



Cavanaugh Macdonald
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Federated States of Micronesia Social Security Administration

**Actuarial Valuation as of
January 1, 2020**





Cavanaugh Macdonald

CONSULTING, LLC

The experience and dedication you deserve

April 8, 2021

Board of Trustees
Federated States of Micronesia Social Security Administration

Dear Board of Trustees:

At your request, we have performed an actuarial valuation of the Federated States of Micronesia Social Security Administration (FSMSSA) as of January 1, 2020. The major findings of the valuation are contained in this report which reflects the benefit provisions in place on January 1, 2020. There were no changes to the provisions of the plan, nor the actuarial methods and assumptions.

The current funded status of the Plan is 15.4%. At this funding level, the sustainability of the Plan is heavily dependent on the amount of contributions. Over the past few years, the Federated States of Micronesia Nation Government has been contributing \$1 million per year in excess of its employer contributions. Without continued excess contributions, the Trust assets are expected to be depleted over the next 23 years. Continued contributions at the current level would delay depletion for at least several more years, depending upon the amount of additional contributions. The actual depletion date will depend on actual investment experience, the number and payroll of the workers, and the demographic experience of the membership. As a result, serious attention should be given to analyzing the sustainability of the Trust.

In preparing our report, we relied, without audit, on information supplied by FSMSSA staff. This information includes, but is not limited to, statutory provisions, member data and financial information. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete, our results may be different and our calculations may need to be revised.

We further certify that all costs, liabilities, rates of interest and other factors for the FSMSSA have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the Trust and reasonable expectations); and which, in combination, offer the best estimate of anticipated experience affecting the Trust. Nevertheless, the emerging costs will vary from those presented in this report to the extent actual experience differs from that projected by the actuarial assumptions. The Board of Trustees has the final decision regarding the appropriateness of the assumptions as indicated in Appendix C.

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In order to prepare the results in this report, we have utilized appropriate actuarial models that were developed for this purpose. These models use assumptions about future contingent events along with recognized actuarial approaches to develop the needed results. 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 Plan'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.

Cavanaugh Macdonald Consulting consultants are pension actuaries. Their advice is not intended to be a substitute for qualified legal or accounting counsel.

On the basis of the foregoing, I hereby certify that, to the best of my knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices which are consistent with the Actuarial Standards of Practice promulgated by the Actuarial Standards Board and the applicable Guides to Professional Conduct, amplifying Opinions, and supporting Recommendations of the American Academy of Actuaries. While these standards are not binding for work performed outside of the United States, I nonetheless believe that these standards provide appropriate guidance in performing actuarial work.

I respectfully submit the following report and look forward to discussing it with you.

Sincerely,

A handwritten signature in blue ink that reads 'Brent A. Banister'.

Brent A. Banister, PhD, FSA, EA, FCA, MAAA
Chief Actuary



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EXECUTIVE SUMMARY

This report presents the results of the January 1, 2020 actuarial valuation of the retirement benefits provided to workers through the Federated States of Micronesia Social Security Administration (FSMSSA). The primary purposes of performing the valuation are:

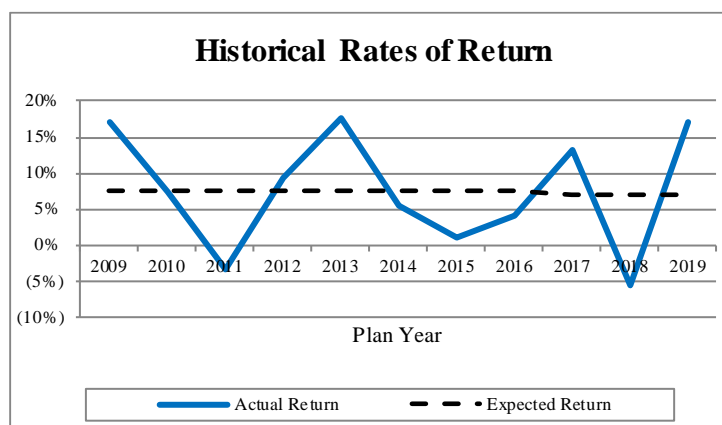
- Compare the accrued liability to the market value of Trust assets in order to determine the current funded status.
- Provide a basis for determining the effect of any future proposed changes to the Trust.
- Project assets and liabilities to judge the Trust's future sustainability.

There were no changes to the benefit provisions, nor the actuarial methods and assumptions. The principal results of this valuation are the calculation of the accrued liability and the funded ratio. The accrued liability represents the portion of the value of future benefits allocated to years of service earned by workers as of the valuation date, including benefits currently being paid. The funded ratio is an indication of how well-funded the Trust is at any point in time with respect to the accrued liability. As of January 1, 2020, the Trust's accrued liability is \$359,872,000 and the market value of Trust's assets is \$55,427,000, resulting in an unfunded accrued liability of \$304,445,000 and a funded ratio of 15.4%.

Perhaps the most important aspect of the Trust's funding to consider is its long-term solvency. Without the additional contributions from the Federated States of Micronesia National Government (National Government), the excess of benefit payments and expenses over contributions is expected to deplete the assets in about 23 years. However, if those additional contributions continue to be made, then the depletion date will be pushed further into the future. Please see Exhibit 10 for more information.

The Trust's funded status is impacted by the investment performance of the Trust. Since the prior valuation (2017), the Trust has experienced investment returns of 13.3%, -5.7% and 17.1% over the past three years, two of which are above the assumed rate of return of 7.0% which applied to those years. The average return over the past five years is lower at 5.6%.

See the graph below for a summary of the Trust's recent investment performance:



When discussing the financial health of a retirement system, a common benchmark is the funded ratio of the Trust which, as mentioned above, is calculated as the market value of Trust assets divided by accrued liability. The funded ratio as of January 1, 2020 is 15.4%. The financial condition of the Trust is such that the current assets and the current level of expected payroll-based contributions cannot support the level of expected benefit payments. While the market value of assets at January 1, 2020 was \$55.4 million, the expected benefit payments for the next few years are around \$24 million per year, whereas regular



EXECUTIVE SUMMARY

contributions are expected to be between \$20 million and \$22 million. Looking forward and assuming the current statutory contributions are made each year, the assets are expected to be depleted in about 23 years if all assumptions are met and no additional contributions are made by the National Government (see Exhibit 10). However, if the National Government continues to make additional contributions, it will have a positive impact on the Trust's solvency. For example, if the National Government contributes an additional \$1.0 million each year, then the assets are expected to last for many more years.

