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

September 13, 2021

MEMORANDUM FOR THE RECORD

SUBJECT: Minutes of the July 30, 2021, Meeting of the DoD Board of Actuaries

The Military Retirement Fund and Voluntary Separation Incentive Fund were discussed from 10:00 AM to 11:10 AM and the Education Benefits Fund was discussed from 11:15 AM to 12:30 PM. The DoD Board of Actuaries advises on all three funds.

List of Attachments:

1 - Meeting agenda
2 - Complete list of attendees
3 - Meeting handouts
4 - Meeting transcript

We have reviewed and agree with the meeting minutes. Responsibility for the accuracy of each attachment resides with the organization creating it.

Marcia A. Dush, Chairperson
DoD Board of Actuaries

Inger M. Pettygrove
Designated Federal Officer

DEPARTMENT OF DEFENSE BOARD OF ACTUARIES
MEETING MINUTES

July 30, 2021

Virtual Meeting

MILITARY RETIREMENT FUND/VOLUNTARY SEPARATION INCENTIVE FUND

HIGHLIGHTS/KEY BOARD DECISIONS

Agenda Item 1: September 30, 2020, Valuation of the Military Retirement Fund

- Transcript Pages 6-7: Starting population and total annualized pay for active duty, selected drilling reservists, non-selected reservists, disabled retirees, nondisabled retirees, and survivors were presented to the Board members.

- Transcript Pages 7-9: Unfunded Liability (UFL) as of September 30, 2020, was $753.7 billion. DoD normal cost percentages (NCPs) to be implemented for FY 2022 are 35.1% and 25.7% for full-time and part-time, respectively.

- Transcript Pages 9-11: The UFL was $58.4 billion greater than expected. Total Assumption changes led to a $48 billion loss; there was a loss of $70 billion due to 0.25% lower long-term real interest rate assumption and a 0.25% decrease in the real salary increase assumption.

- Transcript Pages 11-16: The FY 2022 amortization payment for the UFL is $114.463 billion, and the normal cost payment due to Concurrent Receipt benefits is $11.526 billion, for a combined Treasury payment of $125.989 billion. The Board adopted a methodology change moving to a combined 20-year layered basis for amortizing experience, assumptions, and benefit changes.

Agenda Item 2: September 30, 2021, Valuation of the Military Retirement Fund, Proposed Methods and Assumptions

- Transcript Pages 16-27: Approved long-term economic assumptions for the 9/30/2021 valuation and FY 2023 NCPs of 4.00% interest rate (0.25% decrease from last year), 2.75% across-the-board salary increase (no change from last year), and 2.50% COLA (no change from last year). The effect was to increase the full-time NCP by 2.8%, and increase the part-time NCP by 2.2%.

- Transcript Pages 27-41: The Office of the Actuary (OACT) proposed and the Board approved updated mortality improvement scales (decreased NCPs 0.3% full-time, 0.4% part-time), new active duty decrement rates (decreased NCP 0.4% full-time, no change to part-time), new reserve decrement rates (decreased NCPs 0.3% full-time, 2.8% part-time), and adding Coast Guard experience (increased NCP 0.4% full-time, no change to part-time).

- Transcript Pages 41-46: Approved FY 2023 DoD NCPs of 36.9% (full-time) and 24.5% (part-time) and estimated Treasury NCPs of 16.2% (full-time) and 3.8% (part-time).

Agenda Item 3: September 30, 2020, VSI Fund Valuation, Proposed Methods and Assumptions

- Transcript Pages 46-55: Set economic assumptions of 2.25% interest rate (unchanged from last year), 2.2% COLA on VA offsets (unchanged from last year), and 1.0% non-COLA increase on VA offsets (unchanged from last year), leading to a January 1, 2023, amortization payment of $13.0 million.

EDUCATION BENEFITS FUND

HIGHLIGHTS/KEY BOARD DECISIONS

Agenda Item 4: Education Benefits Fund Overview

- Transcript Pages 57-64: Education benefit programs and their usage model were presented.

Agenda Item 5: September 30, 2020, Valuation Proposed Economic Assumptions

- Transcript Pages 65-69: The Board set an interest rate assumption of 2.50% (0.25% decrease from last year).

Agenda Item 6: September 30, 2020, Valuation Proposed Methods and Assumptions

- Transcript Pages 81-87: The Board approved using the same methodology as last year at the approved interest rate to produce the Chapter 30 kicker per capita amounts and the Navy amortization payment of $542,957 to be paid on October 1, 2022.

- Transcript Pages 87-89: The Board approved using the same valuation method as last year at the approved interest rate, leading to the Cat 3 payment of $49,574 due on October 1, 2021 from the Army to be internally transferred from Chapter 30 surplus. Additionally, there is a Cat 3 payment of $4,006 from the Air Force to be paid on October 1, 2021.

- Transcript Pages 92-94: The Board approved continuing to use Blue Chip Financial Forecasts to estimate the CPI for Chapter 1606 basic benefit, leading to an ultimate CPI of 2.2%.

- Transcript Pages 94-101: The Board approved a proposed methodology change to separate the Chapter 1606 true-up factors used to reconcile differences between Defense Finance and Accounting Service and Defense Manpower Data Center data and determine the normal costs, normal cost offsets, and amortization payments.

- Transcript Pages 101-107: The Board also approved using the same methodology as last year for determining the Chapter 1606 basic and kicker per capita amounts and amortization payments.

ATTACHMENT 1

DEPARTMENT OF DEFENSE BOARD OF ACTUARIES MEETING AGENDA

Friday, July 30, 2021
10:00 AM—1:00 PM EST
Virtual Meeting (DoD365/MS Teams)

DoD365/MS Teams Link: https://dod.teams.microsoft.us/l/meetup-join/19%3adod%3ameeting_417a74b17bd248de8e2d825214f73b48%40thread.v2/0?context=%7b%22Tid%22%3a%22102d0191-eeae-4761-b1cb-1a83e86ef445%22%2c%22Oid%22%3a%2254599215-d2d8-4d3a-affd-758dcfc02411%22%7d

Call-In (for audio only): Dial: 410-874-6739 // Conference ID: 518 589 889#

(1) Please ensure your audio is muted when not speaking or actively participating.

(2) Please identify yourself before asking a question.

[* Indicates Board approval required.]

MILITARY RETIREMENT FUND (MRF)

1. September 30, 2020, Valuation of the Military Retirement Fund*

    a. Starting Population (Pete Rossi, DoD Office of the Actuary)
    b. Valuation Results (Pete Rossi)
    c. Gain/Loss Analysis (Pete Rossi)
    d. 10/1/2021 Unfunded Liability Amortization and Normal Cost Payments (Pete Rossi)

2. September 30, 2021, Valuation of the Military Retirement Fund, Proposed Methods and Assumptions*

    a. Economic Assumptions – COLA, Interest Rate, and Across-the-Board Salary Increases

        i. Environmental Scan of Economic Assumptions (Phil Davis, DoD Office of the Actuary)
        ii. Fund Yield Projection (Phil Davis)

    b. Non-Economic Assumptions (Qian Magee, DoD Office of the Actuary)

    c. FY 2023 Full-Time and Part-Time Normal Cost Percentages (Pete Zouras, DoD Office of the Actuary)

VOLUNTARY SEPARATION INCENTIVE (VSI) FUND

3. September 30, 2020, VSI Fund Valuation, Proposed Methods and Assumptions*

    a. Introduction (Hyung Ju Ham, DoD Office of the Actuary)
    b. Interest Rate (Phil Davis)
    c. Valuation Update and Other Assumptions (Phil Davis)
    d. Unfunded Liability Amortization Payments (Phil Davis)

EDUCATION BENEFITS FUND (EBF)

4. Fund Overview (Hyung Ju Ham)

5. September 30, 2020, Valuation Proposed Economic Assumptions (Hyung Ju Ham)*

6. September 30, 2020, Valuation Proposed Methods and Assumptions*

    a. Active Duty Programs (Hyung Ju Ham)
    b. Reserve Programs (Richard Allen, DoD Office of the Actuary)

[* Indicates Board approval required.]

ATTACHMENT 2

Department of Defense Board of Actuaries Meeting
Attendee List

Name	Position or Office
Marcia Dush	Chairperson
John Moore	Board Member
Mike Clark	Board Member
Pete Zouras	DoD Chief Actuary and Executive Secretary
Pete Rossi	Deputy Chief Actuary
Inger Pettygrove	OACT, DFO
Nick Garcia	OACT
Richard Allen	OACT
Hyung J. Ham	OACT
Chelsea Chu	OACT
Philip Davis	OACT
Qian Magee	OACT
Joe Lam	OACT
William Moorhouse	Advisor, Legal
Tom Liuzzo	Advisor, Reserve Affairs
Andy Corso	Advisor, Military Compensation Policy
James Fasano	Advisor, Comptroller
Patty Leopard	Advisor, Education Policy
David Rafferty	CBO
Craig Graby	Korn Ferry Hay Group
Brent Mowery	Korn Ferry Hay Group
Alicia Litts	OUSD (C)
Richard Virgile	USCG (Retired)
Edith Smith	Military Survivor
Lori Haines	DFAS-IN
Paul Dotto	OPM

Pete Abraham	DMDC
Schileen Potter	DMDC
Vincent D. Suich	DMDC
Rowena Vicencio	USCG
James O'Neill	USCG
Elaine Crowley	DoD OGC
Dan Mendoza	USCG
Colleen Hartman	OUSD (C)
COL Clay Pettit	Co-Chair, MRF FMC

ATTACHMENT 3

Meeting Handouts for the
Department of Defense Board of Actuaries Meeting
(Military Retirement Fund and VSI Fund)

DoD Board of Actuaries
Legislative and Policy Update

Mr. Andrew Corso
Assistant Director, Military Compensation Policy
Retired and Annuitant Pay
ODASD(MPP-Compensation)
July 26, 2021

Agenda

- Blended Retirement System Implementation
  - Current Status
- Recent Legislative Changes
  - FY2021 National Defense Authorization Act
- Pending Legislative Changes
  - FY2022 National Defense Authorization Act

Blended Retirement System

Blended Retirement System Update

- **In Service as of June 30, 2021:**

(number in parentheses shows increase/decrease since last year's update)

	Full-Time	Part-Time	**Total**
Opted In	269,378 *(-30,871)*	117,328 *(+15,802)*	**386,706** *(-15,069)*
Auto-Enrolled	463,923 *(+148,546)*	220,394 *(+99,000)*	**684,317** *(+247,546)*
Total In-Service Participants as of June 30, 2021			**1,071,023**
Net Increase Since May 30, 2020			**+232,477**

- **Lump Sum:**
  - As of June 2021, 1 member (part-time) elected a lump sum
  - Discount rate for CY22 will be 6.54% (-0.19% from CY21)

Recent Legislation

FY 2021 National Defense Authorization Act

- **Basic Pay**
  - Pay raise was 3.0% (MRF Impact: MINIMAL)
- **Mandatory Retirement for Age** (MRF Impact: MINIMAL)
  - Section 506 clarified 10 U.S.C. 1251 to ensure only officers with at least 20 years of creditable service receive retired pay if they reach mandatory retirement age
  - Involuntary separation pay if more than 6 but fewer than 20 years of service
  - Expands authority for Services to continue officers beyond age 62
- **Credit for Duty Foregone Due to COVID Restrictions**
  - Section 516 allowed Services to credit reserve/National Guard members with up to 35 retirement points if that member was unable to achieve a creditable year due to cancelled drills as a result of COVID (MRF Impact: MINIMAL)
- **Retired Pay Credit for Maternity Leave**
  - Section 602 allowed Reserve/National Guard members to be credited with 12 retirement points during maternity leave from drilling (MRF Impact: MINIMAL)

Pending Legislation

FY 2022 National Defense Authorization Act

- **Basic Pay**
  - Pay raise anticipated to be 2.7% (MRF Impact: MINIMAL)
- **House and Senate bills not yet released**

Military Retirement Fund
Board of Actuaries Meeting

Defense Finance and Accounting Service

Coralita Jones / Lori Haines
Enterprise Solutions and Standards (ESS)
Financial Reporting
June 25, 2021

AGENDA

- Overview
- Financial Data
- Fund Status

OVERVIEW

- Short Term Liquidity
  - ✓ Invested approx $100.0B in October (Treas contrib $107.9B)
  - ✓ Off cycle investment of $2.0B in March
  - ✓ Inflows exceeding outflows
    - ✓ FY 2021 payments through April $41.4B
    - ✓ FY 2021 receipts through April $131.3B
    - ✓ FY 2021 overnights/cash as of 30 April $6.2B

- Blended Retirement
  - ✓ Fully Implemented in 2021

- Long Term Liquidity
  - ✓ New investing for FY 2022
    - ✓ As of EOM May, $108.0B
    - ✓ Average 20-year term
  - ✓ FY 2023-2026 projected investments of $548.0B

Summary Financial Analysis

Year Ended September 30

(In Billions)

	FY 2020	FY 2019	% Change
Service Contributions	$21.8	$20.5	6%
Unfunded Liability Contribution	91.9	88.0	4%
Concurrent Receipts Contribution	8.5	7.9	8%
Interest Income	22.6	26.7	-15%
Total Revenue	$144.8	$143.1	1%
Benefit Payments	$62.3	$60.7	3%
Total Expense	$62.4	$60.9	2%

Summary Financial Analysis

Year Ended September 30

(In Billions)

Interest Income

	FY 2020	FY 2019	$Change
Interest Revenue--Par	$20.5	$20.5	$0.0
Interest Revenue--Inflation	6.5	11.2	-$4.7
Interest Revenue--Discount	0.9	0.3	$0.6
Interest Revenue--Premium	-5.4	-5.3	-$0.1
	$22.5	$26.7	-$4.2

FINANCIAL DATA

Military Retirement Fund
For the Year Ending September 30, 2020

	(in millions)
Assets	
Fund Balance with Treasury	$75.3
Investments	
Overnight	$13,196.9
Long term	
Par	$737,331.7
Inflation purchased	$47,118.8
Inflation earned	$82,637.0
Premium outstanding	$73,806.9
Discount outstanding	-$16,468.8
Interest receivable	$5,607.9
Total Long Term Investments	$966,013.5
Total Investments	$979,210.4
Accounts Receivable, net	$147.1
Total Assets	$979,432.8
Liabilities	
Military Retirement and Other Federal Employment Benefits	
Benefits Payable to Beneficiaries	$5,118.0
Actuarial Liability	$1,794,054.2
Total Military and Other Federal Employment Benefits	$1,799,172.2
Other Liabilities	$4.0
Total Liabilities	$1,799,176.2
Net Position	
Cumulative Results of Operations	-$819,743.4
Total Liabilities and Net Position	$979,432.8

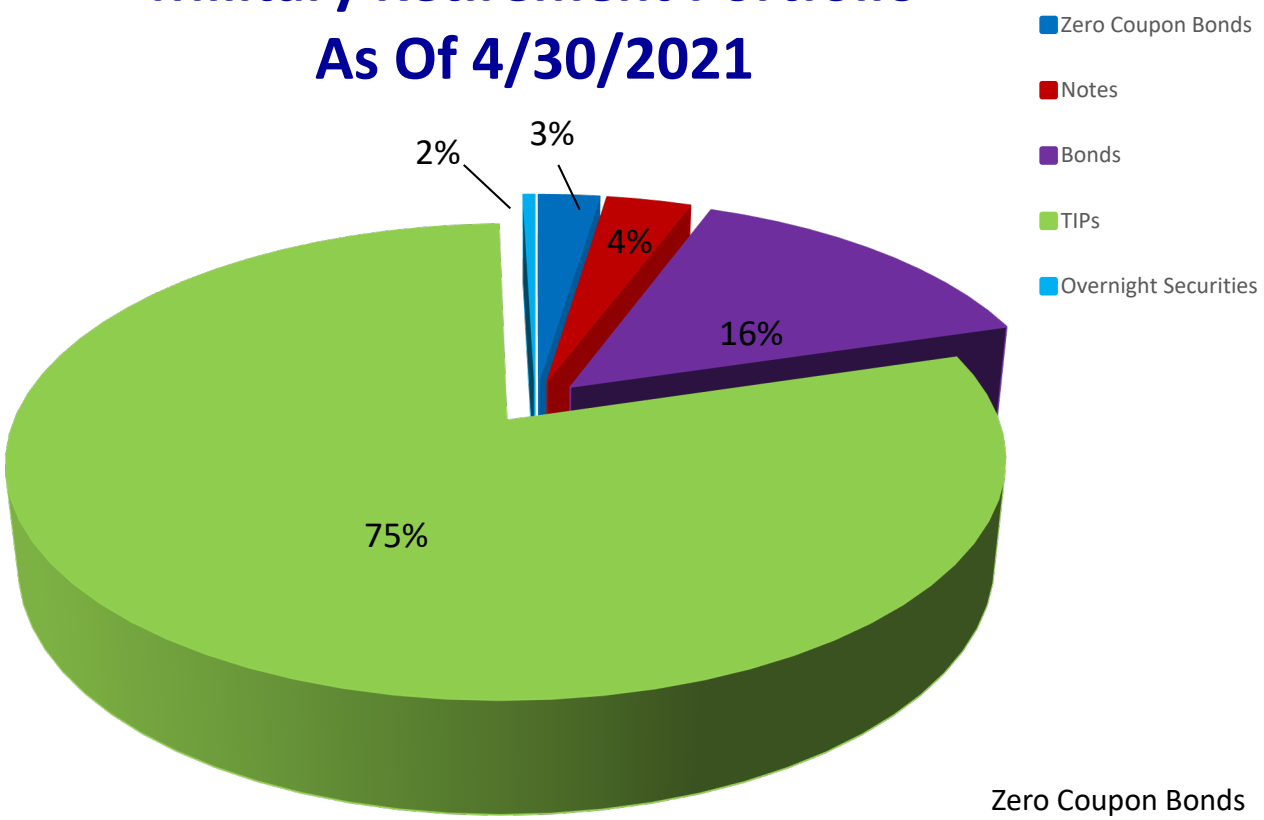
FINANCIAL DATA

Effective Fund Yields

FY	Yield
2011	4.89%
2012	2.94%
2013	3.10%
2014	3.16%
2015	1.79%
2016	2.34%
2017	2.92%
2018	3.82%
2019	3.01%
2020	2.32%

FUND STATUS

Military Retirement Portfolio
As Of 4/30/2021



Zero Coupon Bonds	$30.1
Notes	$41.6
Bonds	$183.5
TIPs	$993.3
Overnight Securities	$5.7
Total (in Billions)	$1,254.2

FUND STATUS

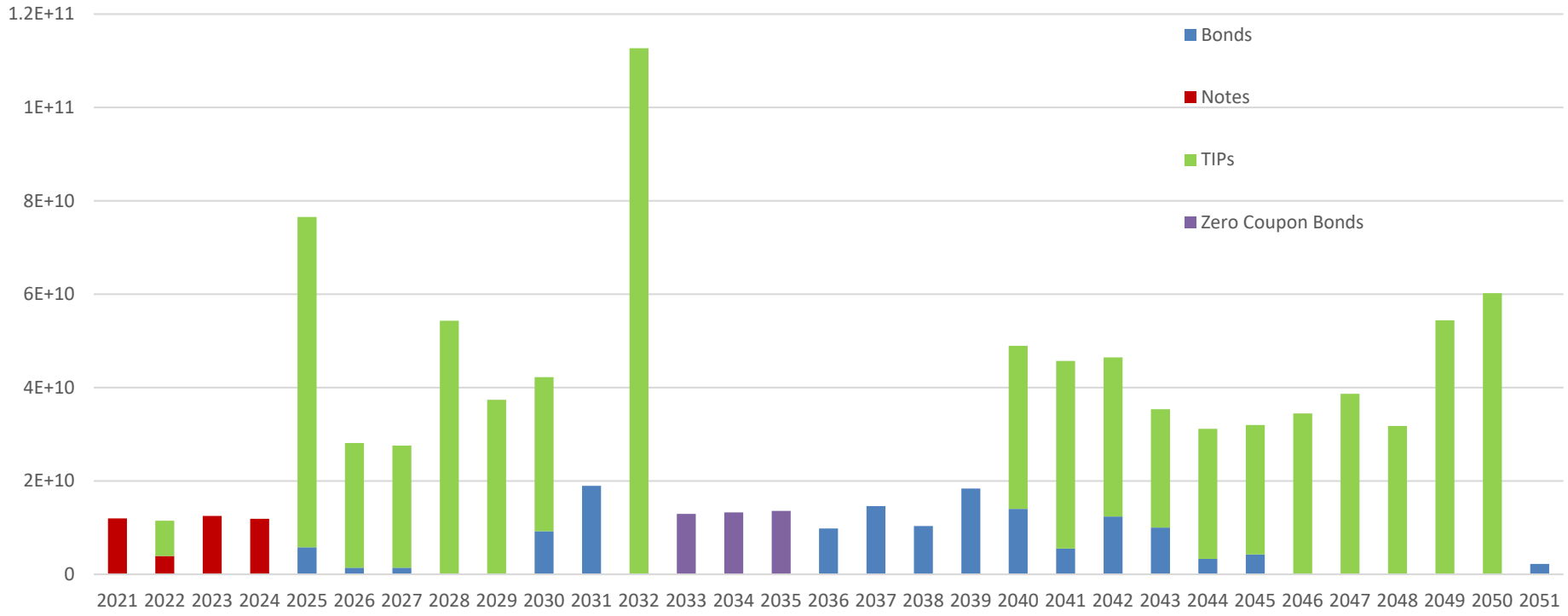
Security Description	Shares Par	Inflation Compensation	Book Value	Market Value
INTEREST ZCB 08/15/33	12,949,000,000.00	-	10,298,105,113.85	10,081,645,954.40
INTEREST ZCB 08/15/34	13,268,000,000.00	-	10,303,952,153.12	10,039,604,765.44
INTEREST ZCB 08/15/35	13,593,000,000.00	-	10,309,194,255.33	9,994,027,742.13
Zero Coupon Bond Total	**39,810,000,000.00**	**-**	**30,911,251,522.30**	**30,115,278,461.97**
MK BOND 1.875% 02/15/2051	2,233,238,900.08		1,995,381,064.98	2,028,060,076.14
MK BOND 2.500% 02/15/2045	4,280,660,325.79	-	4,047,606,495.20	4,462,588,389.64
MK BOND 2.750% 11/15/2042	6,681,701,480.89	-	6,586,549,924.17	7,303,934,931.30
MK BOND 3.000% 05/15/2042	6,695,039,147.53	-	6,897,843,302.85	7,623,975,829.25
MK BOND 3.125% 02/15/2042	2,864,461,876.61	-	3,037,621,297.97	3,327,251,498.55
MK BOND 3.125% 02/15/2043	3,349,775,799.13	-	3,539,727,049.32	3,883,646,317.12
MK BOND 3.125% 11/15/2041	2,818,271,057.13	-	2,971,590,888.53	3,267,433,006.86
MK BOND 3.500% 02/15/2039	6,039,034,048.35	-	6,148,391,149.26	7,344,975,161.31
MK BOND 3.625% 02/15/2044	3,321,324,845.08	-	3,810,938,490.63	4,158,921,454.45
MK BOND 4.250% 05/15/2039	6,479,267,826.79	-	7,585,111,530.64	8,633,624,379.20
MK BOND 4.250% 11/15/2040	5,520,767,853.28	-	6,772,640,431.78	7,418,531,802.85
MK BOND 4.375% 02/15/2038	5,958,635,328.03	-	6,821,561,515.96	7,982,709,266.02
MK BOND 4.375% 05/15/2040	4,793,071,508.45	-	5,963,558,973.02	6,526,066,425.72
MK BOND 4.375% 11/15/2039	6,831,664,626.58	-	8,138,725,627.30	9,263,310,254.60
MK BOND 4.500% 02/15/2036	9,826,753,606.74	-	11,787,303,882.93	13,146,353,809.52
MK BOND 4.500% 05/15/2038	4,396,913,844.83	-	5,274,921,771.98	5,978,428,793.39
MK BOND 4.500% 08/15/2039	5,861,210,424.29	-	7,143,092,267.11	8,055,501,076.88
MK BOND 4.625% 02/15/2040	2,399,775,551.83	-	3,101,528,090.53	3,358,185,912.84
MK BOND 4.750% 02/15/2037	9,697,894,474.30	-	11,746,664,830.67	13,422,492,070.84
MK BOND 5.000% 05/15/2037	4,912,921,714.87	-	6,196,112,477.26	6,980,954,699.22
MK BOND 5.375% 02/15/2031	18,948,966,774.83	-	25,585,374,916.27	25,480,438,760.03
MK BOND 6.000% 02/15/2026	1,400,000,000.00	-	1,551,059,876.81	1,739,937,500.00
MK BOND 6.250% 05/15/2030	9,225,255,976.51	-	11,839,791,713.93	12,924,007,044.59
MK BOND 6.625% 02/15/2027	1,400,000,000.00	-	1,620,412,619.76	1,841,000,000.00
MK BOND 6.875% 08/15/2025	3,800,000,000.00	-	4,453,971,938.21	4,790,375,000.00
MK BOND 7.625% 02/15/2025	2,000,000,000.00	-	2,282,414,286.85	2,530,625,000.00
Bond Total	**141,736,606,991.92**	**-**	**166,899,896,413.92**	**183,473,328,460.32**
MK NOTE 1.125% 06/30/2021	11,991,405,616.22	-	12,046,797,249.62	12,010,142,187.50
MK NOTE 1.625% 08/15/2022	3,925,267,912.20	-	3,958,883,265.26	4,002,546,624.22
MK NOTE 2.000% 02/15/2023	12,496,163,515.85	-	12,705,640,336.40	12,906,193,881.21
MK NOTE 2.750% 02/15/2024	11,884,976,088.44	-	12,399,891,103.72	12,694,640,084.46
Note Total	**40,297,813,132.71**	**-**	**41,111,211,955.00**	**41,613,522,777.39**

FUND STATUS cont.

Security Description	Shares Par	Inflation Compensation	Book Value	Market Value
MK TIPS 0.125% 01/15/2030	32,292,714,800.06	713,346,069.93	35,303,726,670.56	36,151,951,046.66
MK TIPS 0.125% 07/15/2022	6,605,000,000.00	947,949,600.00	7,623,841,844.34	7,843,266,100.25
MK TIPS 0.250% 02/15/2050	58,854,771,145.64	1,344,242,972.97	70,648,912,364.07	64,111,950,036.32
MK TIPS 0.625% 02/15/2043	22,156,985,598.00	3,185,509,819.43	22,709,792,409.29	29,056,754,902.04
MK TIPS 0.750% 02/15/2042	29,278,329,999.00	4,794,912,103.94	33,359,631,051.40	39,993,467,918.32
MK TIPS 0.750% 02/15/2045	24,791,139,787.00	2,893,621,835.94	27,257,986,118.49	32,590,155,323.00
MK TIPS 0.875% 02/15/2047	35,491,724,098.11	3,171,895,382.65	38,141,991,943.29	47,338,769,101.75
MK TIPS 1.000% 02/15/2046	31,047,295,342.32	3,409,613,974.50	36,289,808,354.58	42,898,852,099.43
MK TIPS 1.000% 02/15/2048	29,787,977,975.60	1,977,325,978.02	31,412,153,211.46	40,173,182,843.84
MK TIPS 1.000% 02/15/2049	52,067,680,448.21	2,344,607,650.58	61,069,105,771.79	69,273,644,285.78
MK TIPS 1.375% 02/15/2044	24,671,862,429.00	3,165,893,386.89	30,255,404,133.27	36,876,327,157.36
MK TIPS 1.750% 01/15/2028	7,000,000,000.00	1,786,610,000.00	9,830,106,214.18	10,675,731,150.00
MK TIPS 2.000% 01/15/2026	20,167,675,000.00	6,552,880,961.00	27,067,320,052.56	31,805,811,767.33
MK TIPS 2.125% 02/15/2040	28,691,811,638.98	6,216,080,991.58	41,459,663,068.38	50,725,531,478.79
MK TIPS 2.125% 02/15/2041	33,452,277,019.97	6,717,551,748.38	48,315,405,852.90	58,823,693,002.65
MK TIPS 2.375% 01/15/2025	50,700,000,000.00	20,030,049,000.00	73,188,686,130.83	83,218,323,276.56
MK TIPS 2.375% 01/15/2027	20,071,880,000.00	6,101,450,082.40	26,998,520,861.41	32,356,779,314.37
MK TIPS 2.500% 01/15/2029	7,000,000,000.00	1,573,670,000.00	10,166,782,070.39	11,084,147,746.88
MK TIPS 3.375% 04/15/2032	76,051,206,552.50	36,618,655,955.03	124,587,044,340.25	165,835,953,878.27
MK TIPS 3.625% 04/15/2028	28,000,000,000.00	17,524,080,000.00	48,714,690,510.41	61,784,712,325.00
MK TIPS 3.875% 04/15/2029	18,000,000,000.00	10,793,160,000.00	31,777,585,892.60	40,715,327,812.50
TIPS Total	**636,180,331,834.39**	**141,863,107,513.24**	**836,178,158,866.45**	**993,334,332,567.10**
ONE DAY 0.140% 06/01/2020	5,702,098,127.96	-	5,702,261,050.76	5,702,098,127.96
Total Portfolio	**863,726,850,086.98**	**141,863,107,513.24**	**1,080,802,779,808.43**	**1,254,238,560,394.74**

FUND STATUS

MRF Maturities
As of April 30, 2021



21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51
12.0	11.5	12.5	11.9	76.5	28.1	27.6	54.3	37.4	42.2	18.9	112.7	12.9	13.3	13.6	9.8	14.6	10.4	18.4	48.9	45.7	46.5	35.4	31.2	32.0	34.5	38.7	31.8	54.4	60.2	2.2

INITIAL ACCOUNTING FIGURES AS OF SEPTEMBER 30
($ in billions)

	2020	2019
Total Active Duty Personnel +		
Full-Time Reservists	1,419,813	1,409,076
Total Annualized Basic Pay	$65.50	$62.75
Non-BRS	*812,291*	*900,362*
Total Annualized Basic Pay	*$45.11*	*$46.25*
BRS	*607,522*	*508,714*
Total Annualized Basic Pay	*$20.38*	*$16.50*
Total Selected Drilling Reservists	708,004	716,642
Total Annualized Basic Pay	$8.23	$8.27
Non-BRS	*485,514*	*543,380*
Total Annualized Basic Pay	*$6.36*	*$6.78*
BRS	*222,490*	*173,262*
Total Annualized Basic Pay	*$1.86*	*$1.49*
Total Non-Selected Reservists (with 20 years)	189,644	196,814
Total Annualized Basic Pay	-N/A-	-N/A-
Total Number of Nondisability Retirees	1,875,046	1,876,780
Total Annualized Retired Pay	$56.13	$55.10
Total Number of Disability Retirees	128,921	125,930
Total Annualized Retired Pay	$1.90	$1.81
Total Number of Surviving Families	321,054	317,250
Total Annualized Survivor Annuities	$4.55	$3.96

MILITARY RETIREMENT SYSTEM
ACTUARIAL STATUS INFORMATION

($ in billions)

	9/30/20	9/30/19	Difference	
1. Present Value of Future Benefits (PVFB)				
a. Retirees and Survivors	$1,107.8	$1,060.4	$47.4	4%
b. Reserves	$215.1	$219.2	($4.1)	-2%
c. Active Duty	$748.0	$690.7	$57.3	8%
TOTAL	$2,070.9	$1,970.3	$100.6	5%
2. Present Value of Future Normal Cost Contributions (PVFNC) [1]	$337.8	$317.7	$20.1	6%
3. Actuarial Accrued Liability (1 - 2)	$1,733.1	$1,652.7	$80.4	5%
4. Actuarial Value of Assets [2]	$979.4	$897.0	$82.4	9%
5. Unfunded Accrued Liability (3 - 4)	$753.7	$755.7	($2.0)	0%
6. Valuation DoD Normal Cost Percentage (NCP)	FY 2021	FY 2020		
a. Full-time	35.6%	35.3%		0.3%
b. Part-time	26.0%	27.2%		-1.2%
7. Implemented DoD Normal Cost Percentage, Applied to Basic Pay in Fiscal Year [3]	FY 2022	FY 2021		
a. Full-time	35.1%	34.9%		0.2%
b. Part-time	25.7%	26.9%		-1.2%
8. Implemented Treasury Normal Cost Percentage, Applied to Basic Pay in Fiscal Year [4]	FY 2022	FY 2021		
a. Full-time	16.5%	15.9%		0.6%
b. Part-time	4.4%	4.2%		0.2%

[1] 9/30/20 PVFNC reflects a reduction of $891.088 million due to sequestration of the 10/1/2020 Treasury Concurrent Receipt normal cost contribution. The 9/30/19 PVFNC reflects a reduction of $800.230 million due to sequestration of the prior Treasury Concurrent Receipt normal cost contribution.

[2] The following is a reconciliation of assets during FY20 ($ in billions):

Beg. of Year	PLUS Contributions				MINUS	End of Year
	DoD Accrual	Treas. Accrual	Unfund. Liab.	Int. Income	Fund Disb.	
$897.0	$21.8	$8.5	$91.9	$22.6	$62.4	$979.4

[3] Line 7 may differ from Line 6 in the portion of military personnel assumed to be under the Final Pay, Hi-3, REDUX, and Blended Retirement System retirement benefit formulas.
(Prior to reflecting NDAA 2020 provisions, FY 2021 DoD NCPs were 34.6% (full-time) and 26.7%, and FY 2019 Treasury NCPs were unchanged.)

[4] Line 8 refers to the increase in the normal cost due to concurrent receipt benefits, which is paid by Treasury.

NOTE: Some figures may not add precisely due to rounding.

*** The data and assumptions supporting this handout are to be summarized in the DoD Office of the Actuary's September 30, 2020, Valuation of the Military Retirement System.

Long-Term Economic Assumptions

9/30/20 Val	9/30/19 Val
COLA (2.50%)	COLA (2.75%)
Salary (2.75%)	Salary (3.25%)
Interest (4.25%)	Interest (4.75%)

9/30/2020 CHANGE IN UNFUNDED LIABILITY

($ in billions)

(A Negative Change Indicates a Gain and
A Positive Change Indicates a Loss)

1. 9/30/19 Unfunded Liability	$755.7		
2. 10/01/19 Amortization Payment on Unfunded Liability	$91.9		
3. Interest Assumption	1.0475		
4. Expected Unfunded Liability on 9/30/20 (1 - 2) X 3	$695.3		
5. Actual Unfunded Liability	$753.7		
6. Total Change in Unfunded Liability (5 - 4)	**$58.4**	3.4%	
A. Total Experience (gain) loss	**$9.3**	0.5%	
1. COLA, Salary, and Interest	$7.5	0.4%	
a. Interest [1]:	$23.6	1.4%	--> 2.4%
b. Salary [2]:	-$0.8	0.0%	
c. COLA [3]:	-$15.3	-0.9%	
2. Noneconomic Experience:	$1.8	0.1%	
B. 10/1/20 unpaid contribution [4]:	**$0.9**	0.1%	
C. Total benefit change (gain) loss:	**$0.0**	0.0%	
D. Total assumption change (gain) loss	**$48.2**	2.8%	
1. Disability Retired Rates Ramp up	$2.4	0.1%	
2. Updated Mortality Improvement	-$3.9	-0.2%	
3. Updated VA Parameters	-$8.2	-0.5%	
4. New Economic Assumptions [5]	$70.0	4.0%	
5. New Reserve Assumptions	-$12.1	-0.7%	

(Percentages shown are ratios of values of each gain or loss component to the accrued liability; the ratio of the interest gain to the actuarial value of assets is shown as well).

[1] Valuation assumption: 4.75% investment return; FY20 dollar-weighted fund yield: 2.3%

[2] Valuation assumption: 3.25% long-term salary; 1/1/21 across-the-board pay increase: 3.0%

[3] Valuation assumption: 2.75% long-term COLA; 1/1/21 COLA: 1.3%

[4] Loss due to $891.088 million sequestration (reduction) to the 10/1/2020 Treasury Concurrent Receipt normal cost contribution.

[5] Net loss due to lowering real rate of interest assumption to 1.75% (from 2.00%), and lowering real salary to 0.25% (from 0.50%).

NOTE: Some figures may not add precisely due to rounding.

*** The data and assumptions supporting this handout are to be summarized in the DoD Office of the Actuary's September 30, 2020, valuation of the Military Retirement System.

TOTAL TREASURY PAYMENT

($ in billions)

	October 1, 2021	October 1, 2020
1. Amortization Payment for:		
a. Initial Unfunded Liability	$103.197	$100.414
b. Benefits Changes	$7.679	$9.196
c. Actuarial Assumptions	$15.309	$9.550
d. Actuarial Experience	($12.651)	($21.892)
e. Prior year unpaid contribution [1]	$0.929	$0.838
Total amortization payment	**$114.463**	**$98.106**
2. Normal Cost payment [2]	**$11.526**	**$9.845**
3. Total Treasury payment	**$125.989**	**$107.951**

In reference to the October 1, 2021, amortization payments, the remaining amortization period for 1.a. is 5 years; 1.b. - 1.d. are 20 years on a combined, layered (projected) basis; and 1.e. is 1 year.

Under the old amortization schedule, the remaining amortization period for October 1, 2021, 1.a. was 5 years; 1.b. was 16 years; 1.c. was 27 years; 1.d. was 12 years; and 1.e. was 1 year, leading to a Total Treasury Payment of $116.604.

Under both approaches, amortizations are scheduled to increase as a percent of basic pay.

[1] Prior year unpaid contribution of $929 million is due to 8.3% sequestration of the 10/1/2020 Treasury Concurrent Receipt normal cost contribution ($929 million is equal to $891.088 million plus one year of interest at the assumed rate of 4.25%). It is treated as an actuarial experience loss, and amortized over one year.

[2] Treasury contribution to pay for Concurrent Receipt benefits. The 10/1/2020 normal cost payment of $9.845 billion is net of the $891.088 million sequestration reduction. The 10/1/2021 normal cost payment of $11.526 billion does not reflect an expected sequestration reduction.

NOTE: Some figures may not add precisely due to rounding.

*** The data and assumptions supporting the October 1, 2021, payment are to be summarized in the DoD Office of the Actuary's September 30, 2020, Valuation of the Military Retirement System report. Support for the prior year's payment is summarized in the September 30, 2019, valuation report.

Economic Assumptions – At A Glance (Page 1 of 2)

Other Systems Current Economic Assumptions in Nominal and Real Terms

Economic Assumption - Nominal Terms	MRF Current 2020	OPM 2021	SSA OASDI Trustee's Report 2020			MRF Financial Statements 2021	CBO Inflation and 10 Yr Treas. Note 2021	Blue Chip Consensus Inflation and 10 Yr Treas. Note 2021
			Low Cost	Intermediate	High Cost			
Reference Date	6/26/2020	4/1/2021	4/22/2020	4/22/2020	4/22/2020	3/30/2021	2/1/2021	6/1/2021
Rate Projection Period	75-100 Yrs Forward	75-100 Yrs Forward	Inf: '22 to '94 Sal: '29 to '94 Int: '29 to '94	Inf: '22 to '94 Sal: '29 to '94 Int: '29 to '94	Inf: '22 to '94 Sal: '29 to '94 Int: '29 to '94	10 Yr Look Back	2025 to 2030	2028 to 2032
Inflation	2.50%	2.40%	3.00%	2.40%	1.80%	1.60%	2.40%	2.20%
Salary	2.75%	2.65%	4.76%	3.54%	2.32%	2.00%	---	---
Interest Rate	4.25%	4.00%	5.80%	4.70%	3.60%	2.90%	2.80%	3.30%

Notes:

(1) **MRF securities are purchased at market, but valued at book.** TIPS are valued at experienced inflation rates to date.

(2) "Salary" refers to Across-The-Board Pay Increase for MRF and OPM, but Total Wage Increase for SSA.
Total Wage Increase for SSA = productivity growth + hours growth + earnings growth + CPI adjusted for substitution

(3) Inflation assumptions for MRF, OPM, and SSA are CPI-W, all other are CPI-U (including Blue Chip).

(4) Above reference dates refer to when the projection and underlying assumptions were adopted.

(5) 'MRF Financial Statements' refers to economic assumptions prescribed by SFFAS 33.

(6) SSA Note that a higher price inflation rate results in faster earnings and revenue growth immediately, while the resulting added growth in benefit levels occurs with a delay, causing an overall improvement in the actuarial balance. Similarly, a lower price inflation rate causes an overall decline in the actuarial balance.

Economic Assumptions – At A Glance (Page 2 of 2)

Economic Assumption - Real Terms	MRF Current 2020	OPM 2021	SSA OASDI Trustee's Report 2020			MRF Financial Statements 2021	CBO Inflation and 10 Yr Treas. Note 2021	Blue Chip Consensus Inflation and 10 Yr Treas. Note 2021
			Low Cost	Intermediate	High Cost			
Reference Date	**6/26/2020**	**4/1/2021**	**4/22/2020**	**4/22/2020**	**4/22/2020**	**3/30/2021**	**2/1/2021**	**6/1/2021**
Rate Projection Period	**75-100 Yrs Forward**	**75-100 Yrs Forward**	**Inf: '22 to '94 Sal: '29 to '94 Int: '29 to '94**	**Inf: '22 to '94 Sal: '29 to '94 Int: '29 to '94**	**Inf: '22 to '94 Sal: '29 to '94 Int: '29 to '94**	**10 Yr Look Back**	**10 Yrs Forward**	**10 Yrs Forward**
Salary (Real)	0.25%	0.25%	1.76%	1.14%	0.52%	0.40%	---	---
Interest Rate (Real)	1.75%	1.60%	2.80%	2.30%	1.80%	1.30%	0.40%	1.10%

Blue Chip L-T Index	Year				
	Jun 2021	**Dec 2020**	**Dec 2019**	**Jun 2019**	**Jun 2018**
Projection Period	**10 Yrs**	**10 Yrs**	**10 Yrs**	**10 Yrs**	**10 Yrs**
CPI	**2.20%**	**2.20%**	**2.10%**	**2.10%**	**2.20%**
30 Year Treasury	**3.90%**	**3.60%**	**3.70%**	**3.80%**	**4.40%**
Real Return	1.70%	1.40%	1.60%	1.70%	2.20%

Long-Range Survey:

The table below contains the results of our twice-annual long-range CONSENSUS survey. There are also Top 10 and Bottom 10 averages for each variable. Shown are consensus estimates for the years 2022 through 2027 and averages for the five-year periods 2023-2027 and 2028-2032. Apply these projections cautiously. Few if any economic, demographic and political forces can be evaluated accurately over such long time spans.

