Sonoma County Employees' Retirement Association (SCERA)

Governmental Accounting Standards Board Statement 67 (GAS 67) Actuarial Valuation

As of December 31, 2022

This report has been prepared at the request of the Board of Retirement to assist in administering the Plan. This valuation report may not otherwise be copied or reproduced in any form without the consent of the Board of Retirement 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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May 2, 2023

Board of Retirement
Sonoma County Employees' Retirement Association
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Dear Board Members:

We are pleased to submit this Governmental Accounting Standards Board Statement 67 (GAS 67) Actuarial Valuation as of December 31, 2022. It contains various information that will need to be disclosed in order to comply with GAS 67.

This report was prepared in accordance with generally accepted actuarial principles and practices at the request of the Board to assist SCERA in preparing items related to the pension plan in their financial report. The census and financial information on which our calculations were based were provided by SCERA. That assistance is gratefully acknowledged.

The measurements shown in this actuarial valuation may not be applicable for other purposes. 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; and changes in plan provisions or applicable law.

The actuarial calculations were completed under the supervision of Andy Yeung, ASA, MAAA, FCA, Enrolled Actuary. 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 the 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 expectations for SCERA.

We look forward to reviewing this report with you and to answering any questions.

Sincerely,

Segal [redacted]

Paul Angelo, FSA, MAAA, FCA, EA
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Section 1: Actuarial Valuation Summary

Purpose and Basis

This report has been prepared by Segal to present certain disclosure information required by Governmental Accounting Standards Board Statement 67 (GAS 67) as of December 31, 2022. This valuation is based on:

- The benefit provisions of SCERA, as administered by the Board of Retirement;
- The characteristics of covered active members, inactive vested members, and retired members and beneficiaries as of December 31, 2022, provided by the Retirement Association;
- The assets of the Plan as of December 31, 2022, provided by the Retirement Association;
- Economic assumptions regarding future salary increases and investment earnings adopted by the Board of Retirement for the December 31, 2022 valuation; and
- Other actuarial assumptions, regarding employee terminations, retirement, death, etc. adopted by the Board of Retirement for the December 31, 2022 valuation.

General Observations on GAS 67 Actuarial Valuation

1. It is important to note that Governmental Accounting Standards Board (GASB) rules only define pension liability and expense for financial reporting purposes, and do not apply to contribution amounts for pension funding purposes. Employers and plans should develop and adopt funding policies under current practices.
2. When measuring pension liability, GASB uses the same actuarial cost method (Entry Age method) and the same type of discount rate (expected return on assets) as SCERA uses for funding. This means that the Total Pension Liability (TPL) measure for financial reporting shown in this report is determined on generally the same basis as SCERA's Actuarial Accrued Liability (AAL) measure for funding. We note that the same is generally true for the Normal Cost component of the annual plan cost for funding and financial reporting.
3. The Net Pension Liability (NPL) is equal to the difference between the TPL and the Plan Fiduciary Net Position. The Plan Fiduciary Net Position is equal to the fair value of assets and therefore, the NPL measure is very similar to an Unfunded Actuarial Accrued Liability (UAAL) on a market value basis.

Highlights of the Valuation

1. The NPL was measured as of December 31, 2022 and December 31, 2021 and based on the TPL from actuarial valuations as of December 31, 2022 and December 31, 2021, respectively. The Plan Fiduciary Net Position (plan assets) was valued as of the measurement dates.
2. The NPL increased from a surplus of $(61.3) million as of December 31, 2021 to $413.1 million as of December 31, 2022 primarily as a result of an unfavorable return on the market value of assets (about -7.8%) during calendar year 2022 that was less than the assumed return of 6.75% (a loss of about $504.2 million). Changes in these values during the last two calendar years ending December 31, 2021 and December 31, 2022 can be found in *Section 2, Schedule of Changes in Net Pension Liability* on page 16.
3. The discount rate used to measure the TPL and NPL as of December 31, 2022 and December 31, 2021 was 6.75%, following the same assumptions used by SCERA in the actuarial valuations as of December 31, 2022 and December 31, 2021, respectively. The detailed calculations used in the derivation of the discount rate of 6.75% can be found in *Section 3, Appendix A*. Various other information that is required to be disclosed can be found throughout *Section 2*.
4. It is important to note that this actuarial valuation is based on plan assets as of December 31, 2022. 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 December 31, 2022 due to COVID-19. Segal is available to prepare projections of potential outcomes of market conditions and other demographic experience upon request.

