

Vermont Municipal Employees' Retirement System

Actuarial Valuation and Review

As of June 30, 2020



This report has been prepared at the request of the Board of Trustees to assist in administering the System. The measurements shown in this actuarial valuation may not be applicable for other purposes.

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Segal



101 North Wacker Drive, Suite 500
Chicago, IL 60606-1724
segalco.com
T 312.984.8500

October 28, 2020

Board of Trustees
Vermont Municipal Employees' Retirement System
Montpelier, Vermont 05609

Dear Board Members:

We are pleased to submit this Actuarial Valuation and Review as of June 30, 2020, of the Vermont Municipal Employees' Retirement System. This report summarizes the actuarial data used in the valuation, analyzes the preceding year's experience, and establishes the actuarially determined contribution requirement for fiscal 2021. The total actuarially determined contribution for the fiscal year beginning July 1, 2020, amounts to \$36,722,301.

This report was prepared in accordance with generally accepted actuarial principles and practices, and with the Actuarial Standards of Practice issued by the Actuarial Standards Board, at the request of the Board to assist in administering the Retirement System. The census information and financial information on which our calculations were based was prepared by the Office of the State Treasurer. That assistance is gratefully acknowledged. We have not subjected this data to any auditing procedures, but have examined the data for reasonableness and consistency with the prior year's data.

Actuarial assumptions and methods are set by the Board of Trustees, based upon recommendations made by the System's actuary. In September 2020, the Board adopted new assumptions, effective for the June 30, 2020, valuation. In our opinion, the actuarial assumptions as approved by the Board are reasonable, taking into account the experience of the System and reasonable long-term expectations, and represent our best estimate of the anticipated long-term experience of the System.

The results of the actuarial valuation are dependent on the actuarial assumptions used. Actual results can and almost certainly will differ, as actual experience deviates from the assumptions. Even seemingly minor changes in the assumptions can materially change the liabilities, calculated contribution rates, and funding periods.

The actuarial calculations were directed under the supervision of Kathleen A. Riley, FSA, MAAA, EA and Matthew A. Strom, FSA, MAAA, EA. We are members of the American Academy of Actuaries and we meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinion herein. To the best of our knowledge, the information supplied in this actuarial

valuation is complete and accurate. Further, in our opinion, the assumptions as approved by the Board are reasonably related to the experience of and the expectations for the System.

We look forward to reviewing this report and to answering any questions at the next Board meeting.

Sincerely,
Segal



Kathleen A. Riley, FSA, MAAA, EA
Senior Vice President and Actuary



Matthew A. Strom, FSA, MAAA, EA
Senior Vice President and Actuary

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Actuarial Valuation Summary

Purpose and basis

This report was prepared by Segal to present a valuation of the System as of June 30, 2020, pursuant to section 5062 of Title 24, Chapter 125, Vermont Statutes Annotated, relating to the Vermont Municipal Employees' Retirement System. The valuation was performed to determine whether the assets and contributions are sufficient to provide the prescribed benefits. The measurements shown in this actuarial valuation may not be applicable for other purposes. In particular, the measures herein are not necessarily appropriate for assessing the sufficiency of System assets to cover the estimated cost of settling the System's benefit obligations. 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; and changes in plan provisions or applicable law.

Certain disclosure information required by GASB Statements No. 67 and 68 as of June 30, 2020, for the System is provided in separate reports.

The contribution requirements presented in this report are based on:

- The benefit provisions of the Pension Plan, as administered by the Board;
- The characteristics of covered active members, inactive members, and retired members and beneficiaries as of June 30, 2020, provided by the Office of the State Treasurer;
- The unaudited assets of the System as of June 30, 2020, provided by the Office of the State Treasurer;
- Economic assumptions regarding future salary increases and investment earnings;
- Other actuarial assumptions, regarding employee terminations, retirement, death, etc.; and
- The funding policy adopted by the Board of Trustees.

Section 1: Actuarial Valuation Summary

Valuation highlights

1. It is important to note that this actuarial valuation is based on plan assets as of June 30, 2020. Due to the COVID-19 pandemic, market conditions have changed significantly since the valuation date. The System's actuarial status does not reflect short-term fluctuations of the market, but rather is based on the market values on the last day of the Plan Year. While it is impossible to determine how the market will perform over the next several months, and how that will affect the results of next year's valuation, Segal is available to prepare projections of potential outcomes upon request.
2. Segal strongly recommends an actuarial funding method that targets 100% funding of the actuarial accrued liability. Generally, this implies payments that are ultimately at least enough to cover normal cost, interest on the unfunded actuarial accrued liability and the principal balance. The funding policy set in the Vermont State Pension Code meets this standard. Section 5064, subsection (c)(4), of Title 24, Chapter 125, Vermont Statutes Annotated calls for the calculation of an accrued liability contribution rate to be calculated for each membership group, based on the actuarial assumptions and methodology adopted by the Retirement Board. Rates are determined as a percent of payroll and calculated such that the rate paid by each membership group is sufficient to fully fund that group's actuarial accrued liability by June 30, 2038.
3. Actual employer contributions made during the fiscal year ending June 30, 2020, were \$20.7 million, or 91.4% of the actuarially determined contribution of \$22.6 million. In the prior fiscal year, actual employer contributions were \$19.2 million.
4. The funded percentage (the ratio of the actuarial value of assets to actuarial accrued liability determined under the Entry Age Normal cost method) is 75.8%, compared to the prior year's funded percentage of 80.1%. This percentage is one measure of funding status and its history is a measure of funding progress. Using the market value of assets, the funded percentage is 73.7%, compared to 79.2% as of the prior valuation date. These measurements are not necessarily appropriate for assessing the sufficiency of Plan assets to cover the estimated cost of settling the System's benefit obligation or the need for or the amount of future contributions.
5. The actuarially determined contribution for the upcoming year is \$36.7 million. The contribution as a percentage of payroll increased from 7.04% of payroll to 10.67% of payroll. The actuarially determined contribution is equal to the System's employer normal cost, plus the amount necessary to amortize the actuarial shortfall as of June 30, 2020, over a period ending on June 30, 2038, assuming that the amortization period will remain closed and that the amortization amount will increase annually at the rate of 3% over the preceding year.
6. The average funding policy contribution rate for the fiscal year ending June 30, 2021, is 6.14%. Compared to the actuarially determined contribution rate of 10.67%, there is a contribution rate shortfall of 4.53% in aggregate. Each group has a contribution deficiency. Details can be found in *Section 2, Actuarially determined contribution*.

Section 1: Actuarial Valuation Summary

7. Pursuant to Act 165 of 2018, the member and employer contribution rates will each increase by 0.250% for fiscal 2022 and thereafter. A complete schedule of member and employer contribution rates can be found in *Section 4, Exhibit II*.
8. The rate of return on the market value of assets was 4.24% for the July 1, 2019, to June 30, 2020, plan year. The return on the actuarial value of assets was 5.93% for the same period due to the recognition of prior year's investment gains and losses. We advise the Board to continue to monitor actual and anticipated investment returns relative to the assumed long-term rate of return on investments.
9. The actuarial value of assets is 102.90% of the market value of assets. The investment experience in the past years has only been partially recognized in the actuarial value of assets. As the deferred net loss is recognized in future years, the actuarially-determined cost of the System is likely to increase unless the net loss is offset by future experience. The recognition of the deferred market losses of \$21.5 million will also have an impact on the future funded percentage. If the net deferred losses were recognized immediately in the actuarial value of assets, the actuarially determined contribution rate would increase from 10.67% to about 11.16% of payroll.
10. The actuarial loss from investment experience is \$11.3 million.
11. The net experience loss from sources other than investment experience was approximately \$9.7 million, or 1.00% of the actuarial accrued liability. Additional detail regarding this loss is shown in *Section 2, Other experience*.
12. Changes in actuarial assumptions, which include lowering the investment return assumption from 7.5% to 7.0%, were approved by the Board on September 24, 2020. The assumptions adopted are outlined in detail in *Section 4, Exhibit I*. As a result of these assumption changes, excluding the change in actuarial cost method, the total normal cost increased by \$2.1 million and the actuarial accrued liability increased by \$40.1 million. The total impact was an increase to the actuarially determined contribution of \$4.6 million, or 1.32% of payroll.
13. A change in actuarial cost method was also approved by the Board as part of the September 2020 experience study. Entry age normal is now used to calculate the normal cost and unfunded actuarial accrued liability components of the System's actuarially determined contribution. The impact from this change in actuarial cost method was an increase to the actuarially determined contribution of \$7.1 million, or 2.06% of payroll.
14. This report constitutes an actuarial valuation for the purpose of determining the actuarially determined contribution under the System's funding policy and measuring the progress of that funding policy. The Net Pension Liability (NPL) and Pension Expense under Governmental Accounting Standards Board (GASB) Statements No. 67 and No. 68, for inclusion in the plan and employer's financial statements as of June 30, 2020, and June 30, 2021, will be provided separately. The actuarially determined contribution in this valuation is expected to be used as the actuarially determined contribution (ADC) for GASB financial reporting.

Section 1: Actuarial Valuation Summary

15. This actuarial report as of June 30, 2020, is based on financial and demographic data as of that date. Changes subsequent to that date are not reflected and will affect future actuarial costs of the System.
16. Since the actuarial valuation results are dependent on a given set of assumptions, there is a risk that emerging results may differ significantly as actual experience proves to be different from the assumptions. We have included a discussion of various risks that may affect the System in *Section 2, Risk*.

Section 1: Actuarial Valuation Summary

Summary of key valuation results

		2020	2019
Contributions for plan year beginning July 1:	• Funding policy contribution rate	6.14%	5.90%
	• Actuarially determined employer contributions as a percent of payroll	10.67%	7.04%
	• Contribution rate excess/(shortfall)	-4.53%	-1.14%
Actuarial cost method measures for plan year beginning July 1:	• Unfunded liability/actuarial shortfall to be amortized through June 30, 2038*	\$243,054,058	\$240,764,266
	• Normal contribution rates for plan year beginning July 1		
	– Employee normal contribution rate	5.994%	5.756%
	– Employer normal contribution rate	5.168%	1.193%
	– Total normal contribution rate	11.162%	6.949%
Actuarial accrued liability (EAN) for plan year beginning July 1	• Total actuarial accrued liability	\$1,004,560,034	\$896,341,848
	• Employer normal cost dollars	17,785,062	15,481,182
	• Employer normal cost rate	5.168%	4.817%
Assets for plan year beginning July 1:	• Market value of assets (MVA)	\$740,052,895	\$709,465,831
	• Actuarial value of assets (AVA)	761,505,976	718,337,020
	• Actuarial value of assets as a percentage of market value of assets	102.90%	101.25%
Funded status (EAN) for plan year beginning July 1:	• Unfunded actuarial accrued liability based on MVA	\$264,507,139	\$186,876,017
	• Funded percentage on MVA basis	73.67%	79.15%
	• Unfunded actuarial accrued liability based on AVA	\$243,054,058	\$178,004,828
	• Funded percentage on AVA basis	75.80%	80.14%
	• Remaining amortization period	18	19
Key assumptions:	• Investment return	7.00%	7.50%
	• Inflation rate	2.30%	2.50%
Demographic data for plan year beginning July 1:	• Number of retired members and beneficiaries	3,693	3,415
	• Number of deferred members as reported by the System	927	896
	• Number of inactive members as reported by the System	2,941	2,814
	• Number of active members	7,987	7,630
	• Total payroll	\$327,491,743	\$306,103,224
	• Average payroll	41,003	40,118
	• Total monthly benefits for all retired members and beneficiaries	3,227,813	2,858,689
	• Average monthly benefit for all retired members and beneficiaries	874	837

* Entry Age Normal liability and normal cost is shown for 2019 for informational purposes only. The actuarial cost method used by the System, which was changed to Entry Age Normal effective June 30, 2020, is described in *Section 4, Exhibit I*.

Section 1: Actuarial Valuation Summary

Summary of key June 30, 2020, valuation results by group

		Group A	Group B	Group C	Group D	Total
Contributions:	• Current funding policy rate*	4.500%	6.000%	7.750%	10.350%	6.145%
	• Actuarially determined rate	7.296%	10.733%	13.604%	16.701%	10.671%
	• Excess/(shortfall)	-2.796%	-4.733%	-5.854%	-6.351%	-4.526%
Actuarial cost method measures:	• Unfunded actuarial accrued liability	\$32,500,389	\$122,479,681	\$64,329,036	\$23,744,952	\$243,054,058
	• Normal contribution rates					
	– Employee rate	3.000%	5.375%	10.500%	11.850%	5.994%
	– Employer rate	4.349%	5.470%	5.232%	5.851%	5.168%
	– Total rate	7.349%	10.845%	15.732%	17.701%	11.162%
Actuarial accrued liability:	• Total actuarial accrued liability	\$196,877,514	\$510,605,273	\$228,610,915	\$68,466,332	\$1,004,560,034
	• Employer normal cost dollars	3,737,041	9,918,078	3,132,249	997,695	17,785,062
	• Employer normal cost rate	4.349%	5.470%	5.232%	5.851%	5.168%
Assets:	• Market value of assets (MVA)	\$159,746,307	\$377,191,351	\$159,653,744	\$43,461,493	\$740,052,895
	• Actuarial value of assets (AVA)	164,377,125	388,125,593	164,281,879	44,721,380	761,505,976
Funded status:	• Unfunded liability on MVA basis	\$37,131,207	\$133,413,922	\$68,957,171	\$25,004,839	\$264,507,139
	• Funded percentage on MVA basis	81.14%	73.87%	69.84%	63.48%	73.67%
	• Unfunded liability on AVA basis	\$32,500,389	\$122,479,680	\$64,329,036	\$23,744,952	\$243,054,058
	• Funded percentage on AVA basis	83.49%	76.01%	71.86%	65.32%	75.80%
Demographic data:	• Retired members and beneficiaries	1,399	1,779	444	71	3,693
	• Deferred members as reported by the System	531	353	37	6	927
	• Inactive members as reported by the System	1,361	1,409	131	40	2,941
	• Active members	2,622	4,231	908	226	7,987
	• Total payroll	\$81,731,872	\$172,491,167	\$57,020,407	\$16,248,297	\$327,491,743
	• Average payroll	31,172	40,768	62,798	71,895	41,003

* Current funding policy rates are as of July 1, 2020.

Section 1: Actuarial Valuation Summary

Important information about actuarial valuations

An actuarial valuation is a budgeting tool with respect to the financing of future projected obligations of a pension plan. It is an estimated forecast – the actual long-term cost of the plan will be determined by the actual benefits and expenses paid and the actual investment experience of the plan.

