



VALUATION OF THE MILITARY RETIREMENT SYSTEM

SEPTEMBER 30, 2016



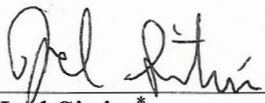
**DoD Office of the Actuary
June 2018**

ACTUARIAL CERTIFICATION

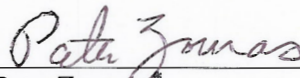
This report on the valuation of the Military Retirement System as of September 30, 2016, has been prepared in accordance with generally accepted actuarial principles, standards, and practices. In preparing the report, we have relied upon information maintained by other Department of Defense activities regarding plan provisions, finances, and participants. The purpose of the actuarial valuation documented in this report is to develop actuarial liability and funding amounts to support the Secretary of Defense and the DoD Board of Actuaries ("Board") in meeting the requirements of Chapter 74, Title 10, United States Code. Use of these results for other purposes may not be appropriate. Any rates or parameters included in this report should not be used for other purposes without complete comprehension of the underlying derivation. Please contact the DoD Office of the Actuary for further information.

We have performed the valuation using methods and assumptions approved by the Board. In general, the decrement rates used in the valuation are based on Military Retirement System experience. The annual, long-term economic assumptions include a 2.75% rate of inflation, a 3.25% across-the-board salary increase, and a 5.25% interest rate. Unless otherwise stated, normal cost percentages (NCPs) shown in this report do not reflect budgetary reductions ("sequestration").

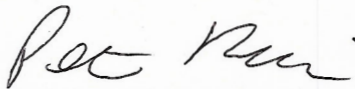
The actuarial methods and assumptions used in the preparation of this report are reasonable, and the valuation results present a fair picture of the financial condition of the Military Retirement System for purposes of meeting the requirements of Chapter 74, Title 10, United States Code. The Blended Retirement System (BRS) enacted in the National Defense Authorization Act for FY 2016, as amended, is reflected in this report. Future report results may differ significantly from those presented and documented in this report, for reasons that include uncertainty regarding how behavior will change under BRS.



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* Meets the qualification standards of the American Academy of Actuaries, and continuing professional development requirements of the Society of Actuaries, to render the actuarial opinion referenced above.

USE OF THIS REPORT

- **Intended Audience:** Those seeking actuarial information about the Military Retirement System (MRS) or financial information about the Military Retirement Fund (MRF).
 - **Report Limitations:** Stated in *Actuarial Certification* section of this report.
- *** Economic, demographic, and political forces impact the actuarial projections and valuation results and cannot be predicted precisely over long periods of time. *****
- For a high-level summary and bottom line results, refer to the *General Information and Key Results* section.
 - For those new to the MRS, the main text and associated tables/figures can be found in the central section of this report (*Valuation of the MRS*).
 - For those familiar with the MRS, the appendices and supplementary information provide additional technical and background information about DoD Office of the Actuary’s work.
 - In various places throughout this report, figures may not add exactly due to rounding.
 - Many references to “active duty” personnel throughout the report also include full-time support reservists. Similarly, many references to “reservists” or “selected reservists” exclude full-time support reservists.

ABBREVIATIONS AND COMMON TERMS

AEAN	Aggregate Entry-Age Normal cost method
Board	DoD Board of Actuaries
BRS	Blended Retirement System
COLA	Cost-of-Living Adjustment
CPI	Consumer Price Index
CSB/Redux	Career Status Bonus Retirement System combined with the Redux System
DIC	Dependency and Indemnity Compensation
DoD	U.S. Department of Defense
FY	Fiscal Year
GORGO	Actuarial Projection Model used by DoD OACT
MRF / MRS	Military Retirement Fund / Military Retirement System
NCP	Normal Cost Percentage
P.L.	Public Law
RSFPP	Retired Serviceman’s Family Protection Plan
OACT	DoD Office of the Actuary
OMB	U.S. Office of Management and Budget
PEBD	Pay Entry Base Date
SBP	Survivor Benefit Plan
Services	Army, Navy, Air Force, Marines
SSIA	Special Survivor Indemnity Allowance
UFL	Unfunded Liability
U.S.C.	United States Code
VA	U.S. Department of Veterans Affairs

GENERAL INFORMATION AND KEY RESULTS
Military Retirement System – For Fiscal Year ending September 30, 2016

1. Name of Plan:

Military Retirement System

2. Name and Address of Plan Sponsor:

Department of Defense

1400 Defense Pentagon

Washington, DC 20301-1400

Phone: (703) 571-3343

Website: <https://www.defense.gov/>

3. Type of Plan:

Defined Benefit

4. Establishment of Funding Arrangement:

Public Law 98-94 (currently Chapter 74 of Title 10, U.S.C.)

5. Administrative Costs:

Not borne by the Plan

6. Funding Arrangement:

Trust Fund

7. Actuarial Cost Method:

Aggregate Entry-Age Normal (AEAN)

8. Oversight:

DoD Board of Actuaries. The Board approves methods and assumptions used in the valuation. The current members of the Board are:

Mr. James F. Verlautz, Chairman

Ms. Marcia A. Dush

Mr. John H. Moore

9. Plan Participant Information at *End of Plan Year*:

	<u>Members</u> (in 000s)	<u>Annualized Pay</u> (\$ in billions)
Active Duty and Full-time Reservists:	1,364	\$56.47
Selected Drilling Reservists:	735	\$7.70
Non-Selected Reservists – w/ 20 years:	212	-N/A-
Nondisability Retirees:	1,874	\$51.62
Disability Retirees:	116	\$1.58
Surviving Families:	287	\$3.74

*** Only retirees and surviving families are paid from the Military Retirement Fund. ***

GENERAL INFORMATION AND KEY RESULTS (Continued)
Military Retirement System – For Fiscal Year ending September 30, 2016

10. Valuation Input Data:

Extracts from files maintained by the Defense Manpower Data Center (DMDC), and files submitted by the Defense Finance and Accounting Service (DFAS)

11. Retirement Criteria:

- A. Nondisabled Retirement from Active Duty – Immediate, after 20 years of service
- B. Disabled Retirement – Immediate, generally with no years of service requirement
- C. Nondisabled Retirement from Reserve Duty - Deferred to age 60 (or earlier in some cases) after 20 years of creditable service

12. Actuarial Assumptions:

A. Economic:

(Annual Rates)

- 1) Inflation – 2.75%
- 2) Salary – 3.25% (excludes promotion and longevity increases)
- 3) Interest – 5.25%

B. Demographic:

- 1) Mortality and other assumptions: Based on Plan experience.
- 2) Mortality Improvement: Based on adjusted U.S. general population and projected by the Society of Actuaries (SOA).
- 3) Percent of a Typical New Entrant Cohort Serving 20 Or More Years:
 Full-time (FT) personnel: 19% ||| Part-time (PT) personnel: 14%

13. Accounting Results *During Fiscal Year 2016:*

(\$ in billions)

- A. Benefits paid to participants: \$ 57.2
- B. Contributions from Services: \$ 19.3
- C. Contributions from Treasury: \$ 86.2
- D. Investment Income: \$ 15.6

14. Actuarial Results at *End of Fiscal Year 2016:*

(\$ in billions)

- A. Present Value of Future Benefits: \$ 1,628.1
- B. Actuarial Accrued Liability: \$ 1,407.0
- C. Actuarial Value of Assets: \$ 664.4
- D. Unfunded Accrued Liability: \$ 742.6
- E. Funded Ratio (C./B.): 47%

15. Normal Cost Percentages Applied to Fiscal Year 2018 Basic Pay:

	<u>DoD</u>	<u>Treasury</u>	<u>Total</u>
Full-time:	28.4%	12.5%	40.9%
Part-time:	22.6%	3.3%	25.8%

TABLE OF CONTENTS FOR THE SEPTEMBER 30, 2016, VALUATION

<u>Section</u>	<u>Page</u>
<i>Supplementary Information</i>	2
Actuarial Certification.....	2
Use of This Report	3
Abbreviations and Terms	3
General Information and Key Results.....	4
Summary of Changes for the September 30, 2016, Valuation.....	8
Summary of Anticipated Changes for the September 30, 2017, Valuation	9
<i>Valuation of the Military Retirement System (MRS)</i>	10
Introduction.....	10
Valuation Data and Procedure.....	10
Table 1: Initial Accounting Figures	11
Table 2: GORGO Population Categories.....	13
Figure 1: GORGO Process Overview	14
Assets	15
Table 3: Statement of Actuarial Value of Assets	17
Table 4: Statement of Changes in Actuarial Value of Assets	18
Normal Cost	19
Table 5: Normal Cost as a Percent of Basic Pay (NCPs).....	20
Amortization of Unfunded Liability	21
Unfunded Accrued Liability as of September 30, 2016.....	22
Table 6A: Actuarial Status Information	24
Table 6B: Sensitivity Tests	25
Table 7: FY 2016 Change in Unfunded Liability	26
Table 8: Past and Projected Flow of Plan Assets.....	27
Table 9: Past and Projected Payroll and Normal Cost Payments.....	30
Table 10: Past and Projected Unfunded Liability Payments.....	31
Table 11: Past and Projected Unfunded Liability Balance	32
The Military Retirement Fund Transaction Process	33
Figure 2: Unified Budget.....	34

**TABLE OF CONTENTS FOR THE SEPTEMBER 30, 2016, VALUATION
(Continued)**

<u>Appendix</u>	<u>Page</u>
<i>Appendix A: The Military Retirement System: Benefits</i>	37
Table A-1: Military Retirement Fund Performance Measures.....	49
<i>Appendix B: The Military Retirement System: History</i>	50
Table B-1: Military Retirement System Properties.....	61
Table B-2: Military Retirement System Multipliers	61
Table B-3: Military Retired Pay Cost-of-Living Increases (1958 – Present).....	62
Table B-4: Military Basic Pay Scale Increases (1958 – Present).....	63
<i>Appendix C: Valuation Data</i>	64
<i>Appendix D: Economic Assumptions</i>	89
Table D-1: DoD Board of Actuaries’ Long-Term Economic Assumptions	93
<i>Appendix E: Normal Cost Weighting Factors</i>	98
<i>Appendix F: Valuation Program Parameters</i>	101
<i>Appendix G: Active Duty Rates</i>	111
<i>Appendix H: Reserve Duty Rates</i>	125
<i>Appendix I: Retiree and Survivor Rates</i>	166
<i>Appendix J: Mortality Improvement Factors</i>	186
<i>Appendix K: 25 Year Projections</i>	192
<i>Appendix L: Financial Statement Disclosures</i>	202
Table L-1: Statement of Net Assets Available for Benefits.....	204
Table L-2: Statement of Changes in Net Assets Available for Benefits.....	205
Table L-3: Comparison of DoD Board and SFFAS 33 Actuarial Liabilities.....	208
<i>Appendix M: Treasury Payments</i>	209
Table M-1: Total Treasury Payment	213
<i>OACT EndNotes</i>	218

**SUMMARY OF CHANGES
FOR THE SEPTEMBER 30, 2016, VALUATION**

Changes in Actuarial Assumptions

At its July 2016 meeting, the DoD Board of Actuaries approved the following changes for the September 30, 2016, valuation. Notes and transcript from the July 2016 meeting can be found at: <https://facadatabase.gov/committee/meetingdocuments.aspx?flr=141815&cid=2191&fy=2016>.

Active Duty and Reserve Death Rates

The Board approved updates to the active duty and reserve death rates. The net effect of the new rates is no change (to the third decimal place) to the full- and part-time DoD NCPs. The change led to an actuarial gain of \$1.7 billion (or 0.1%) to the Fund. For the September 30, 2016, valuation, these assumptions are described in Appendices G and H.

Mortality Improvement Factors

The Board approved the use of mortality improvement factors developed from “Mortality Projection-2015,” or MP-2015, which was issued by the Society of Actuaries in October 2015. The MP-2015 factors are an update to the MP-2014 mortality improvement scales currently in use, which incorporate two additional years (2010 and 2011) of mortality data from the Social Security Administration. They result in a decrease to the full-time DoD NCP of 0.1%, and decrease the part-time NCP by 0.2%. The change led to an actuarial gain of \$14.8 billion (or 1.1%) to the Fund. For the September 30, 2016, valuation, mortality improvement factors are described in Appendix J.

Changes in Benefits

*National Defense Authorization Act for FY 2016 (NDAA 2016)
Blended Retirement System (BRS)*

The impact on the valuation of members choosing the lump sum distribution option available under BRS has been calculated according to DoD signed policy on the Government Discount Rate. Assumptions regarding the policy implementation are discussed in Appendix F, and impact to the Fund shown in Table 7.

National Defense Authorization Act for FY 2017 (NDAA 2017)

The following changes enacted in NDAA 2017 are included in the September 30, 2016, valuation. Impacts to the Fund are shown in Table 7:

- The maximum period a member can remain on the Temporary Disability Retired List (TDRL) was lowered from 5 years to 3 years (with grandfathering of current TDRL retirees).
- Reservists who die on inactive duty training receive full SBP benefits.
- Survivors receiving Special Survivor Indemnity Allowance (SSIA), scheduled to end on 9/30/2017, will now receive payments through 5/31/2018, at the same level of \$310 per month.
- SBP Premiums can be paid from Combat-Related Special Compensation (CRSC), whereas in the past CRSC recipients had to remit their premium payments.

**SUMMARY OF CHANGES ANTICIPATED
FOR THE SEPTEMBER 30, 2017, VALUATION**

Changes in Actuarial Assumptions

At its July 2017 meeting, the DoD Board of Actuaries approved the following changes for the September 30, 2017, valuation. Notes and transcript from the July 2017 meeting can be found at: <https://facadatabase.gov/committee/meetingdocuments.aspx?flr=148453&cid=2191&fy=2017>.

Economic Assumptions (Long-Term Interest)

The Board approved a new long-term interest rate assumption of 5.0% (vs. 5.25%). The new interest assumption increases the full-time DoD NCP by 2.2 percentage points, and increases the part-time DoD NCP by 2.1 percentage points. The change leads to an actuarial loss of \$60.2 billion (or 4.2%) to the Fund. For the September 30, 2016, valuation, this assumption is described in Appendices D and F.

Changes in Benefits

National Defense Authorization Act for FY 2018 (NDAA 2018)

The SSIA was extended to be a permanent benefit, with annual COLA increases. This change is estimated to increase the full-time and part-time DoD NCPs by approximately 0.1 percentage point and lead to an actuarial loss of approximately \$8 billion.

VALUATION OF THE MILITARY RETIREMENT SYSTEM

Introduction

The Military Retirement System provides benefits for retirement from active duty and from the reserves, disability retirement benefits, optional survivor coverage, and a special compensation program for certain disabled retirees. A detailed description of benefits can be found in Appendix A, and a history of the system is in Appendix B.

Public Law (P.L.) 98-94 (currently Chapter 74 of Title 10, U.S.C.) established that an aggregate entry-age normal cost funding method for the Military Retirement System starting October 1, 1984. Under this law, DoD pays the normal cost of the system and the Treasury Department makes payments from general revenues to amortize the unfunded liability, including any gains or losses that have arisen from assumption or benefit changes, or from actual experience differing from assumed experience. P.L. 108-136 modified this process such that DoD's normal cost contribution excludes the cost due to Concurrent Receipt benefits (refer to Appendix A for more information on Concurrent Receipt provisions). Treasury's total contribution includes an additional amount to fund the normal cost for Concurrent Receipt benefits.

P.L. 98-94 also established an independent three-member DoD Retirement Board of Actuaries who were appointed by the President. The Board is required to review valuations of the Military Retirement System; to determine the method of amortizing unfunded liabilities; to report annually to the Secretary of Defense; and to report to the President and the Congress on the status of the Military Retirement Fund at least every four years. The DoD Office of the Actuary provides all technical and administrative support to the Board. P.L. 110-181 eliminated the Retirement and Education Benefits Boards, and created a new single DoD Board of Actuaries appointed by the Secretary of Defense. Board duties with respect to the Retirement and Education Benefits Funds are similar, and the new law expands the Board's responsibilities to include oversight of any other Fund the Secretary of Defense deems necessary.

The terms of the Board members are fifteen years and a member can be removed only for misconduct or failure to perform the duties of the office. The current (as of the July 2016, public meeting) Board members are Mr. James Verlautz (Chairman), Ms. Marcia Dush, and Mr. John Moore. The DoD Chief Actuary is the Executive Secretary for the Board.

Military retired pay is based on "basic pay." This is the principal element of military compensation that all members receive; however, it is not analogous to private or public sector salaries for comparative purposes. Reasonable comparisons can be made to Regular Military Compensation (RMC). RMC is the sum of (1) basic pay, (2) the housing allowance, which varies by grade, location, and dependency status, (3) the subsistence allowance and, (4) the tax advantages accruing to allowances because they are not subject to federal income tax. Consequently, comparisons of military retired pay to other pension systems should recognize the relationship to RMC rather than to basic pay only. Appendix A contains a more complete description of this topic.

Valuation Data and Procedure

The valuation input data were extracted from files maintained by the Defense Manpower Data Center (DMDC). Data on individual retirees and survivors come from official files submitted by the Defense Finance and Accounting Service (DFAS). Active data are obtained from the Active Duty Military Personnel (ADMP) Master File, and reserve data are obtained from the Reserve

Component Common Personnel Data System (RCCPDS) Master File. The DoD Office of the Actuary (OACT) reviews the data for reasonableness and consistency against figures provided by the DoD Comptroller, but does not audit the data and relies on the file suppliers for its accuracy and comprehensiveness.

Where applicable, dollar amounts include the subsequent January 1st, pay raise. These totals are summarized in Table 1.

TABLE 1
INITIAL ACCOUNTING FIGURES AS OF SEPTEMBER 30

	<u>2016</u>	<u>2015</u>
Total Active Duty Personnel + Full-Time Reservists	1,363,939	1,377,260
Total Annualized Basic Pay	\$56.47 billion	\$56.16 billion
BRS Non-Opt-In (estimated, see Note below)	570,161	636,855
Total Annualized Basic Pay	\$32.18 billion	\$34.41 billion
BRS Opt-In (estimated, see Note below)	793,778	740,405
Total Annualized Basic Pay	\$24.29 billion	\$21.75 billion
Total Selected Drilling Reservists	735,062	741,687
Total Annualized Basic Pay	\$7.70 billion	\$7.57 billion
BRS Non-Opt-In (estimated, see Note below)	546,184	565,338
Total Annualized Basic Pay	\$6.25 billion	\$6.28 billion
BRS Opt-In (estimated, see Note below)	188,878	176,349
Total Annualized Basic Pay	\$1.45 billion	\$1.29 billion
Total Non-Selected Reservists (with 20 years)	212,484	216,272
Total Annualized Basic Pay	-N/A-	-N/A-
Total Number of Nondisability Retirees	1,873,721	1,869,924
Total Annualized Retired Pay	\$51.62 billion	\$51.31 billion
Total Number of Disability Retirees	116,147	112,363
Total Annualized Retired Pay	\$1.58 billion	\$1.55 billion
Total Number of Surviving Families	286,730	288,276
Total Annualized Survivor Annuities	\$3.74 billion	\$3.79 billion
Total Number of SSIA Survivors	64,411	62,891
Total Annualized	\$151 million	\$110 million

Note: Personnel and pay allocations between those expected to opt-in to the Blended Retirement System (BRS) and those not expected to opt-in, are based on assumptions, not actual data. Actual opt-in allocations may prove different than these assumptions and won't be known until after the Open Season for opt-in election, which is scheduled for calendar year 2018.

Some amounts do not reflect benefit increases described in Appendix A. Costs, liabilities, and outlays in this report, however, reflect these benefit increases unless otherwise stated. Only retirees and survivors are paid from the Military Retirement Fund. There is overlap between the Surviving Families and Special Survivor Indemnity Allowance (SSIA) counts; some people are in both.

Population and pay projections are generated by an actuarial projection model (GORGO¹). GORGO is a deterministic model; use of a deterministic model assumes the average outcome will occur annually over a period of time. When projecting a large population such as the military, the law of large numbers manages certain risks.

Valuation results reflect additional minor adjustments to the projection made outside of GORGO. Further, the data on active duty personnel and drilling reservists are grouped into cells by age and number of years of service. Each cell contains the number and the average basic pay for personnel with that particular combination of age and length of service. Data on the retired population and surviving families are grouped into cells by age, and each cell contains the number and total net annualized retired pay or survivor annuity.

Separate data arrays are maintained in GORGO for each of the population categories listed in Table 2. These data arrays are displayed in Appendix C.

In GORGO, these starting populations are projected year by year into the future. Each year personnel are moved from one population category to another (e.g., from active to retired, or dropped from the system altogether) by means of decrement rates such as withdrawal, nondisability retirement, temporary disability, permanent disability, transfer, death with and without survivors, etc. The basic pay scale is assumed to increase at the valuation across-the-board salary increase assumption. Basic pay is also increased by individual promotion and longevity increases. Generally, retired pay and survivor annuities are increased by the valuation cost-of-living adjustments (COLA) assumption each year for retirees and survivors who receive a full COLA. At the end of each year, the number of people and the amounts paid in basic pay and benefits are saved, and the population is aged. After 100 years, when a relatively small portion (less than 0.02 percent) of basic pay and benefit expenditures are projected, the present values of the series of future benefit payments and future basic pay outlays are determined, using the valuation interest rate. Because no new entrants come into the system, the projection is said to be “closed group.”

There is also an option in GORGO for an “open group” projection in which new entrants are added each year to meet DoD projected endstrengths. Detailed results of an open group projection of the Military Retirement System appear in Appendix K.

An open group projection also appears in Table 8. This projection, which shows the past and projected flow of plan assets, includes the total basic payroll over the next 25 years, the normal cost contributions, the payments to amortize the unfunded liability, investment income, fund disbursements, and the fund balance. All of these items are discussed in detail throughout the text of this report. An overview of the GORGO process is illustrated in Figure 1.

¹ GORGO was named after a monster featured in a 1961 British science fiction movie based on a variation of *Godzilla*.

TABLE 2

GORGO POPULATION CATEGORIES

1. Active duty populations and basic pay, and benefit tier (BRS/Non-BRS)
 - a. Officers
 - b. Enlistees
2. Selected reserve populations, basic pay, career points, and benefit tier (BRS/Non-BRS)
 - a. Officers
 - b. Enlistees
3. Non-selected reserve (those who have completed 20 good years and have not reached paid retirement) populations, basic pay, accumulated retirement credit points, and benefit tier (BRS/Non-BRS)
 - a. Officers
 - b. Enlistees
4. Retiree populations, benefit tier (BRS/Non-BRS), retired pay, and survivor benefit coverage
 - a. Nondisabled officers (non-CSB electors)
 - b. Nondisabled enlistees (non-CSB electors)
 - c. Nondisabled officers (CSB electors)
 - d. Nondisabled enlistees (CSB electors)
 - e. Reserve officers
 - f. Reserve enlistees
 - g. Disabled officers (Permanent and Temporary)
 - h. Disabled enlistees (Permanent and Temporary)
5. Surviving families in a survivor benefit plan, total annuities, survivor benefit coverage, and benefit tier (BRS/Non-BRS)
 - a. Survivor Benefit Plan (SBP)
 - b. Reserve Component Survivor Benefit Plan (RCSBP)
 - c. Retired Serviceman's Family Protection Plan (RSFPP)
 - d. Death on active duty
 - e. Minimum income
6. Typical new entrant cohort population and benefit tier (BRS/Non-BRS)
 - a. Officers
 - b. Enlistees

FIGURE 1

GORGO PROCESS OVERVIEW



Economic assumptions, i.e., the annual rate of inflation, the annual basic pay scale increases, and the annual valuation interest rate, were decided upon by the DoD Board of Actuaries after extensive analysis of past trends, current environment, and future expectations. A discussion of these considerations is contained in Appendix D.

The decrement rates and other non-economic assumptions can be categorized as follows:

1. Active duty decrement rates
2. Retiree and survivor decrement rates
3. Drilling and non-drilling (with 20 good years) reserve decrement rates
4. Actuarial projection model parameters
5. Other rates (e.g., mortality improvement)

The decrement rates and GORGO parameters are generally based on military-specific experience. The rates and descriptions of how they were derived appear in Appendices G through J. The actuarial projection model parameters, dealing with such matters as the survivor benefit elections, premium deductions, and member/beneficiary age differences, appear in Appendix F. In general, the valuation results are most sensitive to changes in the economic (e.g., long-term interest assumption) and retention assumptions, where retention refers to the active and reserve duty withdrawal/reentrant and separation rates – refer to Table 6B for analysis.

Assets

The assets of the Military Retirement Fund (the Fund) are invested in special issue Treasury obligations bearing interest at rates determined by the Secretary of the Treasury taking into consideration current market yields for outstanding marketable U.S. obligations of comparable maturities. Each security issued to the Fund “mirrors” a security that has been issued to the public, i.e., it has the same maturity date and coupon rate. The special issue “mirrored” security may have been issued recently, or at any time in the past. Under current procedures adopted by Treasury, the investment manager (DFAS Trust Fund Accounting & Reporting Division) is permitted to redeem long-term special issue securities at any time before maturity for their fair market value, which is based on the public issue bid price with the same maturity date and coupon rate. However, Treasury policy encourages a buy-and-hold approach giving consideration to the needs of the Fund in determining the maturities of securities purchased.

The investment manager must follow the asset investment strategy approved by the DFAS Investment Board at their semiannual meetings. The current investment strategy includes investing the assets so that the Fund generates sufficient cash to fund benefit payments and expenses as they come due. Many considerations are taken into account when making investment decisions, including balancing various risks, targeting an expected average maturity of future investments of 20 years (which is reasonably close to the duration of the liabilities), and current and expected economic conditions. A large majority of purchases are in Treasury Inflation-Protected Securities (TIPS). This strategy hedges almost all of the inflationary pressures while minimizing liquidity risks to the Fund. Timing issues and the inconsistency between the TIPS calculation of inflation (CPI-U) and the Fund’s crediting of inflation (CPI-W) to retiree and survivor benefits leave some residual inflationary risks.

For purposes of determining the unfunded liability, the assets of the Fund are valued using the amortized cost method. Under this method, the yield to maturity of a security valued at any point in time is equal to the yield to maturity at the time of purchase. In the valuation of the Military Retirement System, the amortized cost value is referred to as the “actuarial value of assets.” The actuarial value of assets is determined by amortizing premium and discount over the life of the securities. The total investment return includes: the interest coupons received; the change in the amortized cost value during the year; and the inflation compensation accrued from the holdings of TIPS. The actuarial value of assets used in the determination of the unfunded liability includes the “accrued interest,” which is the amount of the next semiannual interest coupon payment that has accrued since the date of the last coupon payment. The amount of the “accrued interest” is determined by multiplying the coupon payment by the ratio of the time that has elapsed since the last coupon payment date to the total time between coupon payments. Table 3 presents a statement of the actuarial value of assets; Table 4 presents a statement of changes in the actuarial value of assets. Other associated asset statements and disclosures are included in Appendix L.

In an open group projection of a retirement system where the total number of employees is held constant, the number of retirees and survivors on the rolls at year end, as well as the number withdrawing, retiring, dying, etc., each year, eventually levels out. When this occurs, the population is said to be “stationary.” In this report’s open group projection, DoD-projected endstrengths are used through the end of FY 2021 (as depicted in Table 8). Subsequently, the force size is held constant each year. However, the assumption of future mortality improvement results in a small increase in the retired population each year, so that the retired population is nearly, but not completely, stationary².

When a population becomes stationary, the fund disbursements increase each year at the same rate as total pay, which in this valuation is 3.25 percent per year. If the method of funding the system is theoretically sound, the value of the assets in the Fund will also increase at this same rate, and thus will become a level percentage of pay. Otherwise, the fund would either increase indefinitely as a percent of pay, or decrease until it was zero. Practical considerations in this report’s open group projection, including (1) mortality improvement, and (2) the difference between the short-term economic assumptions and the ultimate economic assumptions (see Table 8 Footnote) and the fact that payments on future (after September 30, 2016) gains and losses implied by the short-term assumptions are not projected, cause the fund disbursements to grow at an ultimate rate different than 3.25 percent per year.

² More precisely, the retired population would become nearly, but not completely stationary if the open group projection were extended many years beyond what is shown in this report.

TABLE 3

DEPARTMENT OF DEFENSE
MILITARY RETIREMENT FUND
STATEMENT OF ACTUARIAL VALUE OF ASSETS
(\$ in millions)

For the Plan Year Ended September 30:

<u>Assets</u>	<u>2016</u>	<u>2015</u>
1) Investments, at book value:		
U.S. Government securities ¹	\$658,723	\$595,759
2) Accounts receivable:		
a) Accrued interest ²	\$5,143	\$4,703
b) Due from military retirees or their survivors	\$129	\$92
c) Intragovernmental	\$0	\$0
3) Cash:	<u>\$368</u>	<u>\$31</u>
 <u>Actuarial value of assets</u>	 <u>\$664,363</u>	 <u>\$600,585</u>

¹ Book value is determined by 1) amortizing premium and discount over the life of the securities using the effective interest method and 2) including additional inflation compensation from TIPS. Additional adjustment made as a result of FY 2011 National Defense Authorization Act (P.L. 111-383) regarding retired pay date as follows:

	<u>2016</u>	<u>2015</u>
Investments, at book value (actual)	\$654,376	\$595,759
October Expenditures paid in September	<u>\$4,347</u>	<u>\$0</u>
Investments, at book value (adjusted)	\$658,723	\$595,759

² Includes accrued interest receivable and interest purchased.

TABLE 4

DEPARTMENT OF DEFENSE
MILITARY RETIREMENT FUND
STATEMENT OF CHANGES IN ACTUARIAL VALUE OF ASSETS
(\$ in millions)

	For the Plan Year Ended September 30:	
	<u>2016</u>	<u>2015</u>
1) Actuarial value of assets at beginning of plan year:	\$600,585	\$545,019
2) Investment income:		
a) Interest/Inflation	\$20,802	\$15,988
b) Net appreciation (depreciation) in book value of investments ¹	\$(5,238)	\$(5,170)
3) Contributions:		
a) From Services	\$19,260	\$19,691
b) Appropriation to amortize the unfunded liability	\$79,289	\$75,562
c) Appropriation for Treasury Normal Cost Contribution	\$6,870	\$6,197
4) Total additions (2 + 3):	\$120,983	\$112,268
5) Change in Accounts Receivable	\$37	\$27
6) Benefits paid to participants:	<u>\$57,242</u>	<u>\$56,729</u>
Actuarial value of assets (1 + 4 + 5 - 6):	<u>\$664,363</u>	<u>\$600,585</u>

¹ Investments bought, sold and held during the plan year ended September 30 appreciated (depreciated) in value as follows:

	<u>2016</u>	<u>2015</u>
Amortized discount	\$218	\$162
Amortized premium	\$(5,456)	\$(5,332)
Gain (loss) on sale *	<u>\$0</u>	<u>\$0</u>
	\$(5,238)	\$(5,170)

* Gain (loss) on sale is only shown for informational purposes and is not included in the net appreciation (depreciation).

Normal Cost

The aggregate entry-age normal cost percentage (NCP) is the level percentage of basic pay that must be contributed over the entire active career of a typical group of new entrants to pay for all the future retirement and survivor benefits of that group. It is determined by using the new-entrant cohort as the starting population in a GORGO projection. Their basic pay and benefits are projected over 100 years, and then discounted back to the present (i.e. valuation date). Mathematically, a NCP is calculated by dividing the present value of future benefits for the entire cohort by the present value of future basic pay, evaluated at the assumed interest rate.

There are four nondisability benefit formulas (for four distinct populations) within the Military Retirement System (see Appendix A). Retirement benefits are based on final basic pay (Final Pay) for military personnel who first became members of a uniformed service before September 8, 1980, and are based on the average of the highest 36 months (High-3) for those becoming members on or after this date. Additionally, active duty military personnel who first became members of a uniformed service on or after August 1, 1986, are High-3 unless they elect the Career Status Bonus (CSB), which provides a bonus in exchange for reduced (Redux) benefits³. Military personnel who first become a member of a uniformed service after December 31, 2017, will be under the new Blended Retirement System (BRS) which was enacted in NDAA 2016 and takes effect January 1, 2018. Members who first entered the military before January 1, 2018, and who have served for fewer than 12 years as of December 31, 2017 (or less than 4,320 points for reservists), will have the option to “opt-in” to BRS via an irrevocable election during a one-year (calendar year 2018) open season or remain in the High-3 system. Members who have served 12 or more years as of December 31, 2017 (or more than 4,320 points for reservists), are not permitted to opt-in to BRS and will receive benefits based on their current plan.

P.L. 99-661, enacted in November 1986, mandated that two separate NCPs be used for the valuation of the Military Retirement System. One NCP is for active duty personnel and full-time reservists (full-time) and one is for part-time reservists (part-time). Full-time and part-time NCPs are calculated for each of the separate benefit formulas. Only full-time personnel are under the CSB/Redux benefit formula, thus an analogous part-time NCP is not applicable (“N/A”). The FY 2017 NCPs are summarized below (with DoD NCPs in parentheses):

<u>Benefit Formula</u>	<u>Full-Time</u>	<u>Part-Time</u>
Final Pay	50.0% (35.4%)	28.3% (24.8%)
High-3	45.6% (32.3%)	26.8% (23.5%)
CSB/Redux ⁴	44.9% (31.7%)	-N/A-
BRS	35.1% (23.7%)	21.3% (18.3%)

P.L. 108-136 required the U.S. Department of Treasury to pay into the Fund at the beginning of each year the normal cost arising from increased Concurrent Receipt benefits. The NCPs shown above include the respective Total (“DoD plus Treasury”) and DoD percentages. Table 6A displays the DoD and Treasury NCPs separately. The NCPs are further disaggregated in Table 5.

³ The National Defense Authorization Act of FY 2016 (NDAA 2016, P.L. 114-92) sunsets the CSB/Redux benefit tier by not allowing any CSB elections after December 31, 2017.

⁴ This NCP represents a blend of NCPs for CSB/Redux and HI-3 benefit formulas based on the CSB/ Redux Election Proportion (see Appendix F).

The FY 2017 weighted NCPs in Table 5 are calculated using the NCP weighting factors (see Appendix E), along with BRS opt-in rates (see Appendix F). The sum of the DoD and Treasury components of the weighted aggregate full-time NCP is 41.3 percent, and the weighted aggregate part-time NCP is 25.9 percent. Due to federal budget deadlines, the two NCPs used to determine the actual contributions to the Fund must be established in advance of implementation and may vary from those actually derived in a valuation.

Table 5 summarizes the components of the FY 2017 normal cost percentages. Note that unlike the NCPs shown in Table 5, the implemented NCPs in FY 2017 did not reflect the BRS benefit tier.

TABLE 5
NORMAL COST AS A PERCENT OF BASIC PAY (NCPs)
(DoD Normal Cost Percentage in Parentheses)

<u>FULL-TIME</u>	<u>FINAL PAY</u>	<u>HIGH-3</u>	<u>CSB/REDUX</u>	<u>BRS</u>	<u>FY 2017 Weighted</u>
Nondisability benefits	46.4 (33.1)	42.3 (30.2)	41.7 (29.6)	32.2 (21.9)	38.2 (26.7)
Disability benefits	1.5 (0.9)	1.4 (0.8)	1.4 (0.8)	1.3 (0.8)	1.4 (0.8)
Survivor benefits	<u>2.1 (1.5)</u>	<u>1.9 (1.3)</u>	<u>1.9 (1.3)</u>	<u>1.5 (1.0)</u>	<u>1.7 (1.2)</u>
Total	50.0 (35.4)	45.6 (32.3)	44.9 (31.7)	35.1 (23.7)	41.3 (28.7)
<u>PART-TIME</u>					
Nondisability benefits	24.1 (21.6)	22.9 (20.5)	-N/A-	17.9 (15.8)	22.1 (19.7)
Disability benefits	1.7 (1.1)	1.6 (1.0)	-N/A-	1.6 (1.0)	1.6 (1.0)
Survivor benefits	<u>2.5 (2.1)</u>	<u>2.3 (2.0)</u>	<u>-N/A-</u>	<u>1.9 (1.6)</u>	<u>2.2 (2.0)</u>
Total	28.3 (24.8)	26.8 (23.5)	-N/A-	21.3 (18.3)	25.9 (22.6)

- Note that columns may not add exactly due to rounding of the separate NCP components.

- Only full-time personnel are under the CSB/Redux benefit formula, thus an analogous part-time NCP is not applicable (“N/A”).

As can be determined from this table, 92 percent of the full-time normal cost and 85 percent of the part-time normal cost stems from nondisability retirement. Based on current decrement rates, 19 percent of a typical group of new entrants attains 20 years of active duty service and becomes eligible for nondisability retirement from active duty. Specifically, 49 percent of new officers and 17 percent of new enlistees attain 20 years of active duty service.⁵ It should be noted that some military personnel who begin their careers on active duty move to the reserves and retire from there. This is modeled through the allocation of a portion of the reserve benefit, in present values terms, to the full-time normal cost (see Appendix F). Based on current reserve decrement rates, 14 percent of

⁵ As in past valuation reports, these percentages are stated from the perspective of a new entrant cohort still in active service at its first fiscal-year boundary (i.e., September 30). If losses prior to the first fiscal-year boundary are taken into account, the percentages would be reduced by approximately 15 percent (19 percent would become 16 percent). The stated percentages also reflect the effect of reentrants, i.e., members who appear in the active duty population one year without having been there the year before, who are not new entrants. Without the effect of reentrants, the proportion of a typical group of new entrants who attain 20 years of active duty service is reduced from 19 percent to 15 percent. The paygrade transfer rates have no effect.

The effect of reentrants on the reserve duty percentages is more pronounced relative to the above active duty figures due to the inherent nature of a reserve career (i.e., a higher proportion entering the reserves for the first time as a reentrant to the military).

a typical group of members entering the reserves for the first time (including members with prior active or non-drilling reserve time) become eligible for a reserve nondisability retirement (46% for officers, and 13% for enlisted). *** See footnote 5 for additional important details related to these percentages. ***

Table 9 lists the past and projected weighted aggregate full-time and part-time NCPs under current law in the normal cost columns. The columns are separated into the DoD and Treasury NCPs due to P.L. 108-136. In recent years both the full- and part-time sums of the DoD and Treasury component weighted aggregate percentages are (generally) at the level of the CSB/Redux normal cost percentages (High-3 for part-time) since virtually all non-retired personnel entered the uniformed service on or after August 1, 1986. With the passage of BRS, projected NCPs will eventually converge to the level of the BRS NCPs. As indicated in the Table 8 footnote, the Treasury Concurrent Receipt normal cost payments reflect amounts sequestered by fiscal year.

Amortization of Unfunded Liability

Under P.L. 98-94, normal cost contributions began to be made by DoD on behalf of all military personnel on October 1, 1984. Since normal cost contributions had not been made for service prior to this date, there was an initial unfunded accrued liability, or “initial unfunded liability,” of \$528.7 billion as of September 30, 1984. If this amount had been deposited in the retirement fund on September 30, 1984, then it, together with the future normal cost payments to be made on behalf of all active duty personnel and drilling reservists over the balance of their active careers, plus investment earnings at the assumed rate, would have been sufficient to provide all expected retirement and survivor benefits for those in the system on that date.

The Board of Actuaries originally determined that the initial unfunded accrued liability of the system (\$528.7 billion) should be amortized with payments equal to 33 percent of the second preceding fiscal year’s basic payroll. It was originally projected that this method would amortize the initial unfunded liability over 60 years. However, economic assumption changes extended this amortization period well beyond 60 years. As a result, the Board revised the amortization method of the original unfunded liability in such a way that the amortization would have been completed in FY 2044. In more recent years, it was determined that the Military Retirement Fund was projected to have a negative balance for several years before becoming positive again. The Board decided to shorten the amortization period to 50 years in 1996. The Board again shortened the amortization period in 2007 to 42 years in order for the payments to cover the interest on the unfunded liability each year. The initial unfunded liability is now expected to be fully amortized in calendar year 2025 (FY 2026).

Changes in the unfunded liability can also arise because of: 1) modifications to benefit provisions, 2) changes in actuarial assumptions, and 3) deviations in actual experience from expected experience (gains and losses). The Board approved a method to amortize these changes over 30 years by payments that increase in absolute value at the same rate as the annual long-term basic pay scale assumption. A description of the methods and computations used to calculate the payment streams for changes in unfunded liability can be found in Appendix M.

Unfunded Accrued Liability as of September 30, 2016

Table 6A summarizes the calculation of the unfunded accrued liability as of September 30, 2016. The present value of future benefits is obtained by projecting future benefits for the total covered population (closed group with no new entrants) as of September 30, 2016, and discounting these benefits back to the present (i.e. valuation date) at the assumed interest rate. The GORGO actuarial model projects benefits for the current active and retired populations over the duration of their lifetimes. Additional adjustments (generally minor) to the projection results are made outside of the GORGO model to capture the more complex law changes. The initial retirement benefits for military personnel are based on their total projected service at retirement, the applicable benefit formula, and assumed basic pay increases. Subsequent retirement benefits include assumed cost-of-living adjustments and the age 62 adjustment for those retiring under the CSB/Redux formula.

The present value of future normal cost contributions is obtained by (1) using GORGO to project future yearly full-time and part-time basic pay for the September 30, 2016, covered population, (2) multiplying the pay by the total projected (DoD and Treasury) full-time and part-time weighted aggregate entry-age NCPs, and (3) discounting the resulting normal costs back to September 30, 2016. For this closed group, the relative percentages of basic pay subject to the four separate benefit formulas will change over time as fewer members are covered under the CSB/Redux, High-3 and Final Pay formulas, and more are covered under BRS. The *weighted* full- and part-time NCPs that are multiplied against the future full- or part-time pay in each year reflect expected changing percentages of pay going to members covered by the multiple benefit formulas. This will change in future years as more personnel are covered under BRS. This weighted procedure is roughly equivalent in the aggregate to projecting separately the pay of each of the eight groups of active duty and selected reserve members and multiplying it by the individual group's NCP.

The sum of the DoD and Treasury components of the weighted aggregate entry-age NCPs for FY 2017 are 41.3 percent full-time and 25.9 percent part-time. Federal budget deadlines require the establishment of NCPs in advance of the valuation. Consequently, the percentages actually implemented in a fiscal year may vary from those derived in the valuation. These differences, which are small unless major actuarial assumptions or benefits are changed, are reflected in the unfunded liability by using the implemented normal cost in the first year of the projection.

Table 6B displays selected sensitivities in the estimated valuation cost figures due to changes in key economic and non-economic assumptions. The figures require the use of actuarial assumptions regarding future economic and demographic experience, which are typically disclosed as a single value. In an attempt to assess system financial risks, key underlying valuation assumptions were tested for their respective impacts. The absolute levels of change tested in Table 6B were selected to show directional magnitudes, not necessarily anticipated changes.

Deducting the present value of future normal costs and the actuarial asset value of the Fund from the present value of future benefits leaves an unfunded liability of \$742.6 billion as of September 30, 2016. This was less than the expected unfunded liability of \$775.9 billion. The expected unfunded liability is what the unfunded liability would have been if all actuarial assumptions had been realized and all benefit formulas had remained unchanged. The fact that the actual unfunded liability is less than expected means that there was a total FY 2016 gain of \$33.3 billion (\$742.6 billion minus \$775.9 billion). The components of this gain are outlined in Table 7. The total experience gain/loss is divided into five segments: (1) the loss due to the difference between the actual interest rate (2.3%) earned by the Fund in FY16 and the assumed interest rate

(5.25%); (2) the gain due to the actual January 1, 2017, COLA (0.3%) being different from that assumed (2.75%); (3) the gain due to the actual January 1, 2017, across-the-board salary (2.1%) increase being different from that assumed (3.25%); (4) the gain due to the difference between the actual and assumed non-economic experience; and (5) the loss due to the sequestration-required nonpayment of the October 1, 2016, Treasury Concurrent Receipt normal cost contribution. See the Summary of Changes for the September 30, 2016, Valuation for a more detailed discussion of the actuarial assumptions outlined in Table 7.

These changes in unfunded liability were used to calculate the October 1, 2017, unfunded liability payment. The total payment was determined to be \$82.877 billion. This total payment includes (1) a payment of \$92.950 billion to amortize the original unfunded liability, plus (2) an amount of \$3.736 billion to amortize changes in actuarial assumptions, plus (3) an amount of \$7.904 billion to amortize benefit changes, less (4) an amount of \$22.426 billion to amortize total combined experience gains and losses through FY 2016, plus (5) \$0.713 billion to amortize over one year the loss due to sequestration of the October 1, 2016, Treasury Concurrent Receipt normal cost contribution. The detailed calculations of these payment components can be found in Appendix M. Tables 10 and 11 show the projection of the unfunded liability payments and unfunded liability balances. As stated earlier, Tables 8 and 9 display all projected transactions to the Fund.

Starting in FY 2005, the total payment to be made by Treasury includes the amount required by P.L. 108-136 to pay for the increased normal cost due to Concurrent Receipt benefits in addition to the unfunded liability amortization amount. The total actuarially determined Treasury payment on October 1, 2017, is \$90.382 billion, equal to \$82.877 billion for the unfunded liability amortization *plus* \$7.505 billion for Concurrent Receipt benefits. Note that the actual contribution reflected a sequestration-mandated reduction to the \$7.505 billion, to \$6.837 billion. Detailed calculations of the total Treasury payment are also located in Appendix M.

TABLE 6A

**MILITARY RETIREMENT SYSTEM
ACTUARIAL STATUS INFORMATION
(\$ in billions)**

		For the Plan Year Ended September 30:	
		<u>2016</u>	<u>2015</u>
1.	Present value of future benefits		
	a. Annuitants now on roll	\$914.1	\$919.2
	b. Nonretired reservists	\$184.1	\$184.8
	c. Active duty personnel ¹	<u>\$530.0</u>	<u>\$539.3</u>
	TOTAL	\$1,628.1	\$1,643.2
2.	Present value of future normal cost contributions ²	\$221.2	\$226.2
3.	Actuarial accrued liability (1. – 2.) ³	\$1,406.9	\$1,417.0
4.	Actuarial value of assets ⁴	\$664.4	\$600.6
5.	Unfunded accrued liability (3. – 4.)	\$742.6	\$816.4
6.	Funded Ratio (4. / 3.)	47%	42%
7.	DoD normal cost percentage (NCP) ⁵ to be applied to basic pay in fiscal year	<u>FY 2018</u>	<u>FY 2017</u>
	a. Full-time (FT)	28.4%	28.9%
	b. Part-time (PT)	22.6%	22.8%
8.	Treasury normal cost percentage (NCP) ⁶ to be applied to basic pay in fiscal year	<u>FY 2018</u>	<u>FY 2017</u>
	a. Full-time (FT)	12.5%	12.8%
	b. Part-time (PT)	3.3%	3.3%

Basic pay is only a portion of active duty military compensation. See The Military Retirement System: Benefits (Appendix A) for details.

¹ The future benefits of active duty personnel expected to retire as reservists are counted on line 1.b.

² The September 30, 2016, Present Value of Future Normal Cost (PVFNC) contributions reflects a reduction of \$677.677 million due to sequestration of the October 1, 2016, Treasury Concurrent Receipt normal cost contribution. The September 30, 2015, PVFNC reflects a reduction of \$704.382 million due to sequestration of the October 1, 2015, Treasury Concurrent Receipt normal cost contribution.

³ Due to a minor technical adjustment, the amount shown here differs slightly from the \$1,407.0 figure reported at the July 2017 Board meeting.

⁴ The actuarial value of assets is determined using the amortized cost method from Table 4.

⁵ Due to the need to establish the NCPs in advance of implementation (federal budget deadlines), the percentages actually used in a fiscal year may vary from the ones derived in the valuation.

⁶ P.L. 108-136 requires the Department of Treasury to pay the normal cost resulting from the increase in benefits due to Concurrent Receipt.

TABLE 6B
MILITARY RETIREMENT SYSTEM
SENSITIVITY TESTS*
(\$ in billions)

Long-Term Interest Assumption

[Baseline Interest = 5.25%]

	<u>Baseline</u>	<u>1% LOWER</u>	<u>1% HIGHER</u>
1. Present value of future benefits	\$ 1,628.1	\$ 1,990.7	\$ 1,362.5
2. Actuarial accrued liability	\$ 1,406.9	\$ 1,670.4	\$ 1,204.6
3. Actuarial value of assets	\$ 664.4	\$ 664.4	\$ 664.4
4. Unfunded accrued liability (2. – 3.)	\$ 742.6	\$ 1,006.1	\$ 540.2
5. Funded Ratio	47%	40%	55%
6.a. FY 2018 FT NCP [DoD + Treasury]	40.9%	56.5%	30.1%
6.b. FY 2018 PT NCP [DoD + Treasury]	25.8%	37.4%	18.1%

Retention Assumptions

[FT Baseline Retention = 'Withdrawal' rates, Appendix G]

[PT Baseline Retention = 'Separation' rates, Appendix H]

	<u>Baseline</u>	<u>25% LOWER</u>	<u>25% HIGHER</u>
1. Present value of future benefits	\$ 1,628.1	\$ 1,695.0	\$ 1,565.1
2. Actuarial accrued liability	\$ 1,406.9	\$ 1,413.7	\$ 1,397.3
3. Actuarial value of assets	\$ 664.4	\$ 664.4	\$ 664.4
4. Unfunded accrued liability (2. – 3.)	\$ 742.6	\$ 749.4	\$ 733.0
5. Funded Ratio	47%	47%	48%
6.a. FY 2018 FT NCP [DoD + Treasury]	40.9%	46.7%	33.5%
6.b. FY 2018 PT NCP [DoD + Treasury]	25.8%	32.4%	18.4%
7.a. New Entrants eligible for FT retirement (%)	19%	27%	12%
7.b. New Entrants eligible for PT retirement (%)	14%	27%	6%

* A sensitivity test is a process for assessing the impact of a change in an actuarial assumption on an actuarial measurement. As mentioned earlier in the *Valuation Data and Procedures* section of this report, the valuation results/measurements are most sensitive to changes in the economic (e.g., long-term interest) assumptions and retention assumptions. 'Baseline' figures are generally from Table 6A and other sections of this report. **The absolute levels of the changes (+/- 1% and +/- 25%, respectively) were selected to show potential directional magnitudes, not necessarily anticipated changes, assisting the report user to analyze system risks.**

TABLE 7
MILITARY RETIREMENT SYSTEM
FY 2016 CHANGE IN UNFUNDED LIABILITY
(\$ in billions)

	For the Plan Year Ended September 30, 2016	
1. Actual unfunded accrued liability (9/30/16)	\$742.6	
2. Expected unfunded accrued liability (9/30/16)	\$775.9	
3. Total (gain)/loss	(\$33.3)	2.4%
a. Total experience (gain)/loss	(\$16.8)	1.2%
Interest assumption	\$19.4	2.9%
COLA assumption	(\$22.0)	1.6%
Salary assumption	(\$5.2)	0.4%
Non-economic experience	(\$8.9)	0.6%
10/1/16 unpaid contribution	\$0.7	0.0%
b. Total benefit change (gain)/loss	(\$0.7)	0.0%
FY16 NDAA "Blended Retirement System"	(\$0.8)	0.1%
FY17 NDAA "TDRL 3 Years Vice 5"	\$0.3	0.0%
FY17 NDAA "All LOD Deaths"	\$0.0	0.0%
FY17 NDAA "Deduct SBP Premiums from CRSC"	(\$0.3)	0.0%
FY17 NDAA "SSIA Extension"	\$0.2	0.0%
c. Total assumption change (gain)/loss	(\$16.5)	1.2%
Updated Active Duty / Reserve Death Rates	(\$1.7)	0.1%
New Mortality Improvement Rates	(\$14.8)	1.1%

In this table, negative values represent actuarial gains and positive values represent actuarial losses.

Percentages shown are ratios of absolute values of each gain or loss component to the accrued liability (Table 6A, line 3), except the percentage for the experience (gain)/loss due to the interest assumption is the ratio to the actuarial value of assets (Table 6A, line 4).

The reasons for the experience (gain)/loss for: interest = 5.25% long-term assumed vs 2.3% FY16 fund yield; salary = 3.25% long-term assumed vs 2.1% Jan 2017 increase; COLA = 2.75% long-term assumed vs. 0.3% Jan 2017 COLA. The 10/1/16 unpaid contribution loss is due to sequestration of the Treasury Concurrent Receipt normal cost contribution.

The benefit change (gain)/loss for: Blended Retirement System = reflecting BRS lump sums; TDRL = reduction of max TDRL period from 5 to 3 years; all LOD deaths = full SBP for reservists who die on "inactive duty" training; Deduct SBP Premiums = new ability to deduct premiums from CRSC pay; SSIA Extension = moving sunset date from 9/30/17 to 5/31/18. New Mortality Improvement relates to use of the Society of Actuaries' "MP-2015."

TABLE 8

MILITARY RETIREMENT SYSTEM
PAST AND PROJECTED FLOW OF PLAN ASSETS¹
(In Billions of Dollars and as a Proportion of Payroll)

Fiscal Year	Contributions Received										Fund Balance, End of Year ⁶
	Basic Payroll ²	From DoD, for Normal Costs ³	From Treasury, for Normal Costs ³	From Treasury, for Amortization of Unfunded Liability ⁴	Investment Income	Fund Disbursements ⁵					
1985	\$33.5	\$17.0 (50.7%)	---	---	\$9.5 (28.4%)	\$1.1 (3.3%)	\$15.8 (47.2%)	\$11.8 (35.2%)			
1986	35.4	17.4 (49.2)	---	---	10.5 (29.7)	2.5 (7.1)	17.6 (49.7)	24.6 (69.5)			
1987	36.4	18.3 (50.3)	---	---	10.5 (28.8)	3.6 (9.9)	18.1 (49.7)	38.9 (106.9)			
1988	37.3	18.4 (49.3)	---	---	10.3 (27.6)	5.0 (13.4)	17.5 (46.9)	53.4 (143.2)			
1989	38.6	18.5 (47.9)	---	---	9.8 (25.4)	6.1 (15.8)	20.2 (52.3)	67.6 (175.1)			
1990	39.8	16.3 (41.0)	---	---	10.6 (26.6)	7.3 (18.3)	21.5 (54.0)	80.4 (202.0)			
1991	42.3	17.2 (40.7)	---	---	10.8 (25.5)	8.5 (20.1)	23.1 (54.6)	93.7 (221.5)			
1992	41.1	16.3 (39.7)	---	---	11.2 (27.3)	9.4 (22.9)	24.5 (59.6)	106.1 (258.2)			
1993	38.9	13.2 (33.9)	---	---	12.3 (31.6)	10.0 (25.7)	25.7 (66.1)	115.9 (297.9)			
1994	38.3	12.8 (33.4)	---	---	11.9 (31.1)	10.3 (26.9)	26.7 (69.7)	124.2 (324.3)			
1995	37.1	12.2 (32.9)	---	---	11.5 (31.0)	10.9 (29.4)	27.8 (74.9)	131.0 (353.1)			
1996	36.7	11.2 (30.5)	---	---	10.7 (29.2)	11.3 (30.8)	28.8 (78.5)	135.3 (368.7)			
1997	36.8	11.1 (30.2)	---	---	15.2 (41.3)	11.9 (32.3)	30.2 (82.1)	143.3 (389.4)			
1998	37.1	10.4 (28.0)	---	---	15.1 (40.7)	12.2 (32.9)	31.1 (83.8)	149.9 (404.0)			
1999	37.6	10.4 (27.7)	---	---	15.3 (40.7)	12.4 (33.0)	31.9 (84.8)	156.0 (414.9)			
2000	39.0	11.4 (29.2)	---	---	15.3 (39.2)	12.7 (32.6)	32.8 (84.1)	162.7 (417.2)			
2001	40.9	11.4 (27.9)	---	---	16.1 (39.4)	13.2 (32.3)	34.1 (83.4)	169.2 (413.7)			
2002	44.7	12.9 (28.9)	---	---	17.0 (38.0)	12.4 (27.7)	35.1 (78.5)	176.5 (394.9)			
2003	52.0	13.7 (26.3)	---	---	17.9 (34.4)	10.0 (19.2)	35.6 (68.5)	182.6 (351.2)			
2004	53.6	14.1 (26.3)	---	---	18.2 (34.0)	10.1 (18.8)	37.0 (69.0)	188.0 (350.7)			
2005	56.3	15.0 (26.6)	\$1.5 (2.7%)	---	21.4 (38.0)	10.9 (19.4)	39.0 (69.3)	197.9 (351.5)			
2006	54.0	13.9 (25.7)	2.3 (4.3)	---	23.2 (43.0)	12.3 (22.8)	41.1 (76.1)	208.4 (385.9)			
2007	56.4	14.5 (25.7)	2.5 (4.4)	---	26.0 (46.1)	10.3 (18.3)	43.5 (77.1)	218.2 (386.9)			
2008	59.2	16.1 (27.2)	2.8 (4.7)	---	46.2 (78.0)	15.6 (26.4)	45.8 (77.4)	253.1 (427.5)			
2009	63.0	17.5 (27.8)	3.7 (5.9)	---	51.1 (81.1)	2.9 (4.6)	50.0 (79.4)	278.4 (441.9)			
2010	64.4	20.4 (31.7)	4.5 (7.0)	---	58.6 (91.0)	10.4 (16.1)	50.6 (78.6)	321.7 (499.5)			
2011	66.9	21.0 (31.4)	5.0 (7.5)	---	61.4 (91.8)	18.0 (26.9)	51.0 (76.2)	376.1 (562.2)			
2012	66.8	21.9 (32.8)	5.4 (8.1)	---	64.8 (97.0)	12.5 (18.7)	52.6 (78.7)	428.0 (640.7)			
2013	66.3	20.5 (30.9)	6.8 (10.3)	---	67.7 (102.1)	15.0 (22.6)	54.5 (82.2)	483.5 (729.3)			
2014	65.4	20.5 (31.3)	6.3 (9.6)	---	72.9 (111.5)	17.1 (26.1)	55.4 (84.7)	545.0 (833.3)			
2015	64.3	19.7 (30.6)	6.2 (9.6)	---	75.6 (117.6)	10.8 (16.8)	56.7 (88.2)	600.6 (934.1)			
2016	64.5	19.5 (30.2)	6.9 (10.7)	---	79.3 (122.9)	15.6 (24.2)	57.2 (88.7)	664.4 (1,030.1)			
↑ ACTUAL ↑											
↓ PROJECTED ↓											
2017	\$63.4	\$17.8 (28.1%)	\$6.6 (10.4%)	---	\$81.2 (128.1%)	\$38.4 (60.6%)	\$57.9 (91.3%)	\$750.5 (1,183.8%)			
2018	65.7	18.2 (27.7)	6.8 (10.4)	---	82.9 (126.1)	43.0 (65.5)	59.3 (90.1)	842.2 (1,281.2)			
2019	64.9	17.8 (27.4)	7.3 (11.3)	---	85.5 (131.7)	48.0 (73.9)	60.7 (93.6)	940.1 (1,448.0)			
2020	65.9	17.9 (27.1)	7.4 (11.2)	---	87.6 (132.8)	53.2 (80.6)	62.4 (94.7)	1,043.7 (1,582.9)			
2021	67.2	18.0 (26.8)	7.5 (11.1)	---	90.4 (134.7)	58.7 (87.4)	64.1 (95.5)	1,154.2 (1,718.4)			
2022	68.4	18.2 (26.5)	7.6 (11.1)	---	93.4 (136.4)	64.6 (94.4)	65.9 (96.3)	1,272.0 (1,858.5)			
2023	69.7	18.3 (26.3)	7.7 (11.0)	---	96.4 (138.2)	70.9 (101.7)	67.8 (97.2)	1,397.6 (2,004.0)			
2024	71.0	18.5 (26.0)	7.8 (10.9)	---	99.5 (140.1)	77.7 (109.3)	69.9 (98.4)	1,531.2 (2,155.5)			
2025	72.4	18.7 (25.8)	7.9 (10.9)	---	102.8 (142.0)	84.8 (117.1)	71.9 (99.4)	1,673.4 (2,311.6)			
2026	73.8	18.9 (25.5)	8.0 (10.8)	---	106.1 (143.8)	92.4 (125.2)	74.1 (100.3)	1,824.7 (2,471.8)			
2027	76.1	19.3 (25.3)	8.2 (10.8)	---	-14.4 (-18.9)	94.0 (123.4)	76.3 (100.2)	1,855.5 (2,437.1)			
2028	78.5	19.7 (25.1)	8.4 (10.7)	---	-14.9 (-18.9)	95.5 (121.6)	78.5 (100.0)	1,885.7 (2,400.7)			
2029	81.1	20.1 (24.8)	8.6 (10.7)	---	-15.3 (-18.9)	97.1 (119.7)	80.8 (99.7)	1,915.4 (2,363.1)			
2030	83.6	20.6 (24.6)	8.9 (10.6)	---	-15.8 (-18.9)	98.6 (117.8)	83.1 (99.3)	1,944.4 (2,325.1)			
2031	86.3	21.0 (24.4)	9.1 (10.6)	---	-16.4 (-19.0)	100.0 (115.9)	85.4 (98.9)	1,972.9 (2,286.8)			
2032	89.0	21.5 (24.2)	9.4 (10.5)	---	6.9 (7.7)	102.7 (115.4)	87.7 (98.5)	2,025.7 (2,276.6)			
2033	91.7	22.0 (24.0)	9.6 (10.5)	---	18.8 (20.5)	106.1 (115.6)	90.1 (98.2)	2,092.1 (2,281.2)			
2034	94.6	22.5 (23.8)	9.9 (10.5)	---	19.4 (20.5)	109.5 (115.8)	92.3 (97.6)	2,161.2 (2,285.4)			
2035	97.6	23.1 (23.7)	10.2 (10.4)	---	20.0 (20.5)	113.2 (116.0)	94.4 (96.7)	2,233.3 (2,288.1)			
2036	100.8	23.8 (23.6)	10.5 (10.4)	---	10.5 (10.4)	116.4 (115.5)	96.5 (95.8)	2,297.9 (2,280.3)			
2037	104.0	24.4 (23.5)	10.8 (10.4)	---	6.9 (6.6)	119.6 (115.0)	98.7 (94.8)	2,361.0 (2,269.2)			
2038	107.5	25.1 (23.4)	11.1 (10.4)	---	7.1 (6.6)	122.9 (114.4)	100.8 (93.8)	2,426.5 (2,258.1)			
2039	111.0	25.9 (23.3)	11.5 (10.4)	---	7.3 (6.6)	126.4 (113.8)	102.9 (92.8)	2,494.6 (2,247.7)			
2040	114.6	26.6 (23.3)	11.9 (10.3)	---	7.6 (6.6)	129.9 (113.4)	105.1 (91.7)	2,565.4 (2,238.5)			
2041	118.3	27.5 (23.2)	12.2 (10.3)	---	7.8 (6.6)	133.6 (112.9)	107.3 (90.7)	2,639.2 (2,230.0)			

Note: Treasury Normal Cost Contributions are net of actual and expected sequestered amounts by the following fiscal years (discussed further in Appendix M):
 - FY 2014: 9.8%
 - FY 2015: 9.5%
 - FY 2016: 9.3%
 - FY 2017: 9.1%
 - FY 2018: 8.9%

TABLE 8 FOOTNOTES

NOTE REGARDING OPEN GROUP PROJECTIONS: The 25-year open group projection in this report is based on benefit provisions, data, methods and assumptions described herein. The values are displayed in future-year dollars. They are intended to provide the user with a general directional magnitude; uncertainty increases with the length of the projection period. Actual results are heavily dependent on the underlying assumptions being realized. Benefit changes, economic conditions, and other factors are not perfectly predictable. **Economic, demographic, and political forces cannot be precisely predicted over very long periods of time.**

In addition, the fundamental purpose of OACT's valuation is to produce actuarial liability and normal cost amounts, both of which are done on a closed group basis. In performing the valuation calculations, many assumptions represent long-run average expectations. This is appropriate for such liability and normal cost determinations. The open group projection uses many of the same long-run average assumptions as are used in the actuarial liability and normal cost calculations, but incorporates some adjustments for short-term expectations (e.g., the use of short-term economic assumptions for basic pay and COLA increases).

