

City of Atlanta General Employees' Pension Fund Employees of the Atlanta Board of Education

Actuarial Valuation and Review as of July 1, 2020



This report has been prepared at the request of the Board of Trustees to assist in administering the Pension Fund. This valuation report may not otherwise be copied or reproduced in any form without the consent of the Board of Trustees and may only be provided to other parties in its entirety, unless expressly authorized by Segal. The measurements shown in this actuarial valuation may not be applicable for other purposes.

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July 16, 2021

Board Members

City of Atlanta General Employees' Pension Fund Employees of the Atlanta Board of Education
Atlanta, Georgia

Dear Board Members:

We are pleased to submit this Actuarial Valuation and Review as of July 1, 2020. It summarizes the actuarial data used in the valuation, analyzes the preceding year's experience, and establishes the funding requirements for the fiscal year ending June 30, 2021.

This report was prepared in accordance with generally accepted actuarial principles and practices at the request of the Board to assist in administering the Pension Fund. The census information and financial information on which our calculations were based was prepared by Zenith American Solutions and the financial information was provided by KPMG. That assistance is gratefully acknowledged.

The actuarial calculations were directed under the supervision of Jeanette R. Cooper, FSA, FCA, MAAA, Enrolled Actuary with the assistance of Ben Kirkland and Jody Martin. Ms. Cooper is a member of the American Academy of Actuaries and meets the Qualification Standards of the American Academy of Actuaries to render the actuarial opinion herein. To the best of her knowledge, the information supplied in this actuarial valuation is complete and accurate. Further, in her opinion, the assumptions as approved by the Board are reasonably related to the experience of and the expectations for the Fund.

We hereby certify that the City of Atlanta General Employees' Pension Fund for the Employees of the Atlanta Board of Education has been funded in conformity with the minimum funding standards specified in Code Section 47-20-10 of the Official Code of Georgia Annotated known as the Public Retirement Systems Standards Law. This certification covers the 2020 fiscal year of the Plan.

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

Sincerely,
Segal

A handwritten signature in cursive script that reads "Jeanette R. Cooper".

Jeanette R. Cooper, FSA, FCA, MAAA, EA
Vice President and Consulting Actuary

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Section 1: Actuarial Valuation Summary

Purpose and basis

This report was prepared by Segal to present a valuation of the City of Atlanta General Employees' Pension Fund Employees of the Atlanta Board of Education Plan as of July 1, 2020. 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 Fund assets to cover the estimated cost of settling the Fund'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.

The contribution requirements presented in this report are based on:

- The benefit provisions of the Pension Fund, as administered by the Board;
- The characteristics of covered active participants, inactive participants, and retired participants and beneficiaries as of June 30, 2020, provided by Zenith American Solutions;
- The assets of the Fund as of June 30, 2020, provided by KPMG;
- 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 School Board.

Certain disclosure information required by GASB Statements No 67 and 68 as of June 30, 2021 and June 30, 2020 for the Fund was provided in separate reports.

Section 1: Actuarial Valuation Summary

Valuation highlights

1. The July 1, 2020 valuation is used to determine the recommended contribution for the fiscal year period July 1, 2021 to June 30, 2022 (FY'22). The recommended contribution is adjusted for interest to the middle of the fiscal period and satisfies the minimum funding standards under Georgia law Code Section 47-20-10.
2. The plan receives employee contributions of 7% or 8% of base salary. The School Board contributes the recommended contribution amount which is net of employee contributions. The recommended contribution amount is composed of the employer normal cost including administrative expenses and a payment to amortize the Unfunded Actuarial Accrued Liability (UAAL).
3. On June 2, 2014, the Atlanta Board of Education adopted a resolution (Report 13/14-0117) to change the funding policy. The revised policy increases the FY '14 contribution 3% annually until the Plan is fully funded.
4. The following actuarial assumptions were approved by the Board on April 21, 2021, following the completion of an experience study for the period July 1, 2014 through June 30, 2019. The study was limited to a review of methods and economic and mortality assumptions. The remaining demographic assumptions will be reviewed prior to the next valuation. Effective with this valuation, the following assumptions were changed:
 - The annual investment return assumption was decreased from 7.25% to 7.00%.
 - The age-related salary scale was modified from rates starting at 14.75% grading down to an ultimate rate of 3.00% at age 65 to rates starting at 8.00% with an ultimate rate of 3.00% at age 60.
 - The mortality rates for employees, inactive vested participants, healthy retirees, beneficiaries of living retirees, disabled annuitants and contingent beneficiaries were updated to reflect mortality based on the recent Pri-2012 mortality tables published by the Society of Actuaries.
 - The generational mortality projection scale was updated from using sex-distinct improvement rates under the 2016 OASDI Trustees Report under the intermediate alternative to sex-distinct improvement rates under the Society of Actuaries scale MP- 2020.

As a result of these assumption changes, the actuarial accrued liability increased by \$21.2 million, or 4.2%, and the effective amortization period increased by about 0.4 years.
5. If the Fund earns the assumed 7.00% annual investment return, all experience matches the assumptions, and the contribution increases 3.0% annually, then the UAAL would be fully amortized in around 6.9 years. If the Fund earns the assumed 7.00% annual investment return, all experience matches the assumptions, and the contribution remains level, then the UAAL would be fully amortized in about 7.7 years.

Section 1: Actuarial Valuation Summary

6. 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 UAAL and the principal balance. The funding policy adopted by the School Board meets this standard.
7. The School Board's recommended contribution for FY '22 is \$60.2 million. This amount is an increase of \$1.8 million from the prior valuation's contribution due to a mandated overall 3% increase.
8. Actual contributions made during the fiscal year ending June 30, 2020 were \$56,700,000, 100% of the actuarially determined contribution. In the prior fiscal year, actual contributions were \$55,002,000, 99.82% of the actuarially determined contribution.
9. The total contributions made during the fiscal year ending June 30, 2020 were sufficient to cover the normal cost plus interest on the UAAL, thereby reducing the UAAL by \$31.0 million.
10. The funded ratio (the ratio of the actuarial value of assets to actuarial accrued liability) is 35.65%, compared to the prior year funded ratio of 32.48%. This ratio is one measure of funding status, and its history is a measure of funding progress. Using the market value of assets, the funded ratio is 34.71%, compared to 32.67% as of the prior valuation date. These measurements are not necessarily appropriate for assessing the sufficiency of Fund assets to cover the estimated cost of settling the Fund's benefit obligation or the need for or the amount of future contributions.
11. The UAAL is \$337.0 million, which is a decrease of \$12.3 million since the prior valuation.
12. The actuarial gain from investment and other experience is \$2.5 million, or 0.5% of the actuarial accrued liability.
13. The net experience gain from sources other than investment experience is 0.8% of the actuarial accrued liability prior to reflection of assumption changes. This gain is not significant.
14. The rate of return on the market value of assets is 2.84% for the July 1, 2019 to June 30, 2020 plan year. The return on the actuarial value of assets is 6.29% for the same period due to the recognition of prior years' investment gains and losses. This resulted in an actuarial loss of \$1.6 million when measured against the assumed rate of return of 7.25%. Effective with this valuation, the assumed rate of return has been lowered from 7.25% to 7.00%. Given the low fixed income interest rate environment, target asset allocation and expectations of future investment returns for various classes, we advise the Board to continue to monitor actual and anticipated investment returns relative to the assumed long-term rate of return on investments of 7.00%.
15. The actuarial value of assets is 102.70% 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 of \$4.9 million is recognized in future years, the cost of the Fund is likely to increase unless the net loss is offset by future experience.
16. There have been no changes in plan provisions or actuarial methods since the last valuation.

Section 1: Actuarial Valuation Summary

17. Plan assets are currently roughly equal to three years of projected benefit payments. The imbalance between benefit levels in the Fund and the resources available to pay for them must continue to be addressed. We are available to prepare solvency projections upon request.
18. The disclosure information required for compliance with GASB Statement No. 67, *Financial Reporting for Pension Plans* for the fiscal year ended June 30, 2020, was released to the School Board's Finance Department on October 30, 2020. Information required for compliance with GASB Statement No. 68, *Accounting and Financial Reporting for Pensions*, for the fiscal year ended June 30, 2021, based on a June 30, 2020 measurement date was released to the School Board's Finance Department on June 18, 2021.
19. It is important to note that this actuarial valuation is based on plan assets as of June 30, 2020. The plan's funded 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. Moreover, this actuarial valuation does not include any possible short-term or long-term impacts on mortality of the covered population that may emerge after June 30, 2020 as a result of the COVID-19 pandemic. While it is impossible to determine how the pandemic will affect market conditions, mortality and other demographic experience of the plan in future valuations, Segal is available to prepare projections of potential outcomes upon request.
20. 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 not been engaged to perform a detailed analysis of the potential range of the impact of risk relative to the Fund future financial condition, but have included a brief discussion of some risks that may affect the Fund in Section 2.