In order to prepare a valuation, Segal relies on a number of input items. These include:

Plan of benefits	Plan provisions define the rules that will be used to determine benefit payments, and those rules, or the interpretation of them, may change over time. Even where they appear precise, outside factors may change how they operate. It is important to keep Segal informed with respect to plan provisions and administrative procedures, and to review the plan summary included in our report to confirm that Segal has correctly interpreted the plan of benefits.
Membership data	An actuarial valuation for a plan is based on data provided to the actuary by the System. Segal does not audit such data for completeness or accuracy, other than reviewing it for obvious inconsistencies compared to prior data and other information that appears unreasonable. It is important for Segal to receive the best possible data and to be informed about any known incomplete or inaccurate data.
Assets	The valuation is based on the market value of assets as of the valuation date, as provided by the System. The System uses an “actuarial value of assets” that differs from market value to gradually reflect year-to-year changes in the market value of assets in determining the contribution requirements.
Actuarial assumptions	In preparing an actuarial valuation, Segal projects the benefits to be paid to existing plan members for the rest of their lives and the lives of their beneficiaries. This projection requires actuarial assumptions as to the probability of death, disability, withdrawal, and retirement of each member for each year. In addition, the benefits projected to be paid for each of those events in each future year reflect actuarial assumptions as to salary increases and cost-of-living adjustments. The projected benefits are then discounted to a present value, based on the assumed rate of return that is expected to be achieved on the plan’s assets. There is a reasonable range for each assumption used in the projection and the results may vary materially based on which assumptions are selected. It is important for any user of an actuarial valuation to understand this concept. Actuarial assumptions are periodically reviewed to ensure that future valuations reflect emerging plan experience. While future changes in actuarial assumptions may have a significant impact on the reported results, that does not mean that the previous assumptions were unreasonable.

Section 1: Actuarial Valuation Summary

The user of Segal's actuarial valuation (or other actuarial calculations) should keep the following in mind:

The actuarial valuation is prepared at the request of the System and Board of Trustees. Segal is not responsible for the use or misuse of its report, particularly by any other party.

An actuarial valuation is a measurement of the plan's assets and liabilities at a specific date. Accordingly, except where otherwise noted, Segal did not perform an analysis of the potential range of future financial measures. The actual long-term cost of the plan will be determined by the actual benefits and expenses paid and the actual investment experience of the plan.

Actuarial results in this report are not rounded, but that does not imply precision.

If the System is aware of any event or trend that was not considered in this valuation that may materially change the results of the valuation, Segal should be advised, so that we can evaluate it.

Segal does not provide investment, legal, accounting, or tax advice. Segal's valuation is based on our understanding of applicable guidance in these areas and of the plan's provisions, but they may be subject to alternative interpretations. The System should look to its other advisors for expertise in these areas.

As Segal has no discretionary authority with respect to the management or assets of the System, it is not a fiduciary in its capacity as actuaries and consultants with respect to the System.

Actuarial Valuation Results

Member data

The Actuarial Valuation and Review considers the number and demographic characteristics of covered members, including active members, inactive vested members, retired members and beneficiaries.

This section presents a summary of significant statistical data on these member groups.

More detailed information for this valuation year and the preceding valuation can be found in *Section 3, Exhibits A and B*.

Member Population: 2011 – 2020

Year Ended June 30	Active Members	Deferred Members as Reported by the System*	Retired Members and Beneficiaries	Total Non- Actives	Ratio of Non-Actives to Actives
2011	6,475	645	1,779	2,424	0.37
2012	6,606	623	1,991	2,614	0.40
2013	6,577	652	2,146	2,798	0.43
2014	6,664	692	2,359	3,051	0.46
2015	6,685	837	2,539	3,376	0.51
2016	6,966	811	2,734	3,545	0.51
2017	7,302	797	2,942	3,739	0.51
2018	7,452	798	3,189	3,987	0.54
2019	7,630	896	3,415	4,311	0.57
2020	7,987	927	3,693	4,620	0.58

* Excludes inactive members as reported by the System

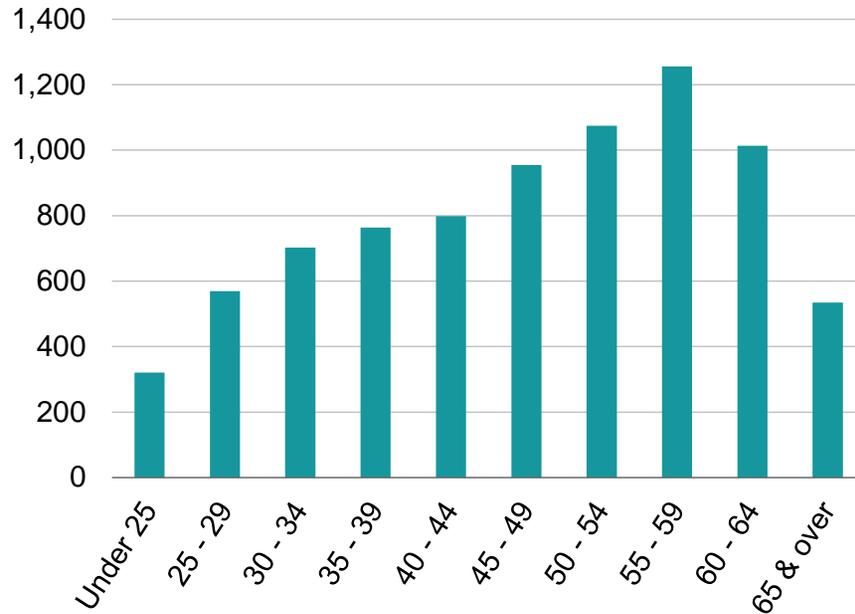
Section 2: Actuarial Valuation Results

Active members

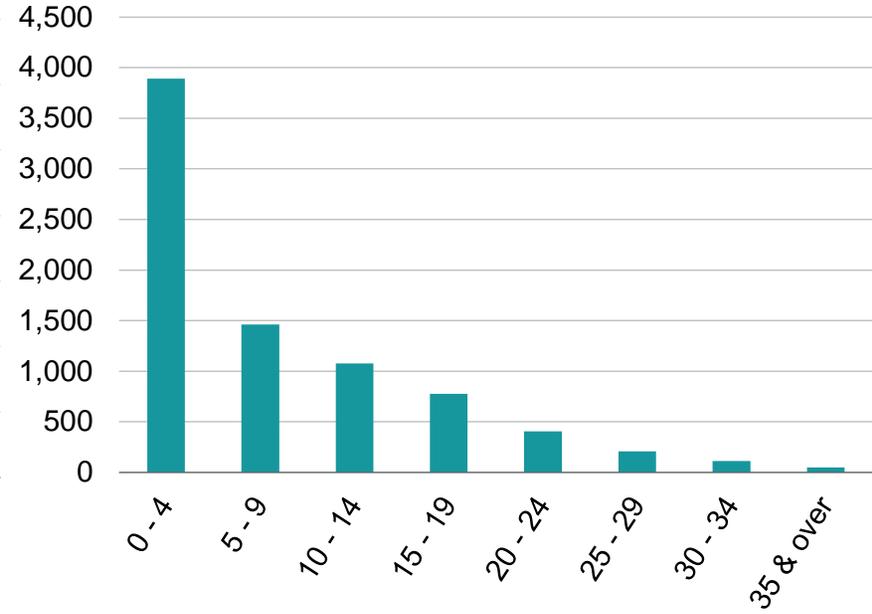
Plan costs are affected by the age, years of creditable service and payroll of active members. In this year's valuation, there were 7,987 active members with an average age of 47.9, average years of creditable service of 8.3 years, and average payroll of \$41,003. The 7,630 active members in the prior valuation had an average age of 48.0, average service of 8.5 years and average payroll of \$40,118.

Distribution of Active Members as of June 30, 2020

Actives by Age



Actives by Years of Service



Section 2: Actuarial Valuation Results

Inactive and deferred members

In this year's valuation, there were 2,941 inactive members as reported by the System. A member is reported as inactive if they have withdrawn from active employment within the three-year period preceding the valuation date, or if they withdrew prior to the three-year period preceding the valuation date, but do not have a vested right to a deferred or immediate vested benefit and have not taken a refund of their employee contributions.

In addition, there were 927 deferred members as reported by the System. A member is reported as deferred if they have withdrawn from active employment prior to the three-year period preceding the valuation date and have a vested right to a deferred or immediate vested benefit.

Section 2: Actuarial Valuation Results

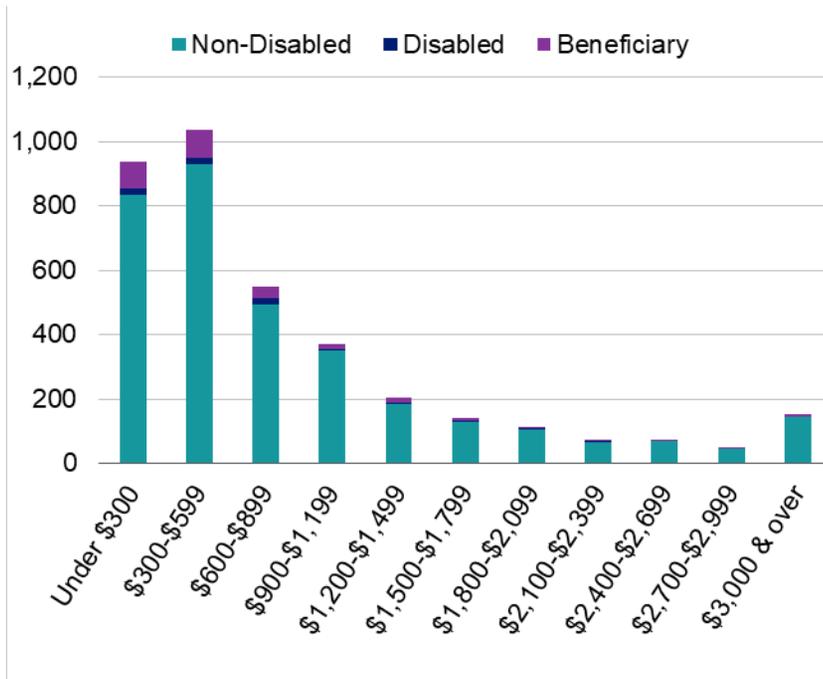
Retired members and beneficiaries

As of June 30, 2020, 3,435, retired members (including disability retirees) and 258 beneficiaries were receiving total monthly benefits of \$3,227,813. For comparison, in the previous valuation, there were 3,173 retired members and 242 beneficiaries receiving monthly benefits of \$2,858,689.

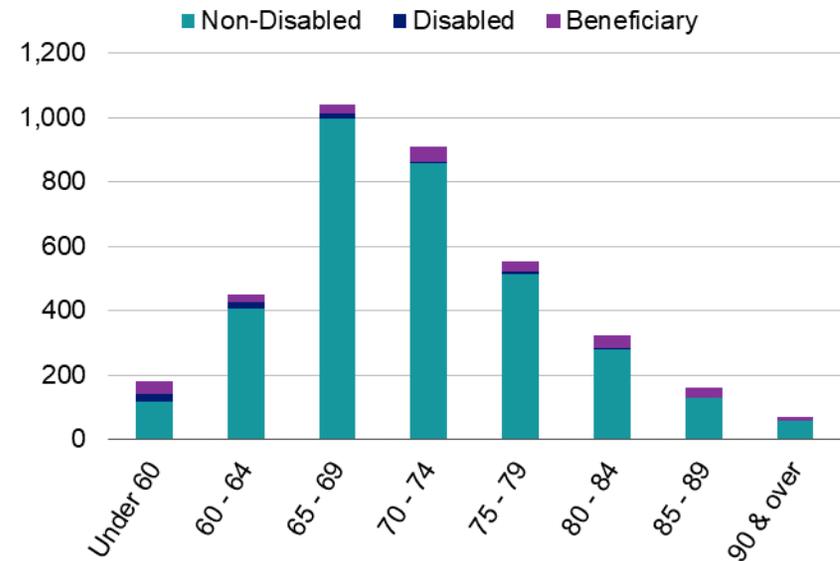
As of June 30, 2020, the average monthly benefit for retired members and beneficiaries is \$874, compared to \$837 in the previous valuation. The average age for retired members and beneficiaries is 71.6 in the current valuation, compared with 71.6 in the prior valuation.

Distribution of Pensioners as of June 30, 2020

Pensioners by Type and Monthly Amount



Pensioners by Type and Age



Section 2: Actuarial Valuation Results

Historical plan population

The chart below demonstrates the progression of the active population over the last ten years. The chart also shows the growth among the retired population over the same time period.

Membership Data Statistics: 2011 – 2020

As of July 1	Active Members			Retired Members*		
	Count	Average Age	Average Service	Count	Average Age	Average Monthly Amount
2011	6,475	48.5	8.1	1,620	--	\$598
2012	6,606	48.5	8.9	1,826	--	634
2013	6,577	48.8	9.1	1,982	--	659
2014	6,664	48.9	9.1	2,177	71.2	693
2015	6,685	48.7	9.1	2,329	71.3	718
2016	6,966	48.5	9.0	2,523	71.4	738
2017	7,302	48.4	8.8	2,731	71.4	773
2018	7,452	48.3	8.6	2,962	71.3	828
2019	7,630	48.0	8.5	3,173	71.4	855
2020	7,987	47.9	8.3	3,435	71.6	891

* Not including beneficiaries.

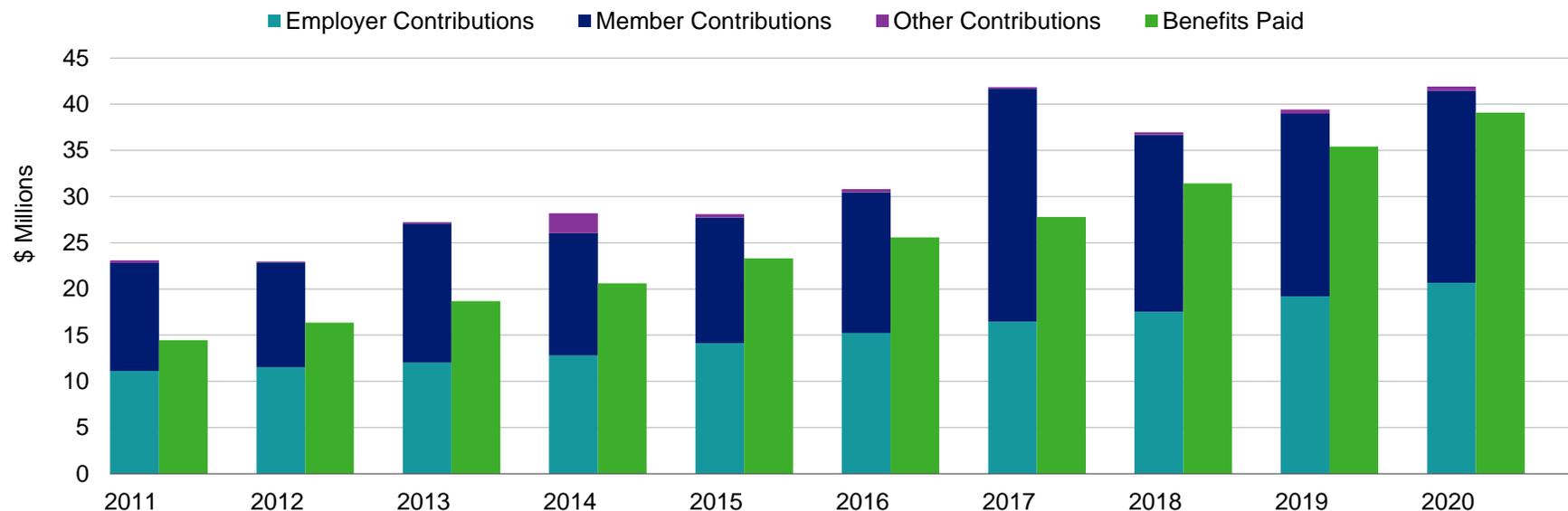
Section 2: Actuarial Valuation Results

Financial information

Retirement plan funding anticipates that, over the long term, both contributions and investment earnings (less investment fees and administrative expenses) will be needed to cover benefit payments. Retirement plan assets change as a result of the net impact of these income and expense components. Employer and member contributions have exceeded benefits for the most recent period shown. Benefits were 0.9 times employer and member contributions.