The projection in this publication is intentionally limited to 25 years. Additional projection years, as well as projections assuming different economic assumptions, may be available upon request.

- ¹ P.L. 98-94 established the Military Retirement Fund. Under the law, DoD is responsible for the normal cost payment and Treasury is responsible for the payments on the unfunded liability. P.L. 108-136 assigned Treasury the responsibility of funding the normal cost resulting from increased benefits due to Concurrent Receipt, starting in FY 2005. There are no employee contributions to the Fund.
- ² DoD-projected endstrengths are used through the end of FY 2021 and constant force strengths are used thereafter. Basic pay is only a portion of military compensation. See The Military Retirement System: Benefits in Appendix A for details. FYs 2014, 2015, 2016, 2017, and 2018 Treasury Normal Cost Payments reflect sequestered amounts of 9.8% in FY 2014, 9.5% in FY 2015, 9.3% in FY 2016, 9.1% in FY 2017, and 8.9% in FY 2018 (discussed further in Appendix M).
- ³ Due to federal budget deadlines, normal cost percentages are established in advance of implementation. The percentage actually used and displayed here may vary from the one derived in the valuation as of the end of the previous year. Starting in FY 1987, NCPs have been developed separately for the full-time and part-time basic payrolls. Beginning in FY 2008, the part-time NCP has been charged against mobilized reserve pay. However, this report includes mobilized reserve pay as part of the full-time payroll from FY 2008 through FY 2010.

TABLE 8 FOOTNOTES (Continued)

- ⁴ Reflects amortization payments for FY 2018 and thereafter determined in the September 30, 2016, valuation. The FY 2027 - FY 2031 payments depict negative values, implying the Fund will have to pay Treasury this amount. There is no mechanism allowing this case to occur under current law. We (and the Board) are monitoring this situation.
- ⁵ Disbursements are on a cash basis. Beginning in December 1984, entitlements obligated for a month have been paid at the beginning of the following month. Prior to this date, entitlements were paid at the end of the month of obligation. Consequently, FY 1985 disbursements include only 11 months of payments. The FY 2011 National Defense Authorization Act allowed for retired pay to be paid on the previous business day if the first of the month falls on a weekend or holiday. This is not accounted for in the projected Fund Disbursements or Balances in order to give the projection a smooth trajectory.
- ⁶ This fund balance (on a book value basis) reflects cash disbursements during the year. On September 30, 2016, assets in the Fund totaled \$664.4 billion.

OTHER NOTES: Mortality rates that are applied in the valuation to active/reserve duty members, retirees, and survivors, are subject to annual rates of improvement – see Appendix J. People and pay underlying the projection can be found in Appendix K. The table does not reflect future gains or losses due to short-term economic experience being different than assumed. Consequently, only payments on the total unfunded liability as of September 30, 2016, are reflected.

ANNUAL ECONOMIC ASSUMPTIONS USED IN PROJECTIONS OF PLAN ASSETS				
	<u>Fiscal Year</u>	<u>Full COLA</u>	<u>Basic Pay</u>	<u>Interest</u>
[Actual]	2017	0.3%	2.1%	5.25%
[Short-Term]	2018	2.2	1.6	5.25
[Short-Term]	2019	2.1	1.6	5.25
[Short-Term]	2020	2.3	1.8	5.25
[Short-Term]	2021	2.2	2.1	5.25
[Short-Term]	2022	2.3	2.1	5.25
[Short-Term]	2023	2.3	2.1	5.25
[Short-Term]	2024	2.3	2.1	5.25
[Short-Term]	2025	2.3	2.1	5.25
[Short-Term]	2026	2.75	2.1	5.25
[Long-Term]	2027+	2.75	3.25	5.25

Full COLA is equal to full cost-of-living increases to retiree and survivor annuities. Basic Pay is the rate at which the entire military pay table increases (hence excludes longevity or promotion-and-merit increases). They are applied on an across-the-board basis and typically occur each January 1st. Interest assumptions pertain to annual, aggregate Fund yield on all cash flows. The above COLA and Basic Pay assumptions are from the OMB; the interest (fund yield) is the Board of Actuaries long-term interest assumption. Long-term annual economic assumptions (used throughout the projection in the normal cost and unfunded liability calculations) are 2.75% COLA, 3.25% basic pay, and 5.25% interest.

TABLE 9
MILITARY RETIREMENT SYSTEM
PAST AND PROJECTED PAYROLL AND NORMAL COST PAYMENTS
(In Billions of Dollars and as a Proportion of Payroll)

Fiscal Year	Payroll			DoD Normal Cost Payments				Treasury Normal Cost Payments				Normal Cost Payments	
	Full-Time	Part-Time	Total	Full-Time		Part-Time		Full-Time		Part-Time		Total	
1985	\$30.6	\$2.9	\$33.5	\$15.5	(50.7%)	\$1.5	(50.7%)	\$0.0	---	\$0.0	---	\$17.0	(50.7%)
1986	32.3	3.1	35.4	16.4	(50.7)	1.6	(50.7)	0.0	---	0.0	---	17.9	(50.7)
1987	33.4	3.0	36.4	17.4	(52.2)	0.8	(26.4)	0.0	---	0.0	---	18.2	(50.1)
1988	34.0	3.3	37.3	17.4	(51.2)	0.9	(26.1)	0.0	---	0.0	---	18.3	(49.0)
1989	35.0	3.6	38.6	17.6	(50.2)	0.9	(25.7)	0.0	---	0.0	---	18.5	(47.9)
1990	36.0	3.7	39.7	15.8	(43.9)	0.5	(13.4)	0.0	---	0.0	---	16.3	(41.1)
1991	38.6	3.7	42.3	16.7	(43.2)	0.5	(13.3)	0.0	---	0.0	---	17.2	(40.6)
1992	36.9	4.1	41.0	15.8	(42.7)	0.5	(13.3)	0.0	---	0.0	---	16.3	(39.8)
1993	35.1	3.8	38.9	12.8	(36.4)	0.4	(10.6)	0.0	---	0.0	---	13.2	(33.9)
1994	34.5	3.8	38.3	12.4	(36.0)	0.4	(10.6)	0.0	---	0.0	---	12.8	(33.5)
1995	33.4	3.8	37.2	11.9	(35.5)	0.4	(10.5)	0.0	---	0.0	---	12.3	(32.9)
1996	33.1	3.7	36.8	10.9	(32.9)	0.4	(9.6)	0.0	---	0.0	---	11.2	(30.6)
1997	33.2	3.7	36.9	10.8	(32.6)	0.4	(9.6)	0.0	---	0.0	---	11.2	(30.3)
1998	33.4	3.7	37.1	10.2	(30.5)	0.3	(8.8)	0.0	---	0.0	---	10.5	(28.3)
1999	33.7	3.9	37.6	10.2	(30.2)	0.3	(8.7)	0.0	---	0.0	---	10.5	(28.0)
2000	35.1	4.0	39.1	11.2	(31.8)	0.4	(9.8)	0.0	---	0.0	---	11.6	(29.5)
2001	36.7	4.2	40.9	10.9	(29.6)	0.6	(14.1)	0.0	---	0.0	---	11.5	(28.0)
2002	40.8	3.9	44.7	12.4	(30.3)	0.6	(14.4)	0.0	---	0.0	---	12.9	(28.9)
2003	47.8	4.2	52.0	13.1	(27.4)	0.6	(14.6)	0.0	---	0.0	---	13.7	(26.4)
2004	49.4	4.2	53.6	13.4	(27.1)	0.7	(16.0)	0.0	---	0.0	---	14.1	(26.2)
2005	52.0	4.3	56.3	14.3	(27.5)	0.7	(16.7)	1.7	(0.0)	0.0	(0.0)	16.8	(29.8)
2006	49.7	4.3	54.0	13.2	(26.5)	0.7	(16.7)	2.4	(4.9)	0.1	(1.4)	16.4	(30.3)
2007	51.2	5.2	56.4	13.6	(26.5)	0.9	(17.5)	2.5	(4.9)	0.1	(1.5)	17.1	(30.3)
2008	53.5	5.7	59.2	15.5	(29.0)	1.1	(19.1)	2.7	(5.0)	0.1	(1.5)	19.4	(32.7)
2009	57.1	5.9	63.0	16.8	(29.4)	1.2	(21.1)	4.0	(7.0)	0.1	(2.3)	22.2	(35.2)
2010	58.3	6.1	64.4	18.9	(32.4)	1.5	(24.5)	4.7	(8.0)	0.2	(2.8)	25.2	(39.2)
2011	56.6	10.3	66.9	18.5	(32.7)	2.5	(24.4)	4.6	(8.2)	0.3	(3.2)	26.0	(38.9)
2012	57.3	9.2	66.5	19.7	(34.3)	2.2	(24.3)	5.0	(8.8)	0.3	(3.6)	27.3	(41.0)
2013	57.1	9.2	66.3	18.3	(32.1)	2.2	(24.4)	6.4	(11.2)	0.3	(3.2)	27.3	(41.1)
2014	57.0	8.4	65.4	18.5	(32.4)	2.1	(24.5)	6.0	(11.7)	0.2	(2.9)	26.8	(40.9)
2015	56.0	8.3	64.3	18.0	(32.2)	1.9	(22.5)	6.0	(11.8)	0.2	(2.7)	26.1	(40.6)
2016	56.3	8.3	64.6	17.7	(31.4)	1.9	(23.0)	6.7	(13.1)	0.2	(2.9)	26.5	(41.0)
↑ ACTUAL ↑													
↓ PROJECTED ↓													
2017	\$56.3	\$7.1	\$63.4	\$16.2	(28.7%)	\$1.6	(22.6%)	\$6.4	(12.5%)	\$0.2	(3.3%)	\$24.4	(38.5%)
2018	58.3	7.4	65.7	16.6	(28.4)	1.7	(22.6)	6.6	(12.5)	0.2	(3.3)	25.1	(38.1)
2019	56.9	8.0	64.9	16.0	(28.1)	1.8	(22.5)	7.0	(12.4)	0.3	(3.2)	25.1	(38.7)
2020	57.7	8.2	65.9	16.0	(27.8)	1.8	(22.2)	7.1	(12.3)	0.3	(3.2)	25.2	(38.3)
2021	58.8	8.4	67.2	16.2	(27.5)	1.9	(22.0)	7.2	(12.3)	0.3	(3.2)	25.5	(37.9)
2022	59.8	8.6	68.4	16.3	(27.2)	1.9	(21.8)	7.3	(12.2)	0.3	(3.2)	25.7	(37.6)
2023	60.9	8.8	69.7	16.4	(27.0)	1.9	(21.7)	7.4	(12.1)	0.3	(3.2)	26.0	(37.3)
2024	62.0	9.0	71.0	16.6	(26.7)	1.9	(21.5)	7.5	(12.1)	0.3	(3.2)	26.3	(37.0)
2025	63.2	9.2	72.4	16.7	(26.4)	2.0	(21.4)	7.6	(12.0)	0.3	(3.2)	26.6	(36.7)
2026	64.4	9.5	73.8	16.9	(26.2)	2.0	(21.2)	7.7	(12.0)	0.3	(3.2)	26.9	(36.4)
2027	66.3	9.8	76.1	17.2	(25.9)	2.1	(21.0)	7.9	(11.9)	0.3	(3.2)	27.5	(36.1)
2028	68.4	10.2	78.5	17.6	(25.7)	2.1	(20.9)	8.1	(11.8)	0.3	(3.1)	28.1	(35.8)
2029	70.5	10.5	81.1	17.9	(25.4)	2.2	(20.7)	8.3	(11.8)	0.3	(3.1)	28.8	(35.5)
2030	72.7	10.9	83.6	18.3	(25.2)	2.2	(20.6)	8.5	(11.7)	0.3	(3.1)	29.4	(35.2)
2031	75.0	11.3	86.3	18.7	(25.0)	2.3	(20.4)	8.8	(11.7)	0.4	(3.1)	30.1	(34.9)
2032	77.3	11.7	89.0	19.1	(24.8)	2.4	(20.3)	9.0	(11.6)	0.4	(3.1)	30.9	(34.7)
2033	79.6	12.1	91.7	19.6	(24.6)	2.4	(20.1)	9.2	(11.6)	0.4	(3.1)	31.6	(34.5)
2034	82.1	12.5	94.6	20.0	(24.4)	2.5	(20.0)	9.5	(11.6)	0.4	(3.1)	32.4	(34.3)
2035	84.7	12.9	97.6	20.6	(24.3)	2.6	(19.9)	9.8	(11.5)	0.4	(3.1)	33.3	(34.1)
2036	87.5	13.3	100.8	21.1	(24.2)	2.6	(19.8)	10.1	(11.5)	0.4	(3.1)	34.2	(34.0)
2037	90.3	13.7	104.0	21.7	(24.1)	2.7	(19.6)	10.4	(11.5)	0.4	(3.1)	35.2	(33.9)
2038	93.3	14.2	107.5	22.4	(24.0)	2.8	(19.5)	10.7	(11.5)	0.4	(3.1)	36.3	(33.8)
2039	96.4	14.6	111.0	23.0	(23.9)	2.8	(19.4)	11.0	(11.5)	0.4	(3.1)	37.4	(33.7)
2040	99.5	15.1	114.6	23.7	(23.9)	2.9	(19.3)	11.4	(11.4)	0.5	(3.0)	38.5	(33.6)
2041	102.8	15.6	118.3	24.5	(23.8)	3.0	(19.1)	11.8	(11.4)	0.5	(3.0)	39.7	(33.5)

Note: Treasury Normal Cost Contributions are net of actual and expected sequestered amounts as discussed in Appendix M.

TABLE 10
MILITARY RETIREMENT SYSTEM
PAST AND PROJECTED UNFUNDED LIABILITY PAYMENTS ON OCTOBER 1
(\$ in billions)

Calendar Year	Original UFL	Assumption Changes	Benefit Changes	Actuarial Experience	Total
1984	\$9.500	5.000	5.000	5.000	\$9.500
1985	10.500	0.000	0.000	0.000	10.500
1986	11.042	0.000	0.000	-0.518	10.524
1987	11.679	0.000	-0.113	-1.281	10.285
1988	12.003	0.135	-0.112	-2.244	9.782
1989	16.300	-2.116	-0.132	-3.456	10.596
1990	17.237	-2.237	-0.140	-4.078	10.782
1991	18.228	-2.366	-0.148	-4.508	11.206
1992	22.621	-4.625	-0.171	-5.552	12.273
1993	23.865	-4.880	-0.180	-6.897	11.908
1994	25.177	-5.148	-0.189	-8.370	11.470
1995	27.746	-6.619	-0.079	-10.349	10.699
1996	33.456	-6.917	-0.042	-11.346	15.151
1997	36.227	-8.529	0.048	-12.627	15.119
1998	37.676	-8.870	0.050	-13.606	15.250
1999	39.183	-9.201	0.052	-14.732	15.302
2000	42.098	-9.984	0.335	-16.360	16.089
2001	43.571	-9.862	0.472	-17.134	17.047
2002	45.096	-10.059	0.661	-17.770	17.928
2003	46.674	-10.741	0.977	-18.721	18.189
2004	46.857	-10.959	4.627	-19.167	21.358
2005	48.614	-11.337	6.081	-20.178	23.180
2006	50.437	-11.238	6.313	-19.464	26.048
2007	66.711	-7.642	6.430	-19.312	46.187
2008	69.213	-5.076	7.026	-20.038	51.125
2009	70.379	-1.241	7.100	-17.619	58.619
2010	73.018	-1.012	7.367	-17.969	61.404
2011	75.757	0.171	7.643	-18.820	64.751
2012	78.598	0.386	7.930	-19.181	67.733
2013	81.373	3.150	8.211	-19.849	72.885
2014	84.221	2.594	8.498	-19.751	75.562
2015	87.169	3.770	8.796	-20.446	79.289
2016	90.024	4.459	7.724	-21.015	81.192
↑ ACTUAL ↑					
↓ PROJECTED ↓					
2017	\$92.950	\$3.736	\$7.904	-\$21.713	\$82.877
2018	95.971	3.857	8.159	-22.452	85.535
2019	99.090	3.982	8.425	-23.908	87.589
2020	102.311	4.112	8.698	-24.685	90.436
2021	105.636	4.245	8.981	-25.487	93.375
2022	109.069	4.383	9.273	-26.315	96.410
2023	112.614	4.526	9.574	-27.170	99.544
2024	116.273	4.673	9.885	-28.053	102.778
2025	120.053	4.825	10.207	-28.965	106.120
2026	0.000	4.981	10.539	-29.907	-14.387
2027	0.000	5.143	10.881	-30.878	-14.854
2028	0.000	5.310	11.235	-31.882	-15.337
2029	0.000	5.483	11.600	-32.918	-15.835
2030	0.000	5.661	11.977	-33.989	-16.351
2031	0.000	5.845	12.366	-11.316	6.895
2032	0.000	6.035	12.767	0.000	18.802
2033	0.000	6.231	13.183	0.000	19.414
2034	0.000	6.434	13.611	0.000	20.045
2035	0.000	6.643	3.848	0.000	10.491
2036	0.000	6.859	0.000	0.000	6.859
2037	0.000	7.082	0.000	0.000	7.082
2038	0.000	7.312	0.000	0.000	7.312
2039	0.000	7.550	0.000	0.000	7.550
2040	0.000	7.795	0.000	0.000	7.795
2041	0.000	8.049	0.000	0.000	8.049
2042	0.000	8.310	0.000	0.000	8.310
2043	0.000	8.580	0.000	0.000	8.580
2044	0.000	2.954	0.000	0.000	2.954
2045	0.000	0.000	0.000	0.000	0.000

Note: Actuarial Experience item is net of actual and expected sequestered Treasury Normal Cost payments as discussed in Appendix M.

TABLE 11
MILITARY RETIREMENT SYSTEM
PAST AND PROJECTED UNFUNDED LIABILITY BALANCE ON SEPTEMBER 30 (Before Payment)
(\$ in billions)

Calendar Year	Original UFL	Assumption Changes	Benefit Changes	Actuarial Experience	Total
1984	\$528.700	\$0.000	\$0.000	\$0.000	\$528.700
1985	553.500	0.000	0.000	-13.800	539.700
1986	578.800	0.000	-3.000	-34.200	541.600
1987	605.200	3.600	-2.998	-59.500	546.302
1988	632.700	-50.062	-3.076	-81.180	498.382
1989	664.173	-53.711	-3.172	-94.562	512.728
1990	693.224	-55.207	-3.253	-102.283	532.481
1991	723.306	-97.578	-3.331	-111.879	510.518
1992	757.959	-102.353	-3.421	-139.327	512.858
1993	790.488	-105.057	-3.494	-167.942	513.995
1994	824.120	-130.691	-0.968	-201.052	491.409
1995	852.872	-134.017	-0.832	-217.255	500.768
1996	880.822	-159.859	0.897	-231.424	490.436
1997	902.444	-162.883	1.000	-244.673	495.888
1998	922.521	-164.057	1.014	-259.976	499.503
1999	942.360	-169.827	6.583	-277.940	501.176
2000	959.626	-164.942	9.414	-284.168	519.931
2001	974.873	-162.970	13.075	-285.393	539.585
2002	989.509	-170.593	19.216	-293.105	545.027
2003	1,003.439	-172.248	94.231	-297.115	628.308
2004	1,016.562	-171.288	125.272	-304.415	666.132
2005	1,030.312	-165.769	128.261	-290.020	702.784
2006	1,043.054	-126.439	131.332	-282.660	765.287
2007	1,052.174	-89.221	140.140	-279.068	824.025
2008	1,044.591	-27.990	142.047	-254.441	904.207
2009	1,031.462	-19.974	142.785	-245.726	908.548
2010	1,016.346	2.415	143.487	-258.786	903.461
2011	997.569	8.208	143.947	-252.478	897.246
2012	974.816	68.621	144.141	-254.041	933.537
2013	945.510	58.240	143.703	-262.348	885.105
2014	911.665	81.894	142.944	-268.748	867.755
2015	872.953	96.068	127.811	-280.383	816.450
2016	827.038	80.674	124.563	-289.710	742.564
↑ ACTUAL ↑					
↓ PROJECTED ↓					
2017	\$775.707	\$80.216	\$122.973	-\$282.134	\$696.762
2018	718.602	80.496	121.112	-274.093	646.117
2019	655.319	80.663	118.883	-264.852	590.012
2020	585.431	80.706	116.257	-253.593	528.800
2021	508.484	80.616	113.205	-240.926	461.378
2022	423.997	80.380	109.696	-226.750	387.324
2023	331.462	79.987	105.695	-210.957	306.187
2024	230.337	79.423	101.168	-193.436	217.491
2025	120.053	78.674	96.075	-174.066	120.736
2026	0.000	77.726	90.376	-152.719	15.383
2027	0.000	76.564	84.029	-129.259	31.333
2028	0.000	75.171	76.988	-103.546	48.612
2029	0.000	73.528	69.205	-75.427	67.307
2030	0.000	71.618	60.629	-44.740	87.507
2031	0.000	69.420	51.206	-11.316	109.310
2032	0.000	66.912	40.880	0.000	107.792
2033	0.000	64.073	29.588	0.000	93.662
2034	0.000	60.879	17.267	0.000	78.146
2035	0.000	57.303	3.848	0.000	61.151
2036	0.000	53.320	0.000	0.000	53.320
2037	0.000	48.900	0.000	0.000	48.900
2038	0.000	44.014	0.000	0.000	44.014
2039	0.000	38.628	0.000	0.000	38.628
2040	0.000	32.710	0.000	0.000	32.710
2041	0.000	26.223	0.000	0.000	26.223
2042	0.000	19.128	0.000	0.000	19.128
2043	0.000	11.386	0.000	0.000	11.386
2044	0.000	2.954	0.000	0.000	2.954
2045	0.000	0.000	0.000	0.000	0.000

Note: Actuarial Experience item is net of actual and expected sequestered Treasury Normal Cost payments as discussed in Appendix M.

The Military Retirement Fund Transaction Process

The description of deficit, debt, and funding impact contained in this section are applicable under the current practices of the federal government regarding budget accounting and tax policy. These practices do not provide for increases in taxes to fund the Military Retirement System beyond what is required to pay benefits to retirees and survivors each year, but do result in increases in the national debt.

A nonrevolving trust fund was created inside the Unified Budget of the federal government for the monies of the Military Retirement System. This fund has three sources of income: (1) normal cost payments made by DoD, (2) unfunded liability and Concurrent Receipt normal cost payments made by Treasury, and (3) interest earnings on investments in government securities made by Treasury and the payment of the par values of these securities at maturity. All three of these items are intragovernmental transfers consisting of debits from one government account and credits to another.

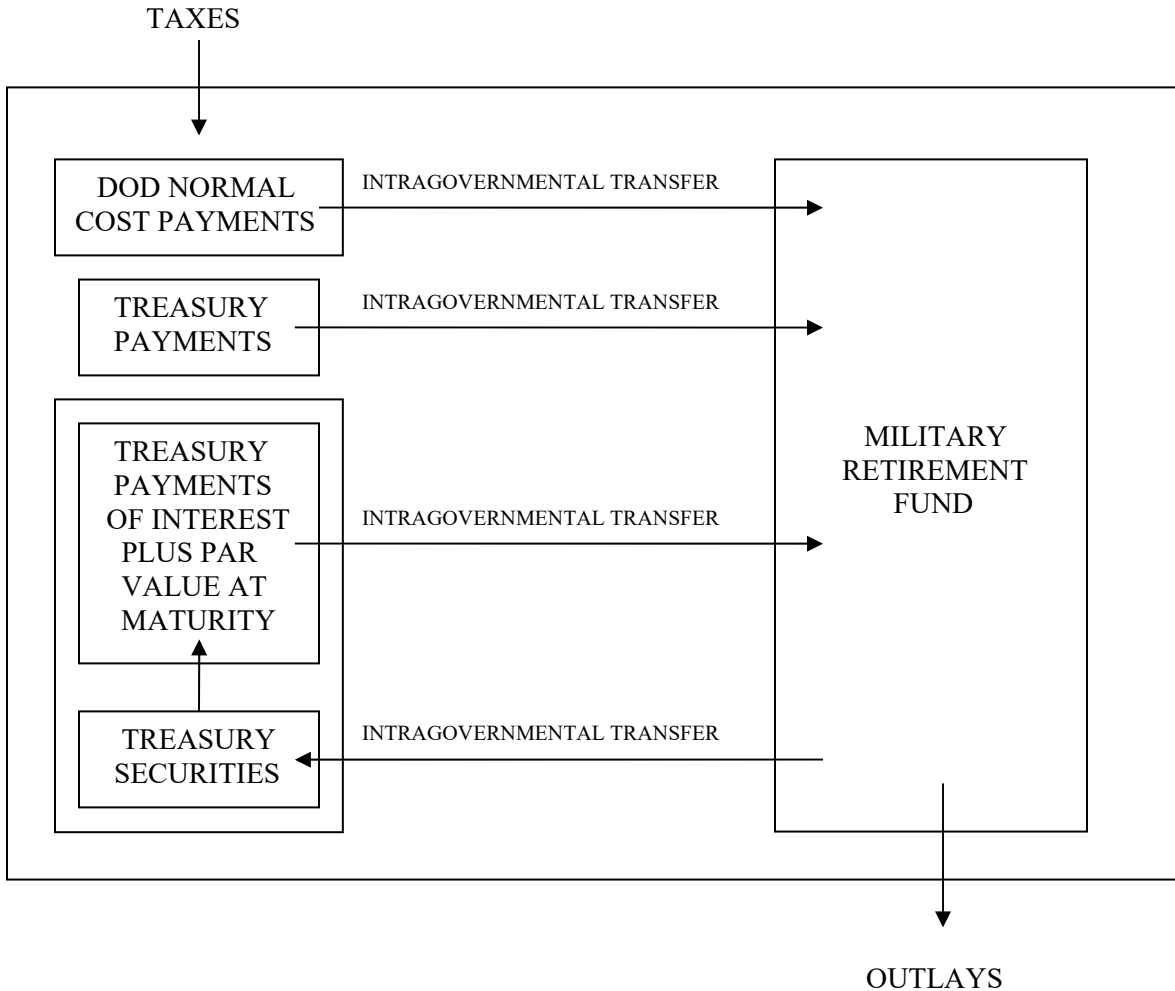
The Fund has two types of payouts: (1) payments to retirees and survivors of retirees and (2) purchases of U.S. Treasury securities. The purchase of a Treasury security is also an intragovernmental transfer, while a payment to a retiree or a survivor is not.

Figure 2 on the following page depicts this process. The only transactions in a particular year that directly affect the deficit of the Unified Budget are those that pass in or out of the government, such as tax collections (“in”) and retiree or survivor payments (“out”). The intragovernmental transfers are debits and credits within the federal budget, with no direct effect on the deficit. The following examples illustrate the process:

- If DoD debits \$25 billion in normal cost payments and the Fund credits the \$25 billion, the net direct federal budget deficit effect is zero.
- If the Fund purchases \$60 billion in securities (debit) and the Treasury sells \$60 billion in securities (credit), the net direct federal budget deficit effect is zero.
- If the Treasury pays \$20 billion interest (debit) and the Fund earns \$20 billion interest (credit), the net direct federal budget deficit effect is zero.
- Disregarding all other government programs, if the government collects \$45 billion in tax revenues (credit) and pays \$50 billion to retirees (debit), the net direct federal budget deficit effect is \$5 billion.

FIGURE 2

**MILITARY RETIREMENT SYSTEM
UNIFIED BUDGET**



All of the intragovernmental transfers in Figure 2 will always generate both a credit and an associated equal debit within the Unified Budget. Consequently, under current federal budget accounting practices, contributions to the Fund beyond what are required to pay benefits to retirees and survivors that year have no impact on the total federal deficit. Just as in the pay-as-you-go method, the only transactions that directly affect the deficit in the retirement system accounting process are payments to retirees and survivors (i.e. outlays).

On the other hand, the purchase of securities by the Fund does increase the national debt, specifically the portion of the debt held by the government. The portion held by the public will not change. However, the total debt will increase and this requires an increase in the statutory borrowing authority (debt ceiling).

Suppose that in the year 2016 the amount needed to pay retirees was \$55 billion and the Military Retirement Fund had grown to \$660 billion. The following transactions would take place:

- Fund redeems \$55 billion in Treasury securities (credit).
- Treasury pays \$55 billion to Fund (debit).
- Net federal surplus zero.

Since no budget surplus can be derived from using fund money, the government still has a need for \$55 billion to pay retirees—the same need it would have under the pay-as-you-go system. Accordingly, the Fund cannot transfer liabilities from one tax year to another.

However, funding does have an effect on the DoD budget. With the normal cost payments (except for Concurrent Receipt) in the DoD budget, policymakers now consider the impact on future retirement costs when they make manpower decisions, and this could have a significant impact on future federal budgets. For example, if a decision were made today to double the size of the active duty and reserve forces, the DoD budget would automatically have an immediate increase in retirement funding obligations. Under the pay-as-you-go method, the retirement expenses would not necessarily be considered in the initial decision since they would not emerge for 20 years.

In their prior quadrennial reports to the President and Congress, the DoD Board has noted that the establishment of the Fund does not represent actual advance funding. Real advance funding could be achieved by investing the assets outside the Unified Budget, for example, in stocks or corporate bonds, or in bonds of state and local municipalities or quasi-federal government agencies (like Fannie Mae or Freddie Mac). Instead, the accrual accounting procedure now in place is essentially an internal cost accounting system. While the nation has not technically set aside money to pay the benefits of those who have served in uniform, the Fund can be viewed as earmarking future tax receipts for the benefit of military retirees. As such, the existence of the Fund promotes a measure of “psychological security” for military members.

Along these same lines, the DoD Board has frequently noted two common misconceptions about the Fund:

- 1) ***The Fund represents government tax receipts that have been accumulated in the past.*** Actually, the Fund represents future tax receipts that will be allocated to pay principal and interest on government bonds being held by the Fund.
- 2) ***The financial and actuarial status of the Fund can be measured by prospective short-term (or medium-term) cash flows.*** Rather, the entire present value of the liabilities must be compared to the sum of the Fund and prospective contributions. A year-by-year projection of cash flow is also needed to measure the Fund’s ability to pay annual

benefits. Comparing the past and projected dollars as a proportion of payroll (as shown in Table 8) is another key measure of sustainability.

The current financing procedure, although carried out by allocating no more tax dollars than needed to pay benefits to military retirees as they come due, has nonetheless contributed to a more accurate allocation of resources within the defense budget and to formal recognition--in the national debt--of the government's obligation to pay retirement benefits to military members and eligible survivors/annuitants. This represents more responsible fiscal practice than would obtain under a pay-as-you-go system.

The fact that costs are fully recognized in advance provides greater benefit security over the long term. Also, when there is a Fund, the system is not as dependent on obtaining the necessary appropriation from Congress each year in order to pay benefits for that year. This can provide additional benefit security in the short run.

The actuarially based costs of the retirement system are reasonable given the plan provisions, and the system is considered sustainable assuming continuing willingness of the government to pay the required costs.

APPENDIX A

THE MILITARY RETIREMENT SYSTEM: BENEFITS

	<u>Page</u>
Summary	38
Nondisability Retirement from Active Service	40
Disability Retirement.....	40
Reserve Retirement.....	41
Survivor Benefits	42
Temporary Early Retirement Authority (TERA).....	44
Cost-of-Living Increases.....	45
Relationship with Veterans Administration Benefits	45
Interrelationship with Other Federal Service.....	46
Relationship of Retired Pay to Military Compensation.....	46
Social Security Benefits.....	47
Performance Measures.....	48
Table A-1: Military Retirement Fund Performance Measures	49

THE MILITARY RETIREMENT SYSTEM: BENEFITS

As of September 30, 2016

Summary

The Military Retirement System applies to members of the Army, Navy, Marine Corps, and Air Force. However, most of the provisions also apply to retirement systems for members of the Coast Guard (administered by the Department of Homeland Security), officers of the Public Health Service (administered by the Department of Health and Human Services), and officers of the National Oceanic and Atmospheric Administration (administered by the Department of Commerce). Only those members in plans administered by the Department of Defense (DoD) are included in this report.

Generally, the system is a funded, noncontributory defined benefit plan that includes nondisability retired pay, disability retired pay, retired pay for reserve service, survivor annuity programs, and special compensation programs for certain disabled retirees. The Service Secretaries may approve immediate nondisability retired pay at any age with credit of at least 20 years of active duty service. Reserve retirees generally must be at least 60 years old and have at least 20 qualifying years of service before retired pay commences, with certain exceptions. Public Law (P.L.) 110-181 allows for a day-for-day reduction (in 90 day blocks) in the reserve retirement eligibility age from age 60 (to an age no lower than 50) for every 3 months served in a contingency operation or national emergency, for service after enactment. There is no vesting of benefits before retirement.

There are distinct nondisability benefit formulas related to four populations within the Military Retirement System. A summary is displayed in Tables B-1 and B-2 (see Appendix B).

- 1) **Final Pay**: Military personnel who first became members of a uniformed service before September 8, 1980, have retired pay equal to final basic pay times a multiplier. The multiplier is equal to 2.5 percent times years of service.
- 2) **High-3 (HI-3)**: If the retiree first became a member of a uniformed service on or after September 8, 1980, the average of the highest 36 months of basic pay is used instead of final basic pay.
- 3) **Career Status Bonus (CSB)/Redux**: Those who first became a member of a uniformed service on or after August 1, 1986, may choose between a High-3 and CSB/Redux retirement. Those who elect CSB/Redux receive the Career Status Bonus outlined below, also have retired pay computed on a base of the average of their highest 36 months of basic pay, but are subject to a multiplier penalty if they retire with less than 30 years of service; however, at age 62, their retired pay is recomputed without the penalty. Members make their election during the fifteenth year of service and may receive the Career Status Bonus of \$30,000 in either a lump-sum or installments. Those who elect CSB/Redux generally must remain continuously on active duty until they complete 20 years of active duty service or forfeit a portion of the \$30,000 (exceptions include death and disability retirement). The National Defense Authorization Act for FY 2016 (NDAA 2016, P.L. 114-92) sunsets the CSB/Redux benefit tier by not allowing any CSB elections after December 31, 2017, and repeals all aspects of the Bipartisan Budget Act (BBA) 2013.

4) **Blended Retirement System (BRS)**: Members who first become a member of a uniformed service after December 31, 2017, will be under the new Blended Retirement System (BRS) which was enacted in NDAA 2016 and takes effect January 1, 2018. Members who first entered the military before January 1, 2018, and who have served for fewer than 12 years (or for reservists, who have fewer than 4,320 points) as of December 31, 2017, will have the option to “opt-in” to BRS via an irrevocable election during a one-year (calendar year 2018) open season or remain in the High-3 system. Members who have served 12 or more years as of December 31, 2017, are not permitted to opt-in to BRS and will receive benefits based on their current plan. As a result of NDAA 2016, members with 12 or more but fewer than 15 years of service as of December 31, 2017, will not have the opportunity to opt-in to BRS or to elect the CSB and will automatically remain in the High-3 system¹. The BRS lowers the nondisabled retired pay multiplier from 2.5 percent per year to 2.0 percent and includes automatic and matching government contributions to member Thrift Savings Plan (TSP) accounts and a mandatory mid-career continuation bonus if the member agrees to serve additional time. The BRS also provides members the choice of receiving a portion (either 25 percent or 50 percent) of their retired pay entitlement from when the member is eligible to begin receiving retired pay to normal Social Security retirement age (usually 67) as a discounted lump sum instead of an annuity. For additional information, see Table B-1 or refer to the DoD Office of Military Compensation website (<http://militarypay.defense.gov/>).

Retired pay and survivor annuity benefits are automatically adjusted annually to protect the purchasing power of initial retired pay. The benefits associated with members first entering the armed services before August 1, 1986, or those entering on or after that date who do not take the CSB, have their benefits adjusted annually by the percentage increase in the average Consumer Price Index (CPI). Refer to the section “Cost-of-Living Increases” in this appendix for more information on the CPI. Receiving a benefit adjustment based on the percentage increase in the CPI is commonly referred to as full CPI protection. Benefits associated with members entering on or after August 1, 1986, who elect the \$30,000 CSB bonus payment are annually increased by the percentage change in the CPI minus 1 percent (except when the change in the CPI is less than or equal to 1 percent), but at the military member’s age 62, or when the member would have been age 62 for a survivor annuity, the benefits are restored to the amount that would have been payable had full CPI protection been in effect. This restoral is in combination with the elimination of the multiplier penalty for retiring with less than 30 years of service. However, after this restoral, partial indexing (CPI minus 1 percent) continues for future retired pay and survivor annuity payments.

The FY 2011 NDAA (P.L. 111-383) required “amounts of retired pay and retainer pay due a retired member of the uniformed services shall be paid on the first day of each month beginning after the month in which the right to such pay accrues.” This means that when the first day of the month falls on a non-business day (weekend/holiday), the pay must be paid the preceding business day. This legislation did not apply to survivor annuitant pay and Combat-Related Special Compensation. This results in retirees receiving 13 payments in some fiscal years and 11 payments in others, with 12 payments occurring in a typical fiscal year. Note that annual fiscal year amounts shown throughout this report represent 12 monthly payments without

¹ Because of breaks in service and technical differences in the definition of qualifying years of service under BRS compared to CSB/Redux, it’s not possible to precisely define this group based solely on dates of entry, but generally it will include members who joined the service after December 31, 2002, and on or before December 31, 2005.

regard to the 2011 NDAA. Comments regarding this law are also noted in the Table 8 footnotes in the main text.

Nondisability Retirement From Active Service

The current system allows voluntary retirement upon completion of at least 20 years of service at any age, subject to Service Secretary approval. The military retiree receives immediate retired pay calculated as (base pay) times (a multiplier). Base pay is equal to terminal basic pay if the retiree first became a member of a uniformed service before September 8, 1980. It is equal to the average of the highest 36 months of basic pay for all other members. Refer to the prior section for a description of the four benefit tiers of nondisability retirement.

As of September 2016, 1.47 million nondisability retirees from active duty and full-time reserves were receiving an annualized retired pay entitlement totaling \$49.1 billion. Included in this number are a reported 63,311 nondisabled retirees who elected CSB/Redux. Due to FY 2011 NDAA retired pay provisions, there were 13 monthly payments in FY 2016.

Disability Retirement

A military member in an active component or on active duty for more than 30 days who is found unfit for duty is entitled to disability retired pay if the disability:

- (1) based upon accepted medical principles, is of a permanent nature and stable;
- (2) is incurred while entitled to basic pay (or while on authorized absence in a status not entitled to basic pay);
- (3) is neither the result of the member's intentional misconduct nor willful neglect;
- (4) was not incurred during a period of unauthorized absence; and
- (5) either:
 - (a) the member has at least 20 years of service; or
 - (b) the disability is rated at least 30 percent under the Department of Veterans Affairs Schedule of Rating Disabilities (VASRD) and one of the following conditions is met:
 - (i) the disability was not noted at the time of the member's entrance on active duty (unless clear and unmistakable evidence demonstrates that the disability existed before the member's entrance on active duty and was not aggravated by active military service);
 - (ii) the disability is the proximate result of performing active duty;
 - (iii) the disability incurred in the line of duty in time of war or national emergency; or
 - (iv) the disability was incurred in the line of duty after September 14, 1978.

Under certain conditions generally similar to the above, members on active duty for 30 days or less or on inactive-duty training are also entitled to disability retired pay for disabilities incurred or aggravated in the line of duty.

In disability retirement, the member may elect to receive retired pay equal to either:

- (1) the accrued nondisability retirement benefit regardless of eligibility to retire; or
- (2) base pay multiplied by the rated percent of disability.

Except for members with a multiplier under (1) that is greater than 75 percent (which will equate to different years of service depending on whether the member is under BRS), the benefit cannot be more than 75 percent of base pay. Only the excess of (1) over (2) is subject to federal income taxes if the member had service on or before September 24, 1975. If not a member of a uniformed service on September 24, 1975, disability retired pay is tax-exempt only for those disabilities that are combat or hazardous duty related. Base pay is equal to final basic pay if the retiree first became a member of a uniformed service before September 8, 1980; otherwise, base pay is equal to the average of the highest 36 months of basic pay.

Members whose disabilities may not be permanent are placed on a temporary-disability retired list and receive disability retirement pay just as if they were permanently disabled. However, they must be physically examined every 18 months for any change in disability. A final determination must be made within five years, except that for retirees placed on this list after December, 31, 2016 the final determination must be made within three years². The temporary disability pay is calculated like the permanent disability retired pay, except that it can be no less than 50 percent of base pay.

Members who elected the CSB/Redux retirement option, but who retire for disability, are not subject to the reduced CSB/Redux retired pay multiplier and are awarded retired pay based on the disability retired rules outlined above. However, such members continue to be subject to the reduced CPI (with age 62 restoral) as Career Status Bonus recipients. Members who are under BRS and who retire for disability do not have the option of receiving a portion of retired pay as a discounted lump sum.

Past Congressional action has been directed to the care of disabled retirees and veterans. P.L. 110-181 established the Physical Disability Board of Review (PDBR). The PDBR has the authority to reexamine the files of veterans medically separated with ratings under 30 percent between September 11, 2001, and December 31, 2009, and potentially offer disability retirements. The PDBR is expected to review files for approximately 77,000 veterans.

As of September 2016, 116,000 disability retirees were receiving an annualized retired pay entitlement totaling \$1.69 billion. Included in this number are a reported 3,115 disability retirees who elected CSB/Redux. Due to FY 2011 NDAA retired pay provisions, there were 13 monthly payments in FY 2016.

Reserve Retirement

Members of the Reserve Components may retire after 20 qualifying years of creditable service. However, reserve retired pay is not payable until age 60 unless the member performs certain types of active duty or active service specified in NDAA 2008 (P.L. 110-181), in which case the age is reduced below 60 by three months for every 90 days of such service within any two consecutive fiscal years. However, the age cannot be reduced below 50, and eligibility for subsidized retiree health benefits remains at age 60 even if the eligibility age for retired pay is reduced. For members not under BRS, retired pay is computed as retired pay base times 2.5 percent times years of service. For members under BRS (as explained below) the 2.5 percent

² The 2017 National Defense Authorization Act lowered the maximum length on the temporary-disability retired list from 5 years to 3 years, with grandfathering for those currently on the list.

multiplier is reduced to 2.0 percent. If the reservist was first a member of a uniformed service before September 8, 1980, retired pay base is defined as the active duty basic pay in effect for the retiree's grade and years of service at the time that retired pay begins. If the reservist first became a member of the armed services on or after September 8, 1980, retired pay base is the average basic pay for the member's grade in the highest 36 months computed as if he/she was on active duty for the entire period preceding the age at which retired pay commences. The years of service are determined by using a point system, where 360 points convert to a year of service. Typically, one point is awarded for one day of active duty service (e.g. active duty training) or one inactive duty training (IDT) drill attendance. Reservists may perform two IDT periods in one day thereby receiving two retirement points per day. In addition, 15 points are awarded for completion of one year's membership in an active reserve status. A creditable year of service is one in which the member earned at least 50 points. A member generally cannot retire with less than 20 creditable years, although points earned in non-creditable years are used in the retirement calculation. Beginning with years of service that include October 30, 2007, non-active duty points are limited in any year to no more than 130. Lesser limitations have applied in the past.

Reservists who first became a member on or before December 31, 2017, and had fewer than 4,320 points (equating to 360 points per year multiplied by 12 years of service) as of that date are eligible to opt-in to BRS. Reservists who first become a member of the uniformed service after December 31, 2017, are automatically under BRS. For reserve retirement under BRS, the discounted lump sum option covers the period from the date the member first became eligible to receive retired pay (i.e., 60 or earlier if certain qualifying service is performed) to normal Social Security retirement age (usually 67).

As of September 2016, 402,000 reserve retirees were receiving an annualized retired pay entitlement totaling \$6.8 billion. Due to FY 2011 NDAA retired pay provisions, there were 13 monthly payments in FY 2016.

Survivor Benefits

Legislation originating in 1953 provided optional survivor benefits. It was later referred to as the Retired Servicemen's Family Protection Plan (RSFPP). The plan proved to be expensive to the participants and inadequate since the survivor annuities were never adjusted for inflation and could not be more than 50 percent of retired pay. RSFPP was designed to be self-supporting in the sense that the present value of the reductions to retired pay equaled the present value of the survivor annuities.

On September 21, 1972, RSFPP was replaced by the Survivor Benefit Plan (SBP) for new retirees. RSFPP still covers those servicemen retired before 1972 who did not convert to the new plan or who retained RSFPP in conjunction with SBP. RSFPP continues to pay survivor annuities.

Retired pay is reduced, before taxes, for the member's cost of SBP. Total SBP costs are shared by the government and the retiree, so the reductions in retired pay are only a portion of the total cost of the SBP program.

The SBP survivor annuity is 55 percent of the member's base amount. The base amount is elected by the member, but cannot be less than \$300 or more than the member's full gross monthly retired pay, with one exception. If the member elects CSB/Redux and is subject to a penalty for service under 30 years in the calculation of retired pay, the maximum base amount is equal to the full retired pay without the penalty. However, the annuity for a survivor of a CSB/Redux retiree is subject to the reduced CPI.

When the plan started in 1972, benefits for those 62 and older were reduced by the amount of Social Security for which the survivor would be eligible based on the member's military pay. In 1985, that reduction formula was changed so all annuitants 62 and over received a reduced flat rate of 35 percent of the member's base. Beginning October 1, 2005, the age 62 reduced rate was phased out in 5 percent increments. On April 1, 2008, the survivor benefit reduction at age 62 was fully eliminated and the rate of 55 percent of the member's elected base became standard for all survivors, regardless of age.

During FY 1987, SBP's treatment of survivor remarriages changed. Prior to the change, a surviving spouse remarrying before age 60 had the survivor annuity suspended. The change lowered the age to 55. If the remarriage ends in divorce or death, the annuity is reinstated.

Members who die on active duty are generally assumed to have retired with full disability on the day they died and to have elected full SBP coverage for spouses, former spouses, and/or children. If it is more beneficial for the survivors to have elected child only because of Dependency and Indemnity Compensation (DIC) offsets, the family has the option to make that election instead. If the death does not occur in the line of duty, the SBP benefit is based on the member's years of service, rather than assuming a full disability retirement. Insurable interest elections may be applicable in some cases. These benefits have been improved and expanded over the history of the program.

The surviving spouse (or dependent children, if there is no surviving spouse or if the spouse subsequently dies) of a reservist who dies in the line of duty while performing IDT service is entitled to an SBP annuity. For payments prior to December 23, 2016, the annuity is based on the reservist's years of service. Due to NDAA 2017, effective December 23, 2016 reservists who die in the line of duty while performing IDT receive an SBP annuity equivalent to what they would have received if they had died in the line of duty on active duty (i.e., the annuity assumes the reservist retired with full disability and elected full SBP on the date of death).

SBP annuities generally are reduced by any VA survivor benefits (Dependency and Indemnity Compensation (DIC)), and all premiums relating to the reductions are returned to the survivor. The FY 2008 NDAA enacted, and subsequent legislation extended, a temporary Special Survivor Indemnity Allowance (SSIA) that pays a monthly amount (\$50 in FY 2009 grading up to \$310 in FY 2017 and FY 2018) to survivors with a DIC offset. Prior to NDAA 2018 the authority for the allowance ended in May 2018; the NDAA 2018 made it a permanent benefit with annual COLA increases.

As a result of the "Sharp Case" ruling, the SBP benefit of survivors with entitlement to both DIC and SBP who remarry after age 57 is not reduced by DIC benefits received.

As with retired pay, SBP annuities and premiums are increased annually with cost-of-living adjustments (COLAs). These COLAs are either full or partial CPI increases, depending on the benefit formula covering the member. If a member who elected the CSB/Redux retirement option dies before age 62, the survivor is subject to partial COLAs and his/her annuity is increased on what would have been the member's 62nd birthday to the amount that would have been payable had full COLAs been in effect. Partial COLAs continue annually thereafter.

For reserve retirees, the retired pay reductions applicable under SBP apply for survivor coverage after a reservist turns 60 (or earlier if they have certain active service) and begins to receive retired pay. Reserve Component Survivor Benefit Program (RCSBP) provides annuities to survivors of reservists who die before age 60 (or earlier if they have certain active service), provided they attained 20 years of qualified service and elected to participate in the program (or were within their 90-day election window after receiving their "20-year letter"). However, if the death occurs either on active or inactive duty as described above, the survivor receives an annuity under SBP. The added cost of RCSBP coverage is borne completely by reservists through deductions from future retired pay.

Beginning October 1, 2008, a paid-up provision eliminated the reduction in retired pay for premiums for SBP and RSFPP coverage for participants age 70 or older whose retired pay has been reduced for at least 360 months.

On June 26, 2013, the U.S. Supreme Court ruled to overturn the Defense of Marriage Act (DOMA). While not a change to Title 10 U.S. military benefits per se, the ruling has the effect of allowing legal spouses of same-sex marriages to be eligible to receive SBP benefits.

SBP premiums for members who elect lump sums under BRS will be equivalent to what they would have been without the lump sum, and consequently, the survivors' annuities will be equivalent to what they would have been without the lump sum. The maximum base amount will be equal to unreduced retired pay (i.e., ignoring the lump sum), premiums will be deducted only from monthly retired pay received, and SBP benefits will commence upon the retiree's death.

As of September 2016, 287,000 survivors of military members were receiving an annualized annuity entitlement totaling \$3.7 billion. There are 64,000 SSIA survivors receiving \$0.2 billion (approximately 28,000 receive survivor pay as well).

Temporary Early Retirement Authority (TERA)

The FY 1993 NDAA (P.L. 102-484) granted temporary authority for the military services to offer early retirements to members with more than 15 but less than 20 years of service. The retired pay was calculated in the usual way except that there was a reduction of 1 percent for every year below 20 years of service. Part or all of this reduction can be restored at age 62 if the retired member works in a qualified public service job during the period from the date of retirement to the date on which the retiree would have completed 20 years of service. Unlike members who leave military service before 20 years with voluntary separation incentives or special separation benefits, these early retirees are generally treated like regular military retirees

for the purposes of other retirement benefits. This authority originally expired on September 1, 2002.

The FY 2012 NDAA (P.L. 112-81) reinstated TERA, from January 2012 through December 2018, but without the qualified public service provision. The FY 2017 NDAA further extended TERA through December 2025.

As of September 2016, 67,000 TERA retirees were receiving an annualized retired pay entitlement totaling \$1.3 billion. Due to FY 2011 NDAA retired pay provisions, there were 13 monthly payments in FY 2016.

Cost-of-Living Increases

All nondisability retirement, disability retirement, and most survivor annuities are adjusted annually for inflation. Cost-of-living adjustments (COLAs) are automatically scheduled to occur every 12 months, on December 1st, to be reflected in checks issued at the beginning of January.

The “full” COLA effective December 1 is computed by calculating the percentage increase in the average CPI of the third quarter of the prior calendar year to the third quarter of the current calendar year. The increase is based on the Urban Wage Earner and Clerical Worker Consumer Price Index (CPI-W) and is rounded to the nearest tenth of one percent. Recent retirees/annuitants receive a prorated COLA depending on their date of retirement/eligibility.

The benefits of retirees (and most survivors) are increased annually with the full COLA, except for those first entering a uniformed service on or after August 1, 1986, who elect CSB/Redux. Their benefits are increased annually with a partial COLA equal to the full COLA minus 1 percent (except if the full COLA is less than or equal to 1 percent). A one-time restoral is given to a partial COLA recipient on the first day of the month after the retiree’s 62nd birthday. At this time, retired pay (or the survivor benefit if the retiree is deceased) is increased to the amount that would have been payable had full COLAs been in effect. Annual partial COLAs continue after this restoral. Note that the FY 2016 NDAA sunsets the CSB/Redux benefit tier by not allowing any CSB elections after December 31, 2017.

Relationship with Veterans Administration Benefits

The Department of Veterans Affairs (VA) provides compensation for Service-connected and certain non-Service-connected disabilities. These VA benefits can be in place of or in combination with DoD retired pay, but through December 31, 2003, were not fully additive. Since VA benefits are exempt from federal income taxes, it is often to the advantage of a member to elect them. Through 2003, retired pay earned from DoD for military service was offset by any payment received from VA for a VA-rated disability. Beginning with the FY 2004 NDAA (P.L. 108-136), a series of legislation has been enacted that increasingly reduces or eliminates the offset to military retired pay due to receipt of VA disability compensation. Members with a combined VA disability rating of 50% or greater who have at least 20 years of service will have their offset eliminated under the Concurrent Retirement and Disability Pay (CRDP) program. The CRDP program has a ten-year phase-in schedule that began in 2004; however, the offset is already fully eliminated for members whose disabilities are rated total or make the individual unemployable. Members whose disability meets certain combat-related

criteria can elect to receive payments against the offset under the Combat Related Special Compensation (CRSC) program. Under CRSC, members are not subject to a phase-in schedule, are not required to have at least 20 years of service (per P.L. 110-181), and are not required to have at least a 50% VA disability rating. Although CRSC amounts are calculated based on retired pay lost due to offset and are paid from the Military Retirement Fund, CRSC is not technically considered retired pay. CRSC payments are tax exempt. A member may not participate in both the CRDP and CRSC programs simultaneously, but may change from one to the other during an annual "open season."

For members who elect lump sums under BRS and qualify for VA disability compensation: (1) if the member is not eligible for CRDP or CRSC, the VA will withhold disability payments until the amount withheld equals the lump sum amount, after which VA disability payments, as an offset to retired pay, may be paid; (2) if the member is eligible for CRDP, no withholding of VA disability payments is required, and the retiree may receive VA disability compensation and retired pay without offset; and (3) if eligible for CRSC, the procedures for withholding VA disability payments are more complicated and relate to the portion of the total VA entitlement considered combat-related.

VA benefits also offset (or reduce) survivor pay through the Dependency and Indemnity Compensation (DIC) program. DIC benefits are payable to survivors of veterans who die from Service-connected causes. Although SBP annuities are generally reduced by the amount of any DIC benefit, all SBP premiums relating to the reduction in benefits are returned to the survivor. The FY 2008 NDAA enacted, and subsequent legislation extended, a temporary Special Survivor Indemnity Allowance (SSIA) that pays a monthly amount (\$50 in FY 2009 grading up to \$310 in FY 2017 and FY 2018) to survivors with a DIC offset. Prior to NDAA 2018 the authority for the allowance ended in May 2018; the NDAA 2018 made it a permanent benefit with annual COLA increases. As a result of the "Sharp Case" ruling, the SBP benefit of widows with entitlement to both DIC and SBP who remarry after age 57 is not reduced by DIC benefits received.

As of September 2016, there were 529,000 CRDP members and 92,000 CRSC members. These members were paid an additional monthly amount of \$844 million and \$89 million, respectively. As of September 2016, there were 64,000 survivors receiving annualized SSIA benefits of \$208 million.

Interrelationship with Other Federal Service

For military retirement purposes, no credit is given for other federal service, except where cross-service transferability is allowed. Military service is generally creditable toward the federal civilian retirement systems if military retired pay is waived. However, a deposit (equal to a percentage of post-1956 basic pay) must be made to the Civil Service Retirement and Disability Fund in order to receive credit. Military service is not generally creditable under both systems (but is for reservists and certain disability retirees). Military retirees may qualify separately for Civil Service retirement and receive concurrent pay from both systems.

Relationship of Retired Pay to Military Compensation

Basic pay is the only element of military compensation upon which nondisability retired pay is based and entitlement is determined. Basic pay is the principal element of military

compensation that all members receive, but it is not representative of salary levels in the public and private sectors for comparative purposes. Reasonable comparisons can be made to regular military compensation (RMC). RMC is the sum of (1) basic pay, (2) the housing allowance, which varies by grade, location, and dependency status, (3) the subsistence allowance and, (4) the tax advantages accruing to the housing and subsistence allowances because they are not subject to federal income tax. Basic pay represents approximately 69 percent of RMC for all retirement eligible members. For the 20-year retiree, basic pay is approximately 67 percent of RMC. Consequently, a member retired with 20-years of service and entitled to 50 percent of basic pay, only receives 33 percent of RMC. Further, such 20-year retirees (except for those who first entered service prior to September 8, 1980) receive a percentage (50 percent, or 40 percent for those under CSB/Redux or BRS) of their high 36-month average of basic pay, typically less than final basic pay. For a 30-year retiree, basic pay is approximately 72 percent of RMC and such members if entitled to 75 percent of basic pay, would only receive 54 percent of RMC. Again, note that most members currently retiring with 30 years will actually receive a percentage (75 percent, or 60 percent for those under BRS) of their high 36-month average, rather than of their final basic pay. P.L. 109-364 allows certain members, who retire on or after January 1, 2007 with sufficient years of service (greater than 37.5 years under BRS and 30 years under the other benefit formulas) to retire with entitlements exceeding 75 percent of their high 36-month average of basic pay. These relationships should be considered when military retired pay is compared to compensation under other retirement systems.

Social Security Benefits

Many military members and their families receive monthly benefits indexed to the CPI from Social Security. As full participants in the Social Security system, military personnel are in general entitled to the same benefits and are subject to the same eligibility criteria and rules as other employees. Details concerning the benefits are covered in other publications.

Beginning in 1946, Congress enacted a series of amendments to the Social Security Act that extended some benefits to military personnel and their survivors. These “gratuitous” benefits were reimbursed out of the general fund of the U.S. Treasury. The Servicemen’s and Veterans’ Survivor Benefits Act brought members of the military into the contributory Social Security system effective January 1, 1957.

For the Old Age, Survivors, and Disability Insurance (OASDI) program, military members must contribute the employee portion of the OASDI payroll tax, with the federal government contributing the matching employer contribution. Only the basic pay of a military member constitutes wages for Social Security purposes. One feature of OASDI unique to military personnel grants a noncontributory wage credit of (i) \$300 for each quarter between 1956 and 1978 in which such personnel received military wages and (ii) up to \$1,200 per year after 1977 (\$100 of credit for each \$300 of wages up to a maximum credit of \$1,200). The purpose of this credit is to take into account elements of compensation such as quarters and subsistence not included in wages for Social Security benefit calculation purposes. Under the 1983 Social Security amendments, the cost of the additional benefits resulting from the noncontributory wage credits for past service was met by a lump sum payment from general revenues, while the cost for future service will be met by payment of combined employer-employee tax on such credits as the service occurs. Payments for these wage credits ended in 2002.

Members of the military are also required to pay the Hospital Insurance (HI) payroll tax, with the federal government contributing the matching employer contribution. Medicare eligibility occurs at age 65, or earlier if the employee is disabled.

Performance Measures

During FY 2016, the Fund made monthly disbursements to approximately 2.3 million retirees and survivors.

There are many ways to measure the funding progress and performance of a pension plan. Table A-1 shows a few common measures, specifically 1) Percent Funded, 2) Asset-to-Annuitant Liability Ratio, and 3) Effective Fund Yield. The table footnotes show the associated derivation of each performance measure. Note that for a variety of reasons including investment and other constraints, the Fund's results for these "performance measures" cannot be reasonably compared to many other pension systems.

TABLE A-1
MILITARY RETIREMENT FUND PERFORMANCE MEASURES
(\$ in billions)

End of Fiscal Year	Accrued Liability (1)	Assets (2)	Annuitant Liability On Roll (3)	Unfunded Accrued Liability (4)	Percent Funded (5)	Asset-to-Annuitant Liability Ratio (6)	Fund Effective Yield (7)
1984	\$528.7	\$0	\$310.0	\$528.7	0.0%	---	---
1985	551.5	11.8	322.7	539.7	2.1	3.7%	14.3%
1986	566.2	24.6	321.4	541.6	4.3	7.7	11.8
1987	585.2	38.9	326.3	546.3	6.6	11.9	11.0
1988	551.8	53.4	329.4	498.4	9.7	16.2	10.5
1989	580.3	67.6	345.8	512.7	11.6	19.5	10.1
1990	612.9	80.4	367.5	532.5	13.1	21.9	9.9
1991	604.2	93.7	372.9	510.5	15.5	25.1	9.8
1992	619.0	106.1	392.7	512.9	17.1	27.0	9.5
1993	629.9	115.9	409.3	514.0	18.4	28.3	9.1
1994	615.6	124.2	409.9	491.4	20.2	30.3	8.7
1995	631.8	131.0	431.3	500.8	20.7	30.4	8.6
1996	625.8	135.3	432.2	490.5	21.6	31.3	8.6
1997	639.2	143.3	444.9	495.9	22.4	32.2	8.5
1998	649.4	149.9	452.9	499.5	23.1	33.1	8.4
1999	657.2	156.0	442.7	501.2	23.7	35.2	8.1
2000	682.6	162.7	459.8	519.9	23.8	35.4	8.0
2001	708.8	169.2	487.3	539.6	23.9	34.7	8.0
2002	721.6	176.5	467.2	545.1	24.5	37.8	7.2
2003	810.9	182.6	519.8	628.3	22.5	35.1	5.5
2004	854.1	188.0	556.3	666.1	22.0	33.8	5.4
2005	900.6	197.9	592.2	702.7	22.0	33.4	5.5
2006	973.7	208.4	636.3	765.3	21.4	32.8	5.9
2007	1,042.3	218.2	677.3	824.1	20.9	32.2	4.7
2008	1,157.3	253.1	750.6	904.2	21.9	33.7	6.2
2009	1,186.9	278.4	751.8	908.5	23.5	37.0	1.0
2010	1,225.2	321.7	768.0	903.5	26.3	41.9	3.2
2011	1,273.3	376.1	807.3	897.2	29.5	46.6	4.9
2012	1,361.5	428.0	854.6	933.5	31.4	50.1	2.9
2013	1,368.6	483.5	869.5	885.1	35.3	55.6	3.1
2014	1,412.8	545.0	911.3	867.8	38.6	59.8	3.2
2015	1,417.0	600.6	919.2	816.4	42.4	65.3	1.8
2016	1,406.9	664.4	914.1	742.6	47.2	72.7	2.3

NOTES:

- (1) From Table 6A, Item 3 in main text.
- (2) From Table 6A, Item 4 in main text.
- (3) From Table 6A, Item 1.a in main text.
- (4) = (1) - (2)
- (5) = (2) / (1) x 100
- (6) = (2) / (3) x 100
- (7) Discussed in Appendix D.