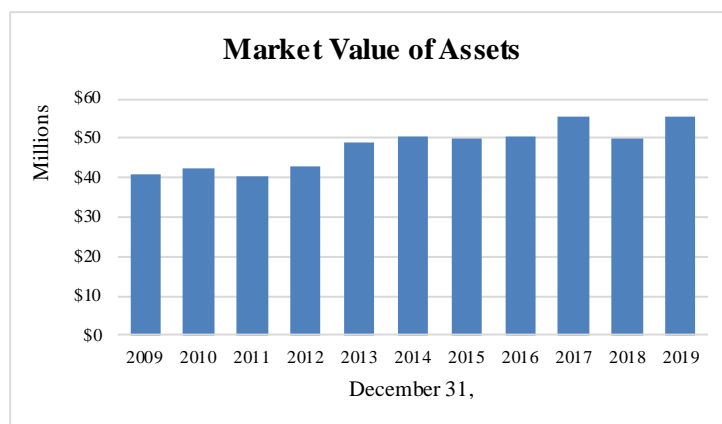
ASSETS

As of January 1, 2020, the Trust had total funds of \$55,427,000 when measured on a market value basis. This was an increase of \$4,755,000 from the January 1, 2017 valuation. The market value of assets is used directly in the actuarial calculation of the Trust's funded status and the recommended contribution.

During the past few years, the benefit payments have exceeded contributions, and the gap is widening. In 2017, benefit payments exceeded contributions by \$1.9 million. In 2019, benefit payments exceeded contributions by 2.7 million. As these funds are removed from the investable assets, the portfolio allocation may need to be adjusted to provide a greater degree of liquidity. If this happens, the expected return on assets may decrease, accelerating the depletion of the Trust's assets and increasing the probability that a cash infusion may be necessary to ensure the payment of future benefits.

The components of the change in the market value of assets and the historical trend are shown below:

	2019	2018	2017
Net Assets, Beginning of Year	\$49,827,000	\$55,506,000	\$50,672,000
• Contributions	19,898,000	19,721,000	18,891,000
• Benefit Payments and Refunds	(22,587,000)	(22,202,000)	(20,801,000)
• Administrative Expenses	(1,379,000)	(1,337,000)	(1,247,000)
• Investment and Other Income	<u>9,668,000</u>	<u>(1,861,000)</u>	<u>7,991,000</u>
Net Assets, End of Year	\$55,427,000	\$49,827,000	\$55,506,000
Estimated Rate of Return	17.1%	(5.7%)	13.3%





EXECUTIVE SUMMARY

LIABILITIES

The first step in determining the contribution amount for the Trust is to calculate the liability for all expected future benefit payments for current members. This liability represents the present value of future benefits (PVFB) expected to be earned by the current members, assuming that all actuarial assumptions are realized in the future. Thus, the PVFB reflects future service and salary increases that are expected to occur in the future before a benefit becomes payable. The PVFB components can be found in the liabilities portion of the valuation balance sheet (see Exhibit 5).

The other critical measurement of plan liability in the valuation process is the accrued liability. This is the portion of the PVFB that will not be paid by the future normal costs (i.e. it is the portion of the PVFB that is allocated to prior service periods).

The following chart compares the accrued liability and Trust assets (at market value) for the current and prior valuation. Note that these measures do not indicate whether or not the Trust would have sufficient assets if it were terminated, nor do they indicate what level of future contributions will be required.

	As of January 1	
	2020	2017
Workers Earning Benefits	\$132,347,000	\$132,703,000
Retirees, Spouses, Children, and Disabled Workers Receiving Benefits	166,629,000	150,496,000
Fully Insured Inactive Workers Entitled to a Future Benefit	<u>60,896,000</u>	<u>53,210,000</u>
Total Accrued Liability	\$359,872,000	\$336,409,000
Assets at Market Value	<u>55,427,000</u>	<u>50,672,000</u>
Unfunded Accrued Liability	\$304,445,000	\$285,737,000
Funded Ratio (Market Value)	15.4%	15.1%

The funded ratio did not change much from the January 1, 2017 valuation to the January 1, 2020 valuation. Note that the funded status of the Federated States of Micronesia Social Security Administration is low and without additional contributions beyond worker and employer taxes, the depletion of the Trust assets is likely to occur in about 23 years. However, if the National Government continues its practice of making additional contributions, it will have a positive impact on the Trust's solvency. For example, if the National Government contributes an additional \$1.0 million each year, then the assets are expected to last much longer. While we have prepared some very basic projections of future assets, the Administration may want to have more robust projections prepared, using different sets of assumptions, in order to evaluate the risk of depleting the Trust assets and to develop plans to move the Trust to a stronger financial status and long-term sustainability.



EXECUTIVE SUMMARY

COMMENTS

While a social security program does not necessarily need to be prefunded, there are certainly some advantages to having a significant asset reserve available. Over time, the investment return on the assets will provide funds that would otherwise need to be made by workers, employers, or the government. A significant asset reserve can also help during a sustained economic downturn when normal revenue sources may be diminished. Ultimately, a fully funded program would likely be able to reduce contributions or improve benefits because of the significant asset pool available.

In order to move from the current situation of having only a small portion of the benefits funded to a higher funded level, there must be some combination of increased contributions or reduced benefits. Additional funding could result from direct additions, from increased contribution rates, or from a growth in the number of workers. In particular, if the number of workers were to grow at a rate of 0.5% per year or more (and all other assumptions are met), the funded status of the Trust would grow significantly over the coming 10-20 years and likely eliminate the need for additional funding from the federal government. While reducing benefits would also improve the funding position, such an action seems contrary to the goal of the Social Security program which is to provide benefits.

We believe that the current status of the Trust provides for a reasonable level of stability over the short to medium term. To improve the sustainability over the longer term, there are several things that could be helpful:

- Increasing the pool of workers through including more groups or through growth in national employment.
- Additional direct contributions into the Trust, whether from federal government allocations, special taxes or fees, or some other source that does not result in increased benefits.
- Providing incentives or requiring working longer for benefits. This could be implemented to gradually phase-in for those who are currently at least 10 or 20 years away from retirement so that they have plenty of time to adjust. Such a move would be appropriate in anticipation of better mortality experience over time.
- Steps to improve the economic vitality of the country, although not directly related to the Social Security System, would lead to higher salaries which would in turn strengthen the Trust. Additionally, a diversified economy can promote more resilience during economic downturns and provide continuity of contributions flowing into the program.

There are a multitude of options available to help improve sustainability over the longer term, each of which must be balanced with its feasibility and with the overall goals of the program. We encourage continued monitoring of the funding progress and are happy to assist with evaluating the impact of any proposed refinements.