Additional financial information, including a summary of these transactions for the valuation year, is presented in *Section 3, Exhibits C, D and E*.

Comparison of Contributions to Benefits Paid
for Years Ended June 30, 2011 – 2020



Section 2: Actuarial Valuation Results

It is desirable to have level and predictable plan costs from one year to the next. For this reason, the Board has adopted an asset valuation method that gradually adjusts to market value. Under this valuation method, the full value of market fluctuation is not recognized in a single year and, as a result, the asset value and the plan costs are more stable. The asset method provides a degree of conservatism to increase the likelihood that benefits are funded. The amount of the adjustment to recognize market value is treated as income, which may be positive or negative. Realized and unrealized gains and losses are treated equally and, therefore, the sale of assets has no immediate effect on the actuarial value.

Determination of Actuarial Value of Assets for Year Ended June 30, 2020

1	Market value of assets, June 30, 2020				\$740,052,895
2	Calculation of unrecognized return	Original Amount*	Percent Deferred	Unrecognized Amount**	
	(a) Year ended June 30, 2020	-\$23,172,070	80%	-\$18,537,656	
	(b) Year ended June 30, 2019	-9,847,339	60%	-5,908,404	
	(c) Year ended June 30, 2018	-1,103,330	40%	-441,332	
	(d) Year ended June 30, 2017	17,171,553	20%	3,434,311	
	(e) Year ended June 30, 2016	-35,999,708	0%	0	
	(f) Total unrecognized return			-\$21,453,081	
3	Preliminary actuarial value: 1 – 2f				\$761,505,976
4	Adjustment to be within 20% corridor				0
5	Final actuarial value of assets as of June 30, 2020: 3 + 4				\$761,505,976
6	Actuarial value as a percentage of market value: 5 ÷ 1				102.90%
7	Amount deferred for future recognition: 1 – 5				-\$21,453,081

* Total return minus expected return on a market value basis

** Recognition at 20% per year over five years

Section 2: Actuarial Valuation Results

The following table presents an allocation of total valuation assets to each member group. The amounts shown for reallocation of surplus for members transferring among groups were derived by estimation of the contributions made on behalf of these members in their prior groups and accumulation of these amounts with interest at the historical rates of return calculated for the System.

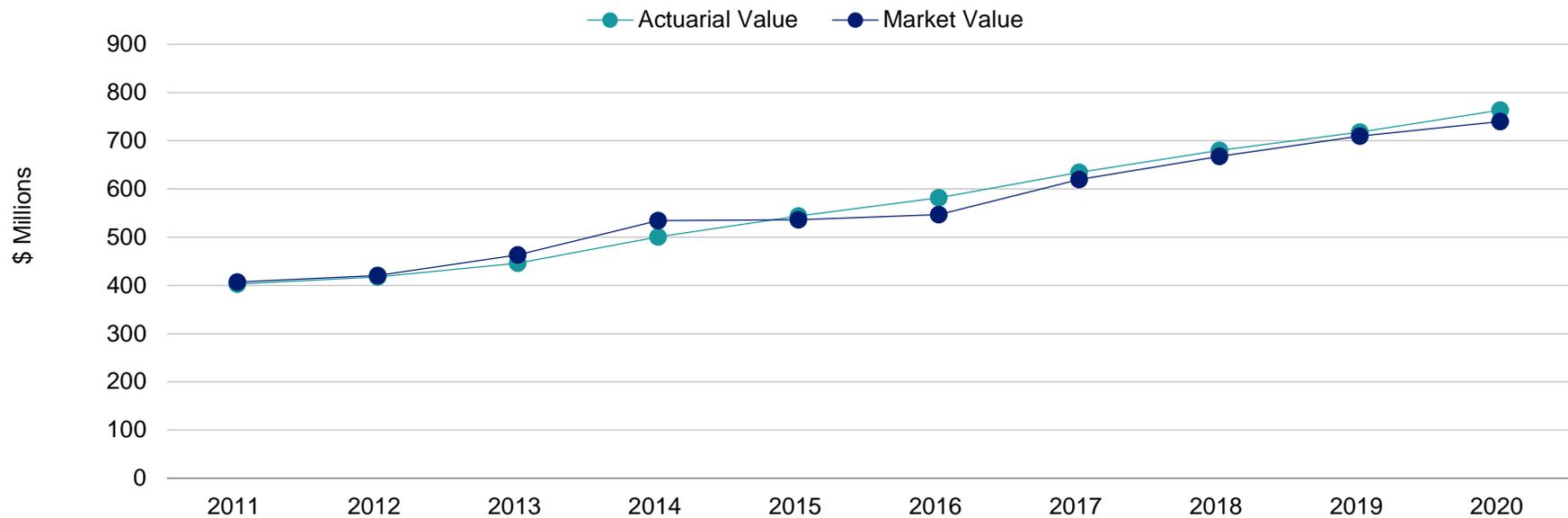
Allocation of Actuarial Value of Assets as of June 30, 2020

	Group A	Group B	Group C	Group D	Total
Valuation assets as of July 1, 2019:	\$158,409,343	\$365,381,657	\$153,897,449	\$40,648,571	\$718,337,020
Contributions:	6,262,773	20,388,711	11,120,959	3,679,716	41,452,160
Income:	9,327,427	21,685,455	9,164,372	2,462,356	42,639,610
Benefit payments:	-8,120,476	-18,905,727	-9,467,075	-1,834,262	-38,327,540
Expenses:	-506,837	-1,169,054	-492,401	-130,057	-2,298,350
Net transfers:	-65,478	-151,030	-63,613	-16,802	-296,924
Surplus reallocation for transferring members:	-929,626	895,580	122,188	-88,142	0
Valuation assets as of June 30, 2020:	\$164,377,125	\$388,125,593	\$164,281,879	\$44,721,380	\$761,505,976

Section 2: Actuarial Valuation Results

Both the actuarial value and market value of assets are representations of the System's financial status. As investment gains and losses are gradually taken into account, the actuarial value of assets tracks the market value of assets. The actuarial asset value is significant because the System's liabilities are compared to these assets to determine what portion, if any, remains unfunded. Amortization of the unfunded actuarial accrued liability is an important element in determining the contribution requirement.

Actuarial Value of Assets vs. Market Value of Assets as of June 30, 2011 – 2020



Section 2: Actuarial Valuation Results

Actuarial experience

To calculate the actuarially determined contribution (ADC), assumptions are made about future events that affect the amount and timing of benefits to be paid and assets to be accumulated. Each year actual experience is measured against the assumptions. If overall experience is more favorable than anticipated (an actuarial gain), the ADC will decrease relative to the previous year. On the other hand, the ADC will increase if overall actuarial experience is less favorable than expected (an actuarial loss).

Taking account of experience gains or losses in one year without making a change in assumptions reflects the belief that the single years' experience was a short-term development and that, over the long term, experience will return to the original assumptions. For contribution requirements to remain stable, assumptions should approximate experience.

If assumptions are changed, the contribution requirement is adjusted to take into account a change in experience anticipated for all future years.

The net experience loss is \$20,956,412, which includes \$11,255,517 from investment losses and \$9,700,895 in losses from all other sources. The net experience variation from individual sources other than investments was 1.0% of the actuarial accrued liability. A discussion of the major components of the actuarial experience is on the following pages.

Actuarial Experience for Year Ended June 30, 2020

1	Net loss from investments*	-\$11,255,517
2	Net loss from other experience	<u>-9,700,895</u>
3	Net experience loss: 1 + 2	-\$20,956,412

* Details on next page

Section 2: Actuarial Valuation Results

Investment experience

A major component of projected asset growth is the assumed rate of return. The assumed return should represent the expected long-term rate of return, based on the System's investment policy. The rate of return on the market value of assets was 4.24% for the year ended June 30, 2020.

For valuation purposes, the assumed rate of return on the actuarial value of assets for the year ended June 30, 2020, is 7.50%. The actual rate of return on an actuarial basis for the 2020 plan year was 5.93%. Since the actual return for the year was less than the assumed return, the System experienced an actuarial loss during the year ended June 30, 2020, with regard to its investments.

Investment Experience

		Year Ended June 30, 2020	
		Market Value	Actuarial Value
1	Investment income	\$30,057,718	\$42,639,610
2	Average value of assets	709,730,504	718,601,693
3	Rate of return: 1 ÷ 2	4.24%	5.93%
4	Assumed rate of return ¹	7.50%	7.50%
5	Expected investment income: 2 x 4	\$53,229,788	\$53,895,127
6	Actuarial gain/(loss): 1 – 5	-\$23,172,070	-\$11,255,517

¹ The investment return assumption was lowered from 7.50% to 7.00% effective July 1, 2020. However, the return assumption during the year ended June 30, 2020 was 7.50%. As such, the expectation of income is based on the assumptions in place at the beginning of the year (7.50%).

Section 2: Actuarial Valuation Results

Because actuarial planning is long term, it is useful to see how the assumed investment rate of return has followed actual experience over time. The chart below shows the rate of return on an actuarial basis compared to the actual market value investment return for the last 20 years, including averages over select time periods.

Investment Return – Actuarial Value vs. Market Value: 2001-2020

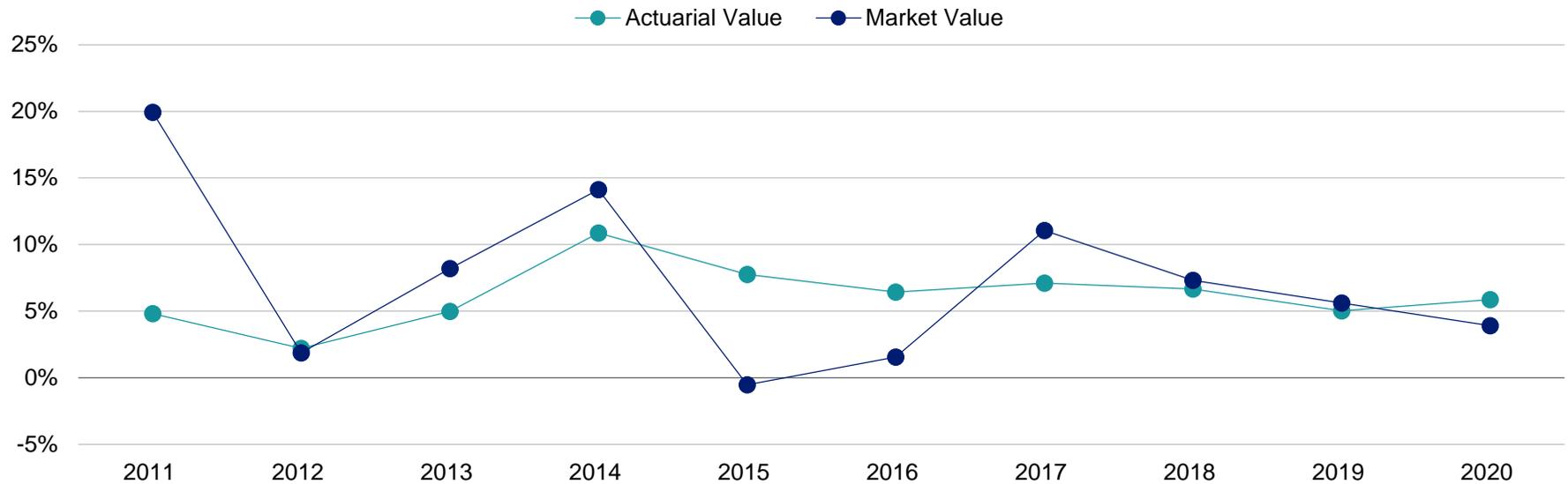
Year Ended June 30	Actuarial Value Investment Return		Market Value Investment Return		Year Ended June 30	Actuarial Value Investment Return		Market Value Investment Return		
	Amount	Percent	Amount	Percent		Amount	Percent	Amount	Percent	
2001	\$16,228,833	10.03%	\$282,793	0.16%	2011	\$18,319,813	4.82%	\$66,935,648	19.93%	
2002	11,545,636	6.42	-3,094,678	-1.78	2012	8,922,492	2.20	7,667,705	1.87	
2003	7,138,256	3.49	2,449,864	1.33	2013	20,983,866	4.98	34,837,755	8.21	
2004	2,420,328	1.07	27,853,903	13.84	2014	48,812,262	10.87	65,829,312	14.13	
2005	18,398,538	7.77	17,789,133	7.51	2015	38,990,631	7.76	-2,841,341	-0.53	
2006	22,173,822	8.44	27,735,589	10.59	2016	33,518,944	6.14	6,787,237	1.26	
2007	29,551,551	10.11	46,635,359	15.69	2017	41,695,777	7.10	61,111,748	11.06	
2008	24,090,810	7.41	-19,625,280	-5.65	2018	42,443,698	6.67	45,467,607	7.32	
2009	-25,653,211	-7.27	-59,207,777	-17.88	2019	37,005,996	5.44	40,291,049	6.03	
2010	36,633,414	10.92	47,603,471	16.99	2020	42,639,610	5.93	30,057,718	4.24	
							Most recent five-year average return		6.23%	5.95%
							Most recent ten-year average return		6.26%	6.77%
							Most recent 15-year average return		6.09%	5.89%
							Most recent 20-year average return		6.02%	5.73%

Note: Each year's yield is weighted by the average asset value in that year.
2004 includes restart of AVA method (reset to MVA).

Section 2: Actuarial Valuation Results

As described earlier in this section, the actuarial asset valuation method that gradually recognizes fluctuations in the market value rate of return. The goal of this is to stabilize the actuarial rate of return and to produce more level pension plan costs.

Market and Actuarial Rates of Return for Years Ended June 30, 2011 - 2020



Section 2: Actuarial Valuation Results

Administrative expenses

Administrative expenses for the year ended June 30, 2020, totaled \$1,354,418 compared to \$1,158,070 the prior year. There is currently no explicit provision for administrative expenses.

Contributions

Contributions for the year ended June 30, 2020, totaled \$41,911,820 compared to the projected amount of \$41,115,469. This resulted in a gain of \$826,214 for the year, with interest.

Other experience

There are other differences between the expected and the actual experience that appear when the new valuation is compared with the projections from the previous valuation. These include:

- the extent of turnover among members,
- retirement experience (earlier or later than projected),
- mortality (more or fewer deaths than projected),
- the number of disability retirements (more or fewer than projected),
- actual COLAs paid (more or less than assumed), and
- salary and service increases (greater or smaller than projected).

The net loss from this other experience for the year ended June 30, 2020, amounted to \$9,700,895.

Experience Gain/(Loss) Due to Changes in Demographics for Year Ended June 30, 2020

Net turnover	-\$6,643,287
Retirement	-4,895,347
Mortality	-3,822,241
Disability requirements	-108,472
Salary and service increases for continuing actives	5,013,461
COLA experience	3,060,227
Miscellaneous	-2,305,236
Total	-\$9,700,895

Section 2: Actuarial Valuation Results

Change in the actuarial accrued liability

The actuarial accrued liability under the Entry Age Normal cost method as of June 30, 2020, is \$1,004,560,034, an increase of \$108,218,186, or 12.07%, from the actuarial accrued liability as of the prior valuation date. The liability is expected to grow each year with normal cost and interest, and to decline due to benefit payments made. Additional fluctuations can occur due to actual experience that differs from expected (as discussed previously) and changes in assumptions (as discussed below). The actuarial cost method used by the System was changed to Entry Age Normal effective with this June 30, 2020 actuarial valuation.

