



**TECHNICAL REFERENCE to the
FY 2020 VALUATION OF THE
MILITARY RETIREMENT SYSTEM
Data, Methods and Assumptions**

**DoD Office of the Actuary
February 2022**

TABLE OF CONTENTS

<u>Appendix</u>	<u>Page</u>
Appendix A: The Military Retirement System: Benefits	- 3 -
Table A-1: Military Retirement Fund Performance Measures	- 15 -
Appendix B: The Military Retirement System: History	- 16 -
Table B-1: Military Retirement System Properties	- 26 -
Table B-2: Military Retirement System Multipliers.....	- 26 -
Table B-3: Military Retired Pay Cost-Of-Living Increases (1958 – Present).....	- 27 -
Table B-4: Military Basic Pay Scale Increases (1958 – Present)	- 28 -
Appendix C: Valuation Data.....	- 29 -
Appendix D: Economic Assumptions.....	- 54 -
Table D-1: Dod Board Of Actuaries’ Long-Term Economic Assumptions.....	- 58 -
Appendix E: Normal Cost Weighting Factors	- 59 -
Table E-1: Basic Payroll Percentage Distribution	- 61 -
Appendix F: Valuation Program Parameters	- 62 -
Appendix G: Active Duty Rates	- 72 -
Appendix H: Reserve Duty Rates	- 86 -
Appendix I: Retiree and Survivor Rates	- 124 -
Appendix J: Mortality Improvement Factors.....	- 144 -
Appendix K: 25 Year Projections	- 162 -
Appendix L: Treasury Payments	- 172 -

APPENDIX A

THE MILITARY RETIREMENT SYSTEM: BENEFITS

	<u>Page</u>
Summary	- 4 -
Nondisability Retirement from Active Service	- 6 -
Disability Retirement	- 6 -
Reserve Retirement.....	- 7 -
Survivor Benefits	- 8 -
Temporary Early Retirement Authority (TERA).....	- 10 -
Cost-of-Living Increases.....	- 11 -
Relationship with Veterans Administration Benefits	- 11 -
Interrelationship with Other Federal Service.....	- 12 -
Relationship of Retired Pay to Military Compensation.....	- 12 -
Social Security Benefits.....	- 13 -
Performance Measures.....	- 13 -
Table A-1: Military Retirement Fund Performance Measures	- 15 -

THE MILITARY RETIREMENT SYSTEM: BENEFITS

As of September 30, 2020

Summary

The Military Retirement System (MRS) encompasses 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 must be at least 60 years old and have at least 20 qualifying years of service before retired pay commences, with some exceptions. Public Law (P.L.) 110-181 allows for a day-for-day reduction in the reserve retirement eligibility age from age 60 to an age no lower than 50 for each aggregate of 90 days of active duty 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 MRS. 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:** 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 CSB outlined below also have retired pay based on 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 became a member of a uniformed service after December 31, 2017, are covered under the new Blended Retirement System (BRS), which was enacted in NDAA 2016 and took 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, had the option to “opt-in” to BRS via an irrevocable election during the 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 more than 12 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 that “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 (CRSC), which were included in later legislation. This results in retirees receiving 13 payments in some fiscal years and 11 payments in others, with 12 payments

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.

occurring in a typical fiscal year. Note that annual fiscal year amounts shown throughout this report represent 12 monthly payments without regard to the 2011 NDAA. Comments regarding this law are also noted in the Table 9 footnotes in the FY 2020 Valuation of the Military Retirement System (FY 2020 Valuation Report).

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 2020, 1.45 million nondisability retirees from active duty and full-time reserves were receiving an annualized retired pay entitlement totaling \$48.7 billion. Included in this number are a reported 84,000 nondisabled retirees who elected CSB/Redux.

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) is of a permanent nature and stable based on accepted medical principles;
- (2) was 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 (VA) Schedule of Rating Disabilities 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.

As of September 2020, 129,000 disability retirees were receiving an annualized retired pay entitlement totaling \$1.90 billion. Included in this number are a reported 4,954 disability retirees who elected CSB/Redux.

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 each aggregate of 90 days of active duty performed in support of contingency operations in any fiscal year after January 28, 2008, or in any two consecutive fiscal years after September 30, 2014. However, 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 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

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.

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 2020, 427,000 reserve retirees were receiving an annualized retired pay entitlement totaling \$7.4 billion.

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. 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 100% disability rating and elected full SBP on the date of death). Prior to this legislation, the annuity was based on the reservist's years of service.

SBP annuities generally are reduced by any VA survivor benefits (e.g., 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 \$323 in calendar year 2020, or the amount of the DIC offset, if less than \$323) to survivors with a DIC offset. NDAA 2020 repealed the DIC offset, phasing it out starting in 2021. In 2021, SBP benefits for survivors will be subject to an offset equal to the lesser of their SBP pay and two thirds of their DIC award. In 2022, the offset will be no more than one third of their DIC award and effective January 1, 2023, there will not be any offset to SBP pay from a DIC award.

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. 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 2020, 321,000 survivors of military members were receiving an annualized annuity and/or SSIA entitlements totaling \$4.0 billion. Included in these totals are 67,000 SSIA survivors receiving \$0.3 billion in SSIA payments (approximately 24,000 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

(P.L. 114-328) further extended TERA through December 2025.

As of September 2020, 69,500 TERA retirees were receiving an annualized retired pay entitlement totaling \$1.3 billion.

Cost-of-Living Increases

All nondisability retirement, disability retirement, and most survivor annuities are adjusted annually for inflation. 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. New retirees/annuitants receive a prorated COLA depending on their date of retirement/eligibility.

The benefits of retirees and 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 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 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 (MRF or 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 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. 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. If the member is 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 DIC program. DIC benefits are payable to survivors of veterans who die from Service-connected causes. See "Survivor Benefits" above for details.

As of September 2020, there were 711,000 CRDP members and 97,000 CRSC members. These members were paid an additional monthly amount of \$1.3 billion and \$98 million, respectively. As of September 2020, there were 67,000 survivors receiving annualized SSIA benefits of \$258 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 70 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 approximately 34 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 73 percent of RMC; e.g., a member entitled to 75 percent of basic pay receives approximately 55%

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 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 2020, 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	1,407.0	664.4	914.1	742.6	47.2	72.7	2.3
2017	1,502.0	734.1	974.0	767.9	48.9	75.4	2.9
2018	1,533.4	813.9	994.1	719.6	53.1	81.9	3.8
2019	1,652.7	897.0	1,060.4	755.7	54.3	84.6	3.0
2020	1,732.7	979.4	1,107.4	753.3	56.5	88.4	2.3

NOTES:

- (1) From Table 6, Item 3 in the valuation report.
- (2) From Table 6, Item 4 in the valuation report.
- (3) From Table 6, Item 1.a in the valuation report.
- (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	- 17 -
History of Retired Pay – Reserve Duty	- 21 -
Adjustments – Cost-of-Living	- 22 -
Adjustments – Basic Pay	- 23 -
Funding of Retirement Benefits.....	- 24 -
Table B-1: Military Retirement System Properties	- 26 -
Table B-2: Military Retirement System Multipliers.....	- 26 -
Table B-3: Military Retired Pay Cost-of-living Increases (1958 – Present)	- 27 -
Table B-4: Military Basic Pay Scale Increases (1958 – Present)	- 28 -

THE MILITARY RETIREMENT SYSTEM: HISTORY³

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 recent legislation enacted: *Blended Retirement System* (BRS). Much discussion has occurred as a result of the study findings. It should be noted that while there may be superficial resemblance between the 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 MRS 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.”
- 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

³ 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.

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 Native Americans, 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 remained until the 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 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 resulting 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, although 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 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 the 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 COLA 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 High-3 formula. At the 15 year-of-service mark, these full-time members now have the choice of remaining in High-3 or electing the Career Status Bonus (CSB), which is not paid out of the MRF, 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 High-3 benefit formula. This is referred to as the 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 VA 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 years 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. 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 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 the CSB/Redux benefit tier by not allowing any CSB elections after December 31, 2017, and repeals all aspects of BBA 2013.

