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## **NMI Settlement Fund**

Actuarial Valuation as of September 30, 2017

Prepared by:

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September 19, 2018



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**NMI Settlement Fund –  
Actuarial Valuation as of September 30, 2017**

As part of our engagement with the NMI Settlement Fund, we performed an actuarial valuation of the NMI Settlement Fund as of September 30, 2017. The purpose of the actuarial valuation is to project the minimum annual payments to be made by the Commonwealth of the Northern Mariana Islands (CNMI) to pay 75% of the Class Members' Full Benefits.

In preparing this report, I 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. 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.

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.

NMI Settlement Fund  
September 19, 2018  
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Actuarial computations presented in this report are for the purposes of determining the recommended funding amounts for the Fund. Determinations for other purposes may be significantly different from the results contained in this report. Therefore, additional determinations may be needed for other purposes.

Milliman's work is prepared solely for the use and benefit of the NMI Settlement 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):

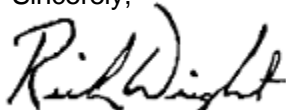
- (a) NMI Settlement Fund may provide a copy of Milliman's work, in its entirety, to its professional service advisors who are subject to a duty of confidentiality and who agree to not use Milliman's work for any purpose other than to benefit the NMI Settlement Fund.
- (b) NMI Settlement Fund may provide 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.

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  
Principal, Consulting Actuary

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## INTRODUCTION

Milliman, Inc. has been retained by the NMI Settlement Fund to provide an actuarial valuation of the Fund. The NMI Settlement Fund was created to pay pension benefits to members of the Northern Mariana Islands Retirement Fund who opted to become members of the NMI Settlement Fund.

Section 4.0 of the settlement agreement that created the NMI Settlement Fund requires the Commonwealth of the Northern Mariana Islands (CNMI) to make minimum annual payments each year to pay 75% of the Class Members' Full Benefits. The payments for fiscal years 2014 and 2015 were fixed at \$25,000,000 and \$27,000,000, respectively. The payments after fiscal year 2015 are to be determined by an independent actuary.

In our valuation we:

- Summarize the membership data.
- Estimate the future annual benefits to be paid by the NMI Settlement Fund.
- Review the current Fund balance.
- Project the fund balance forward for the expected life of the NMI Settlement Fund.
- Determine the minimum annual payments to be made by CNMI.

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

- A payment of \$33,000,000 was made for fiscal year 2017. We have determined that the minimum annual payments from CNMI that were shown in the NMI Settlement Agreement should stay in effect for at least the next two years. This includes minimum payments of \$45,000,000 for fiscal year 2018, and \$44,000,000 for fiscal year 2019. Starting in FY 2018, the Settlement Fund will essentially become a "pay as you go" entity, as the CNMI minimum payments are approximately equal to the pension payments (at 75%).
- If we assume life expectancies based upon the mortality table used in the 2012 actuarial valuation of the Northern Mariana Islands Retirement Fund, the minimum payment for CNMI is estimated to be \$43,000,000 for FY 2020. The minimum payments are estimated to decline thereafter by \$2,000,000 per year to FY 2025, and then by \$1,000,000 per year to FY 2031, resulting in minimum payments of \$27,000,000 for both FY 2031 and FY 2032. The minimum payments are then expected to be \$26,000,000 for FY 2033 through FY 2037. After FY 2037, CNMI payments are expected to be about equal to the benefits and expenses paid by the NMI Settlement Fund. Exhibit 7 shows the projected Fund balance for the next 40 years based upon the current mortality assumption.
- If we assume improved life expectancies, the minimum payment for CNMI is estimated to be \$43,000,000 for FY 2020. The minimum payments are estimated to decline thereafter by \$1,000,000 per year until they reach \$39,000,000 for FY 2024. The minimum payments are then expected to remain at that level for each fiscal year through FY 2037. After FY 2037, CNMI payments are expected to be about equal to the benefits and expenses paid by the NMI Settlement Fund. Exhibit 8 shows the projected Fund balance for the next 40 years assuming improved life expectancies.

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## SECTION I. VALUATION SUMMARY