Section 1: Actuarial Valuation Summary

Summary of key valuation results

Fiscal Year		2021	2020
Contributions for fiscal year beginning July 1:			
• Actuarially determined contributions		\$60,200,000	\$58,400,000
Plan Year		2020	2019
Actuarial accrued liability for plan year beginning July 1:			
• Retired participants and beneficiaries		\$457,811,903	\$451,260,591
• Inactive vested participants		2,140,005	1,661,662
• Active participants		63,556,680	64,160,301
• Inactive participants due a refund of employee contributions		212,500	199,125
• Total		523,721,088	517,281,679
• Normal cost including administrative expenses for plan year beginning July 1		3,647,349	3,794,982
Assets for plan year beginning July 1:			
• Market value of assets (MVA)		\$181,808,000	\$168,996,000
• Actuarial value of assets (AVA)		186,720,491	168,011,240
• Actuarial value of assets as a percentage of market value of assets		102.70%	99.42%
Funded status for plan year beginning July 1:			
• Unfunded actuarial accrued liability on market value of assets		\$341,913,088	\$348,285,679
• Funded percentage on MVA basis		34.71%	32.67%
• Unfunded actuarial accrued liability on actuarial value of assets		\$337,000,597	\$349,270,439
• Funded percentage on AVA basis		35.65%	32.48%
• Effective amortization period on an AVA basis		6.9 years	7.6 years
Key assumptions			
• Net investment return		7.00%	7.25%
• Inflation rate		2.25%	2.25%
• Payroll increase		3.00%	3.00%
Demographic data for plan year beginning July 1:			
• Number of retired participants and beneficiaries		1,801	1,866
• Number of inactive vested participants		34	35
• Number of active participants		770	758
• Number of inactive participants due a refund of employee contributions		191	164
• Total payroll		\$21,009,760	\$20,968,485
• Average payroll		27,285	27,663

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.
Participant data	An actuarial valuation for a plan is based on data provided to the actuary by the plan administrator. 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 KPMG. The School Board 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 participants 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 participant 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.
Models	Segal valuation results are based on proprietary actuarial modeling software. The actuarial valuation models generate a comprehensive set of liability and cost calculations that are presented to meet regulatory, legislative and client requirements. Our Actuarial Technology and Systems unit, comprised of both actuaries and programmers, is responsible for the initial development and maintenance of these models. The models have a modular structure that allows for a high degree of accuracy, flexibility and user control. The client team programs the assumptions and the plan provisions, validates the models, and reviews test lives and results, under the supervision of the responsible actuary.

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 Board. 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 Board 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 Board should look to their other advisors for expertise in these areas.

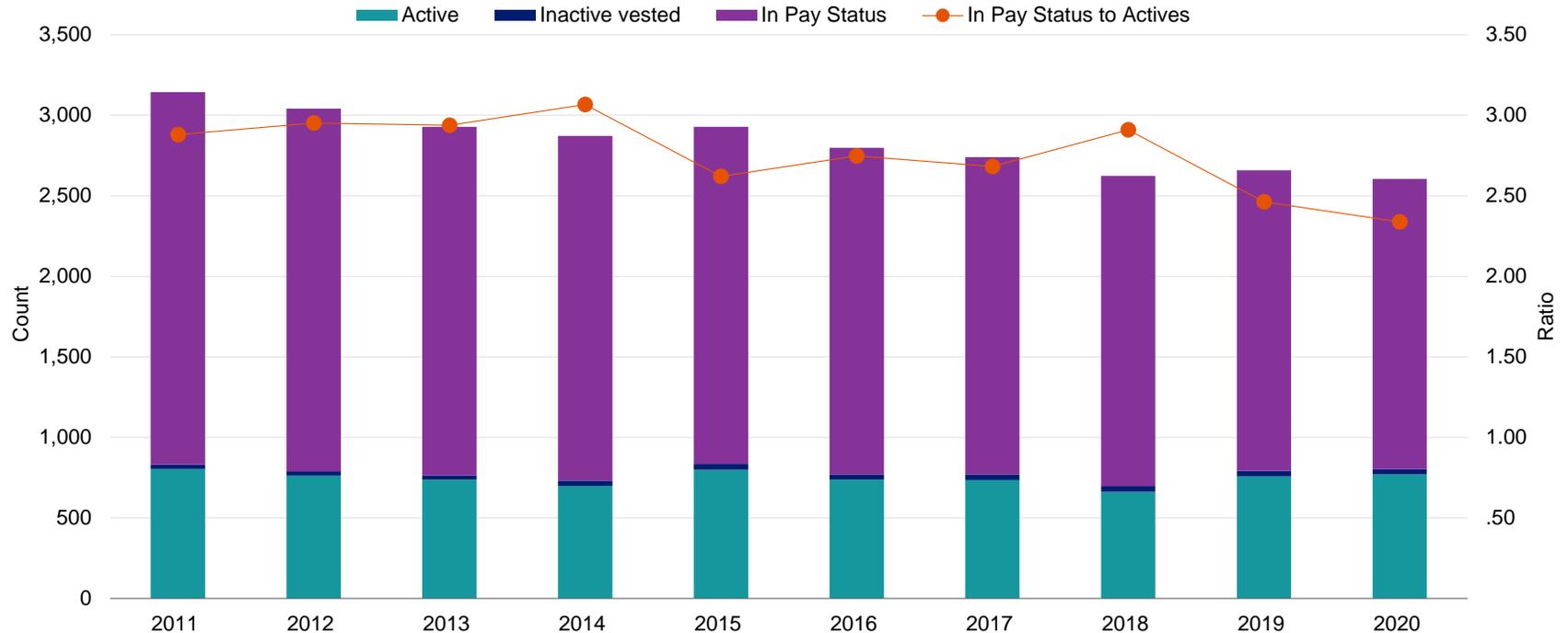
As Segal has no discretionary authority with respect to the management or assets of the Fund, it is not a fiduciary in its capacity as actuaries and consultants with respect to the Fund.

Section 2: Actuarial Valuation Results

Participant data

This section presents a summary of significant statistical data on covered participants.

Participant Population: 2011 – 2020



In Pay Status	2,312	2,253	2,165	2,141	2,094	2,028	1,969	1,926	1,866	1,801
Inactive Vested ¹	28	26	27	33	35	33	37	36	35	34
Active ²	803	763	737	698	799	738	734	662	758	770
Ratio	2.91	2.99	2.97	3.11	2.66	2.79	2.73	2.96	2.51	2.38

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

¹Excludes terminated participants due a refund of employee contributions

²Excludes participants receiving Workers' Compensation benefits

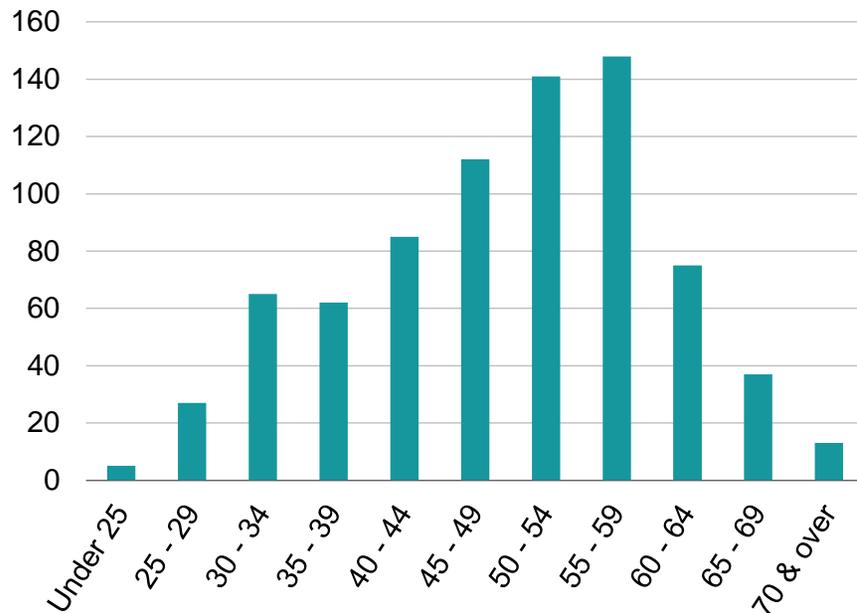
Section 2: Actuarial Valuation Results

Active participants

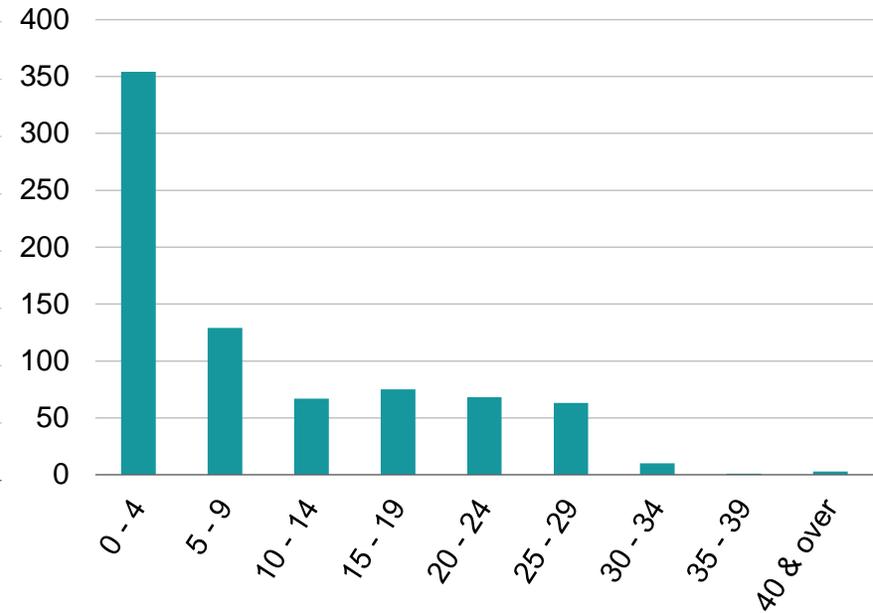
As of June 30,	2019	2020	Change
Active participants	758	770	1.6%
Average age	49.6	49.7	0.1
Average years of service	10.1	9.7	-0.4
Average compensation	\$27,663	\$27,285	-1.4%

Distribution of Active Participants as of June 30, 2020

Actives by Age



Actives by Years of Service



Section 2: Actuarial Valuation Results

Inactive participants

In this year's valuation, there were 34 participants with a vested right to a deferred or immediate vested benefit.

