East Bay Municipal Utility District Employees' Retirement System

Governmental Accounting Standards Board Statement (GASBS) 67 Actuarial Valuation for the Pension Plan

As of June 30, 2022

Segal

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March 2, 2023

Ms. Sophia Skoda
Director of Finance
East Bay Municipal Utility District
375 Eleventh Street
Oakland, CA 94607-4240

Dear Sophia:

We are pleased to submit this Governmental Accounting Standards Board Statement (GASBS) 67 Actuarial Valuation as of June 30, 2022 for the pension plan. It contains various information that will need to be disclosed in order to comply with GASBS 67 for the pension plan.

This report was prepared in accordance with generally accepted actuarial principles and practices at the request of the Board to assist in administering the East Bay Municipal Utility District Employees' Retirement System (EBMUDERS). The census and financial information on which our calculations were based was prepared by the EBMUDERS. 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. I am a member of the American Academy of Actuaries and I 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 the Plan.

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

Sincerely,

Segal

Andy Yeung

Andy Yeung, ASA, MAAA, FCA, EA
Vice President and Actuary

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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 Statement No. 67 of the Governmental Accounting Standards Board (GASB) as of June 30, 2022. This valuation is based on:

- The benefit provisions of the Pension Plan, as administered by the Board;
- The characteristics of covered active members, inactive vested members, and retired members and beneficiaries as of June 30, 2022, provided by EBMUDERS;
- The assets of the Plan as of June 30, 2022, provided by EBMUDERS;
- Economic assumptions regarding future salary increases and investment earnings; and
- Other actuarial assumptions, regarding employee terminations, retirement, death, etc. that the Board has adopted for the June 30, 2022 valuation.

General observations on GASBS 67 actuarial valuation

1. The 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) and the same type of discount rate (expected return on assets) as EBMUDERS uses for funding. This means that the Total Pension Liability (TPL) measure for financial reporting shown in this report is determined on the same basis as EBMUDERS' Actuarial Accrued Liability (AAL) measure for funding. We note that the same is 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 market value of assets and therefore, the NPL measure is the same as the Unfunded Actuarial Accrued Liability (UAAL) calculated on a market value basis. The NPL reflects all investment gains and losses as of the measurement date. This is different from the UAAL calculated on a valuation value of assets basis in the funding valuation that reflects investment gains and losses over a five-year period.

Highlights of the valuation

1. The NPLs measured as of June 30, 2022 and 2021 have been determined from the actuarial valuations as of June 30, 2022 and June 30, 2021, respectively.
2. Section 33 of the Employees' Retirement System Ordinance ("Ordinance") references a funded ratio based on the ratio of the market value of assets to the projected benefit obligation (PBO) for purposes of determining post-retirement cost of living adjustments (COLA). As noted in the plan provisions section of the June 30, 2022 Retirement Plan funding valuation report dated March 2, 2023 (*Section 4, Exhibit 2*), the basic minimum COLA benefit is the lesser of 3% and the actual change in the cost of living index. Any excess of the actual change in the cost of living index over 3% is accumulated in individual retiree COLA banks, and withdrawals from the bank are made in years when the index increases less than 3%. However, increases of up to 5% are granted in years when the Retirement Board determines that the System is more than 85% funded on a PBO basis. In those years when the System is more than 85% funded and the cost of living index exceeds 5%, any excess cost of living over 5% is accumulated in the COLA bank. Furthermore, effective October 1, 2000, in those years when the system is more than 85% funded on a PBO basis and the cost of living is less than 4%, withdrawals from the bank are made to allow cost of living increases up to 4%.

   For the June 30, 2022 Retirement Plan and HIB Plan valuations, we note that the funded ratio on the PBO (and market value) basis is 70.8% for both plans combined, as shown in the Supplemental Exhibits report dated March 2, 2023.
3. The NPL increased from $335 million as of June 30, 2021 to $830 million as of June 30, 2022. This was mainly due to the approximate return on the market value of assets for the Pension Plan of -10.88% during 2021/2022 that was less than the assumption of 7.00% used in the June 30, 2021 valuation (that loss was about $404 million for the Pension Plan). Changes in these values during the last two fiscal years ending June 30, 2021 and June 30, 2022 can be found in *Section 2, Schedule of Changes in Net Pension Liability* on page 16.
4. The discount rates used to determine the TPLs and NPLs as of June 30, 2022 and 2021 were 6.75% and 7.00%, respectively, following the same assumptions used by the System in the pension funding valuations as of the same dates. The detailed calculations used in the derivation of the discount rate of 6.75% used in the calculation of the TPL and NPL as of June 30, 2022 can be found in *Section 3, Appendix A*. Various other information that is required to be disclosed can be found throughout *Section 2*.
5. It is important to note that this actuarial valuation is based on plan assets as of June 30, 2022. Due to the COVID-19 pandemic, market conditions have changed significantly since the onset of the Public Health Emergency. 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, 2022. While it is impossible to determine how the pandemic will affect market conditions and other demographic experience of the plan in future valuations, Segal is available to prepare projections of potential outcomes upon request.