FEDERATED STATES OF MICRONESIA SOCIAL SECURITY ADMINISTRATION

PRINCIPAL VALUATION RESULTS

	January 1, 2020	January 1, 2017	% Chg
MEMBERSHIP			
1. Active Membership			
- Number of Members	16,142	15,582	3.6
- Total Payroll	\$138,563,826	\$129,779,290	6.8
- Average Age	40.0	40.2	(0.5)
- Average Service	9.8	10.4	(5.8)
2. Inactive Members, Fully Insured			
- Number of Inactive Members	3,917	3,738	4.8
- Average Age	58.2	56.2	3.5
- Average Annual Benefit	\$3,350	\$3,216	4.2
3. Inactive Members Receiving Benefit Payments			
- Number of Retirees / Beneficiaries	6,697	6,473	3.5
- Average Age	63.0	61.4	2.6
- Average Annual Benefit	\$3,227	\$2,958	9.1
ASSETS AND LIABILITIES			
1. Net Assets			
- Market Value (MVA)	\$55,427,000	\$50,672,000	9.4
2. Accrued Liability (AL)			
- Retirees, Disabled Members and Spouses	\$166,629,000	\$150,496,000	10.7
- Inactive, Fully Insured Members	60,896,000	53,210,000	14.4
- Active Members	<u>132,347,000</u>	<u>132,703,000</u>	(0.3)
- Total	\$359,872,000	\$336,409,000	7.0
3. Unfunded Accrued Liability	\$304,445,000	\$285,737,000	6.5
4. Funded Ratio			
MVA / AL	15.4%	15.1%	2.0



EXHIBIT 1
STATEMENT OF NET ASSETS

	Assets and Liabilities as of:		
	<u>12/31/2019</u>	<u>12/31/2018</u>	<u>12/31/2017</u>
<u>ASSETS</u>			
Cash and Cash Equivalents	\$ 2,308,424	\$ 3,064,758	\$ 2,534,801
Receivables:			
Contributions	\$ 3,176,055	\$ 3,505,730	\$ 3,061,307
Due from FSM National Government	0	0	0
Accrued Interest	0	0	0
Other	13,636	22,205	23,220
Total Receivables	\$ 3,189,691	\$ 3,527,935	\$ 3,084,527
Prepayments	\$ 600	\$ 794	\$ 7,737
Investments:			
Fixed Income	\$ 16,066,078	\$ 14,667,430	\$ 15,393,591
Stocks	33,954,777	28,667,201	34,650,015
Total Investments	\$ 50,020,855	\$ 43,334,631	\$ 50,043,606
Depreciable Fixed Assets, Net	61,973	67,463	71,550
Total Assets	\$ 55,581,543	\$ 49,995,581	\$ 55,742,221
<u>LIABILITIES</u>			
Accounts Payable	(127,162)	(143,804)	(206,367)
Other Liabilities and Accruals	(27,248)	(25,171)	(29,410)
Accrued Management Fees	0	0	0
Total Liabilities	\$ (154,410)	\$ (168,975)	\$ (235,777)
<u>NET POSITION</u>			
Held in Trust for Pension Benefits	\$ 55,427,133	\$ 49,826,606	\$ 55,506,444



EXHIBIT 2

STATEMENT OF CHANGES IN NET ASSETS

	Additions and Deductions for Fiscal Years Ended:		
	<u>12/31/2019</u>	<u>12/31/2018</u>	<u>12/31/2017</u>
Additions:			
Contributions	\$ 19,898,329	\$ 19,720,805	\$ 18,891,261
Investment Income:			
Net Change in Fair Value of Assets	\$ 7,294,758	\$ (4,033,152)	\$ 5,835,390
Interest and Dividends	1,264,865	1,236,127	1,041,733
Investment Expenses	(286,685)	(296,508)	(279,124)
Net Investment Income	\$ 8,272,938	\$ (3,093,533)	\$ 6,597,999
Other Income			
Contributions from FSM National Government	\$ 1,000,000	\$ 1,000,000	\$ 1,000,000
Other	395,135	232,183	394,032
Total Other Income	\$ 1,395,135	\$ 1,232,183	\$ 1,394,032
Total Additions	\$ 29,566,402	\$ 17,859,455	\$ 26,883,292
Deductions:			
Benefit Payments:			
Retirement	\$ (14,477,467)	\$ (14,121,716)	\$ (13,121,012)
Survivors	(6,029,017)	(5,914,975)	(5,736,893)
Disability	(1,790,616)	(1,828,928)	(1,718,405)
Lump Sum	(267,515)	(313,564)	(201,739)
Total Benefit Payments	\$ (22,564,615)	\$ (22,179,183)	\$ (20,778,049)
Refunds	\$ (22,432)	\$ (22,706)	\$ (23,024)
Administrative Expenses	\$ (1,378,828)	\$ (1,337,404)	\$ (1,247,437)
Total Deductions	\$ (23,965,875)	\$ (23,539,293)	\$ (22,048,510)
Net Increase (Decrease) in Plan Assets	\$ 5,600,527	\$ (5,679,838)	\$ 4,834,782
Plan Net Assets, Beginning of Year	\$ 49,826,606	\$ 55,506,444	\$ 50,671,662
Plan Net Assets, End of Year	\$ 55,427,133	\$ 49,826,606	\$ 55,506,444
Estimated Rate of Return, Net of Expenses	17.06%	-5.71%	13.25%



VALUATION RESULTS

EXHIBIT 3

TRUST ASSET HISTORY

Fiscal Year End	Beginning of Year Market Value of Assets	Prior Year Adjustment	Contributions	Trust Gain or (Loss)	Other Income	Benefit Payments	Administrative Expenses
3/31/1996	\$19,708,993		\$7,679,774	\$3,672,982	\$4,600	(\$6,140,340)	(\$738,817)
3/31/1997	24,187,192		8,220,669	2,706,638	7,917	(6,562,802)	(654,383)
3/31/1998	27,905,231		8,953,398	7,876,250	5,057	(7,736,924)	(721,912)
3/31/1999	36,281,100		8,041,629	4,189,816	4,894	(8,222,560)	(803,865)
3/31/2000	39,491,014		8,357,388	4,084,332	9,951	(8,996,669)	(1,018,511)
12/31/2000	41,927,505		6,914,430	(1,527,557)	5,441	(6,893,415)	(666,969)
12/31/2001	39,759,435	(16,237)	10,486,084	(4,305,329)	4,422	(9,582,168)	(823,461)
12/31/2002	35,522,746	90,251	11,715,449	(3,001,899)	4,937	(9,990,634)	(809,256)
12/31/2003	33,531,594		11,398,884	4,120,949	65,454	(10,865,848)	(904,131)
12/31/2004	37,346,902		12,275,901	2,351,940	52,002	(11,321,238)	(923,670)
12/31/2005	39,781,837		12,129,796	3,648,998	65,924	(12,029,049)	(940,444)
12/31/2006	42,657,062		12,130,506	4,142,225		(12,586,560)	(968,012)
12/31/2007	45,375,221		12,855,762	3,723,433		(13,663,880)	(968,986)
12/31/2008	47,321,550		12,901,363	(8,274,474)		(14,241,374)	(989,810)
12/31/2009	36,717,255		14,145,653	6,149,139		(15,304,704)	(961,778)
12/31/2010	40,745,566		16,069,490	2,981,702		(16,488,738)	(946,950)
12/31/2011	42,631,070	(226,965)	16,593,155	(1,420,816)	1,551,234	(17,650,875)	(1,067,434)
12/31/2012	40,409,369		16,371,874	3,670,433	1,487,874	(18,016,644)	(1,083,370)
12/31/2013	42,839,536		17,244,974	7,503,017	1,432,411	(18,685,027)	(1,201,371)
12/31/2014	49,133,540		17,641,983	2,659,927	1,364,982	(19,316,947)	(1,166,208)
12/31/2015	50,317,277		17,623,995	470,362	2,295,849	(19,443,994)	(1,245,286)
12/31/2016	50,018,203		18,563,485	2,017,652	1,553,052	(20,244,078)	(1,236,652)
12/31/2017	50,671,662		18,891,261	6,597,999	1,394,032	(20,801,073)	(1,247,437)
12/31/2018	55,506,444		19,720,805	(3,093,533)	1,232,183	(22,201,889)	(1,337,404)
12/31/2019	49,826,606		19,898,329	8,272,938	1,395,135	(22,587,047)	(1,378,828)
12/31/2020	55,427,133						



