



Village of Clarendon Hills Firefighters' Pension Fund

January 1, 2020
Actuarial Valuation Report

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At the request of the plan sponsor, this report summarizes the Village of Clarendon Hills Firefighters' Pension Fund as of January 1, 2020 . The purpose of this report is to communicate the following results of the valuation:

- Funded Status;
- Recommended Village Contribution;
- Statutory Minimum 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



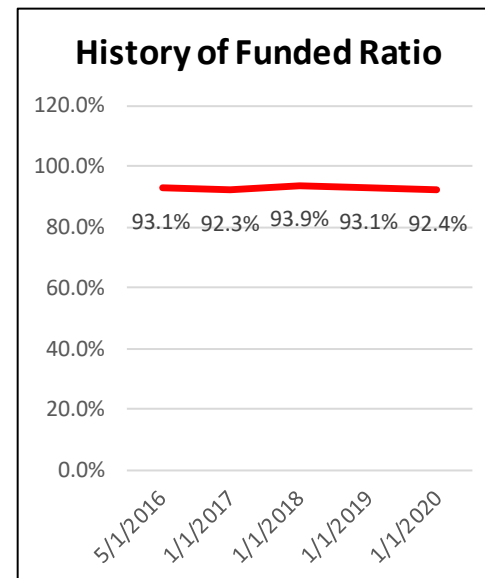
Scott Gavin, FSA, EA, MAAA

May 6, 2020
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 actuarial cost method.

| | January 1, 2019 | January 1, 2020 |
|--|-----------------|-----------------|
| Funded Status Measures | | |
| Accrued Liability | \$ 1,586,982 | \$ 1,709,528 |
| Actuarial Value of Assets | 1,477,425 | 1,579,672 |
| Unfunded Accrued Liability | \$ 109,557 | \$ 129,856 |
| Funded Percentage (AVA) | 93.1% | 92.4% |
| Funded percentage (MVA) | 87.8% | 91.0% |
| Cost Measures | | |
| Recommended Total Pension Contribution | \$ 61,636 | \$ 64,238 |
| Expected Employee Contributions | (13,072) | (13,333) |
| Recommended Net Village Contribution | \$ 48,564 | \$ 50,905 |
| - as a Percentage of Payroll | 36.0% | 37.0% |
| Asset Measures | | |
| Market Value of Assets (MVA) | \$ 1,392,749 | \$ 1,555,383 |
| Actuarial Value of Assets (AVA) | \$ 1,477,425 | \$ 1,579,672 |
| Actuarial Value/Market Value | 106.1% | 101.6% |
| Participant Information | | |
| Active Participants | 1 | 1 |
| Terminated Vested Participants | - | - |
| Retirees, Beneficiaries, and Disabled Participants | - | - |
| Total | 1 | 1 |
| Payroll | \$ 134,882 | \$ 137,579 |



Changes since Prior Valuation and Key Notes

Tier II benefit changes under Illinois Public Act 101-610 are effective January 1, 2020. There are no Tier II members participating in the plan, so there is no impact on benefit obligations or in the recommended contribution.

The healthy mortality assumption was changed from the RP-2014 mortality table with blue collar adjustment projected to 2019 using scale MP-2018, to the RP-2014 mortality table with blue collar adjustment projected generationally from 2013 using scale MP-2019. The disabled mortality table was changed to 115% of the healthy mortality table projected generationally from 2013 using scale MP-2019. The change resulted in an increase in benefit obligations and in the recommended contribution.

