

GASB 67/68 Report
For Use in Financial Statement Reporting



SPRINGFIELD
FIREFIGHTERS'
PENSION FUND

Actuarial Valuation
as of March 1, 2018

LAUTERBACH & AMEN, LLP

GASB Statements 67 and 68 Actuarial Disclosures



Lauterbach & Amen, LLP

CERTIFIED PUBLIC ACCOUNTANTS

GASB 67: SPRINGFIELD FIREFIGHTERS' PENSION FUND

Fiscal Year Ended: February 28, 2019

Actuarial Valuation Date: March 1, 2018

Utilizing Data as of February 28, 2018

Measurement Date: February 28, 2019

GASB 68: CITY OF SPRINGFIELD, ILLINOIS

Fiscal Year Ended: February 28, 2019

Actuarial Valuation Date: March 1, 2018

Utilizing Data as of February 28, 2018

Measurement Date: February 28, 2019

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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 their preparation of the required footnote disclosures.

The results in this report are based on the participant data and financial information submitted by the City of Springfield, Illinois, and may include results from the prior Actuary. We did not prepare the Actuarial Valuations for the years prior to March 1, 2017. 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 City of Springfield, Illinois 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 Springfield Firefighters' Pension Fund or the City of Springfield, Illinois and Lauterbach & Amen, LLP that impairs our objectivity.

Respectfully Submitted,

LAUTERBACH & AMEN, LLP

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

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PLAN FIDUCIARY NET POSITION

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



STATEMENT OF PLAN FIDUCIARY NET POSITION

	<u>2018</u>	<u>2019</u>
Assets		
Cash and Cash Equivalents	\$ 3,980,565	\$ 1,610,892
Total Cash	<u>3,980,565</u>	<u>1,610,892</u>
Receivables:		
Investment Income - Accrued Interest	332,219	333,278
Other	10,306	11,097
Total Receivables	<u>342,525</u>	<u>344,375</u>
Investments:		
Fixed Income	42,209,077	46,488,149
Insurance Contracts	12,922,972	13,328,911
Mutual Funds	57,214,746	63,152,152
Common Stock	17,285,728	9,042,432
Total Investments	<u>129,632,523</u>	<u>132,011,644</u>
Total Assets	<u>133,955,613</u>	<u>133,966,911</u>
Liabilities		
Payables:		
Expenses Due/Unpaid	54,332	33,532
Total Liabilities	<u>54,332</u>	<u>33,532</u>
Net Position Restricted for Pensions	<u>\$ 133,901,281</u>	<u>\$ 133,933,379</u>

The Plan Fiduciary Net Position shown above is intended to be in accordance with GAAP and the Governmental Accounting Standards Board. The Fair Market 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 Market Value of Investments. The Statement of Plan Fiduciary Net Position for 2018 is based on audited financials.



STATEMENT OF CHANGES IN PLAN FIDUCIARY NET POSITION

	<u>2019</u>
Additions	
Contributions	
Employer	\$ 11,916,494
Member	1,700,670
Total Contributions	<u>13,617,164</u>
Investment Income	
Net Appreciation in Fair Value of Investments	(713,954)
Interest and Dividends	3,217,444
Less Investment Expense	<u>(232,238)</u>
Net Investment Income	<u>2,271,252</u>
Total Additions	<u>15,888,416</u>
Deductions	
Benefit Payments and Refunds of Member Contributions	15,723,823
Administrative Expense	<u>132,495</u>
Total Deductions	<u>15,856,318</u>
Net Increase in Net Position	<u>32,098</u>
Net Position Restricted for Pensions	
Beginning of Year	<u>133,901,281</u>
End of Year	<u>\$ 133,933,379</u>

The change 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 Market Value of Investments. The Statement of Changes in Plan Fiduciary Net Position for 2018 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

	<u>2018</u>	<u>2019</u>
Active Employees	\$ 95,599,070	\$ 105,952,073
Inactive Employees		
Terminated Employees - Vested	220,756	238,460
Retired Employees	180,709,377	182,626,583
Disabled Employees	14,750,358	15,038,833
Other Beneficiaries	<u>13,619,477</u>	<u>14,884,625</u>
Total Inactive Employees	<u>209,299,968</u>	<u>212,788,501</u>
Total Pension Liability	<u>\$ 304,899,038</u>	<u>\$ 318,740,574</u>

The Total Pension Liability (“TPL”) shown above is dependent on several factors such as Plan Provisions and actuarial assumptions used in this report. In addition, the calculation of the TPL may be dependent on the Plan Fiduciary Net Position shown in the prior section of this report. Changes in the Plan Fiduciary Net Position due to any factor, including adjustments on final audit, may 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 used for the Actuarial Valuation Date as shown in this report. The TPL has been determined as of the Actuarial Valuation Date and based on the assumptions shown in this report, adjusted to the Measurement Date as needed.



STATEMENT OF CHANGES IN TOTAL PENSION LIABILITY

	<u>2019</u>
Changes in Total Pension Liability	
Service Cost	\$ 5,205,445
Interest	20,465,858
Changes of Benefit Terms	-
Differences Between Expected and Actual Experience	1,493,791
Changes in Assumptions	2,400,265
Benefit Payments and Refunds	<u>(15,723,823)</u>
Net Change in Total Pension Liability	13,841,536
Total Pension Liability - Beginning	<u>304,899,038</u>
Total Pension Liability - Ending (a)	<u>\$ 318,740,574</u>
Plan Fiduciary Net Position - Ending (b)	<u>\$ 133,933,379</u>
Employer's Net Pension Liability - Ending (a) - (b)	<u>\$ 184,807,195</u>
Plan Fiduciary Net Position as a Percentage of the Total Pension Liability	42%
Covered-Employee Payroll	\$ 19,807,840
Employer's Net Pension Liability as a Percentage of Employee Payroll	933%

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

Covered Employee Payroll is based on Total Covered Payroll for the Fund members during the fiscal year.



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 a component of Pension Expense, unless permitted to be recognized as a Deferred Outflow or Inflow of Resources.