EXHIBIT 4

TRUST INVESTMENT EXPERIENCE HISTORY

<u>Fiscal Year End</u>	<u>Return</u>		<u>Fiscal Year End</u>	<u>Return</u>
3/31/1996	18.26%		12/31/2008	-17.90%
3/31/1997	10.96%		12/31/2009	17.20%
3/31/1998	27.97%		12/31/2010	7.40%
3/31/1999	11.71%		12/31/2011	-3.36%
3/31/2000	10.56%		12/31/2012	9.22%
12/31/2000	-3.67%	Return for 9 months	12/31/2013	17.76%
12/31/2001	-10.82%		12/31/2014	5.50%
12/31/2002	-8.32%		12/31/2015	0.94%
12/31/2003	12.55%		12/31/2016	4.09%
12/31/2004	6.43%		12/31/2017	13.25%
12/31/2005	9.44%		12/31/2018	-5.71%
12/31/2006	9.88%		12/31/2019	17.06%
12/31/2007	8.37%			

Note: Historical asset information prior to 12/31/2014 was taken from prior actuarial valuations prepared by the prior actuary.

Average Annual Return

5-Year Average	5.60%
24.75 Year Average	6.30%



EXHIBIT 5

ACTUARIAL BALANCE SHEET

An actuarial statement of the status of the Trust in balance sheet form as of January 1, 2020 is as follows:

Assets

Current Assets (Market Value)	\$ 55,427,000
Present Value of Future Normal Costs	117,826,000
Present Value of Future Contributions to Fund the Unfunded Accrued Liability	<u>304,445,000</u>
Total Assets	\$ <u>477,698,000</u>

Liabilities

Present Value of Future Retirement Benefits for:

Active Workers:

Retirement Benefits	\$ 184,112,000
Death Benefits	21,194,000
Disability Benefits	<u>44,867,000</u>
Total	\$ 250,173,000

Inactive, Fully Insured Members 60,896,000

Retired Members, Disabled Members
and Spouses Receiving Benefits 166,629,000

Total Liabilities \$ **477,698,000**



EXHIBIT 6

UNFUNDED ACCRUED LIABILITY

1.	Present Value of Future Benefits	\$	477,698,000
2.	Present Value of Future Normal Costs		117,826,000
3.	Accrued Liability (1) – (2)		359,872,000
4.	Market Value of Assets		55,427,000
5.	Unfunded Accrued Liability (3) – (4)		304,445,000
6.	Funded Ratio (4)/(3)		15.4%



EXHIBIT 7
NORMAL COST

	<u>Total</u>	<u>Percent of Total</u>
Normal Cost as of January 1, 2020:		
a. Retirement benefits	\$ 5,949,731	67.5%
b. Pre-retirement death benefits	1,047,615	11.9%
c. Disability benefits	<u>1,816,264</u>	20.6%
d. Total normal cost	\$ 8,813,610	100.0%
e. Projected salary	\$ 130,937,524	
f. Normal cost rate (d) / (e)	6.73%	

The Normal Cost rate is a measure of the value of the benefits provided. If all assumption had always been met and would always be met in the future, this rate of pay plus an expense rate (approximately 1%) is required on pay for all workers to fully the provide the promised benefits.



EXHIBIT 8
PROJECTED BENEFIT PAYMENTS

<u>Plan Year</u> <u>Ending December 31</u>	<u>Current Active</u> <u>Members</u>	<u>Current Inactive</u> <u>Members</u>	<u>Total</u>
2020	\$ 748,000	\$ 23,711,000	\$ 24,459,000
2021	1,346,000	22,924,000	24,270,000
2022	1,974,000	22,180,000	24,154,000
2023	2,631,000	21,436,000	24,067,000
2024	3,374,000	20,758,000	24,132,000
2025	4,643,000	20,320,000	24,963,000
2026	6,086,000	19,873,000	25,959,000
2027	7,560,000	19,365,000	26,925,000
2028	9,017,000	18,832,000	27,849,000
2029	10,504,000	18,272,000	28,776,000
2030	12,025,000	17,658,000	29,683,000
2031	13,651,000	17,048,000	30,699,000
2032	15,290,000	16,394,000	31,684,000
2033	16,877,000	15,682,000	32,559,000
2034	18,638,000	15,011,000	33,649,000
2035	20,549,000	14,312,000	34,861,000
2036	22,366,000	13,569,000	35,935,000
2037	24,173,000	12,821,000	36,994,000
2038	26,004,000	12,080,000	38,084,000
2039	27,885,000	11,335,000	39,220,000

Note: Cash flows are the expected future non-discounted payments to current members based on the current actuarial assumptions. Inactive members include both those who are receiving benefit payments and those who are not working, but fully insured and entitled to future benefit payments. To the extent actual experience differs from the assumptions, the actual benefit payments will also vary, perhaps significantly.



EXHIBIT 9
HISTORICAL FUNDED STATUS

Actuarial Valuation Date	Market Value of Assets (a)	Accrued Liability (AL) (b)	Unfunded AL (UAL) (b-a)	Funded Ratio (a / b)
1/1/2002	\$35,523,000	\$217,649,000	\$182,126,000	16.3%
1/1/2004	37,347,000	240,247,000	202,900,000	15.5%
1/1/2006	42,657,000	262,187,000	219,530,000	16.3%
1/1/2009	36,717,000	269,191,000	232,474,000	13.6%
1/1/2011	42,361,000	287,771,000	245,410,000	14.7%
1/1/2014	49,134,000	307,613,000	258,479,000	16.0%
1/1/2017	50,672,000	336,409,000	285,737,000	15.1%
1/1/2020	55,427,000	359,872,000	304,445,000	15.4%

Note: Historical asset information prior to 1/1/2017 was taken from prior actuarial valuations prepared by the prior actuary.



**EXHIBIT 10
PROJECTION OF CASH FLOW**

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 Trust.

