

Lauterbach & Amen, LLP  
668 N. River Road  
Naperville, IL 60563

Actuarial Valuation  
as of May 1, 2017



ALSIP FIREFIGHTERS'  
PENSION FUND

GASB 67/68 Reporting

***LAUTERBACH & AMEN, LLP***

# Actuarial GASB Disclosures Statements 67 and 68

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Lauterbach & Amen, LLP

CERTIFIED PUBLIC ACCOUNTANTS

## GASB 67: ALSIP FIREFIGHTERS' PENSION FUND

**Fiscal Year Ending: April 30, 2018**

Actuarial Valuation Date: May 1, 2017

Measurement Date: **April 30, 2018**

## GASB 68: VILLAGE OF ALSIP, ILLINOIS

**Fiscal Year Ending: April 30, 2018**

Actuarial Valuation Date: May 1, 2017

Measurement Date: **April 30, 2018**

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October 19, 2018

***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 provide general information to assist in the preparation of the Annual Financial Report. The assumptions and methods used in the preparation of this disclosure meet the parameters set for the disclosures presented in the financial section as required by the Governmental Accounting Standards Board. Additional information is also provided solely to assist the auditors in preparation of the required footnote disclosures.

The results in this report are based on information and data submitted by the Village of Alsip, Illinois. We did not prepare the actuarial valuations for the years prior to May 1, 2015. Those valuations were prepared by other actuaries whose reports have been furnished to us, and our disclosures are based upon those reports. An audit of the information was not performed, but high-level reviews were performed for general reasonableness as appropriate based on the purpose of the valuation. The accuracy of the results is dependent upon the accuracy and completeness of the underlying information. The results of the actuarial valuation and these supplemental disclosures rely on the information provided.

The valuation results summarized involve actuarial calculations that require assumptions about future events. The Village of Alsip, Illinois selected certain assumptions, while others were the result of guidance and/or judgment. We believe that the assumptions used in the 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 funding requirements, and the procedures followed and presentation of results conform to generally accepted actuarial principles and practices. The undersigned consultant of Lauterbach & Amen, LLP with actuarial credentials meets the Qualification Standards of the American Academy of Actuaries to render this Actuarial Certification. There is no relationship between the Village of Alsip, Illinois and Lauterbach & Amen, LLP that impairs our objectivity.

Respectfully Submitted,  
LAUTERBACH & AMEN, LLP

A handwritten signature in blue ink that reads "Todd A. Schroeder".

Todd A. Schroeder, EA



## PENSION FUND NET POSITION

Statement of Net Position  
Statement of Changes in Net Position

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## STATEMENT OF FIDUCIARY NET POSITION

	<u>2018</u>	<u>2017</u>
<b>Assets</b>		
Cash and Cash Equivalents	\$ 410,024	\$ 446,431
Total cash	<u>410,024</u>	<u>446,431</u>
Receivables:		
Due from Members	16,143	-
Investment Income - Accrued Interest	64,956	57,520
Other	-	21,916
Total Receivables	<u>81,099</u>	<u>79,436</u>
Investments:		
U.S. Govt and Agency Obligations	11,780,039	-
Fixed Income	-	10,819,324
Mutual Funds	<u>14,825,896</u>	<u>13,925,811</u>
Total Investments	<u>26,605,935</u>	<u>24,745,135</u>
Total Assets	<u>27,097,058</u>	<u>25,271,002</u>
<b>Liabilities</b>		
Payables:		
Other	-	81,401
Total Liabilities	<u>-</u>	<u>81,401</u>
<b>Net Position Restricted for Pensions</b>	<u>\$ 27,097,058</u>	<u>\$ 25,189,601</u>

The Fiduciary Net Position of the Fund shown above is intended to be in accordance with GAAP and Government Accounting Standards Board rules. The Fair Market Value of Investments has 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 market value of the investments. The assets for 2018 are audited.



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## STATEMENT OF CHANGES IN FIDUCIARY NET POSITION

	<u>2018</u>
<b>Additions</b>	
Contributions	
Employer	\$ 1,765,714
Member	<u>307,846</u>
Total Contributions	<u>2,073,560</u>
Investment Income	
Net Appreciation in Fair Value of Investments	1,544,588
Interest and Dividends	428,843
Less Investment Expense	<u>(110,619)</u>
Net Investment Income	<u>1,862,812</u>
Prior Period Audit Adjustment	<u>81,401</u>
Total Additions	<u>4,017,773</u>
<b>Deductions</b>	
Benefit payments and Refunds of Member Contributions	2,080,017
Administrative Expense	<u>30,298</u>
Total Deductions	<u>2,110,316</u>
Net Increase in Net Position	<u>1,907,457</u>
<b>Net Position Restricted for Pensions</b>	
Beginning of Year	<u>25,189,601</u>
End of Year	<u>\$ 27,097,058</u>

The Changes in Fiduciary Net Position of the Fund shown above is intended to be in accordance with GAAP and Government Accounting Standards Board rules. The changes have been provided by the reporting entity, and the results are being audited by an independent auditor. The changes have been reviewed for reasonableness, but we make no representation as to the accuracy of the measurement of the fair market value of the investments. The assets for 2018 are audited.



## ACTUARIAL PENSION LIABILITY INFORMATION

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

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## STATEMENT OF TOTAL PENSION LIABILITY

	<u>2018</u>	<u>2017</u>
Active Employees	<u>\$ 19,816,103</u>	<u>\$ 16,304,506</u>
Inactive Employees		
Terminated Employees - Vested	-	-
Retired Employees	19,546,893	18,414,200
Disabled Employees	10,048,076	9,615,141
Other Beneficiaries	<u>1,491,505</u>	<u>1,526,252</u>
Total Inactive Employees	<u>31,086,474</u>	<u>29,555,593</u>
Total Pension Liability	<u>\$ 50,902,577</u>	<u>\$ 45,860,099</u>

The Total Pension Liability (TPL) shown is dependent on several factors such as plan provisions and actuarial assumptions used in the report. In addition, the calculation of the TPL may be dependent on the Fiduciary Net Position shown on the prior page. Changes in the Fiduciary Net Position due to any factor including adjustment on final audit could change the TPL. The dependence of the TPL on the Net Position is due to the role of the Net Position (and projected 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 fund and/or the Employer. The resulting liability is not intended to be a representation of the fund 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 Data Date shown in this report. The TPL has been determined as of the Actuarial Valuation Date and based on the assumptions shown in this report, and adjusted to the Measurement Date as needed.



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## STATEMENT OF CHANGES IN TOTAL PENSION LIABILITY

	<u>2018</u>
<b>Changes in Total Pension Liability</b>	
Service Cost	\$ 759,133
Interest	3,137,406
Changes of Benefit Terms	-
Differences Between Expected and Actual Experience	(16,832)
Changes in Assumptions	3,242,788
Benefit Payments and Refunds	<u>(2,080,017)</u>
Net Change in Total Pension Liability	5,042,478
Total Pension Liability - Beginning	<u>45,860,099</u>
Total Pension Liability - Ending (a)	<u><u>\$ 50,902,577</u></u>
 Plan Fiduciary Net Position - Ending (b)	 <u><u>\$ 27,097,058</u></u>
 <b>Employer's Net Pension Liability - Ending (a) - (b)</b>	 <u><u>\$ 23,805,519</u></u>
 Plan Fiduciary Net Position as a Percentage of the Total Pension Liability	 53%
 Covered-Employee Payroll	 \$ 3,580,058
Employer's Net Pension Liability as a Percentage of Employee Payroll	665%

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 Net Position of the fund. Changes in the Net Position could change the determination of the Total Pension Liability. Any changes in Net Position including adjustments on final audit can have an impact on Net Pension Liability that extends beyond the dollar-for-dollar change in Net Position.

Covered employee payroll is based on total covered payroll for the fund members during the fiscal year.



