2020 Report to the President and Congress

Submitted by the Department of Defense
Board of Actuaries

December 2020

The estimated cost of this report for the Department of Defense is approximately $11,000. This includes $0 in expenses and $11,000 in DoD labor.

DEPARTMENT OF DEFENSE
BOARD OF ACTUARIES
4800 MARK CENTER DRIVE, SUITE 03E25
ALEXANDRIA, VA 22350

December 2020

President Donald J. Trump
The White House
Washington, D.C.

The Honorable Nancy Pelosi
Speaker of the House of Representatives
Washington, D.C.

The Honorable Chuck Grassley
President Pro Tempore of the Senate
Washington, D.C.

Dear Sirs and Madam:

We have the honor of transmitting to you the 2020 Report of the Department of Defense (DoD) Board of Actuaries. The report includes information on the status of the Military Retirement Fund (MRF) and recommendations for changes that the Board considers appropriate and necessary to maintain it on a sound actuarial basis, in compliance with Section 183 of Title 10, United States Code.

The Board also comments and provides recommendations with respect to the Education Benefits Fund (EBF) and Voluntary Separation Incentive (VSI) Fund. The report does not include detailed information on the status of the EBF or VSI Fund. Such information is available from the DoD Office of the Actuary.

Respectfully submitted,

Marcia A. Dush, FSA, EA, MAAA
Chairperson

John H. Moore, FSA, EA, MAAA
Member

Michael E. Clark, FSA, EA, MAAA
Member

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A. SUMMARY

Background

The DoD Board of Actuaries (the Board) consists of three members appointed by the Secretary of Defense to staggered 15-year terms (10 USC §183). The Board is required to report at least once every four years to the President and Congress on the status of the Military Retirement Fund (MRF) and may include recommendations related to the Education Benefits Fund (EBF) and the Voluntary Separation Incentive (VSI) Fund. The "quadrennial" report is to include any recommendations the Board believes appropriate and necessary to maintain the funds on a sound actuarial basis. This is the ninth such report for the MRF, the fourth for the EBF, and the third containing recommendations for the VSI Fund.

Actuarial Costs

Section B is an introduction to the report. It also notes that this report does not include a comprehensive listing of the various actuarial costs determined each year and directs the reader to the documents published by the DoD Office of the Actuary for such information.

Financial Operation

Section C provides an overview of the financial operation of the MRF since 1984. Each year, DoD pays the MRF's normal cost for benefits being earned currently, except that Treasury pays the portion of the normal cost attributable to the concurrent receipt provisions of P.L. 108-136. Treasury pays an additional amount to amortize the unfunded liability. These contributions go into the MRF from which benefits are paid. We believe that the MRF is in sound condition, but we recommend several changes, as noted below.

Recommendations

Section D describes the Board's recommendations:

MRF Recommendations

1. Congress should require that the lump sum provision in the BRS be modified.

2. DoD, not Treasury, should pay for all benefit increases.

3. Congress should consider all costs when legislating benefit changes.

4. Treasury's payments toward MRF actuarial gains and losses should be phased out.

5. Congress should consider alternative normal cost funding methods.

6. Congress should not require service-specific normal cost percentages.

7. DoD should make additional investments in the Office of the Actuary's actuarial software infrastructure and ensure uninterrupted access to data.

EBF Recommendations

8. Accounting for VA and DoD education benefits should be consistent.

9. Education Benefits Fund data should be improved.

10. The Education Benefits Fund should be audited.

11. Reversion of surplus assets from Chapters 30, 33, and 1606 benefit plans should be permitted.

VSI Recommendation

12. Congress should make minor revisions to VSI Fund enabling legislation.

General Recommendation

13. Use of sunset provisions should be curtailed.

B. INTRODUCTION

In September 1983, Public Law 98-94 changed the accounting basis for financing the Military Retirement Fund (MRF). Effective October 1, 1984, DoD began charging the costs of military retirement benefits on an actuarial basis as benefits are earned rather than on a cash basis as benefits are paid. As part of this change, a three-member Board of Actuaries was established to provide technical advice and perform other functions relative to the financial operation of the MRF (see Appendix A). Among those functions is the requirement to prepare a report at least every four years to the President and Congress on the status of the MRF, with recommendations for such changes as are necessary in the Board's judgment to maintain the MRF on a sound actuarial basis.[1]

The Board issued its first report under this requirement in September 1988 and has issued a subsequent report every four years thereafter. In this ninth report, the Board reviews the financial status of the MRF and comments on some aspects of the system which the Administration and Congress may want to consider changing to keep the MRF on a sound actuarial basis. The text of this report does not necessarily reflect the views of any staff members, DoD officials, or the Administration.

This report does not contain a comprehensive listing of the various actuarial costs determined during the past 36 years, nor of the technical bases underlying these calculations. Such information is readily available from other sources, having been regularly documented and published by the DoD Office of the Actuary in printed form and on its website at http://actuary.defense.gov/.

[1] P.L. 110-181 changed the report parameters from a requirement to include "recommendations for such changes as in the Board's judgment are necessary to protect the public interest and maintain the Fund on a sound actuarial basis" to requiring "recommendations for modifications to the funding or amortization of [the Fund] as the Board considers appropriate and necessary to maintain [the Fund] on a sound actuarial basis."

C. FINANCIAL OPERATIONS OVERVIEW FOR MILITARY RETIREMENT FUND

This section presents an overview of the MRF financial operations through September 30, 2020.

1. Nature of the MRF and Financing Procedures

Since October 1, 1984, the MRF has operated under a financing procedure by which the MRF is paid monthly contributions equal to the system's "normal cost" plus annual installments to amortize its "unfunded accrued liability."[2] The MRF is invested in Treasury debt securities that generate interest income. Benefit payments are disbursed from the MRF. Based upon methods and assumptions approved by the Board, the DoD Office of the Actuary performs all the detailed studies and calculations used in the financing procedure and prepares the associated written reports.[3]

Previous reports have noted that the establishment of the MRF does not represent actual advance funding. Real advance funding could be achieved by investing the assets outside the US Unified Budget, for example, in stocks or corporate bonds (as do the Retirement Funds of the Federal Reserve and FDIC), or in bonds of state and local municipalities or federal government agencies (like Fannie Mae, Freddie Mac, or Sallie Mae). Instead, the accrual accounting procedure now in place is essentially an internal cost accounting system. While the nation has not actually set aside money to pay the benefits of those who have served in uniform, the MRF can be viewed as earmarking future tax receipts for the benefit of military retirees. As such, the existence of the MRF promotes a measure of "psychological security" for military members.

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[2] The **normal cost** is the level percentage of basic pay that would be necessary to finance the benefits payable to a group of new entrants into military service, assuming it is paid into a fund during each year of service of such group and the fund is invested in interest-bearing securities. The **accrued liability** is the theoretical amount that would be in the fund at any given time for a group of participants if normal costs had been paid throughout all past years of service and all demographic and economic assumptions had been realized. Because no advance funding was done before Oct. 1, 1984, the accrued liability on that date is called the initial unfunded accrued liability.

[3] Complete details of these valuations are contained in reports published annually by the DoD Office of the Actuary. The normal costs, unfunded accrued liabilities, and related figures presented in the reports are calculated using methods and assumptions approved by the Board. The texts of the reports do not necessarily reflect the individual or collective views or endorsements of Board members.

Two common misconceptions about the MRF are:

a) *The MRF represents government tax receipts that have been accumulated in the past.*
Actually, the MRF represents future tax receipts that will be allocated to pay principal and interest on government bonds being held by the MRF.

b) *The actuarial soundness of the MRF can be measured by prospective short-term (or medium-term) cash flows.*
Actually, the entire present value of the liabilities must be compared to the sum of the MRF's current assets and prospective contributions. A year-by-year projection of cash flow is also needed to measure the MRF's ability to pay benefits every year.

The current financing procedure, although carried out by allocating no more tax dollars than needed to pay benefits to military retirees as they come due, has nonetheless contributed to a more accurate allocation of resources within the defense budget and to formal quantification of the government's obligation to pay retirement benefits to military members and eligible survivors.

2. Progress of the MRF: Payments by DoD and Treasury

The progress of the MRF for each year since inception is summarized in Table 1. Administrative expenses are not paid from the MRF, and thus are not reflected in the calculation of normal costs or actuarial liabilities.

