
Government of Guam Retirement Fund

Actuarial Valuation as of September 30, 2015

Prepared by:

Richard A. Wright
FSA, MAAA

Milliman, Inc.
650 California Street, 17th Floor
San Francisco, California 94108
Tel 415 403 1333 Fax 415 403 1334
milliman.com

May 30, 2016



650 California Street, 17th Floor
San Francisco, CA 94108-2702
USA

Tel +1 415 403 1333
Fax +1 415 403 1334

milliman.com

May 30, 2016

Government of Guam Retirement Fund
424 Route 8
Maite, Guam 96910

**Government of Guam Retirement Fund –
Actuarial Valuation as of September 30, 2015**

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, 2015. The purpose of this valuation is to determine the required contribution under the provisions of GCA Section 8137 and to provide the Fund with financial disclosures under GASB Statements 67 and 68.

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 2007-2011 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.

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 and for assisting the Fund and employer in fulfilling their financial accounting requirements under GASB Statements 67 and 68. The computations prepared for these two purposes may differ as disclosed in our report. The calculations in this report have been made on a basis consistent with our understanding of the Fund's funding requirements and goals, and of GASB Statements 67 and 68. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Milliman's work is prepared solely for the use and benefit of the Government of Guam Retirement Fund. To the extent that Milliman's work is not subject to disclosure under applicable public records laws, Milliman's work may not be provided to third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of its work product. Milliman's consent to release its work product to any third party may be conditioned on the third party signing a Release, subject to the following exception(s):

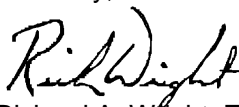
- (a) GGRF may provide a copy of Milliman's work, in its entirety, to its professional service advisors who are subject to a duty of confidentiality and who agree to not use Milliman's work for any purpose other than to benefit GGRF.
- (b) GGRF may provide a copy of Milliman's work, in its entirety, to other governmental entities, as required by law.

No third party recipient of Milliman's work product should rely upon Milliman's work product. Such recipients should engage qualified professionals for advice appropriate to their own specific needs. The consultants who worked on this assignment are pension actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

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. The undersigned is a member of the American Academy of Actuaries and meets the Qualification Standards of the American Academy of Actuaries to render the actuarial opinion contained herein.

Sincerely,



Richard A. Wright, FSA, MAAA
Consulting Actuary

RAW:jh
N:\gual\corr\2016\gua2015v_e (final).doc

TABLE OF CONTENTS

Section	Page
I VALUATION SUMMARY	
Introduction	1
Highlights	1
Results of Valuation	3
5-Year Historical Summary	4
Actuarial Assumptions	5
Funding Method	6
II FUND ASSETS	
Exhibit 1. Summary of DB Plan Assets	7
Exhibit 2. DB Plan Asset Allocation	8
Exhibit 3. Changes in DB Plan Assets	9
Exhibit 4. Actuarial Value of Assets	10
Exhibit 5. Historical Returns on DB Plan Assets	11
III MEMBERSHIP DATA	
Exhibit 6. Active Employees	12
Exhibit 7. Active Employees by Agency	13
Exhibit 8. Retired Employees	14
Exhibit 9. Terminated and Inactive Members	15
Exhibit 10. Reconciliation of Membership Data	16
IV VALUATION EXHIBITS	
Exhibit 11. Actuarial Accrued Liability	17
Exhibit 12. Calculation of Unfunded Actuarial Accrued Liability	18
Exhibit 13. Calculation of Actuarial Gain/Loss	19
Exhibit 14. Normal Cost	20
Exhibit 15. Amortization of Unfunded Actuarial Accrued Liability	21
Exhibit 16. Actuarially Determined Contribution	22
Exhibit 17. Projection of Contribution Rate	23-24
Exhibit 18. Projection of Security Ratio	25-26
V ACCOUNTING EXHIBITS	
Exhibit 19. Net Pension Liability	27
Exhibit 20. Net Pension Liability by Component Unit	28
Exhibit 21. Schedule of Changes in Net Pension Liability	29
Exhibit 22. Schedule of Employer Contributions	30
Exhibit 23. Calculation of Pension Expense	31
Exhibit 24. Schedule of Deferred Inflows and Outflows of Resources	32
VI APPENDICES	
Appendix A. Summary of Pension Plan	33-37
Appendix B. Actuarial Cost Method and Assumptions	38-40
Appendix C. Summary of Participant Data	41-47
Appendix D. Glossary of Key Terms	48

This work product was prepared solely for the Government of Guam Retirement Fund for the purposes described herein and may not be appropriate to use for other purposes. Milliman does not intend to benefit and assumes no duty or liability to other parties who receive this work. Milliman recommends that third parties be aided by their own actuary or other qualified professional when reviewing this Milliman work product.

SECTION I. VALUATION SUMMARY

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.
- Provide financial information required by GASB No. 67 and 68.
- Project the fund balance and security ratio forward 40 years.

The results contained in this report represent our best estimates. 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 **27.41%** of payroll. Of this amount, 21.60% is for the unfunded actuarial accrued liability of the defined benefit (DB) plan, 1.87% is for the normal cost of the DB plan, and 3.94% is for contributions and expenses for the defined contribution (DC) plan.

The primary reasons for the decrease in the contribution rate are the recognition of 1/3rd of the investment gains from the 2012-13 and 2013-14 fiscal years, and lower than expected increases in individual salaries which decreased the value of projected benefits for active employees.

Contribution rate from 9/30/14 actuarial valuation	28.16%
2012-13 investment gain (final 1/3 rd recognition) *	(0.54%)
2013-14 investment gain (second 1/3 rd recognition) *	(0.25%)
2014-15 investment loss (first 1/3 rd recognition) *	0.57%
Other factors, including demographic changes	<u>(0.53%)</u>
Contribution rate in 9/30/15 actuarial valuation	27.41%

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

- 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 2015-16 fiscal year is 28.16%.
- The defined benefit payroll for the 2014-15 fiscal year was \$155.5 million compared with \$169.9 million for the 2013-14 fiscal year. The total defined benefit and defined contribution payroll for the 2014-15 fiscal year, was \$511.4 million compared with \$504.9 million for the 2013-14 fiscal year, an increase of 1.3%. The long term assumption is a 3.0% annual growth in total payroll. Because the 2014-15 total payroll includes some retroactive salary increases, we have estimated that total payroll for the 2015-16 fiscal year will be \$519.0 million, an increase less than the long-term growth assumption, and is then assumed to grow 3.0% per year thereafter.

This work product was prepared solely for the Government of Guam Retirement Fund for the purposes described herein and may not be appropriate to use for other purposes. Milliman does not intend to benefit and assumes no duty or liability to other parties who receive this work. Milliman recommends that third parties be aided by their own actuary or other qualified professional when reviewing this Milliman work product.

SECTION I. VALUATION SUMMARY

- Based on the audited financial statements, we calculated an investment return on the total market value of assets of 0.6% for the fiscal year ending September 30, 2015. The average annual return on the market value of assets for the last 5 fiscal years has been 8.1%. The investment return on the actuarial value of assets, which recognizes investment gains and losses over a 3 year period, was 8.2% for the fiscal year ending September 30, 2015.
- The unfunded actuarial accrued liability decreased from \$1.369 billion as of September 30, 2014, to \$1.298 billion as of September 30, 2015. The primary causes for the decrease were the return on the actuarial value of assets of 8.2% and lower than expected increases in individual salaries. The payment required to amortize the unfunded actuarial accrued liability under GCA Section 8137 has decreased from \$113.1 million to \$112.1 million. The payment as a percentage of payroll has decreased from 22.42% to 21.60%.
- No changes have been made to the actuarial assumptions. These continue to be based upon the actuarial experience study for the period from October 1, 2007, to September 30, 2011. An experience study is currently being performed for the period from October 1, 2011 to September 30, 2015.

SECTION I. VALUATION SUMMARY

RESULTS OF VALUATION

	9/30/2015		9/30/2014	
Participant Counts				
Active				
– Non-Uniformed (DB)		2,211		2,420
– Uniformed (DB)		<u>249</u>		<u>272</u>
– Total (DB)		2,460		2,692
Retired (DB)		<u>7,197</u>		<u>7,226</u>
Total Actives and Retirees (DB)		9,657		9,918
Inactive and Terminated Members assumed to withdraw contributions (DB)		4,543		4,776
Inactive and Terminated Members <u>not</u> assumed to withdraw contributions (DB)		158		165
Active Participants (DC)		8,697		8,181
		(\$millions)		(\$millions)
Actual Payroll for Prior Fiscal Year				
Defined benefit (DB) payroll		\$155.5		\$169.9
Total payroll (DB and DC)		511.4		504.9
Expected Payroll for Next Fiscal Year				
Defined benefit (DB) payroll		\$144.3		\$154.7
Total payroll (DB and DC)		519.0		504.3
Financial Status				
Actuarial accrued liability		\$2,927.7		\$2,931.7
Actuarial value of assets		<u>1,629.4</u>		<u>1,562.5</u>
Unfunded actuarial accrued liability (UAAL)		\$1,298.3		\$1,369.2
Security ratio		55.66%		53.30%
		% of DB Payroll		% of DB Payroll
Normal Cost				
Total normal cost	\$ 23.5*	16.27%	\$ 24.5*	15.86%
Estimated employee contributions	<u>(13.8)</u>	<u>(9.55%)</u>	<u>(14.7)</u>	<u>(9.54%)</u>
Government normal cost	\$ 9.7	6.71%	\$ 9.8	6.32%
		% of Total Payroll		% of Total Payroll
Required Contribution per GCA §8137				
Unfunded actuarial accrued liability cost	\$ 112.1	21.60%	\$ 113.1	22.42%
Government DB normal cost	9.7	1.87%	9.8	1.94%
Expected government DC contributions	<u>20.5*</u>	<u>3.94%</u>	<u>19.1*</u>	<u>3.80%</u>
Total DB and DC contribution	\$ 142.3	27.41%	\$ 142.0	28.16%
Yield on Market Value of Assets		0.6%		10.0%

* Includes budgeted administrative expenses.

This work product was prepared solely for the Government of Guam Retirement Fund for the purposes described herein and may not be appropriate to use for other purposes. Milliman does not intend to benefit and assumes no duty or liability to other parties who receive this work. Milliman recommends that third parties be aided by their own actuary or other qualified professional when reviewing this Milliman work product.

SECTION I. VALUATION SUMMARY

5-YEAR HISTORICAL SUMMARY

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

	9/30/2015	9/30/2014	9/30/2013	9/30/2012	9/30/2011
Participant Counts					
Active (DB)	2,460	2,692	2,878	3,090	3,361
Retired (DB)	7,197	7,226	7,196	7,155	7,117
Inactives (DB)	<u>4,701</u>	<u>4,941</u>	<u>5,394</u>	<u>5,507</u>	<u>5,833</u>
Total (DB)	14,358	14,859	15,468	15,752	16,311
Active (DC)	8,697	8,181	7,885	7,766	7,690
Actual Payroll					
DB payroll	\$155.5	\$169.9	\$164.3	\$169.9	\$179.0
DC payroll	<u>355.9</u>	<u>335.0</u>	<u>296.0</u>	<u>287.1</u>	<u>282.2</u>
Total payroll	\$511.4	\$504.9	\$460.3	\$457.0	\$461.2
Financial Status					
Accrued liability	\$2,927.7	\$2,931.7	\$2,855.4	\$2,811.4	\$2,906.9
Actuarial assets	<u>1,629.4</u>	<u>1,562.5</u>	<u>1,413.0</u>	<u>1,328.8</u>	<u>1,264.1</u>
UAAL	\$1,298.3	\$1,369.2	\$1,442.3	\$1,482.6	\$1,642.8
Security ratio	55.66%	53.30%	49.49%	47.26%	43.49%
Contribution Rate					
DB Normal Cost (as % of DB payroll)	6.71%	6.32%	6.37%	7.11%	8.02%
% of Total Payroll					
UAAL Rate	21.60%	22.42%	24.09%	24.01%	24.33%
DB Normal Cost	1.87%	1.94%	2.05%	2.39%	3.00%
DC Contribution	<u>3.94%</u>	<u>3.80%</u>	<u>3.71%</u>	<u>3.62%</u>	<u>3.43%</u>
Actuarial Rate *	27.41%	28.16%	29.85%	30.03%	30.76%
Budget Rate	**	28.16%	29.85%	30.03%	30.09%
Investment Yield (Market Value)	0.6%	10.0%	14.1%	18.1%	(1.1%)

* "Actuarial Rate" is the contribution rate determined in the actuarial valuation. "Budget Rate" is the contribution rate set by the legislature. Contribution rates apply to the fiscal year beginning one year after the valuation date.

** The budget rate for 2016-17 has not yet been determined.

This work product was prepared solely for the Government of Guam Retirement Fund for the purposes described herein and may not be appropriate to use for other purposes. Milliman does not intend to benefit and assumes no duty or liability to other parties who receive this work. Milliman recommends that third parties be aided by their own actuary or other qualified professional when reviewing this Milliman work product.