APPENDIX B

THE MILITARY RETIREMENT SYSTEM: HISTORY

	<u>Page</u>
History of Retired Pay – Active Duty and Disability	51
History of Retired Pay – Reserve Duty	56
Adjustments – Cost-of-Living	56
Adjustments – Basic Pay	58
Funding of Retirement Benefits.....	59
Table B-1: Military Retirement System Properties	61
Table B-2: Military Retirement System Multipliers.....	61
Table B-3: Military Retired Pay Cost-of-Living Increases (1958 – Present).....	62
Table B-4: Military Basic Pay Scale Increases (1958 – Present).....	63

THE MILITARY RETIREMENT SYSTEM: HISTORY¹

The history of the Uniformed Services Military Retirement System in the United States extends back to the early days of the country. The history detailed in this appendix provides the user with a useful context when evaluating the status of the current system. The extensive legislative history has been an interplay of the separate retired pay plan motivations. When available, the Public Law (P.L.) reference is provided. Over the course of its history, the Military Retirement System has been scrutinized by numerous committees, commissions, and groups. Since the end of World War II, a number of military compensation studies have been conducted under the general sponsorship of the Department of Defense, the President, and Congress, including: Hook, Strauss, Cordiner, Gorham/Randall, Quadrennial Review of Military Compensation, Gates, Military Compensation and Retirement Modernization Commission, etc. These studies continue to the present day – see *Blended Retirement System* (BRS). Much discussion typically occurs as a result of the study findings. It should be noted that while there may be superficial resemblance between the Military Retirement System (MRS) and other retirement systems, there exist substantial differences, including between the MRS and the retirement plan of federal civil servants. Of significance, MRS retired members are subject to active duty recall.

History of Retired Pay – Active Duty and Disability

The legislative history of the nondisability (regular service) and disability retired pay have been a collaborative effort of lawmakers. The two programs are highly correlated given the possible end states of a regular service career. Before discussing the regular service retired pay history, below are the motivations driving the two distinct retirement types:

- 1) The principal motivations guiding the nondisability retired pay evolution of the Military Retirement System have been to ensure that (1) continued service in the armed forces is competitive with the alternatives; (2) promotion opportunities are kept open for young and able members; (3) some measure of economic security is made available to members after retirement from a military career; (4) a pool of experienced personnel is available for recall in times of war or national emergency. Much of the history to be discussed focuses on officers. The legislative history for enlisted personnel is much shorter. The objectives can be achieved for the enlisted force by an administrative policy of “judicious non-acceptance of reenlistments.”

¹ Much of the information in this appendix can be found in *Military Compensation Background Papers*, Seventh Edition (November 2011), Department of Defense – Under Secretary of Defense for Personnel and Readiness. For a more in-depth discussion of the early history of military pensions, refer to *History of Military Pension Legislation in the United States*, William H. Glasson, New York, N.Y. 1900, Digitized by Google.

2) The guiding motivation behind disability retired pay is to authorize continuing payments to members separated from active service due to physical disability causes in service for their country. Members should not be left to cope with the effects of these disabilities on their own. A measure of economic security will be provided for duties exposing members to wartime hazards and career military service. Early reports showed rationale for separation other than physical disability as well: “An officer may possess a strong mind and a robust frame, yet, if his moral perception of right or wrong be so blunted and debased as to render him unreliable, he could hardly be ranked as the capable officer.”

Provisions for the maintenance of disabled military members date to colonial days. Not surprisingly, the English pension law is a precursor to the American colonial pension legislation. The pilgrims at Plymouth provided in 1636 that any man sent forth as a soldier and returned maimed should be maintained by the colony during his life. In order to obtain enlistments in military expeditions against the Indians the colonies promised to care for those who were disabled and had no means of earning a livelihood as well as providing aid for the indigent families of those fallen in conflict. Some of these precedents were continued in the first national pension law of August 26, 1776, which promised half pay for life, or during disability, to the disabled. After the Revolutionary War, a full disability pension for a noncommissioned officer or private soldier was fixed at five dollars per month, with commissioned officers being paid at one-half of their monthly pay. Initially, the States administered disability pensions. However, in 1790, the Secretary of War became the principal pension administrator. In 1805, disability pensions were extended to those who received wounds in military service who subsequently became disabled.

Pensions based on service by itself were more controversial. Payments of half pay for life had been promised in 1780 by Congress for officers who served to the end of the War. However, the resulting claims were initially settled for less than full value and with a considerable amount of controversy. With the number of veterans declining and the treasury increasing, Congress became more generous. In 1818, an act was passed providing relief to Revolutionary War veterans in need. By 1832, it became full pay for life, regardless of need. In 1836, widows were included. This same pattern was followed for Service pensions for subsequent wars, with each war treated separately.

In 1849, the Bureau of Pensions was transferred to the newly established Department of the Interior, where it was to remain until the Veterans Administration (VA) was created in 1930. In 1855, authorization was given for involuntary separation with partial pay of Navy officers adjudged incapable, but not necessarily disabled. The outbreak of the Civil War brought further changes when it became necessary to retire older officers no longer fit for field duty. The vehicle was the act of August 3, 1861, the first major nondisability retirement act, which provided for the voluntary retirement of regular officers of all branches of Service after 40 years of duty, at the discretion of the President. Subsequent acts in 1861 and 1862 provided for involuntary retirements for age or years of service.

The 1861 act also established a military disability retirement system that covered the regular officers of all branches of Service. Army and Marine Corps officers were to be paid an amount equal to their “pay proper” plus four rations. Navy officers were paid slightly more. The act of March 2, 1867, authorized disability retirement for enlisted personnel of the Navy and Marine Corps.

Congress established two enduring retirement principles while reducing forces to a peacetime basis in 1870. The first permitted voluntary retirement of officers after 30 years of service upon approval by the President, and the second eliminated the ration commutation by fixing retired pay at 75 percent of the officer’s pay. The 75 percent applied to Army and Marine Corps officers, both disabled and nondisabled, and was extended to the Navy in 1873.

In 1885, the first nondisability retirement law for Army and Marine Corps enlistees was enacted. Paralleling the officer retirement laws, it provided for voluntary retirement at 30 years of service with 75 percent of pay of the grade in which retired, plus an allowance in lieu of fuel, quarters, and food. The law was extended to the Navy in 1899.

By the middle of World War I, the limit on the number of officers who could be placed on the retired list was causing stagnating promotion in the Navy. To alleviate the problem, Congress established selection boards for promotion to Rear Admiral, Captain, and Commanders on the basis of age-in-grade in 1916 (P.L. 64-241). Service-in-grade replaced age-in-grade in 1926 (P.L. 69-413). Those officers not selected for promotion were retired at 2 ½ percent of pay per year of service, not to exceed 75 percent of pay. This was the first recognition of length of service as well as grade in the computation of retired pay.

The act of 1916 (P.L. 64-241) also created the Fleet Naval Reserve, to provide a pool of experienced personnel who could be recalled to active duty in an emergency. While technically different than retirement, the practical effect was that it was possible for enlistees of the Navy and Marine Corps to “retire” with as little as 16 years of service (raised to 20 in 1925) and become entitled to “retainer pay.”

By 1938 (P.L. 75-706), the Navy was again experiencing stagnating promotion caused by the large influx of officers throughout World War I. Almost all of these officers were in the same age and years of service groups. To remedy the situation, Congress extended the selection board process to all grades above Lieutenant (junior grade); set limits on years of service for Lieutenant Commanders through Captains; and provided for voluntary retirement at 20 years of service at the discretion of the President.

Following World War II, allegations of unfairness, inequity, and inefficiency in the existing disability retirement system became extensive. A new system for disability retirement was created by the Career Compensation Act of 1949 (P.L. 81-351). Under this system, all disabilities had to be rated under the standard schedule of rating disabilities in use by the VA, and the resultant ratings became a factor in disability retired pay entitlement and taxability. The new system covered officer and enlisted personnel of both the regular and reserve components, and it authorized temporary as well as permanent disability retirements. The disability

retirement system remains basically unchanged from the way it was enacted in 1949. Much legislation has been passed recently, as well as additional process improvements, in an attempt to modernize the disability system.

Meanwhile, the Officer Personnel Act of 1947 (P.L. 80-381) brought the Army and Air Force under a selection process similar to the Navy system. It also provided that those officers who failed promotion and were not eligible to retire would receive severance pay of two months per year of service, but not exceeding two years' pay.

Standardized nondisability retirement laws for all Services were brought about by the Army and Air Force Vitalization and Retirement Equalization Act of 1948 (P.L. 80-810). The act established 20 years as the minimum requirement for voluntary retirement, thereby placing the Army and Air Force on a par with the Navy. It also provided for the removal of substandard officers with severance pay equal to one month's pay per year of service, but not exceeding one year's pay. This law resulted, for the first time in history, in uniform voluntary retirement authority among the officers of all branches of service.

P.L. 96-513 changed the retired pay formula for persons who first became a service member after September 7, 1980. For this group, the 2 ½ percent times years of service is multiplied by the average of the highest 36 months of pay, rather than by final pay. This is sometimes referred to as the High-3 (HI-3) formula, where the highest 36 months of pay generally occurs within the highest 3 years of average annual pay. This first major change to retired pay computation since 1948 was endorsed in findings by various committees and commissions.

P.L. 99-348, enacted July 1, 1986, made extensive changes in retired pay formula for persons entering service after July 31, 1986. These persons are credited with 2 percent for each of the first twenty years of service, 3 ½ percent for each of the next 10 years, and 2 ½ percent thereafter. At the member's age 62, the annuity is recomputed to equal the annuity that would have been in effect if a level 2 ½ percent had been used for each year of service. In addition, the cost-of-living adjustment for this group no longer keeps up with inflation, as described later. This is referred to as the Redux benefit formula.

P.L. 106-65, enacted October 1, 1999, enhanced benefits for military members previously covered by the Redux benefit formula (those who entered service on or after August 1, 1986) by converting these members to the HI-3 formula. At the 15 year-of-service mark, these (full-time) members now have the choice of: (1) remaining in HI-3, or (2) electing the Career Status Bonus, which is not paid out of the Military Retirement Fund, and converting to the Redux benefit formula. Those who elect the bonus must commit to remaining continuously in service until completing 20 years or forfeit a portion of the \$30,000. Part-time reservists previously covered by Redux do not have the option of electing the bonus, and so remain under the HI-3 benefit formula. This is referred to as the Career Status Bonus (CSB)/Redux benefit formula. The four different retirement systems currently in effect for members of the uniformed services are summarized in Table B-1.

P.L. 108-136, enacted November 23, 2003, provides a phase-out of the offset to military retired pay due to receipt of VA disability compensation for members whose combined disability rating is 50% or greater, effective January 1, 2004. Members retired under disability provisions must have at least 20 years of service. P.L. 108-136 also expands eligibility under the Combat Related Special Compensation program to include qualified retirees at any combined percentage rating for certain combat-related disabilities compensated by the VA. Through 2003, retired pay earned from DoD for military service was offset by any payment received from Veterans Affairs for a VA-rated disability. These VA benefits were in place of or in combination with DoD retired pay but were not fully additive. Thus the law is commonly referred to as Concurrent Receipt.

Subsequent to P.L. 108-136, a series of legislation has been enacted that increasingly reduces or eliminates the offset to military retired pay due to receipt of VA disability compensation. This is described further in Appendix A.

P.L. 109-364, enacted October 17, 2006, eliminated the 75 percent multiplier cap for nondisability retirements with sufficient years of service for members retiring after December 31, 2006, and P.L. 111-383, enacted January 7, 2011, removed the cap for disability retirements after the date of enactment. A member can now retire with a retired pay multiplier greater than 100 percent if their years of service are high enough. The various percentage multipliers by year of service and benefit system are shown in Table B-2. P.L. 109-364 also removed a reduction to the rate of basic pay used in the computation of retired pay for general and flag officers (those with pay grades of O-7 through O-10) retiring after September 30, 2006.

P.L. 113-67 (commonly referred to as the *Bipartisan Budget Act of 2013, or BBA 2013*), enacted December 26, 2013, reduces the annual cost-of-living adjustment (COLA) by one percent (e.g., 2% instead of 3%) for “working-age” (i.e., members younger than age 62), non-disabled military retirees, with restoral at age 62 and full COLA thereafter. The changes apply only to those entering military service on or after January 1, 2014 (although those entering on or after that date who elect CSB/Redux are covered by the COLA provisions for CSB/Redux electors). Subsequent legislation exempts medically disabled retirees and their survivors, as well as survivors of members who die on active duty, from the COLA reduction enacted in P.L. 113-67. P.L. 113-291 amended the effective date of the legislative provision, applying only to those entering military service on or after January 1, 2016.

P.L. 114-92 established the “Blended Retirement System (BRS),” a major reform to military compensation. The BRS lowers the nondisabled retired pay multiplier from 2.50% per year to 2.00% and allows for multiple retired pay distribution options. The BRS provides members (except for those who retire on disability) the choice of receiving a portion (either 25 percent or 50 percent) of their retired pay entitlement from when the member is eligible to begin receiving retired pay to normal Social Security retirement age (usually 67) as a discounted lump sum instead of an annuity. The newly established compensation system is supplemented with a Thrift Savings Plan (TSP) account government match and a mandatory mid-career continuation bonus. The changes apply to all members first entering service after December 31, 2017. Members with fewer than 12 completed years of service as of December 31, 2017, have the

option to fully participate in the BRS via an irrevocable election during a one year (calendar year 2018) open season. Additionally, P.L. 114-92 sunsets CSB/Redux and repeals all aspects of BBA 2013, as amended.

History of Retired Pay – Reserve Duty

The motivation behind the reserve duty retirement (non-regular service) is to establish a nondisability retirement system to authorize retired pay for service in the reserve components. This provides an incentive for qualified personnel to retain membership and continue training in these components, providing a pool of skilled, trained, and readily available manpower to assist active duty forces in times of national emergency.

Title III of the Army and Air Force Vitalization and Retirement Equalization Act of 1948 (P.L. 80-810) created a nondisability retirement program for reserve personnel. The above motivation was explained as part of the House Report accompanying the legislation. The reserve retirement system remained basically unchanged from the original 1948 legislation until 1993. Those modifications made over that time were more corrective than substantive.

The National Defense Authorization Act for Fiscal Year 1993 (P.L. 102-484) adopted two provisions intended to induce Selected Reserves members to apply for transfer to the retired reserve through temporary special retirement mechanisms. Subsequent legislation authorizes further downsizing of the military during the mid-1990's, which was extended until October 1, 2001.

P.L. 107-314 permanently reduced the required reserve service eligibility years for retired pay from eight years to six years. This law also authorized an additional 10 percent in retired pay, not to exceed 75 percent, for enlisted members (active or reserve) credited with extraordinary heroism in the line of duty during their career.

P.L. 110-181, enacted January 28, 2008, reduces the retirement age for a reserve retirement below age 60 by three months for each aggregate of 90 days of certain active service performed (after the date of enactment) within any two (2) consecutive fiscal years with a limit of 10 years. Eligibility for subsidized retiree health benefits remains at age 60 even if the eligibility age for retired pay is reduced.

P.L. 114-92, BRS, described in the previous section, also applies to Reserves with some differences, e.g., the eligibility threshold for opting in to BRS for Reserves is based on creditable points.

Adjustments – Cost-of-Living

Cost-of-living adjustments provide a mechanism for adjusting retired pay entitlements to compensate for the effects of inflation. The ideal system is one that protects the initial value of pay to insure that members who retire from the military do not have the purchasing power of their pay eroded by inflation.

Prior to 1958, retired pay was generally increased in direct proportion to changes in active duty pay. The practice was discontinued with the act of May 1958 (P.L. 85-422), when it was realized that a single 6 percent cost-of-living increase would cost only \$35 million, as opposed to \$65 million for linking the retired pay to active duty pay. The 6 percent approximated the increase in the cost of living since 1955 when retired pay was last increased. In 1963, a permanent system of increasing retired pay (P.L. 88-132) based on a formula geared to increases in the cost-of-living was adopted. In 1965, the adjustment mechanism was modified slightly (P.L. 89-132). This system granted cost-of-living increases whenever the Consumer Price Index (CPI) went up at least 3 percent and remained up for three months. The benefit increase was equal to the percentage rise in the CPI. In 1969 (P.L. 91-179), an additional 1 percent was added to compensate for the fact that five months elapsed between the time that the index increased 3 percent and the time that benefits increased.

Effective March 1977, cost-of-living adjustments (COLAs) were scheduled to occur every six months, on March 1 and September 1. This would be reflected in checks issued those months and the additional 1 percent was eliminated (P.L. 94-440). The cost-of-living increase, effective March 1, was computed by calculating the percentage increase (adjusted to the nearest tenth of a percent) in the CPI from the previous June to the previous December. Similarly, the cost-of-living increase effective September 1 was obtained by calculating the percentage increase in the June CPI over the CPI from the previous December.

In August 1981 (P.L. 97-35), once-a-year cost-of-living increases were implemented by eliminating the September increase. Full annual cost-of-living increases were given in March of each year based on the percentage increase in the CPI between the two previous Decembers.

In August 1982, P.L. 97-253 created a temporary deviation to the calculation and timing of the cost-of-living increase. Consequently, in FY 1983, the increase was delayed until April and the full increase of 3.9 percent was given only to survivors, disabled persons and nondisabled persons over age 61. Nondisabled retirees under age 62 received 3.3 percent instead of 3.9 percent.

P.L. 98-270, enacted in April 1984, eliminated the FY 1984 increase and modified the permanent law. Under the modified system, the COLA equals the percentage increase in the average of the CPIs for July, August, and September over the averaged indexes for the same three months of the prior year. These increases become effective for entitlements earned in December. P.L. 98-369 directed that entitlements for a particular month should be paid at the beginning of the subsequent month rather than at the end of the month of entitlement and became effective with the December 1984 adjustment. P.L. 111-383 required amounts of retired and retainer pay (excluding survivor annuitant pay and Combat Related Special Compensation) due a retired member of the uniformed services shall be paid on the first day of each month beginning after the month in which the right to such pay accrues; unless the first falls on a non-business day, then the payment is made on the preceding business day.

P.L. 99-348, enacted July 1, 1986, changed the cost-of-living increase for members entering the service after July 31, 1986. Their retiree and survivor benefits are increased

annually by the full cost-of-living adjustment minus 1 percent (except if the full adjustment is less than or equal to 1 percent). A one-time catch-up is given on the first day of the month after the *retiree's* 62nd birthday. At this time, the retiree benefit (or survivor benefit if the retiree is deceased) is increased to the amount that would have been payable had full adjustments been made. Annual partial increases continue after this catch-up. For persons entering the service prior to August 1, 1986, full COLAs are still applied to the retiree and survivor benefits. P.L. 106-65 called for full COLAs to be applied to the retiree and survivor benefits of post-July 31, 1986, entrants who decline the CSB/Redux and retire under the HI-3 benefit formula. Retired pay cost-of-living increases from 1958 to the present time are shown in Table B-3. Additional discussion regarding cost-of-living increases can be found in Appendix D.

P.L. 113-67 (*Bipartisan Budget Act of 2013, or BBA 2013*) reduces the annual COLA by one percent (e.g., 2% instead of 3%) for “working-age” (i.e., members younger than age 62), non-disabled military retirees, with restoral at age 62 and full COLA thereafter. The changes apply only to those entering military service on or after January 1, 2014 (although those entering on or after that date who elect CSB/Redux are covered by the COLA provisions for CSB/Redux electors described in the previous paragraph). Subsequent legislation exempts medically disabled retirees and their survivors, as well as survivors of members who die on active duty, from the COLA reduction enacted in P.L. 113-67. P.L. 113-291 amended the effective date of the legislative provision, applying only to those entering military service on or after January 1, 2016. As stated earlier, P.L. 114-92 repeals the COLA changes enacted by BBA 2013, as amended.

Adjustments – Basic Pay

Basic pay scale increases are analogous to retired pay cost-of-living increases for the current active duty and drilling reserve population. These increases are typically credited and paid at the beginning of the calendar year. The annual basic pay scale increases are designed to establish a crude comparability with the private sector and American economy in general.

The Act of 1790 provided funds for “militia employed in the service of the United States” payable to “the troops of the United States.” Although the components of the pay system, basic pay plus allowances, have changed throughout its history, the system itself has been remarkably enduring. However, the proliferation of special allowances has caused confusion and complexity surrounding compensation.

The Career Compensation Act of 1949 (P.L. 81-351) revamped the military compensation structure to provide pay that was equitable to personnel yet responsive to the needs of the United States in attracting and retaining the necessary personnel following World War II. The Uniformed Services Pay Act of 1958 (P.L. 85-422) was the beginning of regular basic pay adjustments intended to make personnel pay more competitive.

In the Act of 1967 (P.L. 90-207) Congress adopted new basic pay rate adjustment mechanisms. The adjustments were to be a “comparable increase” to the general schedule compensation for federal classified employees (Civil Service employees). This legislation

resulted in a more systematic procedure for increasing basic pay rates as opposed to the prior methods which were solely dependent on Congressional discretion. The military-civilian pay adjustment remains loosely linked through present day.

The Department of Defense Authorization Act of 1981 (P.L. 96-342) granted personnel substantial basic pay adjustments with the intent of further convergence between military and civilian wages. The legislation also allowed the President greater flexibility in adjusting military compensation by allocating greater increases to “career” members. In the years that followed, Congress expressed dissatisfaction with the pay adjustment mechanisms shown in the military-civilian link. The Senate proposed linking military pay to the Employment Cost Index (ECI) as a method to correct the military-civilian pay inequity. This discussion continued for some years.

Beginning in 2000 (P.L. 106-65), legislative change responded to the military-civilian pay inequity by tying basic pay increases to the ECI plus an additional 0.5 percent for the five years that follow (through FY 2006). After FY 2006, the increases are tied directly to ECI; however, covenants are embedded within the law which gives the President the authority to propose an alternate adjustment. Subsequent legislation used targeted basic pay scale increases to be granted for specific pay grades and ranks in order to meet the necessary retention and recruitment needs. Basic pay scale increases from 1958 to the present time are shown in Table B-4. Additional discussion regarding basic pay scale increases can be found in Appendix D.

Funding of Retirement Benefits

Prior to 1935, the Navy had a pension fund which provided payments to persons retired for disability whenever there was a sufficient amount in the fund. The income to the fund consisted of the government’s share of the proceeds from the sale of enemy or pirate ships captured by the Navy, and from interest received on fund investments. This fund was abolished in 1935, and the Military Retirement System moved to an unfunded or “pay-as-you-go” basis. P.L. 98-94 (currently Chapter 74 of Title 10, U.S.C.), signed in September 1983, established a Military Retirement Fund starting October 1, 1984. Under this accrual accounting system, funds are allocated for the individual services via the Department of Defense annually by Congress. These funds are transferred to the Military Retirement Fund in an amount sufficient, along with the Treasury contributions resulting from P.L. 108-136 and interest earnings, to cover the expected retirement costs associated with the current active duty force. This system helps to apprise all stakeholders of the total costs of manpower decisions made each year.

As explained by Congress (House Report No. 98-107 – Committee on Armed Services – p. 225), the reasons for adoption of the Department of Defense Military Retirement Fund were as follows:

“Most retirement plans in the private sector are funded, either partially or fully, and the trend--as a result of the Employee Retirement and Income Security Act (ERISA)--is toward full funding. Security of a retirement plan, *i.e.*, the probability that promised benefits will be paid, is generally related to the method of funding. Full funding provides greater security than partial funding.

Of course, the security of payments from the Federal government is not generally related to the method of funding. From the Federal government's perspective, the issue of funding is primarily a matter of timing. Should funds be raised by taxing and borrowing when the obligation becomes due, or should funds be set aside through taxing and borrowing when the obligation is incurred?"

This funding law stated that DoD will make normal cost payments into the Fund and the Treasury Department will make payments from general revenues to amortize the unfunded liability. P.L. 99-661, enacted in November 1986, mandated that two separate normal cost percentages (NCPs) be used to compute the normal cost payment of the Military Retirement System. One NCP is for active-duty personnel and full-time reservists and the second NCP is for drilling reservists (part-time). These normal cost payments are designed to be sufficient to pay for the future retirement benefits for a cohort of new entrants. The unfunded liability exists primarily because such payments were not made in the past, although deviations of actual compared to expected experience increase or decrease the unfunded liability over time.

P.L. 108-136, enacted November 2003, required the Department of Treasury to pay the normal cost arising from the increased benefits due to Concurrent Receipt at the beginning of each fiscal year. Beginning with FY 2005, Treasury includes the annual normal cost payment along with the unfunded liability payment in the October 1st contribution.

The original funding law also established an independent three-member DoD Retirement Board of Actuaries, appointed by the President (changed to the Secretary of Defense as part of the 2008 National Defense Authorization Act (P.L. 110-181)). House Report No. 98-107 – Committee on Armed Services – p. 227, states:

“Care must be exercised to minimize the ability to manipulate the interest rate. The committee recommends that an independent Board of Actuaries be established and that they, alone, be charged with the responsibility for determining the interest rate and other actuarial assumptions in accordance with generally accepted actuarial principles and practices.”

The Board is required to approve methods and assumptions for determining the normal cost and unfunded liability; to review valuations of the Military Retirement System; to determine the method of amortizing unfunded liabilities; to annually report to the Secretary of Defense; and to report to the President and Congress on the status of the Fund not less than every four years. P.L. 110-181 renamed the Board the “DoD Board of Actuaries,” and added oversight of other funds deemed to be necessary by the Secretary of Defense.

TABLE B-1

MILITARY RETIREMENT SYSTEM PROPERTIES
(FOR NONDISABILITY RETIREMENT FROM ACTIVE DUTY)

Benefit System	Final Pay	High-3 (HI-3)	Career Status Bonus (CSB)/Redux	Blended Retirement System (BRS)
Applies to Members Who Joined a Uniformed Service:	<ul style="list-style-type: none"> before September 8, 1980 	<ul style="list-style-type: none"> on or after September 8, 1980 and before August 1, 1986 on or after August 1, 1986 and before January 1, 2003 who do not elect to accept the Career Status Bonus (CSB) at the 15-year anniversary on or after January 1, 2003 and before January 1, 2006 on or after January 1, 2006 and before January 1, 2018 who do not elect to participate in BRS 	<ul style="list-style-type: none"> on or after August 1, 1986 and before January 1, 2003 who elect to accept the Career Status Bonus (CSB) with additional 5-year service obligation 	<ul style="list-style-type: none"> on or after January 1, 2018 on or after January 1, 2006 and before January 1, 2018 who elect to participate in BRS
Retired Pay Computation Basis	Final basic pay rate	Highest 36 months of basic pay rate	Highest 36 months of basic pay rate	Highest 36 months of basic pay rate
Multiplier	2.5% per year of service	2.5% per year of service	2.5% per year of service less 1% for each year of service less than 30 (restored at age 62)	2.0% per year of service
Cost-of-Living Adjustment Mechanism	Full CPI-W	Full CPI-W	Full CPI-W minus 1% (one-time catch-up at age 62)	Full CPI-W
Additional Benefit(s)	---	---	<ul style="list-style-type: none"> \$30,000 Career Status Bonus (CSB) payable at 15-year anniversary upon assumption of 5-year obligation to remain on continuous active duty 	<ul style="list-style-type: none"> Choice of receiving a portion (either 25% or 50%) of the retired pay entitlement from retirement age to normal Social Security retirement age (usually 67) as a discounted lump sum instead of an annuity Automatic and matching Government contributions to Thrift Savings Plan (TSP) account Mandatory mid-career continuation bonus if member agrees to serve additional time

Notes: - Due to breaks in service and technical differences in the definition of qualifying years of service under different benefit systems, in some cases above it's not possible to precisely define which benefit systems cover the appropriate members based solely on dates of entry. The above table does not cover every possibility.
- For additional up-to-date information, refer to the DoD Office of Military Compensation website (<http://militarypay.defense.gov>).

TABLE B-2

MILITARY RETIREMENT SYSTEM MULTIPLIERS
(FOR NONDISABILITY RETIREMENT FROM ACTIVE DUTY)

Years of Service	Final Pay/HI-3 Multiplier	CSB/Redux Multiplier		BRS Multiplier
		Before Age 62	After Age 62	
20	50.0 %	40.0 %	50.0 %	40.0 %
21	52.5	43.5	52.5	42.0
22	55.0	47.0	55.0	44.0
23	57.5	50.5	57.5	46.0
24	60.0	54.0	60.0	48.0
25	62.5	57.5	62.5	50.0
26	65.0	61.0	65.0	52.0
27	67.5	64.5	67.5	54.0
28	70.0	68.0	70.0	56.0
29	72.5	71.5	72.5	58.0
30	75.0	75.0	75.0	60.0
31	77.5	77.5	77.5	62.0
32	80.0	80.0	80.0	64.0
33	82.5	82.5	82.5	66.0
34	85.0	85.0	85.0	68.0
35	87.5	87.5	87.5	70.0
36	90.0	90.0	90.0	72.0
37	92.5	92.5	92.5	74.0
38	95.0	95.0	95.0	76.0
39	97.5	97.5	97.5	78.0
40	100.0	100.0	100.0	80.0
41	102.5	102.5	102.5	82.0
42	105.0	105.0	105.0	84.0
43	107.5	107.5	107.5	86.0
44	110.0	110.0	110.0	88.0
45	112.5	112.5	112.5	90.0
46	115.0	115.0	115.0	92.0
47	117.5	117.5	117.5	94.0
48	120.0	120.0	120.0	96.0
49	122.5	122.5	122.5	98.0
50	125.0	125.0	125.0	100.0
51	127.5	127.5	127.5	102.0
:	:	:	:	:

TABLE B-3
MILITARY RETIRED PAY COST-OF-LIVING INCREASES
(JUNE 1958 TO PRESENT)

<u>Date of Increase</u>	<u>Percentage Increase</u>	<u>Cumulative % From Date of Increase</u>
6/1/58	6.0%	791.3%
10/1/63	5.0%	740.8%
9/1/65	4.4%	700.8%
12/1/66	3.7%	667.0%
4/1/68	3.9%	639.7%
2/1/69	4.0%	611.9%
11/1/69	5.3%	584.5%
8/1/70	5.6%	550.1%
6/1/71	4.5%	515.6%
7/1/72	4.8%	489.1%
7/1/73	6.1%	462.1%
1/1/74	5.5%	429.8%
7/1/74	6.3%	402.2%
1/1/75	7.3%	372.4%
8/1/75	5.1%	340.3%
3/1/76	5.4%	318.9%
3/1/77	4.8%	297.4%
9/1/77	4.3%	279.2%
3/1/78	2.4%	263.6%
9/1/78	4.9%	255.1%
3/1/79	3.9%	238.5%
9/1/79	6.9%	225.8%
3/1/80	6.0%	204.8%
9/1/80	7.7%	187.5%
3/1/81	4.4%	167.0%
3/1/82	8.7%	155.7%
4/1/83	3.9% (1)	135.2%
12/1/84	3.5% (2)	126.4%
12/1/85	0.0% (3)	118.8%
12/1/86	1.3%	118.8%
12/1/87	4.2%	115.9%
12/1/88	4.0%	107.2%
12/1/89	4.7%	99.3%
12/1/90	5.4%	90.3%
12/1/91	3.7%	80.6%
12/1/92	3.0%	74.1%
3/1/94	2.6% (4)	69.1%
3/1/95	2.8% (5)	64.8%
3/1/96	2.6% (6)	60.3%
12/1/96	2.9%	56.2%
12/1/97	2.1%	51.8%
12/1/98	1.3%	48.7%
12/1/99	2.4%	46.8%
12/1/00	3.5%	43.4%
12/1/01	2.6%	38.5%
12/1/02	1.4%	35.0%
12/1/03	2.1%	33.1%
12/1/04	2.7%	30.4%
12/1/05	4.1%	27.0%
12/1/06	3.3%	22.0%
12/1/07	2.3%	18.1%
12/1/08	5.8%	15.4%
12/1/09	0.0%	9.1%
12/1/10	0.0%	9.1%
12/1/11	3.6%	9.1%
12/1/12	1.7%	5.3%
12/1/13	1.5%	3.5%
12/1/14	1.7%	2.0%
12/1/15	0.0%	0.3%
12/1/16	0.3%	0.3%

(1) Nondisabled retirees under age 62 received 3.3%.

(2) Starting December 1984, entitlements earned in a particular month are paid at the beginning of the next month.

(3) A cost-of-living adjustment of 3.1%, scheduled for 12/1/85, was suspended as a consequence of P.L. 99-177.

(4) Disabled retirees and survivors received 2.6% on 12/1/93.

(5) Disabled retirees and survivors received 2.8% on 12/1/94.

(6) Disabled retirees and survivors received 2.6% on 12/1/95.

TABLE B-4
MILITARY BASIC PAY SCALE INCREASES
(JUNE 1958 TO PRESENT)

<u>Date of Increase</u>	<u>Percentage Increase</u>	<u>Cumulative % From</u> <u>Date of Increase</u>
6/1/58	8.3%	1356.1%
10/1/63	14.2%	1244.5%
9/1/64	2.3%	1077.3%
9/1/65	10.4%	1050.8%
7/1/66	3.2%	942.4%
10/1/67	5.6%	910.1%
7/1/68	6.9%	856.5%
7/1/69	12.6%	794.8%
1/1/70	8.1%	694.7%
1/1/71	7.9%	635.1%
11/14/71	11.6%	581.3%
1/1/72	7.2%	510.5%
10/1/72	6.7%	469.5%
10/1/73	6.2%	433.7%
10/1/74	5.5%	402.6%
10/1/75	5.0%	376.4%
10/1/76	3.6%	353.7%
10/1/77	6.2%	337.9%
10/1/78	5.5%	312.3%
10/1/79	7.0%	290.9%
10/1/80	11.7%	265.3%
10/1/81	14.3% (1)	227.0%
10/1/82	4.0% (2)	186.1%
1/1/84	4.0% (2)	175.1%
1/1/85	4.0%	164.5%
10/1/85	3.0%	154.3%
1/1/87	3.0%	146.9%
1/1/88	2.0%	139.7%
1/1/89	4.1%	135.0%
1/1/90	3.6%	125.8%
1/1/91	4.1%	117.9%
1/1/92	4.2%	109.4%
1/1/93	3.7%	100.9%
1/1/94	2.2%	93.8%
1/1/95	2.6%	89.6%
1/1/96	2.4%	84.8%
1/1/97	3.0%	80.4%
1/1/98	2.8%	75.2%
1/1/99	3.6%	70.4%
1/1/00	4.8% (3)	64.5%
1/1/01	3.7% (3)	57.0%
1/1/02	4.6% (3)	51.4%
1/1/03	4.1% (3)	44.7%
1/1/04	3.7% (3)	39.0%
1/1/05	3.5%	34.0%
1/1/06	3.1%	29.5%
1/1/07	2.2% (3)	25.6%
1/1/08	3.5%	22.9%
1/1/09	3.9%	18.8%
1/1/10	3.4%	14.3%
1/1/11	1.4%	10.5%
1/1/12	1.6%	9.0%
1/1/13	1.7%	7.3%
1/1/14	1.0%	5.5%
1/1/15	1.0%	4.5%
1/1/16	1.3% (4)	3.4%
1/1/17	2.1%	2.1%

(1) Basic pay increases for enlisted personnel ranged from 10% for E-1; 10.7% for E-2, E-3; 13% for E-4; 16.5% for E-5, E-6; and 17% for E-7, E-8, E-9. For officers, the increase was 14.3%.

(2) Except for E-1 with less than 4 months service.

(3) The increases do not include additional targeted pay increases.

(4) Pay increase for general and flag officers (O-7s through O-10s) is 0%

APPENDIX C
VALUATION DATA

	<u>Page</u>
Valuation Data Notes.....	65
DoD Officers Active Duty Personnel.....	66
DoD Enlisted Active Duty Personnel.....	67
All DoD Active Duty Personnel.....	68
DoD Officers Average Monthly Active Duty Basic Pay.....	69
DoD Enlisted Average Monthly Active Duty Basic Pay.....	70
All DoD Average Monthly Active Duty Basic Pay.....	71
DoD Officers Selected Reserve Personnel.....	72
DoD Enlisted Selected Reserve Personnel.....	73
All DoD Selected Reserve Personnel.....	74
DoD Officers Average Monthly Selected Reserve Basic Pay.....	75
DoD Enlisted Average Monthly Selected Reserve Basic Pay.....	76
All DoD Average Monthly Selected Reserve Basic Pay.....	77
DoD Officers Non-Selected Reserve Personnel with 20 Good Years.....	78
DoD Enlisted Non-Selected Reserve Personnel with 20 Good Years.....	79
All DoD Non-Selected Reserve Personnel with 20 Good Years.....	80
DoD Officers Retired.....	81
DoD Enlisted Retired.....	83
All DoD Retired.....	85
DoD Survivor.....	87

VALUATION DATA NOTES

The following are relevant notes to the valuation data displayed in this appendix:

- These population- and pay-related data represent the appropriate beginning counts (“inputs”) to Closed Group and Open Group projections.
- Valuation input data were extracted from files maintained by the Defense Manpower Data Center (DMDC). Data on individual retirees and survivors came from official files submitted by the Defense Finance and Accounting Service (DFAS). Active data were obtained from the Active Duty Military Personnel (ADMP) Master File, and reserve data were obtained from the Reserve Component Common Personnel Data System (RCCPDS) Master File, the official source for all component strengths and statistics, respectively.
- Active Duty and Selected Reserve personnel data were not further adjusted to match the official end strength totals supplied by the DoD Comptroller. They were each within about 0.1% of aggregate end strength totals.
- The DoD Office of the Actuary (OACT) reviews the data for reasonableness and consistency, but does not audit the data and relies on the file suppliers for its accuracy and comprehensiveness.
- Table-specific notes are included at the bottom of the valuation data tables.

DoD Officers Active Duty Personnel by Years of Service and Age for FY 2016 Valuation

Age	Years of Active Service (YAS)																														Total					
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29		30+				
16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
18	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19	3	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4
20	8	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10
21	24	3	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	28
22	1,949	58	27	8	2	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2,045	
23	3,757	2,268	79	24	8	44	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6,175	
24	1,990	4,263	2,093	67	26	81	28	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8,549	
25	719	2,368	4,148	2,124	83	46	61	13	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9,563	
26	644	920	2,251	4,254	2,115	106	63	42	28	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10,423	
27	677	700	888	2,290	4,139	1,797	1,620	57	58	40	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10,789	
28	418	668	693	916	2,047	3,462	1,620	118	76	101	63	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10,186	
29	349	467	715	770	909	1,868	3,043	1,511	141	112	174	119	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10,180	
30	211	365	479	796	742	925	2,946	1,425	186	178	244	150	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10,372	
31	204	261	362	514	719	741	899	1,595	2,682	1,498	197	256	377	211	3	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10,520	
32	136	153	258	374	517	690	742	858	1,350	2,469	1,459	2,78	390	467	293	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10,581	
33	125	128	182	265	338	466	665	645	690	1,261	2,484	1,236	329	419	530	297	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10,066	
34	72	115	150	214	238	381	487	633	565	655	1,235	2,225	1,399	425	632	374	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10,056	
35	92	82	98	143	205	256	357	439	554	549	600	1,151	1,961	1,175	364	434	674	403	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9,540	
36	46	66	90	114	137	186	240	340	373	563	566	599	1,125	1,845	1,178	364	486	650	427	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9,401	
37	33	34	46	103	134	147	205	238	257	374	474	578	741	1,218	1,731	1,101	439	534	779	413	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9,381	
38	41	29	47	66	86	103	156	152	215	269	346	427	545	668	1,063	1,697	1,145	508	736	269	1	0	0	0	0	0	0	0	0	0	0	0	0	0	8,923	
39	31	26	39	48	58	90	114	135	146	167	250	311	471	571	697	1,044	1,664	1,113	372	531	547	216	2	0	0	0	0	0	0	0	0	0	0	0	8,643	
40	29	25	25	42	44	64	93	92	113	140	195	274	318	448	528	634	1,035	1,568	1,109	449	486	412	164	0	0	0	0	0	0	0	0	0	0	0	8,288	
41	9	21	28	33	47	61	77	67	99	114	134	189	253	343	444	480	572	1,025	1,599	1,217	383	380	400	178	2	0	0	0	0	0	0	0	0	0	8,155	
42	20	18	33	28	4	52	67	70	81	106	127	137	208	258	323	422	479	389	1,101	1,020	931	339	375	154	0	0	0	0	0	0	0	0	0	0	7,887	
43	13	13	17	16	20	35	50	51	57	74	86	117	137	180	216	248	318	416	533	1,169	1,285	1,033	342	138	0	0	0	0	0	0	0	0	0	0	7,623	
44	9	14	17	21	26	34	47	49	60	74	87	97	152	153	216	248	289	414	506	661	785	1,093	714	269	308	301	162	1	0	0	0	0	0	7,423		
45	7	8	17	15	27	33	51	56	50	55	96	139	90	152	186	203	228	275	396	561	529	651	1,045	723	259	233	317	163	1	0	0	0	0	0	6,565	
46	5	4	10	18	37	36	41	30	79	66	70	92	125	128	160	157	209	265	273	456	411	426	663	1,006	673	222	220	302	146	1	0	0	0	0	6,331	
47	4	5	12	14	25	25	37	52	56	49	72	62	112	126	130	140	151	177	251	292	286	316	365	604	797	545	166	197	223	122	2	0	0	5,415		
48	6	8	3	10	10	13	20	34	37	40	59	77	63	106	123	122	144	119	198	221	207	214	251	323	478	601	433	125	154	193	83	0	0	4,475		
49	5	6	8	8	10	10	16	35	41	52	40	46	61	51	105	119	111	121	175	200	169	130	156	243	247	413	482	338	113	147	157	0	0	3,851		
50	8	1	4	3	11	12	17	32	31	38	30	36	47	74	103	90	78	94	112	109	107	116	125	146	187	243	277	484	277	101	183	3,177	0	0	3,177	
51	1	0	4	6	9	13	17	17	35	24	29	39	42	37	49	47	82	98	115	87	91	97	112	138	147	143	315	309	219	218	0	0	0	2,625		
52	4	3	8	4	4	12	13	22	17	26	29	26	35	60	53	70	64	70	67	92	63	79	71	75	90	118	126	136	194	237	294	294	0	0	2,160	
53	2	0	0	3	5	5	18	11	12	19	17	22	27	48	38	34	35	50	59	83	53	58	55	37	59	76	86	106	101	116	295	1,529	0	0	1,529	
54	2	2	4	1	3	6	16	13	14	19	21	24	31	23	43	40	59	61	61	44	35	34	34	34	34	34	34	34	34	34	34	34	34	34	1,221	
55	1	1	3	2	6	0	6	11	4	10	15	10	12	31	15	33	33	45	41	30	40	36	26	28	27	48	38	50	54	52	205	915	0	0	915	
56	0	0	0	2	5	5	2	3	8	7	12	16	14	18	10	11	30	29	24	33	20	30	22	35	24	32	21	33	35	44	172	695	0	0	695	
57	0	0	0	0	3	1	1	1	2	12	12	2	13	10	9	16	25	18	20	18	17	13	15	22	30	17	31	23	22	26	161	539	0	0	539	
58	0	0	0	2	3	1	1	1	4	6	7	9	4	5	18	7	12	26	22	19	24	19	15	21	22	18	13	19	14	21	109	443	0	0	443	
59	1	0	1	3	0	1	1	1	4	5	6	7	5	8	11	7	6	13	11	16	8	11	4	10	9	9	9	9	9	9	9	9	9	9	83	
60+	0	0	2	2	6	2	2	5	5	6	4	9	13	12	13	10	21	15	27	23	17	19	21	26	31	24	28	45	22	23	110	547	0	0	547	
Total	11,655	13,105	12,841	13,335	12,832	11,810	10,389	9,371	9,335	9,197	8,879	9,117	9,289	9,115	8,806	8,821	8,605	8,843	8,998	6,710	5,488	4,851	4,637	3,932	3,236	2,625	2,424	1,766	1,381	2,311	244,853	0	0	244,853		

Average YAS: 11.1

Average Age: 35.7

Notes: Age is age nearest birthday as of the end of the fiscal year.

DoD Enlisted Active Duty Personnel by Years of Service and Age for FY 2016 Valuation

Age	Years of Active Service (YAS)																													Total						
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28		29	30+				
16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
17	55	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
18	13,972	32	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	53	
19	36,827	11,737	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	14,004	
20	28,212	32,567	9,508	11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	48,571		
21	16,927	26,133	27,586	10,201	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	70,298		
22	11,493	15,861	23,200	28,782	5,487	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	80,855		
23	8,830	10,690	14,828	24,988	16,990	3,442	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	84,827		
24	6,944	8,656	10,809	15,729	16,314	11,359	8,258	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	79,183	
25	5,231	6,341	7,717	10,907	10,901	11,941	8,258	2,832	28	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	71,308	
26	3,815	4,749	6,267	8,222	7,795	8,282	9,415	7,952	2,979	34	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	59,510	
27	2,680	3,462	4,511	6,292	5,896	5,994	7,042	7,064	7,221	2,673	22	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	53,559	
28	1,781	2,252	3,272	4,583	4,802	4,652	5,230	5,742	6,186	6,544	18	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	47,647	
29	1,411	1,729	2,280	3,220	3,626	3,832	4,475	4,582	5,619	6,070	2,173	15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	43,656	
30	955	1,204	1,714	2,417	2,586	2,895	3,405	3,457	3,502	4,229	5,833	2,421	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	40,358	
31	671	816	1,206	1,721	1,959	2,238	2,776	2,812	2,811	3,254	4,400	5,159	6,272	2,526	12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	38,634	
32	521	617	768	1,209	1,452	1,559	1,949	2,219	2,162	2,573	3,180	3,248	5,470	6,076	2,555	13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	35,571	
33	403	473	548	842	992	1,227	1,524	1,522	1,981	2,379	2,545	3,783	4,916	5,767	2,674	23	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	33,160	
34	306	375	430	623	701	882	1,164	1,243	1,212	1,492	1,902	1,973	2,836	3,479	4,326	5,523	2,795	18	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	31,283	
35	287	287	368	428	505	597	875	937	951	1,145	1,386	1,509	2,068	2,534	2,981	4,077	5,421	2,445	13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	28,812	
36	109	288	301	379	366	436	675	673	745	801	1,047	1,134	1,639	1,856	2,171	2,721	3,954	5,297	2,354	19	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	26,965
37	46	97	261	276	331	349	492	459	567	648	802	858	1,242	1,439	1,708	1,959	2,620	3,948	5,204	2,135	6	0	0	0	0	0	0	0	0	0	0	0	0	0	25,450	
38	37	37	85	237	249	281	405	406	406	497	628	664	952	1,135	1,294	1,396	1,796	2,512	4,056	4,832	1,213	0	0	0	0	0	0	0	0	0	0	0	0	0	23,118	
39	26	29	29	287	241	221	341	281	314	335	463	508	714	896	943	1,028	1,294	1,739	2,607	4,161	2,690	808	1	0	0	0	0	0	0	0	0	0	0	0	0	19,773
40	36	35	28	36	112	211	234	245	231	314	361	367	580	615	742	809	971	1,292	1,855	2,759	2,232	1,897	650	0	0	0	0	0	0	0	0	0	0	0	16,610	
41	16	29	35	37	50	150	244	198	229	224	263	287	413	479	621	664	753	939	1,311	1,975	1,422	1,573	1,517	583	2	0	0	0	0	0	0	0	0	13,912		
42	10	18	19	26	42	112	102	173	197	223	217	238	327	344	384	423	479	591	781	1,454	1,003	1,070	1,299	1,338	414	0	0	0	0	0	0	0	0	12,120		
43	8	13	13	23	44	95	126	134	108	107	172	210	230	236	268	334	362	459	585	781	1,069	510	585	1,532	854	321	0	0	0	0	0	0	0	10,854		
44	0	12	24	23	44	95	126	134	108	107	172	210	230	236	268	334	362	459	585	781	1,069	510	585	1,532	854	321	0	0	0	0	0	0	0	0	8,585	
45	11	14	19	23	29	76	105	113	113	146	184	197	241	247	254	272	314	413	498	620	463	420	385	510	519	586	660	2	0	0	0	0	0	7,495		
46	0	9	9	17	30	63	101	103	88	135	128	180	179	218	256	264	262	354	465	542	393	308	333	342	334	382	399	461	189	0	0	0	0	6,544		
47	5	5	9	31	19	54	70	91	82	98	101	107	208	203	219	233	264	270	333	416	243	244	239	228	235	237	217	346	173	0	0	0	0	5,329		
48	0	7	4	18	9	32	73	65	58	90	90	91	107	178	170	161	195	237	267	302	239	165	153	180	192	147	148	198	260	271	52	0	0	4,157		
49	0	2	9	9	7	12	32	61	54	73	64	69	93	107	146	181	169	199	224	262	152	112	129	140	123	131	99	110	143	189	103	0	0	3,203		
50	2	3	2	7	5	12	15	21	52	65	81	49	59	86	101	118	151	168	233	218	123	108	98	91	108	108	74	72	83	115	112	0	0	2,537		
51	3	0	3	5	7	7	12	24	33	49	37	38	50	54	95	118	125	140	183	170	92	84	60	79	63	62	44	72	61	94	97	0	0	1,963		
52	2	0	3	2	5	7	12	15	22	33	32	33	46	64	70	72	103	130	156	138	88	85	77	76	63	56	45	61	38	57	59	0	0	1,648		
53	0	3	3	5	10	12	10	18	16	11	22	28	36	39	62	57	70	60	144	133	64	46	53	45	42	44	27	42	45	39	53	0	0	1,239		
54	0	0	2	2	3	3	6	5	6	19	13	26	25	48	49	48	42	69	91	117	61	48	52	37	30	29	22	21	33	23	32	0	0	961		
55	0	0	0	7	0	5	5	3	7	13	12	8	17	25	33	31	47	31	66	55	22	35	20	25	19	13	17	18	26	21	640	0	0	640		
56	0	0	0	5	0	2	3	3	11	5	2	3	14	11	13	36	31	39	36	47	28	32	25	25	18	18	10	11	14	19	18	0	0	501		
57	0	0	0	0	2	0	3	3	5	3	3	9	2	14	15	16	17	29	37	30	14	24	15	15	15	21	5	7	11	7	2	0	0	324		
58	0	0	0	2	0	3	0	2	3	5	0	3	2	5	12	10	20	7	33	22	13	4	5	12	12	12	6	1	3	5	2	0	0	211		
59	0	0	0	2	2	2	0	2	2	0	2	2	3	8	9	15	13	17	10	11	3	7	5	7	5	6	4	11	2	5	2	0	0	154		
60+	0	1	0	1	0	1	0	0	0	3	0	3	1	7	5	7	8	11	12	5	3	2	5	5	1	10	4	3	2	6	7	0	0	110		
Total	141,648	127,975	115,383	120,856	81,623	61,155	51,748	44,196	36,649	33,711	33,077	27,715	30,334	28,304	25,726	23,728	22,846	22,194	22,546	22,252	11,903	8,300	6,563	5,662	3,809	2,847	1,827	1,672	1,248	1,026	562	0				

DoD Officers Non-Selected Reserve Personnel With 20 Good Years by PEBD Years of Service and Age for FY 2016 Valuation

Age	<19	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	Total	
<37	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
37	0	4	9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
38	0	3	13	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	13	
39	0	2	14	26	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	22	
40	0	2	14	26	38	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	88	
41	0	2	15	19	58	59	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	161	
42	0	2	36	31	53	78	79	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	289	
43	0	1	68	90	33	55	110	67	13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	438	
44	0	3	22	104	88	63	98	109	110	18	0	0	0	0	0	0	0	0	0	0	0	0	0	0	616	
45	0	1	21	48	121	165	87	103	170	188	28	0	0	0	0	0	0	0	0	0	0	0	0	0	932	
46	0	3	13	30	95	185	220	109	151	231	212	13	0	0	0	0	0	0	0	0	0	0	0	0	1,262	
47	0	1	11	26	29	101	250	327	129	181	226	253	28	0	0	0	0	0	0	0	0	0	0	0	1,564	
48	0	1	9	27	34	39	120	315	364	160	179	330	259	31	0	0	0	0	0	0	0	0	0	0	1,870	
49	0	0	5	13	22	33	54	148	371	461	178	257	337	263	54	0	0	0	0	0	0	0	0	0	2,198	
50	0	1	3	9	18	28	58	91	202	492	561	250	317	299	292	30	0	0	0	0	0	0	0	0	0	2,653
51	0	1	7	8	13	27	49	84	95	275	571	622	293	279	339	333	37	0	0	0	0	0	0	0	0	3,034
52	0	2	2	8	14	24	37	53	73	164	306	700	807	273	309	398	349	44	0	0	0	0	0	0	0	3,564
53	0	1	0	7	8	17	28	45	79	131	207	407	868	851	333	378	413	405	36	0	0	0	0	0	0	4,216
54	0	0	2	6	5	11	20	22	52	107	141	201	440	962	846	284	340	374	300	35	0	0	0	0	0	4,149
55	0	2	1	2	11	10	22	23	41	79	106	163	282	491	826	887	372	388	353	251	17	0	0	0	0	4,328
56	0	0	3	2	10	6	20	22	41	47	60	124	221	283	417	948	874	334	316	315	221	18	0	0	0	4,284
57	0	0	3	3	7	12	12	24	28	50	51	85	156	218	251	521	856	877	313	272	292	254	9	0	0	4,297
58	0	0	0	1	4	10	12	20	29	39	58	57	102	151	208	309	441	860	848	250	243	347	217	11	0	4,218
59	0	0	1	2	4	7	14	16	23	40	47	57	85	116	136	227	272	430	878	889	229	263	324	219	0	4,282
60	0	0	1	1	4	3	3	15	13	14	21	33	43	32	63	81	128	146	276	562	363	136	147	212	0	2,299
61	0	0	0	0	0	0	0	2	2	1	2	3	2	3	3	3	5	6	3	11	16	21	5	7	95	
62	0	0	0	0	0	0	1	0	1	2	1	2	1	1	1	0	0	1	2	3	7	19	9	10	61	
63	0	0	0	0	2	0	2	0	4	2	6	2	2	7	2	4	6	9	4	15	13	22	31	224	355	
Total	0	33	274	497	674	940	1,302	1,607	1,992	2,684	2,963	3,562	4,246	4,262	4,082	4,403	4,093	3,874	3,330	2,605	1,403	1,081	743	683	51,332	

Notes: Data taken from the actuarial valuation file created by the DoD Office of the Actuary. Average Age: 53.6 Average PEBD Years of Service: 31.5 Age is age nearest birthday as of the end of the fiscal year.

DoD Enlisted Non-Selected Reserve Personnel With 20 Good Years by PEBD Years of Service and Age for FY 2016 Valuation

Age	<19	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	Total		
<37	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
37	0	85	57	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	142	
38	0	35	158	19	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	212
39	0	24	187	214	24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	449
40	0	22	177	339	297	39	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	874
41	0	20	100	239	486	393	42	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1,280
42	0	14	70	152	430	617	504	39	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1,826
43	0	14	53	110	280	492	755	429	62	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2,195
44	0	8	56	81	198	364	631	781	723	97	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2,940
45	0	9	36	101	161	288	485	788	1,173	1,005	106	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4,152
46	0	8	37	80	155	263	373	595	1,009	1,537	1,138	68	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5,263
47	0	3	27	53	128	206	309	411	651	1,188	1,609	1,218	109	0	0	0	0	0	0	0	0	0	0	0	0	0	5,912
48	0	6	30	57	87	140	254	345	492	833	1,248	1,848	1,355	125	0	0	0	0	0	0	0	0	0	0	0	0	6,819
49	0	2	15	53	98	145	183	258	370	574	842	1,420	1,942	1,379	251	0	0	0	0	0	0	0	0	0	0	0	7,533
50	0	1	17	46	80	136	174	236	321	490	663	1,061	1,602	1,693	1,736	178	0	0	0	0	0	0	0	0	0	0	8,436
51	0	2	25	44	83	106	162	211	323	426	549	765	1,151	1,358	2,204	1,693	168	0	0	0	0	0	0	0	0	0	9,272
52	0	8	25	33	73	119	159	190	272	345	460	656	924	1,048	1,824	2,447	1,946	252	0	0	0	0	0	0	0	0	10,783
53	0	7	20	36	77	93	156	196	229	352	428	564	769	905	1,272	1,947	2,540	2,103	229	0	0	0	0	0	0	0	11,925
54	0	12	21	37	63	108	145	178	224	254	350	470	606	736	1,022	1,387	1,935	2,652	2,060	161	0	0	0	0	0	0	12,422
55	0	3	17	48	59	80	113	153	182	228	304	388	491	543	824	1,086	1,473	1,890	2,834	1,828	128	0	0	0	0	0	12,673
56	0	4	27	46	45	69	112	179	189	206	254	348	403	487	693	912	1,127	1,486	2,159	2,403	1,492	140	0	0	0	0	12,782
57	0	4	13	26	62	76	103	113	148	159	174	281	335	428	555	659	856	1,016	1,488	1,824	2,102	1,631	93	0	0	0	12,148
58	0	1	4	20	42	74	74	107	136	141	172	253	281	349	383	530	694	859	1,055	1,252	1,608	2,265	1,361	52	0	0	11,693
59	0	3	10	16	26	45	87	99	101	124	154	199	231	299	388	486	508	696	892	1,023	1,242	1,858	2,101	1,225	11,811		
60	0	0	7	5	7	23	34	45	44	43	63	84	117	132	149	220	259	316	454	443	498	776	934	1,376	6,029		
61	0	0	0	1	1	0	1	2	5	4	7	4	7	15	11	14	12	13	20	20	25	32	38	116	348		
62	0	0	0	0	0	0	0	0	1	3	2	2	3	4	10	10	3	7	14	5	16	17	22	74	193		
63	0	0	0	0	2	0	0	2	5	7	2	8	16	10	12	21	31	25	33	35	58	66	87	622	1,040		
Total	0	296	1,191	1,857	2,966	3,878	4,859	5,357	6,660	8,015	8,524	9,637	10,343	9,510	11,335	11,590	11,551	11,315	11,238	8,974	7,170	6,784	4,636	3,465	0	161,152	

Notes: Data taken from the actuarial valuation file created by the DoD Office of the Actuary. Average Age: 52.9 Average PEBD Years of Service: 31.8 Age is age nearest birthday as of the end of the fiscal year.

All DoD Non-Selected Reserve Personnel With 20 Good Years by PEBD Years of Service and Age for FY 2016 Valuation

Age	<19	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	Total
<37	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
37	0	90	65	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
38	0	38	171	24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	155
39	0	26	200	240	26	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	234
40	0	24	191	365	336	46	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	493
41	0	22	116	259	544	452	48	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	962
42	0	16	107	183	482	695	583	49	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1,441
43	0	15	122	200	313	547	865	496	75	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2,115
44	0	11	78	185	286	427	729	890	833	116	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3,633
45	0	10	57	149	283	452	572	891	1,343	1,193	134	0	0	0	0	0	0	0	0	0	0	0	0	0	3,556
46	0	11	50	110	251	447	593	704	1,159	1,768	81	0	0	0	0	0	0	0	0	0	0	0	0	0	5,084
47	0	4	38	79	157	308	559	738	781	1,369	1,835	1,471	137	0	0	0	0	0	0	0	0	0	0	0	6,525
48	0	7	39	84	121	179	374	660	856	993	1,427	2,178	1,614	156	0	0	0	0	0	0	0	0	0	0	7,476
49	0	2	20	66	120	178	237	406	742	1,035	1,020	1,677	2,279	1,642	305	0	0	0	0	0	0	0	0	0	8,689
50	0	2	20	55	98	164	232	328	523	982	1,225	1,311	1,919	1,992	2,029	208	0	0	0	0	0	0	0	0	9,731
51	0	3	32	52	96	133	211	295	418	701	1,120	1,388	1,444	1,637	2,543	2,026	205	0	0	0	0	0	0	0	11,089
52	0	10	27	41	87	143	196	243	345	509	766	1,356	1,731	1,321	2,133	2,845	2,295	296	0	0	0	0	0	0	12,306
53	0	8	20	43	85	110	184	241	308	483	636	971	1,637	1,756	1,606	2,325	2,953	2,508	265	0	0	0	0	0	14,347
54	0	12	23	43	68	119	165	200	276	361	491	671	1,046	1,698	1,867	1,671	2,275	3,026	2,360	196	0	0	0	0	16,141
55	0	5	18	50	70	90	135	176	224	307	410	551	774	1,034	1,650	1,973	1,844	2,277	3,187	2,079	145	0	0	0	16,571
56	0	4	30	48	55	75	132	201	230	253	314	473	624	770	1,110	1,860	2,001	1,821	2,475	2,718	1,714	158	0	0	17,001
57	0	4	16	29	69	88	115	137	176	209	225	366	492	646	807	1,179	1,713	1,893	1,801	2,097	2,395	1,886	102	0	17,066
58	0	1	4	21	46	84	86	127	165	180	230	310	384	500	591	838	1,135	1,719	1,903	1,482	1,851	2,612	1,578	63	16,445
59	0	3	11	18	30	52	101	115	124	164	201	256	316	415	524	713	780	1,125	1,770	1,913	1,472	2,121	2,424	1,445	15,911
60	0	0	8	6	11	26	37	60	57	57	84	117	160	164	212	301	387	462	730	1,005	862	912	1,081	1,588	16,093
61	0	0	0	1	1	0	1	4	7	5	9	7	9	18	14	17	17	19	23	31	41	53	43	123	443
62	0	0	0	0	0	0	1	0	2	5	3	4	4	5	11	10	3	8	16	8	23	36	31	84	254
63	0	0	0	0	3	0	2	2	9	8	7	10	18	17	13	25	37	34	37	49	71	88	119	846	1,395
Total	0	329	1,465	2,354	3,640	4,818	6,162	6,964	8,652	10,698	11,486	13,198	14,589	13,773	15,417	15,994	15,645	15,190	14,568	11,578	8,573	7,865	5,379	4,149	212,484

Notes: Data taken from the actuarial valuation file created by the DoD Office of the Actuary. Average Age: 53.1 Average PEBD Years of Service: 31.7 Age is age nearest birthday as of the end of the fiscal year.