TABLE 1
Military Retirement System - Flow of Plan Assets
(In Billions of Dollars)

Fiscal Year	Fund Balance, Beginning of Year	Contributions Received			Investment Income	Benefit Outlays	Fund Balance, End of Year
		From DoD, for Normal Costs	From Treasury, for Normal Costs	From Treasury, for Accrued Liability			
1985	$0.0	$17.0	---	$9.5	$1.1	$15.8	$11.8
1986	11.8	17.4	---	10.5	2.5	17.6	24.6
1987	24.6	18.3	---	10.5	3.6	18.1	38.9
1988	37.3	18.4	---	10.3	5.0	17.5	53.4
1989	53.4	18.5	---	9.8	6.1	20.2	67.6
1990	67.6	16.3	---	10.6	7.3	21.5	80.4
1991	80.4	17.2	---	10.8	8.5	23.1	93.7
1992	93.7	16.3	---	11.2	9.4	24.5	106.1
1993	106.1	13.2	---	12.3	10.0	25.7	115.9
1994	115.9	12.8	---	11.9	10.3	26.7	124.2
1995	124.2	12.2	---	11.5	10.9	27.8	131.0
1996	131.0	11.2	---	10.7	11.3	28.8	135.3
1997	135.3	11.1	---	15.2	11.9	30.2	143.3
1998	143.3	10.4	---	15.1	12.2	31.1	149.9
1999	149.9	10.4	---	15.3	12.4	31.9	156.0
2000	156.0	11.4	---	15.3	12.7	32.8	162.7
2001	162.7	11.4	---	16.1	13.2	34.1	169.2
2002	169.2	12.9	---	17.0	12.4	35.1	176.5
2003	176.5	13.7	---	17.9	10.0	35.6	182.6
2004	182.6	14.1	---	18.2	10.1	37.0	188.0
2005	188.0	15.0	$1.5	21.4	10.9	39.0	197.9
2006	197.9	13.9	2.3	23.2	12.3	41.1	208.4
2007	208.4	14.5	2.5	26.0	10.3	43.5	218.2
2008	218.2	16.1	2.8	46.2	15.6	45.8	253.1
2009	253.1	17.5	3.7	51.1	2.9	50.0	278.4
2010	278.4	20.4	4.5	58.6	10.4	50.6	321.7
2011	321.7	21.0	5.0	61.4	18.0	51.0	376.1
2012	376.1	21.9	5.4	64.8	12.5	52.6	428.0
2013	428.0	20.5	6.8	67.7	15.0	54.5	483.5
2014	483.5	20.5	6.3	72.9	17.1	55.4	545.0
2015	545.0	19.7	6.2	75.6	10.8	56.8	600.6
2016	600.6	19.3	6.9	79.3	15.5	57.2	664.3
2017	664.3	18.3	6.8	81.2	21.2	57.8	734.1
2018	734.1	18.4	6.8	82.9	30.5	58.9	813.9
2019	813.9	20.5	7.9	88.0	27.4	60.7	897.0
2020	897.0	21.8	8.5	91.9	22.6	62.4	979.4

Each year's normal cost is determined by applying normal cost percentage (NCP) factors to the actual basic pay throughout the year for full-time and part-time personnel. (Full-time personnel include active duty members as well as full-time reservists; part-time personnel include part-time reservists.) In 2020, full-time personnel accounted for approximately 90% of the total DoD normal cost. The NCPs from 1985 forward are presented in Table 2. See Appendix B for a brief description of the factors which have caused the percentages to change over time.

TABLE 2 Normal Cost Percentages (NCPs)*				
Fiscal Year	Full-Time Personnel		Part-Time Personnel	
	DoD	Treasury**	DoD	Treasury**
1985	50.7%	---	50.7%	---
1986	50.7	---	50.7	---
1987	52.2	---	26.4	---
1988	51.2	---	26.1	---
1989	50.2	---	25.7	---
1990	43.9	---	13.4	---
1991	43.2	---	13.3	---
1992	42.7	---	13.3	---
1993	36.4	---	10.6	---
1994	36.0	---	10.6	---
1995	35.5	---	10.5	---
1996	32.9	---	9.6	---
1997	32.6	---	9.6	---
1998	30.5	---	8.8	---
1999	30.2	---	8.7	---
2000	31.8	---	9.8	---
2001	29.6	---	14.1	---
2002	30.3	---	14.4	---
2003	27.4	---	14.6	---
2004	27.1	---	16.0	---
2005	27.5	3.3%	16.7	0.8%
2006	26.5	4.9	16.7	1.4
2007	26.5	4.9	17.5	1.5
2008	29.0	5.0	19.1	1.5
2009	29.4	7.0	21.1	2.3
2010	32.4	8.0	24.5	2.8
2011	32.7	8.2	24.4	3.2
2012	34.3	8.8	24.3	3.6
2013	32.1	11.2	24.4	3.2
2014	32.4	11.7	24.5	2.9
2015	32.2	11.8	22.5	2.7
2016	31.4	13.1	23.0	2.9
2017	28.9	12.8	22.8	3.3
2018	28.4	12.5	22.6	3.3
2019	30.4	13.6	24.7	3.6
2020	31.0	14.2	24.4	3.8
2021	34.9	15.9	26.9	4.2

* Separate NCPs for full-time vs. part-time personnel were required beginning in 1987.

** Beginning in FY 2005, part of the total NCP is paid by Treasury, representing the cost for the concurrent receipt benefits enacted in P.L. 108-136.

Each year, the Board reviews the appropriateness of current actuarial assumptions and methods and considers possible revisions. The effective date of a resulting change in contribution rates is scheduled to accommodate DoD's budget cycle. Contribution rates are also changed to keep pace with any benefit changes enacted. A history of the changes affecting the NCPs is shown in Appendix B.

The implemented NCPs represent a weighting of NCPs appropriate for personnel under different benefit tiers, based on the proportion of salary for the year related to personnel under each tier. Benefits were reduced for new entrants into the military in 1980 and 1986, although the pre-1986 benefits were partially restored by the FY 2000 National Defense Authorization Act (2000 NDAA), as noted below.

The National Defense Authorization Act for Fiscal Year 2016 (2016 NDAA) included modifications to the MRF which were effective January 1, 2018. Those members with less than 12 years of service on January 1, 2018 had the option of remaining in their current benefit tier or choosing the new retirement benefit structure. All members who joined the Military Service on or after January 1, 2018 are automatically included in the new retirement benefit structure.

Legacy Benefit Tiers

a) Personnel who entered the military before September 8, 1980 receive benefits based on their final day's basic pay.

b) Personnel who entered on or after September 8, 1980 receive benefits based on the average of their highest 36 months of basic pay ("Hi-3").

c) Some personnel entering the military between August 1, 1986 and December 31, 2002 are expected to retire under a substantially less generous benefit formula than will members in the first two groups. The 2000 NDAA gave military members under the least-generous retirement benefit formula, after completing 15 years of service, the choice of (1) remaining under that benefit formula and receiving a $30,000 Career Status Bonus (CSB) or (2) moving to Hi-3.[4] The $30,000 bonuses are paid from DoD's annual military personnel appropriations, not from the MRF. The 2016 NDAA eliminated the option to make new CSB elections, effective January 1, 2018.

2018 New Retirement Benefit Structure

d) The MRF allows members to contribute to a portable Thrift Savings Plan with matching contributions from DoD's annual military appropriations, not from the MRF. The MRF retirement benefit multiplier is reduced from 2.5% of base pay to 2.0% of base pay for each year of service. In addition, a partial lump sum feature has been added to the MRF.

[4] The option to elect the $30,000 bonus only applies to full-time personnel; hence, most part-time personnel are now covered by the second (i.e., Hi-3) retirement benefit formula.

All members who entered the service on or after January 1, 2018 will participate in this benefit tier. Members serving prior to January 1, 2018 who chose to participate in this benefit tier have the 2.0% of pay multiplier apply to all years of service when calculating their retirement benefit.

Each year, a growing proportion of the non-retired military population is covered by less-generous benefit formulas which would lead to declining NCPs for the composite population. As a result of the benefit changes that were effective before 2018, normal costs have been successively smaller than they otherwise would have been.

The 2018 New Retirement Benefit Structure has also reduced NCPs from what they otherwise would have been. The effect of this new tier is reflected as new data is available and the policies that have been developed to implement the new benefit structure are employed.

Payments to amortize the system's unfunded accrued liability have changed over the years for two reasons. First, these payments are set to increase at the same rate as the assumed basic pay increases. Second, amortization payments are adjusted each year to reflect, on a gradual basis, the impact of changes in actuarial assumptions, changes in benefit levels, and various actuarial "gains and losses"—otherwise known as experience "gains and losses" (i.e., deviations of actual from assumed experience).

The Board reviews and approves assumptions with respect to economic factors (future interest earnings, salary increases, Consumer Price Index changes), and demographic factors (separations from service, mortality and disability rates, etc.). Deviations of actual from expected experience are sure to occur, particularly over a short time. Less variation is expected in the cumulative results over a longer time. When trends begin to emerge, revisions to the assumptions may be in order.