Summary of Key Valuation Results

Measurement Date		December 31, 2022	December 31, 2021
Disclosure Elements for Plan Year Ending December 31:	• Service Cost[1]	$83,637,331	$79,489,908
	• Total Pension Liability	3,582,766,000	3,460,051,000
	• Plan Fiduciary Net Position	3,169,632,135	3,521,361,225
	• Net Pension Liability	413,133,865	(61,310,225)
Schedule of Contributions for Plan Year Ending December 31:	• Actuarially determined contributions	$70,965,925	$73,142,184
	• Actual contributions	76,562,193	74,952,763
	• Contribution deficiency / (excess)	(5,596,268)	(1,810,579)
Demographic Data for Plan Year Ending December 31:	• Number of retired members and beneficiaries	5,627	5,478
	• Number of inactive vested members[2]	1,688	1,569
	• Number of active members	4,103	4,066
Key Assumptions as of December 31:	• Investment rate of return	6.75%	6.75%
	• Inflation rate	2.50%	2.50%
	• Projected salary increases[3]	General: 3.55% to 8.00% Safety: 4.00% to 10.50%	General: 3.55% to 8.00% Safety: 4.00% to 10.50%

1 The Service Cost is based on the previous year's valuation, meaning the December 31, 2022 and December 31, 2021 measurement date values are based on the valuations as of December 31, 2021 and December 31, 2020, respectively. The key assumptions in the December 31, 2020 valuation were as follows:

Investment rate of return:	7.00%
Inflation rate:	2.75%
Projected salary increases:	General: 3.75% to 8.75% Safety: 4.00% to 10.75%

2 Includes inactive members due a refund of member contributions.

3 For December 31, 2022 and December 31, 2021, includes inflation at 2.50% plus real across-the-board salary increase of 0.50% plus merit and promotion increases.

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 Provisions	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 Information	An actuarial valuation for a plan is based on data provided to the actuary by SCERA. 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.
Financial Information	The valuation is based on the fair value of assets as of the measurement date, as provided by SCERA.
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 (if any). The forecasted 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. Deterministic cost projections are based on a proprietary forecasting model. 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 valuation is prepared at the request of the Board to assist SCERA in preparing items related to the pension plan in their financial reports. Segal is not responsible for the use or misuse of its report, particularly by any other party.
An actuarial valuation is a measurement at a specific date – it is not a prediction of a plan's future financial condition. Accordingly, Segal did not perform an analysis of the potential range of future financial measures, except where otherwise noted. 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.
If SCERA 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.
While Segal maintains extensive quality assurance procedures, an actuarial valuation involves complex computer models and numerous inputs. In the event that an inaccuracy is discovered after presentation of Segal's valuation, Segal may revise that valuation or make an appropriate adjustment in the next valuation.
Segal's report shall be deemed to be final and accepted by the Association upon delivery and review. The Association should notify Segal immediately of any questions or concerns about the final content.

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

Section 2: GAS 67 Information

General Information About the Pension Plan

Plan Description

Plan Administration. The Sonoma County Employees' Retirement Association (SCERA) was established by the County of Sonoma on January 1, 1946. SCERA is administered by the Board of Retirement to provide retirement, disability and survivor benefits for its members under the California State Government Code, Section 31450 et seq., the County Employees' Retirement Law of 1937 (CERL) and the California Public Employees' Pension Reform Act of 2013 (PEPRA). SCERA is a cost-sharing multiple employer public employee retirement system whose main function is to provide retirement, disability and survivor benefits to the General and Safety members employed by the County of Sonoma. SCERA also provides retirement allowances and other benefits to the employee members of the Superior Court of California – County of Sonoma and Sonoma Valley Fire District. Within the County General classification, there are 16 units/departments.

The management of SCERA is vested with the Sonoma County Board of Retirement. The Board consists of nine voting trustees and one alternate trustee. Four trustees are appointed by the Board of Supervisors, one of whom may be a County Supervisor; two active trustees are elected by the General members; one active trustee is elected by the Safety members; and one trustee and one alternate trustee are elected by the retired members. The County Treasurer is an ex-officio trustee. All trustees serve three-year terms, with the exception of the County Treasurer, who serves during their tenure in office.

