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

Actuarial Valuation Report for the Year Beginning July 1, 2017

September 20, 2018

Mr. Jeff Vallet	Police Officer James L. Shepperd
City Treasurer	Pension Board Secretary
219 Dingess Street	City of Logan Policemen's Pension and Relief Fund
Logan, WV 25601	

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

Dear Mr. Vallet and Police Officer Shepperd:

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 Policemen'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 5.50%. 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, FSA, EA, MAAA, FCA	Lance Weiss, EA, MAAA, FCA
Senior Consultant	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 Policemen'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 contribution 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 valuation assumes the City will be able to make the statutory minimum contributions on 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 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	$740,523
Actuarial Accrued Liability	$2,105,310
Unfunded Actuarial Accrued Liability	$1,364,787
Funded Ratio	35.17%

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	$279,370
Employer Normal Cost for PYE 06/30/2017	$101,226
Employer Normal Cost Rate for PYE 06/30/2017	36.2%
Amortization of Unfunded Actuarial Liability for PYE 06/30/2017	$121,280
State Insurance Premium Tax Allocation for FYE 06/30/2018	$49,589
Estimated Employer Contribution for FYE 06/30/2018 [a]	$172,917

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	$272,738
Employer Normal Cost for PYE 06/30/2018	$95,895
Employer Normal Cost Rate for PYE 06/30/2018	35.2%
Amortization of Unfunded Actuarial Liability for PYE 06/30/2018	$138,559
State Insurance Premium Tax Allocation for FYE 06/30/2019	$57,696
Estimated Employer Contribution for FYE 06/30/2019 [a]	$176,758

[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.*

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 38% (using a testing interest rate of 6.00% for all plans using the Standard funding policy), ratio of assets to benefits of 15.76, equity allocation of 55%, and 15-year projected funded ratio of 100%, resulted in a discount rate assumption of 5.50%.

- The Fund experienced an approximate annualized return of 8.46% on the market value of assets during the plan year ending June 30, 2017, which compares to the expected annualized return of 5.50%. The difference in actual versus expected return produced an asset (gain)/loss of $(19,373).

- 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 ($18,503) 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 5.50%:

Executive Summary (Continued)

- Employer contributions are projected to decrease from $176,758 for the fiscal year end June 30, 2019, to $146,308 for fiscal year end June 30, 2032, when the plan reaches 100% funding.
- The funded ratio is projected to increase from 35% in 2017 to 100% in 2032.

<u>The Standard funding policy contribution policy is consistent with generally accepted actuarial principles.</u>

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 5.50%, 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		5.50%		5.50%
Cost-of-Living Adjustment		2.75%		2.75%
Wage Inflation		3.75%		3.75%
Expected Payroll		$279,370		$272,738
Average Pay		$39,910		$38,963
Expected Benefit Payments		$22,974		$46,975
1. Actuarial Accrued Liability	No.		No.	
(a) Actives	7	$1,714,866	7	$1,318,429
(b) Retirees	1	$227,973	2	$786,881
(c) Survivors	0	$0	0	$0
(d) Disabled Members	0	$0	0	$0
(e) Deferred Vested Members	0	$0	0	$0
(f) Total	8	$1,942,839	9	$2,105,310
2. Present Value of Future Normal Costs		$1,083,346		$1,214,110
3. Present Value of Benefits (1(f) + 2)		$3,026,185		$3,319,420
4. Market Value of Assets		$692,450		$740,523
5. Unfunded Actuarial Accrued Liability (1(f) - 4)		$1,250,389		$1,364,787
6. Funded Ratio (4 / 1(f))		35.64%		35.17%
7. Net Employer Normal Cost				
(a) Normal Cost		$121,734		$116,577
(b) Administrative Expenses		$756		$799
(c) Gross Normal Cost (a + b)		$122,490		$117,376
(d) Employee Contribution Rate [a]		7.61%		7.88%
(e) Expected Employee Contributions		$21,264		$21,481
(f) Net Employer Normal Cost (c - e)		$101,226		$95,895
(% of Compensation)		36.23%		35.16%
8. Estimated Minimum Employer Contribution [b]		**FYE 2018**		**FYE 2019**
(a) Expected Payroll		$279,370		$272,738
(b) Estimated Employer Normal Cost		$101,226		$95,895
(c) Employer Normal Cost Rate		36.23%		35.16%
(d) Amortization of Unfunded Actuarial Liability		$121,280		$138,559
(e) State Insurance Premium Tax Allocation		$49,589		$57,696
(f) Estimated Employer Contribution[c] (b + d - e)		**$172,917**		**$176,758**

[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	$1,942,839
	(b) Normal Cost due 7/1/2016	$121,734
	(c) Interest on (a) and (b) to 6/30/2017	$110,204
	(d) Benefit Payments with interest to 6/30/2017	$50,964
	(e) Effect of Assumption Changes	$0
	(f) Expected Liability at 7/1/2017 [(a) + (b) + (c) - (d) + (e)]	$2,123,813
	(g) Actual Liability at 7/1/2017	$2,105,310
	(h) Liability (Gain)/Loss [(g) - (f)]	**($18,503)**
2.	(a) Market Value of Assets as of 7/1/2016[a]	$628,493
	(b) Interest on (a) to 6/30/2017	$34,567
	(c) Contributions with interest to 6/30/2017	$109,054
	(d) Benefit Payments with interest to 6/30/2017	$50,964
	(e) Expected Assets at 6/30/2017 [(a) + (b) + (c) - (d)]	$721,150
	(f) Actual Assets at 7/1/2017	$740,523
	(g) Asset (Gain)/Loss [(e) - (f)]	**($19,373)**
3.	Total (Gain)/Loss [1(h) + 2(g)]	**($37,876)**

