City Of Logan, West Virginia Firemen's Pension and Relief Fund

Actuarial Valuation Report for the Year Beginning July 1, 2017

GRS Retirement Consulting
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September 21, 2018

Mr. Jeff Vallet
City Treasurer
219 Dingess Street
Logan, WV 25601

Mr. Nick Ferrell
Pension Board Secretary
City of Logan Firemen's Pension and Relief Fund

Subject: City of Logan Firemen's Pension and Relief Fund
Actuarial Valuation Report for the Year Beginning July 1, 2017

Dear Mr. Vallet and Mr. Ferrell:

Upon the request of the Municipal Pensions Oversight Board, we have performed an actuarial valuation as of July 1, 2017, for the City of Logan, West Virginia Firemen's Pension and Relief Fund ("Fund" or "Plan"). This actuarial valuation has been performed in accordance with the West Virginia Code Chapter 8, Article 22, Sections 16 through 28, inclusive.

In accordance with West Virginia Code §8-22-20, this actuarial valuation report provides information on:

- The sponsor's funding requirements for the fiscal year ending June 30, 2019, based on the selected funding policy, i.e. the Standard funding policy as defined in West Virginia Code §8-22-20
- The Fund's eligibility to receive an allocation of the premium tax for the fiscal year ending June 30, 2019
- The Fund's eligibility to provide supplemental benefits for the plan year beginning July 1, 2019

West Virginia Code §8-22-20 (c)(4), requires (1) a review of the actuarial assumptions and methods at least once every five years and (2) that the Actuary shall provide a report to the oversight board with recommendations on any changes to the actuarial process. Consequently, an experience review was performed for the period July 1, 2009, through June 30, 2014. The actuarial assumptions and methods were recommended by the actuary, in the report *2016 Experience Review for the Years July 1, 2009, to July 1, 2014*, approved by the Municipal Pensions Oversight Board, and became effective for the actuarial valuation as of July 1, 2015.

This report also provides illustrative projections under a different funding policy available to the sponsor – the Optional funding policy as defined in West Virginia Code §8-22-20(e).

This actuarial valuation is based upon:

Plan Member Data – Data for active members and persons receiving benefits from the Fund as of June 30, 2017, was provided by the Fund's staff. We have tested this data for reasonableness.

Asset Values – A reconciliation of market value of assets during the plan year ending June 30, 2017, and a list of assets held as of June 30, 2017, by investment category, were provided by the Fund.

Plan Provisions – A summary of the key plan provisions valued are set forth in Section VII of the report: Summary of Principal Plan Provisions.

Actuarial Methods – Fund liabilities were measured using the Entry-Age Normal Actuarial Cost Method. The actuarial valuation was based on the market value of assets. The actuarial methods used in the actuarial valuation are set forth in Section VI of the report: Actuarial Assumptions and Methods.

Actuarial Assumptions – The actuarial assumptions used include a discount rate of 6.00%. The actuarial assumptions used in the actuarial valuation are set forth in Section VI of the report: Actuarial Assumptions and Methods.

The actuarial valuation results disclosed in this report are based on the data and actuarial assumptions and methods described above, and upon the provisions of the Plan as of the actuarial valuation date. Based on these items, we certify these results to be true and correct.

To the best of our knowledge, this actuarial statement is complete and accurate, and has been prepared in accordance with generally accepted actuarial principles and practices.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: plan experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the plan's funded status); and changes in plan provisions or applicable law.

This report should not be relied on for any purpose other than the purpose stated.

The signing actuaries are independent of the plan sponsor.

Alex Rivera and Lance Weiss are Members of the American Academy of Actuaries (MAAA) and meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinion herein.

Sincerely,

Alex Rivera

Lance J. Weiss

Alex Rivera, FSA, EA, MAAA, FCA
Senior Consultant

Lance Weiss, EA, MAAA, FCA
Senior Consultant

Contents

SECTION I

ACTUARIAL VALUATION RESULTS AS OF JULY 1, 2017

Executive Summary

Upon the request of the Municipal Pensions Oversight Board, we have performed an actuarial valuation as of July 1, 2017, for the City of Logan, West Virginia Firemen's Pension and Relief Fund ("Fund" or "Plan").

In accordance with West Virginia Code §8-22-20, this report provides information on:

- The sponsor's funding requirements for the fiscal year ending June 30, 2019.
- The Fund's eligibility to receive an allocation of the premium tax for the fiscal year ending June 30, 2019.
- The Fund's eligibility to provide supplemental benefits for the plan year beginning July 1, 2019.

This report is based on the sponsor's election to finance benefit obligations using the Standard funding policy as defined in West Virginia Code §8-22-20 (c)(1).

The key features of the Standard funding policy include:

- The employer contribution equals the normal cost, net of employee contributions, plus a 40-year amortization of the unfunded actuarial accrued liability less the allocable portion of the state premium tax fund for municipal pension and relief funds. The amortization is based on a 40-year closed period commencing on July 1, 1991.

- The employer contribution cannot be less than the net normal cost.

- If the City continues to contribute the standard minimum amount in each plan year, by the year 2031 the funded ratio is expected to increase to 100%.

- The Plan also receives premium tax allocation assigned to the Fund for the plan year.

This report also provides illustrative projections under a different funding policy available to the sponsor – the Optional funding policy as defined in West Virginia Code §8-22-20(e).

Historically, the plan sponsor has made contributions less than the statutory minimum and has forfeited a portion of the premium tax allocation. However, we understand that the City has recently passed a resolution to collect certain revenues which are dedicated to finance the statutory contributions of the City's Police and Fire Pension Funds. Our actuarial valuation assumes the City will be able to make the statutory minimum contributions on a timely basis, and apply and receive the applicable premium tax allocation. If the City contributes less that the statutory minimum in future years and forfeits a portion of the premium tax allocation, we may need to adjust our projection assumption. This could result in a decline in the assumed investment return and an increase in the City's contribution requirement.

Executive Summary (Continued)

The following table provides the Plan's funded status:

Funded Status as of:	July 1, 2017
Assets	$721,451
Actuarial Accrued Liability	$1,777,186
Unfunded Actuarial Accrued Liability	$1,055,735
Funded Ratio	40.60%

The following table provides the estimated employer contributions for the fiscal year ending June 30, 2018, under the Standard funding policy, based on the July 1, 2016 actuarial valuation produced by GRS:

Employer Contributions for FYE:	June 30, 2018
Estimated Payroll for PYE 06/30/2017	$321,722
Employer Normal Cost for PYE 06/30/2017	$94,303
Employer Normal Cost Rate for PYE 06/30/2017	29.3%
Amortization of Unfunded Actuarial Liability for PYE 06/30/2017	$90,916
State Insurance Premium Tax Allocation for FYE 06/30/2018	$64,417
Estimated Employer Contribution for FYE 06/30/2018 [a]	$120,802

The following table provides the estimated employer contributions for the fiscal year ending June 30, 2019, under the Standard funding policy, based on the July 1, 2017 actuarial valuation produced by GRS:

Estimated Employer Contributions for FYE:	June 30, 2019
Estimated Payroll for PYE 06/30/2018	$339,497
Employer Normal Cost for PYE 06/30/2018	$100,784
Employer Normal Cost Rate for PYE 06/30/2018	29.7%
Amortization of Unfunded Actuarial Liability for PYE 06/30/2018	$110,320
State Insurance Premium Tax Allocation for FYE 06/30/2019	$65,234
Estimated Employer Contribution for FYE 06/30/2019 [a]	$145,870

[a] *The Employer Contribution cannot be less than the Employer Net Normal Cost.*

Commentary on Premium Tax Allocation

Under §8-22-19 of the West Virginia Code, the plan sponsor is required to deposit the statutory contribution on a monthly basis at a rate of one-twelfth of the annual requirement, in order to receive the premium tax allocation from the Municipal Pensions Security Fund. Revenues which are specifically collected for the Fund, including employee payroll contributions, must be deposited within five days of receipt.

Based upon discussions with the Municipal Pensions Oversight Board (MPOB), we understand the annual premium tax allocation is determined by September 1st each year. Municipalities can begin invoicing the MPOB for their share of the premium tax allocation after receiving their state provided actuarial study and after the municipality has made employer contributions to the local Plan. Each municipal treasurer shall use the invoice template provided by the MPOB to begin drawing down the state allocation for the municipal pension plan. This July 1, 2017, Actuarial Report from GRS is to be used by municipal pension plans to draw down the September 1, 2018, State Premium Tax Allocation which is allocated in Fiscal Year 2019. *The actuarial valuation and projection results assume the sponsor will make the statutory contributions on a monthly basis in accordance with statutes, and will be eligible to receive the premium tax allocation.*

Commentary on Solvency Projections and Supplemental Benefits

Under § 8-22-26a of the West Virginia Code, all retirees, surviving spouses, and disabled pensioners are eligible for Supplemental Benefits that include automatic cost-of-living benefits commencing on the first day of July following two years of retirement. The benefit equals the percentage increase in the Consumer Price Index, limited to 4.0 percent (2.0 percent for certain disabled pensioners), multiplied by the sum of the allowable amount (first $15,000 of initial benefits paid) and the accumulated supplemental pensions paid in prior years.

