Request for Board Action

REFERRED TO BOARD November 25, 2020 **AGENDA ITEM NO: 2**

ORIGINATING DEPARTMENT: Finance Department

SUBJECT: Consideration of a Resolution accepting the GASB 67&68 Actuarial Valuation for Fiscal Year ended April 30, 2020 and the Tax Levy Actuarial Valuation for Fiscal Year Ending April 30, 2021 for the Police Pension Fund.

SUMMARY AND BACKGROUND OF SUBJECT MATTER:

FINANCIAL IMPACT: Police Pension Levy of $2,151,257.

DOCUMENTS ATTACHED:

1. Resolution
2. GASB 67 & 68 Actuarial Valuation
3. Tax Levy Actuarial Valuation

RECOMMENDED MOTION:

Move to Approve a Resolution accepting the GASB 67&68 Actuarial Valuation for Fiscal Year ended April 30, 2020 and the Tax Levy Actuarial Valuation for Fiscal Year Ending April 30, 2021 for Village of Antioch Police Pension Fund as prepared by the Lauterbach & Amen

RESOLUTION NO. 20-

A RESOLUTION ACCEPTING THE GASB 67&68 ACTUARIAL VALUATION FOR FISCAL YEAR ENDED APRIL 30, 2020 AND THE TAX LEVY ACTUARIAL VALUATION FOR FISCAL YEAR ENDING APRIL 30, 2021 FOR VILLAGE OF ANTIOCH POLICE PENSION FUND.

WHEREAS, the Village of Antioch, Lake County, Illinois (the "Village") is a duly organized and existing municipality created under the provisions of the laws of the State of Illinois; and

WHEREAS, the GASB 67 & 68 Actuarial Valuation and the Tax Levy Actuarial Valuation were prepared by Lauterbach and Amen, LLP for the Antioch Police Pension Fund; and

WHEREAS, the corporate authorities have considered the presentation and recommendation of acceptance of the GASB 67 and GASB 68 and the Tax Levy Actuarial Valuations;

NOW, THEREFORE, BE IT RESOLVED, by the Mayor and Board of Trustees of the Village of Antioch to accept as presented the GASB 67&68 Actuarial Valuation for fiscal year ended April 30, 2020 and the Tax Levy Actuarial Valuation for fiscal year ending April 30, 2021 for the Village of Antioch Police Pension Fund, as prepared by Lauterbach and Amen, LLP.

ADOPTED by the Mayor and Village Board of Trustees of the Village of Antioch, Lake County, Illinois, this ___day of November, 2020.

APPROVED this ___ day of _____ 2020.

AYES:

NAYS:

ABSENT:

_____
Lawrence M. Hanson, Mayor

ATTEST:

_____
Lori K. Romine, Village Clerk

VILLAGE OF ANTIOCH, ILLINOIS
POLICE PENSION FUND

PUBLIC ACT 95-0950
MUNICIPAL COMPLIANCE REPORT

FOR THE FISCAL YEAR ENDED
APRIL 30, 2020

Lauterbach & Amen, LLP
CERTIFIED PUBLIC ACCOUNTANTS
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November 2, 2020

Members of the Pension Board of Trustees
Antioch Police Pension Fund
Antioch, Illinois

Enclosed please find a copy of your Municipal Compliance Report for the Antioch Police Pension Fund for the fiscal year ended April 30, 2020. We have prepared the report with the most recent information available at our office. Should you have more current information, or notice any inaccuracies, we are prepared to make any necessary revisions and return them to you.

The President and Secretary of the Pension Fund are required to sign the report of page 3. If not already included with the enclosed report, please also include a copy of the Pension Fund's most recent investment policy.

The signed Public Act 95-0950 – Municipal Compliance Report must be provided to the municipality before the tax levy is filed on the last Tuesday in December. We are sending the report via email to promote an environmentally-friendly work atmosphere.

If you have any questions regarding this report, please contact us at auditreport@lauterbachamen.com.

Respectfully submitted,

Lauterbach & Amen, LLP

Lauterbach & Amen, LLP

VILLAGE OF ANTIOCH, ILLINOIS
POLICE PENSION FUND

Public Act 95-950 - Municipal Compliance Report
For the Fiscal Year Ending April 30, 2020

The Pension Board certifies to the Board of Trustees of the Village of Antioch, Illinois on the condition of the Pension Fund at the end of its most recently completed fiscal year the following information:

1) The total cash and investments, including accrued interest, of the fund at market value and the total net position of the Pension Fund:

	Current Fiscal Year	Preceding Fiscal Year
Total Cash and Investments (including accrued interest)	$10,623,407	$10,180,015
Total Net Position	$10,629,337	$10,180,218

2) The estimated receipts during the next succeeding fiscal year from deductions from the salaries of police officers and from other sources:

Estimated Receipts - Employee Contributions	$259,400
Estimated Receipts - All Other Sources	
Investment Earnings	$717,100
Municipal Contributions	$2,020,811

3) The estimated amount required during the next succeeding fiscal year to (a) pay all pensions and other obligations provided in Article 3 of the Illinois Pension Code, and (b) to meet the annual requirements of the fund as provided in Sections 3-125 and 3-127:

(a) Pay all Pensions and Other Obligations	$1,832,400
(b) Annual Requirement of the Fund as Determined by:	
Illinois Department of Insurance	$2,029,790
Private Actuary - Lauterbach & Amen, LLP	
Recommended Municipal Contribution	$2,020,811
Statutory Municipal Contribution	$1,731,507

VILLAGE OF ANTIOCH, ILLINOIS
POLICE PENSION FUND

Public Act 95-950 - Municipal Compliance Report
For the Fiscal Year Ending April 30, 2020

4) The total net income received from investment of assets along with the assumed investment return and actual investment return received by the fund during its most recently completed fiscal year compared to the total net income, assumed investment return, and actual investment return received during the preceding fiscal year:

	Current Fiscal Year	Preceding Fiscal Year
Net Income Received from Investment of Assets	($160,694)	$552,452
Assumed Investment Return		
Illinois Department of Insurance	6.00%	5.75%
Private Actuary - Lauterbach & Amen, LLP	6.75%	6.75%
Actual Investment Return	(1.37)%	6.15%

5) The total number of active employees who are financially contributing to the fund:

Number of Active Members	26

6) The total amount that was disbursed in benefits during the fiscal year, including the number of and total amount disbursed to (i) annuitants in receipt of a regular retirement pension, (ii) recipients being paid a disability pension, and (iii) survivors and children in receipt of benefits:

	Number of	Total Amount Disbursed
(i) Regular Retirement Pension	14	$1,085,324
(ii) Disability Pension	5	$224,184
(iii) Survivors and Child Benefits	2	$110,492
Totals	21	$1,420,000

VILLAGE OF ANTIOCH, ILLINOIS
POLICE PENSION FUND

Public Act 95-950 - Municipal Compliance Report
For the Fiscal Year Ending April 30, 2020

7) The funded ratio of the fund:

	Current Fiscal Year	Preceding Fiscal Year
Illinois Department of Insurance	29.44%	28.40%
Private Actuary - Lauterbach & Amen, LLP	32.20%	31.78%

8) The unfunded liability carried by the fund, along with an actuarial explanation of the unfunded liability:

Unfunded Liability:

Illinois Department of Insurance	$24,934,729
Private Actuary - Lauterbach & Amen, LLP	$22,254,457

The accrued liability is the actuarial present value of the portion of the projected benefits that has been accrued as of the valuation date based upon the actuarial valuation method and the actuarial assumptions employed in the valuation. The unfunded accrued liability is the excess of the accrued liability over the actuarial value of assets.

9) The investment policy of the Pension Board under the statutory investment restrictions imposed on the fund.

Investment Policy - See Attached.

Please see Notes Page attached.

CERTIFICATION OF MUNICIPAL POLICE
PENSION FUND COMPLIANCE REPORT

The Board of Trustees of the Pension Fund, based upon information and belief, and to the best of our knowledge, hereby certify pursuant to §3-143 of the Illinois Pension Code 40 ILCS 5/3-143, that the preceding report is true and accurate.

Adopted this _____ day of _____, 2020

President _____ Date _____

Secretary _____ Date _____

INDEX OF ASSUMPTIONS

1) Total Cash and Investments - as Reported at Market Value in the Audited Financial Statements for the Years Ended April 30, 2020 and 2019.

   Total Net Position - as Reported in the Audited Financial Statements for the Years Ended April 30, 2020 and 2019.

2) Estimated Receipts - Employee Contributions as Reported in the Audited Financial Statements for the Year Ended April 30, 2020 plus 3.25% Increase (Actuarial Salary Increase Assumption) Rounded to the Nearest $100.

   Estimated Receipts - All Other Sources:

   Investment Earnings - Cash and Investments as Reported in the Audited Financial Statements for the Year Ended April 30, 2020, times 6.75% (Actuarial Investment Return Assumption) Rounded to the Nearest $100.

   Municipal Contributions - Recommended Tax Levy Requirement as Reported by Lauterbach & Amen, LLP, Actuarial Valuation for the Year Ended April 30, 2019.

3) (a) Pay all Pensions and Other Obligations - Total Non-Investment Deductions as Reported in the Audited Financial Statements for the Year Ended April 30, 2020, plus a 25% Increase, Rounded to the Nearest $100.

   (b) Annual Requirement of the Fund as Determined by:

   Illinois Department of Insurance - Suggested Amount of Tax Levy as Reported in the April 30, 2019 Actuarial Valuation.

   Private Actuary - Lauterbach & Amen, LLP

   Recommended Amount of Tax Levy as Reported by Lauterbach & Amen, LLP in the April 30, 2019 Actuarial Valuation.

   Statutorily Required Amount of Tax Levy as Reported by Lauterbach & Amen, LLP in the April 30, 2019 Actuarial Valuation.

INDEX OF ASSUMPTIONS - Continued

4) Net Income Received from Investment of Assets - Investment Income (Loss) net of Investment Expense, as Reported in the Audited Financial Statements for the Years Ended April 30, 2020 and 2019.

