

**Republic of the Marshall Islands
Social Security System**

**Actuarial Valuation as of
OCTOBER 1, 2017**

**Prepared by:
Wilshire Associates, Inc.**

September 2018

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I. FOREWORD

SECTION I

FOREWORD

This report contains the results of the tenth actuarial valuation of the Republic of the Marshall Islands Social Security System. The valuation was conducted as of October 1, 2017, and the results contained herein report costs applicable to the plan and fiscal year ending September 30, 2017.

Section 126 of Title 49 stipulates that the Administration may engage an actuary to examine and advise the Administration. It required the actuary to perform an actuarial valuation of the Administration no less frequently than once in every three years.

The purpose of the annual valuation is to:

- Provide an estimation of the liability and market value of trust assets to determine the current funded status.
- Provide a basis for any appropriate recommendations for changes in the System.
- Project cash flows to determine System sustainability.
- Provide information required to meet reporting requirements.
- Monitor the System's actual experience relative to the current actuarial assumptions.

This actuarial valuation report is conducted as of October 1, 2017 and includes data and developments existing on that date.

Respectfully submitted,



William E. McGuire, FSA
Managing Director

September 2018

II. CERTIFICATION AND VALUATION RESULTS

SECTION II

CERTIFICATION AND VALUATION RESULTS

A. Actuarial Certification

I am a Fellow of the Society of Actuaries and Member of the American Academy of Actuaries. I meet the Qualification Standards of the Academy to render the actuarial opinions contained in this report. This report has been prepared in accordance with all applicable Actuarial Standards of Practice, and generally accepted actuarial principles and practices. I am available to answer questions concerning it.

The information and valuation results shown in this report are, to the best of our knowledge, complete and accurate and are based upon:

- Participant census data as of October 1, 2017, submitted by the Republic of the Marshall Islands Social Security System. Wilshire performs consistency checks, but does not independently audit data provided by the System. The valuation results presented are dependent on the accuracy of this participant data.
- Financial data as of September 30, 2017, submitted by the Republic of the Marshall Islands Social Security System. Wilshire performs consistency checks, but does not independently audit data provided by the System. The valuation results presented are dependent on the accuracy of the financial data.
- Actuarial assumptions which, in the aggregate, are reasonably related to the past experience of the System, which are based on reasonable expectations as to future experience and which represent our best estimate of anticipated experience. The plan trustees with advice and approval of the actuary set the assumptions and methods for the valuation.
- Actuarial methods and plan provisions as amended through the beginning of the Plan Year as summarized in the report.
- This report does not reflect all of the change in Bill 75 – Social Security (Amendment) act 2017. This law will lower the liability of the Republic of Marshall Islands Social Security System. It will also increase the projected contributions in to the plan.

Certified by:



William E. McGuire, FSA
Managing Director

Wilshire Associates, Inc.
1299 Ocean Avenue
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September 2018

B. Summary of Valuation Results

The principal results of this valuation are the calculation of the accrued liability, the funded ratio and the deficiency.

The accrued liability represents the current value of benefits already earned as of the valuation date including benefits currently in pay status.

The funded ratio is an indication of how well-funded the System is at any point in time with respect to benefits already earned. A funded ratio of 100% would indicate that the System's liability for benefits already earned was fully funded by current System assets. A funded ratio of 25% would indicate that current System assets were only great enough to cover 25% of the benefits already earned. The greater the funded ratio, the better funded the System is with respect to benefits already earned.

The deficiency is calculated as the accrued liability less the market value of System assets.

An important part of the valuation process is reviewing the assumptions made regarding, among other things, future life expectancy of current and disabled workers, retirees and beneficiaries, investment return, and cost of living adjustments as they apply to the system.

Actuarial assumptions are used to build a mathematical model of the system. Because the system is intended to continue well into the future and past the lifetime of the current workers, these assumptions must be chosen with the very long-term in mind. This is why the assumption regarding the return on system assets does not change with every valuation to reflect the current interest and investment environment. Choosing realistic, long-term assumptions smoothes out the otherwise inherent fluctuations in measurement of system liabilities that would result if assumptions were changed with every valuation, and allows a level playing field for making comparisons of the system's liabilities from one valuation to the next.

An experience study was conducted to compare MISSA's actual mortality, retirement and turnover rates with those utilized in the prior valuations. As a result of this study, the rates for all three were updated to better reflect your actual experience. In general, all of the assumed rates were increased indicating for retirement and turnover that plan participants leave the active workforce earlier than previously assumed. With regards to mortality rates increasing, this indicates that participants do not live as long as assumed previously. The total impact of these changes reduced the Total Accrued Liability by over \$100 million (or nearly 20%) as of October 1, 2017.

As of October 1, 2017, the total accrued liability was \$415,162,000 after assumptions changes (\$516,261,000 before assumptions changes) using an investment income (discount rate) assumption of 4.50% and the market value of Trust assets was \$72,715,000, resulting in an unfunded accrued liability of \$342,447,000 after assumptions changes (\$443,546,000 before assumptions changes).

When discussing the funded status of a retirement system, a common benchmark is the funded ratio of the system which is calculated as the market value of Trust assets divided by the accrued liability. The funded ratio as of October 1, 2017 is 18% after assumptions changes (14% before assumptions changes) using a 4.50% discount rate.

C. Unfunded Accrued Liability and Funded Ratio

The accrued liability represents the value of benefits already earned and which are in pay status as well as benefits earned as of the valuation date by those who are still working and are expected to earn future benefits. One can think of this as the amount needed today to pay for all benefits earned as of today that are either already being paid or may be paid in the future.