		Average For The Year						Five-Year Averages	
		2022	2023	2024	2025	2026	2027	2023-2027	2028-2032
1. Federal Funds Rate	**CONSENSUS**	**0.1**	**0.4**	**1.0**	**1.6**	**1.9**	**2.1**	**1.4**	**2.2**
	Top 10 Average	0.2	0.7	1.6	2.4	2.6	2.7	2.0	2.7
	Bottom 10 Average	0.1	0.1	0.5	0.9	1.3	1.5	0.9	1.6
2. Prime Rate	**CONSENSUS**	**3.3**	**3.5**	**4.2**	**4.7**	**5.0**	**5.2**	**4.5**	**5.2**
	Top 10 Average	3.4	3.8	4.7	5.4	5.7	5.8	5.1	5.8
	Bottom 10 Average	3.2	3.3	3.7	4.0	4.4	4.6	4.0	4.7
3. LIBOR, 3-Mo.	**CONSENSUS**	**0.4**	**0.6**	**1.3**	**1.8**	**2.1**	**2.3**	**1.6**	**2.4**
	Top 10 Average	0.5	1.0	1.8	2.4	2.7	2.9	2.2	3.0
	Bottom 10 Average	0.2	0.4	0.8	1.2	1.6	1.7	1.1	1.8
4. Commercial Paper, 1-Mo	**CONSENSUS**	**0.2**	**0.6**	**1.3**	**1.8**	**2.1**	**2.3**	**1.6**	**2.4**
	Top 10 Average	0.4	0.9	1.6	2.3	2.6	2.8	2.0	2.8
	Bottom 10 Average	0.1	0.3	0.9	1.3	1.8	1.9	1.2	2.0
5. Treasury Bill Yield, 3-Mo	**CONSENSUS**	**0.2**	**0.5**	**1.0**	**1.6**	**1.9**	**2.1**	**1.4**	**2.2**
	Top 10 Average	0.3	0.8	1.6	2.2	2.5	2.7	1.9	2.7
	Bottom 10 Average	0.1	0.2	0.6	0.9	1.3	1.5	0.9	1.6
6. Treasury Bill Yield, 6-Mo	**CONSENSUS**	**0.2**	**0.5**	**1.1**	**1.6**	**2.0**	**2.2**	**1.5**	**2.3**
	Top 10 Average	0.3	0.8	1.7	2.3	2.6	2.7	2.0	2.8
	Bottom 10 Average	0.1	0.3	0.6	1.0	1.4	1.6	1.0	1.7
7. Treasury Bill Yield, 1-Yr	**CONSENSUS**	**0.3**	**0.7**	**1.2**	**1.8**	**2.1**	**2.3**	**1.6**	**2.4**
	Top 10 Average	0.5	1.0	1.8	2.4	2.8	2.9	2.2	3.0
	Bottom 10 Average	0.2	0.3	0.7	1.1	1.5	1.7	1.1	1.8
8. Treasury Note Yield, 2-Yr	**CONSENSUS**	**0.5**	**0.9**	**1.5**	**2.0**	**2.3**	**2.5**	**1.8**	**2.6**
	Top 10 Average	0.7	1.3	2.1	2.7	3.0	3.1	2.5	3.3
	Bottom 10 Average	0.3	0.5	0.9	1.3	1.6	1.8	1.2	1.9
9. Treasury Note Yield, 5-Yr	**CONSENSUS**	**1.2**	**1.6**	**2.1**	**2.5**	**2.8**	**2.8**	**2.4**	**3.0**
	Top 10 Average	1.5	2.0	2.8	3.3	3.5	3.5	3.0	3.6
	Bottom 10 Average	0.9	1.2	1.5	1.8	2.0	2.2	1.7	2.3
10. Treasury Note Yield, 10-Yr	**CONSENSUS**	**2.0**	**2.4**	**2.7**	**3.0**	**3.2**	**3.3**	**2.9**	**3.3**
	Top 10 Average	2.3	2.8	3.4	3.8	4.0	3.9	3.6	4.0
	Bottom 10 Average	1.7	1.9	2.1	2.3	2.5	2.6	2.3	2.7
11. Treasury Bond Yield, 30-Yr	**CONSENSUS**	**2.6**	**2.9**	**3.3**	**3.6**	**3.8**	**3.8**	**3.5**	**3.9**
	Top 10 Average	3.0	3.5	4.0	4.5	4.6	4.5	4.2	4.6
	Bottom 10 Average	2.3	2.4	2.5	2.7	2.9	3.1	2.7	3.2
12. Corporate Aaa Bond Yield	**CONSENSUS**	**3.3**	**3.7**	**4.1**	**4.5**	**4.7**	**4.7**	**4.3**	**4.8**
	Top 10 Average	3.6	4.2	4.7	5.2	5.4	5.4	5.0	5.4
	Bottom 10 Average	3.1	3.2	3.4	3.7	3.9	4.1	3.7	4.2
13. Corporate Baa Bond Yield	**CONSENSUS**	**4.3**	**4.7**	**5.1**	**5.4**	**5.6**	**5.7**	**5.3**	**5.8**
	Top 10 Average	4.6	5.1	5.6	6.1	6.3	6.2	5.9	6.4
	Bottom 10 Average	4.0	4.3	4.5	4.7	4.9	5.2	4.7	5.2
14. State & Local Bonds Yield	**CONSENSUS**	**2.9**	**3.2**	**3.6**	**3.9**	**4.1**	**4.2**	**3.8**	**4.2**
	Top 10 Average	3.2	3.5	4.1	4.5	4.7	4.7	4.3	4.8
	Bottom 10 Average	2.6	2.9	3.1	3.4	3.7	3.7	3.3	3.8
15. Home Mortgage Rate	**CONSENSUS**	**3.6**	**4.0**	**4.4**	**4.7**	**4.9**	**5.0**	**4.6**	**5.0**
	Top 10 Average	4.0	4.5	5.0	5.5	5.6	5.6	5.2	5.7
	Bottom 10 Average	3.2	3.6	3.8	4.0	4.2	4.3	4.0	4.4
A. Fed's AFE Nominal $ Index	**CONSENSUS**	**103.7**	**103.7**	**104.0**	**103.7**	**103.6**	**103.3**	**103.7**	**103.1**
	Top 10 Average	105.3	106.0	106.8	107.0	107.3	107.5	106.9	107.9
	Bottom 10 Average	102.0	101.5	101.4	100.8	100.4	100.0	100.8	99.4
		Year-Over-Year, % Change						Five-Year Averages	
		2022	2023	2024	2025	2026	2027	2023-2027	2028-2032
B. Real GDP	**CONSENSUS**	**4.2**	**2.6**	**2.3**	**2.2**	**2.1**	**2.1**	**2.2**	**2.1**
	Top 10 Average	5.3	3.3	2.7	2.5	2.4	2.4	2.7	2.5
	Bottom 10 Average	2.9	2.0	1.9	1.8	1.8	1.7	1.8	1.7
C. GDP Chained Price Index	**CONSENSUS**	**2.3**	**2.3**	**2.2**	**2.1**	**2.2**	**2.1**	**2.2**	**2.1**
	Top 10 Average	2.6	2.6	2.4	2.4	2.4	2.4	2.4	2.3
	Bottom 10 Average	2.0	2.0	2.0	1.9	1.9	1.9	1.9	1.9
D. Consumer Price Index	**CONSENSUS**	**2.4**	**2.4**	**2.2**	**2.2**	**2.2**	**2.2**	**2.2**	**2.2**
	Top 10 Average	2.8	2.7	2.5	2.5	2.5	2.4	2.5	2.4
	Bottom 10 Average	2.1	2.1	1.9	1.9	2.0	1.9	2.0	1.9
E. PCE Price Index	**CONSENSUS**	**2.3**	**2.2**	**2.1**	**2.1**	**2.1**	**2.1**	**2.1**	**2.1**
	Top 10 Average	2.7	2.5	2.4	2.4	2.4	2.4	2.4	2.3
	Bottom 10 Average	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9

MRF Fund Yield Projection
BASED ON 2020 SSA (INTERMEDIATE) ASSUMPTIONS

FY	Inflation	Real Fund Yield*	Nominal Fund Yield	New Invests** (Cumulative)	New Invests (Annual)
2021	4.28%	0.12%	4.40%	2.14%	2.14%
2022	2.30%	1.23%	3.53%	2.60%	2.97%
2023	2.35%	0.97%	3.32%	2.94%	3.51%
2024	2.30%	1.10%	3.40%	3.20%	3.86%
2025	2.40%	1.01%	3.41%	3.42%	4.11%
2026	2.40%	1.12%	3.52%	3.66%	4.32%
2027	2.40%	1.16%	3.56%	3.72%	4.43%
2028	2.40%	1.25%	3.65%	3.77%	4.48%
2029	2.40%	1.27%	3.67%	3.85%	4.59%
2030	2.40%	1.16%	3.56%	3.91%	4.59%
2031	2.40%	1.35%	3.75%	3.95%	4.57%
2032	2.40%	1.46%	3.86%	3.98%	4.50%
2033	2.40%	1.40%	3.80%	4.07%	4.65%
2034	2.40%	1.43%	3.83%	4.10%	4.57%
2035	2.40%	1.46%	3.86%	4.13%	4.57%
2036	2.40%	1.49%	3.89%	4.16%	4.57%
2037	2.40%	1.53%	3.93%	4.18%	4.57%
2038	2.40%	1.55%	3.95%	4.20%	4.56%
2039	2.40%	1.58%	3.98%	4.22%	4.55%
2040	2.40%	1.59%	3.99%	4.24%	4.57%
2041	2.40%	1.73%	4.13%	4.40%	4.65%
2042	2.40%	1.85%	4.25%	4.51%	4.65%
2043	2.40%	1.95%	4.35%	4.58%	4.65%
2044	2.40%	2.02%	4.42%	4.63%	4.65%
2045	2.40%	2.03%	4.43%	4.66%	4.65%
2046	2.40%	2.13%	4.53%	4.69%	4.66%
2047	2.40%	2.15%	4.55%	4.69%	4.64%
2048	2.40%	2.19%	4.59%	4.69%	4.64%
2049	2.40%	2.19%	4.59%	4.70%	4.64%
2050	2.40%	2.30%	4.70%	4.70%	4.65%
2051	2.40%	2.30%	4.70%	4.70%	4.61%
2052	2.40%	2.30%	4.70%	4.70%	4.60%
2053	2.40%	2.30%	4.70%	4.70%	4.65%
2054	2.40%	2.30%	4.70%	4.70%	4.61%
2055	2.40%	2.30%	4.70%	4.70%	4.61%
2056	2.40%	2.30%	4.70%	4.70%	4.62%
2057	2.40%	2.30%	4.70%	4.70%	4.62%
2058	2.40%	2.30%	4.70%	4.70%	4.61%
2059	2.40%	2.30%	4.70%	4.70%	4.61%
2060	2.40%	2.30%	4.70%	4.70%	4.62%
2061	2.40%	2.30%	4.70%	4.70%	4.65%
2062	2.40%	2.30%	4.70%	4.70%	4.65%
2063	2.40%	2.30%	4.70%	4.70%	4.65%
2064+	2.40%	2.30%	4.70%	4.70%	4.65%

	Inflation	Real Fund Yield*	Nominal Fund Yield	New Invests** (Cumulative)	New Invests (Annual)
10 Yr Avg	2.56%	1.04%	3.60%	3.32%	3.90%
20 Yr Avg	2.48%	1.26%	3.74%	3.72%	4.23%
30 Yr Avg	2.45%	1.52%	3.98%	4.02%	4.37%
50 Yr Avg	2.43%	1.83%	4.26%	4.29%	4.48%
75 Yr Avg	2.42%	1.99%	4.41%	4.43%	4.53%
10 Yr Fund Wgt Avg	2.50%	1.08%	3.58%	3.44%	4.06%
20 Yr Fund Wgt Avg	2.44%	1.33%	3.77%	3.85%	4.36%
30 Yr Fund Wgt Avg	2.42%	1.66%	4.08%	4.20%	4.49%
50 Yr Fund Wgt Avg	2.41%	2.03%	4.44%	4.49%	4.58%
75 Yr Fund Wgt Avg	2.40%	2.19%	4.59%	4.61%	4.62%
Ultimate	2.40%	2.30%	4.70%	4.70%	4.65%

BoA Assumptions		
2.50%	1.75%	4.25%

Liab Mod Dur	NC FT BRS Mod Dur	NC PT BRS Mod Dur
20	30	40

NC FT Delta*** If Infl -0.25%	NC PT Delta*** If Infl -0.25%
+0.1%	+0.1%

MRF Fund Yield Notes

* Real = Fund Yield - Inflation (after 3 mths TIPS inflation lag). For inflation, fund yield, and NEW INVESTMENT return calculations, the "X Yr Avg" calculation is geometric and the "X Yr Fund Wgt Avg" is weighted by expected fund size during FY.

** Assumes an amount equal to 5% of expected annual benefit payments is invested in overnights and new bond purchases are invested in 20 yr bonds. The long-term expected bond rate assumes 4.7%.

***There is a +0.1 percent change to both the FY 2023 DoD Full-time (FT) and Part-time (PT) NCP, if the long-term interest rate, across-the-board salary, and COLA assumptions are each lowered by 25 basis points. These changes in the economic assumptions result in an estimated $75 million increase (or 0.3%) in the DoD's contribution to the Military Retirement Fund (MRF) in FY 2023. For reference purposes, the current interest/salary/COLA assumptions are 4.25%/2.75%/2.50%, and the alternative above is 4.00%/2.50%/2.25%.

--- Long term fund yield converges to 4.7%

--- Short Term Strategy: Mix of overnights and bills.

--- Portfolio Allocation: 75-90% in TIPS and 10-25% in conventional notes and bonds (except, for example, high premiums, TIPS not offered, expected decreases in future inflation, etc.)

--- Investment Policy: The Fund is required to be invested in market based Treasury special issues, and the interest assumption reflects this constraint. Current strategy includes investing the funds to coincide with the cash flow of the fund (to pay benefits and expenses when due) and holding securities to maturity, unless a cash flow requirement to pay benefits occurs. Many considerations are taken into account when making the investment decisions, including balancing various risks, targeting an expected average maturity of future investments of 20 years, and current and projected economic conditions.

MRF Fund Yield Projection
BASED ON BLUE CHIP ASSUMPTIONS

FY	Inflation	Real Fund Yield*	Nominal Fund Yield	New Invests** (Cumulative)	New Invests (Annual)
2021	4.28%	0.09%	4.38%	1.91%	1.91%
2022	2.30%	1.15%	3.45%	2.22%	2.44%
2023	2.35%	0.82%	3.17%	2.41%	2.70%
2024	2.30%	0.89%	3.19%	2.59%	3.00%
2025	2.20%	0.94%	3.14%	2.77%	3.33%
2026	2.20%	0.98%	3.18%	2.98%	3.57%
2027	2.20%	1.00%	3.20%	3.03%	3.58%
2028	2.20%	1.06%	3.26%	3.08%	3.64%
2029	2.20%	1.05%	3.25%	3.14%	3.69%
2030	2.20%	0.90%	3.10%	3.18%	3.67%
2031	2.20%	1.07%	3.27%	3.21%	3.66%
2032	2.20%	1.17%	3.37%	3.23%	3.62%
2033	2.20%	1.03%	3.23%	3.29%	3.71%
2034	2.20%	1.05%	3.25%	3.32%	3.66%
2035	2.20%	1.07%	3.27%	3.34%	3.66%
2036	2.20%	1.09%	3.29%	3.36%	3.66%
2037	2.20%	1.12%	3.32%	3.37%	3.66%
2038	2.20%	1.13%	3.33%	3.39%	3.66%
2039	2.20%	1.15%	3.35%	3.40%	3.65%
2040	2.20%	1.14%	3.34%	3.42%	3.66%
2041	2.20%	1.23%	3.43%	3.53%	3.72%
2042	2.20%	1.30%	3.50%	3.61%	3.72%
2043	2.20%	1.36%	3.56%	3.67%	3.72%
2044	2.20%	1.41%	3.61%	3.71%	3.72%
2045	2.20%	1.39%	3.59%	3.73%	3.72%
2046	2.20%	1.46%	3.66%	3.74%	3.73%
2047	2.20%	1.47%	3.67%	3.75%	3.71%
2048	2.20%	1.49%	3.69%	3.75%	3.71%
2049	2.20%	1.47%	3.67%	3.75%	3.71%
2050	2.20%	1.55%	3.75%	3.75%	3.71%
2051	2.20%	1.55%	3.75%	3.75%	3.69%
2052	2.20%	1.55%	3.75%	3.75%	3.68%
2053	2.20%	1.55%	3.75%	3.75%	3.71%
2054	2.20%	1.55%	3.75%	3.75%	3.69%
2055	2.20%	1.55%	3.75%	3.75%	3.69%
2056	2.20%	1.55%	3.75%	3.75%	3.69%
2057	2.20%	1.55%	3.75%	3.75%	3.69%
2058	2.20%	1.55%	3.75%	3.75%	3.69%
2059	2.20%	1.55%	3.75%	3.75%	3.69%
2060	2.20%	1.55%	3.75%	3.75%	3.69%
2061	2.20%	1.55%	3.75%	3.75%	3.72%
2062	2.20%	1.55%	3.75%	3.75%	3.72%
2063	2.20%	1.55%	3.75%	3.75%	3.72%
2064+	2.20%	1.55%	3.75%	3.75%	3.72%

	Inflation	Real Fund Yield*	Nominal Fund Yield	New Invests** (Cumulative)	New Invests (Annual)
10 Yr Avg	2.44%	0.89%	3.33%	2.73%	3.15%
20 Yr Avg	2.32%	1.00%	3.32%	3.03%	3.41%
30 Yr Avg	2.28%	1.14%	3.42%	3.25%	3.51%
50 Yr Avg	2.25%	1.30%	3.55%	3.45%	3.59%
75 Yr Avg	2.23%	1.38%	3.61%	3.55%	3.63%
10 Yr Fund Wgt Avg	2.36%	0.92%	3.28%	2.82%	3.28%
20 Yr Fund Wgt Avg	2.27%	1.03%	3.30%	3.13%	3.51%
30 Yr Fund Wgt Avg	2.24%	1.21%	3.44%	3.39%	3.60%
50 Yr Fund Wgt Avg	2.22%	1.40%	3.62%	3.60%	3.66%
75 Yr Fund Wgt Avg	2.21%	1.49%	3.69%	3.69%	3.69%
Ultimate	2.20%	1.55%	3.75%	3.75%	3.71%

BoA Assumptions		
2.50%	1.75%	4.25%

Liab Mod Dur	NC FT BRS Mod Dur	NC PT BRS Mod Dur
20	30	40

NC FT Delta*** If Infl -0.25%	NC PT Delta*** If Infl -0.25%
+0.1%	+0.1%

MRF Fund Yield Notes

* Real = Fund Yield - Inflation (after 3 mths TIPS inflation lag). For inflation, fund yield, and NEW INVESTMENT return calculations, the "X Yr Avg" calculation is geometric and the "X Yr Fund Wgt Avg" is weighted by expected fund size during FY.

** Assumes an amount equal to 5% of expected annual benefit payments is invested in overnights and new bond purchases are invested in 20 yr bonds. The long-term expected 20-yr bond rate assumes 3.75%.

***There is a +0.1 percent change to both the FY 2023 DoD Full-time (FT) and Part-time (PT) NCP, if the long-term interest rate, across-the-board salary, and COLA assumptions are each lowered by 25 basis points. These changes in the economic assumptions result in an estimated $75 million increase (or 0.3%) in the DoD's contribution to the Military Retirement Fund (MRF) in FY 2023. For reference purposes, the current interest/salary/COLA assumptions are 4.25%/2.75%/2.50%, and the alternative above is 4.00%/2.50%/2.25%.

--- Long term fund yield converges to 3.75%

--- Short Term Strategy: Mix of overnights and bills.

--- Portfolio Allocation: 75-90% in TIPS and 10-25% in conventional notes and bonds (except, for example, high premiums, TIPS not offered, expected decreases in future inflation, etc.)

--- Investment Policy: The Fund is required to be invested in market based Treasury special issues, and the interest assumption reflects this constraint. Current strategy includes investing the funds to coincide with the cash flow of the fund (to pay benefits and expenses when due) and holding securities to maturity, unless a cash flow requirement to pay benefits occurs. Many considerations are taken into account when making the investment decisions, including balancing various risks, targeting an expected average maturity of future investments of 20 years, and current and projected economic conditions.

PROPOSED NON-ECONOMIC CHANGES FOR 9/30/2021 MRF VALUATION AND FY 2023 MRF NORMAL COST PERCENTAGES (NCPs)

FY 2023 NCP SUMMARY

Below is a summary of the proposed changes and their impact on the FY 2023 Full- and Part-time NCPs.

	Full-time	**Part-time**
FY 2022 Budgeted DoD NCPs (Prior assumptions)	35.1%	25.7%
FY 2023 DoD NCPs from 9/30/2020 Valuation (Prior assumptions)	34.7%	25.5%
FY 2023 DoD NCPs from 9/30/2021 Valuation (Prior assumptions) *	34.7%	25.5%
i. Proposed Mortality Improvement Scales	-0.3%	-0.4%
ii. Proposed Active Duty Decrement Rates	-0.4%	0.0%
iii. Proposed Reserve Decrement Rates	-0.3%	-2.8%
iv. Proposed Adding Coast Guard Experience	0.4%	0.0%
FY 2023 DoD NCP from 9/30/2021 Valuation**	**34.1%**	**22.3%**
v. Lower Economic Assumption***	2.8%	2.2%
FY 2023 DoD NCP from 9/30/2021 Valuation	**36.9%**	**24.5%**

* Reflects an additional year of mortality improvement in the NCPs (advancing the valuation year from 2020 to 2021). There is no change to the 3rd decimal place.

** The total NCP (DoD + Treasury) for FY 2023 based on the above proposed changes is 48.9% for full-time and 25.7% for part-time. Therefore, the estimated FY 2023 Treasury NCP is 14.8% for full-time and 3.4% for part-time.

*** Interest: 4.00%; Salary: 2.75%; COLA: 2.5%. Estimated increase of $74B (or 4%) in the 9/30/2020 accrued liability. The total NCP for FY 2023 based on lower economic assumption is 53.1% for full-time and 28.3% for part-time. Therefore, the estimated FY 2023 Treasury NCP is 16.2% for full-time and 3.8% for part-time.

PROPOSED MORTALITY IMPROVEMENT SCALES

SUMMARY IMPACT: This proposal results in: a -0.3% change to the FY 2023 full-time DoD NCP, a -0.4% change to the part-time DoD NCP, and would lead to a decrease in the accrued liability of $21.3B (or 1.2%).

PROPOSAL: We propose updating the military mortality improvement (Mil MI) projection scales based on FY00-20 military data using the Society of Actuaries' (SOA) MP-2020 projection scale methodology outlined below. The current Mil MI factors in our valuation are based on FY00-19 military data and use modified methods underlying the SOA's MP-2019 model. The proposed Mil MI projection scales are used to improve death rates for MRF valuation retirees, survivors, and spouses of retirees[1].

RATIONALE: Updating the Mil MI factors each year enables us to incorporate emerging trends in mortality experience/projection, provide experience to new OACT staff members, and achieve a management goal of creating standard, repeatable, transparent work processes. We acknowledge that there are likely excess deaths due to COVID-19 in the second half of FY20[2]. While it is certain that COVID has had some impact on mortality and the MRF, we do not expect that it is significant[3]. In addition, the long-term implication of mortality improvement due to COVID is uncertain and will unfold in the coming years[4]. Accordingly, our proposal includes a step back of 3 years due to edge effects (instead of 2 years used currently) in order to mitigate the effect of COVID (from FY20 to FY17, instead of from FY20 to FY18). The effects of this change are small increases to both NCPs and the age 65 life expectancies listed below. We plan to monitor the impact of COVID on death rates and future mortality in the coming years.

[1] The SOA's MP-2020 mortality improvement scales (with adjustment to reflect 80%/20% male/female military population mix) are proposed to project mortality rates for active duty and reserves (both part-time selected and grey) military members. This is a change from the current improvement scale, which is SOA's MP-2016 with a 90%/10% male/female mix. The effect of this proposed update is not material.

[2] Based on an experience study of FY20 paid military retirees, there are 6% more actual deaths than expected using current improved rates. In the US, there were roughly 20% excess deaths during the Mar 2020 to Dec 2020 time period, mostly due to COVID.

[3] An issue brief by the American Academy of Actuaries states that even a doubling of the one-year mortality rate is unlikely to reduce benefit obligations by much more than 1% for the typical plan.

[4] During a session at this year's EA meeting, a Social Security actuary said that they assumed there would be a temporary increase in the levels of deaths of about 6% for 2021 and 2% for 2022, and for years after 2022 no significant net effect from COVID.

MI METHODS/ASSUMPTIONS COMPARISON:

Model Component	SOA MP 2020	DoD Current	DoD Proposed
Underlying Mortality Data	**SSA-published through 2018**	**DoD data 2000 through 2019**	**DoD data 2000 through 2020[5]**
Graduation Technique	2D Whittaker Henderson; Order 3	2D P-spline model; deaths assumed to be Poisson distributed.	
Smoothing Parameters	100 in the calendar year direction; 400 in the age direction		
Edge Effect Step-back	2 Years		3 years
Interpolating from current MI to Ult MI	Cubic Polynomials: @ beginning - match value and slope (constrained to initial slope constraint immediately below), @ end – match ultimate MI and slope 0.[6]		
Initial Slope Constraint	**0**		
Long Term MI	**SOA MP 2020 & DoD Proposed**: Flat 1.35% rate to age 62, decreasing linearly to 1.10% at age 80, further decreasing linearly to 0.40% at age 95, and then decreasing linearly to 0.00% at age 115[7]. **SOA MP 2019 & DoD Current**: Flat 1.0% rate to age 85; decreasing linearly to 0.85% at age 95; then decreasing linearly to 0.0% at age 115.		
Convergence Period – Horizontal (Age)	**10 Years**		
Convergence Period – Diagonal (Cohort)	20 Years[8]		

Average age at death for an individual aged 65 as of 9/30/2020:

Population	Current	Proposed	Diff
Non-disabled officer from AC	87.9	87.5	-0.4
Non-disabled enlisted from AC	84.2	83.8	-0.4
Non-disabled officer from RC	87.8	87.5	-0.3
Non-disabled enlisted from RC	85.5	85.1	-0.4
Disabled officer[9]	84.3	84.2	-0.1
Disabled enlisted	81.7	81.3	-0.4
Spouse of living retiree	86.0	85.6	-0.4
Survivor	88.1	87.6	-0.5

Attachment 1 provides the heat maps for the Mil MI factors.

[5] OACT proposes seven separate improvement scales based on military data: by nondisabled active duty/reserves officer/enlisted (4), disabled officer/enlisted (2), and survivor (1). The survivor data covers the period from FYs 2001-2020. The survivor improvement scales are also proposed to improve death rates of spouses of living retirees.
[6] Starting MI values for young ages without credible data are set equal to the MI for the youngest credible age. Starting MI values for old ages without credible data graded to 0 at age 115, analogous to the assumed Long Term MI.
[7] MP-2020 changed the ultimate MI rate in the SOA model to be more consistent with historical experience according to Social Security Administration data.
[8] DoD proposed improvement scales converge to an ultimate level in 2037 (first projection year is 2017). This is the same as last year due to the 3-year step back.
[9] The proposed disabled retiree mortality improvement factors are separate by officer and enlisted. Currently, disabled retiree mortality improvement experience on a combined basis is used to improve enlisted and officer permanent disability death rates. Temporary disability retiree death rates are not improved.

PROPOSED ACTIVE DUTY DECREMENT RATES

SUMMARY IMPACT: This proposal results in a 0.4% decrease to the FY 2023 full-time DoD NCP, no change in the part-time NCP (to the 3rd decimal place), and a decrease in the 9/30/2020 accrued liability of $25.4 billion (or 1.5%).

PROPOSAL: We propose an update to the underlying period used to produce active duty rates. The active duty rates are assumptions about members leaving the population due to retirement, withdrawal, as well as entering (or re-entering) the force. There are also rates of transfer from enlisted to officers, promotion and merit pay increase scales (PAMs), disability, and death. Also, we propose that the officer-to-enlisted transfer rates be set to zero because the rates were so low. Except for death rates, all the rates are arrayed by officer/enlisted and completed years of service. Death rates are arrayed by officer/enlisted and age nearest birthday. We are proposing the rates be based on the 5-year period FYs 2015-2019, whereas the current rates use a 20-year period of FYs 1982-1989, 1997-1999, and 2000-2008. In addition, we found that the death counts from the DoD Defense Casualty Information Processing System (DCIPS) are consistently higher than the death counts from our experience study. Because DCIPS death counts come from a more reliable reporting system, we propose that the death rates be increased by 10% to true up to the death counts.

As part of the proposal, we also propose updating the normal cost weighting factors used in the development of the FY 2023 DoD FT NCPs. The following is a breakdown of the change in FY 2023 full-time NCPs by cause for updates having a non-zero effect to the 3rd decimal impact:

Decrement/Rate	Actual/Expected	FY 2023 DoD FT NCP delta
Withdrawal	Off: 91%; Enl: 86%	-0.027
Promotion/Merit Scales	Off: 118%; Enl: 102%	0.019
Reentrant	Off: 123%; Enl: 71%	0.008
Off/Enl Transfer	Enl: 120%	0.006
Disability	Off: 105%; Enl: 112%	-0.006
NCP weighting factors		-0.006
New Entrant Array		0.003
Retirement	Off: 99%; Enl: 102%	-0.001
Death	Off: 88%; Enl: 86%	0.000
Total		-0.004

RATIONALE: The period used to develop the current rates goes back 40 years; the proposed period is more recent and neutral in its effect on force size. In other words, the sum of year-to-year force size changes for the 2015 to 2019 period is near zero. Updating the rates does not change the probability (to the 2nd decimal place) of a new entering cohort making it to 20 years[10] at 19%, though the officer rate increases from 49% to 60%, and the enlisted decreases from 17% to 16%. We confirmed these probabilities compared to similar probabilities derived using

[10] The estimated probability a new entrant to active duty gets a 20-year active duty retirement. It excludes those who get disability retirements with under 20 years, and those who eventually get a reserve retirement.

DMDC's military continuation rates, and consulted the Board's Military Compensation advisor regarding the increase in the officer retention figure. We were told the increase is reasonable because "recent pay and retirement are so much more lucrative compared to civilian opportunities." He also attributed the FY15-19 as a period in which "wages in the civilian world have been flat, wars have wound down, etc.," and that "49% for officers is too low, but 60% is probably not going to last forever either." We have also considered reflecting the impact of COVID to the active rates. However, without data, we cannot gauge the short-term or long-term impact of COVID. Due to the nature of the plan (that is, no layoff, shutdown, or other significant events), we expect that COVID does not pose a significant risk to the plan. We are proposing no adjustments due to COVID to the active rates, but we will study the data when it becomes available to gauge if any adjustment is needed in future. In general, we plan to update these rates every 5-10 years going forward. Attachments 2 provides a high-level description of the active decrement rates.

PROPOSED RESERVE RATES/FACTORS

SUMMARY IMPACT: This proposal results in a 0.3% decrease in the FY 2023 full-time DoD NCP, a 2.8% decrease in the part-time NCP, and an increase in the 9/30/2020 accrued liability of $1.8 billion (or 0.1%).

PROPOSAL: We propose an update of the experience study period, from FY2005-2009 to FY2017 to 2019, to the following assumptions in the modeling of reserves:

Decrement/Rate	Actual/Expected	FY 2023 FT NCP delta	FY 2023 PT NCP delta
Reentrant	Off: 68%; Enl: 56%	-0.010	-0.085
Selected Reserve Loss	Off: 85%; Enl: 80%	0.006	0.053
Reentrant Points	Off: 113%; Enl: 111%	0.002	0.020
Reserve New Entrant Distribution		0.001	0.014
Grey Transfer Blow-up	Off: 53%; Enl: 75%	-0.001	-0.014
Selected Reserve Promotion/Merit Scales	Off: 91%; Enl: 90%	-0.001	-0.011
Reserve Points Delta	Off: 88%; Enl: 102%	0.000	-0.004
NCP Weighting Factor		0.000	-0.003
Reserve-to-Grey	Off: 95%; Enl: 125%	0.000	0.002
Total		-0.003	-0.028

The following rates were also updated, but had no effect to the 3rd decimal place:

Decrement/Rate	Actual/Expected
Selected Reserve Death (use FYs 2015 to 2019)	Off: 112%; Enl: 108%
Grey death (use FYs 2015 to 2019)	Off: 76%; Enl: 77%
Selected Reserve Enlisted to Officer Transfer	96%
Grey loss rates	Off: 99%; Enl: 103%
Grey Promotion/Merit Scales	Off: 93%; Enl: 103%
Grey Points	Off: 49%; Enl: 58%
Disability	Off: 58%; Enl: 99%

We propose eliminating the transfer blow-up points assumption. This is an adjustment to average career points for grey area retirees due to "unanticipated" (i.e., not in the Selected Reserve the prior year) transfers to grey area. There is zero impact (to the 3rd decimal place) due to the elimination of this assumption. Also, we propose zeroing out the officer-to-enlisted transfer rates because they are so low.

A note about the allocation discussed in the prior year: After consultation with the Board's Reserve Affairs advisor and a review of recent data, the current add-on assumption continues to be reasonable and we are proposing no change. We plan to monitor this assumption as new experience emerges and the underlying data improves. As background: The PT NCP pays for future (deferred) reserve retirement benefits earned through service in the RC, while the FT NCP pays for future FT (immediate) retirement benefits as well as the estimated portion of the reserve present value of benefits earned while in the AC. This is modeled through an add-on (from part-time to full-time NCP) such that the total normal cost contribution (full-time plus part-time) is not greatly impacted. The add-on for the MRF NCP is currently 2.6%, which is 7 percent of the DoD full-time NCP.

RATIONALE: Last year we updated some of the reserve rates with the intention of updating the remainder this year. The period used to develop the proposed rates is neutral in its effect on force size. Updating the rates changes the probability of a new (to the reserves) entering cohort making it to 20 years[11] from 14% to 18% under the current rates, officers from 46% to 63%, and enlisted from 13% to 16%. The Board's Reserve Advisor referenced the recent period reflecting a mid-2000s law change removing the requirement to serve at least 6 years in the RC in order to qualify for reserve retirement as potentially leading to longer careers and a higher probability of making it to 20 years. As with the active rates, we are proposing no adjustments due to COVID to the reserve rates, but we will study the data when it becomes available to gauge if any adjustment is needed. In general, we plan to update these rates every 5 - 10 years going forward. Attachment 3

[11] The estimated probability of a member entering the reserves the first time, with or without past active service, gets a 20-year reserve retirement. As with the active probability, it excludes disability retirements with under 20 years. Many reservists who end up retiring are brought into the population through re-entrant rates over the course of the projection. We had to rely on the date of initial entry to the reserves on the Reserve Personnel file to distinguish between "new" vs. "re-entering" reservists. The probability doesn't include members who end up transferring from the reserves to active duty and getting an active duty retirement, although that number is not expected to be too high.

provides background on the reserves. Attachment 4 provides a high-level description of the reserve decrement rates.

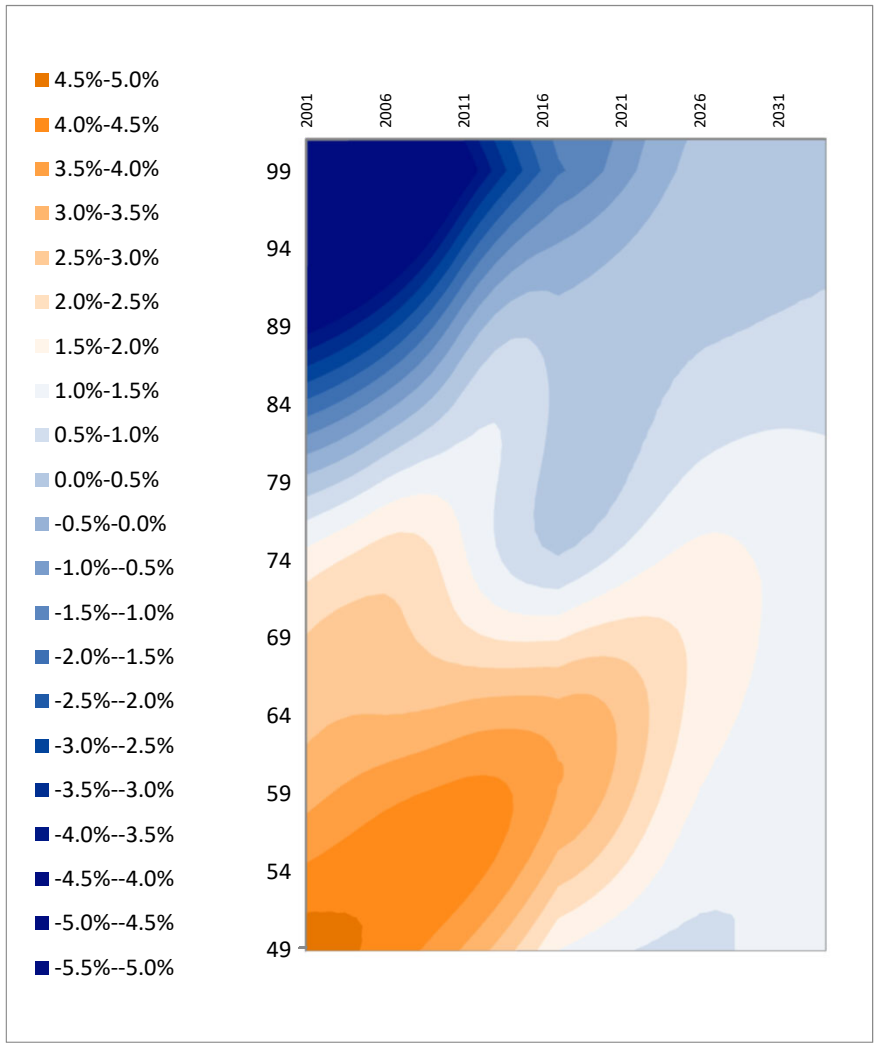
PROPOSAL TO INCLUDE COAST GUARD EXPERIENCE IN RATES

SUMMARY IMPACT: This proposal results in a 0.4% increase in the FY 2023 full-time DoD NCP, and no change to the part-time NCP (to the 3rd decimal place), and a decrease in the 9/30/2020 accrued liability of $0.7 billion (or 0.04%). Adding the Coast Guard census of actives/reserves/retirees/survivors to the 9/30/2020 valuation would lead to an estimated increase in the accrued liability of $51 billion (or 2.9%).

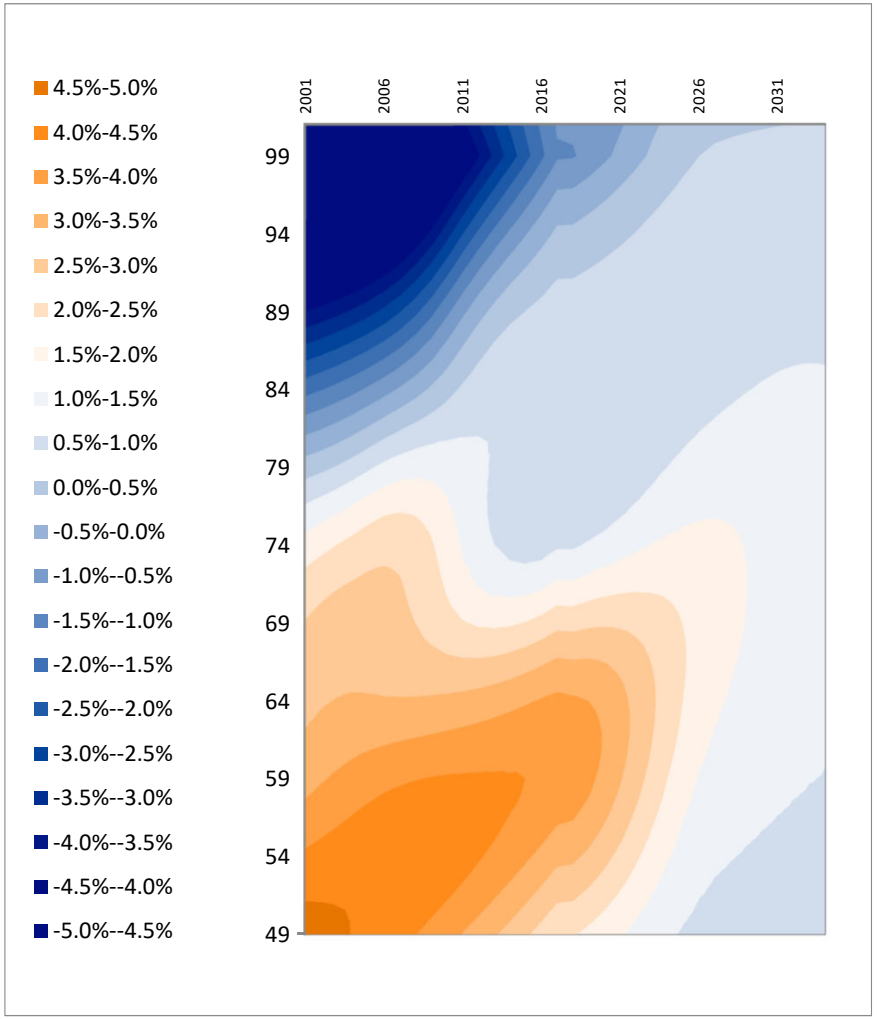
PROPOSAL: The NDAA 2021 requires the Coast Guard be added to the MRF beginning in FY 2023, but that a single normal cost be promulgated for the US Armed Forces including Coast Guard (per Board's legal advisor). Toward this end, we combined active and reserve Coast Guard experience data available to us from DMDC with DoD in updating the pre-retirement decrement rates. We plan to add Coast Guard to post-retirement rates in a future valuation. The Coast Guard represents approximately 3% of the active duty and 1% of the reserve forces. We estimated the probabilities of a new entrant to the full-time Coast Guard making it to 20-years to be 84% for officers and 27% for enlisted. Note that the Coast Guard's initial unfunded liability will be included in the 9/30/2021 valuation (also per the Board's legal advisor), and the first amortization payment is scheduled to be made on 10/1/2022. Attachments 5 is a markup version of the MRF statute as amended by NDAA 2021.

