

GASB Statements No. 67 and 68
Report for Fiscal Year 2018

Northampton Retirement System

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October 24, 2018

Northampton Board of Retirement
Memorial Hall, First Floor
240 Main Street
Northampton, MA 01060

Dear Members of the Board:

For the purpose of satisfying the requirements of the Government Accounting Standards Board (GASB) Statements No. 67 and 68, Stone Consulting, Inc. has prepared a set of illustrative tables and other Required Supplementary Information (RSI) based on the January 1, 2016 actuarial valuation of the Northampton Retirement System performed by Stone Consulting, Inc. The valuation and this report were prepared using generally accepted actuarial principles and practices and meet the parameters set by the Governmental Accounting Standards Board (GASB).

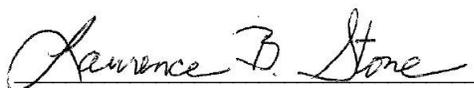
For GASB 67 the results are as of a valuation date of January 1, 2016 and a reporting date of December 31, 2017. For GASB 68 the results are as of a valuation date of January 1, 2016, a measurement date of December 31, 2017 and a reporting date of June 30, 2018. To the best of our knowledge, this report is complete and accurate, and the assumptions used represent our best estimate of anticipated experience of the system. The methods, assumptions, and plan provisions used to prepare these exhibits are consistent with those used in the funding valuation, and are outlined in the January 1, 2016 funding valuation report unless otherwise stated in this report.

Stone Consulting, Inc. is completely independent of the City of Northampton. This includes any of its officers and key personnel. Neither we or anyone else closely associated with us has any relationship with the City of Northampton that would impair our independence, other than this or related assignments.

We are pleased to present these exhibits. If the Northampton Board has any questions on the content of this report, we would be glad to respond. Please note that this report is meant to be used in its entirety. Use of excerpts of this report may result in a misleading or inaccurate understanding of the results.

The undersigned is a consultant for Stone Consulting, Inc. and a member of the American Academy of Actuaries and meets the Qualification Standards of the American Academy of Actuaries to render the actuarial opinion contained herein.

Respectfully submitted,
STONE CONSULTING, INC.
Actuaries for the Plan



Lawrence B. Stone, M.A.A.A.

GASB Statements No. 67 and 68 – Net Pension Liability

The components of the Net Pension Liability of the Northampton Retirement System as of December 31, 2017 were as follows:

Total Pension Liability (TPL)	\$ 172,627,313
Plan Fiduciary Net Position (FNP)	<u>126,082,343</u>
System's Net Pension Liability (NPL)	\$ 46,544,970
Plan FNP as a percentage of the TPL	73.0%
Covered Payroll	\$ 27,879,490
Plan NPL as a percentage of Covered Payroll	166.95%

NOTE: Totals in this report may not sum due to rounding

Changes to the Net Pension Liability [GASB 68, Paragraph 80]

	Total Pension Liability (a)	Plan Fiduciary Net Position (b)	Net Pension Liability (a) - (b)
Balances at beginning of Measurement Period (01/01/2017)	\$ 167,108,503	\$ 106,497,333	\$ 60,611,170
<u>Changes for the Year:</u>			
Service Cost	3,732,551		3,732,551
Interest	12,414,519		12,414,519
Change in benefit terms	0		0
Differences between expected and actual experience	0		0
Change in assumptions	0		0
Contributions - employer		5,946,420	(5,946,420)
Contributions - employee		2,697,733	(2,697,733)
Net investment income		21,780,959	(21,780,959)
Benefit payments, including refunds of employee contributions	(10,628,261)	(10,628,261)	0
Administrative expense		(211,841)	211,841
Other changes		0	0
Net Changes	<u>5,518,810</u>	<u>19,585,010</u>	<u>(14,066,200)</u>
Balances at end of Measurement Period (12/31/2017)	\$ 172,627,313	\$ 126,082,343	\$ 46,544,970

Update procedures were used to roll the Total Pension Liability forward from the valuation date (01/01/2016) to the measurement date (12/31/2017). [GASB Statement No. 68, Paragraph 80 c.]