[a] *After Market Value of Assets adjustment of ($63,507).*

SECTION II

ACTUARIAL PROJECTIONS

CURRENT FUNDING POLICY – STANDARD

Actuarial Projections, Standard Funding, Table 1

Valuation Plan Year End 30-Jun	Number Active	Number Pay Status	Total Payroll	Total Assets: Assets (boy)	Benefit Payments	Expenses	Employer Contributions	Employee Contributions	Premium Tax Allocation Contributions	Investment Income	Assets (eoy)	Actuarial Accrued Liability	Unfunded Liability	Funded Ratio
2017	7	2	$279,370	$628,493	$49,600	$0	$63,773	$19,379	$23,146	$55,332	$740,523	$2,105,310	$1,364,787	35%
2018	7	2	272,738	740,523	46,975	799	172,917	21,481	49,589	46,053	982,789	2,292,575	1,309,786	43%
2019	7	3	281,345	982,789	55,271	826	176,758	22,509	57,696	59,503	1,243,158	2,485,630	1,242,472	50%
2020	7	3	295,421	1,243,158	67,227	894	177,642	24,225	61,013	73,658	1,511,576	2,683,181	1,171,605	56%
2021	7	3	310,466	1,511,576	73,841	937	181,033	25,702	62,580	88,415	1,794,529	2,891,546	1,097,017	62%
2022	7	3	318,318	1,794,529	83,241	977	185,349	26,661	64,057	103,904	2,090,282	3,104,718	1,014,436	67%
2023	7	4	328,718	2,090,282	96,287	1,043	185,919	28,087	66,341	119,931	2,393,229	3,319,757	926,528	72%
2024	7	4	342,971	2,393,229	106,903	1,105	186,206	29,721	68,538	136,416	2,706,102	3,541,107	835,005	76%
2025	7	4	359,308	2,706,102	114,686	1,159	188,313	31,423	70,521	153,567	3,034,082	3,773,191	739,109	80%
2026	7	4	368,436	3,034,082	126,564	1,209	191,901	32,597	72,439	171,465	3,374,710	4,009,025	634,315	84%
2027	7	5	379,669	3,374,710	141,270	1,286	192,148	34,251	75,213	189,924	3,723,689	4,246,176	522,487	88%
2028	7	5	397,213	3,723,689	153,572	1,361	191,803	36,317	78,020	208,906	4,083,801	4,490,330	406,529	91%
2029	7	5	416,815	4,083,801	162,386	1,422	194,452	38,372	80,411	228,663	4,461,891	4,746,880	284,989	94%
2030	7	5	438,259	4,461,891	169,641	1,479	199,702	40,559	82,688	249,523	4,863,244	5,019,158	155,914	97%
2031	7	5	451,598	4,863,244	180,687	1,532	207,871	41,924	84,886	271,615	5,287,321	5,300,308	12,987	100%
2032	7	6	466,978	5,287,321	196,073	1,613	146,308	43,600	15,969	291,025	5,586,537	5,586,537	0	100%
2033	7	6	487,782	5,586,537	208,600	1,691	154,803	45,708	0	306,994	5,883,752	5,883,752	0	100%
2034	7	6	511,449	5,883,752	217,718	1,759	162,288	47,988	0	323,357	6,197,908	6,197,908	0	100%
2035	7	6	536,790	6,197,908	225,123	1,823	170,475	50,447	0	340,721	6,532,606	6,532,606	0	100%
2036	7	6	563,574	6,532,606	231,317	1,884	179,081	53,056	0	359,264	6,890,806	6,890,806	0	100%
2037	7	6	575,382	6,890,806	250,586	1,944	184,825	54,457	0	378,635	7,256,192	7,256,192	0	100%
2038	7	7	589,421	7,256,192	279,314	2,048	191,085	55,973	0	398,160	7,620,048	7,620,048	0	100%
2039	7	7	614,509	7,620,048	296,644	2,160	197,308	58,203	0	417,928	7,994,683	7,994,683	0	100%

