Participants Statistics	
Average Age	63.3
Average Monthly Benefit	\$2,808
Terminated Participants Statistics	
Average Age	44.1
Average Monthly Benefit	\$1,574

Participant Reconciliation

	Active	Terminated Vested	Disabled	Retired	Beneficiaries	Totals
Prior Year	14	1	1	8	2	26
Active						
To Retired	(1)	0	0	1	0	0
Terminated Nonvested (return of employee contributions)	(2)	0	0	0	0	(2)
Additions	2	0	0	0	0	2
Departures	0	0	0	0	0	0
Current Year	13	1	1	9	2	26

Active Participant Schedule

Active participant information grouped based on age and service.

Age Group	Years of Service										Total	Average Pay
	Under 1	1 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 to 34	35 to 39	40 & Up		
Under 25	1										1	62,910
25 to 29	1										1	62,910
30 to 34		2									2	74,552
35 to 39				2							2	87,840
40 to 44					3						3	95,771
45 to 49					1	1					2	94,703
50 to 54							2				2	105,821
55 to 59											0	
60 to 64											0	
65 to 69											0	
70 & up											0	
Total	2	2	0	2	4	1	2	0	0	0	13	87,613

Eligibility for Participation

Police Officers of the Village of Clarendon Hills

Accrual of Benefits

For employees hired prior to January 1, 2011, the normal retirement benefit is equal to 50% of the final salary plus 2.5% of any service over 20 years (with a maximum of 30) times the final salary. There is a minimum benefit of \$1,000 per month. The benefit is paid as a 100% joint and survivor benefit with the spouse, children under 18, or dependent parents of the participants as the survivor.

For employees hired after or on January 1, 2011, the normal retirement benefit is equal to 2.5% of the final average salary times benefit service (maximum 30 years.) The benefit is paid as a 66.67% joint and survivor benefit with the spouse, children under 18, or dependent parents of the participants as the survivor.

Benefits

Normal Retirement

Eligibility	For employees hired prior to January 1, 2011, the normal retirement date is the first day of the month on or after completion of 20 years of service and attainment of age 50. For employees hired after or on January 1, 2011, the normal retirement date is the first day of the month on or after completion of 10 years of service and attainment of age 55.
Benefit	Unreduced Accrued Benefit payable immediately.

Early Retirement

Eligibility	For employees hired prior to January 1, 2011 and terminating with less than 20 years of service For employees hired after or on January 1, 2011 who has attained age 50 and has 10 years of service.
Benefit	For those hired prior to January 1, 2011 the Accrued Benefit of 2.5% of final salary times service shall be paid at age 60. For those hired after or on January 1, 2011 the Accrued Benefit is reduced by 0.5% for each month prior to age 55

Termination

Eligibility	Participants terminating before 20 years of service.
Benefit	Refund of Contributions

Disability In The Line of Duty

Eligibility	For participants who become disabled in the line of duty.
Benefit	The greater of 65% of the final salary or the accrued benefit

Disability Not In The Line of Duty

Eligibility	For participants who become disabled outside of the line of duty.
Benefit	50% of the final salary

Death In the Line of Duty

Eligibility	For participants who die in the line of duty.
Benefit	The benefit is 100% of final salary paid to the survivor.

Death Not In the Line of Duty

Eligibility	For participants who die outside of the line of duty.
Benefit	For those hired before 1/1/2011 with greater than 20 years of service, a benefit of 100% of the accrued benefit is paid to the survivor. For those with more than 10 years of service, but less than 20 years of service, a benefit of 50% of the final salary is paid to the survivor. For those hired after 1/1/2011 a benefit of 100% of the accrued benefit is paid to the survivor.

Compensation

Final Salary is the salary attached to the rank held on the last day of service, or one year prior to the last day, whichever is greater.

Final Average Salary is the average monthly salary obtained by dividing the total salary of the police officer during the 96 consecutive months of service within the last 120 months of service in which the total salary was the highest by the number of months of service in that period. Salary will not exceed \$106,800 adjusted from January 1, 2011 with the lesser of 3% and 50% of the CPI on November 1.

Credited Service

For Vesting and Benefit Accrual purposes, pension service credit is based on elapsed time from hire.

Employee Contributions

9.91% of Compensation

COLA

Eligibility	All Participants
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Benefit	For employees hired prior to January 1, 2011 a compound COLA of 3% is granted each year after attainment of age 55 and 1 year of payments.
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For employees hired after or on January 1, 2011 a simple COLA of the lesser of 3% and 50% of the CPI on November 1 is granted each year after attainment of age 60 and 1 year of payments.

For disabled employees, a simple COLA is available after attainment of age 60 and 1 year of payments. For employees hired prior to January 1, 2011 the COLA is 3%. For employees hired after January 1, 2011, the COLA is the lesser of 3% and 50% of the CPI on November 1.

