

Employees' Retirement System of the State of Hawaii

GASB Statement Nos. 67 and 68 Accounting and
Financial Reporting for Pensions
June 30, 2018



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February 15, 2019

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, 2018, but it is intended that the employers covered by ERS will use this information in financial reporting for their fiscal years ending June 30, 2019.

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. It should be noted that we reflected the enactment of SB936.SD2.HD1.CD1 in the single discount rate determination. In particular we reflected the increasing employer contributions rates that are being phased in through fiscal year 2021.

Section F currently 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, 2018 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 _____
Joe Newton
FSA, EA, MAAA

SECTION A

EXECUTIVE SUMMARY

Executive Summary as of June 30, 2018

	2018
Actuarial Valuation Date	June 30, 2018
Pension Plan's Fiscal Year Ending Date (Measurement Date & Reporting Date)	June 30, 2018
 Membership	
Number of	
- Retirees and Beneficiaries	48,569
- Inactive, Nonretired Members	27,068
- Active Members	66,271
- Total	141,908
Reported Payroll for Fiscal Year	\$ 4,256,052,840
 Net Pension Liability	
Total Pension Liability	\$ 29,917,401,383
Plan Fiduciary Net Position	16,598,407,973
Net Pension Liability	\$ 13,318,993,410
Plan Fiduciary Net Position as a Percentage of Total Pension Liability	55.48%
Net Pension Liability as a Percentage of Covered Payroll	312.94%
 Development of the Single Discount Rate	
Single Discount Rate	7.00%
Long-Term Expected Rate of Return	7.00%
Long-Term Municipal Bond Rate*	3.62%
Last year ending June 30 in the 2018 to 2117 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 29, 2018. 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, 2018 and a measurement date of June 30, 2018.

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 3.62% (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, 2018

	2018
Assets	
Cash and Deposits	\$ 2,389,282,306
Receivables	
Accounts receivable and others	\$ 4,660,591
Investment sales proceeds	106,100,490
Accrued investment income	54,932,158
Employer contributions	48,713,407
Member contributions	-
Other	-
Total Receivables	\$ 214,406,646
Investments	
Equity securities	\$ 7,608,789,085
Fixed income securities	4,096,606,113
Real estate investments	1,060,893,051
Alternative investments	1,512,559,223
Total Investments	\$ 14,278,847,472
Invested Securities Lending Collateral	\$ 1,097,510,629
Equipment at cost, net of depreciation	\$ 5,510,268
Total Assets	\$ 17,985,557,321
 Liabilities	
Payables	
Accounts and other payables	\$ 42,903,869
Payables for securities purchased	135,189,850
Securities lending collateral	1,097,510,629
Notes payable	111,545,000
Total Liabilities	\$ 1,387,149,348
 Net Position Restricted for Pensions	 \$ 16,598,407,973

Statement of Changes in Fiduciary Net Position for Year Ended June 30, 2018

	<u>Year Ending June 30, 2018</u>
Additions	
Contributions	
Non-Employer Contributing Entity	\$ -
Employer	847,595,466
Employer (picked-up employee contributions)	257,294,033
Employee	2,133,901
Other	-
Total Contributions	<u>\$ 1,107,023,400</u>
Investment Income	
Net Appreciation in Fair Value of Investments	\$ 839,411,536
Interest and Dividends	337,197,996
Less Investment Expense	<u>(92,837,672)</u>
Net Investment Income	<u>\$ 1,083,771,860</u>
Other	<u>\$ 141,800,739</u>
Total Additions	<u>\$ 2,332,595,999</u>
 Deductions	
Benefit payments, including refunds of employee contributions	\$ 1,416,727,842
Pension Plan Administrative Expense	15,784,490
Other	-
Total Deductions	<u>\$ 1,432,512,332</u>
 Net Increase in Net Position	 \$ 900,083,667
 Net Position Restricted for Pensions	
Beginning of Year	<u>\$ 15,698,324,306</u>
End of Year	<u>\$ 16,598,407,973</u>

SECTION C

REQUIRED SUPPLEMENTARY INFORMATION

Schedule of Changes in the Net Pension Liability and Related Ratios

Fiscal Year Ended June 30, 2018

A. Total pension liability	
1. Service Cost	\$ 584,470,193
2. Interest on the Total Pension Liability	1,976,275,120
3. Changes of benefit terms	0
4. Difference between expected and actual experience of the Total Pension Liability	124,753,379
5. Changes of assumptions	0
6. Benefit payments, including refunds of employee contributions	(1,416,727,842)
7. Net change in total pension liability	\$ 1,268,770,850
8. Total pension liability – beginning	28,648,630,533
9. Total pension liability – ending	<u><u>\$ 29,917,401,383</u></u>
B. Plan fiduciary net position	
1. Contributions – employer	\$ 847,595,466
2. Contributions – employer (picked-up employee contributions)	257,294,033
3. Contributions – employee	2,133,901
4. Net investment income	1,225,572,599
5. Benefit payments, including refunds of employee contributions	(1,416,727,842)
6. Pension Plan Administrative Expense	(15,784,490)
7. Other	-
8. Net change in plan fiduciary net position	\$ 900,083,667
9. Plan fiduciary net position – beginning	15,698,324,306
10. Plan fiduciary net position – ending	<u><u>\$ 16,598,407,973</u></u>
C. Net pension liability	<u><u>\$ 13,318,993,410</u></u>
D. Plan fiduciary net position as a percentage of the total pension liability	55.48%
E. Covered-employee payroll	\$ 4,256,052,840
F. Net pension liability as a percentage of covered employee payroll	312.94%

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
2009						
2010						
2011						
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%

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,	2018	2017	2016	2015	2014	2013	2012	2011	2010	2009
Total Pension Liability										
Service Cost	\$ 584,470,193	\$ 576,724,568	\$ 484,278,499	\$ 437,901,029	\$ 421,956,129					
Interest on the Total Pension Liability	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	124,753,379	61,179,390	297,534,219	(192,816,757)	66,400,876					
Assumption Changes	-	-	2,915,922,677	261,213,541	-					
Benefit Payments	(1,395,881,342)	(1,306,788,954)	(1,232,589,353)	(1,170,744,770)	(1,122,445,642)					
Refunds	(20,846,500)	(16,340,290)	(12,927,672)	(10,507,888)	(8,475,969)					
Net Change in Total Pension Liability	1,268,770,850	1,209,396,904	4,200,838,243	1,018,297,839	976,353,170					
Total Pension Liability - Beginning	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)	\$ 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	\$ 847,595,466	\$ 781,244,218	\$ 756,558,222	\$ 717,792,981	\$ 653,127,697					
Employer Contributions (picked-up employee contributions)	257,294,033	\$ 249,211,751	\$ 235,079,968	\$ 221,909,859	\$ 204,821,010					
Employee Contributions	2,133,901	1,492,316	1,721,893	1,595,560	1,306,327					
Pension Plan Net Investment Income	1,225,572,599	1,934,512,507	(169,368,110)	556,436,475	2,175,479,960					
Benefit Payments	(1,395,881,342)	(1,306,788,954)	(1,232,589,353)	(1,170,744,770)	(1,122,445,642)					
Refunds	(20,846,500)	(16,340,290)	(12,927,672)	(10,507,888)	(8,475,969)					
Pension Plan Administrative Expense	(15,784,490)	(14,986,159)	(13,960,587)	(14,032,964)	(12,626,030)					
Other	-	-	-	-	-					
Net Change in Plan Fiduciary Net Position	900,083,667	1,628,345,389	(435,485,639)	302,449,253	1,891,187,353					
Plan Fiduciary Net Position - Beginning	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)	\$ 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)	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	55.48 %	54.80 %	51.28 %	62.42 %	63.92 %					
Covered Employee Payroll	\$ 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	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 Rate Assumption	1% Increase
6.00%	7.00%	8.00%
\$17,398,642,004	\$13,318,993,410	\$9,955,950,246

Summary of Population Statistics

Inactive Plan Members or Beneficiaries Currently Receiving Benefits	48,569
Inactive Plan Members Entitled to But Not Yet Receiving Benefits	27,068
Active Plan Members	<u>66,271</u>
Total Plan Members	141,908

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 3.62% (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.