History of Valuation Results

| | 5/1/2016 | 1/1/2017 | 1/1/2018 | 1/1/2019 | 1/1/2020 |
|-------------------------------------|--------------|--------------|--------------|--------------|------------------|
| Plan Funding | | | | | |
| Accrued Liability | \$ 1,356,326 | \$ 1,426,217 | \$ 1,479,895 | \$ 1,586,982 | \$ 1,709,528 |
| Actuarial Value of Assets | 1,262,341 | 1,316,760 | 1,389,635 | 1,477,425 | 1,579,672 |
| Unfunded Accrued Liability | \$ 93,985 | \$ 109,457 | \$ 90,260 | \$ 109,557 | \$ 129,856 |
| Funded Percentage | 93.1% | 92.3% | 93.9% | 93.1% | 92.4% |
| Normal Cost (NC) | \$ 45,049 | \$ 46,378 | \$ 46,666 | \$ 48,530 | \$ 50,695 |
| NC as a Percent of Covered Payroll | 35.4% | 35.5% | 35.3% | 36.0% | 36.8% |
| | | | | | |
| Actual Contribution | \$ 48,259 | \$ 39,083 | \$ 46,825 | \$ 47,406 | To Be Determined |
| Recommended Contribution | \$ 38,393 | \$ 46,596 | \$ 46,761 | \$ 48,564 | \$ 50,905 |
| Recommended Contribution (% of Pay) | 30.2% | 35.7% | 35.4% | 36.0% | 37.0% |
| Interest Rate | 5.00% | 5.00% | 5.00% | 5.00% | 5.00% |
| Rate of Return | | | | | |
| Actuarial Value of Assets | 2.0% | 0.3% | 2.1% | 2.5% | 3.1% |
| Market Value of Assets | 2.2% | -0.3% | 3.7% | 0.3% | 7.6% |
| Demographic Information | | | | | |
| Active Participants | 1 | 1 | 1 | 1 | 1 |
| Retired Participants | - | - | - | - | - |
| Beneficiaries | - | - | - | - | - |
| Disabled Participants | - | - | - | - | - |
| Terminated Vested Participants | - | - | - | - | - |
| Total Participants | 1 | 1 | 1 | 1 | 1 |
| | | | | | |
| Covered Payroll | \$ 127,296 | \$ 130,604 | \$ 132,237 | \$ 134,882 | \$ 137,579 |
| Average Covered Pay | \$ 127,296 | \$ 130,604 | \$ 132,237 | \$ 134,882 | \$ 137,579 |

Identification of Risks

The results presented in this report are shown as single point values. However, these values are derived using assumptions about future markets and demographic behavior. If actual experience deviates from our assumptions, the actual results for the plan will consequently deviate from those presented in this report. Therefore, it is critical to understand the risks facing this pension plan. The following table shows the risks we believe are most relevant to the Village of Clarendon Hills Firefighters' Pension Fund. The risks are generally ordered with those we believe to have the most significance at the top. Also shown are possible methods by which a more detailed assessment of the risk can be performed.

Type of Risk

Method to Assess Risk

| | |
|-----------------------|---|
| Investment Return | Scenario Testing; Asset Liability Study |
| Participant Longevity | Projections and Contribution Strategy |
| Early Retirement | |
| Salary Growth | |
| | |

Plan Maturity Measures - January 1, 2020

Each pension plan has a distinct life-cycle. New plans promise future benefits to active employees and then accumulate assets to pre-fund those benefits. As the plan matures, benefits are paid and the pre-funded assets begin to decumulate until ultimately, the plan pays out all benefits. A plan's maturity has a dramatic influence on how risks should be viewed. The following maturity measures illustrate where the Village of Clarendon Hills Firefighters' Pension Fund falls in its life-cycle.

Duration of Liabilities: 12.8

Duration is the most common measure of plan maturity. It is defined as the sensitivity of the liabilities to a change in the interest rate assumption. The metric also approximates the weighted average length of time, in years, until benefits are expected to be paid. A plan with high duration is, by definition, more sensitive to changes in interest rates. A plan with low duration is more susceptible to risk if asset performance deviates from expectations as there would be less time to make up for market losses in adverse market environments while more favorable environments could result in trapped surplus from gains. Conversely, high duration plans can often take on more risk when investing, and low duration plans are less sensitive to interest rate fluctuations.

Demographic Distribution - Ratio of Actively Accruing Participants to All Participants: 100.0%

A plan with a high ratio is more sensitive to fluctuations in salary (if a salary-based plan) and statutory changes. A plan with a low ratio is at higher risk from demographic experience. Such a plan should pay close attention to valuation assumptions as there will be less opportunity to realize future offsetting gains or losses when current experience deviates from assumptions. Plans with a low ratio also have limited opportunities to make alterations to plan design to affect future funded status.