3. Funding of the Accrued Liability

During the current system's 36 years of operation, the DoD Office of the Actuary has performed annual actuarial valuations under Section 1465 of Title 10, U.S.C., in accordance with methods and assumptions approved by the Board. Payments for the normal cost and amortization have generally been made on schedule and, as of September 30, 2019, the MRF held assets of approximately $897 billion. The accrued liability as of that date was $1,653 billion, leaving an unfunded accrued liability of $756 billion. (The unfunded accrued liability as of October 1, 1984 was $529 billion.) The items described in Appendix B that caused the changes in the NCPs also affected the unfunded accrued liability.

The unfunded liability as of October 1, 1984 was originally scheduled to be liquidated in 60 years (i.e., in the year 2043). To prevent a projected exhaustion of the MRF in 2020, the Board decided in August 1996 to shorten the original amortization period to 50 years (i.e., liquidate it in the year 2033). At its 2007 meeting, the Board decided to change the amortization of the

initial unfunded liability so that payments at least cover the interest cost on the total unfunded liability. More specifically, this was accomplished by reducing the amortization schedule of the initial unfunded liability by eight years, so that it will now be fully amortized in 2025.

In general, the reason that initial unfunded accrued liabilities are amortized over a period of time is to avoid imposing a crippling cash contribution (or expense for financial reporting purposes) requirement on the plan sponsor in the first year of the plan. However, because this plan is included in the federal budget and is only "funded" with U.S. government securities (i.e., a promised allocation of future tax revenues), the Board is aware that the MRF could theoretically be fully funded (i.e., immediately recognizing its entire liability in the national debt). The current amortization policy is a method that gradually recognizes the unfunded liability.

The MRF unfunded accrued liability since 1984[5] is summarized in Table 3. As shown below, the assets in the MRF covered about 54% of the accrued liability as of September 30, 2019.

TABLE 3
Unfunded Accrued Liability
(In Billions of Dollars)

At End of Fiscal Year	Accrued Liability	Assets	Unfunded Accrued Liability	Percent Funded
1984	$528.7	$0.0	$528.7	0%
1985	551.5	11.8	539.7	2
1986	566.2	24.6	541.6	4
1987	585.2	38.9	546.3	7
1988	551.8	53.4	498.4	10
1989	580.3	67.6	512.7	12
1990	612.9	80.4	532.5	13
1991	604.2	93.7	510.5	16
1992	619.0	106.1	512.9	17
1993	629.9	115.9	514.0	18
1994	615.6	124.2	491.4	20
1995	631.8	131.0	500.8	21
1996	625.8	135.3	490.5	22
1997	639.2	143.3	495.9	22
1998	649.4	149.9	499.5	23
1999	657.2	156.0	501.2	24
2000	682.6	162.7	519.9	24
2001	708.8	169.2	539.6	24
2002	721.6	176.5	545.1	24
2003	810.9	182.6	628.3	23
2004	854.1	188.0	666.1	22
2005	900.6	197.9	702.7	22
2006	973.7	208.4	765.3	21
2007	1,042.3	218.2	824.1	21
2008	1,157.3	253.1	904.2	22
2009	1,186.9	278.4	908.5	23
2010	1,225.2	321.7	903.5	26
2011	1,273.3	376.1	897.2	30
2012	1,360.2	428.0	932.2	31
2013	1,368.6	483.5	885.1	35
2014	1,412.8	545.0	867.8	39
2015	1,417.0	600.6	816.4	42
2016	1,407.0	664.3	742.7	47
2017	1,502.0	734.1	767.9	49
2018	1,533.4	813.9	719.5	53
2019	1,652.6	897.0	755.6	54

[5] Results for September 30, 2020 actuarial valuation of the MRF have not yet been published by the DoD Office of the Actuary.

4. Actuarial Assumptions

The normal costs and accrued liability are heavily influenced by the underlying actuarial assumptions, especially those used for future interest, salary growth, and inflation. The inflation, interest, and salary growth assumptions used in the valuations since 1984 are as follows:

TABLE 4
Board's Long-Term Economic Assumptions

Fiscal Year	Inflation	Interest	Salary Growth	Real Interest
1984	5.00%	6.60%	6.20%	1.60%
1985	5.00	6.60	6.20	1.60
1986	5.00	6.60	6.20	1.60
1987	5.00	6.60	6.20	1.60
1988	5.00	7.00	5.75	2.00
1989	5.00	7.00	5.75	2.00
1990	5.00	7.00	5.75	2.00
1991	5.00	7.50	5.50	2.50
1992	5.00	7.50	5.50	2.50
1993	5.00	7.50	5.50	2.50
1994	4.00	6.75	4.50	2.75
1995	4.00	6.75	4.50	2.75
1996	3.50	6.50	4.00	3.00
1997	3.50	6.50	4.00	3.00
1998	3.50	6.50	4.00	3.00
1999	3.00	6.25	3.50	3.25
2000	3.00	6.25	3.50	3.25
2001	3.00	6.25	3.50	3.25
2002	3.00	6.25	3.50	3.25
2003	3.00	6.25	3.75	3.25
2004	3.00	6.25	3.75	3.25
2005	3.00	6.25	3.75	3.25
2006	3.00	6.00	3.75	3.00
2007	3.00	6.00	3.75	3.00
2008	3.00	5.75	3.75	2.75
2009	3.00	5.75	3.75	2.75
2010	3.00	5.75	3.75	2.75
2011	3.00	5.75	3.75	2.75
2012	3.00	5.50	3.50	2.50
2013	3.00	5.50	3.50	2.50
2014	3.00	5.50	3.50	2.50
2015	2.75	5.25	3.25	2.50
2016	2.75	5.25	3.25	2.50
2017	2.75	5.00	3.25	2.25
2018	2.75	5.00	3.25	2.25
2019	2.75	4.75	3.25	2.00
2020	2.50	4.25	2.75	1.75

The most important trend in Table 4 is the spread between the interest and inflation assumptions, shown in the last column of the table. This spread, sometimes called the "real interest" rate or inflation-adjusted rate of interest, has a large impact on the MRF accrued liability. Generally, the higher the real interest rate, the lower the accrued liability will be.

The MRF is required to be invested in non-marketable, market-based U.S. Treasury securities, and the interest assumption reflects this constraint. While the Board does not have authority over the investment policy, our understanding is that the current strategy includes investing the MRF so that it generates sufficient cash to fund benefit payments and expenses as they come due. We also understand that the MRF generally holds securities to maturity, unless a security needs to be liquidated to generate additional cash. We have been informed that many considerations are taken into account when making investment decisions, including balancing various risks, targeting an expected average maturity of future investments of 20 years (which is close to the duration of the liabilities) and current and expected economic conditions.

D. RECOMMENDATIONS

In the recommendations that follow, the Board has used the word “funding” as shorthand for “accrual accounting.” We recognize that no taxes have yet been assessed to pay for future benefits (or that any taxes so assessed have been loaned back to the federal government to pay for other programs). Further, the Board has not performed any review of the appropriateness of benefit levels in comparison with those in the private sector or public (non-military) sector. Our primary purpose is to make recommendations to allow the MRF, the EBF, and the VSI Fund to remain on a sound actuarial footing. We have provided specific recommendations for each of these programs as well as a few recommendations that pertain to the operational risks in the DoD Office of the Actuary.

MRF Recommendations

1. Congress Should Require That the Lump Sum Provision in the BRS be Modified

As noted in section C.2 of this report, a new benefit structure became effective on January 1, 2018 called the Blended Retirement System (BRS). BRS permits members who retire before their Normal Retirement Date to take a lump sum payment in exchange for either 25% or 50% of their expected benefit payments from the time of their retirement until their Social Security Normal Retirement Date. The legislation required that the lump sum be calculated using the concept of a “personal discount rate.”

A personal discount rate is not an actuarial concept, as it includes a non-actuarial component of individual preference or utility (i.e., how much or little an individual retiree will accept as a lump sum in exchange for forfeiting a portion of pension payments to Social Security Normal Retirement Date). In our opinion, there is a potential risk that the personal discount rate concept may be seen as exploiting those members who lack a thorough understanding of the time value of money and life expectancy.

Because developing a personal discount rate for each member would be impossible to administer, the DoD created a policy which uses an aggregate personal discount rate. The policy rate is determined using a seven-year average of the Department of the Treasury High Quality Market (HQM) Corporate Spot Rate Yield Curve at a 23-year maturity, reduced by an inflation adjustment from the Department of the Treasury “Break-even” Inflation Spot Rate Yield Curve (the inflation adjustment is meant to compensate for the inflation increases that would have increased the annuity payments). An additional adjustment factor of 4.28 percentage points is then added to the result to account for the “personal discount” component. The final aggregate personal discount rate used in 2020 is 6.75%; it is adjusted each year.