As noted in the cover letter, in determining the single discount rate we reflected the enactment of SB936.SD2.HD1.CD1. In particular we reflected the increasing employer contributions rates through fiscal year 2021.

Single Discount Rate Development

Projection of Contributions Beginning July 1, 2018

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	4,188,313,634	\$ 195,374,374	\$ 4,383,688,007	\$ 240,828,034	\$ 852,774,727	\$ 31,103,987	\$ 1,124,706,748
2	4,008,208,411	\$ 528,908,676	4,537,117,087	230,471,984	945,314,939	101,253,537	1,277,040,460
3	3,860,193,228	\$ 835,722,957	4,695,916,186	221,961,111	1,000,531,118	179,501,443	1,401,993,672
4	3,723,699,709	\$ 1,136,573,543	4,860,273,252	214,112,733	964,970,775	244,064,234	1,423,147,742
5	3,595,686,916	\$ 1,434,695,900	5,030,382,816	206,751,998	931,623,053	308,012,627	1,446,387,678
6	3,470,335,341	\$ 1,736,110,874	5,206,446,214	199,544,282	898,957,306	372,628,971	1,471,130,559
7	3,345,754,779	\$ 2,042,917,053	5,388,671,832	192,380,900	866,685,898	438,480,106	1,497,546,904
8	3,221,879,040	\$ 2,355,396,306	5,577,275,346	185,258,045	834,597,068	505,548,877	1,525,403,990
9	3,097,806,531	\$ 2,674,673,452	5,772,479,983	178,123,876	802,457,267	574,076,709	1,554,657,852
10	2,972,787,702	\$ 3,001,729,080	5,974,516,783	170,935,293	770,072,331	644,274,070	1,585,281,694
11	2,850,719,131	\$ 3,332,905,739	6,183,624,870	163,916,350	738,451,630	715,355,946	1,617,723,926
12	2,731,068,119	\$ 3,668,983,621	6,400,051,740	157,036,417	707,457,176	787,489,792	1,651,983,385
13	2,612,279,484	\$ 4,011,774,067	6,624,053,551	150,206,070	676,686,112	861,064,386	1,687,956,568
14	2,493,446,520	\$ 4,362,448,906	6,855,895,426	143,373,175	645,903,564	936,331,240	1,725,607,979
15	2,373,004,426	\$ 4,722,847,340	7,095,851,765	136,447,754	614,704,187	1,013,685,112	1,764,837,053
16	2,252,547,342	\$ 5,091,659,235	7,344,206,577	129,521,472	583,500,928	1,092,844,801	1,805,867,201
17	2,132,744,381	\$ 5,468,509,427	7,601,253,807	122,632,802	552,467,112	1,173,729,784	1,848,829,698
18	2,011,863,505	\$ 5,855,434,186	7,867,297,691	115,682,152	521,154,073	1,256,777,115	1,893,613,340
19	1,891,036,432	\$ 6,251,616,678	8,142,653,110	108,734,595	489,854,971	1,341,811,474	1,940,401,040
20	1,770,794,443	\$ 6,656,851,526	8,427,645,969	101,820,680	458,707,429	1,428,788,778	1,989,316,887
21	1,652,735,207	\$ 7,069,878,371	8,722,613,578	95,032,274	428,125,309	1,517,438,513	2,040,596,096
22	1,537,013,772	\$ 7,490,891,281	9,027,905,053	88,378,292	398,148,774	1,607,802,331	2,094,329,397
23	1,423,698,239	\$ 7,920,183,490	9,343,881,730	81,862,649	368,795,464	1,699,943,171	2,150,601,284
24	1,311,758,702	\$ 8,359,158,888	9,670,917,590	75,426,125	339,798,594	1,794,162,356	2,209,387,075
25	1,201,753,236	\$ 8,807,646,470	10,009,399,706	69,100,811	311,302,726	1,890,423,182	2,270,826,719
26	1,094,574,030	\$ 9,265,154,665	10,359,728,696	62,938,007	283,538,974	1,988,620,140	2,335,097,121
27	989,576,932	\$ 9,732,742,268	10,722,319,200	56,900,674	256,340,476	2,088,980,486	2,402,221,636
28	887,084,628	\$ 10,210,515,744	11,097,600,372	51,007,366	229,790,821	2,191,527,070	2,472,325,257
29	787,452,357	\$ 10,698,564,028	11,486,016,385	45,278,511	203,982,031	2,296,278,979	2,545,539,521
30	692,403,187	\$ 11,195,623,772	11,888,026,958	39,813,183	179,360,449	2,402,965,058	2,622,138,690
31	603,275,803	\$ 11,700,832,099	12,304,107,902	34,688,359	156,272,849	2,511,400,102	2,702,361,310
32	520,830,293	\$ 12,213,921,386	12,734,751,679	29,947,742	134,916,125	2,621,526,670	2,786,390,537
33	443,984,787	\$ 12,736,483,200	13,180,467,987	25,529,125	115,010,029	2,733,686,368	2,874,225,522
34	373,179,094	\$ 13,268,605,273	13,641,784,367	21,457,798	96,668,489	2,847,898,026	2,966,024,313
35	309,906,126	\$ 13,809,340,694	14,119,246,820	17,819,602	80,278,229	2,963,958,403	3,062,056,234
36	254,208,176	\$ 14,359,212,282	14,613,420,458	14,616,970	65,850,206	3,081,979,716	3,162,446,892
37	205,788,150	\$ 14,919,102,025	15,124,890,174	11,832,819	53,307,460	3,202,151,268	3,267,291,547
38	164,397,465	\$ 15,489,863,866	15,654,261,331	9,452,854	42,585,597	3,324,656,346	3,376,694,797
39	130,283,428	\$ 16,071,877,050	16,202,160,477	7,491,297	33,748,681	3,449,576,348	3,490,816,326
40	102,691,762	\$ 16,666,544,332	16,769,236,094	5,904,776	26,601,323	3,577,212,354	3,609,718,453
41	80,369,285	\$ 17,275,790,072	17,356,159,357	4,621,234	20,818,897	3,707,977,397	3,733,417,528
42	62,324,040	\$ 17,901,300,895	17,963,624,935	3,583,632	16,144,449	3,842,233,485	3,861,961,566
43	48,237,337	\$ 18,544,114,470	18,592,351,807	2,773,647	12,495,423	3,980,203,337	3,995,472,407
44	36,836,968	\$ 19,206,247,152	19,243,084,121	2,118,126	9,542,266	4,122,319,733	4,133,980,125
45	27,693,309	\$ 19,888,898,756	19,916,592,065	1,592,365	7,173,688	4,268,840,194	4,277,606,247
46	20,398,829	\$ 20,593,273,958	20,613,672,787	1,172,933	5,284,122	4,420,023,284	4,426,480,339
47	14,444,713	\$ 21,320,706,622	21,335,151,335	830,571	3,741,765	4,576,155,297	4,580,727,633
48	9,724,887	\$ 22,072,156,744	22,081,881,631	559,181	2,519,139	4,737,442,280	4,740,520,600
49	6,166,078	\$ 22,848,581,411	22,854,747,488	354,549	1,597,264	4,904,089,658	4,906,041,471
50	3,697,845	\$ 23,650,965,805	23,654,663,651	212,626	957,892	5,076,308,884	5,077,479,402