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## STATEMENT OF CHANGES IN NET PENSION LIABILITY

The table below illustrates the change in the 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 an expense, unless permitted to be recognized as a deferred outflow or inflow of resources.

	Increase (Decrease)		
	Total Pension Liability (a)	Plan Fiduciary Net Position (b)	Net Pension Liability (a) - (b)
<b>Balances Beginning at 05/01/17</b>	<u>\$ 45,860,099</u>	<u>\$ 25,189,601</u>	<u>\$ 20,670,498</u>
<b>Changes for the year:</b>			
Service Cost	759,133	-	759,133
Interest	3,137,406	-	3,137,406
Actuarial Experience	(16,832)	-	(16,832)
Assumptions Changes	3,242,788	-	3,242,788
Plan Changes	-	-	-
Contributions - Employer	-	1,765,714	(1,765,714)
Contributions - Employee	-	307,846	(307,846)
Contributions - Other	-	-	-
Net Investment Income	-	1,862,812	(1,862,812)
Benefit payments, including refunds	(2,080,017)	(2,080,017)	-
Administrative Expense	-	(30,298)	30,298
Prior Period Audit Adjustment	-	81,401	(81,401)
<b>Net Changes</b>	<u>5,042,478</u>	<u>1,907,457</u>	<u>3,135,021</u>
<b>Balances Beginning at 04/30/18</b>	<u>\$ 50,902,577</u>	<u>\$ 27,097,058</u>	<u>\$ 23,805,519</u>

The changes in total pension liability above are described on the prior page. The plan fiduciary net position was detailed in the prior section of this report. The employer's Net Pension Liability is the excess of the Total Pension Liability over the plan fiduciary net position.



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## DEFERRED OUTFLOWS AND INFLOWS OF RESOURCES

The table below shows the cumulative amounts to be shown as deferred outflows and inflows of resources. Changes in total pension liability related to the difference in actual and expected experience, or changes in assumptions regarding future events, are recognized in pension expense over the expected remaining service life of all employees (active and retired) in the pension fund. Differences in projected and actual earnings 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
Differences Between Expected and Actual Experience	\$ 109,633	\$ 382,888
Changes of Assumptions	3,340,988	235,972
Net Difference Between Projected and Actual Earnings on Pension Plan Investments	690,934	438,253
Contributions Subsequent to the Measurement Date*	-	-
Total	<u>\$ 4,141,555</u>	<u>\$ 1,057,113</u>

\* Contributions subsequent to the measurement date may be recognized as a reduction to the NPL. 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:

2019	\$ 722,898
2020	722,898
2021	377,435
2022	463,070
2023	353,179
Thereafter	444,962



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## DEFERRED OUTFLOWS AND INFLOWS OF RESOURCES - DETAILS

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

<b>Pension Expense Source</b>	<b>Date Established</b>	<b>Initial Period</b>	<b>Initial Balance</b>	<b>Remaining Period</b>	<b>4/30/2018 Expense Recognized</b>	<b>4/30/2018 Deferred Balance</b>
Asset Gain	4/30/2018	5.00	\$ (226,683)	5.00	\$ (45,337)	\$ (181,346)
Change in Assumptions Loss	4/30/2018	6.96	3,242,788	6.96	465,918	2,776,870
Actuarial Gain	4/30/2018	6.96	(16,832)	6.96	(2,419)	(14,413)
Asset Gain	4/30/2017	5.00	(428,181)	4.00	(85,637)	(256,907)
Change in Assumptions Gain	4/30/2017	6.96	(331,122)	5.96	(47,575)	(235,972)
Actuarial Gain	4/30/2017	6.96	(517,055)	5.96	(74,290)	(368,475)
Asset Loss	4/30/2016	5.00	1,727,335	3.00	345,467	690,934
Change in Assumptions Loss	4/30/2016	7.04	983,020	5.04	139,634	564,118
Actuarial Loss	4/30/2016	7.04	\$ 191,044	5.04	\$ 27,137	\$ 109,633
Total			\$ 4,624,314		\$ 722,898	\$ 3,084,442

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



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## PENSION EXPENSE DEVELOPMENT

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

See below for development of the pension expense:

	<u><b>2018</b></u>
<b>Pension Expense/(Income) Under GASB 68</b>	
Service Cost	\$ 759,133
Interest	3,137,406
Plan Changes	-
Contributions - Employee	(307,846)
Contributions - Other	-
Expected Investment Income	(1,636,129)
Administrative Expense	30,298
Prior Period Audit Adjustment	(81,401)
Initial Pension Expense/(Income)	<u>1,901,461</u>
Recognition of Outflow/(Inflow) of Resources due to Liabilities	508,405
Recognition of Outflow/(Inflow) of Resources due to Assets	<u>214,493</u>
<b>Total Pension Expense/(Income)</b>	<u><u><b>\$ 2,624,359</b></u></u>



## ACTUARIAL ASSUMPTION INFORMATION

Statement of Significant Actuarial Assumptions  
Assumption Changes  
Notes on Actuarial Assumptions  
Postemployment Benefit Changes  
Expected Return on Pension Plan Investments  
Municipal Bond Rate  
Discount Rate  
Sensitivity of the Discount Rate

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## STATEMENT OF SIGNIFICANT ACTUARIAL ASSUMPTIONS

### Actuarial Assumptions (Economic)

Discount Rate used for the Total Pension Liability	6.50%
Long-Term Expected Rate of Return on Plan Assets	6.50%
High Quality 20 Year Tax-Exempt G.O. Bond Rate	3.97%
Projected Individual Salary Increases	4.00% - 35.82%
Projected Increase in Total Payroll	3.25%
Consumer Price Index (Urban)	2.50%
Inflation Rate Included	2.50%

### Actuarial Assumptions (Demographic)

Mortality Table	L&A 2016 Illinois Firefighters Mortality Rates; See Details on Page 15
Retirement Rates	L&A 2016 Illinois Firefighters Retirement Rates Capped at age 65
Disability Rates	L&A 2016 Illinois Firefighters Disability Rates
Termination Rates	L&A 2016 Illinois Firefighters Termination Rates
Percent Married	80.0%

All rates shown in the economic assumptions are assumed to be annual rates, compounded on an annual basis. For more information on the selection of the actuarial assumptions, please see the assumption document prepared for the Fund.

### ASSUMPTION CHANGES

The assumptions were changed from the prior year.

The assumed rate on High Quality 20 Year Tax-Exempt G.O. Bonds was changed from 3.82% to 3.97% for the current year. The underlying index used is The Bond Buyer 20-Bond GO Index as discussed in more detail later in this section. The choice of index is unchanged from the prior year. The rate has



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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 7.00% to 6.50%. 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.

In the current valuation, we have updated the individual pay increase assumption to reflect the Tier II salary scale as stated in the current collective bargaining agreement between the Village of Alsip, Illinois and the Alsip Professional Firefighters IAFF Local 3074, for the period May 1, 2015 through April 30, 2018.

In addition, there are changes that can be made that impact the projection of the Net Position of the fund. For example, changes in the formal or informal funding policy can impact the discount rate. Actual changes in the net position from one year to the next can impact the projections as well.



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## NOTES ON ACTUARIAL ASSUMPTIONS

### Individual Pay Increases

Individual pay increases include provisions for annual cost of living increases, plus any additional increases in pensionable pay provided (step increases, longevity increases, promotions, educations, etc). Sample rates are as follows:

Service	Rate	Service	Rate
0	6.50%	8	4.00%
1	6.35%	9	4.00%
2	6.20%	10	4.00%
3	9.64%	15	4.00%
4	10.83%	20	4.00%
5	35.82%	25	4.00%
6	4.00%	30	4.00%
7	4.00%		

### Demographic Assumptions

Active Mortality follows the Sex Distinct Raw Rates as Developed in the RP-2014 Study, with Blue Collar Adjustment. These Rates are Improved Generationally using MP-2016 Improvement Rates.