The Court of Appeals decision requires that Supplemental Benefits be provided on "the allowable amount of the first $15,000 of the total annual pension paid in addition to the accumulated supplemental pension from the previous years." The decision implies that compound cost-of-living increases should be applied to both the allowable amount of $15,000 and the accumulated supplemental pension amounts for prior years. Additional Supplemental Benefits are payable only if the Plan satisfies the minimum standard for actuarial soundness as defined in West Virginia Code § 8-22-20. This minimum standard requires that the fund remain "solvent" over the next 15-year projection period. Based on discussions with the West Virginia Municipal Pensions Oversight Board, and our understanding of the administrative practices of other local police and fire pension funds in West Virginia, the "solvency" requirement generally means that the fund's market value of assets is projected to be greater than zero for all plan years prior to the end of the 15-year projection period. The projection is based on the most recent actuarial valuation and assumes the plan sponsor will make contributions according to the funding policy elected by the sponsor as defined by West Virginia Code, including any additional amounts needed to satisfy the 15-year solvency test on a closed group projection basis. *Although the 15-year solvency test may satisfy the minimum standard for actuarial soundness under the statutes, it is not necessarily consistent with generally accepted actuarial principles.*

Executive Summary (Continued)

The City of Logan has elected to fund benefits using the Standard funding policy of financing as defined in West Virginia Code §8-22-20(c)(1). Under this funding methodology, the fund's market value of assets is projected to be greater than zero for all plan years prior to the end of the 15-year projection period. Accordingly, this contribution methodology satisfies the minimum standard for actuarial soundness, as defined in the statutes.

The Supplemental benefits for plan year beginning July 1, 2019, will be based on the Consumer Price Index for calendar year 2018, and the projected results of the July 1, 2017, actuarial valuation.

Additional Remarks on the Actuarial Valuation Results

Following are additional remarks on the actuarial valuation results as of July 1, 2017:

- The actuarial assumptions and methods were recommended by the actuary, in the report *2016 Experience Review for the Years July 1, 2009, to July 1, 2014*, and approved by the Municipal Pensions Oversight Board and became effective beginning with the actuarial valuation as of July 1, 2015. The key actuarial assumptions are fully disclosed in Section VI of the report.

- The interest rate used to discount liabilities remained the same for the July 1, 2016 and July 1, 2017 actuarial valuations.
    - The interest rate assumption was developed by reviewing the Plan's current funded ratio, the 15-year projected funded ratio, the ratio of assets to benefits, the percentage of assets allocated to equities and the funding policy selected. The details of the methodology used to select the discount rate are presented in Section VI of the report. As of July 1, 2017, the Plan's funded ratio of 41% (using a testing interest rate of 6.00% for all plans using the Standard funding policy), ratio of assets to benefits of 17.16, equity allocation of 55%, and 15-year projected funded ratio of 100%, resulted in a discount rate assumption of 6.00%.

- The Fund experienced an approximate annualized return of 3.88% on the market value of assets during the plan year ending June 30, 2017, which compares to the expected annualized return of 6.00%. The difference in actual versus expected return produced an asset (gain)/loss of $13,716.

- An actuarial valuation is based on the expectation of certain events such as salary increases, retirement, disability, mortality, termination and cost of living increases. Demographic or liability experience (gains)/losses are generated when the actual occurrence of such events differs from the expectation. During the plan year ending June 30, 2017, the fund experienced a net liability (gain)/loss of $3,426 due to these events.

Standard Funding

Following are additional remarks on the actuarial valuation projections under the current funding policy:

Based on the open group projections shown in Table 1, page II-1 and assuming the sponsor makes the statutory contributions, if all actuarial assumptions are realized in the future, including an investment return of 6.00%:

- Employer contributions are projected to increase from $145,870 for the fiscal year end June 30, 2019, to $148,582 for fiscal year end June 30, 2032, when the plan reaches 100% funding.
- The funded ratio is projected to increase from 41% in 2017 to 100% in 2032.

The Standard funding policy contribution policy is consistent with generally accepted actuarial principles.

Under the Standard funding policy, the following experience could cause City contributions to change during the year:

- If the actual return on assets is *less* than the assumed return of 6.00%, then contributions will generally *increase*. Conversely, if the actual return is *greater* than the assumed return, contributions will generally *decrease*.
- If salaries *increase* by more than assumed, contributions could *increase*. If salaries *decrease* by more than assumed, contributions could *decrease.*
- If active members retire *sooner* than expected, contributions will generally *increase.* If active members retire *later* than expected, contributions will generally *decrease*.
- If active members become disabled during the year, contributions could increase.
- If retired members die *later* than expected, contributions will increase. If retired members die *sooner* than expected, contributions will decrease.
- If the general inflation is *greater* than assumed, supplemental benefits will be greater than assumed and contributions will *increase*. Conversely, if general inflation is *lower* than assumed, contributions will *decrease*.

At least once every five years, GRS performs an experience review analysis and updates the actuarial valuation assumptions. For example, if salary increases were consistently lower than assumed during the experience period, then the salary increase rate would likely be lowered. Or if more members retired than assumed, then the retirement rates would likely be increased. Any change in actuarial assumption will also impact the City's funded ratio. The objective of a change in assumptions is to reduce the level of experience gains and losses in future actuarial valuations.

Schedule A: Summary of Key Valuation Results

Valuation Date		**July 1, 2016**		**July 1, 2017**
Valuation Interest Rate		6.00%		6.00%
Cost-of-Living Adjustment		2.75%		2.75%
Wage Inflation		3.75%		3.75%
Expected Payroll		$321,722		$339,497
Average Pay		$40,215		$42,437
Expected Benefit Payments		$41,881		$42,041
1. Actuarial Accrued Liability	No.		No.	
(a) Actives	8	$1,257,530	8	$1,461,842
(b) Retirees	1	$173,093	1	$167,191
(c) Survivors	1	$151,847	1	$148,153
(d) Disabled Members	0	$0	0	$0
(e) Deferred Vested Members	0	$0	0	$0
(f) Total	10	$1,582,470	10	$1,777,186
2. Present Value of Future Normal Costs		$1,394,034		$1,403,304
3. Present Value of Benefits (1(f) + 2)		$2,976,504		$3,180,490
4. Market Value of Assets		$673,372		$721,451
5. Unfunded Actuarial Accrued Liability (1(f) - 4)		$909,098		$1,055,735
6. Funded Ratio (4 / 1(f))		42.55%		40.60%
7. Net Employer Normal Cost				
(a) Normal Cost		$117,920		$125,693
(b) Administrative Expenses		$909		$954
(c) Gross Normal Cost (a + b)		$118,829		$126,647
(d) Employee Contribution Rate [a]		7.62%		7.62%
(e) Expected Employee Contributions		$24,526		$25,863
(f) Net Employer Normal Cost (c - e)		$94,303		$100,784
(% of Compensation)		29.31%		29.69%
8. Estimated Minimum Employer Contribution [b]		**FYE 2018**		**FYE 2019**
(a) Expected Payroll		$321,722		$339,497
(b) Estimated Employer Normal Cost		$94,303		$100,784
(c) Employer Normal Cost Rate		29.31%		29.69%
(d) Amortization of Unfunded Actuarial Liability		$90,916		$110,320
(e) State Insurance Premium Tax Allocation		$64,417		$65,234
(f) Estimated Employer Contribution[c] (b + d - e)		**$120,802**		**$145,870**

[a] *Blended rate reflecting 7.0% for members hired before January 1, 2010, and 9.5% for members hired after January 1, 2010.*

[b] *Estimated Minimum Employer Contribution is based on Standard funding policy and is assumed to be made in plan year end June 30, 2019. The actual Minimum Employer Contribution will be based on actual payroll for plan year end June 30, 2018.*

[c] *The Employer Contribution cannot be less than the Employer Normal Cost.*

Schedule B: (Gain)/Loss Analysis

Experience (Gain)/Loss for Plan Year Ended June 30, 2017

1.	(a) Actuarial Accrued Liability as of 7/1/2016	$1,582,470
	(b) Normal Cost due 7/1/2016	$117,920
	(c) Interest on (a) and (b) to 6/30/2017	$98,486
	(d) Benefit Payments with interest to 6/30/2017	$25,116
	(e) Effect of Assumption Changes	$0
	(f) Expected Liability at 7/1/2017 [(a) + (b) + (c) - (d) + (e)]	$1,773,760
	(g) Actual Liability at 7/1/2017	$1,777,186
	(h) Liability (Gain)/Loss [(g) - (f)]	**$3,426**
2.	(a) Market Value of Assets as of 7/1/2016[a]	$604,048
	(b) Interest on (a) to 6/30/2017	$36,243
	(c) Contributions with interest to 6/30/2017	$119,992
	(d) Benefit Payments with interest to 6/30/2017	$25,116
	(e) Expected Assets at 6/30/2017 [(a) + (b) + (c) - (d)]	$735,167
	(f) Actual Assets at 7/1/2017	$721,451
	(g) Asset (Gain)/Loss [(e) - (f)]	**$13,716**
3.	Total (Gain)/Loss [1(h) + 2(g)]	**$17,142**