Asset Leverage - Ratio of Payroll for Plan Participants to Market Value of Assets: 8.8%

Younger plans typically have a large payroll base from which to draw in order to fund the plan while mature plans often have a large pool of assets dedicated to providing benefits to a population primarily consisting of members no longer on payroll. Plans with low asset leverage will find it more difficult to address underfunding, as the contributions needed to make up the deficit will represent a higher percentage of payroll than for a plan with high asset leverage.

Benefit Payment Percentage - Ratio of Annual Benefit Payments to Market Value of Assets: 0.0%

As a plan enters its decumulation phase, a larger percentage of the pre-funded assets are paid out each year to retirees. A high percentage is not cause for alarm as long as the plan is nearly fully funded. However, such a plan is more sensitive to negative asset performance, especially if cash contributions are not an option to make up for losses.

Assets and Liabilities

Present Value of Future Benefits

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

January 1, 2020

Present Value of Future Benefits

Active Participants

| | |
|--------------|--------------|
| Retirement | \$ 1,725,582 |
| Disability | 48,875 |
| Death | 27,635 |
| Termination | - |
| Total Active | \$ 1,802,092 |

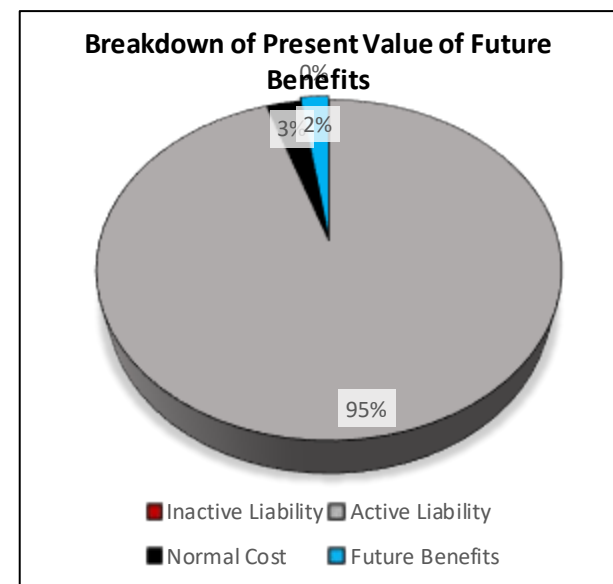
Inactive participants

| | |
|--------------------------------|------|
| Retired Participants | \$ - |
| Beneficiaries | - |
| Disabled Participants | - |
| Terminated Vested Participants | - |
| Total Inactive | \$ - |

Total \$ 1,802,092

Present Value of Future Payrolls \$ 251,204

Present Value of Future Employee Contributions \$ 23,751



Accrued Liability

The Funding Liability measures the present value of benefits earned as of the valuation date, using the actuarial assumptions described in the assumption section of this report and the Entry Age Normal actuarial cost method.

January 1, 2020

Funding Liabilities

Active Participants

| | |
|--------------|--------------|
| Retirement | \$ 1,658,730 |
| Disability | 28,627 |
| Death | 22,171 |
| Termination | - |
| Total Active | \$ 1,709,528 |

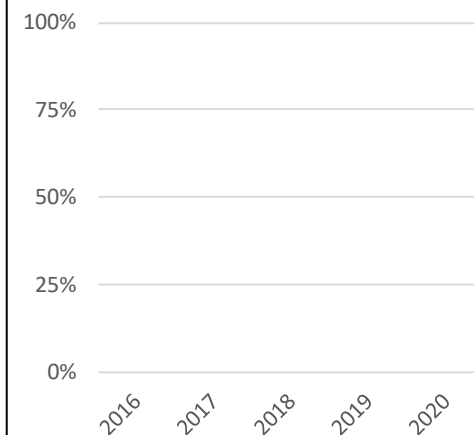
Inactive Participants

| | |
|--------------------------------|------|
| Retired Participants | \$ - |
| Beneficiaries | - |
| Disabled Participants | - |
| Terminated Vested Participants | - |
| Total Inactive | \$ - |

Total \$ 1,709,528

Normal Cost \$ 50,695

History of the Percentage of Inactive Liability



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.