Plan Membership. At December 31, 2022, pension plan membership consisted of the following:

Retired members or beneficiaries currently receiving benefits	5,627
Inactive vested members entitled to but not yet receiving benefits[1]	1,688
Active members	4,103
Total	**11,418**

Benefits Provided. SCERA provides member benefits as defined by law upon retirement, death or disability to eligible employees. Members include employees in a permanent position of at least half time in the County of Sonoma or participating agencies. Membership becomes effective on the first day of entrance into eligible service. There are separate retirement plans for General and

[1] Includes members who choose to leave their contributions on deposit even though they have less than five years of service.

Section 2: GAS 67 Information

Safety member employees. Safety membership is extended to those involved in active law enforcement, fire suppression, and certain probation officers. All other employees are classified as General members.

There are currently two tiers applicable to both General and Safety members. Members with membership dates before January 1, 2013 are included in General Plan A or Safety Plan A. Any new member who becomes a member on or after January 1, 2013 is designated as General Plan B or Safety Plan B and is subject to the provisions of California Public Employees' Pension Reform Act of 2013 (PEPRA) and California Government Code 7522 et seq.

General Plan A members are eligible to retire once they attain the age of 70 regardless of service credit or at age 50 and have acquired 10 or more years of retirement service credit. A member with 30 years of service credit is eligible to retire regardless of age. General Plan B members are eligible to retire once they have attained the age of 52 and have acquired five years of retirement service credit or once they attain the age of 70 regardless of service credit.

Safety Plan A members are eligible to retire once they attain the age of 70 regardless of service credit or at age 50 and have acquired 10 or more years of retirement service credit. A member with 20 years of service credit is eligible to retire regardless of age. Safety Plan B members are eligible to retire once they have attained the age of 50 and have acquired five years of retirement service credit or once they attain the age of 70 regardless of service credit.

The retirement benefit the member will receive is based upon age at retirement, final compensation, years of retirement service credit and retirement plan and tier. For Plan A members, final compensation is defined as the highest 12 consecutive months of compensation earnable. For Plan B members, final compensation is based on the highest 36 consecutive months of pensionable compensation. Additionally, Plan B members are limited in the amount of compensation used to calculate a benefit to 100% of the Social Security tables wage base limit in 2013, (or 120% for non-Social Security integrated positions), adjusted for inflation.

General Plan A benefit is calculated pursuant to the provisions of California Government Code Section 31676.17. The monthly allowance is equal to 1/50th of final compensation times years of accrued retirement service credit times age factor from Section 31676.17. General Plan B benefit is calculated pursuant to the provisions found in California Government Code Section 7522.20(a). The monthly allowance is equal to the final compensation times years of accrued retirement service credit times age factor from Section 7522.20(a).

Safety Plan A benefit is calculated pursuant to the provisions of California Government Code Section 31664.1. The monthly allowance is equal to 3% of final compensation times years of accrued retirement service credit times age factor from Section 31664.1. Safety Plan B benefit is calculated pursuant to the provisions found in California Government Code Section 7522.25(d). The monthly allowance is equal to the final compensation times years of accrued retirement service credit times age factor from Section 7522.25(d).

For members enrolled in Plan A, the maximum monthly retirement allowance is 100% of final compensation.

The member may elect an unmodified retirement allowance or choose an optional retirement allowance. The unmodified retirement allowance provides the highest monthly benefit and a 60% continuance to an eligible surviving spouse or domestic partner. An eligible surviving spouse or domestic partner is one married to or registered with the member one year prior to the effective retirement date. There are four optional retirement allowances the member may choose. Each of the optional retirement allowances requires a reduction in the unmodified retirement allowance in order to allow the member the ability to provide certain benefits to a surviving spouse, domestic partner, or named beneficiary having an insurable interest in the life of the member.

SCERA does not provide an annual cost-of-living benefit to retirees.

The County of Sonoma and contracting districts contribute to the retirement plan based upon actuarially determined contribution rates adopted by the Board of Retirement. Employer contribution rates are adopted annually based upon recommendations received from SCERA's actuary after the completion of the annual actuarial valuation. The average employer contribution rate for the first six months of calendar year 2022 (i.e., the second half of fiscal year 2021-2022), calculated based on the December 31, 2019 valuation, was 19.31%[1,2] of compensation. The average employer contribution rate for the last six months of calendar year 2022 (i.e., the first half of fiscal year 2022-2023), calculated based on the December 31, 2020 valuation, was 18.11%[1,2] of compensation.