[a] *After Market Value of Assets adjustment of ($69,324).*

SECTION II

ACTUARIAL PROJECTIONS

CURRENT FUNDING POLICY – STANDARD

Actuarial Projections, Standard Funding, Table 1

Valuation Plan Year End 30-Jun	Number		Total Payroll	Total Assets								Actuarial Accrued Liability	Unfunded Liability	Funded Ratio
	Active	Pay Status		Assets (boy)	Benefit Payments	Expenses	Employer Contributions	Employee Contributions	Premium Tax Allocation Contributions	Investment Income	Assets (eoy)			
2017	8	2	$321,722	$604,048	$24,384	$0	$63,773	$24,434	$28,513	$25,067	$721,451	$1,777,186	$1,055,735	41%
2018	8	2	339,497	721,451	42,041	954	120,802	25,863	64,417	48,256	937,794	1,970,426	1,032,632	48%
2019	8	2	356,277	937,794	30,291	983	145,870	27,323	65,234	62,391	1,207,338	2,193,147	985,809	55%
2020	8	2	374,252	1,207,338	31,288	1,015	151,265	28,854	67,546	78,807	1,501,507	2,435,020	933,513	62%
2021	8	2	393,163	1,501,507	33,267	1,050	156,014	30,466	68,823	96,623	1,819,116	2,696,408	877,292	67%
2022	8	2	412,860	1,819,116	35,363	1,086	160,850	32,151	70,119	115,848	2,161,636	2,978,816	817,180	73%
2023	8	2	433,435	2,161,636	37,444	1,123	165,920	33,920	71,453	136,579	2,530,941	3,283,807	752,866	77%
2024	8	2	454,987	2,530,941	39,619	1,160	171,261	35,780	72,856	158,926	2,928,984	3,612,871	683,887	81%
2025	8	3	465,272	2,928,984	50,847	1,199	176,974	36,876	74,291	182,718	3,347,798	3,954,219	606,421	85%
2026	8	3	473,786	3,347,798	73,045	1,282	178,441	38,329	77,003	207,355	3,774,600	4,296,797	522,197	88%
2027	8	4	493,817	3,774,600	93,596	1,384	178,118	40,728	80,353	232,513	4,211,332	4,646,622	435,290	91%
2028	8	4	495,401	4,211,332	118,253	1,457	181,655	41,521	82,911	258,190	4,655,900	4,992,028	336,128	93%
2029	8	5	510,566	4,655,900	147,028	1,594	178,119	44,065	87,444	284,114	5,101,019	5,332,955	231,936	96%
2030	8	5	531,629	5,101,019	164,879	1,692	176,882	46,588	90,827	310,428	5,559,172	5,683,062	123,890	98%
2031	8	6	528,875	5,559,172	201,039	1,776	179,193	47,365	93,875	337,028	6,013,818	6,015,902	2,084	100%
2032	8	6	535,471	6,013,818	246,905	1,936	148,582	49,472	1,185	359,363	6,323,579	6,323,579	0	100%
2033	8	7	550,809	6,323,579	278,626	2,067	150,193	51,645	0	377,083	6,621,808	6,621,808	0	100%
2034	8	7	571,417	6,621,808	302,906	2,175	154,607	54,109	0	394,460	6,919,903	6,919,903	0	100%
2035	8	7	595,555	6,919,903	320,720	2,268	160,316	56,814	0	412,065	7,226,109	7,226,109	0	100%
2036	8	7	621,275	7,226,109	336,839	2,353	166,639	59,639	0	430,228	7,543,423	7,543,423	0	100%
2037	8	7	651,637	7,543,423	349,406	2,435	174,291	62,785	0	449,212	7,877,871	7,877,871	0	100%
2038	8	7	683,748	7,877,871	358,647	2,508	182,530	65,951	0	469,341	8,234,539	8,234,539	0	100%
2039	8	8	703,773	8,234,539	376,749	2,581	187,237	67,944	0	490,402	8,600,793	8,600,793	0	100%

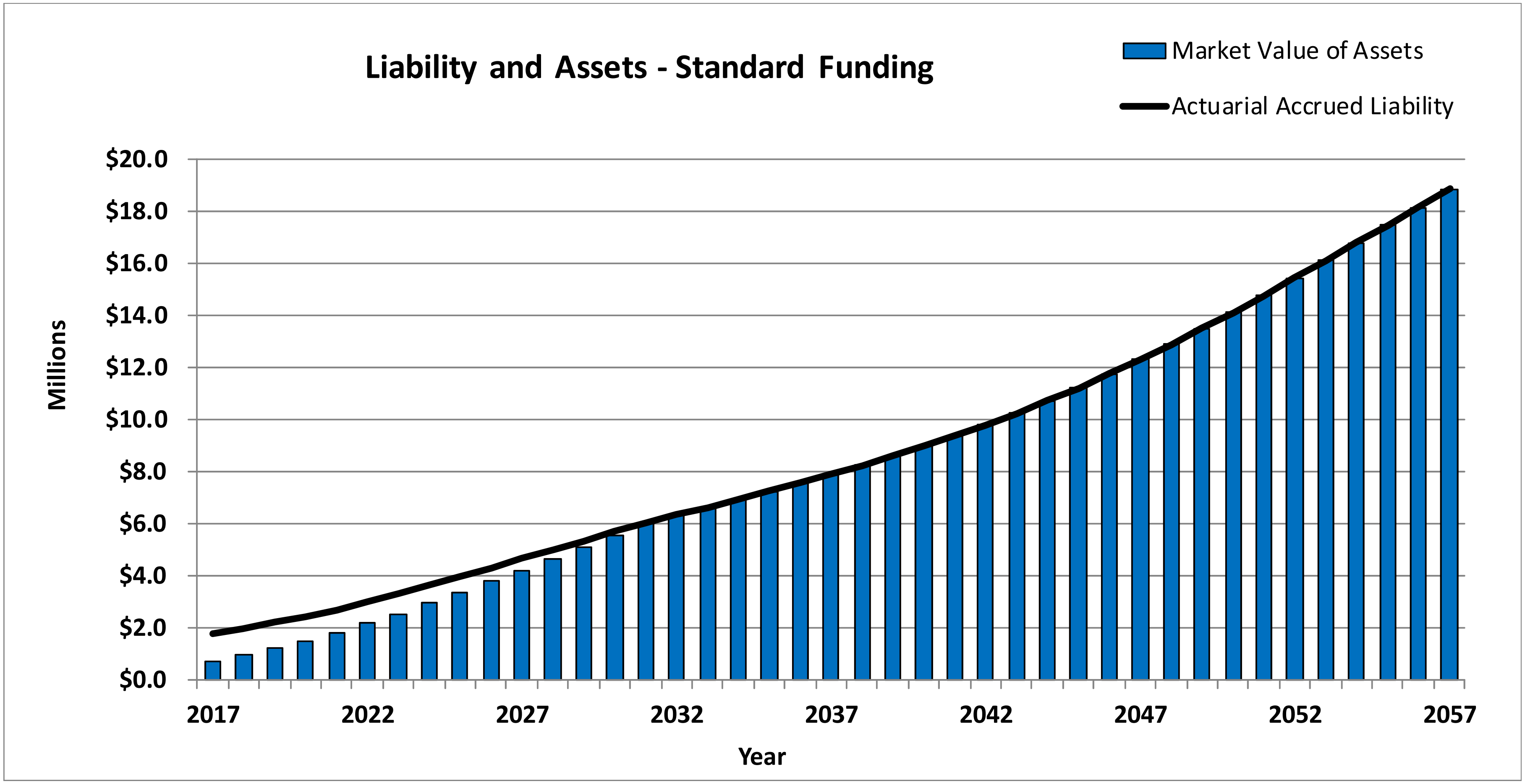
Actuarial Projections, Standard Funding, Table 2

Valuation Plan Year End 30-Jun[a]	Closed Group Payroll	New Entrant Payroll	Total Payroll	Employee Contributions	Gross Normal Cost	Net Employer Normal Cost	Amortization of UAAL	Premium Tax Allocation Contributions	Net Employer Amortization	Expenses	Employer Contribution Open Plan	
						Employer Contributions						
2018	$339,497	$0	$339,497	$25,863	$125,693	$99,830	$110,320	$65,234	$45,086	$954	$145,870	
2019	349,114	7,163	356,277	27,323	131,854	104,531	113,297	67,546	45,751	983	151,265	
2020	358,817	15,436	374,252	28,854	138,468	109,614	114,208	68,823	45,385	1,015	156,014	
2021	368,635	24,528	393,163	30,466	145,421	114,955	114,964	70,119	44,845	1,050	160,850	
2022	378,494	34,366	412,860	32,151	152,665	120,514	115,773	71,453	44,320	1,086	165,920	
2023	388,485	44,950	433,435	33,920	160,220	126,300	116,694	72,856	43,838	1,123	171,261	
2024	398,818	56,168	454,987	35,780	168,128	132,348	117,757	74,291	43,466	1,160	176,974	
2025	397,223	68,049	465,272	36,876	172,132	135,255	118,990	77,003	41,987	1,199	178,441	
2026	379,527	94,259	473,786	38,329	175,737	137,407	119,782	80,353	39,429	1,282	178,118	
2027	366,445	127,372	493,817	40,728	183,503	142,775	120,408	82,911	37,497	1,384	181,655	
2028	342,862	152,539	495,401	41,521	183,613	142,092	122,014	87,444	34,570	1,457	178,119	
2029	310,397	200,169	510,566	44,065	188,041	143,976	122,138	90,827	31,311	1,594	176,882	
2030	293,374	238,255	531,629	46,588	195,090	148,502	122,874	93,875	28,999	1,692	179,193	
2031	257,059	271,816	528,875	47,365	194,171	146,806	127,553	1,185	28,297	1,776	148,582	
2032	203,243	332,228	535,471	49,472	196,441	146,969	2,146	0	0	1,936	150,193	[b]
2033	163,231	387,578	550,809	51,645	201,298	149,653	0	0	0	2,067	154,607	[b]
2034	134,651	436,766	571,417	54,109	208,297	154,189	0	0	0	2,175	160,316	[b]
2035	113,949	481,607	595,555	56,814	216,760	159,946	0	0	0	2,268	166,639	[b]
2036	97,527	523,749	621,275	59,639	225,837	166,198	0	0	0	2,353	174,291	[b]
2037	85,969	565,668	651,637	62,785	236,689	173,904	0	0	0	2,435	182,530	[b]
2038	79,331	604,417	683,748	65,951	248,311	182,360	0	0	0	2,508	187,237	[b]