Below is a projection of the Trust’s assets using the same assumptions as those in Appendix B. The following assumptions have also been utilized:

- 1) Annual increase in total contributions: 2.75%
- 2) Annual increase in administrative expenses: 2.75%
- 3) Additional contributions: None

<u>Year</u>	<u>Beginning Market Value of Assets</u>	<u>Expected Contributions</u>	<u>Expected Benefit Payments and Expenses</u>	<u>Ending Market Value of Assets</u>
2020	55,427,000	20,446,000	25,875,000	\$53,691,000
2021	53,691,000	21,008,000	25,726,000	52,569,000
2022	52,569,000	21,585,000	25,650,000	52,044,000
2023	52,044,000	22,179,000	25,604,000	52,144,000
2024	52,144,000	22,789,000	25,711,000	52,772,000
2025	52,772,000	23,416,000	26,585,000	53,188,000
2026	53,188,000	24,060,000	27,626,000	53,222,000
2027	53,222,000	24,721,000	28,638,000	52,896,000
2028	52,896,000	25,401,000	29,609,000	52,246,000
2029	52,246,000	26,100,000	30,585,000	51,264,000
2030	51,264,000	26,817,000	31,542,000	49,965,000
2031	49,965,000	27,555,000	32,610,000	48,234,000
2032	48,234,000	28,313,000	33,646,000	46,094,000
2033	46,094,000	29,091,000	34,576,000	43,647,000
2034	43,647,000	29,891,000	35,720,000	40,673,000
2035	40,673,000	30,713,000	36,990,000	37,027,000
2036	37,027,000	31,558,000	38,122,000	32,829,000
2037	32,829,000	32,426,000	39,241,000	28,078,000
2038	28,078,000	33,317,000	40,393,000	22,724,000
2039	22,724,000	34,234,000	41,593,000	16,702,000

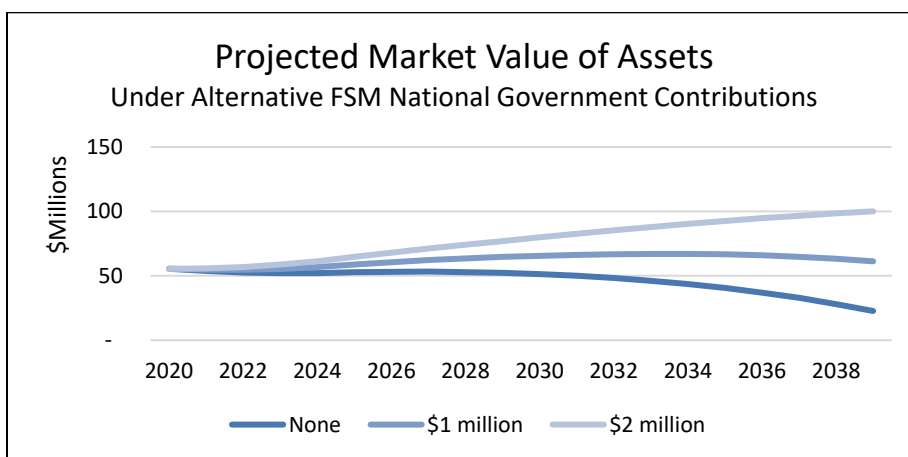


EXHIBIT 10 (continued)

PROJECTION OF CASH FLOW

The graphs below show variations in the long-term solvency of the plan by comparing the projected market value of assets under three contribution levels: no additional contributions from the National Government, an annual \$1 million contribution, and an annual \$2 million contribution.

As seen in the projected contributions and payouts on the previous page, the current payouts exceed the amount of incoming contributions. This leads to a negative cash flow that is partially offset by investment returns on the market value of assets. An increase in the overall level of contributions would help maintain the current funded level of the plan and provide a buffer against adverse events, including but not limited to low investment returns or lower employer contributions. In the recent past, the National Government has contributed additional contributions in the amount of \$1 million.



Another consideration is the number of years of benefit payouts which could be covered using the market value of assets. The current market value of assets would cover approximately two years of benefit payments and administrative expenses. If the National Government continued to make the \$1 million contributions (middle line on the graph below), the number of years of benefit payments saved up is expected to decline slowly over time, whereas a \$2 million dollar contribution would increase this ratio for a number of years.

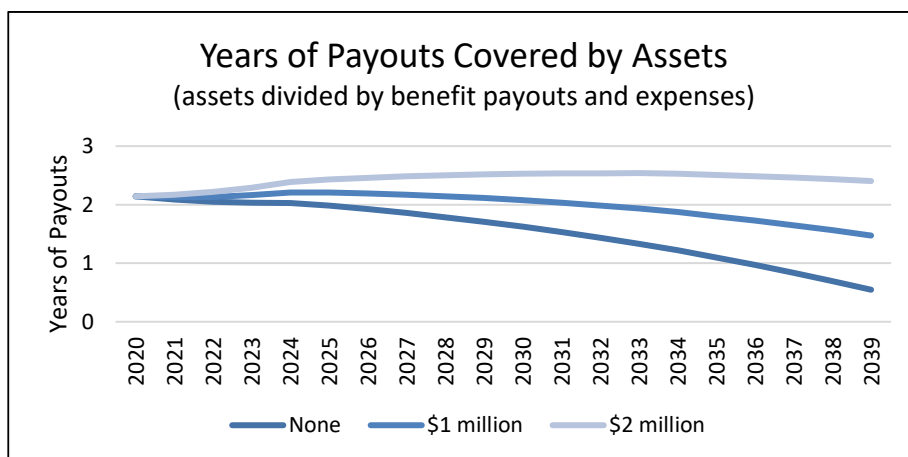


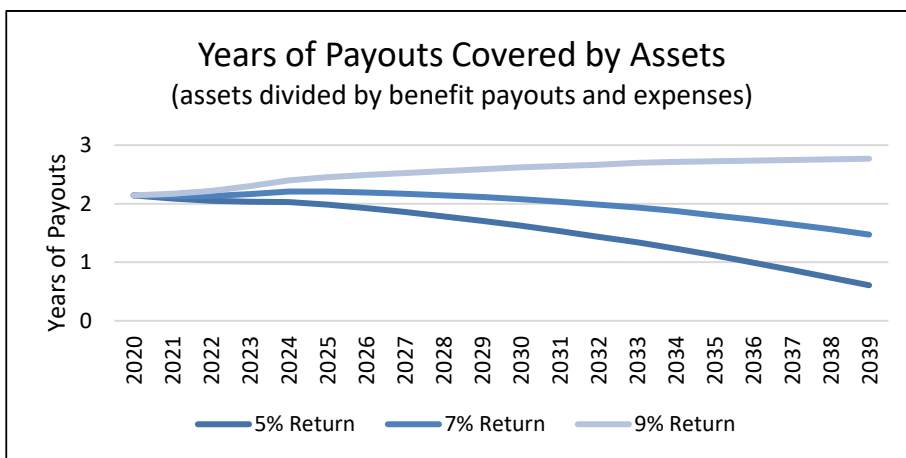
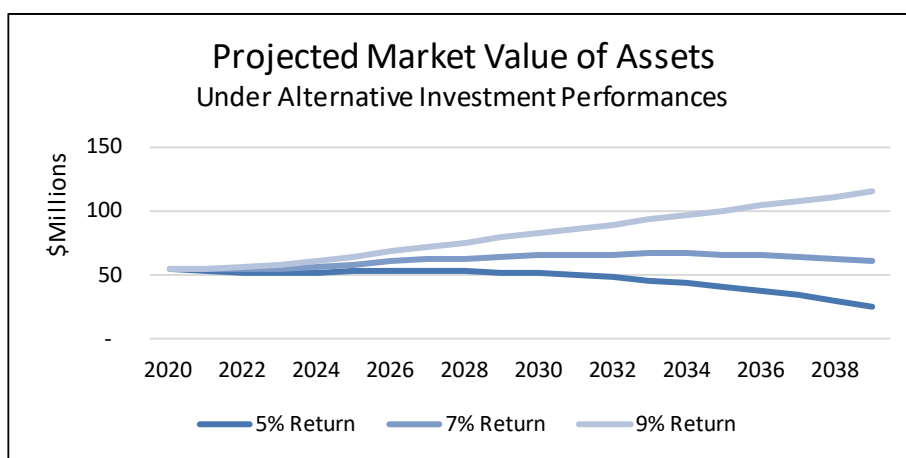


EXHIBIT 10 (continued)

PROJECTION OF CASH FLOW

Another factor that greatly affects long-term solvency is investment performance. The graphs below show various outcomes on the Trust's assets based on the Trust achieving the long-term investment return assumption of 7.00% compared with a return 2.0% higher or lower. Annual National Government contributions are assumed to remain at the current level of \$1 million in these scenarios.

