State of Hawaii Retiree Health Care Plan

Actuarial Valuation Report
as of July 1, 2022

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January 18, 2023

Luis Salaveria
Director of Budget and Finance
State of Hawaii – Department of Budget and Finance
250 South Hotel Street, Room 305
Honolulu, Hawaii 96813

Dear Mr. Salaveria:

Submitted in this report are the results of an actuarial valuation for the State of Hawaii of the liabilities associated with the employer financed retiree health benefits provided through the Hawaii Employer-Union Health Benefits Trust Fund (EUTF). The date of the valuation was July 1, 2022. The annual required contribution has been calculated for the fiscal year ending June 30, 2025. The actuarial calculations were prepared to determine the annual required employer contribution to satisfy the requirements of ACT 268, SLH 2013 ("ACT 268"). Determinations of the liability associated with the benefits described in this report for purposes other than satisfying the funding requirements of ACT 268 may produce significantly different results. This report may be provided to parties other than the State of Hawaii only in its entirety and only with the permission of the State of Hawaii.

The valuation was based upon information, furnished by the EUTF and the Employees' Retirement System of the State of Hawaii (ERS), concerning retiree health benefits, members' census and financial data. Data was checked for internal consistency but was not otherwise audited. Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: plan experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements; and changes in plan provisions or applicable law.

This report was prepared using our proprietary valuation model and related software which in our professional judgment has the capability to provide results that are consistent with the purposes of the valuation and has no material limitations or known weaknesses. We performed tests to ensure that the model reasonably represents that which is intended to be modeled.

The signing actuaries are independent of the plan sponsor. To the best of our knowledge, this report is complete and accurate and was made in accordance with generally recognized actuarial methods. Joseph Newton and Blake Orth are members of the American Academy of Actuaries and meet the Qualification Standards of the Academy of Actuaries to render the actuarial opinion herein.

Respectfully submitted,

Joseph P. Newton, FSA, FCA, EA, MAAA	Lewis Ward	Blake Orth, FSA, EA, MAAA
Pension Market Leader	Consultant	Consultant

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SECTION A

OVERVIEW

The following table summarizes the key results of the July 1, 2022 Other Post-Employment Benefits (OPEB) valuation for the State of Hawaii.

Executive Summary		
	July 1, 2022	**July 1, 2021**
Membership		
Number of		
-Retirees	39,326	38,534
-Deferred Inactives	7,564	7,539
-Active Employees	48,678	49,700
Covered Payroll*	$ 3,373,712,000	$ 3,449,439,000
Actuarial Summary		
Discount Rate	7.0%	7.0%
Amortization Growth Rate	2.5%	3.5%
Present Value of Benefits	$ 12,805,146,000	$ 13,659,623,000
Actuarial Accrued Liability	10,908,074,000	11,602,201,000
Market Value of Assets	3,774,693,000	3,733,000,000
Actuarial Value of Assets (AVA)	3,820,804,000	3,477,138,000
Unfunded Actuarial Accrued Liability	7,087,270,000	8,125,063,000
Funded Ratio, AVA	35.0%	30.0%
ARC as % of Payroll	23.2%	22.2%
Fiscal Year Ending	June 30, 2025	June 30, 2024
ACT 268 Minimum Contribution Summary		
Fiscal Year Ending	June 30, 2025	June 30, 2024
Annual Required Contribution (ARC)	$ 830,204,000	$ 821,984,000

* The covered payroll is equal to the projected payroll for the fiscal year beginning on the valuation date.

This report provides the minimum OPEB trust contribution required to satisfy the funding requirements of ACT 268. The Annual Required Contribution (ARC) developed in this report is for the fiscal year ending June 30, 2025. The contribution determined by each valuation will be applicable for the fiscal year which begins two years after the valuation date. The two-year lag between the valuation date and the applicable fiscal year allows appropriate time for budgeting and management of the appropriations.

Section C provides a multi-year projection of liability and contribution information which should be useful to management for the operation of the OPEB program.

Agent Multiple-Employer Plans

The EUTF OPEB plan operates as an **agent multiple-employer plan.** For agent multiple employer plans, separate asset accounts are maintained for each employer so that the employer's contributions provide benefits only for the employees of that employer. A separate actuarial valuation is performed for each individual employer's plan to determine the employer's periodic contribution rate and other information for the individual plan.

In a cost-sharing arrangement, such as the Employees' Retirement System of the State of Hawaii (ERS), the plan's assets can be used to pay the benefits for the retirees of any participating employer. By contrast, the assets of the participating government employers in an *agent multiple-employer plan* are pooled for investment purposes but separate accounts are maintained for each individual employer. As such, the State of Hawaii's assets at EUTF can only be used to pay benefits for the State of Hawaii's retirees. The State of Hawaii's unfunded actuarial accrued liability and the annual required contribution for retiree health benefits will be determined based solely on the State of Hawaii's membership and assets.

ACT 304, SLH 2012 and ACT 268, SLH 2013

ACT 304, SLH 2012 (ACT 304), authorized the board of trustees of the EUTF to create a separate trust fund (The OPEB Trust). The OPEB Trust was established effective June 30, 2013, specifically for pre-funding the participating employers OPEB benefits. Previous pre-funding contributions and related net investment earnings were transferred to each employer's respective OPEB Trust account. As required by ACT 304, contributions to the OPEB Trust shall be irrevocable and the assets of the fund shall be dedicated exclusively to providing health and other benefits to retirees and their eligible dependents. The assets in the OPEB Trust shall not be subject to appropriation for any other purpose and shall not be subject to claims by creditors of the employers or the board or plan administrator.

ACT 268, SLH 2013 (ACT 268) established an "annual required contribution" (ARC) equal to (a) the normal cost, plus (b) an amortization payment to fund the unfunded actuarial accrued liability over a period of no more than thirty years. Moreover, employers were required to contribute 100% of the ARC starting in fiscal year ending June 30, 2019. ACT 268 established mechanisms for funding the ARC if the employer fails to do so.

ACT 268 established a funding policy which ensures the ARC will be consistently met. As a result, the liabilities in this valuation have been calculated using a 7.0% long-term investment return assumption on the OPEB Trust's assets. The 7.0% return assumption is based on the OPEB Trust's investment policy and we believe the assumption is consistent with the target asset allocation.

Actuarial Assumptions and Methods

In any long-term actuarial valuation (such as for Pensions and OPEB), certain demographic, economic and behavioral assumptions are made concerning the population, the investment return rates and the benefits provided. These Actuarial Assumptions form the basis for the actuarial model which is used to project the future population, the future benefits provided, and the future contributions collected. Then the investment return rate (discount rate) assumption is used to discount those projected net OPEB benefits to a present value. This and other related present values are used to calculate the Annual Required Contribution.

This actuarial valuation of the State of Hawaii's OPEB is similar to the actuarial valuations performed for the State's pension plans. The demographic assumptions used in this OPEB Valuation were identical to those used in the June 30, 2022 ERS valuation. Because the assumptions were based upon the most recent actuarial experience study adopted by the Trustees of ERS, they were deemed reasonable for this OPEB Valuation and were employed in this report.

There are some economic and behavioral assumptions which are unique to health benefits. It would be instructive to review the Section of this Report titled, "Actuarial Assumptions and Methods" for a detailed discussion and disclosure of all the relevant actuarial assumptions used in this valuation. The Individual Entry Age Normal Cost Method was used in this valuation. This is both an acceptable and reasonable cost method. Furthermore, the Normal Costs and the amortization of any Unfunded Actuarial Accrued Liabilities were calculated using a level percent of pay.

The following assumption and method changes were made for the July 1, 2022 valuation:

1. The demographic and salary related assumptions were updated to reflect those developed in the 2022 Hawaii ERS Actuarial Experience Study. These changes decreased the accrued liability.
2. The trend rates were updated to reflect the plan's anticipated experience. This change decreased the liability.
3. The wage inflation assumption was lowered from 3.50% to 3.00%, and the growth rate for amortization payment of the unfunded liabilities was lowered from 3.50% to 2.50%. Taken together, these changes increased the Annual Required Contribution, and did not affect the liability. However, these changes significantly lowered the projected rate of growth in the annual employer contributions going forward.

The liability impact of these assumption changes is provided on page 13.

Summary of Changes

The funded ratio of the plan increased from 30.0% to 35.0%. The unfunded actuarial accrued liability decreased from $8.13 billion to $7.09 billion. The liabilities and contribution amounts developed in the July 1, 2022 valuation were lower than expected. The actuarial accrued liability decreased from $11.60 billion to $10.91 billion, while the liability was expected to increase to $12.20 billion. The liabilities decreased mainly due to favorable 2023 premium changes for both the Medicare and non-Medicare PPO and HMO plans, as well as the Medicare Part B premium. Instead of increasing, as was assumed in the prior valuation, the 2023 retiree health care premiums for 2023 stayed relatively flat for retirees on PPO plans. In addition, the HMO premiums decreased. The Base Monthly Contribution and Part B reimbursement both decreased, further contributing to lower the liabilities. Combined, the favorable premium experience lowered the liability by approximately $1.0 billion. The change in assumptions also lowered liabilities.

The actuarial value of assets (AVA) increased from $3.48 billion to $3.82 billion. The increase in AVA was smaller than expected due to both employer contributions being less than the ARC and investment experience. The FYE22 investment return was -1.85%. The State contributed $344 million less than the ARC in FYE22, but this was mainly a timing issue because the State made extra contributions during FYE21. It is anticipated that the State will contribute the ARC each year going forward. The July 1, 2022 valuation provides the Annual Required Contribution (ARC) for fiscal year ending June 30, 2025. The FYE25 ARC of $830,204,000 is $4,110,000 lower than the projected FYE25 ARC of $834,314,000 from the previous valuation.

ARC with 2% Corridor Smoothing

A funding policy mechanism was introduced in the July 1, 2021 valuation to manage contribution volatility. The combination of the level percentage of payroll UAAL amortization methodology (assumed to grow at 2.5% annually) and the entry-age normal actuarial cost method (which should grow about 3.5% to 4.25% annually) produce a combined ARC that is expected to increase by roughly 3.00% per year. The corridor will target this 3.00% and limit the dollar amount of the ARC so that it is within 2% of the prior year’s ARC increased by the 3.00%. Another way to describe the corridor is to say that it limits the dollar amount of the ARC to between 101% and 105% of the prior year’s ARC. The ARC for fiscal year 2025 is developed on page 12. The “ARC without Limitation” is the ARC developed under the same policy as prior years (without corridor smoothing). As shown on page 12, the actual FYE25 ARC is held higher as a result of the corridor because as described earlier this year’s results were better than expected. The corridor will not only limit contribution increases in years when there is adverse experience, but it will also limit contribution decreases in years when there is favorable experience (like this year). The current position of the ARC to the corridor is expected to produce significant stability in the State contributions for many years into the future.

It should also be noted that the corridor is adjusted downward when employers contribute more than the ARC. This adjustment makes it so that employers can still lower their future ARCs by contributing more than the minimum required.

Governor's Proclamation Related to the Covid-19 Emergency

In July 2020, the Governor's office issued the Tenth Proclamation Related to the Covid-19 Emergency. Among the disaster relief provisions included was the suspension of the requirements related to payment by public employers to the other post-employment benefits trusts for FYE21. This relief provision related to OPEB funding has been extended to FYE22 and FYE23 by ACT 229, SLH 2021. It is our understanding that employers who participate in this contribution holiday would still make contributions to pay for the FYE22 and FYE23 benefit payments. The State could save approximately $379.5 million ($839.4 million ARC - $460.0 million in expected benefits) in its current budget by taking advantage of the funding relief legislation in FYE23. However, these savings would be shortfalls from the retiree health plan's perspective and would put upward pressure on future contributions under the current funding policy. To help illustrate the impact of the contribution holiday, we have added a Scenario 2 projection to Section C of this report. Scenario 1 provides a multi-year projection of the plan's funding progress under the assumption that the State will fully fund the ARC in FYE23 and future years. Scenario 2 provides the same information under the assumption that the State will only finance the current benefit payments (pay-go) in FYE23 and then return to fully funding the ARC. Under the current funding methodology, the additional unfunded liability created by a contribution shortfall in FYE23 would be amortized over a new 20-year period, starting in FYE26.

SECTION B

VALUATION RESULTS

Liabilities

The liabilities shown in the following exhibit were calculated as of July 1, 2022.