The aggregate personal discount rate is substantially higher than corporate bond rates used to convert annuities to lump sums in private single-employer pension plans, and therefore produces

significantly smaller lump sum payments. To illustrate, an equivalent single rate under the private pension rules in September 2020 was closer to 2%. However, this figure is not directly comparable as it would need to be reduced by an inflation adjustment. Such adjustment would produce a rate near zero, in comparison to the 6.75% rate being used. This outcome is understandable considering the focus of analysis during the original BRS design was pricing estimates and retention goals rather than values of individual lump sums compared to present values computed using market bond rates.

We have already provided our general concerns about the use of a personal discount rate[6], and we continue to have significant concerns about the DoD policy as it is being implemented. As this new feature is better understood, some may conclude that the use of such a high discount rate is taking advantage of service members.

This Board no longer recommends the elimination of the lump sum feature as service members made elections to join the BRS knowing that it included a lump sum feature. However, we strongly recommend that Congress anticipate the ramifications that may arise from the use of these high discount rates and replace the personal discount rate with a more market-based rate similar to those used in the private sector. We are aware such legislation would impact the MRF's costs and funding requirements, and likely also military retention levels.

2. DoD, not Treasury, Should Pay For All Benefit Increases

The Board is deeply concerned about any legislative efforts to make Treasury, not DoD, pay for additional benefits to military retirees. Removing the cost of some benefits from DoD's budget, as has occurred in the past, blatantly circumvents the fiscal discipline that the MRF's budgetary process was designed to impose on DoD's manpower policies.

The General Accountability Office expressed similar concerns in discussing whether Treasury, not the U.S. Postal Service, should pay the cost of giving USPS employees credit for military service.

While the Board understands that current budget demands on DoD are burdensome, removing DoD's responsibility to recognize, disclose, and include in manpower decisions the full cost of military personnel is short-sighted. Burying such information as an obligation of the general Treasury is misleading and leaves the door open to unrestricted enhancements because DoD has no incentive to hold down retirement benefit costs.

The Board recommends that all future legislation require DoD to pay the full normal costs of all the benefits it promises and pay any past service costs associated with benefit increases (and receive credit for any benefit decreases). Having Treasury pay for future DoD benefit increases

[6] See Appendix C for the Board's July 11, 2016 letter to the Honorable Todd Weiler, Assistant Secretary of Defense (Manpower and Reserve Affairs).

is an abdication of budgetary discipline and responsibility and causes the MRF to lose much of its meaning and purpose.

3. Congress Should Consider All Costs When Legislating Benefit Changes

As previously noted, DoD pays for the impact on future NCPs for any changes in retirement or survivor benefits while the cost associated with any effect of these changes on prior service cost falls to Treasury. Until such time as this is legislatively fixed (see recommendation #2), when Congress considers the costs or savings of proposed changes in military benefits, the effect on the unfunded liability needs to be included in the discussions. Costs that are passed to Treasury tend to get overlooked and not included in policymakers' deliberations about pending legislation. As such, the true cost of the changes is misrepresented. Having DoD bear the full cost of benefits, as noted above, would avoid misrepresentation.

Further, when considering legislation, Congress should analyze the full impact of the legislation over the appropriate time horizon. Changes to military retirement benefits have longer-term (e.g., 80-100 year) impacts. Analyzing costs or savings solely over the 10-year time horizon currently used by Congress tends to obscure the overall cost and misleads decision-makers.

4. Treasury's Payments Toward MRF Actuarial Gains and Losses Should be Phased Out

Treasury is currently responsible for funding the actuarial gains or losses which arise because actuarial assumptions are never precisely correct. The Board's eight prior quadrennial reports all recommended that DoD begin sharing in the responsibility for funding the actuarial gains and losses arising in future MRF annual valuations. We again recommend that enabling legislation be enacted, with the eventual goal of phasing out all payments by Treasury toward the full cost of military retirement benefits.

In establishing the MRF in 1984, Congress made DoD responsible for paying the normal costs, and made Treasury responsible for paying off the system's initial unfunded liability. The Board establishes the schedule for paying off that liability, and currently has set the amortization period to end in 2025. From that time forward, DoD would, under current law, pay the full cost of military retirement benefits with three possible exceptions. First, Congress made Treasury responsible for paying the normal costs for certain benefits to disabled retirees, often referred to as Concurrent Receipt. Second, Treasury has been responsible for paying any amortization of the increase in the unfunded liability due to benefit changes. And finally, Treasury's amortization payments are increased or decreased each year to reflect a payment for emerging actuarial gains and losses or changes in actuarial assumptions. We do not believe that Treasury should participate in the actuarial gains and losses including changes in actuarial assumptions forever. Rather, we believe a sensible division of funding responsibility is to make Treasury responsible for all costs, including gains and losses, attributable to service performed prior to the MRF's inception, with DoD responsible for all costs attributable to service performed thereafter.

The funding changes recommended here would tend to go in opposite directions. That is, the changes would partially discontinue both Treasury's current subsidy of the MRF's cost of benefit increases and the MRF's historical pattern of reductions in payments from Treasury derived from actuarial gains. Accordingly, tackling both funding problems together will have less budgetary impact than just addressing one or the other.

Ending Treasury's participation in gains and losses would expose DoD to losses as well as gains. While gains have occurred more often to date, the MRF has experienced losses in several recent years. Under gain/loss sharing, actuarial losses would lead to higher contribution requirements for DoD than otherwise anticipated and budgeted. The expectation is that in the long run, gains and losses will roughly balance each other out. The Board is available as needed to assist Congress and DoD in evaluating the effects of the funding changes suggested here.

5. Congress Should Consider Alternative Normal Cost Funding Methods

Under the Aggregate Entry Age Normal actuarial cost method that is required to value the MRF, the NCPs are based on the new entrant profile—even if the current active duty and reserve populations differ significantly. This methodology will lead to a series of actuarial gains or losses when benefit changes that affect only a portion of the population are implemented.

While the Aggregate Entry Age Normal actuarial cost method is an acceptable actuarial method, it is rarely used outside of the federal government.[7] With advances in computing capabilities, individual actuarial methods have become much more popular and do a better job of reflecting plan and assumption changes that might apply to select groups of members.

However, we also understand that recoding valuation software from the Aggregate Entry Age Normal method to the Individual Entry Age Normal method would be costly.

We recommend that legislation be promulgated that permits the use of either the Aggregate or Individual Entry Age Normal methods, and that provides the DoD Office of the Actuary with the financial resources needed to effect the change. With enabling legislation, the actuarial cost method could be modified at a time when other software updates are needed.

6. Congress Should Not Require Service-Specific Normal Cost Percentages

We have been concerned about proposed legislation that would require the development of service-specific NCPs. The development of service-specific NCPs will greatly increase the complexity, and therefore the cost to taxpayers, of the annual MRF valuation prepared by the DoD Office of the Actuary, while leaving the aggregate contribution to the MRF substantially unchanged. For more information on this issue, please see Appendix D, which includes our

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[7] The Federal Accounting Standards under which DoD reports require the use of the Aggregate Entry Age Normal method.

letter to The Honorable James M. Inhofe, Chairman of the Committee on Armed Services, dated September 6, 2019.

7. DoD Should Make Additional Investments in the Office of the Actuary's Actuarial Software Infrastructure and Ensure Uninterrupted Access to Data

Custom software has been developed to perform the extremely complex MRF valuation. The software is written in the Visual Basic computer language and it (or its Fortran-based predecessor) has been used by the DoD Office of the Actuary since 1979.

While the staff is comfortable using this software and efforts to modernize the actuarial software have taken place, the Board is concerned about the lack of comprehensive standardized documentation. It is possible that future Office of the Actuary staff may be unable to understand the current programming and update it for future benefit or assumption changes. We are also aware of the DoD's planned transition to cloud-based data repositories. It is imperative that the Office of the Actuary have uninterrupted access to data in order to fulfill its legislated mission.

We recommend that DoD dedicate resources to support continued progress toward further software modernization, as well as producing documentation that is more readily understandable. This would help ensure continuity-of-operations going forward.

EBF Recommendations

8. Accounting for VA and DoD Education Benefits Should be Consistent

The liabilities created for education benefits are significant. Some of these liabilities are the responsibility of the DoD, and some of the Department of Veterans Affairs (VA). However, the funding practices for the two agencies are inconsistent:

- VA funds its share on a pay-as-you-go basis, and
- DoD funds its share on an accrual basis.

The DoD is responsible for funding the following programs under the Montgomery GI Bill (MGIB):

- Active Duty Services, Chapter 30 (MGIB-AD)
- Active Duty Services Category III
- Guard and Selected Reserve Components, Chapters 1606 and 1607[8] (MGIB-SR)

The Board believes that accrual accounting, as used for DoD funded benefits, should also be used for the VA funded benefits. Doing so would provide better transparency regarding the true

[8] The Chapter 1607 program sunset on November 25, 2019. All benefit usage for Chapter 1607 had to occur prior to the sunset date.

cost of those benefits, thereby leading to increased fiscal responsibility and intergenerational equity along with the appearance of greater benefit protection for the covered individuals. The improved transparency would also allow Congress, in determining which agency should provide which benefit, to focus on the important question of which agency can most effectively provide the benefits rather than false differences in cost by agency.