This determination of the accrued liability does not include former workers who are no longer making contributions, are not fully insured, and therefore are not entitled to a future benefit. Should these workers re-enter the workforce in the future, their benefits will then be included in the category of workers currently earning benefits.

<u>Valuation Date:</u>	<u>October 1, 2014</u>	<u>October 1, 2017 (Before Changes)</u>	<u>October 1, 2017 (After Changes)</u>
Accrued Liability			
Workers Earning Benefits	\$173,204,000	\$185,613,000	\$147,857,000
Retirees, Spouses, Children and Disabled Workers Receiving Benefits	232,785,000	257,446,000	210,341,000
Fully Insured Inactive Workers Entitled to a Benefit	<u>36,521,000</u>	<u>73,182,000</u>	<u>56,964,000</u>
Total Accrued Liability	\$442,510,000	\$516,261,000	\$415,162,000
Market Value of Assets	<u>(72,367,000)</u>	<u>(72,715,000)</u>	<u>(72,715,000)</u>
Unfunded Accrued Liability	\$370,143,000	\$443,546,000	\$342,447,000
Funded Ratio	16%	14%	18%
Normal Cost	\$4,961,000	\$4,291,000	\$5,636,000
Asset Return	3.21%	10.12%	10.12%
Valuation Interest Rate	4.50%	4.50%	4.50%

The accrued liability decreased from 2014 to 2017 due to the change in assumptions. Without the changes, the accrued liability would have increased by \$73,751,000.

The method used to estimate the Accrued Liability is called Entry Age Normal. Under this method, the cost of each individual's pension is allocated on a level percent of salary between the time employment starts (entry age) and the date benefits are assumed to commence. The portion of the actuarial present value allocated to the current year is called the **Normal Cost**.

The **Accrued Liability** is the present value of expected future benefits offset by the present value of future normal costs. Or the current value of normal cost attributed to past years of employment.

The **Unfunded Accrued Liability** is the excess of the Accrued Liability over the Market Value of Assets. And the **Funded Ratio** is the percent of the Accrued Liability covered by assets as of the valuation date.

The **Normal Cost** is the annual cost of providing retirement benefits for services performed by currently active members. Trust earnings plus contributions must equal the sum of the normal cost plus interest on the accrued liability to maintain the current funded status.

The **Valuation Interest Rate** is the rate at which future expected benefit payments are discounted to arrive at the estimated liability and the Asset Return provides a proxy for the return on assets during the most recent fiscal year.

D. Comments on Valuation Results

The number of active participants remained relatively unchanged at 9,394 as of October 1, 2017 from 9,400 as of the October 1, 2014 valuation. The average age for active participants increased to 38.9 from 38.3. The average annual accrued basic benefit for active workers increased to \$3,148 from \$3,058. In addition, the average valuation salary decreased to \$7,870 as of October 1, 2017 from \$8,750 as of October 1, 2014. The combination of these changes would cause the accrued liability to decrease, all other things being equal.

The number of fully insured inactive workers increased to 2,233 from 1,216 from the previous valuation. The average age increased to 54.2 from 49.8 and the average annual accrued benefit also increased to \$3,965 from \$3,650 as of October 1, 2017 from October 1, 2014, respectively.

The number of beneficiaries receiving payments increased to 4,536 from 4,177 with the average accrued annual benefit increasing to \$4,775 from \$4,600 as of the last valuation.

In addition to the change in demographics, the mortality, retirement and turnover rates were updated as noted in Section B. Summary of Valuation Results.

It is important to understand the accrued liability as of the valuation date utilizes the entry age normal method to allocate costs to a participant's years of service. And that the normal cost is the amount of cost allocated to the current year. In addition to this measure, we have calculated a present value of future benefits.

The present value of future benefits takes into consideration all future benefits expected to be earned by the current population of active workers as well as the value of benefits earned to date by fully insured inactive participants, and beneficiaries receiving payments. Together this is termed the present value of future benefits which is estimated at \$463.0M as of October 1, 2017 after assumptions changes (\$556.2M before assumptions changes) from \$484.8M as of October 1, 2014.

	<u>Valuation Date</u>	<u>October 1, 2014</u>	<u>October 1, 2017 (Before changes)</u>	<u>October 1, 2017 (After Changes)</u>
1.	Present Value of Future Benefits	\$484,762,000	\$556,179,000	\$462,967,000
2.	Market Value of Assets	(72,367,000)	(72,715,000)	(72,715,000)
	a. Present Value of Future Employee Contributions	(56,884,000)	(57,106,000)	(60,463,000)
	b. Present Value of Future Employer Contributions	(56,884,000)	(57,106,000)	(60,463,000)
3.	Total Value of Assets and Expected Future Contributions	<u>(186,135,000)</u>	<u>(186,927,000)</u>	<u>(193,641,000)</u>
4.	Unfunded Present Value of Future Benefits	\$298,627,000	\$369,252,000	\$269,327,000
5.	Present Value of Future Compensation	\$812,631,000	\$815,805,000	\$755,790,000
6.	Covered Wages	\$86,752,000	\$80,276,000	\$80,276,000
7.	Discount Rate	4.50%	4.50%	4.50%
8.	Contribution Rate		7.00%	8.00%

E. Discussion of the Unfunded Accrued Liability

The unfunded accrued liability is the excess of the accrued liability over the market value of assets. The funded ratio indicates what percentage of the accrued liability is covered by the market value of assets. The accrued liability is expected to increase from year to year as workers earn additional benefits and get closer to retirement age.

When the market value of assets equals or exceeds the accrued liability, there is no unfunded accrued liability and the retirement system is said to be fully funded. Although it is not critical that the System be fully funded, it is important that there is an increasing trend in the funded ratio from year-to-year. It is important to note that the funded ratio can decrease due to poor performance by the Trust assets and also due to increasing benefits payable to both current and future beneficiaries.