Retiree Mortality follows the L&A Assumption Study for Firefighters 2016. These Rates are Experience Weighted with the Raw Rates as Developed in the RP-2014 Study, with Blue Collar Adjustment and Improved Generationally using MP-2016 Improvement Rates.

Disabled Mortality follows the Sex Distinct Raw Rates as Developed in the RP-2014 Study for Disabled Participants, with Blue Collar Adjustment. These Rates are Improved Generationally using MP-2016 Improvement Rates.

Spouse Mortality follows the Sex Distinct Raw Rates as Developed in the RP-2014 Study. These Rates are Improved Generationally using MP-2016 Improvement Rates.

Other demographic assumption rates are based on a review of assumptions in the L&A 2016 study for Illinois Firefighters.



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## **POSTEMPLOYMENT BENEFIT CHANGES**

Eligibility for postemployment benefit increases is determined based on the Illinois Pension code. Tier 1 Firefighter retirees are provided with an annual 3.0% increase in retirement benefits by statute when eligible. Tier 2 Firefighter retirees are provided postemployment benefit increases based on 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, 2015 was 237.9. The average increase in the CPI-U for September, 1985 through September, 2015 was 2.66% (on a compounded basis).



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## EXPECTED RETURN ON PENSION PLAN INVESTMENTS

The long-term expected rate of return on assets 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 is from the State of Illinois Department of Insurance Actuarial Experience Study dated September 26, 2012. Long-term Real Rates of Return are shown as the Expected Rate of Return, net of the assumed inflation rate.

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

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

<u>Asset Class</u>	<u>Long-Term Expected Rate of Return</u>	<u>Long-Term Inflation Expectations</u>	<u>Long-Term Expected Real Rate of Return</u>
US Large Cap Equity	8.30%	2.50%	5.80%
US Mid Cap Equity	9.30%	2.50%	6.80%
US Small Cap Equity	9.30%	2.50%	6.80%
Non-US Developed Large Cap Equity Unhedged	8.40%	2.50%	5.90%
Emerging Markets Equity Unhedged	10.50%	2.50%	8.00%
US Corporate Bonds	4.20%	2.50%	1.70%
US Government Fixed Income	3.20%	2.50%	0.70%
US Cash	3.00%	2.50%	0.50%
Global Real Estate - REITS	8.30%	2.50%	5.80%
Commodities - Long Only	4.90%	2.50%	2.40%

Long-term expected real returns 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.



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The expected inflation rate is 2.50% and is included in the total long-term rate of return on investments. The inflation rate is from the same source as the long-term 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. The higher the volatility, the greater the difference.



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## **MUNICIPAL BOND RATE**

The municipal bond rate assumption is based on The Bond Buyer 20-Bond GO Index. The rate shown earlier in the Actuarial Assumption section is the April 26, 2018 rate. The 20-Bond GO 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 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 indexes 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 indexes would yield if the bond was sold at par value. The indexes 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 long-term rate of return on plan investments and the municipal bond rate.

Cash flow projections were used to determine the extent which the plan's future net position will be able to cover future benefit payments. To the extent future benefit payments are covered by the plan's projected 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 future benefit payments are not covered by the plan's projected 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 in the prior section. The expected contributions are based on the funding policy of the plan. The funding policy is discussed in more detail in a later section.



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### SENSITIVITY OF THE DISCOUNT RATE

The Net Pension Liability has been determined using the discount rate listed in the assumption section. Below is a table illustrating the sensitivity of the Net Pension Liability to the discount rate assumption.

	<b>1% Decrease (5.50%)</b>	<b>Current Discount Rate (6.50%)</b>	<b>1% Increase (7.50%)</b>
Employer Net Pension Liability	\$31,384,675	\$23,805,519	\$17,655,731

The sensitivity of the Net Pension Liability to the discount rate is based primarily on two factors:

1. The duration of the plan's expected benefit payments. Younger plans with benefit payments further in the future will be more sensitive to changes in the discount rate.
2. The funded percentage of the plan (ratio of the net position to the total pension liability). The higher the funded percentage, the higher the sensitivity to the discount rate.



## PARTICIPANT DATA

Participant Demographic Data  
Expected Future Working Lifetime

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## **PARTICIPANT DEMOGRAPHIC DATA**

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

	<u>5/1/2017</u> <u>(FYE 2018)</u>	<u>5/1/2017</u> <u>(FYE 2017)</u>
Inactive Plan Members or Beneficiaries Currently Receiving Benefits	36	36
Inactive Plan Members Entitled to But Not Yet Receiving Benefits	0	0
Active Plan Members	35	35
Total	<u>71</u>	<u>71</u>
Payroll of Active Plan Members	<u>\$ 3,010,259</u>	<u>\$ 3,010,259</u>

Participant counts shown above are as of the Actuarial Valuation Date for the two most recent fiscal years. For the fiscal year ending 4/30/2018, a beginning of the year valuation date was used along with a rollforward of liabilities to the end of the fiscal year based on assumptions and standard rollforward techniques. Pay is the active pensionable pay as of the Actuarial Valuation Date.

The census information used in this valuation is based on the report filed with the Illinois Department of Insurance for the April 30, 2017 fiscal-year end.

## **EXPECTED FUTURE WORKING LIFETIME**

The chart below summarizes the expected future working lifetime of fund members:

	<u>5/1/2017</u> <u>(FYE 2018)</u>	<u>5/1/2017</u> <u>(FYE 2017)</u>
Average Future Working Career (In Years)		
Active Plan Members	14.12	14.12
Inactive Plan Members	0.00	0.00
Total	6.96	6.96

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 the Actuary's report. Because fiscal year 2018 utilized a beginning of the year valuation date with rollforward of the liabilities to the end of the year, the expected future working lifetime used for amortizing gains and losses was unchanged in the current valuation.



## FUNDING POLICY

Components of the Actuarially Determined Contributions

Formal Funding Policy

Informal Funding Policy

Funding Policy – Other Considerations

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

The Actuarially Determined Contribution (ADC) includes the determination of the Normal Cost contribution for active plan members, as well as provision for the payment of unfunded liability.

The actuarial funding method used in the determination of the normal cost and the actuarial liability is the Entry Age Normal Cost method (level percent of pay). The method allocates normal cost contributions by employee over the working career of the employee as a level percent of their pay.

Unfunded liability is the excess of the actuarial 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 year's employer contributions are being compared to the actuarially determined contribution as developed in the April 30, 2016 actuarial valuation. The period of repayment as of that valuation is 17 years.

Beginning with fiscal year end April 30, 2018, the Village has implemented layered amortization to mitigate future volatility in the determination of the actuarial contribution. Any unfunded liability as of April 30, 2017 will be full-amortized by April 30, 2040. Any new unfunded liability of this date, and any that should emerge in a subsequent fiscal year, will be paid over a separate 15-year period.

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 statutes.

## **FORMAL FUNDING POLICY**

There is a Sustainable Retiree Defined Benefit Funding Policy that exists between the Pension Board and the Village at this time. Adopted by the Village on May 21, 2018, the policy states that the Village will contribute 100% of the actuarially determined amount, calculated based on the above started funding policy parameters. The economic and demographic assumptions disclosed in this report are the same as those referenced in the funding policy. Please refer to this document for full details on the assumptions and objectives between the Village and Pension Board.

## **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. The five-year contribution history of the Employer (with a focus on the average contributions from those sources)
2. All other known events and conditions
3. Consideration of subsequent events

#### Five-Year Contribution History of the Employer

Employer contributions (under the informal 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 actuarial determined contribution. Please see the table below for a summary of these values:

<b>Fiscal Year End</b>	<b>Employer Contributions</b>	<b>Most Applicable ADC</b>	<b>% of ADC</b>	<b>Covered Payroll</b>	<b>% of Payroll</b>
4/30/2018	\$1,765,714	\$2,119,572	83%	\$3,580,058	49.32%
4/30/2017	\$1,694,818	\$1,964,649	86%	\$3,475,471	48.77%
4/30/2016	\$1,541,749	\$1,538,355	100%	\$2,971,004	51.89%
4/30/2015	\$1,538,881	\$1,480,436	104%	\$3,011,302	51.10%
4/30/2014	\$1,301,138	\$1,214,470	107%	\$2,847,052	45.70%

When compared to the other policies reviewed, history suggests that a contribution as a level percent of payroll is the least volatile, and as a result, the most stable contribution method under an informal funding policy.