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. The 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 authorized 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 within any fiscal year after January 28, 2008. P.L. 113-291 amended this provision to

provide that the qualifying days of service may be accumulated between two consecutive fiscal years, effective after September 30, 2014. However, in no case may the retirement age drop below age 50. 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 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

COLA 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 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, 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 CRSC) 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 COLA 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. As discussed above, 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 BBA 2013.

Retired pay cost-of-living increases from 1958 to the present are shown in Table B-3. Additional discussion regarding cost-of-living increases can be found in Appendix D.

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 followed (through FY 2006). After FY 2006, the increases were 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 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 the MRF 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 MRF in an amount sufficient, along with the Department of the Treasury (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 MRF 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 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 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 (Board), 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 trust 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 CPL-W	Full CPL-W	Full CPI-W minus 1% (one-time catch-up at age 62)	Full CPL-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%		861.9%
10/1/63		5.0%		807.4%
9/1/65		4.4%		764.2%
12/1/66		3.7%		727.8%
4/1/68		3.9%		698.2%
2/1/69		4.0%		668.3%
11/1/69		5.3%		638.7%
8/1/70		5.6%		601.6%
6/1/71		4.5%		564.3%
7/1/72	one percent over	4.8%		535.7%
7/1/73	inflation was	6.1%		506.6%
1/1/74	added during	5.5%		471.7%
7/1/74	these years	6.3%		441.9%
1/1/75		7.3%		409.8%
8/1/75		5.1%		375.1%
3/1/76		5.4%		352.1%
3/1/77		4.8%		328.9%
9/1/77		4.3%		309.3%
3/1/78		2.4%		292.4%
9/1/78	twice-a-year	4.9%		283.2%
3/1/79	increases	3.9%		265.3%
9/1/79		6.9%		251.6%
3/1/80		6.0%		228.9%
9/1/80		7.7%		210.3%
3/1/81	once-a-year	4.4%		188.1%
3/1/82	increases	8.7%		176.0%
4/1/83	(Dec to Dec)	3.9%	(1)	153.9%
12/1/84		3.5%	(2)	144.3%
12/1/85		0.0%	(3)	136.1%
12/1/86	once-a-year	1.3%		136.1%
12/1/87	increases (3rd	4.2%		133.0%
12/1/88	qtr to 3rd qtr)	4.0%		123.7%
12/1/89		4.7%		115.1%
12/1/90		5.4%		105.4%
12/1/91		3.7%		94.9%
12/1/92		3.0%		87.9%
3/1/94		2.6%	(4)	82.4%
3/1/95		2.8%	(5)	77.8%
3/1/96		2.6%	(6)	73.0%
12/1/96		2.9%		68.6%
12/1/97		2.1%		63.8%
12/1/98		1.3%		60.5%
12/1/99		2.4%		58.4%
12/1/00		3.5%		54.7%
12/1/01		2.6%		49.5%
12/1/02		1.4%		45.7%
12/1/03		2.1%		43.7%
12/1/04		2.7%		40.7%
12/1/05		4.1%		37.0%
12/1/06		3.3%		31.6%
12/1/07		2.3%		27.4%
12/1/08		5.8%		24.6%
12/1/09		0.0%		17.7%
12/1/10		0.0%		17.7%
12/1/11		3.6%		17.7%
12/1/12		1.7%		13.6%
12/1/13		1.5%		11.7%
12/1/14		1.7%		10.1%
12/1/15		0.0%		8.2%
12/1/16		0.3%		8.2%
12/1/17		2.0%		7.9%
12/1/18		2.8%		5.8%
12/1/19		1.6%		2.9%
12/1/20		1.3%		1.3%

(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 Date of Increase</u>
6/1/58	8.3%	1524.5%
10/1/63	14.2%	1400.0%
9/1/64	2.3%	1213.5%
9/1/65	10.4%	1184.0%
7/1/66	3.2%	1063.0%
10/1/67	5.6%	1027.0%
7/1/68	6.9%	967.2%
7/1/69	12.6%	898.3%
1/1/70	8.1%	786.6%
1/1/71	7.9%	720.2%
11/14/71	11.6%	660.1%
1/1/72	7.2%	581.1%
10/1/72	6.7%	535.4%
10/1/73	6.2%	495.5%
10/1/74	5.5%	460.7%
10/1/75	5.0%	431.5%
10/1/76	3.6%	406.2%
10/1/77	6.2%	388.6%
10/1/78	5.5%	360.1%
10/1/79	7.0%	336.1%
10/1/80	11.7%	307.5%
10/1/81	14.3% (1)	264.9%
10/1/82	4.0% (2)	219.2%
1/1/84	4.0% (2)	206.9%
1/1/85	4.0%	195.1%
10/1/85	3.0%	183.8%
1/1/87	3.0%	175.5%
1/1/88	2.0%	167.5%
1/1/89	4.1%	162.2%
1/1/90	3.6%	151.9%
1/1/91	4.1%	143.2%
1/1/92	4.2%	133.6%
1/1/93	3.7%	124.2%
1/1/94	2.2%	116.2%
1/1/95	2.6%	111.5%
1/1/96	2.4%	106.2%
1/1/97	3.0%	101.3%
1/1/98	2.8%	95.5%
1/1/99	3.6%	90.1%
1/1/00	4.8% (3)	83.5%
1/1/01	3.7% (3)	75.1%
1/1/02	4.6% (3)	68.9%
1/1/03	4.1% (3)	61.4%
1/1/04	3.7% (3)	55.1%
1/1/05	3.5%	49.6%
1/1/06	3.1%	44.5%
1/1/07	2.2% (3)	40.2%
1/1/08	3.5%	37.1%
1/1/09	3.9%	32.5%
1/1/10	3.4%	27.5%
1/1/11	1.4%	23.3%
1/1/12	1.6%	21.6%
1/1/13	1.7%	19.7%
1/1/14	1.0%	17.7%
1/1/15	1.0%	16.5%
1/1/16	1.3% (4)	15.4%
1/1/17	2.1%	13.9%
1/1/18	2.4%	11.6%
1/1/19	2.6%	9.0%
1/1/20	3.1%	6.2%
1/1/21	3.0%	3.0%

(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) Excludes General and Flag Officers (O-7 through O-10), who did not receive a pay increase.

APPENDIX C

VALUATION DATA

	<u>Page</u>
Valuation Data Notes.....	- 30 -
DoD Officers Active Duty Personnel	- 31 -
DoD Enlisted Active Duty Personnel	- 32 -
All DoD Active Duty Personnel	- 33 -
DoD Officers Average Monthly Active Duty Basic Pay.....	- 34 -
DoD Enlisted Average Monthly Active Duty Basic Pay.....	- 35 -
All DoD Average Monthly Active Duty Basic Pay.....	- 36 -
DoD Officers Selected Reserve Personnel	- 37 -
DoD Enlisted Selected Reserve Personnel	- 38 -
All DoD Selected Reserve Personnel	- 39 -
DoD Officers Annualized Average Monthly Selected Reserve Basic Pay	- 40 -
DoD Enlisted Annualized Average Monthly Selected Reserve Basic Pay	- 41 -
All DoD Annualized Average Monthly Selected Reserve Basic Pay	- 42 -
DoD Officers Non-Selected Reserve Personnel with 20 Good Years.....	- 43 -
DoD Enlisted Non-Selected Reserve Personnel with 20 Good Years.....	- 44 -
All DoD Non-Selected Reserve Personnel with 20 Good Years.....	- 45 -
DoD Officers Retired.....	- 46 -
DoD Enlisted Retired.....	- 48 -
All DoD Retired.....	- 50 -
DoD Survivor.....	- 52 -

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 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 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.
- Some totals may not add due to rounding.