	Increase (Decrease)		
	Total Pension Liability	Plan Fiduciary Net Position	Net Pension Liability
	(a)	(b)	(a) - (b)
Balances Beginning at 03/01/18	<u>\$ 304,899,038</u>	<u>\$ 133,901,281</u>	<u>\$ 170,997,757</u>
Changes for the year:			
Service Cost	5,205,445	-	5,205,445
Interest	20,465,858	-	20,465,858
Actuarial Experience	1,493,791	-	1,493,791
Assumptions Changes	2,400,265	-	2,400,265
Plan Changes	-	-	-
Contributions - Employer	-	11,916,494	(11,916,494)
Contributions - Employee	-	1,700,670	(1,700,670)
Contributions - Other	-	-	-
Net Investment Income	-	2,271,252	(2,271,252)
Benefit Payments and Refunds	(15,723,823)	(15,723,823)	-
Administrative Expense	-	(132,495)	132,495
Net Changes	<u>13,841,536</u>	<u>32,098</u>	<u>13,809,438</u>
Balances Ending at 02/28/19	<u>\$ 318,740,574</u>	<u>\$ 133,933,379</u>	<u>\$ 184,807,195</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.



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	\$ 3,255,606	\$ 1,591,432
Changes of Assumptions	8,154,812	7,509,267
Net Difference Between Projected and Actual Earnings on Pension Plan Investments	8,478,768	4,612,269
Contributions Subsequent to the Measurement Date*	-	-
Total	<u>\$ 19,889,186</u>	<u>\$ 13,712,968</u>

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

Year Ended	
February 28:	
2020	\$ 3,491,788
2021	631,795
2022	2,059,539
2023	154,259
2024	(646,214)
Thereafter	485,051



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	2/28/2019 Expense Recognized	2/28/2019 Deferred Balance
Asset Loss	2/28/2019	5.00	\$ 7,023,467	5.00	\$ 1,404,694	\$ 5,618,773
Change in Assumptions Loss	2/28/2019	7.17	2,400,265	7.17	334,765	2,065,500
Actuarial Loss	2/28/2019	7.17	1,493,791	7.17	208,340	1,285,451
Asset Gain	2/28/2018	5.00	(2,927,973)	4.00	(585,595)	(1,756,783)
Change in Assumptions Gain	2/28/2018	7.14	(7,907,441)	6.14	(1,107,485)	(5,692,471)
Actuarial Loss	2/28/2018	7.14	238,569	6.14	33,414	171,741
Asset Gain	2/28/2017	5.00	(7,138,718)	3.00	(1,427,744)	(2,855,486)
Change in Assumptions Gain	2/28/2017	7.14	(3,133,319)	5.14	(438,841)	(1,816,796)
Actuarial Gain	2/28/2017	7.14	(2,744,644)	5.14	(384,404)	(1,591,432)
Asset Loss	2/29/2016	5.00	14,299,991	2.00	2,859,999	2,859,995
Change in Assumptions Loss	2/29/2016	7.04	14,101,572	4.04	2,003,065	6,089,312
Actuarial Loss	2/29/2016	7.04	\$ 4,164,750	4.04	\$ 591,584	\$ 1,798,414
Total			\$ 19,870,310		\$ 3,491,792	\$ 6,176,218

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.



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>2019</u>
Pension Expense/(Income) Under GASB 68	
Service Cost	\$ 5,205,445
Interest	20,465,858
Plan Changes	-
Contributions - Employee	(1,700,670)
Contributions - Other	-
Expected Investment Income	(9,294,719)
Administrative Expense	132,495
Other Changes	-
Initial Pension Expense/(Income)	<u>14,808,409</u>
Recognition of Outflow/(Inflow) of Resources due to Liabilities	1,240,438
Recognition of Outflow/(Inflow) of Resources due to Assets	<u>2,251,354</u>
Total Pension Expense/(Income)	<u>\$ 18,300,201</u>



ACTUARIAL ASSUMPTIONS 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



STATEMENT OF SIGNIFICANT ACTUARIAL ASSUMPTIONS

Actuarial Assumptions (Economic)

Discount Rate used for the Total Pension Liability	6.84%
Long-Term Expected Rate of Return on Plan Assets	7.00%
High Quality 20 Year Tax-Exempt G.O. Bond Rate	4.19%
Projected Individual Pay Increases	4.00% - 16.79%
Projected Increase in Total Payroll	3.25%
Consumer Price Index (Urban)	2.50%
Inflation Rate Included	2.50%

Actuarial Assumptions (Demographic)

Mortality Table	RP-2014 Adjusted for Plan Status, Collar, and Illinois Public Pension Data, as Appropriate
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 Summary prepared for the Fund, available upon request.

ASSUMPTION CHANGES

The assumptions were changed from the prior year.

The assumed rate on High Quality 20 Year Tax-Exempt General Obligation (G.O.) Bonds was changed from 3.86% to 4.19% 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 6.89% to 6.84%. 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 reviewed the individual pay scale assumption to reflect the newly settled bargaining agreement between the City of Springfield, Illinois and the Springfield Fire Fighters Local 37 of the International Association of Fire Fighters AFL-CIO, CLC, for the period March 1, 2016 through February 28, 2021. The individual pay scale assumption has been updated based on the wage schedule.

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



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	16.79%	8	4.00%
1	15.00%	9	5.95%
2	13.61%	10	4.00%
3	4.00%	15	4.00%
4	6.75%	20	4.00%
5	4.00%	25	4.00%
6	4.00%	30	4.00%
7	4.00%	35	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. 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.



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 2018 was 252.4. The average increase in the CPI-U for September 1985 through September 2018 was 2.61% (on a compounded basis).



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 were provided last year by the investment professionals that work with the Pension Fund. The table below illustrates the best estimate of Long-Term Expected Real Rates of Return developed for each of the major asset classes, adjusted for expected inflation.

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

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

<u>Asset Class</u>	<u>Long-Term Expected Rate of Return</u>	<u>Long-Term Inflation Expectations</u>	<u>Long-Term Expected Real Rate of Return</u>	<u>Target Allocation</u>
Fixed Income	4.40%	2.30%	2.10%	35.00%
U.S. Equity	4.90%	2.30%	2.60%	34.00%
International Equity	8.10%	2.30%	5.80%	18.00%
Global Tactical	6.20%	2.30%	3.90%	3.00%
Real Estate - Core	7.50%	2.30%	5.20%	10.00%
Cash	2.70%	2.30%	0.40%	0.00%

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

The Long-Term Inflation Expectation is 2.30% 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 December 27, 2018 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 Long-Term 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 future Fiduciary Net Position will be able to cover future benefit payments. To the extent future benefit payments are covered by the Plan's projected Fiduciary Net Position, the Long-Term 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 the *Funding Policy* section of this report.