SECTION I. VALUATION SUMMARY

ACTUARIAL ASSUMPTIONS

The following are the major assumptions used in the actuarial valuation. The assumptions are the same as those used for the prior valuation, based upon recommendations from the actuarial experience study for the period October 1, 2007, through September 30, 2011. 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, 2015. This assumption is unchanged from the prior valuation. Milliman’s expected long-term returns on various asset classes is shown below. 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	Expected Real Return	(b) Expected Nominal Return ¹	(a) x (b) Component Return
U.S. Equities (large cap)	33.00%	5.05%	7.87%	2.60%
U.S. Equities (small cap)	7.00%	6.21%	9.04%	0.63%
Non-U.S. Equities	16.00%	6.21%	9.04%	1.45%
Non-U.S. Equities (emerging markets)	4.00%	7.95%	10.77%	0.43%
U.S. Fixed Income (aggregate)	27.00%	2.15%	4.98%	1.34%
High Yield Bonds	5.00%	4.23%	7.05%	0.35%
Global Real Estate (REITs)	8.00%	6.03%	8.85%	<u>0.71%</u>
Expected average return for one year				7.51%
Expected geometric mean (40 years)				6.85%

¹ Assumes annual inflation of 2.81%.

The expected average geometric return over 40 years is less than the expected 1 year return due to expected deviations each year from the average which, due to the compounding effect, lower long term returns. Note that if investments fail to achieve the assumed interest rate, future pension costs will increase.

Mortality. The mortality table used as of September 30, 2015, was the RP-2000 combined mortality table, set forward by 4 years for males and 1 year for females. The mortality table used for disabled lives was the RP-2000 disability mortality table for males and females. No explicit provision was made for future mortality improvement, although these tables do have a margin for conservatism. These mortality assumptions are unchanged from the prior valuation.

Salary Increases. Salaries were assumed to increase 7.5% per year 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 4.5% for service after 15 years. This assumption is unchanged from the prior valuation.

Total Payroll Growth. Total payroll for defined benefit and defined contribution members is assumed to increase 3.0% per year. This assumption is unchanged from the prior valuation.

This work product was prepared solely for the Government of Guam Retirement Fund for the purposes described herein and may not be appropriate to use for other purposes. Milliman does not intend to benefit and assumes no duty or liability to other parties who receive this work. Milliman recommends that third parties be aided by their own actuary or other qualified professional when reviewing this Milliman work product.

SECTION I. VALUATION SUMMARY

Retirement Age. We have assumed 40% of employees will retire when first eligible for unreduced retirement. Thereafter, 15% of employees will retire at each year until age 65, and 20% of employees will retire from age 65 until age 70, at which time all remaining employees are assumed to retire. This assumption is unchanged from the prior valuation.

Return of Contributions. We have assumed that any current 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. Employees with at least 20 years of service who terminate employment are assumed to retire upon eligibility for unreduced benefits. Employees with between 20 and 24 years of service who terminate employment and are ineligible for the service retirement benefit are assumed to retire at age 60 with an unreduced benefit with no survivor benefits.

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.

Administrative Expenses. Total administrative expenses are assumed to be \$6,078,000, which is the amount budgeted for the year ending September 30, 2016. Of this amount, \$4,361,000 is allocated to the defined benefit plan and \$1,717,000 to the defined contribution plan.

Rates of Withdrawal and Disability. The assumed rates of withdrawal and disability are shown in Appendix B, and are unchanged from the prior valuation.

Probability of Marriage. We have assumed that 75% of retirees will be married at retirement. This assumption is unchanged from the prior 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 requires a contribution sufficient to fully fund the unfunded actuarial accrued liability by 2031 (within 80 years from May 1, 1951). 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 15.58 years as a level percentage of total payroll (including both defined benefit and defined contribution members).

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.

This work product was prepared solely for the Government of Guam Retirement Fund for the purposes described herein and may not be appropriate to use for other purposes. Milliman does not intend to benefit and assumes no duty or liability to other parties who receive this work. Milliman recommends that third parties be aided by their own actuary or other qualified professional when reviewing this Milliman work product.

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.

	9/30/2015	9/30/2014
Investments		
Common stocks	\$ 861,614,420	\$ 1,061,632,545
Mutual funds	111,797,748	155,708,951
U.S. government securities	289,252,362	216,830,055
Corporate bonds and notes	265,438,566	144,343,162
Money market funds	<u>24,661,095</u>	<u>30,336,838</u>
Total investments	1,552,764,191	1,608,851,551
Receivables		
Employer contributions, net	1,408,852	1,059,857
Employer contributions, unfunded liability	2,830,720	2,014,898
Member contributions	465,097	353,239
Accrued investment income	6,751,454	3,966,005
Due from brokers for unsettled trades	15,356,179	4,820,165
Notes receivable for service credits	619,350	756,356
Notes receivable ERIP	18,078	354,600
Interest and penalties	444,931	366,905
Supplemental/insurance benefits advanced	3,511,215	3,511,711
Other receivables	475,451	519,790
Due from DC plan	<u>193,304</u>	<u>359,668</u>
Total receivables	32,074,631	18,083,194
Cash and cash equivalents	4,139,161	7,254,534
Property and equipment	<u>901,563</u>	<u>1,000,103</u>
Total assets	\$ 1,589,879,546	\$ 1,635,189,382
Liabilities		
Accounts payable and accrued expenses	\$ 2,773,135	\$ 2,832,410
Due to brokers for unsettled trades	<u>10,678,327</u>	<u>7,101,618</u>
Total liabilities	\$ 13,451,462	\$ 9,934,028
Valuation Assets	<u>\$ 1,576,428,084</u>	<u>\$ 1,625,255,354</u>
Excluded Assets ¹		
Receivable – ERIP employer share	\$ 0	\$ 0
Supplemental/COLA benefits receivable	38,641,883	44,785,528
Deferred revenue for service credits	<u>(801,544)</u>	<u>(1,400,075)</u>
Total excluded assets	\$ 37,840,339	\$ 43,385,453

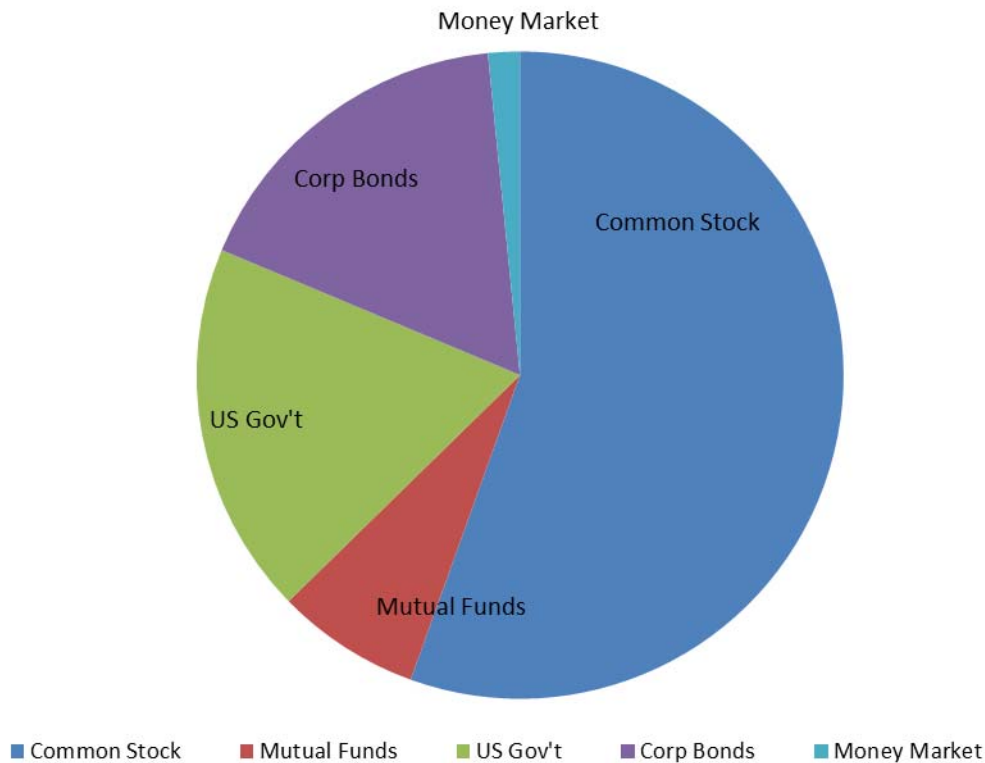
¹ Excluded because payments towards these receivables are deducted from employer contributions.

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	
	9/30/2015	9/30/2014
Common stocks	55.5%	66.0%
Mutual funds	7.2%	9.7%
U.S. government securities	18.6%	13.4%
Corporate bonds and notes	17.1%	9.0%
Money market funds	<u>1.6%</u>	<u>1.9%</u>
Total	100.0%	100.0%



This work product was prepared solely for the Government of Guam Retirement Fund for the purposes described herein and may not be appropriate to use for other purposes. Milliman does not intend to benefit and assumes no duty or liability to other parties who receive this work. Milliman recommends that third parties be aided by their own actuary or other qualified professional when reviewing this Milliman work product.

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	
	9/30/2015	9/30/2014
Beginning Balance	\$ 1,625,255,354	\$ 1,526,135,027
Contributions		
Employer contributions	128,961,255	129,271,564
Member contributions	15,245,935	16,626,009
Decrease/(increase) in excluded assets	<u>5,545,114</u>	<u>4,835,303</u>
Total contributions	149,752,304	150,732,876
Investment Income		
Net appreciation in fair value	(20,642,359)	121,293,316
Interest	19,002,513	18,663,467
Dividends	16,070,108	15,704,974
Other investment income	771,597	540,907
Investment expenses	<u>(5,640,872)</u>	<u>(5,647,797)</u>
Total investment income	9,560,987	150,554,867
Benefit Payments		
Age and service annuities	168,366,770	162,794,390
Disability annuities	6,315,680	6,628,195
Survivor annuities	26,516,944	25,706,384
Refunds to separated employees	2,942,602	2,961,749
Interest on refunded contributions	939,653	1,442,661
Balances transferred to DC plan	<u>0</u>	<u>0</u>
Total benefit payments	205,081,649	199,533,379
Administrative Expenses	3,058,912	2,634,037
Ending Balance	\$ 1,576,428,084	\$ 1,625,255,354

This work product was prepared solely for the Government of Guam Retirement Fund for the purposes described herein and may not be appropriate to use for other purposes. Milliman does not intend to benefit and assumes no duty or liability to other parties who receive this work. Milliman recommends that third parties be aided by their own actuary or other qualified professional when reviewing this Milliman work product.

SECTION II. FUND ASSETS

EXHIBIT 4. ACTUARIAL VALUE OF ASSETS

The actuarial value of assets as of September 30, 2015, 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.

	9/30/2015	9/30/2014
Valuation assets at market value	\$ 1,576,428,084	\$ 1,625,255,354
(Gains)/Losses excluded from actuarial value (see below)	<u>52,966,849</u>	<u>(62,788,238)</u>
Actuarial value of assets	\$ 1,629,394,933	\$ 1,562,467,116
Actuarial value as % of market value	103.4%	96.1%

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

Year	Expected Return ¹	Actual Return	Gain/(Loss)	Percent Excluded	Excluded From Market Value
2014/2015	\$111,758,849	\$ 9,560,987	\$ (102,197,862)	66.67%	\$ (68,131,908)
2013/2014	105,059,690	150,554,867	45,495,177	33.33%	15,165,059
2012/2013	95,401,701	192,776,061	97,374,360	0.00%	<u>0</u>
Total					\$ (52,966,849)

¹ Expected return is based on the assumed investment return, which is 7.0%.

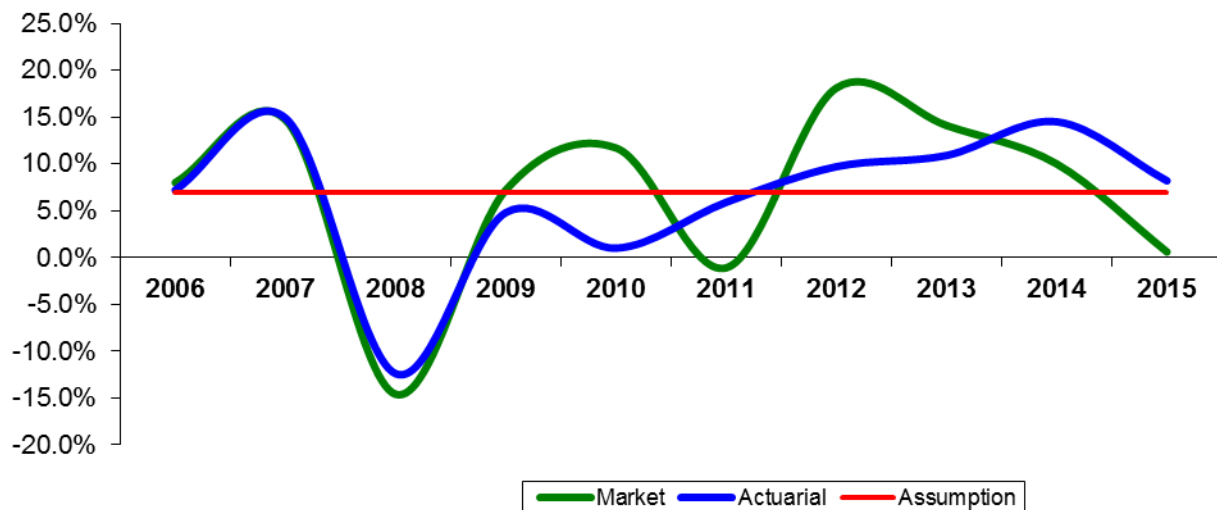
SECTION II. FUND ASSETS

EXHIBIT 5. HISTORICAL RETURNS ON DB PLAN ASSETS

The following table shows the historical return on DB plan assets over the last 14 years. The assumed actuarial valuation rate is 7.0%.

