



# City of Knoxville Pension System

Valuation and Report as of July 1, 2018



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October 11, 2018

Ms. Kristi Paczkowski  
Executive Director  
City of Knoxville Pension Board  
917B E. Fifth Avenue  
Knoxville, TN 37917-7737

Dear Kristi:

The attached report summarizes the results of the actuarial valuation as of July 1, 2018 for the City of Knoxville Pension System. The report sets forth annual funding levels during the Pension System fiscal year beginning July 1, 2019. We trust this report will be helpful in the formulation of policy with respect to the operation and financing of the plan.

The opportunity to serve the Pension Board is appreciated, and we will be pleased to supplement this report in any way, as you request.

The actuarial valuation summarized in this report has been performed utilizing generally accepted actuarial principles and is based on actuarial assumptions, each of which we consider to be reasonable taking into account the experience of the plan and which, in combination, represent our best estimate of the anticipated experience of the Plan. It is our opinion that the results fully and fairly disclose the actuarial position of the plan on the valuation date. The actuarial valuation summarized in this report has been prepared using employee data, plan documentation, and plan assets furnished by the plan's administrative staff as of July 1, 2018. While we have not audited the data, we have reviewed it for reasonableness and internal consistency, and to the best of our knowledge, there are no material limitations to the data provided. The actuary has prepared and provided all schedules contained herein.

Actuarial computations under Statements 67 and 68 are for purposes of fulfilling employer governmental accounting requirements. The calculations reported herein have been made on a basis consistent with our understanding of the statements. The undersigned is an actuary at Findley, Inc. with professional actuarial credentials, and has met the Qualification Standards of the American Academy of Actuaries to render the actuarial opinions herein.

Sincerely,

*Alan C. Pennington, F.S.A.*

Alan C. Pennington, F.S.A.

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## Executive Summary

### Summary of Key Results (Non Division H)

An actuarial valuation of the benefits provided under the City of Knoxville Pension System was performed as of July 1, 2018. The purpose of the valuation was to determine the funding requirements of the various components of the System, with the intention that funding requirements indicated by the valuation be used as the basis for contributions to the System for the fiscal year commencing July 1, 2019.

Below are key results from the valuation for all groups except for Division H.

	Gen. Gov.	Uniformed	Bd. of Ed.	Sub-Total
<b>Active Participants</b>	478	567	2	1,047
<b>Deferred Vested Participants</b>	84	42	0	126
<b>Retired Participants</b>	618	716	746	2,080
<b>Total Number of Participants</b>	1,180	1,325	748	3,253
<b>2018-2019 Projected Payroll</b>	24,273,679	32,806,282	56,972	57,136,933
<b>Actuarial Value of Assets</b>	190,190,502	359,959,163	27,698,506	577,848,171
<b>Market Value of Assets</b>	191,376,644	363,717,710	28,316,574	583,410,928
<b>Recommended Contributions Beginning July 1, 2019</b>				
<b>Total</b>	6,903,657	18,165,543	2,532,608	27,601,808
<b>Amortization Payment</b>	5,138,755	12,355,523	2,532,608	20,026,887
<b>Normal Cost (\$)</b>	1,764,902	5,810,020	0	7,574,921
<b>Normal Cost (%)</b>	7.27%	17.71%	0.00%	
<b>Recommended Contributions Beginning July 1, 2018 (based on prior year report)</b>				
<b>Total</b>	6,884,900	17,971,109	2,441,773	27,297,782
<b>Amortization Payment</b>	4,977,273	11,994,807	2,441,773	19,413,853
<b>Normal Cost (\$)</b>	1,907,627	5,976,302	0	7,883,929
<b>Normal Cost (%)</b>	7.22%	17.80%	n/a	

### Present Value of Accrued and Projected Benefits (Non Div H)

	Gen. Gov.	Uniformed	Bd. of Ed.	Sub-Total
<b>Active Accrued Benefits</b>	75,060,932	173,445,069	69,624	248,575,625
<b>Inactive Accrued Benefits</b>	162,077,741	316,320,248	54,235,823	532,633,812
<b>Defined Contribution Account</b>	7,039,181	0	0	7,039,181
<b>Total</b>	244,177,854	489,765,317	54,305,447	788,248,618
<b>Benefits for Future Service</b>	21,543,448	63,656,042	439	85,199,929
<b>Total Value of Projected Benefits</b>	265,721,302	553,421,359	54,305,886	873,448,547

## Summary of Key Results (Total)

An actuarial valuation of the benefits provided under the City of Knoxville Pension System was performed as of July 1, 2018. The purpose of the valuation was to determine the funding requirements of the various components of the System, with the intention that funding requirements indicated by the valuation be used as the basis for contributions to the System for the fiscal year commencing July 1, 2019.

Below are key results from the valuation for Division H and the Total System.

	Division H		Non-Div. H	Total
	Gen. Gov.	Uniformed	Sub-Total	
<b>Active Participants</b>	285	97	1,047	1,429
<b>Deferred Vested Participants</b>	0	0	126	126
<b>Retired Participants</b>	0	0	2,080	2,080
<b>Total Number of Participants</b>	285	97	3,253	3,635
<b>2018-2019 Projected Payroll</b>	10,945,518	3,938,177	57,136,933	72,020,628
<b>Actuarial Value of Assets</b>	4,787,896	1,678,742	577,848,171	584,314,809
<b>Market Value of Assets</b>	4,652,396	1,628,480	583,410,928	589,691,804
<b>Recommended Contributions Beginning July 1, 2019</b>				
<b>Total</b>	854,928	522,417	27,601,808	28,979,153
<b>Amortization Payment</b>	(21,326)	14,860	20,026,887	20,020,420
<b>Normal Cost (\$)</b>	876,254	507,557	7,574,921	8,958,733
<b>Normal Cost (%)</b>	8.01%	12.89%		
<b>Recommended Contributions Beginning July 1, 2018 (based on prior year report)</b>				
<b>Total</b>	798,275	463,676	27,297,782	28,559,733
<b>Amortization Payment</b>	(8,175)	15,160	19,413,853	19,420,838
<b>Normal Cost (\$)</b>	806,450	448,516	7,883,929	9,138,895
<b>Normal Cost (%)</b>	8.69%	13.75%		

## Present Value of Accrued and Projected Benefits (Total)

	Division H		Non-Div. H	Total
	Gen. Gov.	Uniformed	Sub-Total	
<b>Active Accrued Benefits</b>	4,533,632	1,855,906	248,575,625	254,965,163
<b>Inactive Accrued Benefits</b>	0	0	532,633,812	532,633,812
<b>Defined Contribution Account</b>	0	0	7,039,181	7,039,181
<b>Total</b>	4,533,632	1,855,906	788,248,618	794,638,156
<b>Benefits for Future Service</b>	17,807,569	12,841,567	85,199,929	115,849,065
<b>Total Value of Projected Benefits</b>	22,341,201	14,697,473	873,448,547	910,487,221

## Summary of Gains and Losses

### Gains/(Losses) in Millions(\$)

Type	General Gov't	Div. H Gen. Gov't	Uniformed Bodies	Div. H Unif. Bodies	Board of Education	Total
Assets (Actual minus Expected MV) \$	(1.91)	(0.09)	(2.79)	(0.04)	(0.27)	(5.10)
Plan Experience						
Retirement/Termination	(0.66)	0.08	(2.43)	(0.01)	0.01	(3.01)
Deaths	(0.70)	0.00	(1.59)	0.00	0.11	(2.18)
New Entrants	0.00	(0.24)	0.00	(0.04)	0.00	(0.28)
Salary Increases	0.18	(0.08)	0.82	(0.02)	0.00	0.90
Inactive Data Adjustments *	1.08	0.00	2.37	0.00	0.62	4.07
Disabled	0.00	0.00	0.75	0.05	0.00	0.80
DROP Elections	(0.54)	0.00	(0.61)	0.00	0.00	(1.15)
G1 to G2 Transfers	(0.10)	0.00	0.00	0.00	0.00	(0.10)
Actual Benefit Payments	0.19	0.16	1.06	0.04	0.10	1.55
Other	0.48	0.07	0.62	0.01	0.00	1.18
Total Plan Experience	(0.07)	(0.01)	0.99	0.03	0.84	1.78
Plan Changes						
None	0.00	0.00	0.00	0.00	0.00	0.00
	0.00	0.00	0.00	0.00	0.00	0.00
Assumption Changes						
None	0.00	0.00	0.00	0.00	0.00	0.00
	0.00	0.00	0.00	0.00	0.00	0.00
Net Changes	(1.98)	(0.10)	(1.80)	(0.01)	0.57	(3.32)

\* changes to benefit amount, benefit form of payment, spouse age, etc.

# Certification

## Legislative Background

Statement No. 25 of the Governmental Accounting Standards Board was amended by Statement No. 67 of the Governmental Accounting Standards Board. Statement No. 67 became effective for the plan's financial statements for the fiscal year beginning after June 15, 2013. Statement No. 67 establishes financial reporting standards for state and local government pension plans that are administered through trusts or equivalent arrangements. The objective of this statement is to improve the usefulness of the information included in pension plan reports.

The Governmental Accounting Standards Board amended Statement No. 27 with Statement No. 68; the effective date for Statement No. 68 is for the fiscal year beginning after June 15, 2014. The purpose of this report is to provide pertinent disclosure information relating to the Pension Plan for the fiscal year ending June 30, 2018 financial statements for the City of Knoxville. Statement No. 68 of the Governmental Accounting Standards Board requires the determination of the pension expense for the fiscal year beginning July 1, 2019. Statement No. 68 shows the amounts of deferred outflows and inflows of resources related to the pensions from various sources

## Purpose and Use

This report has been prepared exclusively for the City of Knoxville. Actuarial computations under Statements No. 67 and No. 68 are for purposes of fulfilling employer governmental accounting requirements. The calculations reported herein have been made on a basis consistent with our understanding of the statements. Findley, Inc. is not responsible for consequences resulting from the use of any part of this report without prior authorization or approval. This report provides actuarial advice and does not constitute legal, accounting, tax or investment advice. Determinations for other purposes, such as funding, bond ratings, or judging benefit security, may be significantly different from the results shown in this report.

Actuarial findings in this report are based on actuarial assumptions which reflect expected plan experience. Although the deviation of the actual future plan experience and the expected experience inherently creates some uncertainty with the results, in our opinion the actuarial assumptions reasonably reflect the expected future experience of the plan. 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. All of these factors can result in the risk of volatility in the Net Pension Liability over time.



## Data

The calculations shown in this report have been prepared using employee data, plan documentation, and plan assets furnished by the City of Knoxville as of June 30, 2018. While we have not audited the data, we have reviewed it for reasonableness and internal consistency, and to the best of our knowledge, there are no material limitations to the data provided. Summaries of the census data and plan provisions can be found in the Participant Data and Basis of Valuation sections of this report.

## Subsequent Events

We are unaware of any subsequent event after June 30, 2018 which would have a material effect on the results presented in this report.

## Assumptions, Methods, and Procedures

The results presented in this report comply with the assumptions, methods, and procedures under the Statements No. 67 and No. 68. For Statement 67 the results are based on the June 30, 2018 actuarial valuation date with a measurement date and reporting date of June 30, 2018. For Statement 68 the results are based on the June 30, 2018 actuarial valuation with a measurement date of June 30, 2018 and reporting date of June 30, 2019. All actuarial assumptions are set by the plan sponsor. Statements No. 67 and No. 68 mandate the use of the Entry Age Normal actuarial funding method for the purposes of those statements.

## Changes in Plan Provisions, Actuarial Assumptions, and Actuarial Methods

No changes were made to the actuarial assumptions and methods effective June 30, 2018.

Summaries of the plan provisions, actuarial assumptions and methods can be found in the Basis of Valuation section of this report.

## Plan Administration

The City of Knoxville Pension Board administers the City of Knoxville Pension System, a single employer defined benefit pension plan that provides pensions for all permanent full-time general and public safety employees of the City, as well as some members of the Board of Education. The Charter of the City of Knoxville grants the authority to establish and amend the benefit terms to the City of Knoxville Pension Board.

Management of the City of Knoxville Pension System is vested in the City of Knoxville Pension Board, which consists of nine members – four elected by plan members, one member appointed by the City Council who must be a resident of the City, two mayoral appointees who must be residents of the City and have pension and/or investment expertise, and the Finance Director and City Mayor, who serve as ex-officio members.

## Professional Qualifications

This report has been prepared under the supervision of Alan C. Pennington, a member of the American Academy of Actuaries, a Fellow of the Society of Actuaries, and a consulting actuary with Findley, Inc., who has met the Qualification Standards of the American Academy of Actuaries to render the actuarial opinions herein. To the best of our knowledge this report has been prepared in accordance with generally accepted actuarial standards and our understanding of Government Accounting Standards Board Statements No. 67 and No. 68, including the overall appropriateness of the analysis, assumptions, and results and conforms to appropriate Standards of Practice as promulgated from time to time by the Actuarial Standards Board, which standards form the basis for the actuarial report. We are not aware of any direct or material indirect financial interest or relationship that could create, or appear to create, a conflict of interest that would impair the objectivity of our work. The undersigned is available to provide supplemental information or explanation.