	Medical/ Prescription Drug/ Dental/Vision/Life	Medicare Part B	Total
Present Value of Benefits (PVB)			
Retirees	$ 4,478,327,000	$ 1,362,478,000	$ 5,840,805,000
Deferred Inactives	635,476,000	316,117,000	951,593,000
Actives	4,505,676,000	1,507,072,000	6,012,748,000
Total PVB	$ 9,619,479,000	$ 3,185,667,000	$ 12,805,146,000
Actuarial Accrued Liability (AAL)			
Retirees	$ 4,478,327,000	$ 1,362,478,000	$ 5,840,805,000
Deferred Inactives	635,476,000	316,117,000	951,593,000
Actives	3,143,680,000	971,996,000	4,115,676,000
Total AAL	$ 8,257,483,000	$ 2,650,591,000	$ 10,908,074,000
Normal Cost	$ 156,760,000	$ 63,881,000	$ 220,641,000

Projected Benefits

The table below provides the State of Hawaii's estimated benefit payments (pay-as-you-go) for the 15 years following the valuation date.

Projected Benefit Payments			
Year Ending June 30,	Medical/ Prescription Drug/ Dental/Vision/Life	Medicare Part B	Total
2023	$ 360,988,000	$ 98,992,000	$ 459,980,000
2024	377,917,000	104,590,000	482,507,000
2025	405,608,000	112,426,000	518,034,000
2026	433,750,000	120,728,000	554,478,000
2027	462,244,000	129,521,000	591,765,000
2028	491,667,000	138,844,000	630,511,000
2029	521,423,000	148,648,000	670,071,000
2030	550,684,000	159,034,000	709,718,000
2031	580,746,000	169,760,000	750,506,000
2032	611,905,000	180,634,000	792,539,000
2033	643,827,000	191,857,000	835,684,000
2034	675,219,000	203,536,000	878,755,000
2035	705,372,000	215,695,000	921,067,000
2036	733,750,000	228,649,000	962,399,000
2037	762,630,000	241,896,000	1,004,526,000

Plan Assets

Statement of Changes in Plan Net Assets		
	Year Ended June 30, 2022	Year Ended June 30, 2021
Assets available at beginning of year	$ 3,732,999,638	$ 2,275,680,155
Contributions	533,579,292	1,232,456,000
Transfer from retiree agency fund	0	0
Investment income	53,216,883	36,791,895
Appreciation / (depreciation)	(116,025,393)	599,702,152
Benefit payments	(421,467,799)	(405,743,120)
Investment fees	(7,289,900)	(5,557,615)
Administrative fees	(319,517)	(329,828)
Increase in net assets	41,693,565	1,457,319,484
Assets available at end of year	$ 3,774,693,203	$ 3,732,999,638
Investment return, net of expenses	-1.85%	23.46%

Investment returns were calculated based on the dollar-weighted methodology with the assumption that contributions and benefit payments were made mid-year.

Development of Actuarial Value of Assets

	Year Ending June 30, 2022
1. Actuarial value of assets, beginning of year	$ 3,477,138,000
2. Net new investments	
a. Contributions	$ 533,579,000
b. Benefit payments	(421,468,000)
c. Transfer from retiree agency fund	0
d. Administrative expenses	(320,000)
e. Subtotal	$ 111,791,000
3. Market value of assets at end of year	3,774,693,000
4. Expected return on actuarial value of assets	247,246,000
5. Expected actuarial value of assets, end of year	3,836,175,000
6. Excess/(shortfall) return (Item 3 - Item 5)	(61,482,000)

7. Development of amounts to be recognized as of June 30, 2022:

Fiscal Year End	Remaining Deferrals of Excess / (Shortfall) of Investment Income	Offsetting of Gains/(Losses)	Net Deferrals Remaining	Years Remaining	Recognized for this valuation	Remaining after this valuation
	(1)	(2)	(3) = (1) + (2)	(4)	(5) = (3) / (4)	(6) = (3) - (5)
2021	$ 255,862,000	$ (255,862,000)	$ 0	3	$ 0	$ 0
2022	(317,344,000)	255,862,000	(61,482,000)	4	(15,371,000)	(46,111,000)
Total	$ (61,482,000)	$ 0	$ (61,482,000)		$ (15,371,000)	$ (46,111,000)

8. Actuarial value of assets as of June 30, 2022 (Item 3 - Item 7)	$ 3,820,804,000
9. Ratio of actuarial value to market value	101.2%
10. Asset gain / (loss) for year (Item 8 - Item 5)	$ (15,371,000)

Determination of the ARC

Amortization of the Unfunded Actuarial Accrued Liability (UAAL)

Date Established	UAAL Balance 7/1/2022	Projected UAAL Balance 7/1/2023	Projected UAAL Balance 7/1/2024	Period Remaining 7/1/2024	Amortization Payment FYE25
7/1/2013	9,878,698,000	9,843,141,000	9,786,918,000	20	738,464,000
7/1/2015	(218,119,000)	(217,334,000)	(216,093,000)	20	(16,305,000)
7/1/2017	28,365,000	28,263,000	28,101,000	20	2,120,000
7/1/2018	(5,124,000)	(5,105,000)	(5,075,000)	20	(383,000)
7/1/2019	57,738,000	57,530,000	57,201,000	20	4,316,000
7/1/2020	(837,207,000)	(834,194,000)	(829,430,000)	20	(62,584,000)
7/1/2021	(845,400,000)	(904,578,000)	(899,411,000)	20	(67,864,000)
7/1/2022	(971,681,000)	(1,039,699,000)	(1,112,478,000)	20	(83,941,000)
Total	$ 7,087,270,000	$ 6,928,024,000	$ 6,809,733,000	20.0	$ 513,823,000

The unfunded liability is amortized using a layered amortization base approach. Closed amortization bases will be established at each valuation for new unfunded liabilities. If experience produces a loss, the new base will be amortized over a period of 20 years. If experience produces a gain, the new base will be netted against the initial liability base. For fiscal year ending June 30, 2025, the Equivalent Single Amortization Period equals 20.0.

Annual Required Contribution without Limitation

	FYE 6/30/2025
Discount Rate	7.0%
Amortization Growth Rate	2.5%
Normal Cost*	$ 234,427,000
Amortization of UAAL	513,823,000
ARC without Limitation	$ 748,250,000

*Includes plan administration fees.

The Annual Required Contribution without Limitation is equal to the Normal Cost (the present value of benefits earned by the current employees in the respective fiscal year), plus projected plan administrative costs, plus an amortization payment to fund the liability attributable to past service.

Annual Required Contribution for Fiscal year Ending June 30, 2025

The combination of the level percentage of payroll UAAL amortization methodology (assumed to grow at 2.5% annually) and the entry-age normal actuarial cost method (which should grow about 3.5% to 4.25% annually) produce a combined ARC that is expected to increase by roughly 3.00% per year. The corridor will target this 3.00% and limit the dollar amount of the ARC so that it is within 2% of the prior year's ARC increased by the 3.00%. Another way to describe the corridor is to say that it limits the dollar amount of the ARC to between 101% and 105% of the prior year's ARC. As shown in the table below, the actual FYE25 ARC is held higher as a result of the corridor. The current position of the ARC to the corridor is expected to produce significant stability in the State contributions for many years into the future.

FYE 2022 Contributions in Excess of ARC	$	-
(1) FYE 2024 ARC	$	821,984,000
(2) Calculated FYE 2025 ARC without Limitation		748,250,000
(2a) Increase from prior year		-9.0%
(3) 2% Corridor Lower Bound: [(1) x 1.01]	$	830,204,000
(4) 2% Corridor Upper Bound: [(1) x 1.05]		863,083,000
(5) FYE25 ARC under 2% Corridor Methodology, MAX [(2),(3)] or MIN ((2),(4)]	**$**	**830,204,000**
(5a) Increase in ARC from prior year		1.0%

Total Experience Gain or Loss

A. Calculation of total actuarial gain or loss

1.	Unfunded actuarial accrued liability (UAAL), as of July 1, 2021	$	8,125,063,000
2.	Normal cost for the year, including administrative expense		247,321,000
3.	Less: ACT 268 minimum required contribution		(877,193,000)
4.	Interest at 7.00%		
	a. On UAAL		568,754,000
	b. On normal cost		8,510,000
	c. On contribution		(30,182,000)
	d. Total	$	547,082,000
5.	Expected UAAL as of July 1, 2022 (Sum of Items 1 - 4)		8,042,273,000
6.	Actual UAAL as of July 1, 2022		7,087,270,000
7.	Total (gain)/loss for the year (Item 6 - Item 5)		(955,003,000)

B. Source of gains and losses

8.	Asset (gain)/loss for the year (AVA Table)	$	15,371,000
9.	(Gain)/loss due to contributions*		355,437,000
10.	Other liability (gain)/loss		(1,047,316,000)
11.	Change in assumptions**		(278,495,000)
12.	Change in benefit provisions		-
13.	Total (gain)/loss for the year	$	(955,003,000)

** Impact of employer contributions.*

*** Updates reflect 2022 ERS Experience Study and healthcare trend assumption changes.*

Schedule of Funding Progress

Valuation Date	Actuarial Value of Assets (a)	Actuarial Accrued Liability (AAL) (b)	Unfunded AAL (b) - (a)	Funded Ratio (a)/(b)	Covered Payroll (c)	Unfunded AAL as a % of Covered Payroll (b - a)/(c)
July 1, 2007	$ 0	$ 8,788,892,000	$ 8,788,892,000	0.0%	$ 2,633,810,000	333.7%
July 1, 2009	0	14,007,480,000	14,007,480,000	0.0%	2,610,348,000	536.6%
July 1, 2011	0	13,566,836,000	13,566,836,000	0.0%	2,592,961,000	523.2%
July 1, 2013	0	8,529,546,000	8,529,546,000	0.0%	2,926,092,000	291.5%
July 1, 2015	221,194,000	9,287,120,000	9,065,926,000	2.4%	3,093,493,000	293.1%
July 1, 2017	879,517,000	10,194,187,000	9,314,670,000	8.6%	3,152,515,000	295.5%
July 1, 2018	1,290,918,000	10,704,565,000	9,413,647,000	12.1%	3,253,853,000	289.3%
July 1, 2019	1,829,458,000	11,382,908,000	9,553,450,000	16.1%	3,352,511,000	285.0%
July 1, 2020	2,371,060,000	11,272,718,000	8,901,658,000	21.0%	3,441,830,000	258.6%
July 1, 2021	3,477,138,000	11,602,201,000	8,125,063,000	30.0%	3,449,439,000	235.5%
July 1, 2022	3,820,804,000	10,908,074,000	7,087,270,000	35.0%	3,373,712,000	210.1%

As a result of ACT 268's funding requirements, the discount rate was changed from 4.00% to 7.00% in the July 1, 2013 valuation.

New demographic and healthcare assumptions were adopted in the July 1, 2017 valuation. The most significant assumption change was to reflect longer life expectancy.

Asset smoothing was first introduced in the July 1, 2018 valuation.

Minor updates to the demographic and healthcare assumptions were adopted in the July 1, 2019 valuation.

The healthcare trend assumption was updated in the July 1, 2020 valuation to reflect the repeal of the "Cadillac Tax".

New demographic and healthcare trend assumptions were adopted in the July 1, 2022 valuation. The most significant change was the healthcare trend assumption.

Actuarial Methods and Assumptions

Inflation rate	2.50%
Investment rate of return	7.00%
Actuarial Cost method	Individual Entry Age Normal
Amortization method*	Level percent, closed
Amortization Period	20.0 year Equivalent Single Amortization Period for FYE25
Amortization Growth Rate	2.50%
Wage Inflation	3.00%
Asset Method	Smoothed
Mortality	System-specific mortality tables utilizing ultimate scale MP2021 to project generational mortality improvement
Participation rate	98% healthcare participation assumption for retirees that receive 100% of the Base Monthly Contribution (BMC). Healthcare participation rates of 25%, 65%, and 90% for retirees that receive 0%, 50%, or 75% of the base monthly contribution, respectively. 100% for Life Insurance and 98% for Medicare Part B
Healthcare cost trend rate	
PPO**	Initial rate of 6.40%, declining to a rate of 4.25% after 22 years
HMO**	Initial rate of 6.40%, declining to a rate of 4.25% after 22 years
Part B & Base Monthly Contribution	Initial rate of 5.00%, declining to a rate of 4.25% after 22 years
Dental	4.00%
Vision	2.50%
Life Insurance	0.00%

* Closed bases are established at each valuation for new unfunded liabilities.