Fiscal Year Ending 9/30	Return on Market Value	Return on Actuarial Value
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%)
2007	14.7%	14.9%
2006	8.0%	7.2%
2005	9.7%	10.7%
2004	9.3%	10.4%
2003	9.9%	13.0%
2002	(0.5%)	(2.7%)
Average of last 5 years	8.1%	9.8%
Average of last 10 years	6.5%	6.2%

* Based on the asset valuation method as of September 30, 2008 (i.e., fixed income investments are valued at amortized cost).



This work product was prepared solely for the Government of Guam Retirement Fund for the purposes described herein and may not be appropriate to use for other purposes. Milliman does not intend to benefit and assumes no duty or liability to other parties who receive this work. Milliman recommends that third parties be aided by their own actuary or other qualified professional when reviewing this Milliman work product.

SECTION III. MEMBERSHIP DATA

EXHIBIT 6. ACTIVE EMPLOYEES (DB)

	9/30/2015	9/30/2014
Reconciliation of Census		
Members reported in raw data	7,199	7,688
Number excluded due to:		
Reported as inactive	4,475	4,683
Reported as terminated	226	230
Zero earnings	0	23
Refund of contributions	0	5
Duplicate inactive records	30	20
Included as retirees or deceased	<u>8</u>	<u>35</u>
Total exclusions	4,739	4,996
Active employees in valuation	2,460	2,692
Active Employees – Non-Uniformed		
Number vested	2,190	2,397
Number not vested	<u>21</u>	<u>23</u>
Total	2,211	2,420
Average age	53.3	52.9
Average service	25.0	24.4
Average earnings	\$ 57,193	\$ 56,684
Average accumulated contributions	\$ 148,423	\$ 140,043
Active Employees – Uniformed		
Number vested	249	271
Number not vested	<u>0</u>	<u>1</u>
Total	249	272
Average age	50.2	49.4
Average service	26.4	25.7
Average earnings	\$ 92,481	\$ 85,504
Average accumulated contributions	\$ 200,502	\$ 188,364
Active Employees – Total		
Number vested	2,439	2,668
Number not vested	<u>21</u>	<u>24</u>
Total	2,460	2,692
Average age	53.0	52.5
Average service	25.1	24.5
Average earnings	\$ 60,765	\$ 59,596
Average accumulated contributions	\$ 153,694	\$ 144,926

This work product was prepared solely for the Government of Guam Retirement Fund for the purposes described herein and may not be appropriate to use for other purposes. Milliman does not intend to benefit and assumes no duty or liability to other parties who receive this work. Milliman recommends that third parties be aided by their own actuary or other qualified professional when reviewing this Milliman work product.

SECTION III. MEMBERSHIP DATA

EXHIBIT 7. ACTIVE EMPLOYEES BY AGENCY

	9/30/2015 (DC)	9/30/2015 (DB)	9/30/2014 (DC)	9/30/2014 (DB)
Agency For Human Resources Development	33	7	31	11
Bureau of Budget & Management Research	12	9	12	7
Bureau of Statistics and Plans	21	10	17	15
Chamorro Land Trust	9	2	5	2
Chief Medical Examiner	3	0	3	0
Customs & Quarantine	108	39	107	40
Dept of Administration	108	46	97	50
Dept of Agriculture	53	28	36	29
Dept of Corrections	180	30	168	35
Dept of Labor	33	13	34	12
Dept of Land Management	24	26	23	26
Dept of Law	146	36	145	36
Dept of Mental Health & Substance Abuse	170	31	159	35
Dept of Military Affairs	29	7	30	9
Dept of Parks and Recreation	42	16	30	18
Dept of Public Health & Social Services	319	99	285	101
Dept of Public Works	227	112	194	121
Dept of Revenue and Taxation	123	45	129	51
Dept of Youth Affairs	54	18	56	22
D.I.S.I.D.	15	5	14	7
Governor's Office	93	8	83	8
Guam CAHA*	0	0	0	0
Guam Energy Office	3	2	6	3
Guam Environmental Protection Agency	38	9	42	9
Guam Fire Dept	166	111	168	121
Guam Legislature	44	6	43	8
Guam Police Dept	286	95	252	108
Guam Public Library*	0	0	0	0
Judiciary Of Guam	318	86	290	94
KGTF	4	5	3	5
Lt. Governor's Office	17	1	17	0
Mayor's Council	207	17	205	16
Public Auditors	11	1	11	1
Public Defender	<u>39</u>	<u>16</u>	<u>39</u>	<u>1</u>
General Fund Total	2,935	936	2,734	1,001
Dept of Chamorro Affairs*	28	11	26	12
Dept of Education	3,060	783	2,806	873
Government of Guam Retirement Fund	25	12	25	11
Guam Airport Authority	166	69	161	73
Guam Community College	214	59	217	63
Guam Economic Development Agency	29	5	29	6
Guam Housing & Urban Renewal Agency	71	20	71	38
Guam Housing Corporation	19	6	20	6
Guam Memorial Hospital Authority	872	147	824	157
Guam Power Authority	347	144	358	155
Guam Visitors Bureau	30	7	28	6
Guam Waterworks Authority	251	51	229	60
Port Authority Of Guam	260	77	255	84
University Of Guam	<u>390</u>	<u>133</u>	<u>398</u>	<u>147</u>
Others Total	5,762	1,524	5,447	1,691
GRAND TOTAL	8,697	2,460	8,181	2,692

* The Dept. of Chamorro Affairs' member count includes Guam CAHA and Guam Public Library.

This work product was prepared solely for the Government of Guam Retirement Fund for the purposes described herein and may not be appropriate to use for other purposes. Milliman does not intend to benefit and assumes no duty or liability to other parties who receive this work. Milliman recommends that third parties be aided by their own actuary or other qualified professional when reviewing this Milliman work product.

SECTION III. MEMBERSHIP DATA

EXHIBIT 8. RETIRED EMPLOYEES (DB)

	9/30/2015	9/30/2014
Service Retirees		
Count	5,119	5,076
Average age	69.0	68.6
Average benefit	\$33,129	\$32,376
Median benefit	\$30,323	\$29,760
Disabled Retirees		
Count	280	306
Average age	67.0	66.1
Average benefit	\$21,813	\$21,708
Median benefit	\$19,876	\$19,899
Survivors		
Count	1,600	1,609
Average age	71.1	70.9
Average benefit	\$16,259	\$15,824
Median benefit	\$14,154	\$13,797
Child Pensioners		
Count	198	235
Average age	16.4	16.3
Average benefit	\$2,880	\$2,880
Median benefit	\$2,880	\$2,880
Total Retirees and Survivors		
Count	6,999	7,226
Average age*	69.4	69.0
Average benefit*	\$28,820	\$28,100
Median benefit*	\$25,626	\$25,044

* Excludes child pensioners.

This work product was prepared solely for the Government of Guam Retirement Fund for the purposes described herein and may not be appropriate to use for other purposes. Milliman does not intend to benefit and assumes no duty or liability to other parties who receive this work. Milliman recommends that third parties be aided by their own actuary or other qualified professional when reviewing this Milliman work product.

SECTION III. MEMBERSHIP DATA

EXHIBIT 9. TERMINATED AND INACTIVE MEMBERS (DB)

	9/30/2015	9/30/2014
Reported as Inactive		
Count	4,475	4,664
Accumulated contributions	\$ 13,601,193	\$ 12,066,498
Reported as Terminated		
Count	226	230
Accumulated contributions	\$ 534,864	\$ 540,012
Zero Earnings		
Count	0	42
Accumulated contributions	\$ 0	\$ 1,690,049
Refund of Contributions		
Count	0	5
Accumulated contributions	\$ 0	\$ 1,888
Total Terminateds and Inactives		
Count	4,701	4,941
Accumulated contributions	\$ 14,136,057	\$ 14,298,447
<hr/>		
Assumed to Withdraw Contributions		
Count	4,543	4,776
Accumulated contributions	\$ 3,365,695	\$ 3,316,052
Not Assumed to Withdraw Contributions		
Count	158	165
Average age	54.4	52.6
Average benefit	\$ 13,846	\$ 14,021
Accumulated contributions	\$ 10,770,362	\$ 10,982,395

This work product was prepared solely for the Government of Guam Retirement Fund for the purposes described herein and may not be appropriate to use for other purposes. Milliman does not intend to benefit and assumes no duty or liability to other parties who receive this work. Milliman recommends that third parties be aided by their own actuary or other qualified professional when reviewing this Milliman work product.

SECTION III. MEMBERSHIP DATA

EXHIBIT 10. RECONCILIATION OF MEMBERSHIP DATA (DB)

	Assumed to Withdraw Contributions					No With'd	Ret	Surv	Disab	Child	Total
	Act	Inact	Term	Zero	Refund	Inact					
9/30/2014	2,692	4,518	230	23	5	165	5,076	1,609	306	235	14,859
Additions from:											
Actives		10	0	0	0	11	193	0	1	0	215
Inactives	6		0	0	0	0	1	0	0	0	7
Terminations	0	0		0	0	0	0	0	0	0	0
Zero earnings	1	15	0		0	0	0	0	0	0	16
Refunds	0	1	0	0		0	0	0	0	0	1
Inactives no w/d	5	1	0	0	0		3	0	0	0	9
Retiree	0	0	0	0	0	0		0	0	0	0
Survivor	0	0	0	0	0	0	0		0	0	0
Disability	0	0	0	0	0	0	0	0		0	0
Child	0	0	0	0	0	0	0	0	0		0
Other adds ¹	3	0	0	0	0	0	3	91	0	13	110
Subtotal	15	27	0	0	0	11	200	91	1	13	358
Subtractions due to:											
Actives		-6	0	-1	0	-5	0	0	0	0	-12
Inactives	-10		0	-15	-1	-1	0	0	0	0	-27
Terminations	0	0		0	0	0	0	0	0	0	0
Zero earnings	0	0	0		0	0	0	0	0	0	0
Refunds	0	0	0	0		0	0	0	0	0	0
Inactives no w/d	-11	0	0	0	0		0	0	0	0	-11
Retiree	-193	-1	0	0	0	-3		0	0	0	-197
Survivor	0	0	0	0	0	0	0		0	0	0
Disability	-1	0	0	0	0	0	0	0		0	-1
Child	0	0	0	0	0	0	0	0	0		0
Other drops ²	-32	-221	-4	-7	-4	-9	-157	-100	-27	-50	-611
Subtotal	-247	-228	-4	-23	-5	-18	-157	-100	-27	-50	-859
9/30/2015	2,460	4,317	226	0	0	158	5,119	1,600	280	198	14,358

1 Other additions indicate members or beneficiaries who were reported this year but who were not included in the prior year's valuation (e.g. a new beneficiary, etc.).

2 Other drops indicate members or beneficiaries who were in the prior year's valuation but who were not reported in this year's census data (e.g. members who received a complete refund, retirees or beneficiaries who are now deceased, children who have reached the maximum age, etc.).

SECTION IV. VALUATION EXHIBITS

EXHIBIT 11. ACTUARIAL ACCRUED LIABILITY

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 members less the present value of future normal costs for active DB employees.

	9/30/2015	9/30/2014
Present Value of Benefits		
Active employees –		
Retirement	\$ 974,114,563	\$ 1,017,790,970
Disability	25,406,595	27,815,911
Death	26,079,558	27,731,320
Withdrawal	<u>37,655,284</u>	<u>43,434,715</u>
Total active PVB	1,063,256,000	1,116,772,916
Retirees and Survivors		
Retirees	1,673,803,685	1,638,441,688
Disabled retirees	55,884,705	61,982,810
Survivors	<u>238,716,901</u>	<u>235,615,124</u>
Total retirees and survivors	1,968,405,291	1,936,039,622
Terminated and inactive members		
Assumed to retire	17,715,728	15,433,081
Assumed to elect return of contributions	<u>3,365,695</u>	<u>3,316,052</u>
Total terminated and inactive members	21,081,423	18,749,133
Total PVB	\$ 3,052,742,714	\$ 3,071,561,671
Present Value of Future Normal Cost		
Active employees –		
Retirement	\$ 93,716,549	\$ 104,896,366
Disability	7,357,600	8,184,463
Death	5,769,669	6,415,518
Withdrawal	<u>18,237,335</u>	<u>20,360,406</u>
Total active PVFNC	\$ 125,081,153	\$ 139,856,753
Actuarial Accrued Liability		
Active members	\$ 938,174,847	\$ 976,916,163
Retirees and survivors	1,968,405,291	1,936,039,622
Terminations and inactives	<u>21,081,423</u>	<u>18,749,133</u>
Total accrued liability	\$ 2,927,661,561	\$ 2,931,704,918

This work product was prepared solely for the Government of Guam Retirement Fund for the purposes described herein and may not be appropriate to use for other purposes. Milliman does not intend to benefit and assumes no duty or liability to other parties who receive this work. Milliman recommends that third parties be aided by their own actuary or other qualified professional when reviewing this Milliman work product.