Single Discount Rate Development

Projection of Contributions Beginning July 1, 2018

(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	2,002,721	\$ 24,480,574,157	24,482,576,878	115,156	518,786	5,254,371,306	5,255,005,248
52	928,150	\$ 25,338,538,919	25,339,467,069	53,369	240,428	5,438,519,986	5,438,813,783
53	353,636	\$ 26,225,994,781	26,226,348,416	20,334	91,606	5,628,998,469	5,629,110,409
54	162,829	\$ 27,144,107,782	27,144,270,611	9,363	42,179	5,826,057,025	5,826,108,567
55	62,757	\$ 28,094,257,325	28,094,320,082	3,609	16,257	6,029,991,723	6,030,011,589
56	19,572	\$ 29,077,601,713	29,077,621,285	1,125	5,070	6,241,051,174	6,241,057,369
57	6,329	\$ 30,095,331,701	30,095,338,030	364	1,640	6,459,490,954	6,459,492,958
58	-	\$ 31,148,674,861	31,148,674,861	-	-	6,685,574,544	6,685,574,544
59	-	\$ 32,238,878,482	32,238,878,482	-	-	6,919,569,653	6,919,569,653
60	-	\$ 33,367,239,228	33,367,239,228	-	-	7,161,754,591	7,161,754,591
61	-	\$ 34,535,092,601	34,535,092,601	-	-	7,412,416,001	7,412,416,001
62	-	\$ 35,743,820,842	35,743,820,842	-	-	7,671,850,562	7,671,850,562
63	-	\$ 36,994,854,572	36,994,854,572	-	-	7,940,365,331	7,940,365,331
64	-	\$ 38,289,674,482	38,289,674,482	-	-	8,218,278,118	8,218,278,118
65	-	\$ 39,629,813,089	39,629,813,089	-	-	8,505,917,852	8,505,917,852
66	-	\$ 41,016,856,547	41,016,856,547	-	-	8,803,624,977	8,803,624,977
67	-	\$ 42,452,446,526	42,452,446,526	-	-	9,111,751,851	9,111,751,851
68	-	\$ 43,938,282,154	43,938,282,154	-	-	9,430,663,166	9,430,663,166
69	-	\$ 45,476,122,030	45,476,122,030	-	-	9,760,736,376	9,760,736,376
70	-	\$ 47,067,786,301	47,067,786,301	-	-	10,102,362,150	10,102,362,150
71	-	\$ 48,715,158,821	48,715,158,821	-	-	10,455,944,825	10,455,944,825
72	-	\$ 50,420,189,380	50,420,189,380	-	-	10,821,902,894	10,821,902,894
73	-	\$ 52,184,896,008	52,184,896,008	-	-	11,200,669,495	11,200,669,495
74	-	\$ 54,011,367,369	54,011,367,369	-	-	11,592,692,927	11,592,692,927
75	-	\$ 55,901,765,227	55,901,765,227	-	-	11,998,437,180	11,998,437,180
76	-	\$ 57,858,327,010	57,858,327,010	-	-	12,418,382,481	12,418,382,481
77	-	\$ 59,883,368,455	59,883,368,455	-	-	12,853,025,868	12,853,025,868
78	-	\$ 61,979,286,351	61,979,286,351	-	-	13,302,881,773	13,302,881,773
79	-	\$ 64,148,561,373	64,148,561,373	-	-	13,768,482,635	13,768,482,635
80	-	\$ 66,393,761,021	66,393,761,021	-	-	14,250,379,528	14,250,379,528
81	-	\$ 68,717,542,657	68,717,542,657	-	-	14,749,142,811	14,749,142,811
82	-	\$ 71,122,656,650	71,122,656,650	-	-	15,265,362,810	15,265,362,810
83	-	\$ 73,611,949,633	73,611,949,633	-	-	15,799,650,508	15,799,650,508
84	-	\$ 76,188,367,870	76,188,367,870	-	-	16,352,638,276	16,352,638,276
85	-	\$ 78,854,960,745	78,854,960,745	-	-	16,924,980,615	16,924,980,615
86	-	\$ 81,614,884,371	81,614,884,371	-	-	17,517,354,937	17,517,354,937
87	-	\$ 84,471,405,324	84,471,405,324	-	-	18,130,462,360	18,130,462,360
88	-	\$ 87,427,904,511	87,427,904,511	-	-	18,765,028,542	18,765,028,542
89	-	\$ 90,487,881,169	90,487,881,169	-	-	19,421,804,541	19,421,804,541
90	-	\$ 93,654,957,009	93,654,957,009	-	-	20,101,567,700	20,101,567,700
91	-	\$ 96,932,880,505	96,932,880,505	-	-	20,805,122,570	20,805,122,570
92	-	\$ 100,325,531,322	100,325,531,322	-	-	21,533,301,860	21,533,301,860
93	-	\$ 103,836,924,919	103,836,924,919	-	-	22,286,967,425	22,286,967,425
94	-	\$ 107,471,217,291	107,471,217,291	-	-	23,067,011,284	23,067,011,284
95	-	\$ 111,232,709,896	111,232,709,896	-	-	23,874,356,679	23,874,356,679
96	-	\$ 115,125,854,742	115,125,854,742	-	-	24,709,959,163	24,709,959,163
97	-	\$ 119,155,259,658	119,155,259,658	-	-	25,574,807,734	25,574,807,734
98	-	\$ 123,325,693,746	123,325,693,746	-	-	26,469,926,005	26,469,926,005
99	-	\$ 127,642,093,028	127,642,093,028	-	-	27,396,373,415	27,396,373,415
100	-	\$ 132,109,566,284	132,109,566,284	-	-	28,355,246,484	28,355,246,484

