

Actuarial Funding Report

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ORLAND PARK POLICE  
PENSION FUND

Actuarial Valuation  
as of January 1, 2020

For the Contribution Year January 1, 2020 to December 31, 2020

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***LAUTERBACH & AMEN, LLP***

# Actuarial Valuation – Funding Recommendation

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## Lauterbach & Amen, LLP

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CERTIFIED PUBLIC ACCOUNTANTS

### ORLAND PARK POLICE PENSION FUND

**Contribution Year Ending: December 31, 2020**

Actuarial Valuation Date: January 1, 2020

Utilizing Data as of December 31, 2019

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**Submitted by:**

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August 19, 2020

***LAUTERBACH & AMEN, LLP***



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## ACTUARIAL CERTIFICATION

This report documents the results of the Actuarial Valuation for the Orland Park Police Pension Fund. The information was prepared for use by the Orland Park Police Pension Fund and the Village of Orland Park, Illinois for determining the Recommended Contributions, under the selected Funding Policy and Statutory Minimum guidelines, for the Contribution Year January 1, 2020 to December 31, 2020. It is not intended or suitable for other purposes. Determinations for purposes other than the Employer's Actuarial Recommended Contribution may be significantly different from the results herein.

The results in this report are based on the census data and financial information submitted by the Orland Park Police Pension Fund, and may include results from the prior Actuary. We did not prepare the Actuarial Valuations for the years prior to January 1, 2019. Those valuations were prepared by the prior Actuary whose reports have been furnished to us, and our disclosures are based on those reports. An audit of the prior Actuary's results was not performed, but high-level reviews were completed for general reasonableness, as appropriate, based on the purpose of this valuation. The accuracy of the results is dependent on the precision and completeness of the underlying information.

In addition, the results of the Actuarial Valuation involve certain risks and uncertainty as they are based on future assumptions, market conditions, and events that may never materialize as assumed. For this reason, certain assumptions and future results may be materially different than those presented in this report. See the *Management Summary* section of this report for a more detailed discussion of the Defined Benefit Plan Risks, as well as the limitations of this Actuarial Valuation on assessing those risks. We are not aware of any known events subsequent to the Actuarial Valuation Date, which are not reflected in this report but should be valued, that may materially impact the results.

The valuation results summarized in this report involve actuarial calculations that require assumptions about future events. The Orland Park Police Pension Fund selected certain assumptions, while others were the result of guidance and/or judgment from the Plan's Actuary or Advisors. We believe that the assumptions used in this valuation are reasonable and appropriate for the purposes for which they have been used. The selected assumptions represent our best estimate of the anticipated long-term experience of the Plan, and meet the guidelines set forth in the Actuarial Standards of Practice.





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To the best of our knowledge, all calculations are in accordance with the applicable funding requirements, and the procedures followed and presentation of results conform to generally accepted actuarial principles and practices as prescribed by the Actuarial Standards Board. The undersigned consultants of Lauterbach & Amen, LLP, with actuarial credentials, meet the Qualification Standards of the American Academy of Actuaries to render this Actuarial Certification. There is no relationship between the Orland Park Police Pension Fund and Lauterbach & Amen, LLP that impairs our objectivity.

Respectfully Submitted,  
LAUTERBACH & AMEN, LLP

*Todd A. Schroeder*

Todd A. Schroeder, ASA, FCA, EA, MAAA

Robert L. Rietz, Jr., FCA, EA, MAAA





## MANAGEMENT SUMMARY

Recommended Contribution  
Funded Status  
Management Summary – Comments and Analysis  
Actuarial Recommended Contribution – Reconciliation

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## *MANAGEMENT SUMMARY*

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### RECOMMENDED CONTRIBUTION

	Prior Valuation	Current Valuation
Recommended Contribution	\$3,961,509	\$4,695,866
Expected Payroll	\$10,001,651	\$10,231,556
Recommended Contribution as a Percent of Expected Payroll	39.61%	45.90%

*The Recommended  
Contribution has  
Increased by  
\$734,357 from the  
Prior Valuation.*

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### FUNDED STATUS

	Prior Valuation	Current Valuation
Normal Cost	\$2,210,540	\$2,383,821
Market Value of Assets	\$84,572,549	\$97,939,542
Actuarial Value of Assets	\$90,557,639	\$94,845,868
Actuarial Accrued Liability	\$127,537,982	\$138,194,663
Unfunded Actuarial Accrued Liability	\$36,980,343	\$43,348,795
Percent Funded		
Actuarial Value of Assets	71.00%	68.63%
Market Value of Assets	66.31%	70.87%

*The Percent  
Funded has  
Decreased by  
2.37% on an  
Actuarial Value of  
Assets Basis.*



# MANAGEMENT SUMMARY

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## MANAGEMENT SUMMARY – COMMENTS AND ANALYSIS

### Contribution Results

The Recommended Contribution is based on the selected Funding Policy and methods that are outlined in the *Actuarial Funding Policies* section of this report.

The Illinois State Statutes for Pension Funds contain parameters that are used to determine the Statutory Minimum Contribution to a public Pension Fund. Those parameters and the resulting Statutory Minimum Contribution are found in the *Illinois Statutory Minimum Contribution* section of this report.

“Contribution Risk” is defined by the Actuarial Standards of Practice as the potential for actual future contributions to deviate from expected future contributions. For example, when actual contributions are not made in accordance to the Plan’s Funding Policy, or when future experience deviates materially from assumed. While it is essential for the Actuary and Plan Sponsor to collaborate on implementing a sound and financially feasible Funding Policy, it is important to note that the Actuary is not required, and is not in the position to, evaluate the ability or willingness of the Plan Sponsor to make the Recommended Contribution under the selected Funding Policy.

As a result, while Contribution Risk may be a significant source of risk for the Plan, this Actuarial Valuation makes no attempt to assess the impact of future contributions falling short of those recommended under the selected Funding Policy. Notwithstanding the above, see the *Actuarial Recommended Contribution – Reconciliation* section of this report for the impact on the current Recommended Contribution of any contribution shortfalls or excesses from the prior year.

### Defined Benefit Plan Risks

#### *Asset Growth:*

Pension funding involves preparing Fund assets to pay for benefits when Members retire. During their working careers, assets grow with contributions and investment earnings; and then, the Pension Fund distributes assets in retirement. Based on the Plan’s current mix of Members and Funded Status, the Plan should experience positive asset growth, on average, if the Recommended Contributions are made and expected investment earnings come in. In the current year, the Fund asset growth was positive by approximately \$13.0 million.

Asset growth is important in the long-term. Long-term cash flow out of the Pension Fund is primarily benefit payments, and expenses are a smaller portion. The Plan should monitor the impact of expected benefit payments on future asset growth. In the next 5 years, benefit payments are anticipated to increase 45-50%, or approximately \$2.4 million. In the next 10 years, the expected increase in benefit payments is 90-95%, or approximately \$4.7 million. The estimated increases in benefit payments are based on the benefits paid to inactive Members during the current year, and does not include any refunds of Member Contributions.



## *MANAGEMENT SUMMARY*

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Furthermore, Plans' with a large number of inactive Members have an increased "Longevity Risk". Longevity Risk is the possibility that inactive Members may live longer than projected by the Plan's mortality assumption. As shown in the previous paragraph, benefit payments are expected to increase over the next 5-year and 10-year horizons. The projected increases assume that current inactive Members pass away according to the Plan's mortality assumption. To the extent that current inactive Members live longer than expected, the future 5-year and 10-year benefit projections may be larger than the amounts disclosed in the previous paragraph. Higher levels of benefit payments, payable for a longer period of time, may cause a significant strain to the Plan's cash flow, future Recommended Contributions, and may lead to Plan insolvency.

### *Unfunded Liability:*

Unfunded Liability represents the financial shortfall of the Actuarial Value of Assets compared to the Actuarial Accrued Liability. To the extent that Unfunded Liability exists, the Plan is losing potential investment earnings due to the financial shortfall. Contributions towards Unfunded Liability pay for the lost investment earnings, as well as the outstanding unfunded amount. If payments towards Unfunded Liability are not made, the Unfunded Liability will grow.

In the early 1990s, many Pension Funds in Illinois adopted an increasing payment towards Unfunded Liability due to a change in legislation. The initial payment decreased, and future payments are anticipated to increase annually after that. In many situations, payments early on were less than the interest on Unfunded Liability, which means that Unfunded Liability increased even though contributions were made at the recommended level.

The current Recommended Contribution includes a payment towards Unfunded Liability that is approximately \$310,000 greater than the interest on Unfunded Liability. All else being equal, and contributions being made, Unfunded Liability is expected to decrease. The Employer and Fund should anticipate that improvement in the current Percent Funded will be mitigated in the short-term. The Employer and Fund should understand this impact as we progress forward to manage expectations.

### *Actuarial Value of Assets:*

The Pension Fund smooths asset returns that vary from expectations over a 5-year period. The intention over time is that asset returns for purposes of funding recommendations are a combination of several years. The impact is intended to smooth out the volatility of Recommended Contributions over time, but not necessarily increase or decrease the level of contributions over the long-term.

When asset returns are smoothed, there are always gains or losses on the Market Value of Assets that are going to be deferred for current funding purposes, and recognized in future years. Currently, the Pension Fund is deferring approximately \$3.1 million in gains on the Market Value of Assets. These are asset gains that will be recognized in upcoming periods, independent of the future performance of the Market Value of Assets.



## MANAGEMENT SUMMARY

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### *Cash Flow Risk:*

Assets, liabilities, and Funded Status are good metrics to monitor over time to assess the progress of the Funding Policy. However, these metrics may provide limited forward-looking insights. Specifically, the maturity of a Pension Fund can pose certain risks that often cannot be assessed with a point-in-time metric such as Percent Funded.

For example, two different Pension Funds could have the same Percent Funded, but have completely different risk profiles. One Fund might mostly cover active Members with little to no Members in pay status, whereas a second Fund might mostly cover inactive Members with a significant level of annual benefit payments. The latter Fund has a greater “Cash Flow Risk”, i.e. a more significant chance that negative cash flows could lead to a deteriorating, rather than improving, Percent Funded over time.

It is important to note that, in general, positive net cash flows are good, but also need to be sufficient to cover the growth in the liabilities (i.e. the Normal Cost as well as interest on the Actuarial Accrued Liability). Typically, when cash flows are assumed to be insufficient to cover the growth in liabilities, the Percent Funded will decline, while future Recommended Contributions will increase.

### *Benefit Payment Risk:*

Ideally, Plans’ in a sound financial position will have the ratio of annual benefits payments to the Market Value of Assets to be less than the Expected Rate of Return on Investments assumption (i.e. 6.75%). Theoretically, in this case it can be considered that investment returns will fully cover the annual benefit payments, and therefore, all Employer and Member Contributions made to the Fund will be used to pay for future benefit accruals and pay down the existing Unfunded Liability. To the extent that the ratio of the annual benefit payments to the Market Value of Assets increases to above the Expected Rate of Return on Investments assumption, the Plan may experience some additional risks, such as the need to keep assets in more liquid investments, inability to pay down Unfunded Liability, and may lead to Plan insolvency.

As of the Valuation Date, the Orland Park Police Pension Fund has a ratio of benefit payments to the Market Value of Assets of 5.12%. In this case, the Plan is currently in a sound financial position and has a reduced amount of Benefit Payment Risk and Cash Flow Risk. It would be expected that adherence to the current Funding Policy would lead to an increasing Percent Funded.

### Fund Assets

The results in this report are based on the assets held in the Pension Fund. Assets consist of funds held for investment and for benefit payments as of the Actuarial Valuation Date. In addition, assets may be adjusted for other events representing dollars that are reasonably expected to be paid out from the Pension Fund or deposited into the Pension Fund after the Actuarial Valuation Date as well.



## MANAGEMENT SUMMARY

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The current Fund assets are audited.

The Actuarial Value of Assets under the Funding Policy is equal to the Market Value of Assets, with unexpected gains and losses smoothed over 5 years. More detail on the Actuarial Value of Assets can be found in the *Actuarial Funding Policies* section of this report.

*The Fund  
Assets Used in  
this Report  
are Audited.*



## *MANAGEMENT SUMMARY*

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### Demographic Data

Demographic factors can change from year to year within the Pension Fund. Changes in this category include hiring new Members, Members retiring or becoming disabled, inactive Members passing away, and other changes. Demographic changes can cause an actuarial gain (contribution that is less than expected compared to the prior year) or an actuarial loss (contribution that is greater than expected compared to the prior year).

Demographic gains and losses occur when the assumptions over the one-year period for Member changes do not meet our long-term expectation. For example, if no Members become disabled during the year, we would expect a liability gain. If more Members become disabled than anticipated during the year, we would expect a liability loss. Generally, we expect short-term fluctuations in demographic experience to create gains or losses of 1%-3% of the Actuarial Accrued Liability in any given year, but to balance out in the long-term.

“Demographic Risk” occurs when Plan demographic experience differs significantly from expected. Similar to Longevity Risk discussed previously, additional risk is created when demographic experience differs from the assumed rates of disability, retirement, or termination. Under the chosen assumptions, actuarial gains and/or losses will always occur, as the assumptions will never be exactly realized. However, the magnitude of the gain and/or loss and its influence on the Recommended Contribution largely depends on the size of the Plan.

Based on the number of active Members in the Plan, the Recommended Contribution has a low risk of having a significant increase due to demographic experience. For example, 1 new disabled Member would typically generate a substantial increase to the Actuarial Accrued Liability. However, due to the size of the Plan, there is an appropriate means to absorb demographic losses without causing a significant increase to the Recommended Contribution.

In the current report, the key demographic changes were as follows:

*New Hires:* There were 11 Members of the Fund who were hired during the year. When a Member is admitted to the Pension Fund, the Employer Contribution will increase to reflect the new Member. The increase in the Recommended Contribution in the current year due to the new Member experience is approximately \$36,000. Approximately \$25,000 of this increase is related to 3 new Members with a higher than average entry age.

*Service Purchases:* There was 1 Member of the Fund who completed Portability during the year. When a Member adds creditable service, the Fund liability will increase. The increase in the Recommended Contribution in the current year due to the service purchases experience is approximately \$7,000.

*Retirement:* There were 7 Members of the Fund who retired during the year. When a Member retires, the Normal Cost will decrease. Any change in the Actuarial Accrued Liability will be considered when



## *MANAGEMENT SUMMARY*

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determining the amount to pay towards Unfunded Liability each year. The decrease in the Recommended Contribution in the current year due to the retirement experience is approximately \$76,500.

*Termination:* There were 2 non-vested Members of the Fund who terminated employment during the year, 1 of whom took a refund of contributions. Also, there was 1 vested Member of the Fund who took a refund of contributions. The Fund is no longer obligated to pay a benefit to the Members in the future. The decrease in the Recommended Contribution in the current year due to the termination experience is approximately \$23,000.

*Mortality:* As inactive Members age and continue to collect benefits, the Fund liability will increase. In the current year, there were 60 inactive Members who maintained their benefit collection status throughout the year. The increase in the Recommended Contribution in the current year due to the mortality experience is approximately \$9,000.

*Salary Increases:* As the current contract is in negotiations, a 2.25% COLA increase was applied to all active Member salaries in anticipation of retroactive pay increases upon contract settlement. Salary increases were less than anticipated in the current year. This caused a decrease in the Recommended Contribution in the current year of approximately \$6,000.

### Assumption Changes

We performed a comprehensive study of Police Officers and Police Pension Funds in Illinois. We reviewed the results of the study as well as the demographic experience of the Fund. The actuarial assumptions were changed in the current valuation to the rates shown in the *Actuarial Assumptions* section of this report. The assumptions impacted include:

- Inflation Rate (CPI-U)
- Individual Pay Increases
- Retirement Rates
- Termination Rates
- Disability Rates
- Mortality Rates
- Mortality Improvement Rates
- Marital Assumptions

In the current valuation, we have updated the marital assumption for retiree and disabled Members to the actual spousal data.

The above stated assumption changes were made to better reflect the future anticipated experience of the Fund. See the table on the following page for the impact of these changes on the current valuation.



## *MANAGEMENT SUMMARY*

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### Funding Policy Changes

The Funding Policy was not changed from the prior valuation.

### Plan Changes

In the current valuation, we have updated the Plan benefit changes under PA-101-0610 (SB 1300), which went into effect on January 1, 2020. These legislative changes reflect modifications to the Tier II Plan Provisions. A summary of the changes is available upon request. The *Summary of Principal Plan Provisions* section of this report has the updated Plan Provisions.



## **MANAGEMENT SUMMARY**

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### **ACTUARIAL RECOMMENDED CONTRIBUTION – RECONCILIATION**

Actuarial Accrued Liability is expected to increase each year for both interest for the year and as active Members earn additional service years towards retirement. Similarly, Actuarial Accrued Liability is expected to decrease when the Fund pays benefits to inactive Members.

Contributions are expected to increase as expected pay increases under the Funding Policy for the Fund.

	Actuarial Liability	Recommended Contribution
Prior Valuation	\$ 127,537,982	\$ 3,961,509
Expected Changes	6,018,307	128,749
Initial Expected Current Valuation	\$ 133,556,289	\$ 4,090,258

Other increases or decreases in Actuarial Accrued Liability (key changes noted below) will increase or decrease the amount of Unfunded Liability in the Plan. To the extent that Unfunded Liability increases or decreases unexpectedly, the contribution towards Unfunded Liability will also change unexpectedly.