In addition, there were 191 participants entitled to a return of their employee contributions.

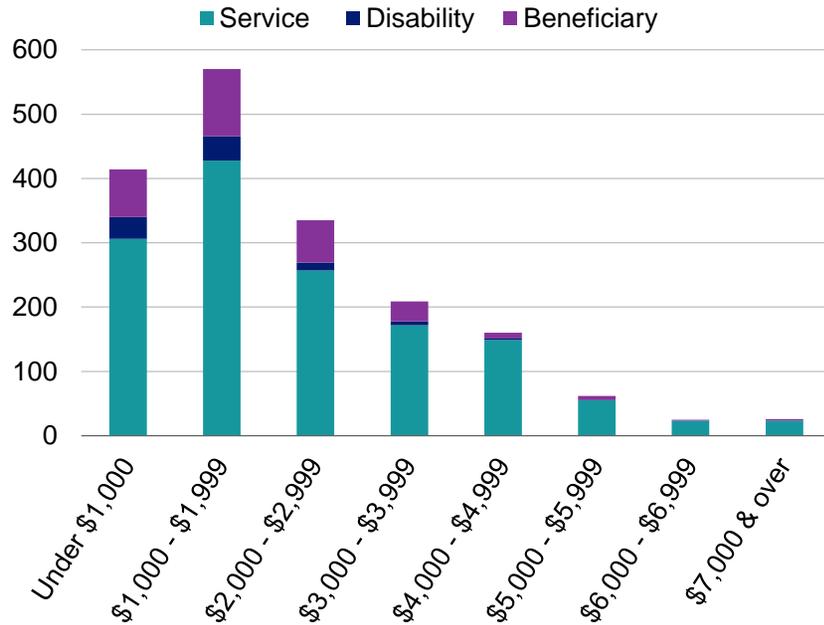
Section 2: Actuarial Valuation Results

Retired participants and beneficiaries

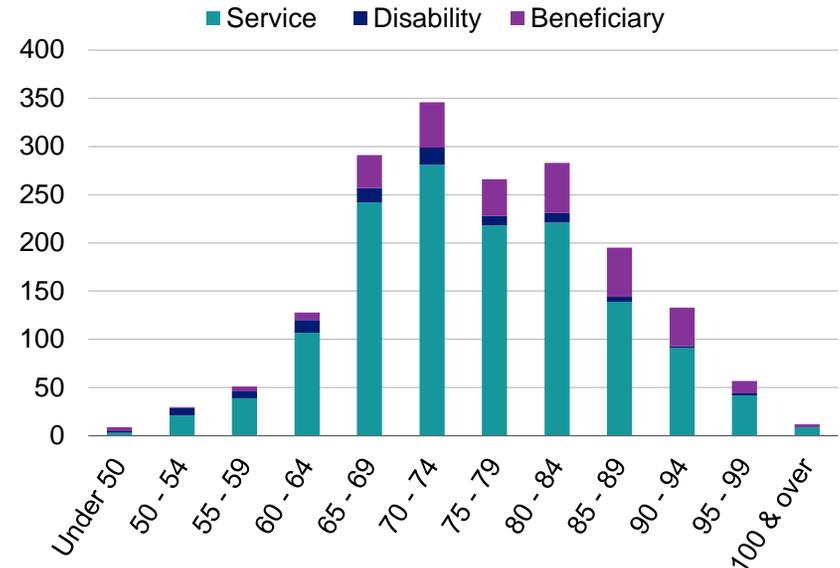
As of June 30,	2019	2020	Change
Retirees	1,571	1,505	-4.2%
Beneficiaries	295	296	0.3%
Average age	76.4	76.6	0.2
Average amount	\$2,245	\$2,276	1.4%
Total monthly amount	\$4,189,686	\$4,099,846	-2.1%

Distribution of Retired Participants and Beneficiaries as of June 30, 2020

By Type and Monthly Amount



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 changes among the retired population over the same time period.

Participant Data Statistics: 2011 – 2020

Year Ended June 30	Active Participants			Retired Participants and Beneficiaries		
	Count	Average Age	Average Service	Count	Average Age	Average Monthly Amount
2011	803	49.8	13.6	2,312	74.3	\$2,004
2012	763	49.9	13.4	2,253	74.5	2,058
2013	737	50.3	13.6	2,165	74.7	2,106
2014	698	50.6	13.8	2,141	75.0	2,128
2015	799	49.4	11.8	2,094	75.4	2,149
2016	738	49.9	12.2	2,028	75.6	2,149
2017	734	49.7	11.2	1,969	75.8	2,173
2018	662	49.8	11.4	1,926	76.0	2,197
2019	758	49.6	10.1	1,866	76.4	2,245
2020	770	49.7	9.7	1,801	76.6	2,276

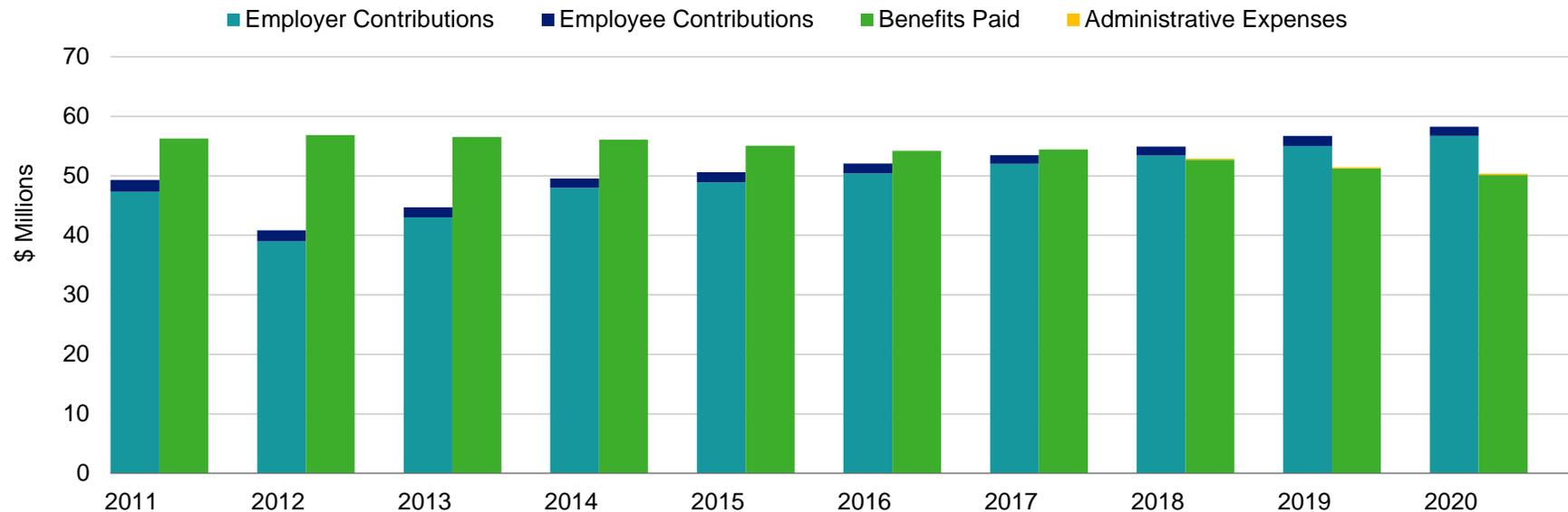
Section 2: Actuarial Valuation Results

Financial information

Retirement plan funding anticipates that, over the long term, both contributions (less administrative expenses) and investment earnings (less investment fees) will be needed to cover benefit payments. Retirement plan assets change as a result of the net impact of these income and expense components.

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

Comparison of Contributions Made with Benefits and Expenses Paid
for Years Ended June 30, 2011 – 2020¹



¹ Prior to 2018 investment earnings were net of investment fees and administrative expenses.