Actuarial Projections, Standard Funding, Table 2

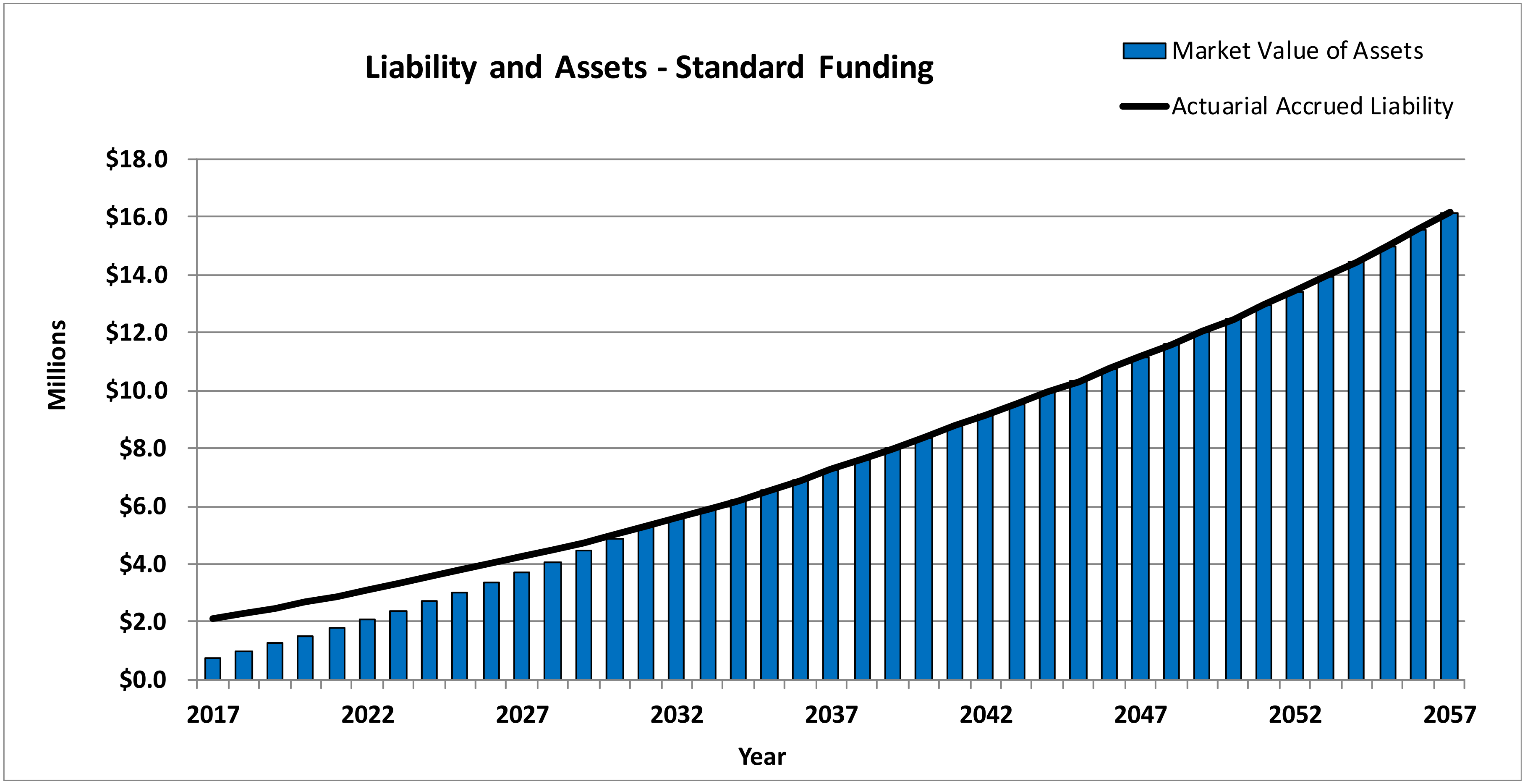
Employer Contributions

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
2018	$272,738	$0	$272,738	$21,481	$116,577	$95,096	$138,559	$57,696	$80,863	$799	$176,758
2019	273,502	7,843	281,345	22,509	120,470	97,960	139,868	61,013	78,855	826	177,642
2020	266,284	29,138	295,421	24,225	126,590	102,365	140,355	62,580	77,775	894	181,033
2021	265,734	44,731	310,466	25,702	133,220	107,517	140,952	64,057	76,895	937	185,349
2022	259,188	59,130	318,318	26,661	136,249	109,589	141,694	66,341	75,353	977	185,919
2023	247,142	81,576	328,718	28,087	139,726	111,639	142,062	68,538	73,524	1,043	186,206
2024	239,544	103,427	342,971	29,721	145,049	115,327	142,402	70,521	71,881	1,105	188,313
2025	236,582	122,726	359,308	31,423	151,554	120,131	143,050	72,439	70,611	1,159	191,901
2026	228,051	140,385	368,436	32,597	154,702	122,105	144,046	75,213	68,833	1,209	192,148
2027	212,646	167,024	379,669	34,251	158,170	123,919	144,618	78,020	66,598	1,286	191,803
2028	203,293	193,921	397,213	36,317	164,693	128,377	145,125	80,411	64,714	1,361	194,452
2029	200,676	216,139	416,815	38,372	172,639	134,268	146,701	82,688	64,013	1,422	199,702
2030	201,030	237,229	438,259	40,559	181,559	141,000	150,278	84,886	65,392	1,479	207,871
2031	194,419	257,179	451,598	41,924	186,700	144,776	160,144	15,969	72,104	1,532	146,308
2032	179,588	287,390	466,978	43,600	192,153	148,553	13,339	0	0	1,613	154,803 [b]
2033	169,362	318,421	487,782	45,708	200,187	154,479	0	0	0	1,691	162,288 [b]
2034	164,769	346,679	511,449	47,988	209,832	161,843	0	0	0	1,759	170,475 [b]
2035	162,736	374,054	536,790	50,447	220,417	169,970	0	0	0	1,823	179,081 [b]
2036	162,386	401,188	563,574	53,056	231,783	178,728	0	0	0	1,884	184,825 [b]
2037	146,802	428,580	575,382	54,457	238,957	184,500	0	0	0	1,944	191,085 [b]
2038	118,939	470,483	589,421	55,973	247,574	191,602	0	0	0	2,048	197,308 [b]