DoD Mortality Improvement Heat Map - Retired Active Enlisted

2020

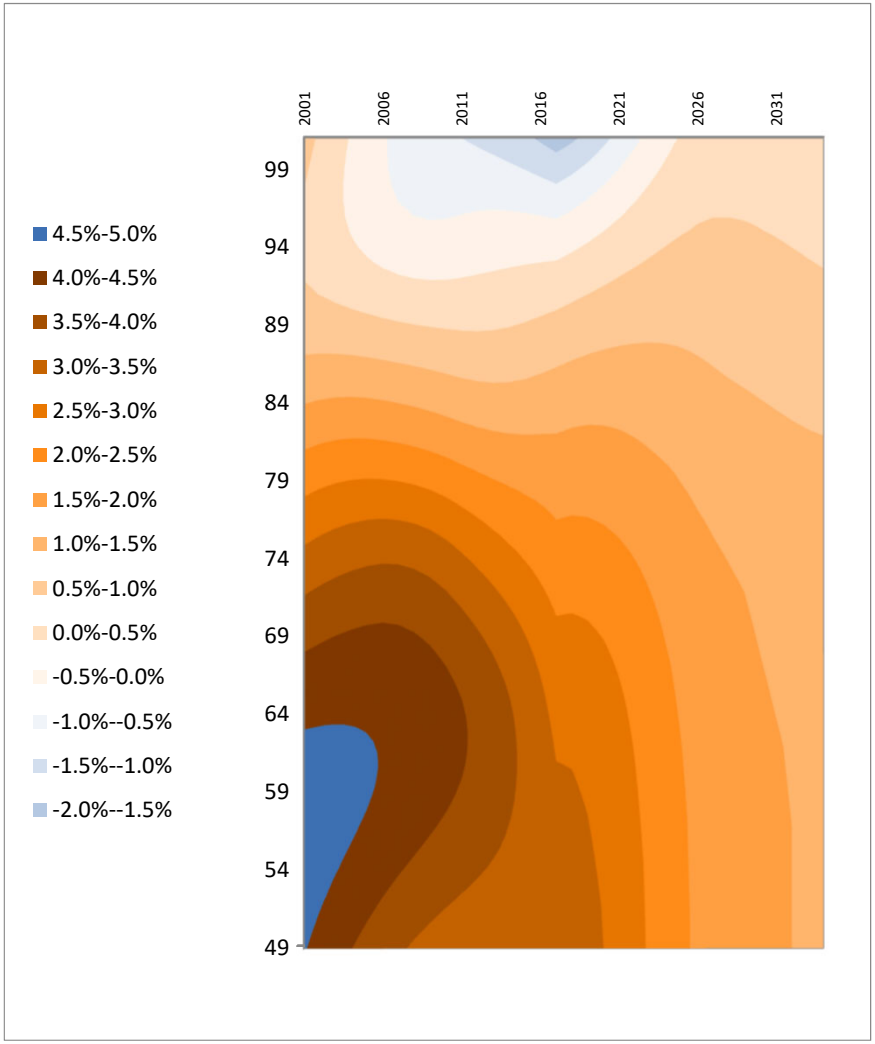


2019

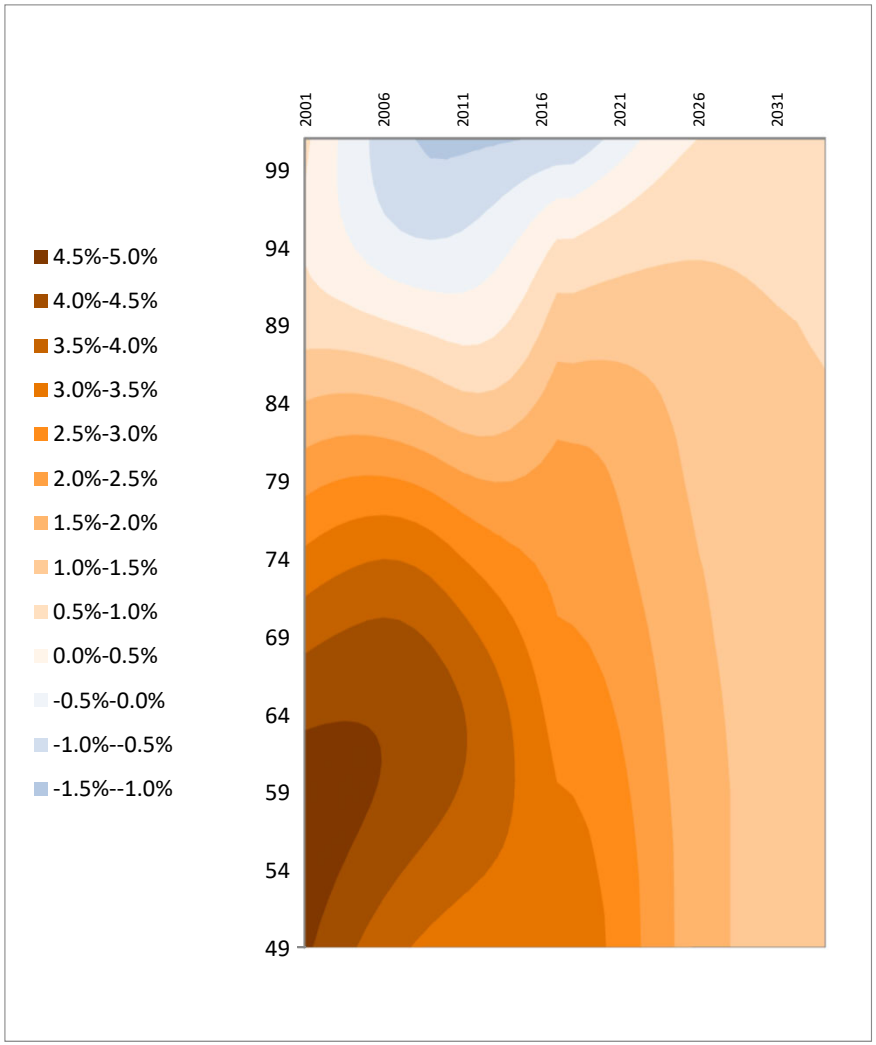


DoD Mortality Improvement Heat Map - Retired Active Officer

2020

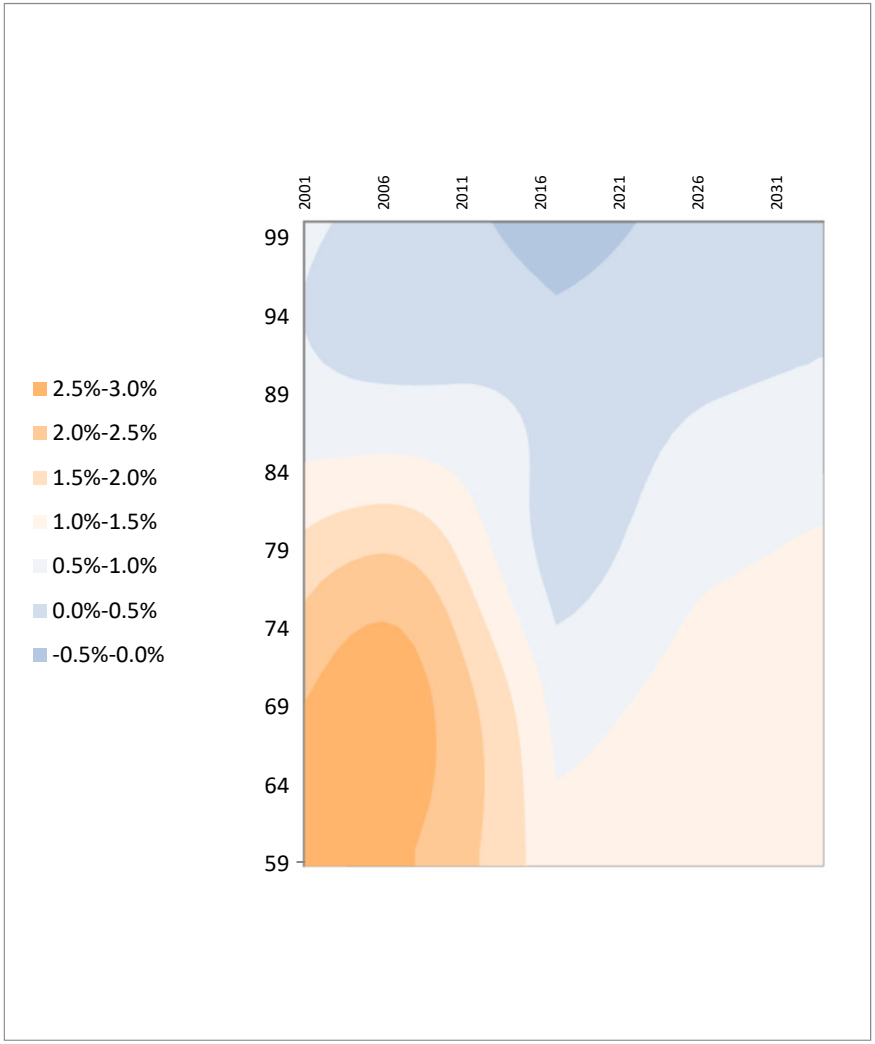


2019

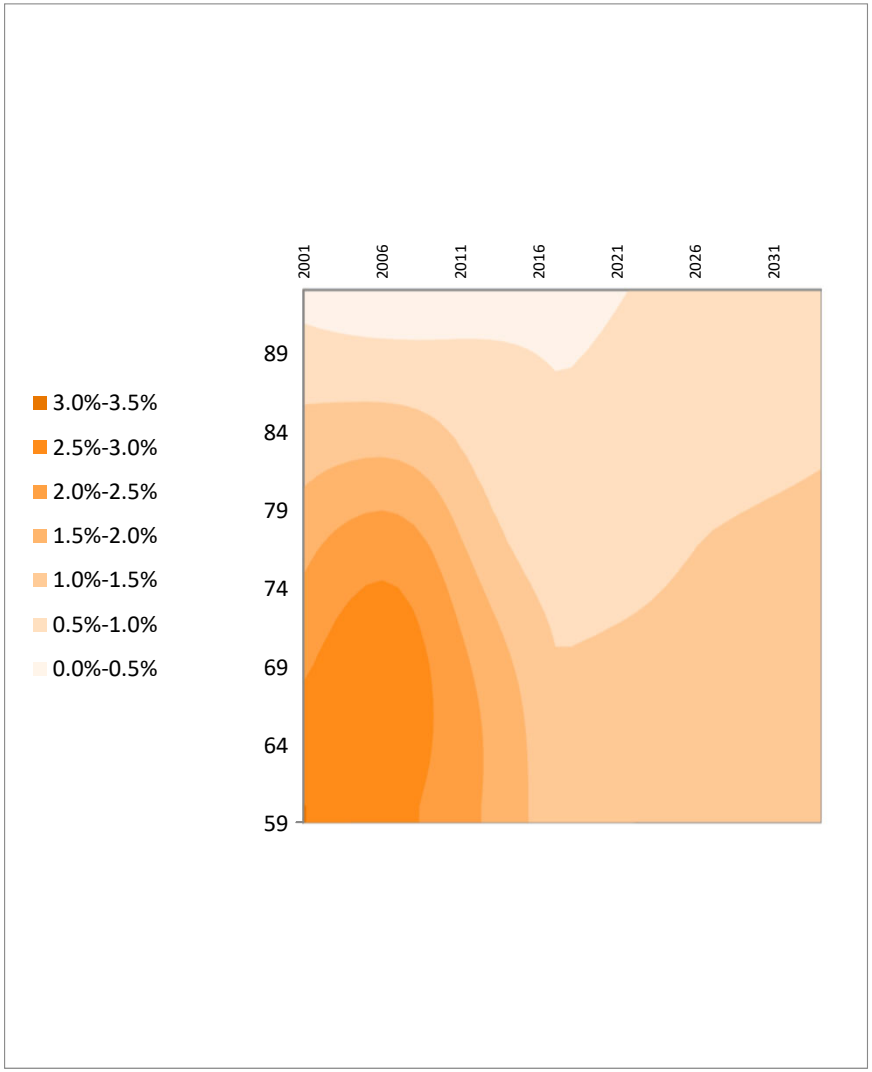


DoD Mortality Improvement Heat Map - Retired Reserve Enlisted

2020

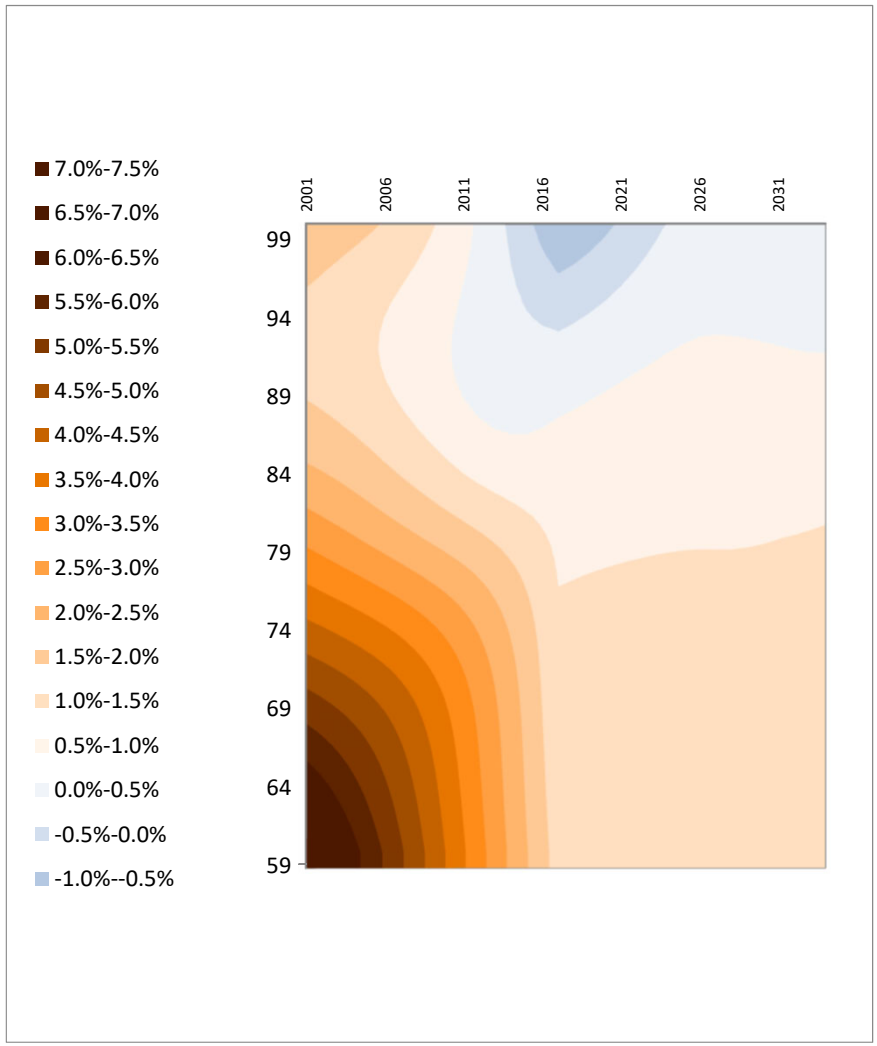


2019

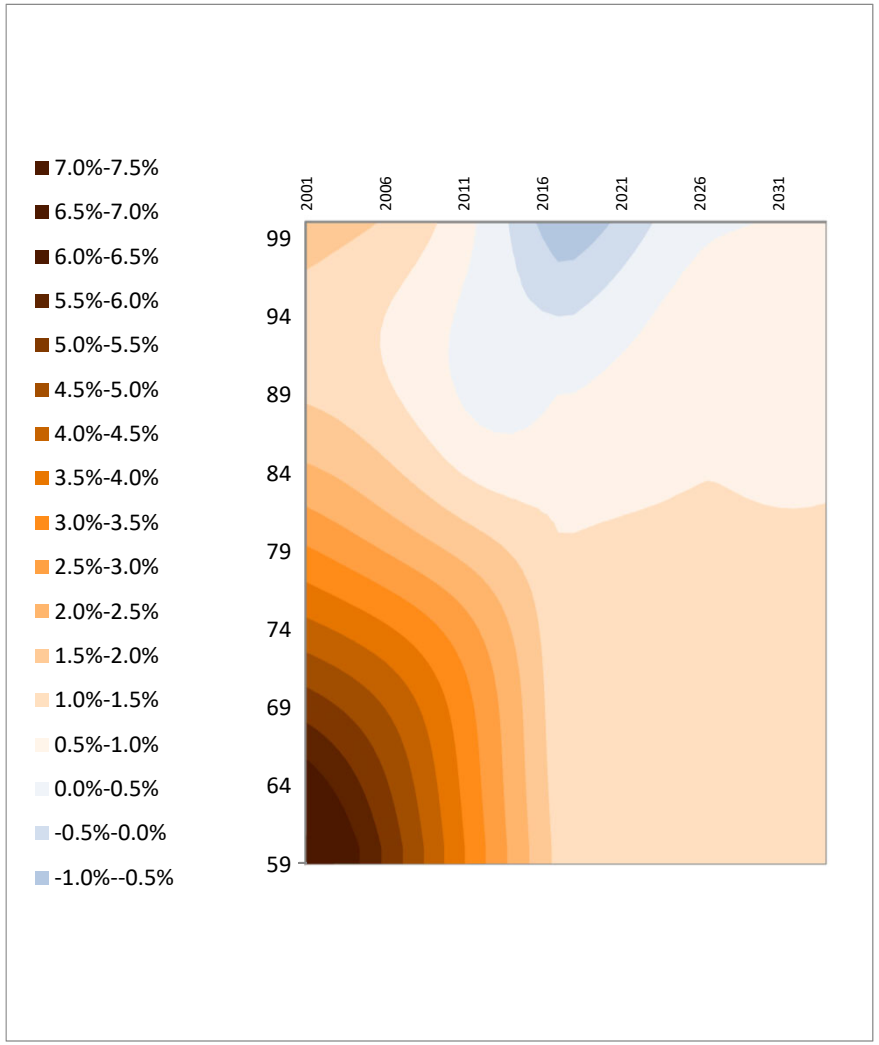


DoD Mortality Improvement Heat Map - Retired Reserve Officer

2020

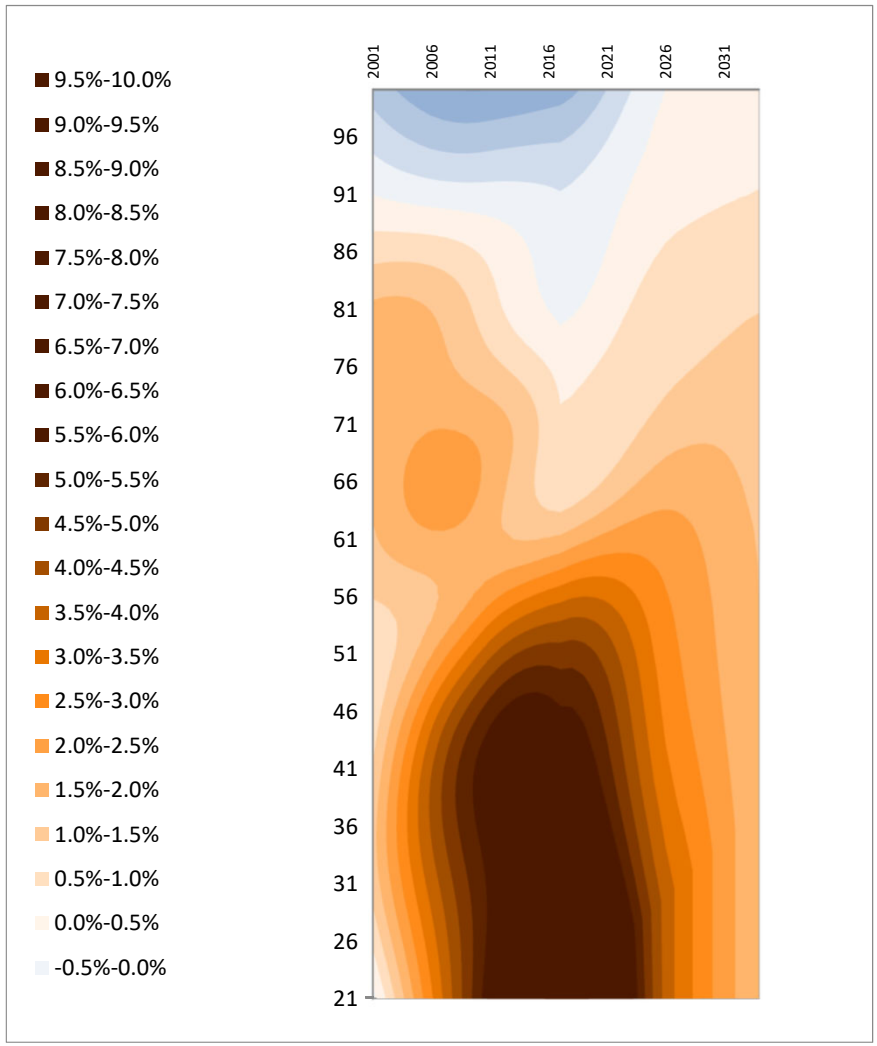


2019

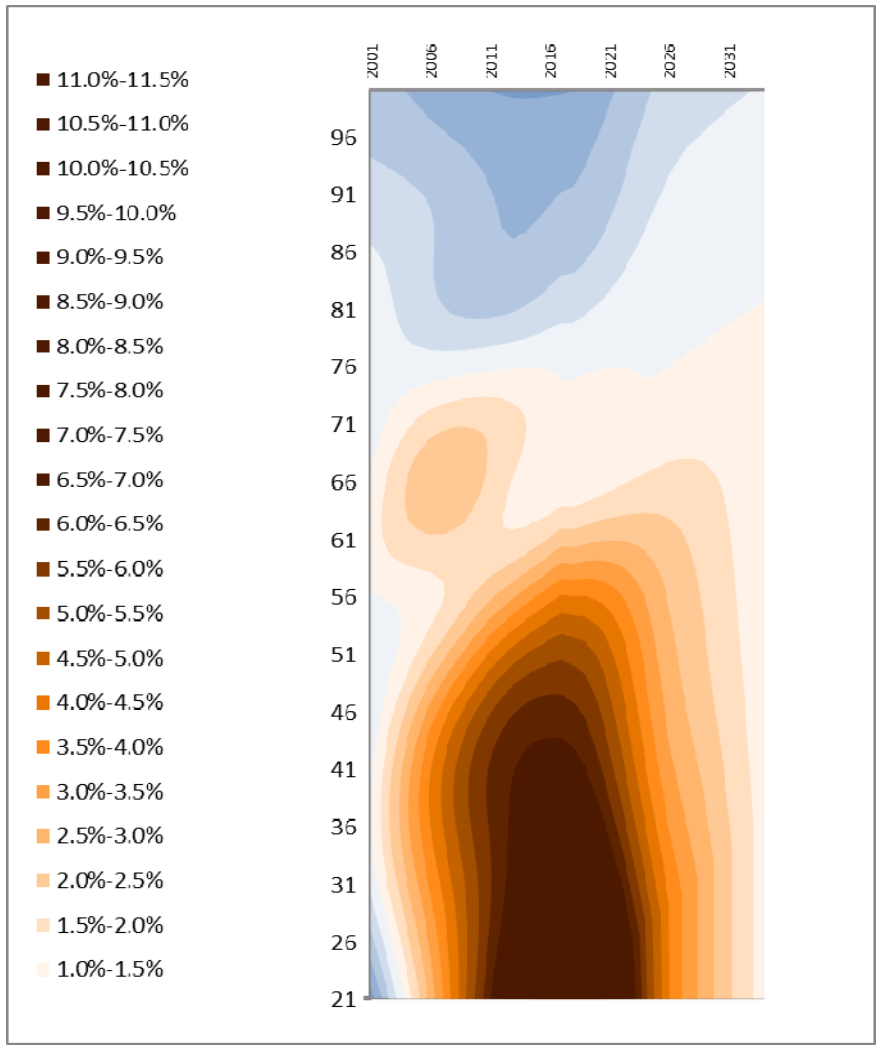


DoD Mortality Improvement Heat Map - Disableds Enlisted

2020

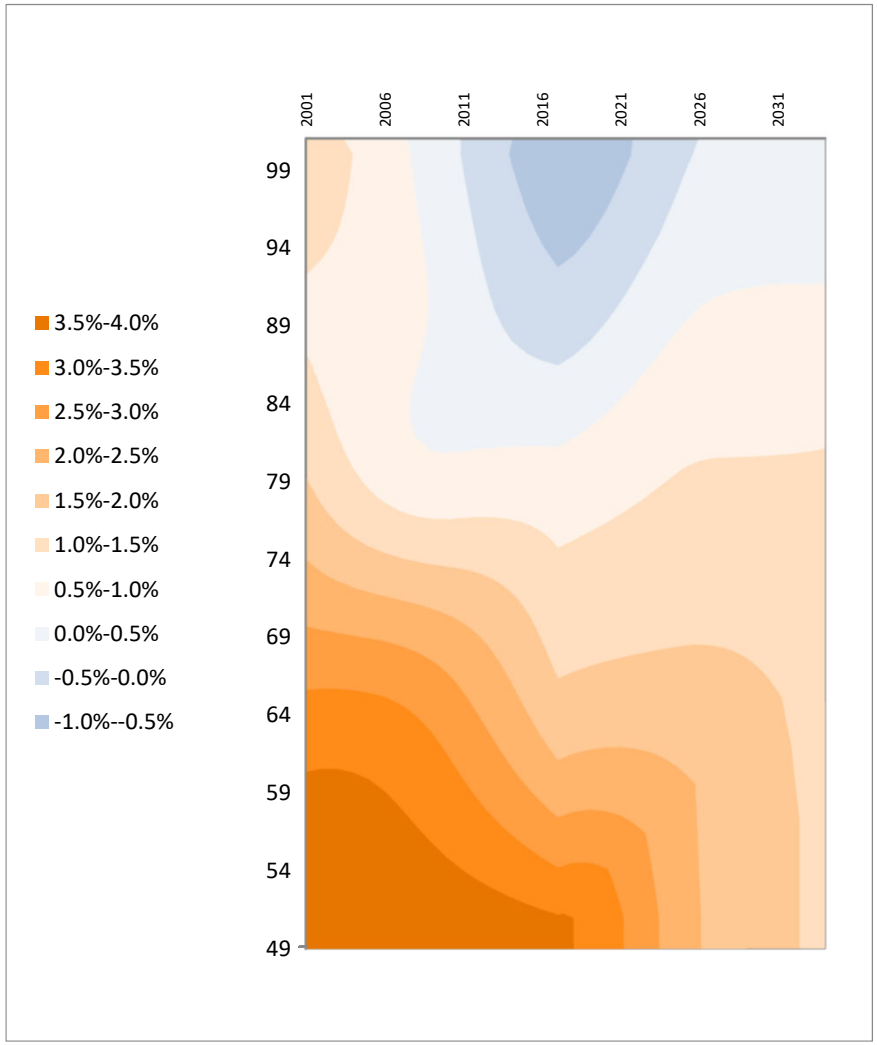


2019 Disableds Combined

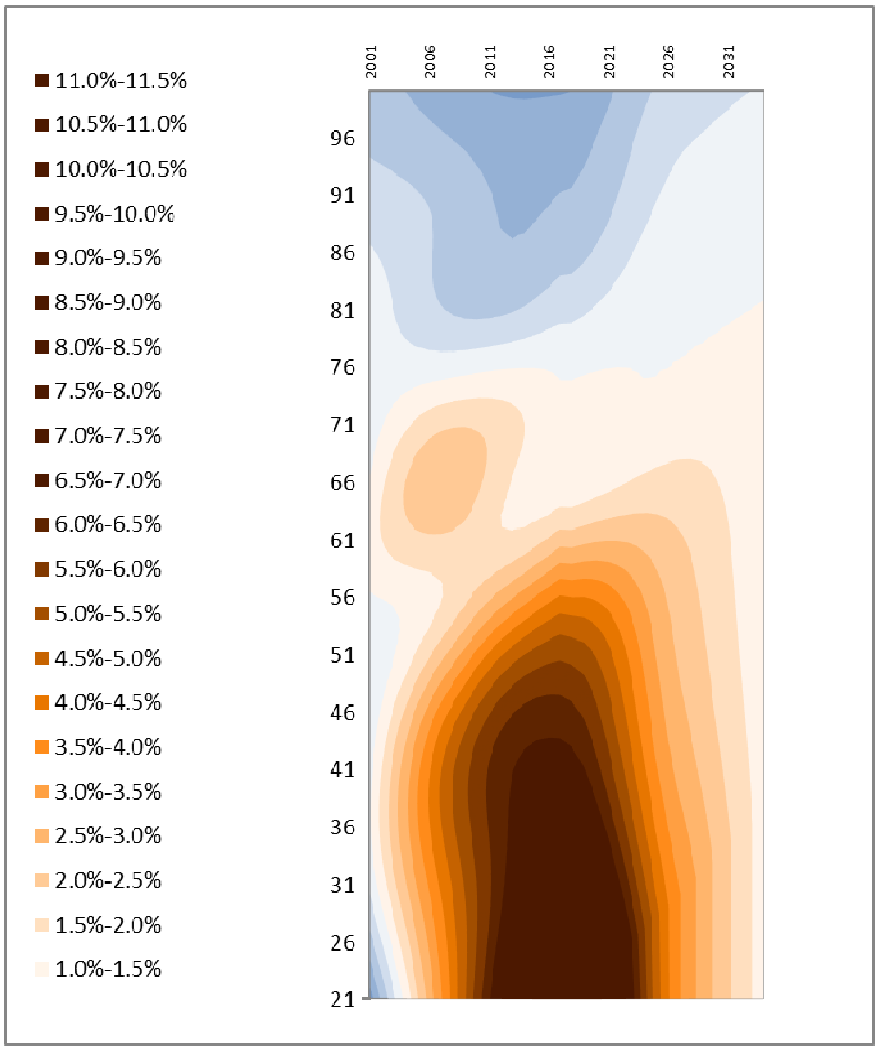


DoD Mortality Improvement Heat Map - Disabled Officer

2020

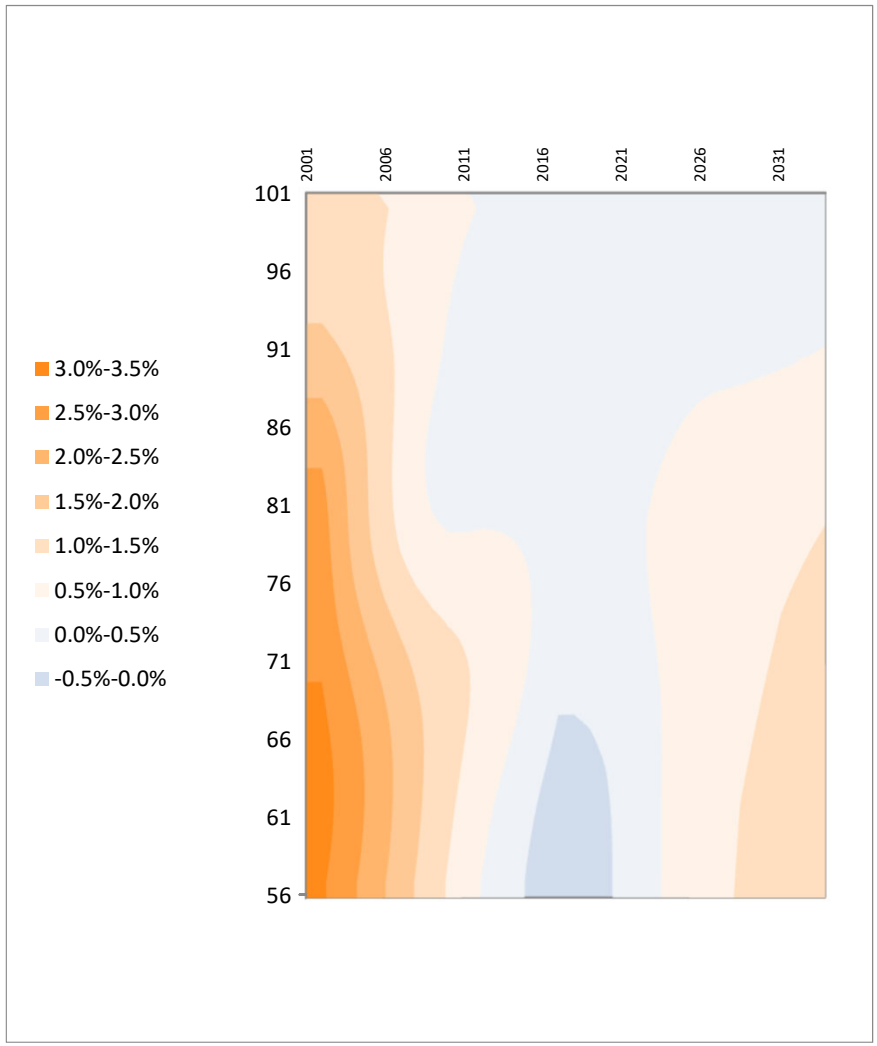


2019 Disableds Combined

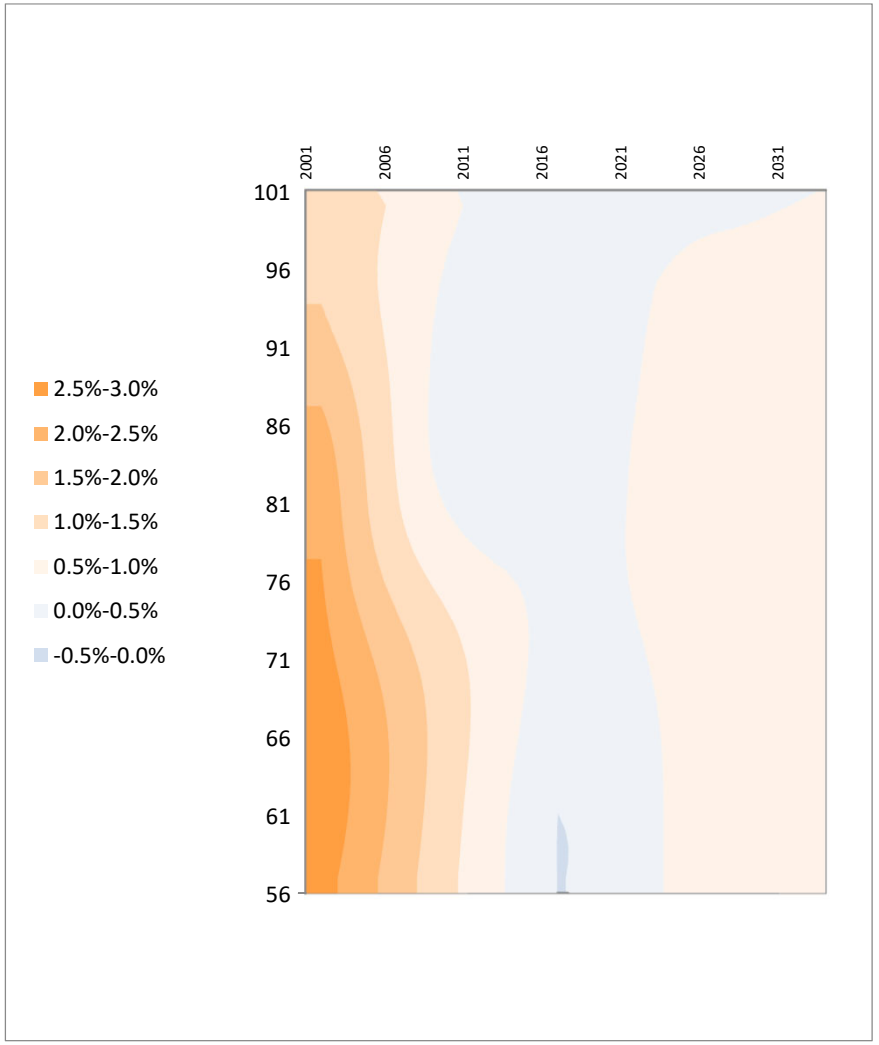


DoD Mortality Improvement Heat Map - Spouses

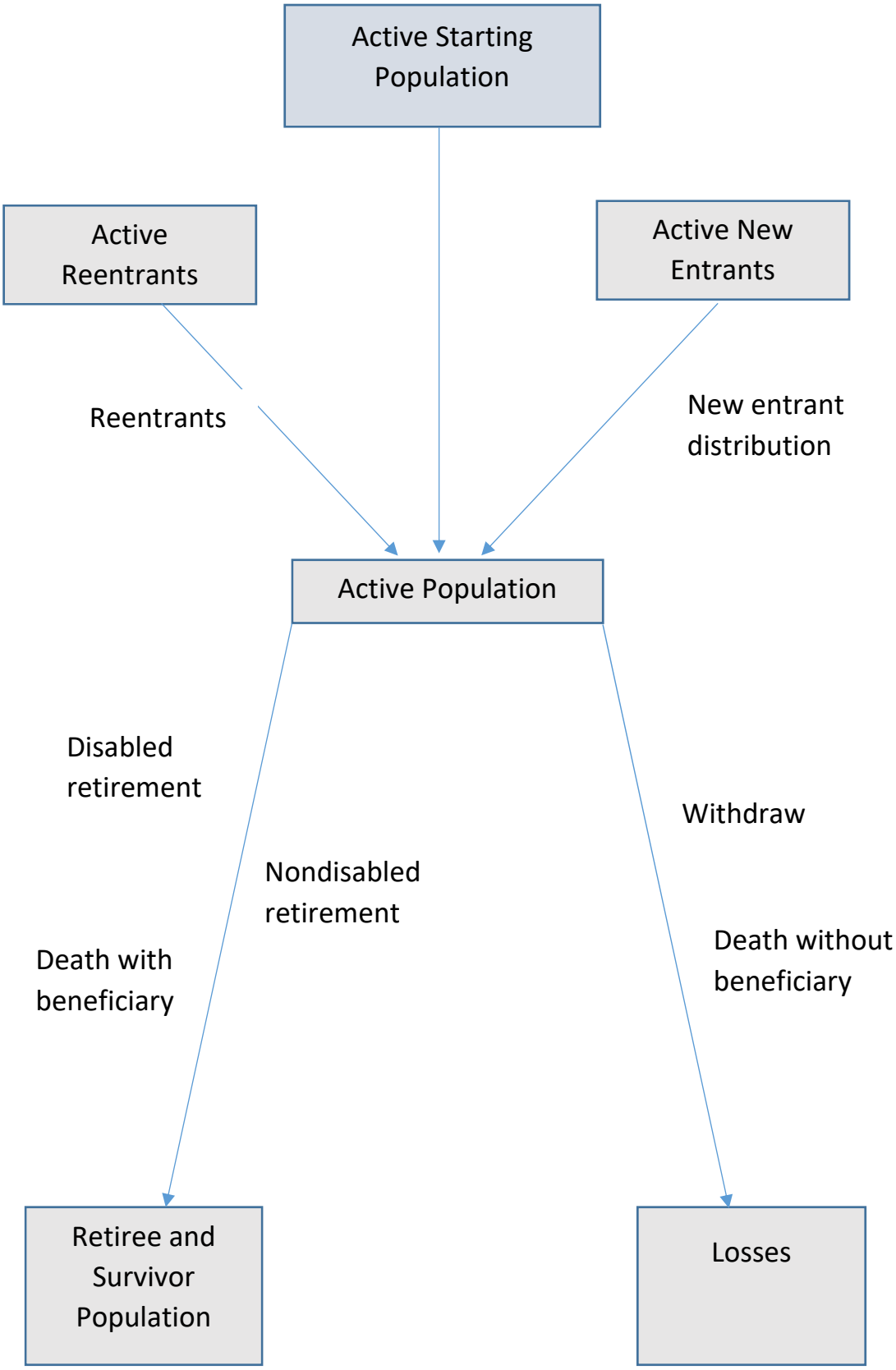
2020



2019



Active Rates at a Glance



RESERVE COMPONENT (RC) BACKGROUND

Below is a backgrounder on some aspects of the reserves that you might find useful:

- We model the part-time "Selected Reserve[1]" as the part-time normal cost is paid against them. The selected reserves are usually those members actively completing drill activities. There are reservists in other categories, such as the Individual Ready Reserve (IRR), who usually don't drill, but in some cases they can accrue retirement credits and they do continue to have their years of service accrue. A typical (non-mobilized) part-time selected reservist performs 12 weekend drills a year (24 days), receiving 2 inactive duty training (IDT) retirement "points" for each day (1 per 4-hour period) for a total of 48 points in this annual period. In addition to these 48 retirement points, reservists are credited annually with 15 membership points. A reservist can accrue up to 130 IDT points in an annual period (referred to as an "anniversary year") creditable for retirement. A typical non-mobilized reservist will also perform about 2 weeks (or 14 days) of annual training (a form of active duty) each year. They may also be called up for active duty for a variety of reasons (e.g. an active component needs a certain skill filled). The number of points earned during the two-week annual training and all other active duty is not affected by the IDT cap. Unlike IDT, one point of retirement credit is awarded for each day of active duty performed up to 365 or 366 per year.

- Because members in the reserve component (RC) perform work "on active duty," sometimes the terms RC vs. AC (Active Component) are used to distinguish the type of member from the type of work being performed. The part-time normal cost is paid against RC members, even when they're mobilized on active duty. The full-time normal cost is paid against AC members.

- In the calculation of non-regular retired pay, a reservist earns one full year of service after completing 360 points. For example, a reservist earning 77 points (48 + 15 + 14) each year would accumulate 20 x 77 = 1,540 points after 20 years. Dividing this sum by 360 results in 4.28 years of service, which is equal to about one-fifth of an active duty career. Note that in general, reservists are paid a salary based on their points earned (with the exception of the 15 membership points), where one point equates to $1/30^{th}$ of the monthly rate of active duty military pay. There are also voluntary and remote training activities where reservists earn points but not the associated pay. There are annual limits to these activities.

- A reservist must generally wait until age 60 to begin drawing retired pay. However, certain reservists could draw retired pay earlier, in 3-month increments, for each aggregate of 90 days of active duty performed in support of contingency operations in any fiscal year after January 28, 2008, or in any two consecutive fiscal years after September 30, 2014. However, in no case may the retirement age drop below age 50[2]. Approximately 10 percent of the reserve force (Selected Reserve + FTS) is classified as "full-time support reservists", or "FTS", and can elect to receive an active-service-like (i.e., immediate)

[1] Note that our use of the term "reserves" here also includes the National Guard

[2] Note that eligibility for military retiree health care benefits remains at member age 60 even if the eligibility age for retired pay is reduced.

retirement if they attain 20 full years of service. The FTS serve in a full-time status organizing and administering the reserve components, and are included as part of the active (full-time) population in our model, since the full-time normal cost is paid against them.

- There is a term vested category of reservists, otherwise known as "Grey Area" or "Retired Reserves". These are RC members who, upon being notified in writing by the Service Secretary of completing the eligibility requirements for retirement (known as their "20-year letter"), elect to transfer to the Retired Reserve, where they don't drill but continue to receive "salary protection" for their retired pay, which starts (usually) at age 60[3]. In order to become eligible for retirement, a reservist must complete 20 years in which they earn at least 50 points (otherwise known as "good years" or "qualifying years"). While some reservists continue drilling after they reach 20 good years, a majority transfer to the Retired Reserve before retired pay commences. However, a small percentage continue drilling in the Selected Reserve all the way until their retired pay starts. The average age for transferring from Selected Reserve to Retired Reserve is 48 (based on recent data). Each branch of military service has its own cutoff ages for mandatory retirement. Title 10, USC lists a maximum age of 62 for a regular commissioned officer and 64 for an officer in a general or flag officer grade. Service Secretaries may defer the retirement of health professional officers and chaplains until the age of 68.