Summary of key valuation results

Measurement Date		June 30, 2022	June 30, 2021
Disclosure elements:	• Service cost[1]	$51,705,682	$52,212,279
	• Total Pension Liability	2,835,771,092	2,605,613,762
	• Plan Fiduciary Net Position	2,005,352,000	2,270,763,000
	• Net Pension Liability	830,419,092	334,850,762
Schedule of contributions:	• Actuarially determined contributions	$91,393,000	$79,252,000
	• Actual contributions	91,393,000	79,252,000
	• Contribution deficiency / (excess)	0	0
Demographic data:	• Number of retired members and beneficiaries	2,048	1,977
	• Number of vested terminated members[2]	360	327
	• Number of active members	1,895	1,896
Key assumptions:	• Investment rate of return	6.75%	7.00%
	• Inflation rate	2.50%	2.75%
	• Cost-of-living adjustment	2.75%	2.75%
	• Projected salary increases[3]	Ranges from 9.25% to 3.75% based on time from hire	Ranges from 9.50% to 4.00% based on time from hire

1 The service cost is based on the previous year's valuation, meaning the June 30, 2022 and June 30, 2021 measurement date values are based on the valuations as of June 30, 2021 and June 30, 2020, respectively. Both service costs have been calculated using the actuarial assumptions shown in the June 30, 2021 column, as there had been no changes in actuarial assumptions between the June 30, 2020 and June 30, 2021 valuations.

2 Includes inactive members due a refund of contributions.

3 Includes inflation at 2.50% (2.75% for June 30, 2021 measurement date) 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 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 in this report (as well as the plan summary included in our funding valuation 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 System. Segal does not audit such data for completeness or accuracy, other than reviewing it for obvious inconsistencies compared to prior data and other information that appears unreasonable. It is important for Segal to receive the best possible data and to be informed about any known incomplete or inaccurate data.
Assets	This valuation is based on the market value of assets as of the valuation date, as provided by the System. The System uses a “valuation value of assets” that differs from market value to gradually reflect year-to-year changes in the market value of assets in determining 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, termination, 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 to assist the sponsors of the Fund 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 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.
If the System is aware of any event or trend that was not considered in this valuation that may materially change the results of the valuation, Segal should be advised, so that we can evaluate it
Segal does not provide investment, legal, accounting, or tax advice. Segal's valuation is based on our understanding of applicable guidance in these areas and of the plan's provisions, but they may be subject to alternative interpretations. The 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 EBMUDERS, it is not a fiduciary in its capacity as actuaries and consultants with respect to EBMUDERS.

Section 2: GASBS 67 Information

General information about the pension plan

Plan Description

Plan administration. The East Bay Municipal Utility District (the District) Employees' Retirement System (EBMUDERS or the System) was established in 1937 to administer a single-employer, contributory, defined benefit pension plan (the Pension Plan). The System provides retirement, disability, survivorship, and post-employment health insurance benefits[1] for eligible directors, officers, and employees of the District. The System is administered by a Retirement Board composed of three members appointed by the board of directors of the District, two members elected by and from the active membership, and one (nonvoting) member elected by and from the retired membership of the System. Retirement Ordinance No. 40 (Ordinance) assigns the authority to establish Plan benefit provisions to the District's board of directors. It should be noted that there are two systems in EBMUDERS (i.e., Water System and Wastewater System).

The System is exempt from the regulations of the Employee Retirement Income Security Act of 1974. The System is also exempt from federal income taxes and California franchise taxes.

The System is an integral part of the District and the District appoints the majority of the retirement board of the System and provides for its funding. Accordingly, the System's operations have been reported as a Pension and Other Employee Benefit Trust Fund in the District's basic financial statements.