*Alan C. Pennington, F.S.A.*

October 11, 2018

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Alan C. Pennington  
Fellow, Society of Actuaries  
Phone 615.665.5363

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Date

## Participant Data

### Participant Data by Number

#### Active Plan Participants

	07/01/2018	07/01/2017	07/01/2016
<b>General Government</b>			
Division A	5	6	8
Division B	1	1	1
Division G-1	175	237	284
Division G-2	297	291	282
Division H - GG	285	255	216
Total	763	790	791
<b>Board of Education</b>			
Division A - Teachers	0	0	1
Division A - Non-Teachers	2	2	3
Total	2	2	4
<b>Uniformed Bodies</b>			
Division C	567	600	626
Division H - UB	97	89	51
Total	664	689	677
<b>Totals by Division</b>			
Division A	7	8	12
Division B	1	1	1
Division C	567	600	626
Division G-1	175	237	284
Division G-2	297	291	282
Division H - GG	285	255	216
Division H - UB	97	89	51
<b>Grand Total</b>	<b>1,429</b>	<b>1,481</b>	<b>1,472</b>

## Inactive Plan Participants

	07/01/2018	07/01/2017	07/01/2016
<b>General Government</b>			
Division A	81	91	99
Division B	27	30	33
Division G-1	143	129	123
Division G-2	422	396	387
Drop Elections G-1*	5	4	4
Drop Elections G-2*	24	23	20
<b>Total</b>	<b>702</b>	<b>673</b>	<b>666</b>
<b>Board of Education</b>			
Division A	581	605	631
Division B	165	182	200
<b>Total</b>	<b>746</b>	<b>787</b>	<b>831</b>
<b>Uniformed Bodies</b>			
Division A	0	1	1
Division C	642	612	596
Drop Elections*	27	27	30
Division F	89	98	106
<b>Total</b>	<b>758</b>	<b>738</b>	<b>733</b>
<b>Totals by Division</b>			
Division A	662	697	731
Division B	192	212	233
Division C	669	639	626
Division F	89	98	106
Division G-1	148	133	127
Division G-2	446	419	407
<b>Grand Total</b>	<b>2,206</b>	<b>2,198</b>	<b>2,230</b>

\* Delayed Retirement Option (DROP) participants are treated as inactive at the time they elect the DROP option. See Summary of Plan Provisions, sections 30 and 56 for further details concerning the DROP program.

## Schedule of Vesting - Active Participants

	Vesting Schedule	Total	Vested	Non-Vested
<b>General Government</b>				
Division A	5 year	5	5	0
Division B	5 year	1	1	0
Division G-1	5 year	175	175	0
Division G-2	5 year	297	297	0
Division H - GG	10 year	285	0	285
Total		763	478	285
<b>Board of Education</b>				
Division A - Non-Teachers	5 year	2	2	0
<b>Uniformed Bodies</b>				
Division C	5 year	567	567	0
Division H - UB	10 year	97	0	97
Total		664	567	97
<b>Totals by Division</b>				
Division A	5 year	7	7	0
Division B	5 year	1	1	0
Division C	5 year	567	567	0
Division G-1	5 year	175	175	0
Division G-2	5 year	297	297	0
Division H - GG	10 year	285	0	285
Division H - UB	10 year	97	0	97
<b>Grand Total</b>		<b>1,429</b>	<b>1,047</b>	<b>382</b>

## Payroll Information

	07/01/2018	07/01/2017	07/01/2016
<b>General Government</b>			
Divisions A & B	266,914	306,003	381,435
Division G-1	8,407,003	10,993,152	12,651,804
Division G-2	15,599,762	15,131,976	14,405,889
Division H - GG	10,945,518	9,183,799	7,598,673
<b>Total</b>	<b>35,219,197</b>	<b>35,614,930</b>	<b>35,037,801</b>
<b>Board of Education*</b>			
Division A	56,972	56,972	82,979
<b>Uniformed Bodies</b>			
Division C	32,806,282	33,573,264	34,324,058
Division H - UB	3,938,177	3,371,470	2,036,930
<b>Total</b>	<b>36,744,459</b>	<b>36,944,734</b>	<b>36,360,988</b>
<b>Totals by Division</b>			
Divisions A & B	323,886	362,975	464,414
Division C	32,806,282	33,573,264	34,324,058
Division G-1	8,407,003	10,993,152	12,651,804
Division G-2	15,599,762	15,131,976	14,405,889
Division H - GG	10,945,518	9,183,799	7,598,673
Division H - UB	3,938,177	3,371,470	2,036,930
<b>Grand Total</b>	<b>72,020,628</b>	<b>72,616,636</b>	<b>71,481,768</b>

\* Board of Education payroll excludes Teachers.

## Reconciliation of Active Participant Data

	Gen. Gov.	G1	G2	H	HU	Bd. of Ed.	Uniform	Total
Included in July 1, 2017 Valuation	7	237	291	255	89	2	600	1,481
Change due to:								
New Entrants	-	-	-	73	17	-	-	90
Retirement	-	(9)	(4)	-	-	-	(6)	(19)
Drop Elections	-	(5)	(16)	-	-	-	(14)	(35)
Termination with Vested Benefit	-	(5)	(10)	-	-	-	(7)	(22)
Termination Non- Vested	-	-	-	(18)	(5)	-	-	(23)
Refund	(1)	(3)	(3)	(25)	(4)	-	(4)	(40)
Transfer	-	(40)	40	-	-	-	-	-
Death	-	-	-	-	-	-	-	-
Disabled	-	-	(1)	-	-	-	(2)	(3)
Rehire	-	-	-	-	-	-	-	-
Net Change	(1)	(62)	6	30	8	-	(33)	(52)
<b>Included in July 1, 2018 Valuation</b>	<b>6</b>	<b>175</b>	<b>297</b>	<b>285</b>	<b>97</b>	<b>2</b>	<b>567</b>	<b>1,429</b>

Note: above numbers are estimates only.

## Reconciliation of Inactive Participant Data

	Gen. Gov.	Bd. of Ed.	Uniform	Total
Included in July 1, 2017 Valuation	673	787	738	2,198
Change due to:				
New Retirees	13	-	6	19
Drop Elections	21	-	14	35
Termination with Vested Benefit	15	-	7	22
Death	(21)	(41)	(9)	(71)
Disabled	1	-	2	3
Net Change	29	(41)	20	8
<b>Included in July 1, 2018 Valuation</b>	<b>702</b>	<b>746</b>	<b>758</b>	<b>2,206</b>

Above numbers are estimates only.

General Government and Uniform are non-Div. H.



## Schedule of Retiree Optional Forms

Retirement Option	General Government	Board of Education	Uniformed Bodies	Total
<b>No Option (SLA)</b>	334	556	403	1,293
<b>Option A</b>				
Without Reinstatement				
50% Joint and Survivor	41	16	61	118
60% Joint and Survivor	-	-	30	30
75% Joint and Survivor	10	8	20	38
100% Joint and Survivor	66	58	98	222
With Reinstatement				
50% Joint and Survivor	66	31	6	103
75% Joint and Survivor	19	9	30	58
100% Joint and Survivor	54	44	56	154
<b>Option B</b>				
5 Year Certain	3	7	4	14
10 Year Certain	8	4	3	15
15 Year Certain	7	6	2	15
<b>Option C</b>				
Cash Refund	10	7	3	20
<b>Totals</b>	<b>618</b>	<b>746</b>	<b>716</b>	<b>2,080</b>

General Government and Uniformed Bodies are non-Div. H.

## Asset Information

### Establishment of Valuation Assets (Non Division H)

	General Government*	Uniformed Bodies	Board of Education	Sub-Total* *
1. Assets (Market Value July 1, 2017)	\$ 177,720,768	\$ 349,767,162	\$ 31,874,617	\$ 559,362,547
2. Actual Contributions				
a. By Employees	\$ 1,191,110	\$ 1,950,062	\$ -	\$ 3,141,172
b. By City Dept.	\$ 6,324,897	\$ 16,035,925	\$ 1,972,000	\$ 24,332,822
3. Actual Benefit Payments	\$ 11,722,939	\$ 26,304,820	\$ 7,378,460	\$ 45,406,219
4. Base Established 7/1/2010	\$ 6,024,826	\$ 13,679,032	\$ 3,487,207	\$ 23,191,065
5. Base Established 7/1/2011	\$ 17,579,397	\$ 36,806,846	\$ 7,957,899	\$ 62,344,142
6. Base Established 7/1/2012	\$ (11,248,696)	\$ (20,868,062)	\$ (4,899,041)	\$ (37,015,799)
7. Base Established 7/1/2013	\$ 6,406,913	\$ 14,262,146	\$ 1,858,146	\$ 22,527,205
8. Base Established 7/1/2014	\$ 14,760,491	\$ 28,891,065	\$ 4,340,162	\$ 47,991,718
9. Base Established 7/1/2015	\$ (9,443,265)	\$ (19,474,599)	\$ (2,783,141)	\$ (31,701,005)
10. Base Established 7/1/2016	\$ (12,595,526)	\$ (24,996,931)	\$ (2,860,218)	\$ (40,452,675)
11. Base Established 7/1/2017	\$ 8,374,962	\$ 16,037,971	\$ 1,432,544	\$ 25,845,477
12. Sum of Unrecognized Bases (.8*(11)+.7*(10)+.6*(9)+.5*(8)+.4*(7)+.3*(6)+.2*(5)+.1*(4))	\$ 2,903,906	\$ 6,267,010	\$ 857,926	\$ 10,028,842
13. Net Non-Investment Transactions ((2)-(3))	\$ (4,206,932)	\$ (8,318,833)	\$ (5,406,460)	\$ (17,932,225)
14. Expected Assets July 1, 2018 ((1)*1.0725+(13)*1.03625)	\$ 186,246,090	\$ 366,504,891	\$ 28,583,082	\$ 581,334,063
15. Assets (Market Value July 1, 2018)	\$ 184,337,463	\$ 363,717,710	\$ 28,316,574	\$ 576,371,747
16. Base Established July 1, 2018 ((15)-(14))	\$ (1,908,627)	\$ (2,787,181)	\$ (266,508)	\$ (4,962,316)
17. Valuation Assets July 1, 2018 ((15)-.9*(16)-(12))	\$ 183,151,321	\$ 359,959,163	\$ 27,698,505	\$ 570,808,989
18. 80% of Market Value of Assets (.8*(15))	\$ 147,469,970	\$ 290,974,168	\$ 22,653,259	\$ 461,097,397
19. 120% of Market Value of Assets (1.2*(15))	\$ 221,204,956	\$ 436,461,252	\$ 33,979,889	\$ 691,646,097
20. Valuation Assets limited to 20% corridor of MVA	\$ 183,151,321	\$ 359,959,163	\$ 27,698,505	\$ 570,808,989
21. G1 Supplemental Account	\$ 7,039,181	\$ -	\$ -	\$ 7,039,181
22. Valuation Assets July 1, 2018 ((20) + (21))	\$ 190,190,502	\$ 359,959,163	\$ 27,698,505	\$ 577,848,170

\*General Gov't base is calculated excluding the G1 Supplemental Account. See page after next for reconciliation.

\*\*Pension System without regard to Division H. See next page for Division H and Total System.