SENSITIVITY OF THE DISCOUNT RATE

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

	1% Decrease (5.84%)	Current Discount Rate (6.84%)	1% Increase (7.84%)
Employer Net Pension Liability	\$229,624,638	\$184,807,195	\$148,188,818

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



PARTICIPANT DEMOGRAPHIC DATA

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

	<u>2017</u>	<u>2018</u>
Inactive Plan Members or Beneficiaries Currently Receiving Benefits	253	250
Inactive Plan Members Entitled to But Not Yet Receiving Benefits	1	1
Active Plan Members	<u>214</u>	<u>221</u>
Total	<u>468</u>	<u>472</u>
Payroll of Active Plan Members	<u>\$ 17,678,177</u>	<u>\$ 18,683,111</u>

Participant 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 rate of salary for active Plan members as of the data collection date for the Actuarial Valuation. For the fiscal year ending December 31, 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.

EXPECTED FUTURE WORKING LIFETIME

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

	<u>2017</u>	<u>2018</u>
Average Future Working Career (In Years)		
Active Plan Members	15.62	15.31
Inactive Plan Members	0.00	0.00
Total	7.14	7.17

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 Contributions
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 Projected Unit Credit Cost method. The method allocates Normal Cost contributions by employee over the working career of the employee.

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 and target 90% funding. The current year's employer contributions are being compared to the Actuarially Determined Contribution as developed in the March 1, 2017 actuarial valuation. The period of repayment as of that valuation is 23 years.

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

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

FORMAL FUNDING POLICY

There is no Formal Funding Policy that exists between the Pension Board and the City 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. 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 Actuarially Determined Contribution. Please see the table below for a summary of these values:

<u>Fiscal Year End</u>	<u>Employer Contributions</u>	<u>Most Applicable ADC</u>	<u>% of ADC</u>	<u>Covered Payroll</u>	<u>% of Payroll</u>
2/28/2019	\$11,916,494	\$11,916,494	100.00%	\$19,807,840	60.16%
2/28/2018	\$11,184,141	\$11,184,141	100.00%	\$19,991,231	55.95%
2/28/2017	\$10,395,154	\$10,395,154	100.00%	\$19,361,967	53.69%
2/28/2016	\$9,786,645	\$9,786,645	100.00%	\$16,982,730	57.63%
2/28/2015	\$9,473,179	\$9,473,179	100.00%	\$16,985,797	55.77%

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 100.00% of the Actuarially Determined Contribution. This represents the full future contributions expected to be made.

FUNDING POLICY – OTHER CONSIDERATIONS

Under GASB, the future contribution amount is not intended to include dollars contributed on behalf of future employees. Contributions are only intended to cover contributions towards the Normal Cost of 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 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 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



SCHEDULE OF CHANGES IN THE NET PENSION LIABILITY

	2019	2018	2017	2016	2015	2014	2013	2012	2011	2010
Total Pension Liability										
Service Cost	\$ 5,205,445	\$ 5,283,043	\$ 4,951,770	\$ 5,111,168	\$ 5,438,758					
Interest	20,465,858	19,736,353	19,481,955	17,506,592	17,749,350					
Changes of Benefit Terms	-	-	-	-	-					
Differences Between Expected and Actual Experience	1,493,791	238,569	(2,744,644)	4,164,750	-					
Changes in Assumptions	2,400,265	(7,907,441)	(3,133,319)	14,101,572	-					
Benefit Payments and Refunds	(15,723,823)	(14,928,475)	(14,577,712)	(13,670,346)	(12,922,751)					
Net Change in Total Pension Liability	\$ 13,841,536	\$ 2,422,049	\$ 3,978,050	\$ 27,213,736	\$ 10,265,357					
Total Pension Liability - Beginning	304,899,038	302,476,989	298,498,939	271,285,203	261,019,846					
Total Pension Liability - Ending (a)	\$ 318,740,574	\$ 304,899,038	\$ 302,476,989	\$ 298,498,939	\$ 271,285,203					
Plan Fiduciary Net Position										
Contributions - Employer	\$ 11,916,494	\$ 11,184,141	\$ 10,395,154	\$ 9,786,645	\$ 9,973,179					
Contributions - Member	1,700,670	1,696,447	1,718,845	1,696,300	1,704,162					
Contributions - Other	-	-	-	-	7,144,916					
Net Investment Income	2,271,252	11,568,713	14,904,623	(5,946,400)	(12,922,751)					
Benefit Payments and Refunds	(15,723,823)	(14,928,475)	(14,577,712)	(13,670,346)	(133,317)					
Administrative Expense	(132,495)	(165,250)	(137,137)	(109,969)	-					
Net Change in Plan Fiduciary Net Position	\$ 32,098	\$ 9,355,576	\$ 12,303,773	\$ (8,243,770)	\$ 5,766,189					
Plan Fiduciary Net Position - Beginning	133,901,281	124,545,705	112,241,932	120,485,702	114,719,513					
Plan Fiduciary Net Position - Ending (b)	\$ 133,933,379	\$ 133,901,281	\$ 124,545,705	\$ 112,241,932	\$ 120,485,702					
Employer Net Pension Liability - Ending (a) - (b)	\$ 184,807,195	\$ 170,997,757	\$ 177,931,284	\$ 186,257,007	\$ 150,799,501					