Technical Reference to the FY 2020 Valuation of the Military Retirement System

DoD Officers Active Duty Personnel by Years of Service and Age for FY 2020 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	
17																																			0
18																																			0
19																																			0
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57																																			0
58																																			0
59																																			0
60+																																			0
Total	9,543	14,235	15,968	15,425	15,501	12,620	11,471	11,287	10,822	10,001	9,943	9,308	8,659	8,753	8,924	8,899	9,325	9,179	8,921	8,505	6,534	5,068	4,476	3,907	3,467	2,805	2,446	2,259	1,781	1,462	3,217	252,682			

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

Average Age: 35.5

Average YAS: 11.3

Technical Reference to the FY 2020 Valuation of the Military Retirement System

DoD Enlisted Active Duty Personnel by Years of Service and Age for FY 2020 Valuation

Age	Years of Active Service (VAS)																														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	97	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	97	
18	14,489	103	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	14,592	
19	35,737	15,119	77	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	50,933	
20	26,531	37,427	14,134	45	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	78,138	
21	15,529	26,560	35,003	12,045	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	89,157	
22	10,263	15,600	24,934	31,474	7,283	10	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	89,464	
23	8,051	10,685	14,871	23,169	19,470	5,096	5	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	81,447	
24	6,532	8,253	10,178	13,627	15,676	14,699	3,492	5	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	72,464	
25	5,963	6,732	7,685	9,296	9,820	12,371	10,992	3,514	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	65,880	
26	3,961	5,290	6,369	7,169	6,999	7,886	9,853	10,457	2,403	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	60,388	
27	3,036	3,994	5,001	5,638	5,777	6,608	9,642	7,750	1,808	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	55,146	
28	2,436	3,103	3,817	4,531	4,622	4,504	4,884	6,644	7,655	5,969	1,392	2	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	49,560	
29	1,854	2,384	2,900	3,474	3,650	3,686	3,951	5,015	5,393	6,386	4,702	1,627	14	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	45,239	
30	1,501	1,931	2,200	2,635	2,866	3,027	3,285	3,984	4,050	4,586	5,640	4,707	1,898	19	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	42,318	
31	1,171	1,489	1,644	2,048	2,074	2,382	2,550	3,121	3,215	3,314	4,236	4,693	4,714	1,841	13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	38,504	
32	885	1,186	1,217	1,657	1,444	1,777	1,963	2,461	2,761	2,704	3,180	3,523	4,104	4,671	1,885	17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	35,515	
33	724	914	892	1,143	1,222	1,273	1,421	1,829	2,127	2,321	2,703	2,812	3,102	3,898	4,700	1,611	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	32,882	
34	601	713	694	844	863	906	1,076	1,393	1,600	1,733	2,288	2,212	2,422	2,958	4,345	4,408	1,938	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	30,998	
35	508	600	533	691	621	838	1,048	1,236	1,413	1,835	1,917	1,945	2,290	3,259	3,924	4,947	2,040	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	30,291	
36	279	475	480	591	487	524	585	793	968	1,065	1,344	1,566	1,532	1,908	2,431	2,519	4,349	4,890	2,158	13	0	0	0	0	0	0	0	0	0	0	0	0	0	28,907	
37	168	296	359	469	399	446	415	584	728	887	1,134	1,088	1,179	1,511	1,793	1,958	2,959	3,878	4,875	2,407	14	0	0	0	0	0	0	0	0	0	0	0	0	0	27,546
38	163	191	209	320	346	379	480	544	649	877	928	1,004	1,154	1,233	1,507	2,226	2,736	3,618	4,995	1,953	10	0	0	0	0	0	0	0	0	0	0	0	0	0	26,208
39	127	125	146	170	300	273	331	383	407	450	683	735	799	958	1,104	1,205	1,676	1,997	2,461	3,644	3,679	1,248	3	0	0	0	0	0	0	0	0	0	0	0	22,906
40	111	132	103	94	152	233	255	311	315	352	510	566	610	681	893	951	1,340	1,471	1,822	2,379	2,382	2,463	879	3	1	0	0	0	0	0	0	0	0	0	19,008
41	30	99	96	110	109	113	232	232	299	406	369	480	579	684	714	1,022	1,154	1,439	1,707	1,512	1,733	1,844	602	1	0	0	0	0	0	0	0	0	0	0	15,818
42	10	33	65	96	82	66	103	199	216	216	308	344	352	431	525	541	803	928	1,064	1,222	1,045	1,278	400	0	0	0	0	0	0	0	0	0	0	0	12,681
43	4	27	35	66	80	74	75	104	206	199	278	230	273	330	402	456	619	703	805	873	741	721	765	986	833	257	0	0	0	0	0	0	0	10,147	
44	4	10	32	44	73	66	70	56	117	172	173	207	215	265	308	327	468	503	614	707	524	509	540	639	628	584	179	0	0	0	0	0	0	8,033	
45	6	6	28	24	44	42	56	55	83	124	195	161	200	212	238	250	360	421	516	563	422	342	371	410	387	414	349	142	1	0	0	0	0	6,422	
46	3	8	20	22	26	29	40	57	56	88	137	140	167	202	200	245	312	331	353	422	315	287	271	274	286	264	281	334	133	0	0	0	0	5,505	
47	2	7	11	16	20	20	28	38	60	90	106	112	153	174	196	179	242	276	322	311	215	185	214	194	174	185	177	200	249	83	1	0	0	4,313	
48	0	8	11	16	21	24	28	38	57	74	98	103	122	180	149	200	201	222	222	252	180	173	122	149	137	126	98	154	181	221	55	0	0	3,605	
49	2	5	20	18	25	23	22	32	74	87	96	97	135	160	191	207	191	197	220	145	131	110	116	104	104	85	69	92	115	161	101	0	0	3,056	
50	4	16	15	24	22	23	25	40	61	67	83	93	127	118	179	154	202	210	169	121	107	100	89	86	63	60	63	80	92	92	2,391	0	0	2,591	
51	2	7	12	18	17	20	35	21	50	64	69	76	105	96	107	166	175	182	167	106	83	64	73	54	45	37	28	51	51	81	81	0	0	2,022	
52	0	2	9	12	12	11	17	26	18	31	56	49	54	75	92	105	98	134	132	125	79	68	67	58	45	30	27	40	36	44	1	0	0	1,882	
53	0	1	6	13	15	12	19	15	19	31	50	40	63	64	65	96	96	122	120	79	54	39	39	34	25	18	18	19	42	31	1	0	0	1,263	
54	0	1	5	6	11	8	10	14	16	18	19	20	46	60	59	59	86	72	76	77	61	46	43	33	19	19	21	9	22	25	18	0	0	633	
55	0	0	5	4	9	6	9	14	10	15	23	12	23	38	31	36	50	58	69	83	54	43	31	26	16	15	3	14	9	14	11	733	0	0	571
56	0	0	3	2	6	11	14	8	13	8	15	10	19	28	39	34	47	53	44	41	31	32	29	16	15	7	10	10	9	9	5	5	0	0	571
57	0	0	0	6	2	11	8	3	7	9	10	11	15	12	29	23	34	31	42	48	32	23	17	18	10	8	9	8	5	8	3	4	0	0	443
58	0	1	1	4	0	2	5	7	4	9	7	5	11	14	17	24	26	38	31	35	13	12	12	9	11	7	4	2	6	4	3	3	0	0	328
59	0	0	1	2	0	2	5	2	3	2	5	4	2	15	9	10	14	24	17	21	10	5	6	6	7	4	2	3	1	2	2	2	0	0	189
60+	3	0	0	1	0	1	2	2	0	2	1	3	4	1	2	10	14	13	9	10	6	5	6	6	6	3	4	1	0	2	7	5	0	0	126
Total	139,893	143,698	133,790	121,853	84,806	66,186	53,683	52,601	42,370	35,207	32,617	28,456	25,878	25,052	25,447	21,867	24,432	22,654	21,415	20,593	13,709	9,347	6,825	5,020	3,253	2,145	1,345	1,162	924	756	452				