   Assumed Investment Return:

   Illinois Department of Insurance - Current and Preceding Fiscal Year Interest Rate Assumption as Reported in the April 30, 2019 and 2018 Actuarial Valuations.

   Private Actuary - Current and Preceding Fiscal Year Interest Rate Assumption as Reported in the Lauterbach & Amen, LLP, April 30, 2019 and 2018 Actuarial Valuations.

   Actual Investment Return - Money Weighted Rate of Return under GASB Pronouncements 67 and 68, as Reported in the Audited Financial Statements for the Fiscal Years Ended April 30, 2020 and 2019.

5) Number of Active Members - Illinois Department of Insurance Annual Statement for April 30, 2020 - Schedule P.

6) (i) Regular Retirement Pension - Illinois Department of Insurance Annual Statement for April 30, 2020 - Schedule P for Number of Participants and Expense page 1 for Total Amount Disbursed.

   (ii) Disability Pension - Same as above.

   (iii) Survivors and Child Benefits - Same as above.

INDEX OF ASSUMPTIONS - Continued

7) The funded ratio of the fund:

   Illinois Department of Insurance - Current and Preceding Fiscal Year Actuarial Value of Assets as a percentage of Accrued Liability as Reported in the April 30, 2019 and 2018 Actuarial Valuations.

   Private Actuary - Current and Preceding Fiscal Year Actuarial Value of Assets as a percentage of Accrued Liability as Reported in the Lauterbach & Amen, LLP, April 30, 2019 and 2018 Actuarial Valuations.

8) Unfunded Liability:

   Illinois Department of Insurance - Deferred Asset (Unfunded Accrued Liability) as Reported in the April 30, 2019 Actuarial Valuation.

   Private Actuary - Deferred Asset (Unfunded Accrued Liability) as Reported by Lauterbach & Amen, LLP in the April 30, 2019 Actuarial Valuation.

VILLAGE OF ANTIOCH, ILLINOIS
POLICE PENSION FUND

INVESTMENT POLICY STATEMENT
July 21, 2020

I. PURPOSE

The investment of pension funds is the responsibility of the Board of Trustees of the Antioch Police Pension Fund ("the Pension Board"). The purpose of this investment policy is to indicate a conscious, formal effort by the Pension Board to develop, implement and monitor the investment of pension funds. It shall be considered an important means to communicate the Pension Board's policy views on management of pension funds to the public and to the participants and beneficiaries of the Antioch Police Pension Fund ("the Pension Fund").

II. SCOPE

This policy governs the investment practices and applies to all financial transactions of the Pension Fund.

III. INVESTMENT OBJECTIVES

The Pension Board has the fiduciary responsibility to discharge its duties with respect to the Pension Fund solely in the interest of the participants and beneficiaries as set forth in the Illinois Pension Code.

Preservation of Principal – Preservation of principal is the Pension Board's foremost objective. Investment transactions shall first seek to ensure that large capital losses are avoided. Additionally, the Pension Board's objective is to avoid erosion of principal resulting from securities default or declines in market value.

Return on Investments – The Pension Board seeks to attain or exceed market rates of return on investments consistent with constraints imposed by safety objectives, cash flow considerations, and Illinois laws that restrict the placement of public pension funds.

Maintenance of Public Trust – All participants in the investment process shall seek to act responsibly as custodians of the Pension Fund. Investment officials, advisers, or consultants shall avoid any transaction that might reasonably impair Pension Fund participant's confidence in the Pension Board's ability to manage the Pension Fund.

Liquidity – The assets shall be sufficiently liquid to meet the Pension Fund's disbursement requirements for the payment of operating expenses and benefits.

IV. RESPONSIBILITY

The Pension Board is responsible for the management of the Pension Fund's investment program. No person may engage in an investment transaction except as provided under the terms of this policy.

The Pension Board, in consultation with the Pension Fund's treasurer, shall be responsible for establishing internal controls and written procedures for the investment program's operation.

The Pension Board may appoint an investment adviser or consultant to assist in the investment program's management. The investment adviser or consultant shall acknowledge, in writing, that he or she is a fiduciary with respect to the Pension Fund. Any such written acknowledgement shall be included in the agreement between the Pension Board and the investment adviser or consultant.

The Pension Board will meet with the investment adviser or consultant at least quarterly to review market conditions and to determine investment strategy. This review will include analysis of the investment portfolio, its effectiveness in meeting the Pension Fund's needs for safety, liquidity, rate of return, diversification, and general performance.

V. PRUDENCE

The standard of prudence to be used by investment officials shall be the "prudent investor" and shall be applied in the context of managing the portfolio. Investments shall be made with the care, skill, prudence and diligence that a prudent person acting in like capacity and familiar with such matters would use in the conduct of an enterprise of like character with like aims.

VI. PROHIBITED TRANSACTIONS

A fiduciary with respect to the Pension Fund shall not:

1. Deal with the assets of the Pension Fund in his or her own interests or for his or her own account.

2. In their individual or other capacity effect any transaction involving the Pension Fund on behalf of a party whose interests are adverse to the interests of the Pension Fund or the interests of its participants or beneficiaries.

3. Receive any consideration for his or her own personal account from any party dealing with the Pension Fund in connection with a transaction involving assets of the Pension Fund.

4. Knowingly cause or advise the Pension Fund to engage in an investment transaction when the fiduciary (i) has any direct interest in the income, gains, or profits of the investment adviser through which the investment transaction is made or (ii) has a business relationship with that investment adviser that would result in a pecuniary benefit to the fiduciary as a result of the investment transaction.

VII. INVESTMENT INSTRUMENTS

The Pension Fund may invest in any type of investment instrument permitted by Illinois law, as described in Chapter 40 of the Illinois Compiled Statutes, 40 ILCS 5/1-113.2 through 5/1-113.4a. Permitted investments include the following:

1. Interest bearing direct obligations of the United States of America.

2. Interest bearing obligations to the extent that they are fully guaranteed or insured as to payment of principal and interest by the United States of America.

3. Interest bearing bonds, notes, debentures, or other similar obligations of agencies of the United States of America. "Agencies" includes those agencies of the United States of America as defined in 40 ILCS 5/1-113.2(3).

4. Interest bearing savings accounts or certificates of deposit, issued by federally chartered banks or savings and loan associations, to the extent that the deposits are insured by agencies or instrumentalities of the federal government.

5. Interest bearing savings accounts or certificates of deposits, issued by State of Illinois chartered banks or savings and loan associations, to the extent that the deposits are insured by agencies or instrumentalities of the federal government.

6. Investments in credit unions, to the extent that the investments are insured by agencies or instrumentalities of the federal government.

7. Interest bearing bonds of the State of Illinois.

8. Pooled interest bearing accounts managed by the Illinois Public Treasurer's Investment Pool, Illinois Metropolitan Investment Funds, or by banks, subsidiaries of banks, or subsidiaries of bank holding companies in accordance with the laws of the State of Illinois.

9. Interest bearing bonds or tax anticipation warrants of any county, township, or municipal corporation of the State of Illinois.

10. Direct obligations of the State of Israel, subject to the conditions and limitations set forth in 40 ILCS 5/1-113.

11. Money market mutual funds managed by investment companies that are registered under the federal investment company act of 1940 and the Illinois Securities Law of 1953 and are diversified, open-ended management investment companies; provided that the portfolio of the money market mutual fund is limited to those items set forth in 40 ILCS 5/1-113.2(11)(i-iii).

12. General accounts of life insurance companies authorized to transact business in Illinois.

13. Any combination of the following, not to exceed 10% of the pension fund's net assets:

    (i) Separate accounts that are managed by life insurance companies authorized to transact business in Illinois and are comprised of diversified portfolios consisting of common or preferred stocks, bonds, or money market instruments.

    (ii) Separate accounts that are managed by insurance companies authorized to transact business in Illinois, and are comprised of real estate or loans upon real estate secured by first or second mortgages; and

    (iii) Mutual Funds that meet the following requirements:

        (A) The mutual fund is managed by an investment company as defined and registered under the federal investment company act of 1940 and registered under the Illinois Securities Law of 1953;

        (B) The mutual fund has been in operation for at least 5 years;

        (C) The mutual fund has total net assets of $250 million or more; and

        (D) The mutual fund is comprised of diversified portfolios of common or preferred stocks, bonds, or money market instruments.

14. Corporate bonds managed through an investment adviser must meet all of the following requirements: (1) the bonds must be rated as investment grade by one of the 2 largest rating services at the time of purchase; and (2) if subsequently downgraded below investment grade, the bonds must be liquidated from the portfolio within 90 days after being downgraded by the manager. Total exposure to corporate bonds shall not exceed 60%, and exposure to any one corporate bond shall not exceed 3% of the fixed income allocation.

15. In addition to the items listed above, if the Pension Fund has net assets of $2,500,000 or more it may invest a portion of its net assets in mutual funds that meet the requirements in section VII (13) (iii) of this policy.

16. In addition to the items listed above, if the Pension Fund has net assets of $5,000,000 or more it may invest a portion of its net assets in common and preferred stocks that meet the following requirements:

    (i) Investments made through an investment adviser with a written contract.

    (ii) Stocks of U.S. corporations that have been in existence for 5 years.

    (iii) Corporations not in arrears in payment of dividends in the last 5 years.

(iv) Market value of stock in any one corporation does not exceed 5% of cash and invested assets of the Pension Fund.

(v) Stock in any one corporation does not exceed 5% of the total outstanding stock in the corporation.

(vi) Stocks listed on national securities exchange or quoted in NASDAQ

17. In addition to the items listed above, if the Pension Fund has net assets of $10,000,000 or more it may invest an additional portion of its assets in common and preferred stocks and mutual funds that meet the requirements set forth in 40 ILCS 5/1-113.4a.

For a Pension Fund with $10,000,000 or more in assets, its total investment in the above equity investments shall not exceed 65% of the market value of the Pension Fund's net present assets stated in its most recent annual report on file with the Illinois Department of Insurance. At least 10% of the equity investment must be in a mutual fund.