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



SCHEDULE OF TOTAL PENSION LIABILITY AND RELATED RATIO

	<u>2019</u>	<u>2018</u>	<u>2017</u>	<u>2016</u>	<u>2015</u>	<u>2014</u>	<u>2013</u>	<u>2012</u>	<u>2011</u>	<u>2010</u>
Total Pension Liability - Ending (a)	<u>\$ 318,740,574</u>	<u>\$ 304,899,038</u>	<u>\$ 302,476,989</u>	<u>\$ 298,498,939</u>	<u>\$ 271,285,203</u>					
Plan Fiduciary Net Position - Ending (b)	<u>\$ 133,933,379</u>	<u>\$ 133,901,281</u>	<u>\$ 124,545,705</u>	<u>\$ 112,241,932</u>	<u>\$ 120,485,702</u>					
Employer Net Pension Liability - Ending (a) - (b)	<u>\$ 184,807,195</u>	<u>\$ 170,997,757</u>	<u>\$ 177,931,284</u>	<u>\$ 186,257,007</u>	<u>\$ 150,799,501</u>					
Plan Fiduciary Net Position as a Percentage of the Total Pension Liability	42.02%	43.92%	41.18%	37.60%	44.41%					
Covered-Employee Payroll	\$ 19,807,840	\$ 19,991,231	\$ 19,361,967	\$ 16,982,730	\$ 16,985,797					
Employer Net Pension Liability as a Percentage of Covered-Employee Payroll	933.00%	855.36%	918.97%	1,096.74%	887.80%					

Covered Employee Payroll shown for the current year is the Total Covered Payroll for the fiscal year for all Fund members.



SCHEDULE OF CONTRIBUTIONS

	2019	2018	2017	2016	2015	2014	2013	2012	2011	2010
Actuarially Determined Contribution	\$11,916,494	\$11,184,141	\$10,395,154	\$9,786,645	\$9,473,179					
Contributions in Relation to the Actuarially Determined Contribution	<u>11,916,494</u>	<u>11,184,141</u>	<u>10,395,154</u>	<u>9,786,645</u>	<u>9,473,179</u>					
Contribution Deficiency/(Excess)	<u>\$ -</u>	<u>\$ -</u>	<u>\$ -</u>	<u>\$ -</u>	<u>\$ -</u>					
Covered-Employee Payroll	\$19,807,840	\$19,991,231	\$19,361,967	\$16,982,730	\$16,985,797					
Contributions as a Percentage of Covered-Employee Payroll	60.16%	55.95%	53.69%	57.63%	55.77%					

NOTES TO SCHEDULE OF CONTRIBUTIONS

The Actuarially Determined Contribution shown for the current year is from the March 1, 2017 Actuarial Report completed by Lauterbach & Amen, LLP for the tax levy recommendation for the December 2017 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	Projected Unit Credit
Amortization Method	Level % Pay (Closed)
Remaining Amortization Period	23 Years
Asset Valuation Method	5-Year Smoothed Market Value
Inflation	2.50%
Payroll Increases	3.25%
Individual Pay Increases	4.00% - 16.79%
Investment Rate of Return	7.00%
Mortality Rates	RP-2014 Adjusted for Plan Status, Collar, and Illinois Public Pension Data, as Appropriate
Retirement Rates	L&A 2016 Illinois Firefighters Retirement Rates Capped at age 65
Termination Rates	L&A 2016 Illinois Firefighters Disability Rates
Disability Rates	L&A 2016 Illinois Firefighters Termination Rates



GASB METHODS AND PROCEDURES

GASB Methods and Procedures
Methodology for Deferred Outflows and Inflows



GASB METHODS AND PROCEDURES

	Statement 67	Statement 68
	<u>Pension Fund Financials</u>	<u>Employer Financials</u>
Fiscal Year End for Reporting	February 28, 2019	February 28, 2019
Measurement Date	February 28, 2019	February 28, 2019
Actuarial Valuation Date	March 1, 2018	March 1, 2018
Actuarial Valuation - Data Date	February 28, 2018	February 28, 2018
Asset Valuation Method	Market Value	Market Value
Actuarial Cost Method	Entry Age Normal (Level %)	Entry Age Normal (Level %)

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

Amortization Method	Straight Line	Straight Line
Amortization Period		
Actuarial Experience (TPL)	7.17 Years	7.17 Years
Changes in Assumptions	7.17 Years	7.17 Years
Asset Experience	5.00 Years	5.00 Years



SUPPLEMENTARY TABLES

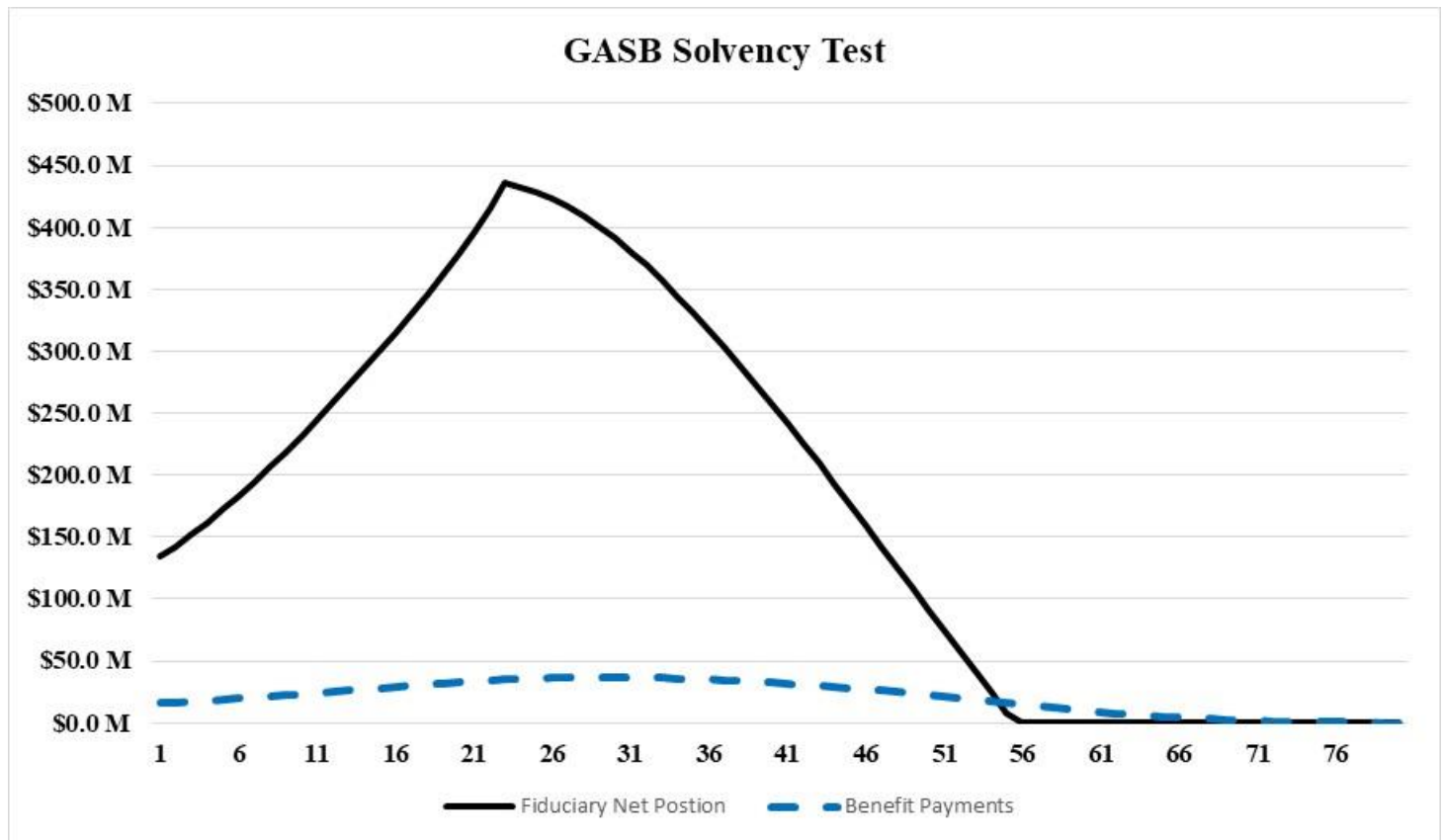
GASB Projections – Summary and Procedure
GASB Projections - Limitations
Projection of Contributions
Projection of the Pension Fund's Fiduciary Net Position
Actuarial Present Value of Projected Benefit Payments