Projection of the Net Pension Liability

TOTAL PENSION LIABILITY (TPL)

The Total Pension Liability at the beginning of the measurement period (01/01/2017) is equal to the TPL from the end of the end of the previous measurement period. GASB Statement No. 68, Paragraph 70 requires that the AAL be calculated under the Entry Age Normal Cost Method. Any changes since the prior valuation in assumptions or plan provisions are calculated, and the remainder of any difference between the projected TPL and the Accrued Liability is recognized as “Differences between actual and expected experience”.

The TPL is projected to the end of each measurement period (12/31/2017) by adding all of the changes resulting from experience, assumption changes, and changes to plan provisions. Interest is given to the TPL, Service Cost, and paid benefits, and added to the total, less the projected benefit payments for the year.

Changes due to differences between expected and actual gains on pension plan assets will be recognized over a five-year period [GASB Statement No. 68, Paragraph 71b], and liabilities arising from experience or changes in assumptions will be spread over the lifetime of the current employees [GASB Statement No. 68, Paragraph 71a]. The amount of outflows and inflows to be recognized are shown on the following page, and developed in greater detail on pages 9-10.

The TPL shown includes a liability of \$760,393 as of 1/1/2016 for future 3(8)(c) payments, which is calculated by assuming that every dollar of 3(8)(c) net benefit generates the same amount of liability as a dollar of the total retirement benefit. In the funding valuation we fund the net 3(8)(c) payments on a pay-as-you-go basis.

PLAN FIDUCIARY NET POSITION (FNP)

GASB Statement No. 68, Paragraph 59 requires that Market Value of Assets be used for the Fiduciary Net Position. Net investment income is the portion of the change in assets during the measurement period not attributed to employee/employer contributions, benefits payments, administrative expense, or other changes.

The projected Net Pension Liability (NPL) for the end of the year is the portion of the TPL not covered by the FNP. This amount is presented as a percentage of covered employee payroll. The NPL ratio for Northampton is 166.95% of covered payroll. In this report, covered payroll is reported as described in GASB Statement No. 82. It is a projected pensionable payroll for the measurement period.

Distribution of the Member Population

As of January 1, 2016, the following employees were covered by the benefits terms:

Inactive employees or beneficiaries currently receiving benefits	403
Inactive employees entitled to a return of contributions	200
Active employees	<u>633</u>
TOTAL	1,236

Pension Expense and Deferred Outflows of Resources and Deferred Inflows of Resources Related to Pensions [GASB 68, Paragraph 80 h.]

	Deferred Outflows Of Resources	Deferred Inflows Of Resources
Differences between expected and actual experience	\$ 0	\$ (1,562,719)
Changes of assumptions	1,924,352	0
Net difference between projected and actual earnings on pension plan investments	<u>0</u>	<u>(2,757,589)</u>
Total	\$ 1,924,352	\$ (4,320,308)

Year Ending December 31, *	Recognition
2018	\$ 33,794
2019	1,070,020
2020	(821,593)
2021	(2,686,998)
2022	8,820
Thereafter	0

*The years are based on measurement date. For GASB 68, the year ending December 31, 2018 is Fiscal 2019.

Development of Exhibits

DISCOUNT RATE

Projections were made using a discount rate assumption of 7.50%, which is consistent with the assumption used in the valuation. One of the objectives of the provisions introduced by GASB 68 is to examine how benefit payments and plan contributions and investment earnings interact on a cash flow basis. GASB requires that these amounts be calculated with Market Value of Assets and using the Entry Age Normal cost method.

Projected contributions for each year are the sum of the projected normal cost, the amortization of the unfunded liability, administrative expense, and other benefit costs such as 3(8)(c) payments. The amortization bases and periods are consistent with those seen in the valuation report. Administrative expenses are increased by 4.50% per year.

The long-term rate of return which was used to develop the discount rate of 7.50% includes the effect of inflation (not subtracted out as in the real rates of return). It is based on a combination of expected rates of return on the mix of current and expected investments over a long-term period. These expectations are based on current market conditions, historical experience and future expectations. It assumes a rebalancing of assets on an ongoing basis as well as a constant monitoring of asset allocation and manager performance.