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#### 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 – Not Selected

There is a Sustainable Retiree Defined Benefit Funding Policy that exists between the Pension Fund and the Village. See page 24 for further details. For this reason, we have not determined an informal funding policy for GASB 67/68 reporting purposes

#### **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 existing employees as of the Actuarial Valuation Date as well as payment of unfunded liability on behalf of the current existing 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 a portion of the above total contribution is anticipated to pay contributions for future employee normal cost, the amount has been netted out. The remaining amount is anticipated to be paid towards the unfunded liability existing for current employees.

The actuarial 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 fund 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

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## SCHEDULE OF CHANGES IN THE NET PENSION LIABILITY

	2018	2017	2016	2015	2014	2013	2012	2011	2010	2009
<b>Total Pension Liability</b>										
Service Cost	\$ 759,133	\$ 709,470	\$ 659,594	\$ 725,003						
Interest	3,137,406	3,075,843	2,882,499	2,763,171						
Changes of Benefit Terms	-	-	-	-						
Differences Between Expected and Actual Experience	(16,832)	(517,055)	191,044	-						
Changes in Assumptions	3,242,788	(331,122)	983,020	-						
Benefit Payments and Refunds	(2,080,017)	(2,035,303)	(1,872,896)	(1,694,070)						
<b>Net Change In Total Pension Liability</b>	<b>\$ 5,042,478</b>	<b>\$ 901,833</b>	<b>\$ 2,843,261</b>	<b>\$ 1,794,104</b>						
<b>Total Pension Liability - Beginning</b>	<b>45,860,099</b>	<b>44,958,266</b>	<b>42,115,005</b>	<b>40,320,901</b>						
<b>Total Pension Liability - Ending (a)</b>	<b>\$ 50,902,577</b>	<b>\$ 45,860,099</b>	<b>\$ 44,958,266</b>	<b>\$ 42,115,005</b>						
<b>Plan Fiduciary Net Position</b>										
Contributions - Employer	\$ 1,765,714	\$ 1,694,818	\$ 1,541,749	\$ 1,538,881						
Contributions - Member	307,846	294,101	313,228	286,786						
Net Investment Income	1,862,812	2,051,089	(93,196)	1,654,617						
Other Income	-	44	15	-						
Benefit Payments and Refunds	(2,080,017)	(2,035,303)	(1,872,896)	(1,694,070)						
Administrative Expense	(30,298)	(45,473)	(24,740)	(16,982)						
Prior Period Audit Adjustment	81,401	-	-	-						
<b>Net Change in Plan Fiduciary Net Position</b>	<b>\$ 1,907,457</b>	<b>\$ 1,959,277</b>	<b>\$ (135,840)</b>	<b>\$ 1,769,232</b>						
<b>Plan Fiduciary Net Position - Beginning</b>	<b>25,189,601</b>	<b>23,230,324</b>	<b>23,366,164</b>	<b>21,596,932</b>						
<b>Plan Fiduciary Net Position - Ending (b)</b>	<b>\$ 27,097,058</b>	<b>\$ 25,189,601</b>	<b>\$ 23,230,324</b>	<b>\$ 23,366,164</b>						
<b>Employer Net Pension Liability - Ending (a) - (b)</b>	<b>\$ 23,805,519</b>	<b>\$ 20,670,498</b>	<b>\$ 21,727,942</b>	<b>\$ 18,748,841</b>						

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



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## SCHEDULE OF TOTAL PENSION LIABILITY AND RELATED RATIO

	2018	2017	2016	2015	2014	2013	2012	2011	2010	2009
<b>Total Pension Liability - Ending (a)</b>	<u>\$ 50,902,577</u>	<u>\$ 45,860,099</u>	<u>\$ 44,958,266</u>	<u>\$ 42,115,005</u>						
<b>Plan Fiduciary Net Position - Ending (b)</b>	<u>\$ 27,097,058</u>	<u>\$ 25,189,601</u>	<u>\$ 23,230,324</u>	<u>\$ 23,366,164</u>						
<b>Employer Net Pension Liability - Ending (a) - (b)</b>	<u>\$ 23,805,519</u>	<u>\$ 20,670,498</u>	<u>\$ 21,727,942</u>	<u>\$ 18,748,841</u>						
<b>Plan Fiduciary Net Position as a Percentage of the Total Pension Liability</b>	53.23%	54.93%	51.67%	55.48%						
<b>Covered-Employee Payroll</b>	\$ 3,580,058	\$ 3,475,471	\$ 2,971,004	\$ 3,011,302						
<b>Employer Net Pension Liability as a Percentage of Covered-Employee Payroll</b>	664.95%	594.75%	731.33%	622.62%						

Covered employee payroll shown for the current year is the total covered payroll for the current fiscal year for all fund members.



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## SCHEDULE OF CONTRIBUTIONS

	2018	2017	2016	2015	2014	2013	2012	2011	2010	2009
Actuarially Determined Contribution	\$2,119,572	\$1,964,649	\$1,538,355	\$1,480,436						
Contributions in Relation to the Actuarially Determined Contribution	<u>1,765,714</u>	<u>1,694,818</u>	<u>1,541,749</u>	<u>1,538,881</u>						
Contribution Deficiency (excess)	<u>\$ 353,858</u>	<u>\$ 269,831</u>	<u>\$ (3,394)</u>	<u>\$ (58,445)</u>						
 Covered-Employee Payroll	<u>\$ 3,580,058</u>	<u>\$ 3,475,471</u>	<u>\$ 2,971,004</u>	<u>\$ 3,011,302</u>						
Contributions as a Percentage of Covered-Employee Payroll	49.3%	48.8%	51.9%	51.1%						

## NOTES TO SCHEDULE OF CONTRIBUTIONS

The actuarially determined contribution shown for the current year is from the April 30, 2016 actuary's report completed by Lauterbach & Amen, LLP for the tax levy recommendation for the December 2016 tax levy.



# GASB METHODS AND PROCEDURES

GASB Methods and Procedures  
Methodology for Deferred Outflows and Inflows

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## **GASB METHODS AND PROCEDURES**

	<b>Statement 67</b>	<b>Statement 68</b>
	<b><u>Pension Fund Financials</u></b>	<b><u>Employer Financials</u></b>
Fiscal Year End for Reporting	<b>April 30, 2018</b>	<b>April 30, 2018</b>
Measurement Date	April 30, 2018	April 30, 2018
Actuarial Valuation Date	May 1, 2017	May 1, 2017
Actuarial Valuation - Data Date	April 30, 2017	April 30, 2017
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 Inflows and Outflows of Resources**

Amortization Method	Straight Line	Straight Line
Amortization Period		
Actuarial Experience (TPL)	6.96 Years	6.96 Years
Changes in Assumptions	6.96 Years	6.96 Years
Asset Experience	5.00 Years	5.00 Years