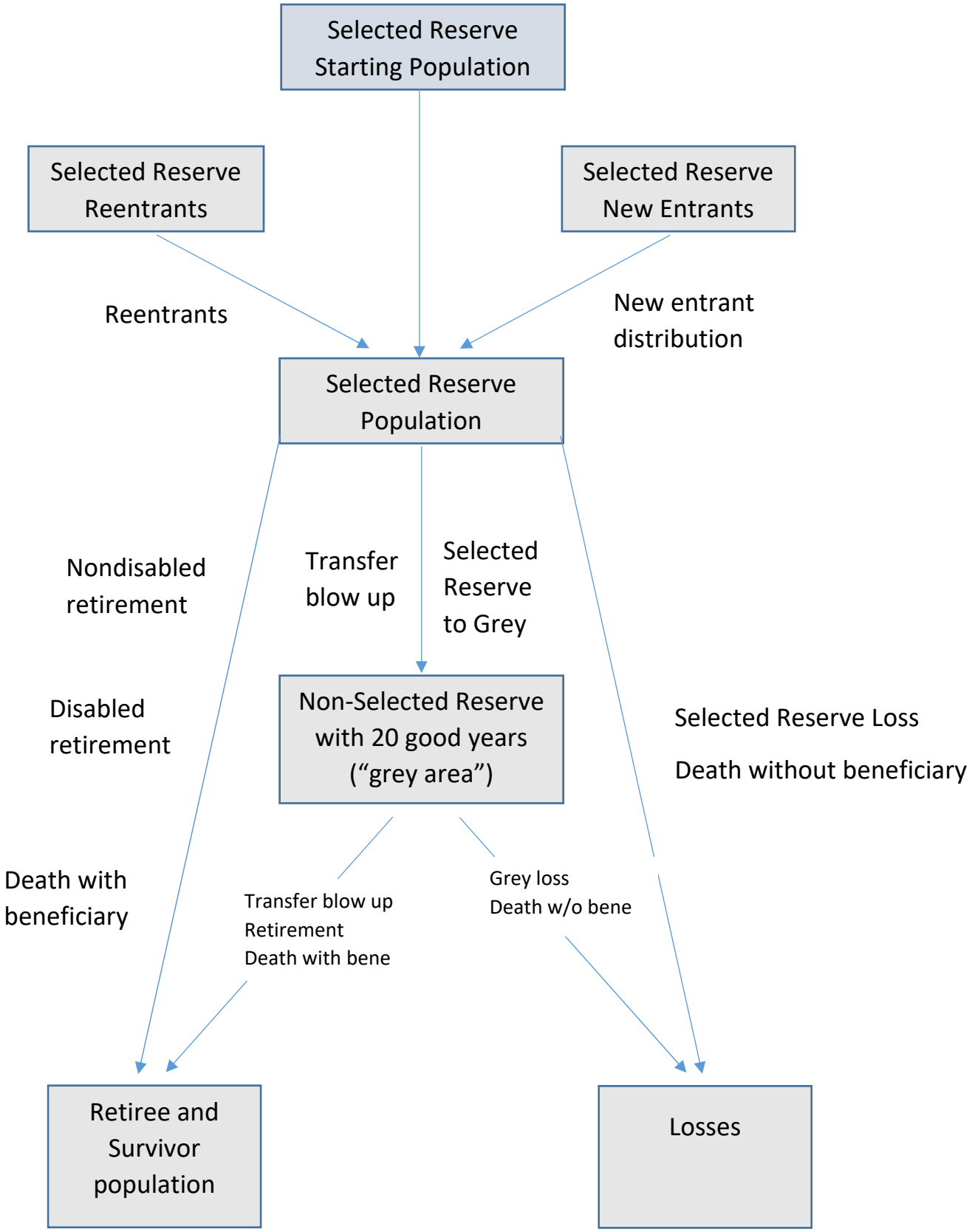
- Many reserves start their career on active duty. Their movement to the Selected Reserves is modeled implicitly through withdrawals from the AC, followed by reentrants to the RC. The NDAA 2003 removed the requirement of Title 10 USC, Sec 12731, for members to have performed the last 6 years of service in the RC to become eligible for non-regular retirement. This law change is reflected in the recent experience study.

- We have compiled a table with the population for each category

Reserve Type\Components		Army Guard	Army Reserve	Coast Guard Reserve	Air Force Guard	Air Force Reserve	Marine Corps Reserve	Navy Reserve	Total
Ready Reserve	Selected Reserve	304,546	171,943	6,288	85,135	64,345	33,134	48,918	714,309
	Inactive National Guard	571	-	-		-	-	-	571
	Individual Ready Reserve	-	85,614	1,430	-	25,990	63,350	41,922	218,306
Standby Reserve		-	1,139	188	-	2,168	1,080	1,608	6,183
Grey Reserve		-	94,485	2,248	-	61,970	5,361	29,577	193,641
Reserve Total		305,117	353,181	10,154	85,135	154,473	102,925	122,025	1,133,010
Full Time Support		30,902	16,615		22,025	4,632	2,363	10,118	86,655

[3] Note that reserve members need to take action and apply for retired pay upon attaining eligibility.

Reserve Rates at a Glance



MRF Statute, Post-2021 NDAA, Including US Coast Guard (USCG) in MRF

§ 1461. Establishment and purpose of Fund; definition

(a) There is established on the books of the Treasury a fund to be known as the Department of Defense Military Retirement Fund (hereinafter in this chapter referred to as the "Fund"), which shall be administered by the Secretary of the Treasury. The Fund shall be used for the accumulation of funds in order to finance on an actuarially sound basis liabilities of the Department of Defense and the Coast Guard under military retirement and survivor benefit programs.

(b) In this chapter, the term "military retirement and survivor benefit programs" means--

(1) the provisions of this title creating entitlement to, or determining the amount of, retired or retainer pay;

(2) the programs under the jurisdiction of the Department of Defense providing annuities for survivors of members and former members of the armed forces, including chapter 73 of this title, section 4 of Public Law 92-425, and section 5 of Public Law 96-402; and

(3) the authority provided in section 1408(h) of this title.

§ 1463. Payments from the Fund

(a) There shall be paid from the Fund--

(1) retired pay payable to members on the retired lists of the Army, Navy, Air Force, ~~and Marine Corps~~ Marine Corps, and Coast Guard and payments under section 1413a, 1414, or 1415 of this title paid to such members;

(2) retired pay payable under chapter 1223 of this title to former members of the armed forces ~~(other than retired pay payable by the Secretary of Homeland Security)~~;

(3) retainer pay payable to members of the Fleet Reserve and Fleet Marine Corps Reserve;

(4) benefits payable under programs under the jurisdiction of the Department of Defense and the Department of Homeland Security that provide annuities for survivors of members and former members of the armed forces, including chapter 73 of this title, section 4 of Public Law 92-425, and section 5 of Public Law 96-402; and

(5) amounts payable under section 1408(h) of this title.

(b) The assets of the Fund are hereby made available for payments under subsection (a).

§ 1465. Determination of contributions to the Fund

~~(a) Not~~ (a)(1) 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

MRF Statute, Post-2021 NDAA, Including US Coast Guard (USCG) in MRF

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.

(2) Not later than October 1, 2022, the Board of Actuaries shall determine the amount that is the present value (as of September 30, 2022) of future benefits payable from the Fund that are attributable to service in the Coast Guard performed before October 1, 2022. That amount is the original Coast Guard unfunded liability of the Fund. The Board shall determine the period of time over which the original Coast Guard 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 Coast Guard unfunded liability in accordance with such schedule shall be made as provided in section 1466(b) of this title.

(b)(1) The Secretary of Defense in consultation with the Secretary of the department in which the Coast Guard is operating shall determine each year, in sufficient time for inclusion in budget requests for the following fiscal year, the total amount of Department of Defense and Coast Guard contributions to be made to the Fund during that fiscal year under section 1466(a) of this title. That amount shall be the sum of the following:

(A) The product of--

(i) the current estimate of the value of the single level percentage of basic pay to be determined under subsection (c)(1)(A) at the time of the next actuarial valuation under subsection (c); and

(ii) the total amount of basic pay expected to be paid during that fiscal year for active duty ~~(other than the Coast Guard)~~members of the Armed Forces and for full-time National Guard duty (other than full-time National Guard duty for training only), but excluding the amount expected to be paid for any duty that would be excluded for active-duty end strength purposes by section 115(i) of this title.

(B) The product of--

(i) the current estimate of the value of the single level percentage of basic pay and of compensation (paid pursuant to section 206 of title 37) to be determined under subsection (c)(1)(B) at the time of the next actuarial valuation under subsection (c); and

(ii) the total amount of basic pay and of compensation (paid pursuant to section 206 of title 37) expected to be paid during that fiscal year to members of the Selected Reserve of the armed forces ~~(other than the Coast Guard)~~ for service not otherwise described in subparagraph (A)(ii).

(2) The amount determined under paragraph (1) for any fiscal year is the amount needed to be appropriated to the Coast Guard Retired Pay account and the Department of Defense for that fiscal year for payments to be made to the Fund during that year under section 1466(a) of this title. The President shall include not less than the full amount so determined in the budget

Commented [MWCCDH(1]: Requires single level percentage for "members of the Armed Forces." That strongly connotes using the same rate for DoD and the CG.

Commented [MWCCDH(2]: Puts all members of the Armed Forces together and does not permit separate rates among the Services. Provisions throughout the amended statute are in accord.

Commented [MWCCDH(3]: "the" from NDAA dropped to avoid "the the."

MRF Statute, Post-2021 NDAA, Including US Coast Guard (USCG) in MRF

transmitted to Congress for that fiscal year under section 1105 of title 31. The President may comment and make recommendations concerning any such amount.

(3) At the same time that the Secretary of Defense makes the determination required by paragraph (1) for any fiscal year, the Secretary shall determine the amount of the Treasury contribution to be made to the Fund for the next fiscal year under section 1466(b)(2)(D) of this title. That amount shall be determined in the same manner as the determination under paragraph (1) of the total amount of Department of Defense and Coast Guard contributions to be made to the Fund during that fiscal year under section 1466(a) of this title, except that for purposes of this paragraph the Secretary, in making the calculations required by subparagraphs (A) and (B) of that paragraph, shall use the single level percentages determined under subsection (c)(4), rather than those determined under subsection (c)(1).

(c)(1) Not less often than every four years, the Secretary of Defense in consultation with the Secretary of the department in which the coast Guard is operating shall carry out an actuarial valuation of Department of Defense military retirement and survivor benefit programs. Each actuarial valuation of such programs shall include--

(A) a determination (using the aggregate entry-age normal cost method) of a single level percentage of basic pay for active duty ~~(other than the Coast Guard)~~members of the Armed Forces and for full-time National Guard duty (other than full-time National Guard duty for training only), but excluding the amount expected to be paid for any duty that would be excluded for active-duty end strength purposes by section 115(i) of this title, to be determined without regard to section 1413a or 1414 of this title; and

(B) a determination (using the aggregate entry-age normal cost method) of a single level percentage of basic pay and of compensation (paid pursuant to section 206 of title 37) for members of the Selected Reserve of the armed forces ~~(other than the Coast Guard)~~ for service not otherwise described by subparagraph (A), to be determined without regard to section 1413a or 1414 of this title.

Such single level percentages shall be used for the purposes of subsection (b)(1) and section 1466(a) of this title.

(2) If at the time of any such valuation (or any valuation carried out in order to comply with chapter 95 of title 31) there has been a change in benefits under a military retirement or survivor benefit program that has been made since the last such valuation and such change in benefits increases or decreases the present value of amounts payable from the Fund, the Secretary of Defense in consultation with the Secretary of the department in which the Coast Guard is operating shall determine an amortization methodology and schedule for the amortization of the cumulative unfunded liability (or actuarial gain to the Fund) created by such change and any previous such changes so that the present value of the sum of the amortization payments (or reductions in payments that would otherwise be made) equals the cumulative increase (or decrease) in the present value of such amounts.

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(3) If at the time of any such valuation (or any valuation carried out in order to comply with chapter 95 of title 31) the Secretary of Defense in consultation with the Secretary of the department in which the Coast Guard is operating determines that, based upon changes in actuarial assumptions since the last valuation, there has been an actuarial gain or loss to the Fund, the Secretary shall determine an amortization methodology and schedule for the amortization of the cumulative gain or loss to the Fund created by such change in assumptions and any previous such changes in assumptions through an increase or decrease in the payments that would otherwise be made to the Fund.

(4) Whenever the Secretary carries out an actuarial valuation under paragraph (1), the Secretary shall include as part of such valuation the following:

(A) A determination of a single level percentage determined in the same manner as applies under subparagraph (A) of paragraph (1), but based only upon the provisions of sections 1413a and 1414 of this title.

(B) A determination of a single level percentage determined in the same manner as applies under subparagraph (B) of paragraph (1), but based only upon the provisions of sections 1413a and 1414 of this title.

Such single level percentages shall be used for the purposes of subsection (b)(3).

(5) Contributions to the Fund in accordance with amortization schedules under paragraphs (2) and (3) shall be made as provided in section 1466(b) of this title.

(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.

(e) The ~~Secretary of Defense shall~~ Secretary of Defense and, with regard to the Coast Guard, the Secretary of the department in which the Coast Guard is operating shall provide for the keeping of such records as are necessary for determining the actuarial status of the Fund.

Commented [MWCCDH(4]: "shall" struck by the NDAA but paragraph needs it to make sense.

§ 1466. Payments into the Fund

(a) The ~~Secretary of Defense shall~~ Secretary of Defense and the Secretary of the department in which the Coast Guard is operating, with respect to the Coast Guard, shall pay into the Fund at the end of ~~each month as the Department of Defense contribution~~ each month the respective pro rata share contribution of the Secretary of Defense and the Secretary of the department in which the Coast Guard is operating to the Fund for that month the amount that is the sum of the following:

(1) The product of--

(A) the level percentage of basic pay determined using all the methods and assumptions approved for the most recent (as of the first day of the current fiscal year) actuarial valuation under section 1465(c)(1)(A) of this title (except that any statutory change in the military

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retirement and survivor benefit systems that is effective after the date of that valuation and on or before the first day of the current fiscal year shall be used in such determination); and

(B) the total amount of basic pay accrued for that month for active duty (other than the Coast Guard) and for full-time National Guard duty (other than full-time National Guard duty for training only), but excluding the amount expected to be paid for any duty that would be excluded for active-duty end strength purposes by section 115(i) of this title.

(2) The product of--

(A) the level percentage of basic pay and of compensation (paid pursuant to section 206 of title 37) determined using all the methods and assumptions approved for the most recent (as of the first day of the current fiscal year) actuarial valuation under section 1465(c)(1)(B) of this title (except that any statutory change in the military retirement and survivor benefit systems that is effective after the date of that valuation and on or before the first day of the current fiscal year shall be used in such determination); and

(B) the total amount of basic pay and of compensation (paid pursuant to section 206 of title 37) accrued for that month by members of the Selected Reserve of the armed forces ~~(other than the Coast Guard)~~ for service not otherwise described in paragraph (1)(B).

~~Amounts paid into the Fund under this subsection shall be paid from funds available for the pay of members of the armed forces under the jurisdiction of the Secretary of a military department.~~

(b) Amounts paid into the Fund under this subsection shall be paid from funds available for as appropriate—

(1) the pay of members of the armed forces under the jurisdiction of the Secretary of a military department; or

(2) the Retired Pay appropriation for the Coast Guard.

(c~~b~~)(1) At the beginning of each fiscal year the Secretary of the Treasury shall promptly pay into the Fund from the General Fund of the Treasury the amount certified to the Secretary by the Secretary of Defense under paragraph (3). Such payment shall be the contribution to the Fund for that fiscal year required by sections 1465(a), 1465(b)(3), 1465(c)(2), and 1465(c)(3) of this title.

(2) At the beginning of each fiscal year the Secretary of Defense shall determine the sum of the following:

(A) The amount of the payment for that year under the amortization schedule determined by the Board of Actuaries under section 1465(a) of this title for the amortization of the original unfunded ~~liability of the Fund.~~liabilities of the Fund for the Department of Defense and the Coast Guard.

(B) The amount (including any negative amount) for that year under the most recent amortization schedule determined by the Secretary of Defense under section 1465(c)(2) of this title for the amortization of any cumulative unfunded liability (or any gain) to the Fund resulting from changes in benefits.

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(C) The amount (including any negative amount) for that year under the most recent amortization schedule determined by the Secretary of Defense under section 1465(c)(3) of this title for the amortization of any cumulative actuarial gain or loss to the Fund.

(D) The amount for that year determined by the Secretary of Defense under section 1465(b)(3) of this title for the cost to the Fund arising from increased amounts payable from the Fund by reason of section 1413a or 1414 of this title.

(3) The Secretary of Defense and the Secretary of the Department in which the Coast Guard is operating shall promptly certify the amount determined under paragraph (2) each year to the Secretary of the Treasury.

(d~~e~~)(1) The Secretary of Defense shall pay into the Fund at the beginning of each fiscal year such amount as may be necessary to pay the cost to the Fund for that fiscal year resulting from the repeal, as of October 1, 1999, of section 5532 of title 5, including any actuarial loss to the Fund resulting from increased benefits paid from the Fund that are not fully covered by the payments made to the Fund for that fiscal year under subsections (a) and (b).

(2) Amounts paid into the Fund under this subsection shall be paid from funds available for the pay of members of the armed forces under the jurisdiction of the Secretary of a military department.

(3) The Department of Defense Board of Actuaries shall determine, for each armed force, the amount required under paragraph (1) to be deposited in the Fund each fiscal year.

Voluntary Separation Incentive Fund
Board of Actuaries Meeting

Defense Finance and Accounting Service

Coralita Jones/Lori Haines
Trust Funds Accounting and Reporting Division
Defense Finance and Accounting Service
June 25, 2021

Contact Information

- Coralita Jones
  - ✓ Phone: 317-212-5524
  - ✓ DSN: 699-5524

- Lori Haines
  - ✓ Phone: 317-212-4956
  - ✓ DSN: 699-4956

Agenda

- Overview
- Financial Data
- Fund Status

OVERVIEW

- Short Term Liquidity
  - ✓ No new investing
    - ✓ $15.9 M in overnights (30 April)
    - ✓ $.8 M in cash (30 April)
  - ✓ Outflows on track to surpass inflows
    - ✓ FY 2021 program expense $18.1 M
    - ✓ FY 2021 program revenue $10.7 M
    - ✓ FY 2021 interest revenue $1.0 M

- Long Term Liquidity
  - ✓ $57.2 M long-term par
  - ✓ No new program entrants since 2001

FINANCIAL DATA

Summary Financial Analysis

Year Ended September 30

(In Millions)

	FY 2020	FY 2019	% Change
Service Contributions	$25.9M	$31.1M	-17%
Interest Income	$2.2M	$2.6M	-15%
Total Revenue	$28.1M	$33.9M	-17%
Benefit Payments	$46.2M	$49.8M	-7%
Total Expense	$46.9M	$49.6M	-5%

Interest Analysis

Year Ended September 30

(In Millions)

Interest Income

	FY 2020	FY 2019	$ Change
Interest Revenue--Par	$2.7	$3.1	-$.4
Interest Revenue--Inflation	$0.0	$0.0	$0.0
Interest Revenue--Discount	$0.1	$0.1	$0.0
Interest Revenue--Premium	-$0.6	-$0.6	$0.0
	$2.2	$2.6	-$0.4

FINANCIAL DATA

Voluntary Separation Incentive
For the Year Ending September 30, 2020

(in millions)

Assets	
Fund Balance with Treasury	$ 3.96
Investments	
Overnight	$4.71
Long term	
Par	$70.09
Premium outstanding	$3.32
Discount outstanding	-$.21
Interest receivable	$0.61
Total Long Term Investments	$73.81
Total Investments	$78.52
Total Assets	$82.48
Liabilities	
Military Retirement and Other Federal Employment Benefits	
Due and Payable	$2.10
Actuarial Liability	$174.00
Total Military and Other Federal Employment Benefits	$176.10
Total Liabilities	$176.10
Net Position	
Cumulative Results of Operations	-$93.62
Total Liabilities and Net Position	$82.48

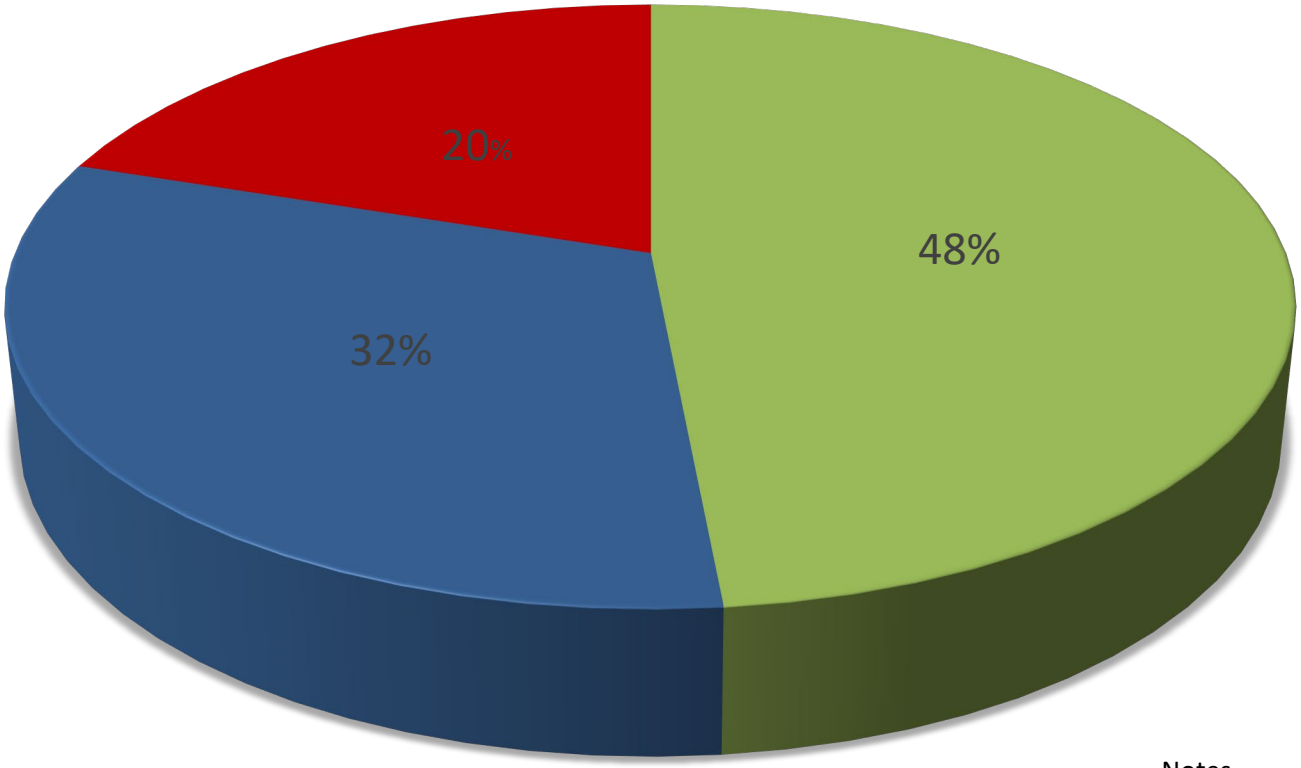
FINANCIAL DATA

Effective Fund Yields

FY	Yield
2010	3.95%
2011	3.81%
2012	3.19%
2013	2.60%
2014	1.43%
2015	1.41%
2016	1.50%
2017	1.75%
2018	2.15%
2019	2.43%
2020	2.21%

FUND STATUS

Voluntary Separation Portfolio
As of April 30, 2021



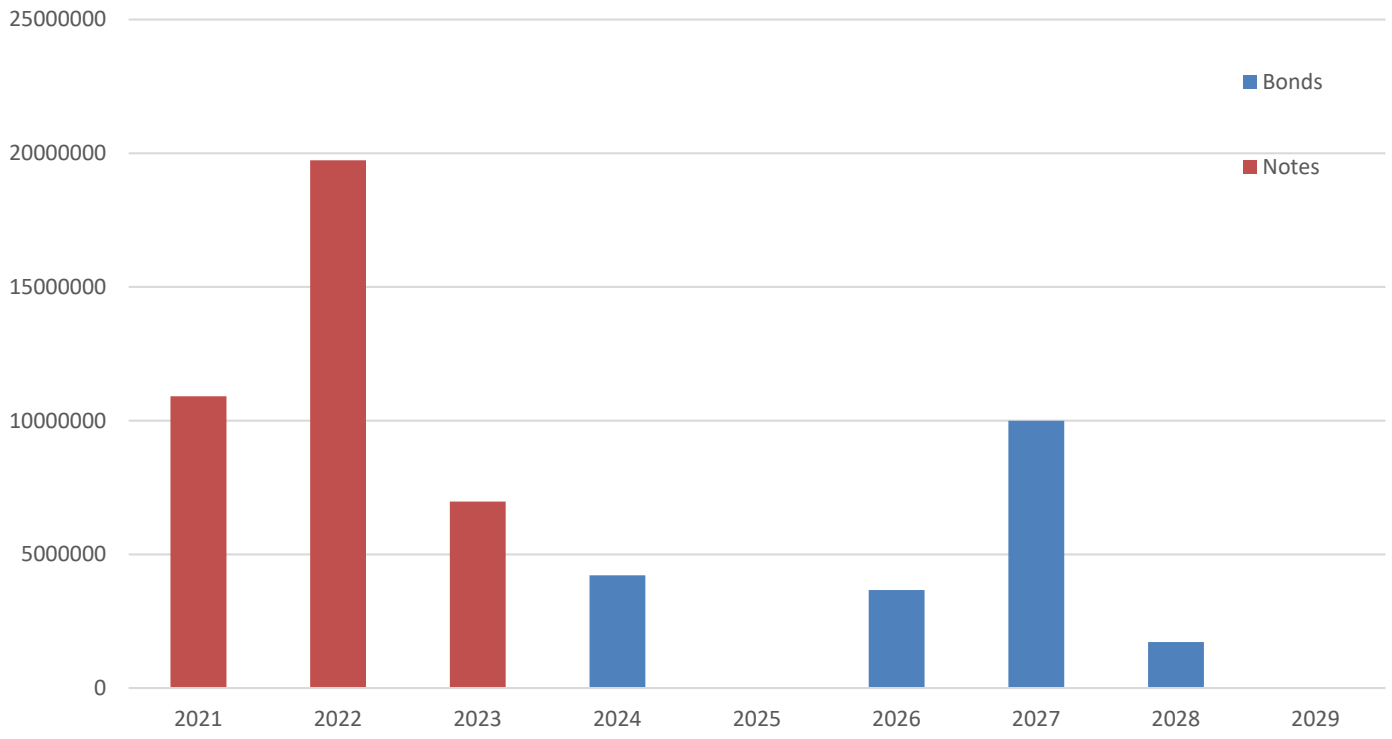
Notes	$38,634,986.25
Bonds	$25,169,049.11
Overnights	$15,863,137.55

FUND STATUS

Security Description	Shares/Par	Book Value	Market Value
MK BOND 7.500% 11/15/2024	$ 4,218,497.61	$ 5,095,616.48	$ 5,259,939.21
MK BOND 6.000% 02/15/2026	$ 3,667,977.19	$ 4,288,916.74	$ 4,558,607.90
MK BOND 6.625% 02/15/2027	$ 10,000,000.00	$ 11,442,911.81	$ 13,150,000.00
MK BOND 5.250% 11/15/2028	$ 1,721,664.16	$ 2,058,497.60	$ 2,200,502.00
Total BOND	$ 19,608,138.96	$ 22,885,942.63	$ 25,169,049.11
MK NOTE 2.000% 11/15/2021	$ 10,913,353.98	$ 11,006,188.96	$ 11,029,308.37
MK NOTE 1.625% 11/15/2022	$ 19,737,380.52	$ 19,745,632.29	$ 20,,187,639.51
MK NOTE 2.750% 11/15/2023	$ 6,977,578.71	$ 7,132,182.65	$ 7,418,038.37
Total NOTE	$ 37,628,313.21	$ 37,884,003.90	$ 38,634,986.25
ONE DAY 2.370% 06/03/2019	$ 15,863,137.55	$ 15,863,137.55	$ 15,863,137.55
Total	$ 73,099,589.72	$ 76,633,084.08	$ 79,667,172.91

FUND STATUS

VSI Maturities
As of April 30, 2021



2021	2022	2023	2024	2025	2026	2027	2028	2029	Total
10.9	19.7	7.0	4.2	0.0	3.7	10.0	1.7	0.0	57.2

Voluntary Separation Incentive (VSI)

BRIEF HISTORY: At the end of the 1980s, the Department of Defense (DoD) began drawing down the size of the U.S. military's active force, from a post-Vietnam peak of 2.2 million in FY 1987 to 1.6 million by FY 1997, a decline of about 25 percent. Initially, the focus of the drawdown was on cutting the number of entrants into the armed forces, but DoD also needed to reduce the number of mid-careerists. To accomplish this reduction in personnel while treating service members fairly and maintaining a high state of readiness, DoD chose to rely on voluntary rather than involuntary separations.

In January 1992, the Voluntary Separation Incentive (VSI) was authorized for all branches of the armed forces to help DoD complete the reduction-in-force while avoiding serious skill and grade imbalances. The program stopped taking new applicants in October 2001. VSI offered members an annuity payable for twice as long as their years of service and equal to 2.5 percent of basic pay times years of service.

To be eligible to receive VSI, an individual must have met all of the following requirements:

- six years of active duty as of December 1991
- five years of continuous active service at separation
- be in a rank that has more people in it than are needed to maintain force readiness
- continue military service in a reserve component

VSI Fund Yield Projection and Current Interest Assumption

FY	Inflation	Real*	Fund Yield	Blue Chip Return on New Invests**
2021	4.28%	-2.39%	1.90%	0.14%
2022	2.30%	-0.57%	1.73%	0.24%
2023	2.35%	-0.78%	1.57%	0.56%
2024	2.30%	-0.21%	2.09%	1.10%
2025	2.20%	0.35%	2.55%	1.54%
2026	2.20%	0.83%	3.03%	1.97%
2027	2.20%	0.52%	2.72%	2.28%
2028	2.20%	0.35%	2.55%	2.45%
2029	2.20%	0.14%	2.34%	2.53%
2030	2.20%	0.35%	2.55%	2.55%
5 Yr Avg	2.68%	-0.72%	1.97%	1.53%
5 Yr Fund Wgt Avg	2.88%	-0.97%	1.90%	0.92%

FY	Inflation	Real*	Fund Yield	Blue Chip Return on New Invests**
2031	2.20%	0.34%	2.54%	2.54%
2032	2.20%	0.34%	2.54%	2.54%
2033	2.20%	0.35%	2.55%	2.55%
2034	2.20%	0.35%	2.55%	2.55%
2035	2.20%	0.34%	2.54%	2.54%
2036	2.20%	0.34%	2.54%	2.54%
2037	2.20%	0.34%	2.54%	2.54%
2038	2.20%	0.33%	2.53%	2.53%
2039	2.20%	0.37%	2.57%	2.57%
2040	2.20%	0.40%	2.60%	2.60%

Current Interest Assumption
2.25%

Asset Duration	Liability Duration
2.5	3.3

Notes:

* Real = Fund Yield - Inflation (after 3 mths TIPS inflation lag). For inflation, fund yield, and Blue Chip return calculations, the "X Yr Avg" calculation is geometric and the "X Yr Fund Wgt Avg" is weighted by expected fund size during FY.

** Assumes available funds are invested in 2 yr bonds, until maturity values would be more than future expected payments.

--- Short Term Strategy: Mix of overnights and bills.
--- Portfolio Allocation: Notes and bonds (No TIPS).
--- Investment Policy: Maturities matched to cash flows and liquidity requirements. Minimize risks to the funds--all securities are market based Treasury special issues. Hold to maturity policy.

VSI Population by Number of Remaining Payments

(as of September 30, 2020)

Remaining Annual Payments	Enlisted					Officer				
	WITH VA Offset			W/O VA Offset		WITH VA Offset			W/O VA Offset	
	Count	Avg Annual VSI Gross	Avg Annual VA Pay	Count	Avg Annual VSI Gross	Count	Avg Annual VSI Gross	Avg Annual VA Pay	Count	Avg Annual VSI Gross
1	72	$7,000	$3,054	268	$6,815	65	$14,484	$4,456	213	$14,264
2	62	$7,443	$3,493	263	$7,172	70	$14,939	$5,458	215	$14,464
3	65	$7,835	$3,100	216	$7,498	46	$15,353	$4,934	145	$14,861
4	51	$8,333	$3,480	175	$7,868	50	$16,500	$6,468	135	$15,230
5	41	$8,840	$3,910	159	$8,094	37	$16,777	$6,349	110	$16,559
6	34	$8,805	$3,280	134	$8,820	28	$17,287	$5,682	99	$16,784
7	38	$9,712	$4,090	110	$9,428	32	$18,937	$4,878	53	$18,043
8	40	$9,958	$3,895	96	$9,474	25	$19,880	$3,854	61	$18,482
9	23	$10,349	$4,400	83	$9,573	10	$20,207	$6,200	38	$18,636
10	21	$10,298	$3,619	86	$9,582	8	$20,355	$9,242	39	$16,941
11	18	$11,463	$4,333	35	$10,718	5	$21,371	$12,262	29	$16,972
12	12	$11,970	$4,320	32	$11,752	9	$22,539	$8,324	19	$23,535
13	4	$12,405	$1,704	13	$12,248	5	$24,747	$4,526	11	$23,772
14	2	$13,365	$4,602	5	$12,246	2	$22,673	$8,256	6	$24,532
15	1	$22,747	$3,372	1	$22,808	1	$36,771	$1,704	0	$0
16	0	$0	$0	0	$0	1	$23,312	$1,704	3	$30,403
17	0	$0	$0	0	$0	2	$31,674	$15,684	0	$0
18	0	$0	$0	0	$0	2	$39,049	$10,668	0	$0
19	1	$24,676	$10,716	0	$0	1	$26,391	$8,964	0	$0
20	1	$27,253	$11,748	0	$0	1	$27,253	$14,808	0	$0
Total	486	$8,815	$3,595	1,676	$8,197	400	$17,063	$5,649	1,176	$15,930

NOTE: (i) Table includes 3,738 VSI annuitants who have remaining benefit payments.
(ii) Table includes 494 survivors receiving benefits from 376 deceased VSI members.
(iii) Table excludes 649 eligible VSI members who have a full VA offset.
(iv) A total of 18,430 service members have elected VSI since the program's inception.
(v) Final payment is often a partial payment.

10 U.S. Code § 1175 - Voluntary Separation Incentive: http://www.law.cornell.edu/uscode/text/10/1175

VSI
CHANGE IN UNFUNDED LIABILITY (UFL)

($ in Millions)

(A Negative Change Indicates a Gain and a Positive Change Indicates a Loss)

Based on 2.25% interest, 2.2% COLA on VA Offsets and 1.0% Non-COLA increase on VA Offsets

1. 10/1/2019 Unfunded Liability	$111.7	
2. 1/1/2020 Amortization Payment on UFL	$25.9	
3. Interest Rate Assumption	1.0225	
4. Expected Unfunded Liability on 10/1/2020 (1 X 3) - (2 X 3 ^ 0.75)	$87.8	
5. Actual Unfunded Liability on 10/1/2020	$87.5	
6. Total (Gain)/Loss in Unfunded Liability (5 - 4)	**-$0.3**	-0.2%
A. Total (Gain)/Loss Due to Assets	**$1.7**	1.0%
1. Asset (Gain)/Loss-Yield[1]	-$0.02	-0.01% --> -0.02%
2. Asset (Gain)/Loss-Benefit Payments[2]	$1.7	1.0%
B. Total(Gain)/Loss Due to Liability	**-$2.0**	-1.2%
1. Liability (Gain)/Loss-2021 COLA[3]	$0.3	0.18%
2. Liability (Gain)/Loss-2020 VA Update[4]	-$1.8	-1.1%
3. Liability (Gain)/Loss-Interest Rate	$0.0	0.0%
4. Liability (Gain)/Loss-VA Incr. Assump.	$0.0	0.0%
5. Liability (Gain)/Loss-Residual[5]	-$0.5	-0.3%

(Percentages shown are ratios of values of each gain or loss component to the PVFB; the ratio of the yield loss to the VSI fund is shown as well).

NOTE:

[1] Valuation assumption: 2.25% fund yield; actual fund yield: 2.27%

[2] Projected FY20 benefit payments: $44.5M; actual FY20 benefit payments: $46.1M

[3] Projected 2021 COLA (excluding the VA Increase Assumption): 2.2%; actual 2021 COLA: 1.3%

[4] Represents actual 2020 VA offsets being different than expected.

[5] Represents DFAS data changes and residual.

VSI AMORTIZATION

($ in Millions)

Based on 2.25% interest, 2.2% COLA on VA Offsets and 1.0% Non-COLA increase on VA Offsets

VSI Valuation Results as of 9/30/2020:

a. 9/30/2020 PVFB $167.9

b. 10/1/2020 Fund $80.4

c. 10/1/2020 UFL $87.5

PVFB Sensitivity at 25 basis points: 1.0%

Amortization Schedule - DECREASING Amortization Payments:

d. 1/1/2022 $15.7

e. 1/1/2023 - Fund Expiration 50.1% of FY Projected Benefit Payments

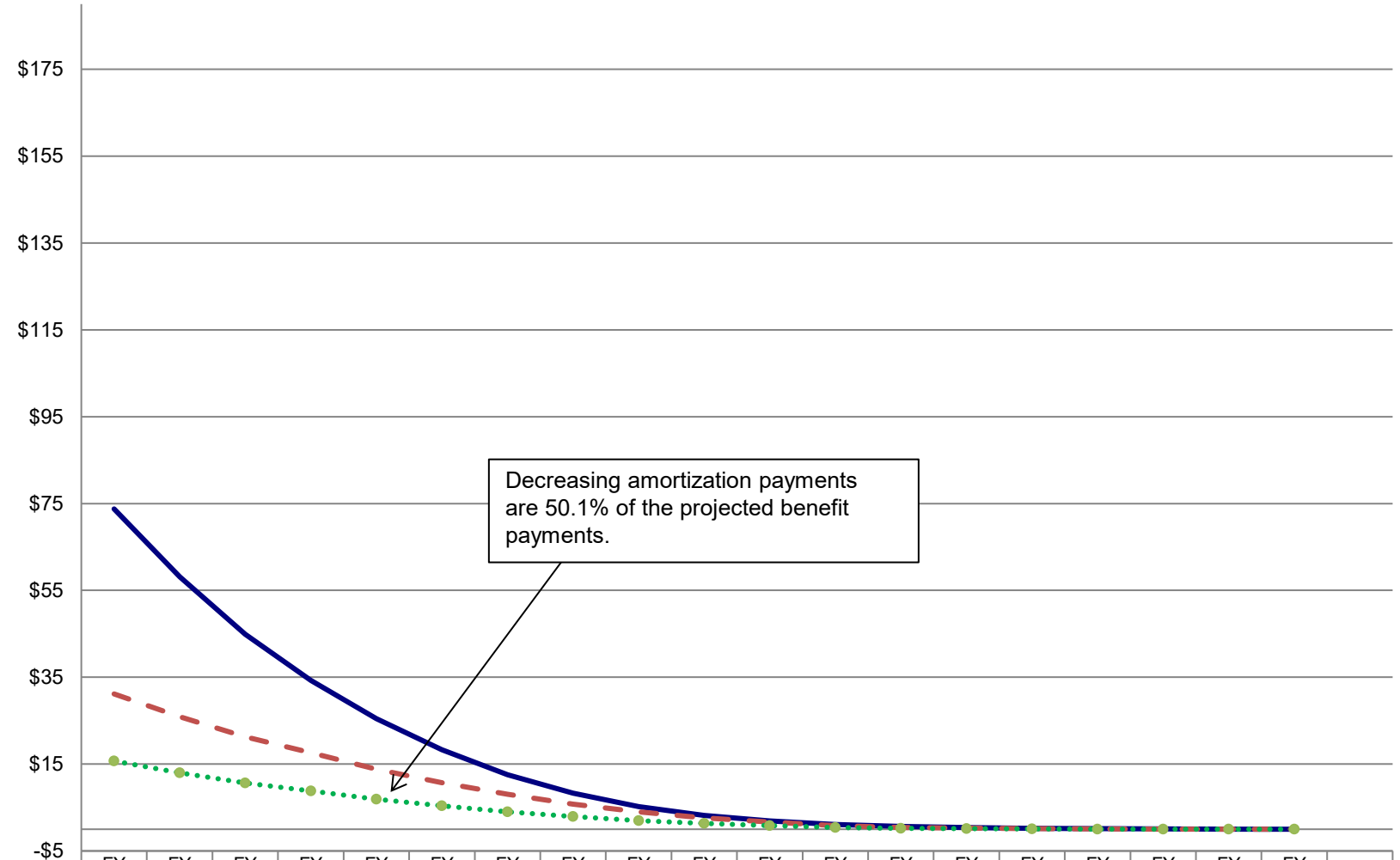
VSI Fund Projections:

	Contributions (paid on Jan. 1)	Jan-1 Fund Balance (After Contribution)	Interest Earned during FY	Benefit Payments during FY	End-of-Fiscal Year Fund Balance
FY 2021	$21.4	$92.2	$1.8	$37.2	$66.4
FY 2022	$15.7	$73.8	$1.4	$31.2	$52.4
FY 2023	**$13.0**	$58.1	$1.1	$25.9	$40.6
FY 2024	$10.7	$44.9	$0.9	$21.3	$30.9
FY 2025	$8.8	$34.2	$0.7	$17.6	$22.7
FY 2026	$6.9	$25.4	$0.5	$13.8	$16.3
FY 2027	$5.4	$18.3	$0.3	$10.7	$11.3
FY 2028	$4.0	$12.6	$0.2	$8.0	$7.5
FY 2029	$2.9	$8.3	$0.2	$5.8	$4.8
FY 2030	$2.0	$5.2	$0.1	$4.0	$2.9
FY 2031	$1.32	$3.1	$0.1	$2.6	$1.6
FY 2032	$0.82	$1.9	$0.032	$1.6	$0.9
FY 2033	$0.42	$1.1	$0.018	$0.8	$0.4
FY 2034	$0.19	$0.6	$0.011	$0.4	$0.3
FY 2035	$0.14	$0.4	$0.007	$0.3	$0.1
FY 2036	$0.08	$0.2	$0.004	$0.2	$0.1
FY 2037	$0.044	$0.1	$0.002	$0.1	$0.02
FY 2038	$0.022	$0.05	$0.001	$0.04	$0.004
FY 2039	$0.004	$0.01	$0.00009	**$0.008**	$0.0000
FY 2040	$0.0000	$0.0000	$0.00000	$0.0000	$0.0000

NOTE: VA compensation offsets VSI payments; VSI liability calculations reflect VA offsets
The last net VSI payment is projected to be in 2039.
50.1% is calculated by finding the percentage that draws fund to zero by the last benefit payment.

