

Employees' Retirement System of the State of Hawaii

GASB Statement Nos. 67 and 68 Accounting and
Financial Reporting for Pensions
June 30, 2021



Table of Contents

	<u>Section/Page</u>
Cover Letter	
Section A	Executive Summary
	Executive Summary Table A-1
	Discussion..... A-2 – A-4
Section B	Financial Statements
	Statement of Fiduciary Net PositionB-1
	Statement of Changes in Fiduciary Net PositionB-2
Section C	Required Supplementary Information
	Schedule of Changes in Net Pension Liability and Related RatiosC-1
	Schedule of the Employers’ Net Pension LiabilityC-2
	Schedule of Changes in the Employers’ Net Pension LiabilityC-3
Section D	Notes to Financial Statements
	Sensitivity of the Net Pension Liability to the Discount Rate Assumption D-1
	Summary of Population Statistics D-1
Section E	Calculation of the Single Discount Rate
	Calculation of the Single Discount Rate E-1
	Projection of Contributions..... E-2 – E-3
	Projection of Plan Fiduciary Net Position E-4 – E-5
	Present Values of Projected Benefit Payments E-6 – E-7
	Projection of Plan Net Position and Benefit Payments E-8
Section F	GASB No. 68 Information
	Aggregate Pension Expense F1
	Schedule of Current Period Deferred Outflows and Inflows F2
	Schedule of Current and Prior Period Deferred Outflows and Inflows F3
	Net Deferred Outflows and (Inflows) to be Recognized in Future Years F3
	Recognition of Deferred Outflows and Inflows of Resources..... F4
	Schedule of Employer Allocations F-5 – F-7
Section G	Glossary of Terms
	Glossary of Terms.....G-1 – G-4





February 25, 2022

The Board of Trustees
Employees' Retirement System of
The State of Hawaii
City Financial Tower
201 Merchant St., Ste. 1400
Honolulu, HI 96813-9280

Dear Trustees:

This report provides information required by the Employees' Retirement System of the State of Hawaii ("ERS") in connection with the Governmental Accounting Standards Board (GASB) Statement No. 67 "Financial Reporting for Pension Plans." Additionally, this report provides information required by the employers covered by ERS in connection with the GASB Statement No. 68, "Accounting and Financial Reporting for Pensions." The GASB 68 information shown was determined as of June 30, 2021, but it is intended that the employers covered by ERS will use this information in financial reporting for their fiscal years ending June 30, 2022.

Our calculation of the liability associated with the benefits described in this report was performed for the purpose of satisfying the requirements of GASB Statement Nos. 67 and 68. The calculation of the plan's liability for this report may not be applicable for funding purposes of the plan. A calculation of the plan's liability for purposes other than satisfying the requirements of GASB Nos. 67 and 68 may produce significantly different results. This report may be provided to parties other than the ERS only in its entirety and only with the permission of ERS.

This report is based upon information, furnished to us by ERS, concerning retirement and ancillary benefits, active members, deferred vested members, retirees and beneficiaries, and financial data. This information was checked for internal consistency, but it was not otherwise audited.

Certain tables included in the Required Supplementary Information should include a 10-year history of information. As provided for in GASB No. 67, this historical information is only presented for the years in which the information was measured in conformity with the requirements of GASB No. 67. The historical information in this report will begin with the information presented for the fiscal year ending June 30, 2014.

Section E of the report details the calculation of the single discount rate and is not required to be included in your financial statements. However, this information may be requested by your auditors, therefore, we have included it in this report.

Section F contains both the aggregate GASB No. 68 information on a plan wide level and the schedules with the individual employers' information.

This report complements the actuarial valuation report that was provided to ERS and should be considered in conjunction with that report. Please see the actuarial valuation report as of June 30, 2021 for additional discussion of the nature of actuarial calculations and more information related to participant data, economic and demographic assumptions, and benefit provisions.

To the best of our knowledge, this report is complete, accurate, and in accordance with generally recognized actuarial methods. One or more of the undersigned are members of the American Academy of Actuaries and meet the Qualification Standards of the Academy of Actuaries to render the actuarial opinion herein.

The signing actuaries are independent of the plan sponsor.

Respectfully submitted,



By _____
Lewis Ward
Consultant



By _____
Joseph P. Newton, FSA, EA
Pension Market Leader & Actuary



SECTION A

EXECUTIVE SUMMARY

Executive Summary as of June 30, 2021

	2021
Actuarial Valuation Date	June 30, 2021
Pension Plan's Fiscal Year Ending Date (Measurement Date & Reporting Date)	June 30, 2021
 Membership	
Number of	
- Retirees and Beneficiaries	52,618
- Inactive, Nonretired Members	31,237
- Active Members	65,561
- Total	149,416
Reported Payroll for Fiscal Year	\$ 4,667,346,006
 Net Pension Liability	
Total Pension Liability	\$ 34,139,165,472
Plan Fiduciary Net Position	21,935,791,711
Net Pension Liability	\$ 12,203,373,761
Plan Fiduciary Net Position as a Percentage of Total Pension Liability	64.25%
Net Pension Liability as a Percentage of Covered Payroll	261.46%
 Development of the Single Discount Rate	
Single Discount Rate	7.00%
Long-Term Expected Rate of Return	7.00%
Long-Term Municipal Bond Rate*	1.92%
Last year ending June 30 in the 2021 to 2120 projection period for which projected benefit payments are fully funded	None

**Source: Fixed-income municipal bonds with 20 years to maturity that include only federally tax-exempt municipal bonds as reported in Fidelity's Index's "20-year Municipal GO AA Index" as of June 30, 2021. In describing this index, Fidelity notes that the municipal curves are constructed using option-adjusted analytics of a diverse population of over 10,000 tax exempt securities.*



Discussion

Accounting Standard

For pension plans that are administered through trusts or equivalent arrangements, Governmental Accounting Standards Board (GASB) Statement No. 67, “Financial Reporting for Pension Plans,” replaces the requirements of GASB Statement No. 25, “Financial Reporting for Defined Benefit Pension Plans and Note Disclosures for Defined Contribution Plans,” and GASB Statement No. 50, “Pension Disclosures.” GASB Statement No. 67 establishes standards of financial reporting for separately issued financial reports and specifies the required approach for measuring the pension liability of employers and non-employer contributing entities for benefits provided through the pension plan.

The following discussion provides a summary of the information that is required to be disclosed under these accounting standards. A number of these disclosure items are provided in this report. However, certain information, such as notes regarding accounting policies and investments, is not included in this report and the retirement system will be responsible for preparing and disclosing that information to comply with these accounting standards.

Financial Statements

GASB Statement No. 67 requires defined benefit pension plans to present two financial statements – a statement of fiduciary net position and a statement of changes in fiduciary net position.

The *statement of fiduciary net position* presents the following items as of the end of the pension plan’s reporting period, such as:

- assets;
- deferred inflows and outflows of resources;
- liabilities; and
- fiduciary net position (assets, plus deferred outflows, minus liabilities, minus deferred inflows).

The *statement of changes in fiduciary net position* presents the following for the plan’s reporting period:

- additions, such as contributions and investment income;
- deductions, such as benefit payments and expenses; and
- net increase or decrease in the fiduciary net position (the difference between additions and deductions).

Notes to Financial Statements

GASB Statement No. 67 also requires the notes of the plan's financial statements to include additional disclosure information. This disclosure information should include:

- a description of the types of benefits provided by the plan, as well as automatic or ad hoc COLAs;
- the number and classes of employees covered by the benefit terms;
- the composition of the pension plan's Board and the authority under which benefit terms may be amended;
- a description of the plan's funding policy, which includes member and employer contribution requirements;
- the pension plan's investment policies;
- a description of how fair value is determined;
- concentrations of investments greater than or equal to 5%;
- annual money-weighted rate of return on pension plan investments;
- the portion of the present value of benefits to be provided through the pension plan to current active and inactive plan members;
- the pension plan's fiduciary net position;
- the net pension liability;
- the pension plan's fiduciary net position as a percentage of the total pension liability;
- significant assumptions and methods used to calculate the total pension liability;
- inputs to the discount rates; and
- certain information about mortality assumptions and the dates of experience studies.

Required Supplementary Information

Statement No. 67 requires a 10-year fiscal history of:

- sources of changes in the net pension liability;
- information about the components of the net pension liability and related ratios, including the pension plan's fiduciary net position as a percentage of the total pension liability, and the net pension liability as a percent of covered-employee payroll;
- comparison of the actual employer contributions to the actuarially determined contributions based on the plan's funding policy; and
- the annual money-weighted rate of return on pension plan investments for each year.

As shown above, you will need to include a determination of the annual money-weighted rate of return for your Notes to Financial Statements and Required Supplementary Information. Statement No. 67 requires that this information be determined using cash-flows with a frequency of not less than a monthly basis. We do not have the detailed financial information to determine this number. If you need our assistance please let us know.

Measurement of the Net Pension Liability

The net pension liability is to be measured as the total pension liability, less the amount of the pension plan's fiduciary net position. In actuarial terms, this will be the accrued liability less the market value of assets (not the smoothed actuarial value of assets that is often encountered in actuarial valuations performed to determine the employer's contribution requirement).



Timing of the Valuation

An actuarial valuation to determine the total pension liability is required to be performed at least every two years. The net pension liability and pension expense should be measured as of the pension plan's fiscal year end (measurement date) on a date that is within the employer's prior fiscal year. If the actuarial valuation used to determine the total pension liability is not calculated as of the measurement date, the total pension liability is required to be rolled forward from the actuarial valuation date to the measurement date.

The total pension liability shown in this report is based on an actuarial valuation performed as of June 30, 2021 and a measurement date of June 30, 2021.

Single Discount Rate

Projected benefit payments are required to be discounted to their actuarial present values using a single discount rate that reflects (1) a long-term expected rate of return on pension plan investments (to the extent that the plan's fiduciary net position is projected to be sufficient to pay benefits) and (2) tax-exempt municipal bond rate based on an index of 20-year general obligation bonds with an average AA credit rating as of the measurement date (to the extent that the contributions for use with the long-term expected rate of return are not met).

For the purpose of this valuation, the expected rate of return on pension plan investments is 7.00% the municipal bond rate is 1.92% (based on the daily rate closest to but not later than the measurement date of the Fidelity "20-Year Municipal GO AA Index"); and the resulting single discount rate is 7.00%.

Effective Date and Transition

GASB Statements No. 67 is effective for a pension plan's fiscal years beginning after June 15, 2013, however, earlier application is encouraged by the GASB. GASB Statement No. 68 is effective for an employer's fiscal year beginning after June 30, 2014.