## RESULTS OF VALUATION

	September 30, 2017	September 30, 2016
<b>Participant Counts</b>		
Active Employees (Class I)	65	66
Active Employees (Class II)	<u>6</u>	<u>6</u>
Total Active Employees	71	72
Retirees	<u>2,888</u>	<u>2,956</u>
Total Participants	2,959	3,028
<b>Market Value of Assets</b>	\$94,660,646	\$81,500,800
<b>Benefit Payments from NMI Settlement Fund</b>	\$44,299,935	\$45,552,832
<b>CNMI Annual Payments</b>		
FY 2014	\$25,000,000	\$25,000,000
FY 2015	27,000,000	27,000,000
FY 2016	30,000,000	30,000,000
FY 2017	33,000,000	33,000,000
<b>Projected CNMI Payments (current mortality)</b>		
FY 2018	45,000,000	45,000,000
FY 2019	44,000,000	44,000,000
FY 2020	43,000,000	43,000,000
FY 2021	41,000,000	42,000,000
FY 2022	39,000,000	41,000,000
(see Exhibit 7 for FY 2023 and later years)		
<b>Projected CNMI Payments (improved mortality)</b>		
FY 2018	45,000,000	45,000,000
FY 2019	44,000,000	44,000,000
FY 2020	43,000,000	44,000,000
FY 2021	42,000,000	44,000,000
FY 2022	41,000,000	44,000,000
(see Exhibit 8 for FY 2023 and later years)		

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## ACTUARIAL ASSUMPTIONS

The following are the major assumptions used in the actuarial valuation. The assumptions are generally the same as those used in the 2012 actuarial valuation performed by the prior actuary, as stated in the audited financial statements of the Northern Mariana Islands Retirement Fund for the fiscal year ending September 30, 2012, except where indicated below. To the extent that actual experience differs from the assumptions below, future pension costs will differ.

Expected Investment Return: We have used the investment return assumptions provided by the investment consultant: 4.48% for fiscal year 2018, 4.33% for fiscal year 2019, 4.19% for fiscal year 2020, 4.00% for fiscal year 2021, 3.65% for fiscal year 2022, and 3.33% thereafter.

Mortality: The mortality table used in the previous actuarial study was the 1971 Group Annuity Mortality table for Males, with ages set forward 3 years for males. Based upon the experience observed during the 12 months ending September 30, 2017, we have determined that this table is still reasonable to use for this purpose. However, due to the relatively small sample size and the potential for adverse experience, we also will show the impact of using an improved mortality table, which is the RP 2000 mortality table for healthy lives projected to 2017 using Scale AA.

Salary Increases: Salaries are not assumed to increase in future years.

Retirement Age: The earlier of age 62, if eligible, or 25 years of vesting service.

Administrative Expenses: Administrative expenses and fees are assumed to be \$1,334,500 for fiscal year ending September 30, 2018, and are assumed to remain at that level until the fiscal year ending September 30, 2035, and then decline by 10% per year.

Rates of Withdrawal and Disability: The assumed rates of withdrawal and disability are shown in Appendix B.

Probability of Marriage: We have assumed that 94% of participants are married and that males are 5 years older than their female spouses.

A complete summary of actuarial assumptions is in Appendix B.

## FUNDING METHOD

Section 4.0 of the settlement agreement that created the NMI Settlement Fund requires the Commonwealth of the Northern Mariana Islands (CNMI) to make minimum annual payments each year to pay 75% of the Class Members' Full Benefits. The payments for fiscal years 2014 and 2015 were fixed at \$25,000,000 and \$27,000,000, respectively. The payments after fiscal year 2015 are to be determined by an independent actuary. For fiscal years 2016 and 2017, CNMI made payments of \$30,000,000 and \$33,000,000, respectively. The payment for fiscal year 2018 is \$45,000,000.

## SECTION II. VALUATION EXHIBITS

## EXHIBIT 1. SUMMARY OF FUND ASSETS

Listed below are the assets reported for the NMI Settlement Fund in the Fund's financial statements.

	September 30, 2017	September 30, 2016
<b>ASSETS</b>		
<b>Current Assets</b>		
Cash	\$ 6,014,276	\$ 907,813
Receivables, net	222,700	266,306
Due from CNMI Government	11,534,522	0
Due from NMI Retirement Fund, net	176,175	176,175
CNMI judicial building loan receivable	3,664,852	4,281,095
Investments	72,990,397	75,777,657
Prepaid expenses	<u>69,112</u>	<u>80,484</u>
Total current assets	\$ 94,672,034	\$ 81,489,530
<b>Property and equipment</b>	<u>\$ 227,605</u>	<u>\$ 197,068</u>
<b>Total Assets</b>	\$ 94,899,639	\$ 81,686,598
<b>LIABILITIES</b>		
<b>Current Liabilities</b>		
Accounts payable and accrued expenses	<u>238,993</u>	<u>209,034</u>
<b>TOTAL NET ASSETS</b>	\$ 94,660,646	\$ 81,477,564
<b>Assets Temporarily Restricted</b>	<u>34,756</u>	<u>34,756</u>
<b>UNRESTRICTED NET ASSETS</b>	<u>\$ 94,625,890</u>	<u>\$ 81,442,808</u>

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## SECTION II. VALUATION EXHIBITS