Previous discussions have detailed the danger of an increasing unfunded accrued liability. If the System were to cease operations with an unfunded accrued liability, there would not be enough money in the Trust at that time to fully provide benefits already in pay status or promised in the future. Therefore, it is important that benefits are not increased until a long-term trend of increasing funded ratios and decreasing the unfunded accrued liability has been realized.

F. Comments and Suggestions to Manage the Unfunded Accrued Liability

Benefit payments and administrative expenses exceeded the amount of contributions collected during each fiscal year since 2008. This trend of deficits shows no end. This puts the System in the position of having to dip into the Trust in order to meet its financial commitments. As the amount of benefit payments grows in the future, without further changes, it is increasingly possible that the System will run out of money. Based on current provisions and worker demographics, the Trust will continue to diminish over the next 10 years. This projection is based on no growth in the active workforce. The deficit will come even sooner should the workforce decrease.

The accrued liability is expected to increase from year to year due to continued benefit accruals. Because the unfunded accrued liability is simply the difference between the accrued liability and Trust assets, the size of the unfunded accrued liability can be limited in three ways: (1) increase the return on invested assets, (2) increase revenue through additional funding, and (3) limit the growth of future benefit payments.

Immediate changes must be made to increase contributions and decrease benefits. The decrease in benefits must include both active workers and those in pay status or the deficit will continue to grow until all of the assets are depleted. Bill 75, passed in February 2017 and implemented in March 2017, take steps in improving the unfunded actuarial liability. The impact of this Bill will be monitored in the future to determine if additional measures are necessary to keep the MISSA solvent in the future.

G. Statement of Net Assets

Assets and Liabilities as of:	9/30/2014	9/30/2015	9/30/2016	9/30/2017
ASSETS				
Cash and cash equivalents	\$ 986,958	\$ 772,855	\$ 970,364	\$ 1,363,901
Investments at Fair Value:				
Cash Management	15,626	53,257	276,230	76,368
Stocks	18,518,418	18,530,271	18,832,721	23,217,668
Mutual Funds	52,554,234	47,805,484	44,715,832	46,275,398
Total Investments	<u>71,088,278</u>	<u>66,389,012</u>	<u>63,824,783</u>	<u>69,569,434</u>
Receivables:				
Contributions	1,825,889	1,784,736	1,951,979	2,932,912
Other Receivables	570,819	678,480	793,487	806,654
Total Receivables	<u>2,396,708</u>	<u>2,463,216</u>	<u>2,745,466</u>	<u>3,739,566</u>
Capital Assets, Net	<u>86,151</u>	<u>72,652</u>	<u>65,112</u>	<u>40,185</u>
Total Assets	<u>74,558,095</u>	<u>69,697,735</u>	<u>67,605,725</u>	<u>74,713,086</u>
LIABILITIES				
Accounts Payable	55,411	82,144	80,118	135,200
Other Liabilities and Accruals	103,110	136,151	76,685	70,876
Due to Affiliate	2,032,916	2,647,044	1,839,854	1,792,429
Total Liabilities	<u>2,191,437</u>	<u>2,865,339</u>	<u>1,996,657</u>	<u>1,998,505</u>
Net Assets - Held In Trust for Pension Benefits	\$ <u>72,366,658</u>	\$ <u>66,832,396</u>	\$ <u>65,609,068</u>	\$ <u>72,714,581</u>

H. Statement of Changes in Net Assets

<u>Additions and Deductions for Fiscal Year Ended:</u>	<u>9/30/2014</u>	<u>9/30/2015</u>	<u>9/30/2016</u>	<u>9/30/2017</u>
Additions:				
Contributions:				
Private Employees	\$ 8,195,219	\$ 9,340,446	\$ 9,593,133	\$ 11,935,756
Government Employees	4,326,039	4,307,410	4,519,820	5,840,515
Penalties and Interest	180,351	1,148,204	721,491	853,957
Total Contributions	12,701,609	14,796,060	14,834,444	18,630,228
Less Allowance for Doubtful Accounts	0	737,626	(397,637)	297,021
Net Contributions:	12,701,609	14,058,434	15,232,081	18,333,207
Investment Income:				
Net Change in the Fair Value of Investments	4,354,810	(1,191,062)	3,267,199	5,787,469
Dividends	544,161	1,598,282	1,560,416	1,546,537
Interest	5,073	4,281	3,301	4,360
Total Investment Income	4,904,044	411,501	4,830,916	7,338,366
Less Investment Expense				
Investment Management and Custodial Fees	116,858	146,590	131,161	126,704
Total Net Investment Income	4,787,186	264,911	4,699,755	7,211,662
Other Additions	1,241,613	365,149	251,037	433,646
RepMar Subsidy	0	0	0	3,273,600
Total Additions	18,730,408	14,688,494	20,182,873	29,252,115
Deductions:				
Benefit Payments:				
Retirement	11,373,370	12,006,633	12,821,783	13,216,250
Survivors	6,083,229	6,271,549	6,574,036	6,897,351
Disability	791,657	812,813	831,539	887,350
Lump Sum	199,288	170,641	205,965	188,567
Total Benefit Payments	18,447,544	19,261,636	20,433,323	21,189,518
Administrative Expenses	904,389	961,119	972,878	957,084
Total Deductions	19,351,933	20,222,755	21,406,201	22,146,602
Net Increase (Decrease)	(621,525)	(5,534,261)	(1,223,328)	7,105,513
Plan Assets Held in Trust for Pension Benefits				
Beginning of Year	72,988,182	72,366,657	66,832,396	65,609,068
End of Year	\$ 72,366,657	\$ 66,832,396	\$ 65,609,068	\$ 72,714,581