SECTION B

FINANCIAL STATEMENTS

Statement of Fiduciary Net Position as of June 30, 2021

	2021
Assets	
Cash and Deposits	\$ 2,725,920,321
Receivables	
Accounts receivable and others	\$ 5,981,475
Investment sales proceeds	65,065,111
Accrued investment income	44,912,755
Employer contributions	90,874,146
Member contributions	-
Other	-
Total Receivables	\$ 206,833,487
Investments	
Equity securities	\$ 7,482,033,452
Fixed income securities	6,545,141,487
Real estate investments	1,871,180,686
Alternative investments	3,600,762,896
Total Investments	\$ 19,499,118,521
Invested Securities Lending Collateral	\$ 1,003,664,522
Equipment at cost, net of depreciation	\$ 6,005,533
Total Assets	\$ 23,441,542,384
 Liabilities	
Payables	
Accounts and other payables	\$ 153,922,392
Payables for securities purchased	94,105,759
Securities lending collateral	1,003,664,522
Notes payable	254,058,000
Total Liabilities	\$ 1,505,750,673
 Net Position Restricted for Pensions	 \$ 21,935,791,711



Statement of Changes in Fiduciary Net Position for Year Ended June 30, 2021

	Year Ending June 30, 2021
Additions	
Contributions	
Non-Employer Contributing Entity	\$ -
Employer	1,281,558,696
Employer (picked-up employee contributions)	299,473,128
Employee	1,153,318
Other	-
Total Contributions	\$ 1,582,185,142
Investment Income	
Net Appreciation in Fair Value of Investments	\$ 4,147,130,645
Interest and Dividends	253,571,896
Less Investment Expense	(119,947,169)
Net Investment Income	\$ 4,280,755,372
Other	\$ 381,470,389
Total Additions	\$ 6,244,410,903
 Deductions	
Benefit payments, including refunds of employee contributions	\$ 1,675,049,807
Pension Plan Administrative Expense	19,049,861
Other	-
Total Deductions	\$ 1,694,099,668
Net Increase in Net Position	\$ 4,550,311,235
 Net Position Restricted for Pensions	
Beginning of Year	\$ 17,385,480,476
End of Year	\$ 21,935,791,711



SECTION C

REQUIRED SUPPLEMENTARY INFORMATION

Schedule of Changes in the Net Pension Liability and Related Ratios

Fiscal Year Ended June 30, 2021

A. Total pension liability	
1. Service Cost	\$ 642,140,242
2. Interest on the Total Pension Liability	2,252,271,074
3. Changes of benefit terms	0
4. Difference between expected and actual experience of the Total Pension Liability	228,048,119
5. Changes of assumptions	0
6. Benefit payments, including refunds of employee contributions	(1,675,049,807)
7. Net change in total pension liability	\$ 1,447,409,628
8. Total pension liability – beginning	32,691,755,844
9. Total pension liability – ending	<u><u>\$ 34,139,165,472</u></u>
B. Plan fiduciary net position	
1. Contributions – employer	\$ 1,281,558,696
2. Contributions – employer (picked-up employee contributions)	299,473,128
3. Contributions – employee	1,153,318
4. Net investment income	4,662,225,761
5. Benefit payments, including refunds of employee contributions	(1,675,049,807)
6. Pension Plan Administrative Expense	(19,049,861)
7. Other	-
8. Net change in plan fiduciary net position	\$ 4,550,311,235
9. Plan fiduciary net position – beginning	17,385,480,476
10. Plan fiduciary net position – ending	<u><u>\$ 21,935,791,711</u></u>
C. Net pension liability	<u><u>\$ 12,203,373,761</u></u>
D. Plan fiduciary net position as a percentage of the total pension liability	64.25%
E. Covered-employee payroll	\$ 4,667,346,006
F. Net pension liability as a percentage of covered employee payroll	261.46%



Schedules of Required Supplementary Information Schedule of the Employers' Net Pension Liability

Last 10 Fiscal Years (which may be built prospectively)

FY Ending June 30,	Total Pension Liability	Plan Net Position	Net Pension Liability	Plan Net Position as a % of Total Pension Liability	Covered Payroll	Net Pension Liability as a % of Covered Payroll
2012						
2013	\$ 21,243,744,377	\$ 12,311,827,950	\$ 8,931,916,427	57.96%	\$ 3,720,809,962	240.05%
2014	22,220,097,547	14,203,015,303	8,017,082,244	63.92%	3,829,002,983	209.38%
2015	23,238,395,386	14,505,464,556	8,732,930,830	62.42%	3,995,447,345	218.57%
2016	27,439,233,629	14,069,978,917	13,369,254,712	51.28%	4,112,227,306	325.11%
2017	28,648,630,533	15,698,324,306	12,950,306,227	54.80%	4,243,521,876	305.18%
2018	29,917,401,383	16,598,407,973	13,318,993,410	55.48%	4,256,052,840	312.94%
2019	31,396,447,685	17,227,026,987	14,169,420,698	54.87%	4,376,216,753	323.78%
2020	32,691,755,844	17,385,480,476	15,306,275,368	53.18%	4,481,443,808	341.55%
2021	34,139,165,472	21,935,791,711	12,203,373,761	64.25%	4,667,346,006	261.46%



Schedules of Required Supplementary Information

Schedule of Changes in the Employers' Net Pension Liability and Related Ratios

Last 10 Fiscal Years (which may be built prospectively)

Fiscal year ending June 30,	2021	2020	2019	2018	2017	2016	2015	2014	2013	2012
Total Pension Liability										
Service Cost	\$ 642,140,242	\$ 643,407,238	\$ 619,504,278	\$ 584,470,193	\$ 576,724,568	\$ 484,278,499	\$ 437,901,029	\$ 421,956,129		
Interest on the Total Pension Liability	2,252,271,074	2,165,389,424	2,063,885,936	1,976,275,120	1,894,622,190	1,748,619,873	1,693,252,684	1,618,917,776		
Benefit Changes	-	-	-	-	-	-	-	-		
Difference between Expected and Actual Experience	228,048,119	54,544,851	221,473,495	124,753,379	61,179,390	297,534,219	(192,816,757)	66,400,876		
Assumption Changes	-	-	60,320,037	-	-	2,915,922,677	261,213,541	-		
Benefit Payments	(1,651,431,372)	(1,545,589,761)	(1,469,634,809)	(1,395,881,342)	(1,306,788,954)	(1,232,589,353)	(1,170,744,770)	(1,122,445,642)		
Refunds	(23,618,435)	(22,443,593)	(16,502,635)	(20,846,500)	(16,340,290)	(12,927,672)	(10,507,888)	(8,475,969)		
Net Change in Total Pension Liability	1,447,409,628	1,295,308,159	1,479,046,302	1,268,770,850	1,209,396,904	4,200,838,243	1,018,297,839	976,353,170		
Total Pension Liability - Beginning	32,691,755,844	31,396,447,685	29,917,401,383	28,648,630,533	27,439,233,629	23,238,395,386	22,220,097,547	21,243,744,377		
Total Pension Liability - Ending (a)	\$ 34,139,165,472	\$ 32,691,755,844	\$ 31,396,447,685	\$ 29,917,401,383	\$ 28,648,630,533	\$ 27,439,233,629	\$ 23,238,395,386	\$ 22,220,097,547		
Plan Fiduciary Net Position										
Employer Contributions	\$ 1,281,558,696	\$ 1,098,589,013	\$ 922,635,334	\$ 847,595,466	\$ 781,244,218	\$ 756,558,222	\$ 717,792,981	\$ 653,127,697		
Employer Contributions (picked-up employee contributions)	299,473,128	284,142,994	270,764,670	257,294,033	249,211,751	235,079,968	221,909,859	204,821,010		
Employee Contributions	1,153,318	3,255,037	2,458,908	2,133,901	1,492,316	1,721,893	1,595,560	1,306,327		
Pension Plan Net Investment Income	4,662,225,761	358,282,664	932,696,412	1,225,572,599	1,934,512,507	(169,368,110)	556,436,475	2,175,479,960		
Benefit Payments	(1,651,431,372)	(1,545,589,761)	(1,469,634,809)	(1,395,881,342)	(1,306,788,954)	(1,232,589,353)	(1,170,744,770)	(1,122,445,642)		
Refunds	(23,618,435)	(22,443,593)	(16,502,635)	(20,846,500)	(16,340,290)	(12,927,672)	(10,507,888)	(8,475,969)		
Pension Plan Administrative Expense	(19,049,861)	(17,782,865)	(13,798,866)	(15,784,490)	(14,986,159)	(13,960,587)	(14,032,964)	(12,626,030)		
Other	-	-	-	-	-	-	-	-		
Net Change in Plan Fiduciary Net Position	4,550,311,235	158,453,489	628,619,014	900,083,667	1,628,345,389	(435,485,639)	302,449,253	1,891,187,353		
Plan Fiduciary Net Position - Beginning	17,385,480,476	17,227,026,987	16,598,407,973	15,698,324,306	14,069,978,917	14,505,464,556	14,203,015,303	12,311,827,950		
Plan Fiduciary Net Position - Ending (b)	\$ 21,935,791,711	\$ 17,385,480,476	\$ 17,227,026,987	\$ 16,598,407,973	\$ 15,698,324,306	\$ 14,069,978,917	\$ 14,505,464,556	\$ 14,203,015,303		
Net Pension Liability - Ending (a) - (b)	12,203,373,761	15,306,275,368	14,169,420,698	13,318,993,410	12,950,306,227	13,369,254,712	8,732,930,830	8,017,082,244		
Plan Fiduciary Net Position as a Percentage of Total Pension Liability	64.25 %	53.18 %	54.87 %	55.48 %	54.80 %	51.28 %	62.42 %	63.92 %		
Covered Employee Payroll	\$ 4,667,346,006	\$ 4,481,443,808	\$ 4,376,216,753	\$ 4,256,052,840	\$ 4,243,521,876	\$ 4,112,227,306	\$ 3,995,447,345	\$ 3,829,002,983		
Net Pension Liability as a Percentage of Covered Employee Payroll	261.46 %	341.55 %	323.78 %	312.94 %	305.18 %	325.11 %	218.57 %	209.38 %		
Notes to Schedule:										
N/A										



SECTION D

NOTES TO FINANCIAL STATEMENTS

Single Discount Rate

A single discount rate of 7.00% was used to measure the total pension liability. This single discount rate was based on the expected rate of return on pension plan investments of 7.00%. The projection of cash flows used to determine this single discount rate assumed that plan member contributions will be made at the current contribution rate and that employer contributions will be made at rates equal to the difference between actuarially determined contribution rates and the member rate. Based on these assumptions, the pension plan's fiduciary net position was projected to be available to make all projected future benefit payments of 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.