VSI CASH FLOW PROJECTIONS

($ in Millions)



	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029	FY 2030	FY 2031	FY 2032	FY 2033	FY 2034	FY 2035	FY 2036	FY 2037	FY 2038	FY 2039	FY 2040
FY Fund Dollars	$73.8	$58.1	$44.9	$34.2	$25.4	$18.3	$12.6	$8.3	$5.2	$3.1	$1.9	$1.1	$0.6	$0.4	$0.2	$0.1	$0.05	$0.01	$0.0000
Benefit Payments	$31.2	$25.9	$21.3	$17.6	$13.8	$10.7	$8.0	$5.8	$4.0	$2.6	$1.6	$0.8	$0.4	$0.3	$0.2	$0.1	$0.04	$0.008	$0.0000
Contributions	$15.7	$13.0	$10.7	$8.8	$6.9	$5.4	$4.0	$2.9	$2.0	$1.32	$0.82	$0.42	$0.19	$0.14	$0.08	$0.044	$0.022	$0.004	$0.0000

ATTACHMENT 3 (CONTINUED)

Meeting Handouts for the
Department of Defense Board of Actuaries Meeting
(Education Benefits Fund)

Education Benefits Fund
Board of Actuaries Meeting

Defense Finance and Accounting Service

Coralita Jones / Lori Haines
Enterprise Solutions and Standards (ESS)
Financial Reporting
June 25, 2021

Contact Information

- Coralita Jones
  - ✓ Phone: 317-212-5524
  - ✓ DSN: 699-5524

- Lori Haines
  - ✓ Phone: 317-212-4956
  - ✓ DSN: 699-4956

Agenda

- Overview
- Financial Data
- Fund Status

Overview

Short Term Liquidity

- ✓ Current Year Purchases
  - Mar 2021 purchased a $30.0M Note
  - Anticipate continued ability to invest annually going forward
- ✓ Current Year Maturities
  - Nov 2020 maturity $44.6M
  - Mar 2021 maturity $30.7M
  - Apr 2021 maturity $10.6M
- ✓ Outflows exceeding Inflows
  - FY 2021 disbursements through Apr $106.6M
  - FY 2021 receipts through Apr $42.8M (Excl interest of $8.9M)
  - FY 2021 overnights/cash as of Apr 30 $118.6M

Long Term Liquidity

- ✓ New investing for FY 2022
  - As of EOM Apr, $142.0M
  - Average 5-year term
  - Will be used to rebalance investment mix
- ✓ FY 2023-2026 projected investments of $590.0M

Financial Data

Summary Financial Analysis

Year Ended September 30

(In Thousands)

	FY 2020	FY 2019	% Change
Service Contributions	$141,966	$187,751	-24%
Interest Income	19,972	30,061	-34%
Total Revenue	$161,938	$217,812	-26%
Benefit Payments	$184,687	197,760	-7%
Total Expense	$184,786	197,836	-7%

Financial Data

Interest Analysis

Year Ended September 30

(In Thousands)

Interest Income

	FY 2020	FY 2019	$Change
Interest Revenue--Par	$26,491	$34,931	-$8,440
Interest Revenue--Inflation	4,243	8,786	-4,543
Interest Revenue--Discount	1,067	1,096	-29
Interest Revenue--Premium	-11,829	-14,752	2,923
	$19,972	$30,061	-$10,089

Financial Data

Education Benefits Fund
For the Year Ending September 30, 2020

	(in thousands)
Assets	
Fund Balance with Treasury	$100.0
Investments	
Overnight	$117,379.8
Long term	
Par	$883,032.8
Inflation purchased	$44,864.7
Inflation earned	$4,612.4
Premium outstanding	$28,631.0
Discount outstanding	$16.8
Interest receivable	$2,802.1
Total Long Term Investments	$963,959.8
Total Investments	$1,081,339.6
Accounts Receivable, net	$960.5
Total Assets	$1,082,400.1
Liabilities	
Military Retirement and Other Federal Employment Benefits	
Benefits Payable to Beneficiaries	$664.9
Actuarial Liability	$675,664.0
Total Military and Other Federal Employment Benefits	$676,328.9
Other Liabilities	$2.8
Total Liabilities	$676,331.7
Net Position	
Cumulative Results of Operations	$406,068.4
Total Liabilities and Net Position	$1,082,400.1

Financial Data

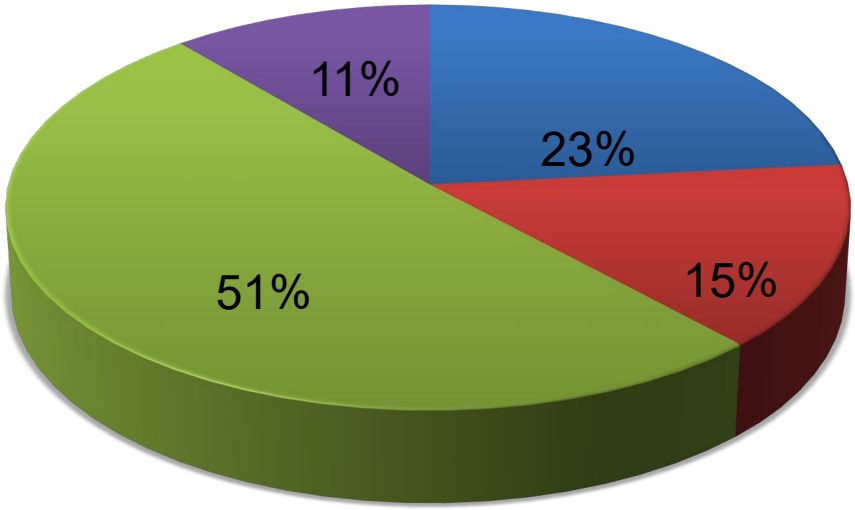
Effective Fund Yields

FY	Yield
2011	4.89%
2012	2.94%
2013	3.10%
2014	3.16%
2015	1.79%
2016	2.34%
2017	2.92%
2018	3.82%
2019	3.01%
2020	1.81%

Fund Status

Education Benefits Portfolio

As of April 30, 2021



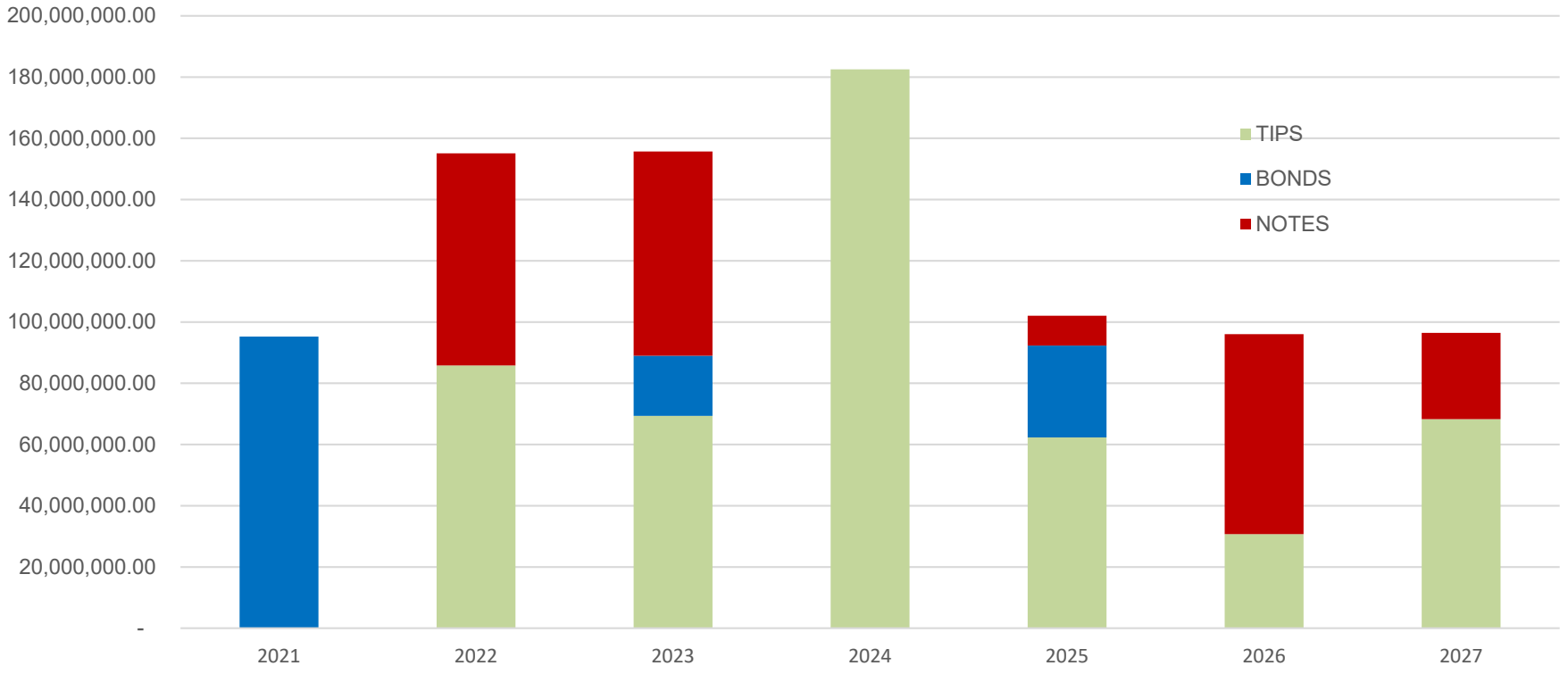
Notes	$249,208,688.17
Bonds	$157,252,659.69
TIPs	$540,599,632.49
Overnight Securities	$118,450,546.14
Total	$1,065,511,526.49

FUND STATUS

Security Description	Shares Par	Book Value	Market Value
MK BOND 6.875% 08/15/2025	30,000,000.00	33,784,205.37	37,818,750.00
MK BOND 7.125% 02/15/2023	19,659,651.19	21,829,567.65	22,061,814.82
MK BOND 8.125% 08/15/2021	95,258,545.88	98,294,557.31	97,372,094.87
TOTAL BONDS	**144,918,197.07**	**153,908,330.33**	**157,252,659.69**
MK NOTE 1.625% 02/15/2026	65,292,466.40	69,593,454.73	67,781,741.68
MK NOTE 1.875% 01/31/2022	69,272,451.02	69,757,737.17	70,203,299.58
MK NOTE 2.250% 08/15/2027	28,200,032.62	30,030,348.07	30,050,659.76
MK NOTE 2.750% 02/28/2025	9,738,025.93	9,928,611.43	10,547,499.34
MK NOTE 2.750% 08/31/2023	66,706,481.99	68,901,187.73	70,625,487.81
TOTAL NOTES	**239,209,457.96**	**248,211,339.13**	**249,208,688.17**
MK TIPS 0.125% 01/15/2022	46,145,580.00	53,537,638.40	54,703,281.42
MK TIPS 0.125% 01/15/2023	14,183,455.00	16,149,266.28	16,926,178.48
MK TIPS 0.125% 04/15/2022	29,803,437.00	32,224,144.06	33,052,259.37
MK TIPS 0.125% 07/15/2024	84,717,357.00	94,083,095.42	101,944,312.80
MK TIPS 0.250% 01/15/2025	35,503,274.93	40,981,333.01	43,100,584.67
MK TIPS 0.375% 01/15/2027	62,715,061.70	74,409,395.72	76,145,585.84
MK TIPS 0.375% 07/15/2023	47,066,944.00	53,186,783.23	56,940,875.20
MK TIPS 0.625% 01/15/2024	78,694,565.08	88,953,806.62	96,366,751.98
MK TIPS 0.625% 01/15/2026	27,772,869.71	30,964,247.09	34,492,130.27
MK TIPS 2.375% 01/15/2025	16,405,437.41	24,829,817.75	26,927,672.46
TOTAL TIPS	**443,007,981.83**	**509,319,527.58**	**540,599,632.49**
ONE DAY 0.010% 05/03/2021	**118,450,546.14**	**118,450,546.14**	**118,450,546.14**
TOTAL PORTFOLIO	**945,586,183.00**	**1,029,889,743.18**	**1,065,511,526.49**

FUND STATUS

EBF Maturities
As of April 30, 2021



2021	2022	2023	2024	2025	2026	2027	Total
95.3	155.1	155.7	182.5	102.0	96.0	96.5	883.1

QUESTIONS

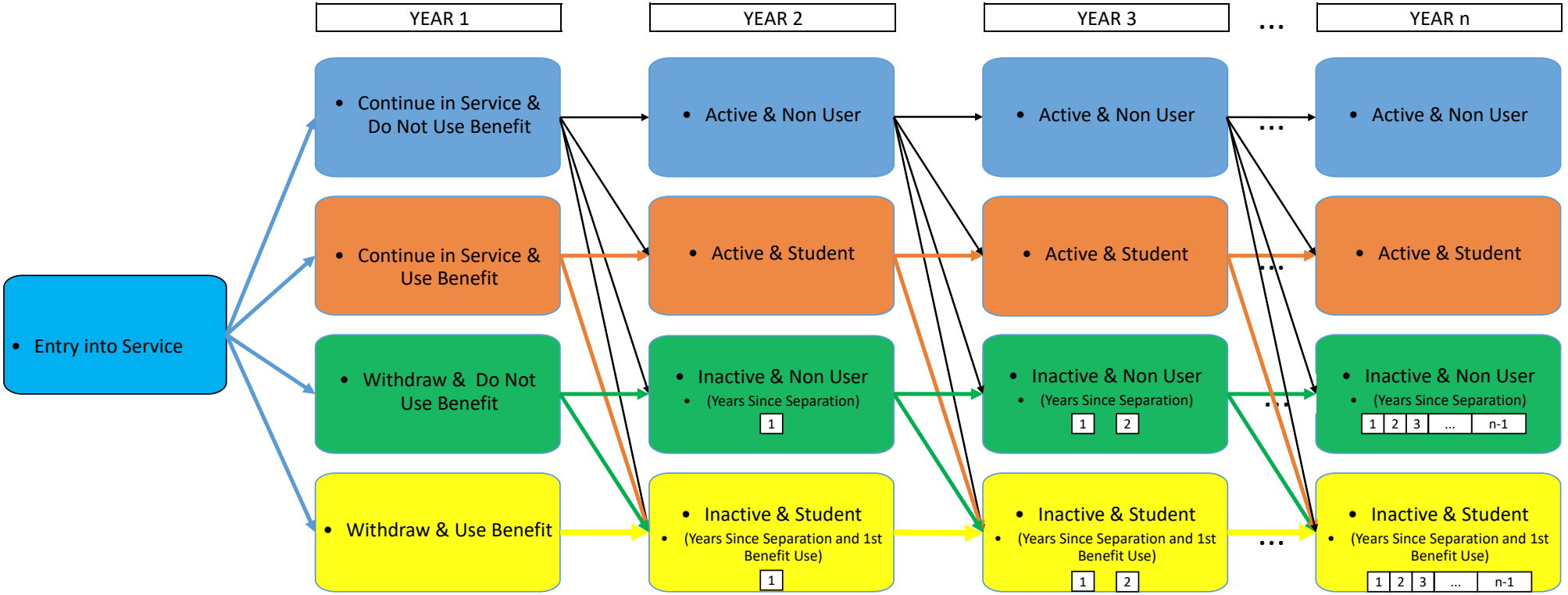
DoD Education Benefits

Program	Funded By	Participants	Eligibility	FY 2020 Benefit	Per Capita Amount	Amortization	Transferability	Dates
Post 9/11 Chapter 33 Basic	VA	Active Duty or Reserve	Active – Serve 3 Years (Full) Serve 90+ days (Partial) Reserve – Serve 90+ Days in Active Duty Status Ends 15 Years after Separation	In State Tuition, Housing & Stipend up to $24,476.79	N/A	None	Serve 10+ Years. Members must apply after 6 years while still in active status	August, 2009 - Present
Montgomery GI Bill Chapter 30 Basic	VA	Active Duty	Enlistment of 3 Years (Full Amount) or Contracted Enlistment Ends 10 Years after Separation	$2,050 Per Month indexed to NCES	N/A	None	None	July, 1985 - Present
Chapter 30 Kicker	DoD Services Contribute to EBF	Active Duty	Offered by DoD at Time of Recruitment. Contract Period of 2-6 years. Corresponds with Chapter 30 or Chapter 33 Basic	$150 - $950 Per month. No indexing	Net Single Premium Paid at Time of Entry. Fund Surplus Offset as Determined by DoD Board of Actuaries	Determined by Board of Actuaries. Unfunded Liability by Service Paid Off in 5 Years	Same as Chapter 33 Basic	July, 1985 – Present (None offered since 2012)
Category III Post-Vietnam Veterans' Educational Assistance Program (VEAP)	DoD & VA	Active Duty	Entered service between January, 1977 ~ June, 1985 Involuntarily separated for certain reasons or separated under the VSI (Voluntary Separation Incentive) or SSB (Special Separation Benefit) Program	Same as Chapter 30 increased by : $\frac{Personal + Gov't}{Total\ Months}$	N/A	Projected amount plus interest used in prior fiscal year	Survivors and dependents may be eligible	January 1977 - Present

DoD Education Benefits

Program	Funded By	Participants	Eligibility	FY 2020 Benefit	Per Capita Amount	Amortization	Transferability	Dates
Chapter 1606 Basic	DoD Reserve Components Contribute to EBF	Selected Reserves	Agree to Serve 6 Years. Ends After 14 Years of Service or Upon Leaving Reserves	$392 Per Month Indexed by CPI	Net Single Premium Paid at Time of Entry. Fund Surplus Offset as Determined by DoD Board of Actuaries	Determined by DoD Board of Actuaries. Unfunded Liability by Reserve Component Paid Off in 5 Years	Not Currently Offered	July, 1985 – Present
Chapter 1606 Kicker	DoD Reserve Components Contribute to EBF	Selected Reserves (Offered to fill special skilled positions)	Offered by DoD at Time of Recruitment. Same as Chapter 1606 Basic	$100, $200 & $350 Per Month. Not Indexed	Net Single Premium Paid at Time of Entry.	None	Not Currently Offered	July, 1985 – Present
Chapter 1607	Outstanding Balance internally transferred to Chapter 1606							November, 2004 – November, 2019. Last New Entrant - November, 2015

Education Benefit Usage Model



Each box has a probability of benefit usage and a probability of moving into a different box for the following year.
Benefits are discounted to the time of entry.
Active Duty model continues for 40 years. Reserve model continues for 15 years .

Chapter 30 & 33 Active Duty Valuation of Education Benefits

Presented before the DoD Board of Actuaries

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DoD Office of the Actuary
Summer 2021

EBF Fund Yield Projection and Current Interest Assumption

FY	Inflation	Real*	Fund Yield	Blue Chip Return on New Invests (Cumulative)**
2021	4.28%	-1.02%	3.27%	0.09%
2022	2.30%	-0.34%	1.96%	0.98%
2023	2.35%	-0.47%	1.88%	1.26%
2024	2.30%	-0.73%	1.57%	1.51%
2025	2.20%	-0.46%	1.74%	1.79%
2026	2.20%	-0.41%	1.79%	1.94%
2027	2.20%	0.04%	2.24%	2.33%
2028	2.20%	0.40%	2.60%	2.60%
2029	2.20%	0.55%	2.75%	2.75%
2030	2.20%	0.67%	2.87%	2.87%
10 Yr Avg	2.44%	-0.18%	2.27%	1.81%
10 Yr Fund Wgt Avg	2.51%	-0.21%	2.31%	1.74%

Sensitivity Analysis Interest Assumption	Sensitivity Analysis Liability Inc / -Dec
2.50%	1.11%
2.25%	2.21%

Current Interest Assumption	Duration
2.75%	4.4

Notes:

* Real = Fund Yield - Inflation (after 3 mths TIPS inflation lag). For inflation, fund yield, and Blue Chip return calculations, the "X Yr Avg" calculation is geometric and the "X Yr Fund Wgt Avg" is weighted by expected fund size during FY.

** Assumes an amount equal to 25% of expected annual benefit payments is invested in overnights and new bond purchases are invested in 5 yr bonds.

--- Short Term Strategy: Mix of overnights and bills.

--- Portfolio Allocation: 50% conventional / 50% TIPS.

--- Investment Policy: Match cash flows to cash outflows plus a margin. Minimize risks to the funds--all securities are market based Treasury special issues. Hold to maturity policy.

DMDC and DFAS Comparison of FY 2020 Benefit Payments

Service	Chapter 30 Kicker Used With Chapter 30 Basic **DMDC** Reports	Chapter 30 Kicker Used With Chapter 33 Basic **DMDC** Reports	Chapter 30 Kicker Used With Ch 30 or 33 Basic **DMDC** Reports	Chapter 30 Kicker Used With Chapter 30 Basic **DFAS** Reports	Chapter 30 Kicker Used With Chapter 33 Basic **DFAS** Reports	Chapter 30 Kicker Used With Ch 30 or 33 Basic **DFAS** Reports	DMDC Reports as % of Total
Army	$3,156,262	$29,787,761	$32,944,023	$2,548,244	$36,885,327	$39,433,571	83.5%
Navy	$448,589	$6,300,560	$6,749,149	$364,854	$9,028,797	$9,393,651	71.8%
Marine Corps	$508,578	$4,563,217	$5,071,796	$379,325	$5,821,446	$6,200,771	81.8%
Coast Guard	$0	$7,543	$7,543	-$29,760	$87,444	$57,683	13.1%
Unknown	$0	$0	$0	$0	$196,904	$196,904	0.0%
Total	$4,113,429	$40,659,081	$44,772,510	$3,262,662	$52,019,918	$55,282,580	81.0%
FY 2019	$2,960,476	$57,998,354	$60,958,830	$4,542,617	$65,985,996	$70,528,613	86.4%
FY 2018	$7,580,002	$67,664,339	$75,244,341	$5,874,669	$80,086,775	$85,961,445	87.5%
FY 2017	$7,746,055	$83,080,267	$90,826,322	$7,925,653	$93,069,138	$100,994,791	89.9%
FY 2016	$16,566,886	$95,900,249	$112,467,135	$10,603,078	$106,839,563	$117,442,641	95.8%

Per Capita Contributions Added to the Fund by Fiscal Year

(Dollars in Millions)

Fiscal Year	Army	Navy	Marine Corps	Coast Guard	Total - Active
1985	$52.0	$0.0	$0.0	$0.000	$52.0
1986	$114.8	$0.0	$0.0	$0.000	$114.8
1987	$74.3	$8.3	$0.0	$0.000	$82.6
1988	$36.3	$4.9	$0.0	$0.000	$41.2
1989	$54.4	$0.1	$0.0	$0.000	$54.5
1990	-$2.4	$2.3	$0.0	$0.000	-$0.2
1991	$0.0	$1.1	$0.0	$0.000	$1.1
1992	$0.0	$2.2	$0.0	$0.000	$2.2
1993	$7.0	$2.3	$0.8	$0.000	$10.1
1994	$25.2	$5.4	$1.8	$0.000	$32.5
1995	$31.0	$19.9	$2.2	$0.000	$53.1
1996	$39.5	$12.0	$2.9	$0.000	$54.4
1997	$35.5	$17.7	$4.2	$0.000	$57.4
1998	$41.6	$24.2	$4.5	$0.000	$70.3
1999	$51.8	$31.7	$17.7	$0.000	$101.2
2000	$74.9	$20.3	$17.4	$0.000	$112.6
2001	$76.6	$32.5	$19.6	$0.000	$128.7
2002	$55.4	$23.7	$12.7	$0.000	$91.7
2003	$20.7	$5.2	$7.9	$0.000	$33.9
2004	$10.5	$5.7	$5.9	$0.005	$22.2
2005	$46.4	$6.6	$6.1	$0.000	$59.1
2006	$35.0	$1.8	$8.6	$0.000	$45.4
2007	$44.0	$4.0	$17.9	$0.000	$65.8
2008	$80.7	$6.2	$10.5	$0.000	$97.3
2009	$84.5	$5.7	$10.8	$0.000	$101.0
2010	$127.3	$5.3	$0.9	$0.000	$133.4
2011	$6.0	$0.1	$7.5	$0.000	$13.6
2012	$1.6	$0.0	$0.0	$0.000	$1.6
2013	$0.0	$0.0	$0.0	$0.000	$0.0
2014	$0.0	$0.0	$0.0	$0.000	$0.0
2015	$0.0	$0.0	$0.0	$0.000	$0.0
2016	$0.0	$0.0	$0.0	$0.000	$0.0
2017	$0.0	$0.0	$0.0	$0.000	$0.0
2018	$0.0	$0.0	$0.0	$0.000	$0.0
2019	$0.0	$0.0	$0.0	$0.000	$0.0
2020	$0.0	$0.0	$0.0	$0.000	$0.0
Total	$1,224.6	$249.2	$159.8	$0.005	$1,633.5

Benefits Paid by Fiscal Year

(Dollars in Millions)

Fiscal Year	Army	Navy	Marine Corps	Coast Guard	Total - Active
1985	$0.0	$0.0	$0.0	$0.000	$0.0
1986	$0.0	$0.0	$0.0	$0.000	$0.0
1987	$0.0	$0.0	$0.0	$0.000	$0.0
1988	$3.8	$0.1	$0.0	$0.000	$3.9
1989	$16.6	$0.2	$0.0	$0.000	$16.8
1990	$40.0	$2.7	$0.0	$0.000	$42.7
1991	$53.5	$4.5	$0.0	$0.000	$57.9
1992	$67.9	$4.0	$0.0	$0.000	$71.9
1993	$77.3	$3.3	$0.0	$0.000	$80.6
1994	$77.6	$2.2	$0.0	$0.000	$79.7
1995	$73.5	$2.7	$0.0	$0.000	$76.3
1996	$69.6	$3.7	$0.0	$0.000	$73.4
1997	$69.3	$5.1	$0.1	$0.000	$74.5
1998	$65.8	$9.3	$0.7	$0.000	$75.8
1999	$60.2	$13.6	$1.5	$0.000	$75.3
2000	$54.0	$15.0	$2.4	$0.000	$71.4
2001	$49.7	$16.7	$3.4	$0.000	$69.8
2002	$47.9	$20.3	$4.8	$0.000	$73.1
2003	$47.6	$25.2	$6.8	$0.000	$79.6
2004	$48.7	$29.1	$8.3	$0.015	$86.1
2005	$51.0	$32.4	$9.7	$0.059	$93.2
2006	$51.2	$34.0	$12.3	$0.055	$97.6
2007	$49.2	$34.0	$13.6	$0.057	$96.9
2008	$44.6	$33.2	$14.6	$0.058	$92.4
2009	$36.4	$31.6	$15.6	$0.075	$83.7
2010	$45.3	$37.4	$17.3	$0.133	$100.1
2011	$39.7	$28.0	$13.3	$0.120	$81.2
2012	$56.4	$30.1	$16.9	$0.141	$103.6
2013	$71.8	$27.8	$19.7	$0.156	$119.5
2014	$84.9	$24.8	$20.5	$0.146	$130.4
2015	$86.1	$21.9	$19.6	$0.111	$127.7
2016	$82.2	$18.7	$17.2	$0.104	$118.1
2017	$72.2	$14.7	$14.0	$0.079	$101.0
2018	$61.9	$12.9	$10.9	$0.082	$85.8
2019	$50.5	$11.3	$8.6	$0.078	$70.5
2020	$39.6	$9.4	$6.2	$0.058	$55.3
Total	$1,846.2	$559.9	$258.0	$1.528	$2,665.6

Chapter 30 Kicker Eligible Members As Of September 30

	2019	2020
Army 2-Year	**3,195**	**2,574**
Army 3-Year	**26,306**	**24,453**
Army 4-Year	**49,319**	**44,564**
Army 5-Year	**8,390**	**8,078**
Army 6-Year	**5,940**	**5,621**
Navy 2-Year	**25**	**25**
Navy 3-Year	**509**	**457**
Navy 4-Year	**29,592**	**25,175**
Marine 4-Year	**9,494**	**8,635**
Marine 5-Year	**6,429**	**5,937**
Marine 6-Year	**78**	**78**
Coast Guard 4-Year	**350**	**350**
Army	**93,150**	**85,290**
Navy	**30,126**	**25,657**
Marine Corps	**16,001**	**14,650**
Coast Guard	**350**	**350**
Total	**139,627**	**125,947**

Active vs Inactive As Of September 30, 2020

	Still on Active Duty	Separated From A.D.
Army	**14,172**	**71,118**
Navy	**7,753**	**17,904**
Marine Corps	**1,945**	**12,705**
Coast Guard	**140**	**210**
Total	**24,010**	**101,937**

*Number Who Have Used Benefit As Of September 30, 2020

	Has Used Benefit	Has Not Used Benefit
Army	**27,206**	**58,084**
Navy	**5,889**	**19,768**
Marine Corps	**2,542**	**12,108**
Coast Guard	**173**	**177**
Total	**35,810**	**90,137**

*Includes Dependents

FY 2020 Chapter 30 Kicker Fund Activity

(Dollars in Millions)

	Army	Navy	Marine Corps	Coast Guard	Total - Active
Starting Fund (Oct 19)	$317.9	$40.5	$36.4	$1.193	$396.0
Present Value of Benefits (Liability)	$255.1	$66.4	$30.5	$0.962	$353.0
Funded Ratio	124.6%	61.0%	119.4%	124.0%	112.2%
Unfunded Liability (Surplus)	($62.8)	$25.9	($5.9)	($0.231)	($43.1)
Amortization Payments	$5.9	$8.7	$3.6	$0.000	$18.2
Transfer To/From Other Programs	$3.0	$5.9	$0.0	$0.000	$8.9
Start+Amortization+Transfers	$326.9	$55.1	$40.0	$1.193	$423.1
Per Capita Amount Contributions	$0.0	$0.0	$0.0	$0.000	$0.0
Expenses	($39.6)	($9.4)	($6.2)	($0.058)	($55.3)
Net Receipts (excludes amortization)	($39.6)	($9.4)	($6.2)	($0.058)	($55.3)
Interest	$5.6	$0.9	$0.7	$0.021	$7.3
Prepayment of Amortization	$0.0	$0.0	$0.0	$0.000	$0.0
Ending Fund (Start +Amortization + PCA Contributions + Interest - Benefits Paid)	$293.0	$46.6	$34.5	$1.156	$375.1

Comparison of FY 2021 Benefits Paid to OACT Model Projection

Chapter 30 Kicker Benefits

	Army	Navy	Marine Corps	Coast Guard	Total
FY 2021 Through May	$20,217,463	$5,114,295	$3,247,166	$35,192	$28,614,116
***Full Year Projected**	$30,421,162	$7,674,830	$4,788,187	$45,494	$42,929,672
Model Projection	$33,889,148	$6,734,694	$4,382,354	$86,545	$45,092,741

Chapter 1606 Benefits

	Army National Guard	Army Reserve	Navy Reserve	Marine Corps Reserve	Air National Guard	Air Force Reserve	Coast Guard Reserve	Total
FY 2021 Through May	$40,372,350	$15,918,269	$1,659,799	$4,911,093	$14,372,321	$1,752,070	$76,501	$79,062,403
***Full Year Projected**	$47,719,406	$19,240,099	$2,066,799	$5,827,238	$16,842,759	$2,137,404	$98,256	$93,931,962
Model Projection	$47,543,483	$22,013,956	$3,746,845	$6,717,194	$15,762,916	$4,923,806	$89,902	$100,798,102

*Full Year Projected is FY 2021 Through May Increased by Average Full Year / May to Date Ratio from FY 2011-2020

FY 2020 Gain Loss Analysis of Chapter 30 Kicker Funds

(Dollars in Millions)

	Army	Navy	Marine Corps	Coast Guard	Total - Active
Projected September 30, 2020 Assets	$293.3	$48.5	$35.2	$1.14	$378.1
Projected September 30, 2020 PV Benefits	$218.8	$59.9	$25.3	$0.90	$304.9
Projected September 30, 2020 Unfunded Liability	**($74.6)**	**$11.4**	**($9.9)**	**($0.24)**	**($73.2)**
September 30, 2020 Assets	$293.0	$46.6	$34.5	$1.16	$375.1
September 30, 2020 PV Benefits	$211.8	$55.2	$23.6	$0.98	$291.6
September 30, 2020 Unfunded Liability	**($81.1)**	**$8.7**	**($10.9)**	**($0.18)**	**($83.5)**
FY 20 Assets Loss (or Gain)	$0.4	$1.9	$0.7	($0.01)	$3.0
FY 20 PV Benefits Loss (or Gain)	($6.9)	($4.7)	($1.7)	$0.08	($13.3)
FY 20 Loss (or Gain)	**($6.6)**	**($2.8)**	**($1.0)**	**$0.06**	**($10.3)**
	-3.0%	-4.7%	-4.0%	7.1%	-3.4%
Loss (Gain) Due to PV Benefits:					
Withdrawal Experience & Census Changes	($1.1)	($1.3)	($0.7)	$0.07	($3.1)
	-0.5%	-2.2%	-2.8%	7.2%	-1.0%
Interest Rate Assumption Change	$2.9	$0.8	$0.3	$0.02	$4.1
(Assumption Change From 2.75% to 2.5%)	1.3%	1.4%	1.2%	2.1%	1.3%
Usage Rate Assumption Changes	($8.7)	($4.2)	($1.3)	($0.01)	($14.3)
	-4.0%	-7.0%	-5.3%	-0.8%	-4.7%
Total (PV Benefits)	**($6.9)**	**($4.7)**	**($1.7)**	**$0.08**	**($13.3)**
	-3.2%	**-7.8%**	**-6.9%**	**8.5%**	**-4.4%**
Loss (Gain) Due to Assets:					
Benefit Usage Experience From Model Projections	($2.5)	$1.4	$0.4	($0.02)	($0.7)
	-1.1%	2.4%	1.5%	-2.7%	-0.2%
Interest Earnings	$2.9	$0.5	$0.3	$0.01	$3.7
(Actual Earnings of 1.82% vs Interest Assumption of 2.75%)	1.0%	1.0%	1.0%	0.9%	1.0%
Total (Assets)	**$0.4**	**$1.9**	**$0.7**	**($0.01)**	**$3.0**
	0.2%	**3.2%**	**2.8%**	**-1.5%**	**1.0%**

Percents below itemized Gain/Loss are Gain/Loss as a percent of projected FY 2020 PV Benefits, except for Interest Earnings, whose percent is a percent of 2020 projected assets.

Amortization Payments (Adjustments) for Active Duty Kicker Program

	Army	Navy	Marine Corps	Coast Guard	Total - Active
Amount in Fund on September 30, 2020	$292,959,611	$46,555,862	$34,472,479	$1,155,869	$375,143,821
Present Value of Benefits	$211,846,785	$55,209,274	$23,571,931	$979,071	$291,607,061
Unfunded Liability (Surplus)	($81,112,826)	$8,653,412	($10,900,548)	($176,798)	($83,536,760)
Amortization Payment on October 1, 2020	$0	$5,204,989	$139,593	$0	$5,344,582
Net Receipts (Contributions - Benefits + Interest)	($25,741,849)	($6,345,958)	($3,976,171)	($31,068)	($36,095,047)
Amount in Fund on September 30, 2021	$267,217,762	$45,414,893	$30,635,900	$1,124,801	$344,393,356
Present Value of Benefits	$182,076,689	$49,568,130	$19,642,041	$912,234	$252,199,094
Unfunded Liability (Surplus)	($85,141,073)	$4,153,237	($10,993,859)	($212,567)	($92,194,262)
Scheduled Amortization on October 1, 2021	$0	$1,630,752	$0	$0	$1,630,752
Net Receipts (Contributions - Benefits + Interest)	($22,164,421)	($5,065,853)	($2,672,589)	($39,635)	($29,942,498)
Amount in Fund on September 30, 2022	$245,053,341	$41,979,792	$27,963,311	$1,085,166	$316,081,610
Present Value of Benefits	$157,783,741	$44,565,339	$16,694,606	$867,285	$219,910,971
Unfunded Liability (Surplus)	($87,269,600)	$2,585,547	($11,268,705)	($217,881)	($96,170,639)
Amortization Payment on Oct 1, 2022	**$0**	**$542,957**	**$0**	**$0**	**$542,957**

Amortization schedule based on 5 years at an interest rate of 2.5%

Factors Affecting Changes in the Active Duty Kicker Normal Costs

Item	Fiscal Year	Army 2 Year $150	Army 3 Year $250	Army 4 Year $350	Army 5 Year $650	Army 6 Year $950	Navy 4 Year $450	Marines 4 Year $450	Marines 5 Year $450	Marines 6 Year $450	Coast 4 Year $450
Assumed Benefit	2022	$150	$250	$350	$650	$950	$450	$450	$450	$450	$450
	2023	$150	$250	$350	$650	$950	$450	$450	$450	$450	$450
% Benefit Used	2022	56.5%	56.0%	54.4%	53.0%	52.4%	56.5%	42.9%	42.1%	40.8%	48.3%
	2023	64.1%	65.0%	61.8%	61.2%	59.6%	58.1%	43.3%	42.2%	40.6%	61.1%
Discount Factor	2022	0.811	0.792	0.776	0.776	0.768	0.710	0.773	0.756	0.744	0.674
	2023	0.820	0.813	0.799	0.804	0.796	0.731	0.789	0.774	0.763	0.734
Normal Cost	2022	$2,474	$3,992	$5,314	$9,623	$13,771	$6,506	$5,378	$5,155	$4,913	$5,273
	2023	$2,837	$4,757	$6,220	$11,500	$16,221	$6,876	$5,534	$5,299	$5,024	$7,271
Amortization Adjustment	2022	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
	2023	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Per Capita Amount	**2022**	**$2,474**	**$3,992**	**$5,314**	**$9,623**	**$13,771**	**$6,506**	**$5,378**	**$5,155**	**$4,913**	**$5,273**
	2023	**$2,837**	**$4,757**	**$6,220**	**$11,500**	**$16,221**	**$6,876**	**$5,534**	**$5,299**	**$5,024**	**$7,271**

Normal Cost = Assumed Benefit X % Benefit Used X Discount Factor X 36 Months

DoD Office of the Actuary

Chapter 30 Kicker Fiscal Year 2022 Normal Costs

	Monthly Kicker Amount								
Service / Contract	**$150**	**$250**	**$350**	**$450**	**$550**	**$650**	**$750**	**$850**	**$950**
Army / 2 Year	$2,474	$4,161	$5,876	$7,618	$9,385	$11,176	$12,991	$14,828	$16,685
Army / 3 Year	$2,373	$3,992	$5,638	$7,310	$9,008	$10,729	$12,472	$14,237	$16,023
Army / 4 Year	$2,239	$3,764	$5,314	$6,886	$8,481	$10,097	$11,732	$13,386	$15,058
Army / 5 Year	$2,141	$3,597	$5,074	$6,571	$8,088	$9,623	$11,176	$12,746	$14,331
Army / 6 Year	$2,062	$3,462	$4,882	$6,321	$7,779	$9,253	$10,743	$12,250	$13,771
Navy / 4 Year	$2,113	$3,554	$5,019	$6,506	$8,015	$9,544	$11,093	$12,661	$14,247
Marine Corps / 4 Year	$1,740	$2,930	$4,143	$5,378	$6,635	$7,912	$9,210	$10,528	$11,865
Marine Corps / 5 Year	$1,668	$2,809	$3,971	$5,155	$6,359	$7,584	$8,828	$10,091	$11,372
Marine Corps / 6 Year	$1,599	$2,687	$3,792	$4,913	$6,049	$7,201	$8,367	$9,548	$10,743
Coast Guard / 4 Year	$1,733	$2,903	$4,083	$5,273	$6,474	$7,684	$8,903	$10,131	$11,367

Chapter 30 Kicker Fiscal Year 2023 Normal Costs

	Monthly Kicker Amount								
Service / Contract	**$150**	**$250**	**$350**	**$450**	**$550**	**$650**	**$750**	**$850**	**$950**
Army / 2 Year	$2,837	$4,759	$6,702	$8,667	$10,652	$12,656	$14,679	$16,718	$18,775
Army / 3 Year	$2,838	$4,757	$6,697	$8,657	$10,635	$12,630	$14,642	$16,671	$18,714
Army / 4 Year	$2,636	$4,419	$6,220	$8,039	$9,875	$11,727	$13,594	$15,475	$17,369
Army / 5 Year	$2,599	$4,352	$6,119	$7,900	$9,694	$11,500	$13,319	$15,149	$16,989
Army / 6 Year	$2,479	$4,151	$5,838	$7,538	$9,251	$10,976	$12,714	$14,462	$16,221
Navy / 4 Year	$2,248	$3,772	$5,315	$6,876	$8,454	$10,049	$11,659	$13,284	$14,923
Marine Corps / 4 Year	$1,795	$3,020	$4,266	$5,534	$6,821	$8,128	$9,455	$10,799	$12,162
Marine Corps / 5 Year	$1,718	$2,891	$4,085	$5,299	$6,532	$7,785	$9,057	$10,346	$11,654
Marine Corps / 6 Year	$1,637	$2,750	$3,879	$5,024	$6,184	$7,359	$8,549	$9,752	$10,968
Coast Guard / 4 Year	$2,374	$3,985	$5,618	$7,271	$8,945	$10,638	$12,349	$14,079	$15,826

Chapter 30 Kicker Projected Fund Activity

(Dollars in Millions)

	Army	Navy	Marine Corps	Coast Guard	Total - Active
FY 2021					
Starting Fund (Oct 20)	$293.0	$46.6	$34.5	$1.156	$375.1
Present Value of Benefits (Liability)	$211.8	$55.2	$23.6	$0.979	$291.6
Funded Ratio	138.3%	84.3%	146.2%	118.1%	128.6%
Unfunded Liability (Surplus)	($81.1)	$8.7	($10.9)	($0.177)	($83.5)
Amortization Payments	$0.0	$5.2	$0.1	$0.000	$5.3
Transfer To/From Other Programs	$0.0	$0.0	$0.0	$0.000	$0.0
Start+Amortization	$293.0	$51.8	$34.6	$1.156	$380.5
Receipts (excludes amortization)	$0.0	$0.0	$0.0	$0.000	$0.0
Benefit Payments	($31.6)	($7.4)	($4.7)	($0.055)	($43.7)
Net Receipts (excludes amortization)	($31.6)	($7.4)	($4.7)	($0.055)	($43.7)
Interest	$5.8	$1.0	$0.7	$0.024	$7.6
Net Receipts with Interest	($25.7)	($6.3)	($4.0)	($0.031)	($36.1)
Ending Fund	$267.2	$45.4	$30.6	$1.125	$344.4
(Start +Amortization + Transfers + PCA Contributions + Interest - Benefits Paid)					
FY 2022					
Starting Fund (Oct 21)	$267.2	$45.4	$30.6	$1.125	$344.4
Present Value of Benefits (Liability)	$182.1	$49.6	$19.6	$0.912	$252.2
Unfunded Liability (Surplus)	($85.1)	$4.2	($11.0)	($0.213)	($92.2)
Amortization Payments	$0.0	$1.6	$0.0	$0.000	$1.6
Start+Amortization+Transfers	$267.2	$47.0	$30.6	$1.125	$346.0
Receipts (excludes amortizations)	$0.0	$0.0	$0.0	$0.000	$0.0
Benefit Payments	($28.5)	($6.2)	($3.4)	($0.067)	($38.2)
Interest	$6.4	$1.1	$0.7	$0.027	$8.2
Net Receipts with Interest	($22.2)	($5.1)	($2.7)	($0.040)	($29.9)
Ending Fund	$245.1	$42.0	$28.0	$1.090	$316.1
(Start +Amortization + Transfers + PCA Contributions + Interest - Benefits Paid)					

Army Active Duty Kicker Projections

2021 - 2031

Fiscal Year	Fund - Start of Year	Amortization Payments	PCA Contributions	Benefits Paid	Interest	End Of Year	End of Year Liability	End of Year Unfunded Liability
2021	$293.0	$0.0	$0.0	$31.6	$5.8	$267.2	$182.1	-$85.1
2022	$267.2	$0.0	$0.0	$28.5	$6.4	$245.1	$157.8	-$87.3
2023	$245.1	$0.0	$0.0	$24.4	$5.8	$226.5	$137.0	-$89.5
2024	$226.5	$0.0	$0.0	$20.4	$5.4	$211.6	$119.9	-$91.7
2025	$211.6	$0.0	$0.0	$17.0	$5.1	$199.7	$105.7	-$94.0
2026	$199.7	$0.0	$0.0	$14.6	$4.8	$189.9	$93.6	-$96.3
2027	$189.9	$0.0	$0.0	$12.9	$4.6	$181.6	$82.9	-$98.7
2028	$181.6	$0.0	$0.0	$11.9	$4.4	$174.1	$72.9	-$101.2
2029	$174.1	$0.0	$0.0	$11.2	$4.2	$167.1	$63.4	-$103.7
2030	$167.1	$0.0	$0.0	$10.7	$4.1	$160.5	$54.2	-$106.3
2031	$160.5	$0.0	$0.0	$10.0	$3.9	$154.4	$45.4	-$109.0

Dollars in Millions

Assuming no future gains or losses or changes to assumptions.