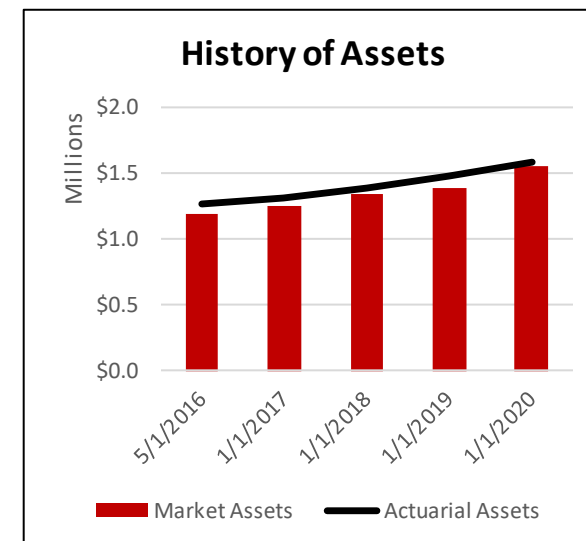
January 1, 2020

Market Value Reconciliation

| | |
|---|--------------|
| Market Value of Assets, Beginning of Prior Year | \$ 1,392,749 |
| Contributions | |
| Employer Contributions | \$ 47,406 |
| Member Contributions | 12,605 |
| Total | \$ 60,011 |
| Investment Income | 107,485 |
| Benefit Payments | - |
| Administrative Expenses | (4,862) |
| Market Value of Assets, Beginning of Current Year | \$ 1,555,383 |
| Return on Market Value | 7.6% |

Actuarial value of assets

| | |
|------------------------------------|--------------|
| Value at Beginning of Current Year | \$ 1,579,672 |
|------------------------------------|--------------|



Asset Information (continued)

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

January 1, 2020

| | |
|--|---------------------|
| 1. Expected Market Value of Assets | |
| (a) Market Value of Assets, Beginning of Prior Year | \$ 1,392,749 |
| (b) Contributions | 60,011 |
| (c) Benefit Payments | - |
| (d) Administrative Expenses | (4,862) |
| (e) Expected Return | 71,016 |
| (f) Expected Market Value of Assets, Beginning of Current Year | <u>\$ 1,518,914</u> |
| 2. Market Value of Assets, Beginning of Current Year | \$ 1,555,383 |
| 3. Actual Return on Market Value | \$ 107,485 |
| 4. Amount Subject to Phase-in [(3)-(1e)] | \$ 36,469 |
| 5. Phase-in of Asset Gain/(Loss) | |
| (a) Current Year [80% x \$ 36,469] | \$ 29,175 |
| (b) First Prior Year [60% x \$ (63,850)] | (38,310) |
| (c) Second Prior Year [40% x \$ (15,831)] | (6,332) |
| (d) Third Prior Year [20% x \$ (44,111)] | (8,822) |
| (e) Total Phase-in | <u>\$ (24,289)</u> |
| 6. Actuarial Value of Assets, Beginning of Current Year [(2)-(5e)] | \$ 1,579,672 |
| 7. Return on Actuarial Value of Assets | 3.1% |

Reconciliation of Gain/Loss

January 1, 2020

Liability (Gain)/Loss

| | |
|---|--------------|
| Actuarial Liability, Beginning of Prior Year | \$ 1,586,982 |
| Normal Cost | 48,530 |
| Benefit Payments | - |
| Expected Interest | 81,776 |
| Expected Actuarial Liability, Beginning of Current Year | \$ 1,717,288 |
| Actual Actuarial Liability, Before Changes | \$ 1,685,830 |
| Liability (Gain)/Loss | \$ (31,458) |