	Actuarial Liability	Recommended Contribution
Salary Increases Less than Expected	\$ 7,629	\$ (6,289)
Demographic Changes	1,156,968	7,548
Assumption Changes	2,692,376	221,106
Plan Changes	781,401	268,001
Asset Return Less than Expected*	-	57,964
Contributions Less than Expected	-	57,278
Total Actuarial Experience	\$ 4,638,374	\$ 605,608
Current Valuation	\$ 138,194,663	\$ 4,695,866

\*The impact on the Recommended Contribution due to asset return is on an Actuarial Value of Assets basis.

Key demographic changes were discussed in the *Demographic Data* section of this report.





## VALUATION OF FUND ASSETS

Market Value of Assets  
Market Value of Assets (Gain)/Loss  
Development of the Actuarial Value of Assets  
Actuarial Value of Assets (Gain)/Loss  
Historical Asset Performance

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## *VALUATION OF FUND ASSETS*

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### MARKET VALUE OF ASSETS

#### Statement of Assets

	Prior Valuation	Current Valuation
Cash and Cash Equivalents	\$ 978,335	\$ 4,386,027
Fixed Income	683,354	787,019
US Government and Agency Obligations	13,671,626	12,733,852
Corporate Bonds	15,873,905	15,637,638
Insurance Contracts	8,324,776	7,936,229
Mutual Funds	44,860,933	56,288,014
Receivables (Net of Payables)	179,620	170,763
Total Market Value of Assets	<u>\$ 84,572,549</u>	<u>\$ 97,939,542</u>

*The Total Market Value of Assets has Increased by Approximately \$13,370,000 from the Prior Valuation.*

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#### Statement of Changes in Assets

Total Market Value of Assets - Prior Valuation	\$ 84,572,549
Plus - Employer Contributions	3,076,824
Plus - Member Contributions	1,107,976
Plus - Return on Investments	14,364,945
Less - Benefit Payments and Refunds	(5,137,433)
Less - Other Expenses	<u>(45,319)</u>
Total Market Value of Assets - Current Valuation	<u>\$ 97,939,542</u>

*The Rate of Return on Investments on a Market Value of Assets Basis for the Fund was Approximately 17.03% Net of Administrative Expense.*

The Rate of Return on Investments shown above has been determined as the Return on Investments from the Statement of Changes in Assets, as a percent of the average of the prior and current Market Value of Assets. The Rate of Return on Investments is net of Other Expenses, and has been excluded from the Total Market Value of Assets at the end of the Fiscal Year for this calculation.



## *VALUATION OF FUND ASSETS*

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### **MARKET VALUE OF ASSETS (GAIN)/LOSS**

#### Current Year (Gain)/Loss on Market Value of Assets

Total Market Value of Assets - Prior Valuation	\$ 84,572,549
Employer and Member Contributions	4,184,800
Benefit Payments and Refunds	(5,137,433)
Expected Return on Investments	<u>5,676,496</u>
Expected Total Market Value of Assets - Current Valuation	89,296,412
Actual Total Market Value of Assets - Current Valuation	<u>97,939,542</u>
Current Market Value of Assets (Gain)/Loss	<u>\$ (8,643,130)</u>
Expected Return on Investments	\$ 5,676,496
Actual Return on Investments (Net of Expenses)	<u>14,319,626</u>
Current Market Value of Assets (Gain)/Loss	<u>\$ (8,643,130)</u>

*The Actual  
Return on  
Investments on a  
Market Value of  
Assets Basis was  
Greater than  
Expected for the  
Current Year.*

The (Gain)/Loss on the current Market Value of Assets has been determined based on the Expected Rate of Return on Investments as shown in the *Actuarial Assumptions* section of this report.



## VALUATION OF FUND ASSETS

### DEVELOPMENT OF THE ACTUARIAL VALUE OF ASSETS

Total Market Value of Assets - Current Valuation		\$ 97,939,542
Adjustment for Prior (Gains)/Losses		
	<u>Full Amount</u>	
FYE 2019	\$ (8,643,130)	(6,914,504)
FYE 2018	9,504,177	5,702,506
FYE 2017	(4,253,810)	(1,701,524)
FYE 2016	(900,760)	<u>(180,152)</u>
Total Deferred (Gain)/Loss		<u>(3,093,674)</u>
Initial Actuarial Value of Assets - Current Valuation		\$ 94,845,868
Less Contributions for the Current Year and Interest		-
Less Adjustment for the Corridor		<u>-</u>
Total Actuarial Value of Assets - Current Valuation		<u>\$ 94,845,868</u>

*The Actuarial Value of Assets is Equal to the Market Value of Assets with Unanticipated (Gains)/Losses Recognized Over 5 Years. The Actuarial Value of Assets is 96.84% of the Market Value of Assets.*

### ACTUARIAL VALUE OF ASSETS (GAIN)/LOSS

Total Actuarial Value of Assets - Prior Valuation		\$ 90,557,639
Plus - Employer Contributions		3,076,824
Plus - Member Contributions		1,107,976
Plus - Return on Investments		5,286,181
Less - Benefit Payments and Refund		(5,137,433)
Less - Other Expenses		<u>(45,319)</u>
Total Actuarial Value of Assets - Current Valuation		<u>\$ 94,845,868</u>

*The Rate of Return on Investments on an Actuarial Value of Assets Basis for the Fund was Approximately 5.82% Net of Administrative Expense.*

The Actuarial Value of Assets incorporates portions of gains and losses over multiple years.



## VALUATION OF FUND ASSETS

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### HISTORICAL ASSET PERFORMANCE

The chart below shows the historical Rates of Return on Investments for both Market Value of Assets and Actuarial Value of Assets.

	<u>Market Value of Assets</u>	<u>Actuarial Value of Assets</u>
FYE 2019	17.03%	5.82%
FYE 2018	(4.01%)	4.09%

The historical Rates of Return on Investments shown above were calculated based on the annual Return on Investments, as a percentage of the average value of the assets for the year.

For purposes of determining the average value of assets for the year, the ending Market Value of Assets has been adjusted to net out to the portion related to the Return on Investments themselves. All other cash flows are included.

For purposes of determining the annual Return on Investments we have adjusted the figures shown on the preceding pages. The figures shown on the preceding pages are net of Investment Expenses. We have made an additional adjustment to net out Administrative Expenses. Netting out Administrative Expenses allows us to capture returns for the year that can be used to make benefit payments as part of the ongoing actuarial process.

The adjustments we made are for actuarial reporting purposes only. By netting out Administrative Expenses and capturing Return on Investments that are available to pay benefits, it provides us a comparison to the Expected Rate of Return on Investments, but does not provide a figure that would be consistent with the rates of return that are determined by other parties. Therefore, this calculated Return on Investments should not be used to analyze investment performance of the Fund or the performance of the investment professionals.



## *VALUATION OF FUND ASSETS*

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### Expected Rate of Return on Investments Assumption

The Expected Rate of Return on Investments for this valuation is 6.75%. Lauterbach & Amen, LLP does not provide investment advice. We look at a variety of factors when reviewing the Expected Rate of Return on Investments assumption selected by the Board. These factors include: historical Rates of Return on Investments, capital market projections performed by the Fund's investment advisors, the Fund's investment policy, capital market forward-looking benchmark expected returns by independent investment companies, rates used by comparable pension systems, and other factors identified in the Actuarial Standards of Practice.

Generally speaking, the ideal assumption for Expected Rate of Return on Investments is one that has a 50% chance of being met over the long-term. If actual returns going forward come in less than expected, the pension system risks deferring contributions to the future that should be made today, and creating additional contribution volatility.

"Investment Risk" is the potential that actual Return on Investments will be different from what is expected. The selected Expected Rate of Return on Investments assumption is chosen to be a long-term assumption, producing a return that, on average, would produce a stable rate of return over a long-term horizon. Actual asset returns in the short-term may deviate from this long-term assumption due to current market conditions. Furthermore, establishing the Expected Rate of Return on Investments assumption may be dependent on the Illinois State Statutes pertaining to the limitations on types of investments Plan Sponsors may use. If the actual annual rates of return are less than the Expected Rate of Return on Investments, actuarial losses will be produced, thus increasing the Plan's Unfunded Liability and, subsequently, future Recommended Contributions.

"Asset/Liability Mismatch" risk is a similar concept as Investment Risk, as it relates to setting the Expected Rate of Return on Investments assumption compared to the actual Return on Investments achieved. The Interest Rate used to discount future Plan liabilities is set equal to the Expected Rate of Return on Investments. It is expected that the selected Interest Rate be a rate that is reasonably expected to be achieved over the long-term. To the extent that the selected Interest Rate to value Plan liabilities is unreasonable, or significantly different than the actual Return on Investments earned over an extended period of time, additional Interest Rate risk is created. For example, determining Plan liabilities at an Interest Rate higher than what is expected to be achieved through investment returns results in Unfunded Liability that is not a true representation of the Plan's condition and Percent Funded. As a result, the Actuarial Accrued Liability determined is an amount smaller than the liability that would be produced with an Interest Rate more indicative of future Expected Rate of Return on Investments. Therefore, the Recommended Contributions under the established Funding Policy may not be sufficient to appropriately meet the true pension obligations.





## RECOMMENDED CONTRIBUTION DETAIL

Actuarial Accrued Liability  
Funded Status  
Development of the Employer Normal Cost  
Normal Cost as a Percentage of Expected Payroll  
Recommended Contribution  
Schedule of Amortization – Unfunded Actuarial Accrued Liability  
Actuarial Methods – Recommended Contribution

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## RECOMMENDED CONTRIBUTION DETAIL

### ACTUARIAL ACCRUED LIABILITY

	Prior Valuation	Current Valuation
Active Members	\$ 52,971,170	\$ 49,730,223
Inactive Members		
Terminated Members - Vested	340,347	296,190
Retired Members	68,912,501	82,624,298
Disabled Members	2,695,047	2,921,904
Other Beneficiaries	2,618,917	2,622,048
Total Inactive Members	74,566,812	88,464,440
Total Actuarial Accrued Liability	\$ 127,537,982	\$ 138,194,663

*The Total Actuarial Accrued Liability has Increased by Approximately \$10,660,000 from the Prior Valuation.*

### FUNDED STATUS

	Prior Valuation	Current Valuation
Total Actuarial Accrued Liability	\$ 127,537,982	\$ 138,194,663
Total Actuarial Value of Assets	90,557,639	94,845,868
Unfunded Actuarial Accrued Liability	\$ 36,980,343	\$ 43,348,795
Total Market Value of Assets	\$ 84,572,549	\$ 97,939,542
Percent Funded		
Actuarial Value of Assets	<u>71.00%</u>	<u>68.63%</u>
Market Value of Assets	<u>66.31%</u>	<u>70.87%</u>

*The Percent Funded as of the Actuarial Valuation Date is Subject to Volatility on Assets and Liability in the Short-Term.*



## **RECOMMENDED CONTRIBUTION DETAIL**

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### **DEVELOPMENT OF THE EMPLOYER NORMAL COST**

	Prior Valuation	Current Valuation
Total Normal Cost	\$ 2,210,540	\$ 2,383,821
Estimated Member Contributions	(991,164)	(1,013,947)
Employer Normal Cost	<u>\$ 1,219,376</u>	<u>\$ 1,369,874</u>

*At a 100%  
Funding Level,  
the Normal Cost  
Contribution is  
Still Required.*

### **NORMAL COST AS A PERCENTAGE OF EXPECTED PAYROLL**

	Prior Valuation	Current Valuation
Expected Payroll	\$ 10,001,651	\$ 10,231,556
Member Normal Cost Rate	<u>9.910%</u>	<u>9.910%</u>
Employer Normal Cost Rate	<u>12.19%</u>	<u>13.39%</u>
Total Normal Cost Rate	<u>22.10%</u>	<u>23.30%</u>

*Ideally, the  
Employer  
Normal Cost  
Rate will Remain  
Stable.*

### **RECOMMENDED CONTRIBUTION**

	Prior Valuation	Current Valuation
Employer Normal Cost*	\$ 1,301,684	\$ 1,462,340
Amortization of Unfunded Accrued Liability/(Surplus)	<u>2,659,825</u>	<u>3,233,525</u>
Recommended Contribution	<u>\$ 3,961,509</u>	<u>\$ 4,695,866</u>

*The  
Recommended  
Contribution has  
Increased by  
18.54% from the  
Prior Valuation.*

\*Employer Normal Cost Contribution includes interest through the end of the Fiscal Year.



## **RECOMMENDED CONTRIBUTION DETAIL**

### **SCHEDULE OF AMORTIZATION – UNFUNDED ACTUARIAL ACCRUED LIABILITY**

Below is the schedule of remaining amortization balances for the Unfunded Liability.

<b>Unfunded Liability Base</b>	<b>Initial Balance</b>	<b>Date Established</b>	<b>Current Balance</b>	<b>Years Remaining</b>	<b>Payment</b>
Investment (Gain)/Loss	\$ 777,066	12/31/2019	\$ 777,066	19	\$ 57,964
Actuarial (Gain)/Loss	2,258,790	12/31/2019	2,258,790	19	168,490
Contribution Experience	22,471	12/31/2019	22,471	19	1,676
Assumption Changes	2,692,376	12/31/2019	2,692,376	19	200,833
Plan Changes	781,401	12/31/2019	781,401	19	58,287
Investment (Gain)/Loss	2,256,185	12/31/2018	2,246,200	19	167,551
Actuarial (Gain)/Loss	1,473,007	12/31/2018	1,466,488	19	109,390
Contribution Experience	42,805	12/31/2018	42,615	19	3,179
Assumption Changes	5,761,538	12/31/2018	5,736,041	19	427,870
Initial Unfunded Liability	<u>\$ 27,446,808</u>	12/31/2018	<u>\$ 27,325,347</u>	19	<u>\$ 2,038,285</u>
 Total	 <u><b>\$ 43,512,447</b></u>		 <u><b>\$ 43,348,795</b></u>		 <u><b>\$ 3,233,525</b></u>

The Actuarial (Gain)/Loss can be attributable to several factors including demographic changes, Employer Contribution timing, Member Contribution experience, benefit payment experience, and salary increase experience compared to expectation.



## ***RECOMMENDED CONTRIBUTION DETAIL***

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### **ACTUARIAL METHODS – RECOMMENDED CONTRIBUTION**

Actuarial Valuation Date	January 1, 2020
Data Collection Date	December 31, 2019
Actuarial Cost Method	Entry Age Normal (Level % Pay)
Amortization Method	Level % Pay (Closed)
Amortization Target	100% Funded Over 19 Years
Asset Valuation Method	5-Year Smoothed Market Value

The contributions and benefit values of the Pension Fund are calculated by applying actuarial assumptions to the benefit provisions and census data furnished, using the Actuarial Cost Method described. The Actuarial Cost and Amortization Methods allocate the projected obligations of the Plan over the working lifetimes of the Plan Members.

The Recommended Contribution amount shown in this report is based on the methods summarized above. The *Actuarial Funding Policies* section of this report includes a more detailed description of the Actuarial Funding Methods being used.

The Actuarial Funding Methods are meant to provide a systematic process for determining contributions on an annual basis. The methods do not impact the expectation of future benefit payments. The methods only impact the way contributions are made towards future benefit payments.

Different Actuarial Funding Methods may achieve funding goals with differing levels of success. Certain methods are more efficient and more stable on an annual basis.





## ILLINOIS STATUTORY MINIMUM CONTRIBUTION

Statutory Minimum Contribution  
Funded Status – Statutory Minimum  
Actuarial Methods – Illinois Statutory Minimum Contribution

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## **ILLINOIS STATUTORY MINIMUM CONTRIBUTION**

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### **STATUTORY MINIMUM CONTRIBUTION**

	<u>Current Valuation</u>
Statutory Minimum Contribution	\$3,458,206
Expected Payroll	\$10,231,556
Statutory Minimum Contribution as a Percent of Expected Payroll	33.80%

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### **FUNDED STATUS – STATUTORY MINIMUM**

	<u>Current Valuation</u>
Normal Cost	\$2,667,560
Market Value of Assets	\$97,939,542
Actuarial Value of Assets	\$94,845,868
Actuarial Accrued Liability	\$132,442,219
Unfunded Actuarial Accrued Liability	\$37,596,351
Percent Funded	
Actuarial Value of Assets	71.61%
Market Value of Assets	73.95%

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## ***ILLINOIS STATUTORY MINIMUM CONTRIBUTION***

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The Statutory Minimum Contribution is based on Actuarial Funding Methods and funding parameters in the Illinois State Statutes for pension funding. The resulting contribution is lower than the Recommended Contribution for the current year. The lower contribution amount is not recommended because it represents only a deferral of contributions when compared to the Recommended Contribution method.

Actuarial Funding Methods for pensions are best applied to provide a balance between the long-term goals of a variety of stakeholders:

1. Members – the Members are interested in benefit security and having the funds available to pay benefits when retired
2. Employers – cost control and cost stability over the long-term
3. Taxpayers – paying for the services they are receiving from active Members

The Statutory Minimum Contribution methods are not intended to provide a better system in any of the above categories long-term. The parameters are not recommended for a long-term funding strategy.