Pension Fund investments will be registered in the name of the Pension Fund and placed with a custodian approved by the Pension Board so long as the custodian meets the requirements of state statutes.

VIII. PERFORMANCE

Investment performance will be calculated using professional standards as established by the Chartered Financial Analysts Institute. The Pension Fund's performance shall be measured against benchmarks adopted by the Pension Board and its investment adviser or consultant.

IX. CONTROLS

The Pension Board maintains Pension Fund books and records in conformance with generally accepted accounting principles. The Pension Board, in conjunction with its independent auditor, shall establish and review internal controls. The controls shall be designed to prevent losses of public funds arising from fraud, employee error, and misrepresentation by third parties, and imprudent actions by employees and officers of the Pension Board.

X. DIVERSIFICATION / STRATEGY

Fixed Income – The average maturity/duration of the portfolio will be managed based upon the current existing interest rate environment. Under most circumstances the average maturity and duration of the portfolio will be maintained within a range from 2.0 years to 7.0 years. The investment manager may change the portfolio duration within a 20% range of the designated fixed income benchmark duration as market conditions permit.

	Benchmark Allocation	Range of Allocation
U.S. Fixed Income Allocation	45%	15%
Fixed Income Statutory Equity*	0%	10%

*Includes any security classified as fixed income by general market classifications, but considered equity for the purposes of portfolio allocation limitations under the Illinois Pension Code. Examples would include foreign debt (developed and emerging), floating rate debt, high yield, and/or any other debt security not otherwise allowable under 40 ILCS, Section 1-113.2, Subsections 1 through 11. These investments may only be purchased pursuant to 40 ILCS, Section 1-113.4 of the Illinois Pension Code.

Equities – Once the Pension Fund reaches the equity allocation approved by the Pension Board and permitted by law, normal asset allocation range for equity portfolio allocations weightings should be:

	Benchmark Allocation	Range of Allocation
Global Equity Allocation	55%	10%

The Pension Fund's asset allocation shall be rebalanced at least annually when the equity allocation rises above the maximum allowable as a percentage of assets as defined by the Illinois Pension Code.

XI. COLLATERALIZATION

Pension Fund assets may be invested in savings accounts or certificates of deposit of a national bank or state bank, even if fund assets on deposit in such institution will exceed federal deposit insurance or guarantee limits for invested principal and accrued interest, but only if the amount by which the fund's investment exceeds such insurance or guarantee limits is collateralized by the fund which shall be maintained and credited to the fund on the records of the custodial bank. The Pension Fund shall have a perfected security interest in such securities which shall be free of any claims to the rights to these securities other than any claims by the custodian which are subordinate to the Pension Fund's claims and right to these securities.

XII. CUSTODY AND SAFEKEEPING OF INVESTMENTS

Third party safekeeping is required for all securities owned by the Pension Fund.

Custody arrangements shall be documented by an approved written agreement. The agreement may be in the form of a safekeeping agreement, trust agreement, escrow agreement, or custody agreement.

XIII. ETHICS AND CONFLICTS OF INTEREST

Any fiduciary with respect to the Pension Fund shall refrain from personal business activity that could conflict with the proper execution of the investment program, or which could impair his or her ability to make impartial investment decisions.

XIV. REPORTING

At least quarterly, the Pension Board shall receive investment reports from its treasurer and/or investment adviser or consultant that shall describe the portfolio in terms of investment securities, maturity, cost, transactions, and earnings for the current period.

XV. MEETING SCHEDULE

The Pension Board shall schedule periodic meetings for the purposes of portfolio and investment manager review. The Pension Board may call special meetings from time to time to discuss investment related activities.

XVI. AUDIT

The Pension Board shall ensure that the Pension Fund undergoes an annual financial audit by an independent auditing firm. Additionally, the Pension Fund is subject to periodic examination by the Illinois Department of Insurance.

XVII. FILING

The Pension Board shall file a copy of this policy with the Illinois Department of Insurance within 30 days of its adoption. The Pension Board shall make a copy of this policy available to the public in accordance with the Illinois Freedom of Information Act.

XVIII. AMENDMENT

The Pension Board may amend this policy from time to time.

XIX. CONFLICT

In the event of any conflict between this policy and the Illinois statutes or case decisions of the State of Illinois interpreting the Illinois statutes, the statutes and case law decisions shall govern.

XX. SUSTAINABLE INVESTING PRINCIPLES

In accordance with 40 ILCS 5/1-113.6 and 40 ILCS 5/1-113.17, the Board will regularly consider material, relevant, and decision-useful sustainability factors, within the bounds of financial and fiduciary prudence, in evaluating investment decisions. Such factors include, but are not limited to: (1) corporate governance and leadership factors; (2) environmental factors; (3) social capital factors; (4) human capital factors; and (5) business model and innovation factors. The Fund, in conjunction with its Investment Consultant and/or Manager(s), will perform periodic evaluations of those factors to ensure the factors are relevant to the investment portfolio and the evolving marketplace.

ADOPTION

The Board of Trustees of the Antioch Police Pension Fund hereby adopts this investment policy statement on July 24, 2019 and as amended on July 21, 2020.

President

Secretary

GASB 67/68 Report
For Use in Financial Statement Reporting

ANTIOCH POLICE PENSION FUND

Actuarial Valuation
as of May 1, 2019

LAUTERBACH & AMEN, LLP

GASB Statements 67 and 68 Actuarial Disclosures

Lauterbach & Amen, LLP

CERTIFIED PUBLIC ACCOUNTANTS

GASB 67: ANTIOCH POLICE PENSION FUND

Fiscal Year Ending: April 30, 2020
Actuarial Valuation Date: May 1, 2019
Utilizing Data as of April 30, 2019
Measurement Date: April 30, 2020

GASB 68: VILLAGE OF ANTIOCH, ILLINOIS

Fiscal Year Ending: April 30, 2020
Actuarial Valuation Date: May 1, 2019
Utilizing Data as of April 30, 2019
Measurement Date: April 30, 2020

Submitted by:

Lauterbach & Amen, LLP
668 N. River Road
Naperville, IL 60563
Phone: 630.393.1483
www.lauterbachamen.com

Contact:

Todd A. Schroeder
Director
September 2, 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 Antioch Police Pension Fund, and may include results from the prior Actuary. We did not prepare the Actuarial Valuations for the years prior to May 1, 2016. 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 Antioch 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 Antioch Police Pension Fund or the Village of Antioch, Illinois 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

PLAN FIDUCIARY NET POSITION

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

STATEMENT OF PLAN FIDUCIARY NET POSITION

	4/30/2019	4/30/2020
Assets		
Cash and Cash Equivalents	$ 1,203,142	$ 1,049,895
Total Cash	1,203,142	1,049,895
Receivables:		
Due from Treasury	5,938	5,930
Total Receivables	5,938	5,930
Investments:		
U.S. Government and Agency Obligations	1,956,737	1,448,000
Corporate Bonds	2,668,244	1,247,689
Mutual Funds	2,447,519	5,026,907
Common Stock	1,904,374	1,850,916
Total Investments	8,976,874	9,573,512
Total Assets	10,185,954	10,629,337
Liabilities		
Payables:		
Expenses Due/Unpaid	5,736	-
Total Liabilities	5,736	-
Plan Fiduciary Net Position	$ 10,180,218	$ 10,629,337

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 2020 is based on audited financials.

STATEMENT OF CHANGES IN PLAN FIDUCIARY NET POSITION

	4/30/2020
Additions	
Contributions	
Employer	$ 1,824,489
Members	251,241
Total Contributions	2,075,730
Investment Income	
Net Appreciation in Fair Value of Investments	(434,049)
Interest and Dividends	322,750
Less Investment Expense	(49,395)
Net Investment Income	(160,694)
Total Additions	1,915,036
Deductions	
Benefit Payments and Refunds of Member Contributions	1,442,480
Administrative Expense	23,437
Total Deductions	1,465,917
Net Increase in Net Position	449,119
Plan Fiduciary Net Position	
Beginning of Year	10,180,218
End of Year	$ 10,629,337

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 2020 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

STATEMENT OF TOTAL PENSION LIABILITY

	4/30/2019	4/30/2020
Active Members	$ 11,566,829	$ 13,547,927
Inactive Members		
Terminated Members - Vested	-	-
Retired Members	19,372,609	20,995,754
Disabled Members	3,006,478	4,569,522
Other Beneficiaries	1,154,406	1,156,377
Total Inactive Members	23,533,493	26,721,653
Total Pension Liability	$ 35,100,322	$ 40,269,580

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.

STATEMENT OF CHANGES IN TOTAL PENSION LIABILITY

		4/30/2020
Changes in Total Pension Liability		
Service Cost	$	861,941
Interest		2,093,686
Changes of Benefit Terms		103,619
Differences Between Expected and Actual Experience		973,310
Change in Assumptions		2,579,182
Benefit Payments and Refunds		(1,442,480)
Net Change in Total Pension Liability		5,169,258
Total Pension Liability - Beginning		35,100,322
Total Pension Liability - Ending (a)	$	40,269,580
Plan Fiduciary Net Position - Ending (b)	$	10,629,337
Employer's Net Pension Liability - Ending (a) - (b)	$	29,640,243
Plan Fiduciary Net Position as a Percentage of the Total Pension Liability		26.40%
Covered-Employee Payroll	$	2,457,158
Employer's Net Pension Liability as a Percentage of Covered-Employee Payroll		1,206.28%

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.

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)
Balances Beginning at 05/01/2019	$ 35,100,322	$ 10,180,218	$ 24,920,104
Changes for the Year:			
Service Cost	861,941	-	861,941
Interest	2,093,686	-	2,093,686
Actuarial Experience	973,310	-	973,310
Change in Assumptions	2,579,182	-	2,579,182
Changes of Benefit Terms	103,619	-	103,619
Contributions - Employer	-	1,824,489	(1,824,489)
Contributions - Members	-	251,241	(251,241)
Contributions - Other	-	-	-
Net Investment Income	-	(160,694)	160,694
Benefit Payments and Refunds	(1,442,480)	(1,442,480)	-
Administrative Expense	-	(23,437)	23,437
Net Changes	$ 5,169,258	$ 449,119	$ 4,720,139
Balances Ending at 04/30/2020	$ 40,269,580	$ 10,629,337	$ 29,640,243

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.