All members are required to make contributions to SCERA regardless of the retirement plan or tier in which they are included. The average member contribution rate for the first six months of calendar year 2022 (i.e., the second half of fiscal year 2021-2022), calculated based on the December 31, 2019 valuation, was 11.84%[1] of compensation. The average member contribution rate for the last six months of calendar year 2022, (i.e., the first half of fiscal year 2022-2023), calculated based on the December 31, 2020 valuation, was 11.73%[1] of compensation.

[1] Active members represented by some of the bargaining groups have agreed to pay additional employee Normal Cost contributions that are above those determined under the CERL, as permitted under PEPRA. As the specific amount of those higher contributions are dependent on the specific bargaining agreements, these rates do not reflect those additional employee contributions.

[2] Before reflecting the phase-in of the impact of the assumption changes on the employer's UAAL contribution rate (if any).

Net Pension Liability

The components of the Net Pension Liability were as follows:

Measurement Date	December 31, 2022	December 31, 2021
Total Pension Liability	$3,582,766,000	$3,460,051,000
Plan Fiduciary Net Position	(3,169,632,135)	(3,521,361,225)
Net Pension Liability	**$413,133,865**	**$(61,310,225)**
Plan Fiduciary Net Position as a percentage of the Total Pension Liability	88.47%	101.77%

The Net Pension Liability (NPL) for the plan was measured as of December 31, 2022 and 2021. Plan Fiduciary Net Position (plan assets) was valued as of the measurement dates and the Total Pension Liability (TPL) was determined based upon actuarial valuations as of December 31, 2022 and 2021, respectively.

Plan Provisions. The plan provisions used in the measurement of the NPL as of December 31, 2022 and 2021 are the same as those used in the SCERA actuarial valuations as of December 31, 2022 and 2021, respectively.

Actuarial Assumptions. The TPL as of December 31, 2022 and 2021 that were measured by actuarial valuations as of December 31, 2022 and 2021 used the following actuarial assumptions, which were based on the results of an experience study for the period from January 1, 2018 through December 31, 2020, applied to all periods included in the measurement:

Inflation:	2.50%
Salary Increases:	General: 3.55% to 8.00% and Safety: 4.00% to 10.50%, varying by service, including inflation
Investment Rate of Return:	6.75%, net of pension plan investment expense, including inflation
Other Assumptions:	See the analysis of actuarial experience during the period January 1, 2018 through December 31, 2020

Determination of Discount Rate and Investment Rates of Return

The long-term expected rate of return on pension plan investments[1] was determined using a building-block method in which expected future real rates of return (expected returns, net of inflation) are developed for each major asset class. These returns are combined to produce the long-term expected rate of return by weighting the expected future real rates of return by the target asset allocation percentage, adding expected inflation, and subtracting expected investment expenses and a risk margin. The target allocation (approved by the Board) and projected arithmetic real rates of return for each major asset class, after deducting inflation, but before investment expenses are shown in the following table. This information was used in the derivation of the long-term expected investment rate of return assumption reflected in the December 31, 2022 actuarial valuation. This information will be subject to change every three years based on the results of an actuarial experience study.

Asset Class	Target Allocation	Long-Term Expected Arithmetic Real Rate of Return
Large Cap Equity	16.50%	5.35%
Small Cap Equity	5.00%	6.55%
Developed International Equity	14.88%	6.31%
Global Equity	18.00%	6.28%
Emerging Markets Equity	6.62%	8.47%
Core Bonds	16.00%	0.70%
Bank Loan	3.00%	2.43%
Real Estate	10.00%	4.89%
Infrastructure	5.00%	6.05%
Farmland	5.00%	5.90%
Total	**100.00%**	**5.11%**

[1] Note that the investment return assumption for funding purposes is developed net of both investment and administrative expenses; however, the same investment return assumption is used for financial reporting purposes, where it is considered gross of administrative expenses.

Section 2: GAS 67 Information

Discount Rate. The discount rate used to measure the Total Pension Liability (TPL) was 6.75% as of December 31, 2022 and December 31, 2021. The projection of cash flows used to determine the discount rate assumed employee contributions will be made at the current contribution rate and that employer contributions will be made at rates equal to the actuarially determined contribution rates. For this purpose, only employee and employer contributions that are intended to fund benefits of current plan members and their beneficiaries are included. Projected employer contributions that are intended to fund the service costs for future plan members and their beneficiaries, as well as projected contributions from future plan members, are not included. Based on those assumptions, the Plan Fiduciary Net Position was projected to be available to make all projected future benefit payments for current plan members. Therefore, the long-term expected rate of return on pension plan investments was applied to all periods of projected benefit payments to determine the TPL as of both December 31, 2022 and December 31, 2021.