Single Discount Rate Development

Projection of Plan Fiduciary Net Position Beginning July 1, 2018

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	\$ 16,598,407,973	\$ 1,124,706,748	\$ 1,488,812,494	\$ 16,336,947	\$ 1,148,798,269	\$ 17,366,763,550
2	17,366,763,550	1,277,040,460	1,576,947,460	15,365,326	1,204,825,545	18,256,316,768
3	18,256,316,768	1,401,993,672	1,662,086,291	14,646,215	1,268,488,948	19,250,066,881
4	19,250,066,881	1,423,147,742	1,748,815,923	14,035,460	1,335,816,144	20,246,179,384
5	20,246,179,384	1,446,387,678	1,835,671,145	13,484,979	1,403,374,083	21,246,785,021
6	21,246,785,021	1,471,130,559	1,925,185,834	12,978,644	1,471,205,228	22,250,956,331
7	22,250,956,331	1,497,546,904	2,017,129,515	12,492,097	1,539,259,294	23,258,140,916
8	23,258,140,916	1,525,403,990	2,110,382,214	12,016,205	1,607,528,454	24,268,674,941
9	24,268,674,941	1,554,657,852	2,203,471,886	11,554,098	1,676,085,271	25,284,392,079
10	25,284,392,079	1,585,281,694	2,297,210,148	11,092,641	1,745,029,704	26,306,400,687
11	26,306,400,687	1,617,723,926	2,390,213,339	10,634,773	1,814,502,277	27,337,778,779
12	27,337,778,779	1,651,983,385	2,481,808,572	10,200,504	1,884,740,874	28,382,493,961
13	28,382,493,961	1,687,956,568	2,572,259,123	9,773,255	1,956,011,178	29,444,429,330
14	29,444,429,330	1,725,607,979	2,662,126,734	9,348,771	2,028,564,602	30,527,126,406
15	30,527,126,406	1,764,837,053	2,751,342,550	8,927,133	2,102,647,959	31,634,341,737
16	31,634,341,737	1,805,867,201	2,838,817,713	8,502,374	2,178,569,566	32,771,458,416
17	32,771,458,416	1,848,829,698	2,923,080,068	8,083,336	2,256,761,104	33,945,885,815
18	33,945,885,815	1,893,613,340	3,005,623,499	7,665,678	2,337,686,152	35,163,896,130
19	35,163,896,130	1,940,401,040	3,084,540,557	7,245,343	2,421,855,829	36,434,367,098
20	36,434,367,098	1,989,316,887	3,159,735,533	6,827,801	2,509,898,950	37,767,019,601
21	37,767,019,601	2,040,596,096	3,229,989,495	6,411,116	2,602,546,079	39,173,761,165
22	39,173,761,165	2,094,329,397	3,295,253,226	6,001,392	2,700,635,346	40,667,471,289
23	40,667,471,289	2,150,601,284	3,354,286,458	5,598,994	2,805,113,888	42,263,301,010
24	42,263,301,010	2,209,387,075	3,407,538,304	5,203,216	2,917,025,999	43,976,972,564
25	43,976,972,564	2,270,826,719	3,454,380,885	4,812,340	3,037,498,713	45,826,104,771
26	45,826,104,771	2,335,097,121	3,494,344,360	4,426,803	3,167,787,587	47,830,218,316
27	47,830,218,316	2,402,221,636	3,527,596,795	4,048,821	3,309,254,013	50,010,048,348
28	50,010,048,348	2,472,325,257	3,554,101,514	3,676,712	3,463,355,072	52,387,950,450
29	52,387,950,450	2,545,539,521	3,573,187,578	3,312,412	3,631,683,199	54,988,673,180
30	54,988,673,180	2,622,138,690	3,583,687,952	2,959,566	3,816,020,261	57,840,184,614
31	57,840,184,614	2,702,361,310	3,584,814,123	2,617,930	4,018,359,371	60,973,473,242
32	60,973,473,242	2,786,390,537	3,576,562,992	2,298,385	4,240,875,756	64,421,878,158
33	64,421,878,158	2,874,225,522	3,559,899,997	1,999,264	4,485,869,963	68,220,074,383
34	68,220,074,383	2,966,024,313	3,534,894,601	1,714,591	4,755,772,498	72,405,262,001
35	72,405,262,001	3,062,056,234	3,500,992,616	1,450,504	5,053,215,489	77,018,090,604
36	77,018,090,604	3,162,446,892	3,458,370,408	1,210,789	5,381,042,532	82,101,998,831
37	82,101,998,831	3,267,291,547	3,407,608,294	997,556	5,742,277,570	87,702,962,098
38	87,702,962,098	3,376,694,797	3,348,630,338	810,587	6,140,145,099	93,870,361,069
39	93,870,361,069	3,490,816,326	3,281,365,118	650,345	6,578,109,704	100,657,271,636
40	100,657,271,636	3,609,718,453	3,206,299,198	517,936	7,059,872,061	108,120,045,015
41	108,120,045,015	3,733,417,528	3,124,326,379	410,344	7,589,346,667	116,318,072,487
42	116,318,072,487	3,861,961,566	3,036,322,750	322,518	8,170,662,593	125,314,051,378
43	125,314,051,378	3,995,472,407	2,942,535,460	252,170	8,808,204,420	135,174,940,574
44	135,174,940,574	4,133,980,125	2,844,016,295	196,158	9,506,624,222	145,971,332,467
45	145,971,332,467	4,277,606,247	2,741,377,698	150,076	10,270,846,727	157,778,257,668
46	157,778,257,668	4,426,480,339	2,635,075,125	113,045	11,106,112,895	170,675,662,732
47	170,675,662,732	4,580,727,633	2,525,800,879	82,877	12,017,999,548	184,748,506,157
48	184,748,506,157	4,740,520,600	2,413,934,950	58,707	13,012,446,671	200,087,479,772
49	200,087,479,772	4,906,041,471	2,299,844,646	39,111	14,095,796,371	216,789,433,857
50	216,789,433,857	5,077,479,402	2,183,965,655	24,687	15,274,819,667	234,957,742,584

Single Discount Rate Development

Projection of Plan Fiduciary Net Position Beginning July 1, 2018 (Continued)