DoD Retired Military Valuation Data as of Year-End FY 2016

All Officers

Age	Number				Average Annual Net Retired Pay				Reserve Retired				Total				TERA				CSB								
	Non-Disabled	Perm Disabled	Temp Disabled	Reserve Retired	Non-Dis	TERA Non-Dis	TERA Res Ret	CSB Non-Dis	CSB Dis	Non-Dis	Perm Disabled	Temp Disabled	Reserve Retired	Total	TERA Non-Dis	TERA Res Ret	CSB Non-Dis	CSB Dis	Non-Dis	Perm Disabled	Temp Disabled	Reserve Retired	Total	TERA Non-Dis	TERA Res Ret	CSB Non-Dis	CSB Dis		
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DoD Retired Military Valuation Data as of Year-End FY 2016

All Officers

Age	Non Disabled		Perm Disabled		Temp Disabled		Reserve Retired		Number		TERA Non-Dis		TERA Res Ret		CSB Non-Dis		CSB Dis		Average Annual Net Retired Pay					
	Age	Count	Count	Count	Count	Count	Count	Count	Total	TERA Non-Dis	TERA Res Ret	CSB Non-Dis	CSB Dis	TERA Non-Dis	TERA Res Ret	CSB Non-Dis	CSB Dis	Total	Reserve Retired	TERA Non-Dis	TERA Res Ret	CSB Non-Dis	CSB Dis	
71	9,215	425	0	6,608	16,248	122	55	0	0	0	0	0	0	\$24,481	\$38,373	\$16,031	\$0	\$0	\$39,661	\$19,079	\$16,031	\$0	\$0	
72	9,261	408	0	6,500	16,203	81	41	0	0	0	0	0	0	\$24,583	\$36,668	\$19,079	\$0	\$0	\$39,676	\$17,549	\$19,079	\$0	\$0	
73	9,345	448	0	6,081	15,834	70	35	0	0	0	0	0	0	\$23,892	\$37,593	\$17,549	\$0	\$0	\$40,272	\$14,361	\$37,593	\$0	\$0	
74	9,120	414	0	6,007	15,541	59	40	0	0	0	0	0	0	\$23,543	\$39,076	\$14,361	\$0	\$0	\$39,076	\$12,394	\$40,583	\$0	\$0	
75	7,887	295	0	4,812	12,994	34	28	0	0	0	0	0	0	\$22,760	\$40,118	\$12,394	\$0	\$0	\$40,118	\$15,259	\$40,583	\$0	\$0	
76	7,896	302	0	4,255	12,453	13	31	0	0	0	0	0	0	\$22,854	\$40,898	\$15,259	\$0	\$0	\$40,898	\$14,939	\$36,911	\$0	\$0	
77	7,822	261	0	3,947	12,030	11	35	0	0	0	0	0	0	\$22,564	\$40,819	\$14,939	\$0	\$0	\$41,779	\$16,475	\$48,192	\$0	\$0	
78	7,341	232	0	3,896	11,469	8	37	0	0	0	0	0	0	\$21,757	\$38,318	\$16,475	\$0	\$0	\$41,552	\$16,082	\$49,630	\$0	\$0	
79	6,916	206	0	3,711	10,833	9	28	0	0	0	0	0	0	\$21,218	\$40,847	\$16,082	\$0	\$0	\$41,768	\$14,574	\$49,702	\$0	\$0	
80	6,501	198	0	3,420	10,119	8	14	0	0	0	0	0	0	\$21,027	\$39,045	\$14,574	\$0	\$0	\$42,025	\$14,261	\$39,801	\$0	\$0	
81	6,112	184	0	3,228	9,524	7	13	0	0	0	0	0	0	\$20,644	\$41,287	\$12,843	\$0	\$0	\$42,373	\$12,843	\$41,261	\$0	\$0	
82	6,270	169	0	3,199	9,638	6	16	0	0	0	0	0	0	\$20,431	\$42,598	\$12,376	\$0	\$0	\$43,273	\$12,376	\$43,273	\$0	\$0	
83	5,718	155	0	2,838	8,711	5	9	0	0	0	0	0	0	\$20,955	\$44,084	\$13,631	\$0	\$0	\$44,311	\$13,631	\$42,598	\$0	\$0	
84	5,555	161	0	2,841	8,557	6	6	0	0	0	0	0	0	\$20,692	\$46,209	\$13,631	\$0	\$0	\$44,471	\$13,631	\$44,311	\$0	\$0	
85	4,992	179	0	2,764	7,935	3	3	0	0	0	0	0	0	\$19,837	\$43,237	\$11,145	\$0	\$0	\$44,145	\$21,511	\$49,060	\$0	\$0	
86	4,663	149	0	2,825	7,637	1	0	0	0	0	0	0	0	\$19,218	\$46,281	\$11,145	\$0	\$0	\$43,821	\$28,764	\$48,821	\$0	\$0	
87	3,957	183	0	2,516	6,656	1	2	0	0	0	0	0	0	\$18,807	\$44,437	\$17,483	\$0	\$0	\$45,518	\$17,483	\$44,595	\$0	\$0	
88	3,126	138	0	2,007	5,271	1	4	0	0	0	0	0	0	\$18,585	\$47,633	\$19,096	\$0	\$0	\$44,609	\$19,096	\$44,609	\$0	\$0	
89	2,055	98	0	1,279	3,432	1	1	0	0	0	0	0	0	\$19,252	\$48,350	\$19,740	\$0	\$0	\$45,943	\$19,740	\$45,943	\$0	\$0	
90	1,492	83	0	1,114	2,689	1	0	0	0	0	0	0	0	\$19,355	\$49,457	\$19,355	\$0	\$0	\$45,382	\$55,139	\$45,382	\$0	\$0	
91	1,474	82	0	1,183	2,739	0	0	0	0	0	0	0	0	\$18,756	\$47,954	\$18,756	\$0	\$0	\$45,545	\$0	\$45,545	\$0	\$0	
92	1,436	106	0	1,336	2,878	0	0	0	0	0	0	0	0	\$18,545	\$39,947	\$18,545	\$0	\$0	\$42,855	\$0	\$42,855	\$0	\$0	
93	1,306	134	0	1,202	2,642	0	0	0	0	0	0	0	0	\$17,962	\$37,230	\$17,962	\$0	\$0	\$42,256	\$0	\$42,256	\$0	\$0	
94	1,075	151	0	1,075	2,301	0	0	0	0	0	0	0	0	\$17,754	\$36,877	\$17,754	\$0	\$0	\$40,765	\$0	\$40,765	\$0	\$0	
95	996	146	0	860	2,002	0	0	0	0	0	0	0	0	\$17,535	\$35,834	\$17,535	\$0	\$0	\$41,787	\$0	\$41,787	\$0	\$0	
96	782	121	0	705	1,608	0	1	0	0	0	0	0	0	\$18,692	\$35,383	\$18,692	\$0	\$0	\$40,613	\$9,348	\$40,613	\$0	\$0	
97	562	91	0	487	1,140	0	0	0	0	0	0	0	0	\$19,449	\$40,768	\$19,449	\$0	\$0	\$41,923	\$0	\$41,923	\$0	\$0	
98	370	56	0	348	774	0	0	0	0	0	0	0	0	\$20,111	\$45,220	\$20,111	\$0	\$0	\$40,780	\$0	\$40,780	\$0	\$0	
99	208	40	0	220	468	0	0	0	0	0	0	0	0	\$20,069	\$36,117	\$20,069	\$0	\$0	\$38,831	\$0	\$38,831	\$0	\$0	
100	111	27	0	115	253	0	0	0	0	0	0	0	0	\$21,904	\$32,099	\$21,904	\$0	\$0	\$39,831	\$0	\$39,831	\$0	\$0	
101	74	11	0	70	155	0	0	0	0	0	0	0	0	\$20,712	\$41,340	\$20,712	\$0	\$0	\$39,295	\$0	\$39,295	\$0	\$0	
102	35	8	0	44	87	0	0	0	0	0	0	0	0	\$22,869	\$25,451	\$22,869	\$0	\$0	\$40,349	\$0	\$40,349	\$0	\$0	
103	20	6	0	17	43	0	0	0	0	0	0	0	0	\$25,391	\$42,055	\$25,391	\$0	\$0	\$42,055	\$0	\$42,055	\$0	\$0	
104	4	2	0	13	19	0	0	0	0	0	0	0	0	\$22,939	\$84,768	\$22,939	\$0	\$0	\$34,217	\$0	\$34,217	\$0	\$0	
105	2	0	0	3	5	0	0	0	0	0	0	0	0	\$36,904	\$96,076	\$36,904	\$0	\$0	\$60,573	\$0	\$60,573	\$0	\$0	
106	2	0	0	4	6	0	0	0	0	0	0	0	0	\$24,552	\$66,329	\$24,552	\$0	\$0	\$38,478	\$0	\$38,478	\$0	\$0	
107	0	0	0	3	3	0	0	0	0	0	0	0	0	\$19,220	\$19,220	\$19,220	\$0	\$0	\$19,220	\$0	\$19,220	\$0	\$0	
108	0	0	0	0	0	0	0	0	0	0	0	0	0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
109	0	0	0	0	0	0	0	0	0	0	0	0	0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
110	0	0	0	0	0	0	0	0	0	0	0	0	0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Total	369,519	18,184	989	150,080	538,772	14,199	2,206	3,111	3,280	3,111	2,206	3,111	2,206	\$23,710	\$28,669	\$18,971	\$36,740	\$32,056	\$43,203	\$31,031	\$18,971	\$36,740	\$32,056	
60+	254,771	9,554	14	149,463	413,802	9,311	2,204	47	47	2	2,204	47	2,204	\$23,626	\$34,094	\$18,940	\$43,227	\$15,810	\$41,748	\$31,982	\$18,940	\$43,227	\$15,810	
62+	234,739	8,959	7	142,171	385,876	6,605	1,813	28	28	1	1,813	28	1,813	\$23,324	\$34,370	\$18,617	\$43,340	\$15,174	\$41,472	\$33,061	\$18,617	\$43,340	\$15,174	
65+	203,299	8,034	0	126,030	337,363	2,799	1,100	14	14	1	1,100	14	1,100	\$22,766	\$34,937	\$17,426	\$38,890	\$11,174	\$41,222	\$34,683	\$17,426	\$38,890	\$11,174	

Notes: Age is retiree's current age nearest birthday at end of fiscal year.
60+ is total for ages 60 and over.
62+ is total for ages 62 and over.
65+ is total for ages 65 and over.
Includes only retirees receiving payment from DoD.
Temporary Early Retirement Act (TERA) retirees and payments are shown for informational purposes only.
Career Status Bonus (CSB) retirees and payments are shown for informational purposes only.
TERA and CSB numbers and payments are included in the appropriate categories.
Pay amounts do not include the 12/1/16 cost of living increase of 0.3%.

DoD Retired Military Valuation Data as of Year-End FY 2016

All Enlisted

Age	Number				Average Annual Net Retired Pay				Average Annual Net Retired Pay				CSB	
	Non-Disabled	Perm Disabled	Temp Disabled	Reserve Retired	Total	TERA Non-Dis	TERA Res Ret	CSB Non-Dis	CSB Dis	Total	TERA Non-Dis	TERA Res Ret	CSB Non-Dis	CSB Dis
16	0	0	0	0	0	0	0	0	0	\$0	\$0	\$0	\$0	\$0
17	0	0	0	0	0	0	0	0	0	\$0	\$0	\$0	\$0	\$0
18	0	0	0	0	0	0	0	0	0	\$0	\$0	\$0	\$0	\$0
19	0	0	0	0	2	0	0	0	0	\$6,892	\$0	\$0	\$0	\$0
20	0	16	15	0	31	0	0	0	0	\$6,041	\$0	\$0	\$0	\$0
21	0	21	39	0	60	0	0	0	0	\$4,679	\$0	\$0	\$0	\$0
22	0	63	80	0	143	0	0	0	0	\$4,441	\$0	\$0	\$0	\$0
23	0	127	111	0	238	0	0	0	0	\$3,825	\$0	\$0	\$0	\$0
24	0	218	148	0	366	0	0	0	0	\$3,471	\$0	\$0	\$0	\$0
25	0	408	179	0	587	0	0	0	0	\$3,066	\$0	\$0	\$0	\$0
26	0	603	247	0	850	0	0	0	0	\$3,287	\$0	\$0	\$0	\$0
27	0	872	280	0	1,152	0	0	0	0	\$3,513	\$0	\$0	\$0	\$0
28	0	1,106	308	0	1,414	0	0	0	0	\$3,778	\$0	\$0	\$0	\$0
29	0	1,473	315	0	1,788	0	0	0	0	\$3,778	\$0	\$0	\$0	\$0
30	0	1,891	319	0	2,210	0	0	0	0	\$4,125	\$0	\$0	\$0	\$0
31	1	2,233	306	0	2,540	0	0	0	0	\$4,231	\$0	\$0	\$0	\$0
32	1	2,456	359	0	2,816	0	0	0	0	\$4,713	\$0	\$0	\$0	\$0
33	17	2,496	333	0	2,846	16	0	0	0	\$5,224	\$15,393	\$0	\$0	\$0
34	97	2,503	324	0	2,924	96	0	0	0	\$5,819	\$15,215	\$0	\$0	\$4,338
35	287	2,518	271	0	2,876	286	0	5	3	\$6,837	\$15,093	\$8,241	\$0	\$11,440
36	585	2,144	241	0	2,970	583	0	50	10	\$7,790	\$14,482	\$1,571	\$15,559	\$11,442
37	886	1,982	201	0	3,069	884	0	117	9	\$8,791	\$14,856	\$1,278	\$11,442	\$11,442
38	1,524	1,775	182	0	3,481	945	0	287	8	\$8,165	\$15,333	\$516	\$4,950	\$4,950
39	3,325	1,708	197	0	5,230	925	0	783	23	\$11,558	\$15,909	\$893	\$14,011	\$14,011
40	5,358	1,678	175	0	7,211	746	0	1,352	30	\$17,862	\$16,430	\$1,271	\$17,594	\$17,594
41	7,578	1,606	157	0	9,341	542	0	2,132	35	\$19,273	\$16,783	\$1,234	\$18,151	\$18,151
42	9,734	1,625	178	0	11,537	375	0	3,096	48	\$16,741	\$16,606	\$0	\$20,831	\$20,831
43	11,810	1,630	152	0	13,592	252	0	4,013	38	\$17,818	\$17,109	\$1,084	\$22,302	\$22,302
44	13,969	1,754	152	0	15,875	175	0	5,015	175	\$21,713	\$16,727	\$0	\$975	\$21,710
45	16,839	1,794	107	0	18,740	132	0	6,159	17	\$22,255	\$17,130	\$1,024	\$23,999	\$23,999
46	19,211	1,897	112	0	21,220	104	0	7,510	22	\$22,482	\$17,308	\$780	\$29,652	\$29,652
47	19,745	1,758	75	0	21,578	59	0	7,944	22	\$23,467	\$18,069	\$0	\$29,136	\$29,136
48	21,138	1,658	73	0	22,869	44	0	6,507	17	\$23,177	\$19,618	\$0	\$635	\$28,625
49	23,309	1,542	62	0	24,913	40	0	4,459	10	\$23,869	\$14,858	\$0	\$780	\$30,652
50	26,021	1,561	60	0	27,642	48	0	2,924	8	\$24,193	\$12,278	\$0	\$712	\$32,097
51	28,560	1,592	41	2	30,195	166	1	2,088	0	\$14,839	\$12,078	\$687	\$0	\$0
52	31,584	1,592	43	1	33,220	376	0	1,545	1	\$17,323	\$24,030	\$0	\$981	\$45,396
53	33,727	1,564	38	1	35,330	839	0	1,128	2	\$23,338	\$23,959	\$0	\$753	\$29,879
54	35,472	1,646	30	3	37,151	1,603	0	834	1	\$32,194	\$23,729	\$0	\$589	\$3,830
55	36,916	1,524	19	7	38,466	2,850	0	625	0	\$25,217	\$23,476	\$0	\$345	\$0
56	37,626	1,468	21	18	39,133	3,894	0	412	0	\$26,620	\$22,936	\$0	\$531	\$0
57	37,032	1,422	20	51	38,525	4,494	0	316	1	\$23,160	\$22,743	\$0	\$834	\$23,280
58	35,831	1,290	9	105	37,235	4,790	0	204	0	\$22,076	\$22,503	\$0	\$580	\$0
59	34,946	1,377	8	285	36,616	4,652	2	173	0	\$20,810	\$14,896	\$9,340	\$252	\$0
60	33,252	1,345	6	4,505	39,108	3,948	134	125	0	\$13,204	\$15,149	\$8,090	\$165	\$0
61	32,214	1,402	2	11,522	45,140	2,965	82	88	0	\$12,150	\$15,198	\$1,684	\$0	\$0
62	31,727	1,410	4	11,216	44,357	2,192	405	88	0	\$12,028	\$15,144	\$1,039	\$0	\$0
63	30,406	1,401	0	11,516	43,323	1,530	386	33	0	\$11,885	\$15,103	\$0	\$0	\$0
64	30,207	1,463	1	13,144	44,815	1,090	348	27	0	\$11,458	\$15,170	\$1,710	\$0	\$0
65	27,535	1,445	0	13,204	42,184	884	351	7	0	\$11,418	\$18,886	\$0	\$0	\$0
66	26,270	1,709	0	14,021	42,000	675	310	0	0	\$11,206	\$15,904	\$0	\$0	\$0
67	26,429	2,111	0	15,310	43,850	523	344	0	0	\$10,886	\$16,396	\$0	\$0	\$0
68	26,187	2,401	0	16,077	44,791	429	400	0	0	\$11,000	\$18,419	\$0	\$0	\$0
69	26,317	2,526	0	17,010	45,723	366	406	0	0	\$11,047	\$17,222	\$0	\$0	\$0
70	25,699	2,185	0	16,816	44,700	303	362	0	0	\$10,712	\$18,600	\$0	\$0	\$0

DoD Retired Military Valuation Data as of Year-End FY 2016

All Enlisted

Age	Number				Reserve Retired				Average Annual Net Retired Pay				TERA		CSB	
	Non Disabled	Perm Disabled	Temp Disabled	Total	Non-Dis	TERA Res Ret	CSB Non-Dis	CSB Dis	Non Disabled	Perm Disabled	Temp Disabled	Total	TERA Non-Dis	TERA Res Ret	CSB Non-Dis	CSB Dis
71	17,719	1,382	0	30,700	177	239	0	0	\$24,572	\$11,695	\$0	\$18,751	\$18,180	\$7,192	\$0	\$0
72	17,775	1,169	0	29,568	120	203	0	0	\$24,602	\$13,018	\$0	\$19,160	\$19,203	\$6,948	\$0	\$0
73	18,966	1,004	0	29,979	109	175	0	0	\$24,533	\$14,252	\$0	\$19,256	\$19,256	\$7,375	\$0	\$0
74	20,296	925	0	30,696	71	158	0	0	\$24,364	\$15,364	\$0	\$19,097	\$19,097	\$7,331	\$0	\$0
75	18,691	786	0	26,915	51	128	0	0	\$24,226	\$15,465	\$0	\$20,050	\$20,050	\$6,563	\$0	\$0
76	17,754	683	0	24,705	31	93	0	0	\$24,075	\$17,436	\$0	\$20,291	\$21,056	\$6,643	\$0	\$0
77	17,230	568	0	23,867	17	94	0	0	\$23,946	\$17,480	\$0	\$20,199	\$22,006	\$5,948	\$0	\$0
78	17,668	577	0	24,141	26	107	0	0	\$24,050	\$17,434	\$0	\$20,367	\$21,292	\$6,192	\$0	\$0
79	18,453	530	0	24,686	9	126	0	0	\$24,311	\$17,796	\$0	\$20,755	\$18,118	\$5,444	\$0	\$0
80	17,544	498	0	23,320	8	93	0	0	\$24,708	\$17,650	\$0	\$21,150	\$20,996	\$5,552	\$0	\$0
81	16,580	472	0	21,981	2	103	0	0	\$24,777	\$17,891	\$0	\$20,691	\$23,816	\$6,268	\$0	\$0
82	14,883	501	0	19,528	0	54	0	0	\$24,843	\$17,739	\$0	\$21,503	\$21,246	\$5,964	\$0	\$0
83	13,208	491	0	17,012	0	55	0	0	\$25,156	\$16,787	\$0	\$22,029	\$22,029	\$6,242	\$0	\$0
84	12,276	551	0	15,841	0	9	0	0	\$25,424	\$16,301	\$0	\$22,221	\$22,221	\$5,183	\$0	\$0
85	11,172	572	0	14,611	0	3	0	0	\$25,488	\$14,913	\$0	\$22,057	\$22,057	\$8,876	\$0	\$0
86	10,532	583	0	13,698	0	1	0	0	\$25,339	\$16,725	\$0	\$22,086	\$22,086	\$5,028	\$0	\$0
87	8,814	577	0	11,586	0	0	0	0	\$25,287	\$16,757	\$0	\$22,203	\$22,203	\$0	\$0	\$0
88	6,477	421	0	8,346	0	1,448	0	0	\$25,240	\$17,778	\$0	\$22,276	\$22,276	\$0	\$0	\$0
89	4,809	264	0	6,008	0	935	0	0	\$24,887	\$18,661	\$0	\$22,381	\$22,381	\$0	\$0	\$0
90	3,220	145	0	4,150	0	785	0	0	\$24,448	\$19,191	\$0	\$21,653	\$21,653	\$0	\$0	\$0
91	2,428	124	0	3,165	0	613	0	0	\$24,488	\$19,733	\$0	\$21,709	\$21,709	\$0	\$0	\$0
92	1,922	110	0	2,533	0	501	0	0	\$24,855	\$20,782	\$0	\$21,890	\$21,890	\$0	\$0	\$0
93	1,516	76	0	1,934	0	342	0	0	\$24,047	\$18,817	\$0	\$21,508	\$21,508	\$0	\$0	\$0
94	1,085	56	0	1,414	0	273	0	0	\$23,486	\$19,305	\$0	\$20,864	\$20,864	\$0	\$0	\$0
95	782	42	0	1,043	0	219	0	0	\$23,538	\$24,835	\$0	\$20,929	\$20,929	\$0	\$0	\$0
96	567	29	0	738	0	142	0	0	\$24,474	\$24,199	\$0	\$21,812	\$21,812	\$0	\$0	\$0
97	394	24	0	511	0	93	0	0	\$24,699	\$27,307	\$0	\$22,523	\$22,523	\$0	\$0	\$0
98	235	11	0	312	0	66	0	0	\$23,556	\$34,016	\$0	\$21,471	\$21,471	\$0	\$0	\$0
99	119	5	0	150	0	26	0	0	\$22,177	\$31,401	\$0	\$20,664	\$20,664	\$0	\$0	\$0
100	63	3	0	80	0	14	0	0	\$22,107	\$24,409	\$0	\$20,577	\$20,577	\$0	\$0	\$0
101	37	1	0	53	0	15	0	0	\$23,710	\$18,672	\$0	\$20,306	\$20,306	\$0	\$0	\$0
102	21	3	0	31	0	7	0	0	\$23,224	\$9,903	\$0	\$19,268	\$19,268	\$0	\$0	\$0
103	10	0	0	12	0	2	0	0	\$25,407	\$0	\$0	\$23,104	\$23,104	\$0	\$0	\$0
104	3	0	0	3	0	0	0	0	\$28,172	\$0	\$0	\$28,172	\$28,172	\$0	\$0	\$0
105	4	0	0	5	0	1	0	0	\$22,521	\$0	\$0	\$19,774	\$19,774	\$0	\$0	\$0
106	0	0	0	0	0	0	0	0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
107	1	0	0	1	0	0	0	0	\$25,608	\$0	\$0	\$25,608	\$25,608	\$0	\$0	\$0
108	0	0	0	0	0	0	0	0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
109	0	0	0	0	0	0	0	0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
110	0	0	0	0	0	0	0	0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Total	1,102,622	90,972	6,002	1,451,096	45,442	5,473	336	60,031	\$23,712	\$10,531	\$9,545	\$20,607	\$14,649	\$7,159	\$836	\$21,429
60+	609,493	32,581	13	893,114	15,526	5,470	362	60,031	\$23,804	\$13,271	\$23,968	\$19,788	\$15,559	\$7,159	\$819	\$0
62+	544,027	29,834	5	808,866	8,613	4,954	155	155	\$23,965	\$13,273	\$24,612	\$19,738	\$15,871	\$7,091	\$888	\$0
65+	451,687	25,560	0	676,371	3,801	3,815	7	7	\$24,261	\$13,270	\$0	\$19,822	\$16,801	\$6,934	\$0	\$0

Notes: Age is retiree's current age nearest birthday at end of fiscal year.
60+ is total for ages 60 and over.
62+ is total for ages 62 and over.
65+ is total for ages 65 and over.
Includes only retirees receiving payment from DoD.
Temporary Early Retirement Act (TERA) retirees and payments are shown for informational purposes only.
Career Status Bonus (CSB) retirees and payments are shown for informational purposes only.
TERA and CSB numbers and payments are included in the appropriate categories.
Pay amounts do not include the 12/1/16 cost of living increase of 0.3%.

DoD Retired Military Valuation Data as of Year-End FY 2016

All DoD

Age	Number				Reserve Retired				Temp Disabled				Non-Disabled				Perm Disabled				Temp Disabled				Average Annual Net Retired Pay				CSB	
	Non-Disabled	Non-Dis	TERA Res Ret	CSB Non-Dis	CSB Dis	Non-Disabled	Non-Dis	TERA Res Ret	CSB Non-Dis	CSB Dis	Non-Disabled	Non-Dis	TERA Res Ret	CSB Non-Dis	CSB Dis	Non-Disabled	Non-Dis	TERA Res Ret	CSB Non-Dis	CSB Dis	Non-Disabled	Non-Dis	TERA Res Ret	CSB Non-Dis	CSB Dis	Non-Dis	Dis			
16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
18	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
19	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
21	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
22	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
23	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
26	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
27	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
28	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
29	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
31	1	2,357	333	0	2,691	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
32	1	2,599	384	0	2,984	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
33	18	2,672	371	0	3,061	17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
34	102	2,692	372	0	3,166	101	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
35	290	2,524	305	0	3,119	289	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
36	608	2,377	280	0	3,265	606	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
37	948	2,215	253	0	3,416	942	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
38	1,663	1,979	230	0	3,872	1,046	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
39	3,674	1,967	242	0	5,883	1,120	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
40	5,972	1,900	219	0	8,091	1,035	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
41	8,398	1,866	193	0	10,457	849	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
42	10,931	1,880	224	0	13,035	640	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
43	13,686	1,910	206	0	15,802	482	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
44	16,531	2,091	194	0	18,816	367	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
45	20,264	2,147	140	0	22,551	304	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
46	23,502	2,306	150	0	25,958	222	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
47	24,609	2,150	112	0	26,871	141	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
48	26,370	2,029	98	0	28,497	103	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
49	29,059	1,895	83	0	31,037	70	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
50	32,465	1,902	82	0	34,449	84	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
51	35,704	1,948	64	0	37,718	185	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
52	39,526	1,954	60	0	41,541	405	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
53	42,236	1,929	57	0	44,225	879	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
54	43,945	1,990	44	0	45,988	1,674	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
55	45,491	1,858	33	0	47,405	2,958	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
56	46,314	1,789	27	0	48,183	4,114	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
57	45,878	1,731	25	0	47,755	4,926	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
58	45,032	1,592	16	0	46,926	5,506	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
59	44,659	1,690	14	0	46,955	5,739	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
60	43,093	1,657	10	0	45,699	5,237	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
61	42,405	1,685	5	0	44,845	4,382	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
62	42,027	1,713	4	0	44,413	3,482	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
63	41,001	1,713	4	0	43,497	2,857	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
64	40,752	1,773	1	0	42,827	2,119	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
65	37,834	1,742	0	0	39,743	1,641	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
66	36,776	2,019	0	0	38,847	1,146	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
67	37,496	2,469	0	0	40,496	895	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
68	38,102	2,766	0	0	42,404	723	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
69	38,801	2,997	0	0	44,562	622	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
70	39,022	2,755	0	0	42,562	506	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		

DoD Survivor Valuation Data as of Year-End FY 2016

Age	Number			Average Annual Net Survivor Pay			Total
	SBP	RCSBP	Minimum Income	Death on Active Duty	RSFPP	Total	
0	7	1	0	0	4	0	12
1	1	0	0	27	0	0	28
2	3	0	0	40	0	0	43
3	0	1	0	124	0	0	125
4	2	0	0	179	0	0	181
5	10	0	0	232	0	0	242
6	17	0	0	364	0	0	381
7	13	1	0	385	0	0	399
8	19	4	0	516	0	0	539
9	34	4	0	518	0	0	556
10	40	3	0	598	0	0	641
11	58	5	0	569	0	0	632
12	61	8	0	618	0	0	687
13	92	7	0	662	1	0	764
14	112	9	0	556	0	0	675
15	124	25	0	524	0	0	673
16	135	19	0	513	0	0	667
17	171	29	0	466	0	0	666
18	128	24	0	296	0	0	448
19	100	18	0	118	1	0	237
20	67	12	0	79	0	0	158
21	66	15	0	73	0	0	154
22	46	5	0	35	0	0	86
23	23	7	0	9	0	0	39
24	29	12	0	8	0	0	48
25	22	5	0	12	0	0	39
26	20	5	0	9	0	0	34
27	16	2	0	21	0	0	39
28	27	8	0	18	0	0	53
29	33	5	0	14	0	0	52
30	29	4	0	19	0	0	52
31	33	5	0	16	0	0	54
32	38	5	0	34	0	0	77
33	28	9	0	24	1	0	62
34	28	9	0	36	0	0	73
35	60	7	0	31	0	0	98
36	51	14	0	41	0	0	106
37	57	23	0	40	1	0	121
38	64	14	0	35	0	0	113
39	46	13	0	49	0	0	108
40	72	30	0	59	3	0	164
41	76	19	0	43	8	0	146
42	91	23	0	62	2	0	178
43	125	27	0	58	3	0	213
44	99	43	0	68	0	0	210
45	144	41	0	59	4	0	248
46	163	71	0	86	7	0	327
47	194	70	0	80	9	0	353
48	224	87	0	88	3	0	402
49	242	81	0	82	6	0	411
50	299	114	0	80	7	0	500
51	364	143	0	91	10	0	608
52	494	154	0	93	24	0	765
53	549	238	0	74	34	0	895
54	560	261	0	84	7	0	912
55	671	281	0	89	12	0	1053
56	823	296	0	81	16	0	1216
57	896	396	0	58	8	0	1358
58	994	426	0	63	9	0	1492
59	1,149	549	0	63	15	0	1,776

		SBP		RCSBP		Minimum Income		Death on Active Duty		RSFPP		Total	
		SBP	RCSBP	Minimum Income	Death on Active Duty	RSFPP	Total	SBP	RCSBP	Minimum Income	Death on Active Duty	RSFPP	Total
		\$28,803	\$10,404	\$0	\$6,894	\$0	\$19,967	\$0	\$0	\$0	\$0	\$0	\$19,967
		\$2,286	\$0	\$0	\$7,560	\$0	\$7,372	\$0	\$0	\$0	\$0	\$0	\$7,372
		\$11,210	\$0	\$0	\$8,414	\$0	\$8,609	\$0	\$0	\$0	\$0	\$0	\$8,609
		\$0	\$3,966	\$0	\$7,593	\$0	\$7,564	\$0	\$0	\$0	\$0	\$0	\$7,564
		\$10,956	\$0	\$0	\$7,304	\$0	\$7,344	\$0	\$0	\$0	\$0	\$0	\$7,344
		\$6,304	\$0	\$0	\$7,852	\$0	\$7,788	\$0	\$0	\$0	\$0	\$0	\$7,788
		\$8,480	\$0	\$0	\$7,920	\$0	\$7,945	\$0	\$0	\$0	\$0	\$0	\$7,945
		\$4,056	\$4,056	\$0	\$8,438	\$0	\$8,373	\$0	\$0	\$0	\$0	\$0	\$8,373
		\$8,390	\$4,265	\$0	\$7,367	\$0	\$7,367	\$0	\$0	\$0	\$0	\$0	\$7,367
		\$8,029	\$9,276	\$0	\$7,735	\$0	\$7,764	\$0	\$0	\$0	\$0	\$0	\$7,764
		\$9,325	\$4,706	\$0	\$7,891	\$0	\$7,965	\$0	\$0	\$0	\$0	\$0	\$7,965
		\$6,691	\$6,253	\$0	\$8,138	\$0	\$7,991	\$0	\$0	\$0	\$0	\$0	\$7,991
		\$8,942	\$3,777	\$0	\$8,407	\$0	\$8,401	\$0	\$0	\$0	\$0	\$0	\$8,401
		\$8,353	\$6,294	\$0	\$8,709	\$3,534	\$8,631	\$0	\$0	\$0	\$0	\$0	\$8,631
		\$10,237	\$6,025	\$0	\$8,639	\$0	\$8,877	\$0	\$0	\$0	\$0	\$0	\$8,877
		\$9,092	\$5,038	\$0	\$8,489	\$0	\$8,472	\$0	\$0	\$0	\$0	\$0	\$8,472
		\$11,557	\$6,238	\$0	\$9,188	\$0	\$9,583	\$0	\$0	\$0	\$0	\$0	\$9,583
		\$10,525	\$6,576	\$0	\$9,268	\$0	\$9,473	\$0	\$0	\$0	\$0	\$0	\$9,473
		\$11,670	\$7,145	\$0	\$9,224	\$0	\$9,812	\$0	\$0	\$0	\$0	\$0	\$9,812
		\$13,651	\$4,388	\$0	\$10,290	\$492	\$11,219	\$0	\$0	\$0	\$0	\$0	\$11,219
		\$13,452	\$6,029	\$0	\$12,087	\$0	\$12,206	\$0	\$0	\$0	\$0	\$0	\$12,206
		\$14,253	\$7,953	\$0	\$13,473	\$0	\$13,269	\$0	\$0	\$0	\$0	\$0	\$13,269
		\$12,605	\$3,634	\$0	\$12,837	\$0	\$12,178	\$0	\$0	\$0	\$0	\$0	\$12,178
		\$9,787	\$4,935	\$0	\$7,980	\$0	\$8,499	\$0	\$0	\$0	\$0	\$0	\$8,499
		\$14,388	\$8,739	\$0	\$10,848	\$0	\$12,426	\$0	\$0	\$0	\$0	\$0	\$12,426
		\$12,440	\$5,539	\$0	\$10,338	\$0	\$10,909	\$0	\$0	\$0	\$0	\$0	\$10,909
		\$8,756	\$7,056	\$0	\$7,281	\$0	\$8,115	\$0	\$0	\$0	\$0	\$0	\$8,115
		\$10,637	\$5,040	\$0	\$9,358	\$0	\$9,662	\$0	\$0	\$0	\$0	\$0	\$9,662
		\$11,205	\$6,839	\$0	\$9,833	\$0	\$10,080	\$0	\$0	\$0	\$0	\$0	\$10,080
		\$11,324	\$9,413	\$0	\$7,915	\$0	\$10,222	\$0	\$0	\$0	\$0	\$0	\$10,222
		\$15,572	\$9,887	\$0	\$5,269	\$0	\$11,370	\$0	\$0	\$0	\$0	\$0	\$11,370
		\$11,924	\$5,342	\$0	\$8,260	\$0	\$10,229	\$0	\$0	\$0	\$0	\$0	\$10,229
		\$14,954	\$8,206	\$0	\$6,841	\$0	\$10,933	\$0	\$0	\$0	\$0	\$0	\$10,933
		\$12,034	\$6,344	\$0	\$4,403	\$2,556	\$8,101	\$0	\$0	\$0	\$0	\$0	\$8,101
		\$11,283	\$5,719	\$0	\$5,653	\$0	\$7,820	\$0	\$0	\$0	\$0	\$0	\$7,820
		\$13,094	\$7,001	\$0	\$7,715	\$0	\$10,957	\$0	\$0	\$0	\$0	\$0	\$10,957
		\$13,351	\$5,891	\$0	\$7,780	\$0	\$10,211	\$0	\$0	\$0	\$0	\$0	\$10,211
		\$12,199	\$7,979	\$0	\$7,223	\$1,204	\$9,661	\$0	\$0	\$0	\$0	\$0	\$9,661
		\$11,938	\$6,736	\$0	\$9,374	\$0	\$10,499	\$0	\$0	\$0	\$0	\$0	\$10,499
		\$12,606	\$6,821	\$0	\$9,032	\$0	\$10,288	\$0	\$0	\$0	\$0	\$0	\$10,288
		\$12,730	\$7,500	\$0	\$8,736	\$8,412	\$10,257	\$0	\$0	\$0	\$0	\$0	\$10,257
		\$13,100	\$7,258	\$0	\$7,767	\$6,005	\$10,380	\$0	\$0	\$0	\$0	\$0	\$10,380
		\$13,849	\$7,256	\$0	\$11,263	\$1,643	\$11,959	\$0	\$0	\$0	\$0	\$0	\$11,959
		\$12,487	\$9,588	\$0	\$8,871	\$2,785	\$10,998	\$0	\$0	\$0	\$0	\$0	\$10,998
		\$13,205	\$6,570	\$0	\$11,728	\$0	\$11,368	\$0	\$0	\$0	\$0	\$0	\$11,368
		\$13,535	\$6,266	\$0	\$8,953	\$1,770	\$11,053	\$0	\$0	\$0	\$0	\$0	\$11,053
		\$13,218	\$7,880	\$0	\$10,839	\$2,624	\$11,206	\$0	\$0	\$0	\$0	\$0	\$11,206
		\$13,481	\$7,887	\$0	\$12,114	\$3,278	\$11,801	\$0	\$0	\$0	\$0	\$0	\$11,801
		\$14,352	\$7,601	\$0	\$9,940	\$1,504	\$11,829	\$0	\$0	\$0	\$0	\$0	\$11,829
		\$14,196	\$8,632	\$0	\$10,788	\$2,469	\$12,248	\$0	\$0	\$0	\$0	\$0	\$12,248
		\$13,457	\$7,456	\$0	\$13,889	\$2,837	\$12,009	\$0	\$0	\$0	\$0	\$0	\$12,009
		\$12,619	\$7,867	\$0	\$12,199	\$3,925	\$11,296	\$0	\$0	\$0	\$0	\$0	\$11,296
		\$13,742	\$7,869	\$0	\$11,427	\$3,754	\$11,965	\$0	\$0	\$0	\$0	\$0	\$11,965
		\$13,888	\$7,606	\$0	\$13,851	\$2,990	\$11,801	\$0	\$0	\$0	\$0	\$0	\$11,801
		\$12,933	\$8,287	\$0	\$15,028	\$4,789	\$11,734	\$0	\$0	\$0	\$0	\$0	\$11,734
		\$13,250	\$7,163	\$0	\$15,235	\$3,402	\$11,681	\$0	\$0	\$0	\$0	\$0	\$11,681
		\$13,432	\$7,592	\$0	\$15,481	\$3,952	\$12,022	\$0	\$0	\$0	\$0	\$0	\$12,022
		\$12,532	\$7,697	\$0	\$14,376	\$3,360	\$11,621	\$0	\$0	\$0	\$0	\$0	\$11,621
		\$12,864	\$8,145	\$0	\$16,541	\$2,164	\$11,607	\$0	\$0	\$0	\$0	\$0	\$11,607
		\$12,624	\$7,594	\$0	\$14,153	\$2,767	\$11,040	\$0	\$0	\$0	\$0	\$0	\$11,040

DoD Survivor Valuation Data as of Year-End FY 2016

Age	SBP			RCSBP			SBP			RCSBP			Average Annual Net Survivor Pay			Total			
	SBP	RCSBP	Minimum Income	Death on Active Duty	RSFPP	Total	SBP	RCSBP	Minimum Income	Death on Active Duty	RSFPP	Total	SBP	RCSBP	Minimum Income		Death on Active Duty	RSFPP	Total
60	1,264	638	0	76	19	1,997	\$8,267	\$13,364	\$0	\$15,365	\$4,407	\$11,727	\$8,267	\$13,364	\$0	\$15,365	\$4,407	\$11,727	
61	1,410	664	0	56	8	2,138	\$7,794	\$13,357	\$0	\$17,896	\$5,356	\$11,718	\$7,794	\$13,357	\$0	\$17,896	\$5,356	\$11,718	
62	1,617	864	0	54	6	2,541	\$7,833	\$13,131	\$0	\$14,305	\$6,042	\$11,338	\$7,833	\$13,131	\$0	\$14,305	\$6,042	\$11,338	
63	1,806	908	0	59	16	2,789	\$7,587	\$13,065	\$0	\$15,637	\$5,723	\$11,282	\$7,587	\$13,065	\$0	\$15,637	\$5,723	\$11,282	
64	1,968	1,137	0	49	10	3,164	\$7,802	\$13,034	\$0	\$16,885	\$5,033	\$11,188	\$7,802	\$13,034	\$0	\$16,885	\$5,033	\$11,188	
65	2,089	1,299	0	49	7	3,444	\$7,707	\$13,285	\$0	\$14,154	\$2,290	\$11,171	\$7,707	\$13,285	\$0	\$14,154	\$2,290	\$11,171	
66	2,349	1,427	0	52	6	3,834	\$7,704	\$13,471	\$0	\$13,942	\$4,193	\$11,316	\$7,704	\$13,471	\$0	\$13,942	\$4,193	\$11,316	
67	2,631	1,604	0	46	11	4,292	\$7,604	\$13,748	\$0	\$15,844	\$3,140	\$11,447	\$7,604	\$13,748	\$0	\$15,844	\$3,140	\$11,447	
68	2,978	1,876	1	35	17	4,907	\$7,632	\$13,555	\$7,801	\$14,929	\$3,398	\$11,264	\$7,632	\$13,555	\$7,801	\$14,929	\$3,398	\$11,264	
69	3,379	2,142	0	48	13	5,582	\$7,780	\$13,598	\$0	\$13,421	\$2,646	\$11,338	\$7,780	\$13,598	\$0	\$13,421	\$2,646	\$11,338	
70	3,772	2,371	1	43	3	6,190	\$7,856	\$13,895	\$8,628	\$12,896	\$1,328	\$11,568	\$7,856	\$13,895	\$8,628	\$12,896	\$1,328	\$11,568	
71	3,283	1,843	0	33	10	5,169	\$7,812	\$14,000	\$0	\$13,593	\$2,417	\$11,769	\$7,812	\$14,000	\$0	\$13,593	\$2,417	\$11,769	
72	3,818	2,103	0	37	13	5,971	\$7,716	\$13,913	\$0	\$11,866	\$2,112	\$11,692	\$7,716	\$13,913	\$0	\$11,866	\$2,112	\$11,692	
73	4,480	2,329	0	37	12	6,838	\$7,877	\$14,061	\$0	\$9,644	\$1,738	\$11,916	\$7,877	\$14,061	\$0	\$9,644	\$1,738	\$11,916	
74	5,110	2,550	0	50	18	7,728	\$7,836	\$13,933	\$0	\$13,562	\$2,055	\$11,891	\$7,836	\$13,933	\$0	\$13,562	\$2,055	\$11,891	
75	5,274	2,502	0	41	17	7,834	\$7,855	\$13,953	\$0	\$11,209	\$2,157	\$11,965	\$7,855	\$13,953	\$0	\$11,209	\$2,157	\$11,965	
76	5,606	2,512	1	39	36	8,194	\$7,748	\$14,064	\$8,628	\$9,349	\$2,146	\$12,052	\$7,748	\$14,064	\$8,628	\$9,349	\$2,146	\$12,052	
77	6,132	2,656	0	49	40	8,877	\$7,812	\$14,118	\$0	\$10,652	\$1,534	\$12,156	\$7,812	\$14,118	\$0	\$10,652	\$1,534	\$12,156	
78	6,670	2,911	2	39	42	9,664	\$7,877	\$14,537	\$8,628	\$9,810	\$1,961	\$12,456	\$7,877	\$14,537	\$8,628	\$9,810	\$1,961	\$12,456	
79	7,023	2,800	2	41	61	9,927	\$8,002	\$14,506	\$7,915	\$13,611	\$2,276	\$12,591	\$8,002	\$14,506	\$7,915	\$13,611	\$2,276	\$12,591	
80	7,297	2,921	3	58	117	10,396	\$7,955	\$14,742	\$7,785	\$11,658	\$2,276	\$12,676	\$7,955	\$14,742	\$7,785	\$11,658	\$2,276	\$12,676	
81	7,795	3,146	6	45	137	11,129	\$7,939	\$15,047	\$7,477	\$11,476	\$2,377	\$12,863	\$7,939	\$15,047	\$7,477	\$11,476	\$2,377	\$12,863	
82	7,798	3,109	2	56	195	11,160	\$8,088	\$15,242	\$8,088	\$13,771	\$2,121	\$13,011	\$8,088	\$15,242	\$8,088	\$13,771	\$2,121	\$13,011	
83	7,578	2,967	2	57	234	10,838	\$8,203	\$15,638	\$6,552	\$13,857	\$2,203	\$13,302	\$8,203	\$15,638	\$6,552	\$13,857	\$2,203	\$13,302	
84	7,738	3,084	1	48	310	11,181	\$8,269	\$16,002	\$8,269	\$12,474	\$2,036	\$13,466	\$8,269	\$16,002	\$8,269	\$12,474	\$2,036	\$13,466	
85	7,446	3,035	1	48	300	10,830	\$8,372	\$16,703	\$5,602	\$12,683	\$2,719	\$13,962	\$8,372	\$16,703	\$5,602	\$12,683	\$2,719	\$13,962	
86	7,211	2,868	1	41	366	10,487	\$8,702	\$16,927	\$8,702	\$14,308	\$2,446	\$14,161	\$8,702	\$16,927	\$8,702	\$14,308	\$2,446	\$14,161	
87	6,457	2,760	3	32	332	9,584	\$8,539	\$17,194	\$7,286	\$13,299	\$2,287	\$14,169	\$8,539	\$17,194	\$7,286	\$13,299	\$2,287	\$14,169	
88	5,982	2,739	6	31	351	9,109	\$8,777	\$17,482	\$8,777	\$16,902	\$2,441	\$14,277	\$8,777	\$17,482	\$8,777	\$16,902	\$2,441	\$14,277	
89	5,474	2,581	6	20	372	8,453	\$9,030	\$17,821	\$8,289	\$11,272	\$2,639	\$14,447	\$9,030	\$17,821	\$8,289	\$11,272	\$2,639	\$14,447	
90	5,247	2,506	4	24	394	8,175	\$18,770	\$9,210	\$9,536	\$13,558	\$2,661	\$15,043	\$18,770	\$9,210	\$9,536	\$13,558	\$2,661	\$15,043	
91	5,120	2,439	3	27	382	7,971	\$19,409	\$9,235	\$8,628	\$15,808	\$2,889	\$15,488	\$19,409	\$9,235	\$8,628	\$15,808	\$2,889	\$15,488	
92	4,622	2,290	2	18	360	7,292	\$19,863	\$9,496	\$5,020	\$9,951	\$3,240	\$15,758	\$19,863	\$9,496	\$5,020	\$9,951	\$3,240	\$15,758	
93	4,165	2,084	4	19	360	6,632	\$20,670	\$9,550	\$7,451	\$17,600	\$3,416	\$16,222	\$20,670	\$9,550	\$7,451	\$17,600	\$3,416	\$16,222	
94	3,268	1,822	2	11	327	5,430	\$21,147	\$9,807	\$7,002	\$11,299	\$2,927	\$16,219	\$21,147	\$9,807	\$7,002	\$11,299	\$2,927	\$16,219	
95	2,741	1,624	3	16	252	4,636	\$21,125	\$10,057	\$8,628	\$18,851	\$3,435	\$16,270	\$21,125	\$10,057	\$8,628	\$18,851	\$3,435	\$16,270	
96	1,921	1,142	1	8	203	3,275	\$21,764	\$10,604	\$8,628	\$11,882	\$3,358	\$16,704	\$21,764	\$10,604	\$8,628	\$11,882	\$3,358	\$16,704	
97	1,199	798	2	4	153	2,156	\$22,274	\$10,462	\$7,683	\$8,305	\$4,146	\$16,576	\$22,274	\$10,462	\$7,683	\$8,305	\$4,146	\$16,576	
98	780	500	1	3	99	1,383	\$21,262	\$10,810	\$3,926	\$14,370	\$3,251	\$16,167	\$21,262	\$10,810	\$3,926	\$14,370	\$3,251	\$16,167	
99	494	349	4	2	55	904	\$21,368	\$10,498	\$8,903	\$19,630	\$2,338	\$15,955	\$21,368	\$10,498	\$8,903	\$19,630	\$2,338	\$15,955	
100	272	183	1	0	33	489	\$21,042	\$11,042	\$6,949	\$0	\$2,869	\$16,541	\$21,042	\$11,042	\$6,949	\$0	\$2,869	\$16,541	
101	170	105	0	0	25	300	\$22,118	\$11,125	\$0	\$0	\$2,929	\$16,672	\$22,118	\$11,125	\$0	\$0	\$2,929	\$16,672	
102	98	67	0	11	176	176	\$20,174	\$10,979	\$0	\$0	\$0	\$15,513	\$20,174	\$10,979	\$0	\$0	\$0	\$15,513	
103	63	43	0	9	115	115	\$22,429	\$11,496	\$0	\$0	\$0	\$16,872	\$22,429	\$11,496	\$0	\$0	\$0	\$16,872	
104	33	32	0	6	7	7	\$17,662	\$12,166	\$0	\$0	\$0	\$14,186	\$17,662	\$12,166	\$0	\$0	\$0	\$14,186	
105	20	9	0	3	32	32	\$15,447	\$9,585	\$0	\$0	\$0	\$13,049	\$15,447	\$9,585	\$0	\$0	\$0	\$13,049	
106	11	5	0	1	17	17	\$25,177	\$12,324	\$0	\$0	\$0	\$20,142	\$25,177	\$12,324	\$0	\$0	\$0	\$20,142	
107	4	1	1	8	8	8	\$9,252	\$7,800	\$8,364	\$0	\$0	\$7,101	\$9,252	\$7,800	\$8,364	\$0	\$0	\$7,101	\$11,818
108	2	2	0	0	4	4	\$13,581	\$5,448	\$0	\$0	\$0	\$9,515	\$13,581	\$5,448	\$0	\$0	\$0	\$9,515	
109	3	2	2	0	7	7	\$17,004	\$11,220	\$8,628	\$0	\$0	\$12,958	\$17,004	\$11,220	\$8,628	\$0	\$0	\$12,958	\$12,958
110	0	0	0	0	0	0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
111	0	0	0	0	0	0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
112	0	0	0	0	0	0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
113	0	0	0	0	0	0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
114	0	0	0	0	0	0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Total	183,807	86,036	68	10,874	5,945	286,730	\$8,351	\$15,779	\$7,875	\$9,667	\$2,771	\$13,047	\$8,351	\$15,779	\$7,875	\$9,667	\$2,771	\$13,047	
60+	173,668	82,349	68	1,501	5,754	263,340	\$8,384	\$15,950	\$7,875	\$13,588	\$2,752	\$13,280	\$8,384	\$15,950	\$7,875	\$13,588	\$2,752	\$13,280	
62+	170,994	81,047	68	1,369	5,727	259,205	\$8,390	\$15,991	\$7,875	\$13,313	\$2,742	\$13,305	\$8,390	\$15,991	\$7,875	\$13,313	\$2,742	\$13,305	
65+	165,603	78,138	68	1,207	5,695	250,711	\$8,414	\$16,086	\$7,875	\$13,010	\$2,732	\$13,374	\$8,414	\$16,086	\$7,875	\$13,010	\$2,732	\$13,374	

Notes: Age is survivor's current age nearest birthday at end of fiscal year.
 60+ is total for ages 60 and over.
 62+ is total for ages 62 and over.
 65+ is total for ages 65 and over.
 Includes only survivors receiving payment from DoD.
 Survivors receiving payment under SBP and RSFPP are counted twice.
 Two-life survivors are given by the age of the adult survivor.
 Children of the same deceased member receiving separate benefit payments are counted individually.
 RCSBP includes all reserve survivors, whether or not the reserve retiree elected RCSBP.
 Pay amounts do not include increased survivor benefits as part of Special Survivor Indemnity Allowance (NDAA 2008 and P.L. 111-31).
 Amounts do not include increased survivor benefits as part of Special Survivor Indemnity Allowance (NDAA 2008 and P.L. 111-31).
 The liability calculated in this valuation, however, reflects the increased benefits.

APPENDIX D

ECONOMIC ASSUMPTIONS

	<u>Page</u>
Inflation.....	90
Interest Rate	91
Wage Growth	92
Table D-1: DoD Board of Actuaries' Long-Term Economic Assumptions	93
Table D-2: Average Consumer Price Index (CPI-W) Increases	94
Table D-3: Average Real Yield Rates on New Purchases	95
Table D-4: Average Real Military Retirement Fund Effective Yield	96
Table D-5: Average Real Military Personnel Basic Pay Increases	97

ECONOMIC ASSUMPTIONS

In July 2016, the DoD Board of Actuaries adopted the following economic assumptions for use in the valuation as of September 30, 2016: the rate of inflation (CPI) is assumed to be 2.75 percent per year; the investment return (interest rate) is 5.25 percent per year; and the basic pay scale increases are 3.25 percent per year.¹ As noted in the “Valuation Data and Procedure” section in the main text, the valuation results are highly sensitive to changes in these three primary economic assumptions. As background for determining the economic assumptions, the Board receives information from economists and actuaries and is provided with extensive historical data on inflation, interest rates, and wage growth. The Board analyzes past trends, current environment, and future expectations. As part of their assessment of the current environment, the Board also considers what other federal retirement and social insurance systems are assuming as well as other government agencies and financial experts. Table D-1 shows the DoD Board of Actuaries’ long-term economic assumptions by valuation year since the Fund’s inception in 1984.

The comparisons to Civil Service and Social Security in this appendix are not meant to imply an expectation that all three systems should use the same assumptions. There are differences in terms of the trust funds themselves and the programs financed by the trust funds.

Inflation

The CPI-W, one of the consumer price indexes published by the Bureau of Labor Statistics (BLS), is emphasized as an inflation measure since it is used in calculating military retired pay cost-of-living increases. The CPI-W measures the average price change for Urban Wage Earners and Clerical Workers and covers approximately 29 percent of the U.S. population. (The CPI-W is a subset of the broader CPI-U measure which computes the average price change for All Urban Consumers and covers approximately 93 percent of the U.S. population). The CPI-W is the common index used to make cost-of-living adjustments for labor contracts.

Table D-2 shows the average annual CPI-W changes over various periods of time since 1940. Different periods experienced different rates of change. The average annual CPI change during successive 30-year periods since World War II has risen from 3.79 percent for the period ending in 1975 to 5.20 percent for the period ending in 1995. This reflects the high inflation during the 1970s. The average annual CPI change during the 36-year period ending in 2016 is 2.73 percent.

The DoD assumption for CPI is reasonably consistent with what is used in other parts of the government. In its 2016 report, the Civil Service Retirement System (CSRS) assumes a 3.00 percent CPI increase. The Trustees of the Social Security Administration (SSA) in their 2016

¹ The notes and transcript from the July 2016 meeting can be found at:
<http://facadatabase.gov/committee/meetingdocuments.aspx?flr=141815&cid=2191&fy=2016>

Annual Report made projections under three alternative sets of assumptions. Their intermediate assumption for CPI was 2.6 percent (other assumptions: low cost – 3.2 percent; high cost – 2.0 percent). The Board has noted that in certain respects, the effect of the CPI on the valuation is relatively minor in a system where retirement benefits are fully indexed and expressed as a percentage of payroll.

Interest Rate

The Board analyzes Tables D-3 and D-4, as well as other material presented to them, when setting the interest assumption. The Board focuses on real interest rates. To simplify discussion, the real interest rate is defined as the difference between the nominal interest rate and the CPI. Other things being equal, a lower element of risk in an investment will give a lower real interest rate. Because the Military Retirement Fund must be invested in obligations of the U.S. Government, a highly secure investment, the real interest rates are expected to be relatively low. As noted in the “Assets” section in the main text, the Fund is currently heavily investing in Treasury Inflation-Protected Securities (TIPS). TIPS allow the investor/institution to lock in the real interest rate for the given period of time.

The Board examines past real interest rates that would have been earned by the types of public debt securities in which the Fund is invested. The Board recognizes the importance of selecting a real interest rate that would prevail on average over a long period of time and that would not unduly weight recent experience or expected results during the near-term future.

Table D-3 depicts the average real yield rates on new purchases of the Fund. Because the Fund was established in 1984, the DoD Office of the Actuary constructed a Composite Series to simulate what new purchases would have yielded in the past.

Table D-4 shows the average real Military Retirement Fund effective yield. The effective yield calculation uses a “dollar-weighted yield,” which is computed by dividing the investment income by the average amount of principal invested throughout the year. Since the Fund’s inception, the average annual real yield is 4.42 percent.

After analyzing past trends and forecasts of government trust fund earnings, 2.50 percent was adopted as the assumed rate of real interest. Since 2.75 percent had been adopted as the inflation rate, the assumed nominal rate of interest is 5.25 percent ($5.25 = 2.50 + 2.75$). This is commonly known as the “building block method” in setting actuarial assumptions.

It is relevant to note the real interest rates being assumed by the other two major public benefit systems. The SSA Trustees used an intermediate ultimate real interest rate assumption of 2.7 percent in their 2016 report (other assumptions: low cost – 3.2 percent; high cost – 2.2 percent). The Board of Actuaries of the CSRS used a 2.25 percent real interest rate assumption in its 2016 valuation.

Wage Growth

For the salary increase assumption, recent historical data is used as well as expectations for the future. The Career Compensation Act of 1949 revamped the military compensation structure to provide an equitable pay and allowance system. Associated with this change was a large basic pay increase designed to establish rough comparability with the private sector. Additionally, the Army and Air Force Vitalization and Retirement Equalization Act of 1948 established for the first time a uniform voluntary retirement system authority among all branches of Service. The reserve retirement program was also established at this time. These two Acts provided the start of the modern-day compensation structure designed to attract and retain the number of Service members needed. In the analysis of basic pay scale increases, the Board looks at all data from this point forward.

The Military Pay Comparability Act of 2003 ensures that military pay increases are comparable to private sector pay growth, as measured by the Employment Cost Index (ECI) – Wages and Salaries index on a 15-month lag. (“Wages and Salaries” account for about 70 percent of the broader “Compensation” costs, with “Benefits” making up the remaining 30 percent.) Covenants are embedded within the Act which give the President the authority to propose an alternate basic pay adjustment. This Act specifically referenced fiscal years through 2006. However, Congress has continued to use the basic framework of the Act in the subsequent fiscal years.

Table D-5 displays real military basic pay increases over various periods of time during the post-World War II era. From the early 1950s to the early 1970s, the average annual real military pay increase was approximately 1.79 percent. From the early 1950s to the present, the increase has averaged approximately 0.92 percent a year. Since the Vietnam War (~1970), annual real pay increases have averaged only 0.54 percent. (There was negative real pay growth in the late 1970s and late 1980s as well as numerous years since 2005.)

In making its recommendation for the real rate of the annual basic pay scale increase, the Board considered information presented and adopted a real basic pay growth assumption of 0.50 percent, leading to a nominal growth of 3.25 percent ($3.25 = 0.50 + 2.75$). The Board of Actuaries of the CSRS assumed 0.25 percent real wage growth for its 2016 valuation. The Social Security Trustees’ 2016 report had an intermediate ultimate assumption for real wage growth of 1.2 percent (other assumptions: low cost – 1.8 percent; high cost – 0.5 percent). (For the Military Retirement System and CSRS, wage increase relates to “across-the-board” salary increase which excludes merit and certain longevity increases, whereas for Social Security, wage increase generally relates to the total salary increase.)

TABLE D-1

DOD BOARD OF ACTUARIES' LONG-TERM ECONOMIC ASSUMPTIONS

Fiscal Year	Inflation (1)	Interest (2)	Salary Growth (3)	Real Interest (4)	Real Salary (5)
1984	5.00%	6.60%	6.20%	1.60%	1.20%
1985	5.00	6.60	6.20	1.60	1.20
1986	5.00	6.60	6.20	1.60	1.20
1987	5.00	6.60	6.20	1.60	1.20
1988	5.00	7.00	5.75	2.00	0.75
1989	5.00	7.00	5.75	2.00	0.75
1990	5.00	7.00	5.75	2.00	0.75
1991	5.00	7.50	5.50	2.50	0.50
1992	5.00	7.50	5.50	2.50	0.50
1993	5.00	7.50	5.50	2.50	0.50
1994	4.00	6.75	4.50	2.75	0.50
1995	4.00	6.75	4.50	2.75	0.50
1996	3.50	6.50	4.00	3.00	0.50
1997	3.50	6.50	4.00	3.00	0.50
1998	3.50	6.50	4.00	3.00	0.50
1999	3.00	6.25	3.50	3.25	0.50
2000	3.00	6.25	3.50	3.25	0.50
2001	3.00	6.25	3.50	3.25	0.50
2002	3.00	6.25	3.50	3.25	0.50
2003	3.00	6.25	3.75	3.25	0.75
2004	3.00	6.25	3.75	3.25	0.75
2005	3.00	6.25	3.75	3.25	0.75
2006	3.00	6.00	3.75	3.00	0.75
2007	3.00	6.00	3.75	3.00	0.75
2008	3.00	5.75	3.75	2.75	0.75
2009	3.00	5.75	3.75	2.75	0.75
2010	3.00	5.75	3.75	2.75	0.75
2011	3.00	5.75	3.75	2.75	0.75
2012	3.00	5.50	3.50	2.50	0.50
2013	3.00	5.50	3.50	2.50	0.50
2014	3.00	5.50	3.50	2.50	0.50
2015	2.75	5.25	3.25	2.50	0.50
2016	2.75	5.25	3.25	2.50	0.50

NOTES:

- (1) Board Assumption
- (2) Board Assumption
- (3) Board Assumption
- (4) = (2) - (1)
- (5) = (3) - (1)

TABLE D-2
AVERAGE CONSUMER PRICE INDEX (CPI-W) INCREASES

FROM PERIOD CORRESPONDING TO END OF:	1940	1945	1950	1955	1960	1965	1970	1975	1980	1985	1990	1995	2000	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2014		
TO END OF:																										
1945	5.25																									
1945	5.91	6.57																								
1955	4.39	3.96	1.43																							
1960	3.82	3.35	1.77	2.12																						
1965	3.32	2.84	1.63	1.33	1.33																					
1970	3.52	3.18	2.35	2.65	2.92	4.54																				
1975	4.00	3.79	3.24	3.70	4.23	5.71	6.90																			
1980	4.64	4.55	4.22	4.79	5.46	6.88	8.07	9.24																		
1985	4.55	4.46	4.16	4.62	5.13	6.10	6.63	6.50	3.82																	
1990	4.48	4.40	4.13	4.52	4.93	5.66	5.95	5.63	3.87	3.91																
1995	4.34	4.25	4.00	4.32	4.64	5.20	5.34	4.95	3.56	3.42	2.94															
2000	4.18	4.08	3.84	4.11	4.36	4.80	4.85	4.44	3.28	3.09	2.69	2.44														
2005	4.06	3.96	3.72	3.96	4.16	4.52	4.52	4.13	3.14	2.96	2.65	2.51	2.58													
2006	4.05	3.95	3.72	3.94	4.14	4.49	4.49	4.10	3.14	2.98	2.69	2.58	2.70	3.30												
2007	4.02	3.92	3.69	3.91	4.10	4.44	4.43	4.04	3.11	2.95	2.67	2.56	2.64	2.80	2.30											
2008	4.05	3.95	3.73	3.95	4.14	4.47	4.46	4.10	3.20	3.07	2.84	2.80	3.03	3.79	4.04	5.80										
2009	3.99	3.89	3.66	3.87	4.05	4.37	4.35	3.97	3.09	2.94	2.69	2.60	2.69	2.83	2.67	2.86	0.00									
2010	3.93	3.83	3.60	3.80	3.97	4.27	4.23	3.86	2.99	2.82	2.55	2.42	2.42	2.26	2.00	1.90	0.00	0.00								
2011	3.92	3.82	3.60	3.80	3.96	4.25	4.22	3.85	3.01	2.85	2.60	2.50	2.52	2.48	2.32	2.32	1.19	1.78	1.78							
2012	3.89	3.79	3.57	3.76	3.92	4.20	4.16	3.79	2.97	2.81	2.56	2.45	2.45	2.37	2.21	2.20	1.31	1.76	1.70	1.70						
2013	3.86	3.76	3.54	3.72	3.87	4.14	4.10	3.73	2.92	2.76	2.51	2.40	2.38	2.26	2.11	2.08	1.35	1.69	1.60	1.50	1.50					
2014	3.83	3.73	3.51	3.69	3.83	4.09	4.04	3.68	2.89	2.73	2.48	2.36	2.33	2.20	2.06	2.03	1.41	1.69	1.63	1.60	1.60	1.70				
2015	3.78	3.67	3.45	3.62	3.76	4.01	3.95	3.59	2.80	2.63	2.38	2.24	2.17	1.97	1.83	1.77	1.21	1.41	1.22	1.06	0.85	0.00				
2016	3.73	3.62	3.40	3.57	3.70	3.93	3.87	3.50	2.73	2.56	2.30	2.15	2.06	1.82	1.67	1.61	1.09	1.25	1.04	0.87	0.66	0.15	0.30			

- All figures are average annual percentage increases.

