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## Government of Guam Retirement Fund

Actuarial Valuation as of September 30, 2022

Prepared by:

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May 5, 2023

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**Re: Government of Guam Retirement Fund –  
Actuarial Valuation as of September 30, 2022**

As part of our engagement with the Board of Trustees, we performed an actuarial valuation of the Government of Guam Retirement Fund as of September 30, 2022. The purpose of this valuation is to determine the required contribution under the provisions of GCA Section 8137.

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the Fund's staff. This information includes, but is not limited to, financial information, member census data, and plan provisions. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete the results may be different and the calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the Fund have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the Plan and reasonable expectations); and which, in combination, offer our best estimate of anticipated experience affecting the Fund. The assumptions have been adopted by the Board of Trustees and are based on the 2015-2020 actuarial experience study.

This valuation report is only an estimate of the Fund's financial condition as of a single date. It can neither predict the Fund's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of Fund benefits, only the timing of Fund contributions. While the valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct. Determining results using alternative assumptions is outside the scope of our engagement.

The results were developed using models that use standard actuarial techniques. We have reviewed the models, including their inputs, calculations, and outputs for consistency, reasonableness, and appropriateness to the intended purpose and in the compliance with generally accepted actuarial practice and relevant actuarial standards of practice (ASOP).

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 (such as the end of an amortization period or additional cost or contribution requirements based on the Fund's funded status); and changes in plan provisions or applicable law. Due to the limited scope of our assignment, we did not perform an analysis of the potential range of future measurements. The Board of Trustees has the final decision regarding the appropriateness of the assumptions and actuarial cost methods.

Actuarial computations presented in this report are for the purposes of determining the recommended funding amounts for the Fund. The calculations in this report have been made on a basis consistent with our understanding of the Fund's funding requirements and goals. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes. Disclosures for GASB Statements No. 67, 68 and 73 for the Government of Guam Defined Benefit Plan and the Government of Guam Defined Contribution Plan are issued under separate cover.

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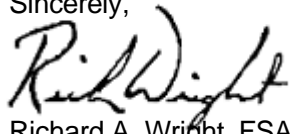
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The signing actuary is independent of the plan sponsor. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices which are consistent with the principles prescribed by the Actuarial Standards Board and the *Code of Professional Conduct and Qualification Standards for Actuaries Issuing Statements of Actuarial Opinion in the United States*, published by the American Academy of Actuaries. We are members of the American Academy of Actuaries and meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinion contained herein.

Sincerely,

A handwritten signature in black ink that reads "Richard A. Wright".

Richard A. Wright, FSA, MAAA  
Principal and Consulting Actuary

Sincerely,

A handwritten signature in black ink that reads "Nick Collier".

Nick Collier, ASA, EA, MAAA  
Principal and Consulting Actuary

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## INTRODUCTION

Milliman, Inc. has been retained by the Government of Guam Retirement Fund to provide an actuarial valuation of the retirement fund. In our valuation we:

- Summarize the membership data.
- Calculate the actuarial accrued liability and normal cost.
- Determine the contribution requirements.
- Project the fund balance and security ratio forward 40 years.

The results contained in this report represent a reasonable estimate. However, it is likely that actual experience will vary from these estimates. To the extent that actual experience differs from the anticipated experience, actual plan costs will vary as well.

## HIGHLIGHTS

- The required contribution under GCA Section 8137 is **29.43%** of payroll. Of this amount, 24.18% is for the unfunded actuarial accrued liability of the defined benefit plans (Old DB Plan and DB 1.75 Plan), 1.19% is for the normal cost of the DB plans, and 4.06% is for contributions and expenses for the defined contribution (DC) plan.

The primary reason for the increase in the contribution rate from 28.43% for the prior year was the partial recognition of the investment loss for 2021-22. Investment gains and losses are recognized over a 3-year period. The contribution rate increase due to the 2021-22 investment loss was partially offset by the continued recognition of the investment gain for 2020-21, a higher-than-expected payroll increase for the 2021-22 fiscal year, and other demographic factors.

Contribution rate in 9/30/21 actuarial valuation	28.43%
2019-20 investment loss (final 1/3 <sup>rd</sup> recognition) *	0.39%
2020-21 investment gain (second 1/3 <sup>rd</sup> recognition) *	(1.62%)
2021-22 investment loss (first 1/3 <sup>rd</sup> recognition) *	3.76%
Actual payroll increase for 2021-22 of 4.32% vs. assumption of 2.75%	(0.67%)
Assumption changes	(0.65%)
Other factors, including demographic changes	<u>(0.21%)</u>
Contribution rate in 9/30/22 actuarial valuation	29.43%

\* Investment returns that differ from the actuarial assumption of 7% are recognized over a 3 year period.

- Changes made to the actuarial assumptions are summarized beginning on page 5 under “Actuarial Assumptions”. These changes were adopted based upon an actuarial experience study for the period from October 1, 2015, to September 30, 2020. The assumption changes reduced the unfunded actuarial accrued liability by \$8.2 million.
- Public Law 28-150 provided that the current employer contribution rate would increase over a 5-year period starting in the 2006-07 fiscal year until it reached the actuarial contribution rate, which is the rate specified in the Fund’s actuarial valuation report. The employer contribution rate for the 2022-23 fiscal year is 28.43%.

- The defined benefit (Old DB) payroll for the 2021-22 fiscal year was \$81.2 million compared with \$90.8 million for the 2020-21 fiscal year. The defined benefit (DB 1.75) payroll for the 2021-22 fiscal year was \$162.2 million compared with \$160.6 million for the 2020-21 fiscal year.
- The total defined benefit and defined contribution payroll for the 2021-22 fiscal year, was \$555.5 million compared with \$532.5 million for the 2020-21 fiscal year, an increase of 4.32%. The prior valuation assumed a 2.75% increase for the 2021-22 fiscal year and each year thereafter. If total payroll for the 2021-22 fiscal year had increased by 2.75%, the required contribution rate would have been 30.10%.
- Based on the audited financial statements, we calculated an investment return on the total market value of assets of -17.7% for the fiscal year ending September 30, 2022. The average annual return on the market value of assets for the last 5 fiscal years has been 2.1%. The investment return on the actuarial value of assets, which recognizes investment gains and losses over a 3 year period, was 1.6% for the fiscal year ending September 30, 2022.
- Only one-third of the investment loss for fiscal year ending September 30, 2022 has been reflected in the calculated employer contribution rate. The remaining amount of approximately \$360 million will be reflected over the next two valuations. Absent future investment gains, this is expected to result in significant increases in the employer contribution rate as shown in Exhibit 17.
- The unfunded actuarial accrued liability increased from \$1.142 billion as of September 30, 2021, to \$1.173 billion as of September 30, 2022. The payment required to amortize the unfunded actuarial accrued liability under GCA Section 8137 has increased from \$125.3 million to \$139.7 million, due to the reduction in the amortization period from 11.58 years to 10.58 years and investment returns that were below the assumed 7%. The payment as a percentage of payroll has increased from 22.90% to 24.18%.
- On December 27, 2022, Public Law No. 36-130 was signed into law. The law provides for the following:
  - All employees who are members in the Defined Contribution System at any time between June 1, 2023 and December 31, 2023, may elect to become Defined Benefit 1.75 Plan members effective as of January 1, 2024.
  - All new employees whose employment commences on or after January 1, 2024, may elect to become Defined Benefit 1.75 members.
  - The Defined Benefit 1.75 Plan service retirement amount is increased from 1.75% to 2.75% for service after 25 years. The maximum benefit remains at 85%.
  - Effective January 1, 2024, active public safety and law enforcement officers of the Defined Benefit 1.75 Plan will be eligible for unreduced service retirement after reaching age 55 with 25 years of service or age 57 with 5 years of service.

The impact of P.L 36-130 has not been included in this actuarial valuation as of September 30, 2022, due to the effective date of the benefit changes being effective January 1, 2024. Please see our benefit proposal study dated October 20, 2022 which discusses the anticipated effect of the legislated changes. The actual impact of the law can only be calculated once actual elections into the Defined Benefit 1.75 Plan are known.”

**RESULTS OF VALUATION**

	9/30/2022		9/30/2021	
<b>Participant Counts</b>				
Active Old DB	930		1,072	
Non-Uniformed				
Uniformed	<u>140</u>		<u>154</u>	
Total	1,070		1,226	
Active DB 1.75 Participants	2,906		2,994	
Active DC Participants	<u>7,571</u>		<u>7,070</u>	
Total Active Participants (Old DB, DB 1.75, DC)	11,547		11,290	
Retired (Old DB)	7,283		7,291	
Retired (DB 1.75)	249		197	
Inactive/Terminated (Old DB, DB 1.75)				
Assumed to withdraw contributions	2,998		3,022	
<u>Not</u> assumed to withdraw contributions	107		100	
Total DB Participants (Old DB and DB 1.75)	14,613		14,830	
	<b>(\$millions)</b>		<b>(\$millions)</b>	
<b>Actual Payroll for Prior Fiscal Year</b>				
Defined benefit (Old DB) payroll	\$ 81.2		\$ 90.8	
Defined benefit (DB 1.75) payroll	162.2		160.6	
Defined contribution (DC) payroll	<u>312.1</u>		<u>281.2</u>	
Total payroll (DB and DC)	\$555.5		\$532.5	
<b>Expected Payroll for Next Fiscal Year</b>				
Defined benefit (Old DB) payroll	\$ 69.3		\$ 77.8	
Defined benefit (DB 1.75) payroll	163.2		164.7	
Defined contribution (DC) payroll	<u>345.1</u>		<u>304.6</u>	
Total payroll (DB and DC)	\$577.7		\$547.1	
<b>Financial Status</b>				
Actuarial accrued liability	\$3,236.6		\$3,267.5	
Actuarial value of assets	<u>2,063.6</u>		<u>2,125.3</u>	
Unfunded actuarial accrued liability (UAAL)	\$1,173.0		\$1,142.2	
Security ratio	63.76%		65.04%	
	<b>% of DB Payroll</b>		<b>% of DB Payroll</b>	
<b>Normal Cost</b>				
Total normal cost <sup>1</sup>	\$ 29.0	12.47%	\$ 32.5	13.41%
Estimated employee contributions	<u>(22.1)</u>	<u>(9.52%)</u>	<u>(23.1)</u>	<u>(9.52%)</u>
Government normal cost	\$ 6.9	2.95%	\$ 9.4	3.89%
	<b>% of Total Payroll</b>		<b>% of Total Payroll</b>	
<b>Required Contribution per GCA §8137</b>				
Unfunded actuarial accrued liability cost	\$ 139.7	24.18%	\$ 125.3	22.90%
Government DB normal cost	6.9	1.19%	9.4	1.72%
Expected government DC contributions <sup>1</sup>	<u>23.4</u>	<u>4.06%</u>	<u>20.9</u>	<u>3.81%</u>
Total DB and DC contribution	\$ 170.0	<b>29.43%</b>	\$ 155.6	<b>28.43%</b>

<sup>1</sup> Includes budgeted administrative expenses.

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**5-YEAR HISTORICAL SUMMARY**

The following table summarizes the principal valuation results over the last 5 years.

	9/30/2022	9/30/2021	9/30/2020	9/30/2019	9/30/2018
<b>Participant Counts</b>					
Active (Old DB)	1,070	1,226	1,420	1,636	1,870
Active (DB 1.75)	2,906	2,994	3,020	3,214	3,318
Retired (Old DB)	7,283	7,291	7,275	7,291	7,247
Retired (DB 1.75)	249	197	124	69	26
Inactives (Old DB)	3,087	3,101	3,136	3,139	3,162
Inactives (DB 1.75)	<u>18</u>	<u>21</u>	<u>121</u>	<u>23</u>	<u>8</u>
Total (DB)	14,613	14,830	15,096	15,372	15,631
Active (DC)	7,571	7,070	6,810	6,286	5,921
<b>Actual Payroll (\$millions)</b>					
DB payroll (Old DB)	\$ 81.2	\$ 90.8	\$101.5	\$111.2	\$122.2
DB payroll (DB 1.75)	162.2	160.6	161.7	162.3	127.2
DC payroll	<u>312.1</u>	<u>281.2</u>	<u>256.3</u>	<u>235.5</u>	<u>264.5</u>
Total payroll	\$555.5	\$532.5	\$519.5	\$509.1	\$513.9
<b>Financial Status (\$millions)</b>					
Accrued liability	\$3,236.6	\$3,267.5	\$3,228.1	\$3,221.3	\$3,197.1
Actuarial assets	<u>2,063.6</u>	<u>2,125.3</u>	<u>2,053.9</u>	<u>2,066.0</u>	<u>2,021.9</u>
UAAL	\$1,173.0	\$1,142.2	\$1,174.2	\$1,155.4	\$1,175.2
Security ratio	63.76%	65.04%	63.62%	64.13%	63.24%
<b>Contribution Rate</b>					
DB Normal Cost (as % of DB payroll)	2.95%	3.89%	4.36%	4.19%	4.34%
<b>% of Total Payroll</b>					
UAAL Rate	24.18%	22.90%	22.63%	21.44%	20.70%
DB Normal Cost	1.19%	1.72%	2.08%	2.18%	2.39%
DC Contribution	<u>4.06%</u>	<u>3.81%</u>	<u>3.61%</u>	<u>3.35%</u>	<u>3.19%</u>
Actuarial Rate <sup>1</sup>	29.43%	28.43%	28.32%	26.97%	26.28%
Budget Rate <sup>2</sup>	**	28.43%	28.32%	26.97%	26.28%
<b>Investment Yield (Market Value)</b>	-17.7%	19.1%	4.1%	2.9%	5.7%

<sup>1</sup> "Actuarial Rate" is the contribution rate determined in the actuarial valuation. Contribution rates apply to the fiscal year beginning one year after the valuation date.

<sup>2</sup> "Budget Rate" is the contribution rate set by the legislature. The budget rate for 2023-24 has not yet been determined.

## ACTUARIAL ASSUMPTIONS

The following are the major assumptions used in the actuarial valuation. The assumptions are based upon the actuarial experience study for the period October 1, 2015, through September 30, 2020, and subsequent information as it pertains to the interest rate assumption. The rationale for each significant assumption is provided in that experience study and in the discussion below. To the extent that actual experience differs from the assumptions below, future pension costs will differ.

**Interest Rate:** The interest rate used to discount future benefit payments to the present was 7.0% as of September 30, 2022. This assumption is unchanged from the prior valuation. Milliman's expected returns on various asset classes over the next 30 years are shown below, assuming inflation averages 2.50% over the next 30 years. The target asset allocation is the expected long-term asset allocation and is based on the Fund's investment policy.