## Establishment of Valuation Assets (Total System)

	Non-Div H Sub-Total	Div H General Government	Div H Uniformed Bodies	Total System
1. Assets (Market Value July 1, 2017)	\$ 559,362,547	\$ 3,155,378	\$ 986,185	\$ 563,504,110
2. Actual Contributions				
a. By Employees	\$ 3,141,172	\$ 580,143	\$ 206,601	\$ 3,927,916
b. By City Dept.	\$ 24,332,822	\$ 840,586	\$ 403,370	\$ 25,576,778
3. Actual Benefit Payments	\$ 45,406,219	\$ 105,499	\$ 23,643	\$ 45,535,361
4. Base Established 7/1/2010	\$ 23,191,065	\$ -	\$ -	\$ 23,191,065
5. Base Established 7/1/2011	\$ 62,344,142	\$ -	\$ -	\$ 62,344,142
6. Base Established 7/1/2012	\$ (37,015,799)	\$ -	\$ -	\$ (37,015,799)
7. Base Established 7/1/2013	\$ 22,527,205	\$ (1,314)	\$ -	\$ 22,525,891
8. Base Established 7/1/2014	\$ 47,991,718	\$ (6,450)	\$ (14,762)	\$ 47,970,506
9. Base Established 7/1/2015	\$ (31,701,005)	\$ (56,679)	\$ (13,816)	\$ (31,771,500)
10. Base Established 7/1/2016	\$ (40,452,675)	\$ (101,084)	\$ (20,357)	\$ (40,574,116)
11. Base Established 7/1/2017	\$ 25,845,477	\$ 72,758	\$ 15,956	\$ 25,934,191
12. Sum of Unrecognized Bases (.8*(11)+.7*(10)+.6*(9)+.5*(8)+.4*(7)+.3*(6)+.2*(5)+.1*(4))	\$ 10,028,842	\$ (50,310)	\$ (17,156)	\$ 9,961,376
13. Net Non-Investment Transactions ((2)-(3))	\$ (17,932,225)	\$ 1,315,230	\$ 586,328	\$ (16,030,667)
14. Expected Assets July 1, 2018 ((1)*1.0725+(13)*1.03625)	\$ 581,334,063	\$ 4,747,051	\$ 1,665,265	\$ 587,746,379
15. Assets (Market Value July 1, 2018)	\$ 576,371,747	\$ 4,652,396	\$ 1,628,480	\$ 582,652,623
16. Base Established July 1, 2018 ((15)-(14))	\$ (4,962,316)	\$ (94,655)	\$ (36,785)	\$ (5,093,756)
17. Valuation Assets July 1, 2018 ((15)-.9*(16)-(12))	\$ 570,808,989	\$ 4,787,896	\$ 1,678,742	\$ 577,275,627
18. 80% of Market Value of Assets (.8*(15))	\$ 461,097,397	\$ 3,721,917	\$ 1,302,784	\$ 466,122,098
19. 120% of Market Value of Assets (1.2*(15))	\$ 691,646,097	\$ 5,582,875	\$ 1,954,176	\$ 699,183,148
20. Valuation Assets limited to 20% corridor of MVA	\$ 570,808,989	\$ 4,787,896	\$ 1,678,742	\$ 577,275,627
21. G1 Supplemental Account	\$ 7,039,181	\$ -	\$ -	\$ 7,039,181
22. Valuation Assets July 1, 2018 ((20) + (21))	\$ 577,848,170	\$ 4,787,896	\$ 1,678,742	\$ 584,314,808

## Reconciliation of Market Value of Valuation Assets

	Defined Contribution Assets (G1)		Defined Benefit Assets	Total
1. Assets (Market Value July 1, 2017)	\$	7,713,762	\$ 563,504,110	\$ 571,217,872
2. Contributions				
a. By Employees	\$	286,138	\$ 3,927,916	\$ 4,214,054
b. By City Dept.	\$	143,076	\$ 25,576,778	\$ 25,719,854
3. Investment Income	\$	855,020	\$ 38,645,490	\$ 39,500,510
4. Disbursements to Employees and Beneficiaries	\$	1,958,814	\$ 45,535,361	\$ 47,494,175
5. Expenses	\$	-	\$ 3,545,301	\$ 3,545,301
6. Audit Adjustments	\$	-	\$ 78,990	\$ 78,990
7. Assets (Market Value July 1, 2018) (1)+(2)+(3)-(4)-(5)+(6)	\$	7,039,181	\$ 582,652,623	\$ 589,691,804

## Historical Rates of Investment Return

The following table shows the approximate annual rates of total investment return for the indicated plan years:

<u>Plan Year End</u>	<u>Approximate Return</u>	<u>Average Return*</u>	<u>Plan Year End</u>	<u>Approximate Return</u>	<u>Average Return*</u>
June 30, 2018	6.4%	6.4%	June 30, 2008	-6.3%	5.6%
June 30, 2017	12.7%	9.5%	June 30, 2007	17.1%	6.5%
June 30, 2016	0.0%	6.2%	June 30, 2006	10.9%	6.8%
June 30, 2015	1.8%	5.1%	June 30, 2005	10.1%	7.0%
June 30, 2014	18.3%	7.6%	June 30, 2004	17.9%	7.7%
June 30, 2013	14.2%	8.7%	June 30, 2003	5.0%	7.6%
June 30, 2012	0.7%	7.5%	June 30, 2002	-2.9%	6.9%
June 30, 2011	25.1%	9.6%	June 30, 2001	6.2%	6.9%
June 30, 2010	14.5%	10.1%	June 30, 2000	1.5%	6.6%
June 30, 2009	-18.6%	6.8%	June 30, 1999	8.7%	6.7%

\*For 1 year, 2 years, 3 years, etc.

The following are comparative rates of return, using standard industry indices:

### Annualized Total Rates of Return

#### Periods Ending 6-30-2018

	<u>One Year</u>	<u>3 Years</u>	<u>5 Years</u>
City of Knoxville Pension Plan	6.39%	6.24%	7.63%
Standard & Poor's 500 Stocks	14.37%	11.93%	13.42%
Dow Jones Industrial Average	16.31%	14.07%	12.96%
Morningstar US Corp. Bond Index	-0.50%	1.80%	2.37%
Bloomberg Barclays US Aggregate Bond Index	-0.63%	1.02%	1.48%
90 Day U.S. Treasury Bills	1.47%	0.75%	0.46%

## Funding Calculation

### Calculation of Required Contribution Rates (Non Division H)

Calculation of 2018-2019 Contribution Rates	Non Division H	
	Gen. Gov.	Uniformed
1. Actuarial Accrued Liability	\$ 244,177,853	\$ 489,765,316
2. Actuarial Asset Value	\$ 190,190,502	\$ 359,959,163
3. Unfunded Accrued Liability	\$ 53,987,351	\$ 129,806,153
4. Amortization Years	19	19
5. Amortization of Unfunded Accrued Liability	\$ 4,962,029	\$ 11,930,606
6. Entry Age Normal Cost	\$ 1,704,205	\$ 5,610,208
7. Preliminary Contribution ((5)+(6))	\$ 6,666,234	\$ 17,540,814
8. Recommended Contribution (mid-year payment) ((7) * 1.0725 <sup>.5</sup> )	\$ 6,903,657	\$ 18,165,543
9. 2018-2019 Projected Payroll	\$ 24,273,679	\$ 32,806,282
10. Recommended Contribution as a Percent of Pay ((8)/(9))	28.44%	55.37%

#### Board of Education

Present Value of Benefits	\$ 54,305,886
Assets on Hand	\$ 27,698,506
Unfunded Liability	\$ 26,607,380
19-year amortization of Unfunded Liability	\$ 2,445,509
Interest on amortization to mid-year	\$ 87,099
Total Recommended Contribution	\$ 2,532,608

## Calculation of Required Contribution Rates (Division H)

Calculation of 2018-2019 Contribution Rates	Division H	
	Gen. Gov.	Uniformed
1. Actuarial Accrued Liability	\$ 4,533,632	\$ 1,855,906
2. Actuarial Asset Value	\$ 4,787,896	\$ 1,678,742
3. Unfunded Accrued Liability	\$ (254,264)	\$ 177,164
4. Amortization Years	19	19
5. Amortization of Unfunded Accrued Liability	\$ (20,763)	\$ 14,467
6. Entry Age Normal Cost	\$ 853,108	\$ 494,150
7. Preliminary Contribution ((5)+(6))	\$ 832,345	\$ 508,617
8. Recommended Contribution (mid-year payment) ((7) * 1.055 <sup>.5</sup> )	\$ 854,928	\$ 522,417
9. 2018-2019 Projected Payroll	\$ 10,945,518	\$ 3,938,177
10. Recommended Contribution as a Percent of Pay ((8)/(9))	7.81%	13.27%

## Historical Actuarial Accrued Liability by Group

General Government					
Year	Active	Deferred Vested	Retiree / Beneficiary	DC Account	Total
2018	79,594,564	16,307,946	145,769,795	7,039,181	248,711,486
2017	82,058,456	13,754,859	137,165,905	7,713,762	240,692,982
2016	76,912,412	12,331,890	133,997,984	7,134,145	230,376,431
2015	76,893,289	13,942,259	123,869,788	7,579,305	222,284,641
2014	74,590,838	18,784,047	114,858,103	8,219,060	216,452,048
2013	75,066,100	17,018,728	108,063,765	6,947,337	207,095,930
2012	78,140,653	10,835,882	101,594,356	6,617,754	197,188,645
2011	70,480,245	8,400,557	90,482,408	6,490,615	175,853,825
2010	68,570,688	10,061,474	83,002,791	5,150,390	166,785,343

Uniformed Bodies				
Year	Active	Deferred Vested	Retiree / Beneficiary	Total
2018	175,300,975	25,263,320	291,056,928	491,621,223
2017	171,764,538	24,407,745	280,463,590	476,635,873
2016	161,714,140	23,424,466	263,554,758	448,693,364
2015	159,431,244	14,545,955	256,658,404	430,635,603
2014	150,811,087	7,806,542	258,669,933	417,287,562
2013	140,732,522	6,718,056	254,808,320	402,258,898
2012	127,447,175	9,961,942	249,203,126	386,612,243
2011	105,474,245	8,964,728	231,028,713	345,467,686
2010	97,394,638	10,279,172	225,717,060	333,390,870

Board of Education				
Year	Active	Deferred Vested	Retiree / Beneficiary	Total
2018	69,624	0	54,235,823	54,305,447
2017	71,652	24,858	58,451,676	58,548,186
2016	126,258	56,041	59,932,956	60,115,255
2015	123,682	247,932	63,548,580	63,920,194
2014	210,915	266,450	68,808,204	69,285,569
2013	330,580	523,839	72,491,521	73,345,940
2012	295,822	674,816	76,653,922	77,624,560
2011	272,462	866,860	73,134,576	74,273,898
2010	268,563	1,528,364	76,207,686	78,004,613



## Historical Actuarial Accrued Liability Total

Pension System Total					
Year	Active	Deferred Vested	Retiree / Beneficiary	DC Account	Total
2018	254,965,163	41,571,266	491,062,546	7,039,181	794,638,156
2017	253,894,646	38,187,462	476,081,171	7,713,762	775,877,041
2016	238,752,810	35,812,397	457,485,698	7,134,145	739,185,050
2015	236,448,215	28,736,146	444,076,772	7,579,305	716,840,438
2014	225,612,840	26,857,039	442,336,240	8,219,060	703,025,179
2013	216,129,202	24,260,623	435,363,606	6,947,337	682,700,768
2012	205,883,650	21,472,640	427,451,404	6,617,754	661,425,448
2011	176,226,952	18,232,145	394,645,697	6,490,615	595,595,409
2010	166,233,889	21,869,010	384,927,537	5,150,390	578,180,826

## GASB Disclosure

### GASB Statement No. 67

This section presents specific information required under Statement No. 67 which is not included in other sections of this report. The information in this report is to satisfy the reporting for the pension plan. This section contains the following:

- Statement of Fiduciary Net Position
- Statement of Change in Fiduciary Net Position
- Investment Information
- Net Pension Liability including discount rate sensitivity and reconciliation between years
- Schedule of Contributions
- Schedule of Investments

Fiduciary Net Position is the amount of assets available for benefits in the Pension Plan.

Total Pension Liability is the plan liability determined using assumptions listed in the Summary of Actuarial Assumptions.

Net Pension Liability is the difference in the Total Pension Liability and the Fiduciary Net Position.

## Statement of Fiduciary Net Position (unaudited)

	<u>June 30, 2018</u>
<b>Assets</b>	
Cash	\$1,548
Cash Equivalents	\$8,018,634
Other	<u>\$2,892</u>
Total Cash	<u>8,023,074</u>
Receivables:	
Contributions	0
Investment Income	267,996
Other	<u>232</u>
Total Receivables	<u>268,228</u>
Investments:	
Corporate Bonds	42,492,484
Government Bonds	96,180,168
US Equities	162,164,120
International Equities	138,824,476
Real Estate	89,748,402
Alternative Assets	<u>53,292,543</u>
Total Investments:	<u>582,702,193</u>
Total Assets	<u>590,993,495</u>
<b>Liabilities</b>	
Payables:	
Accounts Payable	544,891
Purchases Payable	<u>756,800</u>
Total Liabilities	<u>1,301,691</u>
<b>Net Position Restricted for Pensions</b>	<u><u>\$589,691,804</u></u>

## Statement of Changes in Fiduciary Net Position (unaudited)

	<u>June 30, 2018</u>
<b>Additions</b>	
Contributions:	
Employer	\$25,719,853
Employee	<u>4,214,054</u>
Total Contributions	29,933,907
Investment Income	39,500,510
Audit Adjustments	<u>78,990</u>
Total Additions	<u>69,513,407</u>
<b>Deductions</b>	
Benefit Payments	(46,640,954)
Refunds	(853,220)
Administrative Expenses	(3,545,301)
Other	<u>0</u>
Total Deductions	<u>(51,039,475)</u>
Net Increase in Net Position	<u>18,473,932</u>
<b>Net Position Restricted for Pensions</b>	
Beginning of Year	<u>\$571,217,872</u>
End of Year	<u>\$589,691,804</u>

## Investment Information

### *Investment Policy*

To be supplied by the Pension Board under separate cover.

### *Concentrations*

If the plan held investments (other than those issued / guaranteed by US government) in any one organization that represent 5 percent or more of the pension plan's fiduciary net position, disclose information required by paragraph 30(b)(3).

### *Rate of Return*

For the year ended June 30, 2018, the annual money-weighted rate of return based on monthly cash flows on pension plan investments, net of pension plan investment expense, was 6.32%. The money-weighted rate of return expresses investment performance, net of investment expense, adjusted for the changing amounts actually invested.

### *Reserves*

If the plan had reserves, disclose information required by paragraph 30(e): 1) a description of the policy related to such reserves, 2) the authority under which the policy was established and may be amended, 3) the purposes for and conditions under which the reserves are required or permitted to be used, 4) the balances of the reserves.