Asset (Gain)/Loss

| | |
|---|--------------|
| Actuarial Value of Assets, Beginning of Prior Year | \$ 1,477,425 |
| Contributions | 60,011 |
| Benefit Payments and Administrative Expenses | (4,862) |
| Expected Return | 75,250 |
| Expected Actuarial Value of Assets, Beginning of Current Year | \$ 1,607,824 |
| Actual Actuarial Value of Assets, Beginning of Current Year | \$ 1,579,672 |
| Asset (Gain)/Loss | \$ 28,152 |

Total (Gain)/Loss \$ (3,306)

Development of Recommended Contribution

The recommended contribution is the annual amount needed to fund the plan to 100% by the end of the 2040 fiscal year as a level percentage of payroll, using the Entry Age Normal actuarial cost method. The recommended contribution is subject to the State statutory minimum, which is the annual amount needed to fund the plan to 90% by the end of the 2040 fiscal year as a level percentage of payroll, using the Projected Unit Credit actuarial cost method.

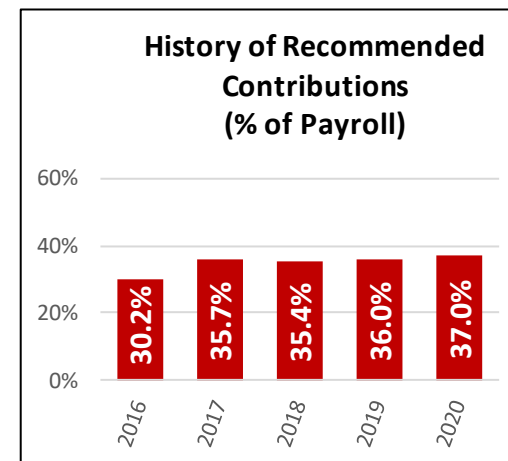
January 1, 2020

Funded Position

| | |
|--|--------------|
| 1. Entry Age Normal Accrued Liability | \$ 1,709,528 |
| 2. 100% of Entry Age Normal Accrued Liability | \$ 1,709,528 |
| 3. Actuarial Value of Assets | 1,579,672 |
| 4. Unfunded Actuarial Accrued Liability (UAAL) (2 – 3) | \$ 129,856 |

Recommended Contribution

| | |
|--|-----------|
| 1. Normal Cost | \$ 50,695 |
| 2. Administrative Expenses | 4,862 |
| 3. Amortization of UAAL | 7,114 |
| 4. Applicable Interest | 1,567 |
| 5. Total Recommended Contribution | \$ 64,238 |
| 6. Expected Employee Contributions | 13,333 |
| 7. Net Recommended Village Contribution (5 – 6) | \$ 50,905 |
| 8. Minimum Contribution (Public Act 096-1495 Tax Levy Requirement) | \$ 15,577 |
| 9. Final Recommended Contribution [max (7,8)] | \$ 50,905 |
| As a Percentage of Expected Payroll | 37.0% |



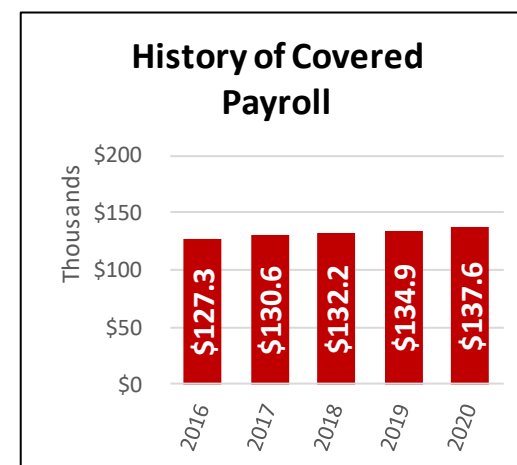
The Plan's Normal Cost plus interest on the Unfunded Actuarial Accrued Liability is \$ 44,941 .

A contribution greater than the Normal Cost plus interest on the Unfunded Actuarial Accrued Liability will reduce the Unfunded Actuarial Accrued Liability, if all other assumptions are met. A contribution less than the Normal Cost plus interest on the Unfunded Actuarial Accrued Liability will increase the Unfunded Actuarial Accrued Liability, if all other assumptions are met. Consider making a contribution greater than the Normal Cost plus interest on the Unfunded Actuarial Accrued Liability in order to pay down the Plan's shortfall more rapidly if that amount is greater than your funding policy contribution.