## EXHIBIT 2. CHANGES IN FUND 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	
	September 30, 2017	September 30, 2016
<b>Beginning Balance</b>	\$ 81,442,808	\$ 84,953,838
<b>Contributions and Payments</b>		
CNMI Government Contribution	33,000,000	30,000,000
Employer supplemental payments	1,899,487	1,635,937
Active Settlement Class Member contributions	<u>545,122</u>	<u>559,372</u>
Total contributions	35,444,609	32,195,309
<b>Investment Income</b>		
Interest and dividends	2,383,263	2,673,349
Net appreciation in fair value of investments	<u>1,876,240</u>	<u>2,834,151</u>
Total investment income	4,259,503	5,507,500
<b>Other Additions</b>		
CNMI Government Contribution (APGA)	18,663,564	0
Local investment income	318,612	445,178
Rental and other income	131,229	5,202,990
Net assets released from restriction	<u>14,740,001</u>	<u>15,158,611</u>
Total other additions	33,853,406	20,806,779
<b>TOTAL ADDITIONS</b>	73,557,518	58,509,588
<b>Benefit Payments</b>		
Retirement benefits	50,176,091	51,823,736
Survivors benefits	8,118,609	7,887,097
Disability benefits	680,657	875,646
Death lump sum distributions	55,478	56,470
Refunds	<u>9,101</u>	<u>59,051</u>
Total benefit and refund payments	59,039,936	60,702,000
<b>Other Deductions</b>		
Personnel expenses	786,233	737,750
Professional expenses	337,007	330,635
General and administrative expenses	<u>211,260</u>	<u>250,233</u>
Total other deductions	1,334,500	1,318,618
<b>TOTAL DEDUCTIONS</b>	60,374,436	62,020,618
<b>Ending Balance</b>	\$ 94,625,890	\$ 81,442,808

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## SECTION II. VALUATION EXHIBITS

## EXHIBIT 3. SUMMARY OF CENSUS DATA

	September 30, 2017	September 30, 2016
<b>Active Employees</b>		
Class 1	65	66
Class 2	<u>6</u>	<u>6</u>
Total	71	72
Average age	51.8	51.2
Average service	21.2	20.7
Total salary	\$ 3,270,675	\$ 3,054,317
<b>Retirees</b>		
Healthy retiree	2,056	2,129
Disabled retiree	39	49
Surviving spouses	663	650
Child pensioner	<u>130</u>	<u>128</u>
Total	2,888	2,956
Average age	62.4	61.8
Life expectancy (current mortality)	17.2	17.6
Life expectancy (improved mortality)	23.0	23.3
Annual benefit payments at 100%	\$ 59,583,347	\$ 61,207,686
Annual benefit payments at 75%	\$ 44,687,510	\$ 45,905,765

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## EXHIBIT 4. RECONCILIATION OF CENSUS DATA

	Actives	Healthy Retirees	Disabled Retirees	Surviving Spouses	Child Pensioners	Total
<b>As of 9/30/16</b>	<b>72</b>	<b>2,129</b>	<b>49</b>	<b>650</b>	<b>128</b>	<b>3,028</b>
New Participants	3	2		44	24	73
Active to Healthy Ret	(3)	3				0
Dis Ret to Healthy Ret		5	(5)			0
Other (drops)	<u>(1)</u>	<u>(83)</u>	<u>(5)</u>	<u>(31)</u>	<u>(22)</u>	<u>(142)</u>
<b>As of 9/30/17</b>	<b>71</b>	<b>2,056</b>	<b>39</b>	<b>663</b>	<b>130</b>	<b>2,959</b>

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## SECTION II. VALUATION EXHIBITS

