City of Rutland
Employees Retirement System

Actuarial Funding Valuation as of January 1, 2020

Plan Year
January 1, 2020 to December 30, 2020

NEWPORT
retirement services

May 18, 2020

Mary A. Markowski
City Treasurer & Tax Collector
City of Rutland
P.O. Box 969
Rutland, VT 05702

Via Email Delivery

Re: City of Rutland Employees Retirement System
January 1, 2020 Actuarial Funding Valuation

Dear Mary,

We are pleased to provide you with the January 1, 2020 actuarial funding valuation for the City of Rutland Employees Retirement System ("Plan"). Determinations for purposes other than funding purposes may be significantly different from the results reported herein. The use of this report for other than for funding purposes may not be appropriate.

We relied upon participant data supplied by City of Rutland as of January 1, 2020 and financial information as of December 31, 2019. We reviewed the participant data for internal consistency and reasonableness and have no reason to doubt its substantial accuracy. We also used and relied upon plan information supplied by City of Rutland. City of Rutland is solely responsible for the validity and completeness of the information.

This valuation has been conducted in accordance with generally accepted actuarial principles and practices, including the applicable Actuarial Standards of Practice as issued by the Actuarial Standards Board.

The investment rate and discount rate exceed our best estimates. However, we recognize the uncertain nature of the items for which assumptions are selected and, as a result, may consider several different assumptions reasonable for a given measurement. It is our understanding that the City of Rutland considered the views of their investment advisors in selecting the investment rate of return and discount rate. Therefore, while we believe these assumptions to exceed our best estimates, they are within a range that may be considered reasonable.

The undersigned is a Member of the American Academy of Actuaries ameets the Qualification Requirements of the American Academy of Actuaries to render the actuarial opinion contained herein.

We are not aware of any direct or material indirect financial interest or relationship, including investments or other services that could create a conflict of interest that would impair the objectivity of our work.

We want to thank you again for the opportunity to continue serving City of Rutland and the Plan.

Should you have any questions regarding the information contained in this report, please contact the undersigned.

Sincerely,

Newport Group, Inc.

Certified by:	Prepared by:
(signature on file)	*(signature on file)*
Erik Schait, ASA, EA, MAAA Actuarial Consultant	Laura Rudauskas Actuarial Analyst

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Summary of Actuarial Valuation

Summary of Contribution for the Plan Year	City	Board of Education	Total
Recommended Contribution:	2,033,567	2,103,687	4,137,255
Participant Data			
Participants currently employed:	69	475	544
Terminated Participants :	32	189	221
Retired Participants receiving benefits:	136	280	416
Total participants included in current year valuation:	237	944	1,181
Aggregate compensation of active participants:	4,655,567	25,615,304	30,270,871
Average annual compensation:	67,472	53,927	55,645
Asset Data			
Fair market value of Plan assets:	27,966,130	68,517,606	96,483,736
Actuarial asset value:	27,119,058	66,256,648	93,375,706
Rate of return on market value during year:	19.73%	19.73%	19.73%
Rate of return on actuarial value during year:	8.23%	8.32%	8.29%
Summary of Funding and Recommended Contribution			
Actuarial Accrued Liability:	47,071,110	76,393,331	123,464,441
Actuarial Value of Assets:	27,119,058	66,256,648	93,375,706
Unfunded Actuarial Accrued Liability:	19,952,052	10,136,683	30,088,735
Employer Normal Cost as of the end of the Plan Year:	376,978	901,177	1,278,155
Amortization of Unfunded Liability as of the end of Year:	1,656,589	1,202,510	2,859,099
Total Recommended Employer Contribution:	2,033,567	2,103,687	4,137,255
Funded ratio based on Actuarial Value of Assets:	57.61%	86.73%	75.63%
Funded ratio based on Market Value of Assets:	59.41%	89.69%	78.15%

Summary of Actuarial Valuation

	Police	Fire	DPW	General	City Total	Board of Education	Total
1. Total Normal Cost:	$220,785	$122,709	$242,411	$75,655	$661,560	$1,912,150	$2,573,710
2. Expected Employee Contributions:	$107,400	$81,055	$118,218	$49,306	$355,979	$1,146,533	$1,502,512
3. Administrative Expenses:	$13,322	$10,316	$13,199	$8,914	$45,750	$74,250	$120,000
4. Employer Normal Cost as of January 1, 2020: (1) - (2) + (3)	$126,707	$51,970	$137,392	$35,263	$351,331	$839,867	$1,191,198
5. Employer Normal Cost as of December 31, 2020:	$135,957	$55,764	$147,422	$37,837	$376,978	$901,177	$1,278,155
6. Actuarial Accrued Liability:	$13,706,590	$10,613,621	$13,579,980	$9,170,918	$47,071,109	$76,393,331	$123,464,440
7. Actuarial Value of Assets:	$7,896,772	$6,114,821	$7,823,828	$5,283,637	$27,119,058	$66,256,648	$93,375,706
Unfunded Actuarial Accrued Liability (UAAL) (6) - (7):	$5,809,818	$4,498,800	$5,756,152	$3,887,281	$19,952,051	$10,136,683	$30,088,734
Amortization of UAAL Payable December 31, 2020:	$482,380	$373,529	$477,925	$322,755	$1,656,589	$1,202,510	$2,859,099
Recommended Employer Contribution Payable December 31, 2020:	$618,337	$429,292	$625,346	$360,592	$2,033,567	$2,103,687	$4,137,255
Covered Payroll:	$1,074,002	$812,580	$1,954,014	$814,971	$4,655,567	$25,615,304	$30,270,871
Expected Employee Contributions as a % of Covered Payroll:	10.00%	9.98%	6.05%	6.05%	7.65%	4.48%	4.96%
Recommended Employer Contribution as a % of Covered Payroll:	57.57%	52.83%	32.00%	44.25%	43.68%	8.21%	13.67%

City Employee Groups

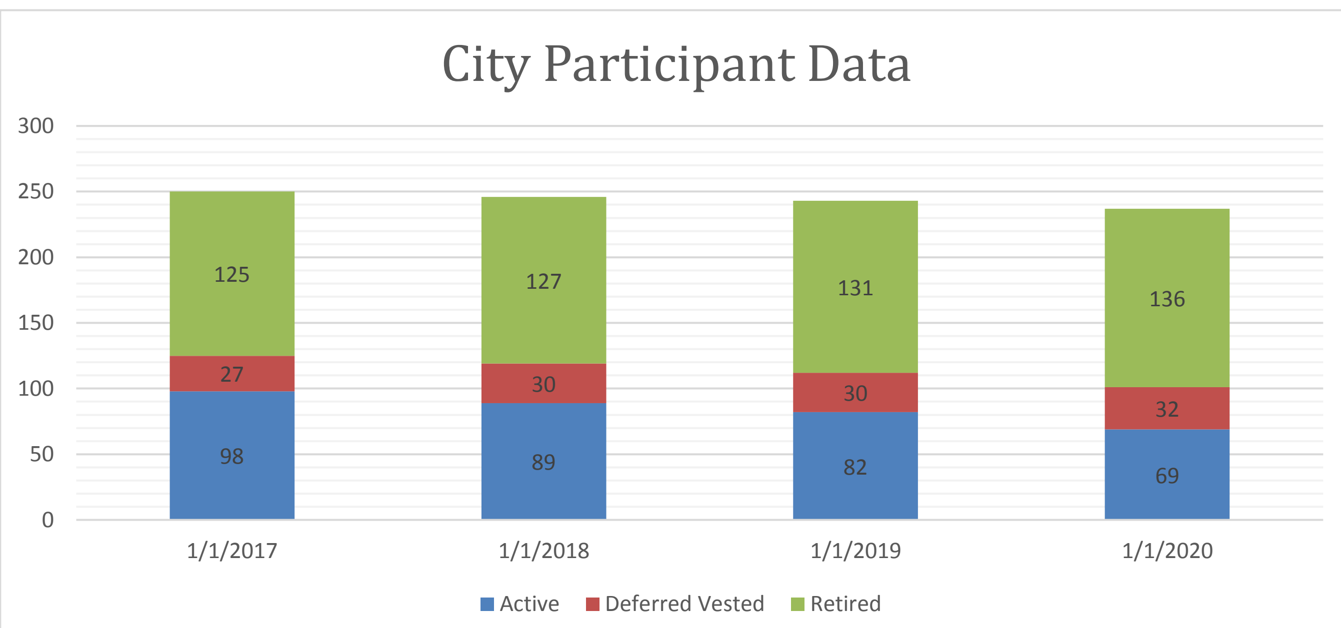
City Employee Groups
Plan Asset Experience

Summary of Income, Expenses and Rate of Return	12/31/2016	12/31/2017	12/31/2018	12/31/2019
1. Asset Fair Market Value at the Beginning of the Year:	23,600,690	23,970,581	26,429,403	24,371,297
2. Employer Contribution for prior Plan Year:	60,304	58,224	60,679	51,937
3. Employee Contribution for prior Plan Year:	35,310	35,377	39,000	26,852
4. Adjusted Beginning Balance:	23,696,304	24,064,182	26,529,083	24,450,086
5. Employer Contribution for current Plan Year:	622,493	950,700	1,384,644	1,323,780
6. Employee Contribution for current Plan Year:	345,580	333,503	338,651	306,996
7. Benefit Payments made from the Plan:	(2,327,231)	(2,518,787)	(2,644,700)	(2,881,244)
8. Fees Paid:	(26,774)	(38,584)	(29,541)	(35,840)
9. Net Investment Earnings (including realized and unrealized):	1,660,208	3,638,389	(1,206,841)	4,736,224
10. Asset Fair Market Value:	23,970,581	26,429,403	24,371,297	27,900,001
11. Receivable Employer Contribution for prior Plan Year:	58,224	60,679	51,937	41,855
12. Receivable Employee Contributions for prior Plan Year:	35,377	39,000	26,852	24,274
13. Total Plan Assets:	24,064,182	26,529,083	24,450,086	27,966,130
14. Market Rate of Return for Year:	7.10%	15.35%	-4.74%	19.73%

Determination of Actuarial Value of Assets	12/31/2016	12/31/2017	12/31/2018	12/31/2019
1. Actuarial Value of Assets at Beginning of Year:	24,499,459	24,806,929	25,662,790	26,233,763
2. Contribution less Benefit Payments and Operating Expenses:	(1,385,931)	(1,273,168)	(950,946)	(1,286,308)
3. Average Actuarial Value of the fund, 1 + 50%(2):	23,806,493	24,170,346	25,187,318	25,590,609
4. Assumed Return Rate:	7.50%	7.50%	7.50%	7.40%
5. Assumed Net Investment Income:	1,785,487	1,812,776	1,889,049	1,893,705
6. Preliminary Value of Assets at the End of the Year, 1+2+5:	24,899,015	25,346,538	26,600,894	26,841,160
7. Market Value at the End of Year (excludes receivables):	23,970,581	26,429,403	24,371,297	27,900,001
8. Smoothing Adjustment, 20% * (7-6):	(185,687)	216,573	(445,919)	211,768
9. Actuarial Value, 6+8 but not <80% or >120% of 7:	24,713,328	25,563,111	26,154,974	27,052,929
10. Contribution Receivables:	93,601	99,680	78,789	66,129
11. Final Actuarial Value of Assets, 9+10:	24,806,929	25,662,790	26,233,763	27,119,058
12. Actuarial Value as a percent of Market Value, 11/(7+10):	103.09%	96.73%	107.30%	96.97%
13. Actuarial Rate of Return for Year:	6.72%	8.40%	5.73%	8.23%
14. Expected actuarial value of assets at end of year:	24,992,616	25,446,217	26,679,683	26,907,289