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 approved an asset valuation method that gradually adjusts to market value. Under this valuation method, the full value of market fluctuations is not recognized in a single year and, as a result, the asset value and the plan costs are more stable. 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			\$181,808,000
2	Calculation of unrecognized return	Original Amount¹	Percent Deferred²	Unrecognized Amount³
	(a) Year ended June 30, 2020	-\$7,618,295	80%	-\$6,094,636
	(b) Year ended June 30, 2019	-2,796,751	60%	-1,678,050
	(c) Year ended June 30, 2018	3,512,420	40%	1,404,968
	(d) Year ended June 30, 2017	7,276,137	20%	1,455,227
	(e) Year ended June 30, 2016	-8,978,725	0%	<u>0</u>
	(f) Total unrecognized return			-\$4,912,491
3	Preliminary actuarial value: (1) - (2f)			186,720,491
4	Adjustment to be within 20% corridor			0
5	Final actuarial value of assets as of June 30, 2020: (3) + (4)			<u>186,720,491</u>
6	Actuarial value as a percentage of market value: (5) ÷ (1)			102.70%
7	Amount deferred for future recognition: (1) - (5)⁴			-\$4,912,491

¹Total return minus expected return on a market value basis

²Percent deferred applies to the current valuation year

³Recognition at 20% per year over five years

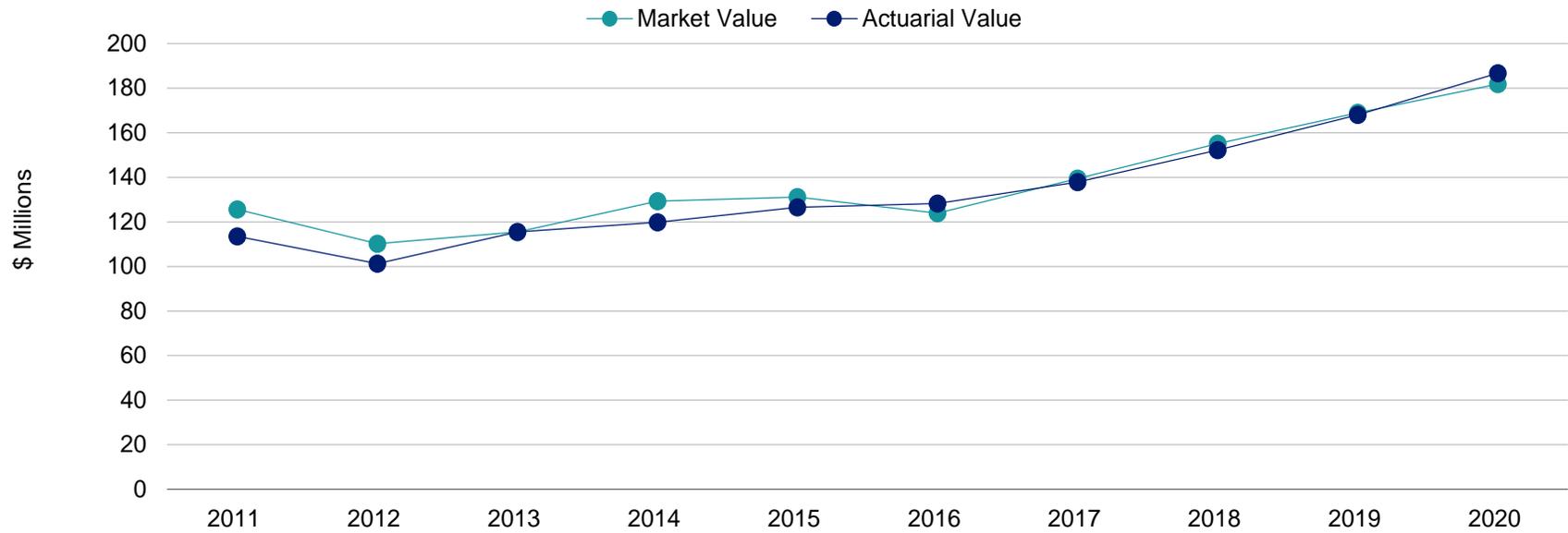
⁴Deferred return as of June 30, 2020 recognized in each of the next four years:

(a) Amount recognized on June 30, 2021	\$74,702
(b) Amount recognized on June 30, 2022	-1,380,525
(c) Amount recognized on June 30, 2023	-2,083,009
(d) Amount recognized on June 30, 2024	-1,523,659

Section 2: Actuarial Valuation Results

Both the actuarial value and market value of assets are representations of the Fund'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 Fund'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.

Market Value of Assets vs. Actuarial Value of Assets



Market Value ¹	\$125.64	\$110.28	\$115.51	\$129.36	\$131.13	\$123.88	\$139.40	\$155.11	\$169.00	\$181.81
Actuarial Value ¹	113.55	101.27	115.51	119.81	126.60	128.26	137.89	152.19	168.01	186.72

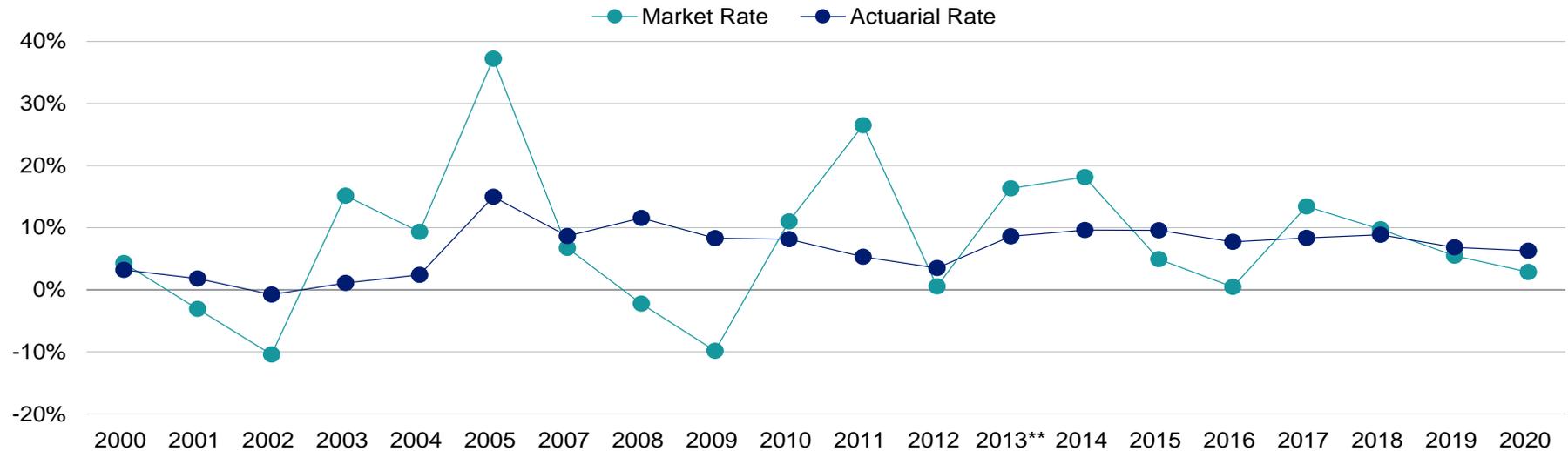
Because actuarial planning is long term, it is useful to see how the assumed investment rate of return has followed actual experience over time. The chart on the following page shows the rate of return on an actuarial basis compared to the actual market value investment return for the last 20 years,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

¹In \$ millions

Section 2: Actuarial Valuation Results

As described earlier in this section, the actuarial asset valuation method 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, 2000 - 2020



	2000	2001	2002	2003	2004	2005	2007	2008	2009	2010	2011	2012	2013**	2014	2015	2016	2017	2018	2019	2020
Market rate	4.3%	-3.1%	-10.4%	15.2%	9.3%	37.2%	6.7%	-2.2%	-9.8%	11.0%	26.5%	0.5%	16.3%	18.1%	4.9%	0.4%	13.4%	9.8%	5.5%	2.8%
Actuarial rate	3.2%	1.8%	-0.7%	1.1%	2.4%	15.0%	8.6%	11.6%	8.3%	8.1%	5.3%	3.5%	8.6%	9.6%	9.6%	7.7%	8.3%	8.8%	6.8%	6.3%
Assumed rate	8.0%	8.0%	8.0%	8.0%	8.0%	8.0%	8.0%	8.0%	8.0%	8.0%	8.0%	8.0%	7.5%	7.5%	7.5%	7.5%	7.2%	7.2%	7.2%	7.2%

*Prior to 2007, financial information was based on 12-month periods ending December 31.

**Actuarial rate of return before method change.

Average Rates of Return	Actuarial Value	Market Value
Most recent five-year average return:	7.51%	6.14%
Most recent ten-year average return:	7.45%	9.00%
Most recent fifteen-year average return:	8.63%	8.32%
20-year average return:	6.91%	7.08%

Section 2: Actuarial Valuation Results

Actuarial experience

To calculate any actuarially determined contribution, 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), any contribution requirement will decrease from the previous year. On the other hand, any contribution requirement 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 year's 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 total gain is \$2,515,291, which includes \$1,649,649 from investment losses and \$4,164,940 in gains from all other sources. The net experience variation from individual sources other than investments was 0.8% 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 ¹	-\$1,649,649
2	Net gain from administrative expenses	12,995
3	Net gain from other experience	4,151,945
4	Net experience gain: 1 + 2 + 3	\$2,515,291

¹ 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 Fund's investment policy. The rate of return on the market value of assets was 2.84% for the year ended June 30, 2020.

For valuation purposes, the assumed rate of return on the actuarial value of assets is 7.00%, effective with this valuation. However, the experience is measured against the 7.25% assumption that was in place for last year. The actual rate of return on an actuarial basis for the 2019-2020 plan year was 6.29%. Since the actual return for the year was less than the assumed return, the Fund 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	Net investment income	\$4,920,000	\$10,817,251
2	Average value of assets	172,942,000	171,957,240
3	Rate of return: $1 \div 2$	2.84%	6.29%
4	Assumed rate of return	7.25%	7.25%
5	Expected investment income: 2×4	12,538,295	12,466,900
6	Actuarial gain/(loss): $1 - 5$	<u>-\$7,618,295</u>	<u>-\$1,649,649</u>

Section 2: Actuarial Valuation Results

Non-investment experience

Administrative expenses

- Administrative expenses for the year ended June 30, 2020 totaled \$204,000, as compared to the assumption of \$209,101 as of the beginning of the year. This resulted in a gain of \$12,995 for the year. Because it is expected that these expenses will continue to increase, the actuarial assumption includes an annual 2.25% inflationary increase.