GASB Statement No. 67, Paragraph 30 b. 4 requires that a return rate for the measurement period be developed using the market value of assets at the beginning of the measurement period, along with monthly cash flows. This has been done for the 2017 calendar year, and is shown on the following page and on page 11.

Calendar Year	2017
Money-Weighted Rate of Return	20.57%

Discount Sensitivity [GASB 68, Paragraph 78 g.]

The following presents Northampton’s Net Pension Liability calculated at the valuation discount rate of 7.50%, as well as at discount rates one percent higher (8.50%) and one percent lower (6.50%).

Fiscal Year	1% Decrease (6.50%)	Current Discount Rate (7.50%)	1% Increase (8.50%)
2018	\$ 66,981,825	\$ 46,544,970	\$ 31,932,255

Long-Term Expected Real Rate of Return

The long-term expected real rate of return reflects the expected rate of return on plan assets minus the expected rate of inflation. Note that the discount rate includes the effect of inflation. The long-term real rate of return removes the effect of inflation on the return amounts. It is a long-term assumption and is meant to reflect a best estimate of future experience, based on the expected asset allocation. The allocation percentages are based on information provided by the Northampton Retirement System and De Burlo. The real rates of return below are based on 30-year return estimates provided by NEPC through the Pension Reserve Investment Trust, adjusted using a 3.00% inflation assumption.

Asset Class	Target Allocation	Long-Term Expected Real Rate of Return (Geometric Average)
US Equity*	55.0%	4.47%
International Equities	5.0%	4.66%
Emerging Equities	3.0%	6.12%
Fixed Income	35.0%	0.73%
Private Equity	2.0%	6.31%
Timberland	0.0%	3.16%

* The 55% allocated to US equities was assumed to be 40% large cap US equities, and 15% mid and small cap US equities.

**Schedule of Changes in Northampton's
Net Pension Liability and Related Ratios**

(Amounts in Thousands)

Fiscal Year *	2018	2017	2016	2015	2014	2013	2012	2011	2010	2009
TOTAL PENSION LIABILITY										
Service cost	3,733	3,572	3,349	3,205						
Interest	12,415	11,980	11,930	11,483						
Change of benefit terms	-	-	-	-						
Differences between expected and actual experience	-	(2,325)	-	-						
Change of assumptions	-	2,863	-	-						
Benefit payments , including refunds of employee contributions	(10,628)	(10,281)	(9,129)	(9,009)						
Net change in total pension liability	5,519	5,809	6,150	5,679						
Total pension liability - beginning	167,109	161,300	155,150	149,471						
Total pension liability - ending	172,627	167,109	161,300	155,150						
PLAN FIDUCIARY NET POSITION										
Contributions - employer	5,946	5,645	5,432	5,035						
Contributions - employee	2,698	2,509	2,503	2,730						
Net Investment Income	21,781	(1,165)	(816)	12,930						* Information not available for years prior to 2015
Benefit payments , including refunds of employee contributions	(10,628)	(10,281)	(9,129)	(9,009)						
Administrative expense	(212)	(207)	(194)	(196)						
Other	-	-	-	-						
Net change in plan fiduciary net position	19,585	(3,499)	(2,204)	11,490						
Plan fiduciary net position - beginning	106,497	109,997	112,201	100,710						
Plan fiduciary net position - end	126,082	106,497	109,997	112,201						
Northampton net pension liability - ending	46,545	60,611	51,303	42,949						
Plan fiduciary net position as a percentage of the total pension liability	73.0%	63.7%	68.2%	72.3%						
Covered-employee payroll	27,879	27,067	26,016	24,220						
Northampton's net pension liability as a percentage of covered employee payroll	167.0%	223.9%	197.2%	177.3%						

Note: sums may not total due to rounding

Schedule of Plan Contributions

(Amounts in Thousands)

Fiscal Year	2018	2017	2016	2015	2014	2013	2012	2011	2010	2009
Actuarially determined contribution	\$ 5,930	\$ 5,629	\$ 5,415	\$ 5,017						
Contributions in relation to the actuarially determined contribution	<u>(5,946)</u>	<u>(5,645)</u>	<u>(5,432)</u>	<u>(5,035)</u>						
Contribution deficiency / (excess) *	(16)	(16)	(16)	(18)	* Information not available for years prior to 2015					
Covered-employee payroll	\$ 28,286	\$ 27,473	\$ 26,645	\$ 25,371						
Contributions as a percentage of covered-employee payroll	21.0%	20.5%	20.4%	19.8%						