The Statutory Minimum methods put into place in 2011 were intended to provide short-term budget relief for Employer Contributions. An Employer using the Statutory Minimum parameters for current funding should view the contributions as short-term relief. Our recommendation in this situation is for a Pension Fund and an Employer to work towards a long-term funding strategy that better achieves the long-term funding goals, over a period that does not exceed 3-5 years.

The Securities and Exchange Commission in 2013 used the phrase “Statutory Underfunding” to describe situations where contributions appear to be more manageable in the short-term, but set up future Recommended Contributions that are less likely to be manageable.



# ***ILLINOIS STATUTORY MINIMUM CONTRIBUTION***

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## **ACTUARIAL METHODS – ILLINOIS STATUTORY MINIMUM CONTRIBUTION**

Actuarial Valuation Date	January 1, 2020
Data Collection Date	December 31, 2019
Actuarial Cost Method	Projected Unit Credit
Amortization Method	Level % Pay (Closed)
Amortization Target	90% Funded Over 21 Years
Asset Valuation Method	5-Year Smoothed Market Value

The contribution and benefit values of the Pension Fund are calculated by applying actuarial assumptions to the benefit provisions and census data furnished, using the Actuarial Cost Method described. The Actuarial Cost and Amortization methods allocate the projected obligations of the Plan over the working lifetimes of the Plan Members.

The Actuarial Funding Methods are meant to provide a systematic process for determining contributions on an annual basis. The methods do not impact the expectation of future benefit payments. The methods only impact the way contributions are made towards future benefit payments.

Different Actuarial Funding Methods may achieve funding goals with differing levels of success. Certain methods are more efficient and more stable on an annual basis.





## ACTUARIAL VALUATION DATA

Active Members  
Inactive Members  
Summary of Monthly Benefit Payments

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## **ACTUARIAL VALUATION DATA**

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### **ACTIVE MEMBERS**

	Prior Valuation	Current Valuation
Vested	61	56
Nonvested	35	42
Total Active Members	96	98
Total Payroll*	\$ 9,841,723	\$ 10,067,952

\*Total Payroll for the current valuation includes assumed 2.25% COLA increases for all active Members, in anticipation of retroactive pay increases upon contract settlement.

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### **INACTIVE MEMBERS**

	Prior Valuation	Current Valuation
Terminated Members - Vested	3	2
Retired Members	51	58
Disabled Members	4	4
Other Beneficiaries	5	5
Total Inactive Members	63	69

### **SUMMARY OF MONTHLY BENEFIT PAYMENTS**

	Prior Valuation	Current Valuation
Terminated Members - Vested	\$ 5,391	\$ 3,299
Retired Members	349,456	407,579
Disabled Members	12,722	12,763
Other Beneficiaries	22,909	22,909
Total Inactive Members	\$ 390,478	\$ 446,551

Monthly benefit payments shown for Terminated Members – Vested are not currently in pay status.

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## ACTUARIAL FUNDING POLICIES

Actuarial Cost Method  
Financing Unfunded Actuarial Accrued Liability  
Actuarial Value of Assets

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# ***ACTUARIAL FUNDING POLICIES***

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## **ACTUARIAL COST METHOD**

The Actuarial Cost Method allocates the projected obligations of the Plan over the working lifetimes of the Plan Members.

In accordance with the Pension Fund's Funding Policy the Actuarial Cost Method for the Recommended Contribution basis is Entry Age Normal (Level Percent of Pay). The Entry Age Normal Cost Method is a method under which the Actuarial Present Value of the projected benefits of each individual included in an Actuarial Valuation is allocated on a level basis over the earnings or service of the individual between entry age and assumed exit age. The portion of this Actuarial Present Value allocated to a valuation year is called Normal Cost. The portion of the Actuarial Present Value not provided at an Actuarial Valuation Date by the Actuarial Present Value of future Normal Costs is called the Actuarial Accrued Liability.

The Entry Age Normal method attempts to create a level cost pattern. In contrast to other Actuarial Cost Methods which inherently lead to uneven or less predictable cost patterns, the Entry Age Normal method is generally understood to be less risky in terms of contribution stability from year to year.

The Conference of Consulting Actuaries Public Plans Community produced a "white paper" detailing Funding Policy model practices for public sector pension plans. Under the Level Cost Actuarial Methodology ("LCAM"), one of the principal elements to a Funding Policy is the Actuarial Cost Method. When deciding which Actuarial Cost Method to use, several objectives may be considered, such as the following:

- Each Member's benefit should be funded under a reasonable allocation method by the expected retirement date
- Pay-related benefit costs should reflect anticipated pay at retirement
- The expected cost of each year of service (i.e. Normal Cost) for each active Member should be reasonably related to the expected cost of that Member's benefit
- The Member's Normal Cost should emerge as a level percent of Member compensation
- No gains or losses should occur if all assumptions are met.

Following these criteria, the use of the Entry Age Normal Cost Method (Level Percent of Pay) is a model practice.

## **FINANCING UNFUNDED ACTUARIAL ACCRUED LIABILITY**

The Unfunded Actuarial Accrued Liability may be amortized over a period either in level dollar amounts or as a level percentage of payroll.

When amortizing the Unfunded Actuarial Accrued Liability as a level percentage of payroll, additional risk is incurred since the amortization payments in the early years of the payment period may not be large enough to cover the interest accrued on the existing Unfunded Liability. As a result, the Unfunded



## ***ACTUARIAL FUNDING POLICIES***

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Liability may increase initially, before the amortization payments grow large enough to cover all interest accruals. Generally speaking, the Plan Sponsor will be required to contribute a larger total contribution amount over the course of the funding period under a level percentage of payroll basis as compared to a level dollar payroll schedule.

The Government Finance Office Association notes that best practices in public pension finance include utilizing amortization periods that do not exceed 20 years. Longer amortization periods elevate the risk of failing to reduce any Unfunded Liability. For example, when the amortization payment in full only covers interest on the Unfunded Liability, but does not reduce the existing Unfunded Liability, the required contribution will increase in future years.

A second principal element under the Level Cost Actuarial Methodology described above is to establish an Amortization Policy that determines the length of time and the structure of the increase or decrease in contributions required to systematically fund the Unfunded Actuarial Accrued Liability. When deciding on the Amortization Policy, several objectives may be considered, such as the following:

- Variations in the source of liability changes (i.e. gains or losses, Plan changes, assumption changes) should be funded over periods consistent with an appropriate balance between the policy objectives of demographic matching and volatility management
- The cost changes in Unfunded Actuarial Accrued Liability should emerge as a level percentage of Member compensation

The LCAM model practices for the Amortization Policy include the following:

- Layered fixed period amortization by source
- Level percent of pay amortization
- An amortization period ranging from 15-20 years for experience gains or losses
- An amortization period of 15-25 years for assumption changes

In accordance with the Pension Fund's Funding Policy for the Recommended Contribution, the Unfunded Actuarial Accrued Liability is amortized by level percent of payroll contributions to a 100% funding target over the remaining 19 years. See the *Actuarial Methods – Recommended Contribution* section of this report for more detail.

We believe that the amortization period is appropriate for the purposes of this valuation.

### **ACTUARIAL VALUE OF ASSETS**

The Pension Fund is an ongoing plan. The Employer wishes to smooth the effect of volatility in the Market Value of Assets on the annual contribution. Therefore, the Actuarial Value of Assets is equal to the Market Value of Assets with unanticipated gains/losses recognized over a five-year period.



## *ACTUARIAL FUNDING POLICIES*

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The Asset Valuation Method is intended to create an Actuarial Value of Assets that remains reasonable in relation to the Market Value of Assets over time. The method produces results that can fall either above or below the Market Value of Assets. The period of recognition is short.

It is intended that the period of recognition is short enough to keep the Actuarial Value of Assets within a decent range of the Market Value of Assets. In the event that the Actuarial Value of Assets exceeds or falls below a 10% corridor of the Market Value of Assets, the additional gain or loss will be recognized immediately.





## ACTUARIAL ASSUMPTIONS

Nature of Actuarial Calculations  
Actuarial Assumptions in the Valuation Process  
Assessment of Risk Exposures  
Limitations of Risk Analysis  
Actuarial Assumptions Utilized

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# ***ACTUARIAL ASSUMPTIONS***

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## **NATURE OF ACTUARIAL CALCULATIONS**

The results documented in this report are estimates based on data that may be imperfect and on assumptions about future events. Certain Plan Provisions may be approximated or deemed immaterial, and, therefore, are not valued. Assumptions may be made about census data or other factors. Reasonable efforts were made in this valuation to ensure that significant items in the context of the Actuarial Accrued Liability or costs are treated appropriately, and not excluded or included inappropriately.

Actual future experience will differ from the assumptions used in the calculations. As these differences arise, the expense for accounting purposes will be adjusted in future valuations to reflect such actual experience.

A range of results different from those presented in this report could be considered reasonable. The numbers are not rounded, but this is for convenience only and should not imply precision which is not inherent in actuarial calculations.

## **ACTUARIAL ASSUMPTIONS IN THE VALUATION PROCESS**

The contributions and benefit values of the Pension Fund are calculated by applying actuarial assumptions to the benefit provisions and census data furnished, using the Actuarial Cost Method described in the *Actuarial Funding Policies* section of this report.

The principal areas of financial risk which require assumptions about future experience are:

- Expected Rate of Return on Investments
- Patterns of Pay Increases for Members
- Rates of Mortality Among Active and Inactive Members
- Rates of Termination Among Active Members
- Rates of Disability Among Active Members
- Age Patterns of Actual Retirements

Actual experience of the Pension Fund will not coincide exactly with assumed experience. Each valuation provides a complete recalculation of assumed future experience and takes into account all past differences between assumed and actual experience. The result is a continual series of adjustments to the computed Recommended Contribution.

Details behind the selection of the actuarial assumptions can be found in the Actuarial Assumption Summary document provided to the client upon request. The client has reviewed and approved the assumptions as a reasonable expectation of the future anticipated experience under the Plan.



# ACTUARIAL ASSUMPTIONS

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## ASSESSMENT OF RISK EXPOSURES

From time to time it becomes appropriate to modify one or more of the assumptions, to reflect experience trends (but not random year-to-year fluctuations). In addition, Actuarial Standards of Practice require that the Actuary minimally perform a qualitative assessment of key financial and demographic risks as part of the risk assessment process with each annual Actuarial Valuation. The risk assessments we perform include, but are not limited to, the following:

- Periodic demographic experience studies every 3 to 5 years to confirm the ongoing appropriateness of actuarial assumptions
- Highlight the impact of demographic experience over the past year, as well as other sources of change and volatility in the *Actuarial Recommended Contribution – Reconciliation* section of this report
- Detail year-over-year changes in contribution levels, assets, liabilities, and Funded Status in the *Recommended Contribution* and *Funded Status* sections in the *Management Summary* section of this report
- Review any material changes in the census as summarized in the *Actuarial Valuation Data* section of this report
- Provide and discuss the Actuarial Assumption Summary document highlighting the rationale for each key assumption chosen by the Board
- Identify potential Cash Flow Risk by highlighting expected benefit payments over the next 5-year and 10-year periods in the *Asset Growth* section in the *Management Summary* section of this report
- Describe the impact of any assumption, method, or policy change in the *Management Summary* section of this report
- Utilize supplemental information, such as the GASB Discount Rate sensitivity disclosures to understand, for example, what impact an alternative Expected Rate of Return on Investments assumption might have on the estimation of Actuarial Accrued Liability and Funded Status
- Utilize supplemental information, such as the GASB solvency test, to better understand the Cash Flow Risk and long-term sustainability of the Plan.

## LIMITATIONS OF RISK ANALYSIS

Since future experience may never be precisely as assumed, the process of selecting funding methods and actuarial assumptions may inherently create risk and volatility of results. A more detailed evaluation of the above risk exposures is beyond the scope and nature of the annual Actuarial Valuation process. For example, scenario tests, sensitivity tests, stress tests, and/or stochastic modeling for multi-year projections to assess the impact of alternative assumptions and methods, or modeling future experience different from the assumptions in these results, are not included in this Actuarial Valuation.

The Orland Park Police Pension Fund and/or the Village of Orland Park, Illinois should contact the Actuary if they desire a more detailed assessment of any of these forward-looking risk exposures.



## *ACTUARIAL ASSUMPTIONS*

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### ACTUARIAL ASSUMPTIONS UTILIZED

<b>Expected Rate of Return on Investments</b>	6.75% Net of Administrative Expense
<b>CPI-U</b>	2.25%
<b>Total Payroll Increases</b>	3.25%
<b>Individual Pay Increases*</b>	3.75% - 7.20%

Individual pay increases include a long-term average increase for inflation, average annual increases for promotions, and any additional increases for a step program. Sample rates are as follows:

Service	Rate	Service	Rate
0	7.13%	8	3.75%
1	7.18%	9	3.75%
2	7.19%	10	3.75%
3	7.16%	15	3.75%
4	7.20%	20	3.75%
5	7.18%	25	3.75%
6	3.75%	30	3.75%
7	3.75%	35	3.75%

\*Individual pay increases for active Members hired at age 40 or older are assumed annual increases at the ultimate rate reduced by 50 basis points, without adjustments in early service years.

### Retirement Rates

100% of the L&A Assumption Study for Police 2020 Cap Age 65. Sample rates are as follows:

Age	Rate	Age	Rate
50	11.00%	53	12.73%
51	11.55%	54	13.37%
52	12.13%	55	14.04%



## ***ACTUARIAL ASSUMPTIONS***

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**Termination Rates**

100% of the L&A Assumption Study for Police 2020. Sample rates are as follows:

Age	Rate	Age	Rate
25	8.00%	40	2.17%
30	3.40%	45	1.56%
35	2.79%	50	0.46%

**Disability Rates**

100% of the L&A Assumption Study for Police 2020. Sample rates are as follows:

Age	Rate	Age	Rate
25	0.00%	40	0.38%
30	0.06%	45	0.53%
35	0.18%	50	0.48%

65% of active Members who become disabled are assumed to be in the Line of Duty.

**Mortality Rates**

Active Mortality follows the Sex Distinct Raw Rates as developed in the PubS-2010(A) Study. Mortality improvement uses MP-2019 Improvement Rates applied on a fully generational basis.

50% of active Member deaths are assumed to be in the Line of Duty.

Retiree Mortality follows the L&A Assumption Study for Police 2020. These rates are experience weighted with the Sex Distinct Raw Rates as developed in the PubS-2010(A) Study improved to 2017 using MP-2019 Improvement Rates. These rates are then improved fully generationally using MP-2019 Improvement Rates.

Disabled Mortality follows the Sex Distinct Raw Rates as developed in the PubS-2010 Study for disabled participants. Mortality improvement uses MP-2019 Improvement Rates applied on a fully generational basis.

Spouse Mortality follows the Sex Distinct Raw Rates as developed in the PubS-2010(A) Study for contingent survivors. For all rates not provided there (ages 45 and younger) the PubG-2010 Study for general employees was used. Mortality improvement uses MP-2019 Improvement Rates applied on a fully generational basis.



## *ACTUARIAL ASSUMPTIONS*

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### **Marital Assumptions**

*Active Members:* 80% of active Members are assumed to be married. Female spouses are assumed to be 3 years younger than male spouses.

*Retiree and Disabled Members:* Actual spousal data was utilized for retiree and disabled Members.





## SUMMARY OF PRINCIPAL PLAN PROVISIONS

Establishment of the Fund  
Administration  
Member Contributions  
Regular Retirement Pension Benefit  
Early Retirement Pension Benefit  
Surviving Spouse Benefit  
Termination Benefit – Vested  
Disability Benefit

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## ***SUMMARY OF PRINCIPAL PLAN PROVISIONS***

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### **ESTABLISHMENT OF THE FUND**

The Police Pension Fund is established and administered as prescribed by “Article 3 – Police Pension Fund – Municipalities 500,000 and Under” of the Illinois Pension Code.

### **ADMINISTRATION**

The Police Pension Fund is administered by a Board of Trustees whose duties are to manage the Pension Fund, determine applications for pensions, authorize payment of pensions, establish rules, pay expenses, invest assets, and keep records.

### **MEMBER CONTRIBUTIONS**

Members contribute 9.910% of pensionable salary.

### **REGULAR RETIREMENT PENSION BENEFIT**

#### Hired Prior to January 1, 2011

*Eligibility:* Age 50 with at least 20 years of creditable service.

*Benefit:* 50% of final salary for the first 20 years of service, plus an additional 2.5% of final salary for each year of service beyond 20 years of service, and not to exceed 75% of final salary. “Final salary” is based on the police officer’s pensionable salary attached to rank held on the last day of service, unless the pensionable salary was greater at some point within the year prior to the last day of service. If so, the pensionable salary is averaged over the last 12 months.

*Annual Increase in Benefit:* A police officer is entitled to receive an initial increase equal to 1/12 of 3% of the original monthly benefit for each full month that has passed since the pension began. The initial increase date will be the latter of the first day of the month after the pensioner turns age 55 or the first day of the month after the benefit date anniversary. Subsequent increases of 3% of the current monthly benefit will be granted every January 1<sup>st</sup> thereafter.



## ***SUMMARY OF PRINCIPAL PLAN PROVISIONS***

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### **REGULAR RETIREMENT PENSION BENEFIT - CONTINUED**

#### Hired on or After January 1, 2011

*Eligibility:* Age 55 with at least 10 years of creditable service.