Actuarial assumptions

The assumption changes reflected in this report are:

- The investment return assumption was lowered from 7.50% to 7.00%.
- The inflation assumption was lowered from 2.50% to 2.30%.
- The COLA assumption was lowered from 1.15% to 1.10% for Group A members and from 1.30% to 1.20% for Groups B, C, and D members.
- The mortality assumptions were updated as follows:
 - Pre-Retirement:
 - Groups A/B/C 40% PubG-2010 General Employee Amount-Weighted below-median and 60% of PubG-2010 General Employee Amount-Weighted, with generational projection using Scale MP-2019
 - Group D PubG-2010 General Employee Amount-Weighted above-median, with generational projection using scale MP-2019
 - Healthy Post-Retirement - Retirees:
 - Groups A/B/C 104% of 40% PubG-2010 General Healthy Retiree Amount-Weighted below-median and 60% of PubG-2010 General Employee Amount-Weighted, with generational projection using scale MP-2019
 - Group D PubG-2010 General Healthy Retiree Amount-Weighted, with generational projection using scale MP-2019
 - Healthy Post-Retirement - Beneficiaries:
 - Groups A/B/C 70% Pub-2010 Contingent Survivor Amount-Weighted below-median and 30% of Pub-2010 Contingent Survivor Amount-Weighted, with generational projection using scale MP-2019
 - Group D Pub-2010 Contingent Survivor Amount-Weighted, with generational projection using scale MP-2019

Section 2: Actuarial Valuation Results

- Disabled Retirees:
 - All Groups PubNS-2010 Non-Safety Disabled Retiree Amount-Weighted Mortality Table with generational projection using scale MP-2019
- The salary scale assumption was revised for varying service based rates from 0-10 years of service, then a single rate of 2.20% for all subsequent years, plus revised inflation of 2.30%
- The active retirement rates were updated as follows:
 - Group A: Decreased the rates throughout all ages.
 - Group B: For females, slightly decreased the rates at younger ages and then increased the rates at later ages. For males, slightly decreased the rates at most ages.
 - Group C: Simplified the assumption to a unisex table that more accurately aligns with the actual experience for both males and females
 - Group D: For members with less than 20 years of service, increased the rates for ages 55-59.
- The inactive retirement assumption was updated to add a rate of 10% from early retirement age for each year until normal retirement age, then 100% at normal retirement age.
- The liability load of accumulated contributions for Inactive Members was removed. Liabilities for Inactive Members are now based on 100% of the accumulated contributions. Inactive Members who are vested immediately become Deferred, and the liabilities for all Deferred Members are based on the accrued benefit.
- The termination rates were updated as follows:
 - Simplified female rates to one set of slightly reduced rates for all females.
- These changes increased the actuarial accrued liability by \$40.1 million and increased the total normal cost by \$2.1 million.
- In addition, the actuarial cost method was changed from Projected Benefit to Entry Age Normal (EAN).

Details on actuarial assumptions and methods are in *Section 4, Exhibit I*.

Plan provisions

There were no changes in plan provisions since the prior valuation. A summary of plan provisions is in *Section 4, Exhibit II*.

Section 2: Actuarial Valuation Results

Development of unfunded actuarial accrued liability

Development of Unfunded Actuarial Accrued Liability for Year Ended June 30, 2020 Based on Current Funding Method

1	Actuarial shortfall at beginning of year*		\$240,764,266
2	Normal cost at beginning of year		32,771,470
3	Total contributions		-41,911,820
4	Interest		
	• For whole year on 1 + 2	\$20,515,180	
	• For half year on 3	<u>-1,571,693</u>	
	Total interest		<u>18,943,487</u>
5	Expected actuarial shortfall		\$250,567,404
6	Changes due to:		
	• (Gain)/loss	\$20,956,412	
	• Assumptions	40,133,304	
	• Funding method*	-68,603,062	
	• Plan provisions	<u>0</u>	
	Total changes		<u>-7,513,346</u>
7	Unfunded actuarial accrued liability at end of year		\$243,054,058

* As of the beginning of the year, the actuarial shortfall was calculated under the prior actuarial cost method referred to as the Projected Benefit Cost Method.

Section 2: Actuarial Valuation Results

Actuarially determined contribution

The actuarially determined contribution is equal to the employer normal cost payment and a payment on the unfunded actuarial accrued liability. As of July 1, 2020, the actuarially determined contribution is \$36,722,301, or 10.67% of payroll.

The statute governing the System specifies the funding policy used to calculate the actuarially determined contribution based on a closed amortization period ending on June 30, 2038. As of July 1, 2020, there are 18 years remaining on this schedule.

The contribution requirement as of July 1, 2020, is based on the data previously described, the actuarial assumptions and Plan provisions described in *Section 4*, including all changes affecting future costs adopted at the time of the actuarial valuation, actuarial gains and losses, and changes in the actuarial assumptions.

Actuarially Determined Contribution Requirement

		Year Beginning July 1, 2020	
		Amount	% of Payroll
1	Total normal cost, adjusted for timing*	\$38,414,685	11.162%
2	Expected employee contributions	<u>-20,629,623</u>	<u>5.994%</u>
3	Employer normal cost: 1 – 2	\$17,785,062	5.168%
4	Actuarial accrued liability	1,004,560,034	
5	Actuarial value of assets	761,505,976	
6	Unfunded actuarial accrued liability: 4 – 5	<u>243,054,058</u>	
7	Payment on unfunded actuarial accrued liability, adjusted for timing*	\$18,937,239	5.503%
8	Actuarially determined contribution requirement: 3 + 7	\$36,722,301	10.671%
9	Projected payroll	344,147,789	

* Contributions are assumed to be paid at the middle of the year.

Section 2: Actuarial Valuation Results

Actuarially determined contribution by group

The following table shows a comparison of the Actuarially Determined Contribution to the current funding policy rates, by group.

Actuarially Determined Contribution by Group

	Group A	Group B	Group C	Group D	Total
1 Normal contributions					
a. Member	3.000%	5.375%	10.500%	11.850%	5.994%
b. Employer	<u>4.349%</u>	<u>5.470%</u>	<u>5.232%</u>	<u>5.851%</u>	<u>5.168%</u>
c. Total	7.349%	10.845%	15.732%	17.701%	11.162%
2 Payment on unfunded liability through June 30, 2038	2.947%	5.263%	8.372%	10.850%	5.503%
3 Actuarially determined contribution: 1b + 2	7.296%	10.733%	13.604%	16.701%	10.671%
4 Current funding policy contribution rate	4.500%	6.000%	7.750%	10.350%	6.145%
5 Contribution excess/(shortfall): 4 – 3	-2.796%	-4.733%	-5.854%	-6.351%	-4.526%

We recommend that the Board set future contribution rates to ultimately target the rates specified in item 3 in the table above. Currently there is a 0.25% increase in contribution requirement for both members and employers effective July 1, 2021.

The difference between the current funding policy rates and the actuarially determined contribution rate is a shortfall of 4.526% of payroll in the aggregate. Projected payroll for fiscal 2021 is \$344,147,789. This shortfall of 4.526% of projected payroll is greater than the remaining scheduled increase of 0.25% in the employer contribution rates.

Section 2: Actuarial Valuation Results

Amortization schedule for unfunded actuarial accrued liability

A schedule of projected future unfunded actuarial accrued liability amortization payments, which, if made, would amortize the unfunded actuarial accrued liability by 2038, is shown below. In addition, the projected funded percentage based on actual current funding policy contribution rates is shown for illustrative purposes.

As of July 1	Balance	Amortization Payment (Year Following)	Funded Percentage*
2020	\$243,054,058	\$18,937,239	75.80%
2021	240,479,010	19,505,356	75.87%
2022	237,136,044	20,090,516	76.13%
2023	232,953,775	20,693,232	76.34%
2024	227,855,294	21,314,029	76.50%
2025	221,757,761	21,953,450	76.61%
2026	214,571,980	22,612,053	76.66%
2027	206,201,929	23,290,415	76.68%
2028	196,544,271	23,989,127	76.65%
2029	185,487,824	24,708,801	76.59%
2030	172,912,989	25,450,065	76.49%
2031	158,691,146	26,213,567	76.37%
2032	142,684,001	26,999,974	76.23%
2033	124,742,891	27,809,973	76.07%
2034	104,708,033	28,644,273	75.89%
2035	82,407,730	29,503,601	75.71%
2036	57,657,509	30,388,709	75.52%
2037	30,259,210	31,300,370	75.33%
2038	0	0	75.14%

* Based on current funding policy contribution rates.

Section 2: Actuarial Valuation Results

History of employer contributions

A history of the most recent years of contributions is shown below.

History of Employer Contributions: 2012 – 2021

Fiscal Year Ended June 30	Actuarially Determined Contribution		Actual Employer Contribution		
	Amount	Percentage of Payroll*	Amount	Percentage of Payroll*	Percent Contributed
2012	\$8,224,579	3.81%	\$11,532,230	5.34%	140.22%
2013	10,704,263	4.74%	12,014,186	5.32%	112.24%
2014	11,638,928	5.03%	12,805,737	5.53%	110.03%
2015	11,956,121	4.93%	14,136,067	5.83%	118.23%
2016**	15,235,742	N/A	15,235,742	N/A	100.00%
2017	12,895,672	4.64%	16,481,881	5.56%	127.81%
2018	15,066,601	5.22%	17,519,690	6.07%	116.28%
2019	17,263,214	5.67%	19,202,981	6.31%	111.24%
2020	22,618,468	7.04%	20,680,856	6.44%	91.43%
2021	36,722,301	10.67%	--	--	--

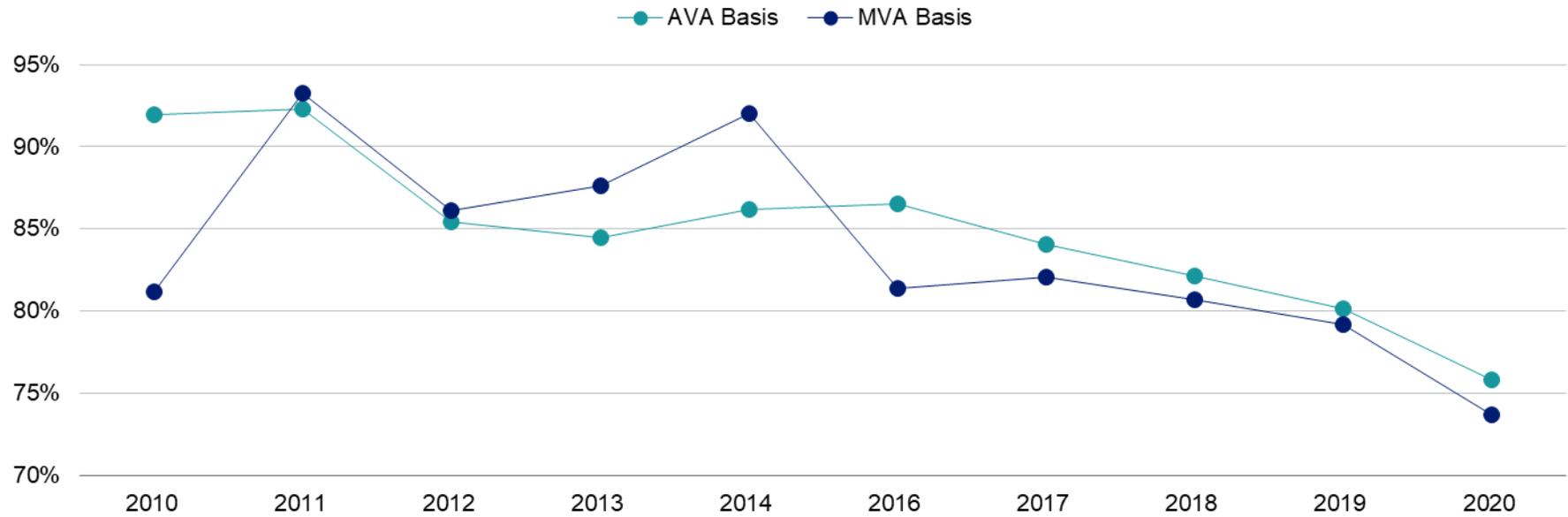
* Based on expected payroll

** While no formal actuarial valuation was produced for the fiscal year ended June 30, 2015, contribution rates for the year were developed by the actuary.

Section 2: Actuarial Valuation Results

History of funded percentage

A history of the most recent years of funded percentage as of June 30th is shown below.



* No formal actuarial valuation was produced for the fiscal year ended June 30, 2015. Therefore, no funded percentage is shown as of June 30, 2015.

Section 2: Actuarial Valuation Results

Actuarial balance sheet

An overview of the System’s funding is provided by an Actuarial Balance Sheet, which compares the total liabilities (current and future) to the total assets (current and future). The liabilities are calculated by determining the amount and timing of all future payments that will be made by the System for current members. These payments are discounted at the valuation interest rate to the date of the valuation, thereby determining the present value of all benefits, referred to as the “liability” of the System.

Second, this liability is compared to the assets. The “assets” for this purpose include the net amount of assets already accumulated by the System, the present value of future member contributions, the present value of future employer normal cost contributions, and the present value of future employer amortization payments for the unfunded actuarial accrued liability.

Actuarial Balance Sheet

	Year Ended	
	June 30, 2020	June 30, 2019
Liabilities		
• Present value of benefits for retired members and beneficiaries	\$430,438,971	\$367,542,321
• Present value of benefits for inactive former members	61,307,603	62,682,528
• Present value of benefits for active members	<u>786,037,445</u>	<u>700,407,567</u>
Total liabilities	\$1,277,784,019	\$1,130,632,416
Assets		
• Total valuation value of assets	\$761,505,976	\$718,337,020
• Present value of future contributions by members	168,313,278	151,821,532
• Present value of future employer contributions for:		
• Entry age cost/employer normal contributions	104,910,707	19,709,598
• Unfunded actuarial accrued liability/actuarial shortfall	<u>243,054,058</u>	<u>240,764,266</u>
Total of current and future assets	\$1,277,784,019	\$1,130,632,416

Section 2: Actuarial Valuation Results

Risk

The actuarial valuation results depend on a single set of assumptions; however, there is a risk that emerging results may differ significantly as actual experience proves to be different than projected from the current assumptions.

In 2019, the Board engaged Segal to perform a detailed analysis of the potential range of the impact of risks relative to the System's future financial condition. This study included an overview of risks that affect the System and stakeholders, as well as various stochastic and deterministic modeling scenarios, primarily focusing on investment returns.

Below is a brief discussion of some of the risks that may affect the System. This discussion is focused on funding-related risks, but similar concerns may apply to risks regarding the level of expense and liabilities reported for System accounting purposes as well.

A detailed risk assessment is important for VMERS because:

- The current positive cash flow position of the System could be reversed by relatively small deviations from assumed future experience or simply as the result of the ongoing maturity of the plan over time.
- Investment volatility could affect plan sustainability and require increased contributions from members and/or employers.
- Most actuarial assumptions have been revised and updated since the last detailed risk analysis was performed.
- The risks identified below show significant potential for variability.

The following risks could significantly affect the System's future condition:

- **Investment Risk** (the risk that returns will be different than expected)

If the prior year's investment performance resulted in a market value of assets that is 10% different than the current value, it would result in a change of \$74.0 million in the asset value. A 10% increase in assets would cause the unfunded actuarial accrued liability using the market value of assets to decrease from \$264.5 million to \$190.5 million. Likewise, a 10% decrease in the asset value would cause the shortfall to increase from \$264.5 million to \$338.5 million.