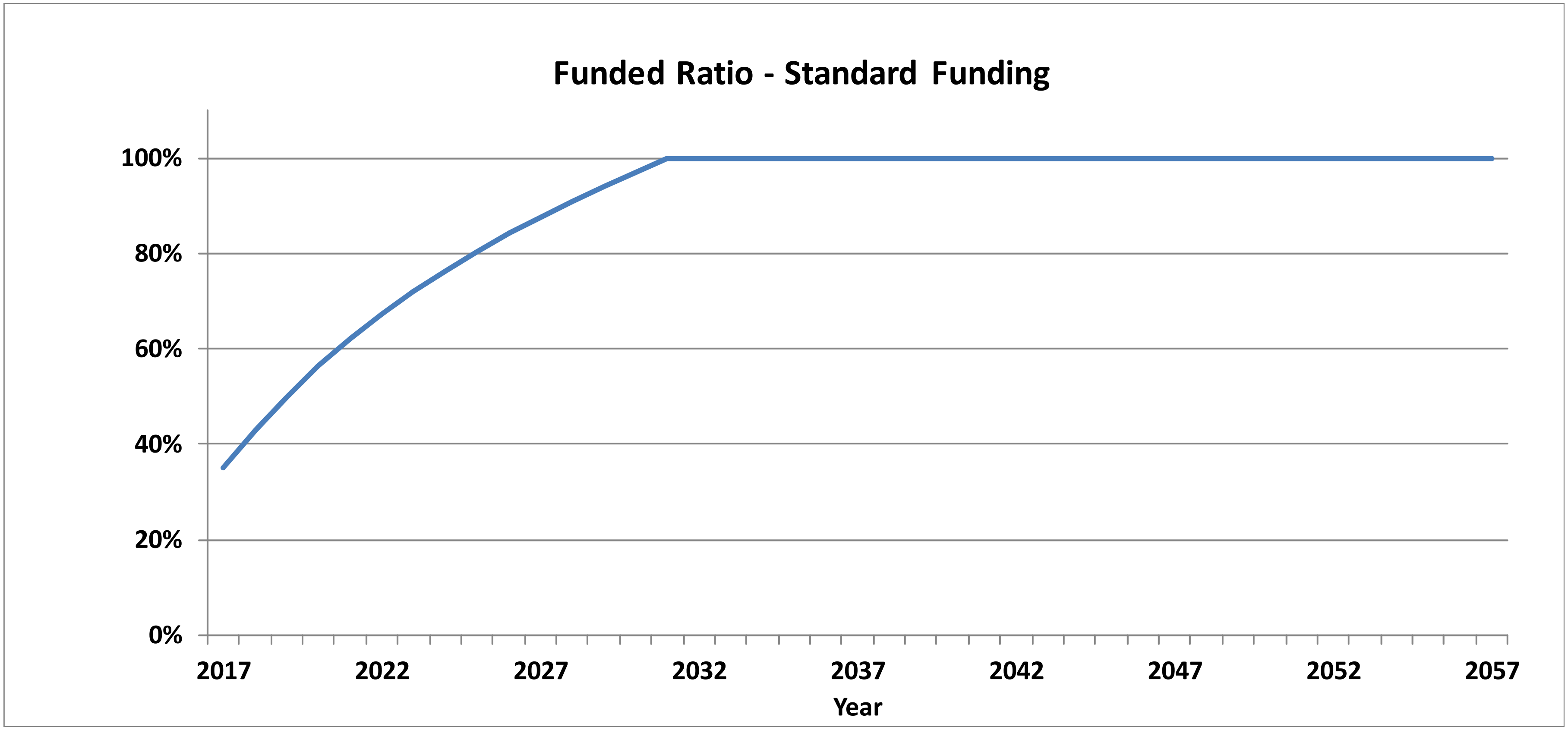
[a] *Assumes employer makes contributions for the applicable valuation plan year in the following fiscal year. Assumes the Premium Tax allocation is contributed in the following fiscal year.*

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

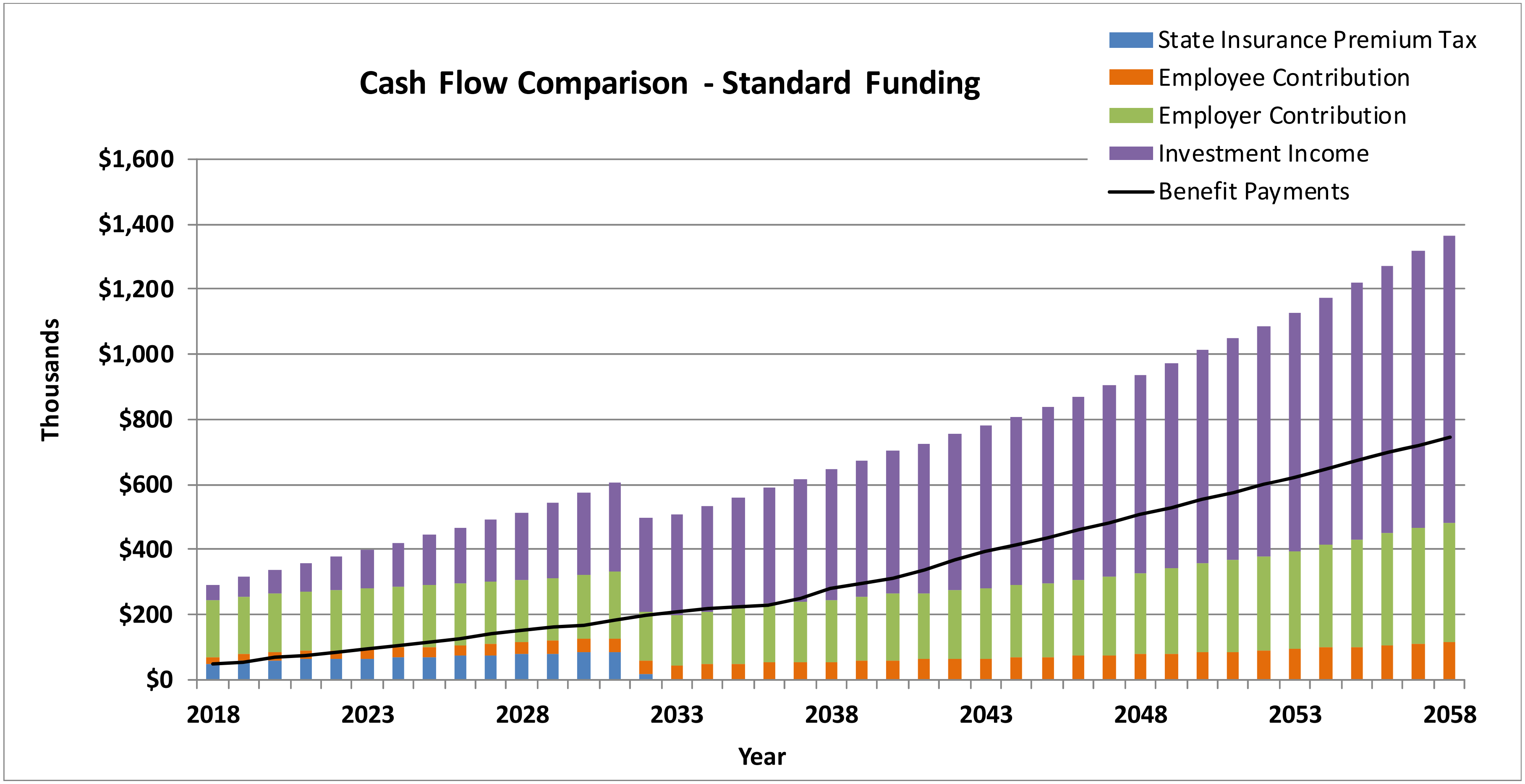
Actuarial Projections, Standard Funding, Graph 1