Regarding the sensitivity of the net pension liability to changes in the single discount rate, the following presents the plan's net pension liability, calculated using a single discount rate of 7.00%, as well as what the plan's net pension liability would be if it were calculated using a single discount rate that is 1-percentage-point lower or 1-percentage-point higher:

Sensitivity of Net Pension Liability to the Single Discount Rate Assumption

1% Decrease	Current Single Discount	1% Increase
6.00%	Rate Assumption	8.00%
7.00%		
\$16,810,511,423	\$12,203,373,761	\$8,405,054,565

Summary of Population Statistics

Inactive Plan Members or Beneficiaries Currently Receiving Benefits	52,618
Inactive Plan Members Entitled to But Not Yet Receiving Benefits	31,237
Active Plan Members	65,561
Total Plan Members	149,416



SECTION E

CALCULATION OF THE SINGLE DISCOUNT RATE

Calculation of the Single Discount Rate

GASB Statement No. 67 includes a specific requirement for the discount rate that is used for the purpose of the measurement of the Total Pension Liability. This rate considers the ability of the fund to meet benefit obligations in the future. To make this determination, employer contributions, employee contributions, benefit payments, expenses and investment returns are projected into the future. The Plan Net Position (assets) in future years can then be determined and compared to its obligation to make benefit payments in those years. As long as assets are projected to be on hand in a future year, the assumed valuation discount rate is used. In years where assets are not projected to be sufficient to meet benefit payments, the use of a tax-exempt municipal bond rate is required, as described in the following paragraph.

The *single discount rate* (SDR) is equivalent to applying these two rates to the benefits that are projected to be paid during the different time periods. The SDR reflects (1) the long-term expected rate of return on pension plan investments (during the period in which the fiduciary net position is projected to be sufficient to pay benefits) and (2) tax-exempt municipal bond rate based on an index of 20-year general obligation bonds with an average AA credit rating as of the measurement date (to the extent that the contributions for use with the long-term expected rate of return are not met).

For the purpose of this valuation, the expected rate of return on pension plan investments is 7.00%; the municipal bond rate is 1.92% (based on the daily rate closest to but not later than the measurement date of the Fidelity “20-Year Municipal GO AA Index”); and the resulting single discount rate is 7.00%.

The tables in this section provide background for the development of the single discount rate.

The **Projection of Contributions** table shows the development of expected contributions in future years. Normal Cost contributions for future hires are not included (nor are their liabilities).

The **Projection of Plan Fiduciary Net Position** table shows the development of expected asset levels in future years.

The **Present Values of Projected Benefit Payments** table shows the development of the Single Discount Rate (SDR). It breaks down the benefit payments into present values for funded and unfunded portions and shows the equivalent total at the SDR.

Single Discount Rate Development

Projection of Contributions Beginning July 1, 2021

Year	Payroll for Current Employees	Payroll for Future Employees	Total Employee Payroll	Contributions from Current Employees	Employer Contributions for Current Employees	Employer Contributions for Future Employees	Total Contributions
1	4,551,529,766	\$ 232,248,716	\$ 4,783,778,481	\$ 295,394,282	\$ 1,180,771,582	\$ 49,566,857	\$ 1,525,732,721
2	4,362,159,084	\$ 589,051,644	4,951,210,728	290,519,795	1,131,532,917	125,701,190	1,547,753,902
3	4,203,838,450	\$ 920,664,653	5,124,503,103	286,281,398	1,090,305,549	196,431,129	1,573,018,076
4	4,057,872,568	\$ 1,245,988,144	5,303,860,712	282,022,143	1,052,211,190	265,768,799	1,600,002,132
5	3,919,712,015	\$ 1,569,783,822	5,489,495,837	277,907,582	1,016,024,947	334,689,701	1,628,622,230
6	3,786,601,089	\$ 1,895,027,103	5,681,628,191	273,392,599	981,026,952	403,786,569	1,658,206,120
7	3,655,157,791	\$ 2,225,327,387	5,880,485,178	268,654,098	946,516,339	473,888,028	1,689,058,465
8	3,525,600,521	\$ 2,560,701,638	6,086,302,159	263,362,359	912,181,162	544,735,884	1,720,279,405
9	3,395,647,189	\$ 2,903,675,546	6,299,322,735	257,390,057	878,558,243	617,696,432	1,753,644,732
10	3,265,563,687	\$ 3,254,235,343	6,519,799,031	251,121,848	844,901,645	692,270,720	1,788,294,213
11	3,135,999,478	\$ 3,611,992,519	6,747,991,997	244,294,359	811,379,403	768,376,100	1,824,049,862
12	3,005,924,333	\$ 3,978,247,384	6,984,171,717	237,167,430	777,724,967	846,289,186	1,861,181,583
13	2,876,464,743	\$ 4,352,152,984	7,228,617,727	229,829,533	744,229,794	925,829,807	1,899,889,134
14	2,748,017,259	\$ 4,733,602,088	7,481,619,347	222,039,795	710,996,485	1,006,975,151	1,940,011,431
15	2,618,235,866	\$ 5,125,240,158	7,743,476,024	213,648,047	677,418,051	1,090,287,985	1,981,354,083
16	2,488,689,508	\$ 5,525,808,177	8,014,497,685	205,068,015	643,900,429	1,175,500,479	2,024,468,923
17	2,359,995,007	\$ 5,935,010,097	8,295,005,104	196,115,585	610,603,208	1,262,549,656	2,069,268,449
18	2,233,208,669	\$ 6,352,121,613	8,585,330,283	187,142,886	577,799,687	1,351,281,434	2,116,224,007
19	2,108,682,108	\$ 6,777,134,735	8,885,816,843	177,972,770	545,580,840	1,441,694,115	2,165,247,725
20	1,986,219,543	\$ 7,210,600,889	9,196,820,432	168,630,039	513,896,013	1,533,905,001	2,216,431,053
21	1,864,526,525	\$ 7,654,182,622	9,518,709,147	159,230,565	482,410,291	1,628,267,767	2,269,908,623
22	1,743,786,568	\$ 8,108,077,400	9,851,863,967	149,616,888	451,171,154	1,724,824,417	2,325,612,459
23	1,623,625,430	\$ 8,573,053,776	10,196,679,206	139,794,150	420,081,777	1,823,738,446	2,383,614,373
24	1,502,917,144	\$ 9,050,645,835	10,553,562,978	129,852,041	388,850,835	1,925,336,199	2,444,039,075
25	1,382,646,341	\$ 9,540,291,342	10,922,937,683	119,875,438	357,733,084	2,029,498,072	2,507,106,594
26	1,263,896,153	\$ 10,041,344,348	11,305,240,501	109,832,576	327,008,762	2,136,086,652	2,572,927,990
27	1,148,120,347	\$ 10,552,803,572	11,700,923,919	99,886,470	297,054,004	2,244,888,939	2,641,829,413
28	1,033,487,161	\$ 11,076,969,095	12,110,456,256	90,120,080	267,394,878	2,356,394,225	2,713,909,183
29	919,688,854	\$ 11,614,633,372	12,534,322,225	80,288,837	237,951,759	2,470,771,090	2,789,011,686
30	807,951,629	\$ 12,165,071,874	12,973,023,503	70,614,972	209,041,907	2,587,865,405	2,867,522,284
31	701,354,353	\$ 12,725,724,973	13,427,079,326	61,298,370	181,461,917	2,707,132,662	2,949,892,949
32	602,203,458	\$ 13,294,823,644	13,897,027,102	52,692,803	155,808,534	2,828,196,539	3,036,697,876
33	510,974,563	\$ 13,872,448,488	14,383,423,051	44,710,274	132,204,817	2,951,074,181	3,127,989,272
34	428,104,513	\$ 14,458,738,345	14,886,842,857	37,459,145	110,763,789	3,075,795,125	3,224,018,059
35	354,336,386	\$ 15,053,545,971	15,407,882,357	31,004,434	91,677,708	3,202,328,046	3,325,010,188
36	289,881,586	\$ 15,657,276,654	15,947,158,240	25,364,639	75,001,272	3,330,759,161	3,431,125,072
37	234,329,943	\$ 16,270,978,836	16,505,308,778	20,503,870	60,628,355	3,461,311,505	3,542,443,730
38	187,161,821	\$ 16,895,832,764	17,082,994,586	16,376,659	48,424,513	3,594,236,150	3,659,037,322
39	148,339,071	\$ 17,532,560,325	17,680,899,396	12,979,669	38,379,875	3,729,686,663	3,781,046,207
40	117,089,619	\$ 18,182,641,255	18,299,730,875	10,245,342	30,294,682	3,867,977,827	3,908,517,851
41	91,770,178	\$ 18,848,451,278	18,940,221,456	8,029,891	23,743,764	4,009,615,028	4,041,388,683
42	71,166,023	\$ 19,531,963,183	19,603,129,206	6,227,027	18,412,836	4,155,017,934	4,179,657,797
43	54,548,782	\$ 20,234,689,946	20,289,238,729	4,773,018	14,113,446	4,304,508,402	4,323,394,866
44	41,153,674	\$ 20,958,208,410	20,999,362,084	3,600,946	10,647,720	4,458,421,870	4,472,670,536
45	30,514,927	\$ 21,703,824,830	21,734,339,757	2,670,056	7,895,149	4,617,036,218	4,627,601,423
46	22,086,259	\$ 22,472,955,390	22,495,041,649	1,932,548	5,714,394	4,780,652,708	4,788,299,650
47	15,639,521	\$ 23,266,728,585	23,282,368,106	1,368,458	4,046,425	4,949,511,406	4,954,926,289
48	10,568,142	\$ 24,086,682,848	24,097,250,990	924,712	2,734,303	5,123,939,579	5,127,598,594
49	6,796,330	\$ 24,933,858,444	24,940,654,775	594,679	1,758,419	5,304,158,524	5,306,511,622
50	3,988,842	\$ 25,809,588,850	25,813,577,692	349,024	1,032,036	5,490,451,909	5,491,832,969



Single Discount Rate Development

Projection of Contributions Beginning July 1, 2021

(Continued)