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	$ 1,973,544	$ -	$ 1,973,544
Change in Assumptions	4,161,342	866,704	3,294,638
Net Difference Between Projected and Actual Earnings on Pension Plan Investments	844,480	-	844,480
Contributions Subsequent to the Measurement Date*	-	-	-
Total	$ 6,979,366	$ 866,704	$ 6,112,662

*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:

Year Ended April 30:	
2021	$ 1,204,309
2022	1,201,851
2023	1,153,314
2024	825,124
2025	565,111
Thereafter	1,162,953

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.

Pension Expense Source	Date Established	Initial Period	Initial Balance	Remaining Period	4/30/2020 Expense Recognized	4/30/2020 Deferred Balance
Asset Loss	4/30/2020	5.00	$ 868,440	5.00	$ 173,688	$ 694,752
Change in Assumptions Loss	4/30/2020	8.69	2,579,182	8.69	296,799	2,282,383
Actuarial Loss	4/30/2020	8.69	973,310	8.69	112,004	861,306
Asset Loss	4/30/2019	5.00	83,668	4.00	16,734	50,200
Change in Assumptions Gain	4/30/2019	8.11	(950,133)	7.11	(117,156)	(715,821)
Actuarial Loss	4/30/2019	8.11	883,165	7.11	108,899	665,367
Asset Loss	4/30/2018	5.00	242,675	3.00	48,535	97,070
Change in Assumptions Loss	4/30/2018	8.41	1,382,993	6.41	164,447	889,652
Actuarial Loss	4/30/2018	8.41	103,287	6.41	12,282	66,441
Asset Loss	4/30/2017	5.00	12,290	2.00	2,458	2,458
Change in Assumptions Gain	4/30/2017	8.41	(287,739)	5.41	(34,214)	(150,883)
Actuarial Loss	4/30/2017	8.41	38,375	5.41	4,564	20,119
Asset Loss	4/30/2016	5.00	474,968	1.00	94,992	-
Change in Assumptions Loss	4/30/2016	8.25	2,511,327	4.25	304,404	989,307
Actuarial Loss	4/30/2016	8.25	914,636	4.25	110,865	360,311
Total			$ 9,830,444		$ 1,299,301	$ 6,112,662

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.

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:

		4/30/2020
Pension Expense/(Income) Under GASB 68		
Service Cost	$	861,941
Interest		2,093,686
Changes of Benefit Terms		103,619
Contributions - Members		(251,241)
Contributions - Other		-
Expected Investment Income		(707,746)
Administrative Expense		23,437
Other Changes		-
Initial Pension Expense/(Income)	$	2,123,696
Recognition of Outflow/(Inflow) of Resources Due to Liabilities		962,894
Recognition of Outflow/(Inflow) of Resources Due to Assets		336,407
Total Pension Expense/(Income)	**$**	**3,422,997**

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

STATEMENT OF SIGNIFICANT ACTUARIAL ASSUMPTIONS

Actuarial Assumptions (Economic)

Discount Rate Used for the Total Pension Liability	5.77%
Expected Rate of Return on Investments	6.75%
High-Quality 20 Year Tax-Exempt G.O. Bond Rate	2.56%
Projected Individual Pay Increases	3.75% - 7.78%
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: Based on Actual Spousal Data

*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 3.79% to 2.56% 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.

The Discount Rate used in the determination of the Total Pension Liability was changed from 6.09% to 5.77%. 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

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 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.

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	7.78%	8	3.75%
1	7.75%	9	3.75%
2	7.76%	10	3.75%
3	7.74%	15	3.75%
4	7.75%	20	3.75%
5	7.77%	25	3.75%
6	7.75%	30	3.75%
7	7.71%	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.

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).

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.

Asset Class	Long-Term Expected Rate of Return	Long-Term Inflation Expectation	Long-Term Expected Real Rate of Return	Target Allocation
Equity	11.80%	3.10%	8.70%	53.00%
Fixed Income	7.50%	3.10%	4.40%	45.00%
Cash Equivalents	4.20%	3.10%	1.10%	2.00%

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 3.10% 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.

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 April 30, 2020 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.

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.

	1% Decrease (4.77%)	Current Discount Rate (5.77%)	1% Increase (6.77%)
Employer's Net Pension Liability	$36,675,763	$29,640,243	$24,092,631

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

PARTICIPANT DEMOGRAPHIC DATA

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

	4/30/2018 (FYE 2019)	4/30/2019 (FYE 2020)
Inactive Plan Members or Beneficiaries Currently Receiving Benefits	20	21
Inactive Plan Members Entitled to But Not Yet Receiving Benefits	0	0
Active Plan Members	27	27
Total	47	48
Payroll of Active Plan Members	$ 2,302,479	$ 2,376,285

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 April 30, 2020, 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:

	4/30/2018 (FYE 2019)	4/30/2019 (FYE 2020)
Average Future Working Career (In Years)		
Active Plan Members	14.12	15.44
Inactive Plan Members	0.00	0.00
Total	8.11	8.69

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

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 22 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:

Fiscal Year End	Employer Contributions	Most Applicable ADC	% of ADC	Covered-Employee Payroll	% of Payroll
4/30/2020	$1,824,489	$1,829,190	99.74%	$2,457,158	74.25%
4/30/2019	$1,608,383	$1,692,924	95.01%	$2,377,310	67.66%
4/30/2018	$1,347,509	$1,609,082	83.74%	$2,332,514	57.77%
4/30/2017	$1,082,203	$1,229,173	88.04%	$2,259,093	47.90%
4/30/2016	$930,548	$965,314	96.40%	$2,263,871	41.10%

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. There are no subsequent events that have been considered in the development of the Informal Funding Policy.

Informal Funding Policy – Selected

The Informal Funding Policy that has been determined for future contributions is 92.59% 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

SCHEDULE OF CHANGES IN THE NET PENSION LIABILITY

	4/30/2020	4/30/2019	4/30/2018	4/30/2017	4/30/2016	4/30/2015	4/30/2014	4/30/2013	4/30/2012	4/30/2011
Total Pension Liability										
Service Cost	$ 861,941	$ 833,386	$ 767,204	$ 722,482	$ 684,090	$ 576,434				
Interest	2,093,686	1,954,434	1,873,714	1,807,155	1,531,380	1,409,785				
Changes of Benefit Terms	103,619	-	-	-	-	-				
Differences Between Expected and Actual Experience	973,310	883,165	103,287	38,375	914,636	664,318				
Change in Assumptions	2,579,182	(950,133)	1,382,993	(287,739)	2,511,327	2,885,562				
Benefit Payments and Refunds	(1,442,480)	(1,380,968)	(1,273,537)	(1,136,499)	(1,076,666)	(955,295)				
Net Change in Total Pension Liability	$ 5,169,258	$ 1,339,884	$ 2,853,661	$ 1,143,774	$ 4,564,767	$ 4,580,804				
Total Pension Liability - Beginning	35,100,322	33,760,438	30,906,777	29,763,003	25,198,236	20,617,432				
Total Pension Liability - Ending (a)	$ 40,269,580	$ 35,100,322	$ 33,760,438	$ 30,906,777	$ 29,763,003	$ 25,198,236				
Plan Fiduciary Net Position										
Contributions - Employer	$ 1,824,489	$ 1,608,383	$ 1,347,509	$ 1,082,203	$ 930,548	$ 852,360				
Contributions - Members	251,241	229,716	237,024	220,874	216,826	221,041				
Net Investment Income	(160,694)	552,452	347,035	527,755	54,803	305,324				
Benefit Payments and Refunds	(1,442,480)	(1,380,968)	(1,273,537)	(1,136,499)	(1,076,666)	(955,295)				
Administrative Expense	(23,437)	(49,609)	(37,455)	(24,092)	(18,381)	(11,376)				
Net Change in Plan Fiduciary Net Position	$ 449,119	$ 959,974	$ 620,576	$ 670,241	$ 107,130	$ 412,055				
Plan Fiduciary Net Position - Beginning	10,180,218	9,220,244	8,599,668	7,929,427	7,822,297	7,410,242				
Plan Fiduciary Net Position - Ending (b)	$ 10,629,337	$ 10,180,218	$ 9,220,244	$ 8,599,668	$ 7,929,427	$ 7,822,297				
Employer's Net Pension Liability - Ending (a) - (b)	$ 29,640,243	$ 24,920,104	$ 24,540,194	$ 22,307,109	$ 21,833,576	$ 17,375,939				

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

SCHEDULE OF TOTAL PENSION LIABILITY AND RELATED RATIOS

	4/30/2020	4/30/2019	4/30/2018	4/30/2017	4/30/2016	4/30/2015	4/30/2014	4/30/2013	4/30/2012	4/30/2011
Total Pension Liability - Ending (a)	$ 40,269,580	$ 35,100,322	$ 33,760,438	$ 30,906,777	$ 29,763,003	$ 25,198,236				
Plan Fiduciary Net Position - Ending (b)	$ 10,629,337	$ 10,180,218	$ 9,220,244	$ 8,599,668	$ 7,929,427	$ 7,822,297				
Employer's Net Pension Liability - Ending (a) - (b)	$ 29,640,243	$ 24,920,104	$ 24,540,194	$ 22,307,109	$ 21,833,576	$ 17,375,939				
Plan Fiduciary Net Position as a Percentage of the Total Pension Liability	26.40%	29.00%	27.31%	27.82%	26.64%	31.04%				
Covered-Employee Payroll	$ 2,457,158	$ 2,377,310	$ 2,332,514	$ 2,259,093	$ 2,263,871	$ 2,050,827				
Employer's Net Pension Liability as a Percentage of Covered-Employee Payroll	1,206.28%	1,048.25%	1,052.09%	987.44%	964.44%	847.26%				