Technical Reference to the FY 2020 Valuation of the Military Retirement System

All DoD Active Duty Personnel by Years of Service and Age for FY 2020 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	97	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	97
18	14,489	103	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	14,592
19	35,737	15,119	77	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	50,033	
20	26,540	37,427	14,134	45	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	78,147	
21	15,587	26,582	35,004	12,045	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	89,208	
22	12,088	15,677	24,958	31,389	7,298	10	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	91,440	
23	11,235	13,628	14,994	23,213	19,491	5,140	5	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	87,705	
24	8,013	12,839	13,221	13,727	15,727	14,793	3,899	5	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	81,834	
25	5,611	8,765	12,862	11,902	9,906	12,430	11,021	3,529	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	76,022	
26	4,408	6,171	8,723	12,061	9,157	7,978	9,899	10,516	2,424	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	71,318	
27	3,498	4,739	6,033	8,421	6,687	7,711	6,725	9,220	7,824	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	66,252	
28	2,721	3,813	4,655	5,617	6,769	8,260	6,620	6,756	7,746	6,091	1,437	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	60,485	
29	2,112	3,096	3,694	4,315	4,882	5,775	7,321	6,635	5,532	6,496	4,838	1,706	16	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	56,119	
30	1,683	2,321	2,815	3,511	3,686	3,954	5,187	7,166	5,648	4,784	5,830	4,912	2,018	20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	53,515	
31	1,312	1,730	2,124	2,614	2,872	3,058	3,712	4,884	6,211	4,702	4,459	4,886	4,995	1,988	14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	49,220	
32	996	1,376	1,588	1,997	1,995	2,269	2,609	3,304	4,408	5,292	4,474	3,734	4,426	4,996	2,081	19	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	45,563	
33	798	1,107	1,170	1,477	1,668	1,752	2,068	2,590	3,814	5,045	4,059	3,354	4,291	5,243	1,820	12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	43,218	
34	680	859	864	1,105	1,158	1,295	1,558	2,081	2,280	2,549	3,766	4,506	3,600	3,255	4,739	4,897	2,198	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	41,398	
35	558	701	667	897	867	934	1,197	1,548	1,863	2,099	2,640	3,227	4,035	3,590	4,334	5,566	2,349	10	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	40,666	
36	339	556	554	739	660	722	835	1,165	1,437	1,663	2,004	2,321	2,636	3,915	3,670	2,886	4,482	5,595	2,532	19	0	0	0	0	0	0	0	0	0	0	0	0	0	0	39,040
37	198	363	436	599	530	590	666	838	1,065	1,307	1,741	1,672	1,821	2,614	3,804	3,115	3,368	4,395	5,509	2,770	20	0	0	0	0	0	0	0	0	0	0	0	0	0	37,381
38	197	237	264	479	419	470	545	698	808	991	1,337	1,485	1,525	2,292	3,422	3,443	3,183	4,108	5,678	2,700	14	0	0	0	0	0	0	0	0	0	0	0	0	0	35,961
39	156	167	197	237	404	374	442	562	624	695	1,012	1,141	1,280	1,469	1,666	2,259	3,481	3,148	2,833	4,113	4,272	1,573	7	0	0	0	0	0	0	0	0	0	0	0	32,115
40	137	165	147	142	209	325	366	430	451	547	742	867	980	1,198	1,381	1,534	2,499	3,196	2,954	2,763	2,790	2,950	1,155	4	1	0	0	0	0	0	0	0	0	0	27,842
41	62	136	120	180	144	175	239	334	384	439	602	602	734	913	1,114	1,318	1,714	2,256	3,080	2,778	1,872	2,109	2,326	848	1	0	0	0	0	0	0	0	0	0	24,442
42	56	62	101	129	129	107	165	269	300	340	468	501	558	693	853	1,110	1,573	2,083	2,851	1,938	1,313	1,992	1,683	552	1	0	0	0	0	0	0	0	0	0	20,550
43	25	41	61	100	122	107	153	164	281	391	404	374	425	492	646	758	1,062	1,252	1,472	1,844	1,996	1,411	991	1,281	1,128	385	2	0	0	0	0	0	0	17,230	
44	12	17	34	70	105	98	106	114	166	239	254	308	336	410	538	592	787	913	1,103	1,301	1,250	1,410	1,151	881	877	822	277	0	0	0	0	0	0	14,185	
45	11	14	35	53	66	77	99	95	136	189	275	232	291	326	392	449	616	737	1,012	822	928	1,176	1,014	603	611	570	239	3	0	0	0	0	0	12,009	
46	11	18	32	49	50	56	86	88	93	141	216	198	242	308	334	397	520	609	671	850	622	599	784	994	822	403	465	538	208	0	0	0	0	10,403	
47	9	13	21	29	36	33	70	74	83	129	154	175	231	271	307	313	410	472	580	600	500	424	525	617	848	635	323	443	453	158	1	0	0	8,940	
48	1	12	13	18	32	41	56	68	72	108	146	151	190	262	236	313	352	377	434	485	378	370	356	428	548	491	290	340	402	138	7,826	0	0	7,826	
49	6	10	29	26	37	37	41	45	64	108	126	154	157	204	249	317	312	330	374	414	306	296	284	325	374	444	614	466	252	277	317	6,993	0	0	6,993
50	4	10	29	28	35	44	38	50	79	95	110	119	160	198	191	275	271	331	361	310	243	245	227	254	286	279	363	577	410	200	370	6,190	0	0	6,190
51	3	12	10	17	24	26	34	52	47	84	106	114	137	151	168	191	275	285	298	293	199	182	171	178	184	188	209	301	368	310	384	5,000	0	0	5,000
52	3	3	12	17	20	27	26	43	36	44	79	78	94	113	142	172	174	217	247	228	167	119	141	135	134	130	154	171	226	291	424	3,869	0	0	3,869
53	1	3	6	14	27	16	32	24	27	30	51	77	69	107	107	113	164	150	213	216	148	108	94	97	89	88	80	120	115	206	446	3,037	0	0	3,037
54	0	3	5	11	22	11	24	23	26	30	35	41	74	95	88	103	104	142	147	152	105	83	88	70	60	56	81	76	98	122	391	2,365	0	0	2,365
55	2	2	6	6	10	11	16	18	16	32	35	20	58	63	62	73	90	95	103	123	100	81	65	64	49	54	31	67	78	78	340	1,849	0	0	1,849
56	0	1	6	2	11	14	22	11	22	16	21	24	36	50	60	61	81	99	87	84	64	64	57	44	39	40	41	40	51	51	267	1,469	0	0	1,469
57	0	0	1	6	3	14	12	6	15	17	23	26	40	52	40	52	72	78	56	46	41	37	33	29	29	20	20	23	42	175	1,043	0	0	1,043	
58	0	1	1	7	0	4	6	11	10	13	12	13	20	20	31	40	48	60	54	66	38	36	30	23	31	21	23	31	21	23	144	841	0	0	841
59	0	0	1	6	2	4	8	3	8	4	9	10	8	22	21	16	25	46	31	51	24	23	16	10	28	16	13	12	16	18	94	548	0	0	548
60+	99	7	10	5	8	1	6	2																											