*Benefit:* 2.5% of final average salary for each year of service, and not to exceed 75% of final average salary. "Final average salary" is determined by dividing the total pensionable salary during 48 consecutive months of service within the last 60 months of service in which total pensionable salary was the highest, by the number of months of service in that period (or by dividing the total pensionable salary during 96 consecutive months of service within the last 120 months of service in which total pensionable salary was the highest, by the number of months of service in that period, if greater). Annual salary for this purpose will not exceed the salary cap, indexed by the lesser of 3% or the CPI-U for the 12 months ending with the September preceding each November 1<sup>st</sup>. The salary cap will not decrease.

*Annual Increase in Benefit:* The initial increase date will be the latter of the January 1<sup>st</sup> after the pensioner turns age 60 or the January 1<sup>st</sup> after the benefit date anniversary. Subsequent increases will be granted every January 1<sup>st</sup> thereafter. The initial increase and subsequent increases will be the lesser of 3% of the original benefit or ½ of the CPI-U for the 12 months ending with the September preceding each November 1<sup>st</sup>.

### **EARLY RETIREMENT PENSION BENEFIT**

#### Hired Prior to January 1, 2011

None.

#### Hired on or After January 1, 2011

*Eligibility:* Age 50 with at least 10 years of creditable service.

*Benefit:* The regular retirement pension benefit reduced by ½ of 1% for each month that the police officer's age is between 50 and 55.

*Annual Increase in Benefit:* The initial increase date will be the latter of the January 1<sup>st</sup> after the pensioner turns age 60 or the January 1<sup>st</sup> after the benefit date anniversary. Subsequent increases will be granted every January 1<sup>st</sup> thereafter. The initial increase and subsequent increases will be the lesser of 3% of the original benefit or ½ of the CPI-U for the 12 months ending with the September preceding each November 1<sup>st</sup>.



## ***SUMMARY OF PRINCIPAL PLAN PROVISIONS***

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### **SURVIVING SPOUSE BENEFIT**

#### Hired Prior to January 1, 2011

*Eligibility:* Married to an active police officer with at least 8 years of creditable service, a disabled pensioner at the time of death, or a retired pensioner on the last day of service.

*Active Line of Duty Death Benefit:* An eligible surviving spouse is entitled to receive 100% of the police officer's final pensionable salary attached to rank held on the last day of service.

#### *Non-Duty Death Benefit:*

*Disabled or Retired Pensioner:* An eligible surviving spouse is entitled to receive the pensioner's benefit at the time of death.

*Active Member with 20+ Years of Service:* An eligible surviving spouse is entitled to the police officer's eligible benefit at the time of death.

*Active Member with 10-20 Years of Service:* An eligible surviving spouse is entitled to receive 50% of the police officer's pensionable salary attached to rank held on the last day of service, unless the pensionable salary was greater at some point within the year prior to the last day of service. If so, the pensionable salary is averaged over the last 12 months.

*Annual Increase in Benefit:* None.

#### Hired on or After January 1, 2011

*Eligibility:* Married to an active police officer with at least 8 years of creditable service, a disabled pensioner at the time of death, or a retired pensioner on the last day of service.

*Active Line of Duty Death Benefit:* An eligible surviving spouse is entitled to receive 100% of the police officer's final pensionable salary attached to rank held on the last day of service.

#### *Non-Duty Death Benefit:*

*Disabled or Retired Pensioner, Active Member with 20+ Years of Service, and Active Member with 10-20 Years of service:* An eligible surviving spouse is entitled to receive the greater of 66⅔% of the police officer's earned pension benefit at the time of death or 54% of the police officer's monthly salary at the time of death.

*Annual Increase in Benefit:* The initial increase date will be the January 1<sup>st</sup> after the surviving spouse turns age 60. Subsequent increases will be granted every January 1<sup>st</sup> thereafter. The initial increase and subsequent increases will be the lesser of 3% of the original benefit or ½ of the CPI-U for the 12 months ending with the September preceding each November 1<sup>st</sup>.



## ***SUMMARY OF PRINCIPAL PLAN PROVISIONS***

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### **TERMINATION BENEFIT – VESTED**

#### Hired Prior to January 1, 2011

*Eligibility:* Age 60 with at least 8 but less than 20 years of creditable service.

*Benefit:* 2.5% of final salary for each year of service. “Final salary” is based on the police officer’s pensionable salary attached to rank held on the last day of service, unless the pensionable salary was greater at some point within the year prior to the last day of service. If so, the pensionable salary is averaged over the last 12 months.

*Annual Increase in Benefit:* A police officer is entitled to receive an initial increase equal to 1/12 of 3% of the original monthly benefit for each full month that has passed since the pension began. The initial increase date will be the first day of the month after the benefit date anniversary. Subsequent increases of 3% of the current monthly benefit will be granted every January 1<sup>st</sup> thereafter.

#### Hired on or After January 1, 2011

None.



## ***SUMMARY OF PRINCIPAL PLAN PROVISIONS***

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### **DISABILITY BENEFIT**

#### Hired Prior to January 1, 2011

*Eligibility:* Duty or Non-Duty Disability or Occupational Disease Disability with at least 5 years of creditable service.

*Benefit:* For a duty disability or an occupational disease disability with at least 5 years of creditable service, a police officer is entitled to receive the greater of 65% of final salary or the regular retirement pension benefit at the time of disability. For a non-duty disability, a police officer is entitled to receive 50% of final salary. "Final salary" is based on the police officer's pensionable salary attached to rank held on the last day of service.

*Annual Increase in Benefit:* A police officer is entitled to receive an initial increase equal to 3% of the original monthly benefit for each full year that has passed since the pension began. The initial increase date will be the latter of the January 1<sup>st</sup> after following pensioner turns age 60 or the January 1<sup>st</sup> after the benefit date anniversary. Subsequent increases of 3% of the original monthly benefit will be granted every January 1<sup>st</sup> thereafter.

#### Hired on or after January 1, 2011

*Eligibility:* Duty or Non-Duty Disability or Occupational Disease Disability with at least 5 years of creditable service.

*Benefit:* For a duty disability or an occupational disease disability with at least 5 years of creditable service, a police officer is entitled to receive the greater of 65% of final salary or the regular retirement pension benefit at the time of disability. For a non-duty disability, a police officer is entitled to receive 50% of final salary. "Final salary" is based on the police officer's pensionable salary attached to rank held on the last day of service.

*Annual Increase in Benefit:* A police officer is entitled to receive an initial increase equal to 3% of the original monthly benefit for each full year that has passed since the pension began. The initial increase date will be the latter of the January 1<sup>st</sup> after following pensioner turns age 60 or the January 1<sup>st</sup> after the benefit date anniversary. Subsequent increases of 3% of the original monthly benefit will be granted every January 1<sup>st</sup> thereafter.





## GLOSSARY OF TERMS

Glossary of Terms

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## **GLOSSARY OF TERMS**

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### **GLOSSARY OF TERMS**

***Actuarial Accrued Liability*** – The Actuarial Present Value of future benefits based on Members’ service rendered to the Measurement Date using the selected Actuarial Cost Method. It is that portion of the Actuarial Present Value of Plan benefits and expenses allocated to prior years of employment. It is not provided for by future Normal Costs.

***Actuarial Cost Method*** – The method used to allocate the projected obligations of the Plan over the working lifetimes of the Plan Members.

***Actuarial Value of Assets*** – The value of the assets used in the determination of the Unfunded Actuarial Accrued Liability. The Actuarial Value of Assets is related to Market Value of Assets, with adjustments made to spread unanticipated gains and losses for a given year over a period of several years. Actuarial Value of Assets is generally equally likely to fall above or below the Market Value of Assets, and generally does not experience as much volatility over time as the Market Value of Assets.

***Asset Valuation Method*** – A valuation method designed to smooth random fluctuations in asset values. The objective underlying the use of an Asset Valuation Method is to provide for the long-term stability of Employer Contributions.

***Funding Policy*** – A set of procedures for a Pension Fund that outlines the “best practices” for funding the pension benefits based on the goals of the Plan Sponsor. A Funding Policy discusses items such as assumptions, Actuarial Cost Method, assets, and other parameters that will best help the Plan Sponsor meet their goal of working in the best interest of the Plan Members.

***Market Value of Assets*** – The value of the cash, bonds, securities, and other assets held in the pension trust as of the Measurement Date.

***Normal Cost*** – The present value of future benefits earned by Members during the current Fiscal Year. It is that portion of the Actuarial Present Value of benefits and expenses which is allocated to a valuation year by the Actuarial Cost Method.

***Unfunded Actuarial Accrued Liability*** – The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The Unfunded Actuarial Accrued Liability is amortized over a period either in level dollar amounts or as a level percentage of projected payroll.





# Lauterbach & Amen, LLP

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CERTIFIED PUBLIC ACCOUNTANTS

GASB 67/68 Report  
For Use in Financial Statement Reporting

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ORLAND PARK POLICE  
PENSION FUND

Actuarial Valuation  
as of January 1, 2019

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*LAUTERBACH & AMEN, LLP*

# GASB Statements 67 and 68 Actuarial Disclosures

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## Lauterbach & Amen, LLP

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CERTIFIED PUBLIC ACCOUNTANTS

### GASB 67: ORLAND PARK POLICE PENSION FUND

**Fiscal Year Ending: December 31, 2019**  
Actuarial Valuation Date: January 1, 2019  
Utilizing Data as of December 31, 2018  
Measurement Date: December 31, 2019

### GASB 68: VILLAGE OF ORLAND PARK, ILLINOIS

**Fiscal Year Ending: December 31, 2019**  
Actuarial Valuation Date: January 1, 2019  
Utilizing Data as of December 31, 2018  
Measurement Date: December 31, 2019

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**Submitted by:**

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**Contact:**

Todd A. Schroeder  
Director  
August 19, 2020

***LAUTERBACH & AMEN, LLP***



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## ACTUARIAL CERTIFICATION

This certification provides supplemental information as required by the Governmental Accounting Standards Board. The enclosed schedules were prepared by the undersigned to assist in the preparation of the Comprehensive Annual Financial Report. The assumptions and methods used in the preparation of this report meet the parameters set for the disclosures presented in the financial section as required by the Governmental Accounting Standards Board. Additional information is provided solely to assist the Auditors in the preparation of the required footnote disclosures.

The results in this report are based on the census data and financial information submitted by the Orland Park Police Pension Fund, and may include results from the prior Actuary. We did not prepare the Actuarial Valuations for the years prior to January 1, 2018. Those valuations were prepared by the prior Actuary whose reports have been furnished to us, and our disclosures are based on those reports. An audit of the prior Actuary's results was not performed, but high-level reviews were completed for general reasonableness, as appropriate, based on the purpose of this valuation. The accuracy of the results is dependent on the precision and completeness of the underlying information.

The valuation results summarized in this report involve actuarial calculations that require assumptions about future events. The Orland Park Police Pension Fund selected certain assumptions, while others were the result of guidance and/or judgment from the Plan's Actuary or Advisors. We believe that the assumptions used in this valuation are reasonable and appropriate for the purposes for which they have been used.

To the best of our knowledge, all calculations are in accordance with the applicable accounting requirements, and the procedures followed and presentation of results conform to generally accepted actuarial principles and practices. The undersigned consultants of Lauterbach & Amen, LLP, with actuarial credentials, meet the Qualification Standards of the American Academy of Actuaries to render this Actuarial Certification. There is no relationship between the Orland Park Police Pension Fund or the Village of Orland Park, Illinois and Lauterbach & Amen, LLP that impairs our objectivity.

Respectfully Submitted,  
LAUTERBACH & AMEN, LLP

Todd A. Schroeder, ASA, FCA, EA, MAAA

Robert L. Rietz, Jr., FCA, EA, MAAA



# PLAN FIDUCIARY NET POSITION

Statement of Plan Fiduciary Net Position  
Statement of Changes in Plan Fiduciary Net Position

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**STATEMENT OF PLAN FIDUCIARY NET POSITION**

	<u>12/31/2018</u>	<u>12/31/2019</u>
<b>Assets</b>		
Cash and Cash Equivalents	\$ 978,335	\$ 4,386,027
Total Cash	<u>978,335</u>	<u>4,386,027</u>
Receivables:		
Due from Treasury	3,700	6,027
Investment Income - Accrued Interest	<u>176,090</u>	<u>167,003</u>
Total Receivables	<u>179,790</u>	<u>173,030</u>
Investments:		
U.S. Govt and Agency Obligations	13,671,626	12,733,852
Fixed Income	683,354	787,019
Corporate Bonds	15,873,905	15,637,638
Insurance Contracts	8,324,776	7,936,229
Mutual Funds	<u>44,860,933</u>	<u>56,288,014</u>
Total Investments	<u>83,414,594</u>	<u>93,382,752</u>
Total Assets	<u>84,572,719</u>	<u>97,941,809</u>
<b>Liabilities</b>		
Payables:		
Expenses Due/Unpaid	<u>170</u>	<u>2,267</u>
Total Liabilities	<u>170</u>	<u>2,267</u>
<b>Plan Fiduciary Net Position</b>	<u>\$ 84,572,549</u>	<u>\$ 97,939,542</u>

The Plan Fiduciary Net Position shown above is intended to be in accordance with GAAP and the Governmental Accounting Standards Board. The Fair Value of Investments have been provided by the reporting entity, and the results are being audited by an independent Auditor. The level of the assets has been reviewed for reasonableness, but we make no representation as to the accuracy of the measurement of the Fair Value of Investments. The Statement of Plan Fiduciary Net Position for 2019 is based on audited financials.



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**STATEMENT OF CHANGES IN PLAN FIDUCIARY NET POSITION**

	<u>12/31/2019</u>
<b>Additions</b>	
Contributions	
Employer	\$ 3,076,824
Other	138,843
Members	969,133
Total Contributions	<u>4,184,800</u>
Investment Income	
Net Appreciation in Fair Value of Investments	12,347,608
Interest and Dividends	2,146,130
Less Investment Expense	<u>(128,793)</u>
Net Investment Income	<u>14,364,945</u>
Total Additions	<u>18,549,745</u>
<b>Deductions</b>	
Benefit Payments and Refunds of Member Contributions	5,137,433
Administrative Expense	<u>45,319</u>
Total Deductions	<u>5,182,752</u>
Net Increase in Net Position	<u>13,366,993</u>
<b>Plan Fiduciary Net Position</b>	
Beginning of Year	<u>84,572,549</u>
End of Year	<u>\$ 97,939,542</u>

The changes in Plan Fiduciary Net Position shown above is intended to be in accordance with GAAP and the Governmental Accounting Standards Board. The Plan activity has been provided by the reporting entity, and the results are being audited by an independent Auditor. The cash flows have been reviewed for reasonableness, but we make no representation as to the accuracy of the measurement of the Fair Value of Investments. The Statement of Changes in Plan Fiduciary Net Position for 2019 is based on audited financials.



## ACTUARIAL PENSION LIABILITY INFORMATION

Statement of Total Pension Liability  
Statement of Changes in Total Pension Liability  
Statement of Changes in Net Pension Liability  
Deferred Outflows and Inflows of Resources  
Deferred Outflows and Inflows of Resources – Detail  
Pension Expense Development

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**STATEMENT OF TOTAL PENSION LIABILITY**

	<u>12/31/2018</u>	<u>12/31/2019</u>
Active Members	\$ 59,670,425	\$ 59,534,946
Inactive Members		
Terminated Members - Vested	266,937	372,945
Retired Members	60,415,258	70,716,037
Disabled Members	2,667,291	2,974,489
Other Beneficiaries	<u>2,560,545</u>	<u>2,543,100</u>
Total Inactive Members	<u>65,910,031</u>	<u>76,606,571</u>
Total Pension Liability	<u>\$ 125,580,456</u>	<u>\$ 136,141,517</u>

The Total Pension Liability (“TPL”) shown above is dependent on several factors such as Plan Provisions and actuarial assumptions used in this report. In addition, the calculation of the TPL may be dependent on the Plan Fiduciary Net Position shown in the prior section of this report. Changes in the Plan Fiduciary Net Position due to any factor, including adjustments on final audit, could change the TPL. The dependence of the TPL on the Plan Fiduciary Net Position is due to the role of the Plan Fiduciary Net Position (and the Plan’s Projected Fiduciary Net Position) on the determination of the Discount Rate used for the TPL.

The TPL has been determined for GASB 67/68 reporting purposes only. The resulting TPL is intended to be used in the financial statement reporting of the Plan and/or Employer. The resulting liability is not intended to be a representation of the Plan liability for other purposes, including but not limited to, determination of cash funding requirements and recommendations. The TPL is based on data as of the Actuarial Valuation - Data Date shown in this report. The TPL has been determined as of the Actuarial Valuation Date and based on the assumptions used in this report, and adjusted to the Measurement Date as needed.