Consistent accounting would also help show that integration of the benefits makes more sense and is more economical to administer. Plus, appropriate accounting would increase VA's focus on obtaining and maintaining the information necessary for both VA and DoD to appropriately value their respective obligations.

9. Education Benefits Fund Data Should be Improved

The EBF data is often unavailable to the DoD Office of the Actuary and, when it is available, is often extremely unreliable and varies a great deal from one year to the next. The DoD Office of the Actuary has unresolved concerns with VA regarding their inability to make EBF data available to DoD. The missing data creates a large material limitation to valuation accuracy and hence the usefulness of resulting actuarial costs. All agencies involved should place a greater priority on improving EBF data quality. Doing so could reduce variability of results and lessen the need for conservatism in modeling processes, and thus alleviate budgeting challenges for the individual services and the DoD as a whole.

Two examples of the data issues are:

a) Chapters 1606, 30, and 33 Data – DoD's Defense Manpower Data Center (DMDC) provides individual data on who is taking benefits, and DoD's Defense Finance and Accounting Service (DFAS) provides gross benefit payment data. The DMDC data, which reflects input from the VA and the Military Services, includes detailed information that accounts for only about 85% of the total benefit payments reported by DFAS. While this is much improved from our last quadrennial report, there is still a significant issue with respect to data quality for these programs.

b) Chapter 1607 Data – No new elections for Chapter 1607 benefits were allowed after November 2015 and no benefit payments were to be made from this program after November 2019. However, almost $4.6 million in benefit payments have been reported by the VA after November 2019, when there should not have been any benefit payment. Benefit payments typically ran about $1 million per year in prior years. The DoD Office of the Actuary has no way to verify the legitimacy of this large increase in payments after the program ended.

The Board has little confidence in the data that is being provided to value these benefits. We applaud the DoD Office of the Actuary for making the best of a bad situation, but we believe that the quality of the valuation results is suspect because of the poor census data quality.

10. The Education Benefits Fund Should be Audited

The Board recognizes that the EBF is a much smaller fund than the MRF, less than 1% as measured in liabilities. However, with the current emphasis on financial management throughout the federal government, the Board believes having an independent audit of the EBF would be worthwhile. An audit is a key method of internal control in operating any program that dispenses cash benefits. The Board also believes that an audit would focus attention on the data quality concerns mentioned above.

11. Reversion of Surplus Assets from Chapter 30, 33, and 1606 Benefit Plans Should be Permitted

MGIB-AD (Chapters 30 and 33) and MGIB-SR (Chapter 1606) provide educational benefits to Reservists.

At this point, we believe that the portion of the EBF providing these benefits will likely prove to have more assets than will be necessary. The law does not include any provisions for the treatment of surplus assets.

We recommend that legislation be enacted that permits the reversion of surplus assets to the Services if the Board determines that benefits from a particular plan are sufficiently funded. We would, however, defer this recommendation until an audit of the EBF is completed.

VSI Recommendation

12. Congress Should Make Minor Revisions to VSI Fund Enabling Legislation

The Board is concerned about the expiration of the VSI Fund. No legislated mechanism is available to deal with excess monies in the VSI Fund after the final payment is made. The Board recommends that the VSI law be rewritten to explicitly provide an allowance or process to return excess assets back to the Services or federal government. If the law is so rewritten, because of the fixed annuity format of this benefit and the relatively small declining balance of the VSI Fund, the Board also recommends that the frequency of required valuations be reduced to once every three years.

General Recommendation

13. Use of Sunset Provisions Should be Curtailed

Prior legislation with respect to the Survivor Benefit Plan (SBP) provided for increased benefits to survivors and included a sunset date of 2017. As part of the National Defense Authorization Act for Fiscal Year 2017 (2017 NDAA), Congress extended the benefit, but only for an additional eight months. We were informed that, without renewal, no new increased benefits

would begin and that the increased benefits in payment status at that time would cease. The Board believes that the benefits must be valued as written in the legislation.

These benefits were extended and the National Defense Authorization Act for FY 2020 (2020 NDAA) made this increase permanent. As a result, these benefits were really being undervalued until the increase was made permanent. The use of sunset provisions is inappropriate when the result is to misrepresent the true costs of what are expected and intended to be on-going benefits. This technique should not be used for either the MRF or the EBF.

APPENDIX A

Statutory References for the DoD Board of Actuaries[9]

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10 U.S.C. §183. Department of Defense Board of Actuaries

(a) In general. There shall be in the Department of Defense a Department of Defense Board of Actuaries (hereinafter in this section referred to as the 'Board').
(b) Members.
  (1) The Board shall consist of three members who shall be appointed by the Secretary of Defense from among qualified professional actuaries who are members of the Society of Actuaries.
  (2) The members of the Board shall serve for a term of 15 years, except that a member of the Board appointed to fill a vacancy occurring before the end of the term for which the member's predecessor was appointed shall only serve until the end of such term. A member may serve after the end of the member's term until the member's successor takes office.
  (3) A member of the Board may be removed by the Secretary of Defense only for misconduct or failure to perform functions vested in the Board.
  (4) A member of the Board who is not an employee of the United States is entitled to receive pay at the daily equivalent of the annual rate of basic pay of the highest rate of basic pay then currently being paid under the General Schedule of subchapter III of chapter 53 of title 5 [5 USCS §§ 5331 et seq.] for each day the member is engaged in the performance of the duties of the Board and is entitled to travel expenses, including a per diem allowance, in accordance with section 5703 of that title [5 USCS § 5703] in connection with such duties.
(c) Duties. The Board shall have the following duties:
  (1) To review valuations of the Department of Defense Military Retirement Fund in accordance with section 1465(c) of this title [10 USCS § 1465(c)] and submit to the President and Congress, not less often than once every four years, a report on the status of that Fund, including such recommendations for modifications to the funding or amortization of that Fund as the Board considers appropriate and necessary to maintain that Fund on a sound actuarial basis.
  (2) To review valuations of the Department of Defense Education Benefits Fund in accordance with section 2006(e) of this title [10 USCS § 2006(e)] and make recommendations to the President and Congress on such modifications to the funding or amortization of that Fund as the Board considers appropriate to maintain that Fund on a sound actuarial basis.
  (3) To review valuations of such other funds as the Secretary of Defense shall specify for purposes of this section and make recommendations to the President and Congress on such

[9] 10 U.S.C. §183 is shown in its entirety; for the other sections in this appendix, only select subsections that reference the Board are shown. “Fund” in 10 U.S.C. §1465 refers to the Military Retirement Fund, whereas “Fund” in 10 U.S.C. §1175 refers to the Voluntary Separation Incentive Fund. “Secretary” in 10 U.S.C. §1175 refers to the Secretary of Defense.

modifications to the funding or amortization of such funds as the Board considers appropriate to maintain such funds on a sound actuarial basis.

(d) Records. The Secretary of Defense shall ensure that the Board has access to such records regarding the funds referred to in subsection (c) as the Board shall require to determine the actuarial status of such funds.

(e) Reports.

(1) The Board shall submit to the Secretary of Defense on an annual basis a report on the actuarial status of each of the following:

(A) The Department of Defense Military Retirement Fund.

(B) The Department of Defense Education Benefits Fund.

(C) Each other fund specified by Secretary under subsection (c)(3).

(2) The Board shall also furnish its advice and opinion on matters referred to it by the Secretary.

10 U.S.C. §1465. Determination of contributions to the Fund

(a) Not later than six months after the Board of Actuaries is first appointed, the Board shall determine the amount that is the present value (as of October 1, 1984) of future benefits payable from the Fund that are attributable to service in the armed forces performed before October 1, 1984. That amount is the original unfunded liability of the Fund. The Board shall determine the period of time over which the original unfunded liability should be liquidated and shall determine an amortization schedule for the liquidation of such liability over that period. Contributions to the Fund for the liquidation of the original unfunded liability in accordance with such schedule shall be made as provided in section 1466(b) of this title [10 USCS § 1466(b)].

10 U.S.C. §1465. Determination of contributions to the Fund

(d) All determinations under this section shall be made using methods and assumptions approved by the Board of Actuaries (including assumptions of interest rates and inflation) and in accordance with generally accepted actuarial principles and practices.

10 U.S.C. §2006. Department of Defense Education Benefits Fund

(e) (6) All determinations under this subsection shall be made using methods and assumptions approved by the Board of Actuaries (including assumptions of interest rates and inflation) and in accordance with generally accepted actuarial principles and practices.