Source: Bureau of Labor Statistics

*** CPI-W SERIES: DECEMBER TO DECEMBER INCREASES FROM 1930 TO 1984;
ACTUAL COST-OF-LIVING ADJUSTMENTS GIVEN TO MILITARY RETIREES BEGINNING FISCAL YEAR 1985.
- MRF COLAS ARE CALCULATED AS THE INCREASE FROM 3RD QUARTER TO 3RD QUARTER.

TABLE D-3
AVERAGE REAL YIELD RATES ON NEW PURCHASES

	1940	1945	1950	1955	1960	1965	1970	1975	1980	1985	1990	1995	2000	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015		
FROM DECEMBER 31 OF:																										
1945	-3.28																									
1950	-3.85	-4.41																								
1955	-2.25	-1.73	1.02																							
1960	-1.33	-0.67	1.25	1.48																						
1965	-0.55	0.15	1.71	2.06	2.64																					
1970	-0.24	0.38	1.62	1.82	1.99	1.34																				
1975	-0.22	0.30	1.27	1.34	1.29	0.62	-0.10																			
1980	-0.25	0.19	0.97	0.96	0.83	0.24	-0.30	-0.51																		
1985	0.66	1.17	1.99	2.15	2.29	2.20	2.49	3.81	8.31																	
1990	1.09	1.59	2.37	2.56	2.74	2.77	3.13	4.22	6.67	5.06																
1995	1.26	1.73	2.43	2.61	2.77	2.79	3.09	3.90	5.41	3.99	2.93															
2000	1.43	1.87	2.52	2.69	2.84	2.87	3.12	3.78	4.88	3.76	3.12	3.31														
2005	1.42	1.82	2.41	2.55	2.67	2.67	2.86	3.37	4.16	3.15	2.52	2.31	1.32													
2006	1.43	1.83	2.41	2.54	2.66	2.66	2.85	3.33	4.09	3.10	2.50	2.31	1.48	2.27												
2007	1.45	1.84	2.40	2.54	2.65	2.65	2.83	3.30	4.02	3.06	2.48	2.30	1.58	2.24	2.20											
2008	1.45	1.84	2.40	2.53	2.64	2.63	2.81	3.25	3.94	3.01	2.45	2.27	1.63	2.14	2.07	1.94										
2009	1.46	1.84	2.39	2.52	2.62	2.62	2.79	3.22	3.87	2.97	2.43	2.25	1.67	2.11	2.05	1.98	2.01									
2010	1.46	1.83	2.37	2.49	2.60	2.59	2.75	3.16	3.79	2.90	2.37	2.19	1.63	1.94	1.85	1.74	1.64	1.26								
2011	1.43	1.79	2.32	2.44	2.53	2.52	2.66	3.05	3.64	2.76	2.23	2.01	1.42	1.50	1.35	1.14	0.87	0.31	-0.64							
2012	1.41	1.77	2.29	2.40	2.49	2.47	2.60	2.98	3.53	2.67	2.13	1.90	1.32	1.32	1.16	0.95	0.70	0.27	-0.22	0.19						
2013	1.41	1.76	2.27	2.38	2.46	2.45	2.58	2.93	3.47	2.62	2.10	1.87	1.32	1.33	1.19	1.02	0.84	0.55	0.32	0.80	1.41					
2014	1.41	1.76	2.26	2.36	2.44	2.42	2.55	2.89	3.40	2.57	2.06	1.84	1.32	1.32	1.20	1.05	0.91	0.69	0.54	0.94	1.32	1.23				
2015	1.42	1.77	2.26	2.36	2.44	2.42	2.54	2.88	3.37	2.57	2.08	1.87	1.39	1.42	1.33	1.22	1.12	0.97	0.91	1.30	1.67	1.80	2.38			
2016	1.41	1.75	2.23	2.33	2.41	2.39	2.50	2.82	3.29	2.51	2.02	1.81	1.34	1.35	1.26	1.16	1.06	0.92	0.87	1.17	1.42	1.42	1.52	0.67		

"Real" rates defined as the difference between the associated nominal rate and the CPI-W (Table D-2).

All figures are average annual percentages.

Real yields for non-TIPS securities are computed as the nominal yield at purchase offset by inflation in the year of purchase.

For TIPS securities, the real yield is known and constant throughout the life of the security.

Source: Office of the Actuary, Office of Personnel Management; Office of the Actuary, Department of Defense

*** COMPOSITE SERIES: TREASURY LONG TERM SECURITIES WITH REMAINING MATURITIES OF 10 OR MORE YEARS FROM 1931 TO 1941;
AVERAGE OF TREASURY LONG TERM AND TREASURY 3-5 YEARS REMAINING MATURITY FROM 1941 TO 1961
SPECIAL TREASURY CERTIFICATES (CSRS) FROM 1962 TO 1984
MILITARY RETIREMENT SYSTEM TRUST FUND NEW INVESTMENTS BEGINNING WITH 1985

TABLE D-5
AVERAGE REAL MILITARY PERSONNEL BASIC PAY INCREASES

	1945	1950	1955	1960	1965	1970	1975	1980	1985	1990	1995	2000	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
FROM DECEMBER 31 OF:																							
1950	-2.21																						
1955	-0.48	1.28																					
1960	-0.49	0.39	-0.50																				
1965	0.58	1.52	1.65	3.84																			
1970	0.97	1.79	1.96	3.21	2.58																		
1975	1.31	2.03	2.22	3.14	2.80	3.02	-2.26																
1980	0.79	1.30	1.31	1.76	1.08	0.34	-0.21	1.89															
1985	0.93	1.39	1.40	1.79	1.28	0.85	-0.22	0.67	-0.53														
1990	0.77	1.14	1.12	1.40	0.92	0.51	-0.32	0.47	-0.23	0.08													
1995	0.70	1.03	0.99	1.21	0.78	0.42	0.05	0.63	0.22	0.59	1.11												
2000	0.73	1.03	1.01	1.20	0.82	0.54	0.24	0.74	0.46	0.79	1.15	1.19											
2005	0.77	1.05	1.02	1.20	0.87	0.63	0.24	0.69	0.42	0.70	0.97	0.86	-1.07										
2006	0.74	1.01	0.98	1.15	0.82	0.58	0.19	0.67	0.39	0.68	0.95	0.81	0.05	1.17									
2007	0.75	1.01	0.99	1.15	0.83	0.60	0.22	0.69	0.42	0.70	0.97	0.86	0.05	1.17	-1.80								
2008	0.71	0.96	0.93	1.08	0.77	0.53	0.16	0.60	0.32	0.56	0.75	0.53	-0.57	-0.32	0.77	3.40							
2009	0.75	1.00	0.98	1.13	0.83	0.61	0.26	0.70	0.45	0.71	0.94	0.84	0.41	0.90	0.77	3.40	1.40						
2010	0.76	1.01	0.99	1.14	0.84	0.63	0.29	0.72	0.49	0.75	0.97	0.90	0.61	1.03	0.98	2.40	-0.28	-1.93					
2011	0.72	0.96	0.93	1.08	0.78	0.56	0.23	0.63	0.39	0.62	0.79	0.64	0.18	0.43	0.24	0.93	-0.19	-0.97	0.00				
2012	0.71	0.95	0.92	1.05	0.76	0.55	0.22	0.61	0.38	0.59	0.74	0.58	0.15	0.36	0.19	0.70	-0.19	-0.78	-0.25	-0.49			
2013	0.69	0.92	0.89	1.03	0.74	0.52	0.20	0.58	0.35	0.54	0.67	0.50	0.07	0.24	0.08	0.46	-0.26	-0.81	-0.39	-0.59	-0.69		
2014	0.67	0.90	0.87	0.99	0.71	0.50	0.18	0.54	0.31	0.49	0.60	0.42	-0.01	0.12	-0.03	0.27	-0.35	-0.78	-0.39	0.04	0.30	1.30	
2015	0.68	0.90	0.87	1.00	0.72	0.51	0.21	0.56	0.35	0.52	0.63	0.47	0.12	0.25	0.14	0.41	-0.08	-0.37	0.03	0.04	0.80	1.55	
2016	0.69	0.92	0.89	1.01	0.74	0.54	0.24	0.60	0.39	0.57	0.69	0.56	0.27	0.40	0.32	0.59	0.19	-0.01	0.38	0.47	0.80	1.55	1.79

- "Real" rates defined as the difference between the associated nominal rate and the CPI-W (Table D-2).

- All figures are average annual percentage increases.

- Excludes annual, year-specific targeted adjustments.

Source: House Armed Services Committee publication, [Title 37, United States Code \(Pay and Allowances of the Uniformed Services\)](#).

APPENDIX E

NORMAL COST WEIGHTING FACTORS

	<u>Page</u>
Normal Cost Weighting Factors	99
Table E-1: Basic Payroll Percentage Distribution by Completed Years of Service.....	100

NORMAL COST WEIGHTING FACTORS

There are four different retirement benefit formulas that apply to different populations within the Military Retirement System¹. (See Appendix A for a discussion of *Final Pay*, *High-3*, *CSB/Redux*, and *BRS* benefit formulas.) A single normal cost percentage (NCP) for the entire population is obtained by weighting the NCP for each retirement group by its expected percentage of payroll in the relevant year².

In order to continue to budget for NCPs well in advance of the valuation date, the DoD Board of Actuaries decided to create a set of projected weighting factors. The relative stability of past experience indicates that this method gives reasonable results.

Current rates were created using 2010 data. Table E-1 displays the active duty and reserve basic payroll percentage distributions by completed years of service at the end of FY 2010.

¹ The Blended Retirement System (enacted in NDAA 2016) is the fourth tier, effective January 1, 2018, for those who enter military service on or after January 1, 2018, or opt-in with fewer than 12 years of service during the 1 year open season starting January 1, 2018. NDAA 2016 also sunsets CSB/Redux and repeals all aspects of BBA 2013 (reduced annual cost-of-living adjustments for “working age” retirees), as amended.

² For BRS, assumptions for the proportions of eligible members who will “opt-in” to the new plan are also needed. These assumptions are shown in Appendix F.

TABLE E-1

**BASIC PAYROLL PERCENTAGE DISTRIBUTION
BY COMPLETED YEARS OF SERVICE**

Completed Years of Service	Percentage of Payroll on 9/30/2010:	
	Full-time	Part-time
0	3%	0.5%
1 or less	8%	6%
2 or less	13%	11%
3 or less	18%	16%
4 or less	24%	20%
5 or less	28%	24%
6 or less	32%	27%
7 or less	37%	31%
8 or less	41%	35%
9 or less	45%	38%
10 or less	49%	41%
11 or less	53%	44%
12 or less	56%	46%
13 or less	59%	49%
14 or less	63%	51%
15 or less	66%	53%
16 or less	68%	55%
17 or less	71%	58%
18 or less	75%	60%
19 or less	78%	64%
20 or less	81%	67%
21 or less	84%	70%
22 or less	86%	74%
23 or less	89%	77%
24 or less	91%	80%
25 or less	93%	83%
26 or less	95%	86%
27 or less	96%	89%
28 or less	97%	91%
29 or less	98%	93%
30 or less	98%	94%
31 or less	99%	95%
32 or less	99%	96%
33 or less	99%	97%
34 or less	100%	98%
35 or less	100%	98%
36 or less	100%	99%
37 or less	100%	99%
38 or less	100%	100%
39 and greater	:::	:::
TOTAL FORCE	100%	100%

Figures are assumed to represent fiscal year payroll proportions by year of entry.
For example, for full-time members 3% of payroll in a fiscal year is assumed to apply to members who entered in that fiscal year; 8% of payroll is assumed to apply to members who entered in that fiscal year or the year prior; etc.

APPENDIX F

VALUATION PROGRAM PARAMETERS

	<u>Page</u>
Valuation Program Parameters Description	102
Table F-1: Economic Factors.....	103
Table F-1: Active Duty	103
Table F-1: Reserve Duty.....	107
Table F-1: Retiree.	108
Table F-1: Survivor.....	109

VALUATION PROGRAM PARAMETERS DESCRIPTION

GORGO is an actuarial projection model run in a spreadsheet environment with embedded Visual Basic programming. The purpose is to simulate future cash flows impacting the Military Retirement Fund. The model is used to compute the aggregate entry-age normal cost percentage, unfunded liability, and make long-term projections; in some cases slight adjustments to GORGO cash flow projection are made outside of GORGO. In addition to being affected by the decrement rates, GORGO has a number of parameters which affect its results. These parameters are generally summaries of recent experience and/or future expectations. Examples include the rates of election of the Survivor Benefit Plan and member-spouse age differences.

Public Law (P.L.) 108-136 (“Concurrent Receipt”) requires additional breakouts of some parameters in order to calculate the DoD and Treasury normal cost components. Subsequent legislation required further breakouts.

A description of major valuation program parameters is given in Table F-1. The table is organized by population group with the economic factors reproduced for user convenience. Numerical values are also shown for selected items. To keep this report manageable and prevent unintentional misuse, other parameters not described as well as numerical values not shown in the table may be requested if needed.

TABLE F-1

DESCRIPTION OF THE MAJOR VALUATION PROGRAM PARAMETERS

Economic Factors

<u>Item</u>	<u>Description/Value</u>
1) Salary Increase	A parameter for each of the next ten fiscal years specifies the annual percentage increase in basic pay for the active duty and reserve duty members. An 11th parameter specifies the percentage increase for subsequent years. The value for the valuation is 3.25 percent.
2) CPI (Inflation)	A parameter for each of the next nine fiscal years specifies the annual inflation (Consumer Price Index - CPI) rate for that year. A tenth parameter specifies the inflation rate for all subsequent years. The value for the valuation is 2.75 percent.
3) Interest Rate	A parameter for each of the next nine fiscal years specifies the annual interest rate for that year. A tenth parameter specifies the interest rate for all subsequent years. The value for the valuation is 5.25 percent.
4) Lump Sum Discount Rate	A parameter that specifies the assumed annual interest rate (in real economic terms) used to calculate BRS lump sums. The value for the valuation is 7.3%.

Active Duty

<u>Item</u>	<u>Description/Value</u>
1) Member Election of Spouse or Spouse/Child SBP Coverage	This gives the percentage of members by age, officer/enlisted status, and Career Status Bonus (CSB) election status who have elected spouse or spouse/child coverage under the Survivor Benefit Plan (SBP).

TABLE F-1 (continued)

<u>Item</u>	<u>Description/Value</u>
2) Full Offsets	A member who is disabled may waive all or part of his or her retired pay to receive benefits from the Veterans Administration (VA). Furthermore, a member who decides to convert his or her military service to receive a federal civilian retirement also waives his or her right to a military pension. These amounts are not included when computing normal costs or unfunded liabilities. The percent of retired pay of new retirees that is fully offset is given by officer/enlisted status, benefit tier, and type of retirement (disability/nondisability). Disability status is given further by those with over and under 20 years of service.
3) Partial VA Offsets	It is possible to have part of DoD retired pay offset by VA compensation. The parameter is defined as the percent of retired pay out of the total paid new retirees. They are given by officer/enlisted status, benefit tier, and disability/nondisability status. Disability status is given further by those with over and under 20 years of service.
4) Disability Factor	When an active duty member is disabled and receives DoD disability retirement, retired pay is based on a minimum (30%), a maximum (given by the conditions discussed in Appendix A regarding Disability Retirement), and a disability rating. These are combined into a single officer/enlisted factor, expressed as a percentage of Final, or High-3, pay and given by length of service and temporary disability or permanent disability retirement.

TABLE F-1 (continued)

<u>Item</u>	<u>Description/Value</u>
5) Percent Active Duty with Beneficiary	When a member dies from a Service-connected disability or on active duty, any surviving spouse is eligible for Dependency and Indemnity Compensation (DIC) from the Veterans Administration. In addition, if the member dies in the line of duty or after completing 20 years of service, the surviving spouse is eligible for an SBP annuity from DoD which would bring the total amount of the benefit up to 55 percent of the member's retired pay. The excess of the SBP annuity over DIC comes from the Military Retirement Fund. If no spouse is present, the benefit passes on to an eligible child. If both spouse and eligible child are present then, under certain tax provisions, it is advantageous for the spouse to pass the benefits to the child. Thus, it is necessary to estimate the percent of active duty members with beneficiaries. The percentages are given by officer/enlisted status, and further allocated by spouse/child.
6) Reduction Factors for SBP	Premium amounts, as a percent of retired pay, by age, officer/enlisted status, and benefit tier.
7) Rounding Assumptions for Partially Completed Years of Service	When retired pay is computed, years of service are rounded down to the nearest completed month. An assumption must be made for the computation. The value for the valuation is 0.017.
8) CSB/Redux election proportion	The proportion of members who elect CSB/Redux. For the unfunded liability and open group valuations, the proportion varies by entry year and officer/enlisted status. For the normal cost (new entrant) valuation, the proportion is 10 percent. This value is essentially a representative rate needed to approximate the floating proportions (of CSB/Redux electors) used in the unfunded liability and open group valuations.

TABLE F-1 (continued)

<u>Item</u>	<u>Description/Value</u>
9) Initial Annual Pay of 16-year-old Active Duty Officer	This value is used to allocate a portion of part-time benefits to full-time in normal cost valuations, thus linking the radixes (i.e., notional starting populations) and pay of full- and part-time members. The value for the valuation is \$36,189.
10) Accumulated Value of Partial Pay in the First Year of Service	This amount is used to properly align the decrement rates with the assumption, in a normal cost run, of a new entrant cohort starting with zero years of service.
11) BRS Opt-In Rates	Rates used to determine the portion of members with fewer than 12 years of service as of December 31, 2017, electing, during the calendar year 2018 Open Season, to opt-in to BRS. Varies by years of service and officer/enlisted. Rates are based on results from a RAND Corp. analytical model approved with minor adjustments by the Board. Separate rates are used for NCP weighting and census purposes to reflect timing differences in the respective modeling needs. Reservists are assumed to have opt-in rates equal to half of the active duty rates (i.e., multiply the below rates by 0.5).

YOS	<u>NCP</u>	<u>Census</u>	
	Off / Enl	Officer	Enlisted
0	100.0%	100.0%	100.0%
1	98.4%	85.5%	95.0%
2	93.5%	85.6%	95.0%
3	93.3%	85.2%	95.0%
4	92.5%	83.5%	93.3%
5	90.5%	80.2%	92.9%
6	88.9%	79.9%	90.2%
7	84.8%	79.1%	76.8%
8	74.1%	77.4%	57.5%
9	61.1%	70.9%	45.0%
10	46.3%	45.8%	17.4%
11	24.1%	28.5%	10.2%
12	12.4%	0.0%	0.0%
13+	0.0%	0.0%	0.0%

TABLE F-1 (continued)

<u>Item</u>	<u>Description/Value</u>
12) BRS Lump Sum Election Rates	This is the rate of election of lump sums by those who are covered under BRS. The value is based on a study completed by an external organization and represents members having a “Low Personal Discount Rate and Aware of Tax and VA Offset Implications.” It is an interpolated value for active duty using an assumed lump sum discount rate (used to calculate lump sums) of 7.3%; the assumptions are 5.2% for officers and 22.8% for enlisted. Of those who elect lump sums, all are assumed to elect the 50% lump sum option.

Reserve Duty

<u>Item</u>	<u>Description/Value</u>
1) Ratio of Net to Gross Retired Pay For Reserves	This is the ratio of reserve net retired pay to gross retired pay. This is given by officer/enlisted status, age, and benefit tier.
2) Proportion of Points Based on Active Service	This amount is used to allocate the part of the reserve normal cost that should be paid for as a part of the active duty normal cost. The value for the valuation is 51%.
3) Initial Annual Pay of new Selected Reserve member	This array is used to set initial pay for a new Selected Reserve member in a normal cost run. The values for the valuation are updated with an across-the-board salary increase each year.
4) Reserve Retirement Age FYs	An assumption is made to reflect the number of years, on average, reservists retire early due to performing certain active service, per P.L. 110-181. An average reduction of two years (age 58) is assumed. Fiscal years are needed to phase into this earlier retirement over time. The transition to an average retirement age of 59 is assumed to occur in 2024, and the transition to age 58 is assumed to occur in 2033. See also the ‘Retiree Gain Statement’ in Appendix K.

TABLE F-1 (continued)

<u>Item</u>	<u>Description/Value</u>
5) Ratio of Reserve to Active Payroll	For the purposes of the allocation referred to in item 2) above, this value represents the assumed ratio of reserve duty to active duty basic payroll. The value for the valuation is 10%.
6) BRS Opt-In Rates	Rates used to determine the portion of members with fewer than 4,320 points as of December 31, 2017, opting into BRS during the calendar year 2018 Open Season. Varies by years of service and officer/enlisted. They are equal to ½ of the Opt-In Rates for Active Duty (Item 11).
7) BRS Lump Sum Election Rates	This is the rate of election of lump sums by those who are covered under BRS. The value is based on a study done by an external organization and represents members having a “Low Personal Discount Rate and Aware of Tax and VA Offset Implications.” It is an interpolated value for reserves using an assumed lump sum discount rate (used to calculate lump sums) of 7.3%; the assumptions are 2.0% for officers and 8.4% for enlisted. Of those who elect lump sums, all are assumed to elect the 50% lump sum.

Retiree

<u>Item</u>	<u>Description/Value</u>
1) Retired Pay Adjustment Factors	Retired pay of current retirees is adjusted for VA compensation, SBP offset changes, and other non-COLA effects during the year. They are given by officer/enlisted status, disability/nondisability, and whether or not the member has elected SBP spouse or spouse/child coverage.

TABLE F-1 (continued)

<u>Item</u>	<u>Description/Value</u>
2) Retired Pay Adjustment to Members With SBP Spouse Coverage	These factors model data that show mortality is better (or less), and non-death loss from paid status is generally higher, for those retired members who elect SBP spouse coverage. Rather than develop additional sets of mortality and loss rates, the respective retiree death and loss rates (Appendix I) are adjusted with these factors. This impacts retirees with SBP spouse coverage. The factors are given by active/reserve, disability/nondisability status, and officer/enlisted status.

Survivor

<u>Item</u>	<u>Description/Value</u>
1) Member-Survivor Age Difference	When a member dies, a survivor is assumed to be a certain number of years younger (or older) than the member. This is given by active/reserve, age, officer/enlisted status, type of retirement (i.e., nondisability, temporary disability, permanent disability), and type of survivor (i.e., spouse, child, insurable interest).
2) Ratio of SBP Base Amount to Net Retired Pay	Under SBP the retiree may elect an amount less than his or her gross retired pay as a base in computing the survivor annuity. Base amounts can also exceed net retired pay because of factors that reduce gross retired pay to net retired pay. This is expressed as a percentage of net retired pay and is given by age, officer/enlisted status, benefit tier, and type of retirement (disability/nondisability/reserve). Additional adjustments are made to the factors as part of Concurrent Receipt.
3) Ratio of RSFPP Survivor Benefit To Net Retired Pay	For RSFPP (Retired Servicemen's Family Protection Plan), this gives the ratio of the survivor payment to the net amount of retired pay.
4) Reservists' Election of RCSBP	Proportion of reservists who have elected the Reserve Component Survivor Benefit Plan (RCSBP) by immediate and deferred annuity, age, and officer/enlisted status.

TABLE F-1 (continued)

<u>Item</u>	<u>Description/Value</u>
5) Partial DIC Offsets	The percent of survivor pay of new survivors whose pay is partially offset by DIC. They are given by the member's active/reserve status.
6) Full DIC Offsets	The percent of survivor pay of new survivors whose pay is fully offset by DIC. They are given by the member's active/reserve status.
7) Rates for Electing SBP Options	Given that a member elects SBP, there is still a choice of options: spouse only, child only, spouse and child, or insurable interest (some other designated beneficiary in the absence of a spouse or child). These are expressed as ratios to those electing spouse only or spouse/child coverage, and are given by age, officer/enlisted status, and type of retirement (disability/nondisability/reserve).
8) Rates for Election of RSFPP Options	Given that a member elected an RSFPP option, there was a choice of options: spouse only, child only, or spouse and child. These are expressed as ratios to those electing spouse only or spouse/child coverage, and are given by age and officer/enlisted status.
9) Survivor Pay Adjustment Factors	Survivor pay of current survivors is adjusted for changes in DIC and other non-COLA effects during the year.
10) DIC Base Amount	Monthly amount by which DoD annuitant pay is offset by DIC. Future values are indexed to CPI. The first-year value for the valuation is \$1,259.

APPENDIX G

ACTIVE DUTY RATES

	<u>Page</u>
Active Duty Rate Description.....	112
Active Duty Rate Formulas	114
Summary of Years On Which Active Duty Rates Are Based	115
Death for Nonretired Military.....	116
Officer Nondisability, Temporary Disability and Permanent Disability Retirement	117
Enlisted Nondisability, Temporary Disability and Permanent Disability Retirement	118
Officer Withdrawal, Reentrant and Net Loss	119
Enlisted Withdrawal, Reentrant and Net Loss.....	120
Percentage Distribution of New Entrants	121
Paygrade Transfer	122
Officer Promotion and Merit Basic Pay Increase Scales.....	123
Enlisted Promotion and Merit Basic Pay Increase Scales	124

ACTIVE DUTY RATE DESCRIPTION

The active duty rates consist principally of decrement rates related to the probabilities of a member leaving a category of military service for a specific cause. In addition, they include a new entrant distribution, a set of reentrant ratios, and ratios for promotion and merit pay increases. For the purposes of active duty rate development, full-time support reservists (excluding Army National Guard) are included in the underlying data.

The active duty decrement rates are used to project active duty deaths, temporary and permanent disability retirements, nondisability retirements, and withdrawals (i.e., other active duty losses). As noted in the “Valuation Data and Procedure” section, as well as Table 6B, in the main text, the valuation results for active duty members and the full-time normal cost are highly sensitive to the withdrawal rates. In addition, the active duty decrements include rates of transfer between officer and enlisted status. The death rates are given by age nearest birthday for officers and enlistees separately. The remaining decrement rates are given by completed years of active service for officers and enlistees separately. The formulas used to derive the active duty rates are given on the following page. The fiscal years on which various rates are based are given on the subsequent page. The experience period was selected such that the sum of the active force size changes for the included periods was near zero, and the experience period intentionally excludes the significant downsizing of the early 1990s, which is not considered a representative basis upon which to develop long-run actuarial assumptions. Full-time reservist experience is included in the data used to develop the rates.

Active duty disability retirement rates were updated in last year’s (September 30, 2015), valuation using an underlying experience period from FY 2010 – FY 2014 for years of service less than 19. These rates recognize the increase in disability retirements resulting from implementing a new Integrated Disability Evaluation System (IDES, operated jointly by DoD and the VA since 2007), as well as a notable increase in combat-related disability retirements. The data available for study could not fully explain the reasons for the increased disability retirement experience (i.e., the inability to separate combat-related injuries by incidence year due to some backlogs created by moving to the IDES). In order to recognize this inherent uncertainty in the data, and also to acknowledge potential future improvements to reduce the severity of combat-related injuries and potential reductions to combat exposure, the Board agreed to remove half of the combat-related disabilities from the FY 2010 – FY 2014 experience period. However, the Board also agreed that OACT should add an additional amount of accrued liability to recognize the higher number of disability retirements expected in the near term (phased out over the next four years) compared to what the new disability rates produce.

Generally, the decrement rates were graduated (smoothed) using Whittaker-Henderson graduations. The typical active duty career has inherent discontinuities at select points (reenlistment, promotion, retirement, etc). Rates were separated into ranges where assumptions of continuity were reasonable. Where actual discontinuities exist, the rates were not smoothed.

A reentrant is defined as someone who is on active duty at year end, who was not on active duty a year earlier, and who is not a new entrant. The reentrant ratios give the expected

number of reentrants per year, per active member, in each cell. The cells are defined by length of active service and by officer/enlisted status.

The new entrant distribution gives the percentages of new entrants to the military by age and by officer/enlisted status. This distribution is only used in the normal cost (new entrant) valuation and the open-group projection.

The promotion and merit increase scales (PAMS) give the expected annual percentage increase in pay regardless of whether or not there are across-the-board increases in the active duty pay table. The PAMS do not include adjustments for inflation or productivity increases. They are defined by length of service, by entry age, and by officer/enlisted status. The PAMS were created by first arraying the average pay for each entry age along a dimension of increasing years of service. The PAMS were then computed by dividing the average pay at the next year of service by the average pay at the current year of service.

ACTIVE DUTY RATE FORMULAS

ACTIVE DEATH (by age nearest birthday)

$$\frac{\text{Deaths during year}}{\text{[Number at beginning of year - } \frac{1}{2} \text{ (withdrawals + nondisability retirements during year)]}}$$

NONDISABILITY RETIREMENT (by completed years of service)

$$\frac{\text{New retirees during year}}{\text{Number at beginning of year}}$$

TEMPORARY DISABILITY RETIREMENT (by completed years of service)

$$\frac{\text{New temporary disabilities during year}}{\text{[Number at beginning of year - } \frac{1}{2} \text{ (withdrawals + nondisability retirements during year)]}}$$

PERMANENT DISABILITY RETIREMENT (by completed years of service)

$$\frac{\text{New permanent disabilities during year}}{\text{[Number at beginning of year - } \frac{1}{2} \text{ (withdrawals + nondisability retirements during year)]}}$$

WITHDRAWAL (by completed years of service)

$$\frac{\text{Withdrawals during year}}{\text{Number at beginning of year}}$$

REENTRANT RATIOS (by completed years of service)

$$\frac{\text{Number reentering during year}}{\text{Number at beginning of year}}$$

PERCENTAGE DISTRIBUTION OF NEW ENTRANTS (by age nearest birthday)

$$\frac{\text{New entrants during year}}{\text{Total new entrants}}$$

PAYGRADE TRANSFER (by completed years of service)

$$\frac{\text{Transfers to category during year}}{\text{[Number at beginning of year - } \frac{1}{2} \text{ (withdrawals + nondisability retirements during year)]}}$$

PROMOTION AND MERIT SCALES (by entry age and completed years of service)

$$\frac{\text{Average basic pay at next year of service using current year pay table}}{\text{Average basic pay at current year of service}}$$

SUMMARY OF YEARS ON WHICH ACTIVE DUTY RATES ARE BASED

By Fiscal Year

<u>RATE</u>	<u>1982-1989</u>	<u>1997-1999</u>	<u>2000-2008</u>	<u>2010-2014*</u>	<u>2015</u>
Death				X	X
Nondisability Retirement	X	X	X		
Temporary Disability Retirement				X	
Permanent Disability Retirement				X	
Withdrawal (other losses)	X	X	X		
Reentrant Ratios	X	X	X		
New Entrant Distribution	X	X	X		
Paygrade Transfer	X	X	X		
Promotion and Merit Scales (PAMS)	X	X	X		

* In the construction of the disability-related rates, we removed one half of the combat-related disability retirements occurring during the the FY 2010-2014 experience period. This removal only affects rates less than 19 years of service. We subtracted additional disability retirements from withdrawals, thereby affecting withdrawal rates and not impacting the percentage making 20 year retirement.

DEATH RATES FOR NONRETIRED MILITARY
(AGE NEAREST BIRTHDAY)

Age	Officer	Enlisted
16	0.00048	0.00067
17	0.00047	0.00069
18	0.00046	0.00070
19	0.00045	0.00071
20	0.00044	0.00073
21	0.00043	0.00074
22	0.00043	0.00075
23	0.00042	0.00075
24	0.00042	0.00073
25	0.00041	0.00072
26	0.00040	0.00070
27	0.00039	0.00068
28	0.00039	0.00067
29	0.00039	0.00066
30	0.00038	0.00064
31	0.00038	0.00063
32	0.00038	0.00062
33	0.00037	0.00061
34	0.00037	0.00062
35	0.00037	0.00062
36	0.00038	0.00062
37	0.00038	0.00061
38	0.00039	0.00062
39	0.00039	0.00062
40	0.00040	0.00062
41	0.00040	0.00064
42	0.00041	0.00064
43	0.00042	0.00066
44	0.00044	0.00067
45	0.00046	0.00070
46	0.00049	0.00073
47	0.00051	0.00077
48	0.00055	0.00081
49	0.00059	0.00085
50	0.00063	0.00089
51	0.00068	0.00094
52	0.00073	0.00099
53	0.00078	0.00105
54	0.00084	0.00110
55	0.00089	0.00116
56	0.00095	0.00122
57	0.00100	0.00129
58	0.00107	0.00135
59	0.00113	0.00141
60	0.00119	0.00147

Note: These death rates should not be compared to other published rates or used for other purposes without examining the exposure formula used in the derivation.

**NONDISABILITY, TEMPORARY DISABILITY &
PERMANENT DISABILITY RETIREMENT RATES**

OFFICERS (BY COMPLETED YEARS OF SERVICE)

<u>Years of Service</u>	<u>Non-disability</u>	<u>Temporary Disability ***</u>	<u>Permanent Disability ***</u>
0	0.00000	0.00033	0.00037
1	0.00000	0.00064	0.00038
2	0.00000	0.00083	0.00074
3	0.00000	0.00091	0.00096
4	0.00000	0.00101	0.00087
5	0.00000	0.00095	0.00093
6	0.00000	0.00107	0.00154
7	0.00000	0.00112	0.00103
8	0.00000	0.00115	0.00152
9	0.00000	0.00103	0.00171
10	0.00000	0.00105	0.00153
11	0.00000	0.00098	0.00135
12	0.00000	0.00090	0.00148
13	0.00000	0.00080	0.00175
14	0.00000	0.00080	0.00154
15	0.00000	0.00077	0.00159
16	0.00000	0.00069	0.00202
17	0.00000	0.00059	0.00224
18	0.00000	0.00048	0.00204
19	0.24556	0.00192	0.00141
20	0.20352	0.00231	0.00198
21	0.16113	0.00169	0.00178
22	0.14428	0.00204	0.00150
23	0.14541	0.00222	0.00187
24	0.14305	0.00209	0.00176
25	0.18396	0.00214	0.00140
26	0.19135	0.00361	0.00210
27	0.22470	0.00322	0.00166
28	0.20692	0.00367	0.00262
29	0.49853	0.00505	0.00341
30	0.37879	0.00692	0.00435
31	0.28016	0.00534	0.00334
32	0.25438	0.00534	0.00334
33	0.26999	0.00534	0.00334
34	1.00000	0.00534	0.00334

*** The increase in disability rates shown between 18 and 19 years of service may be due to the removal of the 30% disability rating minimum for members with 20 years of service. The tax advantages accorded disability retired pay described in Appendix A may result in members choosing disability over nondisability retirements. Disabilities were increased to reflect recent trends.

Example: Nine completed years of service could include anything from 9.0 to 9.999 years of service. The associated rate applied to the number of people at the beginning of the year in the category will produce the expected number of occurrences during the following year.

**NONDISABILITY, TEMPORARY DISABILITY &
PERMANENT DISABILITY RETIREMENT RATES**

ENLISTED (BY COMPLETED YEARS OF SERVICE)

<u>Years of Service</u>	<u>Non-disability</u>	<u>Temporary Disability ***</u>	<u>Permanent Disability ***</u>
0	0.00000	0.00187	0.00054
1	0.00000	0.00307	0.00179
2	0.00000	0.00383	0.00291
3	0.00000	0.00450	0.00382
4	0.00000	0.00430	0.00396
5	0.00000	0.00422	0.00425
6	0.00000	0.00415	0.00497
7	0.00000	0.00440	0.00521
8	0.00000	0.00441	0.00614
9	0.00000	0.00448	0.00645
10	0.00000	0.00429	0.00688
11	0.00000	0.00423	0.00776
12	0.00000	0.00398	0.00757
13	0.00000	0.00387	0.00785
14	0.00000	0.00380	0.00737
15	0.00000	0.00281	0.00749
16	0.00000	0.00186	0.00601
17	0.00000	0.00132	0.00492
18	0.00000	0.00075	0.00352
19	0.42256	0.00541	0.00551
20	0.30241	0.00521	0.00634
21	0.26793	0.00422	0.00482
22	0.23110	0.00433	0.00508
23	0.29343	0.00417	0.00419
24	0.18735	0.00362	0.00359
25	0.33712	0.00437	0.00322
26	0.24102	0.00511	0.00333
27	0.24118	0.00523	0.00343
28	0.19147	0.00545	0.00466
29	0.77601	0.00999	0.00586
30	0.64842	0.01644	0.00795
31	0.42640	0.01399	0.00340
32	0.50641	0.01399	0.00340
33	0.40749	0.01399	0.00340
34	1.00000	0.01399	0.00340

*** The increase in disability rates shown between 18 and 19 years of service may be due to the removal of the 30% disability rating minimum for members with 20 years of service. The tax advantages accorded disability retired pay described in Appendix A may result in members choosing disability over nondisability retirements. Disabilities were increased to reflect recent trends.

Example: Nine completed years of service could include anything from 9.0 to 9.999 years of service. The associated rate applied to the number of people at the beginning of the year in the category will produce the expected number of occurrences during the following year.

**WITHDRAWAL, REENTRANT, AND NET LOSS RATES
FOR ACTIVE DUTY PERSONNEL**

OFFICERS (BY COMPLETED YEARS OF SERVICE)

<u>Years of Service</u>	<u>Withdrawal</u>	<u>Reentrant ***</u>	<u>Net Loss</u>
0	0.01797	0.11937	-0.10140
1	0.02185	0.03298	-0.01113
2	0.07016	0.02574	0.04442
3	0.12152	0.02898	0.09254
4	0.10811	0.01964	0.08847
5	0.09269	0.01703	0.07566
6	0.09609	0.01444	0.08165
7	0.08410	0.01400	0.07010
8	0.07614	0.01200	0.06414
9	0.06734	0.01155	0.05579
10	0.06538	0.00872	0.05666
11	0.05271	0.00798	0.04473
12	0.03476	0.00656	0.02820
13	0.02376	0.00557	0.01819
14	0.01562	0.00467	0.01095
15	0.00947	0.00368	0.00579
16	0.00629	0.00291	0.00338
17	0.00326	0.00252	0.00074
18	0.00122	0.00246	-0.00124
19	0.00000	0.00223	-0.00223
20	0.00000	0.00247	-0.00247
21	0.00000	0.00259	-0.00259
22	0.00000	0.00230	-0.00230
23	0.00000	0.00237	-0.00237
24	0.00000	0.00229	-0.00229
25	0.00000	0.00268	-0.00268
26	0.00000	0.00276	-0.00276
27	0.00000	0.00284	-0.00284
28	0.00000	0.00329	-0.00329
29	0.00000	0.00419	-0.00419
30	0.00000	0.00912	-0.00912
31	0.00000	0.00803	-0.00803
32	0.00000	0.01145	-0.01145
33	0.00000	0.01084	-0.01084
34	0.00000	0.00000	0.00000

*** The reentrant (and all other) rates are developed for valuation purposes to be consistent with the data sources used in the valuation. For example, high reentrant rates for members with zero completed years of service at the beginning of the year reflect members showing up on the valuation data files with one completed year of service at year end, who were not on the data files at the beginning of the year, and who were not new entrants. For this reason, the above rates should not be used for other purposes.

Example: Nine completed years of service could include anything from 9.0 to 9.999 years of service. The associated rate applied to the number of people at the beginning of the year in the category will produce the expected number of occurrences during the following year.

**WITHDRAWAL, REENTRANT, AND NET LOSS RATES
FOR ACTIVE DUTY PERSONNEL**

ENLISTED (BY COMPLETED YEARS OF SERVICE)

<u>Years of Service</u>	<u>Withdrawal</u>	<u>Reentrant ***</u>	<u>Net Loss</u>
0	0.10397	0.03043	0.07354
1	0.10110	0.00769	0.09341
2	0.18122	0.01394	0.16728
3	0.35270	0.02745	0.32525
4	0.15681	0.01394	0.14287
5	0.15456	0.01128	0.14328
6	0.11141	0.00966	0.10175
7	0.12239	0.00918	0.11321
8	0.09056	0.00761	0.08295
9	0.08561	0.00682	0.07879
10	0.05092	0.00540	0.04552
11	0.04076	0.00453	0.03623
12	0.03078	0.00347	0.02731
13	0.01845	0.00282	0.01563
14	0.01548	0.00223	0.01325
15	0.00712	0.00188	0.00524
16	0.00476	0.00154	0.00322
17	0.00314	0.00145	0.00169
18	0.00157	0.00139	0.00018
19	0.00000	0.00126	-0.00126
20	0.00000	0.00157	-0.00157
21	0.00000	0.00148	-0.00148
22	0.00000	0.00167	-0.00167
23	0.00000	0.00156	-0.00156
24	0.00000	0.00212	-0.00212
25	0.00000	0.00169	-0.00169
26	0.00000	0.00247	-0.00247
27	0.00000	0.00180	-0.00180
28	0.00000	0.00212	-0.00212
29	0.00000	0.00168	-0.00168
30	0.00000	0.01403	-0.01403
31	0.00000	0.03693	-0.03693
32	0.00000	0.04974	-0.04974
33	0.00000	0.09762	-0.09762
34	0.00000	0.00000	0.00000

*** The reentrant (and all other) rates are developed for valuation purposes to be consistent with the data sources used in the valuation. For example, high reentrant rates for members with zero completed years of service at the beginning of the year reflect members showing up on the valuation data files with one completed year of service at year end, who were not on the data files at the beginning of the year, and who were not new entrants. For this reason, the above rates should not be used for other purposes.

Example: Nine completed years of service could include anything from 9.0 to 9.999 years of service. The associated rate applied to the number of people at the beginning of the year in the category will produce the expected number of occurrences during the following year.

PERCENTAGE DISTRIBUTION OF NEW ENTRANTS

(AGE NEAREST BIRTHDAY)

<u>Age</u>	<u>Officers</u>	<u>Enlisted</u>	<u>Total</u>
16	0.00000	0.00000	0.00000
17	0.00000	0.00142	0.00142
18	0.00000	0.12146	0.12146
19	0.00001	0.25484	0.25485
20	0.00008	0.19288	0.19296
21	0.00045	0.11431	0.11476
22	0.01188	0.07357	0.08545
23	0.01920	0.05093	0.07013
24	0.01025	0.03619	0.04644
25	0.00470	0.02550	0.03020
26	0.00386	0.01783	0.02169
27	0.00327	0.01252	0.01579
28	0.00216	0.00929	0.01145
29	0.00163	0.00663	0.00826
30	0.00127	0.00475	0.00602
31	0.00097	0.00358	0.00455
32	0.00075	0.00285	0.00360
33	0.00058	0.00226	0.00284
34	0.00046	0.00187	0.00233
35	0.00038	0.00165	0.00203
36	0.00028	0.00063	0.00091
37	0.00020	0.00030	0.00050
38	0.00017	0.00024	0.00041
39	0.00015	0.00020	0.00035
40	0.00013	0.00018	0.00031
41	0.00010	0.00014	0.00024
42	0.00008	0.00014	0.00022
43	0.00007	0.00007	0.00014
44	0.00006	0.00004	0.00010
45	0.00005	0.00004	0.00009
46	0.00005	0.00003	0.00008
47	0.00004	0.00003	0.00007
48	0.00004	0.00003	0.00007
49	0.00003	0.00002	0.00005
50	0.00003	0.00002	0.00005
51	0.00002	0.00001	0.00003
52	0.00002	0.00001	0.00003
53	0.00002	0.00001	0.00003
54	0.00002	0.00001	0.00003
55	0.00002	0.00001	0.00003
56	0.00001	0.00000	0.00001
57	0.00001	0.00000	0.00001
58	0.00001	0.00000	0.00001
59	0.00001	0.00000	0.00001
60	0.00000	0.00000	0.00000
Total	0.06352	0.93648	1.00000

PAYGRADE TRANSFER RATES

STATUS (BY COMPLETED YEARS OF SERVICE)

<u>Years of Service</u>	<u>Officer to Enlisted</u>	<u>Enlisted to Officer</u>
0	0.00042	0.00304
1	0.00010	0.00096
2	0.00006	0.00112
3	0.00013	0.00145
4	0.00013	0.00227
5	0.00008	0.00282
6	0.00014	0.00393
7	0.00014	0.00515
8	0.00013	0.00718
9	0.00013	0.00874
10	0.00012	0.00968
11	0.00039	0.00969
12	0.00058	0.00907
13	0.00047	0.00778
14	0.00077	0.00613
15	0.00094	0.00472
16	0.00112	0.00306
17	0.00055	0.00179
18	0.00014	0.00137
19	0.00017	0.00096
20	0.00010	0.00115
21	0.00005	0.00105
22	0.00006	0.00093
23	0.00002	0.00088
24	0.00000	0.00044
25	0.00000	0.00005
26	0.00000	0.00002
27	0.00000	0.00007
28	0.00000	0.00000
29	0.00000	0.00000
30	0.00000	0.00000
31	0.00000	0.00000
32	0.00000	0.00000
33	0.00000	0.00000
34	0.00000	0.00000

Example: Nine completed years of service could include anything from 9.0 to 9.999 years of service. The associated rate applied to the number of people at the beginning of the year in the category will produce the expected number of occurrences during the following year.

PROMOTION AND MERIT BASIC PAY INCREASE SCALES

OFFICERS (BY ENTRY AGE)

Years of Service	Entry Age										
	16	17	18	19	20	21	22	23	24	25	26
1	1.01406	1.01406	1.01406	1.01406	1.01406	1.01406	1.01406	1.03788	1.06850	1.06863	1.03084
2	1.26101	1.26101	1.26101	1.26101	1.26101	1.26101	1.26101	1.26733	1.24639	1.22059	1.12813
3	1.16436	1.16436	1.16436	1.16436	1.16436	1.16436	1.16436	1.15592	1.14107	1.13118	1.08444
4	1.12838	1.12838	1.12838	1.12838	1.12838	1.12838	1.12838	1.12854	1.10999	1.09523	1.06425
5	1.01427	1.01427	1.01427	1.01427	1.01427	1.01427	1.01427	1.02410	1.02904	1.03108	1.02871
6	1.03943	1.03943	1.03943	1.03943	1.03943	1.03943	1.03943	1.04289	1.03995	1.04497	1.05461
7	0.99489	0.99489	0.99489	0.99489	0.99489	0.99489	0.99489	1.01191	1.02020	1.02535	1.02334
8	1.03290	1.03290	1.03290	1.03290	1.03290	1.03290	1.03290	1.04169	1.03766	1.04233	1.04014
9	0.99442	0.99442	0.99442	0.99442	0.99442	0.99442	0.99442	1.01394	1.02086	1.02143	1.02062
10	1.03956	1.03956	1.03956	1.03956	1.03956	1.03956	1.03956	1.05820	1.05017	1.04618	1.03943
11	1.01571	1.01571	1.01571	1.01571	1.01571	1.01571	1.01571	1.04944	1.05558	1.04535	1.02645
12	1.05143	1.05143	1.05143	1.05143	1.05143	1.05143	1.05143	1.05911	1.04767	1.04470	1.03802
13	1.00603	1.00603	1.00603	1.00603	1.00603	1.00603	1.00603	1.01511	1.01989	1.02090	1.01887
14	1.03458	1.03458	1.03458	1.03458	1.03458	1.03458	1.03458	1.02798	1.02367	1.02606	1.02729
15	1.01346	1.01346	1.01346	1.01346	1.01346	1.01346	1.01346	1.01512	1.02064	1.02177	1.01984
16	1.03810	1.03810	1.03810	1.03810	1.03810	1.03810	1.03810	1.04225	1.03899	1.03557	1.03369
17	1.02706	1.02706	1.02706	1.02706	1.02706	1.02706	1.02706	1.03034	1.02876	1.02850	1.02258
18	1.03826	1.03826	1.03826	1.03826	1.03826	1.03826	1.03826	1.02671	1.02287	1.02382	1.02758
19	1.01543	1.01543	1.01543	1.01543	1.01543	1.01543	1.01543	1.01051	1.01301	1.01426	1.01488
20	1.03350	1.03350	1.03350	1.03350	1.03350	1.03350	1.03350	1.03628	1.03721	1.03951	1.04114
21	1.02310	1.02310	1.02310	1.02310	1.02310	1.02310	1.02310	1.03595	1.03778	1.03563	1.02747
22	1.04475	1.04475	1.04475	1.04475	1.04475	1.04475	1.04475	1.06061	1.05316	1.04753	1.03385
23	1.02847	1.02847	1.02847	1.02847	1.02847	1.02847	1.02847	1.03169	1.03022	1.03020	1.02115
24	1.03200	1.03200	1.03200	1.03200	1.03200	1.03200	1.03200	1.02880	1.02749	1.02601	1.01918
25	1.02086	1.02086	1.02086	1.02086	1.02086	1.02086	1.02086	1.02065	1.02561	1.02340	1.01420
26	1.03961	1.03961	1.03961	1.03961	1.03961	1.03961	1.03961	1.03981	1.03084	1.02729	1.02475
27	1.01440	1.01440	1.01440	1.01440	1.01440	1.01440	1.01440	1.01278	1.00986	1.01164	1.00971
28	1.01850	1.01850	1.01850	1.01850	1.01850	1.01850	1.01850	1.02795	1.02738	1.02510	1.01871
29	1.01886	1.01886	1.01886	1.01886	1.01886	1.01886	1.01886	1.02296	1.01666	1.01419	1.00772
30	1.04665	1.04665	1.04665	1.04665	1.04665	1.04665	1.04665	1.06930	1.05109	1.04079	1.02158
31	1.03553	1.03553	1.03553	1.03553	1.03553	1.03553	1.03553	1.07120	1.05099	1.05582	1.01283
32	1.02979	1.02979	1.02979	1.02979	1.02979	1.02979	1.02979	1.04555	1.04030	1.04734	1.02783
33	1.02118	1.02118	1.02118	1.02118	1.02118	1.02118	1.02118	1.02422	1.02166	1.03341	1.02317
34	0.98796	0.98796	0.98796	0.98796	0.98796	0.98796	0.98796	0.94853	0.99750	1.00271	1.03332

Note: The number that appears, for example, in the column marked '20' and the row marked '2' is the ratio of basic pay at two years of service to basic pay at one year of service for a member who entered at age 20.

PROMOTION AND MERIT BASIC PAY INCREASE SCALES

ENLISTED (BY ENTRY AGE)

Years of Service	Entry Age												
	16	17	18	19	20	21	22	23	24	25	26		
1	1.14463	1.14463	1.15192	1.13066	1.10499	1.09967	1.09485	1.08803	1.08174	1.07784	1.04388		
2	1.11460	1.11460	1.11454	1.11191	1.11084	1.11190	1.11330	1.11410	1.11451	1.11391	1.10682		
3	1.10585	1.10585	1.10336	1.10136	1.09840	1.09751	1.09578	1.09395	1.09251	1.09236	1.09052		
4	1.09187	1.09187	1.08458	1.07787	1.07474	1.07408	1.07363	1.07388	1.07381	1.07393	1.07417		
5	1.03813	1.03813	1.03342	1.03727	1.03777	1.03740	1.03826	1.03842	1.03976	1.04040	1.03887		
6	1.08603	1.08603	1.08305	1.07612	1.07386	1.07369	1.07362	1.07384	1.07273	1.07226	1.06800		
7	1.02569	1.02569	1.02685	1.03172	1.03395	1.03440	1.03456	1.03495	1.03490	1.03383	1.03581		
8	1.08945	1.08945	1.08981	1.08241	1.07796	1.07646	1.07554	1.07405	1.07357	1.07271	1.06366		
9	1.02372	1.02372	1.02136	1.02525	1.02709	1.02798	1.02772	1.02775	1.02740	1.02875	1.03084		
10	1.05618	1.05618	1.06018	1.05735	1.05554	1.05409	1.05344	1.05256	1.05125	1.05021	1.04647		
11	1.02443	1.02443	1.01796	1.02035	1.02207	1.02316	1.02245	1.02319	1.02343	1.02383	1.02399		
12	1.06395	1.06395	1.06126	1.05530	1.05231	1.04959	1.04767	1.04687	1.04545	1.04561	1.03990		
13	1.02883	1.02883	1.02147	1.02384	1.02456	1.02460	1.02476	1.02412	1.02438	1.02418	1.02288		
14	1.03612	1.03612	1.04314	1.04047	1.03940	1.03772	1.03657	1.03541	1.03583	1.03424	1.03081		
15	1.01461	1.01461	1.02312	1.02476	1.02479	1.02538	1.02514	1.02551	1.02446	1.02450	1.02351		
16	1.03567	1.03567	1.03907	1.03689	1.03592	1.03480	1.03388	1.03283	1.03144	1.03022	1.02680		
17	1.01696	1.01696	1.02141	1.02410	1.02454	1.02478	1.02413	1.02380	1.02323	1.02202	1.01908		
18	1.04477	1.04477	1.04392	1.04034	1.03856	1.03586	1.03521	1.03422	1.03362	1.03169	1.02626		
19	1.01797	1.01797	1.01812	1.01892	1.01876	1.01881	1.01845	1.01842	1.01786	1.01906	1.01495		
20	1.04784	1.04784	1.05683	1.05989	1.06321	1.06664	1.06815	1.06936	1.07225	1.07401	1.08248		
21	1.04156	1.04156	1.03878	1.04043	1.03946	1.03837	1.03962	1.04139	1.03968	1.04195	1.04150		
22	1.06034	1.06034	1.06287	1.05641	1.05425	1.05316	1.05374	1.05449	1.05673	1.05100	1.04776		
23	1.02863	1.02863	1.02731	1.03243	1.03388	1.03447	1.03473	1.03259	1.03274	1.03491	1.02869		
24	1.05285	1.05285	1.06189	1.05931	1.05994	1.06183	1.06077	1.06046	1.06050	1.06188	1.05705		
25	1.02562	1.02562	1.02998	1.03604	1.03767	1.03327	1.03183	1.03066	1.03112	1.03306	1.03074		
26	1.08867	1.08867	1.09105	1.08810	1.08584	1.08542	1.08566	1.08473	1.07945	1.07139	1.05590		
27	1.02419	1.02419	1.02080	1.02143	1.02065	1.02253	1.02540	1.02172	1.02343	1.02752	1.02455		
28	0.99741	0.99741	1.01810	1.01911	1.02082	1.02168	1.02324	1.02113	1.02044	1.02451	1.02800		
29	1.00414	1.00414	1.00950	1.01334	1.01506	1.01463	1.01298	1.01340	1.01243	1.01383	1.01924		
30	1.02632	1.02632	1.05110	1.04098	1.03000	1.03513	1.02915	1.02501	1.02043	1.01257	1.00996		
31	1.00002	1.00002	0.99460	0.98261	0.98840	1.00386	1.00729	1.00439	0.99995	0.99713	1.01452		
32	0.99875	0.99875	1.00633	1.00144	1.00387	0.99960	1.02260	0.99998	1.00059	0.98624	0.99341		
33	0.99973	0.99973	1.00337	0.99297	1.00241	1.01097	1.01385	0.99310	0.99612	0.97424	0.98173		
34	0.99950	0.99950	1.02324	1.02368	1.00965	1.00437	1.01341	0.98561	0.99206	0.95993	0.98570		

Note: The number that appears, for example, in the column marked '20' and the row marked '2' is the ratio of basic pay at two years of service to basic pay at one year of service for a member who entered at age 20.

APPENDIX H

RESERVE DUTY RATES

	<u>Page</u>
Reserve Duty Rates Description	127
Summary of Years On Which Reserve Rates Are Based	130
Officer and Enlisted New Entrant Distribution	131
Officer and Enlisted, Selected and Non-Selected, Reserve Death	132
Officer Selected Reserve Non-Transfer/Retirement Separation.....	133
Enlisted Selected Reserve Non-Transfer/Retirement Separation	134
Officer Selected Reserve Reentrant.....	135
Enlisted Selected Reserve Reentrant	136
Officer Selected Reserve Non-Transfer/Retirement Net Separation	137
Enlisted Selected Reserve Non-Transfer/Retirement Net Separation	138
Officer Selected Reserve Paygrade Transfer	139
Enlisted Selected Reserve Paygrade Transfer	140
Officer Non-Selected Reserve with 20 Good Years Non-Retirement Separation.....	141
Enlisted Non-Selected Reserve with 20 Good Years Non-Retirement Separation	142
Officer Selected Reserve to Non-Selected Reserve with 20 Good Years Transfer.....	143
Enlisted Selected Reserve to Non-Selected Reserve with 20 Good Years Transfer	144
Officer Selected Reserve Retirement.....	145
Enlisted Selected Reserve Retirement	146
Officer and Enlisted Selected Reserve Temporary and Permanent Disability Retirement	147

RESERVE DUTY RATES
(continued)

	<u>Page</u>
Officer and Enlisted Non-Selected Reserve with 20 Good Years Retirement	148
Officer Selected Reserve Average Points Per Year.....	149
Enlisted Selected Reserve Average Points Per year.....	150
Officer Selected Reserve Career Points Adjustment	151
Enlisted Selected Reserve Career Points Adjustment.....	152
Officer Non-Selected Reserve with 20 Good Years Average Points Per Year.	153
Enlisted Non-Selected Reserve with 20 Good Years Average Points Per Year.....	154
Officer Reentering Selected Reserve Average Points.	155
Enlisted Reentering Selected Reserve Average Points.....	156
Officer and Enlisted Non-Selected Reserve with 20 Good Years Blow-up	157
Officer Selected Reserve to Non-Selected Reserve with 20 Good Years Transfer Blow-up.....	158
Enlisted Selected Reserve to Non-Selected Reserve with 20 Good Years Transfer Blow-up..	159
Officer Non-Selected Reserve with 20 Good Years Adjustment due to Transfer Blow-up.....	160
Enlisted Non-Selected Reserve with 20 Good Years Adjustment due to Transfer Blow-up..	161
Officer Selected Reserve Promotion and Merit Basic Pay Increase Scales (PAMS).....	162
Enlisted Selected Reserve Promotion and Merit Basic Pay Increase Scales (PAMS)	163
Officer Non-Selected Reserve with 20 Good Years PAMS	164
Enlisted Non-Selected Reserve with 20 Good Years PAMS	165

RESERVE DUTY RATES DESCRIPTION

Modeling reserves is similar in some respects to modeling active duty. There are, however, additional challenges due to the complexities of the reserve career (multiple breaks in service of varying durations, movement between active and reserve components, etc.); the structure of the reserve force; limitations of the reserve data; and evolving changes in how the reserves are used.

Reserves are modeled in two population categories in the portion of their career prior to receiving retired pay – Selected Reserves and non-Selected Reserves with 20 good years. The Selected Reserves include only part-time members (full-time Reservists are included in the active-duty (full-time) portion of this valuation) and are the reservists for whom normal costs are paid. The non-Selected Reserves with 20 good years¹ are modeled because they have enough service to qualify for retirement.

The reserve rates consist primarily of decrement rates related to the probabilities of a member leaving a category of military service for a specific reason. In addition, they include a new entrant distribution; a set of reentrant ratios; ratios for promotion and merit pay increases; average points per year; transfer to 20-year non-Selected Reserve status; and blow-up² factors. The decrement rates are mainly given by age nearest birthday at entry and completed years of service since Pay Entry Base Date (PEBD), for officers and enlisted separately. “Entry Age” is constructed on an assumption of no breaks in service; e.g., an “entry age” of 57 could represent a member who started at a much earlier age with a long break in service. As noted in the “Valuation Data and Procedure” section, as well as Table 6B, in the main text, the valuation results are highly sensitive to the separation rates and reentrant ratios³. Below is a description of the rates used in the reserve valuation process.

¹ This includes the category commonly referred to as the “grey area” as well as other non-Selected Reservists with 20 qualifying retirement years.

² These are used to adjust for persistent patterns of actual outcomes not conforming to expectations based on known data. For example, some new reserve retirees show up in the data each year who were not in the data as eligible-to-retain reservists the year before. The need for such “blow up” factors is one of many challenges in modeling reservists.

³ Another challenge in modeling reserves relates to the fact that many reservists start their career in the active duty component or have breaks in service throughout their career. Their movements back into the Selected Reserves (from the active duty component, from civilian status, etc.) are modeled as implicit flows via reentrant ratios. However, in some cases these ratios are unusually high, and population cells with small numbers of members initially are then augmented throughout the actuarial projection by large numbers of reentrants. This creates the potential for volatility of results, to the extent small population cell counts experience variations over time. Additionally, patterns of reservist population flows (between the Selected Reserves and the active duty component and between civilian status and the Selected Reserve) are changing, given external and internal factors such as changes in how reserves are used by the military.

The data for the rates was taken from the Reserve Component Common Personnel Data System (RCCPDS) files as of September 30 for the years 2005 through 2009, generally. The experience period was selected such that the sum of the part-time Selected Reserve force size changes for the included period was near zero. The fiscal years on which the rates are based is given on a subsequent page. A summary qualitative description follows in the below text, in addition to being displayed at the bottom of the respective rate tables in this appendix. The general formula derivation is similar to those of the Active Duty rates (Appendix G) and Retiree/Survivor rates (Appendix I). The reserve rate formulas are not shown, but may be requested from the Office of the Actuary.