As shown by the chart on page 1, the actual rate of return on investments has a fair degree of volatility. If the Trust experiences consistently higher or lower returns over the long-term, the accumulated investments will naturally be higher or lower. The following graphs help show this sensitivity.





APPENDIX A – SUMMARY OF BENEFIT PROVISIONS

Applicable Laws:

Public Law 2-74, as amended by Public Laws 5-120, 6-111, 7-118, 7-119, 7-120, 9-56, 12-51, 12-76, 14-37, 15-73 and 16-10.

Workers and Employer's Contributions:

Workers, self-employed workers and employers each pay 6% of Maximum Covered Earnings per quarter. Effective October 1, 2009, contributions increase to 7% each and effective January 1, 2013, the rate increases to 7.5%.

Self-employed with employees - remuneration shall be deemed to be twice the amount paid to the highest paid employee reported by the self-employed person in the quarter, up to maximum covered earnings.

Self-employed with no employees - Remuneration is deemed to be 5% of the gross revenue of the business for the previous calendar year subject to maximum covered earnings.

Coverage:

All employees employed by an employer incorporated or doing business in the Federated States of Micronesia are covered unless both the employer and employee are currently subject to another recognized social security administration.

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 \$300 of earnings.

Currently Insured: Credited with at least 20 quarters of coverage during the most recent previous 25 calendar quarters.

Fully Insured: Credited with at least one quarter of coverage for each year between the later of attainment of age 21 or June 30, 1968, and the date the worker attains age 60. The worker must have at least 12 quarters of coverage. If age 60 on or before December 31, 2006, no more than 38 quarters are required. No more than 50 quarters for everyone else.

Maximum Covered Earnings: Effective January 1, 2008, the \$5,000 quarterly limit increases to \$6,000; \$7,000 on January 1, 2013; \$8,000 on January 1, 2018; \$9,000 on January 1, 2023 and \$10,000 on October 1, 2028.

Minimum Benefit: \$75 per month. \$100 per month effective January 1, 2012.



APPENDIX A – SUMMARY OF BENEFIT PROVISIONS

Basic Benefit:

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

1. 16.5% of the first \$10,000 of Cumulative Maximum Covered Earnings for which contributions have been made, plus
2. 3.0% of the next \$30,000 of Cumulative Maximum Covered Earnings for which contributions have been made, plus
3. 2.0% of the next \$262,500 of Cumulative Maximum Covered Earnings for which contributions have been made, plus
4. 1.0% of Cumulative Maximum Covered Earnings in excess of \$302,500 for which contributions have been made.

Old Age Insurance Benefit:

Eligibility: Age 60 and Fully Insured

Amount: Greater of the Basic Benefit or the Minimum Benefit, subject to the earnings test. Active workers who turn 60 after January 1, 2011 will receive 50% of the Basic Benefit from ages 60 to 64. The reduced benefit will not be subject to the earnings test.

Disability Insurance Benefit:

Eligibility: Disabled for three months and Currently and Fully Insured at time of disability

Amount: Unreduced Basic Benefit earned at 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 benefit ceases should the worker recover from the disability.

Surviving Spouse Benefit:

Eligibility: Worker must have been Fully Insured at time of death.

Amount: 60% of the Basic Benefit earned at the time of death, subject to the earnings test. Paid until the earlier of the date the spouse remarries or dies. This benefit is reduced by any Old Age Insurance Benefit that the spouse may be entitled to based on his or her own earnings history.

Surviving Child Benefit:

Eligibility: Worker must have been Fully at time of death.

Amount: 15% of the Basic Benefit for each dependent child under the age of 18 or 22 if a student. The benefit ceases if the child marries or is adopted by a close relative.

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



APPENDIX A – SUMMARY OF BENEFIT PROVISIONS

Payment to Foreign Citizens residing outside the FSM:

Payments to citizens and nationals of the Republic of Palau, the Republic of the Marshall Islands and the United States shall be made as if they were citizens or nationals of the Federated States of Micronesia as long as those nations give citizens and nationals of the Federated States of Micronesia reciprocal treatment. For citizens and nationals of other countries who are fully insured, a lump sum payment equal to total worker paid contributions as of the date the worker turned age 60, became disabled, or died. The lump sum payment is reduced by any payments already made to the worker, surviving spouse or child before the lump sum is paid.

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: Age 60 and not Fully Insured, native born citizen of the Federated States of Micronesia or resident for at least 10 years and must have lived in the Federated States of Micronesia for at least one year immediately preceding death.

Amount: Four percent of total Maximum Covered Earnings for which contributions have been paid.

Earnings Test

Benefits are reduced by \$1 for every \$2 of earnings in excess of \$300 received each quarter.



APPENDIX B: ACTUARIAL METHODS AND ASSUMPTIONS

Actuarial Cost Method – Entry Age Normal

The actuarial cost method is a procedure for allocating the actuarial present value of pension benefits and expenses to time periods. The method used for the valuation is known as the Entry Age Normal actuarial cost method, and has the following characteristics:

- (i) The annual normal costs for each individual active participant are sufficient to accumulate the value of the participant’s pension at time of retirement.
- (ii) Each annual normal cost is a constant percentage of the participant’s year-by-year projected covered compensation.

The Entry Age Normal actuarial cost method allocates the actuarial present value of each participant’s projected benefits on a level basis over the participant’s assumed pensionable compensation rates between the entry age of the participant and the assumed exit ages.

The portion of the actuarial present value allocated to the valuation year is called the normal cost. The portion of the present value not provided for by the actuarial present value of future normal costs is called accrued liability. Deducting actuarial assets from the accrued liability determines the unfunded actuarial accrued liability or (surplus).

Actuarial Value of Assets

The actuarial value of assets is equal to the market value of assets.



APPENDIX B: ACTUARIAL METHODS AND ASSUMPTIONS

Actuarial Assumptions

Actuarial Cost Method:	Entry Age Method, Level Percent of Pay
Inflation:	2.25% per year
Investment Income:	7.00% per year
Expenses:	1.00% of Covered Wages
Salary Increase:	Salaries are assumed to increase according to an age-based table. A summary of the table is shown below:

Age	Rate
25	10.25%
30	7.25%
35	5.50%
40	4.55%
45	4.05%
50	3.75%
55	3.25%
60	2.75%
65	2.25%

Mortality: RP-2000 Combined Mortality Table, with male and female ages set forward five years. Table includes an anticipated margin to reflect future mortality improvement.