Plan membership. All regular full-time employees of the District are members of the Plan, in addition to certain job share and intermittent employees. Eligible employees become members on the first day they are physically on the job. At June 30, 2022, Pension Plan membership consisted of the following:

Retired members and beneficiaries currently receiving benefits	2,048
Vested terminated members entitled to, but not yet receiving benefits[2]	360
Active members	1,895
Total	4,303

1 The liabilities and expenses associated with providing post-employment health insurance benefits are reportable under GASB Statements 74 and 75. They have not been included in this report.

2 Includes inactive members due a refund of contributions.

Section 2: GASBS 67 Information

Benefits provided. EBMUDERS provides service retirement, disability, death and survivor benefits to eligible employees.

There are two tiers in effect currently, the 1955/1980 Plan and the 2013 Tier. Employees who became members of the retirement system prior to January 1, 2013, or who have reciprocal membership are in the 1955/1980 Plan. Employees who became members on or after January 1, 2013 are in the 2013 Tier.

1955/1980 Plan members may elect voluntary reduced service retirement upon attaining the age of 54 and completing 5 years of continuous full-time employment. Members may elect voluntary unreduced service retirement upon attaining the age of 62 and completing 5 years of continuous full-time employment or age 65 without restriction. Members who continue to work upon attaining the normal retirement age of 65 continue to contribute to the Plan, and at the time they retire, computation of their retirement allowance is based upon their compensation and length of service as of the date of retirement. Service retirement allowances are computed by formulas specified in the Ordinance and are based on date of employment, length of employment, age at date of retirement, and compensation earned during employment.

2013 Tier members may elect voluntary reduced service retirement upon attaining the age of 52 and completing 5 years of continuous full-time employment. Members may elect voluntary unreduced service retirement upon attaining the age of 67, and completing 5 years of continuous full-time employment. Members who continue to work upon attaining the normal retirement age of 67 continue to contribute to the Plan, and at the time they retire, computation of their allowance is based upon their compensation and length of service as of the date of retirement. Service retirement allowances are computed by formulas specified in the Ordinance and are based on length of service, age at retirement, and compensation earned during employment.

Members may receive disability retirement benefits prior to age 65 if the member is determined to be physically or mentally incapacitated, provided the member has 8 or more years of continuous full-time employment. The allowance for disability retirement is computed by a formula specified in the Ordinance and is based upon compensation earnable during employment, years of continuous service, and date upon which the retiring individual became a member. There is a guaranteed minimum disability benefit equal to the greater of one-third of terminal compensation (final average salary) or the retirement allowance, based on the disability formula.

Death benefits are payable to the estate or beneficiary of a member who dies before retirement. Survivorship benefits are payable to the spouse/domestic partner of a member who dies after retirement, or who was eligible but had not retired from service, provided the spouse/domestic partner was married to/established domestic partnership with the member at the date of retirement and for at least one year prior to the member's death.

EBMUDERS provides an annual cost-of-living benefit to all retirees. The cost-of-living adjustment is capped at 3.0% unless the System is more than 85% funded on a Projected Benefit Obligation (PBO) basis, in which case the cost-of-living adjustment is capped at 5.0%.[3]

The East Bay Municipal Utility District contributes to the Pension Plan based upon actuarially determined contribution rates adopted by the Retirement Board. Employer contribution rates are adopted annually based upon recommendations received from

[3] Effective October 1, 2000, when the System is 85% funded on a PBO basis and the cost-of-living is less than 4%, withdrawals from the accumulated COLA bank are made to allow cost-of-living increases up to 4%.

Section 2: GASBS 67 Information

EBMUDERS' actuary after the completion of the annual actuarial valuation. The average employer contribution rate as of June 30, 2022 for 2021-2022 (based on contribution rates adopted for the June 30, 2020 valuation) was 39.07% of covered payroll.

All members are required to make contributions to EBMUDERS regardless of the Pension Plan or tier in which they are included. The average member contribution rate as of June 30, 2022 for 2021-2022 (based on the June 30, 2020 valuation) was 8.94% of covered payroll.