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**STATEMENT OF CHANGES IN TOTAL PENSION LIABILITY**

	<u>12/31/2019</u>
<b>Changes in Total Pension Liability</b>	
Service Cost	\$ 2,359,751
Interest	8,303,292
Changes of Benefit Terms	693,301
Differences Between Expected and Actual Experience	2,450,221
Change in Assumptions	1,891,929
Benefit Payments and Refunds	<u>(5,137,433)</u>
Net Change in Total Pension Liability	10,561,061
Total Pension Liability - Beginning	<u>125,580,456</u>
Total Pension Liability - Ending (a)	<u>\$ 136,141,517</u>
Plan Fiduciary Net Position - Ending (b)	<u>\$ 97,939,542</u>
<b>Employer's Net Pension Liability - Ending (a) - (b)</b>	<u>\$ 38,201,975</u>
Plan Fiduciary Net Position as a Percentage of the Total Pension Liability	71.94%
Covered-Employee Payroll	\$ 9,742,082
Employer's Net Pension Liability as a Percentage of Covered-Employee Payroll	392.13%

The Plan Fiduciary Net Position was detailed in the prior section of this report. The Employer's Net Pension Liability is the excess of the Total Pension Liability over the Plan Fiduciary Net Position.

Total Pension Liability may be dependent on the Plan Fiduciary Net Position. Changes in the Plan Fiduciary Net Position could change the determination of the Total Pension Liability. Any changes in the Plan Fiduciary Net Position, including adjustments on final audit, can have an impact on the Employer's Net Pension Liability that extends beyond the dollar-for-dollar change in the Plan Fiduciary Net Position.

Covered-Employee Payroll is based on the Covered-Employee Payroll for the Plan Members during the Fiscal Year.



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**STATEMENT OF CHANGES IN NET PENSION LIABILITY**

The table below illustrates the changes in Net Pension Liability (“NPL”) from the prior Measurement Date to the current Measurement Date. Under Statement 68, the difference between the NPL from the prior Measurement Date to the current Measurement Date should be recognized as a component of Pension Expense, unless permitted to be recognized as a Deferred Outflow or Inflow of Resources.

	Increase (Decrease)		
	Total Pension Liability (a)	Plan Fiduciary Net Position (b)	Net Pension Liability (a) - (b)
<b>Balances Beginning at 1/1/2019</b>	<u>\$ 125,580,456</u>	<u>\$ 84,572,549</u>	<u>\$ 41,007,907</u>
<b>Changes for the Year:</b>			
Service Cost	2,359,751	-	2,359,751
Interest	8,303,292	-	8,303,292
Actuarial Experience	2,450,221	-	2,450,221
Change in Assumptions	1,891,929	-	1,891,929
Changes of Benefit Terms	693,301	-	693,301
Contributions - Employer	-	3,076,824	(3,076,824)
Contributions - Members	-	969,133	(969,133)
Contributions - Other	-	138,843	(138,843)
Net Investment Income	-	14,364,945	(14,364,945)
Benefit Payments and Refunds	(5,137,433)	(5,137,433)	-
Administrative Expense	-	(45,319)	45,319
<b>Net Changes</b>	<u>\$ 10,561,061</u>	<u>\$ 13,366,993</u>	<u>\$ (2,805,932)</u>
<b>Balances Ending at 12/31/2019</b>	<u>\$ 136,141,517</u>	<u>\$ 97,939,542</u>	<u>\$ 38,201,975</u>

The changes in Total Pension Liability shown above are described on the prior page. The Plan Fiduciary Net Position was detailed in the prior section of this report. The Employer’s Net Pension Liability is the excess of the Total Pension Liability over the Plan Fiduciary Net Position.



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## DEFERRED OUTFLOWS AND INFLOWS OF RESOURCES

The table below shows the cumulative amounts to be shown as Deferred Outflows and Inflows of Resources. Changes in Total Pension Liability related to the differences between expected and actual experience, or changes in assumptions regarding future events, are recognized in Pension Expense over the expected remaining service life of all Members (active and retired) in the Pension Plan. The net difference in projected and actual earnings on Pension Plan investments over the measurement period are recognized over a 5-year period. Amounts not yet recognized are summarized below:

	Deferred Outflows of Resources	Deferred Inflows of Resources	Total Deferred Amounts
Differences Between Expected and Actual Experience	\$ 3,072,841	\$ 4,303,605	\$ (1,230,764)
Change in Assumptions	5,382,897	1,707,289	3,675,608
Net Difference Between Projected and Actual Earnings on Pension Plan Investments	5,685,750	8,833,659	(3,147,909)
Contributions Subsequent to the Measurement Date*	-	-	-
Total	<u>\$ 14,141,488</u>	<u>\$ 14,844,553</u>	<u>\$ (703,065)</u>

\*Contributions Subsequent to the Measurement Date may be recognized as a reduction to the Net Pension Liability. The amount is not known as of the date of this report. Subsequent to the Measurement Date, the following amounts will be recognized in Pension Expense in the upcoming years:

<b>Year Ended</b>	
<b>December 31:</b>	
2020	\$ (833,441)
2021	(653,289)
2022	435,825
2023	(1,337,894)
2024	390,778
Thereafter	1,294,956



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## DEFERRED OUTFLOWS AND INFLOWS OF RESOURCES – DETAIL

The table below shows the annual detail amounts that have been summarized on the prior page. Under Statement 68, the level of detail shown on the prior page is sufficient for financial statement reporting. The detail shown below is primarily for tracking purposes.

<b>Pension Expense Source</b>	<b>Date Established</b>	<b>Initial Period</b>	<b>Initial Balance</b>	<b>Remaining Period</b>	<b>12/31/2019 Expense Recognized</b>	<b>12/31/2019 Deferred Balance</b>
Asset Gain	12/31/2019	5.00	\$ (8,689,979)	5.00	\$ (1,737,996)	\$ (6,951,983)
Change in Assumptions Loss	12/31/2019	8.73	1,891,929	8.73	216,716	1,675,213
Actuarial Loss	12/31/2019	8.73	2,450,221	8.73	280,667	2,169,554
Asset Loss	12/31/2018	5.00	9,476,250	4.00	1,895,250	5,685,750
Change in Assumptions Loss	12/31/2018	7.59	5,034,228	6.59	663,272	3,707,684
Actuarial Gain	12/31/2018	7.59	(5,843,359)	6.59	(769,877)	(4,303,605)
Asset Gain	12/31/2017	5.00	(4,253,810)	3.00	(850,762)	(1,701,524)
Change in Assumptions Gain	12/31/2017	6.20	(869,501)	4.20	(140,251)	(448,748)
Actuarial Loss	12/31/2017	6.20	1,158,976	4.20	186,943	598,147
Asset Gain	12/31/2016	5.00	(900,760)	2.00	(180,152)	(180,152)
Change in Assumptions Gain	12/31/2016	6.40	(3,356,117)	3.40	(524,394)	(1,258,541)
Actuarial Loss	12/31/2016	6.40	813,712	3.40	127,143	305,140
Asset Loss	12/31/2015	5.00	6,471,688	1.00	1,294,336	-
Change in Assumptions Loss	12/31/2015	5.00	6,875,562	1.00	1,375,114	-
Actuarial Gain	12/31/2015	5.00	(2,470,125)	1.00	(494,025)	-
Total			\$ 7,788,915		\$ 1,341,984	\$ (703,065)

Each detail amount shown above was established as of the Fiscal Year End shown and the full amount deferred has been determined as of that time. Any events that occur in subsequent Fiscal Years do not have an impact on the prior Fiscal Year. The bases are established independently each year.



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**PENSION EXPENSE DEVELOPMENT**

The table below displays the Pension Expense development for the current year. The Pension Expense includes items that change the Net Pension Liability from one year to the next, netted out for amounts that are deferred under GASB pronouncement, plus any amounts that are being recognized that were deferred previously.

See below for the Pension Expense development:

	<u>12/31/2019</u>
<b>Pension Expense/(Income) Under GASB 68</b>	
Service Cost	\$ 2,359,751
Interest	8,303,292
Changes of Benefit Terms	693,301
Contributions - Members	(969,133)
Contributions - Other	(138,843)
Expected Investment Income	(5,674,966)
Administrative Expense	45,319
Other Changes	-
Initial Pension Expense/(Income)	<u>\$ 4,618,721</u>
Recognition of Outflow/(Inflow) of Resources Due to Liabilities	921,308
Recognition of Outflow/(Inflow) of Resources Due to Assets	420,676
<b>Total Pension Expense/(Income)</b>	<u><b>\$ 5,960,705</b></u>



## ACTUARIAL ASSUMPTIONS INFORMATION

Statement of Significant Actuarial Assumptions  
Assumption Changes

Notes on Actuarial Assumptions

Expected Return on Pension Plan Investments

Municipal Bond Rate

Discount Rate

Sensitivity of the Discount Rate

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## STATEMENT OF SIGNIFICANT ACTUARIAL ASSUMPTIONS

### Actuarial Assumptions (Economic)

Discount Rate Used for the Total Pension Liability	6.75%
Expected Rate of Return on Investments	6.75%
High-Quality 20 Year Tax-Exempt G.O. Bond Rate	2.74%
Projected Individual Pay Increases	3.75% - 7.20%
Projected Total Payroll Increases	3.25%
Consumer Price Index (Urban)	2.25%
Inflation Rate	2.25%

### Actuarial Assumptions (Demographic)

Mortality Rates*	Pub-2010 Adjusted for Plan Status, Demographics, and Illinois Public Pension Data, as Described
Retirement Rates	100% of L&A 2020 Illinois Police Retirement Rates Capped at Age 65
Termination Rates	100% of L&A 2020 Illinois Police Termination Rates
Disability Rates	100% of L&A 2020 Illinois Police Disability Rates
Marital Assumptions	Active Members: 80% Retiree & Disabled Members: 80%

\*See the *Notes on Actuarial Assumptions* section of this report for further details on Mortality Rates.

The actuarial assumptions (economic) rates shown above are assumed to be annual rates, compounded on an annual basis. For more information on the selection of the actuarial assumptions, please see the Actuarial Assumption Summary document prepared for the Plan, available upon request.

### ASSUMPTION CHANGES

The assumptions were changed from the prior year.

The High-Quality 20 Year Tax-Exempt General Obligation (“G.O.”) Bond Rate assumption was changed from 4.10% to 2.74% for the current year. The underlying index used is The Bond Buyer 20-Bond G.O. Index as discussed in more detail later in this section. The choice of Index is unchanged from the prior year. The rate has been updated to the current Fiscal Year End based on changes in market conditions as reflected in the Index. The change was made to reflect our understanding of the requirements of GASB under Statement 67 and Statement 68.



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The Discount Rate used in the determination of the Total Pension Liability remained constant at 6.75%. The Discount Rate is impacted by a couple of metrics. Any change in the underlying High-Quality 20 Year Tax Exempt G.O. Bond Rate will impact the blended Discount Rate.

We performed a comprehensive study of Police Officers and Police Pension Funds in Illinois. We reviewed the results of the study as well as the demographic experience of the Fund. The actuarial assumptions were changed in the current year to the rates shown on the prior page of this report. The assumptions impacted include:

- Projected Individual Pay Increases
- Inflation Rate (CPI-U)
- Mortality Rates
- Mortality Improvement Rates
- Retirement Rates
- Termination Rates
- Disability Rates

The above stated assumption changes were made to better reflect the future anticipated experience of the Plan.

In addition, there are changes that can be made that impact the projection of the Plan Fiduciary Net Position. For example, changes in the Formal or Informal Funding Policy can impact the Discount Rate. Actual changes in the Plan Fiduciary Net Position from one year to the next can impact the projections as well.



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## NOTES ON ACTUARIAL ASSUMPTIONS

### Projected Individual Pay Increases

Projected individual pay increases include a long-term average increase for inflation, average annual increases for promotions, and any additional increases for a step program. Projected individual pay increases for active Members hired at age 40 or older are assumed annual increases at the ultimate rate reduced by 50 basis points, without adjustments in early service years. Sample rates are as follows:

Service	Rate	Service	Rate
0	7.13%	8	3.75%
1	7.18%	9	3.75%
2	7.19%	10	3.75%
3	7.16%	15	3.75%
4	7.20%	20	3.75%
5	7.18%	25	3.75%
6	3.75%	30	3.75%
7	3.75%	35	3.75%

### Actuarial Assumptions (Demographic)

Active Mortality follows the Sex Distinct Raw Rates as developed in the PubS-2010(A) Study. Mortality improvement uses MP-2019 Improvement Rates applied on a fully generational basis.

Retiree Mortality follows the L&A Assumption Study for Police 2020. These rates are experience weighted with the Sex Distinct Raw Rates as developed in the PubS-2010(A) Study improved to 2017 using MP-2019 Improvement Rates. These rates are then improved fully generationally using MP-2019 Improvement Rates.

Disabled Mortality follows the Sex Distinct Raw Rates as developed in the PubS-2010 Study for disabled participants. Mortality improvement uses MP-2019 Improvement Rates applied on a fully generational basis.

Spouse Mortality follows the Sex Distinct Raw Rates as developed in the PubS-2010(A) Study for contingent survivors. For all rates not provided there (ages 45 and younger) the PubG-2010 Study for general employees was used. Mortality improvement uses MP-2019 Improvement Rates applied on a fully generational basis.

Other actuarial assumptions (demographic) rates are based on a review of the L&A Assumption Study for Police 2020.



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## **POSTEMPLOYMENT BENEFIT CHANGES**

In the current year, we have updated the Plan benefit changes under PA-101-0610 (SB 1300), which went into effect on January 1, 2020. These legislative changes reflect modifications to the Tier II Plan Provisions. A summary of the changes is available upon request.

Eligibility for postemployment benefit increases is determined based on the Illinois Pension Code. Tier 1 Police retirees are provided with an annual increase of 3.00% of the current retirement benefits by statute when eligible. Tier 2 Police retirees are provided postemployment benefit increases based on the lesser of 3.00% of the original retirement benefits or one-half of the Consumer Price Index (Urban) for the prior September.

The CPI-U for September 1985 was 108.3. The CPI-U for September 2019 was 256.8. The average increase in the CPI-U for September 1985 through September 2019 was 2.58% (on a compounded basis).



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## EXPECTED RETURN ON PENSION PLAN INVESTMENTS

The Long-Term Expected Rate of Return is intended to represent the best estimate of future real rates of return and is shown for each of the major asset classes in the investment policy. The Expected Rates of Return shown below have been provided by the investment professionals that work with the Pension Fund. The table below illustrates the best estimate of Long-Term Expected Real Rates of Return developed for each of the major asset classes, adjusted for expected inflation.

There are multiple approaches seen to providing these rates. Typically, the information is either based on capital market projections, or historical rates seen for the asset classes. We do not provide an opinion on the reasonableness of the returns provided nor the reasonableness of the approach used in the determination of the rates provided. The information provided is shown below for convenience.

The rates provided in the table below are based on an arithmetic average. The Investment Policy Statement will provide more detail regarding the Fund's policies on asset allocation targets and acceptable ranges.

<u>Asset Class</u>	<u>Long-Term Expected Rate of Return</u>	<u>Long-Term Inflation Expectation</u>	<u>Long-Term Expected Real Rate of Return</u>	<u>Target Allocation</u>
Fixed Income	4.30%	2.20%	2.10%	35.00%
U.S. Equity	7.80%	2.20%	5.60%	32.50%
International Equity	8.00%	2.20%	5.80%	17.50%
Real Estate	7.20%	2.20%	5.00%	10.00%
Global Tactical	5.90%	2.20%	3.70%	5.00%
Cash	2.90%	2.20%	0.70%	0.00%

Long-Term Expected Real Rates of Return under GASB are expected to reflect the period of time that begins when a Plan Member begins to provide service to the employer and ends at the point when all benefits to the Plan Member have been paid. The rates provided above are intended to estimate those figures.

The Long-Term Inflation Expectation is 2.20% and is included in the Long-Term Expected Rates of Return. The Long-Term Inflation Expectation is from the same source as the Long-Term Expected Real Rates of Return, and is not necessarily reflective of the inflation measures used for other purposes in the report.

Geometric rates of return are equal to arithmetic rates of return when the annual returns exhibit no volatility over time. When arithmetic returns are volatile on a year-to-year basis, the actual realized geometric returns over time will be lower. Higher volatility results in a greater difference.



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## **MUNICIPAL BOND RATE**

The Municipal Bond Rate assumption is based on the Bond Buyer 20-Bond G.O. Index. The rate shown earlier in this section of the report is the December 26, 2019 rate. The 20-Bond G.O. Index is based on an average of certain general obligation municipal bonds maturing in 20 years and having an average rating equivalent of Moody's Aa2 and Standard & Poor's AA.

The 20-Bond G.O. Index consists of 20 general obligation bonds that mature in 20 years. The average rating of the 20 bonds is roughly equivalent to Moody's Investors Service's Aa2 rating and Standard & Poor's Corp.'s AA.

The indices represent theoretical yields rather than actual price or yield quotations. Municipal bond traders are asked to estimate what a current-coupon bond for each issuer in the indices would yield if the bond was sold at par value. The indices are simple averages of the average estimated yields of the bonds.

## **DISCOUNT RATE**

The Discount Rate used in the determination of the Total Pension Liability is based on a combination of the Expected Rate of Return on Plan Investments and the Municipal Bond Rate.

Cash flow projections were used to determine the extent to which the Plan's Projected Fiduciary Net Position will be able to cover Projected Benefit Payments. To the extent that Projected Benefit Payments are covered by the Plan's Projected Fiduciary Net Position, the Expected Rate of Return on Plan Investments is used to determine the portion of the Net Pension Liability associated with those payments. To the extent that Projected Benefit Payments are not covered by the Plan's Projected Fiduciary Net Position, the Municipal Bond Rate is used to determine the portion of the Net Pension Liability associated with those payments.