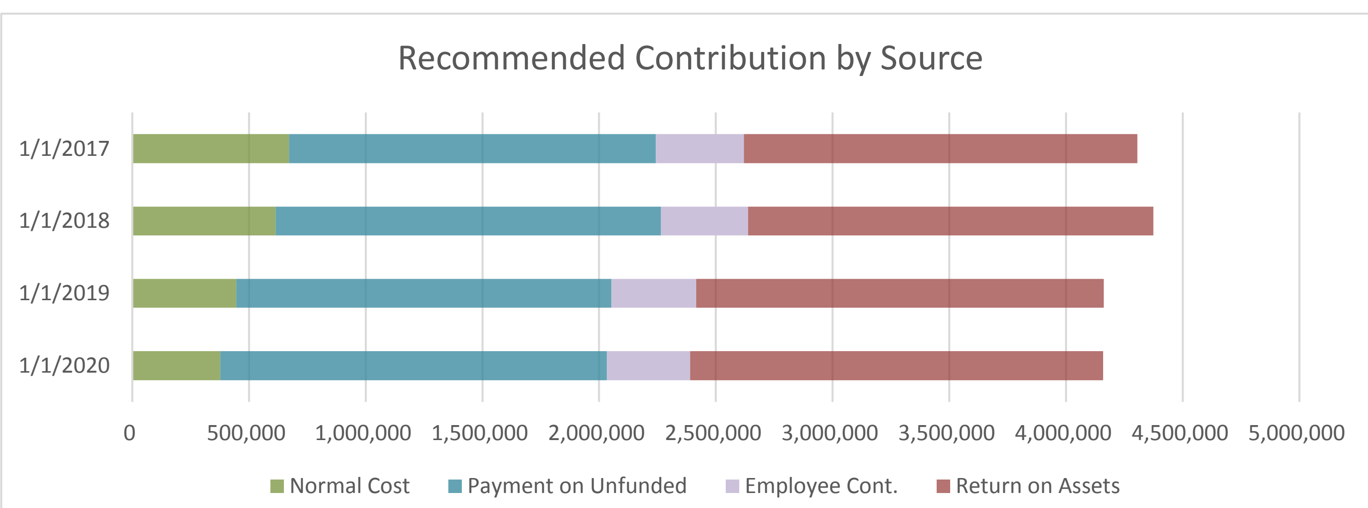
City Employee Groups
Participant Data

	1/1/2017	1/1/2018	1/1/2019	1/1/2020
Actively Employed Participants	**98**	**89**	**82**	**69**
a. Police:	18	17	15	14
b. Fire:	22	22	20	12
c. DPW:	41	37	35	32
d. General:	17	13	12	11
e. Average Age	49.07	50.00	50.47	50.55
f. Average Service	n/a	18.46	18.65	19.17
g. Average Future Service	n/a	7.39	6.32	6.10
Terminated and Inactive Participants	**27**	**30**	**30**	**32**
a. Police:	11	11	11	11
b. Fire:	0	0	1	3
c. DPW:	6	6	6	6
d. General:	10	13	12	12
e. Average Age	n/a	46.27	47.37	47.58
Retired Participants/Beneficiaries in Pay Status	**125**	**127**	**131**	**136**
a. Police:	32	33	35	35
b. Fire:	27	26	27	29
c. DPW:	35	37	38	41
d. General:	31	31	31	31
e. Average Age	68.09	68.50	68.54	67.92



City Employee Groups
Recommended Contribution

	1/1/2017	1/1/2018	1/1/2019	1/1/2020
1. Total normal cost:	964,668	898,066	740,584	661,560
% of Payroll	*16.26%*	*16.40%*	*14.30%*	*14.21%*
2. Administrative expenses:	36,257	47,309	38,365	45,750
% of Payroll	*0.61%*	*0.86%*	*0.74%*	*0.98%*
3. Expected employee contributions:	(376,467)	(373,844)	(363,848)	(355,979)
% of Payroll	*6.34%*	*6.83%*	*7.02%*	*7.65%*
4. Employer normal cost, 1+2+3:	624,458	571,531	415,101	351,331
% of Payroll	*10.52%*	*10.44%*	*8.01%*	*7.55%*
5. Actuarial accrued liability:	43,372,687	45,156,254	45,393,209	47,071,110
Active Participants:	*17,171,229*	*18,165,475*	*17,110,860*	*15,952,383*
Terminated Vested Participants:	*1,849,650*	*1,251,904*	*1,461,513*	*1,688,454*
Retirees and Beneficiaries:	*24,351,808*	*25,738,874*	*26,820,836*	*29,430,273*
6. Actuarial value of assets:	24,806,929	25,662,790	26,233,763	27,119,058
7. Unfunded actuarial accrued liability:	18,565,758	19,493,463	19,159,446	19,952,052
8. Employer normal cost projected to December 31:	671,292	614,396	445,819	376,978
9. Payment on unfunded actuarial accrued liability:	1,571,985	1,650,536	1,606,489	1,656,589
% of Payroll	*26.49%*	*30.14%*	*31.01%*	*35.58%*
10. Total recommended contribution, 8+9:	2,243,277	2,264,931	2,052,308	2,033,567
% of Payroll	*37.80%*	*41.36%*	*39.62%*	*43.68%*
11. Annualized Payroll:	5,934,271	5,475,654	5,180,168	4,655,567
12. Funded Status (actuarial assets):	57.19%	56.83%	57.79%	57.61%

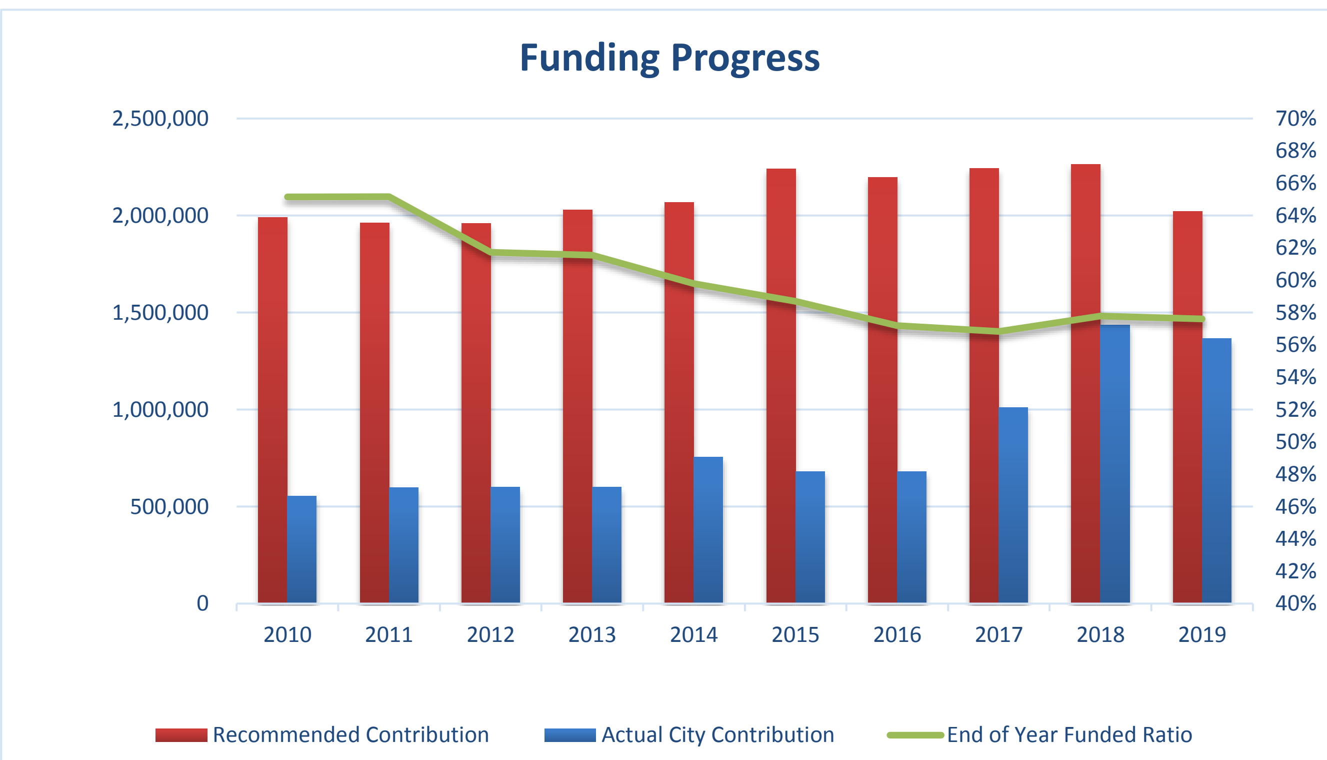


City Employee Groups
Reconciliation of Unfunded Liability

	12/31/2016	12/31/2017	12/31/2018	12/31/2019
1. Unfunded Liability Beginning of Year:	17,238,708	18,565,758	19,493,463	19,159,446
2. Normal Cost:	1,037,622	964,668	898,066	740,584
3. Interest:	1,335,426	1,418,071	1,465,849	1,413,590
4. Contributions - Employer:	(680,718)	(1,011,380)	(1,436,581)	(1,365,635)
5. Contributions - Employee	(380,957)	(372,503)	(365,504)	(331,270)
6. Liability (Gain) or Loss:	(196,784)	106,838	(1,371,307)	511,267
a. Participant Experience	*(196,784)*	*(769,988)*	*(650,029)*	*259,874*
b. Change in Discount Rate	*0*	*0*	*453,090*	*448,940*
c. Change in Mortality Tables	*0*	*876,826*	*(872,668)*	*(197,547)*
d. Other Assumption Changes	*0*	*0*	*(301,700)*	*0*
e. Plan Amendments	*0*	*0*	*0*	*0*
7. Asset (Gain) or Loss:	185,687	(216,573)	445,919	(211,768)
8. Expenses:	26,774	38,584	29,541	35,840
9. Unfunded Liability End of Year:	18,565,758	19,493,463	19,159,447	19,952,052

City Employee Groups
Supplementary Funding Information

Year Ended	Employer Recommended Contributions	Employer Contribution	Percentage Contributed	End of Year Funded Ratio
12/31/2010	1,991,572	555,000	27.87%	65.15%
12/31/2011	1,962,173	598,579	30.51%	65.17%
12/31/2012	1,959,704	600,000	30.62%	61.73%
12/31/2013	2,028,112	600,000	29.58%	61.54%
12/31/2014	2,067,870	754,531	36.49%	59.79%
12/31/2015	2,239,864	681,743	30.44%	58.70%
12/31/2016	2,196,517	680,718	30.99%	57.19%
12/31/2017	2,243,277	1,011,380	45.08%	56.83%
12/31/2018	2,264,931	1,436,581	63.43%	57.79%
12/31/2019	2,021,262	1,365,635	67.56%	57.61%



City Employee Groups
Risk and Duration Measures

Risk is the potential that actual future measurements deviate from expected future measurements that result from actual experience deviating from actuarially assumed experience. Please see the Appendix to this report for a general discussion on pension plan risk. This section of the report contains additional information that in the judgement of the actuary who has signed this document, a more detailed assessment should be provided.

	1/1/2017	1/1/2018	1/1/2019	1/1/2020
Duration of the actuarial accrued liability	n/a	10.97	10.51	10.26
Ratio of retired liability to total accrued liability	56.15%	57.00%	59.09%	62.52%
Ratio of market value of assets to benefit payments	10.34	10.53	9.24	9.71
Ratio of benefit payments to contributions (cash basis)	2.19	1.82	1.47	1.70
Plan Asset Allocation	*See Asset Statements*			

Duration of actuarial liability - is another method of measuring the effects of interest rates on the plan liabilities. The smaller this number is, the less effect there will be from changing interest rates. A rough estimate is that for every 100 basis point change in interest rates, the liability changes in the opposite direction by the duration divided by 100. Duration is also the weighted average of time of future benefit payments which may also be used for assessing cash flow needs of the plan. This duration may be compared to the asset duration to assess asset/liability mismatch risk, see the Appendix for more risk assessment information.

Ratio of retired liability to total accrued liability - The larger this measure is, the more mature the plan is, and the less expected time there will be before the majority of benefits must be paid. The larger the measure, the less susceptible the plan may be to demographic and economic risks.

Ratio of market value of assets to benefit payments - is used as a predictor of the number of annual payments a plan can make with the current assets and rate of benefit payments. It is also useful for judging cash flow needs. The lower the number, the fewer years of benefit payments the current assets will support.

Ratio of benefit payments to contributions - a number over 1 indicates that the plan pays annual benefits greater than the contributions to the plan. Numbers over 1 indicate a negative cash flow.