DoD Officers Non-Selected Reserve Personnel With 20 Good Years by PEBD Years of Service and Age for FY 2020 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
	Completed Pay Entry Base Date (PEBD) Years Of Service (YOS)																								
<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	11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
38	0	1	13	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	11
39	0	3	28	30	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	16
40	0	2	11	38	55	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	63
41	0	3	15	30	73	63	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	114
42	0	2	39	25	37	67	55	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	189
43	0	4	57	101	48	70	86	62	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	232
44	0	2	35	115	105	42	48	83	76	14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	430
45	0	5	17	57	124	108	60	59	104	91	10	0	0	0	0	0	0	0	0	0	0	0	0	0	637
46	0	3	13	29	67	162	138	74	95	134	115	14	0	0	0	0	0	0	0	0	0	0	0	0	844
47	0	5	16	41	52	84	200	183	68	99	167	98	14	0	0	0	0	0	0	0	0	0	0	0	1,028
48	0	1	13	23	52	58	102	205	150	107	143	150	141	25	0	0	0	0	0	0	0	0	0	0	1,172
49	0	2	8	14	25	57	73	105	204	262	132	141	222	237	33	0	0	0	0	0	0	0	0	0	1,517
50	0	3	7	13	26	57	63	71	170	298	319	148	195	284	256	17	0	0	0	0	0	0	0	0	1,927
51	0	1	2	13	15	26	53	64	72	150	382	438	185	262	289	316	36	0	0	0	0	0	0	0	2,304
52	0	1	6	9	16	17	27	47	63	70	184	420	568	222	252	418	328	40	0	0	0	0	0	0	2,688
53	0	1	4	11	14	9	19	33	53	55	93	214	574	674	251	343	433	342	63	0	0	0	0	0	3,188
54	0	0	3	12	13	16	17	26	38	64	89	131	293	733	731	320	399	356	359	39	0	0	0	0	3,641
55	0	1	4	6	13	13	13	29	30	41	72	114	136	373	723	780	365	332	391	375	40	0	0	0	3,852
56	0	0	3	9	9	12	14	30	25	39	51	71	118	231	384	834	876	295	359	460	386	43	0	0	4,249
57	0	0	0	5	7	14	11	17	22	31	46	68	115	172	253	480	899	880	345	399	448	434	37	0	4,684
58	0	2	4	4	3	9	17	13	18	24	29	30	64	126	175	225	459	945	828	295	366	385	310	32	4,364
59	0	1	2	3	8	7	17	8	13	17	27	30	49	94	118	172	268	457	758	816	340	359	365	259	4,190
60	0	0	0	1	3	4	4	2	5	9	6	13	31	34	31	59	102	157	222	505	302	145	143	246	2,026
61	0	0	0	0	0	2	0	0	2	3	0	1	0	7	6	4	9	16	9	20	37	37	5	14	172
62	0	0	1	0	0	0	0	0	0	0	1	1	0	1	0	1	3	4	6	10	14	24	17	14	97
63	0	0	0	0	0	2	0	0	2	0	4	2	4	5	14	9	5	13	7	13	14	25	40	258	417
Total	0	54	302	591	768	907	1,022	1,118	1,214	1,509	1,870	2,085	2,711	3,483	3,516	3,978	4,184	3,838	3,347	2,933	1,948	1,453	917	824	44,573

Notes: Data taken from the actuarial valuation file created by the DoD Office of the Actuary.
 Age is age nearest birthday as of the end of the fiscal year.
 Age 63 is 63 and over and YOS 41 is 41 and over.

Average Age: 54.2
 Average PEBD Years of Service: 32.2

DoD Enlisted Non-Selected Reserve Personnel With 20 Good Years by PEBD Years of Service and Age for FY 2020 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	0
37	0	87	49	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	136
38	0	31	196	38	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	265
39	0	25	278	393	40	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	735
40	0	14	180	507	479	48	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1,230
41	0	17	107	343	707	545	54	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1,773
42	0	13	77	223	487	723	516	49	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2,089
43	0	8	51	158	305	545	708	457	37	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2,270
44	0	8	57	106	206	359	589	702	480	56	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2,564
45	0	6	47	97	146	304	384	516	806	552	60	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2,919
46	0	4	24	64	142	205	273	355	695	881	640	48	0	0	0	0	0	0	0	0	0	0	0	0	0	3,332
47	0	5	28	54	95	194	205	277	477	722	969	525	70	0	0	0	0	0	0	0	0	0	0	0	0	3,622
48	0	4	24	64	103	143	192	235	338	546	816	966	888	104	0	0	0	0	0	0	0	0	0	0	0	4,423
49	0	3	32	54	96	140	183	232	275	410	650	964	1,370	1,163	117	0	0	0	0	0	0	0	0	0	0	5,690
50	0	4	28	45	104	142	174	206	285	400	495	759	1,185	1,741	1,291	74	0	0	0	0	0	0	0	0	0	6,934
51	0	5	17	47	65	116	138	156	233	337	423	502	780	1,350	1,814	1,375	117	0	0	0	0	0	0	0	0	7,477
52	0	1	9	41	73	98	142	156	181	251	315	435	612	982	1,404	2,074	1,489	131	0	0	0	0	0	0	0	8,595
53	0	2	13	39	62	87	106	134	175	231	250	337	430	648	946	1,590	2,155	1,491	264	0	0	0	0	0	0	8,961
54	0	2	12	34	55	84	102	113	165	199	244	294	379	567	738	1,199	1,749	1,818	1,825	186	0	0	0	0	0	9,767
55	0	6	21	36	59	71	95	115	168	182	218	254	372	482	603	864	1,268	1,462	2,372	1,769	176	0	0	0	0	10,595
56	0	2	20	30	58	79	93	102	145	187	204	234	313	391	520	744	1,044	1,146	1,936	2,555	2,017	250	0	0	0	12,072
57	0	0	17	32	38	85	102	90	144	148	199	247	269	307	486	635	849	971	1,387	2,021	2,646	2,186	231	0	0	13,181
58	0	1	9	23	40	76	96	105	108	145	188	237	257	283	378	529	684	786	1,068	1,428	2,028	2,762	2,142	135	0	13,530
59	0	1	10	10	34	55	88	102	100	109	132	172	190	242	308	414	508	584	856	1,097	1,493	1,938	2,900	1,933	0	13,277
60	0	3	2	4	6	21	28	41	31	37	56	85	90	113	137	201	239	276	389	548	667	873	1,239	1,940	0	7,027
61	0	0	0	0	0	4	4	6	2	4	7	12	9	10	12	23	31	32	56	56	55	77	82	305	0	787
62	0	0	0	0	0	1	0	1	3	1	2	5	7	3	5	10	21	11	14	20	21	34	44	213	0	416
63	0	0	0	0	0	0	0	0	2	2	0	10	21	11	21	26	35	45	41	70	57	78	113	1,073	0	1,604
Total	0	252	1,310	2,443	3,403	4,127	4,275	4,151	4,852	5,401	5,870	6,088	7,248	8,490	8,780	9,756	10,189	8,753	10,208	9,750	9,160	8,198	6,752	5,618	145,071	

Notes: Data taken from the actuarial valuation file created by the DoD Office of the Actuary.
 Age is age nearest birthday as of the end of the fiscal year.
 Age 63 is 63 and over and YOS 41 is 41 and over.

Average Age: 53.4
 Average PEBD Years of Service: 32.4

All DoD Non-Selected Reserve Personnel With 20 Good Years by PEBD Years of Service and Age for FY 2020 Valuation