## SUPPLEMENTARY TABLES

GASB Projections – Summary and Procedure

GASB Projections - Limitations

Projection of Contributions

Projection of the Pension Fund's Fiduciary Net Position

Actuarial Present Value of Projected Benefit Payments

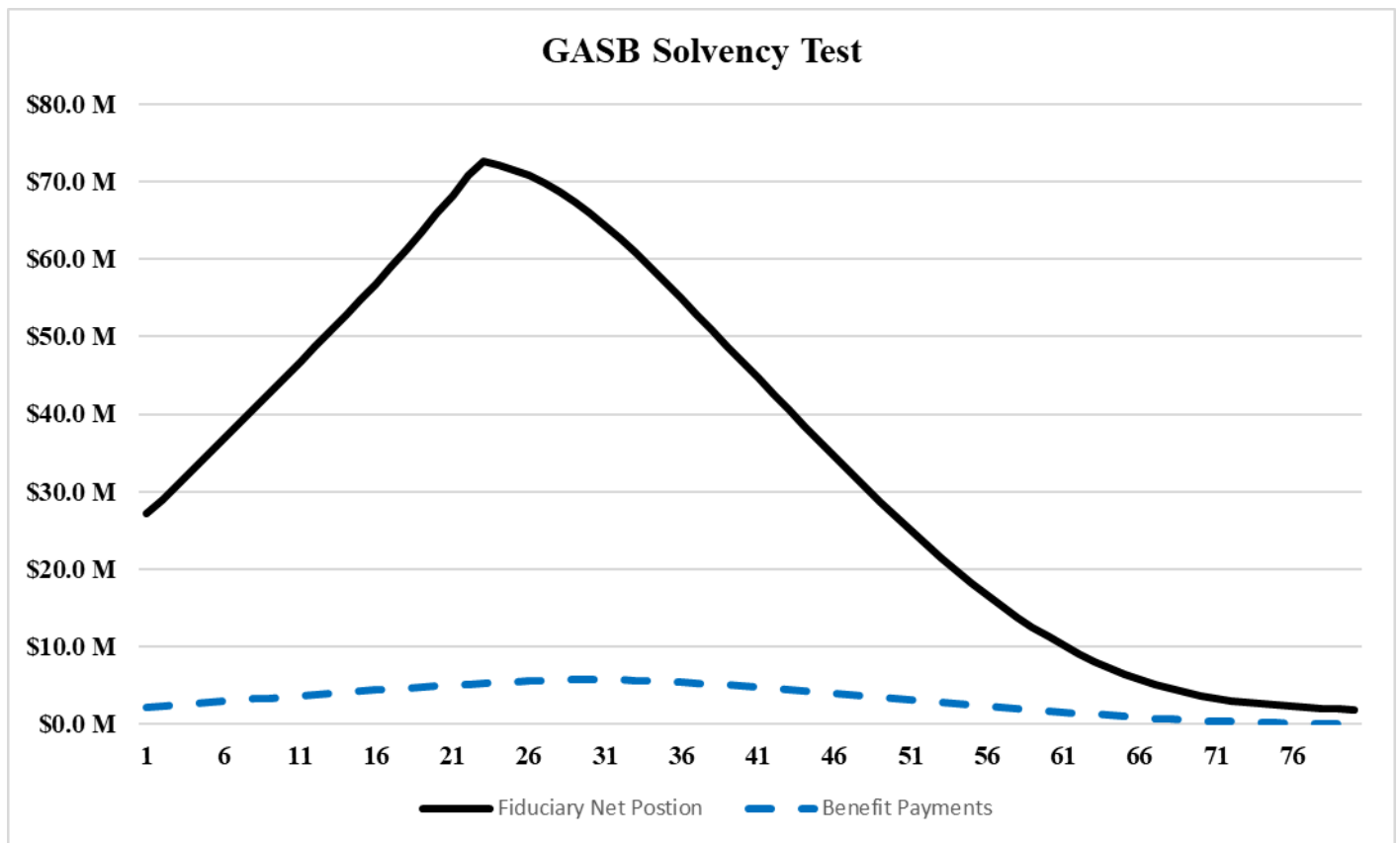
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## GASB PROJECTIONS – SUMMARY AND PROCEDURE

GASB requires a solvency test to use in the determination of the discount rate each year. The Fiduciary Net Position of the fund is projected forward. To the extent the Net Position of the Fund is anticipated to be greater than \$0, benefit payments during that time period are discounted based on the expected rate of return on plan assets.

If the Fiduciary Net Position of the fund is anticipated to go to \$0 prior to the payment of future benefit payments for employees who are in the fund as of the Actuarial Valuation Date, then remaining expected future benefit payments are discounted using a high quality Municipal Bond rate as described in the assumption section of the report. Below is a chart with a high level summary of the projections:



The plan's projected net position is expected to cover future benefit payments in full for the current employees.



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## **GASB PROJECTIONS – LIMITATIONS**

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

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

GASB also mandates certain assumptions that are made in the projection process. Most notably, future contributions under an informal funding policy. In proposing an informal funding policy, GASB suggests a focus be placed on the average contribution rate over the past 5 years. Assumed contributions noted in this section may be based on the five year average, unless a formal funding policy is in place.

Contributions reflecting informal funding policy are applied under GASB, whether or not the future 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.

The further you look forward with projections, the more sensitive the results are to assumptions. With projections that run out close to 80 years, a small change in an assumption will have a dramatic impact in the look of the projections on the following pages. If there is no change to the solvency of the fund as determined by GASB, big swings in the projection results may not necessarily lead to big swings in the determination of the Total Pension Liability.

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

The following pages provide the detail behind the charts shown on the chart in this section.



## PROJECTION OF CONTRIBUTIONS – YEARS 1 TO 30

Year	Projected Covered-Employee Payroll			Projected Contributions			
	Current Employees (a)	Future Employees (b)	Total Employee Payroll (c) = (a) + (b)	Current Employees (d) - Notes	Employer Contributions for Current Employees (e) - Notes	Contributions Related to Pay of Future Employees (f) - Notes	Total Contributions (d) + (e) + (f)
1	\$ 3,073,277	\$ 34,815	\$ 3,108,092	\$ 290,578	\$ 2,060,160	\$ -	\$ 2,350,738
2	3,068,721	140,384	3,209,105	290,148	2,112,703	-	2,402,850
3	3,023,498	289,903	3,313,401	285,872	2,158,599	-	2,444,471
4	2,979,898	441,189	3,421,087	281,749	2,196,039	-	2,477,788
5	2,953,230	579,042	3,532,272	279,228	2,233,234	-	2,512,462
6	2,912,150	734,921	3,647,071	275,344	2,272,532	-	2,547,876
7	2,830,204	935,397	3,765,601	267,596	2,313,528	-	2,581,123
8	2,743,988	1,143,995	3,887,983	259,444	2,354,279	-	2,613,723
9	2,641,268	1,373,074	4,014,342	249,732	2,395,985	-	2,645,717
10	2,541,193	1,603,615	4,144,808	240,270	2,435,481	-	2,675,751
11	2,466,276	1,813,239	4,279,515	233,186	2,478,187	-	2,711,373
12	2,371,908	2,046,691	4,418,599	224,264	2,528,072	-	2,752,336
13	2,278,333	2,283,870	4,562,203	215,416	2,575,954	-	2,791,371
14	2,201,423	2,509,052	4,710,475	208,145	2,625,483	-	2,833,627
15	2,131,519	2,732,046	4,863,565	201,535	2,682,597	-	2,884,132
16	2,054,914	2,966,717	5,021,631	194,292	2,743,671	-	2,937,963
17	1,965,946	3,218,888	5,184,834	185,880	2,806,244	-	2,992,124
18	1,873,099	3,480,243	5,353,342	177,102	2,868,147	-	3,045,248
19	1,735,311	3,792,014	5,527,325	164,074	2,932,420	-	3,096,494
20	1,609,323	4,097,640	5,706,963	152,161	2,990,712	-	3,142,874
21	1,475,552	4,416,887	5,892,439	139,513	3,054,585	-	3,194,098
22	1,332,022	4,751,922	6,083,944	125,943	2,395,067	-	2,521,010
23	1,188,855	5,092,817	6,281,672	112,406	195,208	-	307,614
24	1,056,336	5,429,490	6,485,826	99,877	168,137	-	268,014
25	930,818	5,765,798	6,696,616	88,009	143,363	-	231,372
26	788,607	6,125,649	6,914,256	74,563	122,334	-	196,897
27	672,982	6,465,987	7,138,969	63,630	101,412	-	165,042
28	534,466	6,836,519	7,370,985	50,534	84,593	-	135,127
29	440,097	7,170,445	7,610,542	41,611	63,898	-	105,509
30	343,174	7,514,711	7,857,885	32,447	50,676	-	83,123