The separation rates give the probability that a member in a given status at the beginning of the fiscal year leaves that status during the fiscal year. Separation rates from the Selected Reserve include standard losses, transfers to active duty, transfers to the full-time reserves, discharge, and death. They do not include transfers to non-Selected Reserves with 20 good years, or retirement. Separation rates from the non-Selected Reserve with 20 good years include transfer to Selected Reserve, death, discharge, and file corrections and timing delays. They do not include transfer to retirement status.

A reentrant is defined as someone who is in the Selected Reserves at year end, who was not in the same status a year earlier, and who is not a new entrant (as defined by having greater than zero completed years of PEBD service). It can include transfers from active duty; former Selected Reserve or active members returning after breaks in service; reserve members returning after being attached to a non-selected reserve component (Individual Ready Reserve or Inactive National Guard); and members transferring to the part-time Selected Reserves from the full-time reserves.

The new entrant distribution gives the percentages of new entrants (as defined by having zero completed years of PEBD service) to the part-time Selected Reserves by age and by officer/enlisted status. The distribution is only used in the normal cost (new entrant) valuation and the open group projection.

Due to Public Law (P.L.) 110-181 (see Appendix A), the set of separation rates shown apply only in the early years of the projection, and then phase in to an average age of 58 for reserve retirement. (See Item 4 in the Reserve Duty section in Appendix F for a description of the parameter used to model the phase-in.) As the transitions to earlier average retirement ages occur, the ages applicable to some of the rates change.

In most cases the separation and reentrant rates and ratios are not smoothed (graduated). However, cells with numerators of fewer than 10 cases are combined with other cells.

The promotion and merit increase scales (PAMS) give the expected annual percentage increase in pay independent of the across-the-board increases in the active duty pay scale. The PAMS do not include adjustments for inflation or productivity increases. The PAMS are defined by length of PEBD service, by age, and by officer/enlisted status. They are computed by dividing the average pay at age (x+1), years of service (y+1) by the average pay at age (x), years

of service (y) one year earlier. An adjustment is made to compute the averages for the numerator and denominator based on the same pay table, and cells based on few observations are combined with other cells.

SUMMARY OF YEARS ON WHICH RESERVE RATES ARE BASED

By Fiscal Year

<u>RATE</u>	<u>2005</u>	<u>2006</u>	<u>2007</u>	<u>2008</u>	<u>2009</u>	<u>2010-2014*</u>	<u>2015</u>
New Entrant Distribution (Officer/Enlisted)	X	X	X	X	X		
Death (Officer/Enlisted; Selected/Non-Selected)						X	X
Separation* (Officer/Enlisted; Selected/Non-Selected)	X	X	X	X	X		
Reentrant (Officer/Enlisted; Selected)	X	X	X	X	X		
Paygrade Transfer (Officer/Enlisted; Selected)	X	X	X	X	X		
Status Transfer (Officer/Enlisted; Selected-to-Non-Selected)	X	X	X	X	X		
Retirement (Officer/Enlisted; Selected/Non-Selected)	X	X	X	X	X		
Disability Retirement (Permanent/Temporary; Officer/Enlisted; Selected)						X	
Average Points Per Year (Officer/Enlisted; Selected/Non- Selected)	X	X	X	X	X		
Career Points Adjustment (Officer/Enlisted; Selected)	X	X	X	X	X		
Reentering Average Points (Officer/Enlisted; Selected)	X	X	X	X	X		
Retirement Ratios (Officer/Enlisted; Non-Selected)	X	X	X	X	X		
Transfer Ratios (Officer/Enlisted; Selected-to- Non-Selected)	X	X	X	X	X		
Transfer Ratio Adjustment (Officer/Enlisted; Selected-to- Non-Selected)	X	X	X	X	X		
Selected Reserve PAMS (Officer/Enlisted)	X	X	X	X	X		
Non-Selected Reserve PAMS (Officer/Enlisted)	X	X	X	X	X		

* In the construction of the disability-related rates, we removed one half of the combat-related disability retirements occurring during the FY 2010-2014 experience period. We subtracted additional disability retirements from separations, thereby affecting separation rates and reducing the impact on the percentage making 20 year retirement. The adjustment did not impact Officer Temporary Disability Rates.

New Entrant Distribution

By Paygrade (Officer/Enlisted)

<u>Entry Age</u>	<u>Officer</u>	<u>Enlisted</u>	<u>Total</u>
17	0.00000	0.02350	0.02350
18	0.00000	0.19427	0.19427
19	0.00001	0.20176	0.20177
20	0.00018	0.14591	0.14609
21	0.00028	0.10208	0.10236
22	0.00072	0.07088	0.07160
23	0.00149	0.05248	0.05397
24	0.00107	0.03949	0.04056
25	0.00074	0.03018	0.03092
26	0.00069	0.02308	0.02377
27	0.00071	0.01890	0.01961
28	0.00063	0.01535	0.01598
29	0.00061	0.01341	0.01402
30	0.00070	0.01077	0.01147
31	0.00064	0.00925	0.00989
32	0.00052	0.00773	0.00825
33	0.00055	0.00687	0.00742
34	0.00054	0.00607	0.00661
35	0.00067	0.00633	0.00700
36	0.00048	0.00518	0.00566
37	0.00054	0.00474	0.00528
38	0.00000	0.00000	0.00000
39	0.00000	0.00000	0.00000
40	0.00000	0.00000	0.00000
41	0.00000	0.00000	0.00000
42	0.00000	0.00000	0.00000
43	0.00000	0.00000	0.00000
44	0.00000	0.00000	0.00000
45	0.00000	0.00000	0.00000
46	0.00000	0.00000	0.00000
47	0.00000	0.00000	0.00000
48	0.00000	0.00000	0.00000
49	0.00000	0.00000	0.00000
50	0.00000	0.00000	0.00000
51	0.00000	0.00000	0.00000
52	0.00000	0.00000	0.00000
53	0.00000	0.00000	0.00000
54	0.00000	0.00000	0.00000
55	0.00000	0.00000	0.00000
56	0.00000	0.00000	0.00000
57	0.00000	0.00000	0.00000
58	0.00000	0.00000	0.00000
59	0.00000	0.00000	0.00000
60	0.00000	0.00000	0.00000
61	0.00000	0.00000	0.00000
>62	0.00000	0.00000	0.00000
Total	0.01177	0.98823	1.00000

DESCRIPTION: New Entrant distribution for a normal cost valuation (as well as open group), where a new entrant is defined as: a part-time selected reserve on the file as of year-end, who was not in that status in the prior year, and has zero completed PEBD years of service.

Arrayed by entry age and paygrade (officer/enlisted). Populates age scatter of new entrant cohort. Model assumes no new entrants older than age 37.

Reserve Death Rates

By Reserve Status and Paygrade

Age	Selected		Non-Selected	
	Officer	Enlisted	Officer	Enlisted
16	0.00028	0.00046		
17	0.00028	0.00052		
18	0.00028	0.00059		
19	0.00028	0.00068		
20	0.00028	0.00074		
21	0.00028	0.00078		
22	0.00028	0.00080		
23	0.00028	0.00080		
24	0.00028	0.00078		
25	0.00028	0.00076		
26	0.00029	0.00072		
27	0.00029	0.00068		
28	0.00029	0.00067		
29	0.00030	0.00065		
30	0.00030	0.00064	0.00023	0.00043
31	0.00031	0.00063	0.00023	0.00042
32	0.00031	0.00064	0.00024	0.00042
33	0.00032	0.00062	0.00024	0.00042
34	0.00033	0.00062	0.00024	0.00041
35	0.00034	0.00061	0.00025	0.00040
36	0.00035	0.00061	0.00026	0.00039
37	0.00034	0.00060	0.00026	0.00039
38	0.00035	0.00061	0.00027	0.00039
39	0.00036	0.00062	0.00027	0.00039
40	0.00036	0.00064	0.00027	0.00040
41	0.00037	0.00067	0.00028	0.00049
42	0.00037	0.00069	0.00028	0.00059
43	0.00039	0.00072	0.00033	0.00069
44	0.00039	0.00074	0.00038	0.00078
45	0.00041	0.00075	0.00043	0.00088
46	0.00043	0.00076	0.00048	0.00098
47	0.00044	0.00077	0.00054	0.00107
48	0.00047	0.00077	0.00060	0.00120
49	0.00049	0.00078	0.00068	0.00133
50	0.00052	0.00080	0.00077	0.00149
51	0.00055	0.00084	0.00089	0.00168
52	0.00057	0.00088	0.00103	0.00190
53	0.00060	0.00096	0.00121	0.00218
54	0.00063	0.00106	0.00145	0.00252
55	0.00066	0.00119	0.00174	0.00294
56	0.00069	0.00135	0.00211	0.00347
57	0.00071	0.00152	0.00256	0.00413
58	0.00075	0.00172	0.00311	0.00495
59	0.00077	0.00194	0.00374	0.00590
60	0.00079	0.00218	0.00441	0.00688
61	0.00082	0.00245	0.00508	0.00787
62	0.00083	0.00275	0.00576	0.00883
63	0.00085	0.00308	0.00643	0.00977

DESCRIPTION: Reserve Death Rates
 Arrayed by reserve status (Selected/Non-Selected), age (nearest birthday),
 and paygrade (officer/enlisted).
 Probability that a member dies in the next year. Should not be compared to other
 published rates or used for other purposes without examining how they are derived.

Selected Reserve Disability Retirement Rates

By Disability Type and Paygrade

PEBD Years of Service	Permanent		Temporary	
	Officer	Enlisted	Officer	Enlisted
Under 1	0.00000	0.00008	0.00000	0.00028
1	0.00000	0.00017	0.00000	0.00021
2	0.00000	0.00058	0.00000	0.00038
3	0.00000	0.00074	0.00000	0.00050
4	0.00065	0.00079	0.00014	0.00055
5	0.00065	0.00110	0.00026	0.00065
6	0.00063	0.00129	0.00039	0.00070
7	0.00070	0.00111	0.00051	0.00073
8	0.00069	0.00122	0.00058	0.00071
9	0.00074	0.00165	0.00057	0.00078
10	0.00096	0.00201	0.00055	0.00093
11	0.00098	0.00227	0.00047	0.00115
12	0.00076	0.00242	0.00042	0.00124
13	0.00075	0.00253	0.00039	0.00115
14	0.00092	0.00247	0.00037	0.00106
15	0.00099	0.00224	0.00035	0.00109
16	0.00087	0.00210	0.00039	0.00102
17	0.00077	0.00210	0.00049	0.00101
18	0.00089	0.00220	0.00048	0.00100
19	0.00126	0.00292	0.00046	0.00107
20	0.00177	0.00384	0.00052	0.00109
21	0.00215	0.00403	0.00043	0.00118
22	0.00228	0.00486	0.00043	0.00140
23	0.00188	0.00582	0.00060	0.00149
24	0.00175	0.00628	0.00090	0.00153
25	0.00237	0.00669	0.00101	0.00156
26	0.00302	0.00706	0.00096	0.00172
27	0.00342	0.00745	0.00086	0.00185
28	0.00333	0.00810	0.00088	0.00178
29	0.00317	0.00831	0.00090	0.00164
30	0.00331	0.00874	0.00091	0.00156
31	0.00327	0.00907	0.00090	0.00151
32	0.00321	0.00869	0.00094	0.00142
33	0.00311	0.00786	0.00096	0.00132
34	0.00259	0.00744	0.00091	0.00127
35	0.00157	0.00785	0.00087	0.00132
36	0.00000	0.00807	0.00093	0.00144
37	0.00000	0.00753	0.00108	0.00155
38	0.00000	0.00643	0.00120	0.00158
39	0.00000	0.00504	0.00127	0.00152
40	0.00000	0.00000	0.00000	0.00000
41	0.00000	0.00000	0.00000	0.00000

DESCRIPTION: Selected Reserve Disability Retirement Rates
 Arrayed by disability type (Permanent/Temporary), completed PEBD YOS,
 and paygrade (officer/enlisted).
 Probability that a member receives a disability retirement during the fiscal year.

Non-Selected Reserve with 20 Good Years Retirement Rates

By Paygrade

<u>Age</u>	<u>Officer</u>	<u>Enlisted</u>
17	0.000	0.000
18	0.000	0.000
19	0.000	0.000
20	0.000	0.000
21	0.000	0.000
22	0.000	0.000
23	0.000	0.000
24	0.000	0.000
25	0.000	0.000
26	0.000	0.000
27	0.000	0.000
28	0.000	0.000
29	0.000	0.000
30	0.000	0.000
31	0.000	0.000
32	0.000	0.000
33	0.000	0.000
34	0.000	0.000
35	0.000	0.000
36	0.000	0.000
37	0.000	0.000
38	0.000	0.000
39	0.000	0.000
40	0.000	0.000
41	0.001	0.000
42	0.000	0.000
43	0.002	0.000
44	0.002	0.000
45	0.001	0.000
46	0.001	0.000
47	0.001	0.000
48	0.001	0.000
49	0.001	0.000
50	0.002	0.000
51	0.001	0.000
52	0.002	0.000
53	0.001	0.000
54	0.001	0.000
55	0.001	0.000
56	0.000	0.000
57	0.000	0.000
58	0.001	0.001
59	0.470	0.450
60	0.950	0.930
61	0.289	0.303
62	0.199	0.186
>62	0.177	0.133

DESCRIPTION: Non-Selected Reserve with 20 Good Years ('Grey Area') Retirement Rates
 Arrayed by age and paygrade (officer/enlisted).
 Probability that a member retires from the Grey Area during the fiscal year.

Enlisted Reentering Selected Reserve Average Points

PEBD Years of Service	By Entry Age																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																				
	16	17	18	19	20	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	52	53	54	55	56	57	58	59	60	61	62	63																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																					
Under 1	0	87	104	208	242	252	266	291	311	332	356	386	424	464	508	556	608	664	724	788	856	928	1004	1084	1168	1256	1348	1444	1544	1648	1756	1868	1984	2104	2228	2356	2488	2624	2764	2904	3048	3196	3348	3504	3664	3828	3996	4168	4344	4524	4708	4896	5088	5284	5484	5688	5896	6108	6324	6544	6768	6996	7228	7464	7704	7948	8196	8448	8704	8964	9228	9496	9768	10044	10324	10608	10896	11188	11484	11784	12088	12396	12708	13024	13344	13668	13996	14328	14664	15004	15348	15696	16048	16404	16764	17128	17496	17868	18244	18624	19008	19396	19788	20184	20584	20988	21396	21808	22224	22644	23068	23496	23928	24364	24804	25248	25696	26148	26604	27064	27528	28000	28476	28956	29440	29928	30420	30916	31416	31920	32428	32940	33456	33976	34500	35028	35560	36096	36636	37180	37728	38280	38836	39396	39960	40528	41100	41676	42256	42840	43428	44020	44616	45216	45820	46428	47040	47656	48276	48900	49528	50160	50796	51436	52080	52728	53380	54036	54696	55360	56028	56700	57376	58056	58740	59428	60120	60816	61516	62220	62928	63640	64356	65076	65800	66528	67260	68000	68744	69492	70244	71000	71760	72524	73292	74064	74840	75620	76404	77192	78000	78808	79620	80436	81256	82080	82908	83740	84576	85416	86260	87108	87960	88816	89676	90540	91408	92280	93156	94036	94920	95808	96700	97596	98496	99400	100308	101220	102136	103056	103980	104908	105840	106776	107716	108660	109608	110560	111516	112476	113440	114408	115380	116356	117336	118320	119308	120300	121296	122296	123300	124308	125320	126336	127356	128380	129408	130440	131476	132516	133560	134608	135660	136716	137776	138840	139908	140980	142056	143136	144220	145308	146400	147496	148596	149700	150808	151920	153036	154156	155280	156408	157540	158676	159816	160960	162108	163260	164416	165576	166740	167908	169080	170256	171436	172620	173808	175000	176196	177396	178600	179808	181020	182236	183456	184680	185908	187140	188376	189616	190860	192108	193360	194616	195876	197140	198408	199680	200956	202236	203520	204808	206100	207396	208696	209996	211300	212608	213920	215236	216556	217880	219208	220540	221876	223216	224560	225908	227260	228616	229976	231340	232708	234080	235456	236836	238220	239608	240996	242396	243796	245200	246608	248020	249436	250856	252280	253708	255140	256576	258016	259460	260908	262360	263816	265276	266740	268208	269680	271156	272636	274120	275608	277100	278596	280096	281600	283108	284620	286136	287656	289180	290708	292240	293776	295316	296860	298408	299960	301516	303076	304640	306208	307780	309356	310936	312520	314108	315700	317296	318896	320500	322108	323720	325336	326956	328580	330208	331840	333476	335116	336760	338408	340060	341716	343376	345040	346708	348380	350056	351736	353420	355108	356800	358496	360196	361900	363608	365320	367036	368756	370480	372208	373940	375676	377416	379160	380908	382660	384416	386176	387940	389708	391480	393256	395036	396820	398608	400400	402196	404000	405808	407620	409436	411256	413080	414908	416740	418576	420416	422260	424108	425956	427808	429660	431516	433376	435240	437108	438980	440856	442736	444620	446508	448400	450296	452196	454100	456008	457920	459836	461756	463680	465608	467540	469476	471416	473360	475308	477260	479216	481176	483140	485108	487080	489056	491036	493020	495008	497000	498996	500996	502996	504996	506996	508996	510996	512996	514996	516996	518996	520996	522996	524996	526996	528996	530996	532996	534996	536996	538996	540996	542996	544996	546996	548996	550996	552996	554996	556996	558996	560996	562996	564996	566996	568996	570996	572996	574996	576996	578996	580996	582996	584996	586996	588996	590996	592996	594996	596996	598996	600996	602996	604996	606996	608996	610996	612996	614996	616996	618996	620996	622996	624996	626996	628996	630996	632996	634996	636996	638996	640996	642996	644996	646996	648996	650996	652996	654996	656996	658996	660996	662996	664996	666996	668996	670996	672996	674996	676996	678996	680996	682996	684996	686996	688996	690996	692996	694996	696996	698996	700996	702996	704996	706996	708996	710996	712996	714996	716996	718996	720996	722996	724996	726996	728996	730996	732996	734996	736996	738996	740996	742996	744996	746996	748996	750996	752996	754996	756996	758996	760996	762996	764996	766996	768996	770996	772996	774996	776996	778996	780996	782996	784996	786996	788996	790996	792996	794996	796996	798996	800996	802996	804996	806996	808996	810996	812996	814996	816996	818996	820996	822996	824996	826996	828996	830996	832996	834996	836996	838996	840996	842996	844996	846996	848996	850996	852996	854996	856996	858996	860996	862996	864996	866996	868996	870996	872996	874996	876996	878996	880996	882996	884996	886996	888996	890996	892996	894996	896996	898996	900996	902996	904996	906996	908996	910996	912996	914996	916996	918996	920996	922996	924996	926996	928996	930996	932996	934996	936996	938996	940996	942996	944996	946996	948996	950996	952996	954996	956996	958996	960996	962996	964996	966996	968996	970996	972996	974996	976996	978996	980996	982996	984996	986996	988996	990996	992996	994996	996996	998996	1000996	1002996	1004996	1006996	1008996	1010996	1012996	1014996	1016996	1018996	1020996	1022996	1024996	1026996	1028996	1030996	1032996	1034996	1036996	1038996	1040996	1042996	1044996	1046996	1048996	1050996	1052996	1054996	1056996	1058996	1060996	1062996	1064996	1066996	1068996	1070996	1072996	1074996	1076996	1078996	1080996	1082996	1084996	1086996	1088996	1090996	1092996	1094996	1096996	1098996	1100996	1102996	1104996	1106996	1108996	1110996	1112996	1114996	1116996	1118996	1120996	1122996	1124996	1126996	1128996	1130996	1132996	1134996	1136996	1138996	1140996	1142996	1144996	1146996	1148996	1150996	1152996	1154996	1156996	1158996	1160996	1162996	1164996	1166996	1168996	1170996	1172996	1174996	1176996	1178996	1180996	1182996	1184996	1186996	1188996	1190996	1192996	1194996	1196996	1198996	1200996	1202996	1204996	1206996	1208996	1210996	1212996	1214996	1216996	1218996	1220996	1222996	1224996	1226996	1228996	1230996	1232996	1234996	1236996	1238996	1240996	1242996	1244996	1246996	1248996	1250996	1252996	1254996	1256996	1258996	1260996	1262996	1264996	1266996	1268996	1270996	1272996	1274996	1276996	1278996	1280996	1282996	1284996	1286996	1288996	1290996	1292996	1294996	1296996	1298996	1300996	1302996	1304996	1306996	1308996	1310996	1312996	1314996	1316996	1318996	1320996	1322996	1324996	1326996	1328996	1330996	1332996	1334996	1336996	1338996	1340996	1342996	1344996	1346996	1348996	1350996	1352996	1354996	1356996	1358996	1360996	1362996	1364996	1366996	1368996	1370996	1372996	1374996	1376996	1378996	1380996	1382996	1384996	1386996	1388996	1390996	1392996	1394996	1396996	1398996	1400996	1402996	1404996	1406996	1408996	1410996	1412996	1414996	1416996	1418996	1420996	1422996	1424996	1426996	1428996	1430996	1432996	1434996	1436996	1438996	1440996	1442996	1444996	1446996	1448996	1450996	1452996	1454996	1456996	1458996	1460996	1462996	1464996	1466996	1468996	1470996	1472996	1474996	1476996	1478996	1480996	1482996	1484996	1486996	1488996	1490996	1492996	1494996	1496996	1498996	1500996	1502996	1504996	1506996	1508996	1510996	1512996	1514996	1516996	1518996	1520996	1522996	1524996	1526996	1528996	1530996	1532996	1534996	1536996	1538996	1540996	1542996	1544996	1546996	1548996	1550996	1552996	1554996	1556996	1558996	1560996	1562996	1564996	1566996	1568996	1570996	1572996	1574996	1576996	1578996	1580996	1582996	1584996	1586996	1588996	1590996	1592996	1594996	1596996	1598996	1600996	1602996	1604996	1606996	1608996	1610996	1612996	1614996	1616996	1618996	1620996	1622996	1624996	1626996	1628996	1630996	1632996	1634996	1636996	1638996	1640996	1642996	1644996	1646996	1648996	1650

Non-Selected Reserve with 20 Good Years Blow-up Factors

By Modeling Type and Paygrade

Age	Person		Pay	
	Officer	Enlisted	Officer	Enlisted
17	0.000	0.000	0.000	0.000
18	0.000	0.000	0.000	0.000
19	0.000	0.000	0.000	0.000
20	0.000	0.000	0.000	0.000
21	0.000	0.000	0.000	0.000
22	0.000	0.000	0.000	0.000
23	0.000	0.000	0.000	0.000
24	0.000	0.000	0.000	0.000
25	0.000	0.000	0.000	0.000
26	0.000	0.000	0.000	0.000
27	0.000	0.000	0.000	0.000
28	0.000	0.000	0.000	0.000
29	0.000	0.000	0.000	0.000
30	0.000	0.000	0.000	0.000
31	0.000	0.000	0.000	0.000
32	0.000	0.000	0.000	0.000
33	0.000	0.000	0.000	0.000
34	0.000	0.000	0.000	0.000
35	0.000	0.000	0.000	0.000
36	0.000	0.000	0.000	0.000
37	0.000	0.000	0.000	0.000
38	0.000	0.000	0.000	0.000
39	0.000	0.000	0.000	0.000
40	0.000	0.000	0.000	0.000
41	0.000	0.000	0.000	0.000
42	0.000	0.000	0.000	0.000
43	0.000	0.000	0.000	0.000
44	0.000	0.000	0.000	0.000
45	0.000	0.000	0.000	0.000
46	0.000	0.000	0.000	0.000
47	0.000	0.000	0.000	0.000
48	0.000	0.000	0.000	0.000
49	0.000	0.000	0.000	0.000
50	0.000	0.000	0.000	0.000
51	0.000	0.000	0.000	0.000
52	0.000	0.000	0.000	0.000
53	0.000	0.000	0.000	0.000
54	0.000	0.000	0.000	0.000
55	0.000	0.000	0.000	0.000
56	0.000	0.000	0.000	0.000
57	0.000	0.000	0.000	0.000
58	0.000	0.000	0.000	0.000
59	1.083	1.154	0.990	0.977
60	1.105	1.190	0.986	0.977
61	2.331	2.589	0.910	0.917
62	4.536	4.919	0.823	1.045
>62	4.026	4.888	0.969	0.976

DESCRIPTION: Non-Selected Reserve with 20 Good Years ('Grey Area') Nondisabled Retirement Ratios ("Blow-up" factors or "Loads") Arrayed by modeling type (person/pay), age, and paygrade (officer/enlisted). These factors are applied to each year's new-retirement-from-the-Grey-Area projections to account for new retirees who were not present in the prior year's reserve data files.

APPENDIX I

RETIREE AND SURVIVOR RATES

	<u>Page</u>
Retiree and Survivor Rates Description.....	167
Retiree and Survivor Decrement Rate Formulas	168
Summary of Years On Which Retiree and Survivor Rates Are Based.....	170
Officer Retired Death (Non-, Permanent, and Temporary Disability)	171
Enlisted Retired Death (Non-, Permanent, and Temporary Disability).....	173
Active Duty Other Losses from Nondisability	175
Reserve Duty Other Losses from Nondisability	176
Other Loss and Nontransfer Losses from Temporary Disability.....	177
Transfer from Temporary Disability to Permanent Disability.....	178
Other Losses from Permanent Disability	179
Retiree Divorce	180
Surviving Spouse Remarriage	181
Surviving Child Coverage Termination.....	182
Surviving Spouse Death.....	183
Spouse Death	184
Surviving Spouse Other Loss	185

RETIREE AND SURVIVOR RATES DESCRIPTION

The military retiree and survivor decrement rates are used to project death, “other” losses from pay status, and rates of transfer from temporary disability to permanent disability. The “other” losses consist primarily of returns to active duty and full waiver of retired pay to receive a higher annuity from the Veterans Affairs or Civil Service. In order to compute the normal cost contributions with and without regard to Concurrent Receipt benefits (Public Law (P.L.) 108-136), DoD- and Treasury-specific “other” loss rates, among others, are developed. The rates are arrayed by age nearest birthday for officers and enlisted separately, and by retirement type--nondisability, temporary disability, and permanent disability. For temporary disability retirees, select rates were created for each of the first five years of retirement. After a certain number of years, those who are still in the temporary disability status are transferred to a permanent disability status.¹

The data for the retiree and survivor rates were taken from files maintained by the Defense Manpower Data Center (DMDC) as of September 30 for the years 2006 through 2012. These files were created by the Defense Finance and Accounting Service (DFAS), which has responsibility for sending monthly retired pay checks to military retirees. A military retiree can be in “paid status” or “nonpaid status.” Nonpaid status indicates that a retiree has an entitlement to an annuity, but the annuity is fully reduced by offsets. Retirees who terminate from paid status during a fiscal year are on the retiree file at the end of that fiscal year with a termination code indicating the type of termination.

The rate development process begins by matching two consecutive fiscal year-end files by Social Security number. Cases no longer in paid status are categorized by type of loss. Cases returned to paid status (from non-paid status at the start of the year) are subtracted from a given type of loss. After following the above procedures, crude rates are created using the formulas given on the following pages. These rates are smoothed using a Whittaker-Henderson type B (“Method B”) graduation, or by fitting a polynomial to the crude rates. Where there is reason to suspect valid discontinuities in the underlying rates, those segments are not smoothed. A summary of the years on which various rates are based is given on the page following the formulas.

Note to Reader:

Some death rates are greater than 1.00000 in this appendix because the death rates are expressed as central rates. These death rates should not be compared to other published rates or used for other purposes without carefully examining the exposure formula used in their derivation.

¹ NDAA 2017 changed the maximum temporary disability period from five years to three years.

RETIREE AND SURVIVOR DECREMENT RATE FORMULAS

DEATH OF NONDISABILITY RETIREES (by age nearest birthday and retired from active/reserve duty)

$$\frac{\text{Nondisability deaths during the year}}{[\text{Number at beginning of year} - \frac{1}{2} (\text{Nondisability deaths} + \text{other losses})]}$$

DEATH OF PERMANENT DISABILITY RETIREES (by age nearest birthday)

$$\frac{\text{Permanent disability deaths during the year}}{[\text{Number at beginning of year} - \frac{1}{2} (\text{Permanent disability deaths} + \text{other losses})]}$$

DEATH OF TEMPORARY DISABILITY RETIREES (by age nearest birthday and years retired)

$$\frac{\text{Temporary disability deaths in category during the year}^2}{[\text{Number at beginning of year} - \frac{1}{2} (\text{Deaths} + \text{transfers} + \text{other losses})]}$$

OTHER LOSSES FROM NONDISABILITY (by age nearest birthday and retired from active/reserve duty)

$$\frac{\text{Losses other than death during the year}}{\text{Number at beginning of year}}$$

OTHER AND NON-TRANSFER LOSSES FROM TEMPORARY DISABILITY (by age nearest birthday and years retired)

$$\frac{\text{Losses other than death or transfers to permanent disability during the year}}{\text{Number at beginning of year}}$$

TRANSFER FROM TEMPORARY TO PERMANENT DISABILITY (by age nearest birthday and years retired)

$$\frac{\text{Transfers to permanent disability during the year}}{\text{Number at beginning of year}}$$

OTHER LOSSES FROM PERMANENT DISABILITY (by age nearest birthday)

$$\frac{\text{Losses other than death during the year}}{\text{Number at beginning of year}}$$

² Includes deaths of members who were temporarily disabled at the beginning of the year, then transferred to permanent disability, and later died before the end of the year. Determined for each year of the temporary disability retirement category (1 – 5).

**RETIREE AND SURVIVOR DECREMENT RATE FORMULAS
(cont.)**

DIVORCE OF RETIREE (weighted by coverage amount, by age nearest birthday)

$$\frac{\text{Net retiree divorces during the year}}{\text{Number at beginning of year}}$$

REMARRIAGE OF SURVIVING SPOUSE (by age nearest birthday)

$$\frac{\text{Surviving spouse remarriages during the year}}{\text{Number at beginning of year}}$$

TERMINATION OF SURVIVING CHILD (by age nearest birthday)

$$\frac{\text{Child terminations during the year}}{\text{Number at beginning of year}}$$

DEATH OF SURVIVING SPOUSE (by age nearest birthday)³

$$\frac{\text{Surviving spouse deaths during the year}}{\text{Number at beginning of year}}$$

OTHER LOSS OF SURVIVING SPOUSE (by age nearest birthday)

$$\frac{\text{Survivor losses other than deaths during the year}}{\text{Number at beginning of year}}$$

³ Death rates of spouses of living retirees who elected SBP spouse, or spouse & child, coverage are based on a standard actuarial mortality table based on female group annuitant, federal Civil Service Retirement System, and U.S. general population experience with margin. This table is published by the Society of Actuaries (SOA) as 1994 GAM Static - Female, ANB.

SUMMARY OF YEARS ON WHICH RETIREE AND SURVIVOR RATES ARE BASED

	By Fiscal Year						
<u>DEATH RATES</u>	<u>2006</u>	<u>2007</u>	<u>2008</u>	<u>2009</u>	<u>2010</u>	<u>2011</u>	<u>2012</u>
ND Officer/Enlisted					X	X	X
PD Officer/Enlisted	X	X	X				
TD Officer/Enlisted		X	X	X	X		
 <u>OTHER LOSS RATES</u>							
ND Officer/Enlisted					X	X	X
PD Officer/Enlisted	X	X	X				
TD Officer/Enlisted		X	X	X	X		
 <u>TRANSFER RATES FROM TD</u>							
<u>TO PD</u>							
Officer/Enlisted		X	X	X	X		
 <u>RETIREE DIVORCE</u>							
			X	X			
 <u>SURVIVOR RATES</u>							
Remarriage				X	X		
Child Coverage Termination				X	X		
Surviving Spouse Death				X	X		
Surviving Spouse Other Loss				X	X		

Key: ND = Nondisabled
 PD = Permanently Disabled
 TD = Temporarily Disabled

OFFICER RETIRED DEATH RATES

(Age Nearest Birthday)

Age	Non-Disability		Permanent Disability	Temporary Disability				
	Active	Reserve		Year of Retirement				
				One	Two	Three	Four	Five
16	0.00035	0.00035	0.00352	0.00939	0.00890	0.00841	0.00792	0.00742
17	0.00035	0.00035	0.00352	0.00939	0.00890	0.00841	0.00792	0.00742
18	0.00035	0.00035	0.00352	0.00939	0.00890	0.00841	0.00792	0.00742
19	0.00035	0.00035	0.00352	0.00939	0.00890	0.00841	0.00792	0.00742
20	0.00035	0.00035	0.00352	0.00939	0.00890	0.00841	0.00792	0.00742
21	0.00035	0.00035	0.00360	0.00939	0.00890	0.00841	0.00792	0.00742
22	0.00035	0.00035	0.00370	0.00939	0.00890	0.00841	0.00792	0.00742
23	0.00035	0.00035	0.00380	0.00939	0.00890	0.00841	0.00792	0.00742
24	0.00035	0.00035	0.00391	0.00939	0.00890	0.00841	0.00792	0.00742
25	0.00035	0.00035	0.00403	0.00939	0.00890	0.00841	0.00792	0.00742
26	0.00035	0.00035	0.00415	0.00939	0.00890	0.00841	0.00792	0.00742
27	0.00035	0.00035	0.00427	0.00939	0.00890	0.00841	0.00792	0.00742
28	0.00035	0.00035	0.00440	0.00939	0.00890	0.00841	0.00792	0.00742
29	0.00035	0.00035	0.00451	0.00939	0.00890	0.00841	0.00792	0.00742
30	0.00035	0.00035	0.00461	0.00939	0.00890	0.00841	0.00792	0.00742
31	0.00037	0.00038	0.00468	0.00939	0.00890	0.00841	0.00792	0.00742
32	0.00039	0.00041	0.00473	0.00939	0.00890	0.00841	0.00792	0.00742
33	0.00041	0.00044	0.00474	0.00939	0.00890	0.00841	0.00792	0.00742
34	0.00043	0.00048	0.00473	0.00939	0.00890	0.00841	0.00792	0.00742
35	0.00045	0.00051	0.00470	0.00939	0.00890	0.00841	0.00792	0.00742
36	0.00047	0.00055	0.00463	0.00939	0.00890	0.00841	0.00792	0.00742
37	0.00048	0.00059	0.00453	0.00939	0.00890	0.00841	0.00792	0.00742
38	0.00049	0.00062	0.00441	0.00939	0.00890	0.00841	0.00792	0.00742
39	0.00051	0.00066	0.00429	0.00939	0.00890	0.00841	0.00792	0.00742
40	0.00052	0.00070	0.00418	0.00939	0.00890	0.00841	0.00792	0.00742
41	0.00054	0.00074	0.00408	0.00939	0.00890	0.00841	0.00792	0.00742
42	0.00056	0.00078	0.00400	0.00939	0.00890	0.00841	0.00792	0.00742
43	0.00058	0.00083	0.00396	0.00939	0.00890	0.00841	0.00792	0.00742
44	0.00060	0.00089	0.00394	0.00939	0.00890	0.00841	0.00792	0.00742
45	0.00062	0.00095	0.00394	0.00939	0.00890	0.00841	0.00792	0.00742
46	0.00065	0.00102	0.00397	0.00939	0.00890	0.00841	0.00792	0.00742
47	0.00068	0.00110	0.00402	0.00939	0.00890	0.00841	0.00792	0.00742
48	0.00076	0.00119	0.00409	0.00939	0.00890	0.00841	0.00792	0.00742
49	0.00086	0.00129	0.00417	0.00939	0.00890	0.00841	0.00792	0.00742
50	0.00099	0.00140	0.00460	0.00939	0.00890	0.00841	0.00792	0.00742
51	0.00112	0.00153	0.00490	0.00939	0.00890	0.00841	0.00792	0.00742
52	0.00129	0.00167	0.00525	0.00939	0.00890	0.00841	0.00792	0.00742
53	0.00150	0.00182	0.00563	0.00939	0.00890	0.00841	0.00792	0.00742
54	0.00172	0.00199	0.00604	0.00939	0.00890	0.00841	0.00792	0.00742
55	0.00197	0.00217	0.00648	0.00939	0.00890	0.00841	0.00792	0.00742
56	0.00225	0.00237	0.00694	0.00939	0.00890	0.00841	0.00792	0.00742
57	0.00256	0.00257	0.00744	0.00939	0.00890	0.00841	0.00792	0.00742
58	0.00290	0.00278	0.00797	0.00939	0.00890	0.00841	0.00792	0.00742
59	0.00327	0.00300	0.00854	0.00939	0.00890	0.00841	0.00792	0.00742
60	0.00368	0.00322	0.00918	0.00939	0.00890	0.00841	0.00792	0.00742
61	0.00413	0.00354	0.00991	0.00939	0.00890	0.00841	0.00792	0.00742
62	0.00462	0.00395	0.01073	0.00939	0.00890	0.00841	0.00792	0.00742
63	0.00518	0.00443	0.01168	0.00939	0.00890	0.00841	0.00792	0.00742
64	0.00580	0.00499	0.01278	0.00939	0.00890	0.00841	0.00792	0.00742
65	0.00650	0.00564	0.01405	0.00939	0.00890	0.00841	0.00792	0.00742

*** As noted in Item 2 in the Retiree section of Appendix F, additional adjustments are made for retirees who elect SBP spouse coverage.

OFFICER RETIRED DEATH RATES (continued)

(Age Nearest Birthday)

Age	Non-Disability		Permanent Disability	Temporary Disability				
	Active	Reserve		Year of Retirement				
				One	Two	Three	Four	Five
66	0.00729	0.00635	0.01552					
67	0.00819	0.00718	0.01717					
68	0.00921	0.00810	0.01900					
69	0.01038	0.00914	0.02101					
70	0.01172	0.01034	0.02320					
71	0.01328	0.01170	0.02555					
72	0.01508	0.01326	0.02808					
73	0.01716	0.01505	0.03079					
74	0.01955	0.01711	0.03368					
75	0.02230	0.01950	0.03680					
76	0.02548	0.02228	0.04019					
77	0.02910	0.02551	0.04388					
78	0.03326	0.02927	0.04795					
79	0.03799	0.03365	0.05250					
80	0.04336	0.03873	0.05765					
81	0.04947	0.04461	0.06349					
82	0.05638	0.05138	0.07013					
83	0.06420	0.05913	0.07764					
84	0.07303	0.06799	0.08600					
85	0.08293	0.07801	0.09517					
86	0.09401	0.08929	0.10515					
87	0.10635	0.10187	0.11594					
88	0.12000	0.11575	0.12759					
89	0.13503	0.13093	0.14025					
90	0.15150	0.14737	0.15416					
91	0.16937	0.16495	0.16954					
92	0.18870	0.18366	0.18673					
93	0.20948	0.20342	0.20600					
94	0.23171	0.22419	0.22760					
95	0.25536	0.24589	0.25174					
96	0.28182	0.26984	0.27986					
97	0.31293	0.29853	0.31093					
98	0.35055	0.33419	0.34505					
99	0.39573	0.37797	0.38240					
100	0.44866	0.43005	0.41196					
101	0.50904	0.48996	0.44193					
102	0.57629	0.55692	0.47224					
103	0.64966	0.62998	0.50306					
104	0.72854	0.70836	0.53428					
105	0.81238	0.79145	0.56582					
106	0.90161	0.87982	0.59783					
107	0.99686	0.97447	0.63020					
108	1.09736	1.07471	0.63471					
109	1.20181	1.17929	0.63917					
110	1.30854	1.28663	0.64373					
111	1.41510	1.39433	1.94464					
112	1.51909	1.49997	1.95845					
113	1.61762	1.60060	1.97239					
114	1.70796	1.69339	1.98604					
115	1.78853	1.77657	2.00000					
116	1.84922	1.83991	2.00000					
117	1.89743	1.89055	2.00000					
118	1.93375	1.92896	2.00000					
119	1.95961	1.95647	2.00000					
120	2.00000	2.00000	2.00000					

NONE AFTER AGE 65

*** As noted in Item 2 in the Retiree section of Appendix F, additional adjustments are made for retirees who elect SBP spouse coverage.

ENLISTED RETIRED DEATH RATES

(Age Nearest Birthday)

Age	Non-Disability		Permanent Disability	Temporary Disability				
	Active	Reserve		Year of Retirement				
				One	Two	Three	Four	Five
16	0.00044	0.00043	0.00191	0.00616	0.00565	0.00514	0.00463	0.00413
17	0.00044	0.00043	0.00191	0.00616	0.00565	0.00514	0.00463	0.00413
18	0.00044	0.00043	0.00191	0.00616	0.00565	0.00514	0.00463	0.00413
19	0.00044	0.00043	0.00191	0.00616	0.00565	0.00514	0.00463	0.00413
20	0.00044	0.00043	0.00191	0.00616	0.00565	0.00514	0.00463	0.00413
21	0.00044	0.00043	0.00196	0.00616	0.00565	0.00514	0.00463	0.00413
22	0.00044	0.00043	0.00201	0.00616	0.00565	0.00514	0.00463	0.00413
23	0.00044	0.00043	0.00207	0.00616	0.00565	0.00514	0.00463	0.00413
24	0.00044	0.00043	0.00213	0.00616	0.00565	0.00514	0.00463	0.00413
25	0.00044	0.00043	0.00219	0.00616	0.00565	0.00514	0.00463	0.00413
26	0.00044	0.00043	0.00226	0.00616	0.00565	0.00514	0.00463	0.00413
27	0.00044	0.00043	0.00232	0.00616	0.00565	0.00514	0.00463	0.00413
28	0.00044	0.00043	0.00239	0.00616	0.00565	0.00514	0.00463	0.00413
29	0.00044	0.00043	0.00246	0.00616	0.00565	0.00514	0.00463	0.00413
30	0.00044	0.00043	0.00251	0.00616	0.00565	0.00514	0.00463	0.00413
31	0.00047	0.00048	0.00255	0.00616	0.00565	0.00514	0.00463	0.00413
32	0.00051	0.00052	0.00257	0.00616	0.00565	0.00514	0.00463	0.00413
33	0.00055	0.00057	0.00258	0.00616	0.00565	0.00514	0.00463	0.00413
34	0.00060	0.00063	0.00258	0.00616	0.00565	0.00514	0.00463	0.00413
35	0.00064	0.00069	0.00256	0.00616	0.00565	0.00514	0.00463	0.00413
36	0.00069	0.00075	0.00252	0.00616	0.00565	0.00514	0.00463	0.00413
37	0.00073	0.00081	0.00246	0.00616	0.00565	0.00514	0.00463	0.00413
38	0.00078	0.00087	0.00240	0.00616	0.00565	0.00514	0.00463	0.00413
39	0.00082	0.00093	0.00283	0.00616	0.00565	0.00514	0.00463	0.00413
40	0.00087	0.00100	0.00289	0.00616	0.00565	0.00514	0.00463	0.00413
41	0.00092	0.00108	0.00301	0.00616	0.00565	0.00514	0.00463	0.00413
42	0.00097	0.00116	0.00316	0.00616	0.00565	0.00514	0.00463	0.00413
43	0.00103	0.00125	0.00338	0.00616	0.00565	0.00514	0.00463	0.00413
44	0.00110	0.00135	0.00364	0.00616	0.00565	0.00514	0.00463	0.00413
45	0.00117	0.00147	0.00395	0.00616	0.00565	0.00514	0.00463	0.00413
46	0.00126	0.00160	0.00432	0.00616	0.00565	0.00514	0.00463	0.00413
47	0.00138	0.00175	0.00475	0.00616	0.00565	0.00514	0.00463	0.00413
48	0.00153	0.00192	0.00522	0.00616	0.00565	0.00514	0.00463	0.00413
49	0.00173	0.00211	0.00575	0.00616	0.00565	0.00514	0.00463	0.00413
50	0.00198	0.00233	0.00633	0.00616	0.00565	0.00514	0.00463	0.00413
51	0.00229	0.00258	0.00698	0.00616	0.00565	0.00514	0.00463	0.00413
52	0.00267	0.00286	0.00770	0.00616	0.00565	0.00514	0.00463	0.00413
53	0.00309	0.00317	0.00848	0.00616	0.00565	0.00514	0.00463	0.00413
54	0.00360	0.00351	0.00934	0.00616	0.00565	0.00514	0.00463	0.00413
55	0.00418	0.00389	0.01029	0.00616	0.00565	0.00514	0.00463	0.00413
56	0.00483	0.00429	0.01131	0.00616	0.00565	0.00514	0.00463	0.00413
57	0.00559	0.00473	0.01241	0.00616	0.00565	0.00514	0.00463	0.00413
58	0.00644	0.00520	0.01359	0.00616	0.00565	0.00514	0.00463	0.00413
59	0.00739	0.00569	0.01482	0.00616	0.00565	0.00514	0.00463	0.00413
60	0.00843	0.00620	0.01609	0.00616	0.00565	0.00514	0.00463	0.00413
61	0.00958	0.00674	0.01741	0.00616	0.00565	0.00514	0.00463	0.00413
62	0.01080	0.00739	0.01877	0.00616	0.00565	0.00514	0.00463	0.00413
63	0.01211	0.00815	0.02021	0.00616	0.00565	0.00514	0.00463	0.00413
64	0.01351	0.00902	0.02174	0.00616	0.00565	0.00514	0.00463	0.00413
65	0.01499	0.01000	0.02338	0.00616	0.00565	0.00514	0.00463	0.00413

*** As noted in Item 2 in the Retiree section of Appendix F, additional adjustments are made for retirees who elect SBP spouse coverage.

ENLISTED RETIRED DEATH RATES (continued)

(Age Nearest Birthday)

Age	Non-Disability		Permanent Disability	Temporary Disability				
	Active	Reserve		Year of Retirement				
				One	Two	Three	Four	Five
66	0.01657	0.01110	0.02518					
67	0.01825	0.01234	0.02714					
68	0.02005	0.01372	0.02932					
69	0.02199	0.01526	0.03173					
70	0.02410	0.01697	0.03439					
71	0.02642	0.01888	0.03732					
72	0.02897	0.02101	0.04053					
73	0.03180	0.02339	0.04405					
74	0.03497	0.02607	0.04791					
75	0.03852	0.02911	0.05215					
76	0.04251	0.03258	0.05682					
77	0.04698	0.03655	0.06195					
78	0.05201	0.04112	0.06760					
79	0.05762	0.04636	0.07381					
80	0.06389	0.05238	0.08066					
81	0.07083	0.05923	0.08815					
82	0.07852	0.06700	0.09636					
83	0.08699	0.07571	0.10531					
84	0.09631	0.08548	0.11501					
85	0.10651	0.09629	0.12548					
86	0.11763	0.10822	0.13674					
87	0.12971	0.12126	0.14881					
88	0.14276	0.13543	0.16169					
89	0.15682	0.15076	0.17540					
90	0.17191	0.16723	0.18999					
91	0.18800	0.18481	0.20544					
92	0.20514	0.20351	0.22181					
93	0.22330	0.22333	0.23909					
94	0.24252	0.24425	0.25736					
95	0.26276	0.26627	0.27662					
96	0.28546	0.29083	0.29828					
97	0.31176	0.32043	0.32245					
98	0.34308	0.35725	0.34693					
99	0.38006	0.40234	0.37185					
100	0.42266	0.45561	0.39702					
101	0.47043	0.51636	0.42255					
102	0.52277	0.58350	0.44836					
103	0.57895	0.65588	0.47460					
104	0.63851	0.73249	0.50119					
105	0.70108	0.81270	0.52804					
106	0.76730	0.89710	0.55529					
107	0.83813	0.98694	0.58283					
108	0.91355	1.08164	0.61085					
109	0.99323	1.18011	0.63917					
110	1.07684	1.28108	0.64373					
111	1.16353	1.38252	1.94464					
112	1.25254	1.48248	1.95845					
113	1.34264	1.57853	1.97239					
114	1.43239	1.66827	1.98604					
115	1.52077	1.75020	2.00000					
116	1.59874	1.81425	2.00000					
117	1.67131	1.86721	2.00000					
118	1.73717	1.90910	2.00000					
119	1.79533	1.94068	2.00000					
120	2.00000	2.00000	2.00000					

NONE AFTER AGE 65

*** As noted in Item 2 in the Retiree section of Appendix F, additional adjustments are made for retirees who elect SBP spouse coverage.

ACTIVE DUTY OTHER LOSSES FROM NONDISABILITY

(Age Nearest Birthday)

Age	DoD		Treasury		Age	DoD		Treasury	
	Officer	Enlisted	Officer	Enlisted		Officer	Enlisted	Officer	Enlisted
16	0.0000	0.0000	0.0000	0.0000	56	0.0001	0.0041	0.0000	0.0000
17	0.0000	0.0000	0.0000	0.0000	57	0.0002	0.0043	0.0000	0.0000
18	0.0000	0.0000	0.0000	0.0000	58	0.0003	0.0047	0.0000	0.0000
19	0.0000	0.0000	0.0000	0.0000	59	0.0004	0.0051	0.0000	0.0000
20	0.0000	0.0000	0.0000	0.0000	60	0.0005	0.0056	0.0000	0.0000
21	0.0000	0.0000	0.0000	0.0000	61	0.0006	0.0061	0.0000	0.0000
22	0.0000	0.0000	0.0000	0.0000	62	0.0007	0.0066	0.0000	0.0000
23	0.0000	0.0000	0.0000	0.0000	63	0.0009	0.0072	0.0000	0.0000
24	0.0000	0.0000	0.0000	0.0000	64	0.0010	0.0078	0.0000	0.0000
25	0.0000	0.0000	0.0000	0.0000	65	0.0011	0.0083	0.0000	0.0000
26	0.0000	0.0000	0.0000	0.0000	66	0.0013	0.0089	0.0000	0.0000
27	0.0000	0.0000	0.0000	0.0000	67	0.0014	0.0094	0.0000	0.0000
28	0.0000	0.0000	0.0000	0.0000	68	0.0015	0.0099	0.0000	0.0000
29	0.0000	0.0000	0.0000	0.0000	69	0.0017	0.0104	0.0000	0.0000
30	0.0068	0.0363	0.0000	0.0000	70	0.0018	0.0108	0.0000	0.0000
31	0.0068	0.0363	0.0000	0.0000	71	0.0019	0.0111	0.0000	0.0000
32	0.0068	0.0363	0.0000	0.0000	72	0.0019	0.0114	0.0000	0.0000
33	0.0068	0.0363	0.0000	0.0000	73	0.0020	0.0116	0.0000	0.0000
34	0.0068	0.0363	0.0000	0.0000	74	0.0021	0.0117	0.0000	0.0000
35	0.0068	0.0363	0.0000	0.0000	75	0.0021	0.0117	0.0000	0.0000
36	0.0068	0.0363	0.0000	0.0000	76	0.0021	0.0116	0.0000	0.0000
37	0.0068	0.0363	0.0000	0.0000	77	0.0021	0.0114	0.0000	0.0000
38	0.0068	0.0363	0.0000	0.0000	78	0.0021	0.0111	0.0000	0.0000
39	0.0068	0.0313	0.0000	0.0000	79	0.0020	0.0107	0.0000	0.0000
40	0.0057	0.0269	0.0000	0.0000	80	0.0019	0.0102	0.0000	0.0000
41	0.0048	0.0230	0.0000	0.0000	81	0.0018	0.0095	0.0000	0.0000
42	0.0040	0.0196	0.0000	0.0000	82	0.0017	0.0088	0.0000	0.0000
43	0.0033	0.0166	0.0000	0.0000	83	0.0015	0.0078	0.0000	0.0000
44	0.0026	0.0140	0.0000	0.0000	84	0.0013	0.0068	0.0000	0.0000
45	0.0021	0.0118	0.0000	0.0000	85	0.0011	0.0056	0.0000	0.0000
46	0.0016	0.0099	0.0000	0.0000	86	0.0008	0.0042	0.0000	0.0000
47	0.0013	0.0083	0.0000	0.0000	87	0.0005	0.0027	0.0000	0.0000
48	0.0009	0.0070	0.0000	0.0000	88	0.0002	0.0010	0.0000	0.0000
49	0.0007	0.0060	0.0000	0.0000	89	0.0000	0.0000	0.0000	0.0000
50	0.0005	0.0052	0.0000	0.0000	90	0.0000	0.0000	0.0000	0.0000
51	0.0003	0.0046	0.0000	0.0000	91	0.0000	0.0000	0.0000	0.0000
52	0.0002	0.0042	0.0000	0.0000	92	0.0000	0.0000	0.0000	0.0000
53	0.0001	0.0039	0.0000	0.0000	93	0.0000	0.0000	0.0000	0.0000
54	0.0001	0.0038	0.0000	0.0000	94	0.0000	0.0000	0.0000	0.0000
55	0.0001	0.0039	0.0000	0.0000	95	0.0000	0.0000	0.0000	0.0000

*** The above DoD/Treasury distinction is needed for P.L. 108-136 calculations.
 "Treasury" rates of '0.0000' are shown for effect.

*** As noted in Item 2 in the Retiree section of Appendix F, additional adjustments are made for retirees who elect SBP spouse coverage.

RESERVE DUTY OTHER LOSSES FROM NONDISABILITY

(Age Nearest Birthday)

Age	DoD		Treasury		Age	DoD		Treasury	
	Officer	Enlisted	Officer	Enlisted		Officer	Enlisted	Officer	Enlisted
16	0.0000	0.0000	0.0000	0.0000	56	0.0000	0.0000	0.0000	0.0000
17	0.0000	0.0000	0.0000	0.0000	57	0.0000	0.0000	0.0000	0.0000
18	0.0000	0.0000	0.0000	0.0000	58	0.0000	0.0000	0.0000	0.0000
19	0.0000	0.0000	0.0000	0.0000	59	0.0000	0.0000	0.0000	0.0000
20	0.0000	0.0000	0.0000	0.0000	60	0.0016	0.0115	0.0000	0.0000
21	0.0000	0.0000	0.0000	0.0000	61	0.0034	0.0176	0.0000	0.0000
22	0.0000	0.0000	0.0000	0.0000	62	0.0023	0.0184	0.0000	0.0000
23	0.0000	0.0000	0.0000	0.0000	63	0.0028	0.0150	0.0000	0.0000
24	0.0000	0.0000	0.0000	0.0000	64	0.0030	0.0114	0.0000	0.0000
25	0.0000	0.0000	0.0000	0.0000	65	0.0032	0.0107	0.0000	0.0000
26	0.0000	0.0000	0.0000	0.0000	66	0.0032	0.0085	0.0000	0.0000
27	0.0000	0.0000	0.0000	0.0000	67	0.0037	0.0080	0.0000	0.0000
28	0.0000	0.0000	0.0000	0.0000	68	0.0029	0.0061	0.0000	0.0000
29	0.0000	0.0000	0.0000	0.0000	69	0.0027	0.0053	0.0000	0.0000
30	0.0000	0.0000	0.0000	0.0000	70	0.0025	0.0054	0.0000	0.0000
31	0.0000	0.0000	0.0000	0.0000	71	0.0019	0.0029	0.0000	0.0000
32	0.0000	0.0000	0.0000	0.0000	72	0.0020	0.0037	0.0000	0.0000
33	0.0000	0.0000	0.0000	0.0000	73	0.0013	0.0029	0.0000	0.0000
34	0.0000	0.0000	0.0000	0.0000	74	0.0018	0.0036	0.0000	0.0000
35	0.0000	0.0000	0.0000	0.0000	75	0.0020	0.0021	0.0000	0.0000
36	0.0000	0.0000	0.0000	0.0000	76	0.0020	0.0027	0.0000	0.0000
37	0.0000	0.0000	0.0000	0.0000	77	0.0017	0.0041	0.0000	0.0000
38	0.0000	0.0000	0.0000	0.0000	78	0.0020	0.0031	0.0000	0.0000
39	0.0000	0.0000	0.0000	0.0000	79	0.0025	0.0035	0.0000	0.0000
40	0.0000	0.0000	0.0000	0.0000	80	0.0007	0.0040	0.0000	0.0000
41	0.0000	0.0000	0.0000	0.0000	81	0.0007	0.0028	0.0000	0.0000
42	0.0000	0.0000	0.0000	0.0000	82	0.0017	0.0026	0.0000	0.0000
43	0.0000	0.0000	0.0000	0.0000	83	0.0010	0.0047	0.0000	0.0000
44	0.0000	0.0000	0.0000	0.0000	84	0.0023	0.0013	0.0000	0.0000
45	0.0000	0.0000	0.0000	0.0000	85	0.0016	0.0042	0.0000	0.0000
46	0.0000	0.0000	0.0000	0.0000	86	0.0011	0.0043	0.0000	0.0000
47	0.0000	0.0000	0.0000	0.0000	87	0.0008	0.0051	0.0000	0.0000
48	0.0000	0.0000	0.0000	0.0000	88	0.0016	0.0019	0.0000	0.0000
49	0.0000	0.0000	0.0000	0.0000	89	0.0016	0.0027	0.0000	0.0000
50	0.0000	0.0000	0.0000	0.0000	90	0.0017	0.0011	0.0000	0.0000
51	0.0000	0.0000	0.0000	0.0000	91	0.0030	0.0023	0.0000	0.0000
52	0.0000	0.0000	0.0000	0.0000	92	0.0010	0.0042	0.0000	0.0000
53	0.0000	0.0000	0.0000	0.0000	93	0.0021	0.0032	0.0000	0.0000
54	0.0000	0.0000	0.0000	0.0000	94	0.0012	0.0049	0.0000	0.0000
55	0.0000	0.0000	0.0000	0.0000	95	0.0000	0.0000	0.0000	0.0000

*** The above DoD/Treasury distinction is needed for P.L. 108-136 calculations.
 "Treasury" rates of '0.0000' are shown for effect.

*** As noted in Item 2 in the Retiree section of Appendix F, additional adjustments are made for retirees who elect SBP spouse coverage.

OTHER LOSS AND NONTRANSFER LOSSES FROM TEMPORARY DISABILITY ***

(Age Nearest Birthday)

Age	Officers					Enlisted				
	Year of Retirement					Year of Retirement				
	One	Two	Three	Four	Five	One	Two	Three	Four	Five
16	0.0264	0.0881	0.2771	0.2115	0.2732	0.1740	0.2433	0.5598	0.3821	0.4515
17	0.0264	0.0881	0.2771	0.2115	0.2732	0.1740	0.2433	0.5598	0.3821	0.4515
18	0.0264	0.0881	0.2771	0.2115	0.2732	0.1740	0.2433	0.5598	0.3821	0.4515
19	0.0264	0.0881	0.2771	0.2115	0.2732	0.1740	0.2433	0.5598	0.3821	0.4515
20	0.0264	0.0881	0.2771	0.2115	0.2732	0.1740	0.2433	0.5598	0.3821	0.4515
21	0.0264	0.0881	0.2771	0.2115	0.2732	0.1740	0.2433	0.5598	0.3821	0.4515
22	0.0264	0.0881	0.2771	0.2115	0.2732	0.1740	0.2433	0.5598	0.3821	0.4515
23	0.0264	0.0881	0.2771	0.2115	0.2732	0.1740	0.2433	0.5598	0.3821	0.4515
24	0.0264	0.0881	0.2771	0.2115	0.2732	0.1740	0.2433	0.5598	0.3821	0.4515
25	0.0264	0.0881	0.2771	0.2115	0.2732	0.1740	0.2433	0.5598	0.3821	0.4515
26	0.0264	0.0881	0.2771	0.2115	0.2732	0.1740	0.2433	0.5598	0.3821	0.4515
27	0.0264	0.0881	0.2771	0.2115	0.2732	0.1740	0.2433	0.5598	0.3821	0.4515
28	0.0264	0.0881	0.2771	0.2115	0.2732	0.1740	0.2433	0.5598	0.3821	0.4515
29	0.0264	0.0881	0.2771	0.2115	0.2732	0.1740	0.2433	0.5598	0.3821	0.4515
30	0.0264	0.0881	0.2771	0.2115	0.2732	0.1740	0.2433	0.5598	0.3821	0.4515
31	0.0264	0.0881	0.2771	0.2115	0.2732	0.1740	0.2433	0.5598	0.3821	0.4515
32	0.0264	0.0881	0.2771	0.2115	0.2732	0.1740	0.2433	0.5598	0.3821	0.4515
33	0.0264	0.0881	0.2771	0.2115	0.2732	0.1740	0.2433	0.5598	0.3821	0.4515
34	0.0264	0.0881	0.2771	0.2115	0.2732	0.1740	0.2433	0.5598	0.3821	0.4515
35	0.0264	0.0881	0.2771	0.2115	0.2732	0.1740	0.2433	0.5598	0.3821	0.4515
36	0.0264	0.0881	0.2771	0.2115	0.2732	0.1740	0.2433	0.5598	0.3821	0.4515
37	0.0264	0.0881	0.2771	0.2115	0.2732	0.1740	0.2433	0.5598	0.3821	0.4515
38	0.0264	0.0881	0.2771	0.2115	0.2732	0.1740	0.2433	0.5598	0.3821	0.4515
39	0.0264	0.0881	0.2771	0.2115	0.2732	0.1740	0.2433	0.5598	0.3821	0.4515
40	0.0264	0.0881	0.2771	0.2115	0.2732	0.1740	0.2433	0.5598	0.3821	0.4515
41	0.0264	0.0881	0.2771	0.2115	0.2732	0.1740	0.2433	0.5598	0.3821	0.4515
42	0.0264	0.0881	0.2771	0.2115	0.2732	0.1740	0.2433	0.5598	0.3821	0.4515
43	0.0264	0.0881	0.2771	0.2115	0.2732	0.1740	0.2433	0.5598	0.3821	0.4515
44	0.0264	0.0881	0.2771	0.2115	0.2732	0.1740	0.2433	0.5598	0.3821	0.4515
45	0.0264	0.0881	0.2771	0.2115	0.2732	0.1740	0.2433	0.5598	0.3821	0.4515
46	0.0264	0.0881	0.2771	0.2115	0.2732	0.1740	0.2433	0.5598	0.3821	0.4515
47	0.0264	0.0881	0.2771	0.2115	0.2732	0.1740	0.2433	0.5598	0.3821	0.4515
48	0.0264	0.0881	0.2771	0.2115	0.2732	0.1740	0.2433	0.5598	0.3821	0.4515
49	0.0264	0.0881	0.2771	0.2115	0.2732	0.1740	0.2433	0.5598	0.3821	0.4515
50	0.0264	0.0881	0.2771	0.2115	0.2732	0.1740	0.2433	0.5598	0.3821	0.4515
51	0.0264	0.0881	0.2771	0.2115	0.2732	0.1740	0.2433	0.5598	0.3821	0.4515
52	0.0264	0.0881	0.2771	0.2115	0.2732	0.1740	0.2433	0.5598	0.3821	0.4515
53	0.0264	0.0881	0.2771	0.2115	0.2732	0.1740	0.2433	0.5598	0.3821	0.4515
54	0.0264	0.0881	0.2771	0.2115	0.2732	0.1740	0.2433	0.5598	0.3821	0.4515
55	0.0264	0.0881	0.2771	0.2115	0.2732	0.1740	0.2433	0.5598	0.3821	0.4515
56	0.0264	0.0881	0.2771	0.2115	0.2732	0.1740	0.2433	0.5598	0.3821	0.4515
57	0.0264	0.0881	0.2771	0.2115	0.2732	0.1740	0.2433	0.5598	0.3821	0.4515
58	0.0264	0.0881	0.2771	0.2115	0.2732	0.1740	0.2433	0.5598	0.3821	0.4515
59	0.0264	0.0881	0.2771	0.2115	0.2732	0.1740	0.2433	0.5598	0.3821	0.4515
60	0.0264	0.0881	0.2771	0.2115	0.2732	0.1740	0.2433	0.5598	0.3821	0.4515
61	0.0264	0.0881	0.2771	0.2115	0.2732	0.1740	0.2433	0.5598	0.3821	0.4515
62	0.0264	0.0881	0.2771	0.2115	0.2732	0.1740	0.2433	0.5598	0.3821	0.4515
63	0.0264	0.0881	0.2771	0.2115	0.2732	0.1740	0.2433	0.5598	0.3821	0.4515
64	0.0264	0.0881	0.2771	0.2115	0.2732	0.1740	0.2433	0.5598	0.3821	0.4515
65	0.0264	0.0881	0.2771	0.2115	0.2732	0.1740	0.2433	0.5598	0.3821	0.4515

*** The above Other/Nontransfer Loss rates are used to calculate the combined DoD and Treasury NCPs per P.L. 108-136. DoD-specific Other/Nontransfer Loss rates are higher by the following factors (across all ages):

Officers					Enlisted				
Year of Retirement					Year of Retirement				
One	Two	Three	Four	Five	One	Two	Three	Four	Five
1.639	1.176	1.070	1.060	1.041	1.368	1.228	1.067	1.101	1.066

Example: The DoD-specific Other/Nontransfer Loss rate (across all ages) for Officers in Year One of Retirement would be 0.04326, the product of 0.0264 and 1.639.