Net Pension Liability

Measurement Date	June 30, 2022	June 30, 2021
Components of the Net Pension Liability		
Total Pension Liability	$2,835,771,092	$2,605,613,762
Plan Fiduciary Net Position	-2,005,352,000	-2,270,763,000
Net Pension Liability	$830,419,092	$334,850,762
Plan Fiduciary Net Position as a percentage of the Total Pension Liability	70.72%	87.15%

The Net Pension Liability was measured as of June 30, 2022 and 2021. The Plan Fiduciary Net Position (plan assets) was valued as of the measurement date, while the Total Pension Liability was determined based upon the results of the actuarial valuations as of June 30, 2022 and 2021, respectively.

Plan provisions. The plan provisions used in the measurement of the NPL as of June 30, 2022 and 2021 are the same as those used in the EBMUDERS funding valuations as of June 30, 2022 and 2021, respectively.

Actuarial assumptions. The TPL as of June 30, 2022 was determined by an actuarial valuation as of June 30, 2022. The actuarial assumptions used in the June 30, 2022 valuation were based on the July 1, 2016 through June 30, 2020 Actuarial Experience Study report dated November 12, 2020 and the June 30, 2022 Economic Assumptions Review dated November 8, 2022. They are the same as the assumptions used in the June 30, 2022 funding actuarial valuation for EBMUDERS. In particular, the following actuarial assumptions were applied to all periods included in the measurement:

Inflation:	2.50%
Cost-of-living adjustment:	2.75%
Salary increases:	Ranges from 9.25% to 3.75% based on time from hire, including inflation and real across the board salary increase
Investment rate of return:	6.75%, net of Pension Plan investment expense, including inflation
Other assumptions:	Same as those used in the June 30, 2022 actuarial valuation

Section 2: GASBS 67 Information

The TPL as of June 30, 2021 was determined by an actuarial valuation as of June 30, 2021. The actuarial assumptions used in the June 30, 2021 valuation were based on the July 1, 2016 through June 30, 2020 Actuarial Experience Study report dated November 12, 2020. They are the same as the assumptions used in the June 30, 2021 funding actuarial valuation for EBMUDERS. In particular, the following actuarial assumptions were applied to all periods included in the measurement:

Inflation:	2.75%
Cost-of-living adjustment:	2.75%
Salary increases:	Ranges from 9.50% to 4.00% based on time from hire, including inflation and real across the board salary increase
Investment rate of return:	7.00%, net of Pension Plan investment expense, including inflation
Other assumptions:	Same as those used in the June 30, 2021 actuarial valuation

Determination of discount rate and investment rates of return

The long-term expected rate of return on Pension Plan investments 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 ranges 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, and by adding expected inflation and subtracting expected investment expenses and a risk margin. The target allocation and projected arithmetic real rates of return for each major asset class, after deducting inflation but before deducting investment expenses, are summarized in the following table. These values were used in the derivation of the long-term expected investment rate of return assumption that was used in the actuarial valuation as of June 30, 2022. This information is subject to change every four years based on the actuarial experience study, or every two years based on the interim economic actuarial assumptions study.

Asset Class	Target Allocation	Long-Term Expected Arithmetic Real Rate of Return
Domestic Large Cap Equity	21.75%	5.60%
Domestic Small Cap Equity	3.25%	6.63%
Developed International Large Cap Equity	17.50%	6.39%
Emerging Market Equity	7.50%	8.34%
Core Bonds	20.00%	0.59%
High Yield Bonds	2.50%	3.22%
Bank Loans	2.50%	2.76%
Real Estate	5.00%	5.00%
Covered Calls	20.00%	5.07%
Total	**100.00%**	**4.71%**

Discount rate. The discount rate used to measure the Total Pension Liability was 6.75% as of June 30, 2022 and 7.00% as of June 30, 2021. The projection of cash flows used to determine the discount rate assumed plan member 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 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 of future plan members and their beneficiaries, as well as projected contributions from future plan members, are not included. Based on those assumptions, the Pension 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 Total Pension Liability as of both June 30, 2022 and June 30, 2021.