Column d – Contributions from employees to the pension fund (employees as of the valuation date)

Column e – Employer contributions to the fund excluding contributions for employees hired after the actuarial valuation date

Column f – Contributions from future employees to the extent they are anticipated to be greater than required to pay their total normal cost



## PROJECTION OF CONTRIBUTIONS – YEARS 31 TO 60

Year	Projected Covered-Employee Payroll			Projected Contributions			
	Current Employees (a)	Future Employees (b)	Total Employee Payroll (c) = (a) + (b)	Current Employees (d) - Notes	Employer Contributions for Current Employees (e) - Notes	Contributions Related to Pay of Future Employees (f) - Notes	Total Contributions (d) + (e) + (f)
31	\$ 260,971	\$ 7,852,295	\$ 8,113,266	\$ 24,675	\$ 36,264	\$ -	\$ 60,939
32	176,795	8,200,153	8,376,948	16,716	25,230	-	41,946
33	126,880	8,522,318	8,649,198	11,997	14,946	-	26,943
34	90,105	8,840,192	8,930,297	8,519	9,632	-	18,151
35	54,221	9,166,311	9,220,532	5,127	6,993	-	12,120
36	43,525	9,476,674	9,520,199	4,115	4,437	-	8,552
37	24,087	9,805,519	9,829,606	2,277	3,499	-	5,776
38	17,603	10,131,465	10,149,068	1,664	1,600	-	3,264
39	12,830	10,466,083	10,478,913	1,213	1,169	-	2,382
40	9,344	10,810,133	10,819,477	883	852	-	1,735
41	-	11,171,110	11,171,110	-	621	-	621
42	-	11,534,171	11,534,171	-	-	-	-
43	-	11,909,032	11,909,032	-	-	-	-
44	-	12,296,075	12,296,075	-	-	-	-
45	-	12,695,698	12,695,698	-	-	-	-
46	-	13,108,308	13,108,308	-	-	-	-
47	-	13,534,328	13,534,328	-	-	-	-
48	-	13,974,194	13,974,194	-	-	-	-
49	-	14,428,355	14,428,355	-	-	-	-
50	-	14,897,277	14,897,277	-	-	-	-
51	-	15,381,438	15,381,438	-	-	-	-
52	-	15,881,335	15,881,335	-	-	-	-
53	-	16,397,478	16,397,478	-	-	-	-
54	-	16,930,396	16,930,396	-	-	-	-
55	-	17,480,634	17,480,634	-	-	-	-
56	-	18,048,755	18,048,755	-	-	-	-
57	-	18,635,339	18,635,339	-	-	-	-
58	-	19,240,988	19,240,988	-	-	-	-
59	-	19,866,320	19,866,320	-	-	-	-
60	-	20,511,975	20,511,975	-	-	-	-

Column d – Contributions from employees to the pension fund (employees as of the valuation date)

Column e – Employer contributions to the fund excluding contributions for employees hired after the actuarial valuation date

Column f – Contributions from future employees to the extent they are anticipated to be greater than required to pay their total normal cost



## PROJECTION OF CONTRIBUTIONS – YEARS 61 TO 80

Year	Projected Covered-Employee Payroll			Projected Contributions			
	Current Employees (a)	Future Employees (b)	Total Employee Payroll (c) = (a) + (b)	Current Employees (d) - Notes	Employer Contributions for Current Employees (e) - Notes	Contributions Related to Pay of Future Employees (f) - Notes	Total Contributions (d) + (e) + (f)
61	\$ -	\$ 21,178,614	\$ 21,178,614	\$ -	\$ -	\$ -	\$ -
62	-	21,866,919	21,866,919	-	-	-	-
63	-	22,577,594	22,577,594	-	-	-	-
64	-	23,311,366	23,311,366	-	-	-	-
65	-	24,068,985	24,068,985	-	-	-	-
66	-	24,851,228	24,851,228	-	-	-	-
67	-	25,658,892	25,658,892	-	-	-	-
68	-	26,492,806	26,492,806	-	-	-	-
69	-	27,353,823	27,353,823	-	-	-	-
70	-	28,242,822	28,242,822	-	-	-	-
71	-	29,160,714	29,160,714	-	-	-	-
72	-	30,108,437	30,108,437	-	-	-	-
73	-	31,086,961	31,086,961	-	-	-	-
74	-	32,097,287	32,097,287	-	-	-	-
75	-	33,140,449	33,140,449	-	-	-	-
76	-	34,217,514	34,217,514	-	-	-	-
77	-	35,329,583	35,329,583	-	-	-	-
78	-	36,477,794	36,477,794	-	-	-	-
79	-	37,663,323	37,663,323	-	-	-	-
80	-	38,887,381	38,887,381	-	-	-	-

### NOTES TO PROJECTION OF CONTRIBUTIONS

Total payroll is assumed to increase annually at the assumed payroll increase rate shown in the assumption section of this report. Payroll for current employees (employees active as of the actuarial valuation date) has been projected on an employee by employee basis, using expected pay increases and probability of remaining in active employment for future periods.

Employer contributions are related to current employees in the fund as of the Actuarial Valuation Date. To the extent future contributions under the Employer funding policy are made to cover the Normal Cost of providing benefits for future employees, those contributions have been excluded out for purposes of these projections and this report.

Contributions are based on the Funding Policy described in an earlier section of this report. The contributions do not factor in changes in funding policy based on an assumed Employer decision if the projections were to play out in this fashion. The only future events that have been considered were outlined in the funding policy section of the 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 Fund. In addition, contributions by the employer on behalf of service for future employees have not been included per the GASB parameters.



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## 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 Expenses (d)	Projected Investment Earnings (e)	Projected Ending Fiduciary Net Position (a)+(b)-(c)-(d)+(e)
1	\$ 27,097,058	\$ 2,350,738	\$ 2,192,368	\$ 26,293	\$ 1,750,321	\$ 28,979,457
2	28,979,457	2,402,850	2,318,823	26,951	1,869,901	30,906,435
3	30,906,435	2,444,471	2,469,201	27,624	1,991,328	32,845,409
4	32,845,409	2,477,788	2,604,058	28,315	2,113,822	34,804,646
5	34,804,646	2,512,462	2,742,042	29,023	2,237,566	36,783,609
6	36,783,609	2,547,876	2,883,065	29,748	2,362,513	38,781,185
7	38,781,185	2,581,123	3,047,346	30,492	2,487,856	40,772,326
8	40,772,326	2,613,723	3,208,958	31,254	2,612,851	42,758,689
9	42,758,689	2,645,717	3,369,134	32,036	2,737,565	44,740,801
10	44,740,801	2,675,751	3,529,515	32,837	2,861,945	46,716,146
11	46,716,146	2,711,373	3,687,146	33,658	2,986,119	48,692,834
12	48,692,834	2,752,336	3,843,119	34,499	3,110,572	50,678,125
13	50,678,125	2,791,371	3,979,401	35,361	3,236,174	52,690,907
14	52,690,907	2,833,627	4,107,659	36,245	3,363,906	54,744,536
15	54,744,536	2,884,132	4,233,439	37,152	3,494,588	56,852,665
16	56,852,665	2,937,963	4,364,206	38,080	3,628,736	59,017,078
17	59,017,078	2,992,124	4,488,825	39,032	3,766,750	61,248,094
18	61,248,094	3,045,248	4,630,719	40,008	3,908,504	63,531,119
19	63,531,119	3,096,494	4,759,433	41,008	4,054,017	65,881,189
20	65,881,189	3,142,874	4,894,333	42,034	4,203,560	68,291,257
21	68,291,257	3,194,098	5,025,339	43,085	4,357,254	70,774,186
22	70,774,186	2,521,010	5,145,234	44,162	4,497,213	72,603,013
23	72,603,013	307,614	5,259,020	45,266	4,554,805	72,161,146
24	72,161,146	268,014	5,348,467	46,397	4,522,110	71,556,405
25	71,556,405	231,372	5,451,895	47,557	4,478,450	70,766,775
26	70,766,775	196,897	5,529,660	48,746	4,423,661	69,808,927
27	69,808,927	165,042	5,621,570	49,965	4,357,546	68,659,981
28	68,659,981	135,127	5,662,199	51,214	4,280,726	67,362,421
29	67,362,421	105,509	5,695,903	52,494	4,194,478	65,914,011
30	65,914,011	83,123	5,717,707	53,807	4,098,998	64,324,618

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

Column d – Based on average administrative expenses in recent years and projected to increase going forward.