### *Deferred Retirement Option Program*

See paragraph 30 on page 42 and paragraph 56 on page 49 for a description of the DROP program. The balance of accounts held by the pension plan pursuant to the DROP program as of June 30, 2018 is approximately \$1.6 million.

## Net Pension Liability (NPL)

### *Determination of Net Pension Liability*

The components of the net pension liability at June 30, 2018 were as follows:

Total Pension Liability	794,638,156
Plan Fiduciary Net Position	<u>(589,691,804)</u>
Net Pension Liability	<u>\$204,946,352</u>

Plan Fiduciary Net Position as a Percentage of Total Pension Liability	74.21%
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### *Sensitivity of Net Pension Liability to Changes in the Discount Rate*

The following represents the net pension liability calculated using the stated discount rate, as well as what the net pension liability would be if it were calculated using a discount rate that is 1-percentage-point lower or 1-percentage-point higher than the current rate:

	1% Decrease (6.25%)*	Current Rate (7.25%)*	1% Increase (8.25%)*
Net Pension Liability	\$297,519,451	\$204,946,352	\$127,549,811

\* For Division H, Current Rate is 5.5%; 1% Decrease is 4.5%; 1% Increase is 6.5%

## Schedule of Changes in the NPL and Related Ratios

(Dollar amounts in millions)

	Fiscal Year Ending June 30									
	<u>2014</u>	<u>2015</u>	<u>2016</u>	<u>2017</u>	<u>2018</u>	<u>2019</u>	<u>2020</u>	<u>2021</u>	<u>2022</u>	<u>2023</u>
<b>Total Pension Liability</b>										
Service cost	\$12.3	\$12.6	\$13.1	\$13.1	\$13.0					
Interest	49.4	50.9	51.8	52.5	55.1					
Changes of benefit terms	0.0	0.0	0.0	0.0	0.0					
Differences between expected and actual experience	0.9	(6.1)	2.1	(3.7)	(1.9)					
Changes of assumptions	0.0	0.0	0.0	21.0	0.0					
Benefit Payments / Refunds	(42.3)	(43.5)	(44.7)	(46.2)	(47.5)					
<b>Net Change in Total Pension Liability</b>	<u>20.3</u>	<u>13.8</u>	<u>22.3</u>	<u>36.7</u>	<u>18.8</u>					
<b>Total Pension Liability - beginning</b>	<u>682.7</u>	<u>703.0</u>	<u>716.8</u>	<u>739.2</u>	<u>775.9</u>					
<b>Total Pension Liability - ending (a)</b>	<u>\$703.0</u>	<u>\$716.8</u>	<u>\$739.2</u>	<u>\$775.9</u>	<u>\$794.6</u>					
<b>Plan Fiduciary Net Position</b>										
Contributions - employer	\$15.2	\$22.6	\$23.9	\$23.8	\$25.7					
Contributions - employee	4.0	4.1	2.0	4.4	4.2					
Credit balance	5.6	5.6	4.4	0.0	0.0					
Net investment income	86.3	9.8	0.0	65.9	39.5					
Benefit Payments / Refunds	(42.3)	(43.5)	(44.7)	(46.2)	(47.5)					
Administrative expenses	(2.3)	(3.8)	(3.2)	(3.3)	(3.5)					
Other	(0.0)	0.6	0.9	0.0	0.0					
<b>Net Change in Plan Fiduciary Net Position</b>	<u>\$66.6</u>	<u>(\$4.6)</u>	<u>(\$16.6)</u>	<u>\$44.6</u>	<u>\$18.4</u>					
<b>Plan Fiduciary Net Position - beginning</b>	<u>479.8</u>	<u>546.3</u>	<u>541.8</u>	<u>525.2</u>	<u>571.2</u>					
<b>Plan Fiduciary Net Position - ending (b)</b>	<u>\$546.3</u>	<u>\$541.8</u>	<u>\$525.2</u>	<u>\$571.2</u>	<u>\$589.7</u>					
<b>Net Pension Liability - ending (a) - (b)</b>	<u>\$156.7</u>	<u>\$175.1</u>	<u>\$214.0</u>	<u>\$204.7</u>	<u>\$204.9</u>					
Plan Fiduciary Net Position as a % of the Total Pension Liability	77.7%	75.6%	71.0%	73.6%	74.2%					
Covered-employee payroll	\$69.9	\$71.0	\$71.5	\$72.6	\$72.0					
Net Pension Liability as a % of covered-employee payroll	224.3%	246.6%	299.4%	281.8%	284.6%					

### Notes to Schedule

See Summary of Plan Provisions for notes regarding benefit changes. See Summary of Actuarial Assumptions and Methods for notes regarding changes in assumptions.

## Schedule of Contributions

(Dollar amounts in millions)

	Fiscal Year Ending June 30									
	<u>2014</u>	<u>2015</u>	<u>2016</u>	<u>2017</u>	<u>2018</u>	<u>2019</u>	<u>2020</u>	<u>2021</u>	<u>2022</u>	<u>2023</u>
Actuarially determined contribution *	\$20.9	\$22.6	\$23.9	\$23.8	\$25.7					
Contributions in relation to the actuarially determined contribution	20.9	22.6	23.9	23.8	25.7					
Contribution deficiency (excess)	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0					
Covered-employee payroll	\$69.9	\$71.0	\$71.5	\$72.6	\$72.0					
Contributions as a percentage of covered-employee payroll	29.8%	31.8%	33.4%	32.8%	35.7%					

\* 2014 contribution includes credit balance application of \$5.6 million

### Notes to Schedule

See Summary of Actuarial Assumptions and Methods for details regarding methods and assumptions used to determine contribution rates.

## Schedule of Investment Returns

	Fiscal Year Ending June 30									
	<u>2014</u>	<u>2015</u>	<u>2016</u>	<u>2017</u>	<u>2018</u>	<u>2019</u>	<u>2020</u>	<u>2021</u>	<u>2022</u>	<u>2023</u>
Annual money-weighted rate of return, net of investment expense	18.24%	1.52%	-0.11%	12.10%	6.32%					



## GASB Statement No. 68

This section presents specific information required under Statement No. 68 which is not included in other sections of this report. The information in this report is to satisfy the reporting for the pension plan. This section contains the following:

- Schedule of Changes in Net Pension Liability, Deferrals, and Pension Expense
- Pension Expense
- Deferred Outflows and Inflows of Resources

## Schedule of Changes in Net Pension Liability, Deferrals, and Pension Expense

	Increase (Decrease)			Deferred Outflows of Resources	Deferred Inflows of Resources	Pension Expense
	Total Pension Liability (a)	Plan Net Position (b)	Net Pension Liability (a) - (b)			
<b>Balances—at 06/30/2017</b>	<u>\$775,877,041</u>	<u>\$571,217,872</u>	<u>\$204,659,169</u>	<u>\$63,869,148</u>	<u>(\$35,684,826)</u>	
<b>Changes for the Year:</b>						
Service cost	13,048,662		13,048,662			13,048,662
Interest expense	55,074,301		55,074,301			55,074,301
Benefit changes						
Experience losses (gains)	(1,867,674)		(1,867,674)		(1,556,395)	(311,279)
Changes of assumptions	0		0			0
Contributions—City		25,719,853	(25,719,853)			
Contributions—members		4,214,054	(4,214,054)			(4,214,054)
Net investment income		39,500,510	(39,500,510)			
Expected return on plan investments						(44,309,625)
Current expense of asset gain/loss						961,823
Non expensed asset (gain)/loss				3,847,292		
Refunds of contributions	(853,220)	(853,220)	0			
Benefits paid	(46,640,954)	(46,640,954)	0			
Plan administrative expenses		(3,545,301)	3,545,301			3,545,301
Recognition of Prior Post-measurement Contribution				(25,510,627)		
Post-measurement Contribution				8,970,163		
Difference in prior year's contribution				(1,581,798)		
Other changes		78,990	(78,990)			
Amortization of or change in beginning balances				(19,818,474)	16,157,429	3,661,045
<b>Net Changes</b>	<u>18,761,115</u>	<u>18,473,932</u>	<u>287,183</u>	<u>(34,093,444)</u>	<u>14,601,034</u>	<u>27,456,174</u>
<b>Balances—at 06/30/2018</b>	<u>\$794,638,156</u>	<u>\$589,691,804</u>	<u>\$204,946,352</u>	<u>\$29,775,704*</u>	<u>(\$21,083,792)</u>	<u>\$27,456,174</u>

GASB Statement No. 71 requires contributions between the measurement date (June 30, 2018) and the disclosure date (June 30, 2019) for Statement No. 68 to be reported as a deferred outflow of resources.

\* Deferred Pension Outflows includes deferred losses of \$46,316,171 plus difference in expected contributions of -\$16,540,464

## Pension Expense

	Fiscal Year Ending June 30, 2017	Fiscal Year Ending June 30, 2018
Service cost	13,138,083	13,048,662
Interest	52,487,932	55,074,301
Benefit changes	0	0
Contributions—members	(4,417,803)	(4,214,054)
Expected investment return	(41,152,964)	(44,309,625)
Recognition of Deferred Inflows/Outflows of Resources		
Experience gains or losses	(1,071,070)	(1,382,350)
Investment gains or losses	1,737,045	2,698,868
Assumption changes or inputs	2,995,071	2,995,071
Plan administrative expenses	3,296,809	3,545,301
<b>Pension Expense</b>	<b>27,013,103</b>	<b>27,456,174</b>

## Deferred Outflows/Inflows of Resources

For the year ended June 30, 2019, the recognized pension expense will be \$27,456,174. At June 30, 2019, the City reported deferred outflows of resources and deferred inflows of resources in relation to pensions from the following sources:

	Original Amount	Date Established	Original Amortization Period (Years)	Recognized Annually in Expense	Deferred Outflows of Resources	Deferred Inflows of Resources
Experience losses (gains)	866,648	June 30, 2015	7.0	123,814	247,578	0
	(6,146,321)	June 30, 2016	6.0	(1,024,387)	0	2,048,773
	2,127,908	June 30, 2017	6.0	354,651	1,063,955	0
	(3,676,044)	June 30, 2018	7.0	(525,149)	0	2,625,746
	(1,867,674)	June 30, 2019	6.0	(311,279)	0	1,556,395
Changes of assumptions	20,965,499	June 30, 2018	7.0	2,995,071	14,975,357	0
Investment losses (gains)	(48,284,670)	June 30, 2015	5.0	(9,656,934)	0	0
	32,539,432	June 30, 2016	5.0	6,507,886	6,507,888	0
	49,185,258	June 30, 2017	5.0	9,837,052	19,674,102	0
	(24,754,795)	June 30, 2018	5.0	(4,950,959)	0	14,852,877
	4,809,115	June 30, 2019	5.0	961,823	3,847,292	0
<b>Total</b>				<u>4,311,589</u>	<u>46,316,171</u>	<u>21,083,792</u>

Amounts reported as deferred outflows of resources and deferred inflows of resources related to pensions will be recognized in pension expense as follows:

**Year ended June 30:**

2020	13,968,525
2021	7,460,586
2022	(1,475,840)
2023	3,120,466
2024	2,158,644
Thereafter	0

## Additional Information Regarding GASB Disclosure

### Current Notes:

1. The City continues to pursue a conservative policy regarding contributions to ensure that all benefits are properly funded.
2. As a result of the July 1, 2017 experience study, the following assumption updates were incorporated:
  - Changing mortality for all groups except Division H-GG and Division H-UB
  - Changing salary increase rates
  - Changing investment return from 7.375% to 7.25% (for all except Division H)

For a summary of assumptions in affect prior to and after July 1, 2017, see the City of Knoxville Valuation and Report as of July 1, 2017.

3. Effective July 1, 2013, Division H provisions have been incorporated into the valuation. All new hires participant in Division H effective January 1, 2013. The investment return assumption for Division H is 5.5%.
4. GASB 67 replaces GASB 25 effective for the fiscal year ending June 30, 2014. The valuation date, disclosure date, and measurement date all fall on the same date for purposes of GASB 67.
5. GASB 68 replaces GASB 27 effective for the fiscal year ending June 30, 2015. It is assumed the measurement date for GASB 68 will be 12 months before the disclosure date. For the first year of application (ending June 30, 2015), the measurement date is June 30, 2014 (as is the valuation date).

### Historical Notes:

1. Effective July 1, 1999, the Knoxville Utilities Board (KUB) split-off into its own plan and is no longer part of the City of Knoxville Pension System. Historical information in this disclosure does reflect KUB, to be consistent with prior disclosures. KUB will not be included in current or future year disclosures for the Pension System.
2. Effective January 6, 2001, Plan F liabilities are combined with Division C. The schedule of funding progress has been broken down by employee group beginning July 1, 2001 to show the specific impact on the unformed bodies (Division C/Plan F).
3. Effective July 1, 2004, the board adopted a funding policy to contribute at least 40% of the real cost (entry age cost) but no more than a) the prior year percent of payroll plus 2% or b) 120% of the prior year percent of payroll, if more.
4. Effective July 1, 2007, liabilities are calculated for GASB and funding purposes under the Entry Age Normal funding method.
5. Effective July 1, 2007, asset gains and losses are smoothed over 10 years.