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.

	9/30/2015	9/30/2014
Actuarial Accrued Liability		
Active members	\$ 938,174,847	\$ 976,916,163
Retirees and survivors	1,968,405,291	1,936,039,622
Terminations and inactives	<u>21,081,423</u>	<u>18,749,133</u>
Total accrued liability	\$ 2,927,661,561	\$ 2,931,704,918
 Actuarial Value of Assets	 1,629,394,933	 1,562,467,116
 Unfunded Actuarial Accrued Liability	 \$ 1,298,266,628	 \$ 1,369,237,802
 Security Ratio = (Assets/AAL)	 55.66%	 53.30%



This work product was prepared solely for the Government of Guam Retirement Fund for the purposes described herein and may not be appropriate to use for other purposes. Milliman does not intend to benefit and assumes no duty or liability to other parties who receive this work. Milliman recommends that third parties be aided by their own actuary or other qualified professional when reviewing this Milliman work product.

SECTION IV. VALUATION EXHIBITS

EXHIBIT 13. CALCULATION OF ACTUARIAL GAIN/LOSS

	9/30/2015	9/30/2014
Unfunded Actuarial Accrued Liability, beginning of year	\$ 1,369,237,802	\$ 1,442,339,029
Additions:		
Normal cost	9,449,212	9,382,274
Interest to end of year	<u>96,508,091</u>	<u>101,620,491</u>
Total additions	105,957,303	111,002,765
Deductions:		
Employer contributions for year	134,506,369	134,106,867
Interest on contributions	<u>4,628,101</u>	<u>4,614,355</u>
Total deductions	139,134,470	138,721,222
Other Changes:		
Plan amendments	0	0
Changes in assumptions and methods	<u>0</u>	<u>0</u>
Net other changes	0	0
Expected UAAL, end of year	\$ 1,336,060,635	\$ 1,414,620,572
Actual UAAL, end of year	<u>1,298,266,628</u>	<u>1,369,237,802</u>
Actuarial Gain/(Loss)	\$ 37,794,007	\$ 45,382,770
Components of Actuarial Gain/(Loss):		
Investment gain/(loss) on actuarial value of assets	\$ 17,952,402	\$ 103,734,705
Other gains/(losses)	<u>19,841,605</u>	<u>(58,351,935)</u>
Total actuarial gain/(loss)	\$ 37,794,007	\$ 45,382,770

This work product was prepared solely for the Government of Guam Retirement Fund for the purposes described herein and may not be appropriate to use for other purposes. Milliman does not intend to benefit and assumes no duty or liability to other parties who receive this work. Milliman recommends that third parties be aided by their own actuary or other qualified professional when reviewing this Milliman work product.

SECTION IV. VALUATION EXHIBITS

EXHIBIT 14. NORMAL COST

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

	9/30/2015		9/30/2014	
Expected defined benefit payroll for next fiscal year	\$ 144,248,356		\$ 154,671,923	
		% of DB Payroll		% of DB Payroll
Normal cost ¹				
Retirement	\$ 14,313,675	9.92%	\$ 15,300,804	9.89%
Disability	1,148,171	0.80%	1,218,177	0.79%
Withdrawal	2,741,335	1.90%	2,916,861	1.89%
Death	<u>900,358</u>	<u>0.62%</u>	<u>952,815</u>	<u>0.62%</u>
Total active normal cost	\$ 19,103,539	13.24%	\$ 20,388,657	13.18%
Assumed DB administrative expenses	<u>4,361,000</u>	<u>3.02%</u>	<u>4,146,000</u>	<u>2.68%</u>
Total normal cost and expenses	\$ 23,464,539	16.27%	\$ 24,534,657	15.86%
Expected member contributions	<u>(13,781,125)</u>	<u>(9.55%)</u>	<u>(14,760,316)</u>	<u>(9.54%)</u>
Government portion of normal cost	\$ 9,683,414	6.71%	\$ 9,774,341	6.32%

¹ Includes interest to mid-year.

SECTION IV. VALUATION EXHIBITS

EXHIBIT 15. AMORTIZATION OF UNFUNDED ACTUARIAL ACCRUED LIABILITY

Pursuant to GCA Section 8137, the unfunded liabilities of the Government of Guam Retirement Fund are to be completely funded within 80 years from May 1, 1951. As of September 30, 2015, there are 15.58 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 3.0% per year.

	9/30/2015	9/30/2014
Total payroll (DB and DC) for fiscal year following	\$ 519,036,907	\$ 504,256,946
Unfunded actuarial accrued liability	1,298,266,628	1,369,237,802
Remaining funding period	15.58 years	16.58 years
Annual amortization	\$ 112,145,408	\$ 113,061,089
As % of total payroll (DB and DC)	21.60%	22.42%

This work product was prepared solely for the Government of Guam Retirement Fund for the purposes described herein and may not be appropriate to use for other purposes. Milliman does not intend to benefit and assumes no duty or liability to other parties who receive this work. Milliman recommends that third parties be aided by their own actuary or other qualified professional when reviewing this Milliman work product.

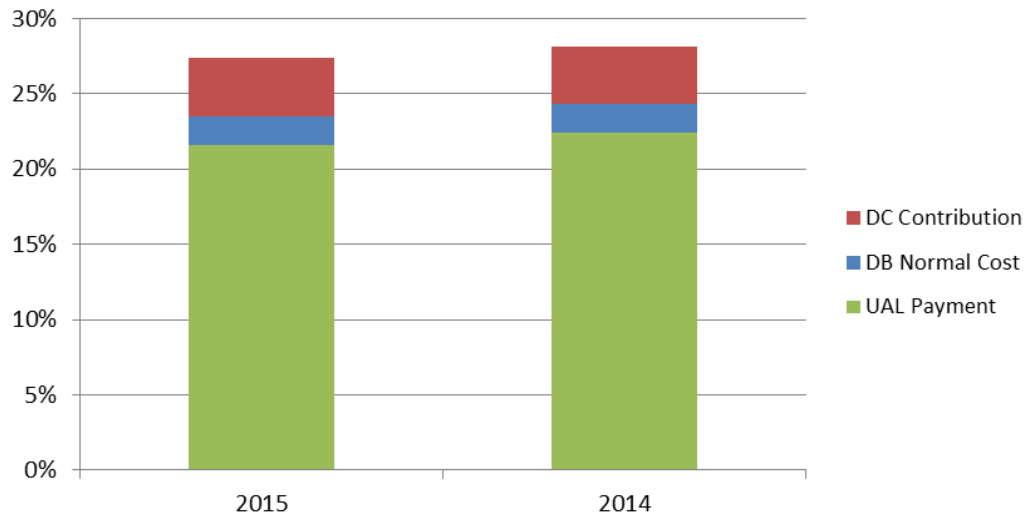
SECTION IV. VALUATION EXHIBITS

EXHIBIT 16. ACTUARIALLY DETERMINED CONTRIBUTION

The Actuarially Determined Contribution (ADC) is equal to the sum of (1) the government normal cost for the defined benefit (DB) plan, (2) the amortization payment towards the unfunded actuarial accrued liability of the defined benefit (DB) plan, 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.

	9/30/2015	9/30/2014
Expected payroll for next fiscal year		
Defined benefit (DB)	\$ 144,248,356	\$ 154,671,923
Defined contribution (DC)	<u>374,788,551</u>	<u>349,585,023</u>
Total payroll (DB and DC)	\$ 519,036,907	\$ 504,256,946
Government normal cost excluding expenses (DB)	\$ 9,683,414	\$ 9,774,341
As % of DB payroll	6.71%	6.32%
As % of total payroll (DB and DC)	1.87%	1.94%
Amortization of UAAL (DB)	\$ 112,145,408	\$ 113,061,089
As % of total payroll (DB and DC)	21.60%	22.42%
Government DC contributions	\$ 20,456,428	\$ 19,139,251
As % of DC payroll	5.46%	5.47%
As % of total payroll (DB and DC)	3.94%	3.80%
Total DB and DC contributions	\$ 142,285,250	\$ 141,974,681
% of total payroll (DB and DC)	27.41%	28.16%

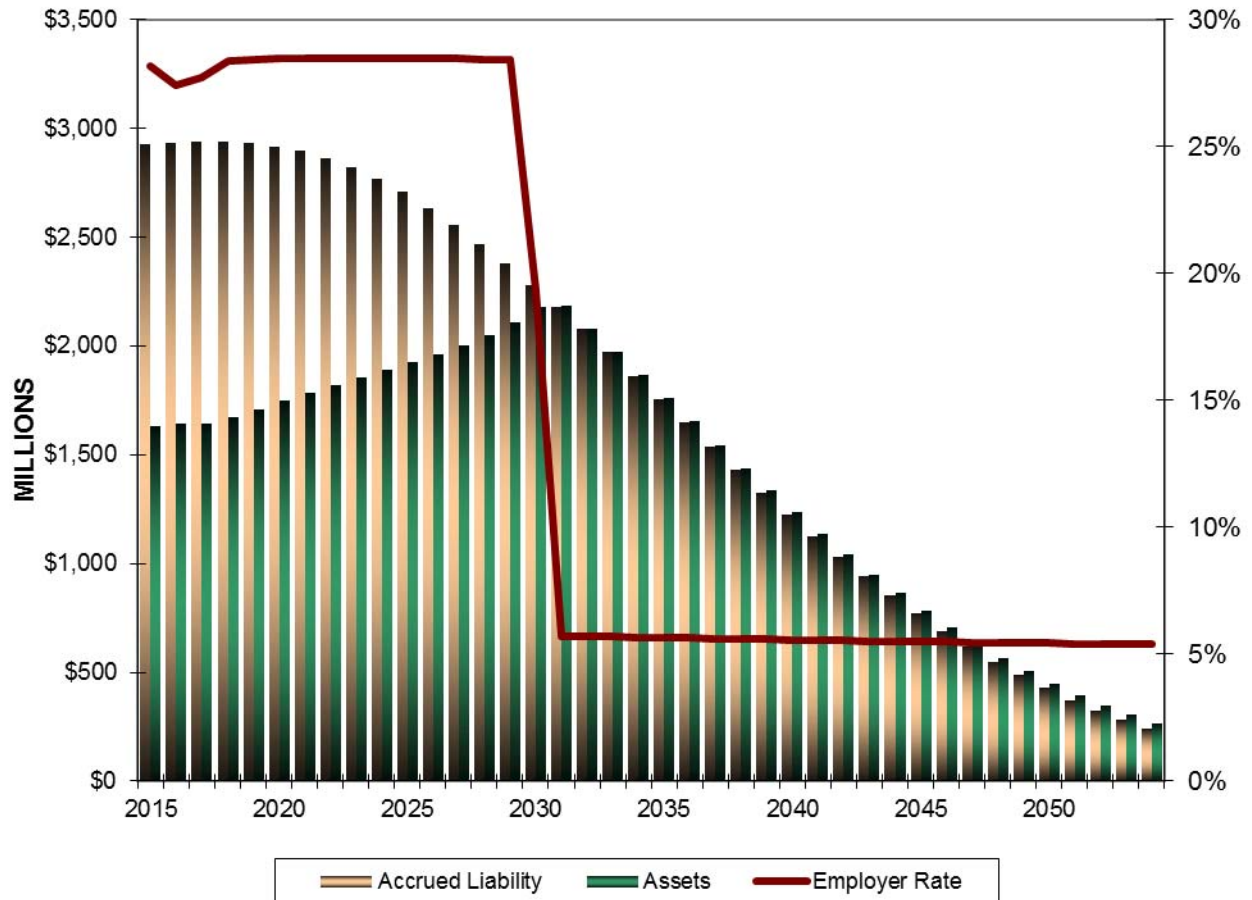
CONTRIBUTION RATE



This work product was prepared solely for the Government of Guam Retirement Fund for the purposes described herein and may not be appropriate to use for other purposes. Milliman does not intend to benefit and assumes no duty or liability to other parties who receive this work. Milliman recommends that third parties be aided by their own actuary or other qualified professional when reviewing this Milliman work product.