Column e – Based on the current expected return on assets. Does not factor in allocation changes.



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## 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 Expenses (d)	Projected Investment Earnings (e)	Projected Ending Fiduciary Net Position (a)+(b)-(c)-(d)+(e)
31	\$ 64,324,618	\$ 60,939	\$ 5,714,891	\$ 55,152	\$ 3,995,158	\$ 62,610,672
32	62,610,672	41,946	5,683,585	56,531	3,884,231	60,796,733
33	60,796,733	26,943	5,626,485	57,944	3,767,744	58,906,991
34	58,906,991	18,151	5,559,303	59,392	3,646,819	56,953,265
35	56,953,265	12,120	5,465,183	60,877	3,522,680	54,962,005
36	54,962,005	8,552	5,377,352	62,399	3,395,961	52,926,767
37	52,926,767	5,776	5,265,048	63,959	3,267,197	50,870,733
38	50,870,733	3,264	5,144,295	65,558	3,137,362	48,801,507
39	48,801,507	2,382	5,016,395	67,197	3,006,943	46,727,240
40	46,727,240	1,735	4,887,142	68,877	2,876,245	44,649,201
41	44,649,201	621	4,746,463	70,599	2,745,660	42,578,420
42	42,578,420	-	4,601,552	72,364	2,615,695	40,520,199
43	40,520,199	-	4,453,314	74,173	2,486,670	38,479,382
44	38,479,382	-	4,302,204	76,027	2,358,867	36,460,018
45	36,460,018	-	4,148,825	77,928	2,232,532	34,465,796
46	34,465,796	-	3,993,640	79,876	2,107,887	32,500,168
47	32,500,168	-	3,836,879	81,873	1,985,151	30,566,567
48	30,566,567	-	3,678,719	83,920	1,864,541	28,668,469
49	28,668,469	-	3,519,170	86,018	1,746,282	26,809,563
50	26,809,563	-	3,358,324	88,168	1,630,611	24,993,681
51	24,993,681	-	3,196,262	90,373	1,517,774	23,224,820
52	23,224,820	-	3,033,255	92,632	1,408,022	21,506,955
53	21,506,955	-	2,869,261	94,948	1,301,615	19,844,361
54	19,844,361	-	2,704,447	97,321	1,198,826	18,241,419
55	18,241,419	-	2,538,802	99,755	1,099,939	16,702,802
56	16,702,802	-	2,372,575	102,248	1,005,250	15,233,228
57	15,233,228	-	2,205,882	104,805	915,063	13,837,604
58	13,837,604	-	2,039,372	107,425	829,673	12,520,481
59	12,520,481	-	1,873,884	110,110	749,351	11,285,838
60	11,285,838	-	1,710,495	112,863	674,320	10,136,801

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

Column d – Based on average administrative expenses in recent years and projected to increase going forward.

Column e – Based on the current expected return on assets. Does not factor in allocation changes.



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

Year	Projected Beginning Fiduciary Net Position (a)	Projected Total Contributions (b)	Projected Benefit Payments (c)	Projected Administrative Expenses (d)	Projected Investment Earnings (e)	Projected Ending Fiduciary Net Position (a)+(b)-(c)-(d)+(e)
61	\$ 10,136,801	\$ -	\$ 1,550,452	\$ 115,685	\$ 604,743	\$ 9,075,407
62	9,075,407	-	1,394,807	118,577	540,716	8,102,739
63	8,102,739	-	1,244,700	121,541	482,275	7,218,773
64	7,218,773	-	1,100,967	124,580	429,390	6,422,617
65	6,422,617	-	964,529	127,694	381,973	5,712,366
66	5,712,366	-	836,259	130,887	339,872	5,085,092
67	5,085,092	-	716,785	134,159	302,875	4,537,024
68	4,537,024	-	606,953	137,513	270,711	4,063,269
69	4,063,269	-	507,312	140,951	243,044	3,658,051
70	3,658,051	-	418,256	144,474	219,485	3,314,805
71	3,314,805	-	340,043	148,086	199,598	3,026,274
72	3,026,274	-	272,482	151,788	182,919	2,784,923
73	2,784,923	-	215,146	155,583	168,971	2,583,165
74	2,583,165	-	167,371	159,473	157,283	2,413,605
75	2,413,605	-	128,303	163,459	147,402	2,269,245
76	2,269,245	-	96,913	167,546	138,906	2,143,692
77	2,143,692	-	72,166	171,735	131,413	2,031,205
78	2,031,205	-	52,998	176,028	124,585	1,926,764
79	1,926,764	-	38,370	180,429	118,129	1,826,094
80	1,826,094	-	27,405	184,939	111,795	1,725,544

### NOTES TO PROJECTION OF FIDUCIARY NET POSITION

Total contributions are Employee and Employer contributions anticipated to be made under the funding policy on behalf of employees in the fund as of the Actuarial Valuation Date. The amounts shown were detailed earlier in this section.

Projected benefit payments shown represent only employees active as of the Actuarial Valuation Date. The fund will also be paying benefit payments in the future on behalf of employees hired after the Actuarial Valuation Date, but those have not been estimated for this purpose.

Projected investment earnings are based on the current expected rate of return on plan assets. Administrative expenses are not typically charged on a per employee basis. Administrative expenses shown have not been adjusted to distinguish between current employees and future employees.

The projected Net Position represents assets held or projected to be held on behalf of current employees as of the Actuarial Valuation Date. The fund will also hold assets in the future on behalf of new employees that are not shown here.