Asset Class	(a) Target Asset Allocation	(b) Expected Nominal Return	(a) x (b) Component Return
U.S. Equities (large cap)	26.0%	8.14%	2.12%
U.S. Equities (small cap)	4.0%	9.75%	0.39%
Non-U.S. Equities	17.0%	10.15%	1.73%
Non-U.S. Equities (emerging markets)	3.0%	12.08%	0.36%
U.S. Fixed Income (aggregate)	22.0%	4.77%	1.05%
Risk Parity	8.0%	6.65%	0.53%
High Yield Bonds	8.0%	6.90%	0.55%
Global Real Estate (REITs)	2.5%	9.62%	0.24%
Global Equity	7.5%	8.93%	0.67%
Global Infrastructure	2.0%	8.08%	0.16%
Expected arithmetic mean (1 year)			7.80%
Expected geometric mean (30 years)			7.09%

The discount rate assumption of 7.0% is about equal to the expected geometric mean over 30 years, but lower than the average arithmetic return for one year. The geometric mean is lower than the arithmetic mean due to the expected volatility of investments. Note that if investments fail to achieve the assumed interest rate, future required contributions will increase. The 2015-2020 experience study recommended a decrease to the interest rate assumption from 7.0% to 6.7%, however, due a change in the economic environment since that study was completed (primarily an increase in interest rates), the forward-looking expected return is now higher than it was for the 2015-2020 experience study analysis. Therefore, we have continued to use 7.0%.

**Mortality:** The mortality table used for retirees is the PUB-2010 General Healthy Retiree Amount-Weighted mortality table, set forward by 4 years for males and 2 years for females, then increased by 30% for ages less than 80. The mortality table used for active employees is the PUB-2010 General Employees Amount-Weighted mortality table, set forward by 4 years for males and 2 years for females, then increased by 30% for ages less than 80. The mortality table used for healthy beneficiaries is the PUB-2010 General Contingent Survivors Amount-Weighted mortality table, set forward by 3 years for males and 4 years for females, then increased by 30% for ages less than 80. The mortality table used for disabled lives is the PUB-2010 Disabled Retiree Amount-Weighted mortality table, set forward by 4 years for males and 2 years for females, then increased by 30% for

ages less than 80. Mortality improvement is projected generationally from 2010 using 50% of Mortality Improvement Scale MP-2020.

For the prior valuation, the mortality table used was the RP-2000 combined mortality table, set forward by 3 years for males and 2 years for females. The mortality table used for disabled lives was the RP-2000 disability mortality table, set forward by 6 years for males and 4 years for females. Mortality improvement was assumed to be 30% of Scale BB, projected generationally from 2016.

Salary Increases. Salaries are assumed to increase annually by 6.0% for employees in their first 5 years of service, 4.5% for service between 6 and 10 years, and 3.0% for service after 10 years.

For the prior valuation, salaries were assumed to increase annually by 7.5% for employees in their first 5 years of service, 6.0% for service between 6 and 10 years, 5.0% for service between 11 and 15 years, and 4.0% for service after 15 years.

Total Payroll Growth. The total payroll for defined benefit and defined contribution members is assumed to increase 2.50% per year. For the prior valuation, total payroll was assumed to increase 2.75% per year. For the 2022-23 fiscal year only, we have assumed total payroll growth of 4% due to Public Law 37-3 which included increases in salaries above the valuation assumptions.

Retirement Age. We have assumed 40% of employees will retire when first eligible for unreduced retirement. Thereafter, 20% of employees will retire at each year until age 75, at which time all remaining employees are assumed to retire.

For the prior valuation, we assumed 50% of employees would retire when first eligible for unreduced retirement. Thereafter, 20% of employees would retire at each year until age 75, at which time all remaining employees were assumed to retire.

Return of Contributions. We have assumed that any current Old DB Plan employees who terminate employment prior to retirement and who have less than 20 years of service will elect a return of contributions in lieu of a deferred benefit. Old DB Plan employees with at least 20 years of service who terminate employment are assumed to collect an annuity benefit when eligible. Old DB Plan employees with between 20 and 24 years of service who terminate employment and are ineligible for the service retirement benefit and DB 1.75 Plan employees who terminate employment with less than 25 years of service are assumed to retire at age 60.

Current terminated or inactive members with at least 5 years of service and a contributions balance that exceeds \$10,000 who have not withdrawn their contributions and for whom sufficient earnings data are available to value their retirement benefits are assumed to retire upon eligibility for unreduced benefits. All other terminated and inactive members are assumed to elect to withdraw their contributions. These assumptions are unchanged from the prior actuarial valuation.

Administrative Expenses. Total administrative expenses are assumed to be \$6,798,000, which is the amount budgeted for the year ending September 30, 2023. Of this amount, \$4,758,600 is allocated to the defined benefit plan and \$2,039,400 to the defined contribution plan.

For the prior valuation, we assumed an additional expense related to the DB 1.75 Plan of 5% of the normal cost of that plan.

***Rates of Withdrawal.*** The assumed rates of withdrawal are shown in Appendix B. The withdrawal rates were updated based on the actuarial experience study through September 30, 2020.

***Rates of Disability.*** The assumed rates of disability are shown in Appendix B. The disability rates were updated based on the actuarial experience study through September 30, 2020.

***Probability of Marriage.*** We have assumed that 75% of retirees will be married at retirement. This assumption is unchanged from the prior actuarial valuation.

***Leave Adjustments.*** For Old DB Plan members, we have assumed that unused leave will increase a member's service by 1.5 years, and that unused leave will increase average earnings by 3% at retirement.

For the prior valuation, we assumed that unused leave would increase a member's service by 1.5 years, and that unused leave would increase average earnings by 5% at retirement for Old DB Plan members.

***Survivor Benefit – Minor Children.*** We have assumed there to be an average of 0.2 eligible child survivors at the time of a retiree's death, with payments to the child survivor continuing for 6 years. Payments to current child survivors are assumed to be payable through age 21. These assumptions are unchanged from the prior actuarial valuation.

***Asset Valuation Method.*** Investment gains/losses relative to the assumed investment return are phased in over a period of 3 years. Certain receivables and liabilities whose payments are deducted from employer contributions to the Fund are excluded from the actuarial value of assets. This valuation method is unchanged from the prior valuation.

A complete summary of actuarial assumptions is in Appendix B.

## **FUNDING METHOD**

GCA Section 8137 required a contribution sufficient to fully fund the unfunded actuarial accrued liability by 2031 (within 80 years from May 1, 1951). P.L. 33-186 extended this period by 2 years to 2033. The required contribution shown in this report includes a payment for the normal cost of active members of the Fund, and amortizes the unfunded actuarial accrued liability over the remaining 10.58 years as a level percentage of total payroll (including both defined benefit and defined contribution members).

Based on the current funding method, the employer contribution rate is projected to drop substantially in 2034. The employer contribution rate will also become more and more volatile as the remaining period is reduced. For example, in the year 2032, any investment gains or losses for the prior year will be amortized over one year. As we did in the 2015-2020 experience study, we continue to recommend a change in the amortization method to one that splits the current unfunded actuarial accrued liability into 5 or more bases, which are amortized over a staggered period to provide a "phase down" of the employer contribution over a period of years. In addition, we recommend amortizing future changes to the unfunded actuarial accrued liability over 15 years from the date of the change. Please see illustration in Exhibit 15 of our 2015-2020 experience study report.

Exhibits 17 and 18 project the employer and employee contributions, fund balance, actuarial accrued liability and security ratio forward 40 years based upon the current funding method. Upon request, we can produce similar exhibits showing these metrics under proposed amortization methodology.

## SECTION II. FUND ASSETS

## EXHIBIT 1. SUMMARY OF DB PLAN ASSETS

Listed below are the assets reported for the defined benefit (DB) pension plan in the Fund's financial statements, excluding certain receivables and liabilities whose payments are deducted from employer contributions to the Fund.

	9/30/2022	9/30/2021
<b>Investments</b>		
Common stocks	\$ 1,200,878,984	\$ 1,569,712,500
U.S. government securities	245,915,400	290,366,005
Corporate bonds and notes	254,638,296	311,990,454
Money market funds	26,925,878	41,646,341
Mutual funds	<u>30,161,843</u>	<u>45,212,862</u>
Total investments	1,758,520,401	2,258,928,162
<b>Receivables</b>		
Employer contributions, net	2,166,632	2,364,114
Employer contributions, unfunded liability	2,432,115	2,270,797
Member contributions	737,078	848,107
Interest and penalties on contributions	95,356	341,264
Supplemental/insurance benefits advanced	1,996,097	1,996,097
Notes receivable for service credits	985,143	1,433,490
Accrued investment income	6,392,661	5,533,557
Other receivables	629,765	741,054
Due from brokers for unsettled trades	14,255,724	5,669,029
Due from DC plan	<u>260,942</u>	<u>263,322</u>
Total receivables	29,951,513	21,460,831
Cash and cash equivalents	6,191,045	4,400,362
Prepaid expenses	18,750	0
Property and equipment	<u>560,804</u>	<u>536,969</u>
Total assets	\$ 1,795,242,513	\$ 2,285,326,324
<b>Liabilities</b>		
Accounts payable and accrued expenses	\$ 4,253,796	\$ 3,664,175
Due to brokers for unsettled trades	<u>13,432,086</u>	<u>17,914,127</u>
Total liabilities	\$ 17,685,882	\$ 21,578,302
<b>Valuation Assets</b>	<u>\$ 1,777,556,631</u>	<u>\$ 2,263,748,022</u>
<b>Excluded Assets <sup>1</sup></b>		
Supplemental/COLA benefits receivable	\$ 0	\$ 1,698,785
Deferred revenue for service credits	<u>0</u>	<u>(1,525,025)</u>
Total excluded assets	\$ 0	\$ 173,760

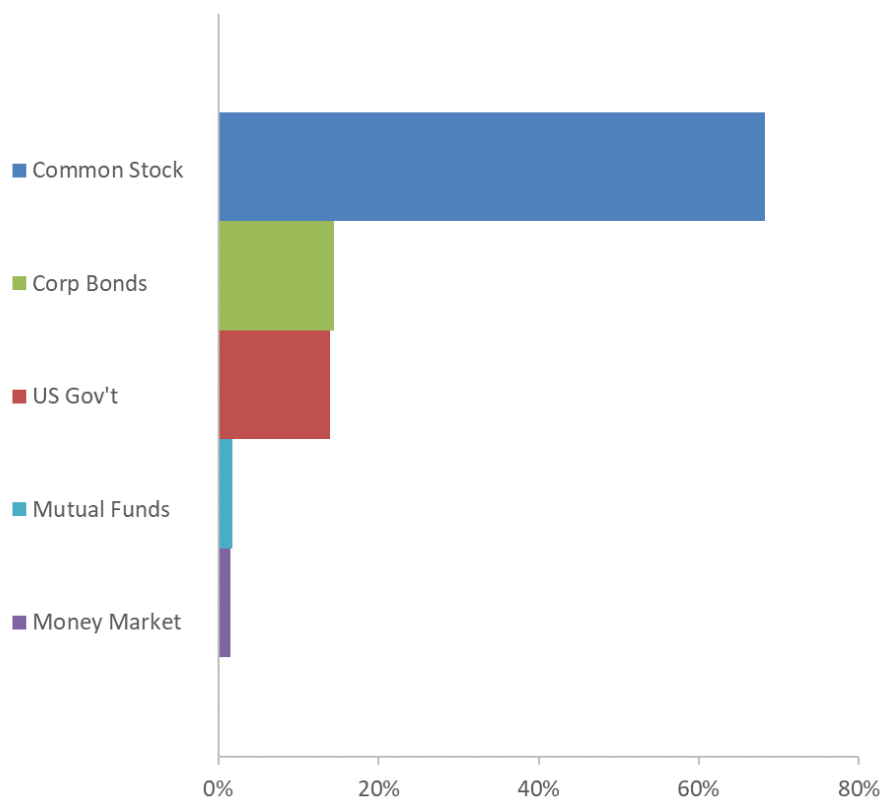
<sup>1</sup> Excluded because payments towards these receivables are deducted from employer contributions.

**SECTION II. FUND ASSETS**

**EXHIBIT 2. DB PLAN ASSET ALLOCATION**

The allocation of assets among various investment classes is an important determinant of expected future investment returns.

	DB ASSET ALLOCATION	
	9/30/2022	9/30/2021
Common stocks	68.3%	69.5%
Corporate bonds and notes	14.5%	13.8%
U.S. government securities	14.0%	12.9%
Mutual funds	1.7%	1.8%
Money market funds	<u>1.5%</u>	<u>2.0%</u>
<b>Total</b>	100.0%	100.0%



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## SECTION II. FUND ASSETS

## EXHIBIT 3. CHANGES IN DB PLAN ASSETS

Assets increase or decrease each year due to employer contributions, investment income, benefit payments to retiring participants, plan expenses paid by the trust fund, and any realized and unrealized gains and losses from investments.

	FISCAL YEAR ENDING	
	9/30/2022	9/30/2021
<b>Beginning Balance</b>	\$ 2,263,748,022	\$ 1,988,983,810
<b>Contributions</b>		
Employer contributions	134,834,836	120,017,766
Member contributions	25,342,204	24,649,425
Decrease/(increase) in excluded assets	<u>173,760</u>	<u>5,842,028</u>
Total contributions	160,350,800	150,509,219
<b>Investment Income</b>		
Net appreciation in fair value	(427,351,840)	340,457,123
Interest	22,012,416	22,428,148
Dividends	18,486,701	13,838,784
Other investment income	657,539	288,248
Investment expenses	<u>(5,522,446)</u>	<u>(5,441,584)</u>
Total investment income	(391,717,627)	371,570,719
<b>Benefit Payments</b>		
Age and service annuities	211,752,842	205,464,871
Disability annuities	4,416,581	4,634,942
Survivor annuities	32,575,864	31,490,298
Refunds to separated employees	2,155,285	1,940,106
Interest on refunded contributions	<u>475,244</u>	<u>630,421</u>
Total benefit payments	251,375,816	244,160,638
<b>Administrative Expenses</b>	3,448,748	3,155,088
<b>Ending Balance</b>	\$ 1,777,556,631	\$ 2,263,748,022

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**SECTION II. FUND ASSETS**

**EXHIBIT 4. ACTUARIAL VALUE OF ASSETS**

The actuarial value of assets is equal to the market value of DB plan assets adjusted to phase in gains and losses relative to the assumed rate of return over a 3-year period, and to exclude certain receivables and liabilities whose payments are deducted from employer contributions to the Fund.