** Includes prescription drug assumptions.

Trend Sensitivity

Actuarial valuations are based on the cost of benefits to be paid in the future. The payments considered will range from one month in the future to decades from the valuation date. When the benefits being valued are health benefits, a key factor is the future cost of the health benefits being promised. The future benefits are projected using the current cost of the health care benefits and assumed future health care cost increases. The final cost of providing retiree health care benefits will depend upon how the charges for health care services actually increase in the future.

In order to demonstrate how the cost of these benefits can vary depending upon future health care cost increases, we have performed additional valuations based upon alternative health care cost increase assumptions. The following table shows the impact of a 1.0% increase or decrease in the assumed healthcare trend rates.

	-1% Trend	Baseline	+1% Trend
Present Value of Benefits (PVB)	$ 10,986,654,000	$ 12,805,146,000	$ 15,181,007,000
Funded Status			
Actuarial Accrued Liability	$ 9,539,752,000	$ 10,908,074,000	$ 12,657,631,000
Actuarial Value of Assets	3,820,804,000	3,820,804,000	3,820,804,000
Unfunded AAL	5,718,948,000	7,087,270,000	8,836,827,000
ARC without Limitation for FYE25	$ 596,211,000	$ 748,250,000	$ 959,947,000

SECTION C

PROJECTIONS

Summary of Funding Projections

The projections in this section provide estimated future liabilities, assets, contributions and benefit payments based on the census data used for the July 1, 2022 valuation and the actuarial assumptions/methods described in Section G of this report. The projections provide insight into how the employer's contributions and the financial condition of the plan are assumed to change over time. Key items from the projections are:

- Prefunding the OPEB liability will require a significant commitment. However, the long-term savings will also be significant. Once the plan is well funded, the percentage of the benefits paid for by investment earnings is typically over 50%.
- The Annual Required Contribution (ARC) is developed using a level percentage of payroll amortization.
- The ARC is expected to remain fairly level, as a percentage of payroll, until the initial amortization base is paid off. However, the ARC is expected to trend upwards because the normal cost is expected to slowly grow over time as a percentage of payroll.
- The first scenario assumes the employer will contribute the full ARC, as required by ACT 268. The second scenario assumes the employer will contribute on a pay-as-you-go basis for FYE2023, and the full ARC thereafter.
- The employer's annual cost for financing the retiree health benefit becomes less than what it would have been under a pay-as-you-go approach starting in FYE2036.
- As participants separate from employment, it is assumed they are replaced with an average new hire so that the total number of active employees remains level. The average new hire is assumed to have similar entry age and entry pay as recently hired employees. The projection includes liabilities for these new employees as the projection steps forward in time and they accrue benefits.

Please bear in mind that, depending on plan experience, actual results could deviate significantly from the actuarial projections. The key assumptions in the projections are:

1. the assumed 7.00% rate of investment return
2. future health care inflation
3. that the benefits and cost sharing provisions will remain the same as they currently are

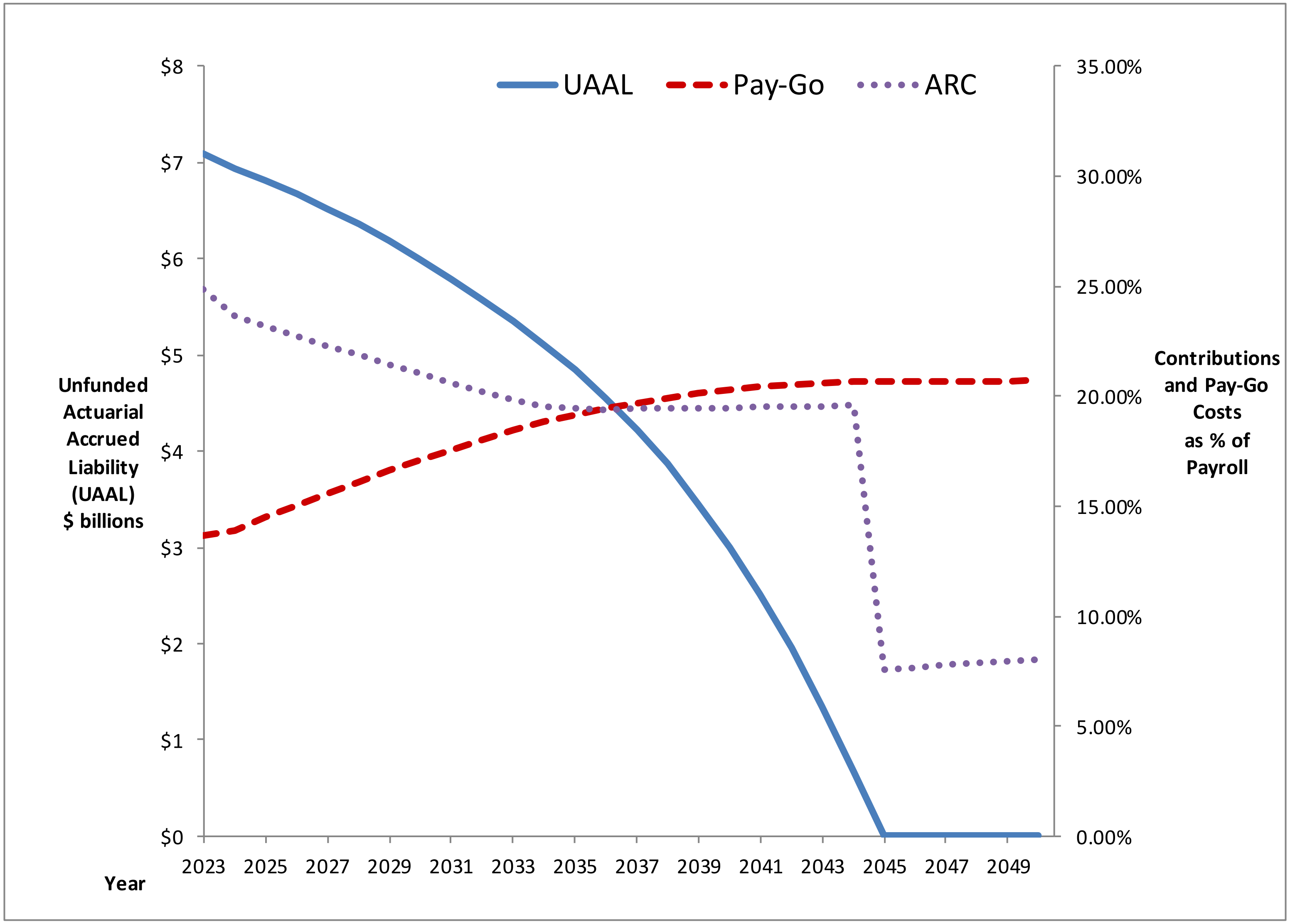
Scenario 1 – Full Funding of the ARC

Over the next 34 years, the sum of the ARCs equals $28.55 billion.

Fiscal Year Ending	Payroll	Actuarial Accrued Liability (AAL)	Actuarial Value of Assets (AVA)	Unfunded AAL (UAAL)	Funded Ratio	Annual Required Contribution	Actual Contribution	Contribution as % of Payroll	Benefit Payment Total	Benefits as % of Payroll	ARC minus Benefit Payments
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)
2023	$3,373,712,000	$10,908,074,000	$3,820,804,000	$7,087,270,000	35.0%	$839,445,000	$839,445,000	24.9%	$459,980,000	13.6%	$379,465,000
2024	3,474,924,000	11,424,065,000	4,480,442,000	6,943,623,000	39.2%	821,984,000	821,984,000	23.7%	482,507,000	13.9%	339,477,000
2025	3,579,171,000	11,959,720,000	5,144,880,000	6,814,840,000	43.0%	830,204,000	830,204,000	23.2%	518,034,000	14.5%	312,170,000
2026	3,686,546,000	12,503,175,000	5,827,572,000	6,675,603,000	46.6%	838,506,000	838,506,000	22.7%	554,478,000	15.0%	284,028,000
2027	3,797,143,000	13,051,443,000	6,528,931,000	6,522,512,000	50.0%	846,891,000	846,891,000	22.3%	591,765,000	15.6%	255,126,000
2028	3,911,057,000	13,607,116,000	7,249,477,000	6,357,639,000	53.3%	855,360,000	855,360,000	21.9%	630,511,000	16.1%	224,849,000
2029	4,028,389,000	14,169,817,000	7,989,132,000	6,180,685,000	56.4%	863,914,000	863,914,000	21.4%	670,071,000	16.6%	193,843,000
2030	4,149,240,000	14,739,797,000	8,748,478,000	5,991,319,000	59.4%	872,553,000	872,553,000	21.0%	709,718,000	17.1%	162,835,000
2031	4,273,718,000	15,318,088,000	9,528,890,000	5,789,198,000	62.2%	881,279,000	881,279,000	20.6%	750,506,000	17.6%	130,773,000
2032	4,401,929,000	15,904,681,000	10,330,754,000	5,573,927,000	65.0%	890,092,000	890,092,000	20.2%	792,539,000	18.0%	97,553,000
2033	4,533,987,000	16,499,523,000	11,154,372,000	5,345,151,000	67.6%	898,993,000	898,993,000	19.8%	835,684,000	18.4%	63,309,000
2034	4,670,007,000	17,102,647,000	12,000,209,000	5,102,438,000	70.2%	910,765,000	910,765,000	19.5%	878,755,000	18.8%	32,010,000
2035	4,810,107,000	17,715,417,000	12,872,863,000	4,842,554,000	72.7%	934,975,000	934,975,000	19.4%	921,067,000	19.1%	13,908,000
2036	4,954,410,000	18,340,009,000	13,787,865,000	4,552,144,000	75.2%	961,663,000	961,663,000	19.4%	962,399,000	19.4%	(736,000)
2037	5,103,042,000	18,979,009,000	14,751,755,000	4,227,254,000	77.7%	990,946,000	990,946,000	19.4%	1,004,526,000	19.7%	(13,580,000)
2038	5,256,134,000	19,633,350,000	15,769,815,000	3,863,535,000	80.3%	1,021,384,000	1,021,384,000	19.4%	1,047,083,000	19.9%	(25,699,000)
2039	5,413,818,000	20,304,452,000	16,846,588,000	3,457,864,000	83.0%	1,052,959,000	1,052,959,000	19.4%	1,089,418,000	20.1%	(36,459,000)
2040	5,576,232,000	20,994,482,000	17,987,589,000	3,006,893,000	85.7%	1,085,687,000	1,085,687,000	19.5%	1,131,541,000	20.3%	(45,854,000)
2041	5,743,519,000	21,705,754,000	19,198,726,000	2,507,028,000	88.4%	1,119,619,000	1,119,619,000	19.5%	1,173,626,000	20.4%	(54,007,000)
2042	5,915,825,000	22,440,606,000	20,486,192,000	1,954,414,000	91.3%	1,154,783,000	1,154,783,000	19.5%	1,214,409,000	20.5%	(59,626,000)
2043	6,093,299,000	23,202,865,000	21,857,952,000	1,344,913,000	94.2%	1,191,130,000	1,191,130,000	19.5%	1,254,784,000	20.6%	(63,654,000)
2044	6,276,098,000	23,995,640,000	23,321,549,000	674,091,000	97.2%	1,228,665,000	1,228,665,000	19.6%	1,295,364,000	20.6%	(66,699,000)
2045	6,464,381,000	24,884,430,000	24,884,430,000	0	100.0%	490,466,000	490,466,000	7.6%	1,335,926,000	20.7%	(845,460,000)
2046	6,658,313,000	25,751,138,000	25,751,138,000	0	100.0%	511,050,000	511,050,000	7.7%	1,376,582,000	20.7%	(865,532,000)
2047	6,858,062,000	26,657,732,000	26,657,732,000	0	100.0%	532,506,000	532,506,000	7.8%	1,417,946,000	20.7%	(885,440,000)
2048	7,063,804,000	27,607,176,000	27,607,176,000	0	100.0%	554,868,000	554,868,000	7.9%	1,460,754,000	20.7%	(905,886,000)
2049	7,275,718,000	28,601,909,000	28,601,909,000	0	100.0%	578,164,000	578,164,000	7.9%	1,505,616,000	20.7%	(927,452,000)
2050	7,493,990,000	29,643,945,000	29,643,945,000	0	100.0%	602,478,000	602,478,000	8.0%	1,552,014,000	20.7%	(949,536,000)
2051	7,718,809,000	30,736,057,000	30,736,057,000	0	100.0%	627,883,000	627,883,000	8.1%	1,601,249,000	20.7%	(973,366,000)
2052	7,950,374,000	31,879,945,000	31,879,945,000	0	100.0%	654,399,000	654,399,000	8.2%	1,652,994,000	20.8%	(998,595,000)
2053	8,188,885,000	33,077,784,000	33,077,784,000	0	100.0%	681,922,000	681,922,000	8.3%	1,707,099,000	20.8%	(1,025,177,000)
2054	8,434,551,000	34,331,951,000	34,331,951,000	0	100.0%	710,591,000	710,591,000	8.4%	1,763,678,000	20.9%	(1,053,087,000)
2055	8,687,588,000	35,645,015,000	35,645,015,000	0	100.0%	740,472,000	740,472,000	8.5%	1,822,743,000	21.0%	(1,082,271,000)
2056	8,948,216,000	37,019,780,000	37,019,780,000	0	100.0%	771,615,000	771,615,000	8.6%	1,884,602,000	21.1%	(1,112,987,000)

The projection includes liabilites for future employees.