## Basis of Valuation

### Summary of Plan Provisions

This Section summarizes the provisions of the City of Knoxville Pension System. Items 1-15 of this Section relate to Division A of the System; items 16-27 relate to Division B; and items 28-41 relate to Division C; items 42-54 relate to Division G; items 55-62 relate to Division F; items 63-78 relate to Division H – General Government; items 79-94 relate to Division H – Uniformed Bodies. The references to "Sections" at the end of each heading refer to Sections of the Charter of the City of Knoxville.

#### Division A

##### 1. *Eligibility (Sections 1360.3, 1360.4)*

As a condition of employment, each employee hired on or after January 16, 1963 and before December 1, 1996 becomes a member on the first day of the month after completing six months of service, provided the employee meets the minimum health requirements established by the Pension Board. Employees on April 1, 1963 who were members of Division B could elect to transfer to Division A; employees on that date who were not members of Division B could elect to become members of Division A upon satisfaction of the above service and health requirements.

- (a) Any Knoxville Board of Education certificated employee is ineligible, unless the employee previously participated in Division A or Division B or had rights to benefits thereunder before January 1, 1977.
- (b) Any other Board of Education employee hired on or after January 1, 1977 becomes a member of the Tennessee Consolidated Retirement System, if eligible; otherwise the employee becomes a member of Division A.
- (c) The following may elect in writing not to participate:
  - (1) Any member of the Tennessee Teachers Retirement System (notice required within 30 days of becoming an employee).
  - (2) Any City employee who is not a classified Civil Service System position, including persons appointed by the Mayor or occupying a policymaking or confidential position relative to the Mayor or any of the Directors.

##### 2. *Normal Retirement (Sections 1360.11, 1360.12, 1360.1(C)-(I))*

Retirement may be elected at or after age 62, with a monthly benefit for life equal to one-twelfth of the product of (a) and (b):

- (a) Credited service (in years and completed months); and
- (b) X% of average base earnings  
plus  
Y% of average excess earnings.

Age at Retirement	X%	Y%
62	0.75	1.50
63	0.78	1.58
64	0.83	1.66
65 or later	0.88	1.76

"Base earnings" are annual earnings up to \$4,800. "Excess earnings" are annual earnings over \$4,800. The term "Average" is the highest average earnings over a span of three years. For General Government Employees who terminate after January 3, 1999, "Average" is the highest average earnings over 2, not necessarily consecutive, 12 month periods.

3. *Minimum Benefits (Section 1360.13)*

The minimum monthly retirement benefit, including 50% of the member's primary Social Security, for a member with at least 5 full years of credited service is

- (a) For a member who retires on or after July 1, 1997, \$10 per year of credited service, subject to a \$250 maximum if the member worked at least 1,000 hours in each of 5 years, or
- (b) For a member who retires on or after January 1, 1977 and before July 1, 1997, \$10 per year of credited service, subject to a \$250 maximum if the member worked at least 1,000 hours in each of 10 years, or
- (c) For a member who was retired on January 1, 1977, \$5 per year of credited service, subject to a \$125 maximum if the member had not worked for at least 1,000 hours in each of 5 years;

provided that the minimum will be reduced actuarially in accordance with the terms of any option elected.

4. *Benefit Adjustment (Section 1360.30)*

**Division A members other than those in general government, prior to January 1, 2001**

Retirement benefits payable from the fund to retired members, survivors or beneficiaries are increased or decreased (but not below their initial amount) by the percentage change in the Consumer Price Index for the 12 months ending September 30 of the prior year, but not by more than 3%, of the initial pension or benefit. An additional adjustment of up to 1% of the initial benefit, in an amount equal to one-half of the excess of the percentage change in the Consumer Price Index over 3%, applies to all pensioners and beneficiaries who have reached age 62 in the current year. Adjustments are to be made January 1 of each year, commencing 12 months after benefits start.

**Division A members in general government, effective July 1, 2001 for all Division A members**

Retirement benefits payable from the fund to retired members, survivors or beneficiaries are increased by 3% of the current benefit. An additional adjustment of up to 1% of the current benefit, in an amount equal to one-half of the excess over 3% of the percentage change in the Consumer Price Index for the 12 months ending September 30 of the prior year, applies to all pensioners and beneficiaries who have reached age 62 in the current year. Adjustments are to be made January 1 of each year, commencing 12 months after benefits start.

5. *Early Retirement (Sections 1360.16 and 1360.17)*

After completion of 25 years of service, a member is eligible for an early retirement benefit which is either (a) a deferred pension starting at age 62 equal to the accrued benefit as of the early retirement date, computed as in item 2 above, or (b) an immediate, reduced pension which is actuarially equivalent to the deferred benefit under (a).

6. *Delayed Retirement (Sections 1360.14 and 1360.15)*

If a member remains in active employment beyond the member's 65th birthday, then upon actual retirement the member receives a pension computed as in item 1 above, crediting years of service to the delayed retirement date, and subject to the minimum benefit provisions in item 3 above.

7. *Vesting (Sections 1360.27, 1360.28, 1350(O) and 1350.9)*

- (a) On termination of employment before completing 5 years of service (effective 7/1/97), a member may elect either
- (1) to receive a refund of employee contributions with simple interest, without right to credit for prior service in the event of reemployment, or
  - (2) to leave the member's contributions in the fund for six years, with right to credit for prior service if reemployed within the six-year period; if the member is not reemployed or if the member dies, a refund is automatic at the end of six years.
- (b) On termination of employment following completion of at least 5 years of service (effective 7/1/97), a member is eligible to receive a refund (as described in (7)(a) above) or a deferred pension computed as in item 2 above, based on completed service at termination, commencing at age 62 and payable for life. Credit for prior service is given in the event of reemployment.

(c) Reinstatement of Previous Service

A member who terminates with a non-vested benefit, upon reemployment within six years after such termination, has the right to reinstate the previous credited service upon meeting the following conditions:

- (1) written application submitted within six months of a member's first reemployment anniversary date;
- (2) if the member had received a refund, payment of the refund with interest computed at the reemployment interest rate (actuarial assumed rate at time of reemployment); and
- (3) completion of one year of employment after reemployment.

8. *Disability - In Line of Duty (Sections 1360.18, 1360.21 and 1360.22)*

In the event of disability incurred by a member in the line of duty, the monthly pension commencing on the member's disability retirement date is computed as in item 2 above as though retirement were occurring at age 62, using service projected to age 62, subject to the minimum benefit set forth in item 3.



9. *Disability - Not in Line of Duty (Sections 1360.18, 1360.19 and 1360.20)*

After 15 years of credited service, in the event of disability incurred by a member other than in the line of duty, the monthly lifetime pension commencing at the member's disability retirement date is computed using the factors in item 2 above for age 62 and the employee's years of service at date of disability, subject to the minimum benefit in item 3 above.

10. *Death before Retirement (Sections 1360.24 and 1360.31)*

- (a) If a member dies prior to attaining age 62 or completing 5 years of service or commencement of any benefits, the beneficiary receives a lump sum payment of the member's contributions.
- (b) If a member dies prior to commencement of any benefits, but after the first day of the month following the member's 62nd birthday or completion of 5 years of service, the surviving spouse or other designated beneficiary receives either
  - (1) a monthly benefit payable in accordance with any option in effect on the date of the member's death, or
  - (2) if no option is in effect, a 50% survivor annuity computed as though the member had retired the day before death. If the member had not attained age 62 when the member died, the benefit shall be calculated as if the member were age 62.
- (c) A refund is payable to the estate of the deceased member if there is no surviving spouse or designated beneficiary.
- (d) If a member who has not elected an option dies after completion of ten years of service (or, if death results from line of duty injuries, without regard to service), each of the member's dependent children shall receive a monthly benefit of \$75.00, payable until the child attains age 19 (or 23 if a full-time student)

11. *Death after Retirement (Section 1360.25)*

If no option is elected, the retired member's surviving beneficiary or estate, as applicable, receives the excess of the member's contributions over the pension benefits paid to the member.

12. *Marriage after Retirement (Section 1360.26)*

An unmarried member who is receiving normal, delayed or early retirement benefits and who has not elected an option to apply to the benefit, and who subsequently marries, may at the end of two years of marriage elect an option to provide survivor's benefits to the spouse.

13. *Optional Forms of Settlement (Sections 1350.7, 1350.8 and 1360.29)*

A member who is entitled to retirement or disability benefits may elect any of the following:

- Option A - A joint and survivor annuity, with 50%, 75% or 100% of the member's benefit continuing to the spouse after death.

A modification of this type of option is also available, under which the member receives a smaller initial benefit, but the monthly amount reverts to the level payable if no option had been elected in the event the spouse predeceases the member.

- Option B - A life annuity, with 60, 120 or 180 monthly payments guaranteed.
- Option C - A cash refund annuity.
- Option D - Special design: The supplemental plan provisions, as reviewed by the pension board and approved by city council, may authorize additional forms of benefit, including benefits payable in whole or in part as a single sum.

The maximum benefit from the System for a member who is also eligible to receive benefits from the Tennessee Consolidated Retirement System is determined as 100% of the member's final three-year average earnings less the amount of benefit from the Tennessee Consolidated Retirement System.

14. *Employee Contributions (Section 1360.9)*

Each employee contributes by payroll deduction 3% of the first \$4,800 of earnings and 5% of the excess of earnings over \$4,800.

15. *Employer Contributions (Section 1360.10)*

The required employer contribution rate is based on an annual actuarial valuation. Separate employer contribution rates are calculated for employees of the General Government and the Board of Education.

## Division B

16. *Eligibility (Sections 1340 and 1350.1)*

All employees, except policemen and firemen, who were employees of the City on January 16, 1963, who participated in the City Employees' Pension Fund the day before the effective date, who have not elected to transfer to Division A, and who were not over age 40 when electing to contribute, are eligible to participate.

17. *Normal Retirement (Sections 1325 and 1326)*

After age 50 and 25 years of service, the immediate monthly pension is 50% of the member's average monthly salary for the three consecutive years, which yield the highest average. To this percentage will be added 1% for each year (and fraction based on completed months) of service worked after January 1, 1979 and after the member has reached age 50 and completed 25 years of service, subject to a maximum addition of 10%. For General Government Employees terminating after January 3, 1999, average salary shall be based on the 2 highest, not necessarily consecutive, 12 month periods.

18. *Minimum Benefits (Section 1326)*

Commencing July 1, 1982, the minimum monthly retirement benefit for a member with at least 10 full years of credited service is

- (a) \$10 per year of credited service, subject to a \$250 maximum if the member worked at least 1,000 hours in each of 10 years, or
- (b) For a member who was retired on January 1, 1977, \$5 per year of credited service, subject to a \$125 maximum if the member had not worked for at least 1,000 hours in each of 10 years;

provided that the minimum will be reduced actuarially in accordance with the terms of any option elected by the member.

19. *Benefit Adjustment (Section 1339)*

Same as in paragraph 4 above.

20. *Disability Retirement (Sections 1330, 1331 and 1350.5)*

- (a) For disability not in line of duty after 15 years of service, the monthly pension is 50% of the member's average monthly salary for the highest three consecutive years, reduced by the ratio of years of service to 25 years, and subject to a minimum of \$250, reduced by the ratio of years of service to 25 years.
- (b) For disability in line of duty, the immediate monthly pension is 50% of the member's monthly salary as of the member's date of disability. The disability pension is reduced by any monthly Workmen's Compensation benefit and is not to duplicate vacation pay, sick leave benefits or unpaid compensation for services rendered.

21. *Temporary Disability (Section 1334)*

Upon temporary disability from injury incurred in line of duty, a member is paid the full and regular salary out of the pension fund during the period of such disability, not to exceed six months. A member is paid 50% of the actual salary base during a period of disability because of sickness, commencing on the fourth day off duty, for not more than 30 days in any six months.

22. *Death Before or After Retirement (Section 1333)*

- (a) Upon death before or after retirement because of injury received in line of duty, leaving a widow, widower, children under 19, or a dependent parent, the following benefits are payable:
  - (1) the greater of \$250 per month or 50% of the pension to which the deceased member would have been entitled is payable to either widow, widower or dependent parents;
  - (2) \$75 per month is payable per dependent child;

provided that the total payable to all survivors does not exceed 50% of the member's salary at the time of injury and that children's benefits cease at each child's age 19 (or age 23 if the child is a full-time student).

Exceptions: Death benefits above are not provided for a widow or widower or children resulting from marriage contracted after retirement.

- (b) Upon death before or after retirement, not in line of duty, after 15 years of service, the same benefits as in (a) above are payable. However, after 15 but less than 25 years of service, any benefits payable to the member's widow, widower, or dependent parents are reduced by the ratio of years of service to 25 years.

A member who has been married for at least two years at normal retirement date may elect within 90 days prior to such date to have paid, in lieu of the pension and survivor's benefits to a spouse, an Option A benefit commencing at the member's retirement, with benefits continuing for the lifetime of the spouse. This elected benefit is to have the same actuarial value as the pension otherwise payable for the member's life plus the value of the spouse's survivor benefit payable during the spouse's lifetime pursuant to Section 1333.