	9/30/2022	9/30/2021
Valuation assets at market value	\$ 1,777,556,631	\$ 2,263,748,022
(Gains)/Losses excluded from actuarial value (see below)	<u>286,061,962</u>	<u>(138,429,261)</u>
Actuarial value of assets	\$ 2,063,618,593	\$ 2,125,318,761
Actuarial value as % of market value	116.1%	93.9%

**3-Year Phase-in of Gains and (Losses)**

Year	Expected Return <sup>1</sup>	Actual Return	Gain/(Loss)	Percent Excluded	Excluded From Market Value
2021/2022	\$ 155,211,704	\$ (391,717,627)	\$ (546,929,331)	66.67%	\$(364,619,554)
2020/2021	135,897,944	371,570,719	235,672,775	33.33%	78,557,592
2019/2020	136,936,781	80,879,016	(56,057,765)	0.00%	<u>0</u>
Total					\$(286,061,962)

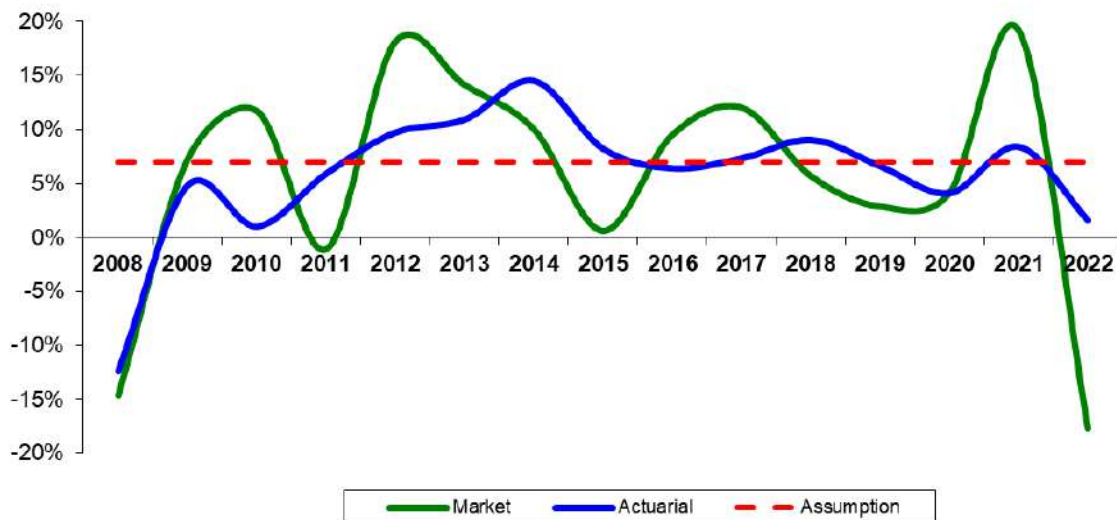
<sup>1</sup> Expected return is based on the assumed investment return, which is 7.0%.

**SECTION II. FUND ASSETS**

**EXHIBIT 5. HISTORICAL RETURNS ON DB PLAN ASSETS**

The following table shows the historical return on DB plan assets over the last 15 years. The assumed actuarial valuation rate is 7.0%.

Fiscal Year Ending 9/30	Return on Market Value	Return on Actuarial Value
2022	(17.7)%	1.6%
2021	19.1%	8.4%
2020	4.1%	4.1%
2019	2.9%	6.6%
2018	5.7%	9.0%
2017	12.0%	7.3%
2016	9.5%	6.4%
2015	0.6%	8.2%
2014	10.0%	14.5%
2013	14.1%	10.9%
2012	18.1%	9.7%
2011	(1.1)%	5.9%
2010	11.7%	1.0%
2009	7.2%	4.8%
2008	(14.6)%	(12.4)%
Average of last 5 years	2.1%	5.9%
Average of last 10 years	5.6%	7.6%
Average of last 15 years	4.9%	5.6%



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**SECTION III. MEMBERSHIP DATA**

**EXHIBIT 6a. ACTIVE EMPLOYEES (Old DB Plan)**

	9/30/2022	9/30/2021
<b>Active Employees – Non-Uniformed</b>		
Number vested	912	1,050
Number not vested	<u>18</u>	<u>22</u>
Total	930	1,072
Average age	57.4	56.7
Average service	28.9	28.2
Average earnings	\$ 62,793	\$ 62,333
Average accumulated contributions	\$ 215,407	\$ 202,820
<b>Active Employees – Uniformed</b>		
Number vested	140	154
Number not vested	<u>0</u>	<u>0</u>
Total	140	154
Average age	55.1	54.2
Average service	29.6	28.9
Average earnings	\$ 89,906	\$ 92,030
Average accumulated contributions	\$ 265,404	\$ 252,099
<b>Active Employees – Total Old DB Plan</b>		
Number vested	1,052	1,204
Number not vested	<u>18</u>	<u>22</u>
Total	1,070	1,226
Average age	57.1	56.4
Average service	29.0	28.3
Average earnings	\$ 66,340	\$ 66,063
Average accumulated contributions	\$ 221,948	\$ 209,010

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**SECTION III. MEMBERSHIP DATA**

**EXHIBIT 6b. ACTIVE EMPLOYEES (DB 1.75 Plan)**

	9/30/2022	9/30/2021
<b>Active Employees – DB 1.75 Plan</b>		
Number vested	2,885	2,730
Number not vested	<u>21</u>	<u>264</u>
Total	2,906	2,994
Average age	47.7	47.0
Average service	15.1	14.5
Average earnings	\$ 53,010	\$ 53,194
Average accumulated contributions	\$ 65,707	\$ 59,411
<b>Active Employees – Total Old DB and DB 1.75</b>		
Number vested	3,937	3,934
Number not vested	<u>39</u>	<u>286</u>
Total	3,976	4,220
Average age	50.2	49.7
Average service	18.8	18.5
Average earnings	\$ 56,519	\$ 56,933
Average accumulated contributions	\$ 106,843	\$ 102,873

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**SECTION III. MEMBERSHIP DATA**

**EXHIBIT 7. ACTIVE EMPLOYEES BY AGENCY**

	9/30/22 DC	9/30/22 DB 1.75	9/30/22 Old DB	9/30/21 DC	9/30/21 DB 1.75	9/30/21 Old DB
Bureau of Budget & Management Research	7	11	1	6	11	1
Bureau of Statistics and Plans	19	10	4	19	9	5
Bureau of Women Affairs	2	1	0	0	1	0
Chief Medical Examiner	1	0	0	2	0	0
Customs & Quarantine	73	29	25	80	29	26
Dept of Administration <sup>1</sup>	109	55	28	69	53	31
Dept of Agriculture	58	15	11	52	16	12
Dept of Corrections	114	71	14	109	72	16
Dept of Labor <sup>2</sup>	90	15	6	85	17	9
Dept of Land Management	25	4	13	16	4	14
Dept of Law	104	71	21	107	70	22
Dept of Mental Health & Substance Abuse	234	51	13	217	50	15
Dept of Military Affairs	37	15	4	34	15	6
Dept of Parks and Recreation	27	12	7	26	13	8
Dept of Public Health & Social Services	350	120	42	308	129	47
Dept of Public Works	247	71	45	250	70	57
Dept of Revenue and Taxation	116	49	13	105	53	17
Dept of Youth Affairs	36	23	15	37	24	14
D.I.S.I.D.	14	5	3	8	5	4
Governor's Office	162	7	7	118	9	6
Guam Energy Office	3	2	1	3	2	1
Guam Environmental Protection Agency	27	21	3	20	22	6
Guam Fire Dept	75	141	29	54	142	33
Guam Legislature	43	15	5	47	15	4
Guam Police Dept	160	116	44	168	123	43
Judiciary Of Guam	265	111	28	263	115	30
KGTF	10	1	1	6	1	1
Lt. Governor's Office	20	1	1	16	2	1
Mayor's Council	225	19	7	233	19	9
Office of Technology	12	3	4	6	3	4
Public Auditors	12	1	0	11	5	0
Public Defender	49	13	9	43	14	10
<b>General Fund Total</b>	<b>2,726</b>	<b>1,079</b>	<b>404</b>	<b>2,518</b>	<b>1,113</b>	<b>452</b>
Dept of Chamorro Affairs <sup>2</sup>	45	7	4	37	5	5
Dept of Education	2,358	804	363	2,265	832	402
Government of Guam Retirement Fund	23	17	3	16	17	3
Guam Airport Authority	113	89	40	113	89	46
Guam Community College	135	81	22	122	84	31
Guam Economic Development Agency	41	7	3	21	7	3
Guam Housing & Urban Renewal Agency	60	39	14	56	41	14
Guam Housing Corporation	12	9	3	11	9	4
Guam Memorial Hospital Authority	929	207	37	875	222	53
Guam Power Authority	191	175	58	167	178	73
Guam Visitors Bureau	41	17	1	23	17	1
Guam Waterworks Authority	257	98	15	253	100	17
Port Authority Of Guam	203	128	40	187	134	44
University Of Guam	437	149	63	406	146	78
<b>Others Total</b>	<b>4,845</b>	<b>1,827</b>	<b>666</b>	<b>4,552</b>	<b>1,881</b>	<b>774</b>
<b>GRAND TOTAL</b>	<b>7,571</b>	<b>2,906</b>	<b>1,070</b>	<b>7,070</b>	<b>2,994</b>	<b>1,226</b>

<sup>1</sup> Department of Administration includes Civil Service Commission, Guam Ethics Commission and Guam Election Commission

<sup>2</sup> Department of Chamorro Affairs<sup>1</sup> includes Guam CAHA, Guam Public Library, and Chamorro Land Trust

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**SECTION III. MEMBERSHIP DATA**

**EXHIBIT 8a. RETIRED EMPLOYEES (Old DB Plan)**

	9/30/2022	9/30/2021
<b>Service Retirees</b>		
Count	5,196	5,254
Average age	71.2	70.9
Average benefit	\$39,788	\$38,644
Median benefit	\$35,730	\$34,792
<b>Disabled Retirees</b>		
Count	170	188
Average age	70.5	70.0
Average benefit	\$23,736	\$23,392
Median benefit	\$22,213	\$21,487
<b>Survivors</b>		
Count	1,747	1,727
Average age	73.5	73.2
Average benefit	\$18,970	\$18,381
Median benefit	\$16,811	\$16,142
<b>Child Pensioners</b>		
Count	170	122
Average age	15.6	14.8
Average benefit	\$2,880	\$2,880
Median benefit	\$2,880	\$2,880
<b>Total Retirees and Survivors <sup>1</sup></b>		
Count	7,113	7,169
Average age	71.7	71.4
Average benefit	\$34,550	\$33,631
Median benefit	\$30,598	\$29,929

<sup>1</sup> Excludes child pensioners.

**SECTION III. MEMBERSHIP DATA**

**EXHIBIT 8b. RETIRED EMPLOYEES (DB 1.75 Plan)**

	9/30/2022	9/30/2021
<b>Service Retirees</b>		
Count	212	161
Average age	67.3	66.5
Average benefit	\$23,847	\$21,615
Median benefit	\$21,249	\$19,471
<b>Disabled Retirees</b>		
Count	6	8
Average age	57.8	55.9
Average benefit	*	*
Median benefit	*	*
<b>Survivors</b>		
Count	31	26
Average age	56.0	50.0
Average benefit	\$8,840	\$7,494
Median benefit	\$8,220	\$6,433
<b>Child Pensioners</b>		
Count	0	2
Average age	n/a	18.9
Average benefit	n/a	*
Median benefit	n/a	*
<b>Total Retirees and Survivors <sup>1</sup></b>		
Count	249	195
Average age	65.6	63.9
Average benefit	\$21,932	\$19,652
Median benefit	\$18,857	\$17,248

\* Not shown since less than 20 members.

<sup>1</sup> Excludes child pensioners.

**SECTION III. MEMBERSHIP DATA**

**EXHIBIT 9. TERMINATED AND INACTIVE MEMBERS (DB)**

	9/30/2022	9/30/2021
<b>Assumed to Withdraw Contributions</b>		
Count	2,998	3,022
Accumulated contributions (Old DB)	\$ 1,760,031	\$ 1,833,640
Accumulated contributions (DB 1.75)	<u>49,043</u>	<u>54,537</u>
Accumulated contributions (Total DB)	\$ 1,809,073	\$ 1,888,177
<b>Not Assumed to Withdraw Contributions</b>		
Count	107	100
Average age	61.5	61.0
Average accrued benefit	\$ 13,988	\$ 14,901
Accumulated contributions	\$ 6,078,916	\$ 6,374,593

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**SECTION III. MEMBERSHIP DATA**

**EXHIBIT 10. RECONCILIATION OF MEMBERSHIP DATA**

**Old DB Plan**

	Active	Inactive Assumed to Refund	Inactive Assumed to Retire	Retiree	Survivor	Disabled	Child	Total
<b>9/30/2021</b>	1,226	3,001	100	5,254	1,727	188	122	11,618
New	0	0	0	0	122	0	67	189
Terminated	(19)	7	12	0	0	0	0	0
Retired	(143)	(2)	(3)	148	0	0	0	0
Disabled	0	0	0	0	0	0	0	0
Rehired	6	(4)	(2)	0	0	0	0	0
Deceased/Refunded	0	(22)	0	(206)	(102)	(18)	0	(348)
Benefit Expired	0	0	0	0	0	0	(19)	(19)
Net change	(156)	(21)	7	(58)	20	(18)	48	(178)
<b>9/30/2022</b>	1,070	2,980	107	5,196	1,747	170	170	11,440

**DB 1.75 Plan**

	Active	Inactive Assumed to Refund	Inactive Assumed to Retire	Retiree	Survivor	Disabled	Child	Total
<b>9/30/2021</b>	2,994	21	0	161	26	8	2	3,212
New	0	0	0	11	11	0	0	22
Terminated	(40)	40	0	0	0	0	0	0
Retired	(50)	0	0	50	0	0	0	0
Disabled	0	0	0	0	0	0	0	0
Rehired	2	(2)	0	0	0	0	0	0
Deceased/Refunded	0	(41)	0	(10)	(6)	(2)	0	(59)
Benefit Expired	0	0	0	0	0	0	(2)	(2)
Net change	(88)	(3)	0	51	5	(2)	(2)	(39)
<b>9/30/2022</b>	2,906	18	0	212	31	6	0	3,173

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## SECTION IV. VALUATION EXHIBITS

## EXHIBIT 11a. ACTUARIAL ACCRUED LIABILITY (Old DB Plan)

The actuarial accrued liability has been calculated using the Entry Age Normal actuarial cost method, and is equal to the present value of benefits for all Old DB Plan members less the present value of future normal costs for active Old DB Plan employees.