10 U.S.C. §1175. Voluntary Separation Incentive

(h) (4) The Department of Defense Retirement Board of Actuaries (hereinafter in this subsection referred to as the “Board”) shall perform the same functions regarding the Fund, as

provided in this subsection, as such Board performs regarding the Department of Defense Military Retirement Fund.

(5) Not later than January 1, 1993, the Board shall determine the amount that is the present value, as of that date, of the future benefits payable under this section in the case of persons who are separated pursuant to this section before that date. The amount so determined is the original unfunded liability of the Fund. The Board shall determine an appropriate amortization period and schedule for liquidation of the original unfunded liability. The Secretary shall make deposits to the Fund in accordance with that amortization schedule.

(6) For persons separated under this section on or after January 1, 1993, the Secretary shall deposit in the Fund during the period beginning on that date and ending on September 30, 1999—

(A) such sums as are necessary to pay the current liabilities under this section during such period; and

(B) the amount equal to the present value, as of September 30, 1999, of the future benefits payable under this section, as determined by the Board.

(7) (A) For each fiscal year after fiscal year 1999, the Board shall—

(i) carry out an actuarial valuation of the Fund and determine any unfunded liability of the Fund which deposits under paragraphs (5) and (6) do not liquidate, taking into consideration any cumulative actuarial gain or loss to the Fund;

(ii) determine the period over which that unfunded liability should be liquidated; and

(iii) determine for the following fiscal year, the total amount, and the monthly amount, of the Department of Defense contributions that must be made to the Fund during that fiscal year in order to fund the unfunded liabilities of the Fund over the applicable amortization periods.

(B) The Board shall carry out its responsibilities for each fiscal year in sufficient time for the amounts referred to in subparagraph (A)(iii) to be included in budget requests for that fiscal year.

(C) The Secretary of Defense shall pay into the Fund at the end of each month as the Department of Defense contribution to the Fund the amount necessary to liquidate unfunded liabilities of the Fund in accordance with the amortization schedules determined by the Board

APPENDIX B

History of the Changes Affecting the Normal Cost Percentages (NCPs)

- In 1988, the Board adopted new assumptions for interest and salary growth which reduced the NCPs substantially. Because of the DoD budget cycle, the lower NCPs took effect in 1990.
- In 1991, the Board's new assumptions for interest and salary growth caused a further decrease in the NCPs which, due to the budget cycle, took effect in 1993.
- In 1994 and 1996, the Board adopted new inflation, interest, and salary-growth assumptions which further reduced the NCPs for 1996 and 1998, respectively.
- In 1999, the Board's new economic assumptions, as well as a number of changes in the methodology of the part-time valuation, led to a major increase in the NCP for part-time personnel beginning in 2001.
- In 2000, a change in benefits produced an increase in both NCPs for 2000.
- Also in 2000, a major change in mortality assumptions led to an increase in NCPs for 2002.
- In 2002, new assumptions for the part-time valuation led to an increase in the NCP for part-time personnel beginning in 2004.
- In 2003, the Board's increase in the future salary growth assumption, and the reflection of a significant benefit change, increased the NCPs beginning in 2005.
- In 2004, a benefit change increased the Treasury NCPs beginning in 2006.
- In 2006, the Board changed the long-term interest assumption, which led to an increase in NCPs beginning in 2008.
- In 2007, a change in reserve retirement benefits, effective January 28, 2008, produced an increase in both full-time and part-time NCPs beginning in 2009.
- In 2008, the Board changed the long-term interest assumption, which led to an increase in both full-time and part-time NCPs beginning in 2010.
- In 2010, the Board adopted a new suite of modeling assumptions, which led to an increase in the NCP for full-time personnel beginning in 2012.
- In 2011, new assumptions related to mortality improvement and the allocation of normal costs between DoD and Treasury impacted the NCPs for full-time and part-time personnel beginning in 2013.
- In 2012, a new approach for explicit modeling of part-time personnel, lower long-term interest assumption, and other miscellaneous updates, led to higher NCPs in 2014.
- In 2013, the Board further refined the modeling of part-time personnel, which led to a decrease in both full-time and part-time NCPs beginning 2015.
- In 2014, the Board adopted a suite of revised modeling assumptions, including retiree death rates, mortality projection scale, and CSB take-rate, and, in addition, reflected the phasing in of a reduced COLA for retirees. These changes affected both full-time and part-time NCPs beginning in 2016.

- In 2015, the Board adopted new assumptions for the valuation of disability retirements as well as new long-term economic assumptions. Congress enacted legislation that repealed several existing benefit provisions and created a new retirement system which allows for participation by current members. The newly adopted system along with the other legislative change decreased both full-time and part-time NCPs beginning in 2017.
- In 2016, the Board adopted new assumptions in the projection of future mortality. Congress enacted legislation that modified several benefit provisions, including reducing the length of the temporary disability retired list period from five years to three years. The new adopted assumptions along with the other benefit provision changes decreased both full-time and part-time NCPs beginning in 2018.
- In 2017, long-term economic assumptions were reduced and Congress enacted legislation to permanently extend the Special Survivor Indemnity Allowance (SSIA) with full benefit indexation, increasing both full-time and part-time NCPs beginning in 2019.
- In 2018, the Board adopted a suite of updated assumptions for the valuation of survivor benefits and for the projection of future mortality. The Board revised assumptions for members electing to opt-in to the Blended Retirement System (BRS), based partially on actual experience. These changes decreased both full-time and part-time NCPs beginning in 2020.
- In 2019, long-term economic assumptions were reduced and BRS election opt-in assumptions were replaced by actual election experience. Congress enacted legislation to phase out (over three years) the offsetting of survivor benefits by Dependency and Indemnity Compensation (DIC), and expansion of qualifying reserve duty activations that further reduce the normal retirement of age 60. The assumptions along with the other benefit provision changes increased both full-time and part-time NCPs beginning in 2021.
- In 2020, long-term economic assumptions were reduced and the Board adopted a suite of updated assumptions for the valuation of part-time and disabled retiree benefits. These changes affect both full-time and part-time NCPs beginning in 2022.

APPENDIX C

Board letter, dated July 11, 2016, to the Honorable Todd Weiler, Assistant Secretary of Defense (Manpower and Reserve Affairs)

DEPARTMENT OF DEFENSE
BOARD OF ACTUARIES
4800 MARK CENTER DRIVE, SUITE 05E22
ALEXANDRIA, VA 22350

July 11, 2016

The Honorable Todd Weiler
Assistant Secretary of Defense (Manpower and Reserve Affairs)
1500 Defense Pentagon
Room 2E556
Washington, DC 20301-1500

Dear Mr. Weiler:

The 2016 National Defense Authorization Act (NDAA) added a partial lump sum provision to the Military Retirement Fund. A Service member can request a lump sum in exchange for a portion of his or her pension annuity payments. The lump sum would be determined using the concept of a "personal discount rate." Our understanding is that the personal discount rates being contemplated when the legislation was passed included those used in early cost analysis of the NDAA - 8% or more for Officers and 12% or more for Enlisted Service members. As the DOD Board of Actuaries, we would like to express our serious concerns about the implementation of the personal discount rate concept, and at the same time offer our support to the DoD in its efforts to deal with this thorny issue.

As background, the Board of Actuaries has oversight over the assumptions and methods used by the DoD Chief Actuary with respect to the actuarial valuation of the benefits under the Military Retirement Fund. The implementation of the personal discount rate concept is a plan design, not valuation, issue. Thus, it is not technically an issue within the Board's purview. However, as actuaries involved with the Military Retirement Fund and given our independence from OACT, we believe we can and should offer our actuarial perspective to those making the implementation decisions. Further, we are concerned about the potential downstream effects on the valuation due to this new plan design feature.

General actuarial concerns with the concept of personal discount rates were well articulated in an April 27, 2016 letter from the American Academy of Actuaries Pension Practice Council to the DoD.[1] The Board generally agrees with the points raised in that letter and encourages the DoD to consider them. Without repeating the letter, we summarize a few key points:

- Generally accepted actuarial principles and practices are defined by the Actuarial Standards of Practice (ASOPs) as issued by the Actuarial Standards Board.