Mortality experience

- Mortality experience (more or fewer than expected deaths) yields actuarial gains or losses.
- Recent mortality experience was provided in the 2014-2019 experience study with new assumptions approved by the Board in April 2021. During this period, overall there were fewer annuitant deaths than expected. The experience from this plan was combined with the experience from the General Employees plan to have sufficient credibility and then adjusted to reflect that there are still retired teachers in this plan with longer expected lifespans. Separate tables were developed for employees and terminated vested participants, retirees and spouses of living retirees, disabled annuitants and contingent beneficiaries.

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 participants,
- retirement experience (earlier or later than projected),
- the number of disability retirements (more or fewer than projected),
- salary increases (greater or smaller than projected), and
- inflationary cost-of-living adjustments higher or lower than anticipated.

The net gain from the demographic experience, including mortality, for the year ended June 30, 2020 amounted to \$4,151,945, which is 0.8% of the actuarial accrued liability.

Section 2: Actuarial Valuation Results

Actuarial assumptions

An Actuarial Experience Review, covering the period July 1, 2014 through June 30, 2019, was completed in March 2021. The assumptions under the study were limited to a review of economic and mortality assumptions. As a result of that study, the following assumption changes were proposed by the actuary, approved by the Board and reflected with this valuation:

- The annual investment return assumption was decreased from 7.25% to 7.00%.
- The age-related salary scale was modified from rates starting at 14.75% grading down to an ultimate rate of 3.00% at age 65 to rates starting at 8.00% with an ultimate rate of 3.00% at age 60.
- The mortality rates for employees, inactive vested participants, healthy retirees, beneficiaries of living retirees, disabled annuitants and contingent beneficiaries were updated to reflect mortality based on the recent Pri-2012 mortality tables published by the Society of Actuaries.
- The generational mortality projection scale was updated from using sex-distinct improvement rates under the 2016 OASDI Trustees Report under the intermediate alternative to sex-distinct improvement rates under the Society of Actuaries scale MP- 2020.

As a result of these assumption changes, the actuarial accrued liability increased by \$21.2 million, or 4.2%, and the effective amortization period increased by about 0.4 years.

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 for Year Ended June 30, 2020

1	Unfunded actuarial accrued liability at beginning of year	\$349,270,439
2	Normal cost at beginning of year	3,794,982
3	Total expected contributions	-58,241,000
4	Interest on 1, 2 & 3	23,486,007
5	Expected unfunded actuarial accrued liability	\$318,310,428
6	Changes due to:	
	(a) Experience gains and /losses	-2,515,291
	(b) Assumptions	21,205,460
	Total changes	\$18,690,169
7	Unfunded actuarial accrued liability at end of year	<u>\$337,000,597</u>

Section 2: Actuarial Valuation Results

Actuarially determined contribution

The actuarially determined contribution for the 2021-2022 fiscal year is \$60,200,000, a 3% increase from the prior year. This recommended contribution is based on a funding policy that increases the 2013-2014 fiscal year contribution 3% annually until the plan is fully funded. If the plan earns the assumed rate of return (7.00%) and all other experience matches the assumptions then it will be fully funded by about the 2027-2028 fiscal year.

The contribution requirement for the fiscal year beginning July 1, 2021 is based on the data previously described, the actuarial assumptions and Fund 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 for Fiscal Year Beginning July 1

	2021	2020
	Amount	Amount
1 Total normal cost	\$3,433,543	\$3,585,881
2 Administrative expenses	213,806	209,101
3 Expected employee contributions	<u>-1,628,256</u>	<u>-1,625,058</u>
4 Employer normal cost: (1) + (2) + (3)	\$2,019,093	\$2,169,924
5 Actuarial accrued liability	\$523,721,088	\$517,281,679
6 Actuarial value of assets	<u>186,720,491</u>	<u>168,011,240</u>
7 Unfunded actuarial accrued liability: (5) - (6)	\$337,000,597	\$349,270,439
8 Payment on projected unfunded actuarial accrued liability	54,483,370	52,579,174
9 Adjustment for timing ¹	3,697,537	3,650,902
10 Actuarially determined contribution: (4) + (8) + (9)	<u>\$60,200,000</u>	<u>\$58,400,000</u>

¹ Actuarially determined contributions are assumed to be paid at the middle of every year. Calculated as $\{[(4) + (8)] \times [1.0725^{0.50}] \times 1.03\} - (4) - (8)$ for 2020; calculated as $\{[(4) + (8)] \times [1.07^{0.50}] \times 1.03\} - (4) - (8)$ for 2021.

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 Employer Contribution (ADEC¹)	Actual Employer Contribution	Percent Contributed
2012	\$38,830,014	\$39,000,000	100.44%
2013	42,169,235	43,013,000	102.00%
2014	47,435,217	48,000,000	101.19%
2015	48,900,000	48,905,000	100.01%
2016	50,400,000	50,400,000	100.00%
2017	51,900,000	52,000,000	100.19%
2018	53,500,000	53,400,000	99.81%
2019	55,100,000	55,002,000	99.82%
2020	56,700,000	56,700,000	100.00%
2021	58,400,000	--	--

¹Prior to GASB 67/68 this amount was the Annual Required Contribution (ARC).

Section 2: Actuarial Valuation Results

Risk

Since the actuarial valuation results are dependent on a given set of assumptions and data as of a specific date, there is a risk that emerging results may differ significantly as actual experience differs from the assumptions.

This report does not contain a detailed analysis of the potential range of future measurements, but does include a brief discussion of some risks that may affect the Fund. Upon request, a more detailed assessment can be provided to enable a better understanding of the risks inherent in the Fund. This assessment may include scenario testing, sensitivity testing, stress testing and stochastic modeling.

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

The market value rate of return over the last 20 years has ranged from a low of -10.43% to a high of 37.20%.

- 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.

Given that more than 80% of the Fund's liability is for participants currently in pay status, longevity risk has a greater potential impact than other demographic risk factors.

- Contribution Risk (the risk that actual contributions will be different from actuarially determined contribution)

The School Board's funding policy requires payment of the actuarially determined contribution. As long as this policy is adhered to, contribution risk is negligible.

- Demographic Risk (the risk that participant 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 participant turnover than assumed.

- While it is difficult to quantify the impact of potential experience, for your Fund, each 1% change in the actuarial cost factors would result in a change in the unfunded actuarial accrued liability of \$5,237,211, or 1.6%.

Section 2: Actuarial Valuation Results

- Actual Experience Over the Last Ten Years and Implications for the Future

Past experience can help demonstrate the sensitivity of key results to the Fund's actual experience. Over the past ten years:

- The investment gain(loss) on a market value basis for a year has ranged from a loss of \$8,978,725 in 2016 to a gain of \$18,873,727 in 2011.
- The investment gain/(loss) on an actuarial value basis for a year has ranged from a loss of \$4,742,602 in 2012 to a gain of \$2,445,930 in 2015.
- The funded percentage on the market value of assets has ranged from a low of 17.40% as of July 1, 2012 to a high of 34.71% as of July 1, 2020.
- The funded percentage on the actuarial value of assets has ranged from a low of 15.98% as of July 1, 2012 to a high of 35.65% as of July 1, 2020.

- Maturity Measures

As pension plans mature, the cash needed to fulfill benefit obligations will increase over time. Therefore, cash flow projections and analysis should be performed to assure that the Fund's asset allocation is aligned to meet emerging pension liabilities.

Currently the Fund is fairly mature with a non-active to active participant ratio of 2.38. Benefits paid and administrative expenses for the prior year were \$7,892,000 less than contributions received. Under the current funding policy, annual employer contributions are expected to continue to be larger than annual payments until the Fund reaches full funding. At that time, the funding policy will be reevaluated.

Section 2: Actuarial Valuation Results

GFOA funded liability by type

The Actuarial Accrued Liability represents the present value of benefits earned, calculated using the plan's actuarial cost method. The Actuarial Value of Assets reflects the financial resources available to liquidate the liability. The portion of the liability covered by assets reflects the extent to which accumulated plan assets are sufficient to pay future benefits, and is shown for liabilities associated with employee contributions, pensioner liabilities, and other liabilities. The Government Finance Officers Association (GFOA) recommends that the funding policy aim to achieve a funded ratio of 100 percent.

GFOA Funded Liability by Type as of June 30

	2020	2019
Actuarial accrued liability (AAL)		
• Active member contributions	\$14,048,046	\$14,472,409
• Retirees and beneficiaries	457,811,903	451,260,591
• Active and inactive members (employer-financed)	51,861,139	51,548,679
Total	\$523,721,088	\$517,281,679
Actuarial value of assets	\$186,720,491	\$168,011,240
Cumulative portion of AAL covered		
• Active member contributions	100.00%	100.00%
• Retirees and beneficiaries	37.72%	34.02%
• Active and inactive members (employer-financed)	0.00%	0.00%

Section 2: Actuarial Valuation Results

Actuarial balance sheet

An overview of the plan's funding is given by an Actuarial Balance Sheet. In this approach, first the amount and timing of all future payments that will be made by the Fund for current participants is determined. Then these payments are discounted at the valuation interest rate to the date of the valuation, thereby determining the present value, referred to as the "liability" of the Fund.