Age	Completed Pay Entry Base Date (PEBD) Years Of Service (YOS)																				Total				
	<19	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37		38	39	40	41
<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	98	49	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	147
38	0	32	209	40	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	281
39	0	28	306	423	42	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	798
40	0	16	192	545	535	56	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1,344
41	0	20	122	373	780	608	59	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1,962
42	0	15	116	248	524	790	571	56	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2,321
43	0	12	108	259	353	615	794	519	39	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2,700
44	0	10	92	221	311	401	638	785	557	70	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3,085
45	0	11	64	155	271	412	445	575	910	643	70	0	0	0	0	0	0	0	0	0	0	0	0	0	3,556
46	0	7	37	93	210	367	411	428	790	1,015	755	62	0	0	0	0	0	0	0	0	0	0	0	0	4,176
47	0	10	44	95	147	278	405	460	546	821	1,136	624	84	0	0	0	0	0	0	0	0	0	0	0	4,650
48	0	5	37	87	155	201	294	440	489	654	959	1,116	1,029	129	0	0	0	0	0	0	0	0	0	0	5,595
49	0	5	40	68	121	197	256	337	480	671	782	1,105	1,592	1,401	150	0	0	0	0	0	0	0	0	0	7,207
50	0	7	35	58	130	199	237	277	455	698	814	907	1,380	2,025	1,547	91	0	0	0	0	0	0	0	0	8,861
51	0	6	19	60	80	142	191	220	305	488	805	940	965	1,613	2,102	1,691	153	0	0	0	0	0	0	0	9,781
52	0	2	15	50	89	115	169	203	244	321	499	855	1,180	1,204	1,656	2,492	1,817	171	0	0	0	0	0	0	11,083
53	0	3	17	50	76	96	125	167	228	286	343	551	1,005	1,323	1,197	1,933	2,888	1,833	327	0	0	0	0	0	12,149
54	0	2	15	46	68	100	119	139	203	263	333	425	672	1,301	1,470	1,519	2,148	2,174	2,184	225	0	0	0	0	13,408
55	0	7	25	42	72	84	108	144	198	223	290	368	508	856	1,325	1,643	1,633	1,795	2,764	2,144	216	0	0	0	14,447
56	0	2	23	39	67	91	107	132	170	226	255	305	431	622	904	1,578	1,920	1,441	2,295	3,015	2,403	293	0	0	16,321
57	0	0	17	37	45	99	113	107	166	179	245	315	384	569	739	1,115	1,749	1,852	1,732	2,420	3,094	2,620	268	0	17,865
58	0	3	13	27	43	85	113	118	126	169	217	267	321	409	554	754	1,143	1,731	1,896	1,723	2,395	3,148	2,452	187	17,894
59	0	2	12	13	42	62	105	110	113	126	159	202	239	337	426	586	776	1,042	1,613	1,913	1,833	2,297	3,266	2,192	17,467
60	0	3	2	5	9	25	32	43	36	46	62	98	121	147	168	260	341	433	611	1,054	969	1,018	1,382	2,186	9,053
61	0	0	0	0	0	6	4	6	4	7	7	13	9	17	18	27	40	48	65	76	92	114	87	319	959
62	0	0	1	0	0	1	0	1	3	1	3	6	7	4	5	11	24	15	20	30	35	58	61	227	513
63	0	0	0	0	0	2	0	0	3	2	4	11	24	17	35	35	41	57	49	83	72	103	153	1,331	2,021
Total	0	307	1,611	3,035	4,170	5,034	5,297	5,269	6,066	6,910	7,740	8,173	9,953	11,973	12,296	13,734	14,373	12,591	13,556	12,683	11,109	9,652	7,669	6,442	189,644

Notes: Data taken from the actuarial valuation file created by the DoD Office of the Actuary.
 Age is age nearest birthday as of the end of the fiscal year.
 Age 63 is 63 and over and YOS 41 is 41 and over.

Average Age: 53.6 Average PEBD Years of Service: 32.4

Technical Reference to the FY 2020 Valuation of the Military Retirement System

DoD Retired Military Valuation Data as of Year-End FY 2020

All Officers

Age	Non Disabled		Perm Disabled		Temp Disabled		Reserve Retired		Number		TERRA		TERRA		TERRA		TERRA		Average Annual Net Retired Pay		CSB		
	Dis	Total	Dis	Total	Dis	Total	Dis	Total	Non-Dis	Total	Res Ret	Non-Dis	Res Ret	Non-Dis	Res Ret	Non-Dis	Res Ret	Non-Dis	Res Ret	Total	Reserve Retired	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
17	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
19	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
21	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
23	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
25	0	29	0	29	0	29	0	29	0	29	0	0	0	0	0	0	0	0	0	\$8,078	\$7,392	\$0	\$0
26	1	44	0	44	0	44	0	44	0	44	0	0	0	0	0	0	0	0	0	\$9,858	\$9,726	\$0	\$0
27	0	71	0	71	0	71	0	71	0	71	0	0	0	0	0	0	0	0	0	\$7,763	\$6,126	\$0	\$0
28	0	90	0	90	0	90	0	90	0	90	0	0	0	0	0	0	0	0	0	\$8,645	\$9,798	\$0	\$0
29	0	112	0	112	0	112	0	112	0	112	0	0	0	0	0	0	0	0	0	\$10,217	\$12,367	\$0	\$0
30	0	127	0	127	0	127	0	127	0	127	0	0	0	0	0	0	0	0	0	\$9,122	\$12,259	\$0	\$0
31	1	190	0	190	0	190	0	190	0	190	0	0	0	0	0	0	0	0	0	\$10,432	\$11,745	\$0	\$0
32	0	179	0	179	0	179	0	179	0	179	0	0	0	0	0	0	0	0	0	\$10,186	\$12,111	\$0	\$0
33	0	193	0	193	0	193	0	193	0	193	0	0	0	0	0	0	0	0	0	\$10,657	\$12,111	\$0	\$0
34	0	286	0	286	0	286	0	286	0	286	0	0	0	0	0	0	0	0	0	\$11,941	\$11,490	\$0	\$0
35	1	299	1	299	1	299	1	299	1	299	1	0	0	0	0	0	0	0	0	\$11,882	\$14,603	\$0	\$5,018
36	3	316	0	316	0	316	0	316	0	316	0	0	0	0	0	0	0	0	0	\$13,347	\$14,423	\$0	\$0
37	7	331	0	331	0	331	0	331	0	331	0	0	0	0	0	0	0	0	0	\$12,823	\$17,735	\$0	\$0
38	44	346	0	346	0	346	0	346	0	346	0	0	0	0	0	0	0	0	0	\$13,458	\$17,385	\$0	\$0
39	196	363	0	363	0	363	0	363	0	363	0	0	0	0	0	0	0	0	0	\$17,192	\$20,798	\$0	\$24,175
40	421	431	0	431	0	431	0	431	0	431	0	0	0	0	0	0	0	0	0	\$21,895	\$21,000	\$0	\$17,709
41	712	464	0	464	0	464	0	464	0	464	0	0	0	0	0	0	0	0	0	\$27,008	\$16,974	\$0	\$28,778
42	1,029	420	0	420	0	420	0	420	0	420	0	0	0	0	0	0	0	0	0	\$30,221	\$18,435	\$0	\$25,946
43	1,743	478	0	478	0	478	0	478	0	478	0	0	0	0	0	0	0	0	0	\$34,538	\$18,435	\$0	\$27,971
44	2,567	439	0	439	0	439	0	439	0	439	0	0	0	0	0	0	0	0	0	\$37,588	\$29,004	\$0	\$29,675
45	3,237	457	0	457	0	457	0	457	0	457	0	0	0	0	0	0	0	0	0	\$40,643	\$24,656	\$0	\$28,170
46	3,816	494	0	494	0	494	0	494	0	494	0	0	0	0	0	0	0	0	0	\$42,752	\$36,697	\$0	\$30,145
47	4,419	503	0	503	0	503	0	503	0	503	0	0	0	0	0	0	0	0	0	\$44,398	\$41,324	\$0	\$33,956
48	5,050	562	0	562	0	562	0	562	0	562	0	0	0	0	0	0	0	0	0	\$46,361	\$30,019	\$0	\$36,216
49	5,948	573	0	573	0	573	0	573	0	573	0	0	0	0	0	0	0	0	0	\$48,169	\$30,720	\$0	\$38,828
50	6,983	635	0	635	0	635	0	635	0	635	0	0	0	0	0	0	0	0	0	\$49,718	\$31,992	\$0	\$41,482
51	7,285	577	0	577	0	577	0	577	0	577	0	0	0	0	0	0	0	0	0	\$51,530	\$32,579	\$0	\$42,342
52	7,350	520	0	520	0	520	0	520	0	520	0	0	0	0	0	0	0	0	0	\$52,838	\$32,470	\$0	\$39,687
53	7,727	480	0	480	0	480	0	480	0	480	0	0	0	0	0	0	0	0	0	\$54,307	\$32,470	\$0	\$46,449
54	8,142	459	0	459	0	459	0	459	0	459	0	0	0	0	0	0	0	0	0	\$54,172	\$34,466	\$0	\$46,662
55	8,628	465	0	465	0	465	0	465	0	465	0	0	0	0	0	0	0	0	0	\$55,994	\$33,831	\$0	\$47,756
56	9,123	467	0	467	0	467	0	467	0	467	0	0	0	0	0	0	0	0	0	\$58,862	\$34,870	\$0	\$38,909
57	9,396	435	0	435	0	435	0	435	0	435	0	0	0	0	0	0	0	0	0	\$58,862	\$34,464	\$0	\$46,619
58	9,118	409	0	409	0	409	0	409	0	409	0	0	0	0	0	0	0	0	0	\$57,004	\$32,964	\$0	\$47,537
59	9,050	367	0	367	0	367	0	367	0	367	0	0	0	0	0	0	0	0	0	\$57,465	\$30,855	\$0	\$50,630
60	9,029	349	0	349	0	349	0	349	0	349	0	0	0	0	0	0	0	0	0	\$57,505	\$33,989	\$0	\$48,929
61	9,091	343	0	343	0	343	0	343	0	343	0	0	0	0	0	0	0	0	0	\$53,106	\$35,557	\$0	\$42,156
62	9,380	316	0	316	0	316	0	316	0	316	0	0	0	0	0	0	0	0	0	\$49,002	\$28,488	\$0	\$29,730
63	9,776	318	0	318	0	318	0	318	0	318	0	0	0	0	0	0	0	0	0	\$31,753	\$31,708	\$0	\$35,796
64	9,903	303	0	303	0	303	0	303	0	303	0	0	0	0	0	0	0	0	0	\$31,708	\$48,843	\$0	\$34,589
65	10,190	271	0	271	0	271	0	271	0	271	0	0	0	0	0	0	0	0	0	\$48,396	\$30,501	\$0	\$22,125
66	10,179	287	0	287	0	287	0	287	0	287	0	0	0	0	0	0	0	0	0	\$48,396	\$30,501	\$0	\$40,284
67	10,368	297	0	297	0	297	0	297	0	297	0	0	0	0	0	0	0	0	0	\$30,983	\$47,517	\$0	\$10,160
68	10,328	284	0	284	0	284	0	284	0	284	0	0	0	0	0	0	0	0	0	\$31,034	\$46,943	\$0	\$0
69	10,056	270	0	270	0	270	0	270	0	270	0	0	0	0	0	0	0	0	0	\$29,977	\$46,605	\$0	\$0
70	10,185	293	0	293	0	293	0	293	0	293	0	0	0	0	0	0	0	0	0	\$46,610	\$33,645	\$0	\$60,034
			0		0		0		0		0	0	0	0	0	0	0	0	0	\$34,153	\$22,080	\$0	\$0
			0		0		0		0		0	0	0	0	0	0	0	0	0	\$45,632	\$46,610	\$0	\$0
			0		0		0		0		0	0	0	0	0	0	0	0	0	\$28,997	\$45,632	\$0	\$0
			0		0		0		0		0	0	0	0	0	0	0	0	0	\$45,144	\$34,979	\$0	\$0
			0		0		0		0		0	0	0	0	0	0	0	0	0	\$28,422	\$45,144	\$0	\$0
			0		0		0		0		0	0	0	0	0	0	0	0	0	\$27,579	\$44,365	\$0	\$0