Scenario 1 – Full Funding of the ARC
Trust contributions are projected to be less than benefits paid starting in FYE 2036



Scenario 2 – PAYGO contribution for FY23, and ARC thereafter

Over the next 34 years, the sum of the employer contributions equals $29.19 billion. A pay-go only contribution would reduce the FYE23 contribution by $379 million, but would increase the 34-year contribution total by $642 million.

Fiscal Year Ending	Payroll	Actuarial Accrued Liability (AAL)	Actuarial Value of Assets (AVA)	Unfunded AAL (UAAL)	Funded Ratio	Annual Required Contribution	Actual Contribution	Contribution as % of Payroll	Benefit Payment Total	Benefits as % of Payroll	Contribution minus Benefit Payments
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)
2023	$3,373,712,000	$10,908,074,000	$3,820,804,000	$7,087,270,000	35.0%	$839,445,000	$459,980,000	13.6%	$459,980,000	13.6%	$0
2024	3,474,924,000	11,424,065,000	4,087,920,000	7,336,145,000	35.8%	821,984,000	821,984,000	23.7%	482,507,000	13.9%	339,477,000
2025	3,579,171,000	11,959,720,000	4,724,881,000	7,234,839,000	39.5%	830,204,000	830,204,000	23.2%	518,034,000	14.5%	312,170,000
2026	3,686,546,000	12,503,175,000	5,378,173,000	7,125,002,000	43.0%	838,506,000	838,506,000	22.7%	554,478,000	15.0%	284,028,000
2027	3,797,143,000	13,051,443,000	6,048,074,000	7,003,369,000	46.3%	846,891,000	846,891,000	22.3%	591,765,000	15.6%	255,126,000
2028	3,911,057,000	13,607,116,000	6,734,961,000	6,872,155,000	49.5%	855,360,000	855,360,000	21.9%	630,511,000	16.1%	224,849,000
2029	4,028,389,000	14,169,817,000	7,438,599,000	6,731,218,000	52.5%	863,914,000	863,914,000	21.4%	670,071,000	16.6%	193,843,000
2030	4,149,240,000	14,739,797,000	8,159,408,000	6,580,389,000	55.4%	876,091,000	876,091,000	21.1%	709,718,000	17.1%	166,373,000
2031	4,273,718,000	15,318,088,000	8,902,245,000	6,415,843,000	58.1%	898,742,000	898,742,000	21.0%	750,506,000	17.6%	148,236,000
2032	4,401,929,000	15,904,681,000	9,678,307,000	6,226,374,000	60.9%	923,465,000	923,465,000	21.0%	792,539,000	18.0%	130,926,000
2033	4,533,987,000	16,499,523,000	10,490,776,000	6,008,747,000	63.6%	950,168,000	950,168,000	21.0%	835,684,000	18.4%	114,484,000
2034	4,670,007,000	17,102,647,000	11,343,096,000	5,759,551,000	66.3%	977,952,000	977,952,000	20.9%	878,755,000	18.8%	99,197,000
2035	4,810,107,000	17,715,417,000	12,239,252,000	5,476,165,000	69.1%	1,006,833,000	1,006,833,000	20.9%	921,067,000	19.1%	85,766,000
2036	4,954,410,000	18,340,009,000	13,184,232,000	5,155,777,000	71.9%	1,036,849,000	1,036,849,000	20.9%	962,399,000	19.4%	74,450,000
2037	5,103,042,000	18,979,009,000	14,183,640,000	4,795,369,000	74.7%	1,068,011,000	1,068,011,000	20.9%	1,004,526,000	19.7%	63,485,000
2038	5,256,134,000	19,633,350,000	15,241,649,000	4,391,701,000	77.6%	1,100,376,000	1,100,376,000	20.9%	1,047,083,000	19.9%	53,293,000
2039	5,413,818,000	20,304,452,000	16,363,161,000	3,941,291,000	80.6%	1,133,926,000	1,133,926,000	20.9%	1,089,418,000	20.1%	44,508,000
2040	5,576,232,000	20,994,482,000	17,554,074,000	3,440,408,000	83.6%	1,168,677,000	1,168,677,000	21.0%	1,131,541,000	20.3%	37,136,000
2041	5,743,519,000	21,705,754,000	18,820,711,000	2,885,043,000	86.7%	1,204,684,000	1,204,684,000	21.0%	1,173,626,000	20.4%	31,058,000
2042	5,915,825,000	22,440,606,000	20,169,708,000	2,270,898,000	89.9%	1,241,975,000	1,241,975,000	21.0%	1,214,409,000	20.5%	27,566,000
2043	6,093,299,000	23,202,865,000	21,609,505,000	1,593,360,000	93.1%	1,280,501,000	1,280,501,000	21.0%	1,254,784,000	20.6%	25,717,000
2044	6,276,098,000	23,995,640,000	23,148,157,000	847,483,000	96.5%	1,320,271,000	1,320,271,000	21.0%	1,295,364,000	20.6%	24,907,000
2045	6,464,381,000	24,821,616,000	24,793,659,000	27,957,000	99.9%	519,365,000	519,365,000	8.0%	1,335,926,000	20.7%	(816,561,000)
2046	6,658,313,000	25,683,906,000	25,683,906,000	0	100.0%	511,050,000	511,050,000	7.7%	1,376,582,000	20.7%	(865,532,000)
2047	6,858,062,000	26,585,794,000	26,585,794,000	0	100.0%	532,506,000	532,506,000	7.8%	1,417,946,000	20.7%	(885,440,000)
2048	7,063,804,000	27,530,202,000	27,530,202,000	0	100.0%	554,868,000	554,868,000	7.9%	1,460,754,000	20.7%	(905,886,000)
2049	7,275,718,000	28,519,547,000	28,519,547,000	0	100.0%	578,164,000	578,164,000	7.9%	1,505,616,000	20.7%	(927,452,000)
2050	7,493,990,000	29,555,818,000	29,555,818,000	0	100.0%	602,478,000	602,478,000	8.0%	1,552,014,000	20.7%	(949,536,000)
2051	7,718,809,000	30,641,761,000	30,641,761,000	0	100.0%	627,883,000	627,883,000	8.1%	1,601,249,000	20.7%	(973,366,000)
2052	7,950,374,000	31,779,048,000	31,779,048,000	0	100.0%	654,399,000	654,399,000	8.2%	1,652,994,000	20.8%	(998,595,000)
2053	8,188,885,000	32,969,825,000	32,969,825,000	0	100.0%	681,922,000	681,922,000	8.3%	1,707,099,000	20.8%	(1,025,177,000)
2054	8,434,551,000	34,216,435,000	34,216,435,000	0	100.0%	710,591,000	710,591,000	8.4%	1,763,678,000	20.9%	(1,053,087,000)
2055	8,687,588,000	35,521,413,000	35,521,413,000	0	100.0%	740,472,000	740,472,000	8.5%	1,822,743,000	21.0%	(1,082,271,000)
2056	8,948,216,000	36,887,525,000	36,887,525,000	0	100.0%	771,615,000	771,615,000	8.6%	1,884,602,000	21.1%	(1,112,987,000)

The projection includes liabilites for future employees.

SECTION D

DEVELOPMENT OF BASELINE COSTS

Development of Baseline Costs

The underlying retiree claims costs were estimated using the plan premiums effective January 1, 2023, and are used for both current and future retirees. An inherent assumption in this methodology is that the projected future retirees will have a similar distribution by plan type as the current retirees (82% PPO and 18% HMO). The fully-insured retiree plans are separate from the active plans and are underwritten using the claims experience of the retired members only. The contracts for the retiree plans do not allow for any cross subsidization of premiums or rates. The prescription drug benefit for the PPO plan is self-insured. Based on conversations with EUTF's health care consultant (Segal), we did not believe it was necessary to independently verify the premiums for the PPO prescription drug benefit. The estimated age-adjusted claims shown below include administrative expenses and are net of prescription drug rebates.

Age-graded and sex-distinct premiums are utilized by this valuation. These costs are appropriate for the unique age and sex distribution currently existing. Over the future years covered by this valuation, the age and sex distribution will most likely change. Therefore, our process "distributes" the average premium over all age/sex combinations and assigns a unique premium for each combination. The age/sex specific costs more accurately reflect the health care utilization and cost at that age.

Baseline Costs for Retirees and Spouses (Medical and Prescription Drug) (Expected Monthly Per Capita Costs for 2023)				
	HMSA		Kaiser	
Age	Male	Female	Male	Female
50	$455.47	$561.10	$430.44	$530.27
55	599.35	654.40	566.42	618.44
60	774.10	762.22	731.56	720.33
65	417.83	394.09	379.96	358.38
70	455.16	440.44	413.92	400.53
75	488.85	477.01	444.55	433.79
80	513.20	504.23	466.69	458.53

Dental and vision benefits are not included in the benefits shown above. The underlying claims for the dental and vision benefits were not age-rated. Premiums for all medical, prescription drug, dental, and vision plans are shown in Section E.

Piotr Krekora is a Member of the American Academy of Actuaries (MAAA) and meets the Qualification Standards of the American Academy of Actuaries to render the actuarial opinions herein.

Piotr Krekora

Piotr Krekora, ASA, EA, MAAA

SECTION E

SUMMARY OF BENEFIT PROVISIONS

Summary of the Substantive Plan Provisions

Plan Participants

Plan participants are retired members of the employees’ retirement system; the County pension system; or the police, firefighters, or bandsmen pension system of the State or County.

Base Monthly Contribution Amount

January 1, 2023 - Base Monthly Contribution			
	Self	Two-Party	Family
Non-Medicare	$1,156.30	$2,330.68	$3,411.24
Medicare	823.70	1,650.94	2,404.56

The Base Monthly Contribution (BMC) determines the maximum amount provided by the employer to cover premiums for medical, prescription drug, dental and vision care. The BMC is adjusted annually based on the change in the Medicare Part B premium. The employer’s costs for providing the Medicare Part B premium reimbursement and the life insurance benefit are in addition to the contribution related to the BMC.

Deferred Retirement

Employees who terminate employment are eligible for retiree health care benefits upon commencing a retirement or pension allowance.

Disability Retirement

Employees who terminate due to disability are eligible for retiree health care benefits upon commencing a retirement or pension allowance.

Non-Duty Death in Service Retirement

If an active employee dies while in service and is eligible to retire at the time of death, the ERS will retire the employee and the surviving spouse, domestic or civil union partner and eligible dependents are eligible for retiree health care benefits. If the member was not eligible for retirement at the time of death, the surviving spouse, domestic or civil union partner and eligible dependents are eligible for COBRA benefits only.

Duty Death in Service Retirement

The surviving spouse, domestic or civil union partner and eligible dependents of an employee who is killed in the performance of the employee’s duty are eligible for retiree health care benefits. Regardless of the employee’s date of hire or years of service, the employer will pay up to the BMC for a spouse, domestic or civil union partner and eligible dependents of an employee who is killed in the performance of duty. Coverage ends when the surviving spouse or domestic or civil union partner remarries or enters into another domestic or civil union partnership or when the surviving child reaches age 19 or 24 if the child is a full-time student.

Surviving Spouses of Retired Employees

The employer's contribution percentage for a surviving spouse, domestic or civil union partner and eligible dependent of a retiree who was hired prior to July 1, 2001 will remain the same as the deceased retiree. For a surviving spouse, domestic or civil union partner and eligible dependent of a retiree who was hired after June 30, 2001, the employer's contribution percentage will be half of the deceased retirees' employer contribution percentage.