Discount Rate Sensitivity

Sensitivity of the Net Pension Liability to Changes in the Discount Rate. The following presents the Net Pension Liability (NPL) of SCERA as of December 31, 2022, calculated using the discount rate of 6.75%, as well as what SCERA's NPL would be if it were calculated using a discount rate that is 1-percentage-point lower, 5.75%, or 1-percentage-point higher, 7.75%, than the current rate.

	1% Decrease 5.75%	Current Discount Rate 6.75%	1% Increase 7.75%
Net Pension Liability as of December 31, 2022	$830,956,465	$413,133,865	$66,110,393

Schedule of Changes in Net Pension Liability

Measurement Date	December 31, 2022	December 31, 2021
Total Pension Liability		
• Service Cost	$83,637,331	$79,489,908
• Interest	232,291,162	227,229,783
• Change of benefit terms	0	0
• Differences between expected and actual experience	11,462,087	(12,333,384)
• Changes of assumptions or other inputs	0	96,768,000
• Benefit payments, including refunds of member contributions	(204,675,580)	(195,506,307)
• Other	0	0
Net change in Total Pension Liability	**$122,715,000**	**$195,648,000**
Total Pension Liability – beginning	**3,460,051,000**	**3,264,403,000**
Total Pension Liability – ending	**$3,582,766,000**	**$3,460,051,000**
Plan Fiduciary Net Position		
• Contributions – employer	$76,562,193	$74,952,763
• Contributions – member	49,224,211	49,056,580
• Net investment income	(269,318,933)	522,238,156
• Benefit payments, including refunds of member contributions	(204,675,580)	(195,506,307)
• Administrative expense	(3,520,981)	(3,055,102)
• Other	0	0
Net change in Plan Fiduciary Net Position	**$(351,729,090)**	**$447,686,090**
Plan Fiduciary Net Position – beginning	**3,521,361,225**	**3,073,675,135**
Plan Fiduciary Net Position – ending	**$3,169,632,135**	**$3,521,361,225**
Net Pension Liability – ending	**$413,133,865**	**$(61,310,225)**
Plan Fiduciary Net Position as a percentage of the Total Pension Liability	88.47%	101.77%
Covered payroll[1]	$393,354,700	$383,134,158
Net Pension Liability as percentage of covered payroll	105.03%	(16.00%)

[1] Covered payroll represents payroll on which contributions to the pension plan are based.

Schedule of Employer Contributions

Year Ended December 31	Actuarially Determined Contributions[1]	Contributions in Relation to the Actuarially Determined Contributions[1]	Contribution Deficiency / (Excess)	Covered Payroll[2]	Contributions as a Percentage of Covered Payroll
2013	$51,852,499	$51,852,499	$0	$299,142,122	17.33%
2014	61,179,319	61,179,319	0	299,874,599	20.40%
2015	64,686,692	68,239,981	(3,553,289)	311,403,970	21.91%
2016	63,639,564	63,639,564	0	329,077,958	19.34%
2017	63,821,713	63,821,713	0	345,630,931	18.47%
2018	67,425,348	67,425,348	0	355,558,294	18.96%
2019	65,155,347	65,155,347	0	350,995,256	18.56%
2020	70,783,984	77,506,384	(6,722,400)	373,107,408	20.77%
2021	73,142,184	74,952,763	(1,810,579)	383,134,158	19.56%
2022	70,965,925	76,562,193	(5,596,268)	393,354,700	19.46%

See accompanying notes to this schedule on the next page.

1 All "Actuarially Determined Contributions" through December 31, 2014 were determined as the "Annual Required Contributions" under GAS 25 and 27.