Disabled Mortality: RP-2000 Disabled Mortality Table, with male and female ages set forward five years and a 5% minimum rate. Table includes an anticipated margin to reflect future mortality improvement.

Retirement Age: Based on the following schedule:

Age	Rate
60	40%
61	30%
62	25%
63	20%
64	20%
65	65%
66	70%
67	75%
68	80%
69	90%
70	100%

Inactive Fully Insured benefits are assumed to commence at age 65.



APPENDIX B: ACTUARIAL METHODS AND ASSUMPTIONS

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 not remarry.

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. The impact of a spouse benefit being affected by the spouses' own work record is assumed to be negligible.

Disability:

Rates are from the 2003 US Social Security Trustees Report Intermediate Assumptions, adjusted for FSM experience.

Foreign Workers:

Liability of foreign workers (not yet in pay) is reduced by 85% to reflect leaving the FSM and not being eligible for benefits.

Earnings Applied
To the Earnings Test:

Retirees: 80% of what the retiree was earning prior to retirement until age 65, none thereafter.

Disabled Retirees, Surviving Spouses, Children: None

Workers included
in the Valuation:

Workers who have covered quarters in at least one of the last two years, are not currently indicated in the data files supplied by the Administration as deceased, disabled, retired, having received a lump sum or closed with no future benefits payable, and who are age 21 or older are assumed to continue working and earn 4 quarters of coverage until they become disabled, die, or retire. Workers who have not earned any quarters of coverage during the last two years are assumed to stay out of the work force. Salary used as a basis to project future salaries is the greatest of the salaries earned during the last two years. If this salary is based on less than four quarters of coverage, it is converted to an annual salary.



APPENDIX C: MEMBERSHIP DATA

MEMBERSHIP DATA SUMMARY

	<u>January 1, 2020</u>	<u>January 1, 2017</u>	<u>% Change</u>
1. Total Number of Participants in Valuation:			
(a) Active Participants	16,142	15,582	3.6%
(b) Inactive, Fully Insured	3,917	3,738	4.8%
(c) Retirees, Disableds and Beneficiaries	<u>6,697</u>	<u>6,473</u>	3.5%
(d) Total	26,756	25,793	3.7%
2. Average Age of Participants in Valuation:			
(a) Active Participants	40.0	40.2	(0.5%)
(b) Inactive, Fully Insured	58.2	56.2	3.6%
(c) Retirees and Disabled Members	68.4	68.0	0.6%
(d) Beneficiaries	55.8	53.2	4.9%



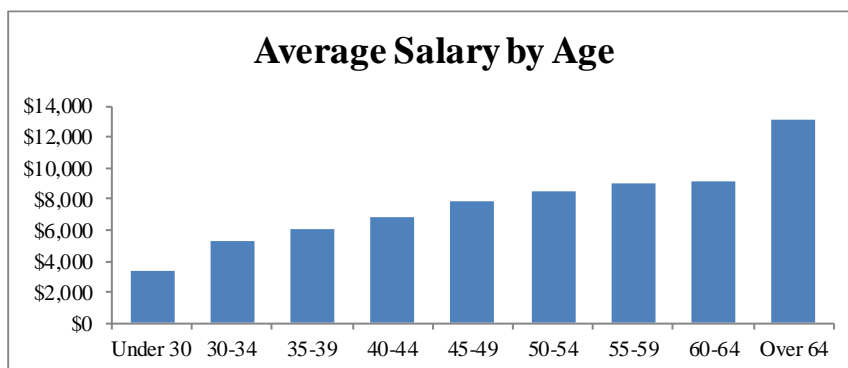
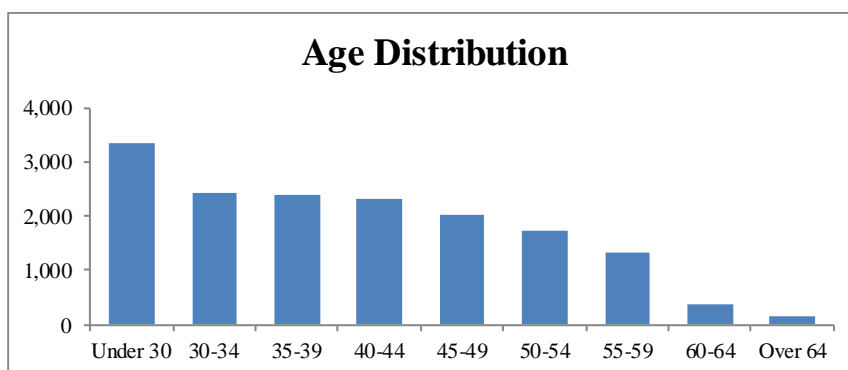
APPENDIX C: MEMBERSHIP DATA

SCHEDULE I

ACTIVE WORKERS AS OF JANUARY 1, 2020

<u>Age</u>	<u>Count of Members</u>			<u>Reported Taxable Wages for FY 2019*</u>		
	<u>Males</u>	<u>Females</u>	<u>Total</u>	<u>Males</u>	<u>Females</u>	<u>Total</u>
Under 30	1,746	1,605	3,351	\$ 5,573,000	\$ 5,890,000	\$ 11,463,000
30-34	1,394	1,046	2,440	6,969,000	6,001,000	12,970,000
35-39	1,380	1,019	2,399	8,123,000	6,390,000	14,513,000
40-44	1,422	900	2,322	9,442,000	6,334,000	15,776,000
45-49	1,257	764	2,021	9,888,000	5,878,000	15,766,000
50-54	1,073	648	1,721	9,377,000	5,230,000	14,607,000
55-59	912	422	1,334	8,120,000	3,904,000	12,024,000
60-64	271	118	389	2,604,000	945,000	3,549,000
Over 64	124	41	165	1,698,000	457,000	2,155,000
Total	9,579	6,563	16,142	\$ 61,794,000	\$ 41,029,000	\$ 102,823,000

* Wages are \$0 for certain individuals who did not work in 2019, but did in 2018 and are anticipated to return to work in 2020.