23. *Vesting (Sections 1328, 1337 and 1350.9)*

- (a) On termination of employment after 10 years of service, a member may elect to receive, in lieu of all other benefits, a monthly deferred benefit at normal retirement date and for life thereafter of 50% of the average monthly salary for the three consecutive years of highest earnings, reduced by the ratio of the years of service at termination to the years that the member would have completed at normal retirement. If the member dies before commencement of the deferred benefit, a refund is made to the member's surviving beneficiary or estate.
- (b) A member with 25 years of service may elect to receive, in lieu of a deferred benefit, an immediate monthly early retirement benefit commencing at termination and continuing for life in an actuarially reduced amount. If the member dies before commencement of the deferred benefit and if an option had been elected, payment is made in accordance with the option. If no option had been elected, payment is made as if the member had elected a 50% joint and survivor benefit. If there is no surviving spouse or other designated beneficiary, a refund is payable to the member's estate.

(c) Prior Rights

Any director of a department of the City on leave of absence from a Civil Service position is entitled to credit for years while on such leave, provided the member makes the required contributions to the fund.

(d) Reinstatement of Previous Service

A member who terminates with less than ten years of credited service, upon reemployment within six years after such termination, has the right to reinstate previous credited service upon meeting the following conditions:

- (1) written application submitted within six months of a member's first reemployment anniversary date;
- (2) if the member had received a refund, payment of the refund with interest computed at the reemployment interest rate (actuarial assumed rate at time of reemployment); and
- (3) completion of one year of employment after reemployment.

24. *Marriage After Retirement (Section 1329)*

An unmarried member who is receiving a normal or vested retirement pension and who has not elected an option to apply to the benefit, and who subsequently marries, may at the end of two years of marriage elect an option to provide survivor's benefits to the member's spouse.

25. *Optional Forms of Settlement (Sections 1327, 1350.7 and 1350.8)*

A member who is entitled to retirement or disability benefits, may elect any of the following:

Option A - A joint and survivor annuity, with 50%, 75% or 100% of the member's benefit continuing to the spouse after death.

A modification of this type of option is also available, under which the member receives a smaller initial benefit, but the monthly amount reverts to the level payable if no option had been elected in the event the spouse predeceases the member.

Option B - A life annuity, with 60, 120 or 180 monthly payments guaranteed.

Option C - A cash refund annuity.

Option D - Special design: The supplemental plan provisions, as reviewed by the pension board and approved by city council, may authorize additional forms of benefit, including benefits payable in whole or in part as a single sum.

The maximum benefit from the System for a member who is also eligible to receive benefits from the Tennessee Consolidated Retirement System is determined as 100% of the member's final three-year average earnings less the amount of benefit from the Tennessee Consolidated Retirement System.

26. *Employee Contributions (Section 1321)*

Employees contribute 4% of monthly salary by payroll deduction.

27. *Employer Contributions (Section 1338)*

The required employer contribution rate is based on an annual actuarial valuation. Separate employer contribution rates are calculated for employees of the General Government and the Board of Education.

## Division C

28. *Eligibility (Sections 1390.1 and 1390.3)*

All firemen and policemen regularly employed by the City of Knoxville who were members of Division A on January 2, 1971, the effective date of Division C (except meter maids, park policemen and firemen, crossing guards and auxiliary police), and who elected to transfer to Division C are eligible to participate. Firemen and policemen employed after January 2, 1971 and prior to January 1, 2013 participate in the plan as a condition of employment.

29. *Normal Retirement (Sections 1390.1(J), 1390.6, 1390.7, and 1390.8)*

A member may retire after completing 25 years of total service and attaining age 50.

The monthly retirement benefit payable for life is as follows:

2.4% of the member's average salary for each year of service, subject to a maximum of 30 years of service, for retirements commencing on or after January 3, 1999 and before January 6, 2001.

2.5% of the member's average salary for each complete year and month of service, subject to a maximum of 30 years of service, for retirements commencing on or after January 6, 2001.

"Average salary" means the member's average annual salary during the two years of service, whether consecutive or not, in which the member received the highest annual salary.

30. *Delayed Retirement Option (Section 1390.22)*

On or after December 31, 2000, a Division C member eligible for Normal Retirement may elect a delayed retired date, not more than 24 months after the date of election. The monthly benefit payable beginning on the delayed retirement date will be the same as would have been payable had the member retired on the election date except that a single sum amount shall also be paid. The amount of the single sum payment will be equal to the monthly payment times the number of months from the election date to the delayed retirement date plus any cost of living increases which are effective during the DROP period.

31. *Minimum Benefits (Section 1390.9)*

The minimum monthly retirement benefit for a member with at least 5 full years of credited service is

- (a) For a member who retires on or after July 1, 1997, \$250, reduced pro rata for service less than 25 years, if the member had worked at least 1,000 hours in each of 5 years, or
- (b) For a member who retires after January 1, 1977 and before July 1, 1997, \$250, reduced pro rata for service less than 25 years, if the member had worked at least 1,000 hours in each of 10 years, or
- (c) For a member who was retired on January 1, 1977, \$125, reduced pro rata for service less than 25 years, if the member had not worked for at least 1,000 hours in each of 5 years;

provided that the minimum will be reduced actuarially in accordance with the terms of any option elected.

32. *Benefit Adjustment (Section 1390.18)*

Retirement benefits payable from the fund to retired members, survivors or beneficiaries are increased by 3% of the current benefit. An additional adjustment of up to 1% of the current benefit, in an amount equal to one-half of the excess over 3% of the percentage change in the Consumer Price Index for the 12 months ending September 30 of the prior year, applies to all pensioners and beneficiaries who have reached age 62 in the current year. Adjustments are to be made January 1 of each year, commencing 12 months after benefits start.

33. *Permanent Disability (Sections 1390.10, 1390.11 and 1390.12)*

- (a) Incurred in Line of Duty

In the event of permanent disability incurred in the line of duty, the member will receive a monthly benefit equal to 50% of the member's average salary, payable from the date of disability until death or earlier termination of disability.

- (b) Incurred Other than in Line of Duty

If a member who has at least 5 years of service becomes disabled after July 1, 1997, as a result of any cause other than an in line of duty injury, the member is entitled to a benefit payable during the member's lifetime or until earlier recovery from disability. The monthly benefit is 2% of the member's average salary for each full year of service not exceeding 25 years, but in no event shall be less than \$250, reduced proportionately if service is less than 25 years.

34. *Death of a Disabled Member (Sections 1390.11 and 1390.15)*

- (a) Disability Incurred in Line of Duty

Upon the death of a member who is receiving benefits on account of permanent disability incurred in line of duty, the surviving spouse and dependent children, or dependent parents, if any, are entitled to the death benefit payable upon the death of a member due to line of duty causes, as described in item 35(a) below.

- (b) Disability Incurred Other than in Line of Duty

Upon the death of a member who is receiving benefits on account of permanent disability incurred other than in line of duty:

- (1) A surviving spouse receives, until death, a monthly benefit of 50% of the benefit the member was receiving at the date of death, subject to a minimum of \$250 per month reduced by the proportion that the member's years actually served bear to 25 years.
- (2) Each dependent child receives a monthly benefit of \$75 until age 19, or age 23 if a full-time student.

If benefits payable under (1) and (2) exceed the benefit the member was receiving at death, the dependents' benefits are reduced proportionately.

- (3) If neither spouse nor dependent child survives the member, \$250 per month for life or the duration of dependency is paid to dependent parents, if any, reduced pro rata for less than 25 years of service. A dependent parent is a parent who received more than 50% of support from the member.

### 35. *Death of an Active Member Before Retirement (Sections 1390.13 and 1390.14)*

Benefits are payable to the named beneficiary in accordance with the alternate retirement option on file with the pension board at the time of the member's death. If no option is on file at the time of the member's death, the following benefits are payable:

#### (a) In line of Duty

Upon the death of a member while in active service and in the line of duty, benefits to survivors are as follows:

- (1) A surviving spouse receives, until death, a monthly benefit equal to 50% of the member's average salary, reduced proportionately if member's death occurred before completion of 25 years of service, subject to a minimum of \$250 per month.
- (2) Each dependent child receives \$75 per month until age 19, or, if a full-time student, until age 23.
- (3) If there is no surviving spouse or dependent child, but there is a surviving dependent parent or parents, \$250 is paid to the parent or jointly to the parents monthly for life or for the duration of dependency. The benefit is reduced pro rata if the member's death occurred before the member had completed 25 years of service.

#### (b) Other than in Line of Duty

If a member with at least 5 years of service (on or after July 1, 1997) dies while actively employed from causes other than injury in line of duty, survivors' benefits are as follows:

- (1) A surviving spouse receives, until death, a monthly benefit equal to 50% of the monthly benefit the member would have received under item 34(b) above if the member had retired as a result of disability not in line of duty, subject to a minimum monthly benefit of \$250 if the member had completed 25 years of service. The minimum is reduced proportionately for less than 25 years of service.
- (2) Each dependent child receives \$75 per month until age 19 (if a full-time student, until age 23).
- (3) Dependent parents receive the same benefit as in item (a)(3) above.

36. *Death of Retired Member (Section 1390.15)*

Upon the death after normal retirement of a member who has not elected an optional form of benefit described in item 40 below, the member's surviving spouse, dependent children and dependent parent or parents receive the same benefits as in item 34(b) above.

A member who has been married for at least two years at the member's normal retirement date may elect within 90 days prior to such date to have paid, in lieu of the member's pension and survivor's benefits to a spouse, an Option A benefit commencing at the member's retirement, with benefits continuing for the lifetime of the spouse. This elected benefit is to have the same actuarial value as the pension otherwise payable for the member's life plus the value of the spouse's survivor benefit payable during the spouse's lifetime.

37. *Vesting (Section 1390.16)*

- (a) A member with at least 5 years of service (as of July 1, 1997) who terminates employment is eligible to receive a refund of contributions or a deferred vested retirement benefit for life, commencing on normal retirement date. The benefit is computed as 2% of the member's average salary for each year of service the member would have completed on normal retirement date, subject to a maximum of 25 years, reduced by the ratio of years of service the member had completed at termination to the years of service that the member would have completed if the member had continued to work until normal retirement. If death occurs prior to commencement of the deferred benefit, a refund of employee contributions plus simple interest is payable to the designated beneficiary or the member's estate, as applicable.
- (b) A member with 25 years of service is entitled to a deferred vested retirement benefit computed as in (a) above, or the member may elect in lieu thereof to receive an immediate monthly benefit payable for life. If death occurs prior to commencement of a deferred benefit, payments are made in accordance with any option that was elected by the member. If no option had been elected, a benefit is paid to the surviving spouse as though the member had elected a 50% joint and survivor annuity, or a refund of employee contributions plus simple interest is paid to the member's estate if there is no surviving spouse.

38. *Termination Prior to Vesting (Sections 1350(O), 1350.9, and 1390.17)*

- (a) Upon termination of employment before becoming vested, a member may elect either
  - (1) to receive a refund of employee contributions with simple interest, without right to credit for prior service in the event of reemployment, or
  - (2) to leave contributions in the fund for six years, with credit for prior service if reemployed within the six-year period; if the member is not reemployed or if the member dies a refund is automatic at the end of six years.



(b) Reinstatement of Previous Service

A member who terminates with a non-vested benefit, upon reemployment within six years after such termination, has the right to reinstate previous credited service upon meeting the following conditions:

- (1) written application submitted within six months of a member's first reemployment anniversary date;
- (2) if the member had received a refund, payment of the refund with interest computed at the reemployment interest rate (actuarial assumed rate at time of reemployment); and
- (3) completion of one year of employment after reemployment.

39. *Reemployment (Sections 1381.2)*

Any Division C member who is reemployed on or after January 1, 2013 will automatically become a member of Division H.

40. *Optional Forms of Settlement (Sections 1350.7, 1350.8, 1390.19)*

A member who is entitled to retirement or disability benefits, may elect any of the following:

Option A - A joint and survivor annuity, with 50%, 75% or 100% of the member's benefit continuing to the spouse after death.

A modification of this type of option is also available, under which the member receives a smaller initial benefit, but the monthly amount reverts to the level payable if no option had been elected in the event the spouse predeceases the member.

Option B - A life annuity, with 60, 120 or 180 monthly payments guaranteed.

Option C - A cash refund annuity.

Option D - Special design: The supplemental plan provisions, as reviewed by the pension board and approved by city council, may authorize additional forms of benefit, including benefits payable in whole or in part as a single sum.

The maximum benefit from the System for a member who is also eligible to receive benefits from the Tennessee Consolidated Retirement System is determined as 100% of the member's final three-year average earnings less the amount of benefit from the Tennessee Consolidated Retirement System.

41. *Member Contributions (Section 1390.4)*

Each member contributes by payroll deduction 6% of monthly salary by payroll deduction. Effective January 1, 1997, contributions are not required by members with more than 30 years of service.

42. *Employer Contributions (Section 1390.5)*

The required employer contribution rate is based on an annual actuarial valuation.