Plan Asset Allocation - is used to assess the level of risk the underlying investment strategy may hold. Therefore, it is important to the Plan Sponsor to have regular discussions with the plan's investment advisor to ensure that the investment policy of the plan is designed to meet the goals of the Plan Sponsor to meet a specific liability and understand the volatility of the underlying asset returns as they relate to future required contribution levels and expected benefit payments.

If in the judgement of the actuary who has signed this document, a specific risk should have a more detailed assessment, the actuary will communicate and discuss this issue in a separate document.

City Employee Groups
Actuarial Assumptions and Cost Methods

ACTUARIAL VALUATION DATE:	January 1, 2019	January 1, 2020
VALUATION INTEREST RATES:		
Fire	7.40%	7.30%
Police	7.40%	7.30%
DPW	7.40%	7.30%
General	7.40%	7.30%
SALARY INCREASES:		
Fire	3.50%	3.50%
Police	3.50%	3.50%
DPW	3.50%	3.50%
General	3.50%	3.50%
EMPLOYEE CONTRIBUTION CREDITING RATE:	Varies - See Plan Provisions	
VALUATION MORTALITY:		
Healthy Mortality:		
Fire Police DPW	RP-2014 Blue Collar Generational Mortality adjusted to 2006, projected with MP-2018	Pri-2012 Blue Collar Mortality, projected with MP-2019
General	RP-2014 Total Dataset Generational Mortality adjusted to 2006, projected with MP-2018	Pri-2012 Total Dataset Generational Mortality, projected with MP-2019
Disabled Mortality:		
Fire Police DPW General	RP-2014 Disabled Generational Mortality adjusted to 2006, projected with MP-2018	Pri-2012 Disabled Generational Mortality, projected with MP-2019
TURNOVER:		
Fire	T-1	T-1
Police	T-7	T-7
DPW	T-7	T-7
General	T-7	T-7

TURNOVER SAMPLE RATES:

Age	T-1	T-7
20	5.44%	9.94%
25	4.89%	9.67%
30	3.70%	9.30%
35	2.35%	8.71%
40	1.13%	7.75%
45	0.27%	6.35%
50	0.00%	4.22%
55	0.00%	1.55%
60	0.00%	0.15%

City Employee Groups
Actuarial Assumptions and Cost Methods

	January 1, 2019	January 1, 2020
ACTUARIAL VALUATION DATE:	January 1, 2019	January 1, 2020
SERVICE RELATED DISABILITY AND DEATH:		
Fire	75%	75%
Police	75%	75%
DPW	25%	25%
General	25%	25%
ASSUMED RETIREMENT AGE:		
Deferred Vested Participants:	NRA	NRA
Active Employees:	Earlier of	Earlier of
Fire	Age 65 or Rule of 85	Age 65 or Rule of 85
Police	Age 62 or Rule of 80	Age 62 or Rule of 80
DPW	Age 62 or Rule of 85	Age 62 or Rule of 85
General	Age 62 or Rule of 80, no earlier than age 55	Age 62 or Rule of 80, no earlier than age 55
FORM OF PAYMENT:	Life Annuity	Life Annuity
PERCENT MARRIED (3 year setback on females)	75%	75%
AMORTIZATION PERIOD:	Open 30 year	Open 30 year

ASSET VALUATION METHOD:

The actuarial value of assets is calculated as follows:

(1) the actuarial value at the beginning of the year, plus contributions and expected investment earnings, less benefit payments; plus

(2) 20% of the difference between the market value at the end of the year and the adjusted actuarial value in (1) above

(3) Not to exceed 80-120% of the actual market value.

ACTUARIAL COST METHOD: Projected Unit Credit | Projected Unit Credit

Under the Projected Unit Credit actuarial cost method, annual contributions are the sum of the normal cost, plus the amortization of the unfunded actuarial accrued liability over a fixed period of years. The normal cost is the sum of the present value of the projected benefit allocable to each participant during the current plan year. The actuarial accrued liability is the actuarial present value of the projected benefits allocable to all participants based on service as of the valuation date. The unfunded actuarial accrued liability is the excess, if any, of the accrued liability over the plan assets. Actuarial gains and losses, resulting from the difference between the actual and expected unfunded accrued liabilities are amortized over 30 years.

Assumptions were last set effective January 1, 2019 based on an experience study performed using plan year data from 2003 to 2018. Each assumption was set based on a combination of past experience and future expectations. Assumptions are reviewed annually for reasonableness.

The discount rate is set by the Pension Board. It is our understanding the Board sets this assumption with consultation from their investment provider.

City Employee Groups
Summary of Plan Provisions

PLAN EFFECTIVE DATE: January 1, 1938

PLAN YEAR: January 1 through December 31

ELIGIBILITY: An employee who agrees to make employee contributions. Employees hired after the following dates shall not be eligible to participate:

Police:	10/31/2014
Fire:	02/05/2013
DPW:	09/17/2013
Non-Union:	04/01/2013

ENTRY DATES: First day of the month coinciding with or next following completion of the eligibility requirements.

NORMAL RETIREMENT DATE: First day of the month following:

Police:	Age 62, or if Rule of 75 met, age 60
Fire:	Age 62, or if Rule of 75 met, age 60
DPW:	The later of age 62 or 5 years of participation in the plan
Non-Union:	The later of age 62 or 5 years of participation in the plan

EARLY RETIREMENT DATE: First day of the month coinciding with or next following the date the participant attains age 55, and completes 10 years of vesting service.

ADJUSTED RETIREMENT DATE: First day of the month following the date that age plus credited service equals:

Police:	75
Fire:	75
DPW:	75
Non-Union:	80, but no earlier than 55.

COMPENSATION: Rate of annual basic compensation on January 1, excluding overtime except as provided in the collective bargaining agreement, bonuses, commissions and any other additional compensation.

FINAL AVERAGE COMPENSATION: Average of the 5 highest rates of Compensation on January 1, in the last 10 years prior to distribution.

RETIREMENT BENEFIT:

Police:	2.00% of Final Average Compensation for each year of service before 01/01/2007, plus 2.5% of Final Average Compensation for each year of service after 01/01/2007.
Fire:	2.34% of Final Average Compensation for each year of credited service.
DPW:	2.00% of Final Average Compensation for each year of credited service.
Non-Union:	2.00% of Final Average Compensation for each year of credited service.

NORMAL BENEFIT PAYMENT FORM: Life Annuity, with refund.

City Employee Groups
Summary of Plan Provisions

ADJUSTED RETIREMENT BENEFIT: Retirement Benefit unreduced for payment at Adjusted Retirement Date

EARLY RETIREMENT BENEFIT: Retirement Benefit is reduced for early commencement of payments, by reducing the Retirement Benefit at Normal Retirement Date by the following percentages: 1/2 of 1% for each month prior to the employee's Normal Retirement Date.

POSTPONED RETIREMENT: Benefit calculated and payable as of actual retirement date.

DISABILITY RETIREMENT: Non-Service Related: No age requirement. Benefit is accrued benefit at date of disability.

Police & Fire: Must have 5 years of participation.
DPW & Non-Union: Must have 15 years of participation.

Service Related: No age or service requirement. Benefit is 100% of the projected normal retirement benefit assuming constant future earnings and service to age 62, payable after 6 months.

PRE-RETIREMENT DEATH BENEFIT: Non Service Related:

(1) Must be active employee and eligible to retire early.
(2) Benefit is 75% of participant's accrued benefit, reduced for early commencement and paid as if 50% Joint and Survivor option had been elected, payable to spouse.
(3) If not eligible for spouse benefit, death benefit is return of employee contributions with interest.

Service Related:

(1) No age or service requirement.
(2) 100% of deceased participant's projected normal retirement benefit based on service to age 62, payable to spouse or children up to age 19.

TERMINATION OF EMPLOYMENT: Vested participants will be entitled to the Retirement Benefit calculated as of the date of termination and payable at Normal Retirement Age. A reduced benefit will be available for payments in accordance with the plan's Early or Adjusted Retirement provisions.

Participant may elect a return of employee contributions in lieu of the retirement benefit

VESTING: Five year cliff vesting. Non-vested participants receive a return of employee contributions plus interest.

ACTUARIAL EQUIVALENCE: 6% interest and Mortality based on the 1971 Group Annuity Mortality Table for males, with a 1 year setback for the participant and a 5 year setback for the beneficiary.

EMPLOYEE CONTRIBUTIONS:

Fire	9.975% effective 7/1/2019.
Police	10% effective 1/1/2020.
DPW	6.00% effective 7/1/19, 6.10% effective 7/1/2020.
General	6.00% effective 7/1/19, 6.10% effective 7/1/2020.

Board of Education
Employee Groups

NEWPORT
retirement services

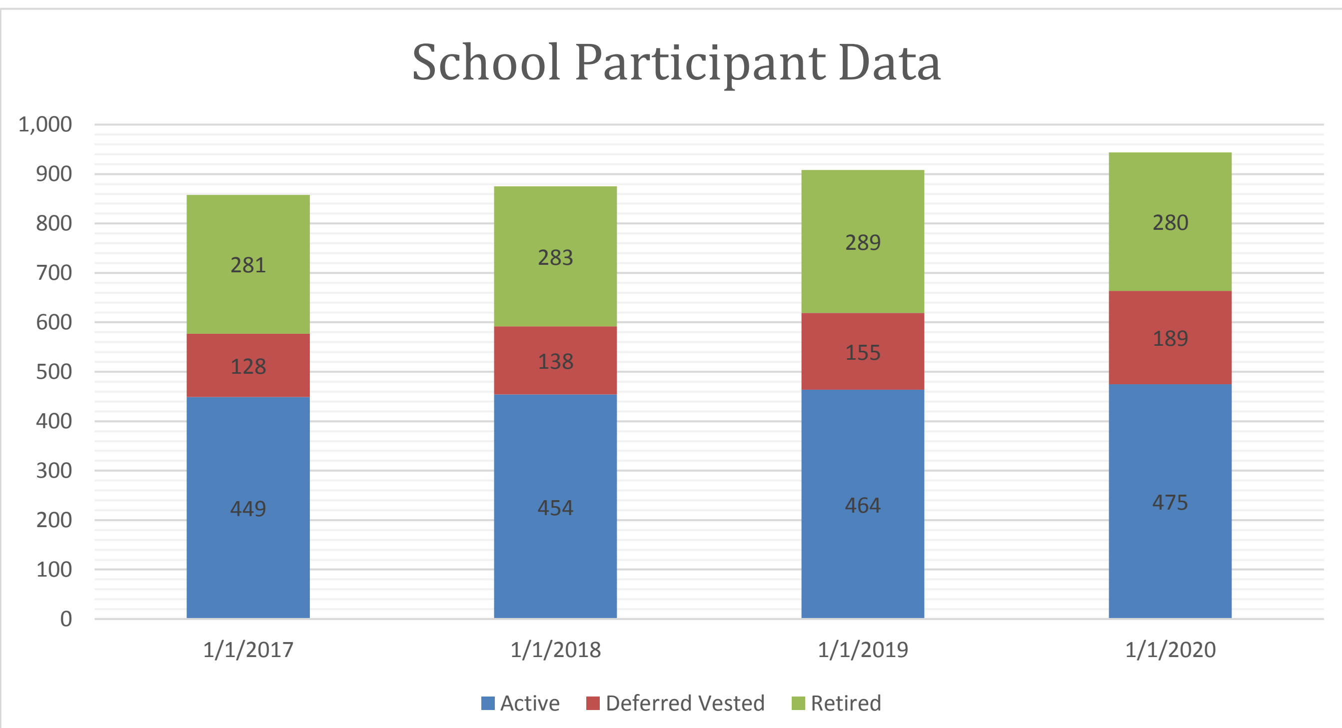
Board of Education Employee Groups
Plan Asset Experience