Year	Projected Beginning Plan Net Position	Projected Total Contributions	Projected Benefit Payments	Projected Administrative Expenses	Projected Investment Earnings at 7.00%	Projected Ending Plan Net Position
	(a)	(b)	(c)	(d)	(e)	(f)=(a)+(b)-(c)-(d)+(e)
51	234,957,742,584	5,255,005,248	\$ 2,066,914,406	14,639	16,556,737,445	\$ 254,702,556,233
52	254,702,556,233	5,438,813,783	\$ 1,949,266,545	7,677	17,949,247,164	\$ 276,141,342,957
53	276,141,342,957	5,629,110,409	\$ 1,831,484,916	3,163	19,460,562,760	\$ 299,399,528,048
54	299,399,528,048	5,826,108,567	\$ 1,714,031,133	1,274	21,099,455,458	\$ 324,611,059,665
55	324,611,059,665	6,030,011,589	\$ 1,597,497,738	563	22,875,288,286	\$ 351,918,861,239
56	351,918,861,239	6,241,057,369	\$ 1,482,253,719	150	24,798,061,404	\$ 381,475,726,143
57	381,475,726,143	6,459,492,958	\$ 1,368,674,858	60	26,878,465,917	\$ 413,445,010,101
58	413,445,010,101	6,685,574,544	\$ 1,257,152,068	6	29,127,932,102	\$ 448,001,364,673
59	448,001,364,673	6,919,569,653	\$ 1,148,060,953	-	31,558,681,848	\$ 485,331,555,222
60	485,331,555,222	7,161,754,591	\$ 1,041,812,951	-	34,183,784,082	\$ 525,635,280,944
61	525,635,280,944	7,412,416,001	\$ 938,850,374	-	37,017,212,392	\$ 569,126,058,964
62	569,126,058,964	7,671,850,562	\$ 839,658,081	-	40,073,906,502	\$ 616,032,157,947
63	616,032,157,947	7,940,365,331	\$ 744,748,585	-	43,369,838,149	\$ 666,597,612,842
64	666,597,612,842	8,218,278,118	\$ 654,649,602	-	46,922,082,556	\$ 721,083,323,914
65	721,083,323,914	8,505,917,852	\$ 569,877,251	-	50,748,896,302	\$ 779,768,260,818
66	779,768,260,818	8,803,624,977	\$ 490,888,783	-	54,869,803,244	\$ 842,950,800,256
67	842,950,800,256	9,111,751,851	\$ 418,071,362	-	59,305,688,552	\$ 910,950,169,297
68	910,950,169,297	9,430,663,166	\$ 351,698,431	-	64,078,901,262	\$ 984,108,035,295
69	984,108,035,295	9,760,736,376	\$ 291,938,864	-	69,213,365,265	\$ 1,062,790,198,072
70	1,062,790,198,072	10,102,362,150	\$ 238,863,118	-	74,734,697,567	\$ 1,147,388,394,671
71	1,147,388,394,671	10,455,944,825	\$ 192,419,025	-	80,670,335,467	\$ 1,238,322,255,937
72	1,238,322,255,937	10,821,902,894	\$ 152,425,629	-	87,049,673,751	\$ 1,336,041,406,954
73	1,336,041,406,954	11,200,669,495	\$ 118,571,118	-	93,904,211,807	\$ 1,441,027,717,138
74	1,441,027,717,138	11,592,692,927	\$ 90,448,040	-	101,267,709,940	\$ 1,553,797,671,965
75	1,553,797,671,965	11,998,437,180	\$ 67,559,171	-	109,176,355,204	\$ 1,674,904,905,179
76	1,674,904,905,179	12,418,382,481	\$ 49,348,431	-	117,668,937,621	\$ 1,804,942,876,850
77	1,804,942,876,850	12,853,025,868	\$ 35,214,271	-	126,787,037,196	\$ 1,944,547,725,643
78	1,944,547,725,643	13,302,881,773	\$ 24,541,641	-	136,575,222,497	\$ 2,094,401,288,273
79	2,094,401,288,273	13,768,482,635	\$ 16,725,576	-	147,081,261,231	\$ 2,255,234,306,563
80	2,255,234,306,563	14,250,379,528	\$ 11,186,572	-	158,356,344,227	\$ 2,427,829,843,745
81	2,427,829,843,745	14,749,142,811	\$ 7,392,681	-	170,455,323,839	\$ 2,613,026,917,714
82	2,613,026,917,714	15,265,362,810	\$ 4,876,422	-	183,436,967,716	\$ 2,811,724,371,818
83	2,811,724,371,818	15,799,650,508	\$ 3,257,759	-	197,364,228,993	\$ 3,024,884,993,561
84	3,024,884,993,561	16,352,638,276	\$ 2,239,319	-	212,304,534,784	\$ 3,253,539,927,302
85	3,253,539,927,302	16,924,980,615	\$ 1,600,048	-	228,330,095,322	\$ 3,498,793,403,191
86	3,498,793,403,191	17,517,354,937	\$ 1,185,215	-	245,518,235,349	\$ 3,761,827,808,263
87	3,761,827,808,263	18,130,462,360	\$ 902,449	-	263,951,749,260	\$ 4,043,909,117,435
88	4,043,909,117,435	18,765,028,542	\$ 699,613	-	283,719,282,062	\$ 4,346,392,728,426
89	4,346,392,728,426	19,421,804,541	\$ 547,253	-	304,915,738,451	\$ 4,670,729,724,165
90	4,670,729,724,165	20,101,567,700	\$ 428,828	-	327,642,721,548	\$ 5,018,473,584,585
91	5,018,473,584,585	20,805,122,570	\$ 334,560	-	352,009,002,967	\$ 5,391,287,375,563
92	5,391,287,375,563	21,533,301,860	\$ 259,057	-	378,131,026,158	\$ 5,790,951,444,523
93	5,790,951,444,523	22,286,967,425	\$ 198,156	-	406,133,445,238	\$ 6,219,371,659,030
94	6,219,371,659,030	23,067,011,284	\$ 148,946	-	436,149,701,730	\$ 6,678,588,223,098
95	6,678,588,223,098	23,874,356,679	\$ 109,430	-	468,322,641,749	\$ 7,170,785,112,096
96	7,170,785,112,096	24,709,959,163	\$ 78,362	-	502,805,176,495	\$ 7,698,300,169,393
97	7,698,300,169,393	25,574,807,734	\$ 54,797	-	539,760,989,063	\$ 8,263,635,911,393
98	8,263,635,911,393	26,469,926,005	\$ 37,465	-	579,365,290,868	\$ 8,869,471,090,801
99	8,869,471,090,801	27,396,373,415	\$ 25,090	-	621,805,631,095	\$ 9,518,673,070,220
100	9,518,673,070,220	28,355,246,484	\$ 16,412	-	667,282,762,899	\$ 10,214,311,063,192