I. Trust Asset History

<u>Fiscal Year End</u>	<u>Beginning of Year Market Value of Assets</u>	<u>Prior Year Adjustment</u>	<u>Contributions</u>	<u>Trust Gain or (Loss)</u>	<u>Other Income</u>	<u>Benefit Payments</u>	<u>Administrative Expenses</u>
9/30/1992	\$11,411,827		5,203,926	919,006	4,600	3,045,791	370,141
9/30/1993	\$14,118,827		551,741	1,585,653	7,917	3,650,861	576,256
9/30/1994	\$17,027,104		N/A	N/A	5,057	N/A	N/A
9/30/1995	\$18,621,286		6,552,290	1,212,257	4,894	4,498,091	686,210
9/30/1996	\$21,201,802		N/A	N/A	9,951	N/A	N/A
9/30/1997	\$24,018,126	(550,597)*	7,250,596	6,932,697	5,441	6,232,641	776,334
9/30/1998	\$30,624,147	192,504	5,941,895	(372,743)	4,422	6,864,677	957,129
9/30/1999	\$28,581,697		6,152,415	7,703,934	4,937	7,385,202	970,091
9/30/2000	\$34,083,023		6,857,536	7,065,277	65,454	7,657,881	742,942
9/30/2001	\$39,605,013		9,756,368	(5,296,995)	52,002	8,229,021	802,040
9/30/2002	\$35,033,325		9,907,862	(1,428,655)	65,924	8,564,016	685,476
9/30/2003	\$34,263,040	277,812	13,035,585	4,032,258		9,273,506	783,436
9/30/2004	\$41,548,753		10,627,661	6,011,501		9,747,850	859,676
9/30/2005	\$47,580,389		11,921,222	7,869,333		10,673,660	826,840
9/30/2006	\$55,870,444		11,443,526	5,780,773		11,018,951	896,473
9/30/2007	\$61,179,319		12,508,494	7,976,646		11,653,271	982,986
9/30/2008	\$69,028,202		13,471,032	(5,747,499)	1,551,234	12,548,715	1,016,370
9/30/2009	\$63,186,661		12,604,191	3,710,036	1,487,874	13,645,174	972,854
9/30/2010	\$64,882,760		13,118,836	5,978,828	1,432,411	14,551,142	885,294
9/30/2011	\$68,543,988		12,521,129	(98,508)	339,090	15,482,884	837,285
9/30/2012	\$64,985,530		12,447,381	8,252,479	335,567	16,252,193	799,218
9/30/2013	\$68,969,546		13,313,876	8,044,065	624,258	17,107,670	855,893
9/30/2014	\$72,988,182		12,701,609	4,787,186	1,241,613	18,447,544	904,389
9/30/2015	\$72,366,657		14,058,434	264,911	365,149	19,261,636	961,119
9/30/2016	\$66,832,396		15,232,081	4,699,755	251,037	20,433,323	972,878
9/30/2017	\$65,609,068		18,333,207	7,211,662	3,707,246	21,189,518	957,084
9/30/2018	\$72,714,581						

* Transfer Out

J. Trust Investment Experience History

<u>Fiscal Year End</u>	<u>Return</u>		<u>Fiscal Year End</u>	<u>Return</u>
9/30/1992	7.47 %		9/30/2005	16.47 %
9/30/1993	10.73		9/30/2006	10.39
9/30/1994	-0.93	Estimated	9/30/2007	13.05
9/30/1995	6.28		9/30/2008	-8.33
9/30/1996	8.09	Estimated	9/30/2009	5.79
9/30/1997	29.05		9/30/2010	8.96
9/30/1998	-1.25		9/30/2011	-0.15
9/30/1999	28.03		9/30/2012	13.13
9/30/2000	21.21		9/30/2013	12.01
9/30/2001	-13.25		9/30/2014	3.21
9/30/2002	-4.04		9/30/2015	-4.20
9/30/2003	11.24		9/30/2016	2.14
9/30/2004	14.47		9/30/2017	10.12

Historical trust investment experience information up to and including that ended 9/30/2016 was taken from prior actuarial valuations prepared by the prior actuary.

Average Annual Return

5 Year Average	4.49 %
10 Year Average	4.05 %
20 Year Average	6.48 %

III. ACTUARIAL ASSUMPTIONS AND METHODS AND PLAN SUMMARY

SECTION III

ACTUARIAL ASSUMPTIONS AND METHODS AND PLAN SUMMARY

This section of the report contains the actuarial assumptions and methods used in the valuation as well as a summary of the major provisions of the plan.

A. Actuarial Valuation Methods and Assumptions

Actuarial Cost Method:	Individual Entry Age Normal, Level Percent of Pay
Valuation of Assets:	Market value of assets
Investment Income:	4.5% per year
Expenses:	0.75% of Covered Wages
Salary Increase:	Salaries are assumed to increase 0% per year into the future
Mortality:	Based on rates from the 2017 experience study
Disabled Mortality:	Healthy morality plus five years
Retirement Age:	According to the probabilities in the table if eligible, with a maximum age of 70. Active workers who are older than 65 are assumed to retire at the end of the next fiscal year if they earned 4 quarters of coverage during the fiscal year that just ended.

Age	Probability that the worker will Retire
55	30%
56	20
57	20
58	20
59	20
60	450
61	25
62+	100

Pre-Retirement Spouse Benefit:

80% of the workers are assumed to be married, and males are assumed to be 3 years older than their spouses.

Surviving male spouses are assumed to remarry 2 years after the death of the worker and surviving females spouses are assumed to remarry 6 years after the death of the worker.