**Division G**

43. *Eligibility (Section 1371.2 A)*

All general government employees hired on or after January 1, 1997 and prior to January 1, 2013 are eligible on the first day of the month following six months of service. General government employees hired before January 1, 1997 may elect to participate in Division G, effective July 1, 1997.

44. *Normal Retirement (Sections 1371.3 and 1371.4)*

Eligibility for normal retirement benefit is the earlier of (i) age 62 or (ii) the first of the month coincident or following the date the member's age plus credited service equals eighty (80).

45. *Normal Retirement Benefit - Division G1 (Section 1371.3 A1)*

The monthly normal retirement benefit for a member of Division G1 is equal to the sum of the following:

- (a) the Division A benefit based on service prior to July 1, 1997,
- (b) one-twelfth of the product of: (i) service after July 1, 1997, (ii) Average Compensation and (iii) the following applicable benefit rate:

Age at Benefit Commencement	Benefit Rates for Retirements Before January 6, 2001	Benefit Rates for Retirements After January 6, 2001
62 or earlier	1.07%	1.15%
63	1.12%	1.21%
64	1.18%	1.27%
65 or later	1.25%	1.35%

and,

- (c) any amounts which have been contributed or allocated to the member's individual account.

Average Compensation is calculated as the highest 2, not necessarily consecutive, 12 month periods.

46. *Normal Retirement Benefit - Division G2 (Section 1371.3 A2)*

The monthly normal retirement benefit for a member of Division G2 is equal to one-twelfth of the product of (a) credited service (in years and completed months), and (b) 2% of Average Compensation. Average Compensation is calculated as the highest 2, not necessarily consecutive, 12 month periods. For retirements after January 6, 2001, 2% is increased to 2.1%.

47. *Minimum Benefits (Section 1371.3 B)*

Minimum benefits under Division G are determined according to the same rules used to determine minimum benefits under Division A.

48. *Employee Contributions (Section 1371.3 F)*

The amount of the employee contribution is 6% of compensation. For members of Division G1, one-half of the employee contribution (or 3% of compensation) is allocated to the employee's individual account.

49. *Retirement (Section 1371.4 A)*

Early or delayed retirement may be elected under the same provisions as Division A, except that the reduction, if any, shall be 0.25% per month for each month by which the benefit commencement precedes the month of the member's 62nd birthday.

50. *Benefit Adjustment (Section 1371.3 C)*

Benefit adjustments shall be made as if the member were a Division A member, except that amounts from the member's individual account (under Division G1) shall be excluded and that the first adjustment shall apply on a prorated basis on the January 1 following retirement.

51. *Employer Contributions (Section 1371.3 E)*

The amount of the employer contribution varies from year to year, and is based on the amount required to meet the funding obligations of the system. In addition, for members of Division G1, the employer will contribute 1.5% of the member's compensation to the member's individual account.

52. *Disability (Section 1371.4 B)*

Eligibility requirements are the same as for Division A. The amount of the benefit is based on the member's Division G benefit, including, if applicable, the amount of the member's individual account balance.

53. *Optional Forms of Settlement (Sections 1371.4D and 1350.7, Section 2.01 of the July 1, 1997 Supplemental Plan Provisions)*

Members entitled to receive retirement benefits may elect any of the optional forms available under Division A. A member with an individual account balance may receive that balance in the form of a lump sum.

54. *Termination before Retirement (Section 1371.4E, Section 2.02 of the July 1, 1997 Supplemental Plan Provisions)*

Members who terminate with a vested benefit will receive that benefit in accordance with the same rules applicable to members of Division A. A member with an individual account balance who terminates with less than 5 years of service may elect to receive a refund of employee contributions. A member with an individual account balance who terminates with more than 5 years of service may elect to receive the amount of the individual account balance as a deferred annuity.

55. *Reemployment (Sections 1381.2)*

Any Division G member who is reemployed on or after January 1, 2013 will automatically become a member of Division H.

56. *Delayed Retirement Option (Section 1371.8)*

On or after January 6, 2001, a member eligible for Normal Retirement may elect a delayed retired date, not more than 24 months after the date of election. The monthly benefit payable beginning on the delayed retirement date will be the same as would have been payable had the member retired on the election date except that a single sum amount shall also be paid. The amount of the single sum payment will be equal to the monthly payment times the number of months from election date to delayed retirement date plus any cost of living increases which are effective during the DROP period.

**Division F**

57. *Establishment of Division F (Section 1301, 1302(a))*

Effective January 6, 2001, Division F is established and added to the City employees' pension system. On and after January 6, 2001, all liabilities of the firemen and policemen pension fund (formerly known as Plan F) shall be assumed by the city employees' pension fund.

58. *Eligibility (Section 1301)*

All firemen and policemen regularly employed by the City of Knoxville prior to January 16, 1963 are eligible to participate.

59. *Normal Retirement (Section 1304)*

A member may retire after completing 25 years of total service and attaining age 50.

The monthly retirement benefit payable for life is one-half of the member's highest monthly salary, increased by 2% of that salary for each year of service in excess of 25, up to a maximum benefit of 60% of salary.

60. *Minimum Benefits (Section 1306)*

A minimum monthly benefit of \$350 is provided for retirees with at least 25 years of service. This minimum is pro-rated for retirees with less than 25 years of service. Effective January 1, 2001, the minimum monthly benefit of \$350 is increased to \$750.

61. *Benefit Adjustment (Section 1307)*

Retirement benefits payable from the fund to retired members, survivors or beneficiaries are increased each January 1, commencing with the January 1 following the member's retirement. The benefits are increased as follows:

- (a) The prior year benefit plus 6% of the retiree's base (initial) benefit or, if larger,
- (b) The prior year benefit plus 4% of the retiree's prior year benefit.

62. *Permanent Disability (Sections 1303 and 1305)*

(a) Incurred in Line of Duty

In the event of permanent disability incurred in the line of duty, the member will receive a monthly benefit equal to 50% of salary at the time of the member's disability, payable from the date of disability until death or earlier termination of disability. A minimum monthly benefit of \$125 is provided.

(b) Incurred Other Than in Line of Duty

If a member who has at least 10 years of service becomes disabled as a result of any cause other than a line of duty injury, the member is entitled to a benefit payable during the member's lifetime or until earlier recovery from disability. The monthly benefit is 2% of the member's salary at disability for each full year of service not exceeding 25 years, but in no event shall be less than \$125, reduced proportionally if service is less than 25 years.

63. *Member Contributions (Section 1302A)*

Each member contributes by payroll deduction 5% of monthly salary by payroll deduction.

64. *Employer Contributions (Section 1302B)*

The required employer contribution rate is based on an annual actuarial valuation.

## **Division H – General Government**

65. *Eligibility (Sections 1381.2 A and B)*

All general government employees hired on or after January 1, 2013 are eligible as of the date of employment. All former City of Knoxville general government employees rehired on or after January 1, 2013 will become a member of Division H and accrue benefits under Division H only from such reemployment date.

66. *Normal Retirement (Section 1381.1 R)*

Eligibility for normal retirement benefit is the completion of 10 years of service and the attainment of age 63.

67. *Normal Retirement Benefit (Sections 1381.1 B and F, 1381.3 A)*

The monthly normal retirement benefit is equal to the greater of the following:

- (a) a monthly benefit equal to one-twelfth of the product of 2% times service times average compensation, or,
- (b) the annuity value of the member's hypothetical account

Average Compensation is calculated as the highest 5, not necessarily consecutive, 12 month periods, limited by the compensation cap if applicable. The compensation cap is \$40,000 prior to July 1, 2014, indexed by the CPI, rounded down to the nearest \$1,000.

68. *Minimum Benefits (Section 1381.3 B)*

The minimum monthly retirement benefit payable to a member who has completed at least 10 years of service is

- (a) \$10 per year of service, subject to a maximum of \$250, if the member worked at least 1,000 hours in each of 10 years of service, or
- (b) \$5 per year of service, subject to a maximum of \$125, if the member did not work at least 1,000 hours in each of 10 years of service

provided that the minimum will be reduced actuarially in accordance with the terms of any option elected by the member.

69. *Early Retirement (Section 1381.3 C)*

A Division H Member shall be eligible for Early Retirement upon attainment of age 50 and completion of 20 years of service.

The monthly early retirement benefit is equal to the greater of the following:

- (a) a monthly benefit equal to the Normal Retirement Benefit in item 67(a) above, reduced by 4/12 of 1% per month for each month prior to normal retirement date, or,
- (b) the annuity value of the member's hypothetical account at the member's early retirement date

70. *Benefit Adjustment (Section 1381.3 D)*

Retirement benefits payable from the fund to retired members, survivors or beneficiaries are increased by the product of

- (a) the percentage change in the Consumer Price Index for the 12 months ending September 30 of the prior year, but not less than 0% or greater than 3%, and
- (b) the COLA funding factor based on the Division H funded percentage determined as of June 30 of the prior year, as follows:

<u>Funded Percentage</u>	<u>COLA Funding Factor</u>
>= 95%	100%
>= 80% but < 95%	50%
>= 60% but < 80%	25%
< 60%	0%

Adjustments are to be made January 1 of each year. Benefits commencing on a date other than January 1 will receive a prorated benefit adjustment based on full months the benefit was paid in the initial year.

Adjustments will not be made with regard to refunds or partial lump sum distributions.

71. *Employee Hypothetical Accounts (Section 1381.3 E)*

Each employee shall have a hypothetical account maintained by the plan which is comprised of employer credits, employee credits, and allocation of interest credit.

72. *Employer Contributions (Section 1381.3 F)*

The required employer contribution rate is based on an annual actuarial valuation.

73. *Employee Contributions (Section 1381.3 G)*

The amount of the employee contribution is 6% of compensation.

74. *Employer Credits (Section 1381.3 F)*

The member's hypothetical account shall receive quarterly employer credits in an amount equal to 8% of compensation.

75. *Employee Credits (Section 1381.3 G)*

The member's hypothetical account shall receive quarterly employee credits in an amount equal to 6% of compensation.

76. *Allocation of Interest Credit (Section 1381.3 H)*

As of each valuation date, interest credit shall be allocated to the hypothetical account of each member by applying the interest crediting rate since the preceding valuation date to the member's hypothetical account balance as of that preceding valuation date plus interest on  $\frac{1}{2}$  of the member's employee and employer contribution credits since that preceding valuation date.

77. *Disability (Sections 1381.4 B and 1360.18)*

Eligibility requirements are the same as for Division A. Any not in line of duty disability benefit is only payable with respect to members who have 10 years of service. The benefit is based on the Division H Normal Retirement Benefit.

78. *Death (Section 1381.4 C)*

Eligibility requirements are the same as for Division A. Any not in line of duty death benefit is only payable with respect to members who have 10 years of service. The benefit is based on the Division H Normal Retirement Benefit.

79. *Form of Payment (Sections 1381.4 D, 1350.7, and 1360.26)*

Members entitled to receive retirement benefits may elect any of the optional forms available under Division A. In addition, a member may elect to receive a lump sum up to 10% of the hypothetical account, with an actuarially equivalent reduced monthly benefit for life in any other available optional form.

80. *Termination Prior to Vesting (Sections 1381.4 E and 1381.1 S)*

A member who has completed less than 10 years of service may elect either

- (a) to receive a refund of employee contributions with simple interest, and if re-employed within six years, the member will be eligible to apply for reinstatement, or

- (b) to leave contributions in the fund, and upon subsequent employment, prior service will automatically be reinstated.

If the member dies prior to the commencement of any benefit, a refund shall be payable to the designated beneficiary, or otherwise to the estate.

#### 81. *Reinstatement of Previous Service (Section 1381.2 D)*

A member who terminates with a vested benefit who did not receive a refund shall be automatically reinstated upon reemployment.

A member who terminates with a non-vested benefit, upon reemployment within six years after such termination, has the right to reinstate previous credited service upon meeting the following conditions:

- (1) written application submitted within six months of a member's first reemployment anniversary date;
- (2) if the member had received a refund, payment of the refund with interest computed at the reemployment interest rate (actuarial assumed rate at time of reemployment) within 60 days of approval; and
- (3) completion of one year of employment after reemployment.

A member who repays any refunded contributions will be credited with the hypothetical account balance, adjusted with interest credits as appropriate.

#### 82. *Termination before Retirement (Section 1381.4 F)*

A member who has completed at least 10 years of service may elect either

- (a) to receive a refund of employee contributions with simple interest, and if re-employed within six years, the member will be eligible to apply for reinstatement, or
- (b) to leave contributions in the fund, and upon subsequent employment, prior service will automatically be reinstated. If not reemployed, the member is eligible to receive a monthly deferred vested retirement benefit payable at normal retirement date.

If the member dies prior to the commencement of any benefit, and if the member elected a form of benefit with a designated beneficiary of a dependent or spouse, a benefit shall be payable according to the terms of that option. If no such election of option is in effect, the optional benefit shall be computed as though the member had elected option A, with 50% to continue after death to the surviving spouse for life. If no spouse is living, a refund shall be payable to the member's estate.