Navy Active Duty Kicker Projections

2021 - 2031

Fiscal Year	Fund - Start of Year	Amortization Payments	PCA Contributions	Benefits Paid	Interest	End Of Year	End of Year Liability	End of Year Unfunded Liability
2021	$46.6	$5.2	$0.0	$7.4	$1.0	$45.4	$49.6	$4.2
2022	$45.4	$1.6	$0.0	$6.2	$1.1	$42.0	$44.6	$2.6
2023	$42.0	$0.5	$0.0	$6.0	$1.0	$37.5	$39.6	$2.1
2024	$37.5	$0.4	$0.0	$5.7	$0.9	$33.1	$34.7	$1.7
2025	$33.1	$0.4	$0.0	$5.3	$0.8	$28.9	$30.3	$1.4
2026	$28.9	$0.3	$0.0	$4.7	$0.7	$25.1	$26.2	$1.1
2027	$25.1	$0.2	$0.0	$4.2	$0.6	$21.7	$22.6	$0.9
2028	$21.7	$0.2	$0.0	$3.8	$0.5	$18.6	$19.4	$0.7
2029	$18.6	$0.2	$0.0	$3.4	$0.4	$15.9	$16.4	$0.6
2030	$15.9	$0.1	$0.0	$3.0	$0.4	$13.3	$13.8	$0.5
2031	$13.3	$0.1	$0.0	$2.7	$0.3	$11.0	$11.4	$0.4

Dollars in Millions

Assuming no future gains or losses or changes to assumptions.

Marine Corps Active Duty Kicker Projections

2021 - 2031

Fiscal Year	Fund - Start of Year	Amortization Payments	PCA Contributions	Benefits Paid	Interest	End Of Year	End of Year Liability	End of Year Unfunded Liability
2021	$34.5	$0.1	$0.0	$4.7	$0.7	$30.6	$19.6	-$11.0
2022	$30.6	$0.0	$0.0	$3.4	$0.7	$28.0	$16.7	-$11.3
2023	$28.0	$0.0	$0.0	$2.8	$0.7	$25.9	$14.3	-$11.6
2024	$25.9	$0.0	$0.0	$2.3	$0.6	$24.2	$12.3	-$11.8
2025	$24.2	$0.0	$0.0	$2.0	$0.6	$22.8	$10.7	-$12.1
2026	$22.8	$0.0	$0.0	$1.6	$0.6	$21.7	$9.3	-$12.4
2027	$21.7	$0.0	$0.0	$1.4	$0.5	$20.8	$8.1	-$12.7
2028	$20.8	$0.0	$0.0	$1.3	$0.5	$20.0	$7.0	-$13.1
2029	$20.0	$0.0	$0.0	$1.2	$0.5	$19.4	$6.0	-$13.4
2030	$19.4	$0.0	$0.0	$1.1	$0.5	$18.8	$5.0	-$13.7
2031	$18.8	$0.0	$0.0	$0.9	$0.5	$18.3	$4.2	-$14.1

Dollars in Millions

Assuming no future gains or losses or changes to assumptions.

Coast Guard Active Duty Kicker Projections

2021 - 2031

Fiscal Year	Fund - Start of Year	Amortization Payments	PCA Contributions	Benefits Paid	Interest	End Of Year	End of Year Liability	End of Year Unfunded Liability
2021	$1,156	$0	$0	$55	$24	$1,125	$912	-$213
2022	$1,125	$0	$0	$67	$27	$1,085	$867	-$218
2023	$1,085	$0	$0	$62	$26	$1,050	$826	-$223
2024	$1,050	$0	$0	$63	$26	$1,013	$784	-$229
2025	$1,013	$0	$0	$59	$25	$979	$744	-$235
2026	$979	$0	$0	$55	$24	$947	$707	-$240
2027	$947	$0	$0	$74	$23	$896	$650	-$247
2028	$896	$0	$0	$83	$21	$835	$582	-$253
2029	$835	$0	$0	$83	$20	$772	$513	-$259
2030	$772	$0	$0	$78	$18	$713	$448	-$265
2031	$713	$0	$0	$69	$17	$661	$389	-$272

Dollars in Thousands

Assuming no future gains or losses or changes to assumptions.

Post-Vietnam Era Involuntary and Voluntary Separatees
Fund Activity and Annual Payments For Fiscal Year 2021

FY 2021	Army	Navy	Marine Corps	Air Force	Coast Guard	Total
Fund Balance as of September 30, 2020	-$47,042	-$5,630	-$4,803	-$9,994	$1,457	-$66,012
October 1, 2020 Receipts	$56,742	$6,572	$4,902	$6,091	$0	$74,307
Balance as of October 1, 2020	$9,700	$942	$99	-$3,903	$1,457	$8,295
Benefit Payments (Thru June)	$54,556	$0	$0	$0	$0	$54,556
Benefit Payments (Projected Full Year)	$58,692	$0	$0	$0	$0	$58,692
Interest Owed	$582	-$25	-$3	$103	-$39	$619
Projected Fund Balance on October 1, 2021	**-$49,574**	**$967**	**$102**	**-$4,006**	**$1,495**	**-$51,017**
Amount Due on October 1, 2021	**$49,574**	**$0**	**$0**	**$4,006**	**$0**	**$53,580**

Chapter 1606 / MGIB-SR
Valuation of Education Benefits

Presented before the DoD Board of Actuaries

by Richard Allen (571) 225-4624, Richard.S.Allen40.civ@mail.mil
DoD Office of the Actuary
Summer 2021

Chapter 1606 DMDC and DFAS Comparison of FY 2020 Benefit Payments

	DMDC Reporting			DFAS Reporting			DMDC Reports as % of Total		
FY 2020	Chapter 1606 Basic Benefits	Chapter 1606 Kicker Benefits	Basic & Kicker Combined	Chapter 1606 Basic Benefits	Chapter 1606 Kicker Benefits	Basic & Kicker Combined	Chapter 1606 Basic Benefits	Chapter 1606 Kicker Benefits	Basic & Kicker Combined
Army National Guard	$39,740,564	$12,358,511	$52,099,075	$42,955,882	$15,540,078	$58,495,960	92.5%	79.5%	89.1%
Army Reserve	$16,455,893	$5,085,269	$21,541,162	$17,382,055	$8,816,516	$26,198,571	94.7%	57.7%	82.2%
Navy Reserve	$2,421,630	$91,591	$2,513,221	$2,846,203	$757,277	$3,603,480	85.1%	12.1%	69.7%
Marine Corps Reserve	$6,235,139	$178,522	$6,413,661	$7,272,712	$389,317	$7,662,029	85.7%	45.9%	83.7%
Air National Guard	$11,486,983	$8,173,520	$19,660,503	$11,775,160	$11,454,092	$23,229,251	97.6%	71.4%	84.6%
Air Force Reserve	$1,411,186	$946,495	$2,357,682	$1,614,722	$3,686,931	$5,301,653	87.4%	25.7%	44.5%
Coast Guard Reserve	$117,008	$0	$117,008	$136,834	$2,440	$139,274	85.5%	0.0%	84.0%
All Components	$77,868,403	$26,833,908	$104,702,310	$83,983,567	$40,646,651	$124,630,218	92.7%	66.0%	84.0%
FY 2019	$80,744,845	$28,324,007	$109,068,852	$87,952,195	$37,973,464	$125,925,659	91.8%	74.6%	86.6%
FY 2018	$78,717,307	$23,144,394	$101,861,701	$93,545,267	$37,863,171	$131,408,438	84.1%	61.1%	77.5%
FY 2017	$78,015,146	$24,357,772	$102,372,919	$104,595,275	$42,551,788	$147,147,062	74.6%	57.2%	69.6%
FY 2016	$82,120,150	$26,243,417	$108,363,567	$108,222,789	$48,617,986	$156,840,775	75.9%	54.0%	69.1%

Chapter 1606 Reservists Eligible for Basic & Kicker Benefits

	As of September 30, 2019	2020
Eligible for the Basic Benefit	**444,073**	**488,806**
Army National Guard	210,443	234,187
Army Reserve	102,272	127,710
Navy Reserve	30,728	19,898
Marine Corps Reserve	25,705	23,548
Air National Guard	48,794	61,197
Air Force Reserve	25,040	21,423
Coast Guard Reserve	1,091	843
Eligible for the Kicker Benefit	**128,528**	**140,495**
Army National Guard	57,289	65,353
Army Reserve	31,554	36,035
Navy Reserve	389	677
Marine Corps Reserve	509	390
Air National Guard	27,627	27,375
Air Force Reserve	11,160	10,665
Coast Guard Reserve	0	0

Bureau of Labor Statistics Consumer Price Index (CPI-W) & O-Act Projected CPI-W's

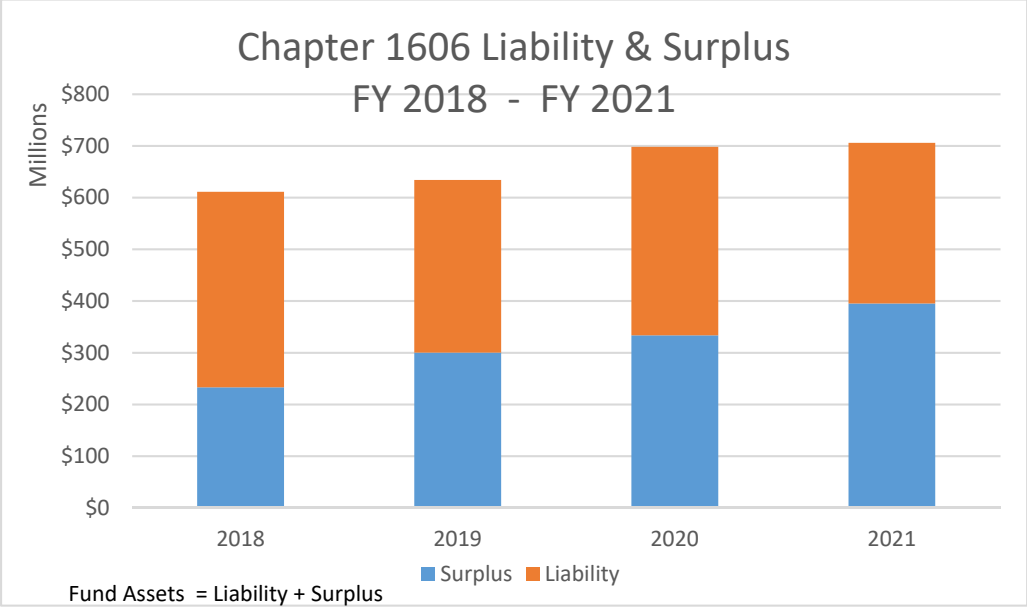
Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	July - June	July - June CPI Increase	Chapter 1606 Monthly Basic Benefit
2019							**250.2**	**250.1**	**250.3**	**250.9**	**250.6**	**250.5**			
2020	**251.4**	**251.9**	**251.4**	**249.5**	**249.5**	**251.1**	**252.6**	**253.6**	**254.0**	**254.1**	**253.8**	**254.1**	250.6		
2021	**255.3**	**256.8**	**258.9**	**261.2**	**263.6**	**266.4**	267.0	267.6	268.1	268.6	269.1	269.5	257.0	**2.6%**	$397
2022	270.0	270.5	271.0	271.5	272.0	272.5	273.0	273.5	274.0	274.6	275.1	275.7	269.8	**5.0%**	$407
2023														**2.3%**	$427
2024														**2.4%**	$437
2025														**2.2%**	$447
2026														**2.2%**	$457
2027														**2.2%**	$467
2028														**2.2%**	$477
2029														**2.2%**	$487

Bold indicates actual CPI. Otherwise, O-ACT projection.
Annual CPI = July - June 12 Month Average Divided by Previous July - June 12 Month Average rounded to the nearest tenth of percent.
Chapter 1606 monthly benefit is previous year's benefit increased by annual CPI rounded to the nearest dollar.

Source: Bureau of Labor Statistics, Urban Wage Earners and Clerical Workers CPI through June, 2021
Blue Chip Financial Forecasts, June, 2021 Consumer Price Index Estimates
Estimates are Quarterly Through 2022; Annually Thereafter

CHAPTER 1606 PROPOSED METHODOLOGY CHANGES

Rationale for Study & Change – The Chapter 1606 portion of the Education Benefits Fund (EBF) has been in a surplus position since 2005 and each of the seven reserve components individually have been in surplus since 2012, despite offsets each year to their per capita amounts. Over the past few years, Fund's total surplus continues to grow.



Change to True Up Factors – In order to generate individual rates that are essential to running the model, OACT uses DMDC data and has been "Trueing Up" the rates by the ratio of DFAS spending to DMDC reported spending. DMDC spending on the file is less than what DFAS is reporting is because;

(1) Benefit usage activity by the reservists on the file is underreported
(2) Not all eligible reservists are included on the file

OACT estimates 38% of the underreported activity is due to factor #1 and 62% is due to factor #2.

	Current Methodology	**Proposed Methodology**
Usage Rates	Increases rates on DMDC file by percentage increase of DFAS to DMDC total spending (individually by component)	Increases rates on DMDC file by percentage increase of DFAS to DMDC spending attributable to reservists on the file (individually by component)
Population as of Valuation Date	Census on DMDC file	Most recent year uses per capita contributions to Fund as reported by DFAS. Two or more years ago uses census on DMDC file increased by DFAS to DMDC contributions excluding most recent year, i.e. difference attributable to reservists not on the file

Chapter 1606 Gain/Loss for Basic and Kicker Combined

(Dollars in Millions)

	Army National Guard	Army Reserve	Navy Reserve	Marine Corps Reserve	Air National Guard	Air Force Reserve	Coast Guard Reserve	Total
Projected September 30, 2020 Assets	$370.0	$144.4	$21.4	$39.1	$67.7	$58.3	$3.9	$704.7
Projected September 30, 2020 PV Benefits	$184.1	$81.8	$7.7	$18.5	$57.7	$21.9	$0.2	$372.0
Projected September 30, 2020 Unfunded Liability	**($186.0)**	**($62.5)**	**($13.7)**	**($20.5)**	**($10.0)**	**($36.4)**	**($3.7)**	**($332.8)**
September 30, 2020 Assets	$379.7	$140.4	$21.1	$35.8	$71.6	$57.6	$3.9	$710.0
September 30, 2020 PV Benefits	$136.0	$68.4	$10.9	$19.9	$53.8	$23.4	$0.2	$312.6
September 30, 2020 Unfunded Liability	**($243.7)**	**($72.1)**	**($10.2)**	**($15.8)**	**($17.8)**	**($34.2)**	**($3.6)**	**($397.4)**
FY 2020 Asset (Gain) Loss	($9.7)	$3.9	$0.3	$3.3	($3.9)	$0.7	$0.0	($5.3)
FY 2020 PVB (Gain) Loss	($48.0)	($13.5)	$3.2	$1.4	($3.9)	$1.5	$0.0	($59.4)
FY 2020 Unfunded PVB (Gain) Loss	**($57.7)**	**($9.5)**	**$3.5**	**$4.7**	**($7.8)**	**$2.2**	**$0.0**	**($64.7)**
Percentage of Projected Model PVB	-31.4%	-11.6%	45.3%	25.2%	-13.5%	9.9%	18.7%	-17.4%
(Gain)/Loss Walk for PV Benefits:								
2020 New Entrant Experience ($ Millions)	($3.3)	($0.2)	($0.6)	($0.4)	$2.5	($0.7)	($0.0)	($2.7)
PCA Offset * (# of New Entrants - Expected New Entrants)	-1.8%	-0.2%	-7.2%	-2.1%	4.3%	-3.2%	-1.9%	-0.7%
Change Due to New Methodology	($12.5)	($10.4)	$1.8	$3.0	($24.6)	($12.3)	$0.0	($55.0)
	-6.8%	-12.7%	23.3%	16.0%	-42.7%	-56.1%	14.2%	-14.8%
Withdrawal Experience and Census Changes	($18.8)	$6.6	($0.8)	$2.2	$5.8	$3.7	$0.0	($1.4)
	-10.2%	8.0%	-10.5%	11.8%	10.0%	16.7%	18.7%	-0.4%
Usage Rate Assumption Change	($15.1)	($10.1)	$2.7	($3.5)	$11.9	$10.6	($0.1)	($3.6)
	-8.2%	-12.4%	34.9%	-18.9%	20.6%	48.4%	-29.3%	-1.0%
Interest Rate Assumption Change	$1.7	$0.7	$0.0	$0.1	$0.6	$0.2	$0.0	$3.4
(Assumption Change From 2.75% to 2.5%)	0.9%	0.8%	0.5%	0.7%	1.1%	0.9%	0.6%	0.9%
Other Economic Assumption Changes	($0.1)	($0.0)	($0.0)	($0.0)	($0.0)	($0.0)	($0.0)	($0.2)
	0.0%	-0.1%	0.0%	-0.1%	0.0%	0.0%	0.0%	0.0%
Total	($48.0)	($13.5)	$3.2	$1.4	($3.9)	$1.5	$0.0	($59.4)
	-26.1%	-16.5%	41.0%	7.4%	-6.8%	6.8%	2.3%	-16.0%
	$83.8	$44.4	($1.7)	$2.9	$56.1	$21.2	($0.0)	
(Gain)/Loss Due to Assets:								
Benefit Usage Experience	($0.1)	$1.4	$0.0	$0.3	$1.2	$0.3	$0.0	$3.1
	-0.1%	1.7%	0.6%	1.5%	2.1%	1.3%	0.8%	0.8%
Contributions	($12.9)	$1.2	$0.1	$2.7	($5.9)	($0.1)	($0.0)	($15.0)
	-7.0%	1.5%	1.0%	14.4%	-10.2%	-0.7%	0.0%	-4.0%
Interest Earnings[1]	$3.4	$1.3	$0.2	$0.4	$0.7	$0.5	$0.0	$6.6
	0.9%	0.9%	1.0%	0.9%	1.1%	0.9%	0.9%	0.9%
Total	($9.7)	$3.9	$0.3	$3.3	($3.9)	$0.7	$0.0	($5.3)
	-5.3%	4.8%	4.3%	17.8%	-6.8%	3.1%	16.4%	-1.4%

[1] Given in % of Projected Model Assets. All other %s given as % of Projected Model PV Benefits.

Chapter 1606 Amortization Payments (Adjustments) for Basic & Kicker Programs

	Army National Guard	Army Reserve	Navy Reserve	Marine Corps Reserve	Air National Guard	Air Force Reserve	Coast Guard Reserve	TOTAL
Amount in Fund on September 30, 2020	$376,937,080	$139,653,720	$20,992,350	$35,552,379	$71,423,401	$57,372,471	$3,855,973	$705,787,374
Present Value of Benefits	$136,018,262	$68,362,013	$10,886,209	$19,906,071	$53,785,888	$23,381,604	$236,584	$312,576,631
Unfunded Liability (Surplus)	($240,918,818)	($71,291,707)	($10,106,142)	($15,646,308)	($17,637,513)	($33,990,867)	($3,619,389)	($393,210,743)
Amortization Payment on October 1, 2020	$0	$0	$0	$0	$0	$0	$0	$0
Net Receipts (Asset Xfers + Contribs - Ben Pmts + Int)	$14,724,836	($1,024,661)	($1,043,419)	($2,756,537)	($5,355,067)	$1,285,183	$4,578	$5,834,913
Amount in Fund on September 30, 2021	$391,661,916	$138,629,060	$19,948,931	$32,795,842	$66,068,333	$58,657,655	$3,860,551	$711,622,287
Present Value of Benefits	$147,486,547	$67,837,278	$9,762,248	$17,210,857	$48,388,795	$24,844,368	$170,948	$315,701,040
Unfunded Liability (Surplus)	($244,175,369)	($70,791,782)	($10,186,683)	($15,584,985)	($17,679,539)	($33,813,287)	($3,689,603)	($395,921,247)
Amortization Payment on October 1, 2021	$0	$0	$0	$0	$0	$0	$0	$0
Net Receipts (Asset Xfers + Contribs - Ben Pmts + Int)	$4,161,038	($1,074,630)	($2,754,828)	($2,863,357)	$252,146	($828,290)	$31,041	($3,076,880)
Amount in Fund on September 30, 2022	$395,822,953	$137,554,429	$17,194,103	$29,932,485	$66,320,480	$57,829,364	$3,891,593	$708,545,407
Present Value of Benefits	$155,968,105	$73,994,352	$8,675,366	$18,599,313	$48,491,083	$26,681,452	$129,377	$332,539,049
Unfunded Liability (Surplus)	($239,854,849)	($63,560,077)	($8,518,737)	($11,333,172)	($17,829,396)	($31,147,912)	($3,762,215)	($376,006,358)
Amortization Payment on Oct 1, 2022	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**
Adjustment to FY 2023 Normal Costs	**($50,943,353)**	**($13,499,679)**	**($1,809,315)**	**($2,407,080)**	**($3,786,829)**	**($6,615,581)**	**($799,066)**	**($79,860,903)**

Note: Surpluses and deficits are amortized over 5 years. The interest rate is assumed to be 2.5%

Chapter 1606 Offsets to FY 2023 Normal Costs

	Army National Guard	Army Reserve	Navy Reserve	Marine Corps Reserve	Air National Guard	Air Force Reserve	Coast Guard Reserve
Projected Basic Normal Cost Contributions Before Offset	$50,416,500	$18,019,524	$1,995,237	$7,809,230	$6,563,474	$3,043,935	$20,016
Total Amount to be Offset	$50,943,353	$13,499,679	$1,809,315	$2,407,080	$3,786,829	$6,615,581	$799,066
% of Normal Costs Being Offset	>100%	74.9%	90.7%	30.8%	57.7%	>100%	>100%
*Projected Model Entrants	28,500	18,596	2,671	4,730	3,154	3,519	6
Offset Per New Entrant for FY 2023	$1,769	$726	$677	$509	$1,201	$865	$3,336
Offset to Normal Cost	Full Offset	Partial Offset	Partial Offset	Partial Offset	Partial Offset	Full Offset	Full Offset

*From DoD Office of Compensation

Chapter 1606 Per Capita Contribution Amounts

Item	Fiscal Year	Army National Guard Basic	Army Reserve Basic	Navy Reserve Basic	Marine Corps Reserve Basic	Air National Guard Basic	Air Force Reserve Basic	Coast Guard Reserve Basic
Assumed	2022	$422	$422	$426	$423	$419	$423	$421
Benefit	2023	$451	$452	$456	$451	$448	$451	$449
% Benefit	2022	15.2%	8.6%	4.9%	9.5%	17.7%	3.6%	15.8%
Used	2023	11.6%	6.3%	4.9%	10.8%	13.6%	5.7%	21.8%
Discount	2022	0.938	0.936	0.926	0.932	0.945	0.935	0.939
Factor	2023	0.942	0.940	0.931	0.942	0.949	0.941	0.947
Normal	2022	$2,165	$1,230	$698	$1,347	$2,527	$518	$2,249
Cost	2023	$1,769	$969	$747	$1,651	$2,081	$865	$3,336
Normal Cost	2022	$1,518	$737	$698	$764	$770	$518	$2,249
Offset	2023	$1,769	$726	$677	$509	$1,201	$865	$3,336
Per Capita	**2022**	**$647**	**$493**	**$0**	**$583**	**$1,757**	**$0**	**$0**
Amount	**2023**	**$0**	**$243**	**$70**	**$1,142**	**$880**	**$0**	**$0**

Normal Cost = Assumed Benefit X % Benefit Used X Discount Factor X 36 Months
Per Capita Amount = Normal Cost - Offset

Chapter 1606 Per Capita Contribution Amounts

Item	Fiscal Year	Army National Guard $100 Kicker	Army Reserve $100 Kicker	Navy Reserve $100 Kicker	Marine Corps Reserve $100 Kicker	Air National Guard $100 Kicker	Air Force Reserve $100 Kicker	Coast Guard Reserve $100 Kicker
Assumed Benefit	2022	$100	$100	$100	$100	$100	$100	$100
	2023	$100	$100	$100	$100	$100	$100	$100
% Benefit Used	2022	16.4%	17.0%	31.7%	27.4%	25.7%	26.0%	18.2%
	2023	11.3%	13.7%	7.3%	13.0%	28.4%	31.0%	27.2%
Discount Factor	2022	0.821	0.841	0.920	0.925	0.824	0.830	0.850
	2023	0.892	0.864	0.914	0.942	0.876	0.879	0.909
Normal Cost	2022	$486	$514	$1,050	$912	$764	$776	$558
	2023	$361	$427	$240	$441	$896	$981	$892
Normal Cost Offset	2022	$0	$0	$0	$0	$0	$0	$0
	2023	$0	$0	$0	$0	$0	$0	$0
Per Capita Amount	**2022**	**$486**	**$514**	**$1,050**	**$912**	**$764**	**$776**	**$558**
	2023	**$361**	**$427**	**$240**	**$441**	**$896**	**$981**	**$892**

Normal Cost = Assumed Benefit X % Benefit Used X Discount Factor X 36 Months
Per Capita Amount = Normal Cost - Offset
A boxed variable means that this kicker amount is currently offered by the component.

Chapter 1606 Per Capita Contribution Amounts

Item	Fiscal Year	Army National Guard $200 Kicker	Army Reserve $200 Kicker	Navy Reserve $200 Kicker	Marine Corps Reserve $200 Kicker	Air National Guard $200 Kicker	Air Force Reserve $200 Kicker	Coast Guard Reserve $200 Kicker
Assumed Benefit	2022	$200	$200	$200	$200	$200	$200	$200
	2023	$200	$200	$200	$200	$200	$200	$200
% Benefit Used	2022	16.7%	18.9%	30.5%	23.2%	26.2%	26.4%	23.0%
	2023	11.8%	14.3%	6.8%	10.8%	26.5%	26.5%	26.5%
Discount Factor	2022	0.823	0.840	0.916	0.919	0.827	0.832	0.879
	2023	0.906	0.874	0.906	0.939	0.880	0.875	0.909
Normal Cost	2022	$991	$1,141	$2,010	$1,536	$1,561	$1,584	$1,457
	2023	$768	$900	$445	$733	$1,678	$1,671	$1,733
Normal Cost Offset	2022	$0	$0	$0	$0	$0	$0	$0
	2023	$0	$0	$0	$0	$0	$0	$0
Per Capita Amount	**2022**	**$991**	**$1,141**	**$2,010**	**$1,536**	**$1,561**	**$1,584**	**$1,457**
	2023	**$768**	**$900**	**$445**	**$733**	**$1,678**	**$1,671**	**$1,733**

Normal Cost = Assumed Benefit X % Benefit Used X Discount Factor X 36 Months
Per Capita Amount = Normal Cost - Offset
A boxed variable means that this kicker amount is currently offered by the component.

Chapter 1606 Per Capita Contribution Amounts

Item	Fiscal Year	Army National Guard $350 Kicker	Army Reserve $350 Kicker	Navy Reserve $350 Kicker	Marine Corps Reserve $350 Kicker	Air National Guard $350 Kicker	Air Force Reserve $350 Kicker	Coast Guard Reserve $350 Kicker
Assumed Benefit	2022	$350	$350	$350	$350	$350	$350	$350
	2023	$350	$350	$350	$350	$350	$350	$350
% Benefit Used	2022	30.0%	20.6%	35.9%	27.3%	27.6%	27.4%	29.5%
	2023	9.9%	18.1%	6.0%	11.3%	24.2%	30.6%	28.0%
Discount Factor	2022	0.884	0.837	0.919	0.923	0.833	0.837	0.880
	2023	0.900	0.885	0.907	0.939	0.877	0.857	0.904
Normal Cost	2022	$3,344	$2,172	$4,163	$3,175	$2,901	$2,887	$3,271
	2023	$1,122	$2,020	$683	$1,334	$2,669	$3,304	$3,195
Normal Cost Offset	2022	$0	$0	$0	$0	$0	$0	$0
	2023	$0	$0	$0	$0	$0	$0	$0
Per Capita Amount	**2022**	**$3,344**	**$2,172**	**$4,163**	**$3,175**	**$2,901**	**$2,887**	**$3,271**
	2023	**$1,122**	**$2,020**	**$683**	**$1,334**	**$2,669**	**$3,304**	**$3,195**

Normal Cost = Assumed Benefit X % Benefit Used X Discount Factor X 36 Months
Per Capita Amount = Normal Cost - Offset
A boxed variable means that this kicker amount is currently offered by the component.

Chapter 1606 Projections

(Dollars in Millions)

Normal Costs Before Offsets

Fiscal Year	Army Guard	Army Reserve	Navy Reserve	Marine Reserve	Air National Guard	Air Force Reserve	Coast Guard Reserve	Total
2021	$86.7	$27.2	$2.5	$4.8	$10.7	$4.5	$0.0	$136.5
2022	$92.8	$34.2	$1.9	$7.0	$14.8	$5.1	$0.0	$156.0
2023	$59.6	$25.0	$2.0	$8.1	$12.8	$6.7	$0.0	$114.3
2024	$61.1	$25.2	$2.1	$8.3	$13.0	$6.8	$0.0	$116.4
2025	$62.7	$25.3	$2.2	$8.5	$13.0	$6.8	$0.0	$118.6
2026	$63.2	$25.4	$2.2	$8.8	$13.1	$6.8	$0.0	$119.6

Amortization Payments (Per Capita Adjustments)

Fiscal Year	Army Guard	Army Reserve	Navy Reserve	Marine Reserve	Air National Guard	Air Force Reserve	Coast Guard Reserve	Total
2021	($34.1)	($12.1)	($1.7)	($2.3)	($1.2)	($2.2)	($0.0)	($53.6)
2022	($43.3)	($16.1)	($1.9)	($3.6)	($2.4)	($1.8)	($0.0)	($69.2)
2023	($50.4)	($13.5)	($1.8)	($2.4)	($3.8)	($3.0)	($0.0)	($75.0)
2024	($41.4)	($10.9)	($1.5)	($1.9)	($3.1)	($3.1)	($0.0)	($61.9)
2025	($33.5)	($8.9)	($1.2)	($1.6)	($2.5)	($3.1)	($0.0)	($50.7)
2026	($27.1)	($7.2)	($1.0)	($1.3)	($2.0)	($3.1)	($0.0)	($41.7)

Income From Per Capita Amount Contributions

Fiscal Year	Army Guard	Army Reserve	Navy Reserve	Marine Reserve	Air National Guard	Air Force Reserve	Coast Guard Reserve	Total
2021	$52.6	$15.1	$0.8	$2.5	$9.5	$2.4	$0.0	$82.9
2022	$49.6	$18.1	$0.1	$3.4	$12.4	$3.2	$0.0	$86.8
2023	$9.2	$11.5	$0.2	$5.7	$9.1	$3.7	$0.0	$39.3
2024	$19.7	$14.2	$0.6	$6.4	$9.9	$3.7	$0.0	$54.6
2025	$29.2	$16.4	$1.0	$7.0	$10.6	$3.7	$0.0	$67.9
2026	$36.0	$18.3	$1.3	$7.5	$11.1	$3.7	$0.0	$77.9

Chapter 1606 Projections

(Dollars in Millions)

Outlays

Fiscal Year	Army Guard	Army Reserve	Navy Reserve	Marine Reserve	Air National Guard	Air Force Reserve	Coast Guard Reserve	Total
2021	$48.0	$19.8	$2.4	$6.1	$16.7	$2.6	$0.1	$95.7
2022	$55.2	$22.6	$3.3	$7.1	$13.8	$5.5	$0.1	$107.6
2023	$60.0	$25.3	$3.1	$7.7	$13.9	$6.0	$0.1	$116.2
2024	$61.2	$25.4	$2.8	$8.1	$13.8	$6.4	$0.0	$117.8
2025	$62.4	$25.5	$2.6	$8.4	$13.7	$6.6	$0.0	$119.3
2026	$64.2	$25.8	$2.5	$8.8	$13.8	$6.8	$0.0	$122.0

Fund Balance at End of Year

Fiscal Year	Army Guard	Army Reserve	Navy Reserve	Marine Reserve	Air National Guard	Air Force Reserve	Coast Guard Reserve	Total
2020	$376.9	$139.7	$21.0	$35.6	$71.4	$57.4	$3.9	$705.8
2021	$391.7	$138.6	$19.9	$32.8	$66.1	$58.7	$3.9	$711.6
2022	$395.8	$137.6	$17.2	$29.9	$66.3	$57.8	$3.9	$708.5
2023	$354.3	$127.0	$14.7	$28.6	$63.1	$56.9	$3.9	$648.6
2024	$321.2	$118.9	$12.9	$27.6	$60.8	$55.7	$4.0	$601.0
2025	$295.8	$112.7	$11.6	$26.8	$59.1	$54.1	$4.1	$564.2
2026	$274.8	$108.0	$10.7	$26.2	$57.9	$52.3	$4.1	$533.9

Unfunded Liability (Surplus) at End of Year

Fiscal Year	Army Guard	Army Reserve	Navy Reserve	Marine Reserve	Air National Guard	Air Force Reserve	Coast Guard Reserve	Total
2020	($240.9)	($71.3)	($10.1)	($15.6)	($17.6)	($34.0)	($3.6)	($393.2)
2021	($244.2)	($70.8)	($10.2)	($15.6)	($17.7)	($33.8)	($3.7)	($395.9)
2022	($239.9)	($63.6)	($8.5)	($11.3)	($17.8)	($31.1)	($3.8)	($376.0)
2023	($194.8)	($51.5)	($6.9)	($9.2)	($14.4)	($28.8)	($3.8)	($309.4)
2024	($157.7)	($41.7)	($5.6)	($7.4)	($11.7)	($26.5)	($3.9)	($254.5)
2025	($127.7)	($33.8)	($4.5)	($6.0)	($9.5)	($24.0)	($4.0)	($209.4)
2026	($103.4)	($27.3)	($3.7)	($4.9)	($7.7)	($21.4)	($4.1)	($172.4)

FY 2020 Chapter 1606 Fund Activity for Basic and Kicker Combined

(Dollars in Millions)

	Army National Guard	Army Reserve	Navy Reserve	Marine Corps Reserve	Air National Guard	Air Force Reserve	Coast Guard Reserve	Total
FY 2020								
Starting Fund (Oct 2019)	$348.4	$140.5	$23.6	$39.8	$81.9	$59.9	$3.9	$698.1
Present Value of Benefits	$169.1	$70.9	$9.7	$19.2	$71.9	$23.1	$0.3	$364.3
Unfunded Liability (Surplus)	($179.3)	($69.6)	($13.8)	($20.7)	($10.0)	($36.8)	($3.6)	($333.8)
Amortization Payments	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
Asset Transfer (To Chapter 1607)	($2.7)	($0.8)	($0.1)	($0.2)	($0.2)	($0.2)	($0.0)	($4.2)
Start+Amortization+Transfer	$345.7	$139.8	$23.5	$39.6	$81.8	$59.6	$3.9	$693.9
PCA Contributions	$83.1	$23.5	$0.7	$2.9	$11.5	$2.0	$0.0	$123.7
Net Benefit Payments	($58.5)	($26.2)	($3.6)	($7.7)	($23.2)	($5.3)	($0.1)	($124.6)
Net Receipts	$24.6	($2.7)	($2.9)	($4.8)	($11.7)	($3.3)	($0.1)	($0.9)
Interest	$6.6	$2.6	$0.4	$0.7	$1.4	$1.1	$0.1	$12.8
Net Rec w/ Int	$31.3	($0.1)	($2.5)	($4.1)	($10.3)	($2.3)	($0.1)	$11.9
Ending Fund (Sept 2020)	$376.9	$139.7	$21.0	$35.6	$71.4	$57.4	$3.9	$705.8

Chapter 1606 Projected Fund Activity
Basic & Kicker Combined
(Dollars in Millions)

	Army National Guard	Army Reserve	Navy Reserve	Marine Corps Reserve	Air National Guard	Air Force Reserve	Coast Guard Reserve	Total
FY 2021								
Starting Fund (Oct 20)	$376.9	$139.7	$21.0	$35.6	$71.4	$57.4	$3.9	$705.8
Present Value of Benefits	$136.0	$68.4	$10.9	$19.9	$53.8	$23.4	$0.2	$312.6
Unfunded Liability (Surplus)	($240.9)	($71.3)	($10.1)	($15.6)	($17.6)	($34.0)	($3.6)	($393.2)
Amortization Payments	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
Start+Amortization+Asset Transfer	$376.9	$139.7	$21.0	$35.6	$71.4	$57.4	$3.9	$705.8
PCA Receipts	$52.6	$15.1	$0.8	$2.5	$9.5	$2.4	$0.0	$82.9
Benefit Payments	($48.0)	($19.8)	($2.4)	($6.1)	($16.7)	($2.6)	($0.1)	($95.7)
Net Receipts (Exc Amort)	$4.6	($4.7)	($1.6)	($3.7)	($7.2)	($0.2)	($0.1)	($12.9)
Interest	$10.2	$3.7	$0.5	$0.9	$1.8	$1.5	$0.1	$18.7
Net Receipts with Interest	$14.7	($1.0)	($1.0)	($2.8)	($5.4)	$1.3	$0.0	$5.8
Ending Fund (Sept 21)	$391.7	$138.6	$19.9	$32.8	$66.1	$58.7	$3.9	$711.6
FY 2022								
Starting Fund (Oct 21)	$391.7	$138.6	$19.9	$32.8	$66.1	$58.7	$3.9	$711.6
Present Value of Benefits	$147.5	$67.8	$9.8	$17.2	$48.4	$24.8	$0.2	$315.7
Unfunded Liability (Surplus)	($244.2)	($70.8)	($10.2)	($15.6)	($17.7)	($33.8)	($3.7)	($395.9)
Amortization Payments	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
Asset Transfer	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
Start+Amortization+Asset Transfer	$391.7	$138.6	$19.9	$32.8	$66.1	$58.7	$3.9	$711.6
PCA Receipts	$49.6	$18.1	$0.1	$3.4	$12.4	$3.2	$0.0	$86.8
Benefit Payments	($55.2)	($22.6)	($3.3)	($7.1)	($13.8)	($5.5)	($0.1)	($107.6)
Net Receipts (Exc Amort)	($5.7)	($4.5)	($3.2)	($3.6)	($1.4)	($2.3)	($0.1)	($20.8)
Interest	$9.8	$3.5	$0.5	$0.8	$1.7	$1.4	$0.1	$17.7
Net Receipts with Interest	$4.2	($1.1)	($2.8)	($2.9)	$0.3	($0.8)	$0.0	($3.1)
Ending Fund (Sept 22)	$395.8	$137.6	$17.2	$29.9	$66.3	$57.8	$3.9	$708.5
FY 2023								
Starting Fund (Oct 22)	$395.8	$137.6	$17.2	$29.9	$66.3	$57.8	$3.9	$708.5
Present Value of Benefits	$156.0	$74.0	$8.7	$18.6	$48.5	$26.7	$0.1	$332.5
Unfunded Liability (Surplus)	($239.9)	($63.6)	($8.5)	($11.3)	($17.8)	($31.1)	($3.8)	($376.0)

FY 2020 Chapter 1607 Fund Activity

	Army National Guard	Army Reserve	Navy Reserve	Marine Corps Reserve	Air National Guard	Air Force Reserve	Coast Guard Reserve	Total
Starting Fund (Oct 2019)	$131,216	$286,952	$21,538	$40,001	$116,896	($27,876)	($498)	$568,229
Present Value of Benefits	$2,853,832	$1,039,896	$107,876	$238,144	$291,412	$192,567	$13,774	$4,737,501
Unfunded Liability (Surplus)	$2,722,616	$752,944	$86,338	$198,143	$174,516	$220,443	$14,272	$4,169,271
Amortization Payments	$0	$0	$0	$0	$0	$0	$0	$0
Asset Transfer	$ 2,718,400	$ 751,408	$ 86,178	$ 197,791	$ 174,086	$ 220,158	$ 14,251	$ 4,162,273
Start+Amortization+Transfer	$2,849,616	$1,038,360	$107,716	$237,792	$290,981	$192,282	$13,754	$4,730,502
Receipts	$0	$0	$0	$0	$0	$0	$0	$0
Benefit Payments	($2,877,598)	($1,048,556)	($108,774)	($240,127)	($293,839)	($194,170)	($13,889)	($4,776,953)
Interest	$27,982	$10,196	$1,058	$2,335	$2,857	$1,888	$135	$46,451
Net Receipts with Interest	($2,849,616)	($1,038,360)	($107,716)	($237,792)	($290,981)	($192,282)	($13,754)	($4,730,502)
Ending Fund (Sept 2020)	$0	$0	$0	$0	$0	$0	$0	$0

Example of impact on normal costs between current and proposed methodology

Suppose for a given component over the past 10 years,

DFAS reports an average of $2,000,000 spending per year and there are 1,000 reservists. DFAS is reporting each costs the Fund $2,000 and

DMDC reports an average of $1,680,000 (84% of DFAS) spending per year and there are 900 reservists (90% of DFAS) on the file. DMDC is reporting each reservist costs the Fund $1,867 ($1,680,000 / 900) and there are 100 missing reservists.