	Old DB Plan 9/30/2022	Old DB Plan 9/30/2021
<b>Present Value of Benefits</b>		
Active employees –		
Retirement	\$ 552,402,300	\$ 611,018,730
Disability	3,034,469	6,811,864
Death	6,366,833	13,590,128
Withdrawal	<u>4,065,959</u>	<u>5,974,742</u>
Total active PVB	565,869,561	637,395,464
Retirees and Survivors		
Retirees	1,967,394,938	1,904,572,607
Disabled retirees	34,539,987	35,873,207
Survivors	<u>267,406,133</u>	<u>266,329,454</u>
Total retirees and survivors	2,269,341,058	2,206,775,268
Terminated and inactive members		
Assumed to retire	7,637,791	15,761,923
Assumed to elect return of contributions	<u>1,760,031</u>	<u>1,833,640</u>
Total terminated and inactive members	9,397,822	17,595,563
Total PVB	\$ 2,844,608,441	\$ 2,861,766,295
<b>Present Value of Future Normal Cost</b>		
Active employees –		
Retirement	\$ 27,938,851	\$ 33,257,156
Disability	700,500	1,509,728
Death	936,313	1,615,076
Withdrawal	<u>8,023,232</u>	<u>14,034,201</u>
Total active PVFNC	\$ 37,598,896	\$ 50,416,161
<b>Actuarial Accrued Liability</b>		
Active members	\$ 528,270,665	\$ 586,979,303
Retirees and survivors	2,269,341,058	2,206,775,268
Terminations and inactives	<u>9,397,822</u>	<u>17,595,563</u>
Total accrued liability	\$ 2,807,009,545	\$ 2,811,350,134

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## SECTION IV. VALUATION EXHIBITS

## EXHIBIT 11b. ACTUARIAL ACCRUED LIABILITY (DB 1.75 Plan)

The actuarial accrued liability has been calculated using the Entry Age Normal actuarial cost method, and is equal to the present value of benefits for all DB 1.75 Plan members less the present value of future normal costs for active DB 1.75 Plan employees.

	DB 1.75 Plan 9/30/2022	DB 1.75 Plan 9/30/2021
<b>Present Value of Benefits</b>		
Active employees –		
Retirement	\$ 406,238,380	\$ 393,388,198
Disability	11,056,771	26,822,014
Death	19,377,023	34,137,543
Withdrawal	<u>71,909,568</u>	<u>103,772,925</u>
Total active PVB	508,581,742	558,120,680
Retirees and Survivors		
Retirees	53,068,045	36,373,861
Disabled retirees	1,770,864	2,088,921
Survivors	<u>3,820,545</u>	<u>3,083,660</u>
Total retirees and survivors	58,659,454	41,546,442
Terminated and inactive members		
Assumed to retire	0	0
Assumed to elect return of contributions	<u>49,043</u>	<u>54,537</u>
Total terminated and inactive members	49,043	54,537
Total PVB	\$ 567,290,239	\$ 599,721,659
<b>Present Value of Future Normal Cost</b>		
Active employees –		
Retirement	\$ 87,004,492	\$ 84,995,097
Disability	4,568,596	9,101,655
Death	6,609,769	10,072,962
Withdrawal	<u>39,500,583</u>	<u>39,364,541</u>
Total active PVFNC	\$ 137,683,440	\$ 143,534,255
<b>Actuarial Accrued Liability</b>		
Active members	\$ 370,898,302	\$ 414,586,425
Retirees and survivors	58,659,454	41,546,442
Terminations and inactives	<u>49,043</u>	<u>54,537</u>
Total accrued liability	\$ 429,606,799	\$ 456,187,404

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**SECTION IV. VALUATION EXHIBITS**

**EXHIBIT 12. CALCULATION OF UNFUNDED ACTUARIAL ACCRUED LIABILITY**

The unfunded actuarial accrued liability is used to determine the funding requirements. The unfunded actuarial accrued liability equals the actuarial accrued liability less the valuation assets.

	9/30/2022	9/30/2021
<b>OLD DB PLAN</b>		
Actuarial Accrued Liability		
Active members	\$ 528,270,665	\$ 586,979,303
Retirees and survivors	2,269,341,058	2,206,775,268
Terminations and inactives	<u>9,397,822</u>	<u>17,595,563</u>
Total accrued liability	\$ 2,807,009,545	\$ 2,811,350,134
<b>DB 1.75 PLAN</b>		
Actuarial Accrued Liability		
Active members	\$ 370,898,302	\$ 414,586,425
Retirees and survivors	58,659,454	41,546,442
Terminations and inactives	<u>49,043</u>	<u>54,537</u>
Total accrued liability	\$ 429,606,799	\$ 456,187,404
<b>TOTAL (Old DB Plan plus DB 1.75 Plan)</b>		
Actuarial Accrued Liability		
Active members	\$ 899,168,967	\$ 1,001,565,728
Retirees and survivors	2,328,000,512	2,248,321,710
Terminations and inactives	<u>9,446,864</u>	<u>17,650,100</u>
Total accrued liability	\$ 3,236,616,343	\$ 3,267,537,538
Actuarial Value of Assets	<u>2,063,618,593</u>	<u>2,125,318,761</u>
Unfunded Actuarial Accrued Liability	\$ 1,172,997,750	\$ 1,142,218,777
Security Ratio = (Assets/AAL)	63.76%	65.04%

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## SECTION IV. VALUATION EXHIBITS

## EXHIBIT 13. CALCULATION OF ACTUARIAL GAIN/LOSS

	Year Ending 9/30/2022	Year Ending 9/30/2021
<b>Unfunded Actuarial Accrued Liability, beginning of year</b>	\$ 1,142,218,777	\$ 1,174,240,867
<b>Additions:</b>		
Employer normal cost	9,109,941	10,710,257
Interest to end of year	<u>80,593,010</u>	<u>82,946,579</u>
Total additions	89,702,951	93,656,836
<b>Deductions:</b>		
Employer contributions for year	(135,008,596)	(125,859,794)
Interest on contributions	<u>(4,645,382)</u>	<u>(4,330,589)</u>
Total deductions	(139,653,978)	(130,190,383)
<b>Other Changes:</b>		
Plan amendments	0	0
Changes in assumptions and methods	<u>(8,175,829)</u>	<u>0</u>
Net other changes	(8,175,829)	0
<b>Expected UAAL, end of year</b>	\$ 1,084,091,921	\$ 1,137,707,320
<b>Actual UAAL, end of year</b>	<u>1,172,997,750</u>	<u>1,142,218,777</u>
<b>Actuarial Gain/(Loss)</b>	\$ (88,905,829)	\$ (4,511,457)
<b>Components of Actuarial Gain/(Loss):</b>		
Investment gain/(loss) on actuarial value of assets	\$ (112,748,059)	\$ 27,818,083
Other gains/(losses)	<u>23,842,230</u>	<u>(32,329,540)</u>
Total actuarial gain/(loss)	\$ (88,905,829)	\$ (4,511,457)

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**SECTION IV. VALUATION EXHIBITS**

**EXHIBIT 14. NORMAL COST**

The normal cost has been calculated using the Entry Age Normal actuarial cost method.

	9/30/2022		9/30/2021	
<b>OLD DB Plan</b>				
Expected payroll for next fiscal year	\$ 69,329,992		\$ 77,800,000	
Normal cost <sup>1</sup>		<i>% of Old DB Payroll</i>		<i>% of Old DB Payroll</i>
Retirement	\$ 6,826,078	9.85%	\$ 8,035,324	10.33%
Disability	169,015	0.24%	361,165	0.46%
Death	227,287	0.33%	389,048	0.50%
Withdrawal	<u>1,922,385</u>	<u>2.77%</u>	<u>3,344,915</u>	<u>4.30%</u>
Total active normal cost	\$ 9,144,766	13.19%	\$ 12,130,451	15.59%
Assumed DB administrative expenses	<u>1,418,584</u>	<u>2.05%</u>	<u>4,595,500</u>	<u>5.91%</u>
Total normal cost and expenses	\$ 10,563,350	15.24%	\$ 16,725,951	21.50%
Expected member contributions	<u>(6,630,884)</u>	<u>(9.56%)</u>	<u>(7,441,012)</u>	<u>(9.56%)</u>
Government portion of normal cost	\$ 3,932,466	5.67%	\$ 9,284,940	11.93%
<b>DB 1.75 Plan</b>				
Expected payroll for next fiscal year	\$ 163,235,496		\$ 164,719,455	
Normal cost <sup>1</sup>		<i>% of DB 1.75 Payroll</i>		<i>% of DB 1.75 Payroll</i>
Retirement	\$ 10,019,580	6.14%	\$ 9,513,330	5.78%
Disability	507,086	0.31%	935,216	0.57%
Death	711,923	0.44%	1,070,451	0.65%
Withdrawal	<u>3,859,312</u>	<u>2.36%</u>	<u>3,516,054</u>	<u>2.13%</u>
Total active normal cost	\$ 15,097,902	9.25%	\$ 15,035,051	9.13%
Assumed DB administrative expenses	<u>3,340,016</u>	<u>2.05%</u>	<u>751,753</u>	<u>0.46%</u>
Total normal cost and expenses	\$ 18,437,918	11.30%	\$ 15,786,803	9.58%
Expected member contributions	<u>(15,507,372)</u>	<u>(9.50%)</u>	<u>(15,648,348)</u>	<u>(9.50%)</u>
Government portion of normal cost	\$ 2,930,546	1.80%	\$ 138,455	0.08%
<b>TOTAL DB Plans</b>				
Expected payroll for next fiscal year	\$ 232,565,488		\$ 242,519,455	
Total active normal cost <sup>1</sup>	\$ 24,242,668	<i>% of DB Payroll</i>	\$ 27,165,502	<i>% of DB Payroll</i>
Assumed DB administrative expenses	<u>4,758,600</u>	<u>2.05%</u>	<u>5,347,253</u>	<u>2.20%</u>
Total normal cost and expenses	\$ 29,001,268	12.47%	\$ 32,512,755	13.41%
Expected member contributions	<u>(22,138,256)</u>	<u>(9.52%)</u>	<u>(23,089,360)</u>	<u>(9.52%)</u>
Government portion of normal cost	\$ 6,863,012	2.95%	\$ 9,423,395	3.89%

<sup>1</sup> Includes interest to mid-year.

**SECTION IV. VALUATION EXHIBITS**

**EXHIBIT 15. AMORTIZATION OF UNFUNDED ACTUARIAL ACCRUED LIABILITY**

Pursuant to GCA Section 8137, as modified by P.L. 33-186, the unfunded liabilities of the Government of Guam Retirement Fund are to be completely funded within 82 years from May 1, 1951. As of September 30, 2022, there are 10.58 years remaining in the funding period. The amortization of the unfunded actuarial accrued liability is calculated as a constant percentage of total payroll, which is assumed to grow at 2.50% per year.

	9/30/2022	9/30/2021
Total payroll (DB and DC) for fiscal year following	\$ 577,700,554	\$ 547,124,284
Unfunded actuarial accrued liability	1,172,997,750	1,142,218,777
Remaining funding period	10.58 years	11.58 years
Annual amortization	\$ 139,696,287	\$ 125,284,657
As % of total payroll (DB and DC)	24.18%	22.90%

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**SECTION IV. VALUATION EXHIBITS**

**EXHIBIT 16. ACTUARIALLY DETERMINED CONTRIBUTION**

The Actuarially Determined Contribution (ADC) is equal to the sum of (1) the government normal costs for the defined benefit plans (Old DB and DB 1.75), (2) the amortization payment towards the unfunded actuarial accrued liability of the defined benefit plans (Old DB and DB 1.75), and (3) the expected government contributions to the defined contribution (DC) plan. The required contribution is then divided by the sum of the DB and DC payroll to determine the contribution rate as a percentage of payroll.

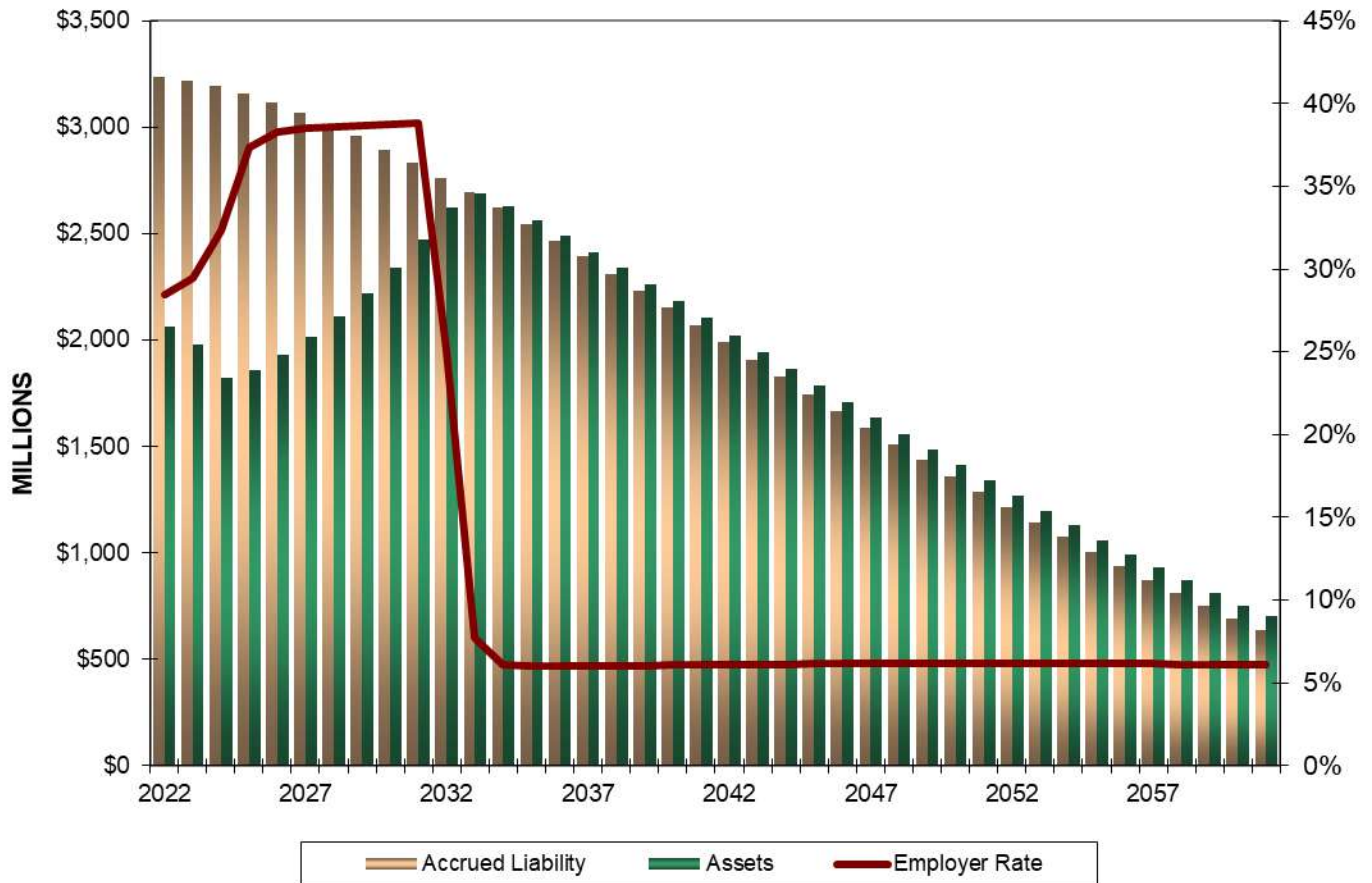
	9/30/2022	9/30/2021
Expected payroll for next fiscal year		
Old defined benefit (Old DB)	\$ 69,329,992	\$ 77,800,000
Defined Benefit 1.75 (DB 1.75)	163,235,496	164,719,455
Defined contribution (DC)	<u>345,135,066</u>	<u>304,604,829</u>
Total payroll (DB and DC)	\$ 577,700,554	\$ 547,124,284
Government normal cost including expenses (DB)	\$ 6,863,012	\$ 9,423,395
As % of DB payroll	2.95%	3.89%
As % of total payroll (DB and DC)	1.19%	1.72%
Amortization of UAAL (DB)	\$ 139,696,287	\$ 125,284,657
As % of total payroll (DB and DC)	24.18%	22.90%
Government DC contributions	\$ 23,437,774	\$ 20,854,999
As % of DC payroll	6.79%	6.85%
As % of total payroll (DB and DC)	4.06%	3.81%
Total DB and DC contributions	\$ 169,997,073	\$ 155,563,051
% of total payroll (DB and DC)	29.43%	28.43%

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**SECTION IV. VALUATION EXHIBITS**

**EXHIBIT 17. PROJECTION OF CONTRIBUTION RATE<sup>1</sup>**



<sup>1</sup> The contribution rate is the combined employer rate for the DB and DC plans.