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

	4/30/2020	4/30/2019	4/30/2018	4/30/2017	4/30/2016	4/30/2015	4/30/2014	4/30/2013	4/30/2012	4/30/2011
Actuarially Determined Contribution	$ 1,829,190	$ 1,692,924	$ 1,609,082	$ 1,229,173	$ 965,314	$ 925,238				
Contributions in Relation to the Actuarially Determined Contribution	1,824,489	1,608,383	1,347,509	1,082,203	930,548	852,360				
Contribution Deficiency/(Excess)	$ 4,701	$ 84,541	$ 261,573	$ 146,970	$ 34,766	$ 72,878				
Covered-Employee Payroll	$ 2,457,158	$ 2,377,310	$ 2,332,514	$ 2,259,093	$ 2,263,871	$ 2,050,827				
Contributions as a Percentage of Covered-Employee Payroll	74.25%	67.66%	57.77%	47.90%	41.10%	41.56%				

NOTES TO SCHEDULE OF CONTRIBUTIONS

The Actuarially Determined Contribution shown above for the current year is the Recommended Contribution from the May 1, 2018 Actuarial Valuation completed by Lauterbach & Amen, LLP 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 % Pay (Closed)
Amortization Target	100% Funded Over 22 Years
Asset Valuation Method	5-Year Smoothed Market Value
Inflation (CPI-U)	2.50%
Total Payroll Increases	3.25%
Individual Pay Increases	4.00% - 8.03%
Expected Rate of Return on Investments	6.75%
Mortality Rates	RP-2014 Adjusted for Plan Status, Collar, and Illinois Public Pension Data, as Appropriate
Retirement Rates	100% of L&A 2016 Illinois Police Retirement Rates Capped at Age 65
Termination Rates	100% of L&A 2016 Illinois Police Termination Rates
Disability Rates	100% of L&A 2016 Illinois Police Disability Rates

GASB METHODS AND PROCEDURES

GASB Methods and Procedures

GASB METHODS AND PROCEDURES

	Statement 67 Pension Plan Financials	Statement 68 Employer Financials
Fiscal Year End for Reporting	**April 30, 2020**	**April 30, 2020**
Measurement Date	April 30, 2020	April 30, 2020
Actuarial Valuation Date	May 1, 2019	May 1, 2019
Actuarial Valuation - Data Date	April 30, 2019	April 30, 2019
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	8.69 Years	8.69 Years
Change in Assumptions	8.69 Years	8.69 Years
Asset Experience	5.00 Years	5.00 Years

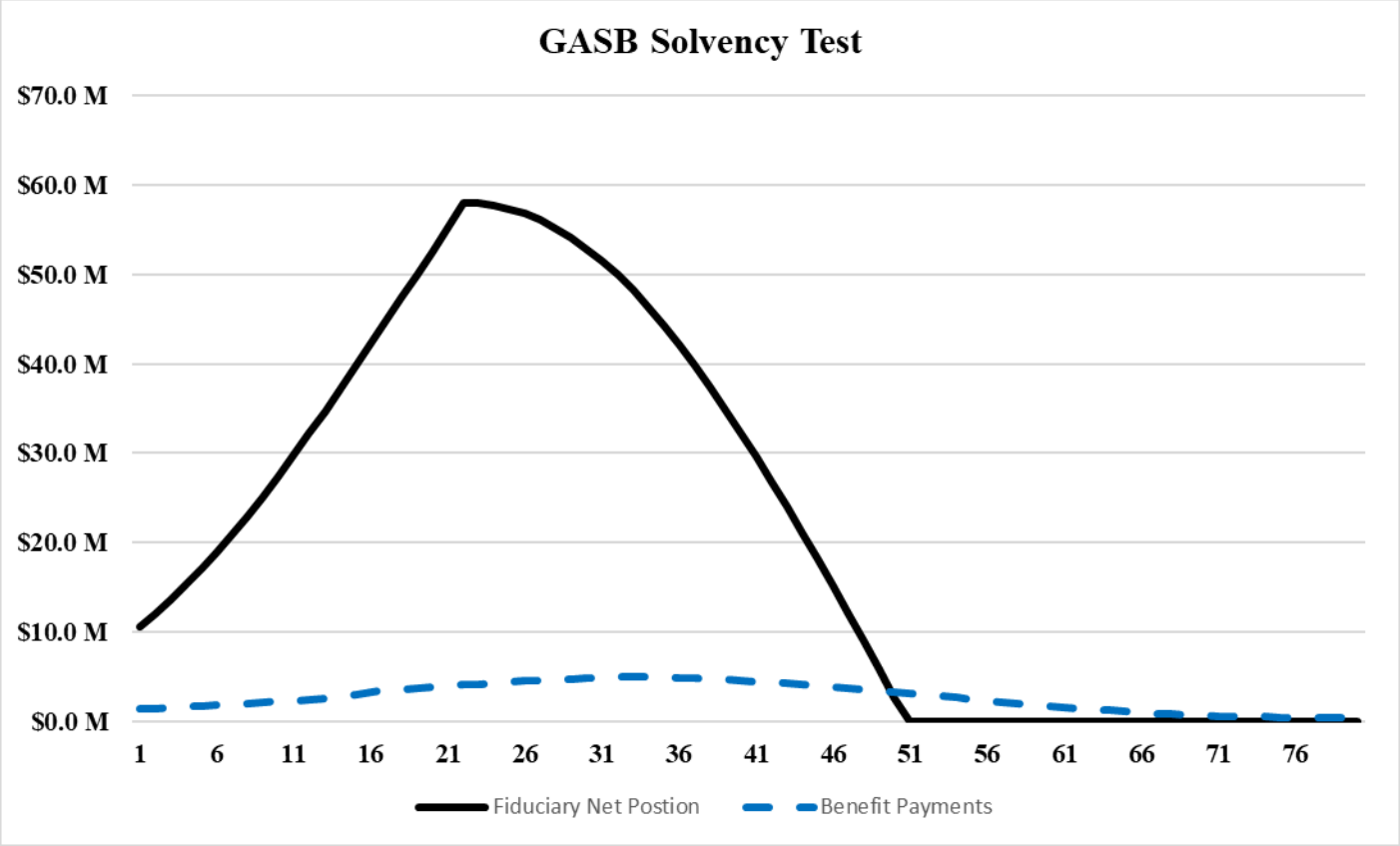
SUPPLEMENTARY TABLES

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

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 through 2069.

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

	Projected Pensionable Payroll			Projected Contributions			
Year	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	$ 2,427,834	$ 25,681	$ 2,453,515	$ 240,598	$ 1,910,461	$ -	$ 2,151,059
2	2,484,778	48,477	2,533,255	246,241	2,047,700	-	2,293,941
3	2,528,351	87,234	2,615,585	250,560	2,110,191	-	2,360,751
4	2,534,792	165,800	2,700,592	251,198	2,171,725	-	2,422,923
5	2,525,968	262,393	2,788,361	250,323	2,226,991	-	2,477,315
6	2,523,422	355,561	2,878,983	250,071	2,280,012	-	2,530,083
7	2,512,505	460,045	2,972,550	248,989	2,336,108	-	2,585,097
8	2,505,483	563,675	3,069,158	248,293	2,392,886	-	2,641,179
9	2,496,661	672,244	3,168,905	247,419	2,452,570	-	2,699,989
10	2,446,099	825,796	3,271,895	242,408	2,514,231	-	2,756,640
11	2,392,136	986,095	3,378,231	237,061	2,569,025	-	2,806,086
12	2,330,787	1,157,237	3,488,024	230,981	2,625,689	-	2,856,670
13	2,251,070	1,350,315	3,601,385	223,081	2,683,389	-	2,906,470
14	2,152,234	1,566,196	3,718,430	213,286	2,739,617	-	2,952,904
15	1,998,930	1,840,348	3,839,278	198,094	2,794,451	-	2,992,545
16	1,901,260	2,062,795	3,964,055	188,415	2,838,845	-	3,027,260
17	1,556,965	2,535,922	4,092,887	154,295	2,897,903	-	3,052,199
18	1,297,618	2,928,288	4,225,906	128,594	2,902,979	-	3,031,573
19	1,225,407	3,137,841	4,363,248	121,438	2,917,271	-	3,038,709
20	1,143,135	3,361,918	4,505,053	113,285	2,986,705	-	3,099,990
21	1,080,645	3,570,822	4,651,467	107,092	3,059,693	-	3,166,785
22	1,038,552	3,764,088	4,802,640	102,921	177,997	-	280,918
23	1,001,926	3,956,800	4,958,726	99,291	169,455	-	268,746
24	934,931	4,184,953	5,119,884	92,652	161,876	-	254,528
25	879,590	4,406,691	5,286,281	87,167	150,772	-	237,939
26	772,870	4,685,215	5,458,085	76,591	141,307	-	217,898
27	677,222	4,958,251	5,635,473	67,113	119,123	-	186,236
28	572,105	5,246,520	5,818,625	56,696	102,839	-	159,535
29	490,549	5,517,182	6,007,731	48,613	86,644	-	135,257
30	416,967	5,786,015	6,202,982	41,321	74,333	-	115,654

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

	Projected Pensionable Payroll			Projected Contributions			
Year	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	$ 351,253	$ 6,053,326	$ 6,404,579	$ 34,809	$ 63,256	$ -	$ 98,065
32	293,020	6,319,708	6,612,728	29,038	53,366	-	82,404
33	221,266	6,606,375	6,827,641	21,927	44,570	-	66,497
34	155,661	6,893,879	7,049,540	15,426	34,598	-	50,024
35	85,000	7,193,650	7,278,650	8,424	24,906	-	33,330
36	48,331	7,466,875	7,515,206	4,790	13,074	-	17,864
37	-	7,759,450	7,759,450	-	7,025	-	7,025
38	-	8,011,632	8,011,632	-	-	-	-
39	-	8,272,010	8,272,010	-	-	-	-
40	-	8,540,851	8,540,851	-	-	-	-
41	-	8,818,428	8,818,428	-	-	-	-
42	-	9,105,027	9,105,027	-	-	-	-
43	-	9,400,940	9,400,940	-	-	-	-
44	-	9,706,471	9,706,471	-	-	-	-
45	-	10,021,931	10,021,931	-	-	-	-
46	-	10,347,644	10,347,644	-	-	-	-
47	-	10,683,943	10,683,943	-	-	-	-
48	-	11,031,171	11,031,171	-	-	-	-
49	-	11,389,684	11,389,684	-	-	-	-
50	-	11,759,848	11,759,848	-	-	-	-
51	-	12,142,044	12,142,044	-	-	-	-
52	-	12,536,660	12,536,660	-	-	-	-
53	-	12,944,101	12,944,101	-	-	-	-
54	-	13,364,785	13,364,785	-	-	-	-
55	-	13,799,140	13,799,140	-	-	-	-
56	-	14,247,612	14,247,612	-	-	-	-
57	-	14,710,660	14,710,660	-	-	-	-
58	-	15,188,756	15,188,756	-	-	-	-
59	-	15,682,391	15,682,391	-	-	-	-
60	-	16,192,068	16,192,068	-	-	-	-