Since the System's assets are much larger than contributions, investment performance may create volatility in the actuarially determined contribution requirements. For example, for each 1% difference in actual return, the actuarially determined contribution would increase or decrease by 0.17% of payroll, disregarding the effects of the five-year phase-in of investment gains and losses.

To illustrate the potential for future investment volatility, the single year market value rate of return over the last 20 years has ranged from a low of -17.88% to a high of 19.93%.

Section 2: Actuarial Valuation Results

- **Longevity Risk** (the risk that mortality experience will be different than expected)

The actuarial valuation includes an expectation of future improvement in life expectancy. Emerging plan experience that does not match these expectations will result in either an increase or decrease in the actuarially determined contribution.

The current mortality assumptions represent our best estimate of the mortality rates for this plan; however, a 10% reduction in the assumed mortality rates results in an increase in the liabilities of roughly 3% for most plans. For VMERS, a 3% liability increase would result in an increase in the unfunded accrued liability of \$30.1 million. The unfunded accrued liability (market value of assets basis) would increase from \$264.5 million to \$294.6 million.

- **Demographic Risk** (the risk that member experience will be different than assumed)

Examples of this risk include:

- Actual retirements occurring earlier or later than assumed. The value of retirement plan benefits is sensitive to the rate of benefit accruals and any early retirement subsidies that apply.
- More or less active member turnover than assumed.
- Salary increases more or less than assumed.

- **Actual Experience**

- Past experience can help demonstrate the sensitivity of key results to the System's actual experience. Over the past ten years:
 - The investment gain(loss) for a year (actuarial basis) has ranged from a loss of \$14.0 million to a gain of \$19.2 million.
 - The non-investment gain(loss) for a year has ranged from a loss of \$17.3 million to a gain of \$7.2 million.
- The funded percentage on the actuarial value of assets has ranged from a low of 75.8% to a high of 92.3% over the past ten years.

Section 2: Actuarial Valuation Results

- **Maturity Measures**

The risk associated with a pension plan increases as it becomes more mature, meaning that the actives represent a smaller portion of the liabilities of the plan. When this happens, there is a greater risk that fluctuations in the experience of the non-active members or of the assets of the plan can result in large swings in the contribution requirements.

- Over the past ten years, the ratio of non-active members to active members has increased from a low of 0.37 to a high of 0.58. Currently the System has a non-active to active member ratio of 0.58.
- As of June 30, 2020, the retired life actuarial accrued liability represents 43% of the total actuarial accrued liability. In addition, the actuarial accrued liability for inactive vested members represents 6% of the total. The higher the non-active actuarial accrued liability is as a percent of the total liability, the greater the danger of volatility in results.

For the prior year, benefits paid were \$2.9 million less than contributions received, or 0.4% of the market value of assets. As the System matures and benefits paid exceed contributions received, cash will be needed from the investment portfolio to meet benefit payments.

Supplemental Information

Exhibit A: Table of Plan Coverage

Category	As of June 30		Change From Prior Year
	2020	2019	
Active members in valuation:			
• Number	7,987	7,630	4.7%
• Average age	47.9	48.0	-0.1
• Average years of service	8.3	8.5	-0.2
• Total payroll	\$327,491,743	\$306,103,224	7.0%
• Average payroll	41,003	40,118	2.2%
• Total active vested members	4,097	4,007	2.2%
Inactive members			
Number of deferreds as reported by the System	927	896	3.4%
Number of inactives as reported by the System	2,941	2,814	4.5%
Retired members:			
• Number in pay status	3,358	3,096	8.5%
• Average age	71.8	71.6	0.2
• Average monthly benefit	\$894	\$859	4.1%
Disability Retirees:			
• Number in pay status	77	77	0.0%
• Average age	62.9	63.1	-0.2
• Average monthly benefit	\$729	\$696	4.7%
Beneficiaries:			
• Number in pay status	258	242	6.6%
• Average age	72.5	73.1	-0.6
• Average monthly benefit	\$651	\$597	9.0%

Section 3: Supplemental Information

Exhibit B: Reconciliation of Member Data

	Active Members	Deferreds	Inactives	Disability Retirees	Retired Members	Beneficiaries	Total
Number as of July 1, 2019	7,630	896	2,814	77	3,096	242	14,755
• New members	1,151	N/A	239	1	11	2	1404
• Inactives as reported by the System	-684	N/A	684	N/A	N/A	N/A	0
• Deferreds as reported by the System	N/A	120	-120	N/A	N/A	N/A	0
• Retirements	-216	-57	-45	0	318	N/A	0
• New disabilities	-2	0	-1	3	0	N/A	0
• Return to work from disability	0	N/A	N/A	0	N/A	N/A	0
• Died with beneficiary	-8	-1	0	-1	-13	22	0
• Died without beneficiary	-3	-3	-4	-2	-35	-11	-58
• Refunds of contributions	-111	-9	-415	-1	-19	0	-555
• Rehire	230	-19	-211	N/A	0	N/A	0
• Certain period expired	N/A	N/A	0	0	0	0	0
• Data adjustments	0	0	0	0	0	2	2
Number as of July 1, 2020	7,987	927	2,941	77	3,358	258	15,548

Section 3: Supplemental Information

Exhibit C: Summary Statement of Income and Expenses on a Market Value Basis

	Year Ended June 30, 2020	Year Ended June 30, 2019
Net assets at market value at the beginning of the year	\$709,465,831	\$667,848,905
Contribution income:		
• Employer contributions	\$20,680,856	\$19,202,981
• Member contributions	20,771,304	19,777,956
• Less administrative expenses	<u>-1,354,418</u>	<u>-1,158,070</u>
<i>Net contribution income</i>	<i>\$40,097,742</i>	<i>\$37,822,867</i>
Other income	\$459,660	\$450,746
Investment income:		
• Interest, dividends and other income	\$6,885,163	\$9,400,420
• Asset appreciation	23,172,555	30,890,629
• Less investment fees	<u>-943,932</u>	<u>-1,550,693</u>
<i>Net investment income</i>	<i>\$29,113,786</i>	<i>\$38,740,356</i>
Total income available for benefits	\$69,671,188	\$77,013,969
Less benefit payments:		
• Benefits	-\$36,124,010	-\$32,191,388
• Refunds of contributions	-1,951,540	-2,065,038
• Death claims	-251,990	-550,239
• Transfer to other pension trust funds	<u>-756,584</u>	<u>-590,378</u>
<i>Net benefit payments</i>	<i>-\$39,084,124</i>	<i>-\$35,397,043</i>
Change in reserve for future benefits	\$30,587,064	\$41,616,926
Net assets at market value at the end of the year	\$740,052,895	\$709,465,831

Section 3: Supplemental Information

Exhibit D: Summary Statement of Plan Assets

	June 30, 2020	June 30, 2019
Cash equivalents	\$12,700,310	\$5,221,296
Total accounts receivable	27,983,997	60,947,334
Prepaid expenses	37,718	31,197
Capital assets, net of depreciation	429,066	541,711
Investments:		
• Fixed income	\$46,768,960	\$53,965,174
• Equities	55,914,524	55,409,122
• Mutual and commingled funds	528,958,025	525,334,571
• Real estate and venture capital	<u>88,431,147</u>	<u>59,560,203</u>
Total investments at market value	\$720,072,656	\$694,269,070
Total assets	\$761,223,747	\$761,010,608
Total liabilities	-\$21,170,852	-\$51,544,777
Net assets at market value	\$740,052,895	\$709,465,831
Net assets at actuarial value	\$761,505,976	\$718,337,020

Section 3: Supplemental Information

Exhibit E: Development of the Fund through June 30, 2020

Year Ended June 30	Employer Contributions	Member Contributions	Net Other Income	Net Investment Return*	Admin. Expenses	Benefit Payments**	Market Value of Assets at Year-End	Actuarial Value of Assets at Year-End	Actuarial Value as a Percent of Market Value
2010							\$331,888,452	\$376,152,881	113.34%
2011	\$11,117,363	\$11,702,728	\$266,425	\$66,957,781	-\$569,603	-\$14,461,590	406,901,556	402,550,150	98.93%
2012	11,532,230	11,337,926	118,191	7,661,464	-672,851	-16,338,446	420,540,070	417,443,451	99.26%
2013	12,014,186	15,060,665	170,381	34,838,507	-749,447	-18,687,932	463,186,430	446,235,922	96.34%
2014	12,805,737	13,233,728	2,142,868	64,346,116	-588,022	-20,601,380	534,525,477	500,557,919	93.65%
2015	14,136,067	13,587,975	384,009	-2,358,518	-1,056,094	-23,315,174	535,903,742	543,768,156	101.47%
2016	15,235,742	15,226,948	351,434	6,776,933	-890,802	-25,588,884	547,015,114	581,611,235	106.32%
2017	16,481,881	25,210,413	149,556	59,486,928	-1,030,159	-27,803,390	619,510,342	634,690,493	102.45%
2018	17,519,690	19,166,537	271,783	43,889,050	-1,064,034	-31,444,463	667,848,905	680,005,147	101.82%
2019	19,202,981	19,777,956	450,746	38,740,356	-1,158,070	-35,397,043	709,465,831	718,337,020	101.25%
2020	20,680,856	20,771,304	459,660	29,113,786	1,354,418	-39,084,124	740,052,895	761,505,976	102.90%

* On a market basis, net of investment fees

** Includes "transfers to other pension trust funds"

Section 3: Supplemental Information

Exhibit F: Definition of Pension Terms

The following list defines certain technical terms for the convenience of the reader:

Actuarial Accrued Liability for Actives:	The equivalent of the accumulated normal costs allocated to the years before the valuation date.
Actuarial Accrued Liability for Pensioners:	The single-sum value of lifetime benefits to existing pensioners. This sum takes into account life expectancies appropriate to the ages of the pensioners and the interest that the sum is expected to earn before it is entirely paid out in benefits.
Actuarial Cost Method:	A procedure allocating the Actuarial Present Value of Future Benefits to various time periods; a method used to determine the Normal Cost and the Actuarial Accrued Liability that are used to determine the actuarially determined contribution.
Actuarial Gain or Loss:	A measure of the difference between actual experience and expected based upon a set of Actuarial Assumptions, during the period between two Actuarial Valuation dates. Through the actuarial assumptions, rates of decrements, rates of salary increases, and rates of fund earnings have been forecasted. To the extent that actual experience differs from that assumed, Actuarial Accrued Liabilities emerge that may be the same as forecasted, or may be larger or smaller than projected. Actuarial gains are due to favorable experience, e.g., assets earn more than projected, salary increases are less than assumed, members retire later than assumed, etc. Favorable experience means actual results produce actuarial liabilities not as large as projected by the actuarial assumptions. On the other hand, actuarial losses are the result of unfavorable experience, i.e., actual results yield actuarial liabilities that are larger than projected. Actuarial gains will shorten the time required for funding the actuarial balance sheet deficiency while actuarial losses will lengthen the funding period.
Actuarially Equivalent:	Of equal actuarial present value, determined as of a given date and based on a given set of Actuarial Assumptions.
Actuarial Present Value (APV):	The value of an amount or series of amounts payable or receivable at various times, determined as of a given date by the application of a particular set of Actuarial Assumptions. Each such amount or series of amounts is: Adjusted for the probable financial effect of certain intervening events (such as changes in compensation levels, marital status, etc.) Multiplied by the probability of the occurrence of an event (such as survival, death, disability, withdrawal, etc.) on which the payment is conditioned, and Discounted according to an assumed rate (or rates) of return to reflect the time value of money.

Section 3: Supplemental Information

Actuarial Present Value of Future Plan Benefits:	The Actuarial Present Value of benefit amounts expected to be paid at various future times under a particular set of Actuarial Assumptions, taking into account such items as the effect of advancement in age, anticipated future compensation, and future service credits. The Actuarial Present Value of Future Plan Benefits includes the liabilities for active members, retired members, beneficiaries receiving benefits, and inactive members entitled to either a refund or a future retirement benefit. Expressed another way, it is the value that would have to be invested on the valuation date so that the amount invested plus investment earnings would provide sufficient assets to pay all projected benefits and expenses when due.
Actuarial Valuation:	The determination, as of a valuation date, of the Normal Cost, Actuarial Accrued Liability, Actuarial Value of Assets, and related Actuarial Present Values for a plan. An Actuarial Valuation for a governmental retirement system typically also includes calculations of items needed for compliance with GASB, such as the Actuarially Determined Contribution (ADC) and the Net Pension Liability (NPL).
Actuarial Value of Assets (AVA):	The value of the Fund's assets as of a given date, used by the actuary for valuation purposes. This may be the market or fair value of plan assets, but commonly plans use a smoothed value in order to reduce the year-to-year volatility of calculated results, such as the funded percentage and the ADC.
Actuarially Determined:	Values that have been determined utilizing the principles of actuarial science. An actuarially determined value is derived by application of the appropriate actuarial assumptions to specified values determined by provisions of the law.
Actuarially Determined Contribution (ADC):	The employer's periodic required contributions, expressed as a dollar amount or a percentage of covered plan compensation, determined under the System's funding policy. The ADC consists of the Employer Normal Cost and the Amortization Payment.
Amortization Method:	A method for determining the Amortization Payment. The most common methods used are level dollar and level percentage of payroll. Under the Level Dollar method, the Amortization Payment is one of a stream of payments, all equal, whose Actuarial Present Value is equal to the UAAL. Under the Level Percentage of Pay method, the Amortization Payment is one of a stream of increasing payments, whose Actuarial Present Value is equal to the UAAL. Under the Level Percentage of Pay method, the stream of payments increases at the assumed rate at which total covered payroll of all active members will increase.
Amortization Payment:	The portion of the pension plan contribution, or ADC, that is designed to pay interest on and to amortize the Unfunded Actuarial Accrued Liability.

Section 3: Supplemental Information

Assumptions or Actuarial Assumptions:	The estimates upon which the cost of the Fund is calculated, including: <u>Investment return</u> - the rate of investment yield that the Fund will earn over the long-term future; <u>Mortality rates</u> - the death rates of employees and pensioners; life expectancy is based on these rates; <u>Retirement rates</u> - the rate or probability of retirement at a given age; <u>Withdrawal rates</u> - the rates at which employees of various ages are expected to leave employment for reasons other than death, disability, or retirement; <u>Salary increase rates</u> - the rates of salary increase due to inflation and productivity growth.
Closed Amortization Period:	A specific number of years that is counted down by one each year, and therefore declines to zero with the passage of time. For example, if the amortization period is initially set at 30 years, it is 29 years at the end of one year, 28 years at the end of two years, etc. See Open Amortization Period.
Decrements:	Those causes/events due to which a member's status (active-inactive-retiree-beneficiary) changes, that is: death, retirement, disability, or withdrawal.
Defined Benefit Plan:	A retirement plan in which benefits are defined by a formula applied to the member's compensation and/or years of service.
Defined Contribution Plan:	A retirement plan, such as a 401(k) plan, a 403(b) plan, or a 457 plan, in which the contributions to the plan are assigned to an account for each member, the plan's earnings are allocated to each account, and each member's benefits are a direct function of the account balance.
Employer Normal Cost:	The portion of the Normal Cost to be paid by the employer. This is equal to the Normal Cost less expected member contributions.
Experience Study:	A periodic review and analysis of the actual experience of the Fund that may lead to a revision of one or more Actuarial Assumptions. Actual rates of decrement and salary increases are compared to the actuarially assumed values and modified as deemed appropriate by the Actuary.
Funded Ratio:	The ratio of the Actuarial Value of Assets (AVA) to the Actuarial Accrued Liability (AAL). Plans sometimes calculate a market funded percentage, using the market value of assets (MVA), rather than the AVA.
GASB 67 and GASB 68:	Governmental Accounting Standards Board (GASB) Statements No. 67 and No. 68. These are the governmental accounting standards that set the accounting rules for public retirement systems and the employers that sponsor or contribute to them. Statement No. 68 sets the accounting rules for the employers that sponsor or contribute to public retirement systems, while Statement No. 67 sets the rules for the systems themselves.