Representative percentages of those who receive a pre-retirement spouse benefit who remarry are shown in the following table:

Age	Male Spouse Remarry within 2 years		Female Spouse Remarry within 2 years	
	Remarry	Does not Remarry	Remarry	Does not Remarry
20	39.22%	60.78%	76.71%	23.29%
30	32.35%	67.65%	48.92%	51.08%
40	20.70%	79.30%	26.80%	73.20%
50	14.44%	85.56%	9.75%	90.25%
60	7.40%	92.60%	2.52%	97.48%

Surviving spouse benefits continue if the spouse is employed, but the benefits are subject to the earnings test.

Pre-retirement Children's Benefit:	Married workers are assumed to have 3 children, and each child is assumed to be age 13 at the time of death of the worker.
Post-Retirement Survivor's Benefit:	80% of active workers are assumed to be married when they retire. Males are assumed to be 3 years older than their spouses. It is assumed that 10% of male spouses and 60% of female spouses have Old Age Benefits smaller than the survivor's benefits, which is assumed to be twice the amount of the spouses own benefit.
Disability:	Rates are from the 2003 US Social Security Trustees Report Intermediate Assumptions.
Turnover:	None for citizens of the Marshall Islands For citizens of countries other than the Marshall Islands, it is assumed that 30% leave in the first year of employment, 25% in the years 2 and 3, 15% in year 4 and 5% thereafter, i.e. in years 5+. It is also assumed that 80% of workers who are not citizens of the Marshall Islands leave when they retire.
Workers Included in the Valuation:	Workers who have covered quarters in the last four quarters and who are age 21 or older are assumed to continue working and earn quarters of coverage equal to the average number earned during the previous three years until they become disabled, die or retire, whichever comes first. Workers how have not earned any quarters of coverage during the last year are assumed to stay out of the work force. Salary used as a basis to project future salaries is the greater of the salary earned during the last three years. If this salary is based on less than four quarters of coverage, it is converted to an annual salary.

B. Plan Summary

Applicable Laws

The Social Security Act of 1990, as amended by Public Laws 1994-104, 1996-27, 1996-29 and Bill 75.

Workers and Employer's Contributions

Workers, self-employed workers and employers each pay 8% of earnings up to a maximum of \$5,000 of earnings per quarter. Bill 75 increased the maximum quarterly earnings to \$10,000. This impact of the maximum earnings increase will be reflected in future valuations.

Coverage

All employees who are citizens or national of the Republic of the Marshall Islands and other employees working in the Republic are covered. U.S. citizens who are exempt from taxation in the Marshall Islands are exempt from coverage.

Eligibility for and Computation of Benefits is based on the following definitions:

Quarters of Coverage: A calendar quarter in which contributions were made for at least \$250 of earnings. Prior to October 1, 1990, a Quarter of Coverage was earned for a calendar year in which contributions were made for at least \$50 of earnings.

Currently Insured: Credited with at least 6 quarters of coverage during the previous 40 calendar quarters.

Fully Insured: Credited with at least one quarter of coverage for each year since the later of attainment of age 21 or June 30, 1968. A worker who attains retirement age, or becomes disabled after September 30, 1983 must have a minimum of 12 quarters of coverage. Workers who attain retirement age or became disabled prior to October 1, 1983 need a minimum of 8 quarters of coverage. However, no more than 38 quarters of coverage are required to be Fully Insured.

Service Insured: Credited with at least 80 quarters of coverage.

Maximum Covered Earnings: Earnings up to a maximum of \$5,000 each quarter. Bill 75 increased the maximum quarterly earnings to \$10,000. This impact of the maximum earnings increase will be reflected in future valuations.

Minimum Benefit: \$128 per month as of October 1, 1994.

Cost of Living Adjustments

A cost of living adjustment, not to exceed the consumer price index, may be adopted every two years. This adjustment applies to the amount of the Minimum Benefit and is used to calculate Indexed Covered Earnings. Two adjustments have been implemented prior to this valuation.

October 1, 1992	16.1%
October 1, 1994	11.1%

Wage Index Adjustment

A Wage Index Adjustment may be adopted periodically but may not exceed the government index. The Wage Index Adjustment is used to increase the Basic Benefit bend points and/or the Maximum Covered Earnings. So far, no wage index adjustment has ever been implemented.

Basic Benefit

A worker’s Basic Benefit is calculated as 1/12 of:

1. 2% of Indexed Covered Earnings, plus
2. 14.5% of the first \$11,000 of total Maximum Covered Earnings for which contributions have been made, plus
3. 0.7% of the next \$33,000 of total Maximum Covered Earnings for which contributions have been made.

Early Retirement Old Age Insurance Benefit

Eligibility: Age 55 and Service Insured
 Amount: Greater of the Basic Benefit reduced ½% for each month prior to age 60 that benefits commence, and the Minimum Benefit. Benefits paid before attainment of age 62 are reduced by \$1 for every \$3 of earnings in excess of \$1,500 received each quarter.

Normal Retirement Old Age Insurance Benefit

Eligibility: Age 60 and Fully Insured
 Amount: Greater of the Basic Benefit and the Minimum Benefit

Deferred Old Age Retirement Benefit

Eligibility: Older than age 60 and Fully Insured
 Amount: Greater of the Basic Benefit increased by ½% for each month past age 60 that benefits commence, and the Minimum Benefit.

Disability Benefit

Eligibility: Disabled and both Fully and Currently Insured at the time of disability
 Amount: Unreduced Basic Benefit earned at the time of disability. Sum of disability benefit and workers compensation benefit may not exceed 80% of the highest covered compensation earned in the year of disability and the prior five years. The benefits ceases should the worker recover from the disability.