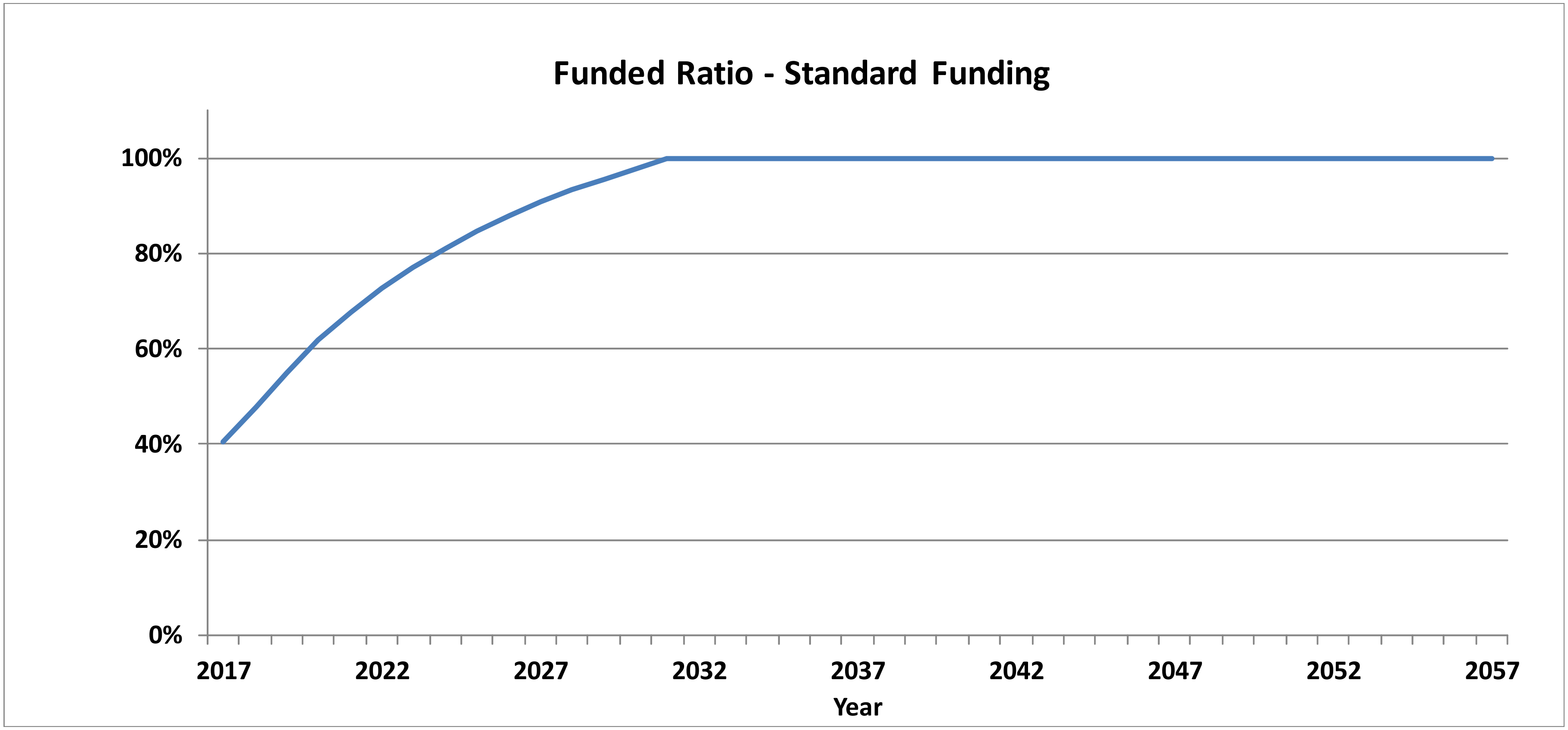
[a] *Assumes employer makes contributions for the applicable valuation plan year in the following fiscal year. Assumes the Premium Tax allocation is contributed in the following fiscal year.*

[b] *Amount required to remain at 100% funded.*

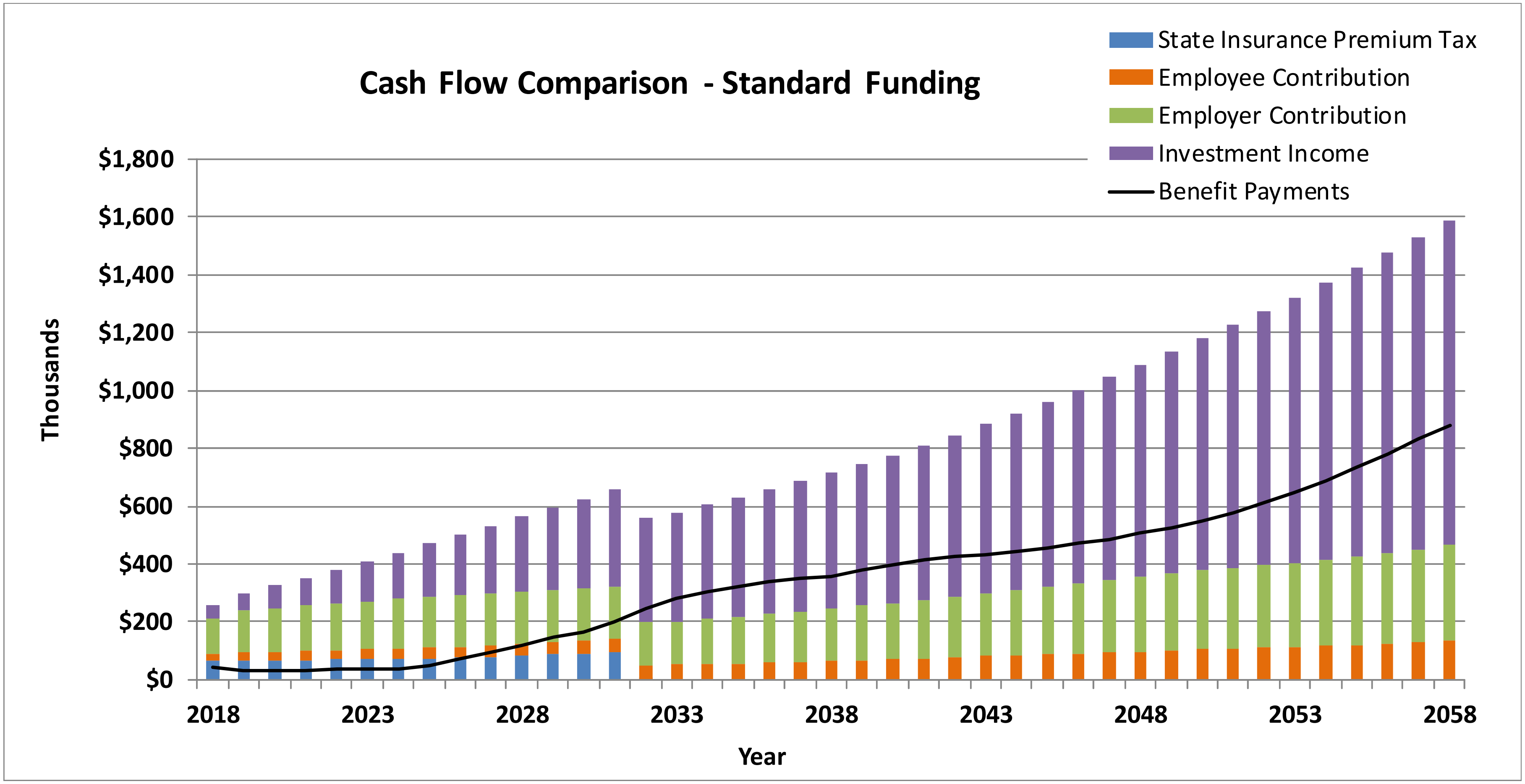
Actuarial Projections, Standard Funding, Graph 1



Actuarial Projections, Standard Funding, Graph 2



Actuarial Projections, Standard Funding, Graph 3



SECTION III

FUNDING POLICY CHOICES

Actuarial Projections – Standard and Optional Funding

Funding Policy Choices

West Virginia Code §8-22-20 allows a municipality's governing body (City Council) the choice of changing from the Standard funding policy to the Optional funding policy. The Optional funding policy is defined in West Virginia Code §8-22-20(e)(1), and is effective for plan years beginning after January 1, 2010.

If the City Council elects the Optional funding policy, the existing local Plan is closed, and new employees are covered in the multiple employer statewide plan – *Municipal Police Officers and Firefighters Retirement System.* Contributions to the statewide plan include:

- Employer contributions from 8.5% to 10.5% of pay. Currently, Employers contribute 8.5% of pay.
- Employee contributions of 8.5% of pay.