* This excess is due to Federal Grants

Components of Northampton’s Pension Expense for the Fiscal Year Ended June 30, 2018 [GASB 68, Paragraph 71]

NOTE*	Description	Fiscal 2018
A	Service Cost	\$ 3,732,551
A, B	Interest on the Total Pension Liability	12,414,519
C	Differences between Expected and Actual Experience	(381,151)
D	Changes of Assumptions	469,354
D	Changes to Benefit Provisions	0
A	Employee Contributions	(2,697,733)
E	Projected Earnings on Pension Plan Investments	(7,904,952)
F	Differences between Projected and Actual Earnings on Plan Investments	(54,409)
A	Pension Plan Administrative Expense	211,841
A	Other Changes in Fiduciary Net Position	<u>0</u>
	Total Pension Expense	\$ 5,790,020

* Notes shown on following page. Amounts are based on the following dates:

- Valuation date: January 1 ; Measurement date: December 31 ; Reporting date: following June 30

CHANGES IN METHODS, ASSUMPTIONS, AND PLAN PROVISIONS

The assumptions and methods used to generate these exhibits are consistent with those used in the January 1, 2016 actuarial valuation of Northampton performed by Stone Consulting, Inc. unless otherwise noted. There are no changes in assumptions or benefit provisions to reflect as this is still the first valuation under which Northampton will satisfy the requirements of GASB Statements No. 67 and 68. Any gains or losses resulting from future changes will be recognized over the average service lifetime of plan members.

RESULTS BY EMPLOYER

Exhibits are provided beginning on page 12 which provide individual results for the various employers that make up the Northampton Retirement System. Pension expense, as well as any deferred inflows and outflows of resources, and any excess contribution generated by Federal Grants, have been allocated to the various employers in the same manner as the FY2018 appropriation. However, per GASB 68, the change in proportionality from FY2017 to FY2018 if the individual employers’ NPL and deferred inflows and outflows need to be allocated to the individual employers. This is calculated on page 14. These amounts are then recognized over the average working lifetime, which is 6.1 years.

NOTES

- A. See the RSI schedule of changes to the net pension liability, on page 1.
- B. Events that impact the total pension liability are assumed to happen evenly throughout the period. In addition, the amount of interest on the total pension liability is calculated using an interest rate equal to the discount rate that was used to determine the service cost. The amount is determined as follows:

Description	Amount for Period (a)	Portion of Period (b)	Interest Rate (c)	Interest on the Total Pension Liability (a) x (b) x (c)
Beginning total pension liability	\$ 167,108,503	100%	7.50%	\$ 12,533,138
Service cost	3,732,551	100%	7.50%	279,941
Benefit payments	(10,628,261)	50%	7.50%	(398,560)
Total interest on the net pension liability				\$ 12,414,519

- C. Differences between expected and actual experience recognized in the current period in accordance with paragraph 71a of Statement 68. For the detailed calculation of this amount, see the schedules on page 9.
- D. Assumption and plan provision changes recognized in pension expense in the current period in accordance with paragraph 71a of Statement 68. For detailed calculation of these amounts, see the schedule on page 9.
- E. Changes in the amounts invested are assumed to occur evenly throughout the period. In addition, the amount of projected earnings on pension plan investments is calculated using the assumed rate of return on pension plan investments as of the beginning of the period. The amount is determined as follows:

Description	Amount for Period (a)	Portion of Period (b)	Projected Rate of Return (c)	Projected Earnings (a) x (b) x (c)
Beginning plan fiduciary net position	\$ 106,497,333	100%	7.50%	\$ 7,987,300
Employer contributions	5,946,420	50%	7.50%	222,991
Employee contributions	2,697,733	50%	7.50%	101,165
Benefit payments, including refunds of employee contributions	(10,628,261)	50%	7.50%	(398,560)
Administrative expense and other	(211,841)	50%	7.50%	(7,944)
Total projected earnings				\$ 7,904,952

- F. Differences between projected and actual earnings recognized in the current period in accordance with paragraph 71b of Statement 68. For detailed calculation of this amount, see the schedule on page 9.