[1] The Academy is an 18,500 member organization that serves as the actuarial profession's voice on public policy and professionalism matters. The letter is at http://actuary.org/files/publications/Personal_Discount_Rate_Comments_04272016.pdf

- "Personal discount rate" is not an actuarial concept, as it includes a non-actuarial component of individual preference or utility. Thus, there are no ASOPs related to selecting a personal discount rate.
- When lump sums are offered in private sector qualified[2] pension plans, by law (IRC Code Section 417(e)) participants must receive a lump sum determined on a basis no less favorable than one based on high quality corporate bonds.
- The value of a stream of payments from the US Government, such as a series of pension payments, is readily determined from the financial markets by looking at yields on Treasury securities.
- Members who choose a lump sum calculated using personal discount rates that are above market rates probably do not understand the financial value of their annuity benefits. Alternatively, they may have a financial hardship that causes them to select a lump sum distribution even if they recognize that the lump sum is much less valuable than the related series of annuity payments.
- One final relevant fact is that in the interest of fairness, Congress has precluded private sector qualified plans from discriminating in favor of highly compensated individuals.

In addition to concurring with the opinions expressed by the Academy, the actuaries of this Board would like to explicitly share their opinions that:

- The personal discount rates used in early NDAA cost analysis described to us by Rand were developed to reflect decisions not related to the decision whether to take a lump sum or stream of retirement benefits. As such, we see no basis for concluding these personal discount rates are appropriate for this purpose.
- Any lump sums offered to our Service members should be based on a fair market value, and comparable to that guaranteed to every private sector pension plan participant.
- The rates employed in determining the amount of any lump sum should not vary based on Officer versus Enlisted status as this would be discriminating in favor of highly compensated employees, and our Service members deserve to be treated as fairly as private sector citizens.

As acknowledged at the start of this letter, the method of selecting a personal discount rate to implement the partial lump sum provision is not technically within the purview of the Board. However, the method used to calculate the NDAA lump sums could impact the Fund in ways that are of concern to us in our official capacity. Most notably, if the lump sums are based on personal discount rates that are much higher than market rates, the concerns we have raised above could create a backlash that Congress would be pressed to address. A potential fix could be a mandate that much lower rates be used.

Using a much lower rate would have at least two impacts. First, and most obvious, the value of the NDAA benefit structure would increase relative to what was used to make the decisions that

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[2] Private sector plans are required to be qualified unless they are for the benefit of a select group of highly compensated individuals. As such, the vast majority of private sector plan participants are in qualified plans. The Board members are not aware of any non-qualified plan that uses personal discount rates as a basis for lump sums. In our experience, most non-qualified plans that pay lump sums use rates similar to or lower than those prescribed by the IRS. To our knowledge, most public sector plans do not pay significant lump sums.

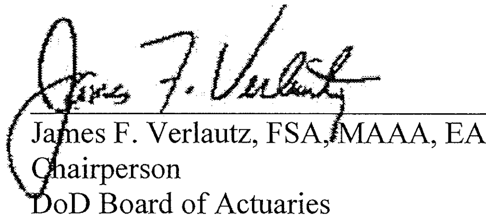
led to the passing of the NDAA by Congress in its current form, thus raising costs beyond what was expected.

Second, higher lump sum amounts could affect behaviors (i.e., timing of retirement), and thus could impact total force size and force composition/distribution relative to what was expected in designing the NDAA provisions.

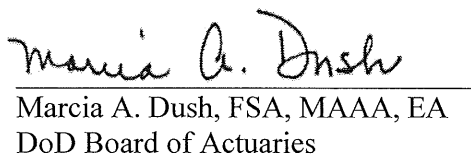
In closing, we understand the need to manage force size, force composition and the military budget. However, we don't believe settling Service member pensions on a basis not comparable with that guaranteed to participants of private sector pension plans or in a way that favors more highly compensated members is an acceptable approach. We're encouraged to hear that certain concerns and opinions we've articulated herein are shared by some members of the new retirement system's executive workgroup, and we hope a solution can be found that is both equitable and meets the military's needs.

Please let us know if we can be of any assistance in helping to address this matter.

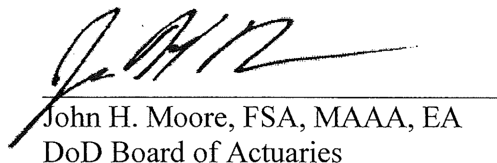
Sincerely,



James F. Verlautz, FSA, MAAA, EA
Chairperson
DoD Board of Actuaries



Marcia A. Dush, FSA, MAAA, EA
DoD Board of Actuaries



John H. Moore, FSA, MAAA, EA
DoD Board of Actuaries

APPENDIX D

Board letter, dated September 6, 2019, to the Honorable James M. Inhofe, Chairman of the Committee on Armed Services

DEPARTMENT OF DEFENSE
BOARD OF ACTUARIES
4800 MARK CENTER DRIVE, SUITE 03E25
ALEXANDRIA, VA 22350

September 6, 2019

The Honorable James M. Inhofe
Chairman
Committee on Armed Services
United States Senate
Washington, DC 20510

RE: Service-Specific Normal Cost Percentages for the Military Retirement Fund

Dear Mr. Chairman:

We are writing to raise concerns about the proposed legislation (S. 1790, Sec. 631) that would require the development of service-specific normal cost percentages (NCPs)[1] for the DoD Military Retirement Fund (MRF). We are the three members of the DoD Board of Actuaries (Board) and have responsibility for approving the assumptions and methods used by the DoD Office of the Actuary (OACT) to determine the NCPs.

Our concern is that the development of service-specific NCPs will greatly increase the complexity, and therefore the cost to taxpayers, of the annual valuations prepared by OACT, while leaving the aggregate contribution to the MRF substantially unchanged. Further, any meaningful additional information that may be provided to DoD by a service-specific valuation approach could be estimated in a much simpler and sufficiently useful manner.

In this letter we:

- Summarize how NCPs are currently prepared
- Outline what changes would be required to prepare service-specific NCPs
- Discuss the effect of credibility on contribution requirements
- Identify the need for additional OACT staffing
- Discuss a related issue concerning the Medicare-Eligible Retiree Health Care Fund (MERHCF)
- Summarize potential alternatives to precise service-specific NCPs

[1] In this letter, "Service-specific Normal Cost Percentages" refers to Normal Cost Percentages calculated on an Armed Force (as opposed to Armed Forces-wide) basis, per language in the proposed legislation (S. 1790, sec. 631).

- Outline other changes that would be required to prepare "truly" accurate service-specific NCPs
- Provide our recommendations

Increased costs outside of OACT to execute, budget, and evaluate service-specific NCPs will not be addressed in this letter.

How NCPs are Currently Prepared

The current actuarial valuations of the MRF that produce the NCPs take into account that:

- Current members participate in one of four different benefit levels offered by the military retirement system: Final Pay, High-3, Career Status Bonus (CSB)/Redux, and the Blended Retirement System (BRS)
- Separate NCPs are required for full- and part-time members
- These separate NCPs need to then be disaggregated further into the following two: ones paid for by DoD and ones paid for by Treasury covering the cost of concurrent receipt[2].

As a result, four NCPs are prepared currently - Full-time DoD, Part-time DoD, Full-time Treasury, and Part-time Treasury. These NCPs are prepared using aggregated census data from all of the services.

To prepare an actuarial valuation, the Board approves a multitude of assumptions, both economic and demographic. Some of the most significant demographic assumptions are:

- Nondisabled mortality rates
- Benefit interaction between VA compensation and DoD retired pay
- Percent married, rates of divorce, and beneficiary mortality rates for death benefits
- Rates of disability and recovery as well as disabled life mortality rates
- Rates of separation from the service before becoming benefit eligible
- Promotion and merit pay increases by age and service
- Rates of nondisabled retirement

The rates are based on several recent years of aggregate military experience. The Board is comfortable basing these rates on actual experience because of the number of members covered. Because the military has so many members, we feel that several years of actual recent experience has sufficient statistical credibility that we do not need to blend these rates with other rates determined in actuarial studies of broader, non-military population groups. These rates are

[2] Concurrent receipt benefits include those in sections 1413a and 1414 of Title 10.

reviewed periodically and updated when emerging experience appears to be deviating from past experience.

Changes that Would be Required to Develop Service-Specific NCPs

To implement true service-specific NCPs[3], OACT would be developing a total of 24 NCPs instead of the current four that are prepared - two (one for Treasury and one for DoD) for each of the following 12 services/components:

1. Full-time Army
2. Full-time Navy
3. Full-time Air Force
4. Full-time Marine Corps
5. Full-time Army Guard
6. Full-time Air Force Guard
7. Part-time Army
8. Part-time Navy
9. Part-time Air Force
10. Part-time Marine Corps
11. Part-time Army Guard
12. Part-time Air Force Guard

Instead of setting assumptions for the MRF as a whole, OACT would have to develop and we would have to approve assumptions for each of the 12 services. Doing so would require OACT to perform, and the Board review, an analysis of historical experience for each component for each significant assumption—84 analyses for just the subset of assumptions listed above. For example, we understand that at least one of the services believes that the rate of separation before retirement benefit eligibility varies significantly by service. While the separate experience analyses may bear that out, we also expect to see differences in the other demographic assumptions as well (e.g., benefit interaction with VA compensation and DoD retired pay) – which might offset the effect of the differences in the separation rates or create even larger differences in NCPs.