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 current Long-Term Expected Rate of Return on Plan Assets assumption.

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 assumption, 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 2072.



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 Members 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 Plan Members.

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

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

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

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

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



PROJECTION OF CONTRIBUTIONS – YEARS 1 TO 30

Year	Projected 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	\$ 19,133,319	\$ 157,004	\$ 19,290,323	\$ 1,809,055	\$ 13,286,440	\$ -	\$ 15,095,496
2	19,605,070	312,189	19,917,259	1,853,659	14,306,508	-	16,160,167
3	19,793,243	771,327	20,564,570	1,871,451	14,854,762	-	16,726,214
4	19,919,175	1,313,743	21,232,918	1,883,358	15,399,108	-	17,282,466
5	19,889,523	2,033,465	21,922,988	1,880,554	15,950,103	-	17,830,658
6	19,867,138	2,768,347	22,635,485	1,878,438	16,488,750	-	18,367,188
7	19,559,498	3,811,641	23,371,139	1,849,351	17,023,477	-	18,872,827
8	19,365,499	4,765,202	24,130,701	1,831,008	17,493,734	-	19,324,741
9	19,045,030	5,869,918	24,914,948	1,800,708	17,990,662	-	19,791,369
10	18,647,717	7,076,967	25,724,684	1,763,142	18,478,795	-	20,241,936
11	18,082,079	8,478,657	26,560,736	1,709,661	18,967,856	-	20,677,516
12	17,450,891	9,973,069	27,423,960	1,649,982	19,421,590	-	21,071,572
13	16,799,697	11,515,542	28,315,239	1,588,411	19,892,240	-	21,480,652
14	15,967,532	13,267,952	29,235,484	1,509,730	20,391,713	-	21,901,443
15	15,029,471	15,156,167	30,185,638	1,421,036	20,889,716	-	22,310,752
16	14,081,754	17,084,917	31,166,671	1,331,430	21,374,156	-	22,705,585
17	13,174,382	19,005,206	32,179,588	1,245,638	21,901,064	-	23,146,702
18	12,196,215	21,029,209	33,225,424	1,153,152	22,493,545	-	23,646,697
19	11,216,139	23,089,112	34,305,251	1,060,486	23,101,022	-	24,161,508
20	10,234,411	25,185,760	35,420,171	967,664	23,762,390	-	24,730,054
21	9,226,984	27,344,343	36,571,327	872,411	24,482,740	-	25,355,151
22	8,346,742	29,413,153	37,759,895	789,184	25,240,788	-	26,029,973
23	7,496,573	31,490,518	38,987,091	708,801	2,056,172	-	2,764,973
24	6,611,899	33,642,273	40,254,172	625,155	1,853,878	-	2,479,033
25	5,698,376	35,864,057	41,562,433	538,781	1,627,028	-	2,165,809
26	4,907,406	38,005,806	42,913,212	463,995	1,399,867	-	1,863,862
27	4,096,696	40,211,195	44,307,891	387,343	1,223,150	-	1,610,493
28	3,341,018	42,406,879	45,747,897	315,893	1,030,740	-	1,346,633
29	2,620,335	44,614,369	47,234,704	247,753	783,622	-	1,031,375
30	2,032,260	46,737,572	48,769,832	192,150	565,382	-	757,532

Column d – Contributions from current employees to the Plan (employees in the Plan as of the Actuarial Valuation Date).

Column e – Employer Contributions to the Plan excluding contributions for employees hired after the Actuarial Valuation Date.

Column f – Contributions from future employees to the extent that contributions are assumed to be greater than their Normal Cost.