## ACTUARIAL PRESENT VALUES OF PROJECTED BENEFIT PAYMENTS – YEARS 1 TO 30

Year	Projected Beginning Fiduciary Net Position	Projected Benefit Payments	Projected Benefit Payments		Present Value (PV) of Projected Benefit Payments		
			"Funded" Portion of Benefit Payments	"Unfunded" Portion of Benefit Payments	PV of "Funded" Portion of Benefit Payments (6.50%)	PV of "Unfunded" Portion of Benefit Payments (3.97%)	PV of Total Projected Payments Using the Single Discount Rate (6.50%)
1	\$ 27,097,058	\$ 2,192,368	\$ 2,192,368	\$ -	\$ 2,124,412	\$ -	\$ 2,124,412
2	28,979,457	2,318,823	2,318,823	-	2,109,809	-	2,109,809
3	30,906,435	2,469,201	2,469,201	-	2,109,514	-	2,109,514
4	32,845,409	2,604,058	2,604,058	-	2,088,945	-	2,088,945
5	34,804,646	2,742,042	2,742,042	-	2,065,384	-	2,065,384
6	36,783,609	2,883,065	2,883,065	-	2,039,067	-	2,039,067
7	38,781,185	3,047,346	3,047,346	-	2,023,715	-	2,023,715
8	40,772,326	3,208,958	3,208,958	-	2,000,976	-	2,000,976
9	42,758,689	3,369,134	3,369,134	-	1,972,634	-	1,972,634
10	44,740,801	3,529,515	3,529,515	-	1,940,411	-	1,940,411
11	46,716,146	3,687,146	3,687,146	-	1,903,353	-	1,903,353
12	48,692,834	3,843,119	3,843,119	-	1,862,788	-	1,862,788
13	50,678,125	3,979,401	3,979,401	-	1,811,122	-	1,811,122
14	52,690,907	4,107,659	4,107,659	-	1,755,394	-	1,755,394
15	54,744,536	4,233,439	4,233,439	-	1,698,729	-	1,698,729
16	56,852,665	4,364,206	4,364,206	-	1,644,320	-	1,644,320
17	59,017,078	4,488,825	4,488,825	-	1,588,050	-	1,588,050
18	61,248,094	4,630,719	4,630,719	-	1,538,262	-	1,538,262
19	63,531,119	4,759,433	4,759,433	-	1,484,525	-	1,484,525
20	65,881,189	4,894,333	4,894,333	-	1,433,429	-	1,433,429
21	68,291,257	5,025,339	5,025,339	-	1,381,969	-	1,381,969
22	70,774,186	5,145,234	5,145,234	-	1,328,583	-	1,328,583
23	72,603,013	5,259,020	5,259,020	-	1,275,084	-	1,275,084
24	72,161,146	5,348,467	5,348,467	-	1,217,625	-	1,217,625
25	71,556,405	5,451,895	5,451,895	-	1,165,419	-	1,165,419
26	70,766,775	5,529,660	5,529,660	-	1,109,899	-	1,109,899
27	69,808,927	5,621,570	5,621,570	-	1,059,481	-	1,059,481
28	68,659,981	5,662,199	5,662,199	-	1,002,007	-	1,002,007
29	67,362,421	5,695,903	5,695,903	-	946,452	-	946,452
30	65,914,011	5,717,707	5,717,707	-	892,090	-	892,090

The projected Fiduciary Net Position and the Projected Benefit Payments are based only on the current employee group as of the Actuarial Valuation Date. The development of the Projected Fiduciary Net Position was shown in more detail earlier in this section.



## ACTUARIAL PRESENT VALUES OF PROJECTED BENEFIT PAYMENTS – YEARS 31 TO 60

Year	Projected Beginning Fiduciary Net Position	Projected Benefit Payments	Projected Benefit Payments		Present Value (PV) of Projected Benefit Payments		
			"Funded" Portion of Benefit Payments	"Unfunded" Portion of Benefit Payments	PV of "Funded" Portion of Benefit Payments (6.50%)	PV of "Unfunded" Portion of Benefit Payments (3.97%)	PV of Total Projected Payments Using the Single Discount Rate (6.50%)
31	\$ 64,324,618	\$ 5,714,891	\$ 5,714,891	\$ -	\$ 837,230	\$ -	\$ 837,230
32	62,610,672	5,683,585	5,683,585	-	781,825	-	781,825
33	60,796,733	5,626,485	5,626,485	-	726,733	-	726,733
34	58,906,991	5,559,303	5,559,303	-	674,231	-	674,231
35	56,953,265	5,465,183	5,465,183	-	622,362	-	622,362
36	54,962,005	5,377,352	5,377,352	-	574,986	-	574,986
37	52,926,767	5,265,048	5,265,048	-	528,618	-	528,618
38	50,870,733	5,144,295	5,144,295	-	484,971	-	484,971
39	48,801,507	5,016,395	5,016,395	-	444,050	-	444,050
40	46,727,240	4,887,142	4,887,142	-	406,205	-	406,205
41	44,649,201	4,746,463	4,746,463	-	370,434	-	370,434
42	42,578,420	4,601,552	4,601,552	-	337,206	-	337,206
43	40,520,199	4,453,314	4,453,314	-	306,426	-	306,426
44	38,479,382	4,302,204	4,302,204	-	277,960	-	277,960
45	36,460,018	4,148,825	4,148,825	-	251,691	-	251,691
46	34,465,796	3,993,640	3,993,640	-	227,490	-	227,490
47	32,500,168	3,836,879	3,836,879	-	205,221	-	205,221
48	30,566,567	3,678,719	3,678,719	-	184,752	-	184,752
49	28,668,469	3,519,170	3,519,170	-	165,953	-	165,953
50	26,809,563	3,358,324	3,358,324	-	148,702	-	148,702
51	24,993,681	3,196,262	3,196,262	-	132,888	-	132,888
52	23,224,820	3,033,255	3,033,255	-	118,414	-	118,414
53	21,506,955	2,869,261	2,869,261	-	105,176	-	105,176
54	19,844,361	2,704,447	2,704,447	-	93,084	-	93,084
55	18,241,419	2,538,802	2,538,802	-	82,049	-	82,049
56	16,702,802	2,372,575	2,372,575	-	71,997	-	71,997
57	15,233,228	2,205,882	2,205,882	-	62,853	-	62,853
58	13,837,604	2,039,372	2,039,372	-	54,562	-	54,562
59	12,520,481	1,873,884	1,873,884	-	47,075	-	47,075
60	11,285,838	1,710,495	1,710,495	-	40,348	-	40,348

The projected Fiduciary Net Position and the Projected Benefit Payments are based only on the current employee group as of the Actuarial Valuation Date. The development of the Projected Fiduciary Net Position was shown in more detail earlier in this section.



## ACTUARIAL PRESENT VALUES OF PROJECTED BENEFIT PAYMENTS – YEARS 61 TO 80

Year	Projected Beginning Fiduciary Net Position	Projected Benefit Payments	Projected Benefit Payments		Present Value (PV) of Projected Benefit Payments		
			"Funded" Portion of Benefit Payments	"Unfunded" Portion of Benefit Payments	PV of "Funded" Portion of Benefit Payments (6.50%)	PV of "Unfunded" Portion of Benefit Payments (3.97%)	PV of Total Projected Payments Using the Single Discount Rate (6.50%)
61	\$ 10,136,801	\$ 1,550,452	\$ 1,550,452	\$ -	\$ 34,341	\$ -	\$ 34,341
62	9,075,407	1,394,807	1,394,807	-	29,008	-	29,008
63	8,102,739	1,244,700	1,244,700	-	24,306	-	24,306
64	7,218,773	1,100,967	1,100,967	-	20,187	-	20,187
65	6,422,617	964,529	964,529	-	16,606	-	16,606
66	5,712,366	836,259	836,259	-	13,519	-	13,519
67	5,085,092	716,785	716,785	-	10,880	-	10,880
68	4,537,024	606,953	606,953	-	8,651	-	8,651
69	4,063,269	507,312	507,312	-	6,789	-	6,789
70	3,658,051	418,256	418,256	-	5,256	-	5,256
71	3,314,805	340,043	340,043	-	4,012	-	4,012
72	3,026,274	272,482	272,482	-	3,019	-	3,019
73	2,784,923	215,146	215,146	-	2,238	-	2,238
74	2,583,165	167,371	167,371	-	1,635	-	1,635
75	2,413,605	128,303	128,303	-	1,177	-	1,177
76	2,269,245	96,913	96,913	-	835	-	835
77	2,143,692	72,166	72,166	-	584	-	584
78	2,031,205	52,998	52,998	-	402	-	402
79	1,926,764	38,370	38,370	-	274	-	274
80	1,826,094	27,405	27,405	-	183	-	183

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

The projected Fiduciary Net Position and the Projected Benefit Payments are based only on the current employee group as of the Actuarial Valuation Date. The development of the Net Position was shown in more detail earlier in this section.

The Funded and Unfunded portion of the Benefit Payments is split based on the time that the Fiduciary Net Position is projected to go to \$0 (based on assets for current fund members).

The Present Value of the Funded portion and Unfunded portion of the benefit payments has been determined separately. The PV of the funded portion of the benefit payments uses the assumption for the expected rate of return on plan assets. The PV of the unfunded portion of the benefit payments has been determined using the high quality Municipal Bond Rate as of the Measurement Date as described in the Actuarial Assumption section of the report.

The discount rate used for GASB purposes is the rate that is 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 payments. The discount rate has been rounded to four decimal places. Therefore, the resulting present value comparisons might show a slight difference due to rounding.