Single Discount Rate Development

Present Values of Projected Benefit Payments Beginning July 1, 2018

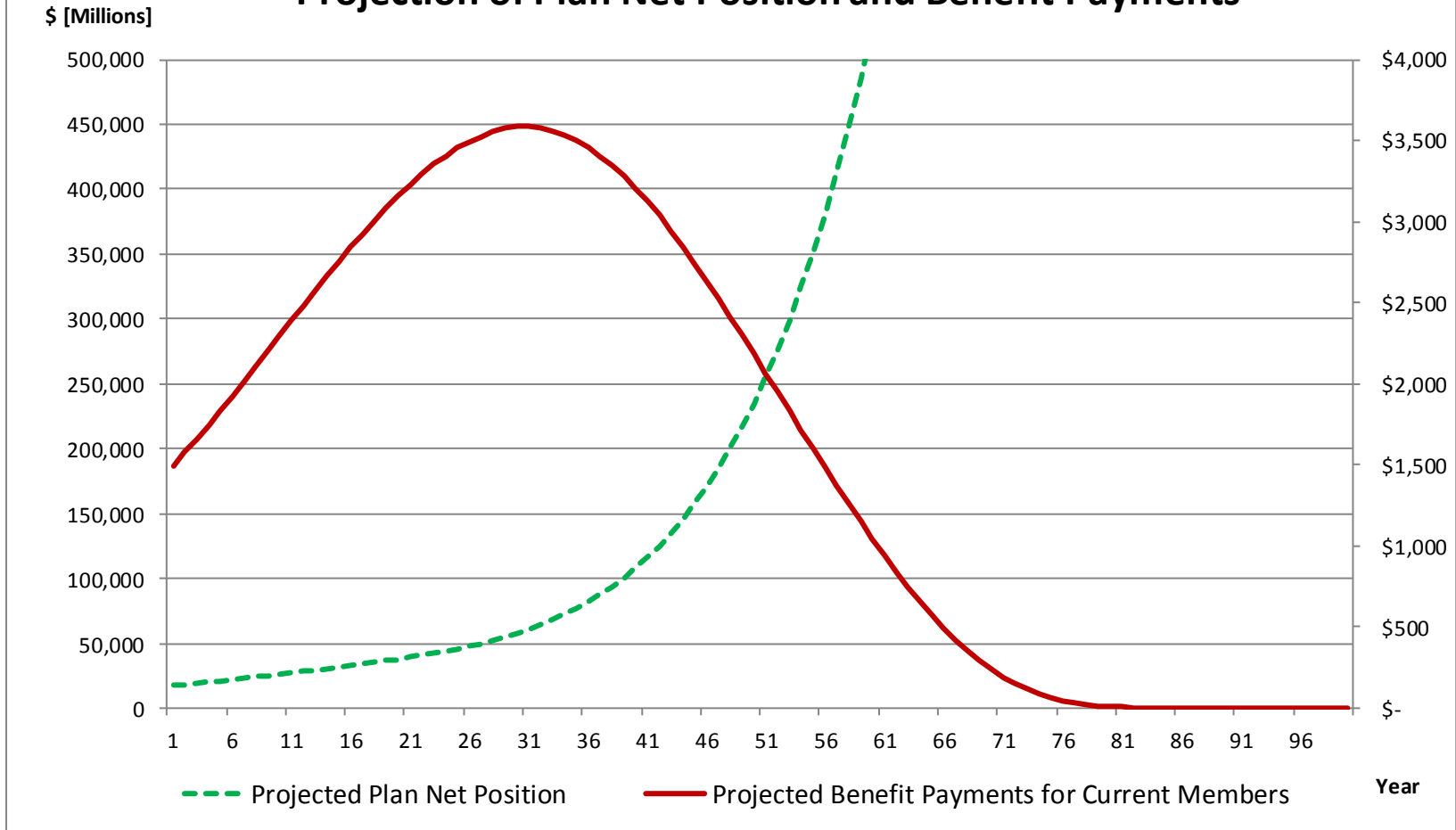
Year	Projected Beginning Plan Net Position	Projected Benefit Payments	Funded Portion of Benefit Payments	Unfunded Portion of Benefit Payments	Present Value of Funded Benefit Payments using Expected Return Rate (v)	Present Value of Unfunded Benefit Payments using Municipal Bond Rate (vf)	Present Value 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)
1	\$ 16,598,407,973	\$ 1,488,812,494	\$ 1,488,812,494	\$ -	\$ 1,439,289,363	\$ -	\$ 1,439,289,363
2	17,366,763,550	1,576,947,460	1,576,947,460	-	1,424,759,487	-	1,424,759,487
3	18,256,316,768	1,662,086,291	1,662,086,291	-	1,403,440,882	-	1,403,440,882
4	19,250,066,881	1,748,815,923	1,748,815,923	-	1,380,069,243	-	1,380,069,243
5	20,246,179,384	1,835,671,145	1,835,671,145	-	1,353,841,684	-	1,353,841,684
6	21,246,785,021	1,925,185,834	1,925,185,834	-	1,326,972,370	-	1,326,972,370
7	22,250,956,331	2,017,129,515	2,017,129,515	-	1,299,389,129	-	1,299,389,129
8	23,258,140,916	2,110,382,214	2,110,382,214	-	1,270,523,743	-	1,270,523,743
9	24,268,674,941	2,203,471,886	2,203,471,886	-	1,239,782,219	-	1,239,782,219
10	25,284,392,079	2,297,210,148	2,297,210,148	-	1,207,966,355	-	1,207,966,355
11	26,306,400,687	2,390,213,339	2,390,213,339	-	1,174,645,989	-	1,174,645,989
12	27,337,778,779	2,481,808,572	2,481,808,572	-	1,139,868,722	-	1,139,868,722
13	28,382,493,961	2,572,259,123	2,572,259,123	-	1,104,123,098	-	1,104,123,098
14	29,444,429,330	2,662,126,734	2,662,126,734	-	1,067,942,151	-	1,067,942,151
15	30,527,126,406	2,751,342,550	2,751,342,550	-	1,031,525,309	-	1,031,525,309
16	31,634,341,737	2,838,817,713	2,838,817,713	-	994,692,750	-	994,692,750
17	32,771,458,416	2,923,080,068	2,923,080,068	-	957,212,541	-	957,212,541
18	33,945,885,815	3,005,623,499	3,005,623,499	-	919,853,082	-	919,853,082
19	35,163,896,130	3,084,540,557	3,084,540,557	-	882,247,828	-	882,247,828
20	36,434,367,098	3,159,735,533	3,159,735,533	-	844,631,102	-	844,631,102
21	37,767,019,601	3,229,989,495	3,229,989,495	-	806,925,922	-	806,925,922
22	39,173,761,165	3,295,253,226	3,295,253,226	-	769,374,120	-	769,374,120
23	40,667,471,289	3,354,286,458	3,354,286,458	-	731,922,589	-	731,922,589
24	42,263,301,010	3,407,538,304	3,407,538,304	-	694,899,455	-	694,899,455
25	43,976,972,564	3,454,380,885	3,454,380,885	-	658,366,415	-	658,366,415
26	45,826,104,771	3,494,344,360	3,494,344,360	-	622,414,026	-	622,414,026
27	47,830,218,316	3,527,596,795	3,527,596,795	-	587,230,806	-	587,230,806
28	50,010,048,348	3,554,101,514	3,554,101,514	-	552,937,369	-	552,937,369
29	52,387,950,450	3,573,187,578	3,573,187,578	-	519,538,997	-	519,538,997
30	54,988,673,180	3,583,687,952	3,583,687,952	-	486,977,331	-	486,977,331
31	57,840,184,614	3,584,814,123	3,584,814,123	-	455,262,021	-	455,262,021
32	60,973,473,242	3,576,562,992	3,576,562,992	-	424,499,205	-	424,499,205
33	64,421,878,158	3,559,899,997	3,559,899,997	-	394,879,896	-	394,879,896
34	68,220,074,383	3,534,894,601	3,534,894,601	-	366,454,380	-	366,454,380
35	72,405,262,001	3,500,992,616	3,500,992,616	-	339,196,111	-	339,196,111
36	77,018,090,604	3,458,370,408	3,458,370,408	-	313,146,382	-	313,146,382
37	82,101,998,831	3,407,608,294	3,407,608,294	-	288,364,491	-	288,364,491
38	87,702,962,098	3,348,630,338	3,348,630,338	-	264,835,100	-	264,835,100
39	93,870,361,069	3,281,365,118	3,281,365,118	-	242,537,623	-	242,537,623
40	100,657,271,636	3,206,299,198	3,206,299,198	-	221,485,259	-	221,485,259
41	108,120,045,015	3,124,326,379	3,124,326,379	-	201,703,484	-	201,703,484
42	116,318,072,487	3,036,322,750	3,036,322,750	-	183,198,182	-	183,198,182
43	125,314,051,378	2,942,535,460	2,942,535,460	-	165,924,743	-	165,924,743
44	135,174,940,574	2,844,016,295	2,844,016,295	-	149,877,952	-	149,877,952
45	145,971,332,467	2,741,377,698	2,741,377,698	-	135,017,720	-	135,017,720
46	157,778,257,668	2,635,075,125	2,635,075,125	-	121,291,709	-	121,291,709
47	170,675,662,732	2,525,800,879	2,525,800,879	-	108,655,934	-	108,655,934
48	184,748,506,157	2,413,934,950	2,413,934,950	-	97,050,130	-	97,050,130
49	200,087,479,772	2,299,844,646	2,299,844,646	-	86,414,234	-	86,414,234
50	216,789,433,857	2,183,965,655	2,183,965,655	-	76,691,778	-	76,691,778