Summary of Income, Expenses and Rate of Return	**12/31/2016**	**12/31/2017**	**12/31/2018**	**12/31/2019**
1. Asset Fair Market Value at the Beginning of the Year:	49,735,352	52,964,530	60,748,031	57,537,518
2. Employer Contribution for prior Plan Year:	99,065	100,324	104,901	112,263
3. Employee Contribution for prior Plan Year:	46,176	47,132	49,309	52,896
4. Adjusted Beginning Balance:	49,880,593	53,111,986	60,902,241	57,702,677
5. Employer Contribution for current Plan Year:	2,142,104	2,173,036	2,266,218	2,228,634
6. Employee Contribution for current Plan Year:	909,102	937,167	995,684	1,050,776
7. Benefit Payments made from the Plan:	(3,492,877)	(3,593,255)	(3,750,535)	(3,955,565)
8. Fees Paid:	(56,422)	(85,253)	(67,899)	(84,612)
9. Net Investment Earnings (including realized and unrealized):	3,582,031	8,204,349	(2,808,189)	11,403,872
10. Asset Fair Market Value:	52,964,530	60,748,031	57,537,518	68,345,782
11. Receivable Employer Contribution for prior Plan Year:	100,324	104,901	112,263	116,732
12. Receivable Employee Contributions for prior Plan Year:	47,132	49,309	52,896	55,092
13. Total Plan Assets:	53,111,986	60,902,241	57,702,677	68,517,606
14. Market Rate of Return for Year:	7.10%	15.36%	-4.74%	19.73%

Determination of Actuarial Value of Assets	**12/31/2016**	**12/31/2017**	**12/31/2018**	**12/31/2019**
1. Actuarial Value of Assets at Beginning of Year:	51,435,070	54,561,104	58,754,673	61,739,759
2. Contribution less Benefit Payments and Operating Expenses:	(498,094)	(568,305)	(556,533)	(760,768)
3. Average Actuarial Value of the fund, 1 + 50%(2):	51,186,023	54,276,952	58,476,406	61,359,375
4. Assumed Return Rate:	7.50%	7.50%	7.50%	7.40%
5. Assumed Net Investment Income:	3,838,952	4,070,771	4,385,730	4,540,594
6. Preliminary Value of Assets at the End of the Year, 1+2+5:	54,775,928	58,063,571	62,583,870	65,519,585
7. Market Value at the End of Year (excludes receivables):	52,964,530	60,748,031	57,537,518	68,345,782
8. Smoothing Adjustment, 20% * (7-6):	(362,280)	536,892	(1,009,270)	565,239
9. Actuarial Value, 6+8 but not <80% or >120% of 7:	54,413,648	58,600,463	61,574,600	66,084,824
10. Contribution Receivables:	147,456	154,210	165,159	171,824
11. Final Actuarial Value of Assets, 9+10:	54,561,104	58,754,673	61,739,759	66,256,648
12. Actuarial Value as a percent of Market Value, 11/(7+10):	102.73%	96.47%	107.00%	96.70%
13. Actuarial Rate of Return for Year:	6.79%	8.49%	5.77%	8.32%
14. Expected actuarial value of assets at end of year:	54,923,384	58,217,781	62,749,029	65,691,409

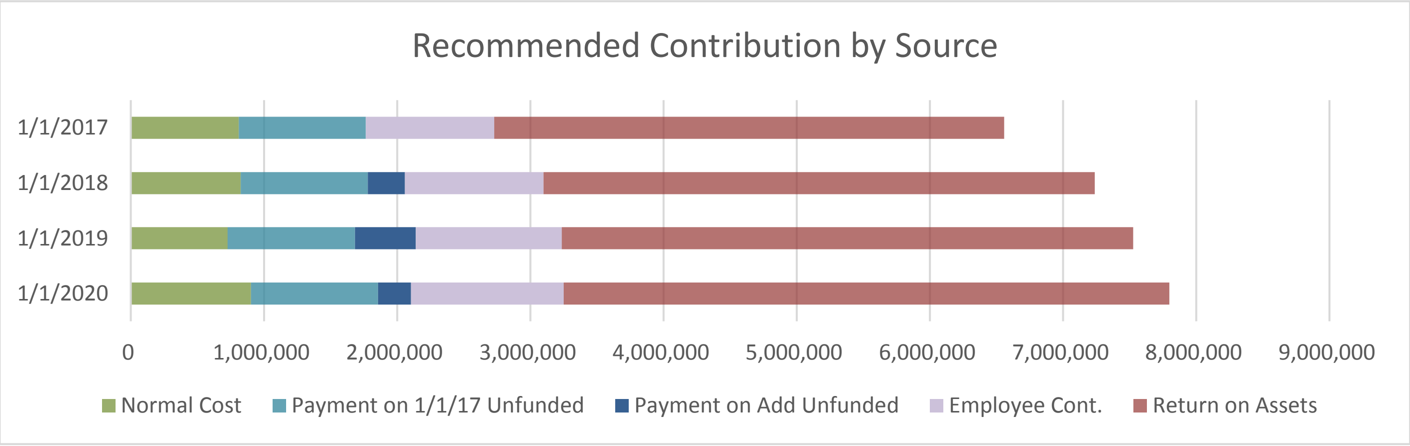
Board of Education Employee Groups
Participant Data

	1/1/2017	1/1/2018	1/1/2019	1/1/2020
Actively Employed Participants	**449**	**454**	**464**	**475**
a. Average Age	48.06	48.49	48.62	49.44
b. Average Service	n/a	11.32	11.16	10.83
c. Average Future Service	n/a	8.61	7.47	7.35
Terminated and Inactive Participants	**128**	**138**	**155**	**189**
a. Average Age	n/a	46.49	47.45	46.63
Retired Participants/Beneficiaries in Pay Status	**281**	**283**	**289**	**280**
a. Average Age	71.39	71.68	72.26	72.67
Total Participants at end of plan year:	**858**	**875**	**908**	**944**



Board of Education Employee Groups
Recommended Contribution

	1/1/2017	1/1/2018	1/1/2019	1/1/2020
1. Total normal cost:	1,663,589	1,737,202	1,711,111	1,912,150
% of Payroll	*7.56%*	*7.44%*	*6.97%*	*7.46%*
2. Administrative expenses:	53,743	72,691	61,635	74,250
% of Payroll	*0.24%*	*0.31%*	*0.25%*	*0.29%*
3. Expected employee contributions:	(963,238)	(1,042,619)	(1,095,148)	(1,146,533)
% of Payroll	*4.38%*	*4.47%*	*4.46%*	*4.48%*
4. Employer normal cost, 1+2+3:	754,094	767,274	677,598	839,867
% of Payroll	*3.43%*	*3.29%*	*2.76%*	*3.28%*
5. Actuarial accrued liability:	64,290,782	69,383,878	72,925,857	76,393,331
Active Participants:	*30,054,459*	*32,476,017*	*33,902,299*	*34,309,708*
Terminated Vested Participants:	*1,939,213*	*2,915,363*	*3,365,446*	*4,534,016*
Retirees and Beneficiaries:	*32,297,110*	*33,992,498*	*35,658,112*	*37,549,607*
6. Actuarial value of assets:	54,561,104	58,754,673	61,739,759	66,256,648
7. Unfunded actuarial accrued liability:	9,729,678	10,629,205	11,186,098	10,136,683
8. Payment on 1/1/2017 unfunded (20 yr):	954,405	954,405	954,405	954,405
% of Payroll	*4.34%*	*4.09%*	*3.89%*	*3.73%*
9. PV of Remaining Pmts on 1/1/17 unfunded:	9,729,677	9,504,998	9,329,376	9,127,522
10. Excess Unfunded Liability Above 9:	0	1,124,207	1,856,722	1,009,160
11. Amortization Payment on Excess unfunded (5yr):	0	277,864	457,698	248,105
% of Payroll	*0.00%*	*1.19%*	*1.87%*	*0.97%*
12. Employer normal cost projected to December 31:	810,651	824,820	727,740	901,177
13. Total recommended contribution, 8+11+12:	1,765,056	2,057,090	2,139,843	2,103,687
% of Payroll	*8.02%*	*8.81%*	*8.72%*	*8.21%*
14. Annualized Payroll:	22,000,109	23,344,915	24,536,155	25,615,304
15. Funded Status:	84.87%	84.68%	84.66%	86.73%

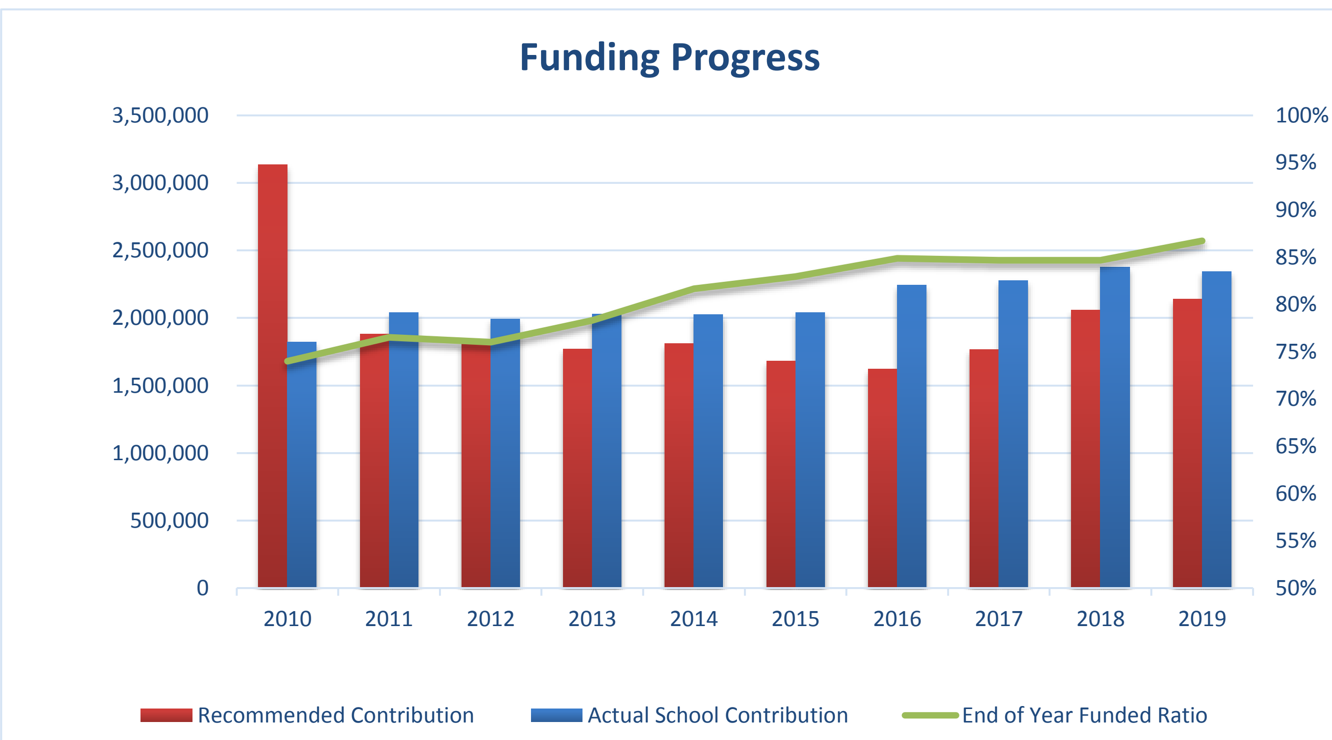


Board of Education Employee Groups
Reconciliation of Unfunded Liability

	12/31/2016	12/31/2017	12/31/2018	12/31/2019
1. Unfunded Liability Beginning of Year:	10,578,291	9,729,678	10,629,205	11,186,098
2. Normal Cost:	1,586,443	1,663,589	1,737,202	1,711,111
3. Interest:	800,051	741,059	807,705	836,186
4. Contributions - Employer:	(2,242,428)	(2,277,937)	(2,378,480)	(2,345,366)
5. Contributions - Employee	(956,234)	(986,476)	(1,048,580)	(1,105,868)
6. Liability (Gain) or Loss:	(455,147)	2,210,931	361,877	335,148
a. Participant Experience	*(455,147)*	*173,392*	*(230,731)*	*(166,853)*
b. Change in Discount Rate	*0*	*0*	*763,084*	*806,501*
c. Change in Mortality Tables	*0*	*2,037,539*	*34,305*	*(304,500)*
d. Other Assumption Changes	*0*	*0*	*(204,781)*	*0*
e. Plan Amendments	*0*	*0*	*0*	*0*
7. Asset (Gain) or Loss:	362,280	(536,892)	1,009,270	(565,239)
8. Expenses:	56,422	85,253	67,899	84,612
9. Unfunded Liability End of Year:	9,729,678	10,629,205	11,186,098	10,136,683

Board of Education Employee Groups
Supplementary Funding Information

Year Ended	Employer Recommended Contributions	Employer Contribution	Percentage Contributed	End of Year Funded Ratio
12/31/2010	3,134,103	1,823,401	58.18%	74.00%
12/31/2011	1,880,413	2,038,518	108.41%	76.52%
12/31/2012	1,816,168	1,993,278	109.75%	76.01%
12/31/2013	1,770,979	2,027,877	114.51%	78.33%
12/31/2014	1,810,608	2,025,044	111.84%	81.65%
12/31/2015	1,681,933	2,041,455	121.38%	82.94%
12/31/2016	1,622,165	2,242,428	138.24%	84.87%
12/31/2017	1,765,056	2,277,937	129.06%	84.68%
12/31/2018	2,057,090	2,378,480	115.62%	84.66%
12/31/2019	2,139,843	2,345,366	109.60%	86.73%



Board of Education Employee Groups
Risk and Duration Measures

Risk is the potential that actual future measurements deviate from expected future measurements that result from actual experience deviating from actuarially assumed experience. Please see the Appendix to this report for a general discussion on pension plan risk. This section of the report contains additional information that in the judgement of the actuary who has signed this document, a more detailed assessment should be provided.