Increase / (Decrease) in Pension Expense Arising from the Recognition of the Effects of Differences between Expected and Actual Experience

Year	Differences between actual and expected experience	Recognition period (years)	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
2015	\$ -	0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
2016	\$ -	6	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
2017	\$ (2,325,021)	6.1	\$ -	\$ -	\$ (381,151)	\$ (381,151)	\$ (381,151)	\$ (381,151)	\$ (381,151)	\$ (381,151)	\$ (38,115)	\$ -
2018	\$ -	6.1	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Net increase (decrease) in pension expense			\$ -	\$ -	\$ (381,151)	\$ (381,151)	\$ (381,151)	\$ (381,151)	\$ (381,151)	\$ (381,151)	\$ (38,115)	\$ -

Increase / (Decrease) in Pension Expense Arising from the Recognition of the Effects of Changes of Assumptions

Year	Change of assumptions	Recognition period (years)	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
2015	\$ -	0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
2016	\$ -	6	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
2017	\$ 2,863,060	6.1	\$ -	\$ -	\$ 469,354	\$ 469,354	\$ 469,354	\$ 469,354	\$ 469,354	\$ 469,354	\$ 46,935	\$ -
2018	\$ -	6.1	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Net increase (decrease) in pension expense			\$ -	\$ -	\$ 469,354	\$ 469,354	\$ 469,354	\$ 469,354	\$ 469,354	\$ 469,354	\$ 46,935	\$ -

Increase / (Decrease) in Pension Expense Arising from the Recognition of Differences between Expected and Actual Earnings on Pension Plan Investments

Year	Differences between projected and actual earnings on pension plan investments	Recognition period (years)	2015	2016	2017	2018	2019	2020	2021	2022
2015	\$ (5,181,134)	5	\$ (1,036,227)	\$ (1,036,227)	\$ (1,036,227)	\$ (1,036,227)	\$ (1,036,227)	\$ -	\$ -	\$ -
2016	\$ 9,458,065	5	\$ -	\$ 1,891,613	\$ 1,891,613	\$ 1,891,613	\$ 1,891,613	\$ 1,891,613	\$ -	\$ -
2017	\$ 9,327,029	5	\$ -	\$ -	\$ 1,865,406	\$ 1,865,406	\$ 1,865,406	\$ 1,865,406	\$ 1,865,406	\$ -
2018	\$ (13,876,007)	5	\$ -	\$ -	\$ -	\$ (2,775,201)	\$ (2,775,201)	\$ (2,775,201)	\$ (2,775,201)	\$ (2,775,201)
Net increase (decrease) in pension expense			\$ (1,036,227)	\$ 855,386	\$ 2,720,792	\$ (54,409)	\$ (54,409)	\$ 981,817	\$ (909,796)	\$ (2,775,201)

Deferred Outflows and Deferred Inflows of Resources Arising from Differences between Expected and Actual Experience

Year	Experience Losses (a)	Experience Gains (b)	Amounts Recognized in Pension Expense through June 30, 2018 (c)	BALANCES AT JUNE 30, 2018	
				Deferred Outflows of Resources (a) - (c)	Deferred Inflows of Resources (b) - (c)
2015	\$ -	\$ -	\$ -	\$ -	\$ -
2016	\$ -	\$ -	\$ -	\$ -	\$ -
2017	\$ -	\$ (2,325,021)	\$ (762,302)	\$ -	\$ (1,562,719)
2018	\$ -	\$ -	\$ -	\$ -	\$ -
TOTAL				\$ -	\$ (1,562,719)

Deferred Outflows and Deferred Inflows of Resources Arising from Changes of Assumptions