Projected benefit payments are determined during the actuarial process based on the assumptions. More details on the assumptions are earlier in this section of the report. The expected contributions are based on the funding policy of the Plan. The funding policy is discussed in more detail in the *Funding Policy* section of this report.



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### SENSITIVITY OF THE DISCOUNT RATE

The Employer's Net Pension Liability has been determined using the Discount Rate listed earlier in this section of the report. Below is a table illustrating the sensitivity of the Employer's Net Pension Liability to the Discount Rate assumption.

	<b>1% Decrease (5.75%)</b>	<b>Current Discount Rate (6.75%)</b>	<b>1% Increase (7.75%)</b>
Employer's Net Pension Liability	\$60,287,621	\$38,201,975	\$20,540,646

The sensitivity of the Employer's Net Pension Liability to the Discount Rate is based primarily on two factors:

1. The duration of the Plan's Projected Benefit Payments. Younger Plans with benefit payments further in the future will be more sensitive to changes in the Discount Rate.
2. The Percent Funded of the Plan (ratio of the Plan Fiduciary Net Position to the Total Pension Liability). The higher the Percent Funded, the higher the sensitivity to the Discount Rate.



## PARTICIPANT DATA

Participant Demographic Data  
Expected Future Working Lifetime

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## PARTICIPANT DEMOGRAPHIC DATA

The chart below summarizes the Member count and payroll as of the Actuarial Valuation Date:

	<u>12/31/2017</u> <u>(FYE 2018)</u>	<u>12/31/2018</u> <u>(FYE 2019)</u>
Inactive Plan Members or Beneficiaries Currently Receiving Benefits	57	60
Inactive Plan Members Entitled to But Not Yet Receiving Benefits	3	3
Active Plan Members	97	96
Total	<u>157</u>	<u>159</u>
Payroll of Active Plan Members	<u>\$ 9,737,065</u>	<u>\$ 9,841,723</u>

Member counts shown above are as of the Actuarial Valuation Date for the two most recent Fiscal Years. Payroll of Active Plan Members is the pensionable salary for active Plan Members as of the Actuarial Valuation – Data Date. For the Fiscal Year Ending December 31, 2019, a beginning of year Actuarial Valuation Date was used along with a rollforward of liabilities to the end of the Fiscal Year based on assumptions and standard rollforward techniques.

## EXPECTED FUTURE WORKING LIFETIME

The chart below summarizes the expected future working lifetime of Plan Members as of:

	<u>12/31/2017</u> <u>(FYE 2018)</u>	<u>12/31/2018</u> <u>(FYE 2019)</u>
Average Future Working Career (In Years)		
Active Plan Members	12.29	14.46
Inactive Plan Members	0.00	0.00
Total	7.59	8.73

The expected future working lifetime is measured as of the Actuarial Valuation Date and is based on the demographic assumptions used in the preparation of this report.



## FUNDING POLICY

Components of the Actuarially Determined Contribution  
Formal Funding Policy  
Informal Funding Policy  
Funding Policy – Other Considerations

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## **COMPONENTS OF THE ACTUARIALLY DETERMINED CONTRIBUTION**

The Actuarially Determined Contribution (“ADC”) includes the determination of the Normal Cost Contribution for active Plan Members, as well as a provision for the payment towards Unfunded Liability.

The actuarial funding method used in the determination of the Normal Cost and the Actuarial Accrued Liability is the Entry Age Normal Cost Method (level percent of pay). The method allocates Normal Cost Contributions by Members over the working career of the Member as a level percent of pay.

Unfunded Liability is the excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The Actuarially Determined Contribution includes a payment towards Unfunded Liability existing at the Actuarial Valuation Date. The payment towards Unfunded Liability is set up as a level percent of payroll payment that is expected to increase during the payment period. The current Employer Contributions are being compared to the Actuarially Determined Contribution as developed in the January 1, 2018 Actuarial Valuation. The period of repayment as of that valuation is 23 years.

The Actuarial Value of Assets smooths gains and losses on the Market Value of Assets over a 5-year period.

Under no circumstances will the Actuarially Determined Contribution be less than the amount determined as the Statutory Minimum Contribution under Illinois State Statutes.

## **FORMAL FUNDING POLICY**

There is no Formal Funding Policy that exists between the Pension Board and the Village at this time.

## **INFORMAL FUNDING POLICY**

In determining the most appropriate Informal Funding Policy, GASB provides the following guidance in the Statement:

*Application of professional judgment should consider the most recent five-year contribution history of the employers and nonemployer contributing entities as a key indicator of future contributions from those sources and should reflect all other known events and conditions... the amount of projected cash flows for contributions from employers and nonemployer contributing entities should be limited to an average of contributions from those sources over the most recent five-year period and may be modified based on consideration of subsequent events. For this purpose, the basis for the average (for example, percentage of covered payroll contributed or percentage of Actuarially Determined Contributions made) should be a matter of professional judgment.*



In our review of Informal Funding Policy, the following factors are considered and described herein:

1. Five-Year Contribution History of the Employer (with a focus on the average contributions from those sources)
2. Other Known Events and Conditions
3. Consideration of Subsequent Events

Five-Year Contribution History of the Employer

Employer Contributions (under the Informal Funding Policy) should be limited to the average over the most recent five years. In determining the basis for the average, we reviewed three possibilities: (a) the average dollar contribution; (b) the average percent of pensionable pay; and (c) the average percent of the Actuarially Determined Contribution. Please see the table below for a summary of these values:

<u>Fiscal Year End</u>	<u>Employer Contributions</u>	<u>Most Applicable ADC</u>	<u>% of ADC</u>	<u>Covered-Employee Payroll</u>	<u>% of Payroll</u>
12/31/2019	\$3,076,824	\$3,099,295	99.27%	\$9,742,082	31.58%
12/31/2018	\$2,974,807	\$3,017,612	98.58%	\$9,804,157	30.34%
12/31/2017	\$3,190,585	\$3,158,694	101.01%	\$9,737,073	32.77%
12/31/2016	\$2,757,499	\$2,725,964	101.16%	\$9,120,915	30.23%
12/31/2015	\$2,412,752	\$2,298,247	104.98%	\$9,591,780	25.15%

When compared to the other policies reviewed, history suggests that a contribution as a percent of the Actuarially Determined Contribution is the least volatile, and as a result, the most stable contribution method under an Informal Funding Policy.

Other Known Events and Conditions

GASB has a provision for consideration of any other known events or conditions in the most recent five-year history in applying judgement for the Informal Funding Policy. There are no events or conditions that have been considered in the development of the Informal Funding Policy.

Consideration of Subsequent Events

GASB has a provision for modification based on consideration of subsequent events in development of the Informal Funding Policy. This report gives consideration to the fact that the Employer Contributions are greater than 100% of the Actuarially Determined Contribution on an Informal Funding Policy basis. We have projected the impact on the Unfunded Liability and limited payments towards the Unfunded Liability to \$0 when the Plan is projected to be 100% funded. The limitation on the number of years of payment towards Unfunded Liability may cause the projected payments towards Unfunded Liability to



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cease prior to the time stated in the underlying Actuarially Determined Contribution determination. The limitation on the number of years of payments does not impact the determination of the Discount Rate.

Informal Funding Policy – Selected

The Informal Funding Policy that has been determined for future contributions is 101.00% of the Actuarially Determined Contribution. This represents the full future contributions expected to be made.

**FUNDING POLICY – OTHER CONSIDERATIONS**

Under GASB, the future contribution amount is not intended to include dollars contributed on behalf of future employees. Contributions are only intended to cover contributions towards the Normal Cost of current employees as of the Actuarial Valuation Date as well as payment of Unfunded Liability on behalf of the current employees. Contributions under the funding policy have been adjusted as necessary to exclude dollars that would be anticipated to be contributed on behalf of future employees hired after the Actuarial Valuation Date.

The contribution level may not pay off the Unfunded Liability during the active working lifetimes of current employees. In that case, contributions will persist beyond the working lifetimes of current employees. To the extent that a portion of the above total contribution is anticipated to pay contributions for the Normal Cost of future employees, the amount has been netted out. The remaining amount is anticipated to be paid towards the Unfunded Liability existing for current employees.

The Actuarially Determined Contribution is determined annually based on the parameters previously discussed. The funding methods and procedures are assumed to continue into the future. The tax levy in the next December is assumed to be the Actuarially Determined Contribution. Funding is assumed to go into the Plan during the next full Fiscal Year.



## SCHEDULES OF REQUIRED SUPPLEMENTARY INFORMATION

Schedule of Changes in the Net Pension Liability  
Schedule of Total Pension Liability and Related Ratios  
Schedule of Contributions  
Notes to Schedule of Contributions

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**SCHEDULE OF CHANGES IN THE NET PENSION LIABILITY**

	12/31/2019	12/31/2018	12/31/2017	12/31/2016	12/31/2015	12/31/2014	12/31/2013	12/31/2012	12/31/2011	12/31/2010
<b>Total Pension Liability</b>										
Service Cost	\$ 2,359,751	\$ 2,334,601	\$ 2,223,842	\$ 2,403,809	\$ 2,218,371	\$ 1,923,551				
Interest	8,303,292	7,982,396	7,849,786	7,590,622	6,871,621	5,875,541				
Changes of Benefit Terms	693,301	-	-	-	-	-				
Differences Between Expected and Actual Experience	2,450,221	(5,843,359)	1,158,976	813,712	(2,470,125)	553,535				
Change in Assumptions	1,891,929	5,034,228	(869,501)	(3,356,117)	6,875,562	8,981,052				
Benefit Payments and Refunds	(5,137,433)	(4,370,267)	(4,120,087)	(3,379,270)	(3,068,722)	(2,739,212)				
<b>Net Change in Total Pension Liability</b>	<b>\$ 10,561,061</b>	<b>\$ 5,137,599</b>	<b>\$ 6,243,016</b>	<b>\$ 4,072,756</b>	<b>\$ 10,426,707</b>	<b>\$ 14,394,467</b>				
<b>Total Pension Liability - Beginning</b>	<b>125,580,456</b>	<b>120,442,857</b>	<b>114,199,841</b>	<b>110,127,085</b>	<b>99,700,378</b>	<b>85,305,911</b>				
<b>Total Pension Liability - Ending (a)</b>	<b>\$ 136,141,517</b>	<b>\$ 125,580,456</b>	<b>\$ 120,442,857</b>	<b>\$ 114,199,841</b>	<b>\$ 110,127,085</b>	<b>\$ 99,700,378</b>				
<b>Plan Fiduciary Net Position</b>										
Contributions - Employer	\$ 3,076,824	\$ 2,974,807	\$ 3,190,585	\$ 2,757,499	\$ 2,412,752	\$ 2,230,542				
Contributions - Members	969,133	978,773	957,040	944,052	1,037,640	1,051,328				
Contributions - Other	138,843	-	-	-	-	-				
Net Investment Income	14,364,945	(3,515,342)	9,767,115	5,984,456	(1,318,434)	3,912,368				
Benefit Payments and Refunds	(5,137,433)	(4,370,267)	(4,120,087)	(3,379,270)	(3,068,722)	(2,739,212)				
Administrative Expense	(45,319)	(27,016)	(21,592)	(22,581)	(31,865)	(29,933)				
<b>Net Change in Plan Fiduciary Net Position</b>	<b>\$ 13,366,993</b>	<b>\$ (3,959,045)</b>	<b>\$ 9,773,061</b>	<b>\$ 6,284,156</b>	<b>\$ (968,629)</b>	<b>\$ 4,425,093</b>				
<b>Plan Fiduciary Net Position - Beginning</b>	<b>84,572,549</b>	<b>88,531,594</b>	<b>78,758,533</b>	<b>72,474,377</b>	<b>73,443,006</b>	<b>69,017,913</b>				
<b>Plan Fiduciary Net Position - Ending (b)</b>	<b>\$ 97,939,542</b>	<b>\$ 84,572,549</b>	<b>\$ 88,531,594</b>	<b>\$ 78,758,533</b>	<b>\$ 72,474,377</b>	<b>\$ 73,443,006</b>				
<b>Employer's Net Pension Liability - Ending (a) - (b)</b>	<b>\$ 38,201,975</b>	<b>\$ 41,007,907</b>	<b>\$ 31,911,263</b>	<b>\$ 35,441,308</b>	<b>\$ 37,652,708</b>	<b>\$ 26,257,372</b>				

The current year information was developed in the completion of this report.



**SCHEDULE OF TOTAL PENSION LIABILITY AND RELATED RATIOS**

	12/31/2019	12/31/2018	12/31/2017	12/31/2016	12/31/2015	12/31/2014	12/31/2013	12/31/2012	12/31/2011	12/31/2010
Total Pension Liability - Ending (a)	\$ 136,141,517	\$ 125,580,456	\$ 120,442,857	\$ 114,199,841	\$ 110,127,085	\$ 99,700,378				
Plan Fiduciary Net Position - Ending (b)	\$ 97,939,542	\$ 84,572,549	\$ 88,531,594	\$ 78,758,533	\$ 72,474,377	\$ 73,443,006				
Employer's Net Pension Liability - Ending (a) - (b)	\$ 38,201,975	\$ 41,007,907	\$ 31,911,263	\$ 35,441,308	\$ 37,652,708	\$ 26,257,372				
Plan Fiduciary Net Position as a Percentage of the Total Pension Liability	71.94%	67.35%	73.51%	68.97%	65.81%	73.66%				
Covered-Employee Payroll	\$ 9,742,082	\$ 9,804,157	\$ 9,737,073	\$ 9,120,915	\$ 9,591,780	\$ 8,912,971				
Employer's Net Pension Liability as a Percentage of Covered-Employee Payroll	392.13%	418.27%	327.73%	388.57%	392.55%	294.60%				

Covered-Employee Payroll shown above for the current year is based on the Covered-Employee Payroll for the Plan Members during the Fiscal Year.



**SCHEDULE OF CONTRIBUTIONS**

	12/31/2019	12/31/2018	12/31/2017	12/31/2016	12/31/2015	12/31/2014	12/31/2013	12/31/2012	12/31/2011	12/31/2010
Actuarially Determined Contribution Contributions in Relation to the Actuarially Determined Contribution	\$ 3,099,295	\$ 3,017,612	\$ 3,158,694	\$ 2,725,964	\$ 2,298,247	\$ 2,198,171				
Contribution Deficiency/(Excess)	\$ 3,076,824	\$ 2,974,807	\$ 3,190,585	\$ 2,757,499	\$ 2,412,752	\$ 2,230,542				
	\$ 22,471	\$ 42,805	\$ (31,891)	\$ (31,535)	\$ (114,505)	\$ (32,371)				
Covered-Employee Payroll	\$ 9,742,082	\$ 9,804,157	\$ 9,737,073	\$ 9,120,915	\$ 9,591,780	\$ 8,912,971				
Contributions as a Percentage of Covered-Employee Payroll	31.58%	30.34%	32.77%	30.23%	25.15%	25.03%				

**NOTES TO SCHEDULE OF CONTRIBUTIONS**

The Actuarially Determined Contribution shown above for the current year is the Recommended Contribution from the January 1, 2018 Actuarial Valuation completed by Timothy W. Sharpe, Actuary for the December 2018 tax levy. The methods and assumptions shown below are based on the same Actuarial Valuation. For more detail on the age-based and service-based rates disclosed below, please see the Actuarial Valuation.