Life Insurance

Retiree life insurance benefit is $1,487, and is provided at no cost to the retiree.

Medicare Part B Reimbursement

Retirees and spouses/domestic and civil union partners are required to enroll in Medicare Part B coverage when they become eligible and enroll in a medical and/or prescription drug plan. The employer reimburses the Part B premium for both retiree and spouse/domestic or civil union partner at 100%. Surviving spouses/domestic or civil union partners, regardless of hire date, continue to receive the Part B reimbursement. The 2022 Medicare Part B premiums vary for current retirees due to the hold harmless provisions. The 2023 Part B premium is $164.90 per month for retirees enrolling in Part B for the first time or not enrolled in Social Security. EUTF will reimburse the entire Part B premium for retirees who pay income adjusted Part B premiums if they submit proof.

Employer's Contribution

The Employer's percentage of the BMC for the year determines the maximum employer contribution payable. Any difference between the maximum employer contribution and the total premium for plans selected (medical, prescription drug, dental and vision) will be paid by the retiree.

Hire Date	Year of Service	% of BMC*
Before 7/1/1996	< 10	50%
	10+	100%
Post 7/1/1996	< 10	0%
	10-14	50%
	15-24	75%
	25+	100%

* Employees hired after 6/30/2001 only receive the % of the "Self" BMC.

EUTF Monthly Retiree Rates
Effective January 1, 2023 through December 31, 2023

Benefit Plan	Type of Enrollment	Total Contribution Required
MEDICAL AND PRESCRIPTION DRUG PLANS – MEDICARE		
HMSA 90/10 PPO Medical Plan	Self	$238.38
	Two-Party	464.48
	Family	688.62
Humana Medicare Advantage PPO Medical Plan	Self	$48.48
	Two-Party (both Medicare)	96.96
	Three-Party (all Medicare; maximum of 3 enrollees)	145.44
SilverScript Prescription Drug Plan	Self	$234.78
	Two-Party	457.14
	Family	677.80
Kaiser Senior Advantage Medical and Prescription Drug Plan	Self	$440.90
	Two-Party	859.72
	Family	1,274.16
MEDICAL AND PRESCRIPTION DRUG PLANS - NON-MEDICARE		
HMSA 90/10 PPO Medical Plan	Self	$532.86
	Two-Party	1,038.26
	Family	1,539.22
CVS Caremark Prescription Drug Plan	Self	$227.62
	Two-Party	443.32
	Family	657.28
Kaiser HMO Comprehensive Medical and Prescription Drug Plan	Self	$727.50
	Two-Party	1,469.52
	Family	2,167.90
DENTAL PLAN		
HDS Dental	Self	$41.48
	Two-Party	80.92
	Family	99.16
VISION PLAN		
VSP Vision	Self	$3.54
	Two-Party	7.10
	Family	9.52
LIFE INSURANCE		
Securian Life Insurance (Retiree only)	Self	$4.12

HSTA VB Monthly Retiree Rates
Effective January 1, 2023 through December 31, 2023

Benefit Plan	Type of Enrollment	Total Contribution Required
MEDICAL AND PRESCRIPTION DRUG PLANS – MEDICARE		
HMSA 90/10 PPO Medical and Chiropractic, SilverScript Prescription Drug, and VSP Vision Plans	Self	$527.76
	Two-Party	1,028.44
	Family	1,522.02
Kaiser Senior Advantage Medical, Chiropractic and Prescription Drug, and VSP Vision Plans	Self	$451.60
	Two-Party	880.78
	Family	1,304.38
MEDICAL AND PRESCRIPTION DRUG PLANS - NON-MEDICARE		
HMSA 90/10 PPO Medical and Chiropractic, CVS Caremark Prescription Drug, and VSP Vision Plans	Self	$748.16
	Two-Party	1,457.82
	Family	2,158.62
Kaiser HMO Comprehensive Medical, Chiropractic and Prescription Drug, and VSP Vision Plans	Self	$717.34
	Two-Party	1,448.96
	Family	2,136.62
DENTAL PLAN		
HDS Dental	Self	$49.94
	Two-Party	97.38
	Family	119.36
VISION PLAN		
VSP Vision	Self	$3.54
	Two-Party	7.10
	Family	9.52
LIFE INSURANCE		
Securian Life Insurance (Retiree only)	Self	$4.12

Medical Plan Benefits - EUTF
Non-Medicare Retirees

Medical	HMSA 90/10 PPO		Kaiser HMO
	In-Network	Out-of-Network	HMO Network
Calendar Year Deductible	$100 per person $300 per family		None
Calendar Year Maximum Out-of-Pocket Limit	$2,500 per person $7,500 per family		$2,000 per person $6,000 per family
Lifetime Benefit Maximum	None		None
Physician Office Visit	10%*	30%	$15
Urgent Care Visit	10%*	30%	$15 (in service area) 20% (out of service area)
Emergency Room	10%*	10%*	$50 (in service area) 20% (out of service area)
Inpatient Hospital Services	10%*	30%	No charge
Outpatient Testing, Lab and X-ray Services	20%*	30%	$15
Annual Physical Exam	No charge*	30%*	No charge
Well Child Office Visit	No charge*	30%*	No charge
Preventative Screening	20%*	30%	No charge
Inpatient Mental Health	10%*	30%	No charge
Outpatient Mental Health	10%*	30%	$15
Chiropractic Services	Not covered	Not covered	Not covered

* Not subject to the deductible

Medical Plan Benefits – HSTA VB
Non-Medicare Retirees

Medical	HMSA 90/10 PPO		Kaiser HMO
	In-Network	**Out-of-Network**	**HMO Network**
Calendar Year Deductible	None	$100 per person $300 per family	None
Calendar Year Maximum Out-of-Pocket Limit	$2,000 per person $6,000 per family		$2,000 per person $6,000 per family
Lifetime Benefit Maximum	$2,000,000 for all individuals combined		None
Physician Office Visit	10%	30%	$15
Urgent Care Visit	10%	30%	$15 (in service area) 20% (out of service area)
Emergency Room	10%	10%*	$50 (in service area) 20% (out of service area)
Inpatient Hospital Services	10%	30%	No charge
Outpatient Testing, Lab and X-ray Services	10%	30%	$15
Annual Physical Exam	No charge (limits apply)	No charge* (limits apply)	No charge
Well Child Office Visit	No charge	30%*	No charge
Preventative Screening	10%	30%	No charge
Inpatient Mental Health	10%	30%	No charge
Outpatient Mental Health	10%	30%	$15
Chiropractic Services (administered through American Specialty Health, Inc.)	$12 (20 visits/year)	Not covered	$12 (20 visits/year)

* Not subject to the deductible

Prescription Drug Plan Benefits – EUTF
Non-Medicare Retirees

<table>
<tr><th rowspan="2">Prescription Drug</th><th colspan="3">CVS PPO Drug Plan*</th><th colspan="2">Kaiser HMO Plan+</th></tr>
<tr><th>In-Network</th><th>Out-of-Network**</th><th>Retail 90/Mail Order</th><th>HMO Network</th><th>Mail Order</th></tr>
<tr><td>Day Supply</td><td colspan="3">30/60/90</td><td colspan="2">30/60/90</td></tr>
<tr><td>Generic</td><td>$5/$10/$15</td><td>$5/$10/$15
+ 20%</td><td>$5/$10/$10</td><td rowspan="3">$15/$30/$45</td><td rowspan="3">$15/$30/$30</td></tr>
<tr><td>Preferred Brand</td><td>$15/$30/$45</td><td>$15/$30/$45
+ 20%</td><td>$15/$30/$30</td></tr>
<tr><td>Non-Preferred Brand</td><td>$30/$60/$90</td><td>$30/$60/$90
+ 20%</td><td>$30/$60/$60</td></tr>
<tr><td>Preferred Insulin</td><td>$5/$10/$15</td><td>$5/$10/$15
+ 20%</td><td>$5/$10/$10</td><td rowspan="2">$15/$30/$45</td><td rowspan="2">Not covered</td></tr>
<tr><td>Other Insulin</td><td>$15/$30/$45</td><td>$15/$30/$45
+ 20%</td><td>$15/$30/$30</td></tr>
<tr><td>Preferred Diabetic Supplies</td><td>No charge</td><td>20%</td><td>No charge</td><td rowspan="2">$15/$30/$45</td><td rowspan="2">$15/$30/$30</td></tr>
<tr><td>Other Diabetic Supplies</td><td>$15/$30/$45</td><td>$15/$30/$45
+ 20%</td><td>$15/$30/$30</td></tr>
<tr><td>Specialty Drugs/ Injectables</td><td colspan="2">20% (up to a 30-day supply)***
Up to $250 per fill; $2,000 maximum out-of-pocket per calendar year; $30 copay for oral oncology specialty medications</td><td>Retail 90: Dispensed up to a 30-day supply
Mail Order: Not covered</td><td colspan="2">$15 (up to a 30-day supply)
Not all drugs can be mailed; restrictions and limitations apply</td></tr>
</table>

* This plan is the prescription drug coverage for the HMSA PPO medical plan option and is administered by CVS Caremark. Note: Maintenance medications can be filled at any retail network pharmacy or through mail order but must be filled in a 90-day supply after the first three 30-day initial fills.

** If you receive services from an out-of-network pharmacy, you will pay full price for the prescription and must file a claim for reimbursement. You are responsible for the copayment, including the penalty %, and any difference between the actual charge and the eligible charge.

*** Specialty medications are limited to a 30-day supply.

+ The Kaiser prescription drug coverage is included under the Kaiser HMO medical plan.

Prescription Drug Plan Benefits – HSTA VB Non-Medicare Retirees

Prescription Drug	CVS PPO Drug Plan*		Kaiser HMO Plan+	
	In-Network / Mail Order	**Out-of-Network****	**HMO Network**	**Mail Order**
Day Supply	30/60/90		30/60/90	
Generic	$5/$9/$9	$5/$9/$9 + 30%	$10/$20/$30	$10/$20/$20
Brand	$15/$27/$27	$15/$27/$27 + 30%		
Insulin	$5/$9/$9	$5/$9/$9 + 30%	$10/$20/$30	Not covered
Diabetic Supplies	No charge	No charge	50%	50%
Specialty Drugs/ Injectables	Generic/brand copays apply Mail order: Not covered	Generic/brand copays apply	$10 (up to a 30-day supply) Not all drugs can be mailed; restrictions and limitations apply	

* This plan is the prescription drug coverage for the HMSA PPO medical plan option and is administered by CVS Caremark.

** If you receive services from an out-of-network pharmacy, you will pay full price for the prescription and must file a claim for reimbursement. You are responsible for the copayment, including the penalty %, and any difference between the actual charge and the eligible charge.

+ The Kaiser prescription drug coverage is included under the Kaiser HMO medical plan.