Year	Increases in the Total Pension Liability (a)	Decreases in the Total Pension Liability (b)	Amounts Recognized in Pension Expense through June 30, 2018 (c)	BALANCES AT JUNE 30, 2018	
				Deferred Outflows of Resources (a) - (c)	Deferred Inflows of Resources (b) - (c)
2015	\$ -	\$ -	\$ -	\$ -	\$ -
2016	\$ -	\$ -	\$ -	\$ -	\$ -
2017	\$ 2,863,060	\$ -	\$ 938,708	\$ 1,924,352	\$ -
2018	\$ -	\$ -	\$ -	\$ -	\$ -
TOTAL				\$ 1,924,352	\$ -

Deferred Outflows and Deferred Inflows of Resources Arising from Differences between Expected and Actual Earnings on Pension Plan Investments

Year	Investment Earnings Less than Projected (a)	Investment Earnings More than Projected (b)	Amounts Recognized in Pension Expense through June 30, 2018 (c)	BALANCES AT JUNE 30, 2018	
				Deferred Outflows of Resources (a) - (c)	Deferred Inflows of Resources (b) - (c)
2015	\$ -	\$ (5,181,134)	\$ (4,144,907)	\$ -	\$ (1,036,227)
2016	\$ 9,458,065	\$ -	\$ 5,674,839	\$ 3,783,226	\$ -
2017	\$ 9,327,029	\$ -	\$ 3,730,812	\$ 5,596,217	\$ -
2018	\$ -	\$ (13,876,007)	\$ (2,775,201)	\$ -	\$ (11,100,805)
TOTAL				\$ 9,379,443	\$ (12,137,032)
			NET TOTAL		\$ (2,757,589)

GASB Statement No. 67, Paragraph 30 b. (4)
Money-Weighed Rate of Return, 2017

NET INVESTMENT AMOUNTS					
	Beginning of month	Middle of Month	End of Month	Periods Invested**	Investment with Interest
Starting Value* (12/31/2016)	\$ 106,491,707.62			12	\$ 128,399,986.34
<u>Cash Flows:</u>					
January	0.00	203,572.21	-855,927.84	11	(772,504.43)
February	68,665.05	194,769.23	-887,167.49	10	(725,922.49)
March	93,946.74	199,929.11	-981,792.29	9	(788,040.75)
April	0.00	193,212.15	-851,191.67	8	(743,668.47)
May	0.00	188,417.18	-836,410.24	7	(721,068.25)
June	311,755.45	367,989.12	-1,207,154.80	6	(570,585.24)
July	5,764,189.05	232,951.87	-887,150.92	5	5,624,139.67
August	0.00	167,986.21	-971,758.60	4	(854,093.20)
September	1,751.58	183,543.14	-917,855.71	3	(766,103.38)
October	0.00	268,333.85	-1,022,597.34	2	(775,985.94)
November	0.00	310,559.62	-905,164.51	1	(601,479.08)
December	0.00	313,506.71	-970,342.79	0	(654,382.70)
Ending Value* (12/31/2017)	\$126,050,292.09			Sum:	\$ 126,050,292.09

* Value shown does not include any payables or receiveables, except those related to investments.

** Middle of period cash flows are given an additional half period of interest, and beginning of period cash flows are given an additional full period.

Return Rate:	20.57%
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Results by Employer

Employer	Covered Payroll*	Proportionate Share of NPL**	Proportionate share of NPL as a percentage of covered payroll*	Proportionate share of NPL Discount Sensitivity	
				1% Increase (8.50%)	1% Decrease (6.50%)
City of Northampton	\$ 26,722,409	\$ 44,380,059	166.1%	\$ 30,445,375	\$ 63,868,644
Northampton Housing Authority	\$ 1,157,081	\$ 2,164,910	187.1%	\$ 1,486,881	\$ 3,113,181
TOTAL	\$ 27,879,490	\$ 46,544,970	167.0%	\$ 31,932,255	\$ 66,981,825

Employer	Actuarially determined contribution FY2018	Contributions made FY 2018	Contribution deficiency (excess)	Contributions as a percentage of covered payroll***
City of Northampton	\$ 5,654,580	\$ (5,669,920)	\$ (15,340)	21.2%
Northampton Housing Authority	\$ 275,754	\$ (276,500)	\$ (746)	23.9%
TOTAL	\$ 5,930,334	\$ (5,946,420)	\$ (16,086)	21.3%