PROJECTION OF CONTRIBUTIONS – YEARS 31 TO 60

Year	Projected 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	\$ 1,557,299	\$ 48,797,553	\$ 50,354,852	\$ 147,243	\$ 402,301	\$ -	\$ 549,543
32	1,168,284	50,823,100	51,991,384	110,461	279,653	-	390,114
33	847,028	52,834,076	53,681,104	80,086	189,071	-	269,157
34	560,704	54,865,036	55,425,740	53,015	125,125	-	178,140
35	371,067	56,856,010	57,227,077	35,084	80,564	-	115,648
36	223,581	58,863,376	59,086,957	21,140	51,412	-	72,552
37	128,353	60,878,930	61,007,283	12,136	31,556	-	43,692
38	59,215	62,930,804	62,990,019	5,599	-	-	5,599
39	35,631	65,001,564	65,037,195	3,369	-	-	3,369
40	26,012	67,124,892	67,150,904	2,459	-	-	2,459
41	12,060	69,321,248	69,333,308	1,140	-	-	1,140
42	8,786	71,577,855	71,586,641	831	-	-	831
43	-	73,913,207	73,913,207	-	-	-	-
44	-	76,315,386	76,315,386	-	-	-	-
45	-	78,795,636	78,795,636	-	-	-	-
46	-	81,356,494	81,356,494	-	-	-	-
47	-	84,000,580	84,000,580	-	-	-	-
48	-	86,730,599	86,730,599	-	-	-	-
49	-	89,549,343	89,549,343	-	-	-	-
50	-	92,459,697	92,459,697	-	-	-	-
51	-	95,464,637	95,464,637	-	-	-	-
52	-	98,567,238	98,567,238	-	-	-	-
53	-	101,770,673	101,770,673	-	-	-	-
54	-	105,078,220	105,078,220	-	-	-	-
55	-	108,493,262	108,493,262	-	-	-	-
56	-	112,019,293	112,019,293	-	-	-	-
57	-	115,659,920	115,659,920	-	-	-	-
58	-	119,418,868	119,418,868	-	-	-	-
59	-	123,299,981	123,299,981	-	-	-	-
60	-	127,307,230	127,307,230	-	-	-	-

Column d – Contributions from current employees to the Plan (employees in the Plan as of the Actuarial Valuation Date).

Column e – Employer Contributions to the Plan excluding contributions for employees hired after the Actuarial Valuation Date.

Column f – Contributions from future employees to the extent that contributions are assumed to be greater than their Normal Cost.



PROJECTION OF CONTRIBUTIONS – YEARS 61 TO 80

Year	Projected 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	\$ -	\$ 131,444,715	\$ 131,444,715	\$ -	\$ -	\$ -	\$ -
62	-	135,716,668	135,716,668	-	-	-	-
63	-	140,127,460	140,127,460	-	-	-	-
64	-	144,681,603	144,681,603	-	-	-	-
65	-	149,383,755	149,383,755	-	-	-	-
66	-	154,238,727	154,238,727	-	-	-	-
67	-	159,251,485	159,251,485	-	-	-	-
68	-	164,427,159	164,427,159	-	-	-	-
69	-	169,771,041	169,771,041	-	-	-	-
70	-	175,288,600	175,288,600	-	-	-	-
71	-	180,985,480	180,985,480	-	-	-	-
72	-	186,867,508	186,867,508	-	-	-	-
73	-	192,940,702	192,940,702	-	-	-	-
74	-	199,211,275	199,211,275	-	-	-	-
75	-	205,685,641	205,685,641	-	-	-	-
76	-	212,370,424	212,370,424	-	-	-	-
77	-	219,272,463	219,272,463	-	-	-	-
78	-	226,398,818	226,398,818	-	-	-	-
79	-	233,756,780	233,756,780	-	-	-	-
80	-	241,353,875	241,353,875	-	-	-	-

NOTES TO PROJECTION OF CONTRIBUTIONS

Total Employee Payroll is projected to increase annually at the Projected Increase in Total Payroll 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 Expenses (d)	Projected Investment Earnings (e)	Projected Ending Fiduciary Net Position (a)+(b)-(c)-(d)+(e)
1	\$ 133,933,379	\$ 15,095,496	\$ 15,909,525	\$ 139,024	\$ 9,341,980	\$ 142,322,305
2	142,322,305	16,160,167	16,520,290	139,731	9,945,066	151,767,517
3	151,767,517	16,726,214	17,174,148	148,752	10,602,842	161,773,673
4	161,773,673	17,282,466	17,862,900	158,591	11,298,291	172,332,939
5	172,332,939	17,830,658	18,584,728	168,993	12,030,999	183,440,875
6	183,440,875	18,367,188	19,447,546	179,952	12,796,750	194,977,315
7	194,977,315	18,872,827	20,282,530	191,406	13,592,373	206,968,580
8	206,968,580	19,324,741	21,157,135	203,306	14,416,551	219,349,432
9	219,349,432	19,791,369	22,088,173	215,634	15,266,525	232,103,519
10	232,103,519	20,241,936	23,102,142	228,347	16,139,147	245,154,114
11	245,154,114	20,677,516	24,114,033	241,399	17,032,061	258,508,260
12	258,508,260	21,071,572	25,091,467	254,755	17,945,965	272,179,575
13	272,179,575	21,480,652	26,112,561	268,424	18,881,059	286,160,300
14	286,160,300	21,901,443	27,190,855	282,411	19,836,207	300,424,685
15	300,424,685	22,310,752	28,225,170	296,697	20,812,339	315,025,909
16	315,025,909	22,705,585	29,178,892	311,298	21,814,352	330,055,657
17	330,055,657	23,146,702	30,151,375	326,285	22,847,312	345,572,011
18	345,572,011	23,646,697	31,086,876	341,735	23,917,674	361,707,771
19	361,707,771	24,161,508	31,963,319	357,745	25,033,960	378,582,174
20	378,582,174	24,730,054	32,812,664	374,442	26,204,755	396,329,878
21	396,329,878	25,355,151	33,507,574	391,954	27,444,038	415,229,540
22	415,229,540	26,029,973	34,144,721	410,490	28,767,684	435,471,986
23	435,471,986	2,764,973	34,767,194	430,289	29,347,901	432,387,377
24	432,387,377	2,479,033	35,375,683	438,967	29,100,370	428,152,130
25	428,152,130	2,165,809	35,829,049	435,265	28,777,201	422,830,827
26	422,830,827	1,863,862	36,250,020	430,431	28,379,577	416,393,816
27	416,393,816	1,610,493	36,567,686	424,483	27,909,208	408,921,347
28	408,921,347	1,346,633	36,825,937	417,448	27,368,108	400,392,704
29	400,392,704	1,031,375	36,965,595	409,355	26,755,464	390,804,593
30	390,804,593	757,532	36,959,397	400,191	26,075,250	380,277,786