The key question is whether the Normal Cost should be trued up by;

$2,000,000 / $1,680,000 which is 19% (Current)

OR

$2,000 / $1,867 which is 7.1% (Proposed)

Using the DMDC file data, the calculations before any true up produce the cost per reservist on the file to be $1,867.

If we use the current methodology, the trued up normal cost will be $1,867 * 1.19 = $2,222.
If we use the proposed methodology, the trued up normal cost will be $1,867 * 1.071 = $2,000.

Suppose that 1,000 new reservists in a given year become eligible for benefits (even though only 900 show up on the file). That component contributes 1,000 * OACT Normal Cost (Less the offset to reduce surplus) into the Fund.

Fund Contribution;
Current methodology $2,222 * 1,000 = $2,222,000 (Surplus increases by $222,000)
Proposed methodology $2,000 * 1,000 = $2,000,000 (Surplus unchanged)

The normal cost will be offset by an amount designed to reduce the surplus, but it is important that the surplus does not increase before such an offset is applied.

ATTACHMENT 4

Transcript of the
Department of Defense Board of Actuaries Meeting

UNITED STATES DEPARTMENT OF DEFENSE

DEFENSE HUMAN RESOURCE ACTIVITY

BOARD OF ACTUARIES

VIRTUAL MEETING (MS TEAMS)

MILITARY RETIREMENT FUND/VOLUNTARY SEPARATION

INCENTIVE FUND/EDUCATION BENEFIT FUND

Washington, D.C.

Friday, July 30, 2021

PARTICIPANTS:

PETER ABRAHAM
Actuary, DMDC

RICHARD ALLEN
Actuary

MICHAEL CLARK
Board Member

PHIL DAVIS
Actuary

MARCIA DUSH
Chairperson

HYUNG JU HAM
Actuary

QIAN MAGEE
Actuary

JOHN MOORE
Board Member

INGER PETTYGROVE
Actuary, DFAS

PETE ROSSI
Actuary

RICK VIRGILE
Chief Actuary, U.S. Coast Guard (Retired)

PETE ZOURAS
Chief Actuary

* * * * *

C O N T E N T S

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P R O C E E D I N G S

(10:00 a.m.)

MS. DUSH: I would like to welcome everybody to the 2021 Department of Defense Board of Actuaries meeting. I would like to introduce my colleagues John Moore and Mike Clark. I am Marcia Dush, the Chair of Board this year. I have a few housekeeping items. So, I would like to remind everybody that all documents that we're going to be reviewing today are in Pete Rossi's invitation to this meeting. Please ensure that your audio is muted when not speaking or actively participating in the meeting; and if you do ask a question, please identify yourself before asking the question. This meeting is being recorded, and there will be minutes and a transcript of the meeting. Please leave your camera off unless you're speaking, and that is to make sure that we don't have people drop off the meeting because we are overtaxing the software.

Again, as I mentioned before, if you're calling into the meeting, please email Ms.

Kathleen Ludwig; and her email address is in the invitation and let her know your name and organization so she can have a record of your participation.

With that, I would like to invite Pete Rossi to start us off. We're going to begin with a discussion of the issues associated with the Military Retirement Fund, and we will discuss that. Move on to the Voluntary Separation Incentive. After that we will be taking a break before we begin a discussion of the Education Benefits Fund.

And so, with that, I would like to invite Pete Rossi to start us off by reviewing the results of the September 30, 2020 valuation of the Military Retirement Fund.

MR. ROSSI: Thank you, Marcia. Just received a few messages from folks. I did send the invite out. In the DoD world, the meeting invite update may have gone to your deleted items inbox, or mailbox. So, please check that, but you should have all of the handouts that we're going

to talk through -- retirement, VSI, and education.

Okay, so moving on. The first item is a PDF page 1 of the MRF Meeting packet; and the first item is the Initial Accounting Figures as of September 30, 2020 and then 2019. This is just a summary of conversation to look at the populations that we were speaking about, so we start with, as usual, the active duty personnel, full-time reservists. Not a whole lot of change from one year to the next. We break that out by those who are not in the blended retirement system, and those that are in the blended system, whether they opted in or a new entrant to the military and under the blended retirement system upon entry.

Next, is the total selected drilling reservists. Again, broken out by those who are not in the blended retirement system and those who are under the blended retirement system; and then the non-selected reservists with 20 good years. So, those who are selected reservists attained good years of service and that are waiting to receive retired pay; and then the retiree portion

of it, the non- disabled retirees, the disabled retirees; and the total number of surviving families. So, you can see here that the population is relatively stable from 2019 to 2020.

Moving on to page 2. We're looking at the Actual Status Information as of September 30, 2020 and September 30, 2019. The present value of future benefits increased by $100 billion. These numbers are all in billions, or 5 percent. Present value of future normal cost increased by 6 percent, or $20 billion. So, the total actuarial accrued liability was increased by $80 billion, or 5 percent; and the actuarial value of the assets increased by 9 percent, or $2 billion. So, total unfunded was generally unchanged. It was a decrease of about $2 million.

As we move on to the Items 6, 7, and 8, these are the normal cost percentages, whether they come out of the valuation or will be implemented against the basic pay by fiscal year. So, the current contribution for FY21, looking at line 7a for the full-time personnel, is 34.9

percent; for full-time and part-time is 26.9 percent.

Beginning in FY22, that starts on October 1st, those are shown here 35.1 for full-time and 25.7 for part-time. And then the associated implemented normal cost that Treasury covered due to the increase of concurrency benefits are shown on Item No. 8. There's this red box here that does highlight what the underlying long-term economic assumptions set by the Board are for the 9/30/20 valuation and 9/30/19 valuation.

MS. DUSH: Just a word here, Pete. So, when people see that the present value of future benefits and the present value of future normal costs went up, that is primarily because last year we did vote to strengthen actuarial assumptions for the 9/30/20 valuation.

MR. ROSSI: Correct. Perfect lead-in for page 3.

MS. DUSH: And we'll see more discussion of that on the next page.

MR. ROSSI: So, as Marcia alluded to, PDF page 3 of the MRF packet is the September 30, 2020 Change in Unfunded Liability. That talks a little bit about why, or the aspects to how the unfunded liability changed. So, we start the valuation with the unfunded liability as of September 30, 2019. There was a payment on October 1st. The interest assumption underlying that valuation was 1.0475 percent. The expected unfunded liability should have been, or was, $695 billion. Again, all these numbers are in billions. What the actual was -- which means that there is a positive change, which was a loss of $58.4 billion, or 3.4 percent of the accrued liability. That is broken up into four different subcomponents. The first is the total experience gain or loss. These are things like the long-term economic assumptions; cost of living increase for inflation; across- the-board salary and interest; and then the non-economic residual, which is the assumption of the balancing of everything left over after we isolate all of the primary pieces.

So, Item B is the unpaid contribution due to sequestration of the October 1, 2020 Treasury payment. There is no benefit change this particular year, and the biggest item was the assumption losses of $48 billion. So, of the total $58 billion loss, $48 billion of that was due to the assumption changes that were proposed by the Office of the Actuary and approved by the Board last year. The largest of which was the new economic assumptions of $70 billion; and if we go to footnote Item 5, that is just a net loss of lowering the real interest assumption to 1.75 percent from 2 percent last year; and lowering the real salary from.25 percent, from.5. We say net loss, a lowering of the real interest assumption increase the actual liability and a lowering of the real salary decreased the liability so, hence, the net loss here.

MS. DUSH: And I think it's important to remember that when we talk about salary scale, this is the annual update to the base pay associated with inflation and not related to

promotion or merit increases.

MR. ROSSI: Correct.

MS. DUSH: Okay.

MR. ROSSI: Moving on to PDF, page 4. This is the Total Treasury Payment.

MS. DUSH: And Pete, before we get into this too much here, I would like to start off by saying that last year, when we discussed how the unfunded liability was being amortized, we had some concerns about the fact that the benefit changes -- the way the benefit changes actuarial assumptions and actuarial experience were being amortized. They had their own separate amortization amounts. That there was some concern about the way that actuarial experiences, which is a big gain, was being amortized versus the losses associated with benefit changes and actuarial assumptions leading to some very unequal -- to a forecast of some very unequal amortization payments in the future; and we did ask that OAC explore some differences, you know, to find a way to, perhaps, level out the amortization payments

and lead to a more level forecasting of the amortizations for those amounts, not touching the amortization method for the initial unfunded liability. And I do see that there has been -- that there is a change here -- and so, perhaps, can you address that as you discuss the differences between the October 1, 2020 amortization and the October 1, 2020 and '21 amortizations? I apologize for that.

MR. ROSSI: Yes. So, on PDF page 4, we have the total Treasury payment for the October 1, 2021, or the upcoming payment, and the payment that was made last October 1st. As Marcia pointed out, the Board did ask us to explore and what we ended up looking at was what we're going to call a 20-year combined layer projected basis. So, these notes down here explain what that means, but I think it's instructive if we look at them.

So, the previous amortization schedule for October 1, 2021 would have been the initial unfunded liability, its five years; so, we'll pay it off in the next five years. Line bob. was 16

years; line 1.c. was 27 years; and line 1.d. was 12 years. This created this uneven amortization payment schedule. So, what we looked into doing was leaving -- per the Board's suggestion -- leaving 1.a., the initial unfunded the same. Lines b., c., and d. are going to be on a 20-year combined layered projected basis, which is essentially what we're doing now. We're proposing that we take at least three amortization schedules and then combine them into one after one single period so that moving forward that the payments will be very level. So, those who have looked at the amortization schedules over the years have seen large payments, very small payments, increasing payments, perhaps even decreasing payments, or negative payments, now this standardizes everything such that there is just -- there's going to be some large payments, and then after that there's going to be a very steady, non-volatile, stable stream of payments.

So, the impact is, ultimately under the old approach the total Treasury payment would have

been $116.6 billion. The new payment is going to be $125.989 billion. So, under both approaches, the amortizations are scheduled to increase as a percent of basic pay, which has long been the Board method for amortizing things done by the liability methods.

MS. DUSH: All right, so, stay with that for a second. So, what you can see is that because we're going with -- you're recommending that we go with a 20-year amortization that's between the 16 and 12 years that we've been amortizing the losses, so to speak, and 12 years for the experience gain, and 16 and 27 for the benefit changes in actuarial assumptions. So, taking 20, in between, essentially has us pushing out the amortization of the big experience gain that's there. And so, while we're seeing an increase in cost right now, it actually will show a lower cost for Treasury in the future because we're pushing out amortization of that gain. So, it's a little higher now but would be a little lower later on, is that correct?

MR. ROSSI: Yeah.

MS. DUSH: Okay. So, with that I think I need to ask my colleagues for a motion. I think we need to approve this recommendation and have any discussion. Is there any concerns or issues associated with moving to the combined 20- year layered basis for amortizing benefit changes, actuarial assumptions, and experience?

MR. MOORE: Marcia, this is John.

MR. CLARK: Go ahead, John.

MR. MOORE: I'll go ahead and make the motion that the Board approve the changes in the amortization methods and the methodology -- I mean, the ultimate resulting total Treasury payment.

MR. CLARK: And this is Mike Clark. I think the alignment of the amortization period is reasonable and makes for a more logical amortization schedule. So, I second that motion.

MS. DUSH: All right. Any other further discussion?

MR. CLARK: None here.

MS. DUSH: Okay. All in favor? Aye. Any Nay? So, we accept the OAC proposal to modify the amortization method. So, Pete, if that's all for the 9/30/20 valuation, I think we can move on to the discussion of the proposed assumptions for the 9/30/21 valuation. And, I think, I turn this over to Phil Davis to start us off.

(Board Member Moore's motion to accept the OAC recommendation passed by voice vote unanimously; no nays.)

MR. DAVIS: Yes, ma'am. So, here we have the long- term assumptions set by our Board as well as others. So, this first column is the rates set by the Board last year of 2.5 percent inflation; 2.75 percent across-the-board salary increase, which does not include merit or promotion; and then a 4.25 percent interest rate. And in the next column we have the rates set by the OPM Board earlier this year of 2.4 percent; 2.65 percent; and 4 percent interest rate. And then we have the Social Security Administration

Trustee's Report -- which they have not released this year yet -- so numbers we have listed here are as of last year; so, they are about a year out of date.

And then to the right of that, we have some more short-term rates. So, the rates set by the MRF Financial Statements of 1.6 percent, inflation; 2 percent, salary; and 2.9 percent, interest rate. And then we have the CBO inflation and 10-year Treasury Note, as well as the Blue-Chip Consensus Inflation and 10-Year Treasury Notes. I just want to emphasis that these rates on the right are much more short term than the rates we have listed on the left.

MS. DUSH: As far as I know, we have no idea if or when Social Security will publish it's 2021 report, is that correct, Phil?

MR. DAVIS: Yes, ma'am.

MS. DUSH: Okay. All right, you can keep going.

MR. DAVIS: All right; if you go to the next page, please. So, on this page, we just do a

little bit of math for the Board as far as getting the real rates. So, up above, we have the real salary as well as the real interest rates for all the systems that we listed on the previous page. And on the bottom of this page, we have the Blue-Chip Long-term Index from June of 2018 to June of 2021; and we have projected for 10 years, and we have the CPI, as well as a 30- year Treasury rates; and then the real return at the bottom.

So, if we could go to the next page, Pete. And here is the Blue-Chip Long-Range Survey where we get the blue chip numbers that were just listed above; and they release these every six months. And, if we go to the next page, please.

So, here we have the Fund Yield Projection; and this page is based on the 2020 Social Security Administration's Intermediate Assumptions. And we have this for 2021, projected forward; and we have the columns of inflation, a real fund yield; a nominal fund yield, new investments on a cumulative basis; and then new

investments on an annual basis. And on the right here we have 10-year averages, 20, 30, 50 and 75-year averages for all these same columns; and below that, we have the same time periods, but on a fund-weighted average, and these lead us to ultimate rates of 2.4 percent, inflation; 2.3 percent of real fund yield; 4.7 percent, nominal; 4.7 percent new investments on a cumulative basis; and 4.65 percent new investments on an annual basis. And these are working off the Board's assumptions, again, of 2.5 percent, 1.75 percent, and 4.25 percent; and we have durations of 20, 30, and 40.

And we can go to the next page, please. We have the same page and now based off the Blue-Chip Assumptions; and, again, these lead us to ultimate rates of 2.2 percent, inflation; 1.55 percent, real; 3.75 percent, nominal; 3.75 percent for new investments on a cumulative basis; and 3.71 percent of new investments on an annual basis.

MS. DUSH: Before I ask my colleagues to

comment on this, I would like to just remind everybody that when you do these projections -- and correct me if I've stated anything wrong -- you are taking into account the investments that are already in the Fund and what they're expected to yield; and you are taking into account expected benefit payments and expected contributions because you are talking about new investment money coming in. And, again, you know, we look, I think, pretty closely at what your projections are; and, I think, you know, in the past we've kind of really looked at social security, but, I know, I myself, am concerned that it is, you know, out of date and also, I think, as we look at what they're invested in that they're a little bit different than how the MRF is invested. And so, maybe, you can remind us of the assumptions about new money coming in and how it's being invested, how you expect it's being invested, based on what you've been told by the investment committee.

MR. DAVIS: Yes. If you could scroll down a little bit, Pete. So, here in the footnote

section, we have notes about how our portfolio was allocated. So, it's about 75 to 90 percent in TIPS, and then 10 percent to 25 percent in conventional notes and bonds. And so, this is how our investment Board invests.

MS. DUSH: So, I guess, at this point, you know, that with the reminder that we did strengthen assumptions last year but, I think, we have some concerns about where we're at. So, I would like my colleagues to comment perhaps both on our assumption regarding inflation and -- maybe we'll start off with inflation and then talk about real interest rate.

MR. MOORE: This is John Moore. I'll comment on the inflation first. It's probably the hardest one to have any insight into right now in terms of we're in a higher inflation rate environment, but how short term that will be is, of course, hard to know. So, at this point -- I don't think we have good information to change the inflation assumption. A survey wouldn't want to lower it with some of the upward pressure we're

seeing; but we're also, you know, general expectations that a recent inflation is not going to be long term in nature. So, I think we're probably sitting about the right spot for inflation.

MS. DUSH: Mike, do you want comment?

MR. CLARK: I agree with your assessment on that, John. I just think that, you know, there's so much turmoil in the short-term inflation that, I think, you know, status quo, this year, feels reasonable.

MS. DUSH: I think everything I've read is that while there is a chance that we could be heading into a much higher inflation environment, most economist, investment professionals believe that the inflation we're seeing right now is somewhat transitory. We have had an inflation rate that is higher than what the Fed had set as a target. You know, we had been at 2-1/2, 2-3/4 when the target was 2, believing that over our very long-term view that inflation would be higher. But, I think, I agree that we, at this

point, we don't know where inflation will settle. You know, it may settle at a little higher, you know; the Fed may set their target at a little higher than two percent next year but, I think, I, too, am satisfied that at 2-1/2 percent, we should fight for this year. All right. So, any comments on real interest rates?

MR. CLARK: Yeah, I can lead with that Marcia. So, under real interest rate -- we had a good conversation about this -- and we do feel that it would be appropriate to consider moving that down to 1-1/2 percent, real; 4 percent, nominal. Some of the supporting data for that would be that we see that the blue-chip long-term expectation is between -- that for real analysis -- between 1.2 and 1.4 percent. The OPM is at 1.6 percent, real right now. We are definitely seeing -- I'll call it stubborn high demand for long duration, high quality fixed income -- which, at least for some time -- we think it's going to have a downward pressure on both nominal and real yield. Just, you know, an example of that, as we

saw just previously that, you know, blue chip long-term forecast for 30-year treasuries is still below 4 percent. So, you know, our suggestion today is to move the nominal rate to 4, which would take the real interest rate to 1.5.

MS. DUSH: And, Mike, you are commenting based on some of your experience with your full-time employer, right? That this bears out what you're seeing with respect to investment information that you get through Prudential?

MR. CLARK: Yes. So, our own internal forecasts are consistent with the blue-chip forecast that we saw earlier; and I can speak from personal experience that the private pension sector is the demand for long duration, high quality fixed income is going straight up -- it's going one direction.

MS. DUSH: John, you're on first.

MR. MOORE: I agree with everything Mike said and agree with the change in likely tightening or lowering the real rate of return; and we do like to also, with our very long-term

nature, we do like to look to the Social Security Trustee's report. You know, as shown on this page, their real rates have tended to be higher than we've seen in our other -- like a blue-chip forecast -- that 2.3 percent is in the intermediate. So, that's always been something we've evaluated as we've looked at this. You know, this year we don't have the benefit of their thinking in terms of enough data -- as we've said, they haven't updated their report. I'd be very interested to see if they lowered their real return, but we just don't see those real returns and haven't seen them for some time. So, without indication that this is going to revert back to those kinds of levels, I agree that this change is -- the change we're considering today -- is prudent.

MS. DUSH: So then, I think, we need to just wrap up with a thought about whether or not we want to make any move on the real salary scale.

MR. MOORE: And I'll comment there -- that's another difficult one. Again, it's a

matter of how eventually it moves -- will salaries move beyond inflation, just across the board? Again, not including, you know, merit and promotion. And it's been very volatile over the years. I'm comfortable, at this point, leaving it at the 25 basis points, real, that it is, 2.75 in total.

MR. CLARK: I agree with you John. I just think that until we have more data and make a change on that, I think that's a reasonable assumption.

MS. DUSH: And I agree with that. So, I think, at this point, I would like a motion as to what we should recommend or what we should approve for the 9/30/21 valuation, with respect to economic assumptions.

MR. CLARK: They've got -- well, I'll make that motion. So, I make the motion that for the September 30, 2021 MRF valuation, we adopt the following assumptions: Inflation of 2.5 percent; salary scale of 2.75 percent; and interest rate of 4 percent, even; resulting in a real interest rate

of 1.5 percent.

MR. MOORE: And I will second that motion.

MS. DUSH: Any further discussion? All right. All in favor, Aye.

(Board Member Clark's motion passed unanimously by voice vote, no nays.)

Thank you. Let's see, where are we at now? I think we are about ready to go to a discussion of non-economic assumptions; and, I think, I would like Mr. Pete Zouras to lead us off before we turn it over to Ms. Qian Magee.

MR. ZOURAS: Thanks, Marcia. First, I meant to introduce and welcome Mr. Phil Davis, a new actuary on our staff; and in addition to Phil, we also have a welcome and an introduction to Ms. Qian Magee, and she's an actuary. Both of whom have joined virtually our office. Qian comes from the IRS and Phil's fresh out of college.

This morning Qian will be proposing for the Board's review and approval for non-economic

assumptions for the '21 valuation and the '23 NCPs. As are shown at the top of page 10 in the PDF, note that we've added a number 5 reflecting the decision that you just made on economic assumptions; and I'll note that the proposed changes ii and iii are follow-ups to Board requests from last year for us to update the non-economic assumptions for pre-retirement decrements since they're based on old experience; and I will add that with the new staff and the challenges of working remotely, and a zero- based review, this is a big accomplishment for our office. So, with that, take it away Qian.

MS. MAGEE: Thank you, Chief. So, now I'm going to discuss a very non-economic assumption we propose for the Fiscal Year 2021 valuation, which include updating the mortality improvement scales; updating most of the pre-decrement rates; and including Coast Guard experience in the development of rates. These are not all of the non-economic assumptions in our valuation model, or of the other non- economic

assumptions continue to be reasonable in our professional judgment; and that's based on our military analysis of experience. And we work from that to monitor old other assumptions with reasonableness in the future. So, now, for each pick (phonetic) of assumption, I will discuss the proposal, the rationale for the change, and the impact of the change.

So, the first proposal is for the mortality improvement scale that I used to improve the death rate for retiree, survivors, and the spouses of the retiree. So, this year, we have three proposed updates to the improvement rate. The first is to include Fiscal Year 2020 data. Our usual practice is to include an extra year of experience so we can incorporate the emerging trend in mortality experience. We understand that half of FY2020, which is from March 2020 to September 2020, include an impact of COVID. After analyzing the data, we found that the 2020 mortality experience actually followed the trend of the slowing down of the mortality improvement

we have seen in recent years. So, however, to mitigate this possible impact of COVID, which some experts believe may have a passing period effect, we propose to use a 3-year step back instead of a 2-year step back. So, the impact of including 2020 data is smaller.

In addition, our practice is to update the improvements each year. So, we'll continue to monitor the situation and to make any adjustment needed next year. So, Chief, do you have any comment on this issue?

MR. ZOURAS: Right. The trend that we're seeing in the military data is something similar to what we're seeing in the U.S. general population; and the reasons for mortality decline and the deceleration of improvement stems from deaths due to suicides, Opioids, drug overdosages, and alcoholism, mainly for -- that's under age 65; and for overage 65 contributing factors include squaring in the survival curve and other socio-economic regional and lifestyle causes. Thanks, Qian.

MS. MAGEE: Thank you, Chief. We also updated the non-trend rate of employment to be the same as it was for MP 2020 -- would be our past assumption -- we present the current expert opinion; so, we'd want to match his assumption. So, the proposal for updating the mortality improvement scale result in.3 percent decrease to the full-time NCP; a.4 percent decrease to the part-time NCP; and the current liability dropped by $21.3 billion, or 1.2 percent.

So, explaining that, here's a table -- this is a table showing the change in the life expectancy from current rates to the proposed rates. And, also, in Attachment 1, PDF pages from 17 to 23, which have included some heat maps where you can see the visual effect of the new mortality improvement scales compared to the current mortality improvement scales. Please note that the mortality improvement scales produce a disabled (inaudible). They are based on the combined experience for officers that enlisted, and this year will develop a separate skill for

each.

MS. DUSH: This is Marcia. As I recall, when we started adopting the military specific mortality improvement scales, there was a big jump in life expectancy and, as there was in the general population, using the OAC, the Society of Actuaries' projections for mortality improvement, and both military and general population have kind of scaled back those expectations based on emerging data.

MS. MAGEE: That's exactly right. Starting from MP2020, actually -- I'm sorry, MP2014 -- I think that we have seen a continuing decrease of mortality improvement both in the military and in the general population as Chief just mentioned.

MS. DUSH: So, we still expect improvement but it's not as great as what was initially expected?

MS. MAGEE: Exactly; yes, you're correct.

MS. DUSH: All right.

MS. MAGEE: Okay. Now, moving on, I'm going to discuss active decrement rates. So, the proposal is to update the experience study period to be the period from Fiscal Year 2015 to 2019. We are using the same types of decrement assumptions as before. The only difference is that we are calculating assumptions using the most recent experience. The current rates are based on old experience going back to 1982. The effect of this update is small. The full-time NCP dropped by.4 percent. We are very comfortable with this small impact because it is consistent with the small gains analysis we have seen in our recent valuations. This proposal results in a.4 percent decrease to the full-time NCP; no change in the part- time NCP; and the accrued liability as of 9/30/2020 dropped about $25.4 billion, or 1.5 percent.

So, I want to turn to Attachment 2 for a high-level description of an active weight. The graph shows the movement of the population with associate decrement rate. So, you can see it from

the table how that each decrement rate comes into play.

Now, I think, we can move to the Reserve rates development. So, similar to active, we propose to update experience study period. The new experience study period is from Fiscal Year 2017 to 2019. Most of the current rate are based on a period from 2005 to 2009. So, this proposal results in a.3 percent decrease in the full-time NCP; a 2.8 percent decrease in the part-time NCP; and an increase in the 9/30/2020 accrued liability of $1.8 billion, or.1 percent.

Below, you can see the individual impact for each assumption change. Here, we separate assumptions into two tables. The first table has assumption changes had an impact on NCP, and the second table has assumption changes that did not have an impact. We also propose to eliminate the transfer blow-up point assumption and officer-to-enlisted transfer assumption because they don't have much impact.

MS. DUSH: Qian, could you go back to

the table before and, maybe, just remind us why even though we're talking about Reserve rates, why there's an effect on the full-time NCP?

MS. MAGEE: Yes, I will. So, the reason that we are updating the Reserve rates and you see that two-time NCP rate actually changed. This is because a portion of the cost of the part-time benefits allocated to the full-time NCP to account for the fact that some active transferred to the Reserve component and, eventually, retired there with a service they actually find (phonetic) in the active component. So, because of that costs are allocated back to the full-time component. So, that's why you see the full-time NCP is changed.

MS. DUSH: Thank you.

MS. MAGEE: Thank you. And I also want to make a couple of points -- the two assumptions that had the most impact on the NCP rate. The first you can see the re-entry rate. The re-entry rate -- this assumption measured the likelihood that people with prior service are coming to the

Reserve or coming back after leaving Reserve. From the actual over-expected ratio, you can see that the actual number of re- entrants are much lower than expected. And we looked into the reasons; and one reason is that the prior experience data period was from 2005 to 2009. There was a lot of mobilization and some transferred -- there are a lot of transfers between the Reserve and the active component. So, the proposed rates are based on data from a more normal lifetime period. So, when next people coming from active or coming back to the Reserve, the cost to the Fund decreased, which result in a lower NCP rate.

So, the assumption that had the second most impact is the Reserve loss rate. This assumption measured the probability that the member leaves the Reserve for reasons other than retirement. So, based on updated experience study data, we see less loss than we expected, which means more people are turning to staying in the Reserve until they retire. Again, about the

re-entrant, one of the reasons is that we have a more normal life period than before and there's less transfer between active and the Reserve.

In addition, there is a law change, removing the retirement that members have to be in the Reserve for the last six years in order to qualify for Reserve retirement. So, we see less loss from Reserves. This assumption change actually increase the cost of the plan. Next, of these two assumptions, for the rest of the assumption, the impact is minor.

MS. DUSH: Qian, thank you.

MS. MAGEE: Attachment 3 has some background that (inaudible) Reserve. The Reserve career is more complicated than active because Reservist usually have multiple breach in service and that reach a point in the regular services. So, this document has some information you might find useful, similar to active -- our Attachment 4 -- we have a graph on page 27, which shows how the various decrement affect the Reserve population.

So, the final proposed change is to

include Coast Guard experience in developing the rate. The NDAA 2021 requires the Coast Guard to be added to the MRF beginning in Fiscal Year 2023. We are required by the statue to capture in a single normal cost for the entire population, including Coast Guard. So, including the Coast Guard experience result in a.4 percent increase in the full-time NCP; no change to the part-time NCP; and a slight decrease in the 9/30/2020 accrued liability of $0.7 billion or.04 percent. So, that's all of our proposals.

MS. DUSH: Is there any discussion?

MR. CLARK: Marcia, this is Mike. Just a couple of comments. One is that I think the mortality improvement is very consistent and reasonable, which is what we're seeing generally in, you know, the private pension world; so, no consent at all there. And, I guess, the other experience -- the other assumptions, rather -- seem very reasonable and I appreciate the work that OAC must have done to update that data because that's a lot of information to be going

through; but with the minimal impact on liabilities and with the newer data, it all seems very reasonable to me.

MS. MAGEE: Thank you.

MR. MOORE: And John, I agree with Mike's comments and similarly getting all the Coast Guard information factored into this is pretty amazing to see all that, as well. I'll go ahead -- Marcia, if this works because we can still talk -- I'll go ahead and make a motion -- see if I can get this one right -- to accept -- I think really what we should do is accept -- or make a motion to approve all of the non-economic assumptions and methods used here but calling out, specifically, that includes making changes to the mortality improvement scales, the active duty and Reserve decrement rates, as well as the approach used for bringing in the Coast Guard experience. So, I think, I'll make that motion, if that works.

MS. DUSH: Okay.

MR. CLARK: I will second that motion.

MS. DUSH: Any further discussion?

MR. MOORE: I'll just say it again, I think, this really is a good presentation of the material. There's a lot of stuff you covered and very engaging. I had one thought I might -- just a quick add. If we could go back to the page where it showed the impact of the mortality improvement, and there was a chart of numbers, down there. You know, I think Marcia reinforced this. You first look at this chart and think we're -- it's subtle that what we're saying is that rate of improvement is what's going down; and so, it might almost be, for future years, it might be good to kind of put a number here that what are these numbers based on no mortality improvement scale assumption, and then we can see, just to be clear, that we are still projecting mortality improvements. We went through that -- like that would be kind of helpful --

MS. DUSH: Yeah.

MR. MOORE: -- like to reinforce that we're not, again, we're not suggesting a decrease in mortality -- however I say that -- but we're

just talking about a very subtle lowering of that mortality improvement rate. So, it's very good stuff. So, I'm good.

MS. MAGEE: That's a good comment. Thank you.

MS. DUSH: All right. So, we've had a motion; we've had a second; so, all in favor?

(Board Member Moore's motion passed by voice vote; no nays.)

I guess at this point -- again, I would encourage anybody to, I would open up for any comments or questions from our guests before we move on to the VSI Program. And, again, if you would like to make comments, please state your name and affiliation, and let us know what your thought is.

MS. PETTYGROVE: Marcia, this is Inger Pettygrove. I think at this point, I'd like the Chief Actuary to state what those FY23 NCPs will be based on all the votes you guys have taken.

MS. DUSH: Okay.

MR. ZOURAS: Right. If there are no

other questions.

MR. VIRGILE: Pete Zouras, hi, Rick Virgile. My final question ever, since I've retired, I was just curious if you could explain the nine percent asset growth in very basic terms since nothing in the investment sign (phonetic) is earning anywhere close to that nine percent rate.

MR. ZOURAS: I might have to put that over to Pete Rossi. I'm not sure what the 9 percent is referring to.

MR. VIRGILE: Oh, just the overall growth in the amount of assets. There's a lot of ins and outs there.

MR. ZOURAS: Here you go.

MR. ROSSI: Pete Rossi could help to answer that question. So, I'll go back to PDF, page 2. Good to hear from you Rick. The actual value of the assets on PDF page 2, Actuarial Value of Assets increased by $82 billion, or 9 percent. That is the initial unfunded liability being paid off. So, if we look back on the total Treasury payment -- back on -- you can't see it from this

page because it would be the October 1, 2019 payment that was made, but it was about a $100 billion payment that was paid, thus increasing the asset. So, it's not, necessarily, interest growth or anything else. It is just as we're approaching the tail end, the last five years of paying off the initial unfunded liability. These payments are becoming very, very large, exceeding $100- and $120 billion. So, that is leading us to these very large growth in the value of the assets.

MR. ZOURAS: The investment return is at 2.3?

MR. ROSSI: Correct. If we scroll down a little bit further -- if you could start showing the next page here. On PDF page 3, you can see that the fund earned on a dollar- weighted (phonetic) basis about 2.3 percent which was below the valuation assumption of 4.75 percent. So, nowhere near the 9 percent. That was contributions sent from Treasury to pay for the additional unfunded liability.

MR. VIRGILE: Okay. No, that's fine. I

realize there's a lot of pieces; but one follow-up question comes to mind though. Since you're changing the amortization schedule, and that impacts the costs, you know, short-term versus long- term a little bit, is that something you can do without getting some sort of Congressional approval since the appropriation needs will change. Now, that's more -- it's something to think about then to answer right now.

MS. PETTYGROVE: Oh, I'm going to step in. It's Inger Pettygrove, DFO. This is, specifically, one of the Board's tasks every year to determine that they have the authority to determine the amortization methods for unfunded liability gains and losses, and all that. So, no, it would not require any Congressional interference.

MR. VIRGILE: All right; great; thank you.

MS. DUSH: Any other thoughts from our guests? All right. All right. With that, I would suggest we move on to a discussion --

MR. ZOURAS: I'll go ahead and announce the NCPs, if that's okay.

MS. DUSH: Yes, that's all right.

MR. ZOURAS: Right. Fiscal Year '23 DoD NCPs, using the final set of assumptions approved and reviewed by the Board, listed on page 10, are 36.9 for full time and 24.5 for part time; and the Board will sign letters with these NCPs to the DoD Controller and the Secretary of Homeland Security for the Coast Guard after the conclusion of the meeting.

MS. DUSH: Do you need to also mention the Treasury NCPs?

MR. ZOURAS: Okay. So, that would be the footnote -- let's see, the Treasury NCP --

MS. PETTYGROVE: Wait, Pete Zouras, would you just in a sentence state why we have separate DoD and Treasury NCPs because that's haven't been around forever (phonetic)?

MR. ZOURAS: Right. The law requires that Treasury pay for the cost of concurrent receipt, and there will be a payment by Treasury

on 10/1/22 or Fiscal Year '23 of 16.2 for full-time and 3.8 for part-time. Back to you, Marcia.

MS. DUSH: Okay, Inger, have we covered that appropriately?

MS. PETTYGROVE: Yes, I like that; thank you.

MS. DUSH: All right; thank you. Well then, I would like Hyung to take us through the Voluntary Separation Incentive Valuation.

MR. HAM: Thank you. I just need a second for the PDF to pull up. Thank you. And I'm just going to do a quick introduction of what the VSI program is and then I'll hand it over to our colleague, Phil Davis, who is going to be new this year. I'm very excited to have new employee, and he will carry us through the rest of the VSI.

VSI is a program established in 1992 to help draw down the size of the military. It was voluntary incentive that awarded service members who elected annuity certain (phonetic) that was paid out two times their years of service, and the

benefit amount was 2-1/2 percent of their basic pay times their years of service. I think one of the key points to this program is that it no longer has any new members joining the program. It stopped allowing members in 2001. So, it's a closed group. At the time that a service member elected this benefit, they had to have at least six years of active duty as of December 1991; five years of continuous active service at the time of separation. They must have been in a rank that has more people in it than were needed to make force readiness.

Another key part of this program is that they needed to continue military service in a Reserve component. Later, Phil will go into more detailed description of the data, but we're now starting to see the affirmed (phonetic) members reaching Reserve retirement; and then when that happens, they actually have to repay their VSI, all the VSI benefits that they had received in the past. However, there're still allowed to continue receiving it into the future; so, it pays the

service member to go through a process to determinate their VSI payment; to stop receiving those payments that they would have to pay back, eventually. We were able to confirm that when we observed an overlap between the retired pay file and VSI population.

Another aspect of VSI is that it is offset by whatever VA disability compensation that the member receives. So, the VA disability compensation reduces VSI payment which leads to reduced liability for DoD, and that's also going to be discussed on later slides in more detail. So, from here, I'll just hand it off to Phil.

MR. DAVIS: Awesome. Thank you, Hyung. So, here we have the VSI Fund Yield Projection which reads similarly to the retirement ones. So, we have this projected out from Fiscal Year 2021 through 2040; and we have inflation column, a real fund yield, a nominal fund yield, and then a blue-chip return on new investments. And these lead us to a 5-year average of 2.68 percent, inflation; -.72 percent, real; 1.97 percent,

nominal; and 1.53 percent blue chip; and 5-year fund weighted averages of 2.88 percent, inflation; -.97 percent, real; 1.9 percent, nominal; and.92 percent, blue chip. And this is all working off the current interest assumption of 2.25 percent, as bore (phonetic) last year. And I'd just like to point out that this is a lot shorter duration program than most of our others -- an asset duration of 2.5 and a liability duration of 3.3. And just to highlight these negative real yields -- it's primarily due to our portfolio allocation, having no TIPS -- and so due to the high inflation we have in the upcoming years, it leads to negative real yields.

And, going down to the next page, we have a breakdown of the VSI population by the number of remaining payments. So, on the left-hand column, we have the remaining annual payments; and then the population is broken down by ranks. So, enlisted or officer, and then whether they are receiving a VA offset or not. So, for instance, there are 62 people, with 2

remaining annual payments that have rank enlisted and have a VA offset; and they have an average annual VSI payment of $7,442; and average annual VA payment of $3,493.

And I just want to point out that this table does not include the 649 VSI members who have a full VA offset. So, which essentially means that their VA pay is greater than or equal to their VSI pay.

And then going down to the next page, here we have the change in unfunded liability, and this was prepared with the previous year's assumptions of 2.25 percent interest; a 2.2 percent COLA on the VA offsets; and a 1 percent non-COLA increase on VA offsets, which the VA has a process of reviewing disability pay and increasing it or decreasing it based on their circumstances.

If you look at Item 1, we had an unfunded liability as of October 1, 2019 of $111.7 million. The Board, several years ago, approved an amortization payment of $25.9 million which was

made on January 1, 2020; and these combined with our interest rate assumption gave us an expected unfunded liability of $87.8 million as of October 1, 2020; and we had an actual unfunded liability of $87.5 million. So, that was a gain of $300,000, which if we break it up into assets and liabilities, we had a $1.7 million loss due to assets, and a $2 million gain due to liabilities. So, looking at the assets, we had a $20,000 gain near the yield, which is due to us having an assumed yield of 2.25 percent and an actual yield of 2.27 percent. We had a $1.7 million loss due to backup (phonetic) payments, which we can trace primarily to an unexpected number of survivors emerging into the VSI program; and since survivor pay does not have a VA offset, it led to an increase amount of benefit payments.

And looking at liabilities -- we had a $300,000 loss due to the COLA; a $1.8 million gain to the VA update, so it was a little bit higher than the assumed 1 percent. And then, because this was prepared using last year's assumptions,

Item B.3. and B.4. are zero. And then you can see in B.5. that we had a gain of $500,000 due to the residual. Those are just data changes.

And if you go down to the next page, the amortization payments. And the last year, the Board approved an amortization payment of $50.7 million will be made on January 1st of 2022. And the way our model essentially works is we take a set percentage of the projected VSI payments and make those in amortization payments every year until the Fund is empty or expires. And so, currently, we have a percentage of 50.1 percent, for the payments made from January 1, 2023 through 2029, which is when we schedule the program to be done. And this leads us to an amortization payment of $13 million to be made in 2023.

And if we go to the next page, it shows a graph of, essentially, the chart from the previous page; and we can return to the next page to look at the numbers more in depth.

MS. DUSH: I guess the one comment I would make is this program is not very sensitive

to changes in the interest rate because, as you can see, the present value of future benefit sensitivity at 25 basis points is only 1 percent. You know, so for that reason, you know, it doesn't seem to mean a whole lot at this point to tinker with the relatively low interest rate assumption, but I would open up that discussion to my colleagues on that assumption, together with the cost- of-living assumption, and the non-cost-of-living assumption for VA offsets.

MR. CLARK: I agree with you, Marcia. I think that, considering the relatively short duration of the plan, I think that the interest rate seems reasonable, and the cost-of- living assumptions, based off of what we've seen, also appear to be reasonable.

MR. MOORE: And I agree. I think the assumptions work, and when I think on this program, we're approving all the way through the results too, and I -- looks like everything is hanging together reasonably. So, it all looks good to me.

MS. DUSH: All right. So, could I have a motion for the assumptions -- to accept the valuation results and the amortization payment on 1/1/23 of $13 million?

MR. CLARK: This is Mike; so moved. You need me to say that again, Marcia?

MS. DUSH: Yeah. I think, probably, for the purpose of the transcript, maybe read in the assumptions.

MR. CLARK: Will do; thanks. So, okay; so, I move to accept the current assumptions that have been shown here and to accept the valuation results, including the $13 million amortization payment to be made on January 1, 2023.

MS. PETTYGROVE: Mike, just for the record -- I don't want to take any time -- would you state what those assumptions are -- as you've highlighted.

MR. CLARK: Oh, I'm sorry; yes. So, the current assumptions are at 2.25 percent, interest;, 2.2 percent, COLA; and the VA offsets of 1 percent for the non-COLA increases due to VA

reconsideration of disability.

MS. DUSH: All right; thank you. Do I have a second?

MR. MOORE: You have a second.

MS. DUSH: Thank you, John. Any further discussion?

MR. MOORE: No.

MS. DUSH: All in favor?

(Board Member Clark's motion passed unanimously by voice vote.)

Thank you. So, we have -- the motion is approved and, I think, at this point, Mr. Rossi, we have scheduled a break before we begin discussion of the Education Benefits Fund; and can you remind us of when our guests for that discussion are going to be online so we know when to come back from break.

MR. ROSSI: So, we've told folks, loosely, about 11, 11:15; so just to be sure, why don't we take a -- let's call it an 8-minute break until 11:15 and then we'll come back; and, from that point, we'll continue with the Education

Benefits Fund.

MS. DUSH: Thank you very much.

(Recess)

MS. DUSH: This is Marcia. Inger Pettygrove?

MS. PETTYGROVE: I think everybody's probably back on. As long as the other Board members are here, I think you are good to go.

MR. CLARK: Mike is here.

MR. MOORE: John just come back. I'm here.

MS. DUSH: All right. Well, welcome back. Before we get started, I would like to remind anybody who is calling in on a telephone to listen to this portion of the meeting to please send your contact information to Kathleen Ludwig. Her email address is in the invitation for this meeting. We need that to have a record of attendees. And so, with that, I would like to welcome everybody back for a discussion of the Educational Benefits Fund and I'm going to ask my colleague, John Moore, to lead us off here.

MR. MOORE: Very good; thank you, Marcia. Welcome back, everyone. For the final segment today, we'll go over the Education Benefits Fund; and I'm going to turn it over to Hyung with a helpful overview of the various benefits we're going to look at. Hyung, it's all yours.