If the City Council elects the Optional funding policy, contributions to the closed local Plan include:

- Employer contributions equal to the normal cost, net of employee contributions, plus a 40-year closed period amortization from July 1, 1991, on a level dollar basis, of the unfunded actuarial accrued liability net of premium tax allocation applicable to the plan year.
- Employee contributions of 7.0% of pay if hired before January 1, 2010, which may be increased by up to 2.5% of pay if elected by the Board of trustees of the Plan. Employees hired after January 1, 2010, contribute 9.50% of pay.
- The premium tax allocation assigned to the Fund for the plan year.

For purposes of evaluating the implication of selecting the Optional funding policy, we have generated actuarial projections under the following scenario –

- The sponsor elects the Optional funding policy in plan year end June 30, 2019, applicable to fiscal year end June 30, 2020, contributions.

It is important to note that the plan sponsor can make only one election to the Optional funding policy, and that the election is irrevocable. The projections assume employer contributions of 10.5% of pay for future members covered under the statewide plan.

Actuarial Projections – Standard and Optional Funding (Continued)

Scenario I – Sponsor Immediately Elects the Optional Policy

The following table shows the employer contribution if the sponsor elects the Optional policy in plan year end 2019 applicable to fiscal year end 2020:

Total Employer Contributions for FYE June 30, 2020			
Funding Method	**Local Plan**	**Statewide Plan**	**Total**
Standard	$151,265	NA	$151,265
Optional	$149,391	$752	$150,143

Graphs I(1), I(2), and I(3) on the following pages, show the projected contribution and funded ratio pattern of the two funding policies. If the sponsor continues to make contributions under the Standard funding policy, employer contributions are projected to increase from $145,870 in fiscal year end 2019 to $148,582 for fiscal year end June 30, 2032, when the plan's funded ratio is projected to be 100%. After 2032, employer contributions are equal to net employer normal costs, on an open group basis.

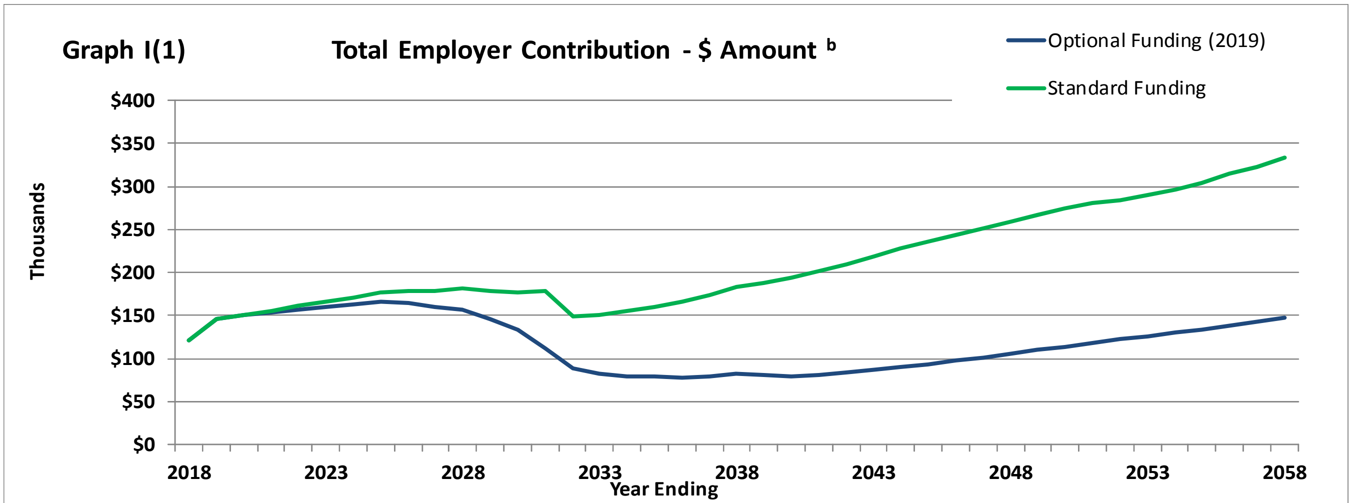
If the Optional funding policy is selected in plan year end 2019, total employer contributions to both the local plan and the statewide plan are projected to decrease from $151,265 to $150,143 in fiscal year end 2020. Total contributions are projected to decrease because employer contributions for new entrants under the statewide plan are fixed at 10.5% of pay, whereas the expected employer contributions for new entrants under the local plan are approximately equal to the net employer normal cost rate of 30% of pay.

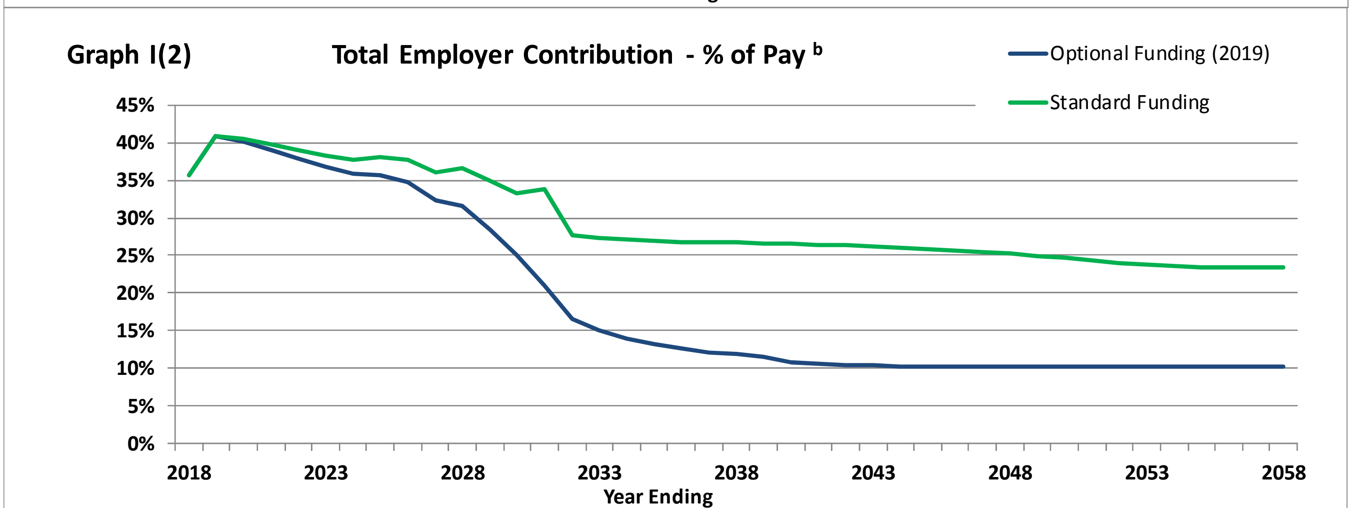
If the Optional funding policy is selected in fiscal year 2019, employer contributions to both the local plan and the statewide plan are projected to decrease from $150,143 in fiscal year 2020 to $111,409 in fiscal year 2031. After 2031, when the plan is projected to be fully funded, employer contributions are equal to net employer normal costs, for the closed local plan, plus 10.5% of pay for members covered under the statewide plan.

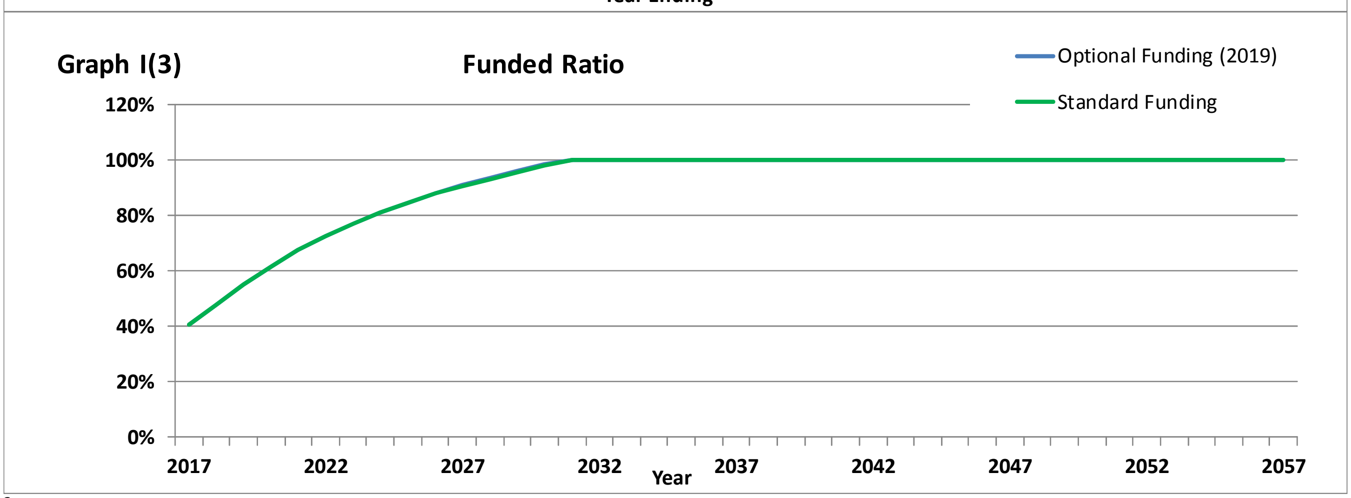
Both the Optional and Standard funding policies are consistent with actuarial standards of practice and produce a stable contribution pattern and reasonable growth in the funded ratio.

The details of the Optional funding policy projections can be found in the Appendix. The details of the Standard funding policy projection were presented in Section II.

Actuarial Projections – Standard and Optional Funding [a] (Continued)







[a] Assumes Sponsor elects Optional Funding Policy in 2019.