SECTION IV. VALUATION EXHIBITS

EXHIBIT 17. PROJECTION OF CONTRIBUTION RATE¹



¹ 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 ¹		CONTRIB RATE		CONTRIBUTIONS			Invest Gain ³	Benefits/ Expenses	DB Fund Actuarial
	DB	DC	DB	DC ²	DB	DC ²	EE			
2015										\$1,629.39
2016	144.25	374.79	28.16%	22.70%	40.62	85.08	13.75	106.82	(212.32)	1,644.45
2017	138.40	396.21	27.41%	21.98%	37.94	87.09	13.20	108.99	(216.55)	1,641.05
2018	132.11	418.54	27.71%	22.30%	36.61	93.33	12.60	111.12	(220.84)	1,673.87
2019	124.76	442.40	28.36%	22.97%	35.39	101.64	11.89	113.45	(225.55)	1,710.68
2020	116.06	468.12	28.43%	23.07%	33.00	107.99	11.07	115.93	(230.73)	1,747.95
2021	106.13	495.58	28.45%	23.11%	30.20	114.51	10.13	118.40	(236.69)	1,784.49
2022	95.54	524.21	28.47%	23.14%	27.20	121.30	9.12	120.81	(242.83)	1,820.09
2023	84.37	553.98	28.47%	23.16%	24.02	128.33	8.08	123.16	(248.91)	1,854.77
2024	73.23	584.27	28.49%	23.19%	20.86	135.52	7.00	125.46	(254.68)	1,888.93
2025	62.77	614.46	28.49%	23.21%	17.88	142.61	6.02	127.79	(259.16)	1,924.06
2026	53.09	644.45	28.49%	23.22%	15.12	149.64	5.11	130.23	(262.60)	1,961.56
2027	44.87	673.60	28.47%	23.22%	12.78	156.40	4.32	132.90	(264.43)	2,003.52
2028	37.97	702.05	28.45%	23.21%	10.80	162.94	3.66	135.97	(264.44)	2,052.47
2029	31.93	730.29	28.43%	23.20%	9.08	169.41	3.09	139.59	(263.29)	2,110.34
2030	26.55	758.54	28.41%	23.18%	7.54	175.85	2.58	143.88	(261.04)	2,179.17
2031	21.80	786.84	19.34%	14.12%	4.22	111.13	2.13	146.46	(257.96)	2,185.15
2032	17.84	815.06	5.73%	0.52%	1.02	4.21	1.74	143.25	(253.72)	2,081.64
2033	14.49	843.40	5.71%	0.51%	0.83	4.28	1.42	136.19	(248.47)	1,975.89
2034	11.49	872.13	5.69%	0.50%	0.65	4.34	1.14	129.01	(242.38)	1,868.66
2035	8.93	901.21	5.68%	0.49%	0.51	4.40	0.89	121.76	(235.58)	1,760.63
2036	6.86	930.58	5.66%	0.48%	0.39	4.43	0.68	114.49	(228.10)	1,652.52
2037	5.22	960.34	5.64%	0.47%	0.29	4.47	0.52	107.24	(219.81)	1,545.23
2038	3.88	990.65	5.63%	0.45%	0.22	4.49	0.39	100.06	(211.04)	1,439.35
2039	2.80	1,021.56	5.61%	0.44%	0.16	4.51	0.28	93.01	(201.77)	1,335.55
2040	1.95	1,053.15	5.59%	0.43%	0.11	4.52	0.20	86.12	(192.12)	1,234.38
2041	1.29	1,085.46	5.58%	0.42%	0.07	4.53	0.14	79.43	(182.24)	1,136.31
2042	0.77	1,118.58	5.56%	0.41%	0.04	4.54	0.09	72.96	(172.14)	1,041.79
2043	0.41	1,152.52	5.54%	0.39%	0.02	4.54	0.05	66.74	(162.00)	951.13
2044	0.21	1,187.31	5.53%	0.38%	0.01	4.54	0.02	60.79	(151.75)	864.74
2045	0.10	1,223.05	5.51%	0.37%	0.01	4.54	0.01	55.14	(141.56)	782.89
2046	0.04	1,259.80	5.50%	0.36%	-	4.54	0.01	49.81	(131.48)	705.77
2047	0.01	1,297.63	5.48%	0.35%	-	4.54	0.00	44.80	(121.60)	633.51
2048	-	1,336.56	n/a	0.34%	-	4.54	-	40.12	(111.97)	566.20
2049	-	1,376.66	n/a	0.33%	-	4.54	-	35.78	(102.63)	503.89
2050	-	1,417.96	n/a	0.32%	-	4.54	-	31.77	(93.64)	446.56
2051	-	1,460.50	n/a	0.31%	-	4.54	-	28.09	(85.02)	394.18
2052	-	1,504.31	n/a	0.30%	-	4.54	-	24.75	(76.81)	346.66
2053	-	1,549.44	n/a	0.29%	-	4.54	-	21.73	(69.05)	303.89
2054	-	1,595.93	n/a	0.28%	-	4.54	-	19.02	(61.74)	265.71

¹ Payroll is assumed to increase 3.0% per year.

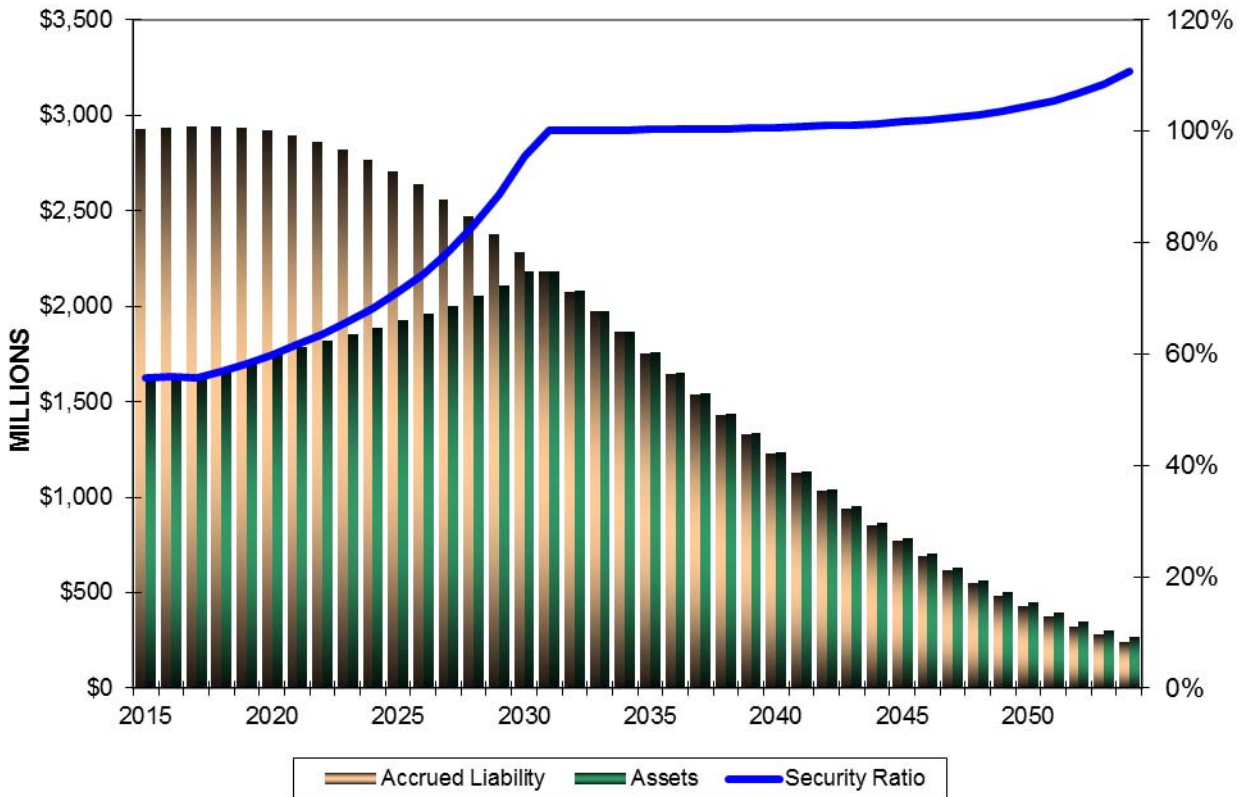
² DC rate and contributions are those for payment towards UAAL and plan expenses only.

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

This work product was prepared solely for the Government of Guam Retirement Fund for the purposes described herein and may not be appropriate to use for other purposes. Milliman does not intend to benefit and assumes no duty or liability to other parties who receive this work. Milliman recommends that third parties be aided by their own actuary or other qualified professional when reviewing this Milliman work product.

SECTION IV. VALUATION EXHIBITS

EXHIBIT 18. PROJECTION OF SECURITY RATIO



This work product was prepared solely for the Government of Guam Retirement Fund for the purposes described herein and may not be appropriate to use for other purposes. Milliman does not intend to benefit and assumes no duty or liability to other parties who receive this work. Milliman recommends that third parties be aided by their own actuary or other qualified professional when reviewing this Milliman work product.

SECTION IV. VALUATION EXHIBITS

EXHIBIT 18. PROJECTION OF SECURITY RATIO (values)

Year Ending	EMPLOYER CONTRIBUTIONS					Security Ratio
	Payroll ¹	DB Rate	Contribs DB Plan	DB Fund AVA ²	Accrued Liability	
2015				\$1,629.39	\$2,927.66	55.66%
2016	\$ 519.04	28.16%	125.70	1,644.45	2,936.23	56.01%
2017	534.61	27.41%	125.03	1,641.05	2,940.15	55.82%
2018	550.65	27.71%	129.94	1,673.87	2,939.02	56.95%
2019	567.17	28.36%	137.03	1,710.68	2,931.95	58.35%
2020	584.18	28.43%	140.99	1,747.95	2,917.90	59.90%
2021	601.71	28.45%	144.71	1,784.49	2,895.38	61.63%
2022	619.76	28.47%	148.50	1,820.09	2,863.49	63.56%
2023	638.35	28.47%	152.35	1,854.77	2,821.62	65.73%
2024	657.50	28.49%	156.38	1,888.93	2,769.28	68.21%
2025	677.23	28.49%	160.49	1,924.06	2,707.21	71.07%
2026	697.54	28.49%	164.76	1,961.56	2,635.87	74.42%
2027	718.47	28.47%	169.18	2,003.52	2,556.43	78.37%
2028	740.02	28.45%	173.74	2,052.47	2,470.46	83.08%
2029	762.22	28.43%	178.49	2,110.34	2,378.83	88.71%
2030	785.09	28.41%	183.40	2,179.17	2,282.38	95.48%
2031	808.64	19.34%	115.35	2,185.15	2,181.70	100.16%
2032	832.90	5.73%	5.24	2,081.64	2,077.81	100.18%
2033	857.89	5.71%	5.11	1,975.89	1,971.64	100.22%
2034	883.63	5.69%	4.99	1,868.66	1,863.96	100.25%
2035	910.13	5.68%	4.90	1,760.63	1,755.44	100.30%
2036	937.44	5.66%	4.82	1,652.52	1,646.80	100.35%
2037	965.56	5.64%	4.76	1,545.23	1,538.93	100.41%
2038	994.53	5.63%	4.70	1,439.35	1,432.44	100.48%
2039	1,024.36	5.61%	4.67	1,335.55	1,327.97	100.57%
2040	1,055.10	5.59%	4.63	1,234.38	1,226.09	100.68%
2041	1,086.75	5.58%	4.60	1,136.31	1,127.25	100.80%
2042	1,119.35	5.56%	4.58	1,041.79	1,031.91	100.96%
2043	1,152.93	5.54%	4.57	951.13	940.37	101.14%
2044	1,187.52	5.53%	4.55	864.74	853.04	101.37%
2045	1,223.14	5.51%	4.55	782.89	770.18	101.65%
2046	1,259.84	5.50%	4.55	705.77	691.98	101.99%
2047	1,297.63	5.48%	4.54	633.51	618.56	102.42%
2048	1,336.56	n/a	4.54	566.20	550.02	102.94%
2049	1,376.66	n/a	4.54	503.89	486.39	103.60%
2050	1,417.96	n/a	4.54	446.56	427.65	104.42%
2051	1,460.50	n/a	4.54	394.18	373.76	105.46%
2052	1,504.31	n/a	4.54	346.66	324.62	106.79%
2053	1,549.44	n/a	4.54	303.89	280.11	108.49%
2054	1,595.93	n/a	4.54	265.71	240.09	110.67%

¹ Payroll is assumed to increase 3.0% per year.

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

This work product was prepared solely for the Government of Guam Retirement Fund for the purposes described herein and may not be appropriate to use for other purposes. Milliman does not intend to benefit and assumes no duty or liability to other parties who receive this work. Milliman recommends that third parties be aided by their own actuary or other qualified professional when reviewing this Milliman work product.

SECTION V. ACCOUNTING EXHIBITS

EXHIBIT 19. NET PENSION LIABILITY

GASB 67 requires the disclosure of the Net Pension Liability. The Total Pension Liability was determined by an actuarial valuation as of the prior valuation date, calculated based on the discount rate and actuarial assumptions listed below and shown in Appendix B, and was then projected forward to the measurement date taking into account any significant changes between the valuation date and the fiscal year end as prescribed by GASB 67 and 68.