## EXHIBIT 5. PROJECTED BENEFIT PAYMENTS – CURRENT MORTALITY

Fiscal Year Ending 9/30	Active Employee Count	Active Employee Salary	Current Retirees	Future Retirees	Total Retirees	Benefit Payments
2018	71.0	\$3,270,675	2,888.0	-	2,888.0	\$44,687,510
2019	43.6	1,759,252	2,858.0	27.3	2,885.4	44,749,043
2020	33.6	1,343,181	2,814.4	37.2	2,851.6	44,566,130
2021	30.7	1,224,172	2,761.1	40.0	2,801.1	44,381,153
2022	22.5	835,618	2,689.9	48.1	2,738.0	43,979,586
2023	18.3	676,082	2,603.4	52.0	2,655.5	43,447,647
2024	15.2	529,721	2,515.3	55.0	2,570.3	42,734,405
2025	14.0	479,270	2,435.1	55.9	2,491.0	42,018,034
2026	12.0	415,638	2,353.3	57.5	2,410.8	41,188,307
2027	10.9	371,868	2,267.4	58.2	2,325.5	40,273,347
2028	9.8	327,531	2,178.8	58.8	2,237.7	39,245,347
2029	8.9	297,472	2,091.2	59.2	2,150.3	38,185,238
2030	5.9	196,701	1,999.8	61.6	2,061.4	37,024,097
2031	4.2	123,936	1,908.3	62.5	1,970.8	35,783,197
2032	3.1	82,872	1,817.1	62.9	1,880.0	34,470,305
2033	1.9	50,271	1,724.7	63.2	1,787.9	33,099,965
2034	0.6	10,490	1,631.6	63.5	1,695.1	31,659,989
2035	0.6	10,364	1,538.3	62.4	1,600.7	30,174,733
2036	0.6	10,232	1,445.4	61.2	1,506.6	28,654,835
2037	0.6	10,094	1,353.2	59.9	1,413.1	27,111,797
2038	0.6	9,949	1,261.3	58.4	1,319.7	25,555,007
2039	0.5	9,796	1,172.1	56.9	1,229.0	23,988,992
2040	0.5	9,633	1,085.1	55.2	1,140.3	22,425,294
2041	0.5	9,461	1,000.5	53.5	1,054.0	20,879,575
2042	-	-	918.9	52.1	971.0	19,358,117
2043	-	-	840.4	50.1	890.6	17,868,512
2044	-	-	765.4	48.1	813.5	16,418,429
2045	-	-	694.0	45.9	739.9	15,016,306
2046	-	-	626.4	43.7	670.1	13,666,129
2047	-	-	562.8	41.5	604.2	12,376,023
2048	-	-	503.1	39.2	542.3	11,150,702
2049	-	-	447.5	36.8	484.4	9,993,932
2050	-	-	396.0	34.5	430.5	8,908,576
2051	-	-	348.4	32.1	380.6	7,896,587
2052	-	-	304.9	29.8	334.6	6,959,000
2053	-	-	265.1	27.5	292.6	6,096,017
2054	-	-	229.1	25.2	254.4	5,307,044
2055	-	-	196.8	23.0	219.8	4,590,752
2056	-	-	167.8	20.9	188.7	3,945,146
2057	-	-	142.1	18.9	161.0	3,367,556

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## SECTION II. VALUATION EXHIBITS

## EXHIBIT 6. PROJECTED BENEFIT PAYMENTS – IMPROVED MORTALITY

Fiscal Year Ending 9/30	Active Employee Count	Active Employee Salary	Current Retirees	Future Retirees	Total Retirees	Benefit Payments
2018	71.0	\$3,270,675	2,888.0	-	2,888.0	\$44,929,508
2019	43.8	1,768,923	2,874.1	27.1	2,901.2	45,555,923
2020	33.9	1,357,690	2,851.8	37.0	2,888.8	45,996,905
2021	31.1	1,243,170	2,824.2	39.7	2,863.9	46,492,426
2022	22.8	850,111	2,782.3	48.0	2,830.3	46,816,896
2023	18.7	691,007	2,728.0	52.0	2,780.0	47,053,019
2024	15.5	541,268	2,674.2	55.2	2,729.3	47,139,927
2025	14.3	492,496	2,629.8	56.3	2,686.1	47,250,663
2026	12.3	429,120	2,584.8	58.2	2,642.9	47,266,507
2027	11.3	386,324	2,536.1	59.0	2,595.1	47,207,940
2028	10.2	341,403	2,484.6	60.1	2,544.7	47,036,665
2029	9.3	312,244	2,433.3	60.8	2,494.1	46,827,031
2030	6.2	206,742	2,377.3	63.8	2,441.1	46,498,595
2031	4.4	129,738	2,319.6	65.3	2,384.9	46,061,408
2032	3.2	88,078	2,260.1	66.2	2,326.3	45,514,732
2033	2.0	53,901	2,197.0	67.2	2,264.2	44,863,711
2034	0.6	10,991	2,130.4	68.2	2,198.6	44,084,310
2035	0.6	10,926	2,060.4	67.8	2,128.2	43,192,043
2036	0.6	10,857	1,987.2	67.4	2,054.6	42,188,409
2037	0.6	10,784	1,911.0	66.8	1,977.8	41,077,921
2038	0.6	10,708	1,831.2	66.2	1,897.4	39,864,088
2039	0.6	10,627	1,749.9	65.5	1,815.4	38,546,023
2040	0.6	10,540	1,666.7	64.7	1,731.4	37,132,827
2041	0.6	10,447	1,581.9	63.8	1,645.7	35,639,678
2042	-	-	1,496.0	63.4	1,559.4	34,073,211
2043	-	-	1,409.5	62.3	1,471.8	32,443,511
2044	-	-	1,322.9	61.1	1,384.0	30,762,182
2045	-	-	1,236.8	59.8	1,296.6	29,043,017
2046	-	-	1,151.6	58.4	1,209.9	27,296,170
2047	-	-	1,067.9	56.8	1,124.7	25,537,592
2048	-	-	986.0	55.2	1,041.2	23,780,627
2049	-	-	906.6	53.4	959.9	22,038,072
2050	-	-	829.8	51.5	881.3	20,322,003
2051	-	-	756.1	49.5	805.6	18,643,711
2052	-	-	685.7	47.4	733.1	17,013,646
2053	-	-	618.7	45.2	663.9	15,440,804
2054	-	-	555.4	42.9	598.3	13,933,616
2055	-	-	495.9	40.6	536.5	12,499,268
2056	-	-	440.2	38.2	478.4	11,143,184
2057	-	-	388.4	35.7	424.1	9,870,033