TRANSFER RATES FROM TEMPORARY DISABILITY TO PERMANENT DISABILITY

(Age Nearest Birthday)

Age	Officers				Enlisted			
	Year of Retirement				Year of Retirement			
	One	Two	Three	Four	One	Two	Three	Four
16	0.1281	0.1740	0.2199	0.2658	0.0626	0.0947	0.1268	0.1589
17	0.1281	0.1740	0.2199	0.2658	0.0626	0.0947	0.1268	0.1589
18	0.1281	0.1740	0.2199	0.2658	0.0626	0.0947	0.1268	0.1589
19	0.1281	0.1740	0.2199	0.2658	0.0626	0.0947	0.1268	0.1589
20	0.1281	0.1740	0.2199	0.2658	0.0626	0.0947	0.1268	0.1589
21	0.1281	0.1740	0.2199	0.2658	0.0626	0.0947	0.1268	0.1589
22	0.1281	0.1740	0.2199	0.2658	0.0626	0.0947	0.1268	0.1589
23	0.1281	0.1740	0.2199	0.2658	0.0626	0.0947	0.1268	0.1589
24	0.1281	0.1740	0.2199	0.2658	0.0626	0.0947	0.1268	0.1589
25	0.1281	0.1740	0.2199	0.2658	0.0626	0.0947	0.1268	0.1589
26	0.1281	0.1740	0.2199	0.2658	0.0626	0.0947	0.1268	0.1589
27	0.1281	0.1740	0.2199	0.2658	0.0626	0.0947	0.1268	0.1589
28	0.1281	0.1740	0.2199	0.2658	0.0626	0.0947	0.1268	0.1589
29	0.1281	0.1740	0.2199	0.2658	0.0626	0.0947	0.1268	0.1589
30	0.1281	0.1740	0.2199	0.2658	0.0626	0.0947	0.1268	0.1589
31	0.1281	0.1740	0.2199	0.2658	0.0626	0.0947	0.1268	0.1589
32	0.1281	0.1740	0.2199	0.2658	0.0626	0.0947	0.1268	0.1589
33	0.1281	0.1740	0.2199	0.2658	0.0626	0.0947	0.1268	0.1589
34	0.1281	0.1740	0.2199	0.2658	0.0626	0.0947	0.1268	0.1589
35	0.1281	0.1740	0.2199	0.2658	0.0626	0.0947	0.1268	0.1589
36	0.1281	0.1740	0.2199	0.2658	0.0626	0.0947	0.1268	0.1589
37	0.1281	0.1740	0.2199	0.2658	0.0626	0.0947	0.1268	0.1589
38	0.1281	0.1740	0.2199	0.2658	0.0626	0.0947	0.1268	0.1589
39	0.1281	0.1740	0.2199	0.2658	0.0626	0.0947	0.1268	0.1589
40	0.1281	0.1740	0.2199	0.2658	0.0626	0.0947	0.1268	0.1589
41	0.1281	0.1740	0.2199	0.2658	0.0626	0.0947	0.1268	0.1589
42	0.1281	0.1740	0.2199	0.2658	0.0626	0.0947	0.1268	0.1589
43	0.1281	0.1740	0.2199	0.2658	0.0626	0.0947	0.1268	0.1589
44	0.1281	0.1740	0.2199	0.2658	0.0626	0.0947	0.1268	0.1589
45	0.1281	0.1740	0.2199	0.2658	0.0626	0.0947	0.1268	0.1589
46	0.1281	0.1740	0.2199	0.2658	0.0626	0.0947	0.1268	0.1589
47	0.1281	0.1740	0.2199	0.2658	0.0626	0.0947	0.1268	0.1589
48	0.1281	0.1740	0.2199	0.2658	0.0626	0.0947	0.1268	0.1589
49	0.1281	0.1740	0.2199	0.2658	0.0626	0.0947	0.1268	0.1589
50	0.1281	0.1740	0.2199	0.2658	0.0626	0.0947	0.1268	0.1589
51	0.1281	0.1740	0.2199	0.2658	0.0626	0.0947	0.1268	0.1589
52	0.1281	0.1740	0.2199	0.2658	0.0626	0.0947	0.1268	0.1589
53	0.1281	0.1740	0.2199	0.2658	0.0626	0.0947	0.1268	0.1589
54	0.1281	0.1740	0.2199	0.2658	0.0626	0.0947	0.1268	0.1589
55	0.1281	0.1740	0.2199	0.2658	0.0626	0.0947	0.1268	0.1589
56	0.1281	0.1740	0.2199	0.2658	0.0626	0.0947	0.1268	0.1589
57	0.1281	0.1740	0.2199	0.2658	0.0626	0.0947	0.1268	0.1589
58	0.1281	0.1740	0.2199	0.2658	0.0626	0.0947	0.1268	0.1589
59	0.1281	0.1740	0.2199	0.2658	0.0626	0.0947	0.1268	0.1589
60	0.1281	0.1740	0.2199	0.2658	0.0626	0.0947	0.1268	0.1589
61	0.1281	0.1740	0.2199	0.2658	0.0626	0.0947	0.1268	0.1589
62	0.1281	0.1740	0.2199	0.2658	0.0626	0.0947	0.1268	0.1589
63	0.1281	0.1740	0.2199	0.2658	0.0626	0.0947	0.1268	0.1589
64	0.1281	0.1740	0.2199	0.2658	0.0626	0.0947	0.1268	0.1589
65	0.1281	0.1740	0.2199	0.2658	0.0626	0.0947	0.1268	0.1589

OTHER LOSSES FROM PERMANENT DISABILITY

(Age Nearest Birthday)

Age	DoD		Treasury		Age	DoD		Treasury	
	Officer	Enlisted	Officer	Enlisted		Officer	Enlisted	Officer	Enlisted
16	0.0703	0.4892	0.0294	0.4046	54	0.0110	0.0309	0.0070	0.0182
17	0.0703	0.4892	0.0294	0.4046	55	0.0106	0.0339	0.0066	0.0203
18	0.0703	0.4892	0.0294	0.4046	56	0.0101	0.0363	0.0062	0.0218
19	0.0703	0.4892	0.0294	0.4046	57	0.0098	0.0381	0.0058	0.0229
20	0.0703	0.4892	0.0294	0.4046	58	0.0095	0.0391	0.0055	0.0236
21	0.0703	0.4222	0.0294	0.4046	59	0.0092	0.0394	0.0052	0.0233
22	0.0703	0.3595	0.0294	0.4046	60	0.0090	0.0384	0.0050	0.0212
23	0.0703	0.3012	0.0294	0.3165	61	0.0089	0.0373	0.0048	0.0193
24	0.0703	0.2484	0.0294	0.2461	62	0.0087	0.0379	0.0046	0.0184
25	0.0703	0.2024	0.0294	0.1924	63	0.0086	0.0391	0.0044	0.0174
26	0.0703	0.1646	0.0294	0.1536	64	0.0085	0.0396	0.0043	0.0151
27	0.0703	0.1349	0.0294	0.1263	65	0.0085	0.0390	0.0041	0.0123
28	0.0703	0.1127	0.0294	0.1071	66	0.0084	0.0379	0.0041	0.0098
29	0.0703	0.0967	0.0294	0.0936	67	0.0083	0.0367	0.0040	0.0084
30	0.0703	0.0856	0.0294	0.0843	68	0.0082	0.0360	0.0039	0.0082
31	0.0703	0.0770	0.0294	0.0771	69	0.0080	0.0353	0.0039	0.0081
32	0.0317	0.0690	0.0294	0.0699	70	0.0079	0.0344	0.0039	0.0078
33	0.0301	0.0607	0.0294	0.0623	71	0.0077	0.0336	0.0039	0.0072
34	0.0286	0.0531	0.0294	0.0554	72	0.0075	0.0330	0.0040	0.0065
35	0.0272	0.0467	0.0294	0.0495	73	0.0072	0.0329	0.0040	0.0060
36	0.0258	0.0419	0.0294	0.0445	74	0.0070	0.0328	0.0035	0.0057
37	0.0246	0.0386	0.0294	0.0402	75	0.0067	0.0322	0.0030	0.0056
38	0.0234	0.0362	0.0294	0.0355	76	0.0065	0.0309	0.0025	0.0053
39	0.0223	0.0351	0.0294	0.0313	77	0.0062	0.0288	0.0020	0.0045
40	0.0212	0.0355	0.0166	0.0285	78	0.0060	0.0268	0.0015	0.0036
41	0.0203	0.0367	0.0156	0.0269	79	0.0058	0.0258	0.0022	0.0034
42	0.0193	0.0373	0.0148	0.0261	80	0.0056	0.0257	0.0029	0.0037
43	0.0185	0.0363	0.0139	0.0256	81	0.0054	0.0255	0.0035	0.0041
44	0.0176	0.0345	0.0131	0.0252	82	0.0053	0.0255	0.0038	0.0042
45	0.0169	0.0330	0.0123	0.0248	83	0.0053	0.0260	0.0038	0.0036
46	0.0161	0.0323	0.0116	0.0240	84	0.0052	0.0270	0.0035	0.0042
47	0.0154	0.0328	0.0109	0.0237	85	0.0052	0.0282	0.0033	0.0042
48	0.0147	0.0329	0.0102	0.0229	86	0.0053	0.0292	0.0034	0.0042
49	0.0140	0.0319	0.0096	0.0214	87	0.0053	0.0297	0.0039	0.0042
50	0.0133	0.0304	0.0090	0.0201	88	0.0054	0.0295	0.0044	0.0042
51	0.0127	0.0290	0.0084	0.0190	89	0.0056	0.0289	0.0053	0.0042
52	0.0121	0.0281	0.0079	0.0176	90	0.0057	0.0291	0.0068	0.0042
53	0.0116	0.0287	0.0074	0.0171					

*** The above DoD/Treasury distinction is needed for P.L. 108-136 calculations.

*** As noted in Item 2 in the Retiree section of Appendix F, additional adjustments are made for retirees who elect SBP spouse coverage.

RETIREE DIVORCE RATES ***

(Age Nearest Birthday)

Age	Active		Reserve		Age	Active		Reserve	
	Officer	Enlisted	Officer	Enlisted		Officer	Enlisted	Officer	Enlisted
16	0.0900	0.0900	0.0900	0.0900	50	0.0080	0.0080	0.0080	0.0080
17	0.0900	0.0900	0.0900	0.0900	51	0.0070	0.0070	0.0070	0.0070
18	0.0900	0.0900	0.0900	0.0900	52	0.0060	0.0060	0.0060	0.0060
19	0.0900	0.0900	0.0900	0.0900	53	0.0050	0.0050	0.0050	0.0050
20	0.0830	0.0830	0.0830	0.0830	54	0.0050	0.0050	0.0050	0.0050
21	0.0750	0.0750	0.0750	0.0750	55	0.0040	0.0040	0.0040	0.0040
22	0.0680	0.0680	0.0680	0.0680	56	0.0040	0.0040	0.0040	0.0040
23	0.0610	0.0610	0.0610	0.0610	57	0.0030	0.0030	0.0030	0.0030
24	0.0530	0.0530	0.0530	0.0530	58	0.0010	0.0010	0.0010	0.0010
25	0.0460	0.0460	0.0460	0.0460	59	0.0020	0.0020	0.0020	0.0020
26	0.0420	0.0420	0.0420	0.0420	60	0.0040	0.0040	0.0040	0.0040
27	0.0380	0.0380	0.0380	0.0380	61	0.0020	0.0020	0.0020	0.0020
28	0.0360	0.0360	0.0360	0.0360	62	0.0030	0.0030	0.0030	0.0030
29	0.0360	0.0360	0.0360	0.0360	63	0.0010	0.0010	0.0010	0.0010
30	0.0330	0.0330	0.0330	0.0330	64	0.0010	0.0010	0.0010	0.0010
31	0.0310	0.0310	0.0310	0.0310	65	0.0000	0.0000	0.0000	0.0000
32	0.0280	0.0280	0.0280	0.0280	66	0.0000	0.0000	0.0000	0.0000
33	0.0240	0.0240	0.0240	0.0240	67	0.0000	0.0000	0.0000	0.0000
34	0.0200	0.0200	0.0200	0.0200	68	0.0000	0.0000	0.0000	0.0000
35	0.0210	0.0210	0.0210	0.0210	69	0.0000	0.0000	0.0000	0.0000
36	0.0240	0.0240	0.0240	0.0240	70	0.0000	0.0000	0.0000	0.0000
37	0.0310	0.0310	0.0310	0.0310	71	0.0000	0.0000	0.0000	0.0000
38	0.0390	0.0390	0.0390	0.0390	72	0.0000	0.0000	0.0000	0.0000
39	0.0420	0.0420	0.0420	0.0420	73	0.0000	0.0000	0.0000	0.0000
40	0.0370	0.0370	0.0370	0.0370	74	0.0000	0.0000	0.0000	0.0000
41	0.0300	0.0300	0.0300	0.0300	75	0.0000	0.0000	0.0000	0.0000
42	0.0250	0.0250	0.0250	0.0250	76	0.0000	0.0000	0.0000	0.0000
43	0.0190	0.0190	0.0190	0.0190	77	0.0000	0.0000	0.0000	0.0000
44	0.0170	0.0170	0.0170	0.0170	78	0.0000	0.0000	0.0000	0.0000
45	0.0140	0.0140	0.0140	0.0140	79	0.0000	0.0000	0.0000	0.0000
46	0.0130	0.0130	0.0130	0.0130	80	0.0000	0.0000	0.0000	0.0000
47	0.0110	0.0110	0.0110	0.0110	81	0.0000	0.0000	0.0000	0.0000
48	0.0100	0.0100	0.0100	0.0100	82	0.0000	0.0000	0.0000	0.0000
49	0.0080	0.0080	0.0080	0.0080					

*** Due to Section 647 of NDAA 2008 (P.L. 110-181) the reserve rates shown above apply in the early years of the projection. See Item 4 in the Reserve Duty section in Appendix F for a description of the parameter used to model the phase-in to an average age 58 reserve retirement. As the transitions to earlier average retirement ages occur, the ages applicable to some of the rates change.

*** The "Retiree Divorce" rates are the same for officer/enlisted status, and by active/reserve. The rates are displayed for effect.

SURVIVING SPOUSE REMARRIAGE RATES

(Age Nearest Birthday)

<u>Age</u>	<u>Rate</u>	<u>Age</u>	<u>Rate</u>
16	0.0294	38	0.0278
17	0.0294	39	0.0278
18	0.0294	40	0.0110
19	0.0294	41	0.0110
20	0.0294	42	0.0110
21	0.0294	43	0.0110
22	0.0294	44	0.0110
23	0.0294	45	0.0061
24	0.0294	46	0.0061
25	0.0294	47	0.0061
26	0.0294	48	0.0061
27	0.0294	49	0.0061
28	0.0294	50	0.0035
29	0.0294	51	0.0035
30	0.0337	52	0.0035
31	0.0337	53	0.0035
32	0.0337	54	0.0035
33	0.0337	55	0.0035
34	0.0337	56	0.0000
35	0.0278	57	0.0000
36	0.0278	58	0.0000
37	0.0278	59	0.0000

SURVIVING CHILD COVERAGE TERMINATION RATES

(Age Nearest Birthday)

<u>Age</u>	<u>Rate</u>
0	0.005
1	0.000
2	0.000
3	0.000
4	0.000
5	0.000
6	0.000
7	0.000
8	0.000
9	0.000
10	0.000
11	0.000
12	0.000
13	0.000
14	0.000
15	0.000
16	0.000
17	0.198
18	0.333
19	0.127
20	0.036
21	0.365
22	0.578
23	0.146

SURVIVING SPOUSE DEATH RATES ***

(Age Nearest Birthday)

Age	Rate	Age	Rate
0	0.00544	60	0.00745
1	0.00049	61	0.00816
2	0.00032	62	0.00884
3	0.00024	63	0.00955
4	0.00018	64	0.01030
5	0.00016	65	0.01113
6	0.00015	66	0.01206
7	0.00014	67	0.01310
8	0.00013	68	0.01430
9	0.00012	69	0.01564
10	0.00012	70	0.01711
11	0.00013	71	0.01867
12	0.00014	72	0.02028
13	0.00015	73	0.02194
14	0.00018	74	0.02368
15	0.00021	75	0.02558
16	0.00018	76	0.02774
17	0.00020	77	0.03027
18	0.00020	78	0.03326
19	0.00021	79	0.03672
20	0.00021	80	0.04066
21	0.00021	81	0.04497
22	0.00022	82	0.04958
23	0.00023	83	0.05443
24	0.00024	84	0.05963
25	0.00025	85	0.06533
26	0.00026	86	0.07183
27	0.00028	87	0.07936
28	0.00030	88	0.08809
29	0.00033	89	0.09814
30	0.00036	90	0.10949
31	0.00041	91	0.12214
32	0.00045	92	0.13600
33	0.00047	93	0.15098
34	0.00049	94	0.16688
35	0.00050	95	0.18361
36	0.00053	96	0.20207
37	0.00054	97	0.22130
38	0.00057	98	0.24120
39	0.00059	99	0.26184
40	0.00063	100	0.28301
41	0.00067	101	0.30490
42	0.00070	102	0.32737
43	0.00074	103	0.35056
44	0.00076	104	0.37438
45	0.00080	105	0.39891
46	0.00083	106	0.42421
47	0.00089	107	0.44718
48	0.00098	108	0.47031
49	0.00109	109	0.49423
50	0.00123	110	0.97308
51	0.00141	111	0.97860
52	0.00163	112	0.98371
53	0.00189	113	0.98914
54	0.00216	114	0.99446
55	0.00247	115	1.00000
56	0.00367	116	1.00000
57	0.00477	117	1.00000
58	0.00578	118	1.00000
59	0.00667	119	1.00000

*** "Surviving Spouses" are defined as spouses of deceased retirees who elected SBP spouse, or spouse & child, coverage.
Rates based on actual plan experience.

SPOUSE DEATH RATES ***

(Age Nearest Birthday)

<u>Age</u>	<u>Rate</u>	<u>Age</u>	<u>Rate</u>
0	0.00592	60	0.00323
1	0.00053	61	0.00362
2	0.00035	62	0.00406
3	0.00026	63	0.00458
4	0.00019	64	0.00519
5	0.00018	65	0.00587
6	0.00016	66	0.00660
7	0.00015	67	0.00737
8	0.00014	68	0.00812
9	0.00013	69	0.00887
10	0.00013	70	0.00970
11	0.00014	71	0.01069
12	0.00015	72	0.01195
13	0.00016	73	0.01344
14	0.00019	74	0.01512
15	0.00022	75	0.01702
16	0.00015	76	0.01921
17	0.00016	77	0.02175
18	0.00017	78	0.02458
19	0.00018	79	0.02767
20	0.00018	80	0.03112
21	0.00019	81	0.03505
22	0.00021	82	0.03956
23	0.00022	83	0.04455
24	0.00023	84	0.04993
25	0.00024	85	0.05595
26	0.00024	86	0.06275
27	0.00026	87	0.07050
28	0.00027	88	0.07937
29	0.00029	89	0.08918
30	0.00031	90	0.09988
31	0.00033	91	0.11147
32	0.00035	92	0.12387
33	0.00037	93	0.13717
34	0.00039	94	0.15133
35	0.00041	95	0.16648
36	0.00044	96	0.18212
37	0.00047	97	0.19862
38	0.00050	98	0.21616
39	0.00054	99	0.23477
40	0.00058	100	0.25416
41	0.00063	101	0.27432
42	0.00067	102	0.29483
43	0.00072	103	0.31659
44	0.00076	104	0.33956
45	0.00081	105	0.36278
46	0.00087	106	0.38536
47	0.00095	107	0.40636
48	0.00104	108	0.42744
49	0.00114	109	0.44916
50	0.00125	110	0.97261
51	0.00137	111	0.97800
52	0.00152	112	0.98341
53	0.00165	113	0.98905
54	0.00178	114	0.99451
55	0.00192	115	1.00000
56	0.00210	116	1.00000
57	0.00232	117	1.00000
58	0.00259	118	1.00000
59	0.00289	119	1.00000

*** "Spouses" are defined as spouses of living retirees who elected SBP spouse, or spouse & child, coverage.

Rates based on standard actuarial mortality table -- 1994 GAM Static - Female, ANB'

SURVIVING SPOUSE OTHER LOSS RATES

(Age Nearest Birthday)

Age	Rate	Age	Rate
0	0.0000	55	0.0061
1	0.0000	56	0.0060
2	0.0000	57	0.0059
3	0.0000	58	0.0057
4	0.0000	59	0.0056
5	0.0000	60	0.0055
6	0.0000	61	0.0053
7	0.0000	62	0.0052
8	0.0000	63	0.0051
9	0.0000	64	0.0049
10	0.0000	65	0.0048
11	0.0000	66	0.0047
12	0.0000	67	0.0045
13	0.0000	68	0.0044
14	0.0000	69	0.0043
15	0.0000	70	0.0041
16	0.0000	71	0.0040
17	0.0000	72	0.0039
18	0.0000	73	0.0037
19	0.0000	74	0.0036
20	0.0000	75	0.0035
21	0.0000	76	0.0033
22	0.0000	77	0.0032
23	0.0000	78	0.0031
24	0.0000	79	0.0029
25	0.0101	80	0.0028
26	0.0100	81	0.0027
27	0.0099	82	0.0025
28	0.0097	83	0.0024
29	0.0096	84	0.0023
30	0.0095	85	0.0021
31	0.0093	86	0.0020
32	0.0092	87	0.0019
33	0.0091	88	0.0018
34	0.0089	89	0.0016
35	0.0088	90	0.0015
36	0.0087	91	0.0014
37	0.0085	92	0.0012
38	0.0084	93	0.0011
39	0.0083	94	0.0010
40	0.0081	95	0.0008
41	0.0080	96	0.0000
42	0.0079	97	0.0000
43	0.0077	98	0.0000
44	0.0076	99	0.0000
45	0.0075	100	0.0000
46	0.0073	101	0.0000
47	0.0072	102	0.0000
48	0.0071	103	0.0000
49	0.0069	104	0.0000
50	0.0068	105	0.0000
51	0.0067	106	0.0000
52	0.0065	107	0.0000
53	0.0064	108	0.0000
54	0.0063	109	0.0000

*** The above Other Loss rates are used to calculate both the DoD and Treasury NCPs per P.L. 108-136.

APPENDIX J

MORTALITY IMPROVEMENT FACTORS

	<u>Page</u>
Mortality Improvement Factors Description	187
Mortality Improvement Factors (Non- / Permanent Disability, and Active / Reserve Duty).....	188
Mortality Improvement Factors (Surviving / Current Spouses)	190

MORTALITY IMPROVEMENT FACTORS DESCRIPTION

Mortality rates in the valuation for active and reserve duty personnel, nondisabled retirees (from Active and Reserve Duty), disabled retirees, and survivors/spouses are decreased (or “improved”) over time in order to reflect the long-term trend toward such declines, generally.

Mortality improvement factors are based on the Society of Actuaries (SOA) “Scale Mortality Projection 2015” (MP-2015), which are two-dimensional scales (by age and projection year for males and females) based on mortality improvement trends found in the U.S. general population¹. Short-term improvement is based on 1951-2009 experience; long-term improvement is based on expert opinion (1% annual reduction of mortality for each age through age 85, and declining afterwards to 0% at age 115). Short and long-term improvement is blended smoothly over a 20-year transition period. This valuation adjusted MP-2015 to reflect the male/female mix of retirees (90% male, 10% female) and survivors (90% female, 10% male).

The following rationale highlights why MP-2015-based factors were adopted for this valuation:

- They're two-dimensional (unlike one-dimensional factors which vary by age only), reflecting both age/period and cohort effects; and
- The approach is sustainable in that the factors are based on expert demographic and actuarial analysis which the SOA expects to update on a regular, annual basis.

Projecting future mortality trends is an inherently uncertain exercise. Emerging experience will be monitored and new concepts developed by the research community reflected as appropriate, with due consideration of the inherent uncertainty and materiality of impact.

¹ For an in-depth discussion of MP-2015, see:
<https://www.soa.org/experience-studies/2015/research-2015-mp/>

MORTALITY IMPROVEMENT FACTORS

Applied to: Nondisability Retirees, Permanent Disability Retirees, and Active/Reserve Duty Personnel

Gender Mix: 90% Male / 10% Female

(Age Nearest Birthday)

Age	Projection Year										
	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
< 21	0.99643	0.98851	0.97884	0.96913	0.96051	0.95801	0.95649	0.95577	0.95593	0.95670	0.95806
21	1.00124	0.99330	0.98368	0.97373	0.96484	0.96022	0.95860	0.95787	0.95784	0.95850	0.95975
22	1.00555	0.99777	0.98812	0.97821	0.96906	0.96463	0.96061	0.95987	0.95974	0.96029	0.96143
23	1.00924	1.00164	0.99215	0.98227	0.97322	0.96871	0.96505	0.96176	0.96161	0.96206	0.96300
24	1.01232	1.00498	0.99574	0.98609	0.97715	0.97274	0.96899	0.96608	0.96337	0.96371	0.96455
25	1.01467	1.00768	0.99888	0.98955	0.98084	0.97652	0.97278	0.96979	0.96754	0.96525	0.96608
26	1.01620	1.00975	1.00138	0.99258	0.98437	0.98007	0.97642	0.97334	0.97093	0.96915	0.96740
27	1.01683	1.01108	1.00342	0.99524	0.98765	0.98346	0.97982	0.97666	0.97425	0.97231	0.97101
28	1.01656	1.01159	1.00472	0.99745	0.99060	0.98657	0.98298	0.97993	0.97736	0.97535	0.97398
29	1.01539	1.01137	1.00539	0.99902	0.99292	0.98826	0.98582	0.98281	0.98016	0.97816	0.97662
30	1.01325	1.01018	1.00525	0.99979	0.99470	0.99133	0.98815	0.98527	0.98264	0.98056	0.97894
31	1.01043	1.00819	1.00423	0.99975	0.99558	0.99277	0.98985	0.98712	0.98470	0.98254	0.98083
32	1.00687	1.00545	1.00243	0.99892	0.99565	0.99329	0.99083	0.98843	0.98615	0.98409	0.98238
33	1.00293	1.00205	0.99987	0.99721	0.99472	0.99281	0.99087	0.98883	0.98686	0.98501	0.98331
34	0.99884	0.99830	0.99666	0.99465	0.99282	0.99167	0.99042	0.98898	0.98753	0.98599	0.98457
35	0.99496	0.99448	0.99318	0.99162	0.99024	0.98964	0.98908	0.98825	0.98731	0.98627	0.98507
36	0.99142	0.99080	0.98955	0.98813	0.98698	0.98684	0.98676	0.98662	0.98620	0.98568	0.98490
37	0.98859	0.98754	0.98605	0.98457	0.98336	0.98346	0.98373	0.98407	0.98424	0.98424	0.98397
38	0.98647	0.98480	0.98287	0.98114	0.97986	0.97980	0.98023	0.98092	0.98159	0.98209	0.98234
39	0.98506	0.98268	0.98031	0.97813	0.97649	0.97626	0.97664	0.97750	0.97854	0.97945	0.98021
40	0.98436	0.98135	0.97836	0.97583	0.97382	0.97306	0.97327	0.97409	0.97531	0.97669	0.97787
41	0.98426	0.98065	0.97712	0.97424	0.97187	0.97066	0.97044	0.97111	0.97238	0.97396	0.97561
42	0.98457	0.98063	0.97678	0.97355	0.97092	0.96908	0.96842	0.96875	0.96989	0.97154	0.97338
43	0.98537	0.98112	0.97713	0.97366	0.97079	0.96842	0.96723	0.96722	0.96803	0.96964	0.97166
44	0.98653	0.98228	0.97807	0.97457	0.97156	0.96877	0.96698	0.96645	0.96701	0.96830	0.97029
45	0.98814	0.98371	0.97960	0.97607	0.97303	0.97013	0.96775	0.96672	0.96677	0.96773	0.96948
46	0.98989	0.98559	0.98158	0.97797	0.97492	0.97200	0.96958	0.96769	0.96715	0.96777	0.96911
47	0.99205	0.98780	0.98374	0.98024	0.97711	0.97427	0.97174	0.96981	0.96832	0.96825	0.96926
48	0.99414	0.99005	0.98604	0.98258	0.97949	0.97665	0.97420	0.97216	0.97052	0.96950	0.96982
49	0.99624	0.99222	0.98837	0.98497	0.98203	0.97923	0.97680	0.97475	0.97310	0.97177	0.97104
50	0.99789	0.99422	0.99054	0.98731	0.98461	0.98188	0.97949	0.97745	0.97579	0.97444	0.97350
51	0.99909	0.99587	0.99254	0.98966	0.98714	0.98457	0.98232	0.98032	0.97867	0.97731	0.97624
52	0.99949	0.99697	0.99426	0.99174	0.98967	0.98737	0.98519	0.98323	0.98161	0.98025	0.97917
53	0.99911	0.99737	0.99545	0.99365	0.99194	0.99008	0.98807	0.98617	0.98459	0.98315	0.98208
54	0.99806	0.99717	0.99613	0.99493	0.99394	0.99253	0.99086	0.98911	0.98749	0.98609	0.98484
55	0.99627	0.99631	0.99612	0.99571	0.99532	0.99451	0.99327	0.99187	0.99029	0.98875	0.98753
56	0.99406	0.99482	0.99538	0.99571	0.99590	0.99579	0.99515	0.99407	0.99273	0.99124	0.98987
57	0.99152	0.99290	0.99400	0.99497	0.99572	0.99617	0.99621	0.99563	0.99462	0.99336	0.99194
58	0.98894	0.99057	0.99210	0.99351	0.99470	0.99570	0.99630	0.99631	0.99580	0.99476	0.99348
59	0.98632	0.98801	0.98978	0.99144	0.99305	0.99439	0.99545	0.99612	0.99609	0.99556	0.99450
60	0.98385	0.98551	0.98724	0.98913	0.99088	0.99255	0.99396	0.99499	0.99554	0.99550	0.99494
61	0.98169	0.98314	0.98484	0.98669	0.98848	0.99029	0.99185	0.99324	0.99426	0.99469	0.99463
62	0.97966	0.98099	0.98248	0.98430	0.98614	0.98791	0.98952	0.99107	0.99235	0.99335	0.99378
63	0.97801	0.97906	0.98053	0.98223	0.98404	0.98568	0.98735	0.98886	0.99031	0.99158	0.99248
64	0.97657	0.97752	0.97888	0.98047	0.98217	0.98378	0.98523	0.98680	0.98823	0.98967	0.99085
65	0.97533	0.97627	0.97763	0.97911	0.98071	0.98212	0.98355	0.98500	0.98638	0.98780	0.98915
66	0.97446	0.97531	0.97657	0.97805	0.97954	0.98095	0.98227	0.98360	0.98487	0.98626	0.98759
67	0.97379	0.97454	0.97580	0.97718	0.97867	0.98007	0.98130	0.98252	0.98377	0.98494	0.98624
68	0.97331	0.97405	0.97522	0.97660	0.97808	0.97939	0.98061	0.98183	0.98297	0.98403	0.98521
69	0.97302	0.97367	0.97482	0.97619	0.97768	0.97899	0.98021	0.98134	0.98246	0.98351	0.98457
70	0.97301	0.97355	0.97452	0.97589	0.97746	0.97877	0.97998	0.98111	0.98215	0.98319	0.98414
71	0.97309	0.97354	0.97440	0.97576	0.97733	0.97873	0.97994	0.98107	0.98202	0.98296	0.98391
72	0.97334	0.97361	0.97447	0.97573	0.97730	0.97869	0.97999	0.98103	0.98207	0.98292	0.98378
73	0.97368	0.97385	0.97462	0.97579	0.97736	0.97874	0.98004	0.98117	0.98212	0.98297	0.98383
74	0.97420	0.97419	0.97486	0.97604	0.97742	0.97889	0.98010	0.98122	0.98226	0.98311	0.98388
75	0.97470	0.97469	0.97528	0.97628	0.97766	0.97905	0.98025	0.98137	0.98231	0.98317	0.98393
76	0.97538	0.97519	0.97569	0.97669	0.97790	0.97920	0.98040	0.98152	0.98255	0.98340	0.98416
77	0.97604	0.97586	0.97619	0.97710	0.97832	0.97944	0.98064	0.98167	0.98270	0.98354	0.98430
78	0.97670	0.97643	0.97676	0.97759	0.97872	0.97976	0.98088	0.98191	0.98285	0.98369	0.98454
79	0.97745	0.97718	0.97742	0.97808	0.97912	0.98017	0.98120	0.98214	0.98308	0.98392	0.98468
80	0.97810	0.97783	0.97807	0.97864	0.97960	0.98056	0.98152	0.98246	0.98331	0.98415	0.98490
81	0.97885	0.97848	0.97872	0.97920	0.98008	0.98095	0.98182	0.98268	0.98353	0.98437	0.98512
82	0.97960	0.97923	0.97937	0.97985	0.98054	0.98133	0.98220	0.98297	0.98383	0.98468	0.98533
83	0.98036	0.97998	0.98003	0.98041	0.98109	0.98179	0.98257	0.98334	0.98402	0.98478	0.98544
84	0.98121	0.98073	0.98068	0.98096	0.98155	0.98215	0.98284	0.98362	0.98430	0.98497	0.98563
85	0.98208	0.98150	0.98144	0.98161	0.98201	0.98251	0.98310	0.98379	0.98447	0.98515	0.98581
86	0.98305	0.98246	0.98220	0.98218	0.98247	0.98286	0.98336	0.98404	0.98464	0.98522	0.98590
87	0.98411	0.98333	0.98297	0.98284	0.98293	0.98312	0.98361	0.98411	0.98470	0.98538	0.98597
88	0.98528	0.98440	0.98384	0.98351	0.98339	0.98348	0.98377	0.98427	0.98476	0.98536	0.98595
89	0.98654	0.98547	0.98471	0.98418	0.98386	0.98375	0.98394	0.98433	0.98482	0.98533	0.98592
90	0.98790	0.98663	0.98568	0.98495	0.98433	0.98411	0.98410	0.98439	0.98479	0.98529	0.98589
91	0.98926	0.98790	0.98675	0.98581	0.98490	0.98439	0.98427	0.98437	0.98476	0.98526	0.98577
92	0.99080	0.98925	0.98791	0.98669	0.98548	0.98476	0.98445	0.98444	0.98465	0.98514	0.98565
93	0.99235	0.99061	0.98908	0.98757	0.98616	0.98515	0.98464	0.98443	0.98463	0.98503	0.98553
94	0.99398	0.99206	0.99025	0.98854	0.98684	0.98563	0.98483	0.98453	0.98462	0.98492	0.98542
95	0.99561	0.99360	0.99160	0.98961	0.98763	0.98613	0.98513	0.98463	0.98462	0.98482	0.98522
96	0.99582	0.99391	0.99201	0.99011	0.98823	0.98682	0.98592	0.98542	0.98532	0.98552	0.98602
97	0.99602	0.99421	0.99241	0.99061	0.98883	0.98752	0.98662	0.98622	0.98612	0.98632	0.98672
98	0.99631	0.99451	0.99281	0.99112	0.98943	0.98822	0.98733	0.98692	0.98691	0.98711	0.98742
99	0.99651	0.99490	0.99330	0.99171	0.99012	0.98883	0.98812	0.98772	0.98762	0.98782	0.98822
100	0.99671	0.99520	0.99370	0.99221	0.99072	0.98953	0.98882	0.98851	0.98842	0.98861	0.98892
101	0.99691	0.99551	0.99410	0.99271	0.99132	0.99023	0.98962	0.98931	0.98921	0.98932	0.98971
102	0.99711	0.99581	0.99451	0.99321	0.99192	0.99092	0.99032	0.99002	0.99001	0.99011	

MORTALITY IMPROVEMENT FACTORS (continued)

Applied to: Nondisability Retirees, Permanent Disability Retirees, and Active/Reserve Duty Personnel
 Gender Mix: 90% Male / 10% Female

(Age Nearest Birthday)

Age	Projection Year													
	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	>2028
< 21	0.96591	0.96226	0.96491	0.96775	0.97080	0.97385	0.97690	0.97985	0.98261	0.98498	0.98704	0.98862	0.98961	0.99000
21	0.96150	0.96364	0.96617	0.96882	0.97175	0.97499	0.97853	0.98228	0.98623	0.98928	0.99155	0.99302	0.99460	0.99620
22	0.96307	0.96501	0.96734	0.96987	0.97260	0.97553	0.97866	0.98200	0.98555	0.98920	0.99197	0.99497	0.99810	0.99900
23	0.96453	0.96636	0.96849	0.97091	0.97344	0.97608	0.97887	0.98182	0.98493	0.98820	0.99163	0.99522	0.99896	0.99900
24	0.96598	0.96760	0.96963	0.97194	0.97435	0.97678	0.97921	0.98163	0.98417	0.98681	0.98955	0.99239	0.99533	0.99700
25	0.96730	0.96883	0.97074	0.97286	0.97508	0.97746	0.97981	0.98224	0.98474	0.98731	0.99000	0.99279	0.99567	0.99700
26	0.96852	0.97003	0.97175	0.97376	0.97598	0.97810	0.98032	0.98244	0.98447	0.98622	0.98777	0.98904	0.99000	0.99000
27	0.96972	0.97105	0.97266	0.97457	0.97659	0.97861	0.98073	0.98275	0.98468	0.98642	0.98787	0.98903	0.99000	0.99000
28	0.97307	0.97217	0.97368	0.97539	0.97729	0.97929	0.98120	0.98320	0.98502	0.98665	0.98799	0.98904	0.98972	0.99000
29	0.97563	0.97510	0.97452	0.97612	0.97791	0.97979	0.98168	0.98347	0.98518	0.98678	0.98811	0.98915	0.98981	0.99000
30	0.97778	0.97716	0.97699	0.97673	0.97841	0.98019	0.98196	0.98374	0.98542	0.98691	0.98813	0.98916	0.98981	0.99000
31	0.97967	0.97887	0.97862	0.97872	0.97871	0.98047	0.98223	0.98389	0.98556	0.98695	0.98824	0.98917	0.98981	0.99000
32	0.98103	0.98024	0.97980	0.97982	0.98020	0.98053	0.98228	0.98403	0.98559	0.98697	0.98825	0.98917	0.98982	0.99000
33	0.98205	0.98115	0.98072	0.98066	0.98095	0.98161	0.98221	0.98395	0.98551	0.98698	0.98817	0.98918	0.98982	0.99000
34	0.98331	0.98241	0.98189	0.98174	0.98196	0.98254	0.98331	0.98401	0.98567	0.98705	0.98825	0.98917	0.98982	0.99000
35	0.98410	0.98329	0.98277	0.98253	0.98266	0.98317	0.98387	0.98476	0.98564	0.98704	0.98824	0.98917	0.98981	0.99000
36	0.98423	0.98352	0.98309	0.98294	0.98308	0.98351	0.98413	0.98503	0.98604	0.98701	0.98823	0.98916	0.98981	0.99000
37	0.98362	0.98322	0.98289	0.98284	0.98308	0.98352	0.98416	0.98508	0.98611	0.98714	0.98812	0.98915	0.98981	0.99000
38	0.98242	0.98243	0.98240	0.98246	0.98279	0.98333	0.98408	0.98493	0.98598	0.98712	0.98819	0.98905	0.98972	0.99000
39	0.98081	0.98124	0.98153	0.98189	0.98233	0.98297	0.98382	0.98478	0.98593	0.98710	0.98818	0.98908	0.98971	0.99000
40	0.97898	0.97984	0.98065	0.98123	0.98197	0.98271	0.98357	0.98463	0.98580	0.98707	0.98837	0.98968	0.99097	0.99000
41	0.97714	0.97843	0.97957	0.98065	0.98152	0.98247	0.98352	0.98468	0.98595	0.98731	0.98869	0.99000	0.99129	0.99000
42	0.97531	0.97711	0.97867	0.97999	0.98127	0.98234	0.98349	0.98465	0.98593	0.98730	0.98869	0.99000	0.99129	0.99000
43	0.97378	0.97588	0.97777	0.97951	0.98102	0.98230	0.98357	0.98474	0.98592	0.98711	0.98813	0.98906	0.98972	0.99000
44	0.97249	0.97480	0.97699	0.97904	0.98078	0.98237	0.98386	0.98511	0.98611	0.98721	0.98812	0.98916	0.98972	0.99000
45	0.97166	0.97405	0.97644	0.97870	0.98065	0.98237	0.98387	0.98515	0.98633	0.98742	0.98842	0.98925	0.98981	0.99000
46	0.97107	0.97343	0.97590	0.97827	0.98052	0.98235	0.98405	0.98544	0.98663	0.98762	0.98853	0.98926	0.98981	0.99000
47	0.97088	0.97302	0.97547	0.97793	0.98019	0.98232	0.98404	0.98554	0.98674	0.98783	0.98864	0.98936	0.98982	0.99000
48	0.97103	0.97293	0.97516	0.97751	0.97995	0.98209	0.98402	0.98563	0.98693	0.98793	0.98874	0.98937	0.98982	0.99000
49	0.97174	0.97323	0.97514	0.97744	0.97977	0.98191	0.98393	0.98564	0.98694	0.98804	0.98885	0.98947	0.98982	0.99000
50	0.97306	0.97395	0.97553	0.97752	0.97972	0.98192	0.98393	0.98564	0.98705	0.98815	0.98896	0.98948	0.98991	0.99000
51	0.97559	0.97534	0.97642	0.97808	0.97996	0.98195	0.98395	0.98565	0.98706	0.98816	0.98905	0.98958	0.98992	0.99000
52	0.97831	0.97784	0.97778	0.97894	0.98050	0.98227	0.98406	0.98575	0.98715	0.98825	0.98906	0.98958	0.98992	0.99000
53	0.98119	0.98051	0.98023	0.98026	0.98132	0.98278	0.98445	0.98594	0.98724	0.98834	0.98915	0.98967	0.98992	0.99000
54	0.98395	0.98316	0.98267	0.98239	0.98260	0.98357	0.98484	0.98621	0.98741	0.98842	0.98914	0.98967	0.98992	0.99000
55	0.98647	0.98567	0.98498	0.98458	0.98440	0.98543	0.98651	0.98769	0.98880	0.98922	0.98966	0.98992	0.99000	0.99000
56	0.98874	0.98777	0.98707	0.98648	0.98610	0.98693	0.98775	0.98865	0.98957	0.99000	0.99022	0.99066	0.99092	0.99000
57	0.99066	0.98953	0.98875	0.98806	0.98758	0.98721	0.98715	0.98730	0.98792	0.98864	0.98928	0.98974	0.98991	0.99000
58	0.99215	0.99096	0.99001	0.98925	0.98867	0.98821	0.98796	0.98832	0.98877	0.98917	0.98927	0.98973	0.98991	0.99000
59	0.99330	0.99206	0.99109	0.99024	0.98959	0.98923	0.98903	0.98945	0.98989	0.99025	0.99055	0.99081	0.99099	0.99000
60	0.99398	0.99277	0.99162	0.99063	0.98990	0.98936	0.98902	0.98949	0.98989	0.99025	0.99055	0.99081	0.99099	0.99000
61	0.99407	0.99309	0.99198	0.99102	0.99014	0.98962	0.98928	0.98966	0.98994	0.99024	0.99054	0.99081	0.99099	0.99000
62	0.99370	0.99313	0.99224	0.99123	0.99038	0.98978	0.98937	0.98915	0.98913	0.98922	0.98941	0.98970	0.98990	0.99000
63	0.99290	0.99272	0.99224	0.99144	0.99061	0.98995	0.98946	0.98925	0.98931	0.98933	0.98950	0.98970	0.98990	0.99000
64	0.99165	0.99205	0.99196	0.99147	0.99085	0.99021	0.98965	0.98935	0.98933	0.98933	0.98951	0.98971	0.98990	0.99000
65	0.99023	0.99102	0.99141	0.99132	0.99091	0.99038	0.98992	0.98955	0.98944	0.98943	0.98943	0.98971	0.98990	0.99000
66	0.98884	0.98991	0.99059	0.99098	0.99087	0.99054	0.99019	0.98983	0.98955	0.98953	0.98962	0.98981	0.98991	0.99000
67	0.98756	0.98872	0.98969	0.99036	0.99073	0.99061	0.99037	0.99001	0.98983	0.98964	0.98972	0.98981	0.98991	0.99000
68	0.98650	0.98764	0.98878	0.98965	0.99030	0.99057	0.99044	0.99028	0.99001	0.98983	0.98982	0.98982	0.98991	0.99000
69	0.98566	0.98677	0.98789	0.98894	0.98969	0.99025	0.99041	0.99036	0.99019	0.99001	0.98991	0.98991	0.99000	0.99000
70	0.98511	0.98619	0.98721	0.98824	0.98909	0.98983	0.99019	0.99033	0.99027	0.99010	0.99001	0.99001	0.99000	0.99000
71	0.98477	0.98574	0.98664	0.98765	0.98849	0.98932	0.98987	0.99021	0.99025	0.99018	0.99011	0.99011	0.99000	0.99000
72	0.98463	0.98541	0.98628	0.98718	0.98800	0.98882	0.98946	0.98990	0.99014	0.99017	0.99009	0.99000	0.99000	0.99000
73	0.98459	0.98527	0.98604	0.98682	0.98762	0.98834	0.98906	0.98960	0.98993	0.99007	0.99009	0.99009	0.99000	0.99000
74	0.98455	0.98523	0.98590	0.98658	0.98736	0.98806	0.98868	0.98930	0.98973	0.98996	0.99008	0.99009	0.99000	0.99000
75	0.98470	0.98528	0.98595	0.98653	0.98711	0.98780	0.98841	0.98902	0.98944	0.98976	0.98998	0.99000	0.99000	0.99000
76	0.98475	0.98542	0.98600	0.98648	0.98706	0.98764	0.98824	0.98874	0.98925	0.98966	0.98988	0.98990	0.99000	0.99000
77	0.98498	0.98556	0.98605	0.98662	0.98710	0.98769	0.98816	0.98866	0.98907	0.98948	0.98978	0.98990	0.99000	0.99000
78	0.98511	0.98578	0.98627	0.98676	0.98724	0.98762	0.98819	0.98859	0.98898	0.98938	0.98968	0.98989	0.99000	0.99000
79	0.98534	0.98591	0.98649	0.98688	0.98736	0.98775	0.98822	0.98852	0.98900	0.98939	0.98969	0.98989	0.99000	0.99000
80	0.98556	0.98613	0.98670	0.98709	0.98757	0.98796	0.98834	0.98863	0.98901	0.98930	0.98960	0.98980	0.99000	0.99000
81	0.98578	0.98634	0.98691	0.98730	0.98778	0.98807	0.98845	0.98874	0.98903	0.98931	0.98960	0.98980	0.99000	0.99000
82	0.98590	0.98655	0.98711	0.98750	0.98788	0.98827	0.98865	0.98895	0.98913	0.98942	0.98970	0.98980	0.99000	0.99000
83	0.98610	0.98666	0.98722	0.98769	0.98807	0.98846	0.98875	0.98904	0.98923	0.98952	0.98971	0.98980	0.99000	0.99000
84	0.98629	0.98685	0.98732	0.98779	0.98817	0.98855	0.98884	0.98913	0.98942	0.98962	0.98981	0.98990	0.99000	0.99000
85	0.98638	0.98695	0.98742	0.98788	0.98827	0.98865	0.98894	0.98923	0.98952	0.98971	0.98981	0.99000	0.99000	0.99000
86	0.98647	0.98704	0.98751	0.98798</										

MORTALITY IMPROVEMENT FACTORS
Applied to: Surviving Spouses, and Current Spouses
Gender Mix: 10% Male / 90% Female

(Age Nearest Birthday)

Age	Projection Year															
	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
< 21	0.98353	0.98403	0.98567	0.98898	0.99282	0.99679	0.99987	1.00138	1.00048	0.99707	0.99187	0.98539	0.97836	0.97177	0.96619	0.96369
21	0.98281	0.98357	0.98576	0.98939	0.99393	0.99850	1.00217	1.00424	1.00399	1.00132	0.99676	0.99090	0.98432	0.97797	0.97236	0.96678
22	0.98177	0.98232	0.98477	0.98855	0.99402	0.99929	1.00366	1.00682	1.00682	1.00498	1.00151	0.99593	0.98986	0.98392	0.97834	0.97447
23	0.98035	0.98057	0.98300	0.98735	0.99307	0.99916	1.00424	1.00768	1.00886	1.00776	1.00476	1.00036	0.99495	0.98923	0.98378	0.97999
24	0.97883	0.97852	0.98093	0.98556	0.99134	0.99808	1.00368	1.00738	1.00910	1.00768	1.00468	1.00028	0.99498	0.98951	0.98423	0.98056
25	0.97744	0.97652	0.97787	0.98237	0.98893	0.99624	1.00288	1.00676	1.01042	1.01095	1.00963	1.00672	1.00222	0.99795	0.99316	0.98948
26	0.97620	0.97428	0.97520	0.97939	0.98613	0.99382	1.00102	1.00576	1.00992	1.01115	1.01060	1.00855	1.00422	1.00012	0.99663	0.99343
27	0.97544	0.97258	0.97275	0.97650	0.98313	0.99110	0.99868	1.00467	1.00859	1.01052	1.01067	1.00932	1.00578	1.00256	1.00005	0.99674
28	0.97528	0.97147	0.97094	0.97404	0.98035	0.98821	0.99597	1.00223	1.00669	1.00907	1.00984	1.00911	1.00728	1.00505	1.00260	0.99983
29	0.97564	0.97115	0.96979	0.97232	0.97800	0.98555	0.99320	0.99953	1.00415	1.00687	1.00881	1.00933	1.00991	1.00958	1.00728	1.00544
30	0.97672	0.97154	0.96945	0.97129	0.97633	0.98334	0.99057	0.99653	1.00127	1.00425	1.00565	1.00632	1.00685	1.00651	1.00428	1.00254
31	0.97835	0.97259	0.97004	0.97118	0.97555	0.98182	0.98842	0.99408	0.99834	1.00128	1.00267	1.00331	1.00367	1.00345	1.00122	1.00053
32	0.98043	0.97440	0.97140	0.97202	0.97673	0.98134	0.98666	0.99177	0.99648	0.99979	0.99943	1.00025	1.00107	1.00228	1.00306	1.00400
33	0.98296	0.97677	0.97353	0.97373	0.97872	0.98344	0.98861	0.99305	0.99720	0.99982	0.99952	1.00035	1.00127	1.00269	1.00358	1.00450
34	0.98296	0.97962	0.97624	0.97621	0.98130	0.98631	0.99170	0.99633	1.00028	1.00304	1.00278	1.00360	1.00452	1.00554	1.00656	1.00758
35	0.98873	0.98276	0.97954	0.97927	0.98430	0.98931	0.99470	0.99933	1.00328	1.00604	1.00578	1.00660	1.00752	1.00854	1.00956	1.01058
36	0.99177	0.98618	0.98311	0.98284	0.98783	0.99284	0.99747	1.00142	1.00418	1.00694	1.00668	1.00750	1.00842	1.00944	1.01046	1.01148
37	0.99461	0.98957	0.98676	0.98649	0.99148	0.99649	1.00112	1.00488	1.00764	1.01040	1.01014	1.01096	1.01198	1.01300	1.01402	1.01504
38	0.99722	0.99284	0.99039	0.99016	0.99515	1.00016	1.00492	1.00868	1.01144	1.01420	1.01394	1.01476	1.01578	1.01680	1.01782	1.01884
39	0.99980	0.99570	0.99369	0.99369	0.99868	1.00369	1.00845	1.01221	1.01497	1.01773	1.01747	1.01829	1.01931	1.02033	1.02135	1.02237
40	1.00086	0.99866	0.99669	0.99669	1.00168	1.00669	1.01145	1.01521	1.01797	1.02073	1.02047	1.02129	1.02231	1.02333	1.02435	1.02537
41	1.00134	0.99994	0.99891	0.99891	1.00390	1.00891	1.01367	1.01743	1.02019	1.02295	1.02269	1.02351	1.02453	1.02555	1.02657	1.02759
42	1.00032	0.99967	1.00022	1.00199	1.00432	1.00718	1.01054	1.01430	1.01756	1.02032	1.02006	1.02088	1.02190	1.02292	1.02394	1.02496
43	0.99987	0.99996	0.99987	1.00217	1.00503	1.00839	1.01215	1.01591	1.01917	1.02193	1.02167	1.02249	1.02351	1.02453	1.02555	1.02657
44	0.99987	0.99996	0.99987	1.00217	1.00503	1.00839	1.01215	1.01591	1.01917	1.02193	1.02167	1.02249	1.02351	1.02453	1.02555	1.02657
45	0.99987	0.99996	0.99987	1.00217	1.00503	1.00839	1.01215	1.01591	1.01917	1.02193	1.02167	1.02249	1.02351	1.02453	1.02555	1.02657
46	0.99987	0.99996	0.99987	1.00217	1.00503	1.00839	1.01215	1.01591	1.01917	1.02193	1.02167	1.02249	1.02351	1.02453	1.02555	1.02657
47	0.99987	0.99996	0.99987	1.00217	1.00503	1.00839	1.01215	1.01591	1.01917	1.02193	1.02167	1.02249	1.02351	1.02453	1.02555	1.02657
48	0.99987	0.99996	0.99987	1.00217	1.00503	1.00839	1.01215	1.01591	1.01917	1.02193	1.02167	1.02249	1.02351	1.02453	1.02555	1.02657
49	0.99987	0.99996	0.99987	1.00217	1.00503	1.00839	1.01215	1.01591	1.01917	1.02193	1.02167	1.02249	1.02351	1.02453	1.02555	1.02657
50	0.99987	0.99996	0.99987	1.00217	1.00503	1.00839	1.01215	1.01591	1.01917	1.02193	1.02167	1.02249	1.02351	1.02453	1.02555	1.02657
51	0.99987	0.99996	0.99987	1.00217	1.00503	1.00839	1.01215	1.01591	1.01917	1.02193	1.02167	1.02249	1.02351	1.02453	1.02555	1.02657
52	0.99987	0.99996	0.99987	1.00217	1.00503	1.00839	1.01215	1.01591	1.01917	1.02193	1.02167	1.02249	1.02351	1.02453	1.02555	1.02657
53	0.99987	0.99996	0.99987	1.00217	1.00503	1.00839	1.01215	1.01591	1.01917	1.02193	1.02167	1.02249	1.02351	1.02453	1.02555	1.02657
54	0.99987	0.99996	0.99987	1.00217	1.00503	1.00839	1.01215	1.01591	1.01917	1.02193	1.02167	1.02249	1.02351	1.02453	1.02555	1.02657
55	0.99987	0.99996	0.99987	1.00217	1.00503	1.00839	1.01215	1.01591	1.01917	1.02193	1.02167	1.02249	1.02351	1.02453	1.02555	1.02657
56	0.99987	0.99996	0.99987	1.00217	1.00503	1.00839	1.01215	1.01591	1.01917	1.02193	1.02167	1.02249	1.02351	1.02453	1.02555	1.02657
57	0.99987	0.99996	0.99987	1.00217	1.00503	1.00839	1.01215	1.01591	1.01917	1.02193	1.02167	1.02249	1.02351	1.02453	1.02555	1.02657
58	0.99987	0.99996	0.99987	1.00217	1.00503	1.00839	1.01215	1.01591	1.01917	1.02193	1.02167	1.02249	1.02351	1.02453	1.02555	1.02657
59	0.99987	0.99996	0.99987	1.00217	1.00503	1.00839	1.01215	1.01591	1.01917	1.02193	1.02167	1.02249	1.02351	1.02453	1.02555	1.02657
60	0.99987	0.99996	0.99987	1.00217	1.00503	1.00839	1.01215	1.01591	1.01917	1.02193	1.02167	1.02249	1.02351	1.02453	1.02555	1.02657
61	0.99987	0.99996	0.99987	1.00217	1.00503	1.00839	1.01215	1.01591	1.01917	1.02193	1.02167	1.02249	1.02351	1.02453	1.02555	1.02657
62	0.99987	0.99996	0.99987	1.00217	1.00503	1.00839	1.01215	1.01591	1.01917	1.02193	1.02167	1.02249	1.02351	1.02453	1.02555	1.02657
63	0.99987	0.99996	0.99987	1.00217	1.00503	1.00839	1.01215	1.01591	1.01917	1.02193	1.02167	1.02249	1.02351	1.02453	1.02555	1.02657
64	0.99987	0.99996	0.99987	1.00217	1.00503	1.00839	1.01215	1.01591	1.01917	1.02193	1.02167	1.02249	1.02351	1.02453	1.02555	1.02657
65	0.99987	0.99996	0.99987	1.00217	1.00503	1.00839	1.01215	1.01591	1.01917	1.02193	1.02167	1.02249	1.02351	1.02453	1.02555	1.02657
66	0.99987	0.99996	0.99987	1.00217	1.00503	1.00839	1.01215	1.01591	1.01917	1.02193	1.02167	1.02249	1.02351	1.02453	1.02555	1.02657
67	0.99987	0.99996	0.99987	1.00217	1.00503	1.00839	1.01215	1.01591	1.01917	1.02193	1.02167	1.02249	1.02351	1.02453	1.02555	1.02657
68	0.99987	0.99996	0.99987	1.00217	1.00503	1.00839	1.01215	1.01591	1.01917	1.02193	1.02167	1.02249	1.02351	1.02453	1.02555	1.02657
69	0.99987	0.99996	0.99987	1.00217	1.00503	1.00839	1.01215	1.01591	1.01917	1.02193	1.02167	1.02249	1.02351	1.02453	1.02555	1.02657
70	0.99987	0.99996	0.99987	1.00217	1.00503	1.00839	1.01215	1.01591	1.01917	1.02193	1.02167	1.02249	1.02351	1.02453	1.02555	1.02657
71	0.99987	0.99996	0.99987	1.00217	1.00503	1.00839	1.01215	1.01591	1.01917	1.02193	1.02167	1.02249	1.02351	1.02453	1.02555	1.02657
72	0.99987	0.99996	0.99987	1.00217	1.00503	1.00839	1.01215	1.01591	1.01917	1.02193	1.02167	1.02249	1.02351	1.02453	1.02555	1.02657
73	0.99987	0.99996	0.99987	1.00217	1.00503	1.00839	1.01215	1.01591	1.01917	1.02193	1.02167	1.02249	1.02351	1.02453	1.02555	1.02657
74	0.99987	0.99996	0.99987	1.00217	1.00503	1.00839	1.01215	1.01591	1.01917	1.02193	1.02167	1.02249	1.02351	1.02453	1.02555	1.02657
75	0.99987	0.99996	0.99987	1.00217	1.00503	1.00839	1.01215	1.01591	1.01917	1.02193	1.02167	1.02249	1.02351	1.02453	1.02555	1.02657
76	0.99987	0.99996	0.99987	1.00217	1.00503	1.00839	1.01215	1.01591	1.01917	1.02193	1.02167	1.02249	1.02351	1.02453	1.02555	1.02657
77	0.99987	0.99996	0.99987	1.00217	1.00503	1.00839	1.01215	1.01591	1.01917	1.02193	1.02167	1.02249	1.02351	1.02453	1.02555	1.02657
78	0.99987	0.99996	0.99987	1.00217	1.00503	1.00839	1.01215	1.01591	1.01917							

Valuation of the Military Retirement System - September 30, 2016

MORTALITY IMPROVEMENT FACTORS (continued)

Applied to: Surviving Spouses, and Current Spouses

Gender Mix: 10% Male / 90% Female

(Age Nearest Birthday)