2 Covered payroll represents payroll on which contributions to the pension plan are based.

Schedule of Employer Contributions (continued)

Notes to Schedule:

Methods and assumptions used to establish "actuarially determined contribution" rates:

Valuation Date:	Actuarially determined contribution rates for the first six months of calendar year 2022 (i.e. the second half of fiscal year 2021-2022) are calculated based on the December 31, 2019 valuation. Actuarially determined contribution rates for the last six months of calendar year 2022 (i.e. the first half of fiscal year 2022-2023) are calculated based on the December 31, 2020 valuation. Note that the impact of any assumption changes on the employer's UAAL contribution rate (if any) is phased-in in accordance with the Association's Actuarial Funding Policy.
Actuarial Cost Method:	Entry Age Actuarial Cost Method
Amortization Method:	Level percent of payroll for total Unfunded Actuarial Accrued Liability (UAAL)
Remaining Amortization Period:	**December 31, 2019 Valuation** 21 years (declining) for outstanding balance of the December 31, 2007 UAAL and 20 years (declining) for UAAL established on each subsequent valuation plus 20 years (declining) with 8 years remaining as of December 31, 2019 for UAAL established as a result of including as pensionable salary a cash allowance. **December 31, 2020 Valuation** 21 years (declining) for outstanding balance of the December 31, 2007 UAAL and 20 years (declining) for UAAL established on each subsequent valuation plus 20 years (declining) with 7 years remaining as of December 31, 2020 for UAAL established as a result of including as pensionable salary a cash allowance.
Asset Valuation Method:	The market value (or fair 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 Valuation Value of Assets and is recognized over a five-year period. The Valuation Value of Assets is the Actuarial Value of Assets reduced by the value of the non-valuation reserves and designations.

Schedule of Employer Contributions (continued)

Actuarial Assumptions:		
Valuation Date:	**December 31, 2019 Valuation**	**December 31, 2020 Valuation**
Investment Rate of Return:	7.00%, net of pension plan investment expense, including inflation	7.00%, net of pension plan investment expense, including inflation
Inflation Rate:	2.75%	2.75%
Real Across-the-Board Salary Increase:	0.50%	0.50%
Projected Salary Increases:	General: 3.75% to 8.75% Safety: 4.00% to 10.75% Varying by service, including inflation	General: 3.75% to 8.75% Safety: 4.00% to 10.75% Varying by service, including inflation
Cost of Living Adjustments:	0.00% of retirement income	0.00% of retirement income
Other Assumptions:	Same as those used in the December 31, 2019 funding actuarial valuation	Same as those used in the December 31, 2020 funding actuarial valuation

Section 3: Appendices

Appendix A: Projection of Plan Fiduciary Net Position for use in the Calculation of Discount Rate as of December 31, 2022 ($ in millions)

Year Beginning January 1,	Projected Beginning Plan Fiduciary Net Position (a)	Projected Total Contributions (b)	Projected Benefit Payments (c)	Projected Administrative Expenses (d)	Projected Investment Earnings (e)	Projected Ending Plan Fiduciary Net Position (f) = (a) + (b) - (c) - (d) + (e)
2023	$3,170	$122	$222	$3	$209	$3,276
2024	3,276	119	230	3	216	3,377
2025	3,377	119	239	3	222	3,476
2026	3,476	120	247	3	229	3,574
2027	3,574	125	255	4	235	3,676
2028	3,676	121	262	4	242	3,772
2029	3,772	109	269	4	248	3,855
2030	3,855	103	277	4	253	3,930
2031	3,930	85	283	4	257	3,985
2032	3,985	69	289	4	260	4,020
2048	3,776	20	329	4	242	3,705
2049	3,705	19	328	4	238	3,630
2050	3,630	18	327	4	233	3,549
2051	3,549	16	326	4	227	3,464
2052	3,464	15	324	3	221	3,373
2107	438	1	0 *	0 *	30	468
2108	468	1	0 *	0 *	32	499
2109	499	1	0 *	0 *	34	533
2110	533	1	0 *	1	36	569
2111	569	1	0 *	1	38	608
2126	1,517	2	0 *	2	102	1,619
2127	1,619					
2127	Discounted Value: 2 **					

* Less than $1 million, when rounded.

** $1,619 million when discounted with interest at the rate of 6.75% per annum has a value of $2 million as of December 31, 2022.