Plan Provisions Not Included

We are not aware of any plan provisions not included in the valuation

Adjustments Made for Subsequent Events

We are not aware of any event following the measurement date and prior to the date of this report that would materially impact the results of this report.

Except where otherwise indicated, the following assumptions were selected by the plan sponsor with the concurrence of the actuary. Prescribed assumptions are based on the requirements of the relevant law, the Internal Revenue Code, and applicable regulation. The actuary was not able to evaluate the prescribed assumptions for reasonableness for the purpose of the measurement.

Valuation Date	May 1, 2016												
Participant and Asset Information Collected as of	May 1, 2016												
Actuarial Cost Method (CO)	Entry Age Method												
Amortization Method (CO)	Closed level percentage of payroll amortization of 100% of the Unfunded Actuarial Accrued Liability using a 4.75% payroll growth assumption over the period ending on April 30, 2041 (25-year amortization in 2016)												
Asset Method	5 year smoothing of asset gains and losses												
Interest Rates (CO)	6.75%, net of investment and administrative expenses												
Inflation (FE)	2.50%												
Annual Pay Increases (FE)	4.75%												
Ad-hoc Cost-of-living Increases	3.0% (1.25% for those hired after 1/1/2011)												
Mortality Rates (FE)													
Healthy	RP-2000 Mortality Table with blue collar adjustment, projected to 2016 using Scale AA												
Disabled	RP-2000 Disabled Mortality Table, projected to 2016 using Scale AA												
	5% of deaths are assumed to be service related												
Retirement Rates (FE)	Recommended rates from the DOI experience study:												
	<table> <tr> <td><u>Age</u></td><td><u>Rate</u></td></tr> <tr> <td>50-54</td><td>20%</td></tr> <tr> <td>55-59</td><td>25%</td></tr> <tr> <td>60-62</td><td>33%</td></tr> <tr> <td>63-69</td><td>50%</td></tr> <tr> <td>70</td><td>100%</td></tr> </table>	<u>Age</u>	<u>Rate</u>	50-54	20%	55-59	25%	60-62	33%	63-69	50%	70	100%
<u>Age</u>	<u>Rate</u>												
50-54	20%												
55-59	25%												
60-62	33%												
63-69	50%												
70	100%												
	Tier 2 retirement rates are the same as the Tier 1 rates shown above, except there is a 0% probability of retirement prior to age 55												

Disability Rates (FE)

Recommended rates from the DOI experience study. Sample rates include:

<u>Age</u>	<u>Rate</u>
20	0.05%
30	0.22%
40	0.40%
50	0.95%

75% of disabilities are assumed to be in the line of duty

Termination Rates (FE)

Recommended rates from the DOI experience study. Sample rates include:

<u>Age</u>	<u>Rate</u>
20	10.00%
30	5.00%
40	2.00%
50	3.50%

Marital Status and Ages (FE)

80% of participants are assumed to be married with female spouses 3 years younger.

Expense Load

None. The assumed investment return is net of expenses.

Funding Policy (Recommended Contribution)

Equal to the normal cost plus and amortization of the unfunded liability to fund the plan to 100% as a level percentage of payroll by the end of the 2040 fiscal year using the Entry Age Normal cost method.

FE indicates an assumption representing an estimate of future experience

MD indicates an assumption representing observations of estimates inherent in market data

CO indicates as assumption representing a combination of an estimate of future experience and observations of market data

The actuarial report also shows the necessary items required for plan reporting and the any state requirements.

- ✓ Minimum contribution (Public Act 096-1495 Tax Levy Requirement)

Minimum Contribution (Public Act 096-1495 Tax Levy Requirement)

	May 1, 2016
1. Accrued liability using projected unit credit cost method	\$14,837,887
2. 90% of Accrued liability	\$13,354,098
3. Actuarial value of assets	9,179,750
4. Unfunded liability to be amortized [(2)-(3)]	4,174,348
5. Total normal cost using projected unit credit cost method	\$297,554
6. Administrative expenses	0
7. 25 year level pay amortization of (4)	207,579
8. Applicable interest	<u>17,048</u>
9. Minimum contribution (5 + 6 + 7 + 8)	\$522,181
10. Expected employee contributions	<u>\$116,680</u>
11. Net employer minimum contribution (9 – 10)	\$405,501

Actuarial Cost Method	Projected Unit Credit
Amortization Method	Closed level percentage of payroll amortization of 90% of Unfunded Actuarial Accrued Liability using a 4.75% payroll growth assumption over the period ending on April 30, 2041 (25 year amortization in 2016)
Asset Method	5 year smoothing of asset gains and losses
Interest Rates	6.75%, net of investment expenses