**SECTION IV. VALUATION EXHIBITS**

**EXHIBIT 17. PROJECTION OF CONTRIBUTION RATE (values)**

Year Ending	PAYROLL <sup>1</sup>		CONTRIB RATE		CONTRIBUTIONS			Invest Gain <sup>3</sup>	Benefits/ Expenses	DB Fund Actuarial
	DB	DC	DB	DC <sup>2</sup>	DB	DC <sup>2</sup>	EE			
2022										\$2,063.60
2023	\$243.40	\$312.08	28.43%	21.58%	\$69.21	\$67.35	\$22.09	\$120.92	\$(262.72)	1,980.88
2024	232.57	336.80	29.43%	22.64%	68.44	78.14	20.63	122.46	(269.36)	1,821.10
2025	217.11	366.50	32.35%	25.61%	70.23	96.03	19.38	124.52	(274.40)	1,859.77
2026	203.98	394.21	37.39%	30.68%	76.27	123.65	18.27	128.26	(277.83)	1,932.25
2027	192.26	420.88	38.26%	31.59%	73.56	135.77	17.23	133.57	(279.84)	2,016.73
2028	181.38	447.10	38.48%	31.83%	69.79	145.25	16.30	139.63	(280.69)	2,111.45
2029	171.63	472.56	38.58%	31.96%	66.21	154.03	15.46	146.42	(280.58)	2,217.63
2030	162.74	497.56	38.66%	32.06%	62.91	162.60	14.67	154.05	(279.30)	2,337.38
2031	154.39	522.41	38.73%	32.15%	59.80	171.12	13.91	162.66	(277.49)	2,472.38
2032	146.38	547.34	38.80%	32.23%	56.80	179.70	13.19	172.37	(275.07)	2,624.54
2033	138.85	572.22	25.05%	18.50%	34.78	107.78	12.53	179.80	(271.72)	2,690.60
2034	131.90	596.94	7.73%	1.19%	10.20	7.26	11.83	180.11	(268.33)	2,631.40
2035	124.51	622.55	6.10%	0.00%	7.59	-	11.12	175.72	(264.76)	2,560.61
2036	117.01	648.73	6.00%	0.00%	7.02	-	10.46	170.86	(260.69)	2,487.84
2037	110.07	674.81	6.01%	0.00%	6.61	-	9.81	165.88	(256.39)	2,413.35
2038	103.29	701.21	6.03%	0.00%	6.23	-	9.18	160.79	(251.82)	2,337.32
2039	96.63	727.99	6.04%	0.00%	5.84	-	8.56	155.60	(246.97)	2,259.95
2040	90.10	755.13	6.06%	0.00%	5.46	-	7.97	150.33	(241.64)	2,181.69
2041	83.84	782.52	6.07%	0.00%	5.09	-	7.40	145.01	(236.03)	2,102.80
2042	77.88	810.14	6.09%	0.00%	4.74	-	6.87	139.67	(230.04)	2,023.71
2043	72.35	837.88	6.11%	0.00%	4.42	-	6.37	134.32	(223.85)	1,944.64
2044	67.06	865.92	6.12%	0.00%	4.10	-	5.89	128.98	(217.35)	1,865.96
2045	61.98	894.32	6.13%	0.00%	3.80	-	5.43	123.67	(210.71)	1,787.85
2046	57.12	923.09	6.15%	0.00%	3.51	-	4.99	118.41	(204.09)	1,710.40
2047	52.55	952.17	6.16%	0.00%	3.24	-	4.58	113.20	(197.28)	1,633.87
2048	48.22	981.61	6.17%	0.00%	2.98	-	4.17	108.05	(190.44)	1,558.36
2049	43.88	1,011.70	6.18%	0.00%	2.71	-	3.78	102.98	(183.54)	1,484.05
2050	39.79	1,042.17	6.18%	0.00%	2.46	-	3.41	98.00	(176.76)	1,410.91
2051	35.90	1,073.12	6.17%	0.00%	2.21	-	3.04	93.08	(170.20)	1,338.80
2052	31.98	1,104.76	6.17%	0.00%	1.97	-	2.66	88.23	(163.75)	1,267.67
2053	27.99	1,137.17	6.17%	0.00%	1.73	-	2.27	83.45	(157.41)	1,197.45
2054	23.85	1,170.44	6.17%	0.00%	1.47	-	1.88	78.73	(150.99)	1,128.30
2055	19.82	1,204.32	6.17%	0.00%	1.22	-	1.54	74.10	(144.46)	1,060.47
2056	16.18	1,238.57	6.17%	0.00%	1.00	-	1.25	69.57	(137.69)	994.40
2057	13.12	1,273.00	6.16%	0.00%	0.81	-	1.01	65.17	(130.75)	930.47
2058	10.59	1,307.68	6.15%	0.00%	0.65	-	0.81	60.92	(123.76)	868.96
2059	8.50	1,342.73	6.14%	0.00%	0.52	-	0.65	56.85	(116.71)	810.17
2060	6.82	1,378.19	6.13%	0.00%	0.42	-	0.52	52.97	(109.72)	754.26
2061	5.43	1,414.20	6.11%	0.00%	0.33	-	0.40	49.28	(102.89)	701.31

<sup>1</sup> Payroll is assumed to increase 2.50% per year.

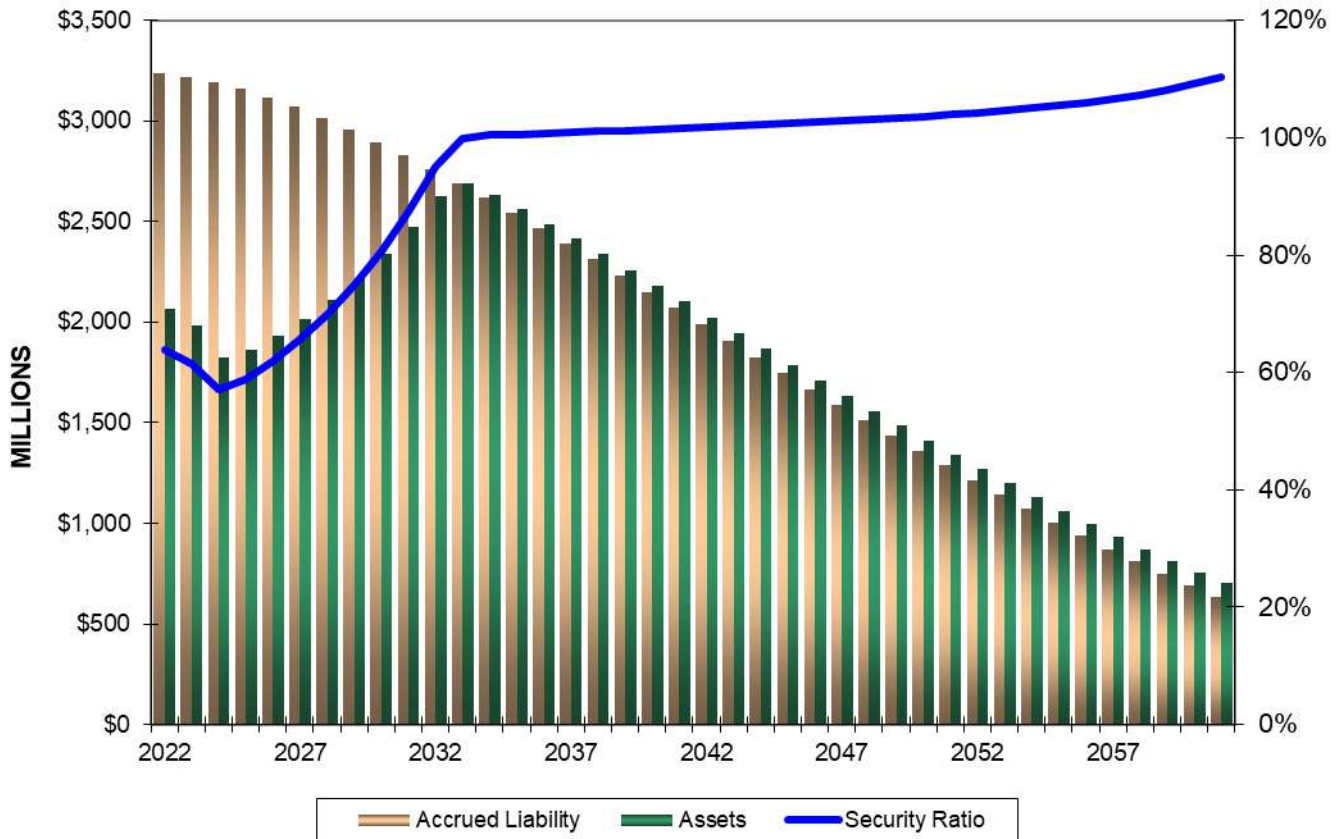
<sup>2</sup> DC rate and contributions are those for payment towards UAAL and plan expenses only.

<sup>3</sup> Investment earnings are assumed to be 7.0% per year on the market value of assets.

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SECTION IV. VALUATION EXHIBITS

EXHIBIT 18. PROJECTION OF SECURITY RATIO



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SECTION IV. VALUATION EXHIBITS

EXHIBIT 18. PROJECTION OF SECURITY RATIO (values)

Year Ending	\$'s in millions EMPLOYER CONTRIBUTIONS					Security Ratio
	Payroll <sup>1</sup>	DB Rate	Contribs DB Plan	DB Fund AVA <sup>2</sup>	Accrued Liability	
2022				\$2,063.62	\$3,236.62	63.79%
2023	\$577.70	28.43%	\$140.60	1,980.88	3,220.55	61.51%
2024	592.14	29.43%	148.80	1,821.10	3,194.56	57.01%
2025	606.95	32.35%	169.17	1,859.77	3,159.95	58.85%
2026	622.12	37.39%	203.78	1,932.25	3,117.97	61.97%
2027	637.67	38.26%	213.52	2,016.73	3,069.70	65.70%
2028	653.62	38.48%	219.47	2,111.45	3,016.06	70.01%
2029	669.96	38.58%	224.88	2,217.63	2,957.77	74.98%
2030	686.70	38.66%	230.34	2,337.38	2,895.80	80.72%
2031	703.87	38.73%	235.91	2,472.38	2,830.50	87.35%
2032	721.47	38.80%	241.68	2,624.54	2,762.32	95.01%
2033	739.51	25.05%	145.45	2,690.60	2,692.11	99.94%
2034	757.99	7.73%	17.19	2,631.40	2,619.74	100.45%
2035	776.94	6.10%	7.14	2,560.61	2,545.24	100.60%
2036	796.37	6.00%	6.60	2,487.84	2,469.04	100.76%
2037	816.28	6.01%	6.21	2,413.35	2,391.29	100.92%
2038	836.68	6.03%	5.83	2,337.32	2,312.17	101.09%
2039	857.60	6.04%	5.44	2,259.95	2,231.90	101.26%
2040	879.04	6.06%	5.08	2,181.69	2,150.92	101.43%
2041	901.02	6.07%	4.73	2,102.80	2,069.51	101.61%
2042	923.54	6.09%	4.41	2,023.71	1,988.06	101.79%
2043	946.63	6.11%	4.10	1,944.64	1,906.82	101.98%
2044	970.30	6.12%	3.79	1,865.96	1,826.14	102.18%
2045	994.55	6.13%	3.50	1,787.85	1,746.22	102.38%
2046	1,019.42	6.15%	3.23	1,710.40	1,667.13	102.60%
2047	1,044.90	6.16%	2.97	1,633.87	1,589.15	102.81%
2048	1,071.02	6.17%	2.71	1,558.36	1,512.26	103.05%
2049	1,097.80	6.18%	2.46	1,484.05	1,436.57	103.30%
2050	1,125.25	6.18%	2.22	1,410.91	1,362.07	103.59%
2051	1,153.38	6.17%	1.97	1,338.80	1,288.60	103.90%
2052	1,182.21	6.17%	1.73	1,267.67	1,216.14	104.24%
2053	1,211.77	6.17%	1.47	1,197.45	1,144.62	104.62%
2054	1,242.06	6.17%	1.22	1,128.30	1,074.19	105.04%
2055	1,273.11	6.17%	1.00	1,060.47	1,005.09	105.51%
2056	1,304.94	6.17%	0.81	994.40	937.70	106.05%
2057	1,337.56	6.16%	0.65	930.47	872.37	106.66%
2058	1,371.00	6.15%	0.52	868.96	809.32	107.37%
2059	1,405.28	6.14%	0.42	810.17	748.82	108.19%
2060	1,440.41	6.13%	0.33	754.26	691.01	109.15%
2061	1,476.42	6.11%	0.26	701.31	635.94	110.28%

<sup>1</sup> Payroll is assumed to increase 2.50% per year.

<sup>2</sup> Actuarial Value of Assets. Investment earnings are assumed to be 7.0% per year on the market value of assets.

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## APPENDIX A. SUMMARY OF PLAN PROVISIONS

The following description is only a brief summary of the more important provisions of the retirement plan. Actual plan provisions are contained in Chapter 8 of the Guam Code, as modified by Public Law 33-186.

**Membership Conditions and Exclusions (Old DB Plan):** All employees of the Government of Guam hired on or before September 30, 1995 are required to participate as a condition of employment, except:

- a) Persons who are compensated on a fee basis;
- b) Independent contractors;
- c) Persons employed for a specific project;
- d) Persons employed in the Senior Citizens' Community Employment Program; and
- e) Persons with less than 20 years of service prior to September 30, 1995 who elect to transfer to the Government of Guam Defined Contribution Fund. Participants have an annual opportunity to transfer.

Membership is optional for:

- a) Temporary, seasonal, intermittent and part-time employees;
- b) Persons employed for a specific period of time and not domiciled in Guam; and
- c) Employees of a public corporation of the Government of Guam.