Year	Payroll for Current Employees	Payroll for Future Employees	Total Employee Payroll	Contributions from Current Employees	Employer	Employer	Total Contributions
					Contributions for Current Employees	Contributions for Future Employees	
51	2,182,006	\$ 26,714,870,905	26,717,052,911	190,926	564,552	5,683,031,792	5,683,787,270
52	1,025,906	\$ 27,651,123,857	27,652,149,763	89,767	265,433	5,882,200,087	5,882,555,287
53	403,547	\$ 28,619,571,457	28,619,975,005	35,310	104,410	6,088,217,122	6,088,356,842
54	181,554	\$ 29,621,492,576	29,621,674,130	15,886	46,973	6,301,354,951	6,301,417,810
55	73,232	\$ 30,658,359,493	30,658,432,724	6,408	18,947	6,521,926,769	6,521,952,124
56	14,913	\$ 31,731,462,957	31,731,477,870	1,306	3,858	6,750,207,157	6,750,212,321
57	-	\$ 32,842,079,595	32,842,079,595	-	-	6,986,467,691	6,986,467,691
58	-	\$ 33,991,552,381	33,991,552,381	-	-	7,230,994,060	7,230,994,060
59	-	\$ 35,181,256,714	35,181,256,714	-	-	7,484,078,852	7,484,078,852
60	-	\$ 36,412,600,699	36,412,600,699	-	-	7,746,021,612	7,746,021,612
61	-	\$ 37,687,041,724	37,687,041,724	-	-	8,017,132,369	8,017,132,369
62	-	\$ 39,006,088,184	39,006,088,184	-	-	8,297,732,002	8,297,732,002
63	-	\$ 40,371,301,271	40,371,301,271	-	-	8,588,152,622	8,588,152,622
64	-	\$ 41,784,296,815	41,784,296,815	-	-	8,888,737,963	8,888,737,963
65	-	\$ 43,246,747,204	43,246,747,204	-	-	9,199,843,792	9,199,843,792
66	-	\$ 44,760,383,356	44,760,383,356	-	-	9,521,838,325	9,521,838,325
67	-	\$ 46,326,996,773	46,326,996,773	-	-	9,855,102,666	9,855,102,666
68	-	\$ 47,948,441,660	47,948,441,660	-	-	10,200,031,259	10,200,031,259
69	-	\$ 49,626,637,118	49,626,637,118	-	-	10,557,032,354	10,557,032,354
70	-	\$ 51,363,569,417	51,363,569,417	-	-	10,926,528,486	10,926,528,486
71	-	\$ 53,161,294,347	53,161,294,347	-	-	11,308,956,983	11,308,956,983
72	-	\$ 55,021,939,649	55,021,939,649	-	-	11,704,770,477	11,704,770,477
73	-	\$ 56,947,707,537	56,947,707,537	-	-	12,114,437,444	12,114,437,444
74	-	\$ 58,940,877,301	58,940,877,301	-	-	12,538,442,755	12,538,442,755
75	-	\$ 61,003,808,006	61,003,808,006	-	-	12,977,288,251	12,977,288,251
76	-	\$ 63,138,941,286	63,138,941,286	-	-	13,431,493,340	13,431,493,340
77	-	\$ 65,348,804,231	65,348,804,231	-	-	13,901,595,607	13,901,595,607
78	-	\$ 67,636,012,380	67,636,012,380	-	-	14,388,151,453	14,388,151,453
79	-	\$ 70,003,272,813	70,003,272,813	-	-	14,891,736,754	14,891,736,754
80	-	\$ 72,453,387,361	72,453,387,361	-	-	15,412,947,540	15,412,947,540
81	-	\$ 74,989,255,919	74,989,255,919	-	-	15,952,400,704	15,952,400,704
82	-	\$ 77,613,879,876	77,613,879,876	-	-	16,510,734,729	16,510,734,729
83	-	\$ 80,330,365,672	80,330,365,672	-	-	17,088,610,444	17,088,610,444
84	-	\$ 83,141,928,470	83,141,928,470	-	-	17,686,711,810	17,686,711,810
85	-	\$ 86,051,895,967	86,051,895,967	-	-	18,305,746,723	18,305,746,723
86	-	\$ 89,063,712,326	89,063,712,326	-	-	18,946,447,858	18,946,447,858
87	-	\$ 92,180,942,257	92,180,942,257	-	-	19,609,573,533	19,609,573,533
88	-	\$ 95,407,275,236	95,407,275,236	-	-	20,295,908,607	20,295,908,607
89	-	\$ 98,746,529,869	98,746,529,869	-	-	21,006,265,408	21,006,265,408
90	-	\$ 102,202,658,415	102,202,658,415	-	-	21,741,484,698	21,741,484,698
91	-	\$ 105,779,751,459	105,779,751,459	-	-	22,502,436,662	22,502,436,662
92	-	\$ 109,482,042,760	109,482,042,760	-	-	23,290,021,945	23,290,021,945
93	-	\$ 113,313,914,257	113,313,914,257	-	-	24,105,172,713	24,105,172,713
94	-	\$ 117,279,901,256	117,279,901,256	-	-	24,948,853,758	24,948,853,758
95	-	\$ 121,384,697,800	121,384,697,800	-	-	25,822,063,640	25,822,063,640
96	-	\$ 125,633,162,223	125,633,162,223	-	-	26,725,835,867	26,725,835,867
97	-	\$ 130,030,322,901	130,030,322,901	-	-	27,661,240,123	27,661,240,123
98	-	\$ 134,581,384,202	134,581,384,202	-	-	28,695,468,509	28,695,468,509
99	-	\$ 139,291,732,649	139,291,732,649	-	-	29,699,809,907	29,699,809,907
100	-	\$ 144,166,943,292	144,166,943,292	-	-	30,739,303,254	30,739,303,254



Single Discount Rate Development

Projection of Plan Fiduciary Net Position Beginning July 1, 2021

Year	Projected Beginning	Projected Total	Projected Benefit	Projected	Projected Investment	Projected Ending Plan
	Plan Net Position	Contributions	Payments	Administrative Expenses	Earnings at 7.00%	Net Position
	(a)	(b)	(c)	(d)	(e)	(f)=(a)+(b)-(c)-(d)+(e)
1	\$ 21,935,791,711	\$ 1,525,732,721	\$ 1,748,978,071	\$ 19,716,606	\$ 1,527,145,574	\$ 23,219,975,329
2	23,219,975,329	1,547,753,902	\$ 1,844,980,423	18,560,677	1,614,532,653	\$ 24,518,720,784
3	24,518,720,784	1,573,018,076	\$ 1,939,190,522	17,714,173	1,703,101,668	\$ 25,837,935,833
4	25,837,935,833	1,600,002,132	\$ 2,035,538,945	16,986,266	1,793,085,075	\$ 27,178,497,829
5	27,178,497,829	1,628,622,230	\$ 2,132,456,211	16,326,591	1,884,597,141	\$ 28,542,934,397
6	28,542,934,397	1,658,206,120	\$ 2,230,033,731	15,727,894	1,977,788,773	\$ 29,933,167,664
7	29,933,167,664	1,689,058,465	\$ 2,329,950,978	15,152,833	2,072,748,500	\$ 31,349,870,817
8	31,349,870,817	1,720,279,405	\$ 2,429,147,389	14,595,030	2,169,598,011	\$ 32,796,005,814
9	32,796,005,814	1,753,644,732	\$ 2,528,340,864	14,057,515	2,268,580,937	\$ 34,275,833,104
10	34,275,833,104	1,788,294,213	\$ 2,628,133,926	13,520,864	2,369,945,850	\$ 35,792,418,376
11	35,792,418,376	1,824,049,862	\$ 2,728,490,012	12,990,571	2,473,902,290	\$ 37,348,889,946
12	37,348,889,946	1,861,181,583	\$ 2,828,667,491	12,474,948	2,580,703,761	\$ 38,949,632,850
13	38,949,632,850	1,899,889,134	\$ 2,927,438,320	11,959,346	2,690,706,845	\$ 40,600,831,163
14	40,600,831,163	1,940,011,431	\$ 3,023,372,498	11,457,057	2,804,387,632	\$ 42,310,400,671
15	42,310,400,671	1,981,354,083	\$ 3,118,531,443	10,954,843	2,922,223,064	\$ 44,084,491,532
16	44,084,491,532	2,024,468,923	\$ 3,210,626,462	10,451,362	3,044,741,436	\$ 45,932,624,068
17	45,932,624,068	2,069,268,449	\$ 3,299,043,014	9,951,885	3,172,627,123	\$ 47,865,524,742
18	47,865,524,742	2,116,224,007	\$ 3,383,283,849	9,454,439	3,306,664,373	\$ 49,895,674,835
19	49,895,674,835	2,165,247,725	\$ 3,463,131,309	8,964,022	3,447,731,169	\$ 52,036,558,399
20	52,036,558,399	2,216,431,053	\$ 3,537,896,160	8,480,942	3,596,798,247	\$ 54,303,410,597
21	54,303,410,597	2,269,908,623	\$ 3,607,527,208	8,005,111	3,754,938,463	\$ 56,712,725,365
22	56,712,725,365	2,325,612,459	\$ 3,671,863,677	7,531,419	3,923,309,764	\$ 59,282,252,490
23	59,282,252,490	2,383,614,373	\$ 3,730,492,560	7,058,792	4,103,171,352	\$ 62,031,486,863
24	62,031,486,863	2,444,039,075	\$ 3,783,628,354	6,587,656	4,295,884,766	\$ 64,981,194,694
25	64,981,194,694	2,507,106,594	\$ 3,831,477,009	6,115,912	4,502,904,197	\$ 68,153,612,564
26	68,153,612,564	2,572,927,990	\$ 3,872,787,181	5,647,523	4,725,832,948	\$ 71,573,938,798
27	71,573,938,798	2,641,829,413	\$ 3,906,310,321	5,188,085	4,966,488,890	\$ 75,270,758,695
28	75,270,758,695	2,713,909,183	\$ 3,933,130,138	4,732,693	5,226,839,259	\$ 79,273,644,306
29	79,273,644,306	2,789,011,686	\$ 3,953,560,738	4,274,995	5,508,938,153	\$ 83,613,758,412
30	83,613,758,412	2,867,522,284	\$ 3,967,142,190	3,819,557	5,814,995,896	\$ 88,325,314,846
31	88,325,314,846	2,949,892,949	\$ 3,972,439,786	3,370,253	6,147,472,240	\$ 93,446,869,996
32	93,446,869,996	3,036,697,876	\$ 3,968,346,071	2,945,272	6,509,123,367	\$ 99,021,399,897
33	99,021,399,897	3,127,989,272	\$ 3,954,581,444	2,543,917	6,902,969,042	\$ 105,095,232,851
34	105,095,232,851	3,224,018,059	\$ 3,931,052,174	2,172,869	7,332,263,875	\$ 111,718,289,742
35	111,718,289,742	3,325,010,188	\$ 3,896,928,752	1,832,552	7,800,538,629	\$ 118,945,077,254
36	118,945,077,254	3,431,125,072	\$ 3,852,072,843	1,527,515	8,311,618,860	\$ 126,834,220,828
37	126,834,220,828	3,542,443,730	\$ 3,796,923,875	1,255,177	8,869,596,106	\$ 135,448,081,611
38	135,448,081,611	3,659,037,322	\$ 3,731,826,035	1,019,641	9,478,826,112	\$ 144,853,099,370
39	144,853,099,370	3,781,046,207	\$ 3,656,891,395	818,019	10,143,960,734	\$ 155,120,396,897
40	155,120,396,897	3,908,517,851	\$ 3,572,554,113	653,065	10,869,965,167	\$ 166,325,672,736
41	166,325,672,736	4,041,388,683	\$ 3,480,022,897	518,512	11,662,094,749	\$ 178,548,614,759
42	178,548,614,759	4,179,657,797	\$ 3,380,398,882	408,527	12,525,889,912	\$ 191,873,355,058
43	191,873,355,058	4,323,394,866	\$ 3,274,371,326	318,463	13,467,218,744	\$ 206,389,278,880
44	206,389,278,880	4,472,670,536	\$ 3,162,890,776	245,215	14,492,308,043	\$ 222,191,121,468
45	222,191,121,468	4,627,601,423	\$ 3,046,595,308	185,715	15,607,771,440	\$ 239,379,713,308
46	239,379,713,308	4,788,299,650	\$ 2,926,267,327	137,636	16,820,644,085	\$ 258,062,252,080
47	258,062,252,080	4,954,926,289	\$ 2,802,554,882	99,791	18,138,413,100	\$ 278,352,936,796
48	278,352,936,796	5,127,598,594	\$ 2,676,350,256	70,241	19,569,045,818	\$ 300,373,160,712
49	300,373,160,712	5,306,511,622	\$ 2,548,170,961	46,934	21,121,028,740	\$ 324,252,483,179
50	324,252,483,179	5,491,832,969	\$ 2,418,630,014	29,569	22,803,415,705	\$ 350,129,072,271