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## SECTION II. VALUATION EXHIBITS

## EXHIBIT 7. PROJECTED FUND BALANCE – CURRENT MORTALITY

FYE 9/30	Beginning Balance	CNMI Payments	Other Contribs	Investment Earnings	Benefit Payments	Expenses & Fees	Ending Balance
2018	\$94,625,890	\$45,000,000	\$1,331,099	\$4,246,163	(\$44,687,510)	(\$1,334,500)	\$99,181,142
2019	99,181,142	44,000,000	715,980	4,264,936	(44,749,043)	(1,334,500)	102,078,515
2020	102,078,515	43,000,000	546,648	4,227,774	(44,566,130)	(1,334,500)	103,952,307
2021	103,952,307	41,000,000	498,214	4,073,743	(44,381,153)	(1,334,500)	103,808,611
2022	103,808,611	39,000,000	340,080	3,679,989	(43,979,586)	(1,334,500)	101,514,594
2023	101,514,594	37,000,000	275,152	3,255,445	(43,447,647)	(1,334,500)	97,263,044
2024	97,263,044	35,000,000	215,586	3,091,452	(42,734,405)	(1,334,500)	91,501,177
2025	91,501,177	33,000,000	195,053	2,877,867	(42,018,034)	(1,334,500)	84,221,563
2026	84,221,563	32,000,000	169,156	2,632,190	(41,188,307)	(1,334,500)	76,500,102
2027	76,500,102	31,000,000	151,343	2,373,353	(40,273,347)	(1,334,500)	68,416,951
2028	68,416,951	30,000,000	133,299	2,104,349	(39,245,347)	(1,334,500)	60,074,752
2029	60,074,752	29,000,000	121,065	1,827,351	(38,185,238)	(1,334,500)	51,503,430
2030	51,503,430	28,000,000	80,053	1,543,926	(37,024,097)	(1,334,500)	42,768,812
2031	42,768,812	27,000,000	50,439	1,256,582	(35,783,197)	(1,334,500)	33,958,136
2032	33,958,136	27,000,000	33,727	984,767	(34,470,305)	(1,334,500)	26,171,825
2033	26,171,825	26,000,000	20,459	731,429	(33,099,965)	(1,334,500)	18,489,248
2034	18,489,248	26,000,000	4,269	499,305	(31,659,989)	(1,334,500)	11,998,333
2035	11,998,333	26,000,000	4,218	307,886	(30,174,733)	(1,334,500)	6,801,204
2036	6,801,204	26,000,000	4,164	162,349	(28,654,835)	(1,201,050)	3,111,832
2037	3,111,832	26,000,000	4,108	67,183	(27,111,797)	(1,080,945)	990,381
2038	990,381	25,533,427	4,049	-	(25,555,007)	(972,851)	-
2039	-	24,860,571	3,987	-	(23,988,992)	(875,565)	-
2040	-	23,209,382	3,920	-	(22,425,294)	(788,009)	-
2041	-	21,584,933	3,850	-	(20,879,575)	(709,208)	-
2042	-	19,996,404	-	-	(19,358,117)	(638,287)	-
2043	-	18,442,970	-	-	(17,868,512)	(574,458)	-
2044	-	16,935,442	-	-	(16,418,429)	(517,013)	-
2045	-	15,481,617	-	-	(15,016,306)	(465,311)	-
2046	-	14,084,909	-	-	(13,666,129)	(418,780)	-
2047	-	12,752,925	-	-	(12,376,023)	(376,902)	-
2048	-	11,489,914	-	-	(11,150,702)	(339,212)	-
2049	-	10,299,223	-	-	(9,993,932)	(305,291)	-
2050	-	9,183,338	-	-	(8,908,576)	(274,762)	-
2051	-	8,143,873	-	-	(7,896,587)	(247,286)	-
2052	-	7,181,557	-	-	(6,959,000)	(222,557)	-
2053	-	6,296,318	-	-	(6,096,017)	(200,301)	-
2054	-	5,487,315	-	-	(5,307,044)	(180,271)	-
2055	-	4,752,996	-	-	(4,590,752)	(162,244)	-
2056	-	4,091,166	-	-	(3,945,146)	(146,020)	-
2057	-	3,498,974	-	-	(3,367,556)	(131,418)	-