Discount rate sensitivity

Sensitivity of the Net Pension Liability to changes in the discount rate. The following presents the Net Pension Liability of EBMUDERS as of June 30, 2022, calculated using the discount rate of 6.75%, as well as what EBMUDERS' Net Pension Liability 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 June 30, 2022	$1,202,024,643	$830,419,092	$523,302,858

Schedule of changes in Net Pension Liability – Last two fiscal years

Measurement Date	June 30, 2022	June 30, 2021
Total Pension Liability		
• Service cost[1]	$51,705,682	$52,212,279
• Interest	181,464,461	176,877,819
• Change of benefit terms	0	0
• Differences between expected and actual experience	54,807,594	(37,465,547)
• Changes of assumptions	72,119,593	0
• Benefit payments, including refunds of member contributions	(129,940,000)	(121,249,000)
Net change in Total Pension Liability	**$230,157,330**	**$70,375,551**
Total Pension Liability – beginning	**2,605,613,762**	**2,535,238,211**
Total Pension Liability – ending	**$2,835,771,092**	**$2,605,613,762**
Plan Fiduciary Net Position		
• Contributions – employer	$91,393,000	$79,252,000
• Contributions – member	20,915,000	19,136,000
• Net investment income	(245,904,000)	481,909,000
• Benefit payments, including refunds of member contributions	(129,940,000)	(121,249,000)
• Administrative expense	(1,875,000)	(1,876,000)
• Other	0	0
Net change in Plan Fiduciary Net Position	**$(265,411,000)**	**$457,172,000**
Plan Fiduciary Net Position – beginning	**2,270,763,000**	**1,813,591,000**
Plan Fiduciary Net Position – ending	**$2,005,352,000**	**$2,270,763,000**
Net Pension Liability – ending	**$830,419,092**	**$334,850,762**
Plan Fiduciary Net Position as a percentage of the Total Pension Liability	**70.72%**	**87.15%**
Covered payroll[2]	**$233,939,981**	**$221,809,447**
Net Pension Liability as percentage of covered payroll	**354.97%**	**150.96%**

1 The service cost is based on the previous year's valuation, meaning the June 30, 2022 and June 30, 2021 measurement date values are based on the valuations as of June 30, 2021 and June 30, 2020, respectively. Both service costs have been calculated using the actuarial assumptions shown in the June 30, 2021 measurement date column on page 6, as there had been no changes in actuarial assumptions between the June 30, 2020 and June 30, 2021 valuations.

2 Pensionable payroll reported by EBMUDERS.

Schedule of contributions – Last ten fiscal years

Year Ended June 30	Actuarially Determined Contributions	Contributions in Relation to the Actuarially Determined Contributions	Contribution Deficiency / (Excess)	Covered Payroll[1]	Contributions as a Percentage of Covered Payroll
2013	$53,795,000	$53,795,000	$0	$153,706,944	35.00%
2014	61,660,000	61,660,000	0	159,513,251	38.66%
2015	64,177,000	64,177,000	0	166,886,146	38.46%
2016	65,218,000	65,218,000	0	174,586,444	37.36%
2017	67,096,000	67,096,000	0	182,031,838	36.86%
2018	71,221,000	71,221,000	0	193,717,364	36.77%
2019	74,033,000	74,033,000	0	203,541,207	36.37%
2020	77,645,000	77,645,000	0	215,109,948	36.10%
2021	79,252,000	79,252,000	0	221,809,447	35.73%
2022	91,393,000	91,393,000	0	233,939,981	39.07%

[1] These are the pensionable payroll amounts reported by EBMUDERS.

See accompanying notes to this schedule on the next page.

Section 2: GASBS 67 Information

Notes to Schedule:

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

Valuation date:	Actuarially determined contribution rates are calculated as of June 30, two years prior to the end of the fiscal year in which contributions are reported
Actuarial cost method:	Entry Age Cost Method
Amortization method:	Level percent of payroll
Remaining amortization period:	Plan changes, assumption changes, and experience gains/losses prior to July 1, 2011 are amortized over separate decreasing 30-year amortization periods. On or after July 1, 2011, plan changes are amortized over separate decreasing 15-year periods; assumption or method changes are amortized over separate decreasing 25-year periods (prior to July 1, 2021); and experience gains/losses are amortized over separate decreasing 20-year periods. On or after July 1, 2021, assumption or method changes are amortized over separate decreasing 20-year periods.
Asset valuation method:	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 market value, and is recognized over a five year period, further adjusted, if necessary, to be within 30% of the market value.