Medical Plan Benefits – EUTF
Medicare Retirees

Medical	HMSA 90/10 PPO Plan (Supplemental Plan to Medicare)		Humana Medicare Advantage Plan	Kaiser Senior Advantage Plan
	In-Network	**Out-of-Network**	**In-Network/ Out-of-Network**	**HMO Network**
Calendar Year Deductible	$100 per person $300 per family		$100 per person	None
Calendar Year Maximum Out-of-Pocket Limit	$2,500 per person $7,500 per family		$2,500 per person	$2,000 per person $6,000 per family
Lifetime Benefit Maximum	None		None	None
Physician Office Visit	10%*	30%	10%*	$15
Urgent Care Visit	10%*	30%	10%*	$20
Emergency Room	10%*	10%*	10%* (waived if admitted within 24 hours)	$50
Inpatient Hospital Services	10%*	30%	10%	No charge
Outpatient Testing, Lab, and X-ray Services	20%*	30%	10%	No charge
Annual Physical Exam	No charge*	30%*	No charge*	No charge
Preventative Screening	20%*	30%	No charge*	No charge
Inpatient Mental Health	10%*	30%	10%	No charge
Outpatient Mental Health	10%*	30%	Facility: 10% Physician visit: 10%*	$15
Chiropractic Services	Not covered	Not covered	10%* For Medicare-covered services only (manual manipulation of the spine to correct subluxation)	$15 For Medicare-covered services only (manual manipulation of the spine to correct subluxation)

* Not subject to the deductible

Medical Plan Benefits – HSTA VB
Medicare Retirees

Medical	HMSA 90/10 PPO Plan		Kaiser Senior Advantage Plan
	In-Network	**Out-of-Network**	**HMO Network**
Calendar Year Deductible	None	$100 per person $300 per family	None
Calendar Year Maximum Out-of-Pocket Limit	$2,000 per person $6,000 per family		$2,000 per person $6,000 per family
Lifetime Benefit Maximum	$2,000,000 for all individuals combined		None
Physician Office Visit	10%	30%	$15
Urgent Care Visit	10%	30%	$20
Emergency Room	10%	10%*	$50
Inpatient Hospital Services	10%	30%	No charge
Outpatient Testing, Lab, and X-ray Services	10%	30%	No charge
Annual Physical Exam	No charge (limits apply)	No charge* (limits apply)	No charge
Preventative Screening	10%	30%	No charge
Inpatient Mental Health	10%	30%	No charge
Outpatient Mental Health	10%	30%	$15
Chiropractic Treatment (administered through American Specialty Health, Inc.)	$12 (20 visits per year)	Not covered	$12 (20 visits per year)

* Not subject to the deductible

Prescription Drug Plan Benefits – EUTF Medicare Retirees

Prescription Drug	SilverScript (SSI) Medicare Part D PPO Drug Plan*		Kaiser Senior Advantage Plan+	
	In-Network/ Mail Order	Out-of-Network**	HMO Network	Mail Order
Day Supply	30/60/90		30/60/90	
Generic	$5/$10/$10	$5/$10/$10 + 20%	$15/$30/$45	$15/$30/$30
Preferred Brand	$15/$30/$30	$15/$30/$30 + 20%		
Non-Preferred Brand	$30/$60/$60	$30/$60/$60 + 20%		
Insulin	$5/$10/$10	$5/$10/$10 + 20%	$15/$30/$45	Not covered
Diabetic Supplies	No charge Meters: Covered by Medicare Part B and the HMSA and Humana medical plans	20% Meters: Covered by Medicare Part B and the HMSA and Humana medical plans	Lancets, strips & meters: 20% Syringes/ needles: $15/$30/$45	Lancets, strips & meters: 20% Syringes/ needles: $15/$30/$30
Specialty Drugs (including high-cost drugs as defined by CMS) and Injectables	20% (up to a 30-day supply)*** Up to $250 per fill; $2,000 maximum out-of-pocket per calendar year; $30 copay for oral oncology specialty medications Mail Order: Not covered	50%	$15 (up to a 30-day supply) Not all drugs can be mailed; restrictions and limitations apply	

* The EUTF's Medicare Part D prescription drug plan is administered by SilverScript (SSI), the Medicare Part D administrator for CVS Caremark. This plan is the prescription drug coverage for Medicare retirees enrolled in the HMSA and Humana PPO medical plan options and for stand-alone drug coverage.

** If you receive services from an out-of-network pharmacy, you will pay full price for the prescription and must file a claim for reimbursement. You are responsible for the copayment, including the penalty %, and any difference between the actual charge and the eligible charge.

*** Specialty drugs are limited to a 30-day supply.

+The Kaiser Medicare Part D prescription drug coverage is included under the Kaiser Permanente Senior Advantage medical plan.

Prescription Drug Plan Benefits – HSTA VB Medicare Retirees

Prescription Drug	SilverScript (SSI) Medicare Part D PPO Drug Plan*		Kaiser Senior Advantage Plan+	
	In-Network/Mail Order	**Out-of-Network****	**HMO Network**	**Mail Order**
Day Supply	30/60/90		30/60/90	
Generic	$3/$9/$9	$3/$9/$9 + 30%	$10/$20/$30	$10/$20/$20
Brand	$9/$27/$27	$9/$27/$27 + 30%		
Insulin	$3/$9/$9	$3/$9/$9 + 30%	$10/$20/$30	Not covered
Diabetic Supplies	No charge Meters: Covered by Medicare Part B and the HMSA PPO medical plan	30% Meters: Covered by Medicare Part B and the HMSA PPO medical plan	20%	20%
Specialty Drugs/ Injectables	Generic/brand copays apply Mail order: Not covered	Generic/brand copays apply	$10 (up to a 30-day supply) Not all drugs can be mailed; restrictions and limitations apply	

* The HSTA VB's Medicare Part D prescription drug plan is administered by SilverScript (SSI), the Medicare Part D administrator for CVS Caremark. This plan is the prescription drug coverage for Medicare retirees enrolled in the HMSA PPO medical plan option.

** If you receive services from an out-of-network pharmacy, you will pay full price for the prescription and must file a claim for reimbursement. You are responsible for the copayment, including the penalty %, and any difference between the actual charge and the eligible charge.

+The Kaiser Medicare Part D prescription drug coverage is included under the Kaiser Permanente Senior Advantage medical plan.

Dental Plan Benefits (Hawaii Dental Service [HDS]) – EUTF & HSTA VB

DENTAL BENEFIT	PLAN COVERS
Plan Maximum per calendar year per member (Jan 1 - Dec 31)	$2,000
DIAGNOSTIC	
Examinations – 2 per calendar year	100%
Bitewing X-rays – 2 per calendar year through age 14; 1 per calendar year thereafter	100%
Other X-rays – full mouth X-rays limited to 1 every 5 years	100%
PREVENTIVE	
Cleanings — 2 per calendar year, additional cleanings covered for diabetic patients and expectant mothers	100%
Fluoride – 2 per calendar year through age 19	100%
Silver Diamine Fluoride	100%
Space Maintainers – through age 17	100%
Sealants – through age 18 (one treatment per tooth per lifetime to permanent molars with no prior fillings on biting surfaces)	100%
BASIC CARE	
Fillings – silver fillings; white-colored fillings limited to front teeth	60%
Root Canals	60%
Gum Surgeries & Maintenance – cleaning for gum disease limited to 2 per calendar year after qualifying gum treatment	60%
Oral Surgeries	60%
MAJOR CARE	
Crowns – 1 every 5 years when teeth cannot be restored with silver or white fillings; white crowns limited to front teeth and bicuspids	60%
Fixed Bridges & Dentures – 1 every 5 years; age 16 and older	60%
Implants	60%
OTHER SERVICES	
Emergency Treatments of Dental Pain	100%

Vision Plan Benefits (Vision Service Plan [VSP]) – EUTF & HSTA VB

Vision Exam & Eye Wear Benefits: Members can have an eye exam and choose between a pair of lenses or contact lenses every calendar year. Frames are covered every other calendar year.

Vision Benefit	Frequency	In-Network	Out-of-Network Plan Pays
Exam	Every calendar year	$10 copay	Up to $45
Prescription Glasses		$25 copay	
Prescription Glasses Frame	Every other calendar year	$150 allowance plus 20% off out-of-pocket cost	Up to $47
Prescription Glasses Lenses: - Single vision lenses - Lined bifocal lenses - Lined trifocal lenses - Impact-resistant lenses for dependent children up to age 18 - Standard progressive lenses - Premium progressive lenses - Custom progressive lenses - UV protection	Every calendar year	- Included in $25 copay - Included in $25 copay - Included in $25 copay - Included in $25 copay - Included in $25 copay - $80-$90 copay - $120-$160 copay - No charge	- Up to $45 - Up to $65 - Up to $85 - Not covered - Up to $85 - Up to $85 - Up to $85 - Not covered
Contact Lenses - Contact lenses - Contact lenses fitting and evaluation	Every calendar year	- $130 allowance - $60 copay max	- Up to $105 - Not covered

Extra Discounts and Savings from VSP Providers

Glasses & Sunglasses

- Average 40% savings on all non-covered lens options (such as tints, progressive lenses, anti-scratch coatings, etc.)
- 30% off additional glasses & sunglasses, including lens options, from the same VSP doctor on the same day as your exam, or 20% off any VSP doctor within 12 months of your last exam*

Retinal Screening

- Guaranteed pricing on retinal screening as an enhancement to your exam; $39 maximum copay

Contact Lenses

- VSP partners with leading contact lens manufacturers to provide VSP members exclusive offers. Check out www.vsp.com for details

Laser Vision Correction

- Average 15% off the regular price or 5% off the promotional price from VSP-contracted facilities
- After surgery, use your frame allowance (if eligible) for non-prescription sunglasses from any VSP doctor

* Costco, Walmart, and Sam's Club pricing applies; there are no additional discounts. All other affiliate provider locations: 20% off additional glasses and 15% off contact lens services within one year.

Summary of Benefit Eligibility
(For Members Hired Prior to 7/1/2012)

	Noncontributory Plan	Contributory Plan	Hybrid Plan
Normal Retirement	Age 62 and 10 years credited service; or age 55 and 30 years credited service	Age 55 and 5 years credited service	Age 62 and 5 years credited service; or age 55 and 30 years credited service
Early Retirement	Age 55 and 20 years credited service	Any age and 25 years credited service	Age 55 with 20 years credited service
Deferred Vesting	10 years credited service	5 years credited service and contributions left in the ERS	5 years credited service and contributions left in the ERS
Ordinary Disability	10 years credited service	10 years credited service	10 years credited service
Service-Connected Disability	Any age or credited service	Any age or credited service	Any age or credited service
Ordinary Death	Active employee at time of death with at least 10 years of credited service	Active employee at time of death with at least 1 year of service	Active employee at time of death with at least 5 years of service
Service-Connected Death	Any age or service	Any age or service	Any age or service

The benefit eligibilities summarized above apply to teachers and most State and County employees. Special provisions applicable to other groups of employees are outlined below:

Police officers, firefighters, investigators of the Department of the Prosecuting Attorney and the Attorney General, narcotic enforcement investigators, and public safety investigators may retire at age 55 with 5 years of credited service or at any age with 25 years of credited service.

Judges, elected officials, and legislative officers may retire at age 55 with at least 5 years of credited service, or at any age with at least 10 years of credited service. Judges hired after June 30, 1999 require 25 years of credited service in order to retire before age 55.

Sewer workers in specified classifications, water safety officers, and emergency medical technicians (EMTs) may retire at any age if they are credited with 25 years of such service with the last 5 or more years in these occupations. (The 25-year feature is phased in through 7/1/2008 for EMTs.)

Sewer workers in specified classifications, water safety officers, and emergency medical technicians (EMTs) that transfer to the Hybrid Plan may retire at age 62 with 5 years of credited service or at any age if they are credited with 25 years of such service with the last 5 or more years in these occupations.

Summary of Benefit Eligibility
(For Members Hired After 6/30/2012)

	Contributory Plan (for Police/Fire)	Contributory Plan (for Judges/Elected Officers)	Hybrid Plan
Normal Retirement	Age 60 and 10 years credited service	Age 60 and 10 years credited service	Age 65 and 10 years credited service; or age 60 and 30 years credited service Sewer workers, water safety officers, and EMTs may retire with 25 years credited service at age 55
Early Retirement	Age 55 and 25 years credited service	Age 55 and 25 years credited service any age with 10 years for elected officers	Age 55 with 20 years credited service Sewer workers, water safety officers, and emergency medical technicians (EMTs) may retire with 25 years credited service
Deferred Vesting	10 years credited service and contributions left in the ERS	10 years credited service and contributions left in the ERS	10 years credited service and contributions left in the ERS
Ordinary Disability	10 years credited service	10 years credited service	10 years credited service
Service-Connected Disability	Any age or credited service	Any age or credited service	Any age or credited service
Ordinary Death	Active employee at time of death with at least 1 year of credited service	Active employee at time of death with at least 1 year of credited service	Active employee at time of death with at least 10 years of service
Service-Connected Death	Any age or service	Any age or service	Any age or service

Section F

Summary of Participant Data

Active Employee Age/Service Distribution

Attained Age	Years of Credited Service												
	0	1	2	3	4	5-9	10-14	15-19	20-24	25-29	30-34	35 & Over	Total
Under 25	316	159	46	17	4	-	-	-	-	-	-	-	542
25-29	641	547	518	432	289	258	-	-	-	-	-	-	2,685
30-34	478	395	459	491	495	1,691	133	1	-	-	-	-	4,143
35-39	359	326	383	418	422	1,712	1,180	175	-	-	-	-	4,975
40-44	315	259	339	387	366	1,514	1,302	1,407	158	-	-	-	6,047
45-49	261	221	295	295	288	1,262	1,110	1,411	1,255	96	-	-	6,494
50-54	221	184	245	232	272	1,060	898	1,192	1,364	1,226	224	2	7,120
55-59	176	137	194	205	189	839	793	1,086	1,075	1,036	1,049	93	6,872
60-64	115	95	142	175	138	765	660	814	856	688	736	414	5,598
65 & Over	59	47	85	95	77	565	495	613	676	413	487	590	4,202
Total	2,941	2,370	2,706	2,747	2,540	9,666	6,571	6,699	5,384	3,459	2,496	1,099	48,678

Inactive Age Distribution

Age	Deferred Inactives	Retirees	Total
<35	85	8	93
35-39	636	3	639
40-44	1,029	14	1,043
45-49	1,151	25	1,176
50-54	1,437	92	1,529
55-59	1,513	910	2,423
60-64	1,193	2,919	4,112
65-69	381	6,837	7,218
70-74	117	8,700	8,817
75-79	16	7,969	7,985
80-84	4	4,976	4,980
85-89	2	3,585	3,587
90-94	0	2,311	2,311
95+	0	977	977
Total	7,564	39,326	46,890

State of Hawaii
Distribution by Health Plan and Coverage Type

Actives

	Single	Two-Party	Family	Waived	Total
PPO	15,034	4,493	6,539	0	26,066
HMO	6,362	1,852	2,402	0	10,616
Others	133	113	228	0	474
Waived				11,522	11,522
Total Medical					**48,678**
Dental	21,234	8,952	9,393	9,099	**48,678**
Vision	20,945	8,204	8,596	10,933	**48,678**

Retirees

	Single	Two-Party	Family	Total
PPO	18,638	11,292	675	30,605
HMO	3,857	1,769	99	5,725
Medicare Adv	30	9	0	39
Others	106	56	2	164
Total Medical				**36,533**
Dental	22,646	13,752	782	**37,180**
Vision	22,613	13,714	792	**37,119**
Life				**35,527**

SECTION G

ACTUARIAL ASSUMPTIONS AND METHODS

Summary of Actuarial Assumptions and Methods

The actuarial assumptions used in the valuation are shown in this Section. Assumptions that are specific to certain groups (i.e. General Employees, Teachers, Police and Firefighters) are discussed under the first subsection that follows. Assumptions that are common to all types of members and unique to this valuation are then shown on the following pages.