[b] Based on total pay and includes contributions for future members projected to participate in the statewide plan.

SECTION IV

ACTUARIALLY DETERMINED CONTRIBUTION FOR GASB STATEMENT NOS. 67. AND 68 REPORTING

Actuarially Determined Contribution for GASB Statement Nos. 67 and 68 Reporting

Schedule C: Funding Progress and Employer Contributions

Valuation Date	**July 1, 2015**	**July 1, 2016**
Valuation Interest Rate	6.00%	6.00%
Cost-of-Living Adjustment	2.75%	2.75%
Wage Inflation	3.75%	3.75%
Actuarial Value of Assets	Market	Market
Actuarial Cost Method	Entry Age Normal	Entry Age Normal
Remaining Amortization Period [a]	16 Years, Level Dollar	15 Years, Level Dollar
Schedule of Funding Progress		
Actuarial Valuation Date	**July 1, 2015**	**July 1, 2016**
1. Market Value of Assets	$596,085	$673,372
2. Actuarial Accrued Liability	$1,418,025	$1,582,470
3. Unfunded Actuarial Accrued Liability (2 - 1)	$821,940	$909,098
4. Funded Ratio (1/2)	42%	43%
5. Expected Payroll	$313,040	$321,722
6. UAAL as Percentage of Covered Payroll (3/5)	263%	283%
Schedule of Employer Contributions [c]	**FYE 2017**	**FYE 2018**
1. Actuarially Determined Contribution		
(a) Employer Normal Cost	$96,791	$94,303
(b) Amortization of Unfunded Actuarial Accrued Liability	$78,997	$90,916
(c) Actuarially Determined Contribution (ADC) (a + b)	$175,788	$185,219
2. Employer Contribution	$63,773	$120,802 [b]
3. Premium Tax Allocation	$28,513	$64,417
4. Percentage of ADC Contributed [(2 + 3)/1(c)]	52%	100%

[a] *Suggested amortization policy to comply with GASB Statement Nos. 67 and 68 Standards.*

[b] *Estimated employer contribution for fiscal year end June 30, 2018. Employer Contribution cannot be less than net Employer Normal Cost.*

[c] *Satisfies the Actuarially Determined Contribution as defined by GASB Statement Nos. 67 and 68.*

SECTION V

ACTUARIAL VALUATION DATA AS OF JULY 1, 2017

Actuarial Valuation Data as of July 1, 2017
Schedule D: Reconciliation of Assets

Plan Year Ending	June 30, 2016	June 30, 2017
A. Market Value of Assets End of Prior Year	$596,085	$673,372
Adjustment to Market Value of Assets at Beginning of Year	$0	($69,324)
Market Value of Assets Beginning of Year	$596,085	$604,048
1. Revenue During Fiscal Year		
(a) Employee Contribution	$21,178	$16,770
(b) Governmental Contribution		
(i) From Local Government	$0	$63,773
(ii) From State Government	$0	$28,513
(iii) Reallocation from State Government	$0	$0
(iv) Total	$0	$92,286
(c) Earnings on Investments		
(i) Net Appreciation/(Depreciation)	($11,314)	$17,064
(ii) Bond Interest	$15,891	$11,471
(iii) Dividends	$5,710	$7,708
(iv) Net Realized Gain (Loss) on Sale/Exchange	$0	($11,613)
(v) Other	$882	$437
(vi) Less Investment Expense	$0	$0
(vii) Total	$11,169	$25,067
(d) Other Revenue	$0	$0
(e) Receivable Investment Income/(Expense)	$0	$0
(f) Receivable Contribution [a]		
(i) From Employee Contributions	$0	$7,664
(ii) From Local Government	$40,811	$0
(iii) From State Government	$28,513	$0
(iv) Total	$69,324	$7,664
(g) Total Revenue (sum of (a) through (f))	$101,671	$141,787
2. Expenditures During Fiscal Year		
(a) Benefits Paid	$24,384	$24,384
(b) Withdrawals	$0	$0
(c) Administrative Expenses	$0	$0
(d) Payable Benefits and Withdrawals	$0	$0
(e) Payable Administrative Expenses	$0	$0
(f) Total Expenditures (sum of (a) through (e))	$24,384	$24,384
B. Market Value of Assets End of Year [A + 1(g) - 2(f)]	$673,372	$721,451
C. Approximate Return on Assets	1.88%	3.88%

[a] *Receivable contributions for each respective plan year ending.*

Actuarial Valuation Data as of July 1, 2017
Schedule E: Assets Held by Category

Plan Year Ending	**June 30, 2016**		**June 30, 2017**	
1. Cash and Short-term Investments	$68,791	10%	$20,837	3%
2. Government Securities				
(a) US Treasury Bills, Notes and Bonds	$0		$0	
(b) US State and Local Governmental Debt Securities	$14,885		$37,845	
(c) Foreign Governmental Debt Securities	$0		$73	
(d) Other	$0		$0	
(e) Total Government Securities (sum of (a) through (d))	$14,885	3%	$37,918	5%
3. Corporate Fixed Income				
(a) US Bonds	$277,498		$261,087	
(b) US Mortgage or other Asset Backed Securities	$0		$0	
(c) US Mutual Fund Shares (Bonds)	$0		$0	
(d) US Exchange Traded Funds (Bonds)	$0		$0	
(e) International Bonds	$0		$0	
(f) International Mutual Fund Shares (Bonds)	$0		$0	
(g) International Exchange Traded Funds (Bonds)	$0		$0	
(h) Total Corporate Fixed Income (sum of (a) through (g))	$277,498	41%	$261,087	36%
4. Corporate Equity				
(a) US Equity	$242,874		$393,945	
(b) US Mutual Fund Shares (Equity)	$0		$0	
(c) US Exchange Traded Funds (Equity)	$0		$0	
(d) International Equity	$0		$0	
(e) International Mutual Fund Shares (Equity)	$0		$0	
(f) International Exchange Traded Funds (Equity)	$0		$0	
(g) Total Corporate Equity (sum of (a) through (f))	$242,874	36%	$393,945	55%
5. Alternative Investments				
(a) Real Estate Investment Trust	$0		$0	
(b) Private Equity Fund	$0		$0	
(c) Hedge Funds	$0		$0	
(d) Other Alternative Investments	$0		$0	
(e) Total Alternative Investments (sum of (a) through (d))	$0	0%	$0	0%
6. Other	$0	0%	$0	0%
7. Receivable Contributions				
(a) From Employee Contributions	$0		$7,664	
(b) From Local Government	$40,811		$0	
(c) From State Government	$28,513		$0	
(d) Total Receivable Contributions (sum of (a) through (c))	$69,324	10%	$7,664	1%
8. Accruals				
(a) Receivable (other than State and Local Contributions)	$0		$0	
(b) Less Payable	$0		$0	
(c) Total	$0	0%	$0	0%
Market Value of Assets End of Year [sum of (1) through (8)]	**$673,372**		**$721,451**	

Actuarial Valuation Data as of July 1, 2017
Schedule F: Summary of Participant Activity

	Actives	Retirees	Disabled	Deferred Vested	Spouses and Beneficiaries	Totals
Total Participants July 1, 2016:	**8**	**1**	**0**	**0**	**1**	**10**
New Actives:						**0**
Returned to Actives Status:						**0**
Data Corrections/Other Changes:						**0**
Vested Terminations:						**0**
Non-Vested Terminations:						**0**
Disabled:						**0**
Retirements:						**0**
Deaths with Beneficiary:						**0**
Deaths w/o Beneficiary:						**0**
Expired Annuity or Stop Payment:						**0**
Net Changes:	0	0	0	0	0	**0**
Total Participants June 30, 2017:	**8**	**1**	**0**	**0**	**1**	**10**

Actuarial Valuation Data as of July 1, 2017
Schedule G: Distribution of Active Employees by Age and Length of Service

Attained Age	Years of Service to Valuation Date: Less than 1	1-4	5-9	10-14	15-19	20-24	25-29	30-34	Over 35	Totals	Valuation Payroll[a]
Under 20											$ 0
20-24											$ 0
25-29		1								1	$ 40,341
30-34											$ 0
35-39			1	3						4	$ 164,879
40-44			1		2					3	$ 129,422
45-49											$ 0
50-54											$ 0
55-59											$ 0
60-64											$ 0
65-69											$ 0
Over 70											$ 0
Totals	**0**	**1**	**2**	**3**	**2**	**0**	**0**	**0**	**0**	**8**	**$ 334,642**

Averages

Age:	38.0	years
Service:	10.6	years
Annual Pay:	$41,830	[a]

[a] *Based on payroll at beginning of plan year.*

Actuarial Valuation Data as of July 1, 2017
Schedule H: Participants Summary

Active Participants	July 1, 2016	July 1, 2017
Number of Actives	8	8
Total Annual Pay	$316,929	$334,642
Average Age	37.0	38.0
Average Service	9.6	10.6

Inactive Participants	July 1, 2016		July 1, 2017	
Type	No.	Annual Benefit	No.	Annual Benefit
Retirees	1	$14,596	1	$14,596
Survivors	1	$9,788	1	$9,788
Disabled Members	0	$0	0	$0
Deferred Vested Members	0	$0	0	$0

[a]Data provided includes 1 non-vested member with an accumulated contributions balance of $12,523.