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## SECTION II. VALUATION EXHIBITS

## EXHIBIT 8. PROJECTED FUND BALANCE – IMPROVED MORTALITY

FYE 9/30	Beginning Balance	CNMI Payments	Other Contribs	Investment Earnings	Benefit Payments	Expenses & Fees	Ending Balance
2018	\$94,625,890	\$45,000,000	\$1,331,099	\$4,240,743	(\$44,929,508)	(\$1,334,500)	\$98,933,724
2019	98,933,724	44,000,000	719,916	4,236,839	(45,555,923)	(1,334,500)	101,000,056
2020	101,000,056	43,000,000	552,553	4,152,735	(45,996,905)	(1,334,500)	101,373,939
2021	101,373,939	42,000,000	505,945	3,948,538	(46,492,426)	(1,334,500)	100,001,496
2022	100,001,496	41,000,000	345,978	3,525,856	(46,816,896)	(1,334,500)	96,721,934
2023	96,721,934	40,000,000	281,226	3,085,871	(47,053,019)	(1,334,500)	91,701,512
2024	91,701,512	39,000,000	220,285	2,899,579	(47,139,927)	(1,334,500)	85,346,949
2025	85,346,949	39,000,000	200,436	2,685,798	(47,250,663)	(1,334,500)	78,648,020
2026	78,648,020	39,000,000	174,643	2,462,030	(47,266,507)	(1,334,500)	71,683,686
2027	71,683,686	39,000,000	157,226	2,230,803	(47,207,940)	(1,334,500)	64,529,275
2028	64,529,275	39,000,000	138,944	1,995,108	(47,036,665)	(1,334,500)	57,292,162
2029	57,292,162	39,000,000	127,077	1,757,405	(46,827,031)	(1,334,500)	50,015,113
2030	50,015,113	39,000,000	84,140	1,519,833	(46,498,595)	(1,334,500)	42,785,991
2031	42,785,991	39,000,000	52,801	1,285,861	(46,061,408)	(1,334,500)	35,728,745
2032	35,728,745	39,000,000	35,846	1,059,674	(45,514,732)	(1,334,500)	28,975,033
2033	28,975,033	39,000,000	21,937	845,384	(44,863,711)	(1,334,500)	22,644,143
2034	22,644,143	39,000,000	4,473	647,251	(44,084,310)	(1,334,500)	16,877,057
2035	16,877,057	39,000,000	4,447	470,063	(43,192,043)	(1,334,500)	11,825,024
2036	11,825,024	39,000,000	4,419	320,762	(42,188,409)	(1,201,050)	7,760,746
2037	7,760,746	39,000,000	4,389	205,911	(41,077,921)	(1,080,945)	4,812,180
2038	4,812,180	38,000,000	4,358	113,083	(39,864,088)	(972,851)	2,092,682
2039	2,092,682	38,000,000	4,325	46,089	(38,546,023)	(875,565)	721,508
2040	721,508	37,195,038	4,290	-	(37,132,827)	(788,009)	-
2041	-	36,344,634	4,252	-	(35,639,678)	(709,208)	-
2042	-	34,711,498	-	-	(34,073,211)	(638,287)	-
2043	-	33,017,969	-	-	(32,443,511)	(574,458)	-
2044	-	31,279,195	-	-	(30,762,182)	(517,013)	-
2045	-	29,508,328	-	-	(29,043,017)	(465,311)	-
2046	-	27,714,950	-	-	(27,296,170)	(418,780)	-
2047	-	25,914,494	-	-	(25,537,592)	(376,902)	-
2048	-	24,119,839	-	-	(23,780,627)	(339,212)	-
2049	-	22,343,363	-	-	(22,038,072)	(305,291)	-
2050	-	20,596,765	-	-	(20,322,003)	(274,762)	-
2051	-	18,890,997	-	-	(18,643,711)	(247,286)	-
2052	-	17,236,203	-	-	(17,013,646)	(222,557)	-
2053	-	15,641,105	-	-	(15,440,804)	(200,301)	-
2054	-	14,113,887	-	-	(13,933,616)	(180,271)	-
2055	-	12,661,512	-	-	(12,499,268)	(162,244)	-
2056	-	11,289,204	-	-	(11,143,184)	(146,020)	-
2057	-	10,001,451	-	-	(9,870,033)	(131,418)	-

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**APPENDIX A. SUMMARY OF PLAN PROVISIONS**

The following description is a brief summary of the provisions of the Northern Marinas Islands Retirement Plan, as shown in the audited financial statements for the NMI Retirement Fund for the fiscal year ending September 30, 2012.