The liabilities are calculated using a discount rate that is a blend of the expected investment rate of return and a high quality bond index rate. The expected investment rate of return applies for as long as the plan assets (including future contributions) are projected to be sufficient to make the projected benefit payments. If plan assets are projected to be depleted at some point in the future, the rate of return of a high quality bond index is used for the period after the depletion date. In this case, there are always expected to be sufficient plan assets to make the projected benefit payments. For that reason, the expected investment rate of return of 7.00% is used as the discount rate.

	September 30, 2015	September 30, 2014
Total Pension Liability	\$ 2,946,602,018	\$ 2,871,562,108
Fiduciary Net Position	<u>1,576,428,084</u>	<u>1,625,255,354</u>
Net Pension Liability	\$ 1,370,173,934	\$ 1,246,306,754
Fiduciary Net Position as a % of Total Pension Liability	53.50%	56.60%
Covered Payroll (DB and DC)	\$ 511,366,411	\$ 504,943,471
Net Pension Liability as of % of Covered Payroll	267.94%	246.82%
Valuation Date	9/30/2014	9/30/2013
Measurement date	9/30/2015	9/30/2014
GASB 67 Reporting date	9/30/2015	9/30/2014
GASB 68 Reporting date	9/30/2016	9/30/2015
Depletion date	None	None
Discount rate	7.00%	7.00%
Expected rate of return, net of investment expenses	7.00%	7.00%
Municipal bond rate	n/a	n/a

Sensitivity Analysis	As of September 30, 2015		
	1% Decrease in Discount Rate 6.00%	Current Discount Rate 7.00%	1% Increase in Discount Rate 8.00%
Total Pension Liability	\$ 3,241,278,194	\$ 2,946,602,018	\$ 2,693,123,029
Fiduciary Net Position	<u>1,576,428,084</u>	<u>1,576,428,084</u>	<u>1,576,428,084</u>
Net Pension Liability	\$ 1,664,850,110	\$ 1,370,173,934	\$ 1,116,694,945

This work product was prepared solely for the Government of Guam Retirement Fund for the purposes described herein and may not be appropriate to use for other purposes. Milliman does not intend to benefit and assumes no duty or liability to other parties who receive this work. Milliman recommends that third parties be aided by their own actuary or other qualified professional when reviewing this Milliman work product.

SECTION V. ACCOUNTING EXHIBITS

EXHIBIT 20. NET PENSION LIABILITY BY COMPONENT UNIT

GGRF is a single employer plan under GASB 68. For the purpose of allocating the Net Pension Liability among the component units listed below, we have used the ratio of each component unit's expected contribution to the total expected employer contributions. The expected contributions for the DB plan are based upon a contribution rate of 29.85% of defined benefit (DB) payroll and 24.85% of defined contribution (DC) payroll.

GASB 68 permits an employer to report its net pension liability as of a measurement date one year earlier than the net pension liability reported by the plan. The allocation below is as of the current measurement date, which may be reported by the employer in the subsequent fiscal year.

FOR THE FISCAL YEAR ENDING SEPTEMBER 30, 2015 TO BE REPORTED AS OF SEPTEMBER 30, 2016					
Component Unit	DB Payroll	DC Payroll	Expected DB Contributions	% Share	Allocated Net Pension Liability
Gov't of Guam General Fund	\$ 55,969,605	\$ 106,218,415	\$ 43,102,203	31.95%	\$ 437,955,865
Gov't of Guam Retirement Fund	563,476	1,087,151	438,355	0.33%	4,454,068
Guam Community College	3,634,138	8,810,750	3,274,262	2.43%	33,269,349
Guam Department of Education	43,080,506	109,931,936	40,177,617	29.79%	408,239,530
Guam Econ. Dev. Authority	356,336	1,420,765	459,426	0.34%	4,668,168
Guam Housing and UR Authority	1,428,813	2,723,123	1,103,197	0.82%	11,209,441
Guam Housing Corporation	287,382	966,262	325,899	0.24%	3,311,417
Guam Int'l Airport Authority	6,129,664	9,575,359	4,209,181	3.12%	42,768,939
Guam Legislature	463,035	2,043,954	646,138	0.48%	6,565,324
Guam Memorial Hosp. Authority	8,930,544	39,583,905	12,502,368	9.27%	127,034,931
Guam Power Authority	9,286,369	16,983,717	6,992,435	5.19%	71,049,220
Guam Visitors Bureau	397,744	1,309,932	444,245	0.33%	4,513,916
Guam Waterworks Authority	3,670,934	10,717,697	3,759,121	2.79%	38,195,938
Judiciary of Guam	6,870,594	14,470,412	5,646,770	4.19%	57,376,094
Port Authority of Guam	4,947,942	10,816,028	4,164,744	3.09%	42,317,421
University of Guam	<u>9,453,808</u>	<u>19,236,115</u>	<u>7,602,136</u>	<u>5.64%</u>	<u>77,244,313</u>
Total	\$155,470,890	\$355,895,521	\$134,848,097	100.00%	\$1,370,173,934

This work product was prepared solely for the Government of Guam Retirement Fund for the purposes described herein and may not be appropriate to use for other purposes. Milliman does not intend to benefit and assumes no duty or liability to other parties who receive this work. Milliman recommends that third parties be aided by their own actuary or other qualified professional when reviewing this Milliman work product.

EXHIBIT 21. SCHEDULE OF CHANGES IN NET PENSION LIABILITY

GASB 67 requires a 10-Year schedule of changes in the Net Pension Liability. Changes for the most recent three years are shown below.

	<i>For the Fiscal Year Ending</i>				
	<i>Sept 30, 2015</i>	<i>Sept 30, 2014</i>	<i>Sept 30, 2013</i>	<i>Sept 30, 2012</i>	<i>Sept 30, 2011</i>
Total Pension Liability - Beginning of Year	\$2,871,562,108	\$2,829,439,663	\$2,811,399,525	\$ n/a	\$ n/a
Service cost	20,388,657	22,323,496	21,089,199	n/a	n/a
Interest on the total pension liability	199,590,092	191,594,023	190,558,974	n/a	n/a
Changes of benefit terms	0	0	0	n/a	n/a
Differences between actual and expected experience with regard to economic or demographic factors	60,142,810	27,739,034	0	n/a	n/a
Changes of assumptions	0	0	0	n/a	n/a
Benefit payments	<u>(205,081,649)</u>	<u>(199,534,108)</u>	<u>(193,608,035)</u>	<u>n/a</u>	<u>n/a</u>
Total changes	75,039,910	42,122,445	18,040,138	n/a	n/a
Total Pension Liability - End of Year	\$2,946,602,018	\$2,871,562,108	\$2,829,439,663	\$ n/a	\$ n/a
Fiduciary Net Position – Beginning of Year	\$1,625,255,354	\$1,526,135,027	\$1,391,421,887	\$ n/a	\$ n/a
Contributions from employers	\$134,506,369	134,106,867	121,940,930	n/a	n/a
Member contributions	15,245,935	16,626,009	16,290,014	n/a	n/a
Net investment income	9,560,987	150,599,955	192,776,061	n/a	n/a
Benefit payments	(205,081,649)	(199,534,108)	(193,608,035)	n/a	n/a
Administrative expense	<u>(3,058,912)</u>	<u>(2,678,396)</u>	<u>(2,685,830)</u>	<u>n/a</u>	<u>n/a</u>
Total changes	(48,827,270)	99,120,327	134,713,140	n/a	n/a
Fiduciary Net Position – End of Year	\$1,576,428,084	\$1,625,255,354	\$1,526,135,027	\$ n/a	\$ n/a
Net Pension Liability - End of Year	\$1,370,173,934	\$1,246,306,754	\$1,303,304,636	\$ n/a	\$ n/a
Fiduciary Net Position as a % of TPL	53.50%	56.60%	53.94%	n/a%	n/a%
Covered employee payroll	\$ 511,366,411	\$ 504,943,471	\$ 460,347,780	\$ n/a	\$ n/a
Net Pension Liability as a % of Covered Employee Payroll	267.94%	246.82%	283.11%	n/a%	n/a%

This work product was prepared solely for the Government of Guam Retirement Fund for the purposes described herein and may not be appropriate to use for other purposes. Milliman does not intend to benefit and assumes no duty or liability to other parties who receive this work. Milliman recommends that third parties be aided by their own actuary or other qualified professional when reviewing Milliman work product.

SECTION V. ACCOUNTING EXHIBITS

EXHIBIT 22. SCHEDULE OF EMPLOYER CONTRIBUTIONS

Plan Year Ending September 30	Actuarially Determined Contribution	Actual Employer Contribution	Contribution Deficiency (Excess)	Covered Payroll	Contribution as a % of Covered Payroll
2015	\$134,506,000	\$134,506,000	\$0	\$ 511,366,000	26.30%
2014	134,107,000	134,107,000	0	504,943,000	26.56%
2013	121,698,000 ¹	121,941,000	(243,000)	460,348,000	26.49%
2012	121,078,000	113,876,000	7,202,000	456,985,000	24.92%
2011	113,964,000	111,527,000	2,437,000	461,211,000	24.18%
2010	113,944,000	101,232,000	12,712,309	429,044,000	23.59%
2009	95,945,000	92,921,000	3,024,000	423,774,000	21.93%
2008	98,743,000	86,806,000	11,937,000	411,383,000	21.10%
2007	92,207,000	76,973,000	15,234,000	377,049,000	20.41%
2006	110,940,000	85,771,000	25,169,000	376,604,000	22.77%

¹ Based upon actuarial valuation as of September 30, 2010.

Actuarially determined contribution rates are calculated as of September 30, two years prior to the end of the fiscal year in which contributions are reported. The methods and assumptions used to determine contribution rates are as follows:

Actuarial cost method	Entry age
Amortization method	Level percentage of payroll, closed
Remaining amortization period	May 1, 2031 (15.58 years remaining as of September 30, 2015)
Asset valuation method	3-year smoothed market value (effective September 30, 2009)
Inflation	2.75% per year
Total payroll growth	3.00% per year
Salary increases	7.5% per year for the first 5 years of service, 6% for 5-10 years, 5% for 11-15 years and 4.5% for service over 15 years.
Investment rate of return	7.00%, net of investment expenses, including inflation of 2.75%
Retirement age	40% are assumed to retire upon first eligibility for unreduced retirement. Thereafter, the probabilities of retirement are 15% until age 65, 20% from 65-69, and 100% at age 70.
Mortality	RP-2000 healthy mortality table set forward by 4 years for males and 1 year for females. Mortality for disabled lives is the RP 2000 disability mortality table with no set forwards.
Other information	Actuarial assumptions are based upon periodic experience studies. The last experience study reviewed experience from 2007-2011, and was first reflected in the actuarial valuation as of September 30, 2012.

This work product was prepared solely for the Government of Guam Retirement Fund for the purposes described herein and may not be appropriate to use for other purposes. Milliman does not intend to benefit and assumes no duty or liability to other parties who receive this work. Milliman recommends that third parties be aided by their own actuary or other qualified professional when reviewing this Milliman work product.

SECTION V. ACCOUNTING EXHIBITS

EXHIBIT 23. CALCULATION OF PENSION EXPENSE

GASB 68 requires the calculation of the pension expense for fiscal years beginning on or after June 15, 2014, and permits the use of a measurement period ending one year prior to the reporting date.

Pension Expense	For the Fiscal Year Ending To Be Reported as of	September 30, 2015 September 30, 2016	September 30, 2014 September 30, 2015
Service cost		\$ 20,388,657	\$ 22,323,496
Interest on the total pension liability		199,590,092	191,594,023
Effect of plan changes		0	0
Administrative expense		3,058,912	2,678,396
Member contributions		(15,245,935)	(16,626,009)
Expected investment return, net of investment expenses		(111,758,849)	(105,058,139)
Recognition of Deferred Inflows/Outflows of Resources			
Economic/demographic (gains) or losses		52,205,495	18,492,689
Assumption changes		0	0
Investment (gains) or losses		<u>(8,143,663)</u>	<u>(28,583,235)</u>
Total Recognition		44,061,832	(10,090,546)
Pension expense		\$ 140,094,709	\$ 84,821,221

Deferred Inflows / Outflows of Resources	To Be Reported as of September 30, 2016	
	Deferred Inflows of Resources	Deferred Outflows of Resources
Differences between expected and actual experience	\$ 0	\$ 17,183,660
Changes of assumptions	0	0
Net difference between projected and actual earnings	0	15,483,456
Changes in Proportion/Differences Between Employer Contributions and Proportionate Share	(10,314,552)	10,314,552
Contributions made subsequent to measurement date	<u>0</u>	<u>TBD</u>
Total	\$ (10,314,552)	\$ TBD

Amounts currently reported as deferred inflows and outflows of resources related to pensions will be recognized in pension expense as follows:

Fiscal Year Ending June 30	Recognized Deferred Inflows/Outflows
2017	\$ 9,039,997
2018	(8,143,663)
2019	11,331,208
2020	20,439,574
2021	0
Thereafter	0

This work product was prepared solely for the Government of Guam Retirement Fund for the purposes described herein and may not be appropriate to use for other purposes. Milliman does not intend to benefit and assumes no duty or liability to other parties who receive this work. Milliman recommends that third parties be aided by their own actuary or other qualified professional when reviewing this Milliman work product.