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

	Projected Pensionable Payroll			Projected Contributions			
Year	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	$ -	$ 16,718,311	$ 16,718,311	$ -	$ -	$ -	$ -
62	-	17,261,656	17,261,656	-	-	-	-
63	-	17,822,660	17,822,660	-	-	-	-
64	-	18,401,896	18,401,896	-	-	-	-
65	-	18,999,958	18,999,958	-	-	-	-
66	-	19,617,456	19,617,456	-	-	-	-
67	-	20,255,023	20,255,023	-	-	-	-
68	-	20,913,312	20,913,312	-	-	-	-
69	-	21,592,994	21,592,994	-	-	-	-
70	-	22,294,767	22,294,767	-	-	-	-
71	-	23,019,347	23,019,347	-	-	-	-
72	-	23,767,475	23,767,475	-	-	-	-
73	-	24,539,918	24,539,918	-	-	-	-
74	-	25,337,466	25,337,466	-	-	-	-
75	-	26,160,933	26,160,933	-	-	-	-
76	-	27,011,164	27,011,164	-	-	-	-
77	-	27,889,026	27,889,026	-	-	-	-
78	-	28,795,420	28,795,420	-	-	-	-
79	-	29,731,271	29,731,271	-	-	-	-
80	-	30,697,537	30,697,537	-	-	-	-

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	$ 10,629,337	$ 2,151,059	$ 1,451,268	$ 31,283	$ 740,042	$ 12,037,887
2	12,037,887	2,293,941	1,513,164	31,987	837,829	13,624,507
3	13,624,507	2,360,751	1,594,846	32,707	944,400	15,302,104
4	15,302,104	2,422,923	1,673,131	33,443	1,057,069	17,075,523
5	17,075,523	2,477,315	1,752,077	34,195	1,175,920	18,942,486
6	18,942,486	2,530,083	1,837,614	34,965	1,300,809	20,900,800
7	20,900,800	2,585,097	1,923,798	35,751	1,431,916	22,958,264
8	22,958,264	2,641,179	2,009,498	36,556	1,569,768	25,123,158
9	25,123,158	2,699,989	2,119,514	37,378	1,714,143	27,380,397
10	27,380,397	2,756,640	2,234,351	38,219	1,864,514	29,728,981
11	29,728,981	2,806,086	2,357,321	39,079	2,020,533	32,159,200
12	32,159,200	2,856,670	2,491,343	39,958	2,181,727	34,666,297
13	34,666,297	2,906,470	2,637,776	40,857	2,347,664	37,241,797
14	37,241,797	2,952,904	2,841,380	41,777	2,516,175	39,827,720
15	39,827,720	2,992,545	3,012,886	42,717	2,686,243	42,450,905
16	42,450,905	3,027,260	3,296,018	43,678	2,854,891	44,993,361
17	44,993,361	3,052,199	3,526,390	44,661	3,019,541	47,494,049
18	47,494,049	3,031,573	3,652,610	45,665	3,183,347	50,010,694
19	50,010,694	3,038,709	3,789,636	46,693	3,348,802	52,561,876
20	52,561,876	3,099,990	3,907,035	47,743	3,519,078	55,226,165
21	55,226,165	3,166,785	4,011,518	48,818	3,697,609	58,030,223
22	58,030,223	280,918	4,110,858	49,916	3,786,095	57,936,462
23	57,936,462	268,746	4,217,470	51,039	3,775,719	57,712,418
24	57,712,418	254,528	4,347,529	52,188	3,755,688	57,322,917
25	57,322,917	237,939	4,459,352	53,362	3,725,023	56,773,165
26	56,773,165	217,898	4,553,098	54,562	3,684,034	56,067,438
27	56,067,438	186,236	4,643,249	55,790	3,632,245	55,186,879
28	55,186,879	159,535	4,723,865	57,045	3,569,143	54,134,646
29	54,134,646	135,257	4,809,120	58,329	3,494,377	52,896,832
30	52,896,832	115,654	4,869,854	59,641	3,408,069	51,491,060

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	$ 51,491,060	$ 98,065	$ 4,906,046	$ 60,983	$ 3,311,319	$ 49,933,415
32	49,933,415	82,404	4,961,548	62,355	3,203,730	48,195,646
33	48,195,646	66,497	4,977,038	63,758	3,085,324	46,306,671
34	46,306,671	50,024	4,986,644	65,193	2,956,889	44,261,747
35	44,261,747	33,330	4,963,158	66,660	2,819,036	42,084,295
36	42,084,295	17,864	4,939,072	68,160	2,672,299	39,767,226
37	39,767,226	7,025	4,871,323	69,693	2,517,766	37,351,000
38	37,351,000	-	4,794,801	71,261	2,356,963	34,841,901
39	34,841,901	-	4,710,072	72,865	2,190,404	32,249,368
40	32,249,368	-	4,617,015	74,504	2,018,494	29,576,343
41	29,576,343	-	4,515,862	76,180	1,841,422	26,825,722
42	26,825,722	-	4,406,620	77,895	1,659,384	24,000,591
43	24,000,591	-	4,289,836	73,347	1,472,782	21,110,191
44	21,110,191	-	4,165,996	65,099	1,282,138	18,161,235
45	18,161,235	-	4,035,484	56,672	1,087,773	15,156,852
46	15,156,852	-	3,898,575	48,081	889,888	12,100,084
47	12,100,084	-	3,755,893	39,334	688,667	8,993,523
48	8,993,523	-	3,608,345	30,440	484,254	5,838,992
49	5,838,992	-	3,456,429	21,405	276,755	2,637,914
50	2,637,914	-	3,301,091	12,233	66,235	-
51	-	-	3,143,444	-	-	-
52	-	-	2,984,038	-	-	-
53	-	-	2,823,694	-	-	-
54	-	-	2,663,550	-	-	-
55	-	-	2,504,382	-	-	-
56	-	-	2,346,959	-	-	-
57	-	-	2,192,159	-	-	-
58	-	-	2,040,542	-	-	-
59	-	-	1,892,674	-	-	-
60	-	-	1,749,324	-	-	-

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 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	$ -	$ -	$ 1,611,231	$ -	$ -	$ -
62	-	-	1,479,207	-	-	-
63	-	-	1,354,065	-	-	-
64	-	-	1,236,559	-	-	-
65	-	-	1,127,200	-	-	-
66	-	-	1,026,110	-	-	-
67	-	-	933,616	-	-	-
68	-	-	849,859	-	-	-
69	-	-	774,878	-	-	-
70	-	-	708,886	-	-	-
71	-	-	651,218	-	-	-
72	-	-	600,309	-	-	-
73	-	-	560,604	-	-	-
74	-	-	523,872	-	-	-
75	-	-	494,048	-	-	-
76	-	-	470,597	-	-	-
77	-	-	450,726	-	-	-
78	-	-	427,267	-	-	-
79	-	-	424,843	-	-	-
80	-	-	426,084	-	-	-

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

			Projected Benefit Payments		Actuarial Present Values of Projected Benefit Payments		
Year	Projected Beginning Fiduciary Net Position	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 (2.56%)	Present Value of Benefit Payments Using the Single Discount Rate (5.77%)
1	$ 10,629,337	$ 1,451,268	$ 1,451,268	$ -	$ 1,404,636	$ -	$ 1,411,128
2	12,037,887	1,513,164	1,513,164	-	1,371,937	-	1,391,048
3	13,624,507	1,594,846	1,594,846	-	1,354,562	-	1,386,157
4	15,302,104	1,673,131	1,673,131	-	1,331,197	-	1,374,869
5	17,075,523	1,752,077	1,752,077	-	1,305,863	-	1,361,200
6	18,942,486	1,837,614	1,837,614	-	1,283,013	-	1,349,772
7	20,900,800	1,923,798	1,923,798	-	1,258,254	-	1,335,990
8	22,958,264	2,009,498	2,009,498	-	1,231,200	-	1,319,377
9	25,123,158	2,119,514	2,119,514	-	1,216,492	-	1,315,694
10	27,380,397	2,234,351	2,234,351	-	1,201,314	-	1,311,317
11	29,728,981	2,357,321	2,357,321	-	1,187,288	-	1,308,014
12	32,159,200	2,491,343	2,491,343	-	1,175,446	-	1,306,967
13	34,666,297	2,637,776	2,637,776	-	1,165,841	-	1,308,298
14	37,241,797	2,841,380	2,841,380	-	1,176,421	-	1,332,403
15	39,827,720	3,012,886	3,012,886	-	1,168,553	-	1,335,754
16	42,450,905	3,296,018	3,296,018	-	1,197,533	-	1,381,563
17	44,993,361	3,526,390	3,526,390	-	1,200,218	-	1,397,491
18	47,494,049	3,652,610	3,652,610	-	1,164,569	-	1,368,546
19	50,010,694	3,789,636	3,789,636	-	1,131,857	-	1,342,429
20	52,561,876	3,907,035	3,907,035	-	1,093,134	-	1,308,514
21	55,226,165	4,011,518	4,011,518	-	1,051,398	-	1,270,215
22	58,030,223	4,110,858	4,110,858	-	1,009,306	-	1,230,662
23	57,936,462	4,217,470	4,217,470	-	970,006	-	1,193,701
24	57,712,418	4,347,529	4,347,529	-	936,693	-	1,163,385
25	57,322,917	4,459,352	4,459,352	-	900,033	-	1,128,211
26	56,773,165	4,553,098	4,553,098	-	860,847	-	1,089,088
27	56,067,438	4,643,249	4,643,249	-	822,381	-	1,050,064
28	55,186,879	4,723,865	4,723,865	-	783,756	-	1,010,017
29	54,134,646	4,809,120	4,809,120	-	747,448	-	972,152
30	52,896,832	4,869,854	4,869,854	-	709,028	-	930,726