Membership is also applicable to members of the Legislature with special provisions for:

- a) The determination of average annual salary for pension computation purposes; and
- b) Contributions.

**Membership Conditions and Exclusions (DB 1.75 Plan):** All employees of the Government of Guam who were in the Defined Contribution Plan and were still employed had the option to transfer to the Defined Benefit 1.75 Plan effective January 1, 2018. Employees hired on or after January 1, 2018 are not eligible for the Old DB or DB 1.75 plans.

**Pension Credits:** Employees are entitled to pension credit for:

- a) Service rendered to the Government prior to May 1, 1951 when the Fund began operations.
- b) Service on or after May 1, 1951 for which contributions are required to be made by the employees.
- c) Casual or part-time employment under prescribed conditions for which contributions must be made.
- d) Unused and accumulated sick and annual (vacation) leaves with 12 days of service counted as a full month; 6 to 11 days, ½ month; and less than 6 days disregarded.
- e) For employees hired before June 1, 1989, pension credit is granted up to a maximum of 5 years for Federal service, provided the employee terminates membership in the Federal Civil Service Retirement Fund and makes a contribution to the Government of Guam Retirement Fund equal to the amount contributed by the member and his employer during the period which is equal in length to the period for which service credit is requested, and which ends on the member's

**SECTION V. APPENDICES**

termination date of such employment with interest from the date of such termination to the date of payment.

- f) For employees hired before June 1, 1989, educational leave time or periods of termination for educational training purposes, if contributions are made to the Fund with interest. Members who first joined the fund prior to January 31, 1987, may receive credit for up to the normal period of time required to complete degree without having been employed by the government prior to the period during which the degree was earned.
- g) Military service prior to May 1, 1951, if not considered for any Federal Government Pension other than for disability. If entry into military service occurred after May 1, 1951, total pension credit is limited to 5 years in the aggregate, provided the employee was in the service of the Government of Guam at date of entry into military service and returned to the Government of Guam service within one year following discharge from military service under conditions other than dishonorable, or within 6 months after completion of education under the various education benefits programs for veterans; otherwise the total credit is limited to three years.

**Schedule for Computing Service:** The following schedule shall govern the computation of pension credit: 12 days or more during any month constitutes a month of service; 6 to 11 days, ½ month; less than 6 days is disregarded. Nine months or more during any year constitutes a year of service.

**Vesting of Pension Credit:** Vesting occurs after at least 5 years of service.

Upon separation from service, an employee may optionally leave the contribution credits in the Fund and qualify for a deferred retirement annuity, based upon the total pension credit. If the pension credit is 25 years or more, no refund of contributions is payable and the employee must accept a deferred retirement annuity.

**Conditions for Service Retirement:** With respect to any employee who originally became a member of the Fund prior to October 1, 1981:

- a) Such member may retire on a service retirement annuity at age 60 or over, or at age 55 in the case of a member of the uniformed personnel after at least 10 years of service. Upon retirement, a member of the uniformed personnel shall be considered one grade above that held at date of retirement.
- b) A member with at least 25 years of service may retire at any age on an unreduced retirement annuity.
- c) Any retired employee with at least 25 years of credit service shall be entitled to the full retirement annuity on and after September 30, 1981.
- d) Any member, active or inactive, may retire after 20 years of service, regardless of age. In such case, the retirement annuity shall be reduced ¼ of 1% for each month that the age of the member is less than 60 years (3% per year).

With respect to an employee who became a member of the Fund on or after October 1, 1981, and prior to August 22, 1984, the following provisions shall govern:

- a) Such member may retire on a service retirement annuity at age 60 or over, or at age 55 if a member of the uniformed personnel after at least 15 years of service and upon retirement shall be considered one rank grade above that held at such date.
- b) A member with at least 30 years of service shall be eligible for service retirement, regardless of age, without reduction for early retirement.

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- c) Any member, whether in an active or inactive status, may retire after 25 years of service, at any age, on an annuity reduced  $\frac{1}{4}$  of 1% per month (3% per year) for each month member's age is less than 60.

With respect to any employee becoming a member of the Fund on or after August 22, 1984, and a member of the Old DB Plan:

- a) Such member may retire on a service retirement annuity at age 65 or over, or at age 60 in the case of a member of the uniformed personnel after at least 15 years of service. Upon retirement, a member of the uniformed personnel shall be considered one grade above that held at date of retirement.
- b) A member with at least 30 years of service may retire at any age on an unreduced retirement annuity.
- c) Any member, active or inactive, may retire after 25 years of service, regardless of age. In such case, the retirement annuity shall be reduced  $\frac{1}{4}$  of 1% for each month that the age of the member is less than 65 years (3% per year).

With respect to any employee in the DB 1.75 Plan:

- a) Such member may retire on a service retirement annuity at age 62 or over.
- b) Any member, active or inactive, may retire after the attainment of age 55 with 25 years of service. In such case, the retirement annuity shall be reduced  $\frac{1}{2}$  of 1% for each month that the age of the member is less than 62 years (6% per year).

**Amount of Service Retirement Annuity (Old DB Plan):** A basic annuity of 2.00% of "average annual salary" for each of the first 10 years of credited service; and 2.5% of "average annual salary" for each full year of pension credit above 10 years, plus twenty dollars (\$20.00) multiplied by years of credited service reduced by an amount equal to one hundredth of one percent (.01%) of said amount for each one dollar (\$1.00) that a member's average annual salary exceeds the amount of six thousand dollars (\$6,000).

The minimum amount of service retirement annuity payable by the Fund is \$1,200 per year. The maximum retirement annuity is 85% of "average annual salary."

**Amount of Service Retirement Annuity (DB 1.75):** A basic annuity of 1.75% of "average annual salary" for each year of credited service. The minimum amount of service retirement annuity payable by the Fund is \$1,200 per year. The maximum retirement annuity is 85% of "average annual salary."

**Average Annual Salary:** Average of three highest annual salaries received by a member during the entire period of pension credit. A minimum of \$6,000 applies to Old DB Plan members.

The annual salary of the member shall include the basic rate of salary on which contributions were made by the member and any salary on which the member made contributions as required under GCA, Section 8136(a). Effective October 1, 1986, salary can include payment for unused annual leave upon retirement for Old DB Plan members. In case of members of the Legislature, the average annual salary is the salary of the Director of Administration at the member's date of retirement, or the average of the three highest annual salaries received by the member during the period of membership credit, whichever is greater.

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**Automatic Increase in Annuity:** Effective July 1, 1984, any member retiring from service and entitled to benefits after September 1, 1972, is to receive each year, on the anniversary date of retirement, an increment of \$600 if the annual annuity is \$3,500 or less; \$400 if the annuity is between \$3,500 and \$6,300 per year; \$300 if the annuity is between \$6,300 and \$10,100; and \$200 if the annuity exceeds \$10,100 per year.

**Disability Retirement:** Upon total and permanent disability due to physical or mental causes, an employee under age 65 is entitled to a disability retirement annuity. For employees hired prior to August 22, 1984, the amount of the disability retirement annuity will be 66-2/3% of the employee's salary in effect on the date of disability. Subsequent employees will have an annuity amount based on 66-2/3% (50% for DB 1.75 Plan members) of the average of the highest three years of salary. If the disability was not due to occupational causes, the employee must have Government of Guam service credit of at least six years, or five years in the case of terminal illness, in order to qualify, except that new members since May 28, 1985, may not retire if a disability arises from impairment or conditions existing prior to employment.

A disability retirement annuitant must submit to a medical examination at least once a year during the first five years of disability, and at least once every three years thereafter, by a physician or physicians designated by the Board in order to establish continuing disability and entitlement to benefits. Should a disability annuitant resume gainful employment in a position other than the particular job in which he was engaged when declared disabled, the disability retirement benefit shall continue as initially determined.

A member receiving disability retirement benefits since December 1, 1972, is entitled to receive on the anniversary date of retirement, an annual increase of \$300 if the benefit is \$3,000 per year or less; \$250 per year where the annuity is between \$3,000 and \$6,000 per year; \$200 per year where the annuity is between \$6,000 and \$10,000 per year; and \$100 if the annuity exceeds \$10,000 per year.

**Re-entry Into Service:** A member on retirement who re-enters services as an employee eligible for membership shall have the annuity suspended during the period of employment without losing rights to automatic increases in the retirement annuity during the period of re-employment. This provision does not apply to Department of Education employees who occupy positions dealing with the Chamorro Language and Culture Program in Guam schools, persons employed as classroom teachers, guidance or health counselors when critical need arises, nor elected officials.

**Benefits to Survivors:** Benefits are payable to a surviving spouse and children under age 21, upon the death of a member while in service after at least three years of service, or occurring while on retirement. The benefit to children of an annuitant or member whose death occurs while in service after at least three years of service is payable until age 25 if they are full-time students in an accredited educational institution, or payable regardless of age if disabled and disability occurred before age 18.

If only a spouse survives the active or retired member, the annuity payable is 60% of the service or disability retirement annuity earned by the member, subject to a minimum of \$1,200 per year.



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The annuity to a child is \$2,880 per year, subject to a maximum payment to five or more minor children of \$14,400 per year. The term “child” or “children” includes any natural child or adopted child under age 21, or any permanently disabled child whose incapacity began before the child attained age 21.

A survivor annuitant is entitled to an automatic increase in annuity each year on the anniversary date of the annuity of \$600 if the annuity is \$3,500 per year or less; \$400 if the annuity is between \$3,500 and \$6,300 per year; \$300 if the annuity is between \$6,300 and \$10,100; and \$200 if the annuity is more than \$10,100 per year.

A surviving spouse or minor child surviving the member is entitled, in addition to the above, a death benefit of \$1,000 payable in a lump sum.

A survivor’s annuity terminates upon death or re-marriage under the age of 40, attainment of age 21 of the child, or the termination of the incapacity of a disabled child.

**Optional Privilege at Retirement:** Upon retirement from service, any unmarried employee, if in good health as determined by medical examination, may elect to receive, on an actuarial equivalent basis in lieu of the full retirement annuity, a reduced retirement annuity payable during the annuitant’s lifetime, plus an annuity to a designated beneficiary to become payable at death of the annuitant. The annuity to the beneficiary is to be paid at the same rate and under the same conditions that apply to a survivor of a married member whose death occurs while in service.

**Death Benefit – Active and Retired Members Without Survivors:** Upon death of a member while in service, leaving no survivors eligible for annuities, the designated beneficiary or estate is entitled to a refund of the contribution credits, plus interest, together with a death benefit of \$1,000 payable in a lump sum.

Upon death of a retired member, if no survivors’ annuities are payable, the death benefit to a designated beneficiary or the estate of the member consists of the excess, if any, of: (1) the total contribution credits of the member at retirement, plus interest, over (2) the total amount of annuity payments made to the retired member, plus the sum of \$1,000.

**Death Benefit – Inactive Members:** Upon the death of an inactive member with at least 20 years of pension credit, and survived by a spouse or minor children, the following benefit options are provided: (a) the surviving spouse of children, as the case may be, may elect to receive the annuities prescribed if the death of a member occurs while in service; or (b) a refund of the deceased member’s total contribution credits, plus interest.

**Refund of Members’ Contributions:** Upon complete separation from service, or transfer to the Government of Guam Defined Contribution Fund, a member with less than 25 years of pension credit may receive a refund of the total contributions, plus interest (except that no interest is payable if the total pension credit is less than one year).

**Contributions by Members:** Each Old DB Plan member shall contribute to the Fund 9½% of salary earned and accruing after October 1, 1997; and at the member’s option, 10½% of non-base pay subsequent to October 1, 1997. Each DB 1.75 Plan member shall contribute to the Fund 9½% of salary earned and accruing after January 1, 2018.

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**APPENDIX B. ACTUARIAL COST METHOD AND ASSUMPTIONS**

	September 30, 2022		September 30, 2021	
<b>Actuarial Cost Method</b>	Entry Age Normal		Entry Age Normal	
<b>Interest Rate</b>	7.00%		7.00%	
<b>Long-term Expected Rate of Return on Plan Assets</b>	7.00%		7.00%	
<b>Salary Increases</b>	<u>Service</u>	<u>% Increase</u>	<u>Service</u>	<u>% Increase</u>
	0 – 5	6.0%	0 – 5	7.5%
	6 – 10	4.5%	6 – 10	6.0%
	11 – 15	3.0%	11 – 15	5.0%
	16 – 20	3.0%	16 – 20	4.0%
	Over 20	3.0%	Over 20	4.0%
<b>Total Payroll Growth (DB and DC)</b>				
First year (FYE23 over FYE22)	4.00%		2.75%	
After FYE 9/30/23	2.50%		2.75%	
<b>Cost of Living Adjustment</b>	Specified in Plan		Specified in Plan	
<b>Mortality</b>				
Healthy Retiree	PUB-2010 General Retiree table 130% before age 80 +4 for males +2 for females projected generationally using 50% of Scale MP-2020 from 2010		RP-2000 Combined Healthy table +3 for males +2 for females projected generationally using 30% of Scale BB from 2016	
Healthy Beneficiaries	PUB-2010 General Contingent Survivors table 130% before age 80 +3 for males +4 for females projected generationally using 50% of Scale MP-2020 from 2010		RP-2000 Combined Healthy table +3 for males +2 for females projected generationally using 30% of Scale BB from 2016	
<b>Disability</b>				
Incidence	Custom age-based table based upon actual experience (see attached)		1974-78 SOA LTD Non-Jumbo, with rates reduced by 50% for males and 75% for females	
Post-disability mortality	PUB-2010 Disabled Retiree table 130% before age 80 +4 for males +2 for females projected generationally using 50% of Scale MP-2020 from 2010		RP-2000 Disabled table +6 for males +4 for females projected generationally using 30% of Scale BB from 2016	