	1/1/2017	1/1/2018	1/1/2019	1/1/2020
Duration of the actuarial accrued liability	n/a	12.28	12.02	12.01
Ratio of retired liability to total accrued liability	50.24%	48.99%	48.90%	49.15%
Ratio of market value of assets to benefit payments	15.21	16.95	15.39	17.32
Ratio of benefit payments to contributions (cash basis)	1.09	1.10	1.09	1.15
Plan Asset Allocation	*See Asset Statements*			

Duration of actuarial liability - is another method of measuring the effects of interest rates on the plan liabilities. The smaller this number is, the less effect there will be from changing interest rates. A rough estimate is that for every 100 basis point change in interest rates, the liability changes in the opposite direction by the duration divided by 100. Duration is also the weighted average of time of future benefit payments which may also be used for assessing cash flow needs of the plan. This duration may be compared to the asset duration to assess asset/liability mismatch risk, see the Appendix for more risk assessment information.

Ratio of retired liability to total accrued liability - The larger this measure is, the more mature the plan is, and the less expected time there will be before the majority of benefits must be paid. The larger the measure, the less susceptible the plan may be to demographic and economic risks.

Ratio of market value of assets to benefit payments - is used as a predictor of the number of annual payments a plan can make with the current assets and rate of benefit payments. It is also useful for judging cash flow needs. The lower the number, the fewer years of benefit payments the current assets will support.

Ratio of benefit payments to contributions - a number over 1 indicates that the plan pays annual benefits greater than the contributions to the plan. Numbers over 1 indicate a negative cash flow.

Plan Asset Allocation - is used to assess the level of risk the underlying investment strategy may hold. Therefore, it is important to the Plan Sponsor to have regular discussions with the plan's investment advisor to ensure that the investment policy of the plan is designed to meet the goals of the Plan Sponsor to meet a specific liability and understand the volatility of the underlying asset returns as they relate to future required contribution

If in the judgement of the actuary who has signed this document, a specific risk should have a more detailed assessment, the actuary will communicate and discuss this issue in a separate document.

Board of Education Employee Groups
Actuarial Assumptions and Cost Methods

ACTUARIAL VALUATION DATE:	January 1, 2019	January 1, 2020
VALUATION INTEREST RATES:	7.40%	7.30%
SALARY INCREASES:	4.00%	4.00%
EMPLOYEE CONTRIBUTION RATE:	Varies - See Plan Provisions	Varies - See Plan Provisions
VALUATION MORTALITY:		
Healthy Mortality:	RP-2014 Total Dataset Generational Mortality adjusted to 2006, projected with MP-2018	Pri-2012 Total Dataset Generational Mortality, projected with MP-2019
Disabled Mortality:	RP-2014 Disabled Generational Mortality adjusted to 2006, projected with MP-2018	Pri-2012 Disabled Generational Mortality, projected with MP-2019
TURNOVER TABLE:	Crocker Sarason T-8 Table	Crocker Sarason T-8 Table

TURNOVER SAMPLE RATES:

Age	T-6	T-8
20	7.94%	11.94%
25	7.72%	11.62%
30	7.40%	11.21%
35	6.86%	10.55%
40	6.11%	9.40%
45	5.16%	7.54%
50	3.62%	4.83%
55	1.37%	1.73%
60	0.13%	0.16%

SERVICE RELATED DISABILITY OR DEATH:	25.00%	25.00%
ASSUMED RETIREMENT AGE:		
Deferred Vested Participants:	Normal Retirement Age	Normal Retirement Age
Active Employees:	Earlier of	Earlier of
	Employees age 60 on 7/1/2014 - Age 62 or 5 years of service (if later), or Rule, no earlier than age 55.	Employees age 60 on 7/1/2014 - Age 62 or 5 years of service (if later), or Rule, no earlier than age 55.
	For employees not age 60 on 7/1/2014 - the earlier of age 65 or 5 years of service (if later), or attainment of Rule, no earlier than age 55.	For employees not age 60 on 7/1/2014 - the earlier of age 65 or 5 years of service (if later), or attainment of Rule, no earlier than age 55.

Board of Education Employee Groups
Actuarial Assumptions and Cost Methods

ACTUARIAL VALUATION DATE:	January 1, 2019	January 1, 2020
ASSUMED RETIREMENT AGE (cont.):		
Active Employees (Cont.)	If employee met Rule of 80 on 7/1/2014 the applicable Rule is when age plus service equal 80. For all other employees the applicable Rule is when age plus service equals 85. Rule applicable at age 55 or later.	If employee met Rule of 80 on 7/1/2014 the applicable Rule is when age plus service equal 80. For all other employees the applicable Rule is when age plus service equals 85. Rule applicable at age 55 or later.
FORM OF PAYMENT:	Life Annuity	Life Annuity
PERCENT MARRIED	75% (3 year setback on females)	75% (3 year setback on females)
COST OF LIVING INCREASES	1.5% for applicable employees	1.5% for applicable employees
AMORTIZATION PERIOD:	20 year closed amortization of 1/1/17 unfunded liability. 5 year open amortization of gains/losses occurring after 1/1/2017.	20 year closed amortization of 1/1/17 unfunded liability. 5 year open amortization of gains/losses occurring after 1/1/2017.

ASSET VALUATION METHOD:

The actuarial value of assets is calculated as follows:

(1) the actuarial value at the beginning of the year, plus contributions and expected investment earnings, less benefit payments; plus

(2) 20% of the difference between the market value at the end of the year and the adjusted actuarial value in (1) above

(3) Not to exceed 80-120% of the actual market value.

ACTUARIAL COST METHOD:	Projected Unit Credit	Projected Unit Credit

Under the Projected Unit Credit actuarial cost method, annual contributions are the sum of the normal cost, plus the amortization of the unfunded actuarial accrued liability over a fixed period of years. The normal cost is the sum of the present value of the projected benefit allocable to each participant during the current plan year. The actuarial accrued liability is the actuarial present value of the projected benefits allocable to all participants based on service as of the valuation date. The unfunded actuarial accrued liability is the excess, if any, of the accrued liability over the plan assets. Actuarial gains and losses, resulting from the difference between the actual and expected unfunded accrued liabilities are amortized over 30

Assumptions were last set effective January 1, 2019 based on an experience study performed using plan year data from 2013 to 2018. Each assumption was set based on a combination of past experience and future expectations. Assumptions are reviewed annually for reasonableness.

The discount rate is set by the Pension Board. It is our understanding the Board sets this assumption with consultation from their investment provider.

Board of Education Employee Groups
Summary of Plan Provisions

PLAN EFFECTIVE DATE:	January 1, 1938
PLAN YEAR:	January 1 through December 31
ELIGIBILITY:	An employee who agrees to make employee contributions.
ENTRY DATES:	First day of the month coinciding with or next following completion of the eligibility requirements.
NORMAL RETIREMENT DATE:	First day of the month following: For employees at least age 60 on 7/1/2014 - the later of age 62 or 5 years of participation. For all other employees the later of age 65 or 5 years of participation
EARLY RETIREMENT DATE:	First day of the month coinciding with or next following the date the participant attains age 55, and completes 10 years of vesting service.
ADJUSTED RETIREMENT AGE	For any employee who is at least age 55: For employees whose age plus credited service equaled 80 on 7/1/2014 - when age plus credited service equal 80. All other employees - when age plus credited service equals 85
COMPENSATION:	Rate of annual basic compensation on January 1, excluding overtime, bonuses, commissions and any other additional compensation.
FINAL AVERAGE COMPENSATION:	Average of the highest 5 rates of Compensation on January 1, in the last 10 years prior to distribution.
RETIREMENT BENEFIT:	For each year of credited service earned prior to July 1, 2010 - 2.00% of Final Average Compensation. For each year of credited service earned after June 30, 2010 - 2.00% of Final Average Compensation for Paraeducators, Maintenance and Busing Employees and 1.00% of Final Earnings for Teachers, Administrators and School Nonaligned Employees.
NORMAL BENEFIT PAYMENT FORM:	Life Annuity, with refund.
ADJUSTED RETIREMENT DATE:	Retirement Benefit unreduced for payment at Adjusted Retirement Date
EARLY RETIREMENT BENEFIT:	Retirement Benefit is reduced for early commencement of payments, by reducing the Retirement Benefit at Normal Retirement Date by the following percentages: 1/2 of 1% for each month prior to the employee's Normal Retirement Date.

Board of Education Employee Groups
Summary of Plan Provisions

POSTPONED RETIREMENT:

Benefit calculated and payable as of actual retirement date increased by 6% for each year past Normal Retirement.

DISABILITY RETIREMENT:

Non-Service Related: No age requirement; 15 years of participation. Benefit is accrued benefit at date of disability.

Service Related: No age or service requirement. Benefit is 100% of the projected normal retirement benefit assuming constant future earnings and service to NRA, payable after 6 months.

PRE-RETIREMENT DEATH BENEFIT:

Non Service Related:
(1) Must be active employee and eligible to retire early.
(2) Benefit is 75% of participant's accrued benefit, reduced for early commencement and paid as if 50% Joint and Survivor option had been elected, payable to spouse.
(3) If not eligible for spouse benefit, death benefit is return of employee contributions with interest.

Service Related:
(1) No age or service requirement.
(2) 100% of deceased participant's projected normal retirement benefit based on service to NRA, payable to spouse or children up to age 19.

POST-RETIREMENT DEATH BENEFIT:

Death benefits payable after retirement are payable in accordance with the form of payment option selected by the retiree.

TERMINATION OF EMPLOYMENT:

Vested participants will be entitled to the Retirement Benefit calculated as of the date of termination and payable at NRA. A reduced benefit will be available for payments beginning after age 55, in accordance with the plan's Early Retirement provisions.

Participant may elect a return of employee contributions in lieu of the retirement benefit.

VESTING:

Five year cliff vesting. Non-vested participants receive a return of employee contributions plus interest.

ACTUARIAL EQUIVALENCE:

6% interest and Mortality based on the 1971 Group Annuity Mortality Table for males, with a 1 year setback for the participant and a 5 year setback for the beneficiary.

COST OF LIVING INCREASES:

Benefits for Paraeducators, Maintenance, and Bussing employees who were active on 7/1/2014 and retire shall be increased 1.50% per year.