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

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

Column e – Based on the current Long-Term Expected Rate of Return on Plan Assets assumption, 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 Expenses (d)	Projected Investment Earnings (e)	Projected Ending Fiduciary Net Position (a)+(b)-(c)-(d)+(e)
31	\$ 380,277,786	\$ 549,543	\$ 36,860,116	\$ 390,017	\$ 25,334,924	\$ 368,912,121
32	368,912,121	390,114	36,655,905	378,944	24,541,283	356,808,669
33	356,808,669	269,157	36,391,081	367,073	23,699,492	344,019,165
34	344,019,165	178,140	35,991,468	354,482	22,815,468	330,666,823
35	330,666,823	115,648	35,519,919	341,259	21,895,584	316,816,877
36	316,816,877	72,552	34,986,398	327,500	20,943,734	302,519,265
37	302,519,265	43,692	34,395,153	313,263	19,963,083	287,817,625
38	287,817,625	5,599	33,748,037	298,595	18,955,798	272,732,389
39	272,732,389	3,369	33,049,536	283,529	17,924,728	257,327,421
40	257,327,421	2,459	32,319,010	268,107	16,872,457	241,615,221
41	241,615,221	1,140	31,542,510	252,367	15,800,285	225,621,768
42	225,621,768	831	30,728,312	236,331	14,709,790	209,367,747
43	209,367,747	-	29,863,269	220,020	13,602,827	192,887,286
44	192,887,286	-	28,950,995	203,462	12,481,704	176,214,532
45	176,214,532	-	27,990,265	186,693	11,348,824	159,386,398
46	159,386,398	-	26,980,460	169,748	10,206,791	142,442,980
47	142,442,980	-	25,921,593	152,667	9,058,409	125,427,130
48	125,427,130	-	24,815,036	135,490	7,906,631	108,383,234
49	108,383,234	-	23,664,045	118,262	6,754,446	91,355,373
50	91,355,373	-	22,471,340	101,029	5,604,843	74,387,847
51	74,387,847	-	21,242,153	83,834	4,460,740	57,522,600
52	57,522,600	-	19,983,488	66,721	3,324,825	40,797,216
53	40,797,216	-	18,703,134	49,731	2,199,455	24,243,806
54	24,243,806	-	17,410,757	32,898	1,086,539	7,886,690
55	7,886,690	-	16,116,725	16,252	-	-
56	-	-	14,830,345	-	-	-
57	-	-	13,562,183	-	-	-
58	-	-	12,323,178	-	-	-
59	-	-	11,122,849	-	-	-
60	-	-	9,969,790	-	-	-

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

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

Column e – Based on the current Long-Term Expected Rate of Return on Plan Assets assumption, 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 Expenses (d)	Projected Investment Earnings (e)	Projected Ending Fiduciary Net Position (a)+(b)-(c)-(d)+(e)
61	\$ -	\$ -	\$ 8,871,790	\$ -	\$ -	\$ -
62	-	-	7,835,360	-	-	-
63	-	-	6,865,620	-	-	-
64	-	-	5,966,827	-	-	-
65	-	-	5,141,673	-	-	-
66	-	-	4,391,304	-	-	-
67	-	-	3,715,900	-	-	-
68	-	-	3,114,186	-	-	-
69	-	-	2,583,671	-	-	-
70	-	-	2,121,032	-	-	-
71	-	-	1,722,084	-	-	-
72	-	-	1,382,055	-	-	-
73	-	-	1,095,598	-	-	-
74	-	-	857,418	-	-	-
75	-	-	661,982	-	-	-
76	-	-	503,908	-	-	-
77	-	-	377,984	-	-	-
78	-	-	279,157	-	-	-
79	-	-	202,844	-	-	-
80	-	-	144,881	-	-	-

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 current Long-Term Expected Rate of Return on Plan Assets assumption. Administrative Expenses are typically not charged on a per employee basis. Administrative Expenses shown are not projected to distinguish between current and future employees.

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



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

Year	Projected Benefit Payments		Present Value (PV) of Projected Benefit Payments				
	Projected Beginning Fiduciary Net Position	Projected Benefit Payments	"Funded" Portion of Benefit Payments	"Unfunded" Portion of Benefit Payments	PV of "Funded" Portion of Benefit Payments (7.00%)	PV of "Unfunded" Portion of Benefit Payments (4.19%)	PV of Total Projected Payments Using the Single Discount Rate (6.84%)
1	\$ 133,933,379	\$ 15,909,525	\$ 15,909,525	\$ -	\$ 15,380,318	\$ -	\$ 15,391,831
2	142,322,305	16,520,290	16,520,290	-	14,925,951	-	14,959,492
3	151,767,517	17,174,148	17,174,148	-	14,501,594	-	14,555,948
4	161,773,673	17,862,900	17,862,900	-	14,096,417	-	14,170,442
5	172,332,939	18,584,728	18,584,728	-	13,706,583	-	13,799,195
6	183,440,875	19,447,546	19,447,546	-	13,404,605	-	13,515,387
7	194,977,315	20,282,530	20,282,530	-	13,065,546	-	13,193,254
8	206,968,580	21,157,135	21,157,135	-	12,737,334	-	12,881,094
9	219,349,432	22,088,173	22,088,173	-	12,427,898	-	12,586,988
10	232,103,519	23,102,142	23,102,142	-	12,148,044	-	12,321,977
11	245,154,114	24,114,033	24,114,033	-	11,850,596	-	12,038,271
12	258,508,260	25,091,467	25,091,467	-	11,524,248	-	11,724,287
13	272,179,575	26,112,561	26,112,561	-	11,208,623	-	11,420,260
14	286,160,300	27,190,855	27,190,855	-	10,907,918	-	11,130,521
15	300,424,685	28,225,170	28,225,170	-	10,582,098	-	10,814,223
16	315,025,909	29,178,892	29,178,892	-	10,223,986	-	10,463,902
17	330,055,657	30,151,375	30,151,375	-	9,873,583	-	10,120,410
18	345,572,011	31,086,876	31,086,876	-	9,513,952	-	9,766,393
19	361,707,771	31,963,319	31,963,319	-	9,142,227	-	9,398,858
20	378,582,174	32,812,664	32,812,664	-	8,771,176	-	9,030,896
21	396,329,878	33,507,574	33,507,574	-	8,370,965	-	8,631,742
22	415,229,540	34,144,721	34,144,721	-	7,972,093	-	8,232,754
23	435,471,986	34,767,194	34,767,194	-	7,586,381	-	7,846,164
24	432,387,377	35,375,683	35,375,683	-	7,214,165	-	7,472,375
25	428,152,130	35,829,049	35,829,049	-	6,828,617	-	7,083,620
26	422,830,827	36,250,020	36,250,020	-	6,456,868	-	6,708,020
27	416,393,816	36,567,686	36,567,686	-	6,087,337	-	6,333,586
28	408,921,347	36,825,937	36,825,937	-	5,729,278	-	5,969,970
29	400,392,704	36,965,595	36,965,595	-	5,374,772	-	5,608,957
30	390,804,593	36,959,397	36,959,397	-	5,022,309	-	5,248,986