Demographic and Certain Economic Assumptions

This actuarial valuation of the OPEB is similar to the actuarial valuations performed for ERS. All of the demographic assumptions and most of the economic assumptions used in this OPEB Valuation were identical to those used in the June 30, 2022 retirement system valuations performed by Gabriel, Roeder, Smith and Company. The assumptions which are common to the pension and OPEB valuations are described in Appendix A of this report.

Healthcare and Other Economic Assumptions

General Inflation was assumed to be 2.50% per year.

The rate of investment return was assumed to be 7.00% a year, compounded annually net after investment expenses. The assumed real return is the rate of return in excess of price inflation. Considering other assumptions used in the valuation, the nominal rate translates to a net real return of 4.50% a year.

Health Cost and Premium Increases – *See table below*

Year	*HMSA (PPO)*	*Kaiser (HMO)*	*Dental*	*Vision*	*Part B Premiums*
2024	6.40%	6.40%	4.00%	2.50%	5.00%
2025	6.30%	6.30%	4.00%	2.50%	5.00%
2026	6.20%	6.20%	4.00%	2.50%	5.00%
2027	6.10%	6.10%	4.00%	2.50%	5.00%
2028	6.00%	6.00%	4.00%	2.50%	5.00%
2029	5.90%	5.90%	4.00%	2.50%	5.00%
2030	5.80%	5.80%	4.00%	2.50%	5.00%
2031	5.70%	5.70%	4.00%	2.50%	5.00%
2032	5.60%	5.60%	4.00%	2.50%	5.00%
2033	5.50%	5.50%	4.00%	2.50%	5.00%
2034	5.40%	5.40%	4.00%	2.50%	5.00%
2035	5.30%	5.30%	4.00%	2.50%	5.00%
2036	5.20%	5.20%	4.00%	2.50%	5.00%
2037	5.10%	5.10%	4.00%	2.50%	5.00%
2038	5.00%	5.00%	4.00%	2.50%	5.00%
2039	4.90%	4.90%	4.00%	2.50%	4.90%
2040	4.80%	4.80%	4.00%	2.50%	4.80%
2041	4.70%	4.70%	4.00%	2.50%	4.70%
2042	4.60%	4.60%	4.00%	2.50%	4.60%
2043	4.50%	4.50%	4.00%	2.50%	4.50%
2044	4.40%	4.40%	4.00%	2.50%	4.40%
2045	4.30%	4.30%	4.00%	2.50%	4.30%
2046	4.25%	4.25%	4.00%	2.50%	4.25%

The premiums for 2023 were known at the time of the valuation. The first trend rate shown above is assumed to occur at 1/1/2024. Future increases are also assumed to occur on 1/1. The HMSA and Kaiser trend rates are blended rates used to project both medical and prescription drug costs.

The trend rates shown above for the Part B premiums apply to the BMC and the Part B premiums.

The 4.25% ultimate trend assumption for the HMSA and Kaiser plans is comprised of 2.50% long-term price inflation + 1.75% real GDP growth.

Healthcare and Other Economic Assumptions (Continued)

Plan Participation

The plan participation rates were assumed to vary based on the employer contribution percentage, as follows:

Employer Contribution	Rates of Participation		
	Medical, Prescription Drug, Dental and Vision	Life Insurance	Medicare Part B
0%	25%	100%	98%
50%	65%	100%	98%
75%	90%	100%	98%
100%	98%	100%	98%

The same assumptions were used for terminated participants with vested pension benefits. However, current active employees who terminate service prior to the age of 35 are not assumed to ever participate in the retiree health plan.

For current retirees, the actual family coverage election is used. For future retirees, the family coverage assumptions are 35% single / 50% two-party / 15% family prior to age 65 and 50% single / 50% two-party after the age of 65. It was assumed 45% of future retirees would receive Medicare Part-B reimbursements for a spouse. For those that elect two-party or family coverage, it was assumed that coverage would continue to the spouse upon death of the retiree.

Plan Elections

For current retirees, plan elections were based on the plan in which they are currently enrolled. For future retirees, plan participation was assumed to be 82% HMSA / 18% Kaiser.

Administration Fees

The following table provides the 2023 monthly administration fees. The EUTF Board approved to pay third party administration fees through December 31, 2028, using the Agency Fund assets. As a result, it was assumed that the administration fees would be in addition to the premiums shown in Section E for years after 2028.

Monthly Fee	Single Party	Two-Party	Family
Medical and Drug	$5.12	$10.24	$15.36
Dental	0.36	0.72	1.08
Vision	0.04	0.08	0.12
Life	0.04	0.04	0.04

Healthcare and Other Economic Assumptions (Continued)

Aging Factors: In any given year, the cost of medical and prescription drug benefits vary by age. As the ages of retirees in the covered population increase so does the cost of benefits. Morbidity tables are employed to develop Per Capita Costs at every relevant age. The following table represents the percent by which the cost of medical and prescription drug benefits at one age is higher than the cost for the previous age. For example, according to the following table, the cost of benefits for a male age 55 is 5.50% higher than for one age 54. These percentages below are separate from the annual Medical Trend, which operates to increase costs independent of and in addition to the Aging Factors shown below.

Sample Ages	Cost Increases by Age	
	Male	Female
45	4.66%	1.88%
50	5.83%	3.53%
55	5.50%	2.85%
60	5.06%	3.45%
65	3.34%	3.28%
70	1.77%	2.02%
75	1.15%	1.32%
80	0.82%	1.05%
85	-0.27%	0.49%
90	-0.32%	0.03%

Actuarial Methods

The individual entry age actuarial cost method was used in determining liabilities and normal cost. Differences between assumed experience and actual experience ("actuarial gains and/or losses") become part of actuarial accrued liabilities.

Unfunded actuarial accrued liabilities are amortized to produce payments (principal & interest) which are a level percent of payroll. Closed bases will be established at each valuation for new unfunded liabilities. If experience produces a loss, the new base will be amortized over a period of 20 years. Experience gains will be amortized over the same period as the initial liability base, until the initial liability base is fully amortized.

Miscellaneous and Technical Assumptions

Actuarial Value of Assets	The actuarial value of assets is based on the market value of assets with a four-year phase-in of actual investment return in excess of (less than) expected investment income. Offsetting unrecognized gains and losses are immediately recognized, with the shortest remaining bases recognized first and the net remaining bases continue to be recognized on their original timeframe. The expected actuarial value of assets is calculated net of investment expenses, and the expected investment return is equal to the assumed investment return rate multiplied by the prior year's actuarial value of assets, adjusted for contributions, benefits paid, and refunds.
Claims Utilization	To model the impact of aging on the underlying health care costs, the valuation relied on the Society of Actuaries' 2013 Study "Health Care Costs – From Birth to Death". Chart 1 (2010 Aggregate Commercial Costs) was used to model the impact of aging for ages less than 65 and Table 4 (Development of Plan Specific Medicare Age Curve) was used to model the impact of aging for ages 65 and over.
Marriage Assumption	100% of males and females are assumed to be married for purposes of death-in-service benefits. For future retirees, husbands are assumed to be four years older than wives.
Pay Increase Timing	Beginning of (fiscal) year. This is equivalent to assuming that reported pays represent amounts paid to members during the year ended on the valuation date.
Decrement Timing	Except for teachers, decrements of all types are assumed to occur mid-year. For teachers, the normal retirement, early retirement and termination decrements are assumed to occur at the beginning of the year.
Eligibility Testing	Eligibility for benefits is determined based upon the age nearest birthday and service nearest whole year on the date the decrement is assumed to occur.
Decrement Operation	Disability and mortality decrements are added to the termination decrements during the first 5 years. Disability is added to the retirement decrement during retirement eligibility.

Miscellaneous and Technical Assumptions (continued)

Deferred Age	Terminated employees with vested pension benefits are assumed to commence their benefit at age 62 or their current age if they are older than 62 as of the valuation date.
Timing of ARC Contributions	The ARC is assumed to be received at the middle of the year.
Administrative Expenses	Third party administrative expenses related to providing benefits are included in the age-rated costs. The administrative costs related to operating the trust are included in the normal cost.
Reliance on Other Actuaries	We have relied on the premiums developed by Segal Consulting for the self-insured prescription drug benefit.

Assumption, Method And Plan Changes

1. Mortality and other demographic assumptions have been updated to match those developed in the June 30, 2021 Hawaii Employees' Retirement System Experience Study. Taken together, these changes decreased the liability.
2. The trend rates were reset to better reflect the plan's anticipated experience. This change decreased the liability.
3. The wage inflation assumption was lowered from 3.50% to 3.00%, and the growth rate for amortization payment of the unfunded liabilities was lowered from 3.50% to 2.50%. Taken together, these changes increased the Annual Required Contribution, and did not affect the liability. However, these changes significantly lowered the projected rate of growth in the annual employer contributions going forward.

APPENDIX A

DEMOGRAPHIC AND CERTAIN ECONOMIC ASSUMPTIONS

Demographic and Certain Economic Assumptions

A. <u>Economic Assumptions</u>

1. Wage inflation: 3.00% per annum

2. Salary increase rate: As shown below

	General Employees		Teachers	
Years of Service	Service-related Component	Total Rate Including 2.50% Inflation Component and 1.25% Productivity Component	Service-related Component	Total Rate Including 2.50% Inflation Component and 1.25% Productivity Component
1	3.00%	6.75%	3.00%	6.75%
2	3.00%	6.75%	3.00%	6.75%
3	2.00%	5.75%	2.00%	5.75%
4	1.50%	5.25%	1.50%	5.25%
5	1.50%	5.25%	1.50%	5.25%
6	1.25%	5.00%	1.25%	5.00%
7	1.25%	5.00%	1.25%	5.00%
8	1.00%	4.75%	1.00%	4.75%
9	1.00%	4.75%	1.00%	4.75%
10	1.00%	4.75%	1.00%	4.75%
11	0.75%	4.50%	0.75%	4.50%
12	0.75%	4.50%	0.75%	4.50%
13	0.50%	4.25%	0.50%	4.25%
14	0.50%	4.25%	0.50%	4.25%
15	0.50%	4.25%	0.50%	4.25%
16	0.50%	4.25%	0.50%	4.25%
17	0.50%	4.25%	0.50%	4.25%
18	0.50%	4.25%	0.50%	4.25%
19	0.50%	4.25%	0.50%	4.25%
20	0.25%	4.00%	0.25%	4.00%
21	0.25%	4.00%	0.25%	4.00%
22	0.25%	4.00%	0.25%	4.00%
23	0.25%	4.00%	0.25%	4.00%
24	0.25%	4.00%	0.25%	4.00%
25 or more	0.00%	3.75%	0.00%	3.75%

2. Salary increase rates (continued):

	Police & Firefighters	
Years of Service	Service-related Component	Total Annual Rate of Increase Including 2.50% Inflation Component and 2.50% General Increase Rate
1	1.00%	6.00%
2	1.00%	6.00%
3	1.00%	6.00%
4	1.00%	6.00%
5	1.00%	6.00%
6	1.00%	6.00%
7	1.00%	6.00%
8	1.00%	6.00%
9	1.00%	6.00%
10	1.00%	6.00%
11	1.00%	6.00%
12	1.00%	6.00%
13	1.00%	6.00%
14	1.00%	6.00%
15	1.00%	6.00%
16	0.75%	5.75%
17	0.75%	5.75%
18	0.75%	5.75%
19	0.50%	5.50%
20	0.50%	5.50%
21	0.50%	5.50%
22	0.25%	5.25%
23	0.25%	5.25%
24	0.25%	5.25%
25 or more	0.00%	5.00%

Salary increases are assumed to occur once a year, on July 1. Therefore the pay used for the period between the valuation date and the first anniversary of the valuation date is equal to the reported pay for the prior year, annualized if necessary, and then increased by the salary increase assumption. To adjust the pays received as of March 31st to the June 30th valuation date, the reported pay for each member is increased by 1%.