Single Discount Rate Development

Projection of Plan Fiduciary Net Position Beginning July 1, 2021 (Continued)

Year	Projected Beginning	Projected Total	Projected Benefit	Projected	Projected Investment	Projected Ending Plan
	Plan Net Position	Contributions	Payments	Administrative Expenses	Earnings at 7.00%	Net Position
	(a)	(b)	(c)	(d)	(e)	(f)=(a)+(b)-(c)-(d)+(e)
51	350,129,072,271	5,683,787,270	\$ 2,288,087,012	17,631	24,625,873,854	\$ 378,150,628,751
52	378,150,628,751	5,882,555,287	\$ 2,157,167,421	9,148	26,598,727,005	\$ 408,474,734,474
53	408,474,734,474	6,088,356,842	\$ 2,026,266,368	4,113	28,732,999,857	\$ 441,269,820,692
54	441,269,820,692	6,301,417,810	\$ 1,895,860,076	1,545	31,040,474,016	\$ 476,715,850,898
55	476,715,850,898	6,521,952,124	\$ 1,766,552,387	673	33,533,733,540	\$ 515,004,983,502
56	515,004,983,502	6,750,212,321	\$ 1,638,779,087	161	36,226,223,256	\$ 556,342,639,830
57	556,342,639,830	6,986,467,691	\$ 1,512,979,592	-	39,132,316,803	\$ 600,948,444,732
58	600,948,444,732	7,230,994,060	\$ 1,389,670,961	-	42,267,379,629	\$ 649,057,147,460
59	649,057,147,460	7,484,078,852	\$ 1,269,378,691	-	45,647,835,994	\$ 700,919,683,616
60	700,919,683,616	7,746,021,612	\$ 1,152,630,044	-	49,291,243,556	\$ 756,804,318,740
61	756,804,318,740	8,017,132,369	\$ 1,039,986,346	-	53,216,372,254	\$ 816,997,837,016
62	816,997,837,016	8,297,732,002	\$ 932,012,473	-	57,443,288,587	\$ 881,806,845,133
63	881,806,845,133	8,588,152,622	\$ 829,215,622	-	61,993,448,999	\$ 951,559,231,133
64	951,559,231,133	8,888,737,963	\$ 732,051,927	-	66,889,801,785	\$ 1,026,605,718,955
65	1,026,605,718,955	9,199,843,792	\$ 640,904,921	-	72,156,896,666	\$ 1,107,321,554,491
66	1,107,321,554,491	9,521,838,325	\$ 556,086,519	-	77,821,002,791	\$ 1,194,108,309,088
67	1,194,108,309,088	9,855,102,666	\$ 477,833,829	-	83,910,235,108	\$ 1,287,395,813,032
68	1,287,395,813,032	10,200,031,259	\$ 406,300,246	-	90,454,690,033	\$ 1,387,644,234,078
69	1,387,644,234,078	10,557,032,354	\$ 341,546,449	-	97,486,591,267	\$ 1,495,346,311,250
70	1,495,346,311,250	10,926,528,486	\$ 283,547,197	-	105,040,445,948	\$ 1,611,029,738,488
71	1,611,029,738,488	11,308,956,983	\$ 232,221,526	-	113,153,210,487	\$ 1,735,259,684,432
72	1,735,259,684,432	11,704,770,477	\$ 187,401,109	-	121,864,468,054	\$ 1,868,641,521,853
73	1,868,641,521,853	12,114,437,444	\$ 148,832,045	-	131,216,619,598	\$ 2,011,823,746,850
74	2,011,823,746,850	12,538,442,755	\$ 116,181,665	-	141,255,087,977	\$ 2,165,501,095,918
75	2,165,501,095,918	12,977,288,251	\$ 89,050,243	-	152,028,535,765	\$ 2,330,417,869,691
76	2,330,417,869,691	13,431,493,340	\$ 66,967,635	-	163,589,098,057	\$ 2,507,371,493,453
77	2,507,371,493,453	13,901,595,607	\$ 49,387,703	-	175,992,631,911	\$ 2,697,216,333,268
78	2,697,216,333,268	14,388,151,453	\$ 35,715,950	-	189,298,982,551	\$ 2,900,867,751,322
79	2,900,867,751,322	14,891,736,754	\$ 25,343,554	-	203,572,266,093	\$ 3,119,306,410,615
80	3,119,306,410,615	15,412,947,540	\$ 17,675,778	-	218,881,169,920	\$ 3,353,582,852,297
81	3,353,582,852,297	15,952,400,704	\$ 12,156,561	-	235,299,272,271	\$ 3,604,822,368,711
82	3,604,822,368,711	16,510,734,729	\$ 8,289,317	-	252,905,382,666	\$ 3,874,230,196,789
83	3,874,230,196,789	17,088,610,444	\$ 5,649,349	-	271,783,905,040	\$ 4,163,097,062,924
84	4,163,097,062,924	17,686,711,810	\$ 3,885,526	-	292,025,225,857	\$ 4,472,805,115,065
85	4,472,805,115,065	18,305,746,723	\$ 2,723,819	-	313,726,129,259	\$ 4,804,834,267,228
86	4,804,834,267,228	18,946,447,858	\$ 1,958,256	-	336,990,241,524	\$ 5,160,768,998,354
87	5,160,768,998,354	19,609,573,533	\$ 1,446,349	-	361,928,507,174	\$ 5,542,305,632,711
88	5,542,305,632,711	20,295,908,607	\$ 1,094,513	-	388,659,699,131	\$ 5,951,260,145,937
89	5,951,260,145,937	21,006,265,408	\$ 843,781	-	417,310,965,672	\$ 6,389,576,533,235
90	6,389,576,533,235	21,741,484,698	\$ 657,870	-	448,018,416,637	\$ 6,859,335,776,700
91	6,859,335,776,700	22,502,436,662	\$ 515,750	-	480,927,751,438	\$ 7,362,765,449,050
92	7,362,765,449,050	23,290,021,945	\$ 404,250	-	516,194,931,607	\$ 7,902,249,998,352
93	7,902,249,998,352	24,105,172,713	\$ 315,474	-	553,986,900,856	\$ 8,480,341,756,447
94	8,480,341,756,447	24,948,853,758	\$ 244,109	-	594,482,355,792	\$ 9,099,772,721,887
95	9,099,772,721,887	25,822,063,640	\$ 186,618	-	637,872,570,794	\$ 9,763,467,169,704
96	9,763,467,169,704	26,725,835,867	\$ 140,692	-	684,362,280,756	\$ 10,474,555,145,635
97	10,474,555,145,635	27,661,240,123	\$ 104,315	-	734,170,625,752	\$ 11,236,386,907,195
98	11,236,386,907,195	28,695,468,509	\$ 75,644	-	787,534,435,823	\$ 12,052,616,735,883
99	12,052,616,735,883	29,699,809,907	\$ 53,441	-	844,705,082,018	\$ 12,927,021,574,367
100	12,927,021,574,367	30,739,303,254	\$ 36,621	-	905,949,188,222	\$ 13,863,710,029,222



Single Discount Rate Development

Present Values of Projected Benefit Payments Beginning July 1, 2021

Year	Projected Beginning Plan Net Position	Projected Benefit Payments	Funded Portion of Benefit Payments	Unfunded Portion of Benefit Payments	Present Value of Funded Benefit Payments using Expected Return Rate (v)	Present Value of Unfunded Benefit Payments using Municipal Bond Rate (vf)	Present Value of Benefit Payments using Single Discount Rate (sdr)
(a)	(b)	(c)	(d)	(e)	(f)=(d)*v ^a ((a)-.5)	(g)=(e)*vf ^a ((a)-.5)	(h)=((c)/(1+sdr) ^a ((a)-.5)
1	\$ 21,935,791,711	\$ 1,748,978,071	\$ 1,748,978,071	\$ -	\$ 1,690,800,919	\$ -	\$ 1,690,800,919
2	23,219,975,329	1,844,980,423	1,844,980,423	-	1,666,925,137	-	1,666,925,137
3	24,518,720,784	1,939,190,522	1,939,190,522	-	1,637,423,563	-	1,637,423,563
4	25,837,935,833	2,035,538,945	2,035,538,945	-	1,606,335,266	-	1,606,335,266
5	27,178,497,829	2,132,456,211	2,132,456,211	-	1,572,726,202	-	1,572,726,202
6	28,542,934,397	2,230,033,731	2,230,033,731	-	1,537,094,805	-	1,537,094,805
7	29,933,167,664	2,329,950,978	2,329,950,978	-	1,500,901,628	-	1,500,901,628
8	31,349,870,817	2,429,147,389	2,429,147,389	-	1,462,431,503	-	1,462,431,503
9	32,796,005,814	2,528,340,864	2,528,340,864	-	1,422,569,567	-	1,422,569,567
10	34,275,833,104	2,628,133,926	2,628,133,926	-	1,381,979,512	-	1,381,979,512
11	35,792,418,376	2,728,490,012	2,728,490,012	-	1,340,888,613	-	1,340,888,613
12	37,348,889,946	2,828,667,491	2,828,667,491	-	1,299,177,396	-	1,299,177,396
13	38,949,632,850	2,927,438,320	2,927,438,320	-	1,256,581,126	-	1,256,581,126
14	40,600,831,163	3,023,372,498	3,023,372,498	-	1,212,859,961	-	1,212,859,961
15	42,310,400,671	3,118,531,443	3,118,531,443	-	1,169,190,696	-	1,169,190,696
16	44,084,491,532	3,210,626,462	3,210,626,462	-	1,124,970,740	-	1,124,970,740
17	45,932,624,068	3,299,043,014	3,299,043,014	-	1,080,328,035	-	1,080,328,035
18	47,865,524,742	3,383,283,849	3,383,283,849	-	1,035,433,772	-	1,035,433,772
19	49,895,674,835	3,463,131,309	3,463,131,309	-	990,533,280	-	990,533,280
20	52,036,558,399	3,537,896,160	3,537,896,160	-	945,717,482	-	945,717,482
21	54,303,410,597	3,607,527,208	3,607,527,208	-	901,243,556	-	901,243,556
22	56,712,725,365	3,671,863,677	3,671,863,677	-	857,304,945	-	857,304,945
23	59,282,252,490	3,730,492,560	3,730,492,560	-	814,012,699	-	814,012,699
24	62,031,486,863	3,783,628,354	3,783,628,354	-	771,595,517	-	771,595,517
25	64,981,194,694	3,831,477,009	3,831,477,009	-	730,236,725	-	730,236,725
26	68,153,612,564	3,872,787,181	3,872,787,181	-	689,822,413	-	689,822,413
27	71,573,938,798	3,906,310,321	3,906,310,321	-	650,274,363	-	650,274,363
28	75,270,758,695	3,933,130,138	3,933,130,138	-	611,905,603	-	611,905,603
29	79,273,644,306	3,953,560,738	3,953,560,738	-	574,844,991	-	574,844,991
30	83,613,758,412	3,967,142,190	3,967,142,190	-	539,083,855	-	539,083,855
31	88,325,314,846	3,972,439,786	3,972,439,786	-	504,489,467	-	504,489,467
32	93,446,869,996	3,968,346,071	3,968,346,071	-	470,999,604	-	470,999,604
33	99,021,399,897	3,954,581,444	3,954,581,444	-	438,659,712	-	438,659,712
34	105,095,232,851	3,931,052,174	3,931,052,174	-	407,523,123	-	407,523,123
35	111,718,289,742	3,896,928,752	3,896,928,752	-	377,556,660	-	377,556,660
36	118,945,077,254	3,852,072,843	3,852,072,843	-	348,795,106	-	348,795,106
37	126,834,220,828	3,796,923,875	3,796,923,875	-	321,309,824	-	321,309,824
38	135,448,081,611	3,731,826,035	3,731,826,035	-	295,141,124	-	295,141,124
39	144,853,099,370	3,656,891,395	3,656,891,395	-	270,294,135	-	270,294,135
40	155,120,396,897	3,572,554,113	3,572,554,113	-	246,785,476	-	246,785,476
41	166,325,672,736	3,480,022,897	3,480,022,897	-	224,666,906	-	224,666,906
42	178,548,614,759	3,380,398,882	3,380,398,882	-	203,958,202	-	203,958,202
43	191,873,355,058	3,274,371,326	3,274,371,326	-	184,636,423	-	184,636,423
44	206,389,278,880	3,162,890,776	3,162,890,776	-	166,682,446	-	166,682,446
45	222,191,121,468	3,046,595,308	3,046,595,308	-	150,050,229	-	150,050,229
46	239,379,713,308	2,926,267,327	2,926,267,327	-	134,695,198	-	134,695,198
47	258,062,252,080	2,802,554,882	2,802,554,882	-	120,561,450	-	120,561,450
48	278,352,936,796	2,676,350,256	2,676,350,256	-	107,600,307	-	107,600,307
49	300,373,160,712	2,548,170,961	2,548,170,961	-	95,744,833	-	95,744,833
50	324,252,483,179	2,418,630,014	2,418,630,014	-	84,932,213	-	84,932,213