Survivors Benefits

- Eligibility: Worker must have been Fully or Currently Insured at time of death
- Spouse: 100% of the Basic Benefit earned at the time of death. Paid until the earlier of the date the spouse remarries, returns to work or dies. This benefit is reduced by any Old Age Benefit that the spouse may be entitled to base on his or her own earnings history.
- Children: 25% of the Basic Benefit for each dependent child under the age of 18 or 22 if student. The benefit ceases if the child marries or is adopted by a close relative.
- Parents: 15% of the Basic Benefit earned at the time of death.

The Minimum total Survivor benefit is \$128 per month.

The sum of all survivors' benefits cannot exceed 100% of the Basic Benefit earned at the time of death.

Benefits Paid to Employed Retirees

If a person who is receiving an old age insurance benefit accepts covered employment, the benefit shall be recomputed at the end of the calendar year and the recomputed benefit shall be paid beginning with the first month of the subsequent calendar year.

Earnings Test

Benefits paid before attainment of age 62 are reduced by \$1 for every \$3 of earnings in excess of \$1,500 received each quarter.

Payments to Non-Citizens Overseas

No more than six months of benefit payments shall be made to any beneficiary who is not a citizen or national of the Republic of Marshall Islands while the beneficiary is outside the Republic of Marshall Islands. However, benefit payments will be made to citizens and nations of the Federated States of Micronesia, the Republic of Palau and the United States as if they were citizens or nationals of the Republic of the Marshall Islands if such countries extended the same reciprocal benefits to citizens of the Marshall Islands.

Lump Sum Death Benefit

- Eligibility: After the death of any covered worker and rights to all survivors benefits have ceased
- Amount: Four percent of total Maximum Covered Earnings for which contributions have been paid, less the value of any benefits already paid.

Lump Sum Benefit (Other than Death)

- Eligibility: Worker permanently ceases work due to old age, illness, or disability and has not earned the right to any other benefit.
- Amount: Four percent of total Maximum Covered Earnings for which contributions have been paid, less the value of any benefits already paid.

IV. PARTICIPANT DATA

SECTION IV

PARTICIPANT DATA

This section of the report contains a summary of the data used for purposes of the October 1, 2017 actuarial valuation.

A. Summary of Characteristics of Workers and Beneficiaries Included in the October 1, 2017 Valuation

Active Workers - Average Age, Average Completed Years of Service, and Average Valuation Compensation

Worker	Number	Average Age	Average Years of Service	Average Valuation Compensation
Male	6,271	39.1	12.3	\$7,987
Female	3,123	38.5	11.3	\$7,630
Total	9,394	38.9	11.9	\$7,868

The average annual accrued basic benefit is as of October 1, 2017 and is based on total remuneration for which contributions have been made through September 30, 2017.

Status	Number	Average Age	Average Annual Accrued Basic Benefit
Active	9,394	38.9	\$3,148
Inactive and Fully Insured	2,233	54.2	\$3,965
Retirees	2,434	66.3	\$5,828
Disabled	181	52.7	\$4,545
Spouse	1,239	60.8	\$4,831
Child	682	15.1	\$978

Active Status – Not in-pay status and currently earning additional benefits.

Inactive and Fully Insured Status – Not in-pay status, not currently earning additional benefits, and entitled to a benefit in the future.

B. Age, Service and Compensation Data

Average Compensation Distribution by Nearest Age and Covered Service

ACTIVE EMPLOYEES - Males

Nearest Age	Service							Total
	Under 5	5-9	10-14	15-19	20-24	25-29	30 & More	
Under 20	42 \$1,566.56	1 \$6,340.69	0 \$0.00	0 \$0.00	0 \$0.00	0 \$0.00	0 \$0.00	43 \$1,677.59
20-24	359 \$2,771.34	113 \$6,345.60	0 \$0.00	0 \$0.00	0 \$0.00	0 \$0.00	0 \$0.00	472 \$3,627.04
25-29	338 \$3,444.25	493 \$7,512.02	55 \$10,693.78	0 \$0.00	0 \$0.00	0 \$0.00	0 \$0.00	886 \$6,157.72
30-34	213 \$3,827.62	469 \$6,775.79	282 \$9,540.70	50 \$12,448.65	0 \$0.00	0 \$0.00	0 \$0.00	1,014 \$7,205.17
35-39	142 \$4,169.09	309 \$5,739.80	326 \$8,344.18	218 \$11,087.78	30 \$15,218.63	0 \$0.00	0 \$0.00	1,025 \$7,765.37
40-44	88 \$5,956.52	216 \$6,213.68	216 \$8,221.63	247 \$10,217.43	153 \$13,476.40	34 \$15,180.42	0 \$0.00	954 \$9,165.54
45-49	37 \$4,463.89	123 \$5,743.48	119 \$7,428.06	164 \$9,838.87	169 \$10,967.47	158 \$14,207.65	35 \$16,409.92	805 \$9,989.80
50-54	23 \$8,175.91	51 \$6,034.36	83 \$6,988.10	101 \$7,733.26	112 \$10,102.97	144 \$11,786.21	159 \$14,626.13	673 \$10,417.79
55-59	14 \$4,672.37	38 \$7,359.03	47 \$7,945.32	51 \$10,337.11	52 \$9,261.66	30 \$12,046.26	48 \$14,470.94	280 \$9,940.28
60-64	9 \$3,843.76	28 \$7,670.17	18 \$9,260.28	9 \$7,040.53	7 \$11,382.16	9 \$9,299.13	8 \$11,145.13	88 \$8,317.46
65-69	4 \$7,378.40	7 \$10,334.65	4 \$6,483.62	0 \$0.00	4 \$11,798.78	1 \$10,650.12	2 \$9,285.62	22 \$9,282.14
70 & Older	0 \$0.00	2 \$1,575.39	3 \$9,538.00	3 \$9,767.41	0 \$0.00	1 \$5,000.00	0 \$0.00	9 \$7,340.78
Total	1,269 \$3,655.68	1,850 \$6,651.09	1,153 \$8,528.47	843 \$10,175.29	527 \$11,597.65	377 \$13,047.45	252 \$14,691.43	6,271 \$7,987.21