Appendix A: Projection of Plan Fiduciary Net Position for use in the Calculation of Discount Rate as of December 31, 2022 (continued)

Notes:

1. Amounts may not total exactly due to rounding.
2. Various years have been omitted from this table.
3. Column (a): Except for the "discounted value" shown for 2127, none of the projected beginning Plan's Fiduciary Net Position amounts shown have been adjusted for the time value of money.
4. Column (b): Projected total contributions include employee and employer Normal Cost contributions based on closed group projections (based on covered active members as of December 31, 2022); plus employee and employer contributions to the Unfunded Actuarial Accrued Liability. For purposes of illustration, once the Association is projected to become fully funded, the results contained herein do not reflect the amount of additional UAAL contributions (if any) that may be made by the employees belonging to the bargaining units which have agreed to pay such contributions. Contributions are assumed to occur halfway through the year, on average.
5. Column (c): Projected benefit payments have been determined in accordance with paragraph 39 of GASB Statement No. 67, and are based on the closed group of active, inactive vested, retired members, and beneficiaries as of December 31, 2022.
6. Column (d): Projected administrative expenses are calculated as approximately 0.10% of the projected beginning Plan Fiduciary Net Position amount. The 0.10% proportion was based on the actual 2022 calendar year administrative expenses (unaudited) as a percentage of the actual beginning Plan Fiduciary Net Position as of January 1, 2022. Administrative expenses are assumed to occur halfway through the year, on average.
7. Column (e): Projected investment earnings are based on the assumed investment rate of return of 6.75% per annum and reflect the assumed timing of benefit payments made at the beginning of each month.
8. As illustrated in this Appendix, the Plan Fiduciary Net Position was projected to be available to make all projected future benefit payments for current Plan members. In other words, there is no projected "cross-over date" when projected benefits are not covered by projected assets. Therefore, the long-term expected rate of return on Plan investments of 6.75% per annum was applied to all periods of projected benefit payments to determine the Total Pension Liability as of December 31, 2022 shown earlier in this report, pursuant to paragraph 44 of GASB Statement No. 67.
9. This projection is based on a model developed by our Actuarial Technology and Systems unit, comprised of both actuaries and programmers. The model allows the client team, under the supervision of the responsible actuary, control over the entry of future expected contribution income, benefit payments and administrative expenses. The projection of Plan Fiduciary Net Position and the discounting of benefits is part of the model.

Appendix B: Definition of Terms

Definitions of certain terms as they are used in Statement 67. The terms may have different meanings in other contexts.

Actuarial Present Value of Projected Benefit Payments:	Projected benefit payments discounted to reflect the expected effects of the time value (present value) of money and the probabilities of payment.
Actuarial Valuation:	The determination, as of a point in time (the actuarial valuation date), of the service cost, Total Pension Liability, and related actuarial present value of projected benefit payments for pensions performed in conformity with Actuarial Standards of Practice unless otherwise specified by the GASB.
Actuarial Valuation Date:	The date as of which an actuarial valuation is performed.
Actuarially Determined Contribution:	A target or recommended contribution to a defined benefit pension plan for the reporting period, determined in conformity with Actuarial Standards of Practice based on the most recent measurement available when the contribution for the reporting period was adopted.
Ad Hoc Cost-of-Living Adjustments (Ad Hoc COLAs):	Cost-of-living adjustments that require a decision to grant by the authority responsible for making such decisions.
Ad Hoc Postemployment Benefit Changes:	Postemployment benefit changes that require a decision to grant by the authority responsible for making such decisions.
Automatic Cost-of-Living Adjustments (Automatic COLAs):	Cost-of-living adjustments that occur without a requirement for a decision to grant by a responsible authority, including those for which the amounts are determined by reference to a specified experience factor (such as the earnings experience of the pension plan) or to another variable (such as an increase in the consumer price index).
Automatic Postemployment Benefit Changes:	Postemployment benefit changes that occur without a requirement for a decision to grant by a responsible authority, including those for which the amounts are determined by reference to a specified experience factor (such as the earnings experience of the pension plan) or to another variable (such as an increase in the consumer price index).
Cost-of-Living Adjustments:	Postemployment benefit changes intended to adjust benefit payments for the effects of inflation.
Cost-Sharing Multiple-Employer Defined Benefit Pension Plan (Cost-Sharing Pension Plan):	A multiple-employer defined benefit pension plan in which the pension obligations to the employees of more than one employer are pooled and pension plan assets can be used to pay the benefits of the employees of any employer that provides pensions through the pension plan.
Covered Payroll:	Payroll on which contributions to the pension plan are based.
Defined Benefit Pension Plans:	Pension plans that are used to provide defined benefit pensions.