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	$177,642	NA	$177,642
Optional	$175,194	$824	$176,018

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 decrease from $176,758 in fiscal year end 2019 to $146,308 for fiscal year end 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.

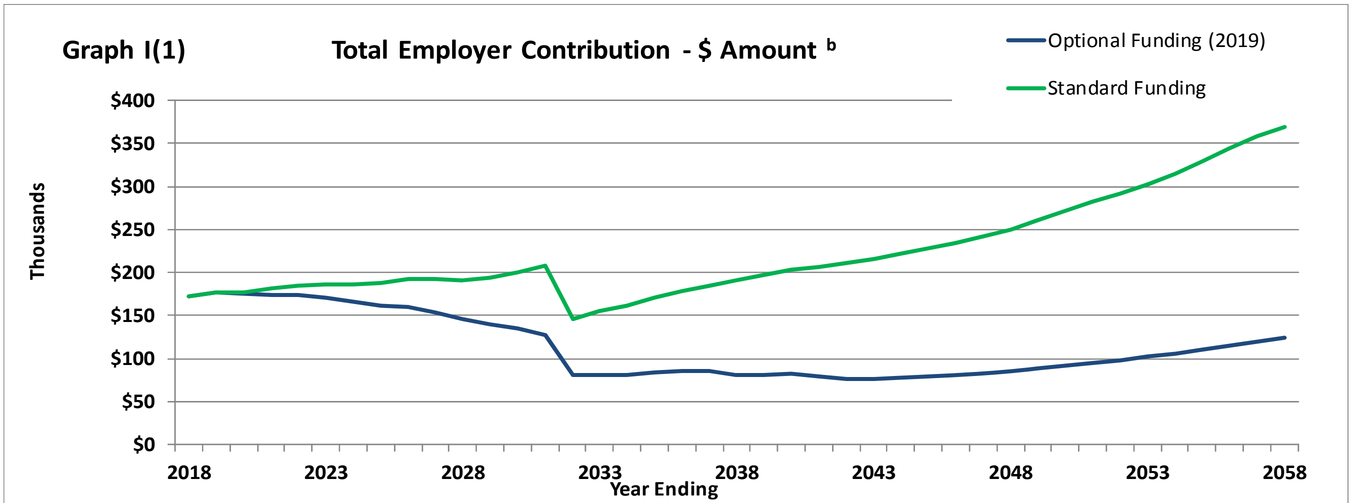
If the Optional funding policy is selected in plan year end 2019, total employer contributions to both the local plan and the statewide plan are projected to decrease from $177,642 to $176,018 in fiscal year end 2020. Total contributions are projected to decrease because employer contributions for new 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 35% of pay.