Section 3: Supplemental Information

Investment Return:	The rate of earnings of the Fund from its investments, including interest, dividends and capital gain and loss adjustments, computed as a percentage of the average value of the fund. For actuarial purposes, the investment return often reflects a smoothing of the capital gains and losses to avoid significant swings in the value of assets from one year to the next.
Net Pension Liability (NPL):	The Net Pension Liability is equal to the Total Pension Liability minus the Plan Fiduciary Net Position.
Normal Cost:	That portion of the Actuarial Present Value of pension plan benefits and expenses allocated to a valuation year by the Actuarial Cost Method. Any payment with respect to an Unfunded Actuarial Accrued Liability is not part of Normal Cost (see Amortization Payment). For pension plan benefits that are provided in part by employee contributions, Normal Cost refers to the total of employee contributions and employer Normal Cost unless otherwise specifically stated.
Open Amortization Period:	An open amortization period is one that is used to determine the Amortization Payment, but which does not change over time. If the initial period is set as 30 years, the same 30-year period is used in determining the Amortization Period each year. In theory, if an Open Amortization Period with level percentage of payroll is used to amortize the Unfunded Actuarial Accrued Liability, the UAAL will never decrease, but will become smaller each year, in relation to covered payroll, if the Actuarial Assumptions are realized.
Plan Fiduciary Net Position:	Market value of assets.
Total Pension Liability (TPL):	The actuarial accrued liability under the entry age normal cost method and based on the blended discount rate as described in GASB 67 and 68.
Unfunded Actuarial Accrued Liability (UAAL):	The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. This value may be negative, in which case it may be expressed as a negative Unfunded Actuarial Accrued Liability, also called the Funding Surplus.
Valuation Date or Actuarial Valuation Date:	The date as of which the value of assets is determined and as of which the Actuarial Present Value of Future Plan Benefits is determined. The expected benefits to be paid in the future are discounted to this date.

Actuarial Valuation Basis

Exhibit I: Actuarial Assumptions, Methods and Models

Rationale for Assumptions:	The information and analysis used in selecting each assumption that has a significant effect on this actuarial valuation is shown in the Actuarial Experience Study dated September 24, 2020 (as prepared by Segal).																								
Inflation:	2.30%.																								
Investment Return:	7.00%. The investment return assumption is a long-term estimate derived from historical data, current and recent market expectations, and professional judgment. As part of the analysis, a building block approach was used that reflects inflation expectations and anticipated risk premiums for each of the portfolio's asset classes, as well as the System's target asset allocation.																								
Salary Increases:	Varying service based rates from 0-10 years of service, then a single rate of 4.50% for all subsequent years. <table border="1"> <thead> <tr> <th>Service</th> <th>Annual Rate of Salary Increase (%)</th> </tr> </thead> <tbody> <tr><td>0</td><td>7.00%</td></tr> <tr><td>1</td><td>6.50%</td></tr> <tr><td>2</td><td>5.75%</td></tr> <tr><td>3</td><td>5.25%</td></tr> <tr><td>4</td><td>5.00%</td></tr> <tr><td>5</td><td>4.75%</td></tr> <tr><td>6</td><td>4.75%</td></tr> <tr><td>7</td><td>4.75%</td></tr> <tr><td>8</td><td>4.75%</td></tr> <tr><td>9</td><td>4.75%</td></tr> <tr><td>10+</td><td>4.50%</td></tr> </tbody> </table>	Service	Annual Rate of Salary Increase (%)	0	7.00%	1	6.50%	2	5.75%	3	5.25%	4	5.00%	5	4.75%	6	4.75%	7	4.75%	8	4.75%	9	4.75%	10+	4.50%
Service	Annual Rate of Salary Increase (%)																								
0	7.00%																								
1	6.50%																								
2	5.75%																								
3	5.25%																								
4	5.00%																								
5	4.75%																								
6	4.75%																								
7	4.75%																								
8	4.75%																								
9	4.75%																								
10+	4.50%																								
Cost-of-Living Adjustments:	Assumed to occur on January 1 following one year of retirement at the rate of 1.10% per annum for Group A members and 1.20% per annum for Groups B, C and D members (beginning at Normal Retirement eligibility age for members who elect reduced early retirement, at age 62 for members of Groups A, B, and D who receive a disability retirement benefit, and at age 55 for members of Group C who receive a disability retirement benefit). The January 1, 2021 COLA is assumed to be 0.40% for all groups.																								

Section 4: Actuarial Valuation Basis

Mortality Rates:

Pre-retirement:

- Groups A/B/C 40% PubG-2010 General Employee Amount-Weighted below-median and 60% of PubG-2010 General Employee Amount-Weighted, with generational projection using Scale MP-2019.
- Group D PubG-2010 General Employee Amount-Weighted above-median, with generational projection using scale MP-2019.

Healthy Post-retirement - Retirees:

- Groups A/B/C 104% of 40% PubG-2010 General Healthy Retiree Amount-Weighted below-median and 60% of PubG-2010 General Employee Amount-Weighted, with generational projection using scale MP-2019.
- Group D PubG-2010 General Healthy Retiree Amount-Weighted, with generational projection using scale MP-2019.

Healthy Post-retirement - Beneficiaries:

- Groups A/B/C 70% Pub-2010 Contingent Survivor Amount-Weighted below-median and 30% of Pub-2010 Contingent Survivor Amount-Weighted, with generational projection using scale MP-2019.
- Group D Pub-2010 Contingent Survivor Amount-Weighted, with generational projection using scale MP-2019.

Disabled Post-retirement:

- All Groups PubNS-2010 Non-Safety Disabled Retiree Amount-Weighted with generational projection using Scale MP-2019.

The tables with the generational projection to the ages of members as of the measurement date reasonably reflect the mortality experience of the System as of the measurement date.

The mortality rates were based on historical and current demographic data, adjusted to reflect health characteristics of the underlying groups and estimated future experience and professional judgment. The mortality tables were then adjusted to future years using the generational projection to reflect future mortality improvement between the measurement date and those years.

Section 4: Actuarial Valuation Basis

Withdrawal from Service from Retirement:

Assumed annual rates of withdrawal are as follows:

Service	Rate (%)	
	Male	Female
0	22.50	25.00
1	16.20	22.00
2	13.50	17.50
3	12.15	15.50
4	10.80	12.00
5	9.00	11.00
6	8.10	10.50
7	7.20	10.00
8	7.20	7.50
9	6.30	7.00
10	3.60	6.00

Section 4: Actuarial Valuation Basis

Disability Incidence:

Representative values of the assumed annual rates of disability incidence are as follows:

Age	Rate (%) ¹	
	Male	Female
25	0.0100	0.0050
30	0.0130	0.0065
35	0.0170	0.0085
40	0.0300	0.0150
45	0.0500	0.0250
50	0.0900	0.0450
55	0.1800	0.0900
60	0.3150	0.1575
65	0.3150	0.1575

¹ Disability rates stop after age 55 with 5 or more years of service for Group B, C and D members and after age 55 with 35 or more years of service for Group A members.

Retirement Rates:

Retirement Group A					
Age	Male	Female	Age	Male	Female
55	3.00%	4.00%	63	15.00%	15.00%
56	6.00	6.00	64	15.00	20.00
57	4.00	6.00	65	45.00	20.00
58	4.00	4.00	66	15.00	20.00
59	5.75	7.50	67	15.00	20.00
60	7.50	4.00	68	15.00	25.00
61	10.00	7.50	69	15.00	25.00
62	22.50	7.50	70	100.00	100.00

Section 4: Actuarial Valuation Basis

Retirement Rates: *continued*

Retirement Group B					
Age	Male	Female	Age	Male	Female
55	4.00%	4.00%	63	20.00%	12.50%
56	4.00	4.00	64	20.00	17.50
57	4.00	4.00	65	40.00	27.50
58	4.00	5.00	66	35.00	22.50
59	4.00	5.00	67	30.00	17.50
60	4.00	5.00	68	30.00	17.50
61	14.00	12.50	69	30.00	17.50
62	28.00	17.50	70	100.00	100.00

Retirement Group C			
Age	Unisex	Age	Unisex
55	20.00%	63	10.00%
56	10.00	64	22.50
57	10.00	65	35.00
58	15.00	66	35.00
59	17.50	67	35.00
60	15.00	68	35.00
61	10.00	69	35.00
62	20.00	70	100.00

Retirement Group D					
Age	<20 Years of Service	20+ Years of Service	Age	<20 Years of Service	20+ Years of Service
55	20.00%	40.0%	63	25.00%	10.0%
56	20.00	35.0	64	25.00	10.0
57	20.00	30.0	65	100.00	15.0
58	15.00	25.0	66	100.00	10.0
59	15.00	20.0	67	100.00	25.0
60	15.00	15.0	68	100.00	25.0
61	10.00	10.0	69	100.00	25.0
62	25.00	10.0	70	100.00	100.0

Section 4: Actuarial Valuation Basis

Retirement Rates: <i>continued</i>	Rates shown are for members with 5 or more years of service (unless otherwise indicated). For members with less than 5 years of service, 0% is assumed.
Inactive Members as Reported by the System:	Not Vested: Valuation liability equals 100% of accumulated contributions. Vested: Valuation liability is based on accrued benefit and members are assumed to retire 10% of the time each year from their Early Retirement Age until their Normal Retirement Age, than 100% of the time at their Normal Retirement age, with a deferred vested benefit.
Deferred Members as Reported by the System:	Assumed to retire 10% of the time each year from their Early Retirement Age until their Normal Retirement Age, than 100% of the time at their Normal Retirement age, with a deferred vested benefit.
Future Administrative Expenses:	No provisions made.
Unknown Data for Members:	Same as those exhibited by members with similar known characteristics. If not specified, Members are assumed to be male.
Percent Married:	85% of male members and 50% of female members are assumed to be married.
Age of Spouse:	Females three years younger than males.
Benefit Elections:	<ul style="list-style-type: none"> • Non-Group D All members are assumed to elect the single life annuity option with a refund of contributions guarantee. • Group D Single members are assumed to elect single life annuity. Married members are assumed to elect the 70% joint & survivor option.
Actuarial Value of Assets:	A smoothing method is used, under which the value of assets for actuarial purposes equals market value less a five-year phase-in of the differences between actual and assumed investment return. The value of assets for actuarial purposes may not differ from market value of assets by more than 20%.
Actuarial Cost Method:	Entry Age Actuarial Cost Method. Entry Age is the age at date of employment or, if date is unknown, current age minus years of service. Normal Cost and Actuarial Accrued Liability are calculated on an individual basis and are allocated by salary, with Normal Cost determined using the plan of benefits applicable to each member. (Adopted effective June 30, 2020)

Section 4: Actuarial Valuation Basis

Change in Actuarial Assumptions: Based on reviews of economic assumptions and demographic assumptions in the experience study completed in September of 2020, the following actuarial assumptions were changed:

- Inflation
- Investment Return
- Salary Scale
- COLA
- Mortality
- Retirement (Active and Inactive)
- Termination

For more information on how these assumptions were changed, please refer to the Vermont State Employees' Retirement System Experience Review presentation that was completed in September of 2020.

Section 4: Actuarial Valuation Basis

Exhibit II: Summary of Plan Provisions

This exhibit summarizes the major provisions of the System included in the valuation. It is not intended to be, nor should it be interpreted as, a complete statement of all plan provisions.

Effective Date:	July 1, 1975.
Creditable Service:	Service as a member plus purchased service.
Membership:	Full time employees of participating municipalities. Municipality elects coverage under Groups A, B, C or D provisions.
Average Final Compensation (AFC):	<ul style="list-style-type: none">• Group A Average annual compensation during highest 5 consecutive years.• Groups B/C Average annual compensation during highest 3 consecutive years.• Group D Average annual compensation during highest 2 consecutive years.
Normal Retirement - Eligibility:	<ul style="list-style-type: none">• Group A Earlier of age 65 with 5 years of service or age 55 with 35 years of service.• Group B Earlier of age 62 with 5 years of service or age 55 with 30 years of service.• Groups C/D Age 55 with 5 years of service.
Normal Retirement - Amount:	<ul style="list-style-type: none">• Group A 1.4% of AFC times service.• Group B 1.7% of AFC times service as a Group B member plus percentage earned as a Group A member times AFC.• Group C 2.5% of AFC times service as a Group C member plus percentage earned as a Group A or B member times AFC.• Group D 2.5% of AFC times service as a Group D member plus percentage earned as a Group A, B or C member times AFC.• Maximum benefit is 60% of AFC for Groups A and B and 50% of AFC for Groups C and D. The above amounts include the portion of the allowance provided by member contributions.
Early Retirement - Eligibility:	<ul style="list-style-type: none">• Groups A/B Age 55 with 5 years of service.• Group C None.• Group D Age 50 with 20 years of service.
Early Retirement - Amount:	Normal retirement allowance based on service and AFC at early retirement, reduced by 6% for each year commencement precedes Normal Retirement Age for Group A and B members; payable without reduction to Group D members.

Section 4: Actuarial Valuation Basis

Vesting:	<p>All groups – 5 years of service.</p> <p>Allowance beginning at normal retirement age based on AFC and service at termination. The AFC is to be adjusted annually by one-half of the percentage change in the Consumer Price Index, subject to the limits on “Post-Retirement Adjustments” described below.</p>
Disability Retirement - Eligibility:	<ul style="list-style-type: none"> All groups – 5 years of service and disability as determined by Retirement Board.
Disability Retirement - Amount:	<ul style="list-style-type: none"> All groups – Immediate allowance based on AFC and service to date of disability. Children’s benefit of 10% of AFC payable to up to three minor children (or children up to age 23 if enrolled in full-time studies) of a disabled Group D member.
Death Benefit - Eligibility:	<ul style="list-style-type: none"> All groups – Death after 5 years of service.
Death Benefit - Amount:	<ul style="list-style-type: none"> Groups A/B/C Reduced early retirement allowance under 100% survivor option commencing immediately or, if greater, survivor’s benefit under disability allowance computed as of date of death. Group D 70% of the unreduced accrued benefit, plus children’s benefit.
Post-Retirement Adjustments:	<ul style="list-style-type: none"> Group A Allowances in pay status for at least one year increased on each January 1 by one-half of the percentage increase in Consumer Price Index, but not more than 2%. If receiving an Early Retirement benefit, no increases until after reaching attaining Normal Retirement eligibility. If receiving a Disability Retirement benefit, no increases until after attaining age 62. Groups B/C/D Allowances in payment for at least one year increased on each January 1 by one-half of the percentage increase in Consumer Price Index, but not more than 3%. If receiving an Early Retirement benefit, no increases until after reaching attaining Normal Retirement eligibility. If receiving a Disability Retirement benefit, no increases until after attaining age 62 (age 55 for Group C).
Retirement Stipend:	\$25 per month payable at the option of the Retirement Board.
Optional Benefit and Death after Retirement:	<ul style="list-style-type: none"> Groups A/B/C A lifetime allowance or actuarially equivalent 50% or 100% joint and survivor allowance with refund of contribution guarantee. Group D A lifetime allowance or 70% contingent annuitant option with no reduction.
Refund of Contributions:	Upon termination, if the member so elects, or if no other benefit is payable, the member’s accumulated contributions with interest are refunded.