Defined Benefit Pensions:	Pensions for which the income or other benefits that the employee will receive at or after separation from employment are defined by the benefit terms. The pensions may be stated as a specified dollar amount or as an amount that is calculated based on one or more factors such as age, years of service, and compensation. (A pension that does not meet the criteria of a defined contribution pension is classified as a defined benefit pension for purposes of Statement 67.)
Defined Contribution Pension Plans:	Pension plans that are used to provide defined contribution pensions.
Defined Contribution Pensions:	Pensions having terms that (1) provide an individual account for each employee; (2) define the contributions that an employer is required to make (or the credits that it is required to provide) to an active employee's account for periods in which that employee renders service; and (3) provide that the pensions an employee will receive will depend only on the contributions (or credits) to the employee's account, actual earnings on investments of those contributions (or credits), and the effects of forfeitures of contributions (or credits) made for other employees, as well as pension plan administrative costs, that are allocated to the employee's account.
Discount Rate:	The single rate of return that, when applied to all projected benefit payments, results in an actuarial present value of projected benefit payments equal to the total of the following: 1. The actuarial present value of benefit payments projected to be made in future periods in which (a) the amount of the pension Plan Fiduciary Net Position is projected (under the requirements of Statement 67) to be greater than the benefit payments that are projected to be made in that period and (b) pension plan assets up to that point are expected to be invested using a strategy to achieve the long-term expected rate of return, calculated using the long-term expected rate of return on pension plan investments. 2. The actuarial present value of projected benefit payments not included in (1), calculated using the municipal bond rate.
Entry Age Actuarial Cost Method:	A method under which the actuarial present value of the projected benefits of each individual included in an actuarial valuation is allocated on a level basis over the earnings or service of the individual between entry age and assumed exit age(s). The portion of this actuarial present value allocated to a valuation year is called the normal cost. The portion of this actuarial present value not provided for at a valuation date by the actuarial present value of future normal costs is called the actuarial accrued liability.
Inactive Employees:	Terminated individuals that have accumulated benefits but are not yet receiving them, and retirees or their beneficiaries currently receiving benefits.
Multiple-Employer Defined Benefit Pension Plan:	A defined benefit pension plan that is used to provide pensions to the employees of more than one employer.
Net Pension Liability (NPL):	The liability of employers and non-employer contributing entities to employees for benefits provided through a defined benefit pension plan.

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Other Postemployment Benefits:	All postemployment benefits other than retirement income (such as death benefits, life insurance, disability, and long-term care) that are provided separately from a pension plan, as well as postemployment healthcare benefits, regardless of the manner in which they are provided. Other postemployment benefits do not include termination benefits.
Pension Plans:	Arrangements through which pensions are determined, assets dedicated for pensions are accumulated and managed and benefits are paid as they come due.
Pensions:	Retirement income and, if provided through a pension plan, postemployment benefits other than retirement income (such as death benefits, life insurance, and disability benefits). Pensions do not include postemployment healthcare benefits and termination benefits.
Plan Members:	Individuals that are covered under the terms of a pension plan. Plan members generally include (1) employees in active service (active plan members) and (2) terminated employees who have accumulated benefits but are not yet receiving them and retirees or their beneficiaries currently receiving benefits (inactive plan members).
Postemployment:	The period after employment.
Postemployment Benefit Changes:	Adjustments to the pension of an inactive employee.
Postemployment Healthcare Benefits:	Medical, dental, vision, and other health-related benefits paid subsequent to the termination of employment.
Projected Benefit Payments:	All benefits estimated to be payable through the pension plan to current active and inactive employees as a result of their past service and their expected future service.
Public Employee Retirement System:	A special-purpose government that administers one or more pension plans; also may administer other types of employee benefit plans, including postemployment healthcare plans and deferred compensation plans.
Real Rate of Return:	The rate of return on an investment after adjustment to eliminate inflation.
Service Costs:	The portions of the actuarial present value of projected benefit payments that are attributed to valuation years.
Single-Employer Defined Benefit Pension Plan (Single-Employer Pension Plan):	A defined benefit pension plan that is used to provide pensions to employees of only one employer.
Termination Benefits:	Inducements offered by employers to active employees to hasten the termination of services, or payments made in consequence of the early termination of services. Termination benefits include early-retirement incentives, severance benefits, and other termination-related benefits.
Total Pension Liability (TPL):	The portion of the actuarial present value of projected benefit payments that is attributed to past periods of employee service in conformity with the requirements of Statement 67.

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