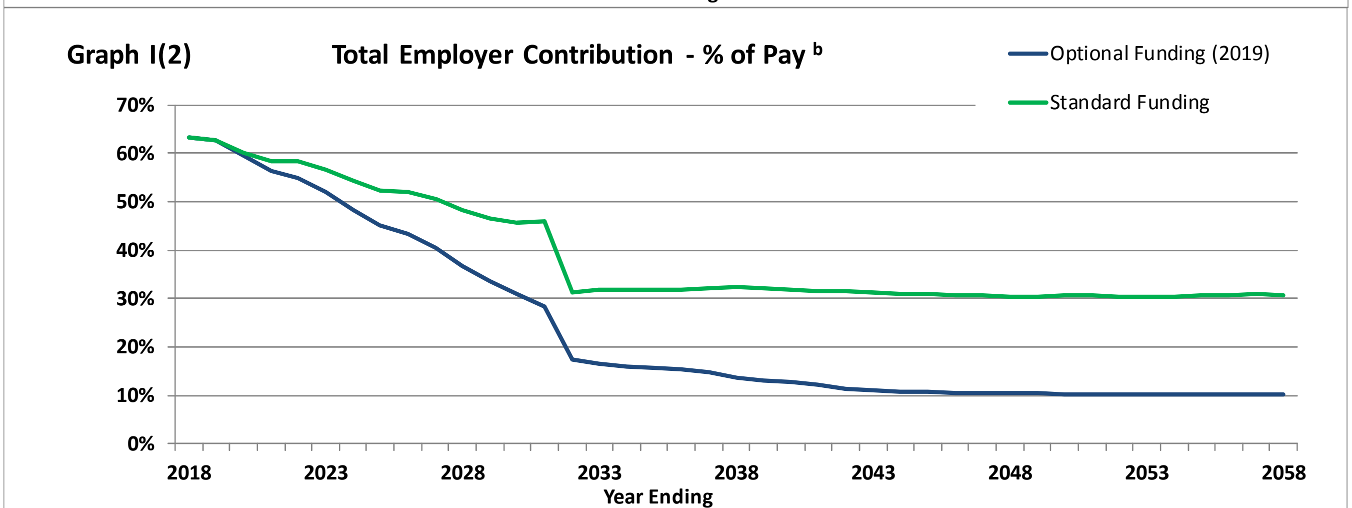
If the Optional funding policy is selected in fiscal year 2019, employer contributions to both the local plan and the statewide plan are projected to decrease from $176,018 in fiscal year 2020 to $127,428 in fiscal year 2031. After 2031, when the plan is projected to be fully funded, employer contributions are equal to net employer normal costs, for the closed local plan, plus 10.5% of pay for members covered under the statewide plan.

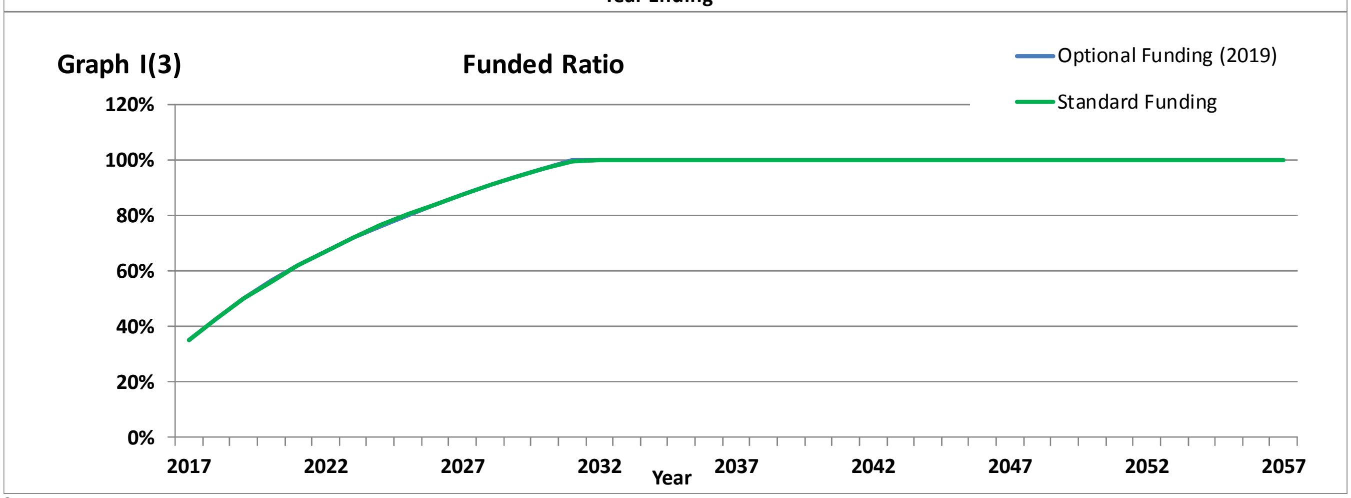
Both the Optional and Standard funding policies are consistent with actuarial standards of practice and produce a stable contribution pattern and reasonable growth in the funded ratio.

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%	5.50%
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	$634,949	$692,450
2. Actuarial Accrued Liability	$1,580,429	$1,942,839
3. Unfunded Actuarial Accrued Liability (2 - 1)	$945,480	$1,250,389
4. Funded Ratio (1/2)	40%	36%
5. Expected Payroll	$229,274	$279,370
6. UAAL as Percentage of Covered Payroll (3/5)	412%	448%
Schedule of Employer Contributions [c]	**FYE 2017**	**FYE 2018**
1. Actuarially Determined Contribution		
(a) Employer Normal Cost	$70,782	$101,226
(b) Amortization of Unfunded Actuarial Accrued Liability	$90,871	$121,280
(c) Actuarially Determined Contribution (ADC) (a + b)	$161,653	$222,506
2. Employer Contribution	$63,773	$172,917 [b]
3. Premium Tax Allocation	$23,146	$49,589
4. Percentage of ADC Contributed [(2 + 3)/1(c)]	54%	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	$634,949	$692,450
Adjustment to Market Value of Assets at Beginning of Year	$0	($63,957)
Market Value of Assets Beginning of Year	$634,949	$628,493
1. Revenue During Fiscal Year		
(a) Employee Contribution	$19,181	$13,314
(b) Governmental Contribution		
(i) From Local Government	$0	$63,773
(ii) From State Government	$0	$23,146
(iii) Reallocation from State Government	$0	$0
(iv) Total	$0	$86,919
(c) Earnings on Investments		
(i) Net Appreciation/(Depreciation)	($27,705)	$48,222
(ii) Bond Interest	$7,175	$11,817
(iii) Dividends	$16,129	$9,661
(iv) Net Realized Gain (Loss) on Sale/Exchange	$0	($15,338)
(v) Other	$1,093	$970
(vi) Less Investment Expense	$0	$0
(vii) Total	($3,308)	$55,332
(d) Other Revenue	$0	$0
(e) Receivable Investment Income/(Expense)	$0	$0
(f) Receivable Contribution [a]		
(i) From Employee Contributions	$0	$6,065
(ii) From Local Government	$40,811	$0
(iii) From State Government	$23,146	$0
(iv) Total	$63,957	$6,065
(g) Total Revenue (sum of (a) through (f))	$79,830	$161,630
2. Expenditures During Fiscal Year		
(a) Benefits Paid	$13,224	$40,898
(b) Withdrawals	$9,105	$8,702
(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))	$22,329	$49,600
B. Market Value of Assets End of Year [A + 1(g) - 2(f)]	$692,450	$740,523
C. Approximate Return on Assets	(0.52)%	8.46%