Age	Projection Year																			
	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	>2028	
< 21	0.96201	0.96113	0.96097	0.96150	0.96254	0.96399	0.96594	0.96819	0.97055	0.97320	0.97585	0.97850	0.98105	0.98349	0.98562	0.98736	0.98878	0.98969	0.99000	
21	0.96500	0.96403	0.96376	0.96410	0.96495	0.96630	0.96796	0.96993	0.97218	0.97455	0.97691	0.97937	0.98172	0.98397	0.98592	0.98755	0.98888	0.98970	0.99000	
22	0.96789	0.96683	0.96646	0.96661	0.96727	0.96843	0.96989	0.97166	0.97363	0.97580	0.97797	0.98024	0.98240	0.98445	0.98621	0.98775	0.98897	0.98970	0.99000	
23	0.97665	0.96944	0.96889	0.96894	0.96940	0.97037	0.97164	0.97321	0.97499	0.97696	0.97894	0.98101	0.98298	0.98484	0.98650	0.98794	0.98907	0.98979	0.99000	
24	0.98171	0.97872	0.97113	0.97099	0.97135	0.97212	0.97320	0.97467	0.97626	0.97795	0.97982	0.98169	0.98347	0.98523	0.98679	0.98813	0.98907	0.98979	0.99000	
25	0.98622	0.98331	0.98066	0.97285	0.97312	0.97370	0.97467	0.97586	0.97734	0.97892	0.98061	0.98229	0.98396	0.98553	0.98699	0.98823	0.98917	0.98979	0.99000	
26	0.99018	0.98726	0.98477	0.98235	0.97460	0.97508	0.97587	0.97695	0.97824	0.97972	0.98130	0.98288	0.98436	0.98583	0.98718	0.98833	0.98926	0.98979	0.99000	
27	0.99358	0.99074	0.98825	0.98599	0.98389	0.97628	0.97705	0.97794	0.97913	0.98051	0.98189	0.98337	0.98475	0.98612	0.98738	0.98843	0.98927	0.98979	0.99000	
28	0.99722	0.99457	0.99224	0.99015	0.98822	0.98643	0.97913	0.97992	0.98001	0.98121	0.98231	0.98340	0.98440	0.98560	0.98678	0.98785	0.98871	0.98936	0.98988	0.99000
29	1.00038	0.99809	0.99584	0.99384	0.99198	0.99027	0.98870	0.98818	0.98828	0.98859	0.98851	0.98852	0.98843	0.98842	0.98822	0.98822	0.98899	0.98955	0.98989	0.99000
30	1.00295	1.00103	0.99896	0.99704	0.99526	0.99362	0.99204	0.99051	0.98947	0.98849	0.98751	0.98644	0.98526	0.98398	0.98259	0.98117	0.97964	0.97800	0.97625	0.99000
31	1.00465	1.00328	1.00150	0.99966	0.99787	0.99623	0.99463	0.99318	0.99168	0.99039	0.98920	0.98807	0.98702	0.98604	0.98513	0.98426	0.98343	0.98264	0.98190	0.99000
32	1.00547	1.00467	1.00335	1.00161	0.99982	0.99807	0.99656	0.99500	0.99358	0.99220	0.99087	0.98962	0.98844	0.98732	0.98625	0.98523	0.98426	0.98334	0.98246	0.99000
33	1.00503	1.00507	1.00414	1.00269	1.00099	0.99925	0.99755	0.99580	0.99414	0.99255	0.99099	0.98949	0.98804	0.98664	0.98529	0.98400	0.98277	0.98159	0.98046	0.99000
34	1.00338	1.00402	1.00377	1.00271	1.00113	0.99939	0.99769	0.99621	0.99486	0.99364	0.99246	0.99133	0.99026	0.98924	0.98826	0.98733	0.98644	0.98560	0.98476	0.99000
35	1.00092	1.00225	1.00259	1.00203	1.00083	0.99930	0.99761	0.99613	0.99477	0.99354	0.99253	0.99163	0.99084	0.99008	0.98936	0.98866	0.98800	0.98738	0.98680	0.99000
36	0.99764	0.99958	1.00060	1.00072	1.00100	1.00100	0.99887	0.99728	0.99581	0.99446	0.99322	0.99239	0.99157	0.99087	0.99036	0.98989	0.98947	0.98904	0.98862	0.99000
37	0.99357	0.99583	0.99736	0.99816	0.99813	0.99738	0.99618	0.99481	0.99356	0.99252	0.99168	0.99104	0.99052	0.99019	0.98986	0.98958	0.98935	0.98916	0.98898	0.99000
38	0.98927	0.99148	0.99351	0.99481	0.99546	0.99538	0.99467	0.99360	0.99254	0.99151	0.99077	0.99032	0.98997	0.98972	0.98956	0.98941	0.98930	0.98922	0.98916	0.99000
39	0.98496	0.98710	0.98926	0.99105	0.99229	0.99289	0.99276	0.99217	0.99141	0.99057	0.98993	0.98958	0.98942	0.98937	0.98930	0.98926	0.98922	0.98919	0.98917	0.99000
40	0.98103	0.98281	0.98499	0.98701	0.98883	0.99002	0.99056	0.99065	0.99027	0.98973	0.98919	0.98893	0.98887	0.98890	0.98892	0.98893	0.98892	0.98892	0.98892	0.99000
41	0.97796	0.97919	0.98102	0.98324	0.98529	0.98706	0.98827	0.98893	0.98905	0.98888	0.98863	0.98848	0.98842	0.98844	0.98845	0.98845	0.98845	0.98845	0.98845	0.99000
42	0.97578	0.97635	0.97781	0.97996	0.98202	0.98419	0.98659	0.98923	0.99213	0.99523	0.99823	0.99823	0.99823	0.99823	0.99823	0.99823	0.99823	0.99823	0.99823	0.99000
43	0.97467	0.97458	0.97547	0.97716	0.97934	0.98152	0.98372	0.98553	0.98679	0.98758	0.98790	0.98790	0.98790	0.98790	0.98790	0.98790	0.98790	0.98790	0.98790	0.99000
44	0.97482	0.97405	0.97429	0.97550	0.97741	0.97961	0.98200	0.98411	0.98576	0.98702	0.98773	0.98814	0.98837	0.98859	0.98889	0.98928	0.98964	0.98988	0.98988	0.99000
45	0.97615	0.97488	0.97453	0.97517	0.97652	0.97854	0.98085	0.98316	0.98510	0.98665	0.98773	0.98843	0.98875	0.98918	0.98958	0.98995	0.99028	0.99058	0.99085	0.99000
46	0.97822	0.97641	0.97555	0.97553	0.97639	0.97803	0.98007	0.98230	0.98433	0.98628	0.98755	0.98845	0.98896	0.98927	0.98938	0.98957	0.98974	0.98989	0.98989	0.99000
47	0.98086	0.97869	0.97728	0.97665	0.97694	0.97792	0.97958	0.98163	0.98377	0.98571	0.98728	0.98836	0.98906	0.98946	0.98967	0.98976	0.98984	0.98989	0.98989	0.99000
48	0.98380	0.98144	0.97948	0.97830	0.97798	0.97847	0.97957	0.98124	0.98319	0.98515	0.98681	0.98818	0.98918	0.99007	0.99085	0.99156	0.99220	0.99278	0.99328	0.99000
49	0.98720	0.98475	0.98270	0.98113	0.98016	0.98006	0.98067	0.98186	0.98336	0.98513	0.98679	0.98817	0.98916	0.99006	0.99086	0.99156	0.99220	0.99278	0.99328	0.99000
50	0.99061	0.98825	0.98611	0.98436	0.98310	0.98324	0.98235	0.98297	0.98408	0.98548	0.98688	0.98817	0.98916	0.99006	0.99086	0.99156	0.99220	0.99278	0.99328	0.99000
51	0.99368	0.99185	0.98963	0.98779	0.98616	0.98511	0.98448	0.98458	0.98472	0.98486	0.98496	0.98504	0.98512	0.98520	0.98528	0.98536	0.98544	0.98552	0.98560	0.99000
52	0.99631	0.99467	0.99289	0.99105	0.98933	0.98799	0.98696	0.98642	0.98646	0.98650	0.98654	0.98658	0.98662	0.98666	0.98670	0.98674	0.98678	0.98682	0.98686	0.99000
53	0.99823	0.99713	0.99571	0.99395	0.99232	0.99071	0.98939	0.98847	0.98794	0.98758	0.98728	0.98702	0.98680	0.98662	0.98646	0.98630	0.98614	0.98600	0.98586	0.99000
54	0.99934	0.99879	0.99781	0.99641	0.99476	0.99315	0.99164	0.99043	0.98951	0.98900	0.98883	0.98876	0.98870	0.98864	0.98858	0.98852	0.98846	0.98840	0.98834	0.99000
55	0.99943	0.99963	0.99901	0.99795	0.99657	0.99503	0.99343	0.99202	0.99082	0.99000	0.98957	0.98949	0.98941	0.98935	0.98929	0.98923	0.98917	0.98911	0.98905	0.99000
56	0.99875	0.99943	0.99937	0.99876	0.99763	0.99626	0.99473	0.99323	0.99192	0.99090	0.99017	0.98975	0.98965	0.98965	0.98965	0.98965	0.98965	0.98965	0.98965	0.99000
57	0.99709	0.99827	0.99878	0.99864	0.99786	0.99674	0.99537	0.99395	0.99254	0.99142	0.99049	0.98995	0.98980	0.98974	0.98968	0.98962	0.98956	0.98950	0.98944	0.99000
58	0.99470	0.99639	0.99740	0.99764	0.99732	0.99655	0.99544	0.99409	0.99285	0.99163	0.99069	0.99004	0.98988	0.98982	0.98976	0.98970	0.98964	0.98958	0.98952	0.99000
59	0.99185	0.99388	0.99521	0.99604	0.99610	0.99570	0.99484	0.99352	0.99226	0.99111	0.99027	0.98977	0.98960	0.98954	0.98948	0.98942	0.98936	0.98930	0.98924	0.99000
60	0.98884	0.99091	0.99266	0.99390	0.99446	0.99452	0.99413	0.99338	0.99247	0.99150	0.99064	0.98998	0.98961	0.98934	0.98918	0.98902	0.98886	0.98870	0.98854	0.99000
61	0.98585	0.98796	0.98994	0.99141	0.99247	0.99303	0.99301	0.99262	0.99198	0.99126	0.99058	0.98992	0.98954	0.98936	0.98920	0.98904	0.98888	0.98872	0.98856	0.99000
62	0.98328	0.98523	0.98715	0.98895	0.99042	0.99130	0.99177	0.99176	0.99147	0.99102	0.99042	0.98993	0.98955	0.98937	0.98930	0.98924	0.98918	0.98912	0.98906	0.99000
63	0.98135	0.98294	0.98479	0.98662	0.98832	0.98970	0.99048	0.99096	0.99096	0.99069	0.99035	0.98994	0.98965	0.98947	0.98939	0.98930	0.98924	0.98918	0.98912	0.99000
64	0.97987	0.98120	0.98287	0.98463	0.98645	0.98805	0.98925	0.99004	0.99043	0.99045	0.99029	0.99005	0.98975	0.98957	0.98949	0.98943	0.98937	0.98931	0.98925	0.99000
65	0.97915	0.98020	0.98142	0.98300	0.98475	0.98647	0.98798	0.98909	0.98988	0.99019	0.99022	0.99008	0.98985	0.98976	0.98967	0.98961	0.98955	0.98949	0.98943	0.99000
66	0.97883	0.97960	0.98063	0.98194	0.98351	0.98516	0.98679	0.98811	0.98922	0.99023	0.99106	0.99171	0.99228	0.99276	0.99316	0.99354	0.99392	0.99429	0.99466	0.99000
67	0.97890	0.97948	0.98033	0.98128	0.98256	0.98404	0.98568	0.98721	0.98844	0.98937	0.990									

APPENDIX K

25 YEAR PROJECTIONS

	<u>Page</u>
Projection Notes.....	193
Active Duty Personnel and Pay	194
Nonretired Reservists Personnel and Pay	195
Total Number of Retirees.....	196
Total Annual Retired Pay	197
Retiree Gain Statement.....	198
Total Number of Survivors	199
Total Annual Survivor Benefits.....	200
Total Projected Basic Pay and Retired Outlays	201

PROJECTION NOTES

The following are relevant notes to the projections depicted in this appendix:

- Refer to the “NOTE REGARDING OPEN GROUP PROJECTIONS” in the Table 8 Footnotes for important caveats related to this appendix.
- Columns in this appendix may not add due to rounding.
- In some cases the number of personnel may show zero with the corresponding pay showing a non-zero value. This is a result of rounding the display to the nearest person.
- Future mortality improvement is assumed throughout this appendix (with the exception of temporary disabled retirees).
- Although Combat Related Special Compensation (CRSC) is not technically considered retired pay, it is paid from the MRF; hence these projections include CRSC.
- The FY 2011 National Defense Authorization Act (P.L. 111-383) required “amounts of retired pay and retainer pay due a retired member of the uniformed services shall be paid on the first day of each month beginning after the month in which the right to such pay accrues.” This means that when the first day of the month falls on a non-business day (weekend/holiday), the pay must be paid the preceding business day. This legislation did not apply to survivor annuitant pay and CRSC. This results in retirees receiving 13 payments in some fiscal years and 11 payments in others, with 12 payments occurring in a typical fiscal year. Annual fiscal year amounts shown in this appendix assume 12 monthly payments each year.
- The following economic assumptions are applied to the projection of basic pay and retired outlays. This table is partially replicated from the Table 8 footnotes in the main text:

**ANNUAL ECONOMIC ASSUMPTIONS USED IN PROJECTIONS OF
BASIC PAY AND RETIRED OUTLAYS**

<u>Fiscal Year</u>	<u>Full COLA</u>	<u>Basic Pay</u>
2017	0.3%	2.1%
2018	2.2	1.6
2019	2.1	1.6
2020	2.3	1.8
2021	2.2	2.1
2022	2.3	2.1
2023	2.3	2.1
2024	2.3	2.1
2025	2.3	2.1
2026	2.75	2.1
2027+	2.75	3.25

ACTIVE DUTY PERSONNEL AND PAY BY FISCAL YEAR

(Dollar Amounts in Thousands)

Fiscal Year	People at Year End (September 30th)			Dollars During Fiscal Year		
	Officers	Enlisted	Total	Officers	Enlisted	Total
2016	244,853	1,119,086	1,363,939			
2017	242,058	1,103,315	1,345,373	\$18,607,176	\$37,715,460	\$56,322,636
2018	240,244	1,094,453	1,334,697	\$19,251,880	\$39,071,644	\$58,323,524
2019	238,741	1,098,177	1,336,918	\$18,746,284	\$38,179,467	\$56,925,751
2020	238,027	1,098,133	1,336,160	\$18,945,283	\$38,801,026	\$57,746,310
2021	237,337	1,098,301	1,335,638	\$19,232,255	\$39,530,795	\$58,763,050
2022	237,337	1,098,301	1,335,638	\$19,541,482	\$40,291,373	\$59,832,855
2023	237,337	1,098,301	1,335,638	\$19,876,003	\$41,042,171	\$60,918,173
2024	237,337	1,098,301	1,335,638	\$20,222,578	\$41,785,290	\$62,007,868
2025	237,337	1,098,301	1,335,638	\$20,588,385	\$42,564,632	\$63,153,017
2026	237,337	1,098,301	1,335,638	\$20,968,630	\$43,384,991	\$64,353,621
2027	237,337	1,098,301	1,335,638	\$21,600,782	\$44,718,121	\$66,318,903
2028	237,337	1,098,301	1,335,638	\$22,257,709	\$46,116,112	\$68,373,821
2029	237,337	1,098,301	1,335,638	\$22,942,021	\$47,571,051	\$70,513,072
2030	237,337	1,098,301	1,335,638	\$23,649,445	\$49,066,745	\$72,716,190
2031	237,337	1,098,301	1,335,638	\$24,381,652	\$50,597,933	\$74,979,585
2032	237,337	1,098,301	1,335,638	\$25,142,250	\$52,151,237	\$77,293,486
2033	237,337	1,098,301	1,335,638	\$25,932,812	\$53,700,883	\$79,633,695
2034	237,337	1,098,301	1,335,638	\$26,766,844	\$55,326,511	\$82,093,355
2035	237,337	1,098,301	1,335,638	\$27,647,469	\$57,079,726	\$84,727,195
2036	237,337	1,098,301	1,335,638	\$28,562,576	\$58,911,542	\$87,474,119
2037	237,337	1,098,301	1,335,638	\$29,510,964	\$60,806,265	\$90,317,229
2038	237,337	1,098,301	1,335,638	\$30,493,893	\$62,793,825	\$93,287,719
2039	237,337	1,098,301	1,335,638	\$31,509,685	\$64,848,235	\$96,357,920
2040	237,337	1,098,301	1,335,638	\$32,555,866	\$66,955,953	\$99,511,818
2041	237,337	1,098,301	1,335,638	\$33,636,106	\$69,140,694	\$102,776,800

NONRETIRED RESERVISTS PERSONNEL AND PAY BY FISCAL YEAR

(Dollar Amounts in Thousands)

Fiscal Year	People at Year End (September 30th)			Dollars During Fiscal Year		
	Officers	Enlisted	Total	Officers	Enlisted	Total
2016	113,681	621,381	735,062			
2017	117,069	607,780	724,849	\$2,172,344	\$4,904,195	\$7,076,539
2018	117,093	608,843	725,936	\$2,320,552	\$5,095,289	\$7,415,841
2019	117,192	608,236	725,428	\$2,522,480	\$5,477,843	\$8,000,323
2020	117,211	607,875	725,086	\$2,605,846	\$5,579,300	\$8,185,146
2021	117,200	607,508	724,708	\$2,696,354	\$5,703,328	\$8,399,682
2022	117,200	607,508	724,708	\$2,784,793	\$5,824,800	\$8,609,593
2023	117,200	607,508	724,708	\$2,873,825	\$5,945,836	\$8,819,661
2024	117,200	607,508	724,708	\$2,962,459	\$6,064,988	\$9,027,447
2025	117,200	607,508	724,708	\$3,052,542	\$6,184,872	\$9,237,414
2026	117,200	607,508	724,708	\$3,150,841	\$6,316,379	\$9,467,220
2027	117,200	607,508	724,708	\$3,286,892	\$6,528,283	\$9,815,175
2028	117,200	607,508	724,708	\$3,424,279	\$6,748,700	\$10,172,979
2029	117,200	607,508	724,708	\$3,561,911	\$6,976,657	\$10,538,567
2030	117,200	607,508	724,708	\$3,700,942	\$7,212,144	\$10,913,086
2031	117,200	607,508	724,708	\$3,840,823	\$7,454,042	\$11,294,865
2032	117,200	607,508	724,708	\$3,982,099	\$7,703,184	\$11,685,283
2033	117,200	607,508	724,708	\$4,120,575	\$7,956,658	\$12,077,233
2034	117,200	607,508	724,708	\$4,257,197	\$8,213,095	\$12,470,292
2035	117,200	607,508	724,708	\$4,398,926	\$8,480,956	\$12,879,882
2036	117,200	607,508	724,708	\$4,541,437	\$8,755,390	\$13,296,827
2037	117,200	607,508	724,708	\$4,686,679	\$9,038,793	\$13,725,471
2038	117,200	607,508	724,708	\$4,835,654	\$9,333,535	\$14,169,189
2039	117,200	607,508	724,708	\$4,987,650	\$9,638,658	\$14,626,308
2040	117,200	607,508	724,708	\$5,141,007	\$9,952,646	\$15,093,653
2041	117,200	607,508	724,708	\$5,295,056	\$10,276,506	\$15,571,562

TOTAL NUMBER OF RETIREES ON SEPTEMBER 30 OF EACH FISCAL YEAR

Fiscal Year	Nondisabled (non-CSB/Redux)			Nondisabled (CSB/Redux)			Disabled			Grand Total
	Officers	Enlisted	Total	Officers	Enlisted	Total	Officers	Enlisted	Total	
2016	516,320	1,294,091	1,810,411	3,280	60,031	63,311	19,178	97,064	116,242	1,989,964
2017	518,993	1,293,202	1,812,195	3,767	66,712	70,479	20,120	105,170	125,290	2,007,964
2018	520,519	1,291,914	1,812,433	4,214	72,731	76,945	20,322	107,974	128,296	2,017,673
2019	522,075	1,290,845	1,812,920	4,629	78,086	82,715	20,387	109,488	129,875	2,025,510
2020	523,489	1,290,193	1,813,682	4,985	82,684	87,669	20,361	109,719	130,080	2,031,430
2021	525,047	1,290,995	1,816,042	5,296	86,581	91,878	20,354	109,943	130,296	2,038,216
2022	526,701	1,292,699	1,819,400	5,590	89,952	95,542	20,365	110,171	130,536	2,045,477
2023	528,527	1,294,997	1,823,524	5,837	92,760	98,597	20,389	110,396	130,785	2,052,905
2024	535,598	1,312,008	1,847,606	6,021	94,345	100,365	20,421	110,621	131,042	2,079,014
2025	536,648	1,311,823	1,848,471	6,161	95,320	101,481	20,458	110,826	131,284	2,081,237
2026	537,215	1,310,992	1,848,207	6,270	95,892	102,162	20,499	111,019	131,518	2,081,887
2027	537,476	1,309,194	1,846,669	6,352	96,172	102,525	20,542	111,193	131,735	2,080,929
2028	537,008	1,305,695	1,842,702	6,415	96,196	102,610	20,587	111,340	131,927	2,077,240
2029	536,148	1,301,676	1,837,824	6,458	96,040	102,499	20,634	111,468	132,102	2,072,425
2030	534,818	1,297,104	1,831,922	6,484	95,700	102,184	20,684	111,588	132,272	2,066,378
2031	532,660	1,290,896	1,823,556	6,496	95,224	101,720	20,735	111,707	132,441	2,057,717
2032	530,119	1,284,531	1,814,650	6,495	94,632	101,127	20,787	111,842	132,629	2,048,406
2033	530,634	1,284,600	1,815,234	6,483	93,930	100,414	20,841	111,998	132,839	2,048,487
2034	527,432	1,275,654	1,803,087	6,460	93,096	99,556	20,895	112,142	133,038	2,035,680
2035	524,100	1,265,744	1,789,844	6,429	92,172	98,601	20,950	112,276	133,226	2,021,671
2036	520,888	1,256,004	1,776,892	6,393	91,164	97,557	21,005	112,408	133,412	2,007,862
2037	517,541	1,245,822	1,763,363	6,352	90,071	96,423	21,060	112,536	133,596	1,993,382
2038	514,444	1,235,630	1,750,073	6,305	88,891	95,196	21,114	112,662	133,777	1,979,046
2039	511,614	1,226,468	1,738,082	6,251	87,622	93,873	21,169	112,797	133,966	1,965,921
2040	508,961	1,217,756	1,726,717	6,192	86,262	92,454	21,224	112,935	134,159	1,953,330
2041	506,276	1,209,128	1,715,403	6,127	84,809	90,936	21,279	113,073	134,352	1,940,692

*This projection includes retired from active and reserve duty.

Non-CSB/Redux figures include both active and reserve duty retirees, while CSB/Redux figures include only active duty retirees.

**The number of retirees projected only considers those receiving non-zero retired pay from the Military Retirement Fund.

***The number of disabled retirees includes excess disability retirees, which are assumed to wind down over the next 4 years, to account for the difference between what the disability rates produce and elevated future expected experience. E.g., there were 4,919 added to disabled retirees in FY 2017.

TOTAL ANNUAL RETIRED PAY FOR EACH FISCAL YEAR

(Dollar Amounts in Thousands)

Fiscal Year	Nondisabled (non-CSB/Redux)			Nondisabled (CSB/Redux)			Disabled			Grand Total
	Officers	Enlisted	Total	Officers	Enlisted	Total	Officers	Enlisted	Total	
2017	\$22,836,618	\$27,808,455	\$50,645,073	\$135,602	\$1,305,041	\$1,440,644	\$573,242	\$1,200,556	\$1,773,799	\$53,859,515
2018	\$23,421,724	\$28,271,318	\$51,693,042	\$163,278	\$1,496,180	\$1,659,458	\$582,241	\$1,278,256	\$1,860,498	\$55,212,997
2019	\$24,074,451	\$28,858,622	\$52,933,073	\$190,865	\$1,678,538	\$1,869,403	\$591,533	\$1,339,214	\$1,930,747	\$56,733,224
2020	\$24,764,245	\$29,503,071	\$54,267,317	\$216,821	\$1,848,097	\$2,064,918	\$600,295	\$1,380,221	\$1,980,517	\$58,312,751
2021	\$25,457,463	\$30,174,202	\$55,631,665	\$240,788	\$2,000,561	\$2,241,349	\$607,148	\$1,401,167	\$2,008,315	\$59,881,329
2022	\$26,180,899	\$30,903,645	\$57,084,545	\$264,294	\$2,142,416	\$2,406,709	\$615,243	\$1,423,060	\$2,038,303	\$61,529,557
2023	\$26,927,865	\$31,686,667	\$58,614,532	\$287,111	\$2,275,198	\$2,562,309	\$624,349	\$1,445,988	\$2,070,337	\$63,247,177
2024	\$27,779,286	\$32,630,189	\$60,409,475	\$307,838	\$2,390,633	\$2,698,471	\$634,356	\$1,469,894	\$2,104,250	\$65,212,196
2025	\$28,623,316	\$33,561,961	\$62,185,276	\$326,600	\$2,488,279	\$2,814,879	\$645,029	\$1,494,537	\$2,139,566	\$67,139,721
2026	\$29,484,447	\$34,520,411	\$64,004,858	\$345,260	\$2,585,780	\$2,931,039	\$658,295	\$1,523,501	\$2,181,797	\$69,117,694
2027	\$30,370,202	\$35,520,677	\$65,890,879	\$364,416	\$2,682,526	\$3,046,943	\$672,842	\$1,554,092	\$2,226,934	\$71,164,756
2028	\$31,245,224	\$36,575,884	\$67,821,108	\$384,022	\$2,778,244	\$3,162,267	\$688,179	\$1,585,440	\$2,273,619	\$73,256,993
2029	\$32,105,980	\$37,610,147	\$69,716,127	\$403,929	\$2,879,003	\$3,282,932	\$704,364	\$1,617,933	\$2,322,297	\$75,321,356
2030	\$32,958,608	\$38,679,241	\$71,637,848	\$424,240	\$2,993,713	\$3,417,953	\$721,628	\$1,652,170	\$2,373,798	\$77,429,599
2031	\$33,795,489	\$39,715,311	\$73,510,800	\$445,929	\$3,133,488	\$3,579,417	\$740,029	\$1,688,312	\$2,428,340	\$79,518,557
2032	\$34,621,633	\$40,762,498	\$75,384,132	\$468,908	\$3,292,257	\$3,761,165	\$759,441	\$1,726,542	\$2,485,983	\$81,631,281
2033	\$35,513,827	\$41,824,465	\$77,338,293	\$490,233	\$3,448,585	\$3,938,818	\$780,008	\$1,767,069	\$2,547,077	\$83,824,188
2034	\$36,390,205	\$42,768,497	\$79,158,703	\$508,967	\$3,586,299	\$4,095,266	\$801,567	\$1,809,074	\$2,610,640	\$85,864,609
2035	\$37,196,898	\$43,644,630	\$80,841,527	\$525,000	\$3,708,375	\$4,233,376	\$824,110	\$1,851,893	\$2,676,003	\$87,750,906
2036	\$38,011,125	\$44,546,966	\$82,558,091	\$539,507	\$3,818,574	\$4,358,081	\$847,656	\$1,895,661	\$2,743,317	\$89,659,489
2037	\$38,828,057	\$45,437,005	\$84,265,062	\$552,737	\$3,919,616	\$4,472,353	\$872,193	\$1,940,646	\$2,812,839	\$91,550,254
2038	\$39,649,767	\$46,316,601	\$85,966,368	\$565,014	\$4,008,501	\$4,573,514	\$897,769	\$1,986,863	\$2,884,632	\$93,424,514
2039	\$40,486,939	\$47,237,942	\$87,724,881	\$576,093	\$4,088,645	\$4,664,737	\$924,299	\$2,034,596	\$2,958,895	\$95,348,513
2040	\$41,340,354	\$48,143,279	\$89,483,634	\$586,135	\$4,162,223	\$4,748,358	\$951,874	\$2,083,983	\$3,035,857	\$97,267,849
2041	\$42,205,637	\$49,059,574	\$91,265,211	\$595,224	\$4,228,512	\$4,823,736	\$980,592	\$2,134,822	\$3,115,414	\$99,204,362

*This projection includes retired from active and reserve duty.

Non-CSB/Redux figures include both active and reserve duty retirees, while CSB/Redux figures include only active duty retirees.

**The disabled retiree outlays includes amounts for excess disability retirees, which are assumed to wind down over the next 4 years, to account for the difference between what the disability rates produce and elevated future expected experience. E.g., there were \$71.3 million added to disabled retiree outlays in FY 2017.

RETIREE GAIN STATEMENT

Fiscal Year	Gains During the Fiscal Year						Average Starting Net Retired Pay Before CPI Increase					
	Nondisabled (non-CSB/Redux)		Nondisabled (CSB/Redux)		Disabled		Nondisabled (non-CSB/Redux)		Nondisabled (CSB/Redux)		Disabled	
	Officers	Enlisted	Officers	Enlisted	Officers	Enlisted	Officers	Enlisted	Officers	Enlisted	Officers	Enlisted
2017	15,877	31,462	490	6,781	745	7,250	\$48,364	\$20,292	\$55,341	\$27,467	\$66,870	\$29,170
2018	14,762	31,670	451	6,136	736	7,168	\$47,573	\$20,836	\$57,851	\$28,414	\$68,810	\$30,388
2019	14,846	32,469	419	5,492	731	7,113	\$48,312	\$21,373	\$59,699	\$29,108	\$71,041	\$31,659
2020	14,782	33,439	361	4,757	726	7,081	\$48,815	\$21,891	\$62,037	\$29,504	\$73,349	\$32,998
2021	15,024	35,419	318	4,080	722	7,064	\$49,286	\$22,262	\$63,716	\$30,047	\$75,815	\$34,427
2022	15,239	36,818	301	3,582	720	7,058	\$49,826	\$22,880	\$66,645	\$30,891	\$78,633	\$35,997
2023	15,545	37,881	256	3,050	717	7,052	\$50,232	\$23,664	\$70,183	\$32,156	\$81,761	\$37,712
2024	20,948	53,071	194	1,861	713	7,051	\$45,977	\$21,960	\$76,405	\$37,633	\$85,229	\$39,507
2025	15,092	36,316	152	1,290	708	7,034	\$52,452	\$25,238	\$81,257	\$42,011	\$88,927	\$41,334
2026	14,781	36,042	122	929	704	7,026	\$53,129	\$25,960	\$85,910	\$46,392	\$93,047	\$43,189
2027	14,652	35,422	97	685	701	7,014	\$53,726	\$26,485	\$90,534	\$50,651	\$97,674	\$45,237
2028	14,107	34,043	80	480	699	6,992	\$54,821	\$26,884	\$96,278	\$55,848	\$102,861	\$47,517
2029	13,897	33,818	63	357	698	6,976	\$55,776	\$26,962	\$101,694	\$60,025	\$108,524	\$49,950
2030	13,603	33,535	47	233	698	6,968	\$57,157	\$27,201	\$108,775	\$66,398	\$114,413	\$52,566
2031	12,942	32,142	35	161	697	6,969	\$59,295	\$27,402	\$116,217	\$71,378	\$120,419	\$55,207
2032	12,710	32,201	26	113	697	6,986	\$60,950	\$27,855	\$122,870	\$76,095	\$126,604	\$57,751
2033	15,906	38,842	17	77	698	7,011	\$57,510	\$26,635	\$132,174	\$79,667	\$133,043	\$60,207
2034	12,309	30,005	9	18	697	7,006	\$63,494	\$29,171	\$146,670	\$88,283	\$139,583	\$62,573
2035	12,271	29,178	5	7	696	7,003	\$64,685	\$29,632	\$158,097	\$96,245	\$146,279	\$64,818
2036	12,460	29,458	4	4	695	7,004	\$65,446	\$30,305	\$169,293	\$101,725	\$153,125	\$67,101
2037	12,366	29,092	3	2	694	7,001	\$66,534	\$30,529	\$179,207	\$107,410	\$160,267	\$69,596
2038	12,628	29,120	1	1	692	6,998	\$67,263	\$30,945	\$186,057	\$111,593	\$167,795	\$72,112
2039	12,877	30,154	0	0	690	7,005	\$68,353	\$31,355	\$0	\$0	\$175,664	\$74,772
2040	13,008	30,568	0	0	690	7,008	\$69,758	\$31,887	\$0	\$0	\$183,783	\$77,567
2041	12,901	30,575	0	0	688	7,007	\$71,676	\$32,589	\$0	\$0	\$191,875	\$80,734

*This projection includes retired from active and reserve duty.

Non-CSB/Redux figures include both new active and reserve duty retirements, while CSB/Redux figures include only new active duty retirements.

**Gains during the year include those people who die before year end. All figures are after total and partial VA offsets.

***The dramatic retiree gain increases in FY 2024 and FY 2033 are a result of the modeling due to section 647 of the 2008 NDAA.

Please refer to Appendix F and Appendix H for more information.

****Excess disability retirees used to account for anticipated experience over the next 4 years are not included in this display.

TOTAL NUMBER OF SURVIVORS ON SEPTEMBER 30 OF EACH FISCAL YEAR

Fiscal Year	SBP Non-CSB/Redux	SBP CSB/Redux	RCSBP	Minimum Income	Death on Active Duty	RSFPP	Special Survivor Indemnity Allowance	Total
2016	183,724	84	86,036	68	10,874	5,945	64,616	286,731
2017	186,631	111	88,159	59	10,830	5,406	65,918	291,196
2018	189,151	144	90,217	51	10,720	4,882	67,081	295,166
2019	191,341	184	92,311	45	10,565	4,387	0	298,833
2020	193,221	232	94,472	40	10,355	3,923	0	302,242
2021	194,814	291	96,712	35	10,067	3,491	0	305,409
2022	196,144	360	99,036	30	9,724	3,092	0	308,386
2023	197,228	443	101,440	26	9,378	2,727	0	311,241
2024	198,076	539	103,999	23	9,026	2,395	0	314,057
2025	198,706	652	106,585	19	8,654	2,095	0	316,712
2026	199,139	783	109,223	17	8,277	1,827	0	319,265
2027	199,394	933	111,892	14	7,928	1,588	0	321,749
2028	199,482	1,105	114,576	12	7,603	1,377	0	324,154
2029	199,424	1,300	117,258	10	7,302	1,193	0	326,488
2030	199,251	1,521	119,913	9	7,041	1,032	0	328,767
2031	198,992	1,768	122,512	7	6,813	894	0	330,986
2032	198,668	2,042	125,025	6	6,623	775	0	333,139
2033	198,304	2,345	127,464	5	6,471	675	0	335,263
2034	197,926	2,677	129,750	4	6,352	589	0	337,299
2035	197,556	3,040	131,882	3	6,255	518	0	339,254
2036	197,212	3,433	133,832	3	6,179	458	0	341,117
2037	196,904	3,858	135,579	2	6,118	408	0	342,870
2038	196,637	4,314	137,102	2	6,065	367	0	344,487
2039	196,417	4,802	138,381	1	6,018	333	0	345,953
2040	196,237	5,320	139,408	1	5,975	304	0	347,246
2041	196,089	5,869	140,169	1	5,933	281	0	348,341

*This projection includes survivors of members who retired from active and reserve duty.

Non-CSB/Redux figures include both survivors of active and reserve duty retirees, while CSB/Redux figures include only survivors of active duty retirees.

**The number of survivors projected only considers those receiving non-zero pay from the Military Retirement Fund.

***RCSBP survivors include all survivors of reservists, not just those electing pre-age 60 coverage.

****The Special Survivor Indemnity Allowance counts are shown for informational purposes and are not included in the Total column. They include the impact of both the 2008 NDAA and P.L. 110-181.

*****Excess disability retirees (their survivors) used to account for anticipated experience over the next 4 years are not included in this display.

TOTAL ANNUAL SURVIVOR BENEFITS FOR EACH FISCAL YEAR

(Dollar Amounts in Thousands)

Fiscal Year	SBP Non-CSB/Redux	SBP CSB/Redux	RCSBP	Minimum Income	Death on Active Duty	RSFPP	Special Survivor Indemnity Allowance	Total
2017	\$2,925,180	\$931	\$727,501	\$507	\$105,262	\$15,859	\$239,343	\$4,014,582
2018	\$3,000,898	\$1,333	\$759,351	\$450	\$107,391	\$14,543	\$164,404	\$4,048,369
2019	\$3,085,413	\$1,856	\$795,212	\$405	\$109,504	\$13,270	\$0	\$4,005,659
2020	\$3,171,769	\$2,539	\$834,095	\$365	\$111,403	\$12,056	\$0	\$4,132,227
2021	\$3,255,806	\$3,384	\$875,170	\$329	\$112,760	\$10,909	\$0	\$4,258,359
2022	\$3,340,328	\$4,426	\$919,374	\$296	\$113,472	\$9,834	\$0	\$4,387,730
2023	\$3,424,702	\$5,703	\$966,766	\$265	\$113,877	\$8,837	\$0	\$4,520,150
2024	\$3,508,219	\$7,264	\$1,017,619	\$236	\$114,301	\$7,918	\$0	\$4,655,558
2025	\$3,590,997	\$9,153	\$1,072,128	\$210	\$114,623	\$7,079	\$0	\$4,794,191
2026	\$3,685,342	\$11,476	\$1,133,419	\$187	\$115,072	\$6,320	\$0	\$4,951,816
2027	\$3,783,825	\$14,275	\$1,199,681	\$165	\$115,629	\$5,641	\$0	\$5,119,216
2028	\$3,882,740	\$17,642	\$1,269,787	\$145	\$116,166	\$5,035	\$0	\$5,291,516
2029	\$3,982,197	\$21,700	\$1,343,710	\$127	\$116,622	\$4,496	\$0	\$5,468,852
2030	\$4,082,481	\$26,524	\$1,421,391	\$111	\$117,231	\$4,020	\$0	\$5,651,758
2031	\$4,183,901	\$32,134	\$1,502,638	\$96	\$118,063	\$3,604	\$0	\$5,840,436
2032	\$4,286,886	\$38,559	\$1,587,242	\$83	\$119,022	\$3,244	\$0	\$6,035,035
2033	\$4,391,944	\$45,871	\$1,675,145	\$71	\$120,137	\$2,934	\$0	\$6,236,102
2034	\$4,499,566	\$54,187	\$1,766,084	\$61	\$121,581	\$2,669	\$0	\$6,444,149
2035	\$4,610,381	\$63,574	\$1,859,333	\$52	\$123,332	\$2,446	\$0	\$6,659,116
2036	\$4,724,952	\$74,083	\$1,954,671	\$44	\$125,383	\$2,258	\$0	\$6,881,391
2037	\$4,844,037	\$85,821	\$2,051,596	\$37	\$127,699	\$2,103	\$0	\$7,111,293
2038	\$4,968,068	\$98,886	\$2,149,600	\$30	\$130,234	\$1,974	\$0	\$7,348,793
2039	\$5,097,371	\$113,396	\$2,248,171	\$25	\$132,973	\$1,868	\$0	\$7,593,804
2040	\$5,232,378	\$129,448	\$2,346,797	\$21	\$135,876	\$1,781	\$0	\$7,846,301
2041	\$5,373,222	\$147,155	\$2,444,947	\$17	\$138,896	\$1,709	\$0	\$8,105,945

*This projection includes survivors of members who retired from active and reserve duty.

Non-CSB/Redux figures include both survivors of active and reserve duty retirees, while CSB/Redux figures include only survivors of active duty retirees.

**RCSBP survivors include all survivors of reservists, not just those electing pre-age 60 coverage.

***The Special Survivor Indemnity Allowance dollars are included in the Total column. They include the impact of both the 2008 NDAA and P.L. 110-181.

****Excess disability retirees (their survivors) used to account for anticipated experience over the next 4 years are not included in this display.

TOTAL PROJECTED BASIC PAY AND RETIRED OUTLAYS

(Dollar Amounts in Thousands)

<u>Fiscal Year</u>	<u>Total Projected Basic Pay</u>	<u>Total Projected Outlays</u>	<u>Retired Outlays Over Basic Pay</u>
2017	\$63,399,175	\$57,874,097	91.3%
2018	\$65,739,365	\$59,261,367	90.1%
2019	\$64,926,074	\$60,738,883	93.6%
2020	\$65,931,456	\$62,444,978	94.7%
2021	\$67,162,732	\$64,139,687	95.5%
2022	\$68,442,448	\$65,917,287	96.3%
2023	\$69,737,835	\$67,767,327	97.2%
2024	\$71,035,316	\$69,867,754	98.4%
2025	\$72,390,431	\$71,933,912	99.4%
2026	\$73,820,841	\$74,069,511	100.3%
2027	\$76,134,078	\$76,283,972	100.2%
2028	\$78,546,800	\$78,548,509	100.0%
2029	\$81,051,639	\$80,790,209	99.7%
2030	\$83,629,276	\$83,081,357	99.3%
2031	\$86,274,451	\$85,358,994	98.9%
2032	\$88,978,769	\$87,666,316	98.5%
2033	\$91,710,928	\$90,060,290	98.2%
2034	\$94,563,647	\$92,308,757	97.6%
2035	\$97,607,077	\$94,410,022	96.7%
2036	\$100,770,946	\$96,540,880	95.8%
2037	\$104,042,700	\$98,661,547	94.8%
2038	\$107,456,907	\$100,773,307	93.8%
2039	\$110,984,228	\$102,942,317	92.8%
2040	\$114,605,471	\$105,114,150	91.7%
2041	\$118,348,362	\$107,310,307	90.7%

*Basic pay includes reserve and active duty basic pay; outlays include retired pay and survivor benefits.

**This projection includes retired from active and reserve duty.

***This projection includes pay for those retirees eligible for Concurrent Receipt.

****This projection is adjusted for the increase in survivor benefits due to P.L. 110-181.

*****Excess disability retirees used to account for anticipated experience over the next 4 years are included in outlays. However, no survivor (of excess disability retirees) outlays are included.

APPENDIX L

FINANCIAL STATEMENT DISCLOSURES

	<u>Page</u>
Statement of Net Assets Available for Benefits	203
Table L-1: Statement of Net Assets Available for Benefits	204
Table L-2: Statement of Changes in Net Assets Available for Benefits	205
Comparison of DoD Board and SFFAS 33 Actuarial Liabilities	206
Table L-3: Comparison of DoD Board and SFFAS 33 Actuarial Liabilities	208

STATEMENT OF NET ASSETS AVAILABLE FOR BENEFITS

Federal trust funds like the Military Retirement Fund are not subject to the same pension regulations as private sector and state/local governmental plans. Under the applicable financial reporting standards, both private sector and state/local pension plans have been required to include a table showing the “Statement of Net Assets Available for Benefits” and a “Statement of Changes in Net Assets Available for Benefits,” where assets are valued at fair market value in their accounting statements. For the Military Retirement Fund, fair market value is based on the bid prices of public issue securities with the same maturity dates and coupon rates as the special issue securities held by the Fund. These statements are included in Tables L-1 and L-2, respectively.

The market values shown in this appendix can be found in the *Fiscal Year 2016 Military Retirement Fund Audited Financial Statements*. The financial statements are available through the website of the Office of the Under Secretary of Defense (Comptroller) at: <http://comptroller.defense.gov/odcfo/cfs2016.aspx>.

TABLE L-1

DEPARTMENT OF DEFENSE
MILITARY RETIREMENT FUND
STATEMENT OF NET ASSETS AVAILABLE FOR BENEFITS
(\$ in millions)

	For the Plan Year Ended September 30:	
	<u>2016</u>	<u>2015</u>
<u>Assets</u>		
1) Investments, at fair market value, in U.S. Government securities: ¹	\$758,461	\$640,927
2) Accounts receivable:		
a) Accrued interest ²	\$5,143	\$4,703
b) Due from military retirees or their survivors	\$129	\$92
c) Intragovernmental	\$0	\$0
3) Cash:	\$368	\$31
<u>Total Assets (1 + 2 + 3):</u>	<u>\$764,101</u>	<u>\$645,753</u>
Accounts payable:	\$(293)	\$(4,641)
<u>Total Assets Available for Benefits</u>	<u>\$763,808</u>	<u>\$641,112</u>

¹ Fair market value of securities has been measured by quoted prices (bid price) in the active U.S. Government securities market. Bid price used represents the over-the-counter quotations as of 4 p.m. eastern time as reported by the U.S. Department of Treasury – Bureau of Public Debt on September 30, 2016, and September 30, 2015, respectively. Additional adjustment made as a result of FY 2011 National Defense Authorization Act (P.L. 111-383) regarding retired pay date as follows:

	<u>2016</u>	<u>2015</u>
Investments, at fair market value (actual)	\$754,114	\$640,927
October Expenditures paid in September	<u>\$4,347</u>	<u>\$0</u>
Investments, at fair market value (adjusted)	\$758,461	\$640,927

² Includes accrued interest receivable and interest purchased.

TABLE L-2

DEPARTMENT OF DEFENSE
MILITARY RETIREMENT FUND
STATEMENT OF CHANGES IN NET ASSETS
AVAILABLE FOR BENEFITS
(\$ in millions)

	For the Plan Year Ended September 30:	
	<u>2016</u>	<u>2015</u>
Net assets available for benefits at beginning of plan year:	\$641,112	\$588,588
1) Investment/Inflation income (coupons received)	\$20,802	\$15,988
2) Net appreciation (depreciation) in fair market value of investments	\$53,717	(\$8,084)
3) Contributions from services	\$19,260	\$19,691
4) Appropriation to amortize the initial unfunded liability	\$79,289	\$75,562
5) Appropriation for Treasury Normal Cost Contribution	\$6,870	\$6,197
Total additions (1 + 2 + 3 + 4 + 5)	<u>\$179,938</u>	<u>\$109,354</u>
Less: Benefits paid to participants ¹	<u>\$57,242</u>	<u>\$56,829</u>
Net assets available for benefits at end of plan year	<u>\$763,808</u>	<u>\$641,112</u>

¹ The statement has been revised to show benefits paid to participants on an accrual basis:

	<u>2016</u>	<u>2015</u>
Benefits paid on cash basis	\$57,242	\$56,729
Change in liability for benefits due at end of year	<u>\$0</u>	<u>\$100</u>
Benefits paid on accrual basis	\$57,242	\$56,829

COMPARISON OF DOD BOARD AND SFFAS 33 ACTUARIAL LIABILITIES

The DoD Office of the Actuary (OACT) performs two annual valuations of the Military Retirement Fund liabilities. The primary one is for funding purposes—this valuation is governed by Chapter 74 of Title 10 U.S.C. and must use methods and assumptions approved by the DoD Board of Actuaries (Board). The other is for financial statement purposes and is governed by Federal Accounting Standards Advisory Board (FASAB) standards.

Historically, OACT has used Board valuation methods and assumptions to calculate liabilities for financial statement purposes. However, even using the same assumptions, liabilities from the Board valuation differ from financial statement numbers because of financial statement deadlines. For example, the September 30, 2016, actuarial liability for the financial statements (which was due in early October 2016) was projected based on the September 30, 2015, Board valuation. The September 30, 2016, Board valuation (documented in this report) was performed at a later time, based on actual September 30, 2016 data, and therefore resulted in a different September 30, 2016 actuarial liability. A comparison of these respective actuarial liabilities is shown in Table L-3. Note that the *Actuarial Certification* (page 2) only applies to Board valuation results for purposes of meeting the requirements of Chapter 74, Title 10, United States Code.

Currently, a separate financial statement valuation (i.e., with different assumptions) is necessary to satisfy a financial statement regulation called the Statement of Federal Financial Accounting Standards 33 (SFFAS 33). A separate financial statement valuation is needed because SFFAS 33 requires the use of a yield curve to discount cash flows, whereas the Board valuation uses an interest rate assumption based on methodologies described in Appendix D.

SFFAS 33 requires the use of a yield curve based on marketable U.S. Treasury securities, with a minimum of five years of historical rates for the yield curve input and consistency in the number of historical rates used from period to period. OACT used the U.S. Department of the Treasury-Office of Economic Policy's 10-year Average Yield Curve for Treasury Nominal Coupon Issues ('TNC yield curve' – Source: <https://www.treasury.gov/resource-center/economic-policy/corp-bond-yield/Pages/TNC-YC.aspx>) representing average rates from April 1, 2006, through March 31, 2016, resulting in a single-equivalent interest rate of 3.9%. This is comparable to the Board valuation interest rate of 5.25%.

SFFAS 33 also directs the interest rate, underlying inflation rates, and other economic assumptions to be consistent with one another. A change in the interest rate may cause other assumptions to change as well. For the September 30, 2016, financial statement valuation, SFFAS 33 required the long-term inflation and salary increase assumptions to be consistent with the underlying TNC yield curve used in the valuation. The September 30, 2016, SFFAS 33 economic assumptions are shown in the concluding note of Table L-3.

SFFAS 33 permits the use of a single average interest rate if the resulting present value is not materially different from what would be obtained using the yield curve. Table L-3 compares the SFFAS 33 liability to the corresponding Board liability. Measuring the Fund's actuarial

liability using SFFAS 33 long-term economic assumptions (as compared to Board assumptions) results in a liability that is higher by approximately 6%¹.

¹ Note that this amount, which is the difference between the two actuarial liabilities shown in Table L-3, also includes the impact of the different populations on which the two liabilities are based.

TABLE L-3
 MILITARY RETIREMENT SYSTEM
 COMPARISON OF DOD BOARD AND SFFAS 33 ACTUARIAL LIABILITIES
 (\$ in billions)

Valuation For the Plan Year Ended September 30, 2016:

	<u>DoD Board</u> ¹	<u>SFFAS 33</u> ²
1. Present value of future benefits	\$1,628.1	\$1,724.4
2. Present value of future normal cost contributions	<u>\$221.2</u>	<u>\$234.1</u>
3. Actuarial accrued liability (1. – 2.)	\$1,406.9	\$1,490.3

¹ Reproduced from Table 6A in main text.

² Reproduced from the ‘*Fiscal Year 2016 Military Retirement Fund Audited Financial Statements.*’ The financial statements are available through the website of the Office of the Under Secretary of Defense(Comptroller) at: <http://comptroller.defense.gov/financialmanagement/reports/cfs2016.aspx>. The ‘*Actuarial Certification*’ (page 2) does not apply to these figures.

NOTE: The following long-term economic assumptions are used in computing the respective actuarial liabilities:

	<u>DoD Board</u>	<u>SFFAS 33</u>
Full COLA:	2.75%	1.7%
Basic Pay:	3.25%	2.1%
Interest:	5.25%	3.9%

APPENDIX M

TREASURY PAYMENTS

	<u>Page</u>
Method of Amortizing Changes in the Unfunded Liability of the Military Retirement System.....	210
Calculation of the October 1, 2017, Treasury Payment.....	211
Table M-1: Total Treasury Payment.....	213
Table M-2: Calculation of October 1, 2017, Payment on Initial UFL	214
Table M-3: Calculation of October 1, 2017, Payment on UFL Resulting From Benefit Changes	215
Table M-4: Calculation of October 1, 2017, Payment on UFL Resulting From Assumption Changes	216
Table M-5: Calculation of October 1, 2017, Payment on UFL Resulting From Experience Gains and Losses	217

METHOD OF AMORTIZING CHANGES IN THE UNFUNDED LIABILITY OF THE MILITARY RETIREMENT SYSTEM

Introduction

Section 1465 of Title 10 states that the Secretary of Defense shall determine amortization methods and schedules for the annual amortization of changes in the unfunded liability (UFL) of the Military Retirement System. The section also states that these methods and assumptions must be approved by the DoD Board of Actuaries. The resulting payments are made by the Department of the Treasury to the Military Retirement Fund and do not affect the DoD budget.

There are three causes of change in the Military Retirement System's unfunded liability: (1) changes in benefits, (2) annual experience gains or losses resulting from actual experience deviating from expected experience, and (3) changes in actuarial assumptions used in the projected liability calculations. When a change in the unfunded liability does not fit perfectly into one of the three categories, OACT and the Board of Actuaries will determine the most appropriate one. The following describes the technical procedure of amortizing these types of changes, as approved by the Board.

Amortization Procedure

All three types of changes in the UFL are amortized by means of payment schedules so that: (1) the annual amortization payments increase each year by the long-term basic pay scale assumption; (2) the payment stream completely liquidates the additional liability, with a new overall weighted period determined using (i) 30 years weighted by the absolute value of the new liability, and (ii) the remaining period on the unamortized balance prior to the new liability weighted by the absolute value of that balance; and (3) the payments are expressed to the nearest million dollars. The amortization payments increase at the same rate as the increase in the total basic payroll for a particular year—an outcome that is consistent with the way the normal cost payments and payments to amortize the system's initial UFL are determined. This method is no longer common for many private sector pension plans and has given way to an amortization schedule with level payments in order to cover interest costs. It is also often required for these pension plans to amortize changes in unfunded liabilities over shorter than a 30-year schedule. However, the methods applied to the Military Retirement Fund are similar to those that are or have been used by other federal and public sector pension plans. Additionally, the Board has annual discussions regarding the appropriateness of the amortization procedure.

Annual payments on the initial UFL are also calculated to increase each year by the long-term basic pay scale assumption, and as stated earlier in this report, the initial UFL is currently scheduled to be liquidated with the October 1, 2025 payment.

Experience gains and losses, which create changes in the UFL, occur every year. The payment streams to amortize these changes are combined. This produces one single payment stream for the category of experience gains and losses and eliminates the tedious tracking of up

to 30 different small amortization schedules. The DoD Office of the Actuary can identify the separate segments if the need arises.

A similar method of combining amortization schedules is used for changes in the UFL caused by changes in actuarial assumptions. Beginning with the September 30, 1995, valuation, changes to the UFL due to all benefit changes are being combined and amortized in a single stream of payments.

Actuarial gains and losses are changes in the UFL that result from actual experience in a pension plan deviating from what was expected, benefit changes, or assumption changes. An actuarial gain is a *decrease* in the UFL and is usually expressed as a negative number. Conversely, a loss represents an *increase* in the UFL and is usually expressed as a positive number. The amortization payment for a negative change (gain) is also expressed as a negative number. These negative amortization payments reduce any positive amortization payments otherwise payable, including the (positive) payments amortizing the system's initial UFL.

Amortization payments for changes in the UFL are structured to increase each year with the basic pay scale increase assumption. When the payments are negative, their absolute values are made to increase. Although this means that the payments are actually decreasing mathematically, for simplicity of expression both positive and negative amortization payments are said to "increase" by the basic pay scale increase assumption.

CALCULATION OF THE OCTOBER 1, 2017, TREASURY PAYMENT

The following pages (Tables M-1 through M-5) display the calculation of the October 1, 2017, Treasury payment based on the September 30, 2016, valuation results and on amortization methods and assumptions approved by the DoD Board of Actuaries. In order to avoid a projected shortfall in the Military Retirement Fund, the Board determined that, beginning with the FY 1998 payment, the total amortization period of the initial unfunded liability would be decreased from 60 to 50 years. The Board again shortened the initial unfunded liability amortization period in 2007 to 42 years in order for the payments to cover interest on the unfunded liability each year.

Public Law (P.L.) 108-136 required the Department of Treasury to pay for the increase in the normal cost due to Concurrent Receipt. Beginning with FY 2005, Treasury includes the annual normal cost payment due to Concurrent Receipt along with the unfunded liability payment in the October 1st contribution. For the October 1, 2017, Treasury payment, the actuarially determined amount due to Concurrent Receipt totals \$7.505 billion. This is computed using the full- and part-time normal cost percentages (NCPs) in Table 6A of the main text (item 8). The NCPs are multiplied by the DoD Comptroller-budgeted FY 2018 full- and part-time basic pay, \$58.3 billion and \$7.4 billion, respectively, i.e., \$7.505 billion equates to the sum of \$58.3 billion x 12.5% and \$7.4 billion x 3.3%.

Due to the *Budget Control Act of 2011*, both FY 2017 and 2018 Treasury concurrent receipt normal cost amounts displayed on the next page were reduced (or sequestered) by 9.1% (or \$0.678 billion) in FY 2017, and 8.9% (or \$0.668 billion) in FY 2018. For instance, in FY 2017 the Treasury payment of \$6.769 billion is the difference between the actuarially calculated amount (\$7.447 billion) and the sequestered amount (\$0.678 billion), and likewise in FY 2018 the Treasury payment of \$6.837 billion is the difference between \$7.505 billion and \$0.668 billion. At their July 2017 meeting, the Board decided to treat the FY 2017 sequestered amount of \$0.678 billion as an experience loss in the FY 2016 valuation, and amortized it (brought forward with one year's assumed interest) over one year. It is included in the FY 2018 payment on the next page. (See "Unpaid contribution" of \$0.713 billion = \$0.678 billion x 1.0525.) The Board will likely treat the FY 2018 sequestered amount in the same manner (i.e., as a loss in the 2017 valuation and added, with interest, to the FY 2019 Treasury payment).

TABLE M-1
 TOTAL TREASURY PAYMENT
 OCTOBER 1, 2017 AND OCTOBER 1, 2016

(\$ in billions)

	<u>October 1, 2017</u>	<u>October 1, 2016</u>
Amortization payment for:		
1. Initial unfunded liability	\$92.950	\$90.024
2. Changes in benefits	\$7.904	\$7.724
3. Gains and Losses Amortization		
a. Changes in actuarial assumptions	\$3.736	\$4.459
b. Actuarial experience	\$(22.426)	\$(21.756)
c. Unpaid contribution	\$0.713	\$0.741
Total amortization payment	<u>\$82.877</u>	<u>\$81.192</u>
Normal cost payment	<u>\$7.505</u>	<u>\$6.754</u>
Total Treasury payment	<u>\$90.382</u>	<u>\$87.946</u>

TABLE M-2

CALCULATION OF OCTOBER 1, 2017,
PAYMENT ON INITIAL UNFUNDED LIABILITY (UFL)

(\$ in billions)

1.	Unamortized balance of initial UFL (10/1/15 balance \times 1.0525)	9/30/16	\$ 827.038
2.	Payment on UFL	10/1/16	\$ 90.024
3.	Unamortized balance of initial UFL (1. - 2.)	10/1/16	\$ 737.014
4.	Balance on 9/30/17 (3. \times 1.0525)	9/30/17	\$ 775.707
5.	Number of Annual Payments Remaining	9/30/17	9
6.	Value of an annuity due for remaining amortization period at interest rate equal to $(1.0525 \div 1.0325) - 1$		8.3454
7.	Payment on initial UFL due 10/1/17 (4. \div 6.)		<u>\$ 92.950</u>

TABLE M-3

CALCULATION OF OCTOBER 1, 2017,
PAYMENT ON UNFUNDED LIABILITY (UFL)
RESULTING FROM BENEFIT CHANGES

(\$ in billions)

1. Unamortized UFL balance due to benefit changes (10/1/15 balance x 1.0525)	9/30/16	\$ 125.263
2. Payment on UFL	10/1/16	\$ 7.724
3. Unamortized UFL balance after payment (1. - 2.)	10/1/16	\$ 117.539
4. Additional (new) UFL due to benefit changes	9/30/16	-\$ 0.700
5. Unamortized UFL balance due to benefit changes (3. + 4.)	10/1/16	\$ 116.839
6. Balance on 9/30/17 (5. × 1.0525)	9/30/17	\$ 122.973
7. Total number of years of prior amortization schedule		19.20
8. Remaining number of years of prior amortization schedule (7. - 1)		18.20
9. Total number of years of new amortization schedule (absolute values used for all numbers) [(3. × 8.) + (4. × 30)] ÷ (3. + 4.)		18.27
10. Value of an annuity due for remaining amortization period at interest rate equal to (1.0525 ÷ 1.0325) - 1		15.5612
11. Payment on UFL due to benefit changes (6. ÷ 10.)	10/1/17	<u>\$ 7.903¹</u>

¹ Due to a minor technical adjustment, the amount shown here differs slightly from the implemented payment of \$7.904 billion.

TABLE M-4

CALCULATION OF OCTOBER 1, 2017,
PAYMENT ON UNFUNDED LIABILITY (UFL)
RESULTING FROM ASSUMPTION CHANGES

(\$ in billions)

1. Unamortized balance of UFL due to assumption changes (10/1/15 balance × 1.0525)	9/30/16	\$ 97.144
2. Payment on UFL	10/1/16	\$ 4.459
3. Unamortized UFL balance after payment (1. - 2.)	10/1/16	\$ 92.685
4. Additional (new) UFL	9/30/16	\$ (16.471)
5. Unamortized UFL balance due to assumption changes (3. + 4.)	10/1/16	\$ 76.215
6. Balance on 9/30/17 (5. × 1.0525)	9/30/17	\$80.216
7. Number of years in prior amortization schedule		27.86
8. Remaining number of years in prior amortization schedule (7. - 1)		26.86
9. Number of years in new amortization schedule (absolute values used for all numbers) [(3. × 8.) + (4. × 30)] ÷ (3. + 4.)		27.33
10. Value of an annuity due for remaining amortization period at interest rate equal to (1.0525 ÷ 1.0325) - 1		21.4743
11. Payment on UFL due to assumption changes (6. ÷ 10.)	10/1/17	<u>\$ 3.735²</u>

² Due to a minor technical adjustment, the amount shown here differs slightly from the implemented payment of \$3.736 billion.

TABLE M-5

CALCULATION OF OCTOBER 1, 2017,
PAYMENT ON UNFUNDED LIABILITY (UFL)
RESULTING FROM EXPERIENCE GAINS AND LOSSES

(\$ in billions)

1. Unamortized UFL balance due to experience gains and losses (10/1/15 balance \times 1.0525)	9/30/16	\$ (273.584)
2. Payment on UFL	10/1/16	\$ (21.015)
3. Unamortized UFL balance after payment (1. - 2.)	10/1/16	\$ (252.569)
4. Additional (new) UFL	9/30/16	\$ (16.759)
5. Unamortized UFL balance due to experience gains and losses (3. + 4.)	10/1/16	\$ (269.328)
6. Balance on 9/30/17 (5. \times 1.0525)	9/30/17	\$ (283.468)
7. Number of years in prior amortization schedule		14.28
8. Remaining number of years in prior amortization schedule (7. - 1)		13.28
9. Number of years in new amortization schedule (absolute values used for all numbers) [(3. \times 8.) + (4. \times 30)] \div (3. + 4.)		14.32
10. Value of an annuity due for remaining amortization period at interest rate equal to (1.0525 \div 1.0325) - 1		12.6401
11. Payment* on UFL due to experience gains and losses (6. \div 10.)	10/1/17	<u>\$ (22.426)</u>

* Excludes payment on loss due to 10/1/16 unpaid (sequestered) contribution.

OACT ENDNOTES

VISION STATEMENT DoD OFFICE OF THE ACTUARY

To be leaders in the evaluation of future contingent events and risk related to the financial aspects of military benefits and to provide high-quality actuarial support to key stakeholders.

MISSION STATEMENT DoD OFFICE OF THE ACTUARY

The Office of the Actuary (OACT) performs actuarial valuations and provides actuarial support and expertise for the following major benefit programs and funds: the Military Retirement System/Military Retirement Fund; Military Health System, including the portion funded through the Medicare-Eligible Retiree Health Care Fund; education benefits funded through the Education Benefits Fund; and separation benefits funded through the Voluntary Separation Incentive Fund. We fulfill the Secretary of Defense's statutory requirements for actuarial funding determinations for these programs, and we provide requisite actuarial support to the independent Boards of Actuaries that oversee the determinations. OACT is responsible for: providing actuarial liabilities and associated input for the Department's and government-wide financial statements; providing quarterly Incurred-But-Not-Reported reserve estimates for DoD health care programs; informing policy analysis of military benefit provisions and proposals by providing actuarial and cost analysis; providing actuarial support and products for the execution of benefit programs including the Survivor Benefit Plan; providing actuarial support and expertise on matters related to investing the assets of funds that finance military benefit programs; and providing actuarial and statistical information about the Military Retirement System for key stakeholders.

CONTACT INFORMATION DoD OFFICE OF THE ACTUARY

Located in the *Actuarial Certification* section of this report (page 2).

VALUATION OF THE MILITARY RETIREMENT SYSTEM SEPTEMBER 30, 2017

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