**Membership:** Class II members are all persons who were Fund members prior to the effective date of Public Law 6-17 and who did not choose to become Class I members.

**Membership Service:** Service is earned for actual compensated government employment after becoming a Fund member. 1/12 year of service is earned for each month of employment.

**Benefit Formulas:**

**Class I Formula:** The sum of (i) and (ii) below, but not less than \$6,000 nor greater than 85% of average annual salary.

- (i) The sum of 2.5% of average annual salary for each of the first 25 years of service with a maximum of 50% of average annual salary, plus
- (ii) 2.5% of average annual salary for each year of service in excess of 25 years.

The minimum amount of service retirement annuity payable by the Fund is \$6,000 per year. The maximum retirement annuity is 85% of "average annual salary."

**Class II Formula:** The sum of (i) and (ii) below, but not less than \$6,000 nor greater than 85% of average annual salary.

- (i) The sum of 2% of average annual salary for each of the first 10 years of service and 2.5% of average annual salary for each year of service in excess of 10 years, plus
- (ii) Twenty dollars (\$20) for each year of service reduced by 1/100<sup>th</sup> of 1% for each dollar that average annual salary exceeds \$6,000.

The minimum amount of service retirement annuity payable by the Fund is \$6,000 per year. The maximum retirement annuity is 85% of "average annual salary."

Class II members receive the greater of the benefit determined using the Class II formula or the benefit determined using the Class I formula as if all service had been rendered as a Class I member.

**Average Annual Salary:** Average of three highest annual salaries, or \$6,000, whichever is greater.

**Normal Retirement:**

**Eligibility:** Eligibility for Class I benefit is age 62 and 10 years of contributing membership after May 7, 1989. Eligibility for Class II benefit is age 60 or 25 years of membership service.

**Form of Benefit:** Payment is in the form of a life annuity with a cost of living increase each year for the first \$30,000 of benefits equal to that which is used by the United States of America Social



**SECTION III. APPENDICES**

Security System commencing on January 1 of each year subsequent to the anniversary of retirement after attainment of age 55.

**Early Retirement:**

*Eligibility:* Eligibility for Class I early retirement is age 52 and 10 years of membership service or 25 years of membership service. At least 10 years of membership service must be earned after May 7, 1989. Class II members are not eligible for early retirement.

*Amount of Benefit:* Same as normal retirement benefit, except reduced by an actuarially determined amount (3%) for each month the member is under 62 years of age.

*Form of Benefit:* Same as normal retirement benefit.

**Termination:**

*Eligibility:* Eligibility for Class I termination benefit is 10 years of contributing membership service. Eligibility for Class II termination benefit is 3 years of vesting service.

*Amount of Benefit:* Same as normal retirement benefit.

*Form of Benefit:* Same as normal retirement benefit, except the annuity commences at age 62 for Class I members and age 60 for Class II members.

**Disability Retirement:**

*Eligibility:* Members who are less than age 62, who are totally and permanently disabled and, in the case of non-occupational causes, who accumulate at least 5 years of membership service.

*Amount of Benefit:* 50% of the member's salary in effect as of the date of disability or 66 2/3% of member's salary in effect if individual became a member prior to December 5, 2003. At age 62, the member will receive a normal retirement benefit calculated assuming service had continued to age 62 at the same salary received at the time of disability and the Class I formula is used. Disability benefits will be reduced by the U.S. Social Security System, Workers' Compensation or other disability insurance payments.

*Form of Benefit:* Same as normal retirement benefit.

**Survivor's Benefits:**

*Eligibility:* Members who were active employees with at least 18 months of service for Class I and at least 3 years of service for Class II, or members who were receiving retirement or disability benefits.

*Amount of Benefit:* A surviving spouse will receive 50% of the member's normal retirement benefit, or benefit being paid at death, but not less than \$6,000 per year. Each surviving minor child (with a maximum of three children) will receive the greater of \$1,080 and 16 2/3% of the member's normal retirement benefit or the benefit being paid at death.

**Form of Benefit:** The surviving spouse benefit will commence immediately if there are minor children, otherwise at the spouse's attainment of age 35, and continues until remarriage or death. Payment will be in the form of a life annuity with a cost of living increase each year equal to that which is used by the U.S. Social Security System, commencing January 1 subsequent to the anniversary of the spouse's annuity date after attainment of age 55.

The children's benefit commences immediately and continues until the respective child's attainment of age 18 (age 22 if a full-time student) unless the child is disabled.

**Lump Sum Death Benefit:**

**Eligibility:** Members who were active employees or members who were receiving retirement or disability benefits.

**Amount of Benefit:** A lump sum of \$1,000 plus, if there is no surviving spouse or children, a refund, reduced by pension payments already received, of 1/3<sup>rd</sup> of the accumulated employee contributions with interest.