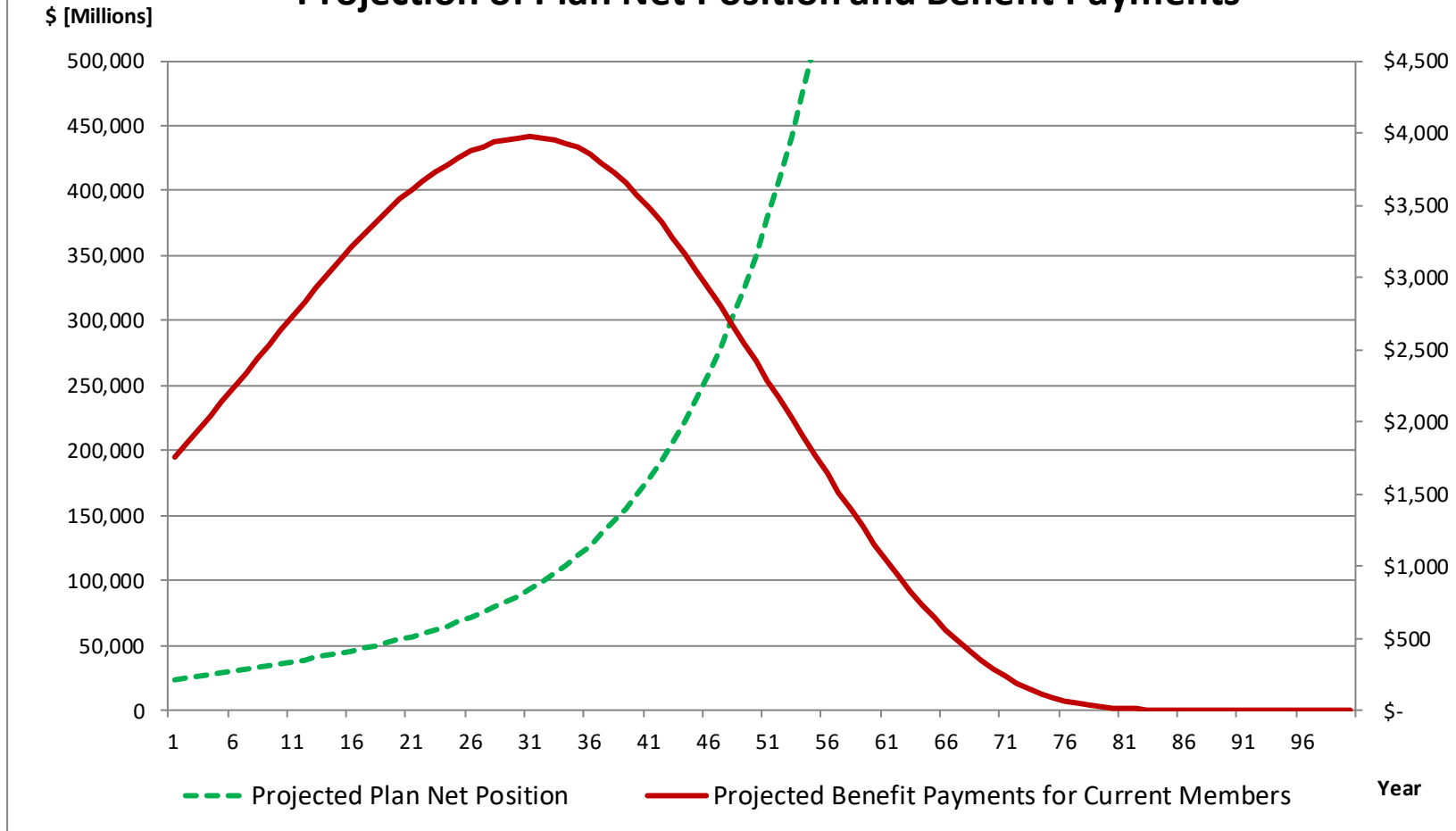
Single Discount Rate Development

PVs of Projected Benefit Payments Beginning July 1, 2021 (continued)

Year	Projected Beginning Plan Net Position	Projected Benefit Payments	Funded Portion of Benefit Payments	Unfunded Portion of Benefit Payments	Present Value of Funded Benefit Payments using Expected Return Rate (v)	Present Value of Unfunded Benefit Payments using Municipal Bond Rate (vf)	Present Value of Benefit Payments using Single Discount Rate (sdr)
(a)	(b)	(c)	(d)	(e)	(f)=(d)*v ^{(a)-5}	(g)=(e)*vf ^{(a)-5}	(h)=[(c)/(1+sdr) ^{(a)-5}]
51	\$ 350,129,072,271	\$ 2,288,087,012	\$ 2,288,087,012	\$ -	\$ 75,091,670	\$ -	\$ 75,091,670
52	378,150,628,751	2,157,167,421	2,157,167,421	-	66,163,627	-	66,163,627
53	408,474,734,474	2,026,266,368	2,026,266,368	-	58,082,889	-	58,082,889
54	441,269,820,692	1,895,860,076	1,895,860,076	-	50,789,528	-	50,789,528
55	476,715,850,898	1,766,552,387	1,766,552,387	-	44,229,358	-	44,229,358
56	515,004,983,502	1,638,779,087	1,638,779,087	-	38,346,060	-	38,346,060
57	556,342,639,830	1,512,979,592	1,512,979,592	-	33,086,409	-	33,086,409
58	600,948,444,732	1,389,670,961	1,389,670,961	-	28,401,728	-	28,401,728
59	649,057,147,460	1,269,378,691	1,269,378,691	-	24,246,006	-	24,246,006
60	700,919,683,616	1,152,630,044	1,152,630,044	-	20,575,726	-	20,575,726
61	756,804,318,740	1,039,986,346	1,039,986,346	-	17,350,384	-	17,350,384
62	816,997,837,016	932,012,473	932,012,473	-	14,531,799	-	14,531,799
63	881,806,845,133	829,215,622	829,215,622	-	12,083,183	-	12,083,183
64	951,559,231,133	732,051,927	732,051,927	-	9,969,468	-	9,969,468
65	1,026,605,718,955	640,904,921	640,904,921	-	8,157,178	-	8,157,178
66	1,107,321,554,491	556,086,519	556,086,519	-	6,614,620	-	6,614,620
67	1,194,108,309,088	477,833,829	477,833,829	-	5,311,971	-	5,311,971
68	1,287,395,813,032	406,300,246	406,300,246	-	4,221,260	-	4,221,260
69	1,387,644,234,078	341,546,449	341,546,449	-	3,316,355	-	3,316,355
70	1,495,346,311,250	283,547,197	283,547,197	-	2,573,077	-	2,573,077
71	1,611,029,738,488	232,221,526	232,221,526	-	1,969,455	-	1,969,455
72	1,735,259,684,432	187,401,109	187,401,109	-	1,485,361	-	1,485,361
73	1,868,641,521,853	148,832,045	148,832,045	-	1,102,485	-	1,102,485
74	2,011,823,746,850	116,181,665	116,181,665	-	804,322	-	804,322
75	2,165,501,095,918	89,050,243	89,050,243	-	576,161	-	576,161
76	2,330,417,869,691	66,967,635	66,967,635	-	404,939	-	404,939
77	2,507,371,493,453	49,387,703	49,387,703	-	279,100	-	279,100
78	2,697,216,333,268	35,715,950	35,715,950	-	188,634	-	188,634
79	2,900,867,751,322	25,343,554	25,343,554	-	125,095	-	125,095
80	3,119,306,410,615	17,675,778	17,675,778	-	81,540	-	81,540
81	3,353,582,852,297	12,156,561	12,156,561	-	52,410	-	52,410
82	3,604,822,368,711	8,289,317	8,289,317	-	33,400	-	33,400
83	3,874,230,196,789	5,649,349	5,649,349	-	21,273	-	21,273
84	4,163,097,062,924	3,885,526	3,885,526	-	13,674	-	13,674
85	4,472,805,115,065	2,723,819	2,723,819	-	8,959	-	8,959
86	4,804,834,267,228	1,958,256	1,958,256	-	6,019	-	6,019
87	5,160,768,998,354	1,446,349	1,446,349	-	4,155	-	4,155
88	5,542,305,632,711	1,094,513	1,094,513	-	2,939	-	2,939
89	5,951,260,145,937	843,781	843,781	-	2,117	-	2,117
90	6,389,576,533,235	657,870	657,870	-	1,543	-	1,543
91	6,859,335,776,700	515,750	515,750	-	1,130	-	1,130
92	7,362,765,449,050	404,250	404,250	-	828	-	828
93	7,902,249,998,352	315,474	315,474	-	604	-	604
94	8,480,341,756,447	244,109	244,109	-	437	-	437
95	9,099,772,721,887	186,618	186,618	-	312	-	312
96	9,763,467,169,704	140,692	140,692	-	220	-	220
97	10,474,555,145,635	104,315	104,315	-	152	-	152
98	11,236,386,907,195	75,644	75,644	-	103	-	103
99	12,052,616,735,883	53,441	53,441	-	68	-	68
100	12,927,021,574,367	36,621	36,621	-	44	-	44
Totals					\$ 39,760,586,086	\$ -	\$ 39,760,586,086



Projection of Plan Net Position and Benefit Payments



SECTION F

GASB No. 68 INFORMATION

GASB No. 68 Disclosure Information

This section of the report shows the GASB No. 68 information for the employers covered by ERS. Pages F-1, F-2 and F-3 show the aggregate pension expense and Deferred Outflows and (Inflows) of resources for the employers with employees covered by ERS. Pages F-4 through F-6 show the disclosure information for the individual employers that need to be incorporated into the employers' financial statements.