EMPLOYEE CONTRIBUTIONS:

RSSA:	5.30%
NA, ADM:	4.80%
AFSCME:	5.00%
REA:	4.20%

All Employee Groups

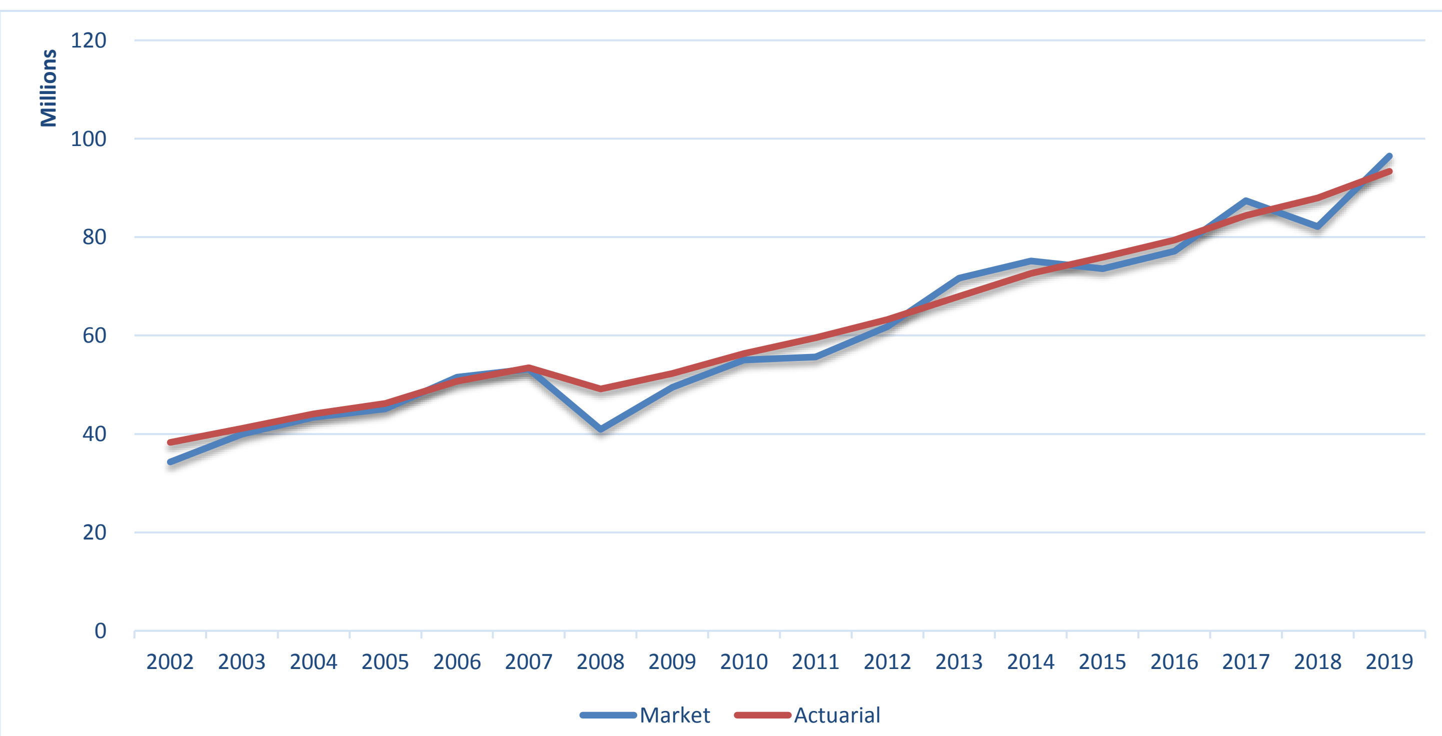
All Employee Groups
Plan Asset Experience

Summary of Income, Expenses and Rate of Return	12/31/2016	12/31/2017	12/31/2018	12/31/2019
1. Asset Fair Market Value at the Beginning of the Year:	73,336,042	76,935,111	87,177,434	81,908,815
2. Employer Contribution for prior Plan Year:	159,369	158,548	165,580	164,200
3. Employee Contribution for prior Plan Year:	81,485	82,509	88,310	79,748
4. Adjusted Beginning Balance:	73,576,897	77,176,168	87,431,324	82,152,763
5. Employer Contribution for current Plan Year:	2,764,598	3,123,736	3,650,862	3,552,414
6. Employee Contribution for current Plan Year:	1,254,682	1,270,670	1,334,335	1,357,772
7. Benefit Payments made from the Plan:	(5,820,108)	(6,112,042)	(6,395,236)	(6,836,810)
8. Fees Paid:	(83,196)	(123,836)	(97,440)	(120,452)
9. Net Investment Earnings (including realized and unrealized):	5,242,239	11,842,738	(4,015,030)	16,140,096
10. Asset Fair Market Value:	76,935,111	87,177,434	81,908,815	96,245,783
11. Receivable Employer Contribution for prior Plan Year:	158,548	165,580	164,200	158,587
12. Receivable Employee Contributions for prior Plan Year:	82,509	88,310	79,748	79,366
13. Total Plan Assets:	77,176,168	87,431,324	82,152,763	96,483,736
14. Market Rate of Return for Year:	7.10%	15.35%	-4.74%	19.73%

Determination of Actuarial Value of Assets	12/31/2016	12/31/2017	12/31/2018	12/31/2019
1. Actuarial Value of Assets at Beginning of Year:	75,934,529	79,368,034	84,417,463	87,973,522
2. Contribution less Benefit Payments and Operating Expenses:	(1,884,025)	(1,841,472)	(1,507,479)	(2,047,076)
3. Average Actuarial Value of the fund, 1 + 50%(2):	74,992,517	78,447,297	83,663,724	86,949,984
4. Assumed Return Rate:	7.50%	7.50%	7.50%	7.40%
5. Assumed Net Investment Income:	5,624,439	5,883,547	6,274,779	6,434,299
6. Preliminary Value of Assets at the End of the Year, 1+2+5:	79,674,943	83,410,109	89,184,764	92,360,745
7. Market Value at the End of Year (excludes receivables):	76,935,111	87,177,434	81,908,815	96,245,783
8. Smoothing Adjustment, 20% * (7-6):	(547,966)	753,465	(1,455,190)	777,008
9. Actuarial Value, 6+8 but not <80% or >120% of 7:	79,126,977	84,163,574	87,729,574	93,137,753
10. Contribution Receivables:	241,057	253,890	243,948	237,953
11. Final Actuarial Value of Assets, 9+10:	79,368,034	84,417,463	87,973,522	93,375,706
12. Actuarial Value as a percent of Market Value, 11/(7+10):	102.84%	96.55%	107.09%	96.78%
13. Actuarial Rate of Return for Year:	6.77%	8.46%	5.76%	8.29%
14. Expected actuarial value of assets at end of year:	79,916,000	83,663,998	89,428,712	92,598,698

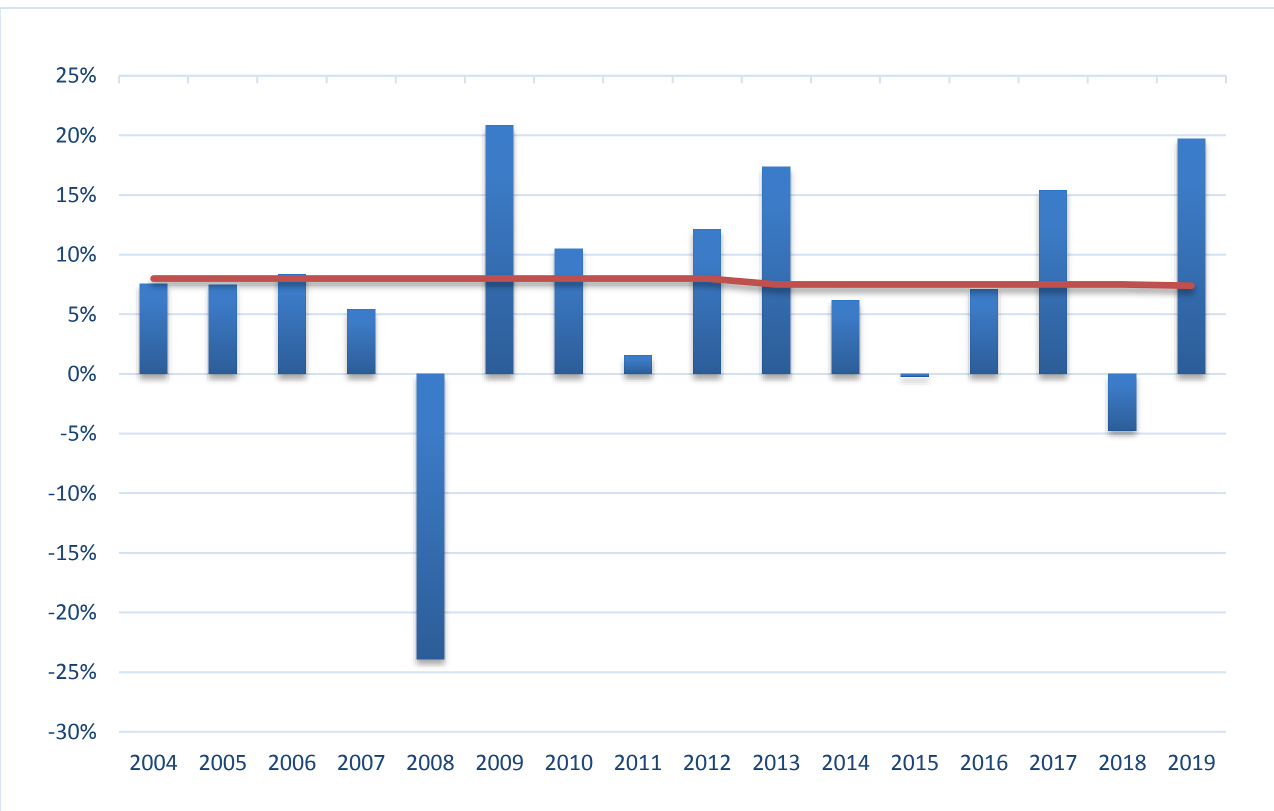
All Employee Groups
Plan Asset Experience

Year Ended December 31	Employer Contributions	Employee Contributions	Investment Return	Expenses	Benefit Payments	Market Value of Assets	Actuarial Value of Assets
2002	1,560,078	487,140	1,850,005	42,111	(1,395,403)	34,308,508	38,282,217
2003	1,209,778	403,259	2,742,732	41,746	(1,461,294)	39,943,385	41,134,946
2004	1,256,699	418,890	3,116,245	71,737	(1,806,900)	43,411,905	44,048,143
2005	756,733	308,280	3,202,083	14,600	(2,106,977)	45,075,493	46,193,632
2006	2,490,603	443,545	3,886,775	9,200	(2,309,369)	51,525,766	50,695,986
2007	1,717,816	795,470	2,786,827	28,065	(2,605,285)	53,172,934	53,455,121
2008	2,682,486	918,085	(12,788,325)	118,835	(2,928,526)	40,927,819	49,113,382
2009	1,864,294	1,015,802	8,656,469	90,857	(3,172,215)	49,512,330	52,277,707
2010	2,655,901	1,109,869	5,292,308	74,610	(3,490,271)	55,005,527	56,345,063
2011	2,533,378	1,112,541	945,008	95,017	(3,853,461)	55,647,975	59,550,538
2012	2,593,278	1,131,988	6,828,345	101,722	(4,299,715)	61,800,149	63,249,120
2013	2,637,514	1,181,866	10,747,830	73,273	(4,634,815)	71,659,271	67,988,181
2014	2,701,519	1,304,191	4,494,552	86,605	(4,938,334)	75,134,595	72,646,720
2015	2,723,199	1,348,232	(51,910)	116,609	(5,460,610)	73,576,897	75,934,529
2016	2,923,145	1,337,191	5,242,239	83,196	(5,820,108)	77,176,168	79,368,034
2017	3,289,316	1,358,979	11,842,738	123,836	(6,112,042)	87,431,324	84,417,463
2018	3,815,061	1,414,083	(4,015,030)	97,440	(6,395,236)	82,152,763	87,973,522
2019	3,711,001	1,437,138	16,140,096	120,452	(6,836,810)	96,483,736	93,375,706