**Contributions:** Class I members who are active employees contribute 10.5% per year. Class II members who are active employees contribute 11% per year.

## SECTION III. APPENDICES

## APPENDIX B. ACTUARIAL COST METHOD AND ASSUMPTIONS

	September 30, 2017	September 30, 2016																																				
<b>Actuarial Cost Method</b>	Entry Age Normal	Entry Age Normal																																				
<b>Investment Return</b>	4.48% for FY 2018, 4.33% for FY 2019, 4.19% for FY 2020, 4.00% for FY 2021, 3.65% for FY 2022, then 3.33% for each FY thereafter	4.61% for FY 2017, 4.15% for FY 2018, 3.99% for FY 2019, 3.77% for FY 2020, 3.37% for FY 2021, then 2.5% for each FY thereafter																																				
<b>Salary Increases</b>	No future salary increases	No future salary increases																																				
<b>Mortality (current)</b>	1971 Group Annuity Mortality Table for Males with ages set forward 3 years for Males	1971 Group Annuity Mortality Table for Males with ages set forward 3 years for Males																																				
<b>Mortality (improved)</b>	RP-2000 Combined Healthy table for Males and Females, projected to 2017 using Mortality Improvement Scale AA	RP-2000 Combined Healthy table for Males and Females, projected to 2015 using Mortality Improvement Scale AA																																				
<b>Retirement Age</b>	Earlier of age 62, if eligible, or 25 years of vesting service.	Earlier of age 62, if eligible, or 25 years of vesting service.																																				
<b>Marital Status</b>	94% of participants are assumed to be married and males are assumed to be 5 years older than female spouses.	94% of participants are assumed to be married and males are assumed to be 5 years older than female spouses.																																				
<b>Survivor Benefit – Minor Children</b>	Married participants are assumed to have two minor children aged 13 on benefit commencement date.	Married participants are assumed to have two minor children aged 13 on benefit commencement date.																																				
<b>Turnover</b>	<table border="1"> <thead> <tr> <th>Age</th> <th>Rate</th> </tr> </thead> <tbody> <tr><td>20</td><td>.1303</td></tr> <tr><td>25</td><td>.1078</td></tr> <tr><td>30</td><td>.0858</td></tr> <tr><td>35</td><td>.0683</td></tr> <tr><td>40</td><td>.0508</td></tr> <tr><td>45</td><td>.0333</td></tr> <tr><td>50</td><td>.0158</td></tr> <tr><td>55 &amp; up</td><td>.0000</td></tr> </tbody> </table>	Age	Rate	20	.1303	25	.1078	30	.0858	35	.0683	40	.0508	45	.0333	50	.0158	55 & up	.0000	<table border="1"> <thead> <tr> <th>Age</th> <th>Rate</th> </tr> </thead> <tbody> <tr><td>20</td><td>.1303</td></tr> <tr><td>25</td><td>.1078</td></tr> <tr><td>30</td><td>.0858</td></tr> <tr><td>35</td><td>.0683</td></tr> <tr><td>40</td><td>.0508</td></tr> <tr><td>45</td><td>.0333</td></tr> <tr><td>50</td><td>.0158</td></tr> <tr><td>55 &amp; up</td><td>.0000</td></tr> </tbody> </table>	Age	Rate	20	.1303	25	.1078	30	.0858	35	.0683	40	.0508	45	.0333	50	.0158	55 & up	.0000
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## SECTION III. APPENDICES

	September 30, 2017			September 30, 2016		
<b>Disability</b>	<u>Age</u>	<u>Male</u>	<u>Female</u>	<u>Age</u>	<u>Male</u>	<u>Female</u>
	25	.00020	.00021	25	.00020	.00021
	30	.00023	.00036	30	.00023	.00036
	35	.00035	.00061	35	.00035	.00061
	40	.00060	.00093	40	.00060	.00093
	45	.00112	.00135	45	.00112	.00135
	50	.00310	.00185	50	.00310	.00185
	55	.00334	.00261	55	.00334	.00261
	60	.00441	.00352	60	.00441	.00352
<b>Cost of Living Adjustment</b>	2% per year			2% per year		
<b>Administrative Expenses</b>	<u>Current Mortality</u> \$1,334,500 per year from FY 2018 to FY 2035, then decreasing 10% per year.			<u>Current Mortality</u> \$1,039,232 per year from FY 2017 to FY 2035, then decreasing 10% per year.		
	<u>Improved Mortality</u> \$1,334,500 per year from FY 2018 to FY 2035, then decreasing 10% per year.			<u>Improved Mortality</u> \$1,039,232 per year from FY 2017 to FY 2035, then decreasing 10% per year.		

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