Technical Reference to the FY 2020 Valuation of the Military Retirement System

DoD Retired Military Valuation Data as of Year-End FY 2020

All Officers

Age	Non-Disabled		Temp Disabled		Reserve Retired		Number		TERRA		CSB		Average Annual Net Retired Pay		TERRA		CSB	
	Disabled	Temp Disabled	Temp Disabled	Retired	Total	TERRA Non-Dis	TERRA Res Ret	CSB Non-Dis	CSB Dis	Res Ret	Non-Dis	Dis	Total	Res Ret	Non-Dis	Res Ret	Non-Dis	Dis
71	10,692	320	0	6,721	17,733	359	123	0	0	554,030	\$32,987	\$32,987	\$43,061	\$35,723	\$22,048	\$47,491	\$0	\$0
72	11,337	334	0	7,691	19,362	279	103	0	0	\$53,483	\$31,673	\$31,673	\$42,035	\$37,416	\$18,446	\$0	\$0	\$0
73	12,075	422	0	8,409	20,906	241	88	0	0	\$53,678	\$31,836	\$31,836	\$42,040	\$37,613	\$18,146	\$0	\$0	\$0
74	12,663	519	0	8,827	22,009	191	93	0	0	\$54,085	\$30,865	\$30,865	\$42,466	\$38,932	\$17,722	\$0	\$0	\$0
75	8,697	381	0	6,286	15,364	119	52	0	0	\$55,135	\$28,944	\$28,944	\$41,134	\$34,134	\$26,615	\$0	\$0	\$0
76	8,617	350	0	6,067	15,063	76	38	0	0	\$55,485	\$29,425	\$29,425	\$43,077	\$39,079	\$18,855	\$0	\$0	\$0
77	8,617	350	0	5,696	14,663	60	32	0	0	\$55,586	\$31,804	\$31,804	\$41,067	\$38,372	\$18,992	\$0	\$0	\$0
78	8,330	362	0	5,554	14,246	55	37	0	0	\$55,280	\$32,280	\$32,280	\$42,924	\$42,084	\$18,063	\$0	\$0	\$0
79	7,128	250	0	4,368	11,746	32	25	0	0	\$55,320	\$32,383	\$32,383	\$43,297	\$43,993	\$13,155	\$0	\$0	\$0
80	6,940	240	0	3,775	10,955	12	26	0	0	\$55,077	\$36,722	\$36,722	\$44,109	\$40,596	\$16,175	\$0	\$0	\$0
81	6,797	207	0	3,467	10,471	11	28	0	0	\$55,831	\$40,966	\$40,966	\$45,062	\$51,623	\$14,379	\$0	\$0	\$0
82	6,262	178	0	3,353	9,793	7	30	0	0	\$56,034	\$41,271	\$41,271	\$44,579	\$53,213	\$16,882	\$0	\$0	\$0
83	5,802	156	0	3,123	9,081	6	25	0	0	\$57,300	\$41,224	\$41,224	\$45,115	\$58,458	\$16,591	\$0	\$0	\$0
84	5,349	137	0	2,822	8,408	5	13	0	0	\$57,551	\$41,017	\$41,017	\$45,399	\$44,058	\$16,125	\$0	\$0	\$0
85	4,856	126	0	2,575	7,557	6	9	0	0	\$58,335	\$42,990	\$42,990	\$45,860	\$42,068	\$13,539	\$0	\$0	\$0
86	4,837	118	0	2,460	7,415	5	16	0	0	\$59,833	\$45,716	\$45,716	\$47,063	\$41,766	\$13,198	\$0	\$0	\$0
87	4,175	101	0	2,120	6,396	2	8	0	0	\$60,892	\$48,542	\$48,542	\$47,792	\$58,536	\$11,904	\$0	\$0	\$0
88	3,868	100	0	2,016	5,984	4	3	0	0	\$60,892	\$47,682	\$47,682	\$47,652	\$46,766	\$19,841	\$0	\$0	\$0
89	3,296	97	0	1,821	5,214	3	3	0	0	\$62,472	\$46,809	\$46,809	\$47,755	\$52,400	\$22,960	\$0	\$0	\$0
90	2,915	85	0	1,822	4,822	0	0	0	0	\$63,214	\$50,372	\$50,372	\$47,029	\$0	\$0	\$0	\$0	\$0
91	2,242	85	0	1,482	3,809	1	1	0	0	\$64,361	\$45,995	\$45,995	\$47,109	\$47,632	\$15,636	\$0	\$0	\$0
92	1,706	75	0	1,083	2,864	0	3	0	0	\$65,858	\$48,942	\$48,942	\$48,417	\$0	\$0	\$0	\$0	\$0
93	1,036	43	0	679	1,758	1	0	0	0	\$67,716	\$54,173	\$54,173	\$49,627	\$28,812	\$25,178	\$0	\$0	\$0
94	650	43	0	503	1,190	1	0	0	0	\$69,856	\$49,166	\$49,166	\$48,768	\$58,884	\$0	\$0	\$0	\$0
95	594	39	0	510	1,143	0	0	0	0	\$70,912	\$50,819	\$50,819	\$47,484	\$0	\$0	\$0	\$0	\$0
96	567	35	0	506	1,108	0	0	0	0	\$71,363	\$42,487	\$42,487	\$46,711	\$0	\$0	\$0	\$0	\$0
97	463	39	0	402	844	0	0	0	0	\$70,492	\$38,866	\$38,866	\$44,431	\$0	\$0	\$0	\$0	\$0
98	327	36	0	320	683	0	0	0	0	\$69,901	\$45,186	\$45,186	\$44,551	\$0	\$0	\$0	\$0	\$0
99	247	41	0	228	516	0	0	0	0	\$71,000	\$37,591	\$37,591	\$45,063	\$0	\$0	\$0	\$0	\$0
100	179	33	0	156	368	0	0	0	0	\$65,792	\$41,402	\$41,402	\$44,048	\$0	\$0	\$0	\$0	\$0
101	117	16	0	102	235	0	0	0	0	\$64,098	\$28,748	\$28,748	\$43,064	\$0	\$0	\$0	\$0	\$0
102	63	8	0	61	132	0	0	0	0	\$63,361	\$43,896	\$43,896	\$43,056	\$0	\$0	\$0	\$0	\$0
103	32	7	0	21	60	0	0	0	0	\$67,290	\$50,155	\$50,155	\$49,547	\$0	\$0	\$0	\$0	\$0
104	11	3	0	14	28	0	0	0	0	\$62,410	\$38,575	\$38,575	\$40,305	\$0	\$0	\$0	\$0	\$0
105	8	0	0	6	14	0	0	0	0	\$55,512	\$0	\$0	\$41,655	\$0	\$0	\$0	\$0	\$0
106	5	0	0	4	9	0	0	0	0	\$81,674	\$0	\$0	\$28,527	\$0	\$0	\$0	\$0	\$0
107	2	0	0	2	4	0	0	0	0	\$61,458	\$0	\$0	\$47,430	\$0	\$0	\$0	\$0	\$0
108	0	1	0	0	1	0	0	0	0	\$91,800	\$0	\$0	\$91,800	\$0	\$0	\$0	\$0	\$0
109	0	0	0	0	0	0	0	0	0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
110	1	0	0	0	1	0	0	0	0	\$46,356	\$0	\$0	\$46,356	\$0	\$0	\$0	\$0	\$0
Total	371,905	20,861	1,221	152,580	546,567	14,738	3,123	5,147	546	\$56,052	\$29,519	\$29,519	\$46,823	\$33,354	\$21,133	\$43,356	\$36,419	\$25,930
60+	259,928	8,691	10	151,007	419,636	11,896	3,117	130	7	\$56,582	\$34,788	\$34,788	\$53,755	\$26,650	\$21,076	\$51,294	\$53,484	\$23,198
62+	241,808	7,999	7	143,658	393,472	11,255	2,846	70	5	\$56,375	\$34,829	\$34,829	\$63,874	\$26,334	\$20,870	\$52,429	\$53,484	\$23,198
65+	212,749	7,062	0	128,035	347,846	7,979	2,043	32	1	\$56,188	\$35,242	\$35,242	\$0	\$25,698	\$20,150	\$52,249	\$53,484	\$23,198