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



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

Year	Projected Beginning Fiduciary Net Position	Projected Benefit Payments	Projected Benefit Payments		Present Value (PV) of Projected Benefit Payments		
			"Funded" Portion of Benefit Payments	"Unfunded" Portion of Benefit Payments	PV of "Funded" Portion of Benefit Payments (7.00%)	PV of "Unfunded" Portion of Benefit Payments (4.19%)	PV of Total Projected Payments Using the Single Discount Rate (6.84%)
31	\$ 380,277,786	\$ 36,860,116	\$ 36,860,116	\$ -	\$ 4,681,138	\$ -	\$ 4,899,744
32	368,912,121	36,655,905	36,655,905	-	4,350,658	-	4,560,650
33	356,808,669	36,391,081	36,391,081	-	4,036,660	-	4,237,833
34	344,019,165	35,991,468	35,991,468	-	3,731,153	-	3,922,967
35	330,666,823	35,519,919	35,519,919	-	3,441,372	-	3,623,707
36	316,816,877	34,986,398	34,986,398	-	3,167,927	-	3,340,770
37	302,519,265	34,395,153	34,395,153	-	2,910,646	-	3,074,048
38	287,817,625	33,748,037	33,748,037	-	2,669,051	-	2,823,112
39	272,732,389	33,049,536	33,049,536	-	2,442,811	-	2,587,683
40	257,327,421	32,319,010	32,319,010	-	2,232,538	-	2,368,481
41	241,615,221	31,542,510	31,542,510	-	2,036,354	-	2,163,586
42	225,621,768	30,728,312	30,728,312	-	1,854,009	-	1,972,798
43	209,367,747	29,863,269	29,863,269	-	1,683,941	-	1,794,517
44	192,887,286	28,950,995	28,950,995	-	1,525,700	-	1,628,320
45	176,214,532	27,990,265	27,990,265	-	1,378,570	-	1,473,497
46	159,386,398	26,980,460	26,980,460	-	1,241,902	-	1,329,407
47	142,442,980	25,921,593	25,921,593	-	1,115,106	-	1,195,463
48	125,427,130	24,815,036	24,815,036	-	997,667	-	1,071,163
49	108,383,234	23,664,045	23,664,045	-	889,151	-	956,084
50	91,355,373	22,471,340	22,471,340	-	789,100	-	849,771
51	74,387,847	21,242,153	21,242,153	-	697,136	-	751,861
52	57,522,600	19,983,488	19,983,488	-	612,924	-	662,028
53	40,797,216	18,703,134	18,703,134	-	536,125	-	579,944
54	24,243,806	17,410,757	17,410,757	-	466,429	-	505,307
55	7,886,690	16,116,725	7,886,690	8,230,035	197,460	878,785	437,805
56	-	14,830,345	-	14,830,345	-	1,519,869	377,069
57	-	13,562,183	-	13,562,183	-	1,334,008	322,749
58	-	12,323,178	-	12,323,178	-	1,163,391	274,489
59	-	11,122,849	-	11,122,849	-	1,007,843	231,891
60	-	9,969,790	-	9,969,790	-	867,035	194,545

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



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

Year	Projected Beginning Fiduciary Net Position	Projected Benefit Payments	Projected Benefit Payments		Present Value (PV) of Projected Benefit Payments		
			"Funded" Portion of Benefit Payments	"Unfunded" Portion of Benefit Payments	PV of "Funded" Portion of Benefit Payments (7.00%)	PV of "Unfunded" Portion of Benefit Payments (4.19%)	PV of Total Projected Payments Using the Single Discount Rate (6.84%)
61	\$ -	\$ 8,871,790	\$ -	\$ 8,871,790	\$ -	\$ 740,519	\$ 162,036
62	-	7,835,360	-	7,835,360	-	627,708	133,945
63	-	6,865,620	-	6,865,620	-	527,901	109,853
64	-	5,966,827	-	5,966,827	-	440,342	89,360
65	-	5,141,673	-	5,141,673	-	364,187	72,072
66	-	4,391,304	-	4,391,304	-	298,530	57,614
67	-	3,715,900	-	3,715,900	-	242,456	45,631
68	-	3,114,186	-	3,114,186	-	195,024	35,794
69	-	2,583,671	-	2,583,671	-	155,294	27,795
70	-	2,121,032	-	2,121,032	-	122,359	21,357
71	-	1,722,084	-	1,722,084	-	95,350	16,230
72	-	1,382,055	-	1,382,055	-	73,445	12,191
73	-	1,095,598	-	1,095,598	-	55,881	9,046
74	-	857,418	-	857,418	-	41,974	6,626
75	-	661,982	-	661,982	-	31,103	4,788
76	-	503,908	-	503,908	-	22,724	3,411
77	-	377,984	-	377,984	-	16,360	2,395
78	-	279,157	-	279,157	-	11,597	1,656
79	-	202,844	-	202,844	-	8,088	1,126
80	-	144,881	-	144,881	-	5,544	753

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 Plan Members).

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 current Long-Term Expected Rate of Return on Plan Assets assumption. The PV of the Unfunded Portion of Benefit Payments are determined using the High-Quality Municipal Bond Rate assumption as of the Measurement Date, as described in the *Actuarial Assumptions Information* section of this report.

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



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