MR. HAM: Yes; thank you. I'll start off with the overview of the education benefits. As you can see from the chart, you break them down in a couple of ways. Some are supported by the VA and there are also some that are supported by the Department of Defense. Then I'll further break them down by benefits that go to active-duty members and benefits that go to Reserve members. You can see by the column headings what the differences are between the various facets.

The first row is post-9/11 Chapter 33 Basic. That is a VA benefit which means that for purposes of this meeting, we're not too concerned with the funding but it is important because there are members who will use both this benefit and the

DoD Chapter 30 Kicker benefits. So, there's an indirect impact there. It's possible for both active duty and Reserves to use this Chapter 33 Basic. To be eligible, you must serve 3 years to get a full benefit or at least 90 days to have a partial benefit. Was someone going to make a comment there?

MR. MOORE: No.

MR. HAM: I thought I heard something. So, the benefit amount is essentially --

MR. MOORE: This is John. About this channel -- if everyone can mute their lines that would be helpful. We're getting some interference.

MR. HAM: Thank you, John. So, yes; it covers full tuition, and housing and a stipend although the tuition is capped at what the in-state tuition is for your particular state. Since it's not a DoD benefit, we're not concerned with the per capita amount or amortization, and the benefit does offer transferability to transfer the benefit to a dependent, either a spouse or a

child. The member must serve, at least, 10 years in the active duty. They can apply to transfer the benefits after six years. This program has been in effect since 2009. This benefit, essentially, replaces the Chapter 30 Basic, although the Chapter 30 Basic still exists. Next line. Chapter 30 is a smaller benefit that goes to active-duty members; and you can see, again, that there are no per capita amounts or amortization payments. It does hot have a transferability and it is a VA benefit. So, DoD is not really concerned with the funding.

The third benefit offered on this page is the Chapter 30 Kicker, which is a DoD benefit. It has been in existence since 1985, and it was a benefit that was designed to enhance the Chapter 30 Basic which didn't pay for college in full and was only offered to those with selected skills and need; and it was used as a recruiting tool. It was offered for just the active-duty members; and when it was offered, the member had to sign a contract anywhere from two to six years, depending

on what the Department's needs were at the time. The benefit is anywhere between $150 and $950 per month. This benefit is not indexed, so whatever was set at the time of enlistment, that is the fixed amount the Department of Defense paid for, with a net single premium at the time of entry. So, it means, when the service member signed the contract and enters the service, DoD has to fund that person's benefit for what will be his entire use of the benefit; and that is determined by us, the Board of Actuaries. If there is an unfunded liability, there is an additional once-a-year amortization payment made by the services. This benefit does have a transferability provision, same as Chapter 33 Basic.

Lastly, on this page is Cat III, Post-Vietnam Veterans' Educational Assistance Program. It is a very small program with only a few people left using it. You will see in later slides that the benefit amount is only about $51,000, which is a very small amount in comparison to other programs. It is funded by

both DoD and VA for active-duty service members who entered service between January of 1977 to June 1985, involuntarily separated or through VSI or SSB program. The benefit is their contribution and the government's matching contribution divided by total months of their contribution. There is no per capita amounts, and amortization is projected amount, plus the interest used in the prior fiscal year; and the payment is made on October 1st. The benefit existed since 1977 and it may be transferred to eligible survivors and dependents.

So, now if you go to page 2. Now, I'll talk about the Reserve benefits; and they're all funded and paid for by the Department of Defense. The first one is Chapter 1606 Basic. The participants for this benefit are the selected Reserves. To be eligible for the benefit, you must agree to serve 6 years, and you only have eligibility while you are drilling (phonetic), and only for the first 14 years upon drilling. The amount of the benefit in 2021 was set at $392 per

month, indexed; and often you go to college for 9 months, so it would be that times 9 for the year; and that benefit does increase each year by a CPI -- similar to the Chapter 30 Kicker -- the benefit is paid for as a net single premium at the time of entry; and the amortization payment works similar to the Chapter 30 Kicker, which I described earlier. Benefit transferability is not an option for all the benefits on this page.

The Chapter 1606 Kicker is similar to the Basic; however, it is not offered to everybody -- only those with special skills and used as a recruiting tool, unlike the Basic which is offered to everybody. The amount of the benefit is $100, $200, or $250 per month, and it's on top of the Chapter 1606 Basic benefit. Therefore, some Reserves are receiving both the Basic and the Kicker; and this benefit is paid for with a net single premium, and we do not have a separate amortization schedule with this one. The amortization for the Reserve's benefit is all handled through the Basic benefit.

Lastly, I'll talk about the Chapter 1607 benefit. This benefit started in 2004 and ended just recently, November 2019; and the outstanding balance has been internally transferred to Chapter 1606. You gentlemen have any questions regarding the education benefits that are covered so far?

MR. MOORE: I think we're good.

MR. HAM: Okay. Moving on to page 3, I'll talk about the model and how the premium amortization payments are determined. The first thing to note is that the methodology is unchanged from last year. Rates have been updated, but the method is the same; and it was approved at previous Board meetings. The way the model works is that at the time somebody enters the service, one year later, I move them to any of the four categories which you see under the column Year 1. They either continue service and do not use the benefit in their first year, or they continue service and use the benefit -- they withdraw and do not use the benefit or they withdraw and use the benefit.

For each of those boxes, there is a probability of benefit usage based on historical rates. We're looking at the most recent 10 years of performance, and that's how I determine the rates that somebody would use the benefit in Year 1, and then they move from any of those boxes in Year 1, possibly to the same box, possibly to a different box in Year 2, and their probabilities of continuing service and probabilities of withdrawing from service; and, again, each box in Year 2 has a probability of benefit usage. There's a different probability structure for actives and for the Reserves. There're also different probabilities by service. So, a member in the Army don't necessarily use the benefit at the same rate as a member of Marine Corps, Navy, or Coast Guard. I use it at that same rate as the members in the Reserves so that the structure to determine the net single premium for each service for the Reserve members.

Again, it's not anything different from previous years other than having a new year of

information to adjust or update the rates by one year moving forward. Any questions on this page?

MR. MOORE: No questions.

MR. HAM: Now that I'm finished with the overview, I'll get into the details of Chapters 30 and 33, Active-Duty Valuation of Education Benefits. This page covers the EBF Fund Yield Projection and Current Interest Assumption. The EBF Fund is invested in five years' securities. So, you have the shortened duration compared to other larger funds like retirement or a health fund. You can see that in it's 4.4 at the center of the page.

The current interest rate assumption for the last year's valuation is set at 2.75 percent, right next to it. For this projection, it is very similar to other models. We paid all of the assets currently inventoried as of the valuation date. They are projected for at least six months to a year. As maturities come due, the proceeds are reinvested at three to five-year rates, and the appropriate yield is computed in the fourth

column, right there, where it says Fund Yield for each of the year-by-year rates.

The inflation rate in the second column comes from the blue chip, as well as the real, in the third. It's the difference between the Fund yield and inflation. And you can see that the value is negative due to the high rate of inflation compared to a yield. Fully allocation is included in the notes toward the bottom of the page, 50 percent conventional and 50 percent TIPS. So, it is not totally protected against inflation. The blue-chip return on new investment is in the final column, right here. It starts low and, ultimately, grows to be near 3 percent, and that is because blue-chip long-term 5-year rate is forecasted to be 3 percent, which is what you are seeing in this column. And this assumes that 25 percent of all expected annual benefit payments are held into overnight securities; therefore, instead of achieving exactly 2 percent ultimately, it will be something lower than that because overnights have lower rates compared to the 5-year

security rates.

On the right-hand side, we provide two different sensitivities, one at 2.5 percent, and another at 2.25 percent. The liability would go off by 1.11 percent and 2 points to 1 percent if we went to 2.5 percent or 2.25 percent interest rate, respectfully.

Then right below is a 10-year average followed by the Fund weighted. If you look at the Fund yields for a 10- year average, which is 2.27 and weighted average 2.31 percent, are both lower than our current assumption of 2.75 percent. Interest rate assumption is one of the items that requires the Board's approval. But, for the time being, we found a middle ground and based our work on a 2.5 percent interest rate. On the fact notes, the Fund has earned 2.02 percent so far in the FY 2021, for the 9 months that we're in, which projects to 2.7 percent for the whole year. Any questions, or would the Board members like to have a discussion regarding the interest rate assumption at this point?

MR. MOORE: Hyung, this is John. I'll open it up to the Board if it's a general discussion about this interest rate information and what we might do with our assumption.

MS. DUSH: Due to the short -- this is Marcia -- due to the short duration of the Fund, it does appear that 2.75 is kind of beyond a reasonable assumption at this point in time. So, I would have great comfort in moving the assumption down to 2-1/2 percent, just based on looking at what expected Fund yields are and not really knowing what inflation is going to do to us in the future.

MR. MOORE: I agree with that assessment, Marcia.

MS. DUSH: So, then let me move to using -- this would be for the entire EBF Fund for both active and Reserves -- I would move that we use a 2-1/2 percent interest rate to calculate these valuation numbers.

MR. CLARK: I will second that motion.

MR. MOORE: Any further discussion? All

right. All in favor?

(Chairperson's Dush's motion passed unanimously by voice vote; no nays).

MR. MOORE: Great. All right; thank you very much; you want to continue?

MR. HAM: Sure. Moving on to the next page. This page discusses data quality. Data quality has been an issue with valuing the education fund or the past year's received information from the DMDC which is then used to develop those probabilities and then treated up to DFAS recording, and we'll cover how much was actually spent in later slides. So, I'm going to look at the column on the far right. Where it says DMDC Reports as % of Total. That's how much of the information we are receiving and, unfortunately, it's been decreasing from 95.8 back in 2016 to 81 percent this year. It is also broken out by the branch of service, where Army and the Marine Corps have greater than 80 percent; Navy around 72 percent; and Coast Guard around

13.1 percent. Questions or comments on this page?

MS. DUSH: Hyung, this is Marcia. Do you have any understanding of why data is getting worst; and, I guess, the other comment I have is I've never seen a line for unknown data before; so that's a first this year. And especially concerning is the lack of data from the Coast Guard.

MR. HAM: Sure. I'm sure Rich could add if I missed any points here. The norm would be the difference between whatever residual -- when we look at the data, those monies that are not attached to either Army, Navy, Marine Corps, or Coast Guard, we still have dollar amounts there and I think we dumped it now into unknown. We can't just randomly assign them to any branch. And as far as how the quality of service, I'm not sure if I could speak on their behalf other than we just take the data that is available and we work our model. But the data accuracy has been an issue for a long time and it's been decreasing. Rich, would you like to add to that?

MR. ALLEN: No, I think you answered sufficiently both of the questions that Marcia asked.

MS. DUSH: And, again, this is a situation where in DFAS the numbers, you know -- DFAS is recording what they are paying out and it's just a question of why DMDC is so different. And DMDC data is based on what -- information from the VA and from the various service components?

MR. ALLEN: They receive the information from those sources, compile it into files that then we access. DFAS will provide us the total dollars that they paid out of the Fund; DMDC provides individual information that we kind of sum up the data from there, and in those most recent years, it is summoned up to the figures you see here.

MS. DUSH: Okay; thank you.

MR. ABRAHAM: Hi. This is Pete Abraham from DMDC. So, just to clarify. So, we do receive monthly updates of the education program usage data; and I will work with, along with

probably Patty Leffert (phonetic), work with our VA counterparts to try to get to the bottom of this. We've been working to try to improve this. The numbers dropped again this year. So, we'll see what we can do to try to (a) identify where the discrepancy is, and (b) figure out a way to improve the comparison between what's being reported through DFAS must be reported through the usage data recorded by the VA to DMDC.

MS. DUSH: That would be great.

MR. HAM: Okay. We don't have any comments? Shall I move on to the next page?

MR. MOORE: Sounds good.

MR. HAM: So, this page shows per capita contributions added to the Fund by fiscal year or new entrants. As you can see, the last contribution was made in 2012, which implies that there have not been any new people entering the program. However, those who came in before that point have eligibility and can continue to use the benefit. And you can see the details on the following page.

Here, you can see the benefit amounts by fiscal year, and into 2020 the total of $55.3 million of benefits were paid out. And you can see that it has been trending down continuously from $130 million back in 2014, but $55 million is still a significant amount of which Army makes up, close to $40 million of the total. Any questions here?

MS. DUSH: Hyung, do we have any feeling yet about -- you talked about the $55 million -- do you have any feeling because this benefit is subject to transferability. Do you have any sense of, you know, is usage decreasing because people are going to transfer it to their children or spouses, or do we think it's just going down because people are, you know, they haven't offered Kickers in recent years and there's just people not using the benefit as much?

MR. HAM: I think it has many components to it, and definitely on the next page, I can go over the participation of the population, but also a couple things that you've mentioned with the

fact of those benefit payments being lowering. And, Rich, do you have anything to add?

MR. ALLEN: Sure. Well, since we haven't had any new entrants since 2012, for member usage, the majority occurs between four and eight years after somebody enters the service. So, we, now, no longer have people that entered between four and eight years ago. So, that's why we're seeing decrease usage by the members themselves. Some of those members will transfer or have transferred the benefit, and they may have children that are not yet college age. So, we'll continue to see some usage and, probably, as time goes on, a greater percentage of it will be from child dependents of members; but the decrease is because the usage by members is just decreasing as is fewer members in the program. Some of them -- their eligibility has run out and they're not replaced by new people.

MR. HAM: Okay.

MS. DUSH: Okay; thank you.

MR. HAM: Any other questions? Moving

on to the next page. We have the number of people in the program by different branch. Army offered programs that range from two to six years; Navy, two to four; Marines, four to six; and Coast Guard, a single four-year program. Their counts are listed to the right of them, respectively. If you look where it says total towards the middle of the page, you'll notice that there are less people in 2020 than 2019, and that is due to some members losing eligibility as Rich just mentioned and Marcia raised a question about. And on top of that, there weren't any new entrants coming in as we had seen in previous page. And, by the way, for those whose service ended on or after January 1 of 2013, their benefits will not expire because of the new law called the Forever GI Bill. For those who are not covered by that law, their benefits will expire, as Rich just mentioned, in 15 years from the separation date from active duty. So, the count dropped by almost 14,000, from about 140,000 in 2019 to 126,000 this year; and that number's broken out by active versus

inactive, and their branch of service right below -- 24,000 of them are still on active duty, and almost 102,000 people are separated from active duty.

Finally, the bottom portion breaks out the same 125,947 people by usage and branch of service; and we can see that there are more than 90,000 people who are potential users of the benefit. Any questions on this page?

Okay. From this point on, so Rich Allen will carry us through the rest of the presentation.

MR. ALLEN: Okay. Thank you, Hyung. I'll start here with some presentation of the activity of the Chapter 30 Kicker Fund in Fiscal Year 2020. The Fund started with $396 million -- and I should point out at this time -- there's one big education benefit's trust fund. We allocate the money by active duty and Reserve, add (phonetic) in services within each side. So, it's not like there's separate funds, but there's one fund with this amount of money allocated to each

of the services that you see.

So, the Fund started the beginning of 2020 with $396 million -- and I'm looking down the far-right column. The present value of benefits at that time was $353 million. That led to there being a surplus of $43 million. There were payments made, amortization payments, which were set at previous Board meetings, of $18 million. They were transferred to other programs -- and these are internal decisions that we made, some programs that are no longer in use -- of about $9 million. So, the Fund, essentially, started the year at $423 million. It paid $55 million in benefits which we saw on the other page and there were no contributions made and the fund earned $7 million in interest. So, it ends the year with less in it than it started, at $375. And we're expecting the amount of money in the Fund to decrease year-after-year as long as there are no new entrants coming in and benefits are paid. Okay, so, ready to move on?

MS. DUSH: Yes.

MR. ALLEN: Okay. And this page is showing how things are doing in Fiscal Year 2021, comparing what has actually happened through the end of May compared to what our models are projecting using our assumptions, and broken out by service and by Chapter 30 and Chapter 1606.

Looking at the top section, for example, the full year projected for the total is about $43 million, and the model was projecting $45 million. In the case of Chapter 1606, at the bottom, the full year was projecting about $94 million, and the model is projecting a little over $100.

The reason we wanted to show this Fiscal Year 2021 is such an unusual year because of COVID; things are not normal in this country -- I don't think I need to tell you that -- but this was to see whether or not the unusualness of this year affected benefit use of this particular program; and since the model is not based on any COVID adjustments, it appears that the model using historical information of the last 10 years is relatively close to what is actually happening in

Fiscal Year 2021. And for this reason, we've decided that we did not need to make any adjustments for COVID. We had considered that until we looked at these numbers, and because the model and what's actually happening are reasonably close. There's no adjustment for COVID.

MS. DUSH: Rich, this is Marcia. Is one of the reasons that there's no, maybe no discernible effect of COVID is that a lot of the education is done online already? Do you have any thoughts on that?

MR. ALLEN: That is possible, and I don't really know. I mean my thoughts are just that the number of people choosing to go to college in one form or another is not that much different in 2021 as it was in previous years. Online attendance could be a very big reason. Sorry to avoid your question, but I really don't want to speculate as to what the reasons might be other than to just, you know, show the results, and say that there is not that much difference.

MS. DUSH: All right.

MR. ALLEN: I think we can move on from here. This is a gain/loss analysis of Chapter 30. And the gain/loss compares what the present values are of benefits at the end of 2020 compared to what we were projecting them to be going into the year. So, the third group of numbers that are kind of grouped together shows that the present change is really not that much -- looking across-the-board under Army, -3 percent; Navy, -4.7; Marine, -4 percent; Coast Guard, plus, which is a loss at 7.1; and in total a 3.4 percent change which is relatively small. So, in other words what happened in 2020 was close to what we were projecting it to happen and there are no -- none of the individual reasons for a gain or a loss are very high or very low.

MS. DUSH: I guess it's interesting to note, to compare this page to page 10 where we, at '19, we had a surplus of $43 million. We expected a surplus of, grow to $73 million; and we actually got to $83 million. So, we see a growing surplus here.

MR. ALLEN: Right. The surplus is growing, you know, by some amount.

MS. DUSH: And that even reflects an assumption change to go to 2-1/2 percent.

MR. ALLEN: Correct. Okay, is there any more questions or comments here?

MR. MOORE: I'm good.

MR. ALLEN: Okay; I guess we'll move on. The next page -- this is showing the flow of funds from the end of September 30, 2020 to October 1, 2022 where we would set amortization payments or adjustments, and I'm going to look at the second line from the bottom.

So, this is where we expect the Fund to be on October 1, 2022. We're expecting surpluses for the Army, Marine Corps, and Coast Guard of the amounts you see there, the largest being the Army at $87 million; and an unfunded liability position of the Navy of about $2-1/2 million. So, we set amortization payments when there is an unfunded liability. So, in this case we only see one for the Navy.

Using the schedule that has been used at previous meetings of an amortization schedule of five years using the Board-approved interest rate, which was announced earlier in this meeting of 2.5 percent, we lead to a Navy amortization payment of $542,957; and since the others are in a surplus position, there is no payment that we are proposing.

MR. MOORE: Rich, this is John. At this point, why don't you see if there are any comments from the Board; and it probably should do a motion to approve the -- right, again, we've already approved the economic assumption here -- but the amortization that's resulting in the other approach is resulting in this payment.

MR. CLARK: Thanks, John. This is Mike and, you know, I was just looking at the amortization, I wonder if in future years, we might want to have conversations about is there some de minimus number where it makes sense to maybe postpone amortization if the numbers are small enough; but, you know, we definitely

deferred on that discussion this year. So, I'm very comfortable with the current five-year amortization methodology.

MS. DUSH: I feel the same way. This is Marcia. I think we certainly could have a discussion about de minimus amortization payments and put that into next year's meeting.

MR. MOORE: I agree the Board would definitely be willing to entertain that idea if it were useful to someone. Mike, perhaps, you could put your thoughts into a motion?

MR. CLARK: I can do that. So, I make a motion to accept the methodology used to come up with the Navy amortization payment for the active-duty Kicker program, which is 5-year amortization at the valuation of 2-1/2 percent.

MS. DUSH: I second that.

MR. MOORE: And just for discussion, I'll add, as far as discussion, is that I view that as also including the way we got to zero for the others. But with that, let's vote. All in favor? All right; thank you. Rich?

(Board Member Clark's motion passed unanimously by voice vote; no nays.)

MR. ALLEN: Okay. We'll continue with the next page. These are Factors Affecting the Active-Duty Kicker Normal Cost. Now, even though there have not been new entrants for a number of years and the services are telling us they aren't expecting new entrants in the next few years -- at least the foreseeable future -- we're still going to set normal cost just in case that changes. It's something we have to do. And, again, these are net single premium costs. So, if they were to chose to offer Kickers in FY22 or FY23, the cost below are what they would have to contribute into the Fund. The FY22 costs were set at last year's meeting. I'm just showing them to the record. The '23 costs are being set and announced this year. They are a little higher, which might seem a little counterintuitive considering things in the Fund are decreasing, but they're based on the cost of what an individual would -- well would

need to be contributed into the Fund to pay for an individual's total education usage. And even though spending is going down, it doesn't necessarily mean spending per person is going down, and that's really what these costs represent. We've also increased our assumption of transferring the benefit. So, that's another reason that the normal costs in '23 are higher than the normal costs in '22. So, again, these are the costs for the record whether they are new entrants or not.

Okay, this is just a summary of all the costs. The previous page just showed a few of them, and the services have the option to offer any amount between $150 and $950. The Army still can offer any of the 2, 3, 4, 5, or 6 year-contract. Currently, the Navy would only offer four years and Marine Corps a 4, 5, or a 6; and the Coast Guard 4 years. So, these are all the costs that could be offered in Fiscal Year '22 and Fiscal Year '23.

MR. MOORE: Rich, this is John. Can you

confirm -- we've already approved all of the assumptions and methods that are yielding these results? You don't need Board action on this specific issue, correct?

MR. ALLEN: That is correct; and as we stated before, the methodology to generate these costs were approved at earlier Board meetings.

MR. MOORE: Thank you.

MR. ALLEN: And this next page -- I'm not going to go over it. It's really just a summary, a little more detail of the page that led to the amortization payment. And if you just kind of scroll to the very bottom, that just shows where we expect the Fund to be, for example, at the end of Fiscal Year '22, we expect it to have $316 million, down from where it is right now. And these are really just appendices for the Chapter 30 Kicker Programs by service -- the activity we project over the next 10 years. I won't go over them but just include them for the record.

MS. DUSH: And, I think, the gist of

them, except for Navy, you've got increasing surpluses for the various services, and you show with the amortization payments the unfunded for Navy going down.

MR. ALLEN: Correct. Right. There is on the screen, the Navy. And this would be as if amortization payments would be continued to be made. I know earlier you mentioned possibly suspending them.

MS. DUSH: Thank you.

MR. ALLEN: And then the last piece for the active duty is the Post-Vietnam Era Involuntary and Voluntary Separatees. This is funded differently than the Chapter 30. What happens here is we project how much money will be paid to members in this program during the year and then set a payment to be made on October 1st, which is the first day of the next fiscal year. Each of the services will probably start with a balance from the previous year based on what was in the Fund versus what was projected at the previous year's Board meeting, and then there

could be benefits paid to members. So far this year, only benefits have been paid to Army members. That's the middle line -- there are benefit payments through June of $54,000. And these are actual numbers. These are not in millions or even in thousands, only $54,000. It's a shrinking program.

So, in the case of the Army, we project a little bit more through the end of the year and that they will have a Fund balance of about $49,000, including interest, that they would then owe on October 1, 2021. We're proposing that instead of them making that payment, even though you see that they would owe some -- that it simply come out of the Chapter 30 Kicker money which is in the surplus. And in the case of the other services, the Navy and the Marine Corps would not have any debt owed; and the Air Force -- only because they had a negative balance coming into the year, and with a little bit of interest would owe about $4,000 because there's not a Chapter 30 Air Force program that they would be scheduled to

make a payment of $4,006. Again, the methodology here is the same as previous years and these are the results of what two of the services would owe on October 1, 2021.

MR. MOORE: This is John. It's probably still good for the Board too, even if we choose not to make any changes to this by motion.

MS. DUSH: This is Marcia. So, let me make a motion that we approve the method used to calculate these contribution numbers and we also approve the suggestion that the Army payment be made out of its Chapter 30 surplus.

MR. CLARK: I second that motion.

MR. MOORE: Any further discussion? All right, all in favor? Rich?

(Chairperson Dush's motion passed unanimously by voice vote.)

MR. ALLEN: Okay; all right. So, that concludes the active-duty programs. Now, we'll move on to the Reserve program, which is now only Chapter 1606, both a Basic and a Kicker benefit.

This is a similar looking page to what

Hyung presented earlier for Chapter 30 Kicker, comparing what DMDC is reporting in their files, and what DFAS is reporting have been paid out in benefits to its members, broken out by Reserve component, and by Basic and by Kicker benefits.

So, the far-right column shows the percent in the DMDC files as compared to what DFAS paid out of the Fund. In total for all the components, it was 84 percent -- some a little bit higher, some a little bit lower -- separating by Basic and by Kicker. The Basic benefits, 93 percent; DMDC has a percent total of DFAS; but the Kicker only 66 percent. So, it looks like DMDC is receiving much better information for Basic benefit usage than for Kicker benefit usage.

MS. DUSH: Rich, Marcia again. Again, I don't expect your answer to be any different, but any comments about the lack of data here, a lack of congruence of data?

MR. ALLEN: No, my answer is not different, it's just, you know, we take the data we get and do the best we can with it; but we're

not always have an explanation as to why it's not closer to 100 percent.

MR. ABRAHAM: Hi, and this is Pete Abraham again. We'll take it from DMDC. We'll take the same actions with this program and, perhaps, focus a little more intently on the Kickers in this case because they seem to be much further off. We'll take the same actions on this one, and we'll (a) try to get a reason, and (b) try to get a way forward projecting these into better alignment.

MS. DUSH: Yes. I really would appreciate that. This is Marcia. You know, we've been seeing -- I've been on the Board now for 12 years and, you know, this has been something that we commented on, you know, with each valuation, with each quadrennial report to the President and to Congress. You know, the other thing -- and because we had issues with 1607, as well -- I mean we made a strong recommendation that this program, the entire EBF Fund, needs to be audited. We said that in our, you know, in our quad report will be,

you know, we've made comments about data problems in our Board letters, so we really would appreciate attention to this matter. I think you'll hear later on -- Rich will be making a proposal about some methodologies that he has to use in order to reconcile differences in reporting for Reserves. So, we really would appreciate attention to this; and, quite honestly, we really think it should be audited. Thank you.

MR. ALLEN: Thank you for that comment. Okay; I think we can move on. Here's just the number of people in the program. Unlike the Chapter 30 Kicker, there are more at the end of 2020 than were at the end of 2019, both eligible for the Basic and eligible for the Kickers.

Okay, now here's an economic assumption page. Because the Chapter 1606 Basic benefit, by law, increases by a CPI each year and, by law, it increases by taking the 12- months CPI average from July through June and then comparing that to the previous CPI average from July through June -- but, again, by law, that's how the Basic benefit

will increase. So, it was $397 in 2021; it'll be $407 in 2022 since we have all 12 months of the CPI through the end of June. As for what the Basic benefit will be in Fiscal Year '23 and beyond, that we can only project and the method we use is to use blue-chip forecast for what the CPI will increase by month-by-month and that's what I'm showing here.

So, for example, June 2021 is already known to be $266.4. Based on the blue-chip projected CPI increase, it will be $267 in July and $267.6 in August, and so on and so on. And then just applying the formula leads to projected monthly Basic amounts that you see in the far right. Again, this is a methodology that is unchanged from previous years; and I'm just showing what the increases are and what the Basic benefits project to be.

MR. MOORE: Thank you. This is John. I'll suggest for the Board we go ahead and make a motion here. So, in this case, although we'll continue -- my assumptions will continue to use

the same methodology to develop our assumption -- let's so pause to go ahead and approve doing so. Can I get a motion for that or a discussion?

MR. CLARK: Sure, I can make that motion, John. So, I move to adopt a current methodology for projecting the CPI that underlies the cost-of-living increase in the Chapter 1606 Basic benefit.

MS. DUSH: I second.

MR. MOORE: Perfect. Further discussion? All right, all in favor?

(Board Member Clark's motion passed unanimously by voice vote.)

MR. ALLEN: Okay. Continuing onto the next page, for the most part using the same methodologies and assumptions that have been used in previous years that have already been approved, there is one proposed change that I would like to make. And first of all, for the rationale for the study and the change, and that is that the 1606 portion of the Fund has been in a surplus position since 2005 in total and each of the seven Reserve

components individually have been in a surplus since 2012 despite offsets each year to the per capita amounts. And this chart shows the surplus increasing -- that's the blue section of the bars; and then the liability also increasing. So, and I ask myself kind of, why is the surplus increasing despite, you know, what we're doing. And I think this goes to the true-up factors. Again, the true-up factors are the ratio of what DFAS is showing as spending and what the DMDC files are showing. And what we typically do is create rates using DMDC and then increase them by the ratio of DFAS to DMDC; and we do it individually by component. And, I think, what would be a better way of truing-up, instead of applying whatever that ratio is -- all to the rates that we use -- applying some of it to the rates and then some of it to the number of eligible reservists.

As it states there, we estimate 38 percent of the unreported activities due to factor one, which is benefit usage activity by the reservists on the file, and 62 percent is due to

possibly not all eligible reservists are actually on the file. We don't know exactly, you know, what percent is what, but that's an estimate we're making. So, what I would saying is next year instead of increasing the rates by all of the difference between the DMDC to DFAS difference applying only 38 percent to the usage rates, and then 62 percent of that difference to the census population. This will lead to lower normal costs, since the normal costs -- only the rates matter with the normal costs, the total population does not. And if the normal costs are lower, it'll eventually lead to surpluses coming down. So, that table at the bottom shows what the current methodology is and the proposed methodology is for usage rates and for population. So, the usage rates will not increase by as much as they would have under the old methodology, although the population will increase by some compared to the old methodology.

So, again, this is a proposed change on how things are being done from this valuation

going forward.

MR. MOORE: Thanks, Rich. I'd like to open it up to the Board for reactions to the proposal.

MS. DUSH: John, this is Marcia. I know that Rich has attached a simplified example at the very back of this document; and after looking through it, I guess, I would like to try my best to summarize what I understand as being the change here, and then go ahead and offer a motion to accept this new methodology. So, my thought is that because -- due to the discrepancies in the data between the data provided by DMDC and DFAS, OAC has to find a way to estimate the amount of spending for each eligible member to project future payments from the Fund to eligible members. So, they're using past payments to project future payments because that's what's driving the normal costs.

The method that has been used in the past seems to be overly conversative because we're seeing that the program, the valuations, continue

to generate experience gains, meaning the surpluses are growing. In a perfect world, you know, if DMDC and DFAS data were in better agreement, we wouldn't need a methodology to do this sort of true-up -- as Rich has been explaining -- but since we don't see an agreement between the data and hopefully, you know, if the data differences can be resolved, this will go away -- but as long as there is such a significant difference between the two sources of data, OAC is proposing to modify the method of determining the spending per person by first calculating, looking at what the DFAS data is saying that they're spending per person, and then looking at what DMDC is saying they're spending per person.

So, it's my understanding that OAC believes that the DFAS data is more reliable with respect to total dollars spent and the number of members that relate to that total dollar spent; but the DFAS data does not include enough information because it doesn't show how much benefit each reservist has already used in prior

years, meaning what's left to be spent in future years since some of their benefit is limited.

So, OAC is proposing to use a model that develops normal cost based on the DMDC data, which does provide data on how much each member has spent in prior years, but then do a ratio up to the normal cost so that average dollars spent per person in recent years would equal the DFAS average dollars spent per person in recent years. So, there still is some rationing up here but it's not as significant as it was in the prior method of doing this.

So, I move that we accept the recommended change in the method to determine how to reconcile the difference between DFAS and DMDC data and the determination of the normal cost for the Chapter 1606 benefits. I guess I just want to be sure that everybody's comfortable with my summary there.

MR. CLARK: I'll just say -- while we wait to see if anyone has a response -- that, you know, I think it's a reasonable move. I do

believe that the ultimate solution to this is the convergence of DMDC and DFAS data. You know, but in the meantime, this does seem to be a reasonable step towards getting reality to match expectations a little bit better. So, I guess, I'm due to second that motion; so, I second a motion.

MR. MOORE: Perfect; all right. Rich -- actually, Marcia -- I really appreciate your thoughts and your summary there. They sounded correct to me. Rich, I trust, there are no corrections to how Marcia presented it, correct?

MR. ALLEN: That is correct. It was a very accurate summary of what I was saying.

MR. MOORE: Very good. And, you know, I'll just kind of echo Mike's comments. We, you know, as actuaries, we often do have to -- we always have to deal with some shortcomings in the data; but, again, the ultimate solution here is as the DMDC data keeps emerging (phonetic) with DFAS in terms of aligning that will be the fix and make this adjustment needless. Agreed. All right, we have a motion and a second to accept the proposed

change; and with that, all in favor? All right; thank you. All right, Rich?

(Chairperson Dush's motion passed by voice vote; no nays voiced.)

MR. ALLEN: Okay. Moving on to the next page. This is the gain/loss page for the Chapter 1606. I'm just going to focus on the far-right column. The most significant change by far is the change due to the new methodology which leads to a gain of $55 million and, in total, there's only a gain in the Fund of $59 million. So, it's almost all attributable to that. Small differences in the other areas. There's some up and down, by service and -- I won't, you know, go over each one -- but for the most part, the methodology has led to the change and not much change elsewhere.

Here's a page, again, laid out similar to what you saw with Chapter 30, setting up the amortization payments. Unlike Chapter 30 -- and what I've been saying -- all of the Reserve components are in a surplus position. So, looking at the third line from the bottom is what the

surplus is projected to be on September 30, 2022, keeping in mind that the normal cost for Fiscal Year '22 were already set so the methodology change that I'm proposing, and you approved, won't take place until the FY23 normal cost come in. So, with that in mind -- you see the surpluses there on the third line from the bottom, and since they are all surpluses, no unfunded, there's no payment to be made -- and we'll have an adjustment to the FY23 normal costs -- and this is based on the same schedule that's been approved in previous years setting a five-year amortization schedule with the interest rate of what was approved earlier in today's meeting and it leads to adjustments to those normal costs that you see on the very bottom line.

And then if we move to the next page, the second line are the same numbers as what was on the bottom line of the previous page, the total amount to be offset. The top line is the projected normal cost contributions based on determining what the normal cost per person would

be and the projected number of new people coming into the program; and I get that simply from the Controller's Office.

So, if we take the normal cost -- and there's a different one for the Basic and each of the Kicker amounts -- times the projected number of new entrants -- we get that top line. The second line, again, is from the previous page; and then the precent of the cost to be offset would be the second line divided by the first line. In some cases, its over 100 percent, but it's a positive number for every component. If it's over 100 percent, then it's just a full offset or a zero normal cost to the Basic. If it's below 100 percent, then the normal cost is offset by whatever percent line you see there, and it's a partial offset.

MS. DUSH: And Rich, this is -- when you're showing these numbers, this is attributable to the Basic benefit, correct?

MR. ALLEN: Correct. So, we apply the offset entirely to the Basic benefit and leave the

Kicker amount as what we determine to be the value of the Kicker and do not apply any offset. Okay, shall we move on from here?

MS. DUSH: Do you want a motion here?

MR. MOORE: Yeah. I'm just trying to decide would a motion that -- outside of the things we've already addressed in our prior motion -- should the Board approve continued use of the methodologies that are producing these results? Unless we need to capture any of the subsequent pages, we can do that at this stage.

MS. PETTYGROVE: Rich, leaving it up to you, is there more that the Board needs to decide on, and it also doesn't hurt to take care of this since we've just heard it, we -- you know, or an approximate understanding of it -- and then go onto, you know, future things that may or may not need another motion?

MR. ALLEN: I can summarize everything a little more before we go to the motion to approve. So that would be on our next page.

MS. PETTYGROVE: Okay; good.

MR. MOORE: All right, let's do that.

MR. ALLEN: So, here is what -- again, first, FY22 was already set, FY20 is just there fore a comparison. FY23 is what we're working on now. It shows what the average benefit will be. And, again, because they go up by the CPI, the percent benefit used, using the methodologies, including the proposed methodology which you approved earlier, the discount rate, leads to the normal cost in that fourth set of numbers, and then the offset is that normal cost times the percent for each component that we saw on the previous page. The per capita amount is simply the normal cost minus the normal cost offset. So, for example, the Army National Guard Basic is fully offset, so we would have a zero normal cost. The Army Reserve Basic was not fully offset, it was partially offset, leading to a per capita amount of $243 in 2023; and then you can see what they are for the other Reserve components.

And then if we move to the following page. They all have normal cost offset to zero,

as we were saying the entire offset is applied to the Basic and none to the Kicker. The reason that one component is boxed is that's the only Reserve component that is currently offering $100 Kickers, although any of them could at any time. So, again, we need to set state cost even if there are no expected entrants. And then I have the same for the $200 Kicker on the next page. Three of the components are currently using them and four are not; and then the following page shows the $350 Kicker. And in some cases, because it's the proposed methodology, the per capita amounts have decreased -- in some cases, significantly decreased.

So, I think, this might be a good place for the motion to approve all the methods, which is, primarily, just stating continuation of methods approved in previous years, and the one proposed method which you've already approved.

MR. MOORE: Sounds good. Can I get a motion to that effect?

MR. CLARK: Do you want me to take a

shot at that?

MR. MOORE: Sure.

MR. CLARK: So, I move to approve the per capita methodology for the 1606 Basic and Kicker benefits. For the 1606 Basic, it's normal cost offset by the amortization of any surplus over five years; and for the Kicker, is normal cost per capita, unadjusted.

MS. DUSH: And this is Marcia. I second it. I would also add that, you know -- I'm going to assume that surpluses start to diminish in this portion of the Fund. But if they don't, we might want to revisit the five-year amortization in future years.

MR. MOORE: Sounds good. Unless there's further discussion, all in favor? Thank you, Rich.

(Board Member Clark's motion passed unanimously by voice vote; no nays.)

MR. ALLEN: All right. And here's a summary of where I think the Fund will be over the

next several years. The first set is the normal cost. And, again, the normal costs for '21 and '22 were set previously; and we're not changing anything that was set. The FY23 are the first costs that are setting under the new proposed methodology. So, as I stated, it will bring down the normal cost each year. They're relatively unchanged from '23 to '26, except for the CPI increases. That's why there's a small increase, but relatively the same. The amortization payments, which are -- or I should say, per capita adjustments -- which are based on what the surplus is projected to be -- as the surplus decreases, the per capita adjustments will decrease -- again, beginning in 2023. So, that'll be at its high point at $75 million, and then come down to $62, and $51, and so on.

The income from the per capita amount contributions starting with 2023, where they're much lower that '22, will then start to go up because the per capita adjustments will come down. So, it'll be the normal costs minus a smaller

adjustment will lead to a higher income from per capita amounts from '23 going forward.

And then here's other projection outlays. I'm projecting it to go up a little bit from Fiscal Year '21 but, otherwise, relatively stable except for the highest basic benefit due to the CPI.

The Fund balance will start coming down as the normal cost start coming down even though the outlays are relatively the same but the normal costs are less. So, the Fund balance will be less; and then I project that the surplus will come down by the amounts that you see in the bottom section. Okay. I can move on, nothing to approve here -- just showing where I expect things to be.

The next two pages are really appendices included for the record showing the activity in Fiscal Year 2020. I'm not going to go over it; and the following pages, projected activity in Fiscal Year '21 and '22. And then where the Fund will be at the start of Fiscal Year '23. This is

just more detail from the amortization page.

I have one page discussing Chapter 1607 which has sunset, and sunset in November 2019, which is the early part of Fiscal Year 2020; and what we did was make an internal transfer of whatever funds there were between 1606 and 1607, to put it all in 1606 so this program had exactly zero dollars at the end of 2020. Since the program is completely over, by law, there can be no more activity in this program.

MS. DUSH: Rich, this is a situation where in prior years we seemed to have a big surplus in 1607, so we transferred out an amount not thinking that we were not transferring the entire surplus but a reasonable amount of the surplus to 1606; and then, out of nowhere, came another $4 million plus in benefit payments after the program was supposedly sunset; and so, we had to transfer money back.

Again, I think, this is one of those situations where I became very concerned about the lack of audit in the data and how $4 million worth

of benefits -- again, recognizing that's a small number in DoD terms -- but still where $4 million out of nowhere came due; and so, again, you know, I continue on my soapbox to believe that these funds need to be audited.

MR. ALLEN: Okay. I think what happens here is that after the program was completely sunset, there were members who were still due money for much earlier usage than what they had in this year, and it was the Fund paying those people the benefits for past benefit use.

MS. DUSH: Well, you think, because it was applied late or because VA just didn't pay them on time?

MR. ALLEN: Well, probably would have been DFAS.

MS. DUSH: Or DFAS.

MR. ALLEN: DFAS just paying and just kind of catching up all of the benefits that were owed to people from earlier use, that they had to do to close out the program, and it was more than we were expecting. It caught our offs by surprise

too. We were not expecting $4 million to be paid for a program that you only had one month of activity in the fiscal year.

MS. DUSH: Yeah. All right.

MR. ALLEN: Okay. And then this page, we went over earlier. It's just an appendix, you know, for the record, to explain what that proposed methodology change was.

MR. MOORE: Great. Rich, well, thank you very much. Why don't -- we're just going to open it up to see if there are any questions related to EBF before we bring this part to a close. I'm hearing no questions. Marcia, I think, I'll pass the keys back to you.

MS. DUSH: Okay. Again, anybody who joined on the phone, please do send your contact information to Kathleen Ludwig. Her email address is included in the invitation to this meeting; or, I think, you can send your contact information to just about anybody at OAC and they will make sure it gets to Kathleen, for the record. Again, opening it up for any final questions before we

bid you adieu. Any comments, questions? Mr. Zouras, anything?

MR. ZOURAS: Nothing here; thanks.

MS. DUSH: All right. Well then, I thank you for attending this year's Department of Defense Board of Actuaries meeting and, hopefully, next year we'll be meeting in person. Thank you.

(Whereupon, at 12:32 p.m., the PROCEEDINGS were adjourned.)

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CERTIFICATE OF NOTARY PUBLIC

COMMONWEALTH OF VIRGINIA

I, Mark Mahoney, notary public in and for the Commonwealth of Virginia, do hereby certify that the forgoing PROCEEDING was duly recorded and thereafter reduced to print under my direction; that the witnesses were sworn to tell the truth under penalty of perjury; that said transcript is a true record of the testimony given by witnesses; that I am neither counsel for, related to, nor employed by any of the parties to the action in which this proceeding was called; and, furthermore, that I am not a relative or employee of any attorney or counsel employed by the parties hereto, nor financially or otherwise interested in the outcome of this action.

Mark Mahoney

Notary Public, in and for the Commonwealth of Virginia

My Commission Expires: August 31, 2025

Notary Public Number 122985