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.

| | January 1, 2019 | January 1, 2020 |
|--|-----------------|-----------------|
| Participant Counts | | |
| Active Participants | 1 | 1 |
| Retired Participants | - | - |
| Beneficiaries | - | - |
| Disabled Participants | - | - |
| Terminated Vested Participants | - | - |
| Total Participants | 1 | 1 |
| Active Participant Demographics | | |
| Average Age | 63.7 | 64.7 |
| Average Service | 32.7 | 33.7 |
| Average Compensation | \$ 134,882 | \$ 137,579 |
| Covered Payroll | \$ 134,882 | \$ 137,579 |



Demographic Information (continued)

| | January 1, 2019 | January 1, 2020 |
|---|-----------------|-----------------|
| Retiree Statistics | | |
| Average Age | - | - |
| Average Monthly Pension Benefit | \$ - | \$ - |
| Beneficiary Statistics | | |
| Average Age | - | - |
| Average Monthly Pension Benefit | \$ - | \$ - |
| Disabled Participants Statistics | | |
| Average Age | - | - |
| Average Monthly Pension Benefit | \$ - | \$ - |
| Terminated Participants Statistics | | |
| Average Age | - | - |
| Average Monthly Pension Benefit* | \$ - | \$ - |

* Average monthly pension benefit does not include participants eligible for a return of contributions only.

Participant Reconciliation

| | Active | Terminated Vested | Disabled | Retired | Beneficiaries | Totals |
|---|--------|-------------------|----------|---------|---------------|--------|
| Prior Year | 1 | 0 | 0 | 0 | 0 | 1 |
| Active | | | | | | |
| To Retired | 0 | 0 | 0 | 0 | 0 | 0 |
| To Disabled | 0 | 0 | 0 | 0 | 0 | 0 |
| To Terminated Vested | 0 | 0 | 0 | 0 | 0 | 0 |
| Terminated Nonvested (return of employee contributions) | 0 | 0 | 0 | 0 | 0 | 0 |
| Terminated Vested | | | | | | |
| Return of employee contributions | 0 | 0 | 0 | 0 | 0 | 0 |
| Retired | | | | | | |
| To Death with Beneficiary | 0 | 0 | 0 | 0 | 0 | 0 |
| To Death without Beneficiary | 0 | 0 | 0 | 0 | 0 | 0 |
| Beneficiaries | | | | | | |
| To Death | 0 | 0 | 0 | 0 | 0 | 0 |
| Expired Child Coverage | 0 | 0 | 0 | 0 | 0 | 0 |
| Additions | 0 | 0 | 0 | 0 | 0 | 0 |
| Departures | 0 | 0 | 0 | 0 | 0 | 0 |
| Current Year | 1 | 0 | 0 | 0 | 0 | 1 |

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 | | | | | | | | | | | | |
| 25 to 29 | | | | | | | | | | | | |
| 30 to 34 | | | | | | | | | | | | |
| 35 to 39 | | | | | | | | | | | | |
| 40 to 44 | | | | | | | | | | | | |
| 45 to 49 | | | | | | | | | | | | |
| 50 to 54 | | | | | | | | | | | | |
| 55 to 59 | | | | | | | | | | | | |
| 60 to 64 | | | | | | | | 1 | | | 1 | 137,579 |
| 65 to 69 | | | | | | | | | | | | |
| 70 & up | | | | | | | | | | | | |
| Total | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 137,579 |

Eligibility for Participation

Firefighters 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 a reduced Accrued Benefit shall be paid at age 60 based on the schedule below. For those hired after or on January 1, 2011 the Accrued Benefit is reduced by 0.5% for each month prior to age 55. |

| Benefit Service | Accrual Percentage | Benefit Service | Accrual Percentage |
|-----------------|--------------------|-----------------|--------------------|
| 10 | 15.0% | 15 | 30.0% |
| 11 | 17.6% | 16 | 33.6% |
| 12 | 20.4% | 17 | 37.4% |
| 13 | 23.4% | 18 | 41.4% |
| 14 | 26.6% | 19 | 45.6% |

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 54% of the final salary is paid to the survivor. For those hired after 1/1/2011, a benefit equal to the greater of 54% of Final Salary and 66-2/3% 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 firefighter during the 48 consecutive months of service within the last 60 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% (100% effective January 1, 2020) 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

9.455% of Compensation

COLA

Eligibility All Participants

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.