Actuarial Cost Method	Entry Age Normal
Amortization Method	Level Percentage of Pay
Remaining Amortization Period	23 Years
Asset Valuation Method	5-Year Average Market Value
Inflation	2.50%
Salary Increases	3.50% - 11.00%
Investment Rate of Return	6.75%
Mortality Rates	RP-2014 Projected to 2018 Using Improvement Scale MP-2017
Retirement Rates	Illinois Department of Insurance Actuarial Experience Study Dated October 5, 2017
Termination Rates	Illinois Department of Insurance Actuarial Experience Study Dated October 5, 2017
Disability Rates	Illinois Department of Insurance Actuarial Experience Study Dated October 5, 2017



# GASB METHODS AND PROCEDURES

GASB Methods and Procedures

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**GASB METHODS AND PROCEDURES**

	<b>Statement 67</b>	<b>Statement 68</b>
	<b><u>Pension Plan Financials</u></b>	<b><u>Employer Financials</u></b>
Fiscal Year End for Reporting	<b>December 31, 2019</b>	<b>December 31, 2019</b>
Measurement Date	December 31, 2019	December 31, 2019
Actuarial Valuation Date	January 1, 2019	January 1, 2019
Actuarial Valuation - Data Date	December 31, 2018	December 31, 2018
Asset Valuation Method	Market Value	Market Value
Actuarial Cost Method	Entry Age Normal (Level %)	Entry Age Normal (Level %)

**Methodology Used in the Determination of Deferred Outflows and Inflows of Resources**

Amortization Method	Straight Line	Straight Line
Amortization Period		
Actuarial Experience	8.73 Years	8.73 Years
Change in Assumptions	8.73 Years	8.73 Years
Asset Experience	5.00 Years	5.00 Years



## SUPPLEMENTARY TABLES

GASB Projections – Summary and Procedure  
GASB Projections – Limitations  
Projection of Contributions  
Notes to Projection of Contributions  
Projection of the Pension Plan's Fiduciary Net Position  
Notes to Projection of the Pension Plan's Fiduciary Net Position  
Actuarial Present Value of Projected Benefit Payments  
Notes to Actuarial Present Value of Projected Benefit Payments

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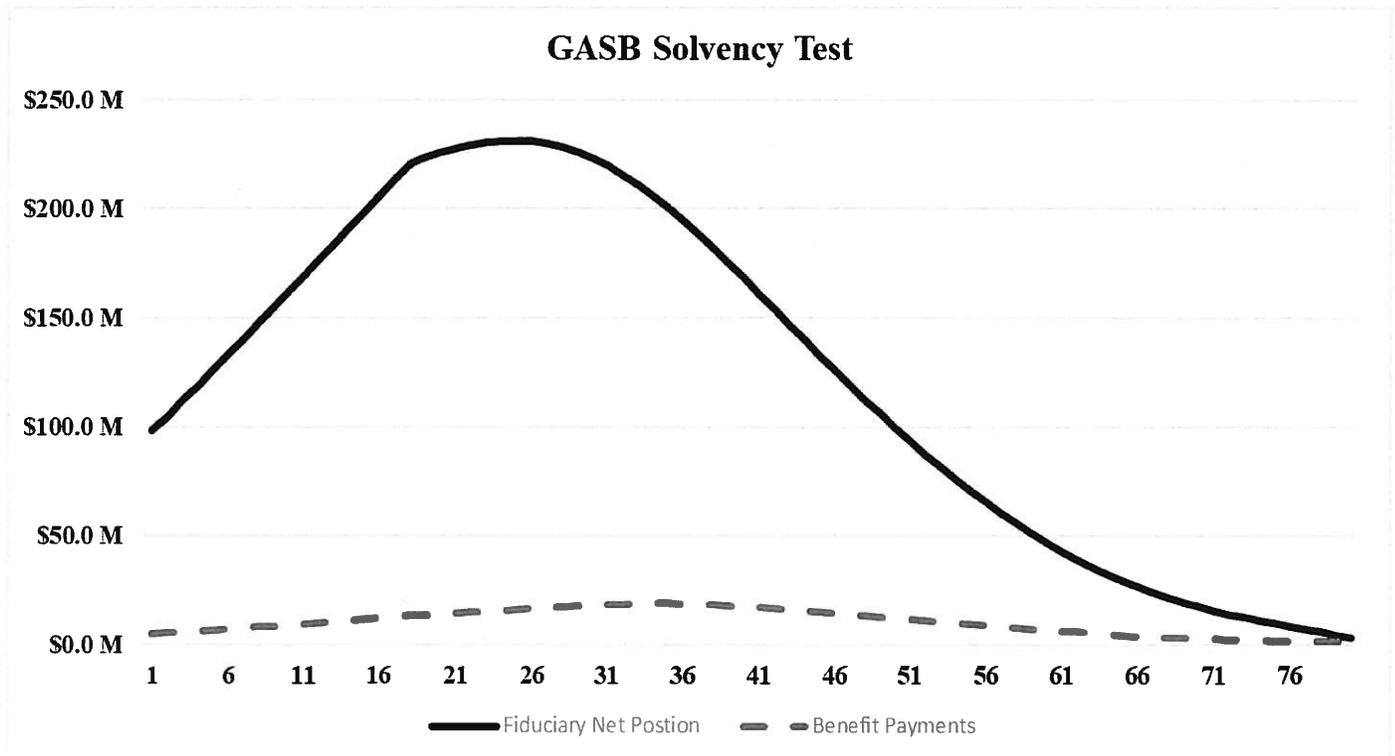


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## GASB PROJECTIONS – SUMMARY AND PROCEDURE

GASB requires a solvency test to use in the determination of the Discount Rate each year. The Plan Fiduciary Net Position is projected forward. To the extent that the Plan Fiduciary Net Position is anticipated to be greater than \$0, Projected Benefit Payments are discounted based on the Expected Rate of Return on Plan Investments.

If the Plan Fiduciary Net Position is anticipated to reach \$0 prior to the payment of Projected Benefit Payments for employees who are in the Plan as of the Actuarial Valuation Date, then the remaining Projected Benefit Payments are discounted using the High-Quality Municipal Bond Rate, as described in the *Actuarial Assumptions Information* section of this report. The chart below is a high-level summary of the projections:



The Plan's Projected Fiduciary Net Position is anticipated to cover Projected Benefit Payments in full for the current employees.



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## **GASB PROJECTIONS – LIMITATIONS**

Projections of any type require assumptions about future events. The projections required for GASB reporting are deterministic in nature. That means that values are projected forward under one set of assumptions which can be thought of as the average result. Actual results could vary, and projections of one deterministic assumption set do not necessarily provide a framework for making risk management or funding policy decisions. Projections that deal with risk management are outside the scope of this report.

In addition, GASB requirements create results that are specific only to financial statement reporting, and should not be used or interpreted for other purposes. For example, GASB cash flow projections do not entail the total expected cash flows of the Plan, but rather a subset of cash flows specific to employees who are in the Plan as of the Actuarial Valuation Date. While the likely expectation may be that future employees are hired to replace the current employees, cash flows attributable to their benefits are not considered. Under GASB, when the Plan Fiduciary Net Position reaches \$0, that represents the Plan Fiduciary Net Position for the assets attributable to the current employees.

Also, GASB mandates certain assumptions that are made in the projection process. Most notably, Projected Contributions under an Informal Funding Policy. In proposing an Informal Funding Policy, GASB suggests a focus be placed on the average contributions over the past 5 years. Projected Contributions in this section may be based on the five-year average, unless a Formal Funding Policy is in place.

Contributions reflecting an Informal Funding Policy are applied under GASB, whether or not the projected results dictate a need for more or less contributions. This would not be the case with other uses for projections. Any events that are taken into account (past or future) in the Informal Funding Policy are discussed in the *Funding Policy* section of this report.

Projections further into the future are more sensitive to assumption changes. For projections that run out close to 80 years, a small change in an assumption may have a dramatic impact on the projections. If the solvency of the Plan as determined by GASB remains constant, then dramatic changes in the projection results may not necessarily lead to big changes in the determination of the Total Pension Liability.

We recommend the projections are not used for any other purposes, other than providing information for purposes of the financial statement report.

The following pages provide the detail behind the chart shown on the prior page.



**PROJECTION OF CONTRIBUTIONS – YEARS 1 TO 30**

Year	Projected Pensionable Payroll			Projected Contributions			
	Payroll for Current Employees (a)	Payroll for Future Employees (b)	Total Employee Payroll (c) = (a) + (b)	Contributions from Current Employees (d) - Notes	Employer Contributions for Current Employees (e) - Notes	Contributions Related to Payroll of Future Employees (f) - Notes	Total Contributions (g) = (d) + (e) + (f)
1	\$ 9,850,503	\$ 311,078	\$ 10,161,581	\$ 976,185	\$ 4,505,751	\$ -	\$ 5,481,936
2	9,825,227	666,605	10,491,832	973,680	4,324,361	-	5,298,041
3	9,694,286	1,138,531	10,832,817	960,704	4,409,005	-	5,369,708
4	9,546,899	1,637,985	11,184,884	946,098	4,478,145	-	5,424,243
5	9,314,036	2,234,356	11,548,392	923,021	4,547,065	-	5,470,086
6	9,100,415	2,823,300	11,923,715	901,851	4,604,747	-	5,506,598
7	8,882,511	3,428,725	12,311,236	880,257	4,667,966	-	5,548,223
8	8,692,128	4,019,223	12,711,351	861,390	4,733,657	-	5,595,047
9	8,414,207	4,710,263	13,124,470	833,848	4,807,503	-	5,641,351
10	8,120,152	5,430,863	13,551,015	804,707	4,866,144	-	5,670,851
11	7,786,432	6,204,991	13,991,423	771,635	4,925,533	-	5,697,169
12	7,523,558	6,922,586	14,446,144	745,585	4,982,672	-	5,728,257
13	7,252,006	7,663,638	14,915,644	718,674	5,054,781	-	5,773,455
14	6,992,159	8,408,243	15,400,402	692,923	5,130,429	-	5,823,352
15	6,744,986	9,155,930	15,900,916	668,428	5,211,031	-	5,879,459
16	6,490,355	9,927,340	16,417,695	643,194	5,299,493	-	5,942,687
17	6,212,776	10,738,494	16,951,270	615,686	5,078,569	-	5,694,255
18	5,817,191	11,684,996	17,502,187	576,484	852,610	-	1,429,094
19	5,452,085	12,618,923	18,071,008	540,302	779,777	-	1,320,079
20	5,129,218	13,529,097	18,658,315	508,306	709,930	-	1,218,236
21	4,865,670	14,399,041	19,264,711	482,188	648,121	-	1,130,309
22	4,644,646	15,246,168	19,890,814	460,284	597,788	-	1,058,072
23	4,354,693	16,182,572	20,537,265	431,550	555,175	-	986,725
24	4,101,100	17,103,626	21,204,726	406,419	503,318	-	909,737
25	3,762,474	18,131,406	21,893,880	372,861	458,149	-	831,010
26	3,377,768	19,227,663	22,605,431	334,737	408,521	-	743,258
27	2,994,719	20,345,389	23,340,108	296,777	356,824	-	653,601
28	2,584,278	21,514,383	24,098,661	256,102	307,882	-	563,984
29	2,229,256	22,652,612	24,881,868	220,919	253,409	-	474,328
30	1,841,370	23,849,158	25,690,528	182,480	211,504	-	393,984

Column d – Contributions from current employees to the Plan (employees in the Plan as of the Actuarial Valuation Date).  
 Column e – Employer Contributions to the Plan excluding contributions for employees hired after the Actuarial Valuation Date.  
 Column f – Contributions from future employees to the extent that contributions are assumed to be greater than their Normal Cost.



**PROJECTION OF CONTRIBUTIONS – YEARS 31 TO 60**

Year	Projected Pensionable Payroll			Projected Contributions			
	Payroll for Current Employees (a)	Payroll for Future Employees (b)	Total Employee Payroll (c) = (a) + (b)	Contributions from Current Employees (d) - Notes	Employer Contributions for Current Employees (e) - Notes	Contributions Related to Payroll of Future Employees (f) - Notes	Total Contributions (g) = (d) + (e) + (f)
31	\$ 1,486,897	\$ 25,038,573	\$ 26,525,470	\$ 147,351	\$ 168,657	\$ -	\$ 316,008
32	1,107,950	26,279,598	27,387,548	109,798	130,698	-	240,496
33	865,333	27,412,311	28,277,644	85,755	89,882	-	175,637
34	569,653	28,627,014	29,196,667	56,453	65,846	-	122,299
35	347,776	29,797,783	30,145,559	34,465	40,005	-	74,470
36	243,992	30,881,297	31,125,289	24,180	20,121	-	44,301
37	157,676	31,979,185	32,136,861	15,626	13,496	-	29,122
38	89,171	33,092,138	33,181,309	8,837	8,038	-	16,875
39	-	34,259,702	34,259,702	-	4,021	-	4,021
40	-	35,373,142	35,373,142	-	-	-	-
41	-	36,522,769	36,522,769	-	-	-	-
42	-	37,709,759	37,709,759	-	-	-	-
43	-	38,935,326	38,935,326	-	-	-	-
44	-	40,200,725	40,200,725	-	-	-	-
45	-	41,507,248	41,507,248	-	-	-	-
46	-	42,856,234	42,856,234	-	-	-	-
47	-	44,249,061	44,249,061	-	-	-	-
48	-	45,687,156	45,687,156	-	-	-	-
49	-	47,171,988	47,171,988	-	-	-	-
50	-	48,705,078	48,705,078	-	-	-	-
51	-	50,287,993	50,287,993	-	-	-	-
52	-	51,922,353	51,922,353	-	-	-	-
53	-	53,609,829	53,609,829	-	-	-	-
54	-	55,352,149	55,352,149	-	-	-	-
55	-	57,151,093	57,151,093	-	-	-	-
56	-	59,008,504	59,008,504	-	-	-	-
57	-	60,926,280	60,926,280	-	-	-	-
58	-	62,906,384	62,906,384	-	-	-	-
59	-	64,950,842	64,950,842	-	-	-	-
60	-	67,061,744	67,061,744	-	-	-	-

Column d – Contributions from current employees to the Plan (employees in the Plan as of the Actuarial Valuation Date).  
 Column e – Employer Contributions to the Plan excluding contributions for employees hired after the Actuarial Valuation Date.  
 Column f – Contributions from future employees to the extent that contributions are assumed to be greater than their Normal Cost.



**PROJECTION OF CONTRIBUTIONS – YEARS 61 TO 80**

Year	Projected Pensionable Payroll			Projected Contributions			
	Payroll for Current Employees (a)	Payroll for Future Employees (b)	Total Employee Payroll (c) = (a) + (b)	Contributions from Current Employees (d) - Notes	Employer Contributions for Current Employees (e) - Notes	Contributions Related to Payroll of Future Employees (f) - Notes	Total Contributions (g) = (d) + (e) + (f)
61	\$ -	\$ 69,241,251	\$ 69,241,251	\$ -	\$ -	\$ -	\$ -
62	-	71,491,592	71,491,592	-	-	-	-
63	-	73,815,068	73,815,068	-	-	-	-
64	-	76,214,058	76,214,058	-	-	-	-
65	-	78,691,015	78,691,015	-	-	-	-
66	-	81,248,473	81,248,473	-	-	-	-
67	-	83,889,048	83,889,048	-	-	-	-
68	-	86,615,442	86,615,442	-	-	-	-
69	-	89,430,444	89,430,444	-	-	-	-
70	-	92,336,934	92,336,934	-	-	-	-
71	-	95,337,884	95,337,884	-	-	-	-
72	-	98,436,365	98,436,365	-	-	-	-
73	-	101,635,547	101,635,547	-	-	-	-
74	-	104,938,702	104,938,702	-	-	-	-
75	-	108,349,210	108,349,210	-	-	-	-
76	-	111,870,560	111,870,560	-	-	-	-
77	-	115,506,353	115,506,353	-	-	-	-
78	-	119,260,309	119,260,309	-	-	-	-
79	-	123,136,269	123,136,269	-	-	-	-
80	-	127,138,198	127,138,198	-	-	-	-

**NOTES TO PROJECTION OF CONTRIBUTIONS**

Total Employee Payroll is projected to increase annually at the Projected Total Payroll Increases rate shown in the *Actuarial Assumptions Information* section of this report. Payroll for current employees (employees in the Plan as of the Actuarial Valuation Date) are projected on an employee by employee basis, using the Projected Individual Pay Increases and probability of remaining an employee in the future.

Employer Contributions are related to current employees in the Plan as of the Actuarial Valuation Date. To the extent that Projected Contributions under the Funding Policy are made to cover the Normal Cost of benefit payments for future employees, those contributions are excluded for purposes of these projections and this report.

Contributions are based on the Funding Policy as described in the *Funding Policy* section of this report. The contributions do not factor in changes in the Funding Policy based on an assumed Employer decision; if, the projections were to play out in this fashion. The only future events that are considered were outlined in the *Funding Policy* section of this report. Contributions from future employees have not been included. It is assumed that contributions made by future employees will not exceed the Normal Cost of their participation in the Plan. In addition, Employer Contributions on behalf of future employees have not been included per the GASB parameters.



**PROJECTION OF THE PENSION PLAN'S FIDUCIARY NET POSITION – YEARS 1 TO 30**

Year	Projected Beginning Fiduciary Net Position (a)	Projected Total Contributions (b)	Projected Benefit Payments (c)	Projected Administrative Expense (d)	Projected Investment Earnings (e)	Projected Ending Fiduciary Net Position (f) = (a)+(b)-(c)-(d)+(e)
1	\$ 97,939,542	\$ 5,481,936	\$ 5,054,529	\$ 30,342	\$ 6,624,320	\$ 104,960,927
2	104,960,927	5,298,041	5,425,735	31,025	7,079,506	111,881,714
3	111,881,714	5,369,708	5,804,138	31,723	7,536,283	118,951,844
4	118,951,844	5,424,243	6,305,374	32,437	7,998,417	126,036,693
5	126,036,693	5,470,086	6,788,952	33,167	8,461,846	133,146,506
6	133,146,506	5,506,598	7,230,133	33,913	8,928,075	140,317,133
7	140,317,133	5,548,223	7,660,896	34,676	9,398,933	147,568,717
8	147,568,717	5,595,047	8,161,397	35,456	9,873,077	154,839,988
9	154,839,988	5,641,351	8,665,386	36,254	10,348,414	162,128,114
10	162,128,114	5,670,851	9,193,499	37,070	10,823,507	169,391,903
11	169,391,903	5,697,169	9,667,950	37,904	11,298,660	176,681,878
12	176,681,878	5,728,257	10,151,793	38,757	11,775,424	183,995,010
13	183,995,010	5,773,455	10,650,136	39,629	12,253,738	191,332,438
14	191,332,438	5,823,352	11,130,954	40,520	12,734,440	198,718,756
15	198,718,756	5,879,459	11,646,498	41,432	13,217,480	206,127,766
16	206,127,766	5,942,687	12,125,501	42,364	13,703,524	213,606,112
17	213,606,112	5,694,255	12,663,288	43,317	14,181,746	220,775,507
18	220,775,507	1,429,094	13,204,711	44,292	14,503,425	223,459,023
19	223,459,023	1,320,079	13,692,031	45,288	14,664,402	225,706,184
20	225,706,184	1,218,236	14,105,560	46,307	14,798,657	227,571,209
21	227,571,209	1,130,309	14,484,414	47,349	14,908,758	229,078,512
22	229,078,512	1,058,072	14,910,459	48,415	14,993,648	230,171,359
23	230,171,359	986,725	15,318,384	49,504	15,051,202	230,841,398
24	230,841,398	909,737	15,763,722	50,618	15,078,764	231,015,559
25	231,015,559	831,010	16,210,752	51,757	15,072,737	230,656,798
26	230,656,798	743,258	16,651,710	52,921	15,030,637	229,726,062
27	229,726,062	653,601	17,150,253	54,112	14,947,921	228,123,218
28	228,123,218	563,984	17,511,411	55,330	14,824,474	225,944,936
29	225,944,936	474,328	17,930,846	56,575	14,660,216	223,092,060
30	223,092,060	393,984	18,282,516	57,847	14,453,024	219,598,704

Column b – Contributions on behalf of current employees in the Plan as of the Actuarial Valuation Date.