Employer	Proportion	Proportionate Share of Pension Expense	Proportion changes and differences between employer contributions and proportionate share recognized as expense	Total Pension Expense
City of Northampton	95.36%	\$ 5,520,713	\$ 26,852	\$ 5,547,565
Northampton Housing Authority	4.64%	\$ 269,307	\$ (26,852)	\$ 242,455
TOTAL	100.00%	\$ 5,790,020		

* Covered Payroll is the projected amount for the 2017 calendar year based on employee data as of December 31, 2015

** ERI liability used in proportionate share of NPL is: \$2,450,689 for City and \$124,723 for Housing

*** Here the Covered Payroll figure is projected for Fiscal Year 2018, based on employee data as of December 31, 2015

Deferred Outflows of Resources by Employer*

Employer	Differences between expected and actual experience	Changes of assumptions	Net difference between projected and actual earnings on pension plan investments	Changes in proportion and differences between employer contributions and proportionate share of contributions	Employer contributions subsequent to the measurement date	Total Deferred Outflows of Resources
City of Northampton	\$ -	\$ 1,834,846	\$ -	\$ 107,828	\$ -	\$ 1,942,673
Northampton Housing Authority	\$ -	\$ 89,506	\$ -	\$ 28,926	\$ -	\$ 118,432
TOTAL	\$ -	\$ 1,924,352	\$ -	\$ 136,754	\$ -	\$ 2,061,105

Deferred Inflows of Resources by Employer*

Employer	Differences between expected and actual experience	Changes of assumptions	Net difference between projected and actual earnings on pension plan investments	Changes in proportion and differences between employer contributions and proportionate share of contributions	Employer contributions subsequent to the measurement date	Total Deferred Inflows of Resources
City of Northampton	\$ 1,490,034	\$ -	\$ 2,629,327	\$ 28,926	N/A	\$ 4,148,287
Northampton Housing Authority	\$ 72,686	\$ -	\$ 128,262	\$ 107,828	N/A	\$ 308,775
TOTAL	\$ 1,562,719	\$ -	\$ 2,757,589	\$ 136,754	N/A	\$ 4,457,062

Recognition of Deferred Outflows and Deferred Inflows

Employer	AMOUNT TO BE RECOGNIZED FOR THE YEAR ENDING DECEMBER 31,					
	2018	2019	2020	2021	2022	Thereafter
City of Northampton	\$ 59,074	\$ 1,047,103	\$ (756,526)	\$ (2,566,167)	\$ 10,612	\$ 291
Northampton Housing Authority	\$ (25,280)	\$ 22,917	\$ (65,066)	\$ (120,831)	\$ (1,792)	\$ (291)
TOTAL	\$ 33,794	\$ 1,070,020	\$ (821,593)	\$ (2,686,998)	\$ 8,820	\$ 0

* Deferred Outflows and Inflows due to experience, assumption changes, and investment earnings are all allocated according to the employer's share of the NPL

Effects of Changes in Proportion on Employers' Proportionate Share of NPL, and Deferred Inflows and Deferred Outflows of Resources

Employer	Proportion Change			FY2018 Contribution		
	Prior Proportionate Share of Prior NPL net of Deferrals	Share of Prior NPL based on Current Proportion of NPL	Difference (A)	Proportionate Share of Contribution based on Share of NPL	Amount Paid	Difference (B)
City of Northampton	\$ 46,796,043	\$ 46,813,700	\$ 17,657	\$ 5,669,839	\$ 5,669,920	\$ 81
Northampton Housing Authority	\$ 2,301,283	\$ 2,283,626	\$ (17,657)	\$ 276,581	\$ 276,500	\$ (81)
TOTAL	\$ 49,097,326	\$ 49,097,326	\$ -	\$ 5,946,420	\$ 5,946,420	\$ -

Employer	Total Proportion Change (A) + (B)	Recognized as Pension Expense*	Deferred for later recognition
City of Northampton	\$ 17,737	\$ 2,908	\$ 14,830
Northampton Housing Authority	\$ (17,737)	\$ (2,908)	\$ (14,830)
TOTAL	\$ -	\$ -	\$ -

* Based on an average remaining service life of 6.1 years.