Page F-4 shows the employers their proportionate share of the Net Pension Liability and Pension Expense. Page F-5 shows the employers their deferred inflows and outflows by component. Page F-6 shows the employers the deferred outflows and inflows of resources to be recognized in future years' pension expense.

Pension Expense

The table below shows the aggregate Pension Expense for the ERS employers for the fiscal year ending June 30, 2021. Pension Expense for each employer is determined on a proportionate share basis and is shown on page F-4.

A. Expense

1. Service Cost	\$ 642,140,242
2. Interest on the Total Pension Liability	2,252,271,074
3. Current-Period Benefit Changes	0
4. Employee Contributions (made negative for addition here)	(300,626,446)
5. Projected Earnings on Plan Investments (made negative for addition here)	(1,213,066,625)
6. Pension Plan Administrative Expense	19,049,861
7. Other Changes in Plan Fiduciary Net Position	0
8. Recognition of Outflow (Inflow) of Resources due to Liabilities	570,291,114
9. Recognition of Outflow (Inflow) of Resources due to Assets	(697,681,266)
10. Total Pension Expense	\$ 1,272,377,954

Recognition of Deferred Outflows and Inflows of Resources

According to paragraph 33 of GASB No. 68, *differences between expected and actual experience and changes in assumptions* are recognized in pension expense using a systematic and rational method over a closed period equal to the average of the expected remaining service lives of all employees that are provided with pensions through the pension plan (active employees and inactive employees) determined as of the beginning of the measurement period.

At the beginning of the 2021 fiscal year, the expected remaining service lives of all employees was 763,286.25 years. Additionally, the plan membership (active employees and inactive employees) was 148,092. As a result, the average of the expected remaining service lives for purposes of recognizing the applicable deferred outflows and inflows of resources established in the 2021 fiscal year is 5.1542 years.



Additionally, *differences between projected and actual earnings on pension plan investments* should be recognized in pension expense using a systematic and rational method over a closed five-year period.

For this purpose, the deferred outflows and inflows of resources are recognized in the pension expense as a level dollar amount over the closed period identified above.

The current year's Deferred Outflows and (Inflows) are shown below. The aggregate Deferred Outflows and (Inflows) for the current and prior reporting periods is shown on the following page. The amounts by employer are shown on pages F-5 and F-6.

Statement of Outflows and Inflows Arising from Current Reporting Period for Fiscal Year Ending June 30, 2021

A. Outflows (Inflows) of Resources due to Liabilities

1. Difference between expected and actual experience of the Total Pension Liability (gains) or losses	\$ 228,048,119
2. Assumption Changes (gains) or losses	\$ -
3. Recognition period for Liabilities: Average of the expected remaining service lives of all employees {in years}	5.1542
4. Outflow (Inflow) of Resources to be recognized in the current pension expense for the Difference between expected and actual experience of the Total Pension Liability	\$ 44,245,105
5. Outflow (Inflow) of Resources to be recognized in the current pension expense for Assumption Changes	\$ -
6. Outflow (Inflow) of Resources to be recognized in the current pension expense due to Liabilities	\$ 44,245,105
7. Deferred Outflow (Inflow) of Resources to be recognized in future pension expenses for the Difference between expected and actual experience of the Total Pension Liability	\$ 183,803,014
8. Deferred Outflow (Inflow) of Resources to be recognized in future pension expenses for Assumption Changes	\$ -
9. Deferred Outflow (Inflow) of Resources to be recognized in future pension expenses due to Liabilities	\$ 183,803,014

B. Outflows (Inflows) of Resources due to Assets

1. Net difference between projected and actual earnings on pension plan investments (gains) or losses	\$(3,449,159,136)
2. Recognition period for Assets {in years}	5.0000
3. Outflow (Inflow) of Resources to be recognized in the current pension expense due to Assets	\$ (689,831,828)
3. Deferred Outflow (Inflow) of Resources to be recognized in future pension expenses due to Assets	\$(2,759,327,308)



Statement of Outflows and Inflows Arising from Current and Prior Reporting Periods for Fiscal Year Ending June 30, 2021

A. Outflows and Inflows of Resources due to Liabilities and Assets to be recognized in Current Pension Expense

	Outflows of Resources	Inflows of Resources	Net Outflows of Resources
1. due to Liabilities	\$ 577,594,410	\$ 7,303,296	\$ 570,291,114
2. due to Assets	\$ 211,832,929	\$ 909,514,195	\$ (697,681,266)
3. Total	\$ 789,427,339	\$ 916,817,491	\$ (127,390,152)

B. Outflows and Inflows of Resources by Source to be recognized in Current Pension Expense

	Outflows of Resources	Inflows of Resources	Net Outflows of Resources
1. Differences between expected and actual experience	\$ 179,583,854	\$ 6,526,790	\$ 173,057,064
2. Assumption Changes	398,010,556	776,506	397,234,050
3. Net Difference between projected and actual earnings on pension plan investments	211,832,929	909,514,195	(697,681,266)
4. Total	\$ 789,427,339	\$ 916,817,491	\$ (127,390,152)

C. Deferred Outflows and Deferred Inflows of Resources by Source to be recognized in Future Pension Expenses

	Deferred Outflows of Resources	Deferred Inflows of Resources	Net Deferred Outflows of Resources
1. Differences between expected and actual experience	\$ 390,895,867	\$ 27,113,589	\$ 363,782,278
2. Assumption Changes	28,059,814	1,796,446	26,263,368
3. Net Difference between projected and actual earnings on pension plan investments	591,788,895	2,786,943,706	(2,195,154,811)
4. Total	\$ 1,010,744,576	\$ 2,815,853,741	\$ (1,805,109,165)

D. Deferred Outflows and Deferred Inflows of Resources by Year to be recognized in Future Pension Expenses

Year Ending June 30	Net Deferred Outflows of Resources
2022	\$ (364,205,238)
2023	\$ (357,929,872)
2024	\$ (447,035,276)
2025	\$ (642,761,373)
2026	\$ 6,822,594
Thereafter	0
Total	\$ (1,805,109,165)



Recognition of Deferred Outflows and Inflows of Resources for Fiscal Year Ending June 30, 2021

Year Established	Initial Amount	Initial Recognition Period	Current Year Recognition	Remaining Recognition	Remaining Recognition Period
Deferred Outflow (Inflow) due to Differences Between Expected and Actual Experience on Liabilities					
2016	297,534,219	5.7626	39,374,514	0	0.0000
2017	61,179,390	5.6644	10,800,684	7,175,970	0.6644
2018	124,753,379	5.3882	23,153,073	32,141,087	1.3882
2019	221,473,495	5.3135	41,681,283	96,429,646	2.3135
2020	71,837,371	5.2047	13,802,405	44,232,561	3.2047
2021	228,048,119	5.1542	44,245,105	183,803,014	4.1542
Total			173,057,064	363,782,278	
Deferred Outflow (Inflow) due to Assumption Changes					
2016	2,915,922,677	5.7626	385,881,827	0	0.0000
2017	0	5.6644	0	0	0.6644
2018	0	5.3882	0	0	1.3882
2019	60,320,037	5.3135	11,352,223	26,263,368	2.3135
2020	0	5.2047	0	0	3.2047
2021	0	5.1542	0	0	4.1542
Total			397,234,050	26,263,368	
Deferred Outflow (Inflow) due to Differences Between Projected and Actual Earnings on Plan Investment					
2016	1,268,857,153	5.0000	0	0	0.0000
2017	(960,329,832)	5.0000	(192,065,964)	0	0.0000
2018	(138,082,010)	5.0000	(27,616,403)	(27,616,398)	1.0000
2019	218,549,437	5.0000	43,709,888	87,419,773	2.0000
2020	840,615,204	5.0000	168,123,041	504,369,122	3.0000
2021	(3,449,159,136)	5.0000	(689,831,828)	(2,759,327,308)	4.0000
Total			(697,681,266)	(2,195,154,811)	

**Schedule of Employer Allocations
and Pension Amounts
At June 30, 2021
Exhibit 1**

Employer	Proportionate Share as of June 30, 2021	Change in Proportionate Share	Proportionate Share of Net Pension Liability as of June 30, 2021 7.00%	Sensitivity Analysis		Proportionate Share of Pension Expense as of June 30, 2021
				Proportionate Share of Net Pension Liability 1% Decrease 6.00%	Proportionate Share of Net Pension Liability 1% Increase 8.00%	
(1)	(2)	(3)	(4)	(5)	(6)	(7)
State of Hawaii	56.69163801%	0.85307450%	6,918,292,478	9,442,943,704	4,836,863,203	697,835,767
City and County of Honolulu	18.60227964%	-0.47426428%	2,270,105,713	3,202,045,974	1,501,774,735	274,817,984
County of Hawaii	4.63104923%	0.08225052%	565,144,246	795,646,878	375,108,125	66,030,110
County of Maui	4.47574694%	-0.19709131%	546,192,128	764,559,969	366,160,440	60,415,757
County of Kauai	2.10147133%	-0.00976818%	256,450,401	358,617,515	172,219,511	28,725,378
BWS City and County of Honolulu	0.87487162%	0.00601838%	106,763,854	145,621,480	74,727,982	10,203,577
DWS County of Hawaii	0.23777986%	0.00721915%	29,017,165	39,578,213	20,310,191	3,344,975
DOW County of Kauai	0.10812968%	-0.02766977%	13,195,469	17,998,073	9,235,998	728,282
HART	0.17695082%	0.00434563%	21,593,970	29,453,282	15,114,421	2,094,105
University of Hawaii	12.10008286%	-0.24411465%	1,476,618,337	2,014,046,335	1,033,539,959	128,182,019