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 and applicable regulations. The actuary was not able to evaluate the prescribed assumptions for reasonableness for the purpose of the measurement.

| | |
|--|--|
| Valuation Date | January 1, 2020 |
| Participant and Asset Information Collected as of | January 1, 2020 |
| Actuarial Cost Method (CO) | Entry Age Normal Cost Method |
| Amortization Method – Recommended Contribution (CO) | Closed level percentage of payroll amortization of 100% of the Unfunded Actuarial Accrued Liability using a 3.50% payroll growth assumption over the period ending on December 31, 2040 (21-year amortization in 2020) |
| Asset Method | 5-year smoothing of asset gains and losses |
| Interest Rates (CO) | 5.00%, net of investment expenses |
| Inflation (FE) | 2.50% |
| Annual Pay Increases (FE) | 3.50% |
| Ad-hoc Cost-of-living Increases | 3.0% (1.25% for those hired after 1/1/2011) |
| Mortality Rates (FE) | |
| Healthy | RP-2014 Mortality Table with blue collar adjustment, projected generationally from 2013 using scale MP-2019 |
| Disabled | 115% of the Healthy mortality table, projected generationally from 2013 using scale MP-2019 |
| | 10% of deaths are assumed to be in the line of duty |

Retirement Rates (FE)

| <u>Age</u> | <u>Rate</u> |
|------------|-------------|
| 50-64 | 5% |
| 65-69 | 50% |
| 70+ | 100% |

Disability Rates (FE)

Recommended rates from the 2017 IDOI experience study. Sample rates include:

| <u>Age</u> | <u>Rate</u> |
|------------|-------------|
| 20 | 0.010% |
| 30 | 0.068% |
| 40 | 0.420% |
| 50 | 0.900% |

80% of disabilities are assumed to be in the line of duty

Termination Rates (FE)

Recommended rates from the 2017 IDOI experience study. Sample rates include:

| <u>Age</u> | <u>Rate</u> |
|------------|-------------|
| 20 | 5.80% |
| 30 | 3.50% |
| 40 | 1.10% |
| 50 | 1.00% |

Marital Status and Ages (FE)

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

Expense Load

Equal to the administrative expenses paid in the prior year.

Funding Policy

Equal to the normal cost plus an 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)

January 1, 2020

| | |
|--|------------------|
| 1. Accrued liability using projected unit credit cost method | \$ 1,761,605 |
| 2. 90% of Accrued liability | \$ 1,585,445 |
| 3. Actuarial value of assets | <u>1,579,672</u> |
| 4. Unfunded liability to be amortized [(2)-(3)] | \$ 5,773 |
| 5. Total normal cost using projected unit credit cost method | \$ 23,027 |
| 6. Administrative expenses | 4,862 |
| 7. 21-year level pay amortization of (4) | 316 |
| 8. Applicable interest | <u>705</u> |
| 9. Minimum contribution (5 + 6 + 7 + 8) | \$ 28,910 |
| 10. Expected employee contributions | <u>13,333</u> |
| 11. Net employer minimum contribution (9 – 10) | \$ 15,577 |

Actuarial Cost Method

Projected Unit Credit

Amortization Method

Closed level percentage of payroll amortization of 90% of Unfunded Actuarial Accrued Liability using a 3.50% payroll growth assumption over the period ending on December 31, 2040 (21-year amortization in 2020)

Asset Method

5-year smoothing of asset gains and losses

Interest Rate

5.00%, net of investment expenses