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## SECTION V. APPENDICES

	September 30, 2022	September 30, 2021
<b>Withdrawal Rates</b>	Service-based rates (see attached)	Service-based rates (see 2021 valuation report)
<b>Retirement Age</b>	40% assumed to retire at earliest eligibility for unreduced benefits.  20% per year thereafter until age 75  100% at age 75	50% assumed to retire at earliest eligibility for unreduced benefits.  20% per year thereafter until age 75  100% at age 75
<b>Return of Contributions</b>	100% of current Old DB Plan employees who withdraw before retirement and who have less than 20 years of service are assumed to elect a return of contributions  Terminated or inactive members with at least 5 years of service and an account balance of at least \$10,000 and who have not withdrawn their contributions are assumed to retire upon eligibility for unreduced benefits. All other employees who have previously withdrawn are assumed to elect a return of contributions.  Contributions earn 4.5% interest	100% of current Old DB Plan employees who withdraw before retirement and who have less than 20 years of service are assumed to elect a return of contributions  Terminated or inactive members with at least 5 years of service and an account balance of at least \$10,000 and who have not withdrawn their contributions are assumed to retire upon eligibility for unreduced benefits. All other employees who have previously withdrawn are assumed to elect a return of contributions.  Contributions earn 4.5% interest
<b>Marital Status</b>	Retiree data included spouse information. For active employees, 75% are assumed to have spouses at retirement. The assumed age difference is 3 years (+3 for a male spouse; -3 for a female spouse).	Retiree data included spouse information. For active employees, 75% are assumed to have spouses at retirement. The assumed age difference is 3 years (+3 for a male spouse; -3 for a female spouse).
<b>Leave Adjustments</b>	Assumed to add 1.5 years of service (Old DB only) and increase average earnings (Old DB only) by 3% at retirement	Assumed to add 1.5 years of service (Old DB only) and increase average earnings (Old DB only) by 5% at retirement
<b>Administrative Expenses</b>	\$6,798,000 per year (equal to budgeted expense for year ending 9/30/23), allocated 70% to DB and 30% to DC.	\$6,565,000 per year (equal to budgeted expense for year ending 9/30/22), allocated 70% to DB and 30% to DC. In addition, the normal cost for DB 1.75 Plan members is increased by 5% to account for additional expenses.
<b>Survivor Benefit – Minor Children</b>	An average of 0.2 eligible child survivors for each retiree, with payments paid for 6 years. Payments to current child survivors	An average of 0.2 eligible child survivors for each retiree, with payments paid for 6 years. Payments to current child survivors

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	<b>September 30, 2022</b>	<b>September 30, 2021</b>
	are assumed to be payable through age 21.	are assumed to be payable through age 21.
<b>Asset Valuation Method</b>	3-year phase-in of gains/losses relative to interest rate assumption	3-year phase-in of gains/losses relative to interest rate assumption
<b>Data Inconsistencies</b>	None	None

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**SECTION V. APPENDICES**

**Probabilities of Separation from Active Service**  
(per 100 working at each age)

MALE					FEMALE				
Age	Death	Disability	Service	Withdrawal	Age	Death	Disability	Service	Withdrawal
20	0.04	0.03	0	15.0	20	0.01	0.02	0	15.0
21	0.04	0.03	1	13.0	21	0.01	0.02	1	13.0
22	0.04	0.03	2	10.0	22	0.01	0.02	2	10.0
23	0.04	0.03	3	8.0	23	0.01	0.02	3	8.0
24	0.04	0.03	4	7.0	24	0.01	0.02	4	7.0
25	0.04	0.03	5	6.0	25	0.01	0.02	5	6.0
26	0.05	0.03	6	5.0	26	0.02	0.02	6	5.0
27	0.05	0.03	7	4.0	27	0.02	0.02	7	4.0
28	0.05	0.03	8	3.0	28	0.02	0.02	8	3.0
29	0.05	0.03	9	2.0	29	0.02	0.02	9	2.0
30	0.06	0.03	10	2.0	30	0.02	0.02	10	2.0
31	0.06	0.03	11	2.0	31	0.01	0.02	11	2.0
32	0.07	0.03	12	2.0	32	0.03	0.02	12	2.0
33	0.07	0.03	13	2.0	33	0.03	0.02	13	2.0
34	0.07	0.03	14	2.0	34	0.03	0.02	14	2.0
35	0.08	0.03	15	2.0	35	0.04	0.02	15	2.0
36	0.09	0.03	16	2.0	36	0.04	0.02	16	2.0
37	0.09	0.03	17	2.0	37	0.04	0.02	17	2.0
38	0.10	0.03	18	2.0	38	0.05	0.02	18	2.0
39	0.11	0.03	19	2.0	39	0.05	0.02	19	2.0
40	0.12	0.05	20 & over	2.0	40	0.06	0.03	20 & over	2.0
41	0.13	0.05			41	0.06	0.03		
42	0.14	0.05			42	0.07	0.03		
43	0.15	0.05			43	0.07	0.03		
44	0.17	0.05			44	0.08	0.03		
45	0.18	0.10			45	0.09	0.05		
46	0.19	0.10			46	0.09	0.05		
47	0.21	0.10			47	0.10	0.05		
48	0.23	0.10			48	0.11	0.05		
49	0.25	0.10			49	0.12	0.05		
50	0.26	0.15			50	0.13	0.10		
51	0.28	0.15			51	0.14	0.10		
52	0.31	0.15			52	0.15	0.10		
53	0.33	0.15			53	0.16	0.10		
54	0.36	0.15			54	0.17	0.10		
55	0.38	0.25			55	0.19	0.15		
56	0.41	0.25			56	0.20	0.15		
57	0.45	0.25			57	0.22	0.15		
58	0.48	0.25			58	0.24	0.15		
59	0.52	0.27			59	0.26	0.14		
60	0.56	0.38			60	0.29	0.19		
61	0.61	0.38			61	0.32	0.19		
62	0.66	0.38			62	0.35	0.19		
63	0.71	0.38			63	0.38	0.19		
64	0.77	0.38			64	0.43	0.19		

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**SECTION V. APPENDICES**

**APPENDIX C. SUMMARY OF PARTICIPANT DATA**

**Active Non-Uniformed – Old DB Plan**

Age	COUNT			ANNUAL SALARIES		
	Males	Females	Total	Males	Females	Total
Under 20	-	-	-	-	-	-
20 – 24	-	-	-	-	-	-
25 – 29	-	-	-	-	-	-
30 – 34	-	-	-	-	-	-
35 – 39	-	-	-	-	-	-
40 – 44	-	-	-	-	-	-
45 – 49	45	50	95	\$ 2,422,482	\$ 2,839,408	\$ 5,261,890
50 – 54	102	161	263	6,003,058	10,318,444	16,321,502
55 – 59	105	179	284	6,530,728	12,085,451	18,616,179
60 – 64	85	98	183	5,832,408	6,234,634	12,067,042
65 – 69	26	49	75	2,233,423	3,034,035	5,267,458
70 & Over	<u>8</u>	<u>22</u>	<u>30</u>	<u>*</u>	<u>1,639,652</u>	<u>1,639,652</u>
Total	371	559	930	\$23,022,098	\$36,151,625	\$59,173,723

\* Not shown if fewer than 20 members. The totals only sum the cells that are displayed.

Age	SERVICE									Total
	0 - 4	5 - 9	10-14	15-19	20-24	25-29	30-34	35-39	40+	
Under 20	-	-	-	-	-	-	-	-	-	-
20 – 24	-	-	-	-	-	-	-	-	-	-
25 – 29	-	-	-	-	-	-	-	-	-	-
30 – 34	-	-	-	-	-	-	-	-	-	-
35 – 39	-	-	-	-	-	-	-	-	-	-
40 – 44	-	-	-	-	-	-	-	-	-	-
45 – 49	5	2	6	10	6	55	11	-	-	95
50 – 54	4	1	5	9	11	118	108	7	-	263
55 – 59	1	8	9	9	15	81	131	26	4	284
60 – 64	8	5	6	8	8	47	69	21	11	183
65 – 69	-	1	3	-	1	20	33	9	8	75
70 & Over	<u>-</u>	<u>-</u>	<u>-</u>	<u>-</u>	<u>-</u>	<u>9</u>	<u>6</u>	<u>4</u>	<u>1</u>	<u>30</u>
Total	18	17	29	36	41	330	358	67	34	930

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**SECTION V. APPENDICES**

**Active Uniformed – Old DB Plan**

Age	COUNT			ANNUAL SALARIES		
	Males	Females	Total	Males	Females	Total
Under 20	-	-	-	-	-	-
20 – 24	-	-	-	-	-	-
25 – 29	-	-	-	-	-	-
30 – 34	-	-	-	-	-	-
35 – 39	-	-	-	-	-	-
40 – 44	-	-	-	*	-	*
45 – 49	22	1	23	\$ 1,738,942	*	\$ 1,738,942
50 – 54	46	6	52	4,917,827	*	4,917,827
55 – 59	37	4	41	3,857,802	*	3,857,802
60 – 64	16	3	19	*	*	*
65 – 69	3	1	4	*	*	*
70 & Over	<u>1</u>	<u>-</u>	<u>1</u>	<u>*</u>	<u>-</u>	<u>*</u>
Total	125	15	140	\$ 10,514,571	*	\$ 10,514,571

\* Not shown if fewer than 20 members. The totals only sum the cells that are displayed.

Age	SERVICE									Total
	0 – 4	5 – 9	10-14	15-19	20-24	25-29	30-34	35-39	40+	
Under 20	-	-	-	-	-	-	-	-	-	-
20 – 24	-	-	-	-	-	-	-	-	-	-
25 – 29	-	-	-	-	-	-	-	-	-	-
30 – 34	-	-	-	-	-	-	-	-	-	-
35 – 39	-	-	-	-	-	-	-	-	-	-
40 – 44	-	-	-	-	-	-	-	-	-	-
45 – 49	-	-	-	1	4	17	1	-	-	23
50 – 54	-	1	2	1	2	17	27	2	-	52
55 – 59	-	-	1	1	2	10	19	8	-	41
60 – 64	-	-	-	-	-	5	10	3	1	19
65 – 69	-	-	-	-	-	2	1	-	1	4
70 & Over	<u>-</u>	<u>1</u>	<u>-</u>	<u>-</u>	<u>-</u>	<u>-</u>	<u>-</u>	<u>-</u>	<u>-</u>	<u>1</u>
Total	-	2	3	3	8	51	58	13	2	140

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**SECTION V. APPENDICES**

**Active Total – Old DB Plan**

Age	COUNT			ANNUAL SALARIES		
	Males	Females	Total	Males	Females	Total
Under 20	-	-	-	-	-	-
20 – 24	-	-	-	-	-	-
25 – 29	-	-	-	-	-	-
30 – 34	-	-	-	-	-	-
35 – 39	-	-	-	-	-	-
40 – 44	-	-	-	-	-	-
45 – 49	67	51	118	\$ 4,161,424	\$ 2,921,746	\$ 7,083,170
50 – 54	148	167	315	10,920,885	10,784,682	21,705,566
55 – 59	142	183	325	10,388,531	12,462,086	22,850,616
60 – 64	101	101	202	7,711,888	6,520,926	14,232,814
65 – 69	29	50	79	2,410,886	3,132,067	5,542,953
70 & Over	<u>9</u>	<u>22</u>	<u>31</u>	<u>*</u>	<u>1,639,652</u>	<u>1,639,652</u>
Total	496	574	1,070	\$35,593,613	\$37,461,158	\$73,054,771

\* Not shown if fewer than 20 members. The totals only sum the cells that are displayed.

Age	SERVICE									Total
	0 - 4	5 – 9	10-14	15-19	20-24	25-29	30-34	35-39	40+	
Under 20	-	-	-	-	-	-	-	-	-	-
20 – 24	-	-	-	-	-	-	-	-	-	-
25 – 29	-	-	-	-	-	-	-	-	-	-
30 – 34	-	-	-	-	-	-	-	-	-	-
35 – 39	-	-	-	-	-	-	-	-	-	-
40 – 44	-	-	-	-	-	-	-	-	-	-
45 – 49	5	2	6	11	10	72	12	-	-	118
50 – 54	4	2	7	10	13	135	135	9	-	315
55 – 59	1	8	10	10	17	91	150	34	4	325
60 – 64	8	5	6	8	8	52	79	24	12	202
65 – 69	-	1	3	-	1	22	34	9	9	79
70 & Over	<u>-</u>	<u>1</u>	<u>-</u>	<u>-</u>	<u>-</u>	<u>9</u>	<u>6</u>	<u>4</u>	<u>11</u>	<u>31</u>
Total	18	19	32	39	49	381	416	80	36	1,070

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**SECTION V. APPENDICES**

**Active – DB 1.75 Plan**

Age	COUNT			ANNUAL SALARIES		
	Males	Females	Total	Males	Females	Total
Under 20	-	-	-	-	-	-
20 – 24	2	3	5	*	*	*
25 – 29	40	46	86	\$ 1,463,696	\$ 1,584,372	\$ 3,048,067
30 – 34	159	201	360	7,089,776	8,174,870	15,264,646
35 – 39	164	163	327	7,751,758	7,173,707	14,925,466
40 – 44	173	216	389	9,417,812	10,628,023	20,045,835
45 – 49	230	251	481	13,660,039	13,943,872	27,603,911
50 – 54	266	221	487	17,706,369	12,662,342	30,368,711
55 – 59	185	200	385	13,027,488	11,325,823	24,353,311
60 – 64	111	121	232	6,910,847	6,818,814	13,729,662
65 – 69	43	61	104	3,242,066	3,695,084	6,937,151
70 & Over	<u>22</u>	<u>28</u>	<u>50</u>	<u>1,541,570</u>	<u>1,673,855</u>	<u>3,215,425</u>
Total	1,395	1,511	2,906	\$81,811,422	\$77,680,761	\$159,492,183

\* Not shown if fewer than 20 members. The totals only sum the cells that are displayed.

Age	SERVICE									Total
	0 – 4	5 – 9	10-14	15-19	20-24	25-29	30-34	35-39	40+	
Under 20	-	-	-	-	-	-	-	-	-	-
20 – 24	-	5	-	-	-	-	-	-	-	5
25 – 29	3	82	-	1	-	-	-	-	-	86
30 – 34	7	287	62	4	-	-	-	-	-	360
35 – 39	2	171	113	41	-	-	-	-	-	327
40 – 44	3	133	103	100	50	-	-	-	-	389
45 – 49	3	115	94	74	127	68	-	-	-	481
50 – 54	2	101	74	94	81	108	24	3	-	487
55 – 59	1	64	80	76	61	63	30	10	-	385
60 – 64	-	21	44	48	52	43	20	4	-	232
65 – 69	-	16	14	22	20	21	9	2	-	104
70 & Over	<u>-</u>	<u>1</u>	<u>7</u>	<u>10</u>	<u>21</u>	<u>6</u>	<u>2</u>	<u>3</u>	<u>-</u>	<u>50</u>
Total	21	996	591	470	412	309	85	22	-	2,906

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**SECTION V. APPENDICES**

**Service Retirees**

Age	COUNT			ANNUAL BENEFITS**		
	Males	Females	Total	Males	Females	Total
Under 25	-	-	-	-	-	-
25 – 29	-	-	-	-	-	-
30 – 34	-	-	-	-	-	-
35 – 39	-	-	-	-	-	-
40 – 44	-	-	-	-	-	-
45 – 49	7	2	9	*	*	*
50 – 54	102	61	163	\$ 5,985,902	\$ 2,891,202	\$ 8,877,104
55 – 59	271	210	481	15,349,617	9,845,628	25,195,245
60 – 64	435	357	792	20,265,643	14,943,105	35,208,748
65 – 69	525	583	1,108	21,814,080	21,512,505	43,326,584
70 & Over	<u>1,249</u>	<u>1,606</u>	<u>2,855</u>	<u>47,460,810</u>	<u>51,316,530</u>	<u>98,777,341</u>
Total	2,589	2,819	5,408	\$110,876,052	\$ 100,508,971	\$211,385,023

\* Not shown if fewer than 20 members. The totals only sum the cells that are displayed.