Second, this liability is compared to the assets. The "assets" for this purpose include the net amount of assets already accumulated by the Fund, 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 participants and beneficiaries	\$457,811,903	\$451,260,591
• Present value of benefits for inactive vested participants	2,352,505	1,860,787
• Present value of benefits for active participants	<u>86,728,499</u>	<u>89,081,347</u>
Total liabilities	\$546,892,907	\$542,202,725
Assets		
• Total valuation value of assets	\$186,720,491	\$168,011,240
• Present value of future contributions by members	10,868,221	11,320,437
• Present value of future employer contributions for:		
• Entry age cost	12,303,598	13,600,609
• Unfunded actuarial accrued liability	<u>337,000,597</u>	<u>349,270,439</u>
Total of current and future assets	<u>\$546,892,907</u>	<u>\$542,202,725</u>

Section 2: Actuarial Valuation Results

Actuarial Present Value of Accumulated Plan Benefits

The actuarial present value of accumulated plan benefits is shown below as of July 1, 2020 and as of July 1, 2019.

ACTUARIAL PRESENT VALUE OF ACCUMULATED PLAN BENEFITS

	Benefit Information Date	
	July 1, 2020	July 1, 2019
Actuarial present value of vested accumulated plan benefits:		
• Participants currently receiving payments	\$457,811,903	\$451,260,591
• Other vested benefits	<u>47,257,847</u>	<u>47,520,245</u>
• Total vested benefits (PVVB)	\$505,069,750	\$498,780,836
Actuarial present value of non-vested accumulated plan benefits	4,078,982	<u>3,878,198</u>
Total actuarial present value of accumulated plan benefits (PVAB)	<u>\$509,148,732</u>	<u>\$502,659,034</u>
Actuarial Value of Assets (AVA)	\$186,720,491	\$168,011,240
Market Value of Assets (MVA)	\$181,808,000	\$168,996,000
Funded Ratios (PVVB):		
• AVA as a percentage of present value of vested accumulated benefits	36.97%	33.68%
• MVA as a percentage of present value of vested accumulated benefits	36.00%	33.88%
Funded Ratios (PVAB):		
• AVA as a percentage of present value of accumulated benefits	36.67%	33.42%
• MVA as a percentage of present value of accumulated benefits	35.71%	33.62%

Note: The amounts stated as vested benefits include employee contribution accounts, which are considered 100% vested.

Section 2: Actuarial Valuation Results

The factors that affected the change in the actuarial present value of accumulated plan benefits from the preceding to the current benefit information date are as follows:

Factors	Change in Actuarial Present Value of Accumulated Plan Benefits
Benefits accumulated, net experience gain or loss, changes in data	\$669,415
Benefits paid	-50,145,000
Interest	34,625,024
Change in assumptions	<u>21,340,259</u>
Total	<u>\$6,489,698</u>

Section 2: Actuarial Valuation Results

State minimum requirements

Under Georgia minimum funding requirements, liability may be amortized as a percent of payroll, rather than a fixed dollar amount. In general, with fixed dollar amortization, actual experience close to the assumptions will result in a total contribution requirement (the normal cost plus the payment on the unfunded actuarial liability) that decreases over time as a percentage of payroll. With percentage of payroll amortization, given expected experience, the total contribution requirement should remain level as a percentage of payroll if the aggregate payroll increases as assumed.

The Board has adopted a policy for amortizing the unfunded actuarial liability, and the amortization period is 6.9 years for FY 2021. The contributions determined under this method continue to meet the Georgia minimum funding requirements by virtue of Georgia Code Section 47-20-10(b).

Section 3: Supplemental Information

Exhibit A: Table of Plan Demographics

Category	Year Ended June 30		Change From Prior Year
	2020	2019	
Active participants in valuation:			
• Number	770	758	1.6%
• Average age	49.7	49.6	0.1
• Average years of service	9.7	10.1	-0.4
• Total payroll	\$21,009,760	\$20,968,485	0.2%
• Average payroll	27,285	27,663	-1.4%
• Account balances	14,048,046	14,472,409	-2.9%
• Total active vested participants	416	383	8.6%
Inactive vested participants:			
• Number of vested terminated participants	34	35	-2.9%
• Number of Inactive nonvested participants due a refund	191	164	16.5%
Retired participants:			
• Number in pay status	1,413	1,472	-4.0%
• Average age	76.2	76.0	0.2
• Average monthly benefit	\$2,389	\$2,361	1.2%
Disabled participants:			
• Number in pay status	92	99	-7.1%
• Average age	70.4	70.5	-0.1
• Average monthly benefit	\$1,480	\$1,472	0.5%
Beneficiaries:			
• Number in pay status	296	295	0.3%
• Average age	80.4	80.2	0.2
• Average monthly benefit	\$1,988	\$1,927	3.2%

Section 3: Supplemental Information

Exhibit B: Participants in Active Service as of June 30, 2020 by Age, Years of Service, and Average Payroll

Age	Years of Service									
	Total	0 - 4	5 - 9	10 - 14	15 - 19	20 - 24	25 - 29	30 - 34	35 - 39	40 & over
Under 25	5	5	--	--	--	--	--	--	--	--
	\$18,968	\$18,968	--	--	--	--	--	--	--	--
25 - 29	27	25	2	--	--	--	--	--	--	--
	19,838	17,837	\$44,850	--	--	--	--	--	--	--
30 - 34	65	59	5	1	--	--	--	--	--	--
	17,922	17,964	18,392	\$13,113	--	--	--	--	--	--
35 - 39	62	39	14	6	2	1	--	--	--	--
	23,031	20,495	28,763	25,155	\$13,909	\$47,146	--	--	--	--
40 - 44	85	43	22	12	5	3	--	--	--	--
	26,549	26,123	22,657	30,353	30,509	39,382	--	--	--	--
45 - 49	112	46	28	9	10	13	6	--	--	--
	31,869	28,872	31,751	40,483	32,069	37,488	\$29,979	--	--	--
50 - 54	141	56	15	16	14	19	18	3	--	--
	31,037	28,324	37,496	40,559	24,242	24,145	36,090	\$43,640	--	--
55 - 59	148	40	21	10	31	21	21	4	--	--
	27,717	24,284	31,349	36,853	23,647	27,426	30,068	40,885	--	--
60 - 64	75	25	10	7	9	7	13	2	1	1
	27,484	19,341	30,033	32,219	21,375	35,966	34,219	31,755	\$47,350	\$52,088
65 - 69	37	11	10	5	4	3	3	1	--	--
	25,284	20,902	20,112	41,389	21,743	24,831	36,523	26,492	--	--
70 & over	13	5	2	1	--	1	2	--	--	2
	37,322	13,364	32,897	61,533	--	19,246	35,746	--	--	100,151
Total	770	354	129	67	75	68	63	10	1	3
	\$27,285	\$23,133	\$29,146	\$35,882	\$24,704	\$29,895	\$33,124	\$38,446	\$47,350	\$84,130

Section 3: Supplemental Information

Exhibit C: Reconciliation of Participant Data

	Active Participants	Inactive Vested Participants ¹	Disableds	Retired Participants	Beneficiaries	Total
Number as of July 1, 2019	758	35	99	1,472	295	2,659
• New participants ²	102	N/A	N/A	N/A	N/A	102
• Terminations – with vested rights	-6	6	0	0	0	0
• Terminations – without vested rights	-29	N/A	N/A	N/A	N/A	-29
• Retirements	-23	-3	N/A	26	N/A	0
• New disabilities	-2	0	2	N/A	N/A	0
• Return to work	0	0	0	0	N/A	0
• Deceased	-2	0	-9	-85	-21	-117
• New beneficiaries	0	0	0	0	22	22
• Lump sum cash-outs	-28	-4	0	0	0	-32
• Certain period expired	N/A	N/A	0	0	0	0
• Data adjustments	0	0	0	0	0	0
Number as of July 1, 2020	770	34	92	1,413	296	2,605

¹Excludes terminated participants with contributions remaining in the Fund.

²Seven of the 102 new active participants included in the data for the first time this year have over one year of credited service.

Section 3: Supplemental Information

Exhibit D: 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	\$168,996,000	\$155,112,000
Contribution income:		
• Employer contributions	\$56,700,000	\$55,002,000
• Employee contributions	1,541,000	1,686,000
• Less administrative expenses	<u>-204,000</u>	<u>-227,000</u>
<i>Net contribution income</i>	<i>\$58,037,000</i>	<i>\$56,461,000</i>
Investment income:		
• Asset appreciation	\$3,938,000	\$7,129,000
• Interest, dividends and other income	1,491,000	1,924,000
• Less investment fees	<u>-509,000</u>	<u>-414,000</u>
<i>Net investment income</i>	<i><u>\$4,920,000</u></i>	<i><u>\$8,639,000</u></i>
Total income available for benefits	\$62,957,000	\$65,100,000
Less benefit payments	-\$50,145,000	-\$51,216,000
Change in reserve for future benefits	\$12,812,000	\$13,884,000
Net assets at market value at the end of the year	\$181,808,000	\$168,996,000

Section 3: Supplemental Information

Exhibit E: Asset Allocation as of June 30, 2020

	General Employees	School Board	Total
1. Market value of assets as of July 1, 2019	\$1,333,862,000	\$168,996,000	\$1,502,858,000
2. Employer contributions	\$48,219,000	\$56,700,000	\$104,919,000
3. Employee contributions	19,599,000	1,541,000	21,140,000
4. Other income not in yields	<u>267,000</u>	<u>0</u>	<u>267,000</u>
5. Total contributions and other income: (2) + (3) + (4)	\$68,085,000	\$58,241,000	\$126,326,000
6. Benefit payments and refunds	-\$130,553,000	-\$50,145,000	-\$180,698,000
7. Administrative expenses	<u>-1,252,000</u>	<u>-204,000</u>	<u>-1,456,000</u>
8. Total benefit payments and expenses: (6) + (7)	-\$131,805,000	-\$50,349,000	-\$182,154,000
9. Net cash flow: (5) + (8)	-\$63,720,000	\$7,892,000	-\$55,828,000
10. Net investment return	47,653,000	4,920,000	52,573,000
11. Market value of assets as of July 1, 2020: (1) + (9) + (10)	\$1,317,795,000	\$181,808,000	\$1,499,603,000