[3] According to our interpretation of proposed legislation (S. 1790, sec. 631).

The Effect of Statistical Credibility on Contribution Requirements

The MRF covers approximately 1.4 million full-time and 700,000 part-time service members. As mentioned above, that size gives statistical credibility to the overall experience used to set assumptions. However, when the MRF is broken into 12 separate entities, some of the services may not be large enough to provide statistically credible experience and their NCPs may have to be set giving partial credibility to their own experience and partial credibility to rates from actuarial studies of broader population groups. This could have the effect of either increasing or decreasing the overall current contributions to the MRF.

The data provided to OACT for use in completing the valuation for the Education Benefits Fund has been in many cases very limited and lacking in credibility. As a result, the Board has in certain cases approved the use of assumptions that have some built-in conservatism in order to provide for a margin of error to help counteract the credibility issues. Such an approach could be needed for the MRF in cases where the statistical credibility of the available demographic experience data is limited. If so, this would cause overall current funding requirements for the MRF to increase.

A Requirement for Service-Specific NCPs Would Increase Staffing Costs

Preparation of service-specific NCPs would require:

- Twelve sets of actuarial assumptions instead of the two set of assumptions used today. Historical census data would have to be separated by service and new experience studies would have to be performed for each service. A decision on whether or not the experience is statistically credible would have to be made and if the experience is not statistically credible, a decision on how to blend actual experience with other rates, and if a provision for conservatism should be added would have to be made. Proposed rates would have to be presented and approved by the Board.
- Running, summarizing and reviewing 24 sets of valuation results instead of the current four sets of results. Note that each set of results already includes the valuation of four sets of different benefit provisions.

OACT has no excess capacity. This work would require additional staff, perhaps two to three full-time actuaries adding $200,000-$300,000 per year to payroll, excluding benefits.

Service-specific NCPs would also generate additional costs related to OACT's computer systems. OACT's retirement valuation model has origins dating back to 1979 and has been updated to reflect all changes in benefit provisions and actuarial assumptions as they emerge. The model was updated to include a user-friendly interface within the last 15 years. Over the years, OACT has made numerous attempts to document the model's logic and structure, but budgetary limitations have precluded completion of that project. If the complexity of the valuation is increased substantially, it is imperative that the model and logic first be documented so that errors are not introduced by new staff who do not understand how the model and

underlying logic work. This project would require dedicated staff and the cost of fully documenting the program is estimated to be approximately $250,000 - $500,000. This project would take approximately two years to complete and would potentially delay other projects because experienced staff would be required to review and edit proposed documentation. These amounts are not available in OACT's current budget and would require an additional appropriation.

The above estimates are a best-case scenario. However, costs will be higher if such a transition is required in the immediate future. In the current environment, there are census data access issues faced by OACT. The census data is needed to conduct the required actuarial valuations and to set assumptions. In the future these data access issues are expected to be alleviated by a next generation data system. The higher costs will be a result of either accelerating time to implement the new system or providing OACT with the support necessary to meet the data access needs while the data system is being transitioned from the current environment to the new system.

MERHCF

OACT also performs actuarial services for other DoD-wide trust funds, one of which is the Medicare-Eligible Retiree Health Care Fund (MERHCF). The contribution rates for this plan are not service-specific rates but rather are developed in the same manner as the NCPs for the MRF. That is, they use aggregated data for all services to prepare these rates.

If the NCPs for the MRF are required to be service-specific, should MERHCF rates also be prepared in a service-specific manner? If so, we expect that OACT will require additional resources beyond what we have described above.

In addition to the concerns stated by OACT, as well as the comments noted in the GAO Report prepared on this subject in 2018, there will be frictional costs incurred by the DoD Comptroller, Defense Finance and Accounting Services (DFAS), Military Services, and other related MRF stakeholders. The Board has not queried the other stakeholders for the level of costs they expect to incur. They are expected to be nontrivial.

Alternatives to Precise Calculation of Service-Specific NCPs

OACT has considered several alternatives to the development of full service-specific NCPs. These alternatives would reduce the complexity and the related cost to implement and maintain these modified NCPs. If the legislation wishes to pursue one of these alternatives, they should consult with OACT to make sure that the proposed legislation can be interpreted to permit the modification.

OACT's proposed alternatives include:

1. Group Guard components with their related Military Service – e.g., Full-time Army and Full-time Army Guard. This would reduce the number of NCPs to 16 instead of 24.
2. Same as (1) for Full-time members and prepare a single NCP for all Part-time members. This would further reduce the number of NCPs to 10.
3. Prepare the NCPs under the current method but actuarially adjust them to reflect differences in the rates of separation from service prior to retirement by service without affecting total DoD contributions. OACT refers to this as the Relative Value method.
4. Prepare NCPs under the current method but only adjust Full-time NCPs using the Relative Value method. An aggregate NCP for Part-time members would be applied for all services.

The Board is comfortable with the concepts inherent in (3) and (4), as they would not change annual contributions to the MRF. The Board has the same concerns regarding statistical credibility, complexity, and implementation costs vis-a-vis any benefits gained from the change for (1) and (2) as it does for the full service-specific NCP concept, but the concerns and cost would be partially mitigated by reducing the number of groups.

Truly Accurate Service-Specific NCPs Would Require Other Methodology Changes

GAO issued a report on this subject in December 2018 (GAO-19-195R Military Retirement). It cited a 2017 RAND Study that found that the current retirement contribution method tends to distort marginal costs by diluting the effect of any one service's change in force shape so that the service does not realize the full consequences of its own incremental personnel decisions that affect experience mix. The GAO report goes on to say that when they interviewed military service officials, those officials acknowledged that service-specific retirement contribution rates would likely change respective service contributions, but that their workforce decision making would remain unchanged.

While RAND may be correct that service-specific contribution rates *might* result in less distortion in the estimates of each services' cost to the MRF, obtaining a true picture of those costs will only happen after making other changes as well. These changes have been discussed in our last several Quadrennial Reports to the President and Congress and include:

1. DoD, not Treasury, should pay for the increase in the unfunded actuarial liability whenever a benefit increase is granted. Also, DoD, not Treasury, should get the benefit whenever the unfunded liability decreases due to a benefit change.
2. DoD, not Treasury, should pay the normal cost associated with benefits provided under Concurrent Receipt provisions.

3. DoD, not Treasury, should pay for all actuarial losses in the unfunded liability and should benefit from any actuarial gains attributable to experience that differs from the actuarial assumptions and to changes in assumptions.
4. OACT should be permitted to use the Individual Entry Age Normal actuarial cost method instead of the Aggregate Entry Age Normal method.

If these changes were made, then service-specific contributions could truly reflect each services' cost to the MRF over time. But, until then, each service would still be contributing only a rough estimate of its cost because Aggregate Entry Age Normal NCPs alone will not account for gains or losses.

Even then, whether the effort and cost associated with service-specific NCPs is worth the investment is still questionable given that Service officials acknowledge that this information will not play a role in the workforce decisions.

Our Recommendation

Until the changes listed above are made, we believe that the current approach to determining NCPs serves the DoD (and taxpayers) well[4]. However, if there is strong support for service-specific contributions, we would encourage those crafting the legislation to consider the alternatives offered by OACT. We would encourage the staff to strongly consider the relative value alternatives – (3) or (4) described above.

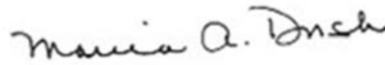
If these alternatives are not sufficient to satisfy the desire to create service-specific NCPs, we recommend that you delay implementation until OACT's census data issues are alleviated. OACT will need the time and appropriations to complete valuation reprogramming and to prepare service-specific experience studies that would enable us to approve the assumptions. Additionally, we would appreciate further consideration of our Quadrennial Report recommendations.

[4] As noted in our most recent *2016 Report to the President and Congress*, we believe that having Treasury pay part of the normal cost for active service members isn't appropriate and that DoD should be responsible for the combined concurrent receipt and non-concurrent receipt NCPs.

As with any actuarial calculation, the NCPs that are currently prepared are merely a best estimate of the future cost of the MRF for DoD overall. Actual costs depend on actual experience. Spending taxpayer dollars to reallocate the estimated cost among services, and perhaps increasing the total current funding requirements, without providing any additional meaningful benefit to either taxpayers or to service members, does not seem worthwhile to us.

Sincerely,

James F. Verlautz, FSA, MAAA
Chairperson
DoD Board of Actuaries



Marcia A. Dush, FSA, MAAA
DoD Board of Actuaries

John H. Moore, FSA, MAAA
DoD Board of Actuaries

cc:
The Honorable Jack Reed
Ranking Member
Department of Defense Chief Actuary