SECTION VI

ACTUARIAL ASSUMPTIONS AND METHODS

Actuarial Assumptions and Methods
Used in the Valuation as of July 1, 2017

Discount Rate

The following table outlines the factors used to determine the discount rate:

Funded Ratio as of Valuation Date [1]	Liquidity Ratio [2]	Equity Exposure [3]	Projected Funded Ratio after 15 Years [1]	Discount Rate
60% or more	10	50% or more	70% or more	6.5%
40% or more	8	40% or more	60% or more	6.0%
30% or more	6	30% or more	50% or more	5.5%
15% or more	4	n/a	40% or more	5.0%
Less than 15%	n/a	n/a	15% or more	4.5%
Less than 15%	n/a	n/a	Less than 15%	4.0%

[1] Funded ratios based on a 6.0% investment return assumption for plans using an actuarially sound policy (standard or optional) and a 5.5% investment return assumption for other plans (alternative or conservation).
[2] Liquidity ratio equals assets as of the actuarial valuation date divided by expected benefit payments for the year.
[3] Based on investment policy.

As of June 30, 2017	
Assets	$721,451
Liabilities using a 6.00% discount rate	$1,777,186
Funded Ratio	41%
Expected Benefit Payments	$42,041
Liquidity Ratio	17.16
Equity Exposure	55%
Projected Funded Ratio after 15 years	100%

Discount Rate	6.00%

The premium tax allocation is projected using the following methodology:

(1) The Base Allocation for all Pension and Relief Funds is a fixed amount equal to $8,709,689 in all future years. This amount is allocated to each individual Pension and Relief Fund in proportion to the number of eligible members, which includes active members covered in either the Pension and Relief Fund or the statewide plan, Municipal Police Officers and Firefighters Retirement System (“MPFRS”).

(2) The Excess Allocation is equal to the excess of the current year premium tax assigned to all Pension and Relief Funds over the total Base Allocation. This amount is allocated to each individual Pension and Relief Fund in proportion to the number of eligible active and retired members covered in either the Pension and Relief Fund or the MPFRS.

(3) We have assumed all Pension and Relief Funds will make the minimum statutory contribution requirement and will receive 100% of both the Base Allocation and the Excess Allocation assigned to the individual plan. Consequently, the projections do not include any reallocation of Expired Premium Tax Allocation for plan years beginning on and after July 1, 2019.

(4) The total available premium tax allocation, net of expenses, as of September 1, 2018, includes a Base Allocation of $8,709,689, an Excess Allocation of $9,570,473, and an Expired Premium Tax Allocation of $237,031.

(5) For the plan year ending June 30, 2018, all Pension and Relief Funds reported a total of 1,717 eligible active members and 2,165 eligible retired members. The City of Logan Firemen’s Pension and Relief Fund reported 8 eligible active members and 2 eligible retired members, based on the average number of plan participants for the 12-month period ending June 30, 2018. The Fund is eligible to receive a premium tax allocation of $65,234 for the fiscal year ending June 30, 2019.

(6) The total premium tax allocation was assumed to increase by 2.75% in calendar years ending on and after 2019.

Actuarial Assumptions and Methods
Used in the Valuation as of July 1, 2017 (Continued)

General Inflation	2.75%
Expected Salary Increase Service-based Increase:	General Inflation: 2.75% *plus* Wage Inflation Increment: 1.00% *plus* Years of <u>Service</u> — <u>Increase</u> 1 — 20.00% 2 — 6.50% 3 — 3.50% 4 — 2.75% 5-9 — 2.50% 10-29 — 2.00% 30-34 — 1.25% after 34 years of service — 0.00%
Post-retirement COLA	2.75% on first $15,000 of Annual Benefit and on the accumulated supplemental pension amounts for prior years. Assumed to be payable to all members receiving payments.
Increase in State Insurance Premium Tax Allocation	2.75% on and after year 1
Cost Method	Entry-Age-Normal, Level-Percentage-of-Pay
Amortization Policies:	
Alternative Plans and former Alternative Plans that selected the Conservation Policy	For GASB 67/68 Accounting: 30 – Year Closed Level-Percentage-of-Pay Amortization (from July 1, 2010 – 23 years remaining as of July 1, 2017).
Standard Plans and former Standard Plans that selected the Optional Policy	For funding and GASB 67/68 Accounting: 40-Year Closed Level-Dollar Amortization (from July 1, 1991 – 14 years remaining as of July 1, 2017)
Former Alternative Plans that selected the Optional Policy	For funding: 40-Year Closed Level-Dollar Amortization (from January 1, 2010 – 32.5 years remaining as of July 1, 2017). For GASB 67/68 Accounting: 30-Year Closed Level-Percentage-of-Pay Amortization (from July 1, 2010 – 23 years remaining as of July 1, 2017)

Actuarial Assumptions and Methods
Used in the Valuation as of July 1, 2017 (Continued)

Asset Method	Market Value
Turnover	Sample Rates – Age / Rates 25 / 9% 35 / 4% 45 / 2% 50 / 0%
Retirement	Age / Rates[a] 50 / 45% 51-55 / 30% 56-59 / 35% 60 / 100% [a] *Terminated vested participants are assumed to retire at age 50.*
Mortality	Active: RP-2014 Blue Collar Healthy Employee[b] Post-Retirement: RP-2014 Blue Collar Healthy Annuitant Disabled: RP-2014 Blue Collar Healthy Annuitant set forward four years Tables above incorporate generational mortality improvement using MP-2014 2-dimensional mortality improvement scales [b] *Assumes 10% of deaths are duty-related and 90% are non-duty related.*
Disability	Sample Rates – Age / Rates[c] 30 / 0.22% 40 / 0.50% 50 / 0.79% [c] *Assumes 60% duty related and 40% non-duty related. Also assumes 10% of non-duty disabled members receive a 20% reduction in benefits due to gainful employment.*
Percent Married	90%
Spouse Age	Females 3 years younger than males

Actuarial Assumptions and Methods
Used in the Valuation as of July 1, 2017 (Continued)

Administrative Expenses	The sponsor did not appear to provide separate investment and administrative expenses. Administrative expenses used are equal to 0.25% of expected pay plus 0.25% of expected benefits. Future expenses assumed to increase by the general inflation assumption.
Refunds Paid	Assumes non-vested inactive members as of July 1, 2017, with accumulated member contribution balances will receive a refund of their contributions during plan year end June 30, 2018.
Data Adjustments and Assumptions	None
Child Beneficiaries	Future survivor widow benefits are loaded by 12% to estimate impact of benefits provided to survivor children. The load assumes 90% of members are married with two children at time of death, and benefits for each child are paid for approximately 8 years.
General Projection Methodology	Open group projections assume: (i) Salaries will increase and members will decrement as specified in the actuarial assumption section. (ii) Active members who retire, become disabled, die or terminate during the year are replaced with new entrants such that the number of active members remains stable during the projections period. Pay for new entrants in future years is increased by the wage inflation assumption. The average age of a new entrant is based on observed experience over the last five years. (iii) Assets grow at the assumed rate of return. (iv) The sponsor makes the statutory required contribution on a monthly basis. (v) Non-vested members with accumulated plan balances as of July 1, 2017, will receive a refund during plan year end June 30, 2018. Closed group projections are the same as the open group projections except active members who retire, become disabled, die, or terminate are <u>not</u> replaced with new entrants.
Decrement Timing	Mid-Year

Section VII

Summary of Principal Plan Provisions

Summary of Principal Plan Provisions
Actuarial Valuation as of July 1, 2017

Employee Eligibility — All compensated employees of the Fire Department are eligible to participate in the Firemen's Pension and Relief Fund.

Average Annual Compensation — The average of any three twelve-consecutive-month periods of employment which produces the highest average annual compensation.

Each twelve-consecutive-month annual compensation is limited to 120% of the *Average Adjusted Salary* received by the member in the two consecutive twelve-consecutive-month periods immediately preceding the twelve-consecutive-month period used in determining benefits.

The *Average Adjusted Salary* is base salary (exclusive of all overtime and other pay) of the year used in determining benefits multiplied by the ratio of total salary (includes all overtime and other pay) to base salary from the respective preceding twelve-consecutive-month period.

Determining Years of Service Credit (Credited Service**)** — The number of years that the member has contributed to the employees retirement and benefit fund.

Prior Military Service — A city may provide that members who have been honorably discharged from the military shall receive up to two years prior service credit for military service prior to their employment with the city.

Current Military Service — Any current member who has been on qualified military service in the armed forces of the United States with an honorable discharge may, within six months from his or her date of discharge, be given credit for continuous service in the paid police or fire department.

Any member who has served in active duty with the armed forces of the United States, whether prior to or subsequent to becoming a member of a paid police or fire department, shall receive one additional percent for each year so served in active military duty, up to a maximum of four additional percent.

Absence from the service because of sickness or injury for a period of two years or less shall not be construed as time out of service.

Contributions — Participating employees contribute 7.0% of compensation. Participating employees hired on or after January 1, 2010, contribute 9.5% of pay. The municipality has elected to contribute the minimum employer contribution under the Standard funding policy.

Normal Retirement — Members are eligible at the earlier of age 50 with 20 years of credited service or age 65.

Benefit Commencement — Annual retirement pension benefits commence upon retirement or upon the member attaining age fifty, whichever is later, payable in twelve monthly installments.

Accrued Benefit — The annual retirement benefit equals 60% of average annual compensation, not less than $6,000, plus an additional percentage of average annual compensation for service over 20 years equal to 2% for each year of service between 20 and 25 and 1% for each year of service between 25 and 30 years. Employees serving in the military are eligible for an additional 1% of average annual compensation for each year of military service up to four years. The maximum benefit is limited to 75% of average annual compensation. Benefits continue for life.