[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	$50,329	7%	$42,410	6%
2. Government Securities				
(a) US Treasury Bills, Notes and Bonds	$0		$82	
(b) US State and Local Governmental Debt Securities	$14,885		$37,847	
(c) Foreign Governmental Debt Securities	$0		$0	
(d) Other	$0		$0	
(e) Total Government Securities (sum of (a) through (d))	$14,885	3%	$37,929	5%
3. Corporate Fixed Income				
(a) US Bonds	$290,516		$264,920	
(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))	$290,516	42%	$264,920	35%
4. Corporate Equity				
(a) US Equity	$244,491		$357,898	
(b) US Mutual Fund Shares (Equity)	$28,272		$31,301	
(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))	$272,763	39%	$389,199	53%
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		$6,065	
(b) From Local Government	$40,811		$0	
(c) From State Government	$23,146		$0	
(d) Total Receivable Contributions (sum of (a) through (c))	$63,957	9%	$6,065	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)]	**$692,450**		**$740,523**	

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:	**7**	**1**	**0**	**0**	**0**	**8**
New Actives:	3					**3**
Returned to Actives Status:						**0**
Data Corrections/Other Changes:						**0**
Vested Terminations:						**0**
Non-Vested Terminations:	(2)					**(2)**
Disabled:						**0**
Retirements:	(1)	1				**0**
Deaths with Beneficiary:						**0**
Deaths w/o Beneficiary:						**0**
Expired Annuity or Stop Payment:						**0**
Net Changes:	0	1	0	0	0	**1**
Total Participants June 30, 2017:	**7**	**2**	**0**	**0**	**0**	**9**

Actuarial Valuation Data as of July 1, 2017

Schedule G: Distribution of Active Employees by Age and Length of Service

Attained Age	Less than 1	1-4	5-9	10-14	15-19	20-24	25-29	30-34	Over 35	Totals	Valuation Payroll[a]
					Years of Service to Valuation Date						
Under 20											$ 0
20-24											$ 0
25-29	2									**2**	**$ 52,257**
30-34				1						**1**	**$ 42,487**
35-39											**$ 0**
40-44			1							**1**	**$ 38,524**
45-49				1		1				**2**	**$ 87,092**
50-54					1					**1**	**$ 45,283**
55-59											**$ 0**
60-64											**$ 0**
65-69											**$ 0**
Over 70											**$ 0**
Totals	**2**	**0**	**1**	**2**	**1**	**1**	**0**	**0**	**0**	**7**	**$ 265,642**

Averages

Age:	38.9	years
Service:	9.8	years
Annual Pay:	$37,949	[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	7	7
Total Annual Pay	$282,486	$265,642
Average Age	42.4	38.9
Average Service	12.7	9.8

Inactive Participants	July 1, 2016		July 1, 2017	
Type	No.	Annual Benefit	No.	Annual Benefit
Retirees	1	$13,224	2	$43,414
Survivors	0	$0	0	$0
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 $563.

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	$740,523
Liabilities using a 6.00% discount rate	$1,945,275
Funded Ratio	38%
Expected Benefit Payments	$46,975
Liquidity Ratio	15.76
Equity Exposure	55%
Projected Funded Ratio after 15 years	100%

Discount Rate	5.50%

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 Policemen’s Pension and Relief Fund reported 7 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 $57,696 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

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	Annualized pay for two new active members based on Compensation for plan year end June 30, 2017 and Date of Hire.
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 Police Department are eligible to participate in the Policemen'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.