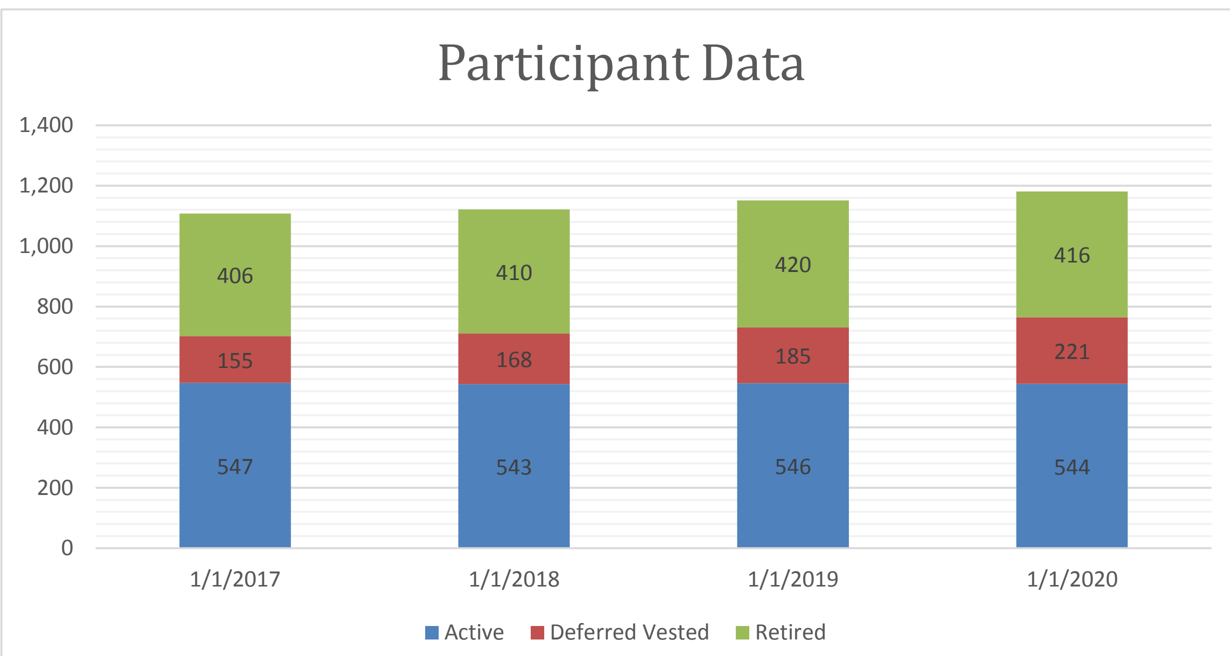
All Employee Groups
Plan Asset Experience

Year Ended December 31	Expected Rate of Return	Rate of Return	3-Year Average	4-Year Average	5-Year Average	10-Year Average
2019	7.40%	19.73%	10.12%	9.37%	7.45%	8.50%
2018	7.50%	-4.74%	5.92%	7.45%	7.24%	8.61%
2017	7.50%	15.38%	7.42%	4.74%	6.85%	6.70%
2016	7.50%	7.11%	4.36%	9.17%	9.67%	5.70%
2015	7.50%	-0.23%	7.79%	8.52%	7.36%	5.83%
2014	7.50%	6.20%	11.91%	7.41%	7.92%	6.60%
2013	7.50%	17.39%	10.36%	9.55%	11.43%	6.73%
2012	8.00%	12.15%	8.06%	12.48%	6.42%	
2011	8.00%	1.55%	10.96%	4.22%	4.42%	
2010	8.00%	10.48%	2.47%	2.88%	3.79%	
2009	8.00%	20.84%	0.78%	4.24%	4.78%	
2008	8.00%	-23.90%	-3.37%	3.64%	4.30%	
2007	8.00%	5.41%	7.08%	0.99%		
2006	8.00%	8.36%	7.81%			
2005	8.00%	7.47%				
2004	8.00%	7.58%				



All Employee Groups
Participant Data

	1/1/2017	1/1/2018	1/1/2019	1/1/2020
Actively Employed Participants	**547**	**543**	**546**	**544**
a. City of Rutland	98	89	82	69
b. Board of Education	449	454	464	475
c. Average Age	48.24	48.74	48.90	49.58
d. Average Service	n/a	n/a	12.29	11.89
e. Average Future Service	n/a	n/a	7.30	7.18
Terminated and Inactive Participants	**155**	**168**	**185**	**221**
a. City of Rutland	27	30	30	32
b. Board of Education	128	138	155	189
c. Average Age	n/a	n/a	47.44	46.77
Retired Participants/Beneficiaries in Pay Status	**406**	**410**	**420**	**416**
a. City of Rutland	125	127	131	136
b. Board of Education	281	283	289	280
c. Average Age	70.38	70.69	71.10	71.24
Total Participants at end of plan year:	**1,108**	**1,121**	**1,151**	**1,181**



All Employee Groups
Recommended Contribution

	1/1/2017	1/1/2018	1/1/2019	1/1/2020
1. Total normal cost:	2,628,257	2,635,268	2,451,695	2,573,710
% of Payroll	*9.41%*	*9.14%*	*8.25%*	*8.50%*
2. Administrative expenses:	90,000	120,000	100,000	120,000
% of Payroll	*0.32%*	*0.42%*	*0.34%*	*0.40%*
3. Expected employee contributions:	(1,339,706)	(1,416,463)	(1,458,996)	(1,502,512)
% of Payroll	*4.80%*	*4.91%*	*4.91%*	*4.96%*
4. Employer normal cost, 1+2+3:	1,378,552	1,338,805	1,092,699	1,191,198
% of Payroll	*4.93%*	*4.65%*	*3.68%*	*3.94%*
5. Actuarial accrued liability:	107,663,469	114,540,132	118,319,066	123,464,441
Active Participants:	*47,225,688*	*50,641,492*	*51,013,159*	*50,262,091*
Terminated Vested Participants:	*3,788,863*	*4,167,267*	*4,826,959*	*6,222,470*
Retirees and Beneficiaries:	*56,648,918*	*59,731,372*	*62,478,948*	*66,979,880*
6. Actuarial value of assets:	79,368,034	84,417,463	87,973,522	93,375,706
7. Unfunded actuarial accrued liability:	28,295,435	30,122,669	30,345,544	30,088,735
8. Employer normal cost projected to December 31:	1,481,943	1,439,215	1,173,559	1,278,155
9. Payment on unfunded actuarial accrued liability:	2,526,390	2,882,805	3,018,592	2,859,099
% of Payroll	*9.04%*	*10.00%*	*10.16%*	*9.45%*
10. Total recommended contribution, 8+9:	4,008,333	4,322,021	4,192,151	4,137,255
% of Payroll	*14.35%*	*15.00%*	*14.11%*	*13.67%*
11. Annualized Payroll:	27,934,380	28,820,569	29,716,323	30,270,871
12. Funded Status:	73.72%	73.70%	74.35%	75.63%

All Employee Groups
Reconciliation of Unfunded Liability

	12/31/2016	12/31/2017	12/31/2018	12/31/2019
1. Unfunded Liability Beginning of Year:	27,816,999	28,295,435	30,122,668	30,345,544
2. Normal Cost:	2,624,064	2,628,257	2,635,268	2,451,695
3. Interest:	2,135,477	2,159,131	2,273,554	2,249,776
4. Contributions - Employer:	(2,923,145)	(3,289,316)	(3,815,061)	(3,711,001)
5. Contributions - Employee	(1,337,191)	(1,358,979)	(1,414,083)	(1,437,138)
6. Liability (Gain) or Loss:	(651,930)	2,317,769	(1,009,430)	846,415
a. Participant Experience	*(651,930)*	*(596,596)*	*(880,760)*	*93,021*
b. Change in Discount Rate	*0*	*0*	*1,216,174*	*1,255,441*
c. Change in Mortality Tables	*0*	*2,914,365*	*(838,363)*	*(502,047)*
d. Other Assumption Changes	*0*	*0*	*(506,481)*	*0*
e. Plan Amendments	*0*	*0*	*0*	*0*
7. Asset (Gain) or Loss:	547,966	(753,465)	1,455,190	(777,008)
8. Expenses:	83,196	123,836	97,440	120,452
9. Unfunded Liability End of Year:	28,295,435	30,122,668	30,345,545	30,088,735

All Employee Groups
Risk and Duration Measures

Risk is the potential that actual future measurements deviate from expected future measurements that result from actual experience deviating from actuarially assumed experience. Please see the Appendix to this report for a general discussion on pension plan risk. This section of the report contains additional information that in the judgement of the actuary who has signed this document, a more detailed assessment should be provided.

	1/1/2017	1/1/2018	1/1/2019	1/1/2020
Duration of the actuarial accrued liability	n/a	11.78	11.47	11.37
Ratio of retired liability to total accrued liability	52.62%	52.15%	52.81%	54.25%
Ratio of market value of assets to benefit payments	13.26	14.30	12.85	14.11
Ratio of benefit payments to contributions (cash basis)	1.37	1.31	1.22	1.33
Plan Asset Allocation		*See Asset Statements*		

Duration of actuarial liability - is another method of measuring the effects of interest rates on the plan liabilities. The smaller this number is, the less effect there will be from changing interest rates. A rough estimate is that for every 100 basis point change in interest rates, the liability changes in the opposite direction by the duration divided by 100. Duration is also the weighted average of time of future benefit payments which may also be used for assessing cash flow needs of the plan. This duration may be compared to the asset duration to assess asset/liability mismatch risk, see the Appendix for more risk assessment information.

Ratio of retired liability to total accrued liability - The larger this measure is, the more mature the plan is, and the less expected time there will be before the majority of benefits must be paid. The larger the measure, the less susceptible the plan may be to demographic and economic risks.

Ratio of market value of assets to benefit payments - is used as a predictor of the number of annual payments a plan can make with the current assets and rate of benefit payments. It is also useful for judging cash flow needs. The lower the number, the fewer years of benefit payments the current assets will support.

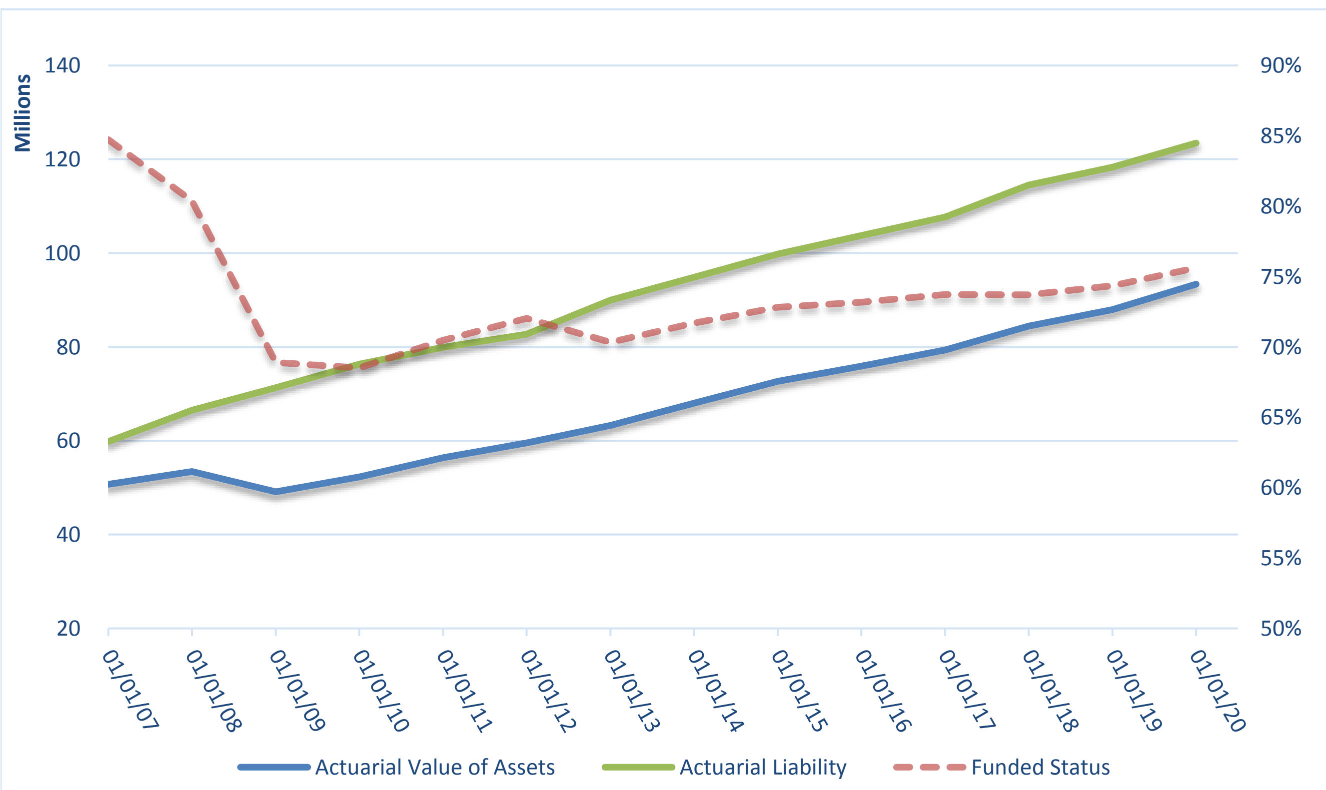
Ratio of benefit payments to contributions - a number over 1 indicates that the plan pays annual benefits greater than the contributions to the plan. Numbers over 1 indicate a negative cash flow.