ACTIVE EMPLOYEES - Females

Nearest Age	Service							Total
	Under 5	5-9	10-14	15-19	20-24	25-29	30 & More	
Under 20	48 \$1,402.02	0 \$0.00	0 \$0.00	0 \$0.00	0 \$0.00	0 \$0.00	0 \$0.00	48 \$1,402.02
20-24	234 \$2,299.31	73 \$6,398.93	0 \$0.00	0 \$0.00	0 \$0.00	0 \$0.00	0 \$0.00	307 \$3,274.14
25-29	179 \$3,944.46	257 \$8,955.19	20 \$9,816.23	0 \$0.00	0 \$0.00	0 \$0.00	0 \$0.00	456 \$7,026.02
30-34	109 \$3,667.96	205 \$7,512.32	137 \$10,516.43	21 \$13,561.59	0 \$0.00	0 \$0.00	0 \$0.00	472 \$7,765.63
35-39	99 \$4,294.14	143 \$6,041.87	119 \$8,821.41	113 \$12,307.11	14 \$14,284.22	0 \$0.00	0 \$0.00	488 \$8,052.33
40-44	49 \$4,072.30	117 \$5,410.42	80 \$8,888.90	118 \$11,331.46	79 \$13,128.78	25 \$15,141.27	0 \$0.00	468 \$9,180.54
45-49	30 \$4,663.80	66 \$5,985.65	75 \$8,070.78	66 \$7,851.72	62 \$10,673.12	53 \$12,887.33	7 \$17,818.31	359 \$8,713.03
50-54	14 \$3,398.55	42 \$4,402.22	41 \$7,275.41	43 \$8,222.77	53 \$8,972.08	47 \$11,646.98	51 \$13,465.20	291 \$8,914.08
55-59	8 \$9,805.93	22 \$5,016.28	22 \$6,739.45	27 \$7,414.64	28 \$5,708.83	15 \$12,473.78	29 \$15,938.05	151 \$8,916.73
60-64	8 \$1,531.90	18 \$9,557.32	15 \$7,040.75	2 \$11,259.78	9 \$4,158.10	2 \$5,551.59	5 \$14,906.73	59 \$7,380.97
65-69	2 \$1,900.00	8 \$8,027.63	1 \$5,160.00	1 \$20,000.00	0 \$0.00	0 \$0.00	0 \$0.00	12 \$7,765.09
70 & Older	3 \$2,404.67	3 \$12,666.67	2 \$5,905.00	1 \$305.13	2 \$832.70	1 \$4,050.00	0 \$0.00	12 \$5,253.71
Total	783 \$3,352.59	954 \$7,096.64	512 \$8,930.44	392 \$10,529.14	247 \$10,418.39	143 \$12,665.93	92 \$14,654.24	3,123 \$7,629.79