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

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)	Benefit Payments	Administrative Expenses	Employer Contributions	Member Contributions	Premium Tax Allocation Contributions	Investment Income	Assets (eoy)	Actuarial Accrued Liability	Unfunded Liability	Funded Ratio
2017	7	2	$279,370	$628,493	$49,600	$0	$63,773	$19,379	$23,146	$55,332	$740,523	$2,105,310	$1,364,787	35%
2018	7	2	272,738	740,523	46,975	799	172,917	21,481	49,589	46,053	982,789	2,292,572	1,309,783	43%
2019	6	3	273,502	982,789	55,271	802	176,758	21,699	57,696	59,482	1,242,351	2,482,330	1,239,979	50%
2020	6	3	266,284	1,242,351	67,200	805	175,194	21,267	61,013	73,470	1,505,290	2,667,494	1,162,204	56%
2021	5	3	265,734	1,505,290	73,690	810	171,580	21,278	62,580	87,700	1,773,927	2,856,286	1,082,359	62%
2022	5	3	259,188	1,773,927	82,870	817	169,930	20,864	64,057	102,210	2,047,302	3,042,809	995,507	67%
2023	4	4	247,142	2,047,302	95,643	826	164,968	20,066	66,341	116,804	2,319,012	3,220,361	901,349	72%
2024	4	4	239,544	2,319,012	105,924	837	157,196	19,585	68,538	131,305	2,588,875	3,393,044	804,169	76%
2025	4	4	236,582	2,588,875	113,303	850	150,866	19,437	70,521	145,825	2,861,371	3,565,809	704,438	80%
2026	3	4	228,051	2,861,371	124,662	866	146,568	18,909	72,439	160,424	3,134,183	3,731,809	597,626	84%
2027	3	5	212,646	3,134,183	138,775	883	139,362	17,917	75,213	174,899	3,401,915	3,884,307	482,392	88%
2028	3	5	203,293	3,401,915	150,404	903	128,625	17,372	78,020	189,078	3,663,703	4,028,142	364,439	91%
2029	3	5	200,676	3,663,703	158,406	924	119,529	17,307	80,411	203,075	3,924,695	4,169,884	245,189	94%
2030	3	5	201,030	3,924,695	164,743	946	113,160	17,454	82,688	217,150	4,189,459	4,312,617	123,158	97%
2031	2	5	194,419	4,189,459	174,780	967	102,519	16,881	84,886	231,195	4,449,192	4,449,192	0	100%
2032	2	6	179,588	4,449,192	189,105	989	54,706	15,551	0	241,454	4,570,809	4,570,809	0	100%
2033	2	6	169,362	4,570,809	200,424	1,011	50,344	14,622	0	247,692	4,682,032	4,682,032	0	100%
2034	2	6	164,769	4,682,032	208,170	1,034	48,210	14,145	0	253,528	4,788,711	4,788,711	0	100%
2035	2	6	162,736	4,788,711	214,250	1,056	47,060	13,916	0	259,192	4,893,573	4,893,573	0	100%
2036	2	6	162,386	4,893,573	219,128	1,078	46,594	13,853	0	264,812	4,998,626	4,998,626	0	100%
2037	1	6	146,802	4,998,626	236,874	1,101	42,919	12,696	0	269,977	5,086,243	5,086,243	0	100%
2038	1	6	118,939	5,086,243	263,973	1,126	35,768	10,520	0	273,807	5,141,239	5,141,239	0	100%
2039	1	7	101,526	5,141,239	278,744	1,151	30,809	9,080	0	276,256	5,177,489	5,177,489	0	100%

Actuarial Projections – Optional Funding in 2019
Table A-2

						Employer Contributions						
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
2018	$272,738	$0	$272,738	$21,481	$116,577	$95,096	$138,559	$57,696	$80,863	$799	$176,758	$0
2019	273,502	7,843	281,345	21,699	117,237	95,538	139,868	61,013	78,855	802	175,194	824
2020	266,284	29,138	295,421	21,267	114,548	93,281	140,073	62,580	77,493	805	171,580	3,059
2021	265,734	44,731	310,466	21,278	114,634	93,356	139,821	64,057	75,764	810	169,930	4,697
2022	259,188	59,130	318,318	20,864	111,555	90,691	139,801	66,341	73,460	817	164,968	6,209
2023	247,142	81,576	328,718	20,066	105,563	85,497	139,411	68,538	70,873	826	157,196	8,565
2024	239,544	103,427	342,971	19,585	101,603	82,018	138,532	70,521	68,011	837	150,866	10,860
2025	236,582	122,726	359,308	19,437	99,827	80,390	137,767	72,439	65,328	850	146,568	12,886
2026	228,051	140,385	368,436	18,909	95,328	76,419	137,289	75,213	62,076	866	139,362	14,740
2027	212,646	167,024	379,669	17,917	87,426	69,509	136,253	78,020	58,233	883	128,625	17,537
2028	203,293	193,921	397,213	17,372	82,421	65,049	133,988	80,411	53,577	903	119,529	20,362
2029	200,676	216,139	416,815	17,307	80,718	63,411	131,513	82,688	48,825	924	113,160	22,695
2030	201,030	237,229	438,259	17,454	80,428	62,974	129,291	84,886	44,405	946	102,519	24,909
2031	194,419	257,179	451,598	16,881	76,815	59,934	126,499	0	126,499	967	54,706	27,004 [b]
2032	179,588	287,390	466,978	15,551	69,284	53,733	0	0	0	989	50,344	30,176 [b]
2033	169,362	318,421	487,782	14,622	63,949	49,327	0	0	0	1,011	48,210	33,434 [b]
2034	164,769	346,679	511,449	14,145	61,310	47,165	0	0	0	1,034	47,060	36,401 [b]
2035	162,736	374,054	536,790	13,916	59,923	46,007	0	0	0	1,056	46,594	39,276 [b]
2036	162,386	401,188	563,574	13,853	59,379	45,526	0	0	0	1,078	42,919	42,125 [b]
2037	146,802	428,580	575,382	12,696	54,511	41,815	0	0	0	1,101	35,768	45,001 [b]
2038	118,939	470,483	589,421	10,520	45,164	34,644	0	0	0	1,126	30,809	49,401 [b]
2039	101,526	512,983	614,509	9,080	38,736	29,656	0	0	0	1,151	28,351	53,863 [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.*