APPENDIX C: MEMBERSHIP DATA

SCHEDULE I (continued)

ACTIVE WORKERS AS OF JANUARY 1, 2020

Males

Age	Credited Service									Total
	Under 5	5-10	10-15	15-20	20-25	25-30	30-35	35-40	Over 40	
Under 30	1,610	133	2	1	0	0	0	0	0	1,746
30-34	845	447	101	0	1	0	0	0	0	1,394
35-39	597	385	293	101	4	0	0	0	0	1,380
40-44	415	326	295	270	107	9	0	0	0	1,422
45-49	256	212	216	232	210	121	10	0	0	1,257
50-54	156	149	156	168	161	211	71	1	0	1,073
55-59	90	93	94	108	129	168	168	60	2	912
60-64	36	41	40	23	29	29	43	25	5	271
Over 64	28	15	14	14	8	6	5	11	23	124
Total	4,033	1,801	1,211	917	649	544	297	97	30	9,579

Females

Age	Credited Service									Total
	Under 5	5-10	10-15	15-20	20-25	25-30	30-35	35-40	Over 40	
Under 30	1,448	156	1	0	0	0	0	0	0	1,605
30-34	568	388	86	4	0	0	0	0	0	1,046
35-39	362	291	269	92	5	0	0	0	0	1,019
40-44	239	186	187	218	65	5	0	0	0	900
45-49	134	114	112	141	163	96	4	0	0	764
50-54	84	82	86	89	110	138	56	3	0	648
55-59	28	34	63	41	55	68	77	51	5	422
60-64	11	12	19	18	11	15	13	17	2	118
Over 64	5	14	7	4	4	1	2	3	1	41
Total	2,879	1,277	830	607	413	323	152	74	8	6,563



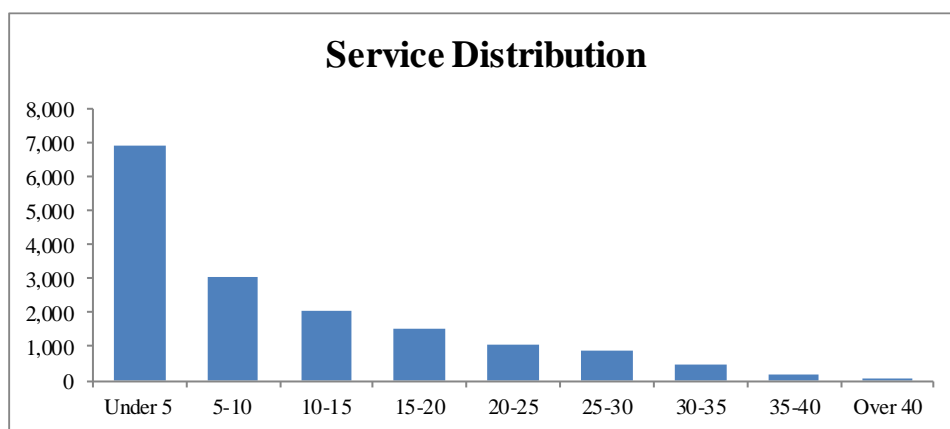
APPENDIX C: MEMBERSHIP DATA

SCHEDULE I (continued)

ACTIVE WORKERS AS OF JANUARY 1, 2020

Total

Age	Credited Service									Total
	Under 5	5-10	10-15	15-20	20-25	25-30	30-35	35-40	Over 40	
Under 30	3,058	289	3	1	0	0	0	0	0	3,351
30-34	1,413	835	187	4	1	0	0	0	0	2,440
35-39	959	676	562	193	9	0	0	0	0	2,399
40-44	654	512	482	488	172	14	0	0	0	2,322
45-49	390	326	328	373	373	217	14	0	0	2,021
50-54	240	231	242	257	271	349	127	4	0	1,721
55-59	118	127	157	149	184	236	245	111	7	1,334
60-64	47	53	59	41	40	44	56	42	7	389
Over 64	33	29	21	18	12	7	7	14	24	165
Total	6,912	3,078	2,041	1,524	1,062	867	449	171	38	16,142



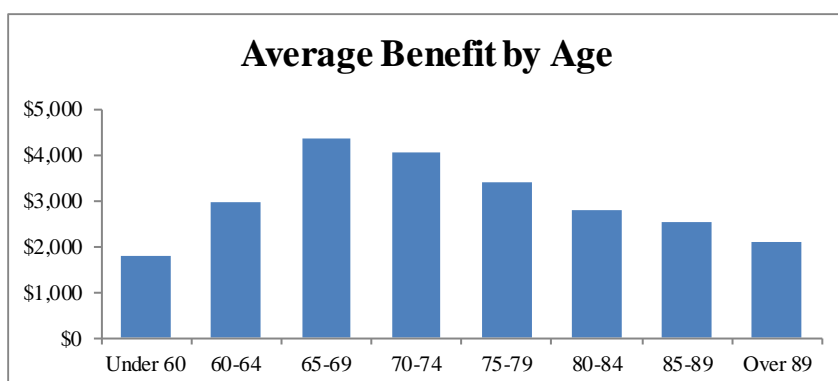
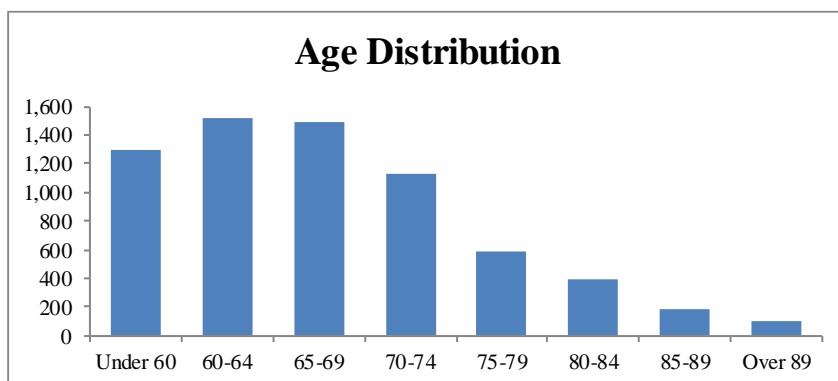


APPENDIX C: MEMBERSHIP DATA

SCHEDULE II

RETIREES, DISABLEDS AND BENEFICIARIES AS OF JANUARY 1, 2020

<u>Age</u>	<u>Count</u>			<u>Current Annual Benefits</u>		
	<u>Males</u>	<u>Females</u>	<u>Total</u>	<u>Males</u>	<u>Females</u>	<u>Total</u>
Under 60	472	820	1,292	\$742,000	\$1,557,000	\$2,299,000
60-64	792	727	1,519	2,394,000	2,087,000	4,481,000
65-69	775	718	1,493	3,814,000	2,658,000	6,472,000
70-74	555	579	1,134	2,695,000	1,911,000	4,606,000
75-79	291	300	591	1,218,000	790,000	2,008,000
80-84	148	238	386	522,000	551,000	1,073,000
85-89	55	128	183	204,000	260,000	464,000
Over 89	21	78	99	70,000	137,000	207,000
Total	3,109	3,588	6,697	\$11,659,000	\$9,951,000	\$21,610,000





SCHEDULE III

INACTIVE, FULLY INSURED MEMBERS AS OF JANUARY 1, 2020

Age	Count of Members			Expected Annual Benefit		
	Males	Females	Total	Males	Females	Total
Under 40	44	45	89	128,000	138,000	266,000
40-44	145	117	262	430,000	368,000	798,000
45-49	258	211	469	799,000	679,000	1,478,000
50-54	401	307	708	1,358,000	1,061,000	2,419,000
55-59	534	358	892	1,882,000	1,207,000	3,089,000
60-64	403	242	645	1,360,000	790,000	2,150,000
Over 64	563	289	852	1,961,000	962,000	2,923,000
Total	2,348	1,569	3,917	\$7,918,000	\$5,205,000	\$13,123,000