Column d – Based on the average Administrative Expense in recent years, and projected to increase in the future.

Column e – Based on the Expected Rate of Return on Plan Investments, and does not factor in allocation changes.



**PROJECTION OF THE PENSION PLAN'S FIDUCIARY NET POSITION – YEARS 31 TO 60**

Year	Projected Beginning Fiduciary Net Position (a)	Projected Total Contributions (b)	Projected Benefit Payments (c)	Projected Administrative Expense (d)	Projected Investment Earnings (e)	Projected Ending Fiduciary Net Position (f) = (a)+(b)-(c)-(d)+(e)
31	\$ 219,598,704	\$ 316,008	\$ 18,567,829	\$ 59,149	\$ 14,204,917	\$ 215,492,651
32	215,492,651	240,496	18,715,064	60,480	13,920,196	210,877,799
33	210,877,799	175,637	18,867,538	61,841	13,601,313	205,725,370
34	205,725,370	122,299	18,968,220	63,232	13,248,279	200,064,495
35	200,064,495	74,470	18,872,568	64,655	12,867,735	194,069,477
36	194,069,477	44,301	18,723,422	66,110	12,467,038	187,791,284
37	187,791,284	29,122	18,523,065	66,657	12,049,491	181,280,175
38	181,280,175	16,875	18,298,845	64,425	11,617,221	174,551,001
39	174,551,001	4,021	17,971,965	62,114	11,173,678	167,694,621
40	167,694,621	-	17,607,566	59,742	10,723,115	160,750,428
41	160,750,428	-	17,207,876	57,333	10,267,953	153,753,172
42	153,753,172	-	16,774,187	54,900	9,810,357	146,734,443
43	146,734,443	-	16,308,622	52,453	9,352,389	139,725,757
44	139,725,757	-	15,814,051	50,004	8,896,077	132,757,778
45	132,757,778	-	15,294,033	47,565	8,443,371	125,859,552
46	125,859,552	-	14,751,865	45,144	7,996,121	119,058,664
47	119,058,664	-	14,191,437	42,753	7,556,056	112,380,530
48	112,380,530	-	13,617,851	40,400	7,124,720	105,846,999
49	105,846,999	-	13,036,332	38,094	6,703,411	99,475,984
50	99,475,984	-	12,449,852	35,841	6,293,237	93,283,527
51	93,283,527	-	11,862,518	33,648	5,895,142	87,282,504
52	87,282,504	-	11,277,695	31,519	5,509,883	81,483,172
53	81,483,172	-	10,698,643	29,460	5,138,041	75,893,110
54	75,893,110	-	10,127,868	27,472	4,780,042	70,517,813
55	70,517,813	-	9,566,374	25,557	4,436,225	65,362,106
56	65,362,106	-	9,015,334	23,719	4,106,874	60,429,927
57	60,429,927	-	8,474,787	21,958	3,792,255	55,725,437
58	55,725,437	-	7,945,192	20,276	3,492,632	51,252,602
59	51,252,602	-	7,427,034	18,674	3,208,258	47,015,151
60	47,015,151	-	6,920,334	17,154	2,939,383	43,017,046

Column b – Contributions on behalf of current employees in the Plan as of the Actuarial Valuation Date.  
 Column d – Based on the average Administrative Expense in recent years, and projected to increase in the future.  
 Column e – Based on the Expected Rate of Return on Plan Investments, and does not factor in allocation changes.



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**PROJECTION OF THE PENSION PLAN'S FIDUCIARY NET POSITION – YEARS 61 TO 80**

Year	Projected Beginning Fiduciary Net Position (a)	Projected Total Contributions (b)	Projected Benefit Payments (c)	Projected Administrative Expense (d)	Projected Investment Earnings (e)	Projected Ending Fiduciary Net Position (f) = (a)+(b)-(c)-(d)+(e)
61	\$ 43,017,046	\$ -	\$ 6,425,800	\$ 15,716	\$ 2,686,249	\$ 39,261,780
62	39,261,780	-	5,945,245	14,363	2,449,033	35,751,206
63	35,751,206	-	5,480,142	13,094	2,227,810	32,485,779
64	32,485,779	-	5,032,228	11,911	2,022,550	29,464,190
65	29,464,190	-	4,604,534	10,814	1,833,065	26,681,907
66	26,681,907	-	4,200,110	9,801	1,658,944	24,130,941
67	24,130,941	-	3,822,683	8,870	1,499,524	21,798,911
68	21,798,911	-	3,475,709	8,017	1,353,851	19,669,035
69	19,669,035	-	3,161,739	7,239	1,220,707	17,720,765
70	17,720,765	-	2,882,704	6,527	1,098,640	15,930,174
71	15,930,174	-	2,639,677	5,874	985,999	14,270,622
72	14,270,622	-	2,432,740	5,272	880,984	12,713,595
73	12,713,595	-	2,253,353	4,710	781,958	11,237,489
74	11,237,489	-	2,097,450	4,181	687,600	9,823,459
75	9,823,459	-	1,933,007	3,676	597,720	8,484,496
76	8,484,496	-	1,801,882	3,196	511,782	7,191,200
77	7,191,200	-	1,689,899	2,736	428,280	5,926,845
78	5,926,845	-	1,632,556	2,290	344,886	4,636,885
79	4,636,885	-	1,610,757	1,844	258,564	3,282,848
80	3,282,848	-	1,481,833	1,382	171,534	1,971,166

**NOTES TO PROJECTION OF THE PENSION PLAN'S FIDUCIARY NET POSITION**

Projected Total Contributions are Employee and Employer Contributions projected to be made under the Funding Policy on behalf of current employees in the Plan as of the Actuarial Valuation Date. The amounts shown are detailed earlier in this section.

Projected Benefit Payments shown represents current employees as of the Actuarial Valuation Date. The Plan will pay benefits in the future on behalf of employees hired after the Actuarial Valuation Date, but those benefit payments are not projected for this purpose.

Projected Investment Earnings are based on the Expected Rate of Return on Plan Investments. Administrative Expense are typically not charged on a per employee basis. Administrative Expenses shown are not projected to distinguish between current and future employees.

The Projected Fiduciary Net Position represents assets held or projected to be held on behalf of current employees in the Plan as of the Actuarial Valuation Date. The Plan will hold assets in the future on behalf of employees hired after the Actuarial Valuation Date, but those assets are not projected for this purpose.



**ACTUARIAL PRESENT VALUE OF PROJECTED BENEFIT PAYMENTS – YEARS 1 TO 30**

Year	Projected Beginning Fiduciary Net Position	Projected Benefit Payments	Projected Benefit Payments		Actuarial Present Values of Projected Benefit Payments		
			"Funded" Portion of Benefit Payments	"Unfunded" Portion of Benefit Payments	Present Value of "Funded" Benefit Payments (6.75%)	Present Value of "Unfunded" Benefit Payments (2.74%)	Present Value of Benefit Payments Using the Single Discount Rate (6.75%)
1	\$ 97,939,542	\$ 5,054,529	\$ 5,054,529	\$ -	\$ 4,892,116	\$ -	\$ 4,892,116
2	104,960,927	5,425,735	5,425,735	-	4,919,339	-	4,919,339
3	111,881,714	5,804,138	5,804,138	-	4,929,672	-	4,929,672
4	118,951,844	6,305,374	6,305,374	-	5,016,759	-	5,016,759
5	126,036,693	6,788,952	6,788,952	-	5,059,962	-	5,059,962
6	133,146,506	7,230,133	7,230,133	-	5,048,042	-	5,048,042
7	140,317,133	7,660,896	7,660,896	-	5,010,584	-	5,010,584
8	147,568,717	8,161,397	8,161,397	-	5,000,407	-	5,000,407
9	154,839,988	8,665,386	8,665,386	-	4,973,486	-	4,973,486
10	162,128,114	9,193,499	9,193,499	-	4,942,947	-	4,942,947
11	169,391,903	9,667,950	9,667,950	-	4,869,357	-	4,869,357
12	176,681,878	10,151,793	10,151,793	-	4,789,742	-	4,789,742
13	183,995,010	10,650,136	10,650,136	-	4,707,134	-	4,707,134
14	191,332,438	11,130,954	11,130,954	-	4,608,568	-	4,608,568
15	198,718,756	11,646,498	11,646,498	-	4,517,114	-	4,517,114
16	206,127,766	12,125,501	12,125,501	-	4,405,523	-	4,405,523
17	213,606,112	12,663,288	12,663,288	-	4,309,991	-	4,309,991
18	220,775,507	13,204,711	13,204,711	-	4,210,086	-	4,210,086
19	223,459,023	13,692,031	13,692,031	-	4,089,423	-	4,089,423
20	225,706,184	14,105,560	14,105,560	-	3,946,541	-	3,946,541
21	227,571,209	14,484,414	14,484,414	-	3,796,289	-	3,796,289
22	229,078,512	14,910,459	14,910,459	-	3,660,846	-	3,660,846
23	230,171,359	15,318,384	15,318,384	-	3,523,186	-	3,523,186
24	230,841,398	15,763,722	15,763,722	-	3,396,358	-	3,396,358
25	231,015,559	16,210,752	16,210,752	-	3,271,825	-	3,271,825
26	230,656,798	16,651,710	16,651,710	-	3,148,312	-	3,148,312
27	229,726,062	17,150,253	17,150,253	-	3,037,537	-	3,037,537
28	228,123,218	17,511,411	17,511,411	-	2,905,389	-	2,905,389
29	225,944,936	17,930,846	17,930,846	-	2,786,866	-	2,786,866
30	223,092,060	18,282,516	18,282,516	-	2,661,849	-	2,661,849

The Projected Fiduciary Net Position and Benefit Payments are based on current employees in the Plan as of the Actuarial Valuation Date. The development of the Projected Fiduciary Net Position is shown in more detail earlier in this section.



**ACTUARIAL PRESENT VALUE OF PROJECTED BENEFIT PAYMENTS – YEARS 31 TO 60**

Year	Projected Beginning Fiduciary Net Position	Projected Benefit Payments	Projected Benefit Payments		Actuarial Present Values of Projected Benefit Payments		
			"Funded" Portion of Benefit Payments	"Unfunded" Portion of Benefit Payments	Present Value of "Funded" Benefit Payments (6.75%)	Present Value of "Unfunded" Benefit Payments (2.74%)	Present Value of Benefit Payments Using the Single Discount Rate (6.75%)
31	\$ 219,598,704	\$ 18,567,829	\$ 18,567,829	\$ -	\$ 2,532,449	\$ -	\$ 2,532,449
32	215,492,651	18,715,064	18,715,064	-	2,391,129	-	2,391,129
33	210,877,799	18,867,538	18,867,538	-	2,258,182	-	2,258,182
34	205,725,370	18,968,220	18,968,220	-	2,126,682	-	2,126,682
35	200,064,495	18,872,568	18,872,568	-	1,982,161	-	1,982,161
36	194,069,477	18,723,422	18,723,422	-	1,842,152	-	1,842,152
37	187,791,284	18,523,065	18,523,065	-	1,707,203	-	1,707,203
38	181,280,175	18,298,845	18,298,845	-	1,579,894	-	1,579,894
39	174,551,001	17,971,965	17,971,965	-	1,453,557	-	1,453,557
40	167,694,621	17,607,566	17,607,566	-	1,334,037	-	1,334,037
41	160,750,428	17,207,876	17,207,876	-	1,221,316	-	1,221,316
42	153,753,172	16,774,187	16,774,187	-	1,115,255	-	1,115,255
43	146,734,443	16,308,622	16,308,622	-	1,015,739	-	1,015,739
44	139,725,757	15,814,051	15,814,051	-	922,657	-	922,657
45	132,757,778	15,294,033	15,294,033	-	835,894	-	835,894
46	125,859,552	14,751,865	14,751,865	-	755,280	-	755,280
47	119,058,664	14,191,437	14,191,437	-	680,644	-	680,644
48	112,380,530	13,617,851	13,617,851	-	611,835	-	611,835
49	105,846,999	13,036,332	13,036,332	-	548,672	-	548,672
50	99,475,984	12,449,852	12,449,852	-	490,856	-	490,856
51	93,283,527	11,862,518	11,862,518	-	438,126	-	438,126
52	87,282,504	11,277,695	11,277,695	-	390,188	-	390,188
53	81,483,172	10,698,643	10,698,643	-	346,749	-	346,749
54	75,893,110	10,127,868	10,127,868	-	307,494	-	307,494
55	70,517,813	9,566,374	9,566,374	-	272,081	-	272,081
56	65,362,106	9,015,334	9,015,334	-	240,195	-	240,195
57	60,429,927	8,474,787	8,474,787	-	211,516	-	211,516
58	55,725,437	7,945,192	7,945,192	-	185,760	-	185,760
59	51,252,602	7,427,034	7,427,034	-	162,665	-	162,665
60	47,015,151	6,920,334	6,920,334	-	141,984	-	141,984

The Projected Fiduciary Net Position and Benefit Payments are based on current employees in the Plan as of the Actuarial Valuation Date. The development of the Projected Fiduciary Net Position is shown in more detail earlier in this section.



**ACTUARIAL PRESENT VALUE OF PROJECTED BENEFIT PAYMENTS – YEARS 61 TO 80**

Year	Projected Beginning Fiduciary Net Position	Projected Benefit Payments	Projected Benefit Payments		Actuarial Present Values of Projected Benefit Payments		
			"Funded" Portion of Benefit Payments	"Unfunded" Portion of Benefit Payments	Present Value of "Funded" Benefit Payments (6.75%)	Present Value of "Unfunded" Benefit Payments (2.74%)	Present Value of Benefit Payments Using the Single Discount Rate (6.75%)
61	\$ 43,017,046	\$ 6,425,800	\$ 6,425,800	\$ -	\$ 123,501	\$ -	\$ 123,501
62	39,261,780	5,945,245	5,945,245	-	107,040	-	107,040
63	35,751,206	5,480,142	5,480,142	-	92,427	-	92,427
64	32,485,779	5,032,228	5,032,228	-	79,506	-	79,506
65	29,464,190	4,604,534	4,604,534	-	68,149	-	68,149
66	26,681,907	4,200,110	4,200,110	-	58,232	-	58,232
67	24,130,941	3,822,683	3,822,683	-	49,648	-	49,648
68	21,798,911	3,475,709	3,475,709	-	42,287	-	42,287
69	19,669,035	3,161,739	3,161,739	-	36,035	-	36,035
70	17,720,765	2,882,704	2,882,704	-	30,777	-	30,777
71	15,930,174	2,639,677	2,639,677	-	26,401	-	26,401
72	14,270,622	2,432,740	2,432,740	-	22,793	-	22,793
73	12,713,595	2,253,353	2,253,353	-	19,777	-	19,777
74	11,237,489	2,097,450	2,097,450	-	17,245	-	17,245
75	9,823,459	1,933,007	1,933,007	-	14,888	-	14,888
76	8,484,496	1,801,882	1,801,882	-	13,000	-	13,000
77	7,191,200	1,689,899	1,689,899	-	11,421	-	11,421
78	5,926,845	1,632,556	1,632,556	-	10,336	-	10,336
79	4,636,885	1,610,757	1,610,757	-	9,553	-	9,553
80	3,282,848	1,481,833	1,481,833	-	8,233	-	8,233

**NOTES TO THE ACTUARIAL PRESENT VALUE OF PROJECTED BENEFIT PAYMENTS**

The Projected Fiduciary Net Position and Benefit Payments are based on current employees in the Plan as of the Actuarial Valuation Date. The development of the Projected Fiduciary Net Position is shown in more detail earlier in this section.

The Funded and Unfunded Portion of Benefit Payments are split based on the time that the Projected Fiduciary Net Position is to reach \$0 (based on assets for current employees).

The Present Value ("PV") of the Funded and Unfunded Portion of Benefit Payments are determined separately. The PV of the Funded Portion of Benefit Payments uses the Expected Rate of Return on Plan Investments. The PV of the Unfunded Portion of Benefit Payments are determined using the High-Quality Municipal Bond Rate as of the Measurement Date, as described in the *Actuarial Assumptions Information* section of this report.

The Discount Rate used for GASB purposes is the rate such that when applied to the Total Projected Benefit Payments results in a Present Value that equals the sum of the Present Value of the Funded and Unfunded Portion of Benefit Payments. The Discount Rate is rounded to four decimal places; therefore, the resulting Present Value comparisons may show a slight difference due to rounding.



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