Section 4: Actuarial Valuation Basis

Member Contribution Rates:	<ul style="list-style-type: none">• Group A 2.625% effective July 1, 2018; 2.750% effective July 1, 2019; 3.000% effective July 1, 2020; 3.250% effective July 1, 2021 and thereafter.• Group B 5.000% effective July 1, 2018; 5.125% effective July 1, 2019; 5.375% effective July 1, 2020; 5.625% effective July 1, 2021 and thereafter.• Group C 10.125% effective July 1, 2018; 10.250% effective July 1, 2019; 10.500% effective July 1, 2020; 10.750% effective July 1, 2021 and thereafter.• Group D 11.475% effective July 1, 2018; 11.600% effective July 1, 2019; 11.850% effective July 1, 2020; 12.100% effective July 1, 2021 and thereafter.
Employer Contribution Rates:	<ul style="list-style-type: none">• Group A 4.125% effective July 1, 2018; 4.250% effective July 1, 2019; 4.500% effective July 1, 2020; 4.750% effective July 1, 2021 and thereafter.• Group B 5.625% effective July 1, 2018; 5.750% effective July 1, 2019; 6.000% effective July 1, 2020; 6.250% effective July 1, 2021 and thereafter.• Group C 7.375% effective July 1, 2018; 7.500% effective July 1, 2019; 7.750% effective July 1, 2020; 8.000% effective July 1, 2021 and thereafter.• Group D 9.975% effective July 1, 2018; 10.100% effective July 1, 2019; 10.350% effective July 1, 2020; 10.600% effective July 1, 2021 and thereafter.
Changes in Plan Provisions:	There were no changes in plan provisions since the prior valuation, other than the previously adopted contribution rate increases shown above, which were reflected in the June 30, 2018 actuarial valuation.

Additional Summary Tables of Member Data

Table 1A: Members in Active Service as of June 30, 2020 by Age, Years of Creditable Service, and Average Payroll – All Employee Groups

Age	Years of Creditable Service								
	Total	0-4	5-9	10-14	15 - 19	20 - 24	25 - 29	30 - 34	35 & over
Under 25	321	318	3	--	--	--	--	--	--
	\$29,011	\$28,880	\$42,870	--	--	--	--	--	--
25 - 29	569	503	66	--	--	--	--	--	--
	\$35,081	\$32,869	\$51,938	--	--	--	--	--	--
30 - 34	703	501	164	37	1	--	--	--	--
	\$40,517	\$34,975	\$54,673	\$52,550	\$49,671	--	--	--	--
35 - 39	764	457	180	95	32	--	--	--	--
	\$41,369	\$33,951	\$48,601	\$58,082	\$57,004	\$0	--	--	--
40 - 44	798	462	167	93	65	11	--	--	--
	\$41,440	\$33,520	\$45,910	\$56,481	\$62,767	\$53,013	--	--	--
45 - 49	955	454	196	141	103	48	13	--	--
	\$42,984	\$34,279	\$44,619	\$52,849	\$53,320	\$64,352	\$54,575	--	--
50 - 54	1,074	386	204	213	137	76	39	19	--
	\$44,560	\$36,339	\$45,600	\$48,180	\$48,516	\$52,024	\$62,131	\$65,367	--
55 - 59	1,256	398	228	228	193	112	52	33	12
	\$42,334	\$34,915	\$45,217	\$43,276	\$45,969	\$43,429	\$53,029	\$54,998	\$65,846
60 - 64	1,013	257	173	170	173	108	69	42	21
	\$41,714	\$35,311	\$43,702	\$42,019	\$39,333	\$41,999	\$49,379	\$54,216	\$69,210
65 & over	534	154	82	101	73	51	36	19	18
	\$38,810	\$30,217	\$39,443	\$39,242	\$42,088	\$41,176	\$43,528	\$46,726	\$69,238
Total	7,987	3,890	1,463	1,078	777	406	209	113	51
	\$41,003	\$33,793	\$46,542	\$47,683	\$47,415	\$47,108	\$51,982	\$55,060	\$68,428

Section 5: Additional Summary Tables of Member Data

Table 1B: Members in Active Service as of June 30, 2020 by Age, Years of Creditable Service, and Average Payroll – Group A

Age	Years of Creditable Service								
	Total	0-4	5-9	10-14	15 - 19	20 - 24	25 - 29	30 - 34	35 & over
Under 25	102	102	--	--	--	--	--	--	--
	\$19,896	\$19,896	--	--	--	--	--	--	--
25 - 29	177	168	9	--	--	--	--	--	--
	\$25,599	\$25,279	\$31,573	--	--	--	--	--	--
30 - 34	209	170	29	10	--	--	--	--	--
	\$27,155	\$25,482	\$34,643	\$33,894	--	--	--	--	--
35 - 39	243	162	58	20	3	--	--	--	--
	\$28,934	\$26,810	\$33,606	\$33,270	\$24,381	--	--	--	--
40 - 44	265	158	63	25	15	4	--	--	--
	\$31,328	\$28,289	\$34,657	\$33,117	\$40,916	\$51,823	--	--	--
45 - 49	286	147	64	32	27	10	6	--	--
	\$33,111	\$29,582	\$34,939	\$37,458	\$36,537	\$47,262	\$37,878	--	--
50 - 54	345	134	66	65	44	21	10	5	--
	\$33,145	\$31,158	\$35,289	\$30,664	\$34,106	\$37,779	\$37,739	\$53,260	--
55 - 59	424	137	60	83	76	42	13	8	5
	\$33,928	\$28,911	\$38,312	\$36,831	\$32,864	\$34,803	\$39,906	\$38,413	\$56,742
60 - 64	353	97	63	57	62	33	26	13	2
	\$32,360	\$28,937	\$32,820	\$31,803	\$32,620	\$35,591	\$37,050	\$36,249	\$52,128
65 & over	218	63	38	43	23	22	11	9	9
	\$34,172	\$29,121	\$31,804	\$33,395	\$39,093	\$31,935	\$38,417	\$41,519	\$63,614
Total	2,622	1,338	450	335	250	132	66	35	16
	\$31,172	\$27,314	\$34,581	\$33,820	\$34,373	\$36,455	\$38,020	\$40,529	\$60,031

Section 5: Additional Summary Tables of Member Data

Table 1C: Members in Active Service as of June 30, 2020 by Age, Years of Creditable Service, and Average Payroll – Group B

Age	Years of Creditable Service								
	Total	0-4	5-9	10-14	15 - 19	20 - 24	25 - 29	30 - 34	35 & over
Under 25	161	159	2	--	--	--	--	--	--
	\$27,340	\$27,264	\$33,356	--	--	--	--	--	--
25 - 29	282	244	38	--	--	--	--	--	--
	\$32,287	\$29,433	\$50,612	--	--	--	--	--	--
30 - 34	329	243	68	18	--	--	--	--	--
	\$38,550	\$34,836	\$47,838	\$53,605	--	--	--	--	--
35 - 39	368	237	78	35	18	--	--	--	--
	\$39,180	\$34,264	\$46,377	\$50,376	\$50,957	--	--	--	--
40 - 44	412	265	79	36	25	7	--	--	--
	\$41,225	\$35,005	\$47,658	\$59,184	\$57,477	\$53,693	--	--	--
45 - 49	514	268	95	78	46	22	5	--	--
	\$40,300	\$33,581	\$42,728	\$49,117	\$50,011	\$56,638	\$55,481	--	--
50 - 54	576	218	110	111	60	45	22	10	--
	\$44,357	\$36,569	\$46,068	\$48,739	\$43,721	\$54,695	\$62,698	\$63,634	--
55 - 59	730	238	142	127	94	61	38	24	6
	\$43,793	\$36,558	\$45,262	\$43,215	\$49,209	\$44,523	\$56,893	\$58,706	\$73,375
60 - 64	579	140	96	98	100	70	37	25	13
	\$44,044	\$36,759	\$47,888	\$45,456	\$39,467	\$43,545	\$53,398	\$58,802	\$66,367
65 & over	280	82	39	55	44	24	18	10	8
	\$39,870	\$29,861	\$44,325	\$43,210	\$39,850	\$42,412	\$45,277	\$51,413	\$63,687
Total	4,231	2,094	747	558	387	229	120	69	27
	\$40,768	\$33,738	\$46,192	\$47,347	\$45,488	\$47,446	\$55,079	\$58,398	\$67,130

Section 5: Additional Summary Tables of Member Data

Table 1D: Members in Active Service as of June 30, 2020 by Age, Years of Creditable Service, and Average Payroll – Group C

Age	Years of Creditable Service								
	Total	0-4	5-9	10-14	15 - 19	20 - 24	25 - 29	30 - 34	35 & over
Under 25	42	41	1	--	--	--	--	--	--
	\$47,001	\$46,638	\$61,898	--	--	--	--	--	--
25 - 29	79	64	15	--	--	--	--	--	--
	\$57,283	\$56,095	\$62,349	--	--	--	--	--	--
30 - 34	134	75	51	7	1	--	--	--	--
	\$60,193	\$52,008	\$71,142	\$69,609	\$49,671	--	--	--	--
35 - 39	111	47	31	27	6	--	--	--	--
	\$64,101	\$51,558	\$70,802	\$77,500	\$67,437	--	--	--	--
40 - 44	86	33	22	20	11	--	--	--	--
	\$60,691	\$46,298	\$66,047	\$68,410	\$79,127	--	--	--	--
45 - 49	117	32	33	24	18	9	1	--	--
	\$67,141	\$52,587	\$65,949	\$78,092	\$70,039	\$83,518	\$109,780	--	--
50 - 54	132	31	26	33	25	9	4	4	--
	\$68,909	\$54,557	\$66,790	\$75,551	\$75,724	\$64,230	\$91,139	\$84,832	--
55 - 59	95	22	26	17	19	8	1	1	1
	\$65,185	\$53,497	\$60,909	\$73,300	\$72,326	\$71,256	\$76,774	\$98,663	\$66,193
60 - 64	76	20	13	15	9	5	6	2	6
	\$64,016	\$56,089	\$61,655	\$58,383	\$73,542	\$62,659	\$78,022	\$68,263	\$81,064
65 & over	36	9	5	3	6	5	7		1
	\$58,644	\$41,124	\$59,416	\$50,300	\$69,989	\$75,897	\$47,061		\$164,275
Total	908	374	223	146	95	36	19	7	8
	\$62,798	\$51,863	\$66,674	\$72,521	\$72,995	\$72,015	\$70,982	\$82,074	\$89,607

Section 5: Additional Summary Tables of Member Data

Table 1E: Members in Active Service as of June 30, 2020 by Age, Years of Creditable Service, and Average Payroll – Group D

Age	Years of Creditable Service								
	Total	0-4	5-9	10-14	15 - 19	20 - 24	25 - 29	30 - 34	35 & over
Under 25	16	16	--	--	--	--	--	--	--
	\$56,703	\$56,702	--	--	--	--	--	--	--
25 - 29	31	27	4	--	--	--	--	--	--
	\$58,062	\$56,099	\$71,318	--	--	--	--	--	--
30 - 34	31	13	16	2	--	--	--	--	--
	\$66,412	\$63,458	\$67,536	\$76,628	--	--	--	--	--
35 - 39	42	11	13	13	5	--	--	--	--
	\$72,417	\$57,172	\$75,910	\$76,669	\$85,824	--	--	--	--
40 - 44	35	6	3	12	14	--	--	--	--
	\$73,219	\$35,386	\$88,531	\$77,165	\$82,769	--	--	--	--
45 - 49	38	7	4	7	12	7	1	--	--
	\$79,236	\$75,949	\$68,463	\$78,238	\$78,685	\$88,366	\$95,027	--	--
50 - 54	21	3	2	4	8	1	3	--	--
	\$84,583	\$62,726	\$84,699	\$91,522	\$78,708	\$121,100	\$100,605	--	--
55 - 59	7	1	--	1	4	1	--	--	--
	\$89,171	\$57,584	--	\$75,662	\$93,645	\$116,375	--	--	--
60 - 64	5	--	1	--	2	--	--	2	--
	\$93,353	--	\$94,013	--	\$86,747	--	--	\$99,628	--
65 & over	--	--	--	--	--	--	--	--	--
	--	--	--	--	--	--	--	--	--
Total	226	84	43	39	45	9	4	2	--
	\$71,895	\$57,922	\$73,384	\$78,599	\$82,441	\$95,115	\$99,210	\$99,628	--

Section 5: Additional Summary Tables of Member Data

Table 2A: Summary of Retired Member and Beneficiary Data by Attained Age All Employee Groups

Age	Service Pensioners		Disability Pensioners		Beneficiaries	
	Number	Annual Allowance	Number	Annual Allowance	Number	Annual Allowance
≤ 35	0	\$0	0	\$0	6	\$39,013
36	0	0	0	0	1	3,108
37	0	0	0	0	0	0
38	0	0	0	0	1	1,869
39	0	0	0	0	0	0
40	0	0	0	0	0	0
41	0	0	1	8,333	0	0
42	0	0	0	0	0	0
43	0	0	2	20,770	1	2,593
44	0	0	0	0	2	5,449
45	0	0	1	27,183	0	0
46	0	0	0	0	2	2,790
47	0	0	0	0	2	22,002
48	0	0	4	40,376	1	21,256
49	0	0	3	49,342	0	0
50	0	0	0	0	3	34,791
51	0	0	2	15,143	0	0
52	1	58,537	0	0	2	23,892
53	0	0	1	9,334	2	11,461
54	1	9,605	4	38,274	1	10,780
55	20	336,178	4	58,936	1	3,268
56	19	464,114	0	0	2	40,605
57	25	423,712	3	12,672	2	77,027
58	21	369,018	1	5,230	5	27,016
59	29	730,827	1	3,112	3	33,504
60	30	753,289	4	36,422	4	45,543
61	43	845,054	4	36,124	2	17,770
62	88	1,082,270	3	16,014	5	30,754
63	130	1,906,905	3	11,036	5	48,181
64	117	1,593,831	5	47,642	8	118,436
65	206	2,639,751	1	10,725	6	70,134

Section 5: Additional Summary Tables of Member Data

Table 2A: Summary of Retired Member and Beneficiary Data by Attained Age All Employee Groups (continued)

Age	Service Pensioners		Disability Pensioners		Beneficiaries	
	Number	Annual Allowance	Number	Annual Allowance	Number	Annual Allowance
66	221	\$2,776,040	6	\$50,328	7	\$65,105
67	188	2,021,935	4	63,733	5	62,583
68	195	2,276,062	1	3,738	4	27,699
69	186	1,875,134	3	17,098	9	77,876
70	177	1,787,188	2	8,724	7	64,862
71	207	1,914,214	1	13,689	6	61,918
72	181	1,767,897	1	4,171	13	84,811
73	162	1,437,287	1	12,843	10	69,799
74	131	1,299,157	0	0	10	66,553
75	138	1,171,709	2	16,176	11	62,474
76	96	799,370	2	12,432	8	68,309
77	102	942,527	0	0	5	20,670
78	99	765,264	1	2,011	6	21,909
79	80	675,295	0	0	5	15,639
80	75	711,198	1	4,468	9	54,110
81	68	496,150	1	4,661	13	85,158
82	46	287,368	1	3,529	9	74,427
83	52	404,098	2	7,110	5	62,329
84	38	293,346	0	0	5	41,155
85	36	265,754	0	0	5	22,943
86	25	186,818	1	2,431	8	59,629
87	24	144,295	0	0	8	47,959
88	13	66,754	0	0	6	15,766
89	30	178,734	0	0	4	36,204
90	14	61,174	0	0	5	26,557
91	9	58,818	0	0	3	15,877
92	11	53,478	0	0	4	10,938
93	6	37,889	0	0	0	0
94	7	35,484	0	0	0	0
≥ 95	6	39,917	0	0	1	2,005
Total	3,358	\$36,043,444	77	\$673,810	258	\$2,016,504