Section 3: Supplemental Information

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

Year Ended June 30	Employer Contributions	Employee Contributions	Net Investment Return ¹	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
2011	\$39,000,000 ²	\$1,971,000	\$35,375,710 ³	\$0	\$56,276,000	\$125,642,000	\$113,553,224	90.38%
2012	39,000,000	1,841,000	624,000	0	56,824,000	110,283,000	101,272,560	91.83%
2013	43,013,000	1,689,000	17,035,000	0	56,511,000	115,509,000	115,509,000	100.00%
2014	48,000,000	1,554,000	20,355,000	0	56,063,000	129,355,000	119,806,270	92.62%
2015	48,905,000	1,684,000	6,247,000	0	55,058,000	131,133,000	126,601,083	96.54%
2016	50,400,000	1,663,000	5,143,000 ⁴	0	54,177,000	123,876,000	128,256,838	103.54%
2017	52,000,000	1,441,000	16,529,000	0	54,450,000	139,396,000	137,889,959	98.92%
2018	53,400,000	1,513,000	13,692,000 ⁵	212,000	52,677,000	155,112,000	152,185,281	98.11%
2019	55,002,000	1,686,000	8,639,000	227,000	51,216,000	168,996,000	168,011,240	99.42%
2020	56,700,000	1,541,000	4,920,000	204,000	50,145,000	181,808,000	186,720,491	102.70%

¹On a market basis, net of investment fees (and administrative fees prior to 2018)

²Changed from \$47,333,000 per School Board

³Includes \$8,333,000 asset adjustment

⁴Includes -\$5,706,000 asset adjustment

⁵Includes \$155,000 asset adjustment

Section 3: Supplemental Information

Exhibit G: 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 Retirees and Beneficiaries:	Actuarial Present Value of lifetime benefits to existing retirees and beneficiaries. This sum takes account of life expectancies appropriate to the ages of the annuitants 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 that expected based upon a set of Actuarial Assumptions, during the period between two Actuarial Valuation dates. To the extent that actual experience differs from that assumed, Actuarial Accrued Liabilities emerge which 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.
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 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 Benefits includes the liabilities for active members, retired members, beneficiaries receiving benefits, and inactive members entitled to either a refund of member contributions 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, as well as Actuarially Determined Contributions.
Actuarial Value of Assets (AVA):	The value of the Plan'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 ratio and the Actuarially Determined Contribution.
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 Plan.
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 Plan'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 Unfunded Actuarial Accrued Liability. 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 Unfunded Actuarial Accrued Liability. 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 intended to pay off the Unfunded Actuarial Accrued Liability.

Section 3: Supplemental Information

Assumptions or Actuarial Assumptions:	<p>The estimates upon which the cost of the Plan is calculated, including:</p> <p><u>Investment return</u> - the rate of investment yield that the Plan will earn over the long-term future;</p> <p><u>Mortality rates</u> - the rate or probability of death at a given age for employees and retirees;</p> <p><u>Retirement rates</u> - the rate or probability of retirement at a given age or service;</p> <p><u>Disability rates</u> - the rate or probability of disability retirement at a given age;</p> <p><u>Withdrawal rates</u> - the rate or probability at which employees of various ages are expected to leave employment for reasons other than death, disability, or retirement;</p> <p><u>Salary increase rates</u> - the rates of salary increase due to inflation, real wage growth and merit and promotion increases.</p>
Closed Amortization Period:	<p>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 20 years, it is 19 years at the end of one year, 18 years at the end of two years, etc. See Open Amortization Period.</p>
Decrements:	<p>Those causes/events due to which a member's status (active-inactive-retiree-beneficiary) changes, that is: death, retirement, disability, or withdrawal.</p>
Defined Benefit Plan:	<p>A retirement plan in which benefits are defined by a formula based on the member's compensation, age and/or years of service.</p>
Defined Contribution Plan:	<p>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.</p>
Employer Normal Cost:	<p>The portion of the Normal Cost to be paid by the employer. This is equal to the Normal Cost less expected member contributions.</p>
Experience Study:	<p>A periodic review and analysis of the actual experience of the Plan 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 based on recommendations from the Actuary.</p>
Funded Ratio:	<p>The ratio of the Actuarial Value of Assets (AVA) to the Actuarial Accrued Liability (AAL). Plans sometimes also calculate a market funded ratio, using the Market Value of Assets (MVA), rather than the AVA.</p>

Section 3: Supplemental Information

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.
Investment Return:	The rate of earnings of the Plan 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:	The portion of the Actuarial Present Value of Future 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 the Normal Cost (see Amortization Payment). For pension plan benefits that are provided in part by employee contributions, Normal Cost refers to the total of member contributions and employer Normal Cost unless otherwise specifically stated.
Open Amortization Period:	An open amortization period is one which 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 each future year in determining the Amortization Period.
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:	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 or an Overfunded Actuarial Accrued Liability.
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 Benefits is determined. The expected benefits to be paid in the future are discounted to this date.

Section 4: Actuarial Valuation Basis

Exhibit I: Actuarial Assumptions and Actuarial Cost Method

Rationale for Assumptions:	The information and analysis used in selecting methods and each economic and mortality assumption that has a significant effect on this actuarial valuation is shown in in the Review of Actuarial Experience for the five-year period ended June 30, 2019 dated March 17, 2021. The information used in selecting each other demographic assumption that has a significant effect on this valuation is shown in the Review of Actuarial Experience for the five-year period ended June 30, 2016 dated June 7, 2017.	
Net Investment Return:	7.00%, the investment return rate is assumed to be net of investment expenses. The net investment return assumption was chosen by the Pension Fund's Board of Trustees, with input from the actuary. This 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 provided by Marquette and Segal Marco Advisors, as well as the Fund's target asset allocation.	
Administrative Expenses:	\$200,000 per year, projected annually with 2.25% inflation. As of July 1, 2020, the assumed annual expense is \$213,806 The annual administrative expenses were based on historical and current data and adjusted to reflect estimated future experience and professional judgment.	
Salary Increases:	Age	Rate (%)
	Under 25	8.00%
	25 - 29	7.00%
	30 - 34	6.00%
	35 - 39	5.50%
	40 - 44	4.50%
	45 - 49	3.50%
	50 - 54	3.25%
	55 - 59	3.25%
	60 - 64	3.00%
	65 & over	3.00%
	Salary increases include an assumed inflation rate of 2.25% and 0.75% productivity	

Section 4: Actuarial Valuation Basis

Vacation Pay Adjustment:	Retirement benefits are increased by 4% to reflect vacation pay.																																																																											
Payroll Growth:	3.00%, compounded annually																																																																											
Cost-of-Living Adjustments:	2.25%, compounded annually after retirement																																																																											
Mortality Rates:																																																																												
<i>Pre-retirement:</i>	Sex-distinct Pri-2012 Blue Collar Employee Amount-weighted Mortality Table with rates increased by 6%, projected generationally with scale MP-2020																																																																											
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<i>Contingent beneficiaries:</i>	Sex-distinct Pri-2012 Blue Collar Healthy Contingent Survivor Amount-weighted Mortality Table with rates increased by 6%, projected generationally with scale MP-020																																																																											
	The underlying tables with the generational projection to the ages of participants as of the measurement date reasonably reflect the mortality experience of the Fund as of the measurement date. These mortality tables were then adjusted to future years using the generational projection to reflect future mortality improvement between the measurement date and those years.																																																																											
Annuitant Mortality Rates:	<table border="1"> <thead> <tr> <th rowspan="3">Age</th> <th colspan="6">Rate (%)¹</th> </tr> <tr> <th colspan="2">Healthy¹</th> <th colspan="2">Disabled¹</th> <th colspan="2">Contingent Survivors¹</th> </tr> <tr> <th>Male</th> <th>Female</th> <th>Male</th> <th>Female</th> <th>Male</th> <th>Female</th> </tr> </thead> <tbody> <tr> <td>55</td> <td>0.68</td> <td>0.52</td> <td>2.30</td> <td>1.56</td> <td>1.79</td> <td>0.87</td> </tr> <tr> <td>60</td> <td>0.99</td> <td>0.75</td> <td>2.49</td> <td>1.82</td> <td>2.17</td> <td>1.16</td> </tr> <tr> <td>65</td> <td>1.35</td> <td>1.14</td> <td>3.04</td> <td>2.26</td> <td>2.75</td> <td>1.62</td> </tr> <tr> <td>70</td> <td>2.18</td> <td>1.74</td> <td>4.17</td> <td>3.01</td> <td>3.62</td> <td>2.31</td> </tr> <tr> <td>75</td> <td>3.53</td> <td>2.77</td> <td>6.15</td> <td>4.28</td> <td>4.99</td> <td>3.40</td> </tr> <tr> <td>80</td> <td>6.06</td> <td>4.61</td> <td>9.46</td> <td>6.52</td> <td>7.19</td> <td>5.11</td> </tr> <tr> <td>85</td> <td>10.37</td> <td>7.94</td> <td>14.53</td> <td>10.46</td> <td>10.81</td> <td>8.14</td> </tr> <tr> <td>90</td> <td>17.53</td> <td>13.83</td> <td>21.75</td> <td>17.08</td> <td>17.30</td> <td>13.83</td> </tr> </tbody> </table>	Age	Rate (%) ¹						Healthy ¹		Disabled ¹		Contingent Survivors ¹		Male	Female	Male	Female	Male	Female	55	0.68	0.52	2.30	1.56	1.79	0.87	60	0.99	0.75	2.49	1.82	2.17	1.16	65	1.35	1.14	3.04	2.26	2.75	1.62	70	2.18	1.74	4.17	3.01	3.62	2.31	75	3.53	2.77	6.15	4.28	4.99	3.40	80	6.06	4.61	9.46	6.52	7.19	5.11	85	10.37	7.94	14.53	10.46	10.81	8.14	90	17.53	13.83	21.75	17.08	17.30	13.83
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Section 4: Actuarial Valuation Basis