Section 2: GASBS 67 Information

Actuarial assumptions:

Valuation Date:	June 30, 2020 (for the year ended June 30, 2022 ADC)	June 30, 2019 (for the year ended June 30, 2021 ADC)
Investment rate of return:	7.00%	7.00%
Inflation rate:	2.75%	2.75%
Real across-the-board salary increase:	0.50%	0.50%
Projected salary increases:[1]	Ranges from 9.50% to 4.00% based on years of service	Ranges from 9.25% to 3.75% based on years of service
Cost of living adjustments:	2.75% per annum	2.75% per annum
Mortality:	Healthy: Pub-2010 General Healthy Retiree Amount-Weighted Above-Median Mortality Tables with rates increased by 5% for males, projected generationally with the two-dimensional mortality improvement scale MP-2020	Healthy: Headcount-Weighted RP-2014 Healthy Annuitant Mortality Tables projected 20 years with the two-dimensional improvement Scale MP-2015, set forward two years for males and set forward one year for females
Other assumptions:	Same as those used in the June 30, 2020 funding actuarial valuation	Same as those used in the June 30, 2019 funding actuarial valuation

1 Includes inflation at 2.75% plus across the board salary increases of 0.50% plus merit and promotion increases.

Section 3: Appendices

Appendix A: Projection of Plan Fiduciary Net Position for use in the Calculation of Discount Rate as of June 30, 2022 ($ in millions)

Year Beginning July 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)
2021	$2,271	$112	$130	$2	-$246	$2,005
2022	2,005	113	148	2	134	2,102
2023	2,102	116	153	2	140	2,204
2024	2,204	119	161	2	147	2,308
2025	2,308	121	169	2	154	2,412
2026	2,412	128	177	2	160	2,521
2027	2,521	128	185	2	168	2,631
2028	2,631	129	193	2	175	2,740
2029	2,740	130	201	2	182	2,849
2030	2,849	125	208	2	189	2,952
2056	2,933	8 *	289	2	187	2,837
2057	2,837	8 *	285	2	181	2,738
2058	2,738	7 *	281	2	175	2,637
2059	2,637	7 *	276	2	168	2,534
2060	2,534	6 *	270	2	161	2,429
2086	215	2 *	52	0 **	13	177
2087	177	2 *	45	0 **	10	144
2088	144	1 *	38	0 **	8	116
2089	116	1 *	32	0 **	7	92
2090	92	1 *	26	0 **	5	72
2119	0 **	0 *, **	0 **	0 **	0 **	0 **
2120	0 **	0 *, **	0 **	0 **	0 **	0 **
2121	0 **	0 *, **	0 **	0 **	0 **	0 **
2122	0 **	0 *, **	0 **	0 **	0 **	0 **
2123	0 **	0 *, **	0 **	0 **	0 **	0 **

* Mainly attributable to employer contributions to fund each year's annual administrative expenses.

** Less than $1 million, when rounded.

Note that in preparing the above projections, we have not taken into consideration the one-year delay between the date of the contribution rate calculation and the implementation.

Notes:

(1) Amounts may not total exactly due to rounding.

(2) Amounts shown for the year beginning July 1, 2021 row are actual amounts, based on the financial statements provided by EBMUDERS.

(3) Years 2031-2055, 2061-2085, and 2091-2118 have been omitted from this table.

(4) Column (a): None of the projected beginning Plan Fiduciary Net Position amounts shown have been adjusted for the time value of money.

(5) Column (b): Projected total contributions include employee and employer normal cost contributions based on closed group projections (based on covered active members as of June 30, 2022); plus employer contributions to the unfunded actuarial accrued liability; plus contributions to fund each year's annual administrative expenses reflecting a 20-year amortization schedule. Contributions are assumed to occur halfway through the year, on average.

(6) 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 June 30, 2022. The projected benefit payments reflect the cost of living increase assumptions used in the June 30, 2022 funding valuation report. Benefit payments are assumed to occur halfway through the year, on average. In accordance with paragraph 31.b.(1)(e) of GASB Statement No. 67, the long-term expected rate of return on Plan investments of 6.75% was applied to all periods of projected benefit payments to determine the discount rate.

(7) Column (d): Projected administrative expenses are calculated as approximately 0.08% of the projected beginning Plan Fiduciary Net Position amount. The 0.08% portion was based on the actual fiscal year 2021 - 2022 administrative expenses as a percentage of the beginning Plan Fiduciary Net Position amount as of July 1, 2021. Administrative expenses are assumed to occur halfway through the year, on average.

(8) Column (e): Projected investment earnings are based on the assumed investment rate of return of 6.75% per annum.

(9) As illustrated in this Exhibit, 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 June 30, 2022 shown earlier in this report, pursuant to paragraph 44 of GASB Statement No. 67.

(10) 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 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.

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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