Section 5: Additional Summary Tables of Member Data

Table 2B: Summary of Retired Member and Beneficiary Data by Attained Age Group A

Age	Service Pensioners		Disability Pensioners		Beneficiaries	
	Number	Annual Allowance	Number	Annual Allowance	Number	Annual Allowance
≤ 35	0	\$0	0	\$0	1	\$4,897
36	0	0	0	0	0	0
37	0	0	0	0	0	0
38	0	0	0	0	0	0
39	0	0	0	0	0	0
40	0	0	0	0	0	0
41	0	0	0	0	0	0
42	0	0	0	0	0	0
43	0	0	0	0	0	0
44	0	0	0	0	1	4,389
45	0	0	0	0	0	0
46	0	0	0	0	1	1,741
47	0	0	0	0	1	6,634
48	0	0	0	0	0	0
49	0	0	0	0	0	0
50	0	0	0	0	1	23,404
51	0	0	1	7,764	0	0
52	0	0	0	0	0	0
53	0	0	0	0	0	0
54	0	0	1	2,103	0	0
55	0	0	0	0	1	3,268
56	0	0	0	0	0	0
57	6	28,263	2	4,239	1	3,593
58	0	0	1	5,230	2	4,086
59	3	26,936	1	3,112	0	0
60	3	34,227	2	16,469	2	2,995
61	7	51,765	2	18,478	0	0
62	12	77,088	2	11,799	3	8,137
63	25	133,126	2	6,215	2	11,030
64	30	252,312	1	6,293	2	7,311
65	79	528,659	1	10,725	2	4,930

Section 5: Additional Summary Tables of Member Data

Table 2B: Summary of Retired Member and Beneficiary Data by Attained Age Group A (continued)

Age	Service Pensioners		Disability Pensioners		Beneficiaries	
	Number	Annual Allowance	Number	Annual Allowance	Number	Annual Allowance
66	79	\$555,309	2	\$10,659	1	\$3,071
67	76	438,092	1	7,887	3	8,205
68	78	532,660	0	0	1	1,138
69	74	400,091	1	2,075	5	17,323
70	69	403,844	1	2,443	0	0
71	96	510,378	1	13,689	2	28,594
72	77	439,619	1	4,171	3	6,577
73	82	442,353	1	12,843	3	21,985
74	59	389,891	0	0	3	20,356
75	67	385,815	1	6,973	6	31,989
76	40	197,579	1	5,720	1	3,798
77	39	264,788	0	0	3	7,028
78	40	239,295	0	0	3	6,453
79	33	162,305	0	0	2	6,225
80	32	217,432	0	0	5	16,182
81	31	177,892	1	4,661	6	20,620
82	19	65,626	1	3,529	3	10,970
83	19	108,672	2	7,110	1	3,118
84	12	53,520	0	0	0	0
85	18	88,263	0	0	3	11,694
86	8	77,045	1	2,431	2	6,086
87	14	69,799	0	0	2	8,982
88	5	23,729	0	0	3	7,889
89	13	43,437	0	0	1	4,595
90	8	26,441	0	0	2	8,792
91	4	16,149	0	0	1	3,209
92	6	25,352	0	0	4	10,938
93	3	17,948	0	0	0	0
94	3	6,059	0	0	0	0
≥ 95	9	32,993	0	0	1	2,005
Total	1,278	\$7,544,755	31	\$176,616	90	\$364,236

Section 5: Additional Summary Tables of Member Data

Table 2C: Summary of Retired Member and Beneficiary Data by Attained Age Group B

Age	Service Pensioners		Disability Pensioners		Beneficiaries	
	Number	Annual Allowance	Number	Annual Allowance	Number	Annual Allowance
≤ 35	0	\$0	0	\$0	2	\$13,505
36	0	0	0	0	0	0
37	0	0	0	0	1	3,108
38	0	0	0	0	1	1,869
39	0	0	0	0	0	0
40	0	0	0	0	0	0
41	0	0	0	0	0	0
42	0	0	0	0	0	0
43	0	0	1	4,494	1	2,593
44	0	0	0	0	1	1,060
45	0	0	0	0	0	0
46	0	0	0	0	1	1,049
47	0	0	0	0	0	0
48	0	0	1	20,126	1	21,256
49	0	0	0	0	0	0
50	0	0	0	0	2	11,387
51	0	0	1	7,379	0	0
52	0	0	0	0	2	23,892
53	0	0	0	0	2	11,461
54	0	0	2	29,753	1	10,780
55	6	64,307	1	3,449	0	0
56	1	43,030	0	0	2	40,605
57	5	88,471	1	8,434	0	0
58	4	37,623	0	0	3	22,930
59	8	121,252	0	0	3	33,504
60	10	261,737	2	19,953	1	3,864
61	13	127,980	1	10,200	1	1,578
62	56	495,731	1	4,215	2	22,617
63	78	1,026,791	1	4,821	2	22,452
64	66	757,990	4	41,349	5	93,438
65	98	1,331,532	0	0	3	14,183

Section 5: Additional Summary Tables of Member Data

Table 2C: Summary of Retired Member and Beneficiary Data by Attained Age Group B (continued)

Age	Service Pensioners		Disability Pensioners		Beneficiaries	
	Number	Annual Allowance	Number	Annual Allowance	Number	Annual Allowance
66	110	\$1,406,721	3	\$21,824	3	\$33,919
67	95	1,247,307	3	55,846	2	54,377
68	94	1,240,961	1	3,738	1	8,798
69	101	1,182,259	2	15,023	4	60,552
70	90	1,022,823	1	6,282	5	34,566
71	90	959,356	0	0	3	27,506
72	85	940,505	0	0	9	63,060
73	66	677,473	0	0	5	23,810
74	61	698,970	0	0	7	46,197
75	58	541,089	1	9,203	4	24,995
76	50	538,205	1	6,712	6	60,786
77	49	395,015	0	0	1	10,440
78	49	400,152	1	2,011	3	15,455
79	38	368,530	0	0	3	9,414
80	34	347,769	1	4,468	3	20,972
81	30	262,364	0	0	5	46,656
82	26	215,184	0	0	5	49,924
83	31	279,244	0	0	4	59,211
84	23	206,006	0	0	4	37,414
85	15	116,116	0	0	2	11,250
86	16	99,614	0	0	5	44,357
87	9	67,419	0	0	6	38,977
88	7	36,565	0	0	3	7,877
89	16	133,637	0	0	3	31,609
90	5	30,456	0	0	2	12,741
91	5	42,669	0	0	2	12,669
92	5	28,126	0	0	0	0
93	3	19,941	0	0	0	0
94	4	29,425	0	0	0	0
≥ 95	2	6,924	0	0	0	0
Total	1,612	\$17,897,269	30	\$279,280	137	\$1,204,661

Section 5: Additional Summary Tables of Member Data

Table 2D: Summary of Retired Member and Beneficiary Data by Attained Age Group C

Age	Service Pensioners		Disability Pensioners		Beneficiaries	
	Number	Annual Allowance	Number	Annual Allowance	Number	Annual Allowance
≤ 35	0	\$0	0	\$0	0	\$0
36	0	0	0	0	0	0
37	0	0	0	0	0	0
38	0	0	0	0	0	0
39	0	0	0	0	0	0
40	0	0	0	0	0	0
41	0	0	1	8,333	0	0
42	0	0	0	0	0	0
43	0	0	1	16,276	0	0
44	0	0	0	0	0	0
45	0	0	0	0	0	0
46	0	0	0	0	0	0
47	0	0	0	0	1	15,369
48	0	0	2	10,482	0	0
49	0	0	1	2,799	0	0
50	0	0	0	0	0	0
51	0	0	0	0	0	0
52	0	0	0	0	0	0
53	0	0	1	9,334	0	0
54	1	9,605	1	6,417	0	1
55	7	163,292	2	28,479	0	7
56	13	301,411	0	0	0	13
57	6	150,488	0	0	1	6
58	10	208,128	0	0	0	10
59	14	470,110	0	0	0	14
60	14	356,042	0	0	1	14
61	18	527,921	1	7,446	1	18
62	17	399,021	0	0	0	17
63	21	579,453	0	0	1	21
64	19	537,274	0	0	1	19
65	27	668,734	0	0	1	27

Section 5: Additional Summary Tables of Member Data

Table 2D: Summary of Retired Member and Beneficiary Data by Attained Age Group C (continued)

Age	Service Pensioners		Disability Pensioners		Beneficiaries	
	Number	Annual Allowance	Number	Annual Allowance	Number	Annual Allowance
66	30	\$761,775	0	\$0	2	\$10,979
67	16	311,994	0	0	0	0
68	22	472,800	0	0	2	17,763
69	10	228,154	0	0	0	0
70	18	360,521	0	0	2	30,296
71	21	444,480	0	0	1	5,819
72	18	333,115	0	0	1	15,173
73	14	317,461	0	0	2	24,004
74	10	195,291	0	0	0	0
75	12	228,793	0	0	1	5,490
76	6	63,586	0	0	1	3,725
77	14	282,723	0	0	1	3,202
78	10	125,817	0	0	0	0
79	9	144,460	0	0	0	0
80	9	145,997	0	0	1	16,956
81	7	55,895	0	0	2	17,883
82	1	6,557	0	0	1	13,533
83	2	16,181	0	0	0	0
84	3	33,820	0	0	1	3,742
85	3	61,374	0	0	0	0
86	1	10,159	0	0	1	9,186
87	1	7,078	0	0	0	0
88	1	6,460	0	0	0	0
89	1	1,661	0	0	0	0
90	1	4,276	0	0	1	5,025
91	0	0	0	0	0	0
92	0	0	0	0	0	0
93	0	0	0	0	0	0
94	0	0	0	0	0	0
≥ 95	0	0	0	0	0	0
Total	407	\$8,991,909	10	\$89,566	27	\$409,860

Section 5: Additional Summary Tables of Member Data

Table 2E: Summary of Retired Member and Beneficiary Data by Attained Age Group D

Age	Service Pensioners		Disability Pensioners		Beneficiaries	
	Number	Annual Allowance	Number	Annual Allowance	Number	Annual Allowance
≤ 35	0	\$0	0	\$0	3	\$20,611
36	0	0	0	0	0	0
37	0	0	0	0	0	0
38	0	0	0	0	0	0
39	0	0	0	0	0	0
40	0	0	0	0	0	0
41	0	0	0	0	0	0
42	0	0	0	0	0	0
43	0	0	0	0	0	0
44	0	0	0	0	0	0
45	0	0	0	0	0	0
46	0	0	0	0	0	0
47	0	0	1	27,183	0	0
48	0	0	1	9,767	0	0
49	0	0	2	46,544	0	0
50	0	0	0	0	0	0
51	0	0	0	0	0	0
52	1	58,537	0	0	0	0
53	0	0	0	0	0	0
54	0	0	0	0	0	0
55	7	108,579	1	27,009	0	0
56	5	119,673	0	0	0	0
57	8	156,490	0	0	0	0
58	7	123,266	0	0	0	0
59	4	112,528	0	0	0	0
60	3	101,283	0	0	0	0
61	5	137,388	0	0	0	0
62	3	110,430	0	0	0	0
63	6	167,535	0	0	0	0
64	2	46,254	0	0	0	0
65	2	110,826	0	0	0	0

Section 5: Additional Summary Tables of Member Data

Table 2E: Summary of Retired Member and Beneficiary Data by Attained Age Group D (continued)

Age	Service Pensioners		Disability Pensioners		Beneficiaries	
	Number	Annual Allowance	Number	Annual Allowance	Number	Annual Allowance
66	2	\$52,235	1	\$17,845	1	\$17,136
67	1	24,542	0	0	0	0
68	1	29,641	0	0	0	0
69	1	64,629	0	0	0	0
70	0	0	0	0	0	0
71	0	0	0	0	0	0
72	1	54,658	0	0	0	0
73	0	0	0	0	0	0
74	1	15,005	0	0	0	0
75	1	16,011	0	0	0	0
76	0	0	0	0	0	0
77	0	0	0	0	0	0
78	0	0	0	0	0	0
79	0	0	0	0	0	0
80	0	0	0	0	0	0
81	0	0	0	0	0	0
82	0	0	0	0	0	0
83	0	0	0	0	0	0
84	0	0	0	0	0	0
85	0	0	0	0	0	0
86	0	0	0	0	0	0
87	0	0	0	0	0	0
88	0	0	0	0	0	0
89	0	0	0	0	0	0
90	0	0	0	0	0	0
91	0	0	0	0	0	0
92	0	0	0	0	0	0
93	0	0	0	0	0	0
94	0	0	0	0	0	0
≥ 95	0	0	0	0	0	0
Total	61	\$1,609,511	6	\$128,348	4	\$37,747

Section 5: Additional Summary Tables of Member Data

Table 3: Summary of Retired Member and Beneficiary Data by Year of Retirement – All Employee Groups

Year of Retirement	Number	Annual Allowance	Average Annual Allowance
≤ 1970	0	\$0	\$0
1971	0	0	0
1972	0	0	0
1973	0	0	0
1974	0	0	0
1975	0	0	0
1976	0	0	0
1977	0	0	0
1978	0	0	0
1979	0	0	0
1980	1	1,741	1,741
1981	0	0	0
1982	1	826	826
1983	2	5,373	2,687
1984	1	998	998
1985	1	999	999
1986	2	5,568	2,784
1987	1	2,626	2,626
1988	2	4,839	2,420
1989	5	13,252	2,650
1990	9	48,012	5,335
1991	14	55,998	4,000
1992	14	71,084	5,077
1993	15	83,032	5,535
1994	17	89,898	5,288
1995	33	221,257	6,705
1996	27	163,959	6,073
1997	32	183,920	5,748
1998	40	254,122	6,353
1999	38	266,084	7,002
2000	33	237,239	7,189

Section 5: Additional Summary Tables of Member Data

Table 3: Summary of Retired Member and Beneficiary Data by Year of Retirement – All Employee Groups *(continued)*

Year of Retirement	Number	Annual Allowance	Average Annual Allowance
2001	46	\$318,682	\$6,928
2002	64	501,729	7,840
2003	72	509,892	7,082
2004	79	700,723	8,870
2005	82	669,183	8,161
2006	84	809,304	9,635
2007	129	1,105,441	8,569
2008	112	1,025,874	9,160
2009	125	1,009,979	8,080
2010	148	1,484,763	10,032
2011	172	1,893,774	11,010
2012	186	1,939,772	10,429
2013	205	2,353,211	11,479
2014	246	2,497,333	10,152
2015	234	2,689,712	11,494
2016	238	2,449,033	10,290
2017	326	4,055,723	12,441
2018	302	3,985,977	13,199
2019	338	4,036,412	11,942
2020	218	2,985,268	13,694
Total	3,693	\$38,733,758	\$10,488

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