Plan Asset Allocation - is used to assess the level of risk the underlying investment strategy may hold. Therefore, it is important to the Plan Sponsor to have regular discussions with the plan's investment advisor to ensure that the investment policy of the plan is designed to meet the goals of the Plan Sponsor to meet a specific liability and understand the volatility of the underlying asset returns as they relate to future required contribution

If in the judgement of the actuary who has signed this document, a specific risk should have a more detailed assessment, the actuary will communicate and discuss this issue in a separate document.

All Employee Groups
Funding Progress

Actuarial Valuation Date	Actuarial Value of Assets	Actuarial Accrued Liability (AAL)	Underfunded/ (Overfunded) AAL (UAAL)	Funded Ratio	Covered Payroll	UAAL as a Percentage of Covered Payroll
1/1/2007	50,695,986	59,831,977	9,135,991	84.73%	24,161,425	37.81%
1/1/2008	53,455,121	66,495,591	13,040,470	80.39%	25,641,832	50.86%
1/1/2009	49,113,382	71,277,825	22,164,443	68.90%	26,389,650	83.99%
1/1/2010	52,277,707	76,305,676	24,027,969	68.51%	26,914,829	89.27%
1/1/2011	56,345,063	79,951,469	23,606,406	70.47%	27,594,551	85.55%
1/1/2012	59,550,538	82,683,836	23,133,298	72.02%	27,838,575	83.10%
1/1/2013	63,249,120	89,935,809	26,686,689	70.33%	28,416,600	93.91%
1/1/2014	67,988,181	94,836,584	26,848,403	71.69%	28,733,550	93.44%
1/1/2015	72,646,720	99,765,241	27,118,521	72.82%	29,597,118	91.63%
1/1/2016	75,934,529	103,751,528	27,816,999	73.19%	28,114,946	98.94%
1/1/2017	79,368,034	107,663,468	28,295,434	73.72%	27,934,380	101.29%
1/1/2018	84,417,463	114,540,130	30,122,667	73.70%	28,820,569	104.52%
1/1/2019	87,973,522	118,319,066	30,345,544	74.35%	29,716,323	102.12%
1/1/2020	93,375,706	123,464,440	30,088,734	75.63%	30,270,871	99.40%



Pension Plan Risk

Risk is the potential that actual future measurements deviate from expected future measurements that result from actual experience deviating from actuarially assumed experience.

Measuring pension obligations requires a set of assumptions. These assumptions may be set by law, determined by the actuary or, for some purposes, by the Plan Sponsor.

Inherent in these assumptions is the knowledge that future results will be different from the assumptions and the difference may be significant. For pension plans, the inherent risk of the deviance of actual experience from assumed experience is borne, solely, by the Plan Sponsor.

The two biggest risks related to determining the liabilities and contributions of a pension plan are the interest rate assumption and the mortality assumption. Inherent in the interest rate assumption is that the assets will meet this interest rate assumption. Therefore, the interest rate risk is linked to investment risk.

There are lesser risks that may be assumed in determining liability for various reasons, such as rate of termination of active participants or the rate of disability, among others. However, in determining risks of the plan, as a whole and, therefore to the Plan Sponsor, there are additional risks. The two major assumptions for funding purposes are prescribed by law for private plans and may be prescribed by law for public plans. The assumptions may not relate, in any way, to how the plan assets are invested. In addition, some plans may have required formulas for determining the contribution rate that are reliant on the number and compensation of active participants, rather than being actuarially determined.

The purpose of this document attempts to provide the Plan Sponsor with some assessment of the risk, without overburdening the Plan Sponsor with additional administrative costs and additional numbers which may be more confusing than helpful.

While this document will provide an analysis of the relevant risks to the plan, it is outside the scope of this assignment to provide a detailed assessment of any specific risk. If in the judgement of the actuary who has signed this document, a specific risk should have a more detailed assessment, the actuary will communicate and discuss this issue in a separate document.

Primary Risks to be assessed:

1. Investment Risk
2. Longevity
3. Demographic Risks
4. Asset/Liability Mismatch Risk
5. Interest Rate Risk
6. Contribution Risks

Investment Risk

This is, probably, the most commonly understood risk. You have a pool of assets that are expected to earn a certain percentage and it is generally understood that the assets may underperform, outperform or meet that rate.

Inherent in the interest rate assumption used to determine pension liabilities and the resulting actuarial contributions to the plan, is that the assets will meet this interest rate assumption.

In general, if investment returns are lower than expected, future contributions will increase. If investment returns are higher than expected, future contributions will decrease.

Due to the various measures of liabilities for pension plans, i.e. minimum funding, maximum funding, PBGC, accounting, etc., different Plan Sponsors may have different targets for full funding.

Therefore, it is important to the Plan Sponsor to have regular discussions with the plan's investment advisor to ensure that the investment policy of the plan is designed to meet the goals of the Plan Sponsor to meet a specific liability and understand the volatility of the underlying asset returns as they relate to future required contribution levels and expected benefit payments.

Longevity Risk

Longevity risk is the risk that participants will live longer than expected and receive a larger number of eventual benefits.

The mortality table used to measure longevity in pension plans is required by law for private plans and may be set by law for public plans. For those plans that do not have a mortality table set by law, there may not be enough data to adequately determine a specific mortality table for the plan population. In those cases, a mortality assumption of one of a number of set mortality tables may be used.

In any case, the mortality table used to determine funding liabilities is unlikely to match closely to the plan population, although newer mortality tables should provide a better picture of current mortality as it relates to the plan population.

In the case that plan participants outlive the mortality assumption, future contributions and liabilities will be higher than expected. In cases where plan participants die earlier than the mortality assumption expects, future liabilities and contributions will decrease.

If a plan provides subsidized pre-retirement death benefits, pre-retirement death rates in excess of those assumed may increase plan liabilities and costs.

Other Demographic Risks

There are various other demographic risks which may or may not apply to every plan. Common assumptions for demographics are the rate at which participants take early retirement, terminate employment or become disabled.

Other demographic risks may be associated with plans which have required contributions based upon the active payroll, i.e. 10% of active payroll is required, by law, to be contributed to the plan. In the event that there is a large decrease in the active employees of the plan, this level of contribution may not meet the funding requirements of the plan.

If a plan offers subsidized early or disability benefits, early or disability retirements in excess of those assumed will increase the plan's liabilities and future contributions.

For plans without subsidized early or disability benefits any variability from the assumed rates in these types of retirements should have little effect on future liabilities and contributions, unless the participant is not replaced by another employee who will be eligible for the same benefits.

If a plan has been frozen to new participants, the participant will not be replaced in the population and future liabilities and contribution requirements should decrease if current participants are still accruing benefits or remain largely unchanged if the participants are not currently accruing benefits.

Asset/Liability Mismatch Risk

As part of the discussion with the investment advisor, the Plan Sponsor and the investment advisor should understand the nature of the expected future benefits of the plan (i.e. lump sums or annuities) along with the amounts of these expected future payments so that cash flow needs can be met.

Furthermore, assets may be invested in a manner such that, due to overall economic factors, plan assets decline while interest rates decrease (and liabilities increase). The risk is that assets and liabilities may be invested in such a way that changes in interest rates result in additional unfunded liabilities. Plan assets that are designed to match plan liabilities would respond to interest rate changes in an offsetting manner, eliminating this risk. For example, a plan may be invested in a way such that decreasing interest rates resulted in increases in assets which offset the additional liability generated. This offsetting movement may be between a 0% and 100% correlation. The plan sponsor should consult their investment advisor for more information.

Without attention to this risk, the plan assets may not have the cash flow to be able to provide a large benefit payment when due. Most plans are invested in liquid assets such that this is not a problem. However, there may be issues that large benefit payments have to be made at a time it is not favorable to the plan assets even when there are only liquid assets.

Assets such as real estate or limited partnerships may not provide the liquidity needed to make the expected payments from the plan.

The best example of this happened in 2008 when assets plummeted as much as 25%-50% and, by January 1, 2009 interest rates had decreased such that liabilities far outstripped plan assets. This was such a confluence of bad results, many employers couldn't afford the spike in contribution levels, leading Congress to pass specific funding relief to cover a few years and, finally, MAP-21 as amended by HATFA, to eliminate this volatility for minimum funding purposes.

Interest Rate Risk

This is the risk that future interest rates will be different than those assumed. This is important for many reasons:

1. Private plans are required to determine minimum funding liabilities and contributions based upon current corporate bond yield curves with a hybrid 25-year averaging.
2. PBGC premiums and lump sums payments subject to Internal Revenue Code 417(e) for private plans are based upon the same yield curves, without smoothing.
3. Plan assets may include investments which are more sensitive to changes in interest rates in the economy.

In general, increases in corporate bond yields will be reflected in lower liabilities and contribution requirements to the plan. The reverse is true, as shown by experience, that decreases in these yields will cause an increase in plan liabilities and contribution requirements.

Due to the averaging used for required funding interest rates, the changes in interest rates for funding may be slower than those for PBGC or lump sum purposes.

A sharp decline in interest rates, such as those in 2009 and 2010 may inflate liabilities and contributions to the point of unaffordability. It was these sharp declines that were the impetus of using a 25-year averaging for funding liabilities and contributions so that less volatility should be incurred for this purpose.

However, due to this averaging, funding requirements cause a mismatch between the liabilities for required funding and those used to determine PBGC premiums and any lump sum payments. Due to this mismatch of liabilities for different purposes, the Plan Sponsor should consider whether to make contributions in excess of the minimums required.

Contribution Risk

This is the risk that the contributions to the plan will not be sufficient to cover liabilities. The actuary is not required to determine the ability or willingness of the Plan Sponsor to make the required contributions, only to assess the risk that these contributions are not made.

If contributions are not made, at least in an amount according to actuarial valuations, future contributions would be expected to increase, if all other assumptions are met.

Additional Risk and Plan Maturity Measures

If in the judgement of the actuary who has signed this document, additional risk and plan maturity measures were provided in the valuation, this section contains a description of those factors.

Ratio of retired liability to total accrued liability

This is the ratio of the liability for the retired population compared to the total liability. The larger this measure is, the more mature the plan may be. A more mature plan has reached a point where it may have both assets and liabilities that are declining. The larger this ratio is, the less expected time there will be before benefits must be paid.

Ratio of benefit payments to market value of assets

This is the ratio of the benefit payments made during a calendar year compared to the market value at the end of that year. This measure is useful for determining how much of the plan's assets and liabilities are being settled each year and may be used as a predictor of the time until the plan would need to have the assets to pay all liabilities. There may be variances from year to year due to lump sum payments. Ratio of benefit payments to contributions (cash basis).

The duration of the actuarial accrued liability

The duration of pension payments is another method of measuring the effects of interest rates on the plan liabilities. When discussing asset/liability mismatch the duration of the liabilities may be compared to the duration of the assets.

The smaller this number is the less effect there will be from changing interest rates. A rough estimate of liabilities says that for every 100 basis point change in interest rates, the liability changes in the opposite direction by the duration divided by 100.

Duration is also the weighted average of time of future benefit payments and may also be used for assessing cash flow needs of the plan.

As an example, a duration of 15 years would mean that on average half of the liability is derived from benefit payments that will occur in the next 15 years. You would also expect that for a 1% increase in interest rates that the plan's liability would decrease by 15%.

Plan Asset Allocation

The asset allocation is used to assess the level of risk the underlying investment strategy may hold. An allocation more focused on fixed income will generally be more conservative while an allocation of more equity holdings would be more risky.