Disability Retirement — Members are eligible after earning five years of service. No service requirement if disability is service related.

The monthly disability benefit equals the greater of 60% of monthly salary at disability or $500. Employees serving in the military are eligible for an additional benefit of 1% of monthly salary at disability for each year of military service up to four years. Disability benefits, when aggregated with monthly state workers compensation benefits, shall not exceed 100% of the member's monthly compensation at the time of disability. Benefits continue for life or until recovery.

Death Benefits — Members are eligible after earning five years of service. No service requirement if death is service related. Retirees and terminated vested participants are also eligible.

The benefit is equal to 60% of the participant's benefit, but not less than $300 per month, payable to the spouse until death or remarriage. Other dependents (children, parents, brothers and sisters) are also eligible for death benefits. To each dependent child, 20 percent of the participant's benefit until the child attains eighteen or marries; to each dependent orphaned child, 25 percent of the participant's benefit until the child attains 18 or marries; to each dependent parent, 10 percent of the participant's benefit for life and to each dependent brother or sister, the sum of $50 per month (but a total not to exceed $100 per month) until such individual attains the age of 18 years or marries.

In no case shall the payments to the surviving spouse and children be reduced below 65 percent of the total amount paid to all dependents.

Supplemental Pension Benefits — All retirees, surviving beneficiaries and disability pensioners are eligible for automatic cost-of-living benefits commencing on the first day of July following two years of retirement. The benefits equal the percentage increase in the Consumer Price Index, limited to 4% (2% for some disability retirees), multiplied by the sum of the allowable amount which is the first $15,000 of the total annual benefits paid and the accumulated supplemental pension amounts for prior years.

Termination Benefits — Any member who terminates employment prior to retirement will be entitled to a refund of contributions without interest.

Refunds — Any member who terminates from their department without receiving a retirement pension shall be refunded all deductions made from his salary, without interest. Any member who receives such a refund and subsequently wishes to reenter the department must repay to the pension fund all sums refunded with interest at the rate of eight percent annual.

SECTION VIII

APPENDIX – PROJECTION DATA

Actuarial Projections – Optional Funding in 2019
Table A-1

Valuation Plan Year End 30-Jun	Number: Active	Number: Pay Status	Closed Group Payroll	Total Assets: Assets (boy)	Total Assets: Benefit Payments	Total Assets: Administrative Expenses	Total Assets: Employer Contributions	Total Assets: Member Contributions	Total Assets: Premium Tax Allocation Contributions	Total Assets: Investment Income	Total Assets: Assets (eoy)	Actuarial Accrued Liability	Unfunded Liability	Funded Ratio
2017	8	2	$321,722	$604,048	$24,384	$0	$63,773	$24,434	$28,513	$25,067	$721,451	$1,777,186	$1,055,735	41%
2018	8	2	339,497	721,451	42,041	954	120,802	25,863	64,417	48,256	937,794	1,970,426	1,032,632	48%
2019	8	2	349,114	937,794	30,291	960	145,870	26,585	65,234	62,371	1,206,603	2,190,510	983,907	55%
2020	7	2	358,817	1,206,603	31,263	968	149,391	27,311	67,546	78,664	1,497,284	2,426,581	929,297	62%
2021	7	2	368,635	1,497,284	33,168	979	151,709	28,046	68,823	96,177	1,807,891	2,678,549	870,658	67%
2022	7	2	378,494	1,807,891	35,146	990	153,805	28,781	70,119	114,876	2,139,336	2,947,460	808,124	73%
2023	7	2	388,485	2,139,336	37,074	1,000	155,878	29,526	71,453	134,828	2,492,946	3,234,381	741,435	77%
2024	6	2	398,818	2,492,946	39,061	1,011	157,959	30,300	72,856	156,111	2,870,099	3,540,340	670,241	81%
2025	6	3	397,223	2,870,099	50,056	1,023	160,163	30,246	74,291	178,521	3,262,242	3,853,045	590,803	85%
2026	5	3	379,527	3,262,242	71,967	1,036	157,851	29,075	77,003	201,379	3,654,546	4,155,880	501,334	88%
2027	5	4	366,445	3,654,546	92,135	1,056	149,871	28,233	80,353	224,158	4,043,969	4,451,769	407,800	91%
2028	4	4	342,862	4,043,969	116,253	1,076	142,832	26,656	82,911	246,631	4,425,670	4,731,250	305,580	94%
2029	4	5	310,397	4,425,670	144,374	1,096	129,567	24,459	87,444	268,379	4,790,049	4,985,330	195,281	96%
2030	3	5	293,374	4,790,049	161,438	1,115	112,283	23,360	90,827	289,292	5,143,258	5,230,084	86,826	98%
2031	2	6	257,059	5,143,258	196,657	1,136	86,392	20,929	78,708	308,248	5,439,742	5,439,742	0	100%
2032	2	6	203,243	5,439,742	241,471	1,156	59,966	17,015	0	321,488	5,595,584	5,595,584	0	100%
2033	1	7	163,231	5,595,584	271,924	1,175	47,879	13,860	0	329,487	5,713,711	5,713,711	0	100%
2034	1	7	134,651	5,713,711	294,668	1,194	39,210	11,612	0	335,579	5,804,250	5,804,250	0	100%
2035	1	7	113,949	5,804,250	310,728	1,212	32,950	9,997	0	340,302	5,875,559	5,875,559	0	100%
2036	1	7	97,527	5,875,559	324,945	1,232	27,917	8,726	0	343,974	5,929,999	5,929,999	0	100%
2037	1	7	85,969	5,929,999	335,595	1,252	24,344	7,830	0	346,793	5,972,119	5,972,119	0	100%
2038	1	7	79,331	5,972,119	342,787	1,271	22,331	7,320	0	349,032	6,006,744	6,006,744	0	100%
2039	0	7	61,011	6,006,744	358,546	1,290	17,392	5,661	0	350,448	6,020,409	6,020,409	0	100%

Actuarial Projections – Optional Funding in 2019
Table A-2

Valuation Plan Year End 30-Jun[a]	Closed Group Payroll	New Entrant Payroll	Total Payroll	Employee Contributions	Gross Normal Cost	Net Employer Normal Cost	Amortization of UAAL	Premium Tax Allocation Contributions	Net Employer Amortization	Expenses	Optional Employer Contribution	Statewide Employer Contribution
				Employer Contributions								
2018	$339,497	$0	$339,497	$25,863	$125,693	$99,830	$110,320	$65,234	$45,086	$954	$145,870	$0
2019	349,114	7,163	356,277	26,585	129,265	102,680	113,297	67,546	45,751	960	149,391	752
2020	358,817	15,436	374,252	27,311	132,886	105,575	113,988	68,823	45,165	968	151,709	1,621
2021	368,635	24,528	393,163	28,046	136,546	108,500	114,445	70,119	44,326	979	153,805	2,575
2022	378,494	34,366	412,860	28,781	140,224	111,443	114,898	71,453	43,445	990	155,878	3,608
2023	388,485	44,950	433,435	29,526	143,939	114,413	115,401	72,856	42,545	1,000	157,959	4,720
2024	398,818	56,168	454,987	30,300	147,774	117,474	115,969	74,291	41,678	1,011	160,163	5,898
2025	397,223	68,049	465,272	30,246	147,461	117,215	116,616	77,003	39,613	1,023	157,851	7,145
2026	379,527	94,259	473,786	29,075	141,565	112,490	116,697	80,353	36,344	1,036	149,871	9,897
2027	366,445	127,372	493,817	28,233	137,323	109,090	115,597	82,911	32,686	1,056	142,832	13,374
2028	342,862	152,539	495,401	26,656	128,283	101,627	114,308	87,444	26,864	1,076	129,567	16,017
2029	310,397	200,169	510,566	24,459	115,435	90,976	111,038	90,827	20,211	1,096	112,283	21,018
2030	293,374	238,255	531,629	23,360	108,637	85,277	103,455	78,708	24,747	1,115	86,392	25,017
2031	257,059	271,816	528,875	20,929	95,495	74,566	89,393	0	89,393	1,136	59,966	28,541[b]
2032	203,243	332,228	535,471	17,015	75,829	58,814	0	0	0	1,156	47,879	34,884[b]
2033	163,231	387,578	550,809	13,860	60,556	46,696	0	0	0	1,175	39,210	40,696[b]
2034	134,651	436,766	571,417	11,612	49,633	38,021	0	0	0	1,194	32,950	45,860[b]
2035	113,949	481,607	595,555	9,997	41,732	31,735	0	0	0	1,212	27,917	50,569[b]
2036	97,527	523,749	621,275	8,726	35,407	26,681	0	0	0	1,232	24,344	54,994[b]
2037	85,969	565,668	651,637	7,830	30,926	23,096	0	0	0	1,252	22,331	59,395[b]
2038	79,331	604,417	683,748	7,320	28,376	21,056	0	0	0	1,271	17,392	63,464[b]
2039	61,011	642,763	703,773	5,661	21,769	16,108	0	0	0	1,290	11,159	67,490[b]

[a] *Assumes employer makes Optional Policy contributions to the closed local plan in the fiscal year following the valuation year. Assumes the Premium Tax allocation is contributed in the following fiscal year.*

[b] *Amount required to remain at 100% funded.*