Single Discount Rate Development

PVs of Projected Benefit Payments Beginning July 1, 2018 (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	\$ 234,957,742,584	\$ 2,066,914,406	\$ 2,066,914,406	\$ -	\$ 67,833,108	\$ -	\$ 67,833,108
52	254,702,556,233	1,949,266,545	1,949,266,545	-	59,786,989	-	59,786,989
53	276,141,342,957	1,831,484,916	1,831,484,916	-	52,499,482	-	52,499,482
54	299,399,528,048	1,714,031,133	1,714,031,133	-	45,918,384	-	45,918,384
55	324,611,059,665	1,597,497,738	1,597,497,738	-	39,996,719	-	39,996,719
56	351,918,861,239	1,482,253,719	1,482,253,719	-	34,683,498	-	34,683,498
57	381,475,726,143	1,368,674,858	1,368,674,858	-	29,930,698	-	29,930,698
58	413,445,010,101	1,257,152,068	1,257,152,068	-	25,693,342	-	25,693,342
59	448,001,364,673	1,148,060,953	1,148,060,953	-	21,928,754	-	21,928,754
60	485,331,555,222	1,041,812,951	1,041,812,951	-	18,597,518	-	18,597,518
61	525,635,280,944	938,850,374	938,850,374	-	15,663,104	-	15,663,104
62	569,126,058,964	839,658,081	839,658,081	-	13,091,824	-	13,091,824
63	616,032,157,947	744,748,585	744,748,585	-	10,852,345	-	10,852,345
64	666,597,612,842	654,649,602	654,649,602	-	8,915,363	-	8,915,363
65	721,083,323,914	569,877,251	569,877,251	-	7,253,167	-	7,253,167
66	779,768,260,818	490,888,783	490,888,783	-	5,839,097	-	5,839,097
67	842,950,800,256	418,071,362	418,071,362	-	4,647,605	-	4,647,605
68	910,950,169,297	351,698,431	351,698,431	-	3,653,974	-	3,653,974
69	984,108,035,295	291,938,864	291,938,864	-	2,834,674	-	2,834,674
70	1,062,790,198,072	238,863,118	238,863,118	-	2,167,587	-	2,167,587
71	1,147,388,394,671	192,419,025	192,419,025	-	1,631,893	-	1,631,893
72	1,238,322,255,937	152,425,629	152,425,629	-	1,208,142	-	1,208,142
73	1,336,041,406,954	118,571,118	118,571,118	-	878,325	-	878,325
74	1,441,027,717,138	90,448,040	90,448,040	-	626,169	-	626,169
75	1,553,797,671,965	67,559,171	67,559,171	-	437,112	-	437,112
76	1,674,904,905,179	49,348,431	49,348,431	-	298,400	-	298,400
77	1,804,942,876,850	35,214,271	35,214,271	-	199,003	-	199,003
78	1,944,547,725,643	24,541,641	24,541,641	-	129,617	-	129,617
79	2,094,401,288,273	16,725,576	16,725,576	-	82,557	-	82,557
80	2,255,234,306,563	11,186,572	11,186,572	-	51,604	-	51,604
81	2,427,829,843,745	7,392,681	7,392,681	-	31,872	-	31,872
82	2,613,026,917,714	4,876,422	4,876,422	-	19,648	-	19,648
83	2,811,724,371,818	3,257,759	3,257,759	-	12,268	-	12,268
84	3,024,884,993,561	2,239,319	2,239,319	-	7,881	-	7,881
85	3,253,539,927,302	1,600,048	1,600,048	-	5,263	-	5,263
86	3,498,793,403,191	1,185,215	1,185,215	-	3,643	-	3,643
87	3,761,827,808,263	902,449	902,449	-	2,593	-	2,593
88	4,043,909,117,435	699,613	699,613	-	1,878	-	1,878
89	4,346,392,728,426	547,253	547,253	-	1,373	-	1,373
90	4,670,729,724,165	428,828	428,828	-	1,006	-	1,006
91	5,018,473,584,585	334,560	334,560	-	733	-	733
92	5,391,287,375,563	259,057	259,057	-	531	-	531
93	5,790,951,444,523	198,156	198,156	-	379	-	379
94	6,219,371,659,030	148,946	148,946	-	266	-	266
95	6,678,588,223,098	109,430	109,430	-	183	-	183
96	7,170,785,112,096	78,362	78,362	-	122	-	122
97	7,698,300,169,393	54,797	54,797	-	80	-	80
98	8,263,635,911,393	37,465	37,465	-	51	-	51
99	8,869,471,090,801	25,090	25,090	-	32	-	32
100	9,518,673,070,220	16,412	16,412	-	20	-	20
Totals					\$ 35,007,270,285	\$ -	\$ 35,007,270,285

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, 2018. Pension Expense for each employer is determined on a proportionate share basis and is shown on page F-4.

A. Expense

1. Service Cost	\$ 584,470,193
2. Interest on the Total Pension Liability	1,976,275,120
3. Current-Period Benefit Changes	0
4. Employee Contributions (made negative for addition here)	(259,427,934)
5. Projected Earnings on Plan Investments (made negative for addition here)	(1,087,490,589)
6. Pension Plan Administrative Expense	15,784,490
7. Other Changes in Plan Fiduciary Net Position	0
8. Recognition of Outflow (Inflow) of Resources due to Liabilities	615,523,939
9. Recognition of Outflow (Inflow) of Resources due to Assets	(105,485,816)
10. Total Pension Expense	\$ 1,739,649,403

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 2018 fiscal year, the expected remaining service lives of all employees was 746,600 years. Additionally, the plan membership (active employees and inactive employees) was 138,561. 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 2018 fiscal year is 5.3882 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, 2018

A. Outflows (Inflows) of Resources due to Liabilities

1. Difference between expected and actual experience of the Total Pension Liability (gains) or losses	\$ 124,753,379
2. Assumption Changes (gains) or losses	\$ -
3. Recognition period for Liabilities: Average of the expected remaining service lives of all employees {in years}	5.3882
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	\$ 23,153,073
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	\$ 23,153,073
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	\$ 101,600,306
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	\$ 101,600,306

B. Outflows (Inflows) of Resources due to Assets

1. Net difference between projected and actual earnings on pension plan investments (gains) or losses	\$ (138,082,010)
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	\$ (27,616,403)
3. Deferred Outflow (Inflow) of Resources to be recognized in future pension expenses due to Assets	\$ (110,465,607)

Statement of Outflows and Inflows Arising from Current and Prior Reporting Periods for Fiscal Year Ending June 30, 2018