### **Division H – Uniformed Bodies**

#### 83. *Eligibility (Sections 1381.2 A and B)*

All uniformed bodies employees hired on or after January 1, 2013 are eligible as of the date of employment. All former City of Knoxville uniformed bodies employees rehired on or after January 1, 2013 will become a member of Division H and accrue benefits under Division H only from such reemployment date.

#### 84. *Normal Retirement (Section 1381.1 R)*

Eligibility for normal retirement benefit is the earlier of (i) the completion of 25 years of service and the attainment of age 56; or (ii) the completion of 10 years of service and the attainment of age 63.



85. *Normal Retirement Benefit (Sections 1381.1 B and F, 1381.3 A)*

The monthly normal retirement benefit for a member of Division H is equal to the greater of the following:

- (a) a monthly benefit equal to one-twelfth of the product of 2% times service times average compensation, or,
- (b) the annuity value of the member's hypothetical account

Average Compensation is calculated as the highest 5, not necessarily consecutive, 12 month periods, limited by the compensation cap if applicable. The compensation cap is \$40,000 prior to July 1, 2014, indexed by the CPI, rounded down to the nearest \$1,000.

86. *Minimum Benefits (Section 1381.3 B)*

The minimum monthly retirement benefit payable to a member who has completed at least 10 years of service is

- (a) \$10 per year of service, subject to a maximum of \$250, if the member worked at least 1,000 hours in each of 10 years of service, or
- (b) \$5 per year of service, subject to a maximum of \$125, if the member did not work at least 1,000 hours in each of 10 years of service

provided that the minimum will be reduced actuarially in accordance with the terms of any option elected by the member.

87. *Early Retirement (Section 1381.3 C)*

A Division H Uniformed Member shall be eligible for Early Retirement upon attainment of age 50 and completion of 20 years of service.

The monthly early retirement benefit is equal to the greater of the following:

- (a) a monthly benefit equal to the Normal Retirement Benefit in item 85(a) above, reduced by 4/12 of 1% per month for each month prior to normal retirement date, or,
- (b) the annuity value of the member's hypothetical account at the member's early retirement date.

88. *Benefit Adjustment (Section 1381.3 D)*

Retirement benefits payable from the fund to retired members, survivors or beneficiaries are increased by the product of

- (a) the percentage change in the Consumer Price Index for the 12 months ending September 30 of the prior year, but not less than 0% or greater than 3%, and
- (b) the COLA funding factor based on the Division H funded percentage determined as of June 30 of the prior year, as follows:

Funded Percentage	COLA Funding Factor
>= 95%	100%
>= 80% but < 95%	50%
>= 60% but < 80%	25%
< 60%	0%

Adjustments are to be made January 1 of each year. Benefits commencing on a date other than January 1 will receive a prorated benefit adjustment based on full months the benefit was paid in the initial year.

Adjustments will not be made with regard to refunds or partial lump sum distributions.

89. *Employee Hypothetical Accounts (Section 1381.3 E)*

Each employee shall have a hypothetical account maintained by the plan which is comprised of employer credits, employee credits, and allocation of interest credit.

90. *Employer Contributions (Section 1381.3 F)*

The required employer contribution rate is based on an annual actuarial valuation.

91. *Employee Contributions (Section 1381.3 G)*

The amount of the employee contribution is 6% of compensation.

92. *Employer Credits (Section 1381.3 F)*

The member's hypothetical account shall receive quarterly employer credits in an amount equal to 10% of compensation.

93. *Employee Credits (Section 1381.3 G)*

The member's hypothetical account shall receive quarterly employee credits in an amount equal to 6% of compensation.

94. *Allocation of Interest Credit (Section 1381.3 H)*

As of each valuation date, interest credit shall be allocated to the hypothetical account of each member by applying the interest crediting rate since the preceding valuation date to the member's hypothetical account balance as of that preceding valuation date plus interest on  $\frac{1}{2}$  of the member's employee and employer contribution credits since that preceding valuation date.

95. *Disability (Sections 1381.4 B and 1390.10)*

Eligibility requirements are the same as for Division C. Any not in line of duty disability benefit is only payable with respect to members who have 10 years of service. The not in line of duty benefit is based on the Division H Normal Retirement Benefit. The in line of duty benefit is the same as for Division C.

96. *Death (Section 1381.4 C)*

Eligibility requirements are the same as for Division C. Any not in line of duty death benefit is only payable with respect to members who have 10 years of service. The benefit is based on the Division H Normal Retirement Benefit.

97. *Form of Payment (Sections 1381.4 D, 1350.7, and 1360.26)*

Members entitled to receive retirement benefits may elect any of the optional forms available under Division A. In addition, a member may elect to receive a lump sum up to 10% of the hypothetical account, with an actuarially equivalent reduced monthly benefit for life in any other available optional form.

98. *Termination Prior to Vesting (Sections 1381.4 E and 1381.1 S)*

A member who has completed less than 10 years of service may elect either

- (a) to receive a refund of employee contributions with simple interest, and if re-employed within six years, the member will be eligible to apply for reinstatement, or
- (b) to leave contributions in the fund, and upon subsequent employment, prior service will automatically be reinstated.

If the member dies prior to the commencement of any benefit, a refund shall be payable to the designated beneficiary, or otherwise to the estate.

99. *Reinstatement of Previous Service (Section 1381.2 D)*

A member who terminates with a vested benefit who did not receive a refund shall be automatically reinstated upon reemployment.

A member who terminates with a non-vested benefit, upon reemployment within six years after such termination, has the right to reinstate previous credited service upon meeting the following conditions:

- (1) written application submitted within six months of a member's first reemployment anniversary date;
- (2) if the member had received a refund, payment of the refund with interest computed at the reemployment interest rate (actuarial assumed rate at time of reemployment) within 60 days of approval; and
- (3) completion of one year of employment after reemployment.

A member who repays any refunded contributions will be credited with the hypothetical account balance, adjusted with interest credits as appropriate.

100. *Termination before Retirement (Section 1381.4 F)*

A member who has completed at least 10 years of service may elect either

- (a) to receive a refund of employee contributions with simple interest, and if re-employed within six years, the member will be eligible to apply for reinstatement, or
- (b) to leave contributions in the fund, and upon subsequent employment, prior service will automatically be reinstated. If not reemployed, the member is eligible to receive a monthly deferred vested retirement benefit payable at normal retirement date.

If the member dies prior to the commencement of any benefit, and if the member elected a form of benefit with a designated beneficiary of a dependent or spouse, a benefit shall be payable according to the terms of that option. If no such election of option is in effect, the optional benefit shall be computed as though the member had elected option A, with 50% to continue after death to the surviving spouse for life. If no spouse is living, a refund shall be payable to the estate.

## Summary of Actuarial Assumptions

### *Mortality Rates (Pre and Post-Retirement) \**

#### Pre July 1, 2017

Divisions A, B and G (not including Bd. of Ed.)

GA-51 Male Projected to 1980 (5 year setback for Females)

Divisions A and B (Bd. of Ed.)

RP-2000 (Male and Female)

Divisions C, F, and H-UB

25% GA-51 Projected to 1980/75% 1971 Group Annuity Mortality (Male and Female)

Division H-GG

1994 GAM – Male only

#### Effective July 1, 2017

Divisions A, B C, F, G, and H (not including Bd. of Ed.)

110% of the RP-2000 Healthy Annuitant static table rates

Divisions A and B (Bd. of Ed.)

2016 PPA Annuitant static table

\* Mortality improvements have been considered but not deemed appropriate. This will be reviewed more fully as part of the 2021 experience study.

### *Withdrawal Rates* (based on estimated experience)

Age	1 <sup>st</sup> Year Select	2 <sup>nd</sup> Year Select (Div. A Bd. Ed., Div. C, Div. HU)	2 <sup>nd</sup> Year Select (all others)	Ultimate (Div. A Bd. Ed.)	Ultimate (Div. C, Div. HU)	Ultimate (all others)
20	17.1%	7.0%	14.1%	5.3%	8.1%	10.3%
25	17.1%	7.0%	14.0%	4.3%	6.7%	9.4%
30	16.9%	7.0%	13.9%	3.6%	4.8%	7.8%
35	16.5%	6.9%	13.7%	3.0%	3.1%	6.2%
40	15.9%	6.7%	13.3%	2.6%	1.8%	3.8%
45	15.0%	6.4%	12.8%	2.2%	0.9%	2.9%
50	13.9%	6.2%	12.3%	1.9%	0.4%	2.3%
55	12.5%	5.8%	11.6%	1.7%	0.0%	2.2%
60	11.0%	5.3%	10.6%	1.6%	0.0%	0.0%

***Salary Scale*** (based on estimated experience)

Pre July 1, 2017

<u>Age</u>	<u>Div. A, B, G, H</u>	<u>Div. C, F, HU</u>
20	11.7%	11.7%
25	6.7%	8.1%
30	5.7%	6.8%
35	5.1%	6.1%
40	4.7%	5.4%
45	4.4%	4.8%
50	4.1%	4.3%
55	3.8%	3.8%
60	3.5%	3.5%

Effective July 1, 2017

<u>Age</u>	<u>Div. A, B, G, H</u>	<u>Div. C, F, HU</u>
20	11.3%	11.3%
25	6.2%	7.6%
30	5.2%	6.3%
35	4.7%	5.6%
40	4.2%	4.9%
45	3.9%	4.3%
50	3.6%	3.8%
55	3.3%	3.3%
60	3.0%	3.0%

***Disability Rates and Mortality*** (based on estimated experience)

<u>Age</u>	<u>Div. A, B, G, H</u>	<u>Div. C, HU (100% In-Line-of-Duty)</u>	<u>Mortality Rate</u>
20	0.06%	0.00%	2.63%
25	0.06%	0.00%	2.63%
30	0.06%	0.00%	2.37%
35	0.06%	0.60%	2.14%
40	0.10%	0.60%	2.09%
45	0.18%	0.63%	2.24%
50	0.42%	1.10%	2.57%
55	0.86%	2.10%	2.95%
60	0.60%	3.72%	3.31%

*Rate of Transfer from G1 to G2*

90% Transfer Division G1 to Division G2 (at 10 years of service)

*Rate of Normal Retirement*

Division A and B:

<u>Age</u>	<u>Percent Retiring</u>	<u>Age</u>	<u>Percent Retiring</u>
53	2%	62	35%
54	2%	63	10%
55	2%	64	5%
56	3%	65	8%
57	3%	66	5%
58	5%	67	2%
59	5%	68	2%
60	5%	69	1%
61	5%	70	0%

Division C: 20% retire at each age beginning with age 50 and 25 years of Credited Service, but in no event later than age 60

Division G: 12.5% retire at each age once the rule of 80 is met from age 50 to age 61  
25% retire at each age from 62 to 6  
100% retire by age 70

Division H: 25% retire at each age from 63 to 69  
100% retire by age 70

Division HU: 40% retire at age 56 and 25 years of service  
20% retire at each age from 57 to 62 with 25 years of service  
100% retire by age 63

*Rate of Investment Return*

Pre July 1, 2017

Div. H & HU: 5.5% per year, based on 2.75% inflation assumption; 0.5% expense assumption

All others: 7.375% per year, based on 2.75% inflation assumption; 0.5% expense assumption

Effective July 1, 2017

Div. H & HU: 5.5% per year, based on 2.5% inflation assumption; 0.5% expense assumption

All others: 7.25% per year, based on 2.5% inflation assumption; 0.5% expense assumption

*Discount Rate*

Pre July 1, 2017

Div. H & HU: 5.5% per year, compounded annually

All others: 7.375% per year, compounded annually

Effective July 1, 2017

Div. H & HU: 5.5% per year, compounded annually

All others: 7.25% per year, compounded annually

Paragraph 43 of Statement No. 67 provides for an alternative method to be used other than the projection of the pension plan's fiduciary net position based on projected contributions, benefit payments and investment earnings. The City's current contribution policy, which was adopted effective July 1, 2013, requires the City to contribute the normal cost plus the 24-year closed amortization of the unfunded liabilities in the fiscal year following the annual valuation. As of the July 1, 2017 valuation, the current amortization period is 20 years. The unfunded liability as of percent of actuarial assets as of July 1, 2017 was 36.9%. Based on actuarial theory, if the actuarial assumptions are met, the plan's fiduciary net position will remain positive.

#### *Spouse Frequency and Ages*

Assume 85% married, with husbands four years older than wives

#### *Actuarial Valuation Method*

Entry Age Normal

All groups - Unfunded liability will be amortized over a 24 year period beginning July 1, 2013.

Current amortization period is 19 years (closed amortization).

#### *Asset Valuation Method*

Market Value, adjusted for 10-year phase-in of each year's difference between actual and expected value.  
Actuarial Value to be no more than 120% and no less than 80% of Market Value.

#### *Cost of Living Adjustment*

3.5% per annum for all except Division H

3.0% per annum for Division H

#### *Refund of Employee Contributions*

It is assumed all members that terminate prior to age 40 will take a refund of employee contributions (whether or not they are vested).

#### *Effective Date of Actuarial Assumptions*

All actuarial assumptions were reviewed during the July 1, 2016 experience study. All changes recommended were adopted effective for the July 1, 2017 valuation.