Schedule of Employer Allocations
and Pension Amounts
At June 30, 2021
Exhibit 2

Deferred Outflows and Inflows of Resources by Source to be recognized in Future Pension Expenses

Employer	Deferred Outflows					Deferred Inflows				
	Differences Between Expected and Actual Experience	Net Difference Between Projected and Actual Investment Earnings on Pension Plan Investments	Changes of Assumptions	Changes in Proportion and Differences Between Employer Contributions and Proportionate Share of Contributions	Total Deferred Outflows of Resources	Differences Between Expected and Actual Experience	Net Difference Between Projected and Actual Investment Earnings on Pension Plan Investments	Changes of Assumptions	Changes in Proportion and Differences Between Employer Contributions and Proportionate Share of Contributions	Total Deferred Inflows of Resources
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
State of Hawaii	195,388,156	319,739,458	18,849,777	33,368,260	567,345,651	1,093,440	1,499,605,203	72,447	36,387,476	1,537,158,566
City and County of Honolulu	95,234,161	123,618,949	2,692,618	77,039,939	298,585,667	17,307,264	587,457,532	1,146,716	8,489,022	614,400,534
County of Hawaii	23,256,329	30,503,217	721,085	34,748,328	89,228,959	4,062,347	144,861,639	269,156	23,716,109	172,909,251
County of Maui	21,152,239	28,684,511	845,511	20,400,482	71,082,743	3,204,970	135,944,895	212,349	21,113,262	160,475,476
County of Kauai	9,822,704	13,402,696	409,196	14,403,047	38,037,643	1,445,568	63,495,978	95,778	13,540,413	78,577,737
BWS City and County of Honolulu	2,984,267	4,915,634	294,369	5,974,080	14,168,350	0	23,047,101	0	5,793,709	28,840,810
DWS County of Hawaii	811,089	1,336,012	80,006	1,685,588	3,912,695	0	6,263,932	0	1,238,689	7,502,621
DOW County of Kauai	368,840	607,547	36,383	1,848,589	2,861,359	0	2,848,504	0	4,969,589	7,818,093
HART	603,595	994,232	59,539	402,673	2,060,039	0	4,661,488	0	1,199,283	5,860,771
University of Hawaii	41,274,487	67,986,639	4,071,330	219,788	113,552,244	0	318,757,434	0	73,643,222	392,400,656



**Schedule of Employer Allocations
and Pension Amounts**

At June 30, 2021

Exhibit 3

Deferred Outflows and (Inflows) to be Recognized in Future Years

Employer	Total Deferred Outflow and (Inflow) 2022	Total Deferred Outflow and (Inflow) 2023	Total Deferred Outflow and (Inflow) 2024	Total Deferred Outflows of 2025	Total Deferred Outflows of 2026	Total Deferred Outflows of Thereafter
(1)	(2)	(3)	(4)	(5)	(6)	(7)
State of Hawaii	(205,923,387)	(194,720,089)	(233,689,629)	(339,936,601)	4,456,791	-
City and County of Honolulu	(51,112,621)	(51,980,032)	(82,675,365)	(131,886,854)	1,840,005	-
County of Hawaii	(16,279,204)	(17,917,308)	(22,196,953)	(28,530,887)	1,244,060	-
County of Maui	(16,716,814)	(17,223,232)	(21,840,323)	(33,543,812)	(68,552)	-
County of Kauai	(6,930,638)	(9,297,483)	(10,691,632)	(13,907,989)	287,648	-
BWS City and County of Honolulu	(3,117,827)	(3,452,048)	(2,987,593)	(5,149,593)	34,601	-
DWS County of Hawaii	(492,227)	(879,557)	(946,490)	(1,304,725)	33,073	-
DOW County of Kauai	(932,609)	(863,597)	(1,491,846)	(1,552,514)	(116,168)	-
HART	(833,337)	(964,660)	(956,506)	(1,066,486)	20,257	-
University of Hawaii	(61,866,574)	(60,631,866)	(69,558,939)	(85,881,912)	(909,121)	-



SECTION G

GLOSSARY OF TERMS

Glossary of Terms

Actuarial Accrued Liability (AAL)

The AAL is the difference between the actuarial present value of all benefits and the actuarial value of future normal costs. The definition comes from the fundamental equation of funding which states that the present value of all benefits is the sum of the Actuarial Accrued Liability and the present value of future normal costs. The AAL may also be referred to as "accrued liability" or "actuarial liability".

Actuarial Assumptions

These assumptions are estimates of future experience with respect to rates of mortality, disability, turnover, retirement, rate or rates of investment income and compensation increases. Actuarial assumptions are generally based on past experience, often modified for projected changes in conditions. Economic assumptions (compensation increases, payroll growth, inflation and investment return) consist of an underlying real rate of return plus an assumption for a long-term average rate of inflation.

Accrued Service

Service credited under the system which was rendered before the date of the actuarial valuation.

Actuarial Equivalent

A single amount or series of amounts of equal actuarial value to another single amount or series of amounts, computed on the basis of appropriate actuarial assumptions.

Actuarial Cost Method

A mathematical budgeting procedure for allocating the dollar amount of the actuarial present value of the pension trust benefits between future normal cost and actuarial accrued liability. The actuarial cost method may also be referred to as the actuarial funding method.

Actuarial Gain (Loss)

The difference in liabilities between actual experience and expected experience during the period between two actuarial valuations is the gain (loss) on the accrued liabilities.

Actuarial Present Value

The amount of funds currently required to provide a payment or series of payments in the future. The present value is determined by discounting future payments at predetermined rates of interest and probabilities of payment.

Actuarial Valuation

The actuarial valuation report determines, as of the actuarial valuation date, the service cost, total pension liability, and related actuarial present value of projected benefit payments for pensions.

Actuarial Valuation Date

The date as of which an actuarial valuation is performed.

Actuarially Determined Contribution (ADC) or Annual Required Contribution (ARC)

A calculated contribution into a defined benefit pension plan for the reporting period, most often determined based on the funding policy of the plan. Typically the Actuarially Determined Contribution has a normal cost payment and an amortization payment.



Glossary of Terms (continued)

Amortization Payment

The amortization payment is the periodic payment required to pay off an interest-discounted amount with payments of interest and principal.

Amortization Method

The method used to determine the periodic amortization payment may be a level dollar amount, or a level percent of pay amount. The period will typically be expressed in years, and the method will either be “open” (meaning, reset each year) or “closed” (the number of years remaining will decline each year).

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-Employee Payroll

The payroll of covered employees, which is typically only the pensionable pay and does not include pay above any pay cap.

Deferred Retirement Option Program (DROP)

A program that permits a plan member to elect a calculation of benefit payments based on service credits and salary, as applicable, as of the DROP entry date. The plan member continues to provide service to the employer and is paid for the service by the employer after the DROP entry date; however, the pensions that would have been paid to the plan member are credited to an individual member account within the defined benefit pension plan until the end of the DROP period. Other variations for DROP exist and will be more fully detailed in the plan provision section of the valuation report.

Deferred Inflows and Outflows

The deferred inflows and outflows of pension resources are amounts used under GASB Statement No. 68 in developing the annual pension expense. Deferred inflows and outflows arise with differences between expected and actual experiences; changes of assumptions. The portion of these amounts not included in pension expense should be included in the deferred inflows or outflows of resources.

Discount Rate

For GASB purposes, the discount rate is the single rate of return that results in the present value of all projected benefit payments to be equal to the sum of the funded and unfunded projected benefit payments, specifically:

1. The benefit payments to be made while the pension plans' fiduciary net position is projected to be greater than the benefit payments that are projected to be made in the period and;
2. The present value of the benefit payments not in (1) above, discounted using the municipal bond rate.



Glossary of Terms (continued)

Entry Age Actuarial Cost Method (EAN)

The EAN is a funding method for allocating the costs of the plan between the normal cost and the accrued liability. The actuarial present value of the projected benefits of each individual included in an actuarial valuation is allocated on a level basis (either level dollar or level percent of pay) over the earnings or service of the individual between entry age and assumed exit ages(s). The portion of the actuarial present value allocated to a valuation year is 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 the actuarial accrued liability. The sum of the accrued liability plus the present value of all future normal costs is the present value of all benefits.

GASB

The Governmental Accounting Standards Board is an organization that exists in order to promulgate accounting standards for governmental entities.

Fiduciary Net Position

The fiduciary net position is the value of the assets of the trust.

Long-Term Expected Rate of Return

The long-term rate of return is the expected return to be earned over the entire trust portfolio based on the asset allocation of the portfolio.

Money-Weighted Rate of Return

The money-weighted rate of return is a method of calculating the returns that adjusts for the changing amounts actually invested. For purposes of GASB Statement No. 67, money-weighted rate of return is calculated as the internal rate of return on pension plan investments, net of pension plan investment expense.

Multiple-Employer Defined Benefit Pension Plan

A multiple-employer plan is a defined benefit pension plan that is used to provide pensions to the employees of more than one employer.

Municipal Bond Rate

The Municipal Bond Rate is the discount rate to be used for those benefit payments that occur after the assets of the trust have been depleted.

Net Pension Liability (NPL)

The NPL is the liability of employers and nonemployer contribution entities to plan members for benefits provided through a defined benefit pension plan.

Nonemployer Contribution Entities

Nonemployer contribution entities are entities that make contributions to a pension plan that is used to provide pensions to the employees of other entities. For purposes of the GASB Accounting statement plan members are not considered nonemployer contribution entities.



Glossary of Terms (continued)

Normal Cost

The actuarial present value of the pension trust benefits allocated to the current year by the actuarial cost method.

Other Postemployment Benefits (OPEB)

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 post-employment benefits do not include termination benefits.

Real Rate of Return

The real rate of return is the rate of return on an investment after adjustment to eliminate inflation.

Service Cost

The service cost is the portion of the actuarial present value of projected benefit payments that is attributed to a valuation year.

Total Pension Expense

The total pension expense is the sum of the following pension expense items that are recognized from the beginning to the end of the employer's fiscal year:

1. Total service cost;
2. Interest on total pension liability;
3. Current-period benefit changes;
4. Member contributions;
5. Projected earnings on plan investments;
6. Administrative expense;
7. Other Changes in Plan Fiduciary Net Position;
8. Recognition of beginning deferred outflows (inflows) due to liabilities; and
9. Recognition of beginning deferred outflows (inflows) due to assets.

Total Pension Liability (TPL)

The TPL is the portion of the actuarial present value of projected benefit payments that is attributed to past periods of member service.

Unfunded Actuarial Accrued Liability (UAAL)

The UAAL is the difference between actuarial accrued liability and valuation assets.

Valuation Assets

The valuation assets are the assets used in determining the unfunded liability of the plan. For purposes of the GASB Statement No. 67, the valuation asset is equal to the market value of assets.