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	\$ 668,107,725	\$ 52,583,786	\$ 615,523,939
2. due to Assets	\$ 360,662,474	\$ 466,148,290	\$ (105,485,816)
3. Total	\$ 1,028,770,199	\$ 518,732,076	\$ 510,038,123

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	\$ 114,688,076	\$ 52,583,786	\$ 62,104,290
2. Assumption Changes	553,419,649	-	553,419,649
3. Net Difference between projected and actual earnings on pension plan investments	360,662,474	466,148,290	(105,485,816)
4. Total	\$ 1,028,770,199	\$ 518,732,076	\$ 510,038,123

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	\$ 314,113,517	\$ 74,302,777	\$ 239,810,740
2. Assumption Changes	1,469,465,792	-	1,469,465,792
3. Net Difference between projected and actual earnings on pension plan investments	614,433,895	686,663,505	(72,229,610)
4. Total	\$ 2,398,013,204	\$ 760,966,282	\$ 1,637,046,922

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
2019	\$ 753,810,501
2020	632,008,031
2021	239,527,731
2022	2,712,645
2023	8,988,014
Thereafter	0
Total	\$ 1,637,046,922

Recognition of Deferred Outflows and Inflows of Resources for Fiscal Year Ending June 30, 2018

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					
2014	66,400,876	5.7661	11,515,735	8,822,201	0.7661
2015	(192,816,757)	5.5095	(34,997,143)	(52,828,185)	1.5095
2016	297,534,219	5.7626	51,631,941	142,638,396	2.7626
2017	61,179,390	5.6644	10,800,684	39,578,022	3.6644
2018	124,753,379	5.3882	23,153,073	101,600,306	4.3882
Total			62,104,290	239,810,740	
Deferred Outflow (Inflow) due to Assumption Changes					
2014	0	5.7661	0	0	0.7661
2015	261,213,541	5.5095	47,411,479	71,567,625	1.5095
2016	2,915,922,677	5.7626	506,008,170	1,397,898,167	2.7626
2017	0	5.6644	0	0	3.6644
2018	0	5.3882	0	0	4.3882
Total			553,419,649	1,469,465,792	
Deferred Outflow (Inflow) due to Differences Between Projected and Actual Earnings on Plan Investments					
2014	(1,232,329,632)	5.0000	(246,465,920)	0	0.0000
2015	534,455,207	5.0000	106,891,043	106,891,035	1.0000
2016	1,268,857,153	5.0000	253,771,431	507,542,860	2.0000
2017	(960,329,832)	5.0000	(192,065,967)	(576,197,898)	3.0000
2018	(138,082,010)	5.0000	(27,616,403)	(110,465,607)	4.0000
Total			(105,485,816)	(72,229,610)	

**Schedule of Employer Allocations
and Pension Amounts
At June 30, 2018
Exhibit 1**

Employer	Proportionate Share as of June 30, 2018	Change in Proportioante Share	Proportionate Share of Net Pension Liability as of June 30, 2018 7.00%	Sensitivity Analysis		Proportionate Share of Pension Expense as of June 30, 2018
				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	56.08975004%	-0.51752810%	7,470,590,112	9,717,410,819	5,618,431,806	942,744,441
City and County of Honolulu	18.20330395%	0.38731395%	2,424,496,853	3,201,229,538	1,784,200,150	345,786,743
County of Hawaii	4.77283441%	0.06326085%	635,693,501	839,348,453	467,811,298	93,523,335
County of Maui	4.48733906%	-0.13388378%	597,668,394	786,922,631	441,657,366	81,067,724
County of Kauai	2.25151117%	0.14786816%	299,878,624	395,225,291	221,279,953	44,015,315
BWS City and County of Honolulu	0.90358436%	0.02831321%	120,348,341	156,493,555	90,552,169	17,626,234
DWS County of Hawaii	0.25168608%	0.03265302%	33,522,053	43,590,009	25,222,572	5,162,420
DOW County of Kauai	0.12130547%	0.00220776%	16,156,668	21,009,134	12,156,556	2,192,439
HART	0.18649442%	-0.01219056%	24,839,179	32,299,335	18,689,427	3,556,442
University of Hawaii	12.73219104%	0.00198550%	1,695,799,685	2,205,113,239	1,275,948,949	203,974,310

Schedule of Employer Allocations
and Pension Amounts
At June 30, 2018
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	137,649,049	336,394,616	806,762,969	23,127,995	1,303,934,629	46,452,140	375,123,912	0	56,839,736	478,415,788
City and County of Honolulu	88,888,433	118,627,338	281,855,445	52,551,543	541,922,759	9,595,751	133,243,556	0	35,364,925	178,204,232
County of Hawaii	23,304,996	31,103,363	73,900,841	19,019,804	147,329,004	2,516,117	34,935,622	0	3,852,069	41,303,808
County of Maui	19,847,884	28,801,735	68,545,773	16,585,692	133,781,084	2,621,292	32,309,247	0	20,067,463	54,998,002
County of Kauai	10,320,174	14,528,505	34,556,449	20,646,930	80,052,058	1,270,420	16,305,128	0	6,972,960	24,548,508
BWS City and County of Honolulu	2,170,789	5,409,206	12,975,494	5,238,978	25,794,467	754,112	6,030,959	0	2,074,401	8,859,472
DWS County of Hawaii	604,656	1,506,690	3,614,219	3,752,674	9,478,239	210,052	1,679,875	0	868,357	2,758,284
DOW County of Kauai	291,427	726,182	1,741,950	564,085	3,323,644	101,239	809,651	0	501,222	1,412,112
HART	448,038	1,116,428	2,678,065	1,870,872	6,113,403	155,644	1,244,754	0	1,189,856	2,590,254
University of Hawaii	30,588,071	76,219,832	182,834,587	1,212,215	290,854,705	10,626,010	84,980,801	0	16,839,799	112,446,610

**Schedule of Employer Allocations
and Pension Amounts
At June 30, 2018
Exhibit 3**

Employer	Deferred Outflows and (Inflows) to be Recognized in Future Years					
	Total Deferred Outflow and (Inflow) 2019	Total Deferred Outflow and (Inflow) 2020	Total Deferred Outflow and (Inflow) 2021	Total Deferred Outflows of 2022	Total Deferred Outflows of 2023	Total Deferred Outflows of Thereafter
(1)	(2)	(3)	(4)	(5)	(6)	(7)
State of Hawaii	389,710,455	325,676,444	119,660,747	(10,356,869)	828,064	-
City and County of Honolulu	165,475,894	136,181,255	51,690,905	5,586,092	4,784,381	-
County of Hawaii	46,567,986	39,388,678	16,439,932	2,659,286	969,314	-
County of Maui	36,776,632	30,830,519	11,648,927	32,279	(505,275)	-
County of Kauai	22,038,583	19,333,047	9,155,359	3,701,731	1,274,830	-
BWS City and County of Honolulu	8,302,288	5,579,215	2,121,881	630,802	300,809	-
DWS County of Hawaii	2,516,812	1,959,638	1,299,979	664,488	279,038	-
DOW County of Kauai	1,000,615	748,589	177,366	(42,863)	27,825	-
HART	1,672,454	1,287,918	592,930	49,933	(80,086)	-
University of Hawaii	79,748,782	71,022,728	26,739,705	(212,234)	1,109,114	-

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.