SECTION V. ACCOUNTING EXHIBITS

EXHIBIT 24. SCHEDULE OF DEFERRED INFLOWS AND OUTFLOWS OF RESOURCES

Investment (gains)/losses are recognized in pension expense over a period of five years. Economic/demographic (gains)/losses and assumption changes or inputs are recognized over the average remaining service life for all active and inactive members.

Date Established	Original Amount	Original Recognition Period	Amount Recognized in Expense FYE 2016	Balance of Deferred Inflows 9/30/2016	Balance of Deferred Outflows 9/30/2016
Investment (gains) or losses					
9/30/2014	\$ (97,374,360)	5.0	\$ (19,474,872)	\$ (38,949,744)	\$ 0
9/30/2015	(45,541,816)	5.0	(9,108,363)	(27,325,090)	0
9/30/2016	102,197,862	5.0	20,439,572	0	81,758,290
Economic/demographic (gains) or losses					
9/30/2014	\$ 0	n/a	\$ 0	\$ 0	\$ 0
9/30/2015	27,739,034	1.5	9,246,345	0	0
9/30/2016	60,142,810	1.4	42,959,150	0	17,183,660
Assumption changes or inputs					
9/30/2014	\$ 0	n/a	\$ 0	\$ 0	\$ 0
9/30/2015	0	n/a	0	0	0
9/30/2016	0	n/a	0	0	0
Changes in Proportion/Differences Between Employer Contributions and Proportionate Share					
9/30/2014	\$ 0	n/a	\$ 0	\$ 0	\$ 0
9/30/2015	0	1.5	0	(17,664,231)	17,664,231
9/30/2016	0	1.4	0	(10,314,552)	10,314,552

This work product was prepared solely for the Government of Guam Retirement Fund for the purposes described herein and may not be appropriate to use for other purposes. Milliman does not intend to benefit and assumes no duty or liability to other parties who receive this work. Milliman recommends that third parties be aided by their own actuary or other qualified professional when reviewing this Milliman work product.

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.

Membership Conditions and Exclusions: 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.

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 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.

SECTION VI. APPENDICES

- 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, $\frac{1}{2}$ 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 $\frac{1}{4}$ 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.
- 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.

SECTION VI. APPENDICES

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

- 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).

Amount of Service Retirement Annuity: 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.”

Average Annual Salary: Average of three highest annual salaries received by a member during the entire period of pension credit, or \$6,000, whichever is greater.

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.

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.

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% 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.

SECTION VI. APPENDICES

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 21.

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.

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

SECTION VI. APPENDICES

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 or 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 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.

SECTION VI. APPENDICES

APPENDIX B. ACTUARIAL COST METHOD AND ASSUMPTIONS

	September 30, 2015		September 30, 2014	
Actuarial Cost Method	Entry Age Normal		Entry Age Normal	
Interest Rate	7.00%		7.00%	
Long-term Expected Rate of Return on Plan Assets	7.00%		7.00%	
Salary Increases	<u>Service</u>	<u>% Increase</u>	<u>Service</u>	<u>% Increase</u>
	0 – 5	7.5%	0 – 5	7.5%
	6 – 10	6.0%	6 – 10	6.0%
	11 – 15	5.0%	11 – 15	5.0%
	16 – 20	4.5%	16 – 20	4.5%
	Over 20	4.5%	Over 20	4.5%
Total Payroll Growth (DB and DC)	3.00%		3.00%	
Cost of Living Adjustment	Specified in Plan		Specified in Plan	
Mortality	RP-2000 Combined Healthy table +4 for males +1 for females No provision was made for future mortality improvement.		RP-2000 Combined Healthy table +4 for males +1 for females No provision was made for future mortality improvement.	
Disability Incidence	1974-78 SOA LTD Non-Jumbo, with rates reduced by 50%		1974-78 SOA LTD Non-Jumbo, with rates reduced by 50%	
Post-disability mortality	RP 2000 Disability male/female tables		RP 2000 Disability male/female tables	
Withdrawal Rates	Service-based rates (see attached)		Service-based rates (see attached)	
Retirement Age	40% assumed to retire at earliest eligibility for unreduced benefits.		40% assumed to retire at earliest eligibility for unreduced benefits.	
	15% per year thereafter until age 65		15% per year thereafter until age 65	
	20% per year thereafter until age 70		20% per year thereafter until age 70	
	100% at age 70		100% at age 70	

This work product was prepared solely for the Government of Guam Retirement Fund for the purposes described herein and may not be appropriate to use for other purposes. Milliman does not intend to benefit and assumes no duty or liability to other parties who receive this work. Milliman recommends that third parties be aided by their own actuary or other qualified professional when reviewing this Milliman work product.

SECTION VI. APPENDICES

	September 30, 2015	September 30, 2014
Return of Contributions	<p>100% of current employees who withdraw before retirement and who have less than 20 years of service are assumed to elect a return of contributions</p> <p>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.</p> <p>Contributions earn 4.5% interest</p>	<p>100% of current employees who withdraw before retirement and who have less than 20 years of service are assumed to elect a return of contributions</p> <p>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.</p> <p>Contributions earn 4.5% interest</p>
Marital Status	<p>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).</p>	<p>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).</p>
Sick Leave Adjustments	<p>Assumed to add 1.5 years of service and increase average earnings by 10% at retirement</p>	<p>Assumed to add 1.5 years of service and increase average earnings by 10% at retirement</p>
Administrative Expenses	<p>\$6,078,000 per year (equal to budgeted expense for year ending 9/30/16), allocated 72% to DB and 28% to DC</p>	<p>\$5,806,000 per year (equal to budgeted expense for year ending 9/30/15), allocated 71% to DB and 29% to DC</p>
Survivor Benefit – Minor Children	<p>Assumed to increase value of retirement benefits by 0.67% and survivor benefits by 20% for active members</p>	<p>Assumed to increase value of retirement benefits by 0.67% and survivor benefits by 20% for active members</p>
Asset Valuation Method	<p>3-year phase-in of gains/losses relative to interest rate assumption</p>	<p>3-year phase-in of gains/losses relative to interest rate assumption</p>
Data Inconsistencies	<p>None</p>	<p>None</p>

This work product was prepared solely for the Government of Guam Retirement Fund for the purposes described herein and may not be appropriate to use for other purposes. Milliman does not intend to benefit and assumes no duty or liability to other parties who receive this work. Milliman recommends that third parties be aided by their own actuary or other qualified professional when reviewing this Milliman work product.

SECTION VI. 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	0.05	0	15.0	20	0.02	0.05	0	15.0
21	0.04	0.05	1	14.0	21	0.02	0.05	1	14.0
22	0.04	0.05	2	13.0	22	0.02	0.05	2	13.0
23	0.04	0.05	3	12.0	23	0.02	0.05	3	12.0
24	0.04	0.05	4	11.0	24	0.02	0.05	4	11.0
25	0.04	0.05	5	10.0	25	0.02	0.05	5	10.0
26	0.04	0.05	6	9.0	26	0.02	0.05	6	9.0
27	0.05	0.05	7	8.0	27	0.02	0.05	7	8.0
28	0.06	0.05	8	7.0	28	0.02	0.05	8	7.0
29	0.06	0.05	9	6.0	29	0.03	0.05	9	6.0
30	0.07	0.05	10	5.0	30	0.03	0.05	10	5.0
31	0.08	0.05	11	4.5	31	0.04	0.05	11	4.5
32	0.08	0.05	12	4.0	32	0.04	0.05	12	4.0
33	0.09	0.05	13	3.5	33	0.04	0.05	13	3.5
34	0.10	0.05	14	3.0	34	0.05	0.05	14	3.0
35	0.10	0.05	15	2.5	35	0.05	0.05	15	2.5
36	0.11	0.05	16	2.0	36	0.06	0.05	16	2.0
37	0.11	0.05	17	2.0	37	0.06	0.05	17	2.0
38	0.12	0.05	18	2.0	38	0.06	0.05	18	2.0
39	0.13	0.05	19	2.0	39	0.07	0.05	19	2.0
40	0.14	0.10	20 & over	2.0	40	0.08	0.10	20 & over	2.0
41	0.15	0.10			41	0.09	0.10		
42	0.16	0.10			42	0.09	0.10		
43	0.17	0.10			43	0.10	0.10		
44	0.19	0.10			44	0.11	0.10		
45	0.20	0.18			45	0.12	0.18		
46	0.21	0.18			46	0.13	0.18		
47	0.24	0.18			47	0.14	0.18		
48	0.27	0.18			48	0.16	0.18		
49	0.29	0.18			49	0.17	0.18		
50	0.32	0.32			50	0.19	0.32		
51	0.36	0.32			51	0.20	0.32		
52	0.42	0.32			52	0.22	0.32		
53	0.47	0.32			53	0.24	0.32		
54	0.53	0.32			54	0.27	0.32		
55	0.59	0.53			55	0.31	0.53		
56	0.67	0.53			56	0.35	0.53		
57	0.77	0.53			57	0.39	0.53		
58	0.88	0.53			58	0.44	0.53		
59	1.00	0.53			59	0.51	0.53		
60	1.13	0.76			60	0.58	0.76		
61	1.27	0.76			61	0.67	0.76		
62	1.44	0.76			62	0.76	0.76		
63	1.61	0.76			63	0.86	0.76		
64	1.79	0.76			64	0.97	0.76		

This work product was prepared solely for the Government of Guam Retirement Fund for the purposes described herein and may not be appropriate to use for other purposes. Milliman does not intend to benefit and assumes no duty or liability to other parties who receive this work. Milliman recommends that third parties be aided by their own actuary or other qualified professional when reviewing this Milliman work product.

SECTION VI. APPENDICES

APPENDIX C. SUMMARY OF PARTICIPANT DATA

Active Non-Uniformed

Age	COUNT			ANNUAL SALARIES		
	Males	Females	Total	Males	Females	Total
Under 20	-	-	-	-	-	-
20 – 24	-	-	-	-	-	-
25 – 29	-	-	-	-	-	-
30 – 34	-	-	-	-	-	-
35 – 39	7	3	10	*	*	*
40 – 44	98	106	204	\$ 4,798,199	\$ 5,005,007	\$ 9,803,206
45 – 49	224	262	486	12,291,645	14,162,835	26,454,480
50 – 54	280	352	632	16,078,461	19,998,993	36,077,454
55 – 59	210	253	463	12,170,355	14,293,748	26,464,103
60 – 64	102	157	259	6,618,537	8,654,722	15,273,259
65 – 69	38	80	118	2,584,287	4,456,833	7,041,120
70 & Over	<u>19</u>	<u>20</u>	<u>39</u>	*	<u>1,012,819</u>	<u>1,012,819</u>
Total	978	1,233	2,211	\$54,541,484	\$67,584,957	\$122,126,441

* Not shown if less 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	1	1	1	1	6	-	-	-	-	10
40 – 44	5	5	18	25	133	18	-	-	-	204
45 – 49	5	9	5	23	244	182	18	-	-	486
50 – 54	8	15	9	27	195	257	111	10	-	632
55 – 59	8	12	7	17	150	156	87	24	2	463
60 – 64	2	3	1	16	82	92	36	22	5	259
65 – 69	1	1	-	3	39	38	23	9	4	118
70 & Over	<u>-</u>	<u>-</u>	<u>-</u>	<u>1</u>	<u>12</u>	<u>12</u>	<u>7</u>	<u>3</u>	<u>4</u>	<u>39</u>
Total	30	46	41	113	861	755	282	68	15	2,211

This work product was prepared solely for the Government of Guam Retirement Fund for the purposes described herein and may not be appropriate to use for other purposes. Milliman does not intend to benefit and assumes no duty or liability to other parties who receive this work. Milliman recommends that third parties be aided by their own actuary or other qualified professional when reviewing this Milliman work product.

SECTION VI. APPENDICES

Active Uniformed

Age	COUNT			ANNUAL SALARIES		
	Males	Females	Total	Males	Females	Total
Under 20	-	-	-	-	-	-
20 – 24	-	-	-	-	-	-
25 – 29	-	-	-	-	-	-
30 – 34	-	-	-	-	-	-
35 – 39	1	-	1	*	-	-
40 – 44	34	1	35	\$ 2,494,801	*	\$ 2,494,801
45 – 49	73	2	75	6,852,808	*	6,852,808
50 – 54	86	7	93	8,099,683	*	8,099,683
55 – 59	36	1	37	3,524,902	*	3,524,902
60 – 64	4	-	4	*	-	*
65 – 69	2	-	2	*	-	*
70 & Over	<u>2</u>	<u>-</u>	<u>2</u>	<u>*</u>	<u>-</u>	<u>*</u>
Total	238	11	249	\$20,972,194	*	\$20,972,194

* Not shown if less 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	-	-	-	1	-	-	-	-	-	1
40 – 44	-	-	-	8	24	3	-	-	-	35
45 – 49	-	1	-	2	29	40	3	-	-	75
50 – 54	-	-	-	2	22	37	31	1	-	93
55 – 59	-	-	-	-	9	12	12	4	-	37
60 – 64	-	-	-	-	1	-	3	-	-	4
65 – 69	-	-	-	-	-	1	-	1	-	2
70 & Over	<u>-</u>	<u>-</u>	<u>-</u>	<u>-</u>	<u>-</u>	<u>-</u>	<u>2</u>	<u>-</u>	<u>-</u>	<u>2</u>
Total	-	1	-	13	85	93	51	6	-	249

This work product was prepared solely for the Government of Guam Retirement Fund for the purposes described herein and may not be appropriate to use for other purposes. Milliman does not intend to benefit and assumes no duty or liability to other parties who receive this work. Milliman recommends that third parties be aided by their own actuary or other qualified professional when reviewing this Milliman work product.