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

			Projected Benefit Payments		Actuarial Present Values of Projected Benefit Payments		
Year	Projected Beginning Fiduciary Net Position	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 (2.56%)	Present Value of Benefit Payments Using the Single Discount Rate (5.77%)
31	$ 51,491,060	$ 4,906,046	$ 4,906,046	$ -	$ 669,131	$ -	$ 886,493
32	49,933,415	4,961,548	4,961,548	-	633,912	-	847,614
33	48,195,646	4,977,038	4,977,038	-	595,682	-	803,877
34	46,306,671	4,986,644	4,986,644	-	559,093	-	761,490
35	44,261,747	4,963,158	4,963,158	-	521,274	-	716,559
36	42,084,295	4,939,072	4,939,072	-	485,943	-	674,181
37	39,767,226	4,871,323	4,871,323	-	448,972	-	628,660
38	37,351,000	4,794,801	4,794,801	-	413,976	-	585,028
39	34,841,901	4,710,072	4,710,072	-	380,947	-	543,339
40	32,249,368	4,617,015	4,617,015	-	349,808	-	503,550
41	29,576,343	4,515,862	4,515,862	-	320,510	-	465,650
42	26,825,722	4,406,620	4,406,620	-	292,980	-	429,597
43	24,000,591	4,289,836	4,289,836	-	267,181	-	395,398
44	21,110,191	4,165,996	4,165,996	-	243,061	-	363,036
45	18,161,235	4,035,484	4,035,484	-	220,559	-	332,479
46	15,156,852	3,898,575	3,898,575	-	199,603	-	303,677
47	12,100,084	3,755,893	3,755,893	-	180,139	-	276,603
48	8,993,523	3,608,345	3,608,345	-	162,119	-	251,240
49	5,838,992	3,456,429	3,456,429	-	145,474	-	227,534
50	2,637,914	3,301,091	2,637,914	663,177	104,004	189,766	205,453
51	-	3,143,444	-	3,143,444	-	877,033	184,969
52	-	2,984,038	-	2,984,038	-	811,777	166,010
53	-	2,823,694	-	2,823,694	-	748,983	148,520
54	-	2,663,550	-	2,663,550	-	688,870	132,455
55	-	2,504,382	-	2,504,382	-	631,537	117,745
56	-	2,346,959	-	2,346,959	-	577,066	104,325
57	-	2,192,159	-	2,192,159	-	525,550	92,128
58	-	2,040,542	-	2,040,542	-	476,991	81,078
59	-	1,892,674	-	1,892,674	-	431,382	71,100
60	-	1,749,324	-	1,749,324	-	388,757	62,130

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

			Projected Benefit Payments		Actuarial Present Values of Projected Benefit Payments		
Year	Projected Beginning Fiduciary Net Position	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 (2.56%)	Present Value of Benefit Payments Using the Single Discount Rate (5.77%)
61	$ -	$ 1,611,231	$ -	$ 1,611,231	$ -	$ 349,131	$ 54,104
62	-	1,479,207	-	1,479,207	-	312,522	46,961
63	-	1,354,065	-	1,354,065	-	278,942	40,643
64	-	1,236,559	-	1,236,559	-	248,377	35,091
65	-	1,127,200	-	1,127,200	-	220,759	30,243
66	-	1,026,110	-	1,026,110	-	195,945	26,029
67	-	933,616	-	933,616	-	173,832	22,390
68	-	849,859	-	849,859	-	154,288	19,270
69	-	774,878	-	774,878	-	137,164	16,611
70	-	708,886	-	708,886	-	122,350	14,368
71	-	651,218	-	651,218	-	109,591	12,479
72	-	600,309	-	600,309	-	98,502	10,876
73	-	560,604	-	560,604	-	89,691	9,602
74	-	523,872	-	523,872	-	81,722	8,484
75	-	494,048	-	494,048	-	75,146	7,564
76	-	470,597	-	470,597	-	69,793	6,812
77	-	450,726	-	450,726	-	65,177	6,169
78	-	427,267	-	427,267	-	60,243	5,528
79	-	424,843	-	424,843	-	58,406	5,197
80	-	426,084	-	426,084	-	57,114	4,928

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.

Lauterbach & Amen, LLP

CERTIFIED PUBLIC ACCOUNTANTS

Actuarial Funding Report

ANTIOCH POLICE PENSION FUND

Actuarial Valuation
as of May 1, 2020

For the Contribution Year May 1, 2020 to April 30, 2021

LAUTERBACH & AMEN, LLP

Actuarial Valuation – Funding Recommendation

Lauterbach & Amen, LLP

CERTIFIED PUBLIC ACCOUNTANTS

ANTIOCH POLICE PENSION FUND

Contribution Year Ending: April 30, 2021
Actuarial Valuation Date: May 1, 2020
Utilizing Data as of April 30, 2020

Submitted by:

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September 2, 2020

LAUTERBACH & AMEN, LLP

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ACTUARIAL CERTIFICATION

This report documents the results of the Actuarial Valuation for the Antioch Police Pension Fund. The information was prepared for use by the Antioch Police Pension Fund and the Village of Antioch, Illinois for determining the Recommended Contributions, under the selected Funding Policy and Statutory Minimum guidelines, for the Contribution Year May 1, 2020 to April 30, 2021. 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 Antioch Police Pension Fund, and may include results from the prior Actuary. We did not prepare the Actuarial Valuations for the years prior to May 1, 2016. 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 Antioch 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 Antioch Police Pension Fund 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

MANAGEMENT SUMMARY

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

RECOMMENDED CONTRIBUTION

	Prior Valuation	Current Valuation
Recommended Contribution	$2,020,811	$2,151,257
Expected Payroll	$2,414,900	$2,451,545
Recommended Contribution as a Percent of Expected Payroll	83.68%	87.75%

The Recommended Contribution has Increased by $130,446 from the Prior Valuation.

FUNDED STATUS

	Prior Valuation	Current Valuation
Normal Cost	$683,031	$676,717
Market Value of Assets	$10,180,218	$10,629,337
Actuarial Value of Assets	$10,570,687	$11,544,440
Actuarial Accrued Liability	$32,825,144	$35,016,072
Unfunded Actuarial Accrued Liability	$22,254,457	$23,471,632
Percent Funded		
Actuarial Value of Assets	32.20%	32.97%
Market Value of Assets	31.01%	30.36%

The Percent Funded has Increased by 0.77% on an Actuarial Value of Assets Basis.

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 $450,000.

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 30-35%, or approximately $460,000. In the next 10 years, the expected increase in benefit payments is 65-70%, or approximately $960,000. 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.

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 $100,000 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 $920,000 in losses on the Market Value of Assets. These are asset losses that will be recognized in upcoming periods, independent of the future performance of the Market Value of Assets.

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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.

For this Plan, the Market Value of Assets is less than the Actuarial Accrued Liability for inactive Members. The Fund assets and anticipated investment earnings are not sufficient to cover the benefits payable to the current inactive Members. In addition, there is currently no money set aside for active Member liability. There are two consequences. First, we are limiting the impact of investment earnings on accruing money for the active Members due to utilizing those dollars to pay for the current inactive Members. Second, there is Cash Flow Risk that exists in that a higher portion of the assets is needed to keep up with cash flow out for benefit payments, and a higher relative investment return is required to keep cash flow positive in any given year.

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 Antioch Police Pension Fund has a ratio of benefit payments to the Market Value of Assets of 13.36%. In this case, there is considerable concern about the long-term sustainability of the Plan. Significant changes to the Funding Policy should be considered in order for the Plan Sponsor to have the ability to pay all future benefit obligations.

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.

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.

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 moderate 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, which in turn, may increase the Recommended Contribution.

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

Deferred Annuitants: There was 1 vested Member of the Fund who terminated employment during the year. The Fund may be obligated to pay a benefit to the Member in the future. The decrease in the Recommended Contribution in the current year due to the termination experience is approximately $27,000.

Mortality: As inactive Members age and continue to collect benefits, the Fund liability will increase. In the current year, there were 21 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 $11,000.

Salary Increases: Salary increases were less than anticipated in the current year. Most active Members received an increase of 3.25% or less. This caused a decrease in the Recommended Contribution in the current year of approximately $1,000.

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

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.

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.

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	$ 32,825,144	$ 2,020,811
Expected Changes	1,479,921	65,676
Initial Expected Current Valuation	$ 34,305,065	$ 2,086,487

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	$ 29,641	$ (571)
Demographic Changes	(26,194)	(44,577)
Assumption Changes	623,793	34,556
Plan Changes	83,767	37,548
Asset Return Less than Expected*	-	24,552
Contributions Less than Expected	-	13,263
Total Actuarial Experience	$ 711,007	$ 64,770
Current Valuation	$ 35,016,072	$ 2,151,257

*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

MARKET VALUE OF ASSETS

Statement of Assets

	Prior Valuation	Current Valuation
Cash and Cash Equivalents	$ 1,203,142	$ 1,049,895
State and Local Obligations	-	1,247,689
US Government and Agency Obligations	1,956,736	1,448,000
Corporate Bonds	2,668,244	-
Stock Equities	1,904,374	1,850,916
Mutual Funds	2,447,520	5,026,907
Receivables (Net of Payables)	202	5,930
Total Market Value of Assets	$ 10,180,218	$ 10,629,337

The Total Market Value of Assets has Increased by Approximately $449,000 from the Prior Valuation.