\*\* Annual benefits shown do not include ad hoc COLAs or Supplemental Annuity Payments.

Age	ANNUAL BENEFIT LEVEL									Total
	<\$5k	\$5-10k	\$10-15k	\$15-20k	\$20-25k	\$25-30k	\$30-40k	\$40-50k	\$50k+	
Under 40	-	-	-	-	-	-	-	-	-	-
40 – 44	-	-	-	-	-	-	-	-	-	-
45 – 49	-	-	-	-	1	4	1	0	3	9
50 – 54	-	-	5	2	3	18	24	33	78	163
55 – 59	-	-	8	15	17	31	89	101	220	481
60 – 64	5	14	20	32	73	73	164	153	258	792
65 – 69	4	20	34	58	100	146	277	226	243	1108
70 – 74	1	11	46	69	127	163	319	210	187	1133
75 – 79	-	6	37	68	97	146	221	120	111	806
80 – 84	-	1	35	56	73	72	127	59	64	487
85 – 89	-	2	42	50	53	41	57	21	28	294
90 & Over	<u>-</u>	<u>-</u>	<u>21</u>	<u>28</u>	<u>24</u>	<u>13</u>	<u>26</u>	<u>6</u>	<u>17</u>	<u>135</u>
Total	10	54	248	378	568	707	1,305	929	1,209	5,408

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**SECTION V. APPENDICES**

**Disabled Retirees**

Age	COUNT			ANNUAL BENEFITS**		
	Males	Females	Total	Males	Females	Total
Under 25	-	-	-	-	-	-
25 – 29	-	-	-	-	-	-
30 – 34	-	-	-	-	-	-
35 – 39	-	-	-	-	-	-
40 – 44	-	-	-	-	-	-
45 – 49	2	-	2	*	-	*
50 – 54	4	4	8	*	*	*
55 – 59	14	5	19	*	*	*
60 – 64	9	10	19	*	*	*
65 – 69	23	13	36	\$ 595,131	*	\$ 595,131
70 & Over	<u>37</u>	<u>55</u>	<u>92</u>	<u>923,665</u>	<u>\$1,165,844</u>	<u>2,089,509</u>
Total	89	87	176	\$1,518,795	\$1,165,844	\$2,684,639

\* Not shown if fewer than 20 members. The totals only sum the cells that are displayed.

\*\* Annual benefits shown do not include ad hoc COLAs or Supplemental Annuity Payments.

Age	ANNUAL BENEFIT LEVEL									Total
	<\$5k	\$5-10k	\$10-15k	\$15-20k	\$20-25k	\$25-30k	\$30-40k	\$40-50k	\$50k+	
Under 40	-	-	-	-	-	-	-	-	-	-
40 – 44	-	-	-	-	-	-	-	-	-	-
45 – 49	-	-	-	1	-	-	-	1	-	2
50 – 54	-	-	1	4	1	-	2	-	-	8
55 – 59	-	-	-	3	3	6	3	3	1	19
60 – 64	-	-	3	9	2	4	-	-	1	19
65 – 69	-	-	1	14	9	4	6	1	1	36
70 – 74	-	-	4	8	9	8	5	2	-	36
75 – 79	-	-	2	10	6	4	4	-	1	27
80 – 84	-	-	1	9	8	-	2	-	-	20
85 – 89	-	-	3	1	1	2	-	-	-	7
90 & Over	<u>-</u>	<u>-</u>	<u>2</u>	<u>-</u>	<u>-</u>	<u>-</u>	<u>-</u>	<u>-</u>	<u>-</u>	<u>2</u>
Total	0	0	17	59	39	28	22	7	4	176

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**SECTION V. APPENDICES**

**Surviving Spouses, QDRO and Child Pensioners**

Age	COUNT			ANNUAL BENEFITS**		
	Males	Females	Total	Males	Females	Total
Under 20	50	43	93	\$ 129,600	\$ 152,640	\$ 282,240
20 – 24	2	9	11	*	*	*
25 – 29	4	4	8	*	*	*
30 – 34	2	4	6	-	*	*
35 – 39	3	6	9	*	*	*
40 – 44	4	14	18	*	*	*
45 – 49	12	29	41	*	419,653	419,653
50 – 54	12	66	78	*	1,200,401	1,200,401
55 – 59	8	103	111	*	1,798,085	1,798,085
60 – 64	21	154	175	369,217	3,077,719	3,446,936
65 – 69	32	246	278	585,737	4,931,384	5,517,121
70 & Over	<u>226</u>	<u>894</u>	<u>1,120</u>	<u>3,866,538</u>	<u>16,717,917</u>	<u>20,584,455</u>
Total	376	1,572	1,948	\$4,951,092	\$28,297,800	\$33,248,892

\* Not shown if fewer than 20 members. The totals only sum the cells that are displayed.

\*\* Annual benefits shown do not include ad hoc COLAs or Supplemental Annuity Payments.

\*\*\* Payees receiving benefits under Qualified Domestic Relations Orders (QDROs) are included with surviving spouses.

Age	ANNUAL BENEFIT LEVEL									Total
	<\$5k	\$5-10k	\$10-15k	\$15-20k	\$20-25k	\$25-30k	\$30-40k	\$40-50k	\$50k+	
Under 40	117	-	2	1	4	-	2	-	1	127
40 – 44	11	1	3	2	1	-	-	-	-	18
45 – 49	16	5	6	4	4	4	2	-	-	41
50 – 54	10	4	24	16	10	6	4	4	-	78
55 – 59	9	12	31	25	13	7	12	2	-	111
60 – 64	5	10	38	48	35	22	12	4	1	175
65 – 69	11	9	67	81	54	18	26	7	5	278
70 – 74	5	18	100	89	55	33	28	2	4	334
75 – 79	3	10	96	75	52	19	30	4	1	290
80 – 84	2	8	72	71	41	19	10	5	3	231
85 – 89	2	8	65	50	16	9	7	-	-	157
90 & Over	-	<u>7</u>	<u>54</u>	<u>31</u>	<u>8</u>	<u>2</u>	<u>4</u>	<u>2</u>	-	<u>108</u>
Total	191	92	558	493	293	139	137	30	15	1,948

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**SECTION V. APPENDICES**

**Inactive and Terminated Members Who are Assumed Not to Withdraw Contributions**

Age	COUNT			ANNUAL BENEFITS		
	Males	Females	Total	Males	Females	Total
Under 25	-	-	-	-	-	-
25 – 29	-	-	-	-	-	-
30 – 34	-	-	-	-	-	-
35 – 39	-	-	-	-	-	-
40 – 44	-	-	-	-	-	-
45 – 49	5	-	5	*	-	*
50 – 54	14	10	24	*	*	*
55 – 59	13	16	29	*	*	*
60 – 64	12	10	22	*	*	*
65 – 69	2	4	6	*	*	*
70 & Over	<u>12</u>	<u>9</u>	<u>21</u>	<u>*</u>	<u>*</u>	<u>*</u>
Total	58	49	107	*	*	*

\* Not shown if fewer than 20 members. The totals only sum the cells that are displayed.

## APPENDIX D. RISK DISCLOSURE

The purpose of this appendix is to identify, assess, and provide illustrations of risks that are significant to the Plan, and in some cases to the Plan's participants. Historical data is included.

The results of the actuarial valuation are based on one set of reasonable assumptions. However, it is almost certain that future experience will not exactly match the assumptions. As an example, investments may perform better or worse than assumed in any single year and over any longer time horizon. It is therefore important to consider the potential impacts of these likely differences when making decisions that may affect the future financial health of the Plan, or of the Plan's participants.

In addition, as plans mature they accumulate larger pools of assets and liabilities. This increases the potential risk to plan funding and the finances of those who are responsible for plan funding. As an example, it is more difficult for a plan sponsor to deal with the effects of a 10% investment loss on a plan with \$1 billion in assets and liabilities than if the same plan sponsor is responsible for a 10% investment loss on a plan with \$1 million in assets and liabilities. Since pension plans make long-term promises and rely on long-term funding, it is important to consider how mature the Plan is today, and how mature it may become in the future.

Actuarial Standard of Practice No. 51 (ASOP 51) addresses these issues by providing actuaries with guidance for assessing and disclosing the risk associated with measuring pension liabilities and the determination of pension plan contributions. Specifically, it directs the actuary to:

- Identify risks that may be significant to the Plan.
- Assess the risks identified as significant to the Plan. The assessment does not need to include numerical calculations.
- Disclose plan maturity measures and historical information that are significant to understanding the Plan's risks.

ASOP 51 states that if in the actuary's professional judgment, a more detailed assessment would be significantly beneficial in helping the individuals responsible for the Plan to understand the risks identified by the actuary, then the actuary should recommend that such an assessment be performed.

This appendix uses the framework of ASOP 51 to communicate important information about: significant risks to the Plan, the Plan's maturity, and relevant historical plan data.

**SECTION V. APPENDICES****Investment Risk**

**Definition:** The potential that investment returns will be different than expected.

**Identification:** To the extent that actual investment returns differ from the assumed investment return, the Plan's future assets, funding contributions, and funded status may differ significantly from those presented in this valuation.

**Assessment:** If the prior year's investment performance had been 150 basis points less than the 7.0% investment return assumption, it would have resulted in assets on a market value basis approximately \$27 million lower than expected. The asset loss would be recognized in the actuarial value of assets as a \$9 million loss in each of the next three years. A \$9 million decrease in actuarial value of assets would increase the contribution rate by 0.19% (from 29.43% to 29.62% in this valuation).

**Interest Rate Risk**

**Definition:** The potential that interest rates will be different than expected.

**Identification:** The pension liabilities reported herein have been calculated by computing the present value of expected future benefit payments using the interest rate(s) described in Appendix B. If interest rates in future valuations differ from this valuation, future pension liabilities, funding contributions, and funded status may differ significantly from those presented in this valuation. As a general rule, using a higher interest rate to compute the present value of future benefit payments will result in a lower pension liability, and vice versa.

**Assessment:** If the interest rate changes by 1%, the estimated change in pension liability is approximately 10%.

**Demographic Risks**

**Definition:** The potential that mortality or other demographic experience will be different than expected.

**Identification:** The pension liabilities reported herein have been calculated by assuming that participants will follow patterns of demographic experience (e.g., mortality, withdrawal, disability, retirement, form of payment election, etc.) as described in Appendix B. If actual demographic experience or future demographic assumptions are different from what is assumed to occur in this valuation, future pension liabilities, funding contributions, and funded status may differ significantly from those presented in this valuation. Note that we periodically perform an actuarial experience study of the Plan and provide recommendations for revisions where appropriate. An experience study has been performed for the period October 1, 2015 to September 30, 2020, and the recommendations from that study were reflected in this actuarial valuation as of September 30, 2022.

**Retirement Risk**

**Definition:** The potential for participants to retire and receive subsidized benefits more valuable than expected.

**SECTION V. APPENDICES**

**Identification:** The Old DB Plan has valuable early retirement benefits. For example, for an employee who originally became a member of the Fund prior to October 1, 1981, the benefit is unreduced at 25 years of service (regardless of age). If the participant has reached 20 years of service, the benefits is reduced at 3% per year below age 60. For employees who became members of the Fund after October 1, 1981, the early retirement benefits are also subsidized but not as subsidized as for those prior to October 1, 1981.

**Duration Risk**

**Definition:** Duration is a measure of the weighted average time until the plan's benefits are expected to be paid. It is an indicator of sensitivity to changes in interest rates: the higher the plan's duration, the more sensitive a plan's obligations are to changes in interest rates. Duration typically decreases as a plan matures and retiree liabilities exceed liabilities for active members.

**Identification:** The combined duration for the Old DB Plan and the DB 1.75 plan is approximately 10 years, which implies that plan liabilities would be expected to increase about 10% in response to a 1% decrease in interest rate.

**Amortization/Funding Period**

**Definition:** The Unfunded Actuarial Accrued Liability (UAAL) is the portion of the liability that has not yet been funded (equals liabilities minus assets). This amount is amortized over a specific period of time and is included in the determination of the contributions that are required each year.

**Identification:** The plan currently has a UAAL of \$1,173 million, which is approximately 36% of the total liabilities. This amount is currently amortized over 10.58 years which produces a contribution requirement for this component of \$139.7 million, which represents approximately 82% of the total of DB and DC contributions required for this year (\$170.0 million).

**Assessment:** Based on the current amortization method, the employer contribution rate is projected to drop substantially in 2034. The employer contribution rate will also become more and more volatile as the remaining period is reduced. For example, in the actuarial valuation as of September 30, 2032, any investment gains or losses for the prior year will be amortized in less than 1 year. The 2015-2020 experience study recommends a change in the amortization method to reduce the future volatility in the employer contribution rate and spread out the projected decline in the employer contribution rate.



## APPENDIX E. GLOSSARY OF KEY TERMS

**Actuarial Accrued Liability or Total Pension Liability.** The Present Value of Future Benefits allocated to past service in accordance with the actuarial cost method. GASB 67 uses the term Total Pension Liability.

**Actuarial Cost Method.** A method of allocating the present value of benefits to past and future periods. Actuarial cost methods take into consideration the effect of wage inflation.

**Actuarial Gains and Losses.** Changes to the Actuarial Accrued Liability due to deviations from the actuarial assumptions. These can include gains and losses from investments, employee turnover, disability, retirement, mortality, and administrative expenses.

**Actuarial Value of Assets.** A method of valuing Fund assets that may smooth gains and losses that occur in the market value over a period of time.

**GASB.** Government Accounting Standards Board. GASB Statements No. 67, and 68 are accounting standards issued by GASB that require certain items be disclosed in the Fund's financial statements.

**Fiduciary Net Position.** The market value of Fund assets.

**Net Pension Liability.** The dollar value of the Total Pension Liability that exceeds the market value of Fund assets. A fully funded plan will have no Net Pension Liability.

**Normal Cost or Service Cost.** The value of benefits earned for one year of service. The normal cost is calculated in accordance with the actuarial cost method. The accumulation of all normal costs assigned to past service equals the Actuarial Accrued Liability. GASB 68 uses the term Service Cost.

**Present Value of Benefits.** The sum of all benefits expected to be paid in the future by the retirement system, with the payments discounted to the present using the valuation interest rate. This includes benefits to be earned in the future for current employees.

**Present Value of Future Normal Cost.** The sum of all future normal costs expected for current employees, with the costs discounted back to the present using the valuation interest rate.

**Security Ratio.** The percentage of the Actuarial Accrued Liability that is funded by the Fund assets. A fully funded plan will have a security ratio of 100%.

**Unfunded Actuarial Accrued Liability.** The dollar value of the Actuarial Accrued Liability that exceeds the Actuarial Value of Assets. A fully funded plan will have no unfunded actuarial accrued liability.