ACTIVE EMPLOYEES – Total

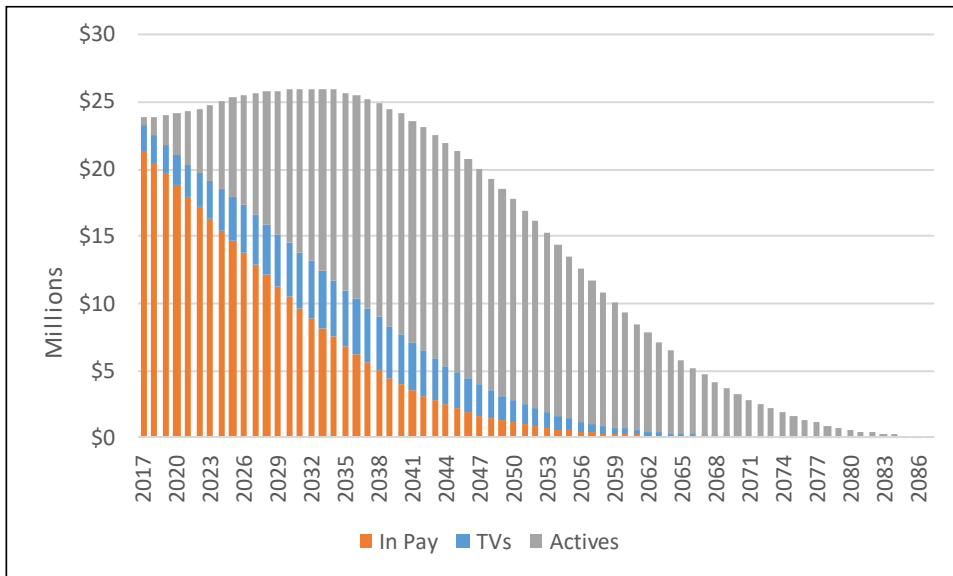
Nearest Age	Service							Total
	Under 5	5-9	10-14	15-19	20-24	25-29	30 & More	
Under 20	90 \$1,478.80	1 \$6,340.69	0 \$0.00	0 \$0.00	0 \$0.00	0 \$0.00	0 \$0.00	91 \$1,532.23
20-24	593 \$2,585.08	186 \$6,366.53	0 \$0.00	0 \$0.00	0 \$0.00	0 \$0.00	0 \$0.00	779 \$3,487.97
25-29	517 \$3,617.44	750 \$8,006.55	75 \$10,459.77	0 \$0.00	0 \$0.00	0 \$0.00	0 \$0.00	1,342 \$6,452.76
30-34	322 \$3,773.57	674 \$6,999.81	419 \$9,859.74	71 \$12,777.83	0 \$0.00	0 \$0.00	0 \$0.00	1,486 \$7,383.19
35-39	241 \$4,220.46	452 \$5,835.37	445 \$8,471.80	331 \$11,504.04	44 \$14,921.31	0 \$0.00	0 \$0.00	1,513 \$7,857.93
40-44	137 \$5,282.60	333 \$5,931.45	296 \$8,401.98	365 \$10,577.58	232 \$13,358.03	59 \$15,163.83	0 \$0.00	1,422 \$9,170.48
45-49	67 \$4,553.40	189 \$5,828.05	194 \$7,676.53	230 \$9,268.64	231 \$10,888.47	211 \$13,876.01	42 \$16,644.65	1,164 \$9,596.02
50-54	37 \$6,368.26	93 \$5,297.27	124 \$7,083.10	144 \$7,879.44	165 \$9,739.72	191 \$11,751.95	210 \$14,344.19	964 \$9,963.87
55-59	22 \$6,539.12	60 \$6,500.02	69 \$7,560.84	78 \$9,325.49	80 \$8,018.17	45 \$12,188.77	77 \$15,023.49	431 \$9,581.68
60-64	17 \$2,755.83	46 \$8,408.62	33 \$8,251.40	11 \$7,807.67	16 \$7,318.63	11 \$8,617.76	13 \$12,591.90	147 \$7,941.59
65-69	6 \$5,552.27	15 \$9,104.24	5 \$6,218.90	1 \$20,000.00	4 \$11,798.78	1 \$10,650.12	2 \$9,285.62	34 \$8,746.71
70 & Older	3 \$2,404.67	5 \$8,230.15	5 \$8,084.80	4 \$7,401.84	2 \$832.70	2 \$4,525.00	0 \$0.00	21 \$6,148.17
Total	2,052 \$3,540.03	2,804 \$6,802.68	1,665 \$8,652.08	1,235 \$10,287.60	774 \$11,221.32	520 \$12,942.53	344 \$14,681.48	9,394 \$7,868.38

C. Accrued Benefit Detail as of October 1, 2017

Average Accrued Benefit Distribution by Nearest Age, Gender and Status for Active Employees

Nearest Age	ACTIVE EMPLOYEES			
	Females		Males	
	Number	Average	Number	Average
Under 20	48	261.43	43	334.37
20-24	307	822.89	472	921.98
25-29	456	1,743.71	886	1,733.15
30-34	472	2,402.54	1,014	2,356.56
35-39	488	2,883.91	1,025	2,955.09
40-44	468	3,819.92	954	3,731.21
45-49	359	4,073.15	805	4,753.38
50-54	291	4,781.74	673	5,549.14
55-59	151	4,791.98	280	4,931.64
60-64	59	3,335.41	88	3,616.97
65-69	12	2,541.51	22	4,258.84
70 & Older	12	2,201.92	9	3,747.22
Total	3,123	\$2,952.43	6,271	\$3,245.23

D. Summary of Future Expected Benefit Payments



Expected Payments by Year

Year	Total
2017	23,829,000
2018	23,875,000
2019	23,966,000
2020	24,107,000
2021	24,274,000
2022-2026	125,127,000

E. Projection of Funded Status

An actuarial valuation collects data, and using certain assumptions, determines a liability by projecting life expectancy and salary information into the future. Using the same assumptions as those used in the valuation, and with a few additional assumptions, a cash flow projection can show the sustainability of the System.

Below is a projection of the Systems assets using the same assumptions as those in Section III. The following assumptions have also been utilized:

1. Annual increase in the number of active workers: 0%
2. Additional annual contribution from RMI: \$0

Year	Total Workers		Accrued Liability	Assets	Funded Status
	Number	Payroll			
2011	11,899	75,713,337	287,327,000	64,986,000	23%
2013	9,981	81,487,087	323,640,000	72,988,000	23%
2014	9,400	86,752,000	442,510,000	72,367,000	16%
2017	9,394	80,276,000	415,162,000	72,715,000	18%
2018	8,781	77,182,000	418,414,000	64,757,000	15%
2019	8,222	74,334,000	421,305,000	55,654,000	13%
2020	7,699	71,383,000	423,978,000	45,396,000	11%
2021	7,191	68,439,000	426,306,000	33,875,000	8%
2022	6,704	65,512,000	428,224,000	20,979,000	5%
2023	6,238	62,398,000	429,616,000	6,545,000	2%
2024	5,772	59,149,000	430,207,000	(9,733,000)	-2%
2025	5,339	55,812,000	430,032,000	(27,943,000)	-6%
2026	4,925	52,532,000	428,929,000	(48,311,000)	-11%
2027	4,536	49,353,000	426,864,000	(70,895,000)	-17%
2028	4,169	46,290,000	423,953,000	(95,613,000)	-23%
2029	3,831	43,359,000	420,250,000	(122,499,000)	-29%
2030	3,508	40,468,000	415,742,000	(151,551,000)	-36%
2031	3,206	37,586,000	410,448,000	(182,887,000)	-45%
2032	2,925	34,790,000	404,363,000	(216,507,000)	-54%
2033	2,660	32,138,000	397,513,000	(252,436,000)	-64%
2034	2,411	29,565,000	389,838,000	(290,759,000)	-75%
2035	2,181	27,035,000	381,507,000	(331,410,000)	-87%