Termination Rates Before Retirement:	Rate (%)					
	Age	Mortality ¹		Ordinary Disability ²		Withdrawal ³
		Male	Female	Male	Female	All Lives
	20	0.07	0.02	0.01	0.03	18.00
	25	0.07	0.03	0.02	0.04	18.00
	30	0.07	0.03	0.02	0.07	12.00
	35	0.08	0.04	0.03	0.12	10.00
	40	0.09	0.06	0.04	0.17	8.50
	45	0.12	0.09	0.07	0.26	8.00
	50	0.19	0.14	0.12	0.41	0.00
	55	0.30	0.21	0.20	0.69	0.00
	60	0.47	0.32	0.31	0.84	0.00
	¹ Rates shown do not include generational projection ² Occupational disability rates are 10% of the ordinary disability rates ³ Withdrawal rates do not apply at or beyond the later of age 50 and 5 years of service					
Retirement Rates:	Less than 30 Years of Service		30 or More Years of Service			
	Age	Rate	Age	Rate		
	50-52	2%	50-52	15%		
	53-54	3	53-54	15		
	55-59	5	55-59	20		
	60	20	60	35		
	61	15	61	20		
	62	20	62	20		
	63-64	15	63-64	20		
	65-69	25	65-69	20		
	70 & over	100	70 & over	100		
Retirement Age for Vested Inactive Participants:	Age 65 for participants in vested inactive status as of the valuation date; age 60 for active participants assumed to terminate prior to retirement eligibility.					

Section 4: Actuarial Valuation Basis

Unknown Data for Participants:	There were no records that were missing both service amounts and dates of hire. For participants with less than one year of benefit service, salaries were annualized.
Accumulated Additional Sick Leave at Retirement:	None
Weighted Average Retirement Age:	Age 62.6, determined as follows: The weighted average retirement age for each participant is calculated as the sum of the product of each potential current or future retirement age times the probability of surviving from current age to that age and then retiring at that age, assuming no other decrements. The overall weighted retirement age is the average of the individual retirement ages based on all the active participants included in the July 1, 2020 actuarial valuation.
Percent Married:	75%
Form of Payment:	Married participants are assumed to elect a 75% joint and survivor annuity. Unmarried participants are assumed to elect a single life annuity.
Age of Spouse:	Females are assumed to be three years younger than their male spouses.
Refunds of Employee Contributions for Terminated Vested Participants:	50% of participants elect a refund of their employee contribution balances.
Actuarial Value of Assets:	Market value of assets less unrecognized returns in each of the last five years. Unrecognized return is equal to the difference between the actual market return and the expected return on the actuarial value, and is recognized over a five-year period, further adjusted, if necessary, to be within 20% of the market value.
Actuarial Cost Method:	Entry Age Actuarial Cost Method. Entry Age is current age minus years of service. Normal Cost and Actuarial Accrued Liability are calculated on an individual basis and are allocated by salary.

Section 4: Actuarial Valuation Basis

Justification for Change in Actuarial Assumptions:

An Actuarial Experience Review, analyzing methods and economic and mortality assumptions for the period July 1, 2014 through June 30, 2019, was completed. As a result, the following assumption changes were proposed by the actuary and subsequently approved by the Board on April 21, 2021. These changes are reflected for the first time in this valuation.

- The investment return assumption was lowered from 7.25% to 7.00%.
- The pre-retirement mortality assumption was changed from the approximate sex-distinct RP-2006 Blue Collar Employee Mortality Table with rates increased by 25% to the sex-distinct Pri-2012 Blue Collar Employee Amount-weighted Mortality Table with rates increased by 6%.
- The post-retirement mortality assumption for healthy retirees and beneficiaries of living retirees was changed from the approximate sex-distinct RP-2006 Blue Collar Healthy Annuitant Mortality Table with rates increased by 25% to the sex-distinct Pri-2012 Blue Collar Healthy Retiree Amount-weighted Mortality Table with rates increased by 6%.
- The mortality assumption for disabled retirees was changed from the approximate sex-distinct RP-2006 Disabled Retiree Mortality Table with rates increased by 25% to the sex-distinct Pri-2012 Disabled Retiree Amount-weighted Mortality Table with rates increased by 6%.
- The post-retirement mortality assumption for contingent beneficiaries was changed from the sex-distinct approximate RP-2006 Blue Collar Healthy Annuitant Mortality Table with rates increased by 25% to the sex-distinct Pri-2012 Blue Collar Healthy Contingent Survivor Amount-weighted Mortality Table with rates increased by 6%.
- In conjunction with the revised mortality tables, the generational projection scale was changed from using sex-distinct improvement rates under the 2016 OASDI Trustees report under the intermediate alternative to sex-distinct improvement rates under the Society of Actuaries scale MP-2020.
- The age-related salary scale was modified from rates starting at 14.75% for participants under age 25 grading down to an ultimate rate of 3.00% at age 65 to rates starting at 8.00% for participants under age 25 grading down to an ultimate rate of 3.00% at age 60.

Section 4: Actuarial Valuation Basis

Exhibit II: Summary of Plan Provisions

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

Plan Year:	July 1 through June 30
Plan Status:	Ongoing
Normal Retirement: <i>Eligibility</i> <i>Monthly Amount</i> <i>Normal Form of Payment</i>	<ul style="list-style-type: none">• A participant may retire at age 60 after completing 10 years of service.• 2.5% of average monthly salary for each year of credited service. This amount cannot be less than \$17 per month for each year of service, and is capped at 80% of average monthly salary.• Average monthly salary is defined as the highest average monthly base compensation over any 36-month period.• 75% joint and survivor annuity (no reduction in benefit for providing survivor coverage)
Early Retirement: <i>Service Requirement</i> <i>Monthly Amount</i>	<ul style="list-style-type: none">• 10 years credited service• Normal pension monthly amount reduced by 1/2 of 1% per month for the first 60 months and by 1/4 of 1% per month for the remaining months by which age at retirement is less than 60. More favorable early retirement adjustments may apply to participants in prior plans.• Unreduced early retirement is available with 30 years of credited service.
Disability: <i>Service Requirement</i> <i>Monthly Amount</i>	<ul style="list-style-type: none">• 5 years credited service for non-job-related disability. None for job-related disability.• Normal pension based on service accrued and final average salary at disability, payable immediately; cannot be less than 50% of average monthly salary. This amount is payable until attainment of normal retirement age at which time the benefit is recalculated to value years while disabled as years of service.

Section 4: Actuarial Valuation Basis

Vesting:

- An employee who terminates employment may receive a percentage of his accrued benefit payable at age 60 as determined below:

Completed Years of Service	Percentage Vesting
Less than 5	0%
5	25
6	30
7	35
8	40
9	45
10 or more	100

- Note: A participant is always 100% vested in his/her contributions to the Fund.*

Termination:

- A participant terminating employment may elect a refund of their own contributions with interest. A refund will cause the forfeiture of any other vested accrued benefit from the Plan.

Death Benefits:

- If a participant dies prior to his attainment of eligibility for retirement, a lump sum of his own contributions with interest is payable to his beneficiary or estate.
- If an active participant who is eligible to retire, or a retired participant, dies, 75% of the accrued pension benefit is payable to the beneficiary. Eligible beneficiaries are the spouse or unmarried children under 23 (18 if not in post-secondary school). If the spouse is more than five years younger than the participant, the amount payable is reduced by 2% per year by which the spouse is younger.

Credited Service:

- Service is credited for employment as an employee of the Atlanta Board of Education or as a general employee of the City of Atlanta. Additional credit is granted for accumulated sick leave and for other prior service as specified in the plan.

Participation:

All employees of the Atlanta Board of Education who are not covered by the Georgia Teachers' Retirement System or the Employees' Retirement System of Georgia.

Employee Contributions:

Employee	% of Base Salary
Unmarried employees without beneficiaries	7%
Unmarried employees with beneficiaries	8%
Married employees	8%

Section 4: Actuarial Valuation Basis

Interest on Employee Contributions:	Employee contributions earn 5% interest each year.
Cost-of-Living Provision:	Benefits for retirees and beneficiaries are adjusted annually on January 1 of each year based on the change in the Consumer Price Index from November 1 through October 31 of the preceding year. Such annual adjustment cannot exceed 3%. The COLA is compounded annually.
Changes in Plan Provisions:	There have been no changes in plan provisions since the last valuation.

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