SECTION VI. APPENDICES

Active Total

Age	COUNT			ANNUAL SALARIES		
	Males	Females	Total	Males	Females	Total
Under 20	-	-	-	-	-	-
20 – 24	-	-	-	-	-	-
25 – 29	-	-	-	-	-	-
30 – 34	-	-	-	-	-	-
35 – 39	8	3	11	*	*	*
40 – 44	132	107	239	\$ 7,293,000	\$5,005,007	\$ 12,298,007
45 – 49	297	264	561	19,144,453	14,162,835	33,307,288
50 – 54	366	359	725	24,178,144	19,998,993	44,177,137
55 – 59	246	254	500	15,695,257	14,293,748	29,989,005
60 – 64	106	157	263	6,618,537	8,654,722	15,273,259
65 – 69	40	80	120	2,584,287	4,456,833	7,041,120
70 & Over	<u>21</u>	<u>20</u>	<u>41</u>	<u>*</u>	<u>1,012,819</u>	<u>1,012,819</u>
Total	1,216	1,244	2,460	\$75,513,678	\$67,584,957	\$143,098,635

* Not shown if less 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	1	1	1	2	6	-	-	-	-	11
40 – 44	5	5	18	33	157	21	-	-	-	239
45 – 49	5	10	5	25	273	222	21	-	-	561
50 – 54	8	15	9	29	217	294	142	11	-	725
55 – 59	8	12	7	17	159	168	99	28	2	500
60 – 64	2	3	1	16	83	92	39	22	5	263
65 – 69	1	1	-	3	39	39	23	10	4	120
70 & Over	<u>-</u>	<u>-</u>	<u>-</u>	<u>1</u>	<u>12</u>	<u>12</u>	<u>9</u>	<u>3</u>	<u>4</u>	<u>41</u>
Total	30	47	41	126	946	848	333	74	15	2,460

This work product was prepared solely for the Government of Guam Retirement Fund for the purposes described herein and may not be appropriate to use for other purposes. Milliman does not intend to benefit and assumes no duty or liability to other parties who receive this work. Milliman recommends that third parties be aided by their own actuary or other qualified professional when reviewing this Milliman work product.

SECTION VI. APPENDICES

Service Retirees

Age	COUNT			ANNUAL BENEFITS		
	Males	Females	Total	Males	Females	Total
Under 25	-	1	1	-	*	*
25 – 29	-	-	-	-	-	-
30 – 34	-	-	-	-	-	-
35 – 39	-	-	-	-	-	-
40 – 44	-	-	-	-	-	-
45 – 49	14	4	18	*	*	*
50 – 54	116	66	182	\$ 4,877,576	\$ 2,371,696	\$ 7,249,272
55 – 59	292	229	521	12,484,338	8,355,091	20,839,429
60 – 64	537	521	1,058	20,506,197	17,260,367	37,766,564
65 – 69	539	585	1,124	19,898,253	18,486,852	38,385,105
70 – 74	394	457	851	14,265,108	13,725,461	27,990,569
75 – 79	290	339	629	9,533,839	8,779,998	18,313,837
80 – 84	189	238	427	5,054,557	5,841,048	10,895,605
85 – 89	98	122	220	2,627,985	2,835,708	5,463,693
90 & Over	<u>31</u>	<u>57</u>	<u>88</u>	<u>671,007</u>	<u>1,212,041</u>	<u>1,883,048</u>
Total	2,500	2,619	5,119	\$89,918,860	\$78,868,262	\$168,787,122

* Not shown if less than 20 members. The totals only sum the cells that are displayed. Payees receiving benefits under Qualified Domestic Relations Orders (QDROs) are included with service retirees.

Age	ANNUAL BENEFIT LEVEL									Total
	<\$5k	\$5-10k	\$10-15k	\$15-20k	\$20-25k	\$25-30k	\$30-40k	\$40-50k	\$50k+	
Under 40	-	-	-	-	1	-	-	-	-	1
40 – 44	-	-	-	-	-	-	-	-	-	-
45 – 49	-	1	-	1	-	3	5	3	5	18
50 – 54	-	2	7	12	25	22	41	29	44	182
55 – 59	-	4	16	30	54	66	124	111	116	521
60 – 64	4	8	42	61	130	157	309	189	158	1,058
65 – 69	1	14	60	84	149	189	306	184	137	1,124
70 – 74	2	11	63	93	126	142	193	124	97	851
75 – 79	1	21	72	102	95	87	140	57	54	629
80 – 84	-	11	84	90	67	58	67	30	20	427
85 – 89	-	2	44	63	26	28	35	4	18	220
90 & Over	<u>-</u>	<u>-</u>	<u>32</u>	<u>24</u>	<u>9</u>	<u>8</u>	<u>9</u>	<u>3</u>	<u>3</u>	<u>88</u>
Total	8	74	420	560	682	760	1,229	734	652	5,119

This work product was prepared solely for the Government of Guam Retirement Fund for the purposes described herein and may not be appropriate to use for other purposes. Milliman does not intend to benefit and assumes no duty or liability to other parties who receive this work. Milliman recommends that third parties be aided by their own actuary or other qualified professional when reviewing this Milliman work product.

SECTION VI. APPENDICES

Disabled Retirees

Age	COUNT			ANNUAL BENEFITS		
	Males	Females	Total	Males	Females	Total
Under 25	-	-	-	-	-	-
25 – 29	-	-	-	-	-	-
30 – 34	-	-	-	-	-	-
35 – 39	-	-	-	-	-	-
40 – 44	2	2	4	*	*	*
45 – 49	6	2	8	*	*	*
50 – 54	11	5	16	*	*	*
55 – 59	16	16	32	*	*	*
60 – 64	28	28	56	\$ 670,614	\$ 579,029	\$1,249,643
65 – 69	23	34	57	587,579	741,126	1,328,705
70 – 74	23	22	45	498,809	432,314	931,123
75 – 79	13	20	33	*	421,006	421,006
80 – 84	7	11	18	*	*	*
85 – 89	3	5	8	*	*	*
90 & Over	<u>1</u>	<u>2</u>	<u>3</u>	<u>*</u>	<u>*</u>	<u>*</u>
Total	133	147	280	\$1,757,002	\$2,173,475	\$3,930,477

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

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	-	-	-	4	-	-	-	-	-	4
45 – 49	-	-	-	2	1	2	3	-	-	8
50 – 54	-	-	-	4	7	2	2	1	-	16
55 – 59	-	-	2	15	6	5	2	1	1	32
60 – 64	-	-	6	21	10	11	7	1	-	56
65 – 69	-	-	7	17	13	11	6	2	1	57
70 – 74	-	-	7	20	9	5	3	1	-	45
75 – 79	-	-	3	10	14	3	3	-	-	33
80 – 84	-	-	5	8	3	2	-	-	-	18
85 – 89	-	-	6	1	1	-	-	-	-	8
90 & Over	<u>-</u>	<u>-</u>	<u>3</u>	<u>-</u>	<u>-</u>	<u>-</u>	<u>-</u>	<u>-</u>	<u>-</u>	<u>3</u>
Total	-	-	39	102	64	41	26	6	2	280

This work product was prepared solely for the Government of Guam Retirement Fund for the purposes described herein and may not be appropriate to use for other purposes. Milliman does not intend to benefit and assumes no duty or liability to other parties who receive this work. Milliman recommends that third parties be aided by their own actuary or other qualified professional when reviewing this Milliman work product.

SECTION VI. APPENDICES

Surviving Spouses and Child Pensioners

Age	COUNT			ANNUAL BENEFITS		
	Males	Females	Total	Males	Females	Total
Under 25	69	88	157	\$ 198,720	\$ 253,440	\$ 452,160
25 – 29	-	2	2	-	*	*
30 – 34	2	3	5	*	*	*
35 – 39	4	12	16	*	*	*
40 – 44	3	20	23	*	256,150	256,150
45 – 49	5	38	43	*	546,066	546,066
50 – 54	11	68	79	*	1,101,283	1,101,283
55 – 59	16	117	133	*	2,107,468	2,107,468
60 – 64	23	183	206	331,855	3,387,366	3,719,221
65 – 69	35	212	247	536,854	3,578,476	4,115,330
70 – 74	46	184	230	706,712	3,147,681	3,854,393
75 – 79	41	194	235	627,015	3,177,588	3,804,603
80 – 84	34	154	188	501,541	2,226,555	2,728,096
85 – 89	40	112	152	609,642	1,632,085	2,241,727
90 & Over	<u>15</u>	<u>67</u>	<u>82</u>	<u>*</u>	<u>888,559</u>	<u>888,559</u>
Total	344	1,454	1,798	\$3,512,339	\$22,302,717	\$25,815,056

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

Surviving Spouses Only

Age	ANNUAL BENEFIT LEVEL									Total
	<\$5k	\$5-10k	\$10-15k	\$15-20k	\$20-25k	\$25-30k	\$30-40k	\$40-50k	\$50k+	
Under 40	-	4	3	2	1	-	-	-	-	10
40 – 44	-	4	8	1	2	1	1	-	-	17
45 – 49	-	4	15	16	2	2	-	-	-	39
50 – 54	1	10	26	17	8	4	6	-	-	72
55 – 59	-	12	40	36	26	7	3	2	2	128
60 – 64	-	16	80	41	34	13	14	5	1	204
65 – 69	1	23	100	60	32	11	16	1	-	244
70 – 74	-	17	102	54	31	14	9	2	-	229
75 – 79	-	27	112	49	21	14	8	3	1	235
80 – 84	-	27	101	36	10	10	3	1	-	188
85 – 89	-	18	89	25	13	4	1	1	1	152
90 & Over	<u>-</u>	<u>10</u>	<u>57</u>	<u>11</u>	<u>3</u>	<u>-</u>	<u>1</u>	<u>-</u>	<u>-</u>	<u>82</u>
Total	2	172	733	348	183	80	62	15	5	1,600

This work product was prepared solely for the Government of Guam Retirement Fund for the purposes described herein and may not be appropriate to use for other purposes. Milliman does not intend to benefit and assumes no duty or liability to other parties who receive this work. Milliman recommends that third parties be aided by their own actuary or other qualified professional when reviewing this Milliman work product.

SECTION VI. 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	2	-	2	*	*	*
40 – 44	5	5	10	*	*	*
45 – 49	20	13	33	\$264,370	*	\$264,370
50 – 54	17	24	41	*	\$358,985	358,985
55 – 59	20	13	33	278,932	*	278,932
60 – 64	10	13	23	*	*	*
65 – 69	6	4	10	*	*	*
70 – 74	1	-	1	*	-	*
75 – 79	2	2	4	*	-	*
80 – 84	-	1	1	-	*	*
85 – 89	-	-	-	-	-	-
90 & Over	-	-	-	-	-	-
Total	83	75	158	\$543,302	\$358,985	\$902,287

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

Age	ANNUAL BENEFIT LEVEL									Total
	<\$5k	\$5-10k	\$10-15k	\$15-20k	\$20-25k	\$25-30k	\$30-40k	\$40-50k	\$50k+	
Under 40	-	1	1	-	-	-	-	-	-	2
40 – 44	2	5	2	-	1	-	-	-	-	10
45 – 49	5	10	10	5	-	1	1	1	-	33
50 – 54	2	10	4	10	8	3	3	1	-	41
55 – 59	2	11	5	5	4	5	-	-	1	33
60 – 64	3	9	6	1	1	-	3	-	-	23
65 – 69	3	5	1	-	-	-	1	-	-	10
70 – 74	1	-	-	-	-	-	-	-	-	1
75 – 79	1	2	-	-	1	-	-	-	-	4
80 – 84	-	-	1	-	-	-	-	-	-	1
85 – 89	-	-	-	-	-	-	-	-	-	-
90 & Over	-	-	-	-	-	-	-	-	-	-
Total	19	53	30	21	14	10	8	2	1	158

This work product was prepared solely for the Government of Guam Retirement Fund for the purposes described herein and may not be appropriate to use for other purposes. Milliman does not intend to benefit and assumes no duty or liability to other parties who receive this work. Milliman recommends that third parties be aided by their own actuary or other qualified professional when reviewing this Milliman work product.

APPENDIX D. 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.