Statement of Changes in Assets

Total Market Value of Assets - Prior Valuation	$ 10,180,218
Plus - Employer Contributions	1,824,489
Plus - Member Contributions	251,241
Plus - Return on Investments	(160,695)
Less - Benefit Payments and Refunds	(1,442,479)
Less - Other Expenses	(23,437)
Total Market Value of Assets - Current Valuation	$ 10,629,337

The Rate of Return on Investments on a Market Value of Assets Basis for the Fund was Approximately (1.75%) 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.

MARKET VALUE OF ASSETS (GAIN)/LOSS

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

Total Market Value of Assets - Prior Valuation	$ 10,180,218
Employer and Member Contributions	2,075,730
Benefit Payments and Refunds	(1,442,479)
Expected Return on Investments	708,537
Expected Total Market Value of Assets - Current Valuation	$ 11,522,006
Actual Total Market Value of Assets - Current Valuation	10,629,337
Current Market Value of Assets (Gain)/Loss	$ 892,669

Expected Return on Investments	$ 708,537
Actual Return on Investments (Net of Expenses)	(184,132)
Current Market Value of Assets (Gain)/Loss	$ 892,669

The Actual Return on Investments on a Market Value of Assets Basis was Less 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.

DEVELOPMENT OF THE ACTUARIAL VALUE OF ASSETS

Total Market Value of Assets - Current Valuation		$ 10,629,337
Adjustment for Prior (Gains)/Losses		
	Full Amount	
FYE 2020	$ 892,669	714,135
FYE 2019	134,952	80,971
FYE 2018	281,394	112,558
FYE 2017	37,195	7,439
Total Deferred (Gain)/Loss		915,103
Initial Actuarial Value of Assets - Current Valuation		$ 11,544,440
Less Contributions for the Current Year and Interest		-
Less Adjustment for the Corridor		-
Total Actuarial Value of Assets - Current Valuation		$ 11,544,440

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 108.61% of the Market Value of Assets.

ACTUARIAL VALUE OF ASSETS (GAIN)/LOSS

Total Actuarial Value of Assets - Prior Valuation	$ 10,570,687
Plus - Employer Contributions	1,824,489
Plus - Member Contributions	251,241
Plus - Return on Investments	363,939
Less - Benefit Payments and Refund	(1,442,479)
Less - Other Expenses	(23,437)
Total Actuarial Value of Assets - Current Valuation	$ 11,544,440

The Rate of Return on Investments on an Actuarial Value of Assets Basis for the Fund was Approximately 3.13% Net of Administrative Expense.

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

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.

	Market Value of Assets	Actuarial Value of Assets
FYE 2020	(1.75%)	3.13%
FYE 2019	5.32%	4.07%
FYE 2018	3.54%	3.61%
FYE 2017	6.29%	3.65%
FYE 2016	0.46%	3.45%

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.

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

ACTUARIAL ACCRUED LIABILITY

	Prior Valuation	Current Valuation
Active Members	$ 9,861,037	$ 10,453,898
Inactive Members		
Terminated Members - Vested	-	715,966
Retired Members	18,099,412	18,773,341
Disabled Members	3,753,529	3,985,588
Other Beneficiaries	1,111,166	1,087,279
Total Inactive Members	22,964,107	24,562,174
Total Actuarial Accrued Liability	$ 32,825,144	$ 35,016,072

The Total Actuarial Accrued Liability has Increased by Approximately $2,191,000 from the Prior Valuation.

FUNDED STATUS

	Prior Valuation	Current Valuation
Total Actuarial Accrued Liability	$ 32,825,144	$ 35,016,072
Total Actuarial Value of Assets	10,570,687	11,544,440
Unfunded Actuarial Accrued Liability	$ 22,254,457	$ 23,471,632
Total Market Value of Assets	$ 10,180,218	$ 10,629,337
Percent Funded		
Actuarial Value of Assets	32.20%	32.97%
Market Value of Assets	31.01%	30.36%

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

RECOMMENDED CONTRIBUTION DETAIL

DEVELOPMENT OF THE EMPLOYER NORMAL COST

	Prior Valuation	Current Valuation
Total Normal Cost	$ 683,031	$ 676,717
Estimated Member Contributions	(239,317)	(242,948)
Employer Normal Cost	$ 443,714	$ 433,769

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	$ 2,414,900	$ 2,451,545
Member Normal Cost Rate	9.910%	9.910%
Employer Normal Cost Rate	18.37%	17.69%
Total Normal Cost Rate	28.28%	27.60%

Ideally, the Employer Normal Cost Rate will Remain Stable.

RECOMMENDED CONTRIBUTION

	Prior Valuation	Current Valuation
Employer Normal Cost*	$ 473,665	$ 463,048
Amortization of Unfunded Accrued Liability/(Surplus)	1,547,146	1,688,209
Recommended Contribution	$ 2,020,811	$ 2,151,257

The Recommended Contribution has Increased by 6.46% from the Prior Valuation.

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

SCHEDULE OF AMORTIZATION – UNFUNDED ACTUARIAL ACCRUED LIABILITY

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

Unfunded Liability Base	Initial Balance	Date Established	Current Balance	Years Remaining	Payment
Investment (Gain)/Loss	$ 341,347	4/30/2020	$ 341,347	20	$ 24,552
Actuarial (Gain)/Loss	208,538	4/30/2020	208,538	20	14,999
Contribution Experience	4,701	4/30/2020	4,701	20	338
Assumption Changes	623,793	4/30/2020	623,793	20	44,867
Plan Changes	83,767	4/30/2020	83,767	20	6,025
Investment (Gain)/Loss	221,707	4/30/2019	221,259	20	15,914
Actuarial (Gain)/Loss	1,014,563	4/30/2019	1,012,512	20	72,825
Contribution Experience	84,541	4/30/2019	84,371	20	6,068
Assumption Changes	87,334	4/30/2019	87,157	20	6,269
Investment (Gain)/Loss	235,911	4/30/2018	235,471	20	16,936
Actuarial (Gain)/Loss	926,878	4/30/2018	925,150	20	66,542
Contribution Experience	261,573	4/30/2018	261,085	20	18,779
Initial Unfunded Liability	$ 19,418,674	4/30/2018	$ 19,382,481	20	$ 1,394,095
Total	**$ 23,513,327**		**$ 23,471,632**		**$ 1,688,209**

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.

ACTUARIAL METHODS – RECOMMENDED CONTRIBUTION

Actuarial Valuation Date	May 1, 2020
Data Collection Date	April 30, 2020
Actuarial Cost Method	Entry Age Normal (Level % Pay)
Amortization Method	Level % Pay (Closed)
Amortization Target	100% Funded Over 20 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

STATUTORY MINIMUM CONTRIBUTION

	Current Valuation
Statutory Minimum Contribution	$1,837,276
Expected Payroll	$2,451,545
Statutory Minimum Contribution as a Percent of Expected Payroll	74.94%

FUNDED STATUS – STATUTORY MINIMUM

	Current Valuation
Normal Cost	$706,998
Market Value of Assets	$10,629,337
Actuarial Value of Assets	$11,544,440
Actuarial Accrued Liability	$33,557,034
Unfunded Actuarial Accrued Liability	$22,012,594
Percent Funded	
Actuarial Value of Assets	34.40%
Market Value of Assets	31.68%

ILLINOIS STATUTORY MINIMUM CONTRIBUTION

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.

ACTUARIAL METHODS – ILLINOIS STATUTORY MINIMUM CONTRIBUTION

Actuarial Valuation Date	May 1, 2020
Data Collection Date	April 30, 2020
Actuarial Cost Method	Projected Unit Credit
Amortization Method	Level % Pay (Closed)
Amortization Target	90% Funded Over 20 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

ACTIVE MEMBERS

	Prior Valuation	Current Valuation
Vested	16	15
Nonvested	11	11
Total Active Members	27	26
Total Payroll	$ 2,376,285	$ 2,412,344

INACTIVE MEMBERS

	Prior Valuation	Current Valuation
Terminated Members - Vested	0	1
Retired Members	14	14
Disabled Members	5	5
Other Beneficiaries	2	2
Total Inactive Members	21	22

SUMMARY OF MONTHLY BENEFIT PAYMENTS

	Prior Valuation	Current Valuation
Terminated Members - Vested	$ -	$ 4,189
Retired Members	89,641	92,050
Disabled Members	18,660	18,726
Other Beneficiaries	9,208	9,208
Total Inactive Members	$ 117,508	$ 124,172

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

ACTUARIAL FUNDING POLICIES

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

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

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 20 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.

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

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.

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

ACTUARIAL ASSUMPTIONS UTILIZED

Expected Rate of Return on Investments	6.75% Net of Administrative Expense
CPI-U	2.25%
Total Payroll Increases	3.25%
Individual Pay Increases*	3.75% - 7.78%

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	7.78%	8	3.75%
1	7.75%	9	3.75%
2	7.76%	10	3.75%
3	7.74%	15	3.75%
4	7.75%	20	3.75%
5	7.77%	25	3.75%
6	7.75%	30	3.75%
7	7.71%	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%

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.

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

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 1st thereafter.

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 1st. The salary cap will not decrease.

Annual Increase in Benefit: The initial increase date will be the latter of the January 1st after the pensioner turns age 60 or the January 1st after the benefit date anniversary. Subsequent increases will be granted every January 1st 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 1st.

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 1st after the pensioner turns age 60 or the January 1st after the benefit date anniversary. Subsequent increases will be granted every January 1st 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 1st.

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 1st after the surviving spouse turns age 60. Subsequent increases will be granted every January 1st 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 1st.

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 1st thereafter.

Hired on or After January 1, 2011

None.

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 1st after following pensioner turns age 60 or the January 1st after the benefit date anniversary. Subsequent increases of 3% of the original monthly benefit will be granted every January 1st 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 1st after following pensioner turns age 60 or the January 1st after the benefit date anniversary. Subsequent increases of 3% of the original monthly benefit will be granted every January 1st thereafter.

GLOSSARY OF TERMS

Glossary of Terms

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

CERTIFIED PUBLIC ACCOUNTANTS