B. Demographic Assumptions

1. Mortality rates:

Active Members: Multiples of the Pub-2010, Employee Tables for active employees based on the occupation of the member as follows:

	General Employees	Teachers	Police and Fire
Type	Male & Female	Male & Female	Male & Female
Ordinary	94%	92%	80%
% of Ordinary Choosing Annuity	41%	52%	24%
Duty Related	6%	8%	20%

Healthy Retirees: The 2022 Public Retirees of Hawaii mortality tables. The rates are projected on a fully generational basis by the long-term rates of scale UMP from the year 2022 and with multipliers and setbacks based on plan and group experience. The following are sample rates of the base table with the corresponding multipliers:

Healthy Annuitant Mortality Rates Before Projection (Multiplier Applied)

	General Employees		Teachers		Police and Fire	
Age	Male	Female	Male	Female	Male	Female
50	0.2094%	0.1276%	0.1698%	0.0951%	0.2421%	0.1130%
55	0.3215%	0.1687%	0.2883%	0.1596%	0.3473%	0.1633%
60	0.5570%	0.3095%	0.4672%	0.2467%	0.6179%	0.2799%
65	0.8041%	0.4488%	0.7256%	0.4063%	0.8426%	0.4283%
70	1.2621%	0.7066%	1.0762%	0.6015%	1.4172%	0.6565%
75	2.0700%	1.0964%	1.7879%	0.9358%	2.3227%	1.0121%
80	3.5996%	2.1275%	3.0429%	1.6565%	4.1824%	1.8863%
85	6.5891%	4.1569%	5.5564%	3.2698%	7.6513%	3.6977%
90	11.9340%	8.3647%	10.1056%	6.5007%	13.6689%	7.3991%
Multiplier	102%	98%	97%	101%	93%	100%
Setback	0	-1	1	1	-2	0

The following table provides the life expectancy for individuals retiring in future years based on the assumption with full generational projection:

Life Expectancy for an Age 65 Retiree in Years

Gender	Year of Retirement 2025	2030	2035	2040	2045
General Retirees					
Male	22.8	23.2	23.5	23.9	24.2
Female	26.3	26.6	26.9	27.2	27.5
Teachers					
Male	24.1	24.5	24.9	25.2	25.5
Female	28.0	28.3	28.6	28.9	29.2
Police and Fire					
Male	21.8	22.1	22.4	22.8	23.1
Female	27.1	27.4	27.7	28	28.3

Disabled retirees: Base Table for healthy retirees' occupation, set forward 3 years, generational projection using the UMP projection table from the year 2022. Minimum mortality rate of 3.5% for males and 2.5% for females.

2. Disability rates – The assumed total disability rates at select ages are multiples of the client specific table that follows:

Age	Male & Female
25	0.000%
30	0.001%
35	0.008%
40	0.026%
45	0.064%
50	0.146%
55	0.198%
60	0.217%

Note: The disability rates project the percentage of employees at each age that is assumed to become disabled before retiring. Multiples of the rates above are assumed to be ordinary disability or accidental disability, and varies by employee group as follows:

	General Employees	Teachers	Police and Fire
Type	Male & Female	Male & Female	Male & Female
Ordinary	200%	100%	50%
Accidental	60%	8%	120%

3. Termination Rates - Same male and female rates, based solely on the member's service. Rates reflect terminations for causes other than death, disability or retirement. Employees eligible for retirement are assumed to have no probability of termination. Sample rates are shown below:

	Expected Terminations per 1000 Lives (Male & Female)		
Years of Service	General Employees	Teachers	Police & Fire
0	177.2	0.0	140.0
1	142.2	197.9	52.4
2	114.2	165.2	41.3
3	92.0	134.8	34.8
4	74.8	108.2	30.2
5	61.7	86.3	26.6
6	51.9	69.4	23.7
7	44.7	57.3	21.3
8	39.6	49.4	19.1
9	35.8	44.5	17.2
10	32.8	41.0	15.6
11	30.3	35.8	10.6
12	27.9	32.4	10.0
13	22.6	29.1	9.4
14	19.8	26.1	8.8
15	17.7	23.2	8.2
16	16.1	20.6	7.6
17	14.8	18.1	7.0
18	13.7	15.8	6.4
19	12.8	13.6	5.8
20	11.9	11.7	5.2
21	11.1	10.0	4.6
22	10.2	8.4	4.0
23	9.3	7.0	3.4
24	8.3	5.8	2.8
25	7.1	4.8	0.0
26	6.0	4.0	0.0
27	4.7	3.3	0.0
28	3.5	2.8	0.0
29	2.4	2.6	0.0
30 and more	0.0	0.0	0.0

4. Retirement rates - Separate male and female rates, based on age. Sample rates are shown below:

Contributory Members

Expected Retirements per 100 Lives

	General Employees				Teachers				Police/Fire
	Unreduced Retirement		Reduced Retirement		Unreduced Retirement		Reduced Retirement		Unreduced Retirement
Age	Male	Female	Male	Female	Male	Female	Male	Female	Male & Female
45	0	0	0	0	0	0	0	0	15.5
46	0	0	0	0	0	0	0	0	15.5
47	0	0	0	0	0	0	0	0	15.5
48	0	0	0	0	0	0	0	0	15.5
49	0	0	0	0	0	0	0	0	15.5
50	0	0	0	0	0	0	1	0	18.0
51	0	0	2	1	0	0	1	1	18.0
52	0	0	2	1	0	0	1	1	18.0
53	0	0	2	1	0	0	2	2	18.0
54	0	0	3	2	0	0	3	3	18.0
55	25	20			20	18			22.0
56	25	20			15	16			22.0
57	16	13			15	16			22.0
58	16	13			15	16			24.0
59	13	13			15	16			27.0
60	13	15			14	18			30.0
61	13	15			14	18			30.0
62	28	25			14	25			30.0
63	20	20			14	20			30.0
64	20	20			14	15			30.0
65	20	20			20	25			100.0
66	18	20			15	25			
67	18	20			15	20			
68	18	20			15	20			
69	18	20			15	20			
70	20	20			15	20			
71	20	20			15	20			
72	20	20			15	20			
73	20	20			15	20			
74	20	20			15	20			
75	100	100			100	100			

Noncontributory Members

	Expected Retirements per 100 Lives									
	General Employees						Teacher			
	Unreduced		25 & Out		Reduced		Unreduced		Reduced Retirement	
Age	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
55	20	11	15	11	1	1	10	13	1	2
56	18	11	23	11	1	1	10	7	1	2
57	13	11	18	11	1	1	10	8	1	2
58	10	11	15	11	2	2	10	10	2	2
59	10	11	15	11	2	2	10	20	3	3
60	10	14	15	14	4	4	10	11	5	5
61	11	18	16	18	4	4	10	16	7	5
62	20	20	25	20			16	25		
63	20	20	25	20			12	20		
64	12	20	17	20			10	15		
65	14	20	19	20			20	25		
66	20	20	25	20			15	25		
67	20	20	25	20			15	25		
68	20	20	25	20			15	25		
69	20	20	25	20			15	25		
70	20	20	25	20			15	25		
71	20	20	25	20			15	25		
72	20	20	25	20			15	25		
73	20	20	25	20			15	25		
74	20	20	25	20			15	25		
75	100	100	100	100			100	100		

Note: Retirement rates for the 25&out group age 50-54 are 15% for male and 11% for female.

Hybrid Members

	Expected Retirements per 100 Lives							
	General Employees				Teachers			
	Unreduced		Reduced		Unreduced		Reduced	
Age	Male	Female	Male	Female	Male	Female	Male	Female
55	18	18	1	1	20	16	2	2
56	12	13	1	1	13	10	2	2
57	12	13	1	1	13	10	2	2
58	16	13	2	2	13	12	2	2
59	16	13	2	2	13	12	3	3
60	14	13	4	4	14	14	3	5
61	14	15	4	4	14	18	3	10
62	21	20			22	30		
63	18	20			14	20		
64	18	20			14	20		
65	21	20			20	25		
66	18	18			15	25		
67	18	18			15	25		
68	18	18			15	25		
69	18	18			15	25		
70	20	20			15	25		
71	20	20			15	25		
72	20	20			15	25		
73	20	20			15	25		
74	20	20			15	25		
75	100	100			100	100		

Note: For the 25&out group with membership dates before July 1, 2012, the retirement rates prior to age 55 are 6% for both male and female.

For members hired after June 30, 2012 the retirement rates for members once they reach unreduced retirement eligibility are increased 10% (multiplicative) for each year the member is beyond the age the member would have been eligible under the Hybrid provisions for members hired prior to June 30, 2012.

APPENDIX B

GLOSSARY

Glossary

Accrued Service. The service credited under the plan which was rendered before the date of the actuarial valuation.

Actuarial Accrued Liability. The difference between (i) the actuarial present value of future plan benefits, and (ii) the actuarial present value of future normal cost. Sometimes referred to as "accrued liability" or "past service liability."

Actuarial Assumptions. Estimates of future plan experience with respect to rates of mortality, disability, turnover, retirement, rate or rates of investment income and salary increases. Decrement assumptions (rates of mortality, disability, turnover and retirement) are generally based on past experience, often modified for projected changes in conditions. Economic assumptions (salary increases and investment income) consist of an underlying rate in an inflation-free environment plus a provision for a long-term average rate of inflation.

Actuarial Cost Method. A mathematical budgeting procedure for allocating the dollar amount of the "actuarial present value of future plan benefits" between the actuarial present value of future normal cost and the actuarial accrued liability. Sometimes referred to as the "actuarial funding method."

Actuarial Equivalent. A single amount or series of amounts of equal value to another single amount or series of amounts, computed on the basis of the rate(s) of interest and mortality tables used by the plan.

Actuarial Present Value. The amount of funds presently required to provide a payment or series of payments in the future. It is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Amortization. Paying off an interest-bearing liability by means of periodic payments of interest and principal, as opposed to paying it off with a lump sum payment.

Annual Required Contribution (ARC). The ARC is the normal cost plus the portion of the unfunded actuarial accrued liability to be amortized in the current period. The ARC is an amount that is actuarially determined in accordance with the requirements so that, if paid on an ongoing basis, it would be expected to provide sufficient resources to fund both the normal cost for each year and the amortized unfunded liability.

Medical Trend Rate (Health Inflation). The increase in the plan's cost over time. Trend includes all elements that may influence a plan's cost, assuming that enrollments and the plan benefits do not change. Trend includes such elements as, pure price inflation, changes in utilization, advances in medical technology, and cost shifting.

Normal Cost. The annual cost assigned, under the actuarial funding method, to current and subsequent plan years. Sometimes referred to as "current service cost." Any payment toward the unfunded actuarial accrued liability is not part of the normal cost.

Other Post-Employment Employee Benefits (OPEB). OPEB are post-employment benefits other than pensions. OPEB generally takes the form of health insurance and dental, vision, prescription drugs or other healthcare benefits.

Reserve Account. An account used to indicate that funds have been set aside for a specific purpose and are not generally available for other uses.

Unfunded Actuarial Accrued Liability. The difference between the actuarial accrued liability and valuation assets. Sometimes referred to as "unfunded accrued liability."

Valuation Assets. The value of current plan assets recognized for valuation purposes.