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 12/1/20 cost of living increase of 1.3%.

Technical Reference to the FY 2020 Valuation of the Military Retirement System

DoD Retired Military Valuation Data as of Year-End FY 2020

All Enlisted

Age	Number		Reserve		Temp		Perm		Non-Dis		Dis		CSB		TERRA		TERRA		TERRA		CSB	
	Non-Dis	Dis	Total	Retired	Dis	Dis	Dis	Dis	Dis	Dis	Dis	Dis	Dis	Dis	Res Ret	Res Ret	Res Ret	Res Ret	Non-Dis	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
17			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
19			0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20			0	0	30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21			0	0	88	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
22			0	0	118	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23			0	0	202	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
24			0	0	133	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
25			0	0	255	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
26			0	0	316	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
27			0	0	412	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
28			0	0	494	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
29			0	0	604	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
30			0	0	904	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
31			0	0	1,244	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
32			0	0	1,513	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
33			0	0	1,882	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
34			0	0	2,234	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
35			0	0	2,889	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
36			0	0	3,285	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
37			0	0	3,676	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
38			0	0	3,703	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
39			0	0	4,318	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
40			0	0	5,879	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
41			0	0	8,751	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
42			0	0	11,157	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
43			0	0	12,854	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
44			0	0	14,313	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
45			0	0	15,362	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
46			0	0	16,594	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
47			0	0	18,135	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
48			0	0	19,254	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
49			0	0	20,752	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
50			0	0	22,630	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
51			0	0	24,489	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
52			0	0	26,321	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
53			0	0	28,100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
54			0	0	29,800	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
55			0	0	31,153	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
56			0	0	33,948	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
57			0	0	35,826	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
58			0	0	37,447	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
59			0	0	38,806	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
60			0	0	43,833	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
61			0	0	50,084	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
62			0	0	48,689	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
63			0	0	47,906	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
64			0	0	45,832	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
65			0	0	44,155	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
66			0	0	41,259	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
67			0	0	38,885	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
68			0	0	36,608	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
69			0	0	34,261	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
70			0	0	31,349	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Technical Reference to the FY 2020 Valuation of the Military Retirement System

DoD Retired Military Valuation Data as of Year-End FY 2020

All Enlisted

Age	Number				Reserve Retired				Average Annual Net Retired Pay				CSB			
	Non Disabled	Perm Disabled	Temp Disabled	Total	TERA Non-Dis	TERA Res Ret	CSB Non-Dis	CSB Dis	Reserve Retired	Total	TERA Non-Dis	TERA Res Ret	CSB Non-Dis	CSB Dis		
71	24,413	1,859	0	40,780	479	320	0	0	\$11,637	\$19,894	\$17,689	\$7,492	\$0			
72	21,110	2,139	0	41,357	392	324	0	0	\$11,421	\$19,290	\$18,172	\$7,458	\$0			
73	21,776	2,180	0	41,956	332	371	0	0	\$11,287	\$19,867	\$18,172	\$7,458	\$0			
74	22,868	1,831	0	40,199	269	324	0	0	\$11,187	\$20,011	\$19,573	\$7,608	\$0			
75	15,603	1,154	0	27,295	160	210	0	0	\$11,442	\$20,139	\$19,446	\$7,573	\$0			
76	15,411	956	0	25,916	109	169	0	0	\$11,421	\$20,580	\$20,580	\$7,471	\$0			
77	16,091	766	0	25,720	91	142	0	0	\$11,287	\$20,974	\$20,974	\$8,033	\$0			
78	17,007	714	0	25,997	59	132	0	0	\$11,187	\$21,268	\$21,021	\$7,876	\$0			
79	15,280	604	0	22,836	45	106	0	0	\$10,721	\$21,559	\$21,663	\$6,999	\$0			
80	14,301	510	0	20,059	23	70	0	0	\$10,550	\$21,849	\$22,703	\$6,795	\$0			
81	13,517	398	0	18,905	15	79	0	0	\$10,462	\$21,619	\$23,462	\$6,313	\$0			
82	13,544	407	0	18,644	23	86	0	0	\$10,253	\$21,886	\$22,895	\$6,804	\$0			
83	13,896	366	0	18,710	6	95	0	0	\$10,217	\$22,326	\$18,969	\$5,684	\$0			
84	12,838	319	0	17,174	6	78	0	0	\$10,267	\$22,668	\$21,673	\$5,766	\$0			
85	11,645	301	0	15,578	2	86	0	0	\$10,371	\$22,780	\$25,435	\$6,595	\$0			
86	9,986	308	0	13,215	0	48	0	0	\$10,660	\$23,035	\$0	\$6,233	\$0			
87	8,581	302	0	11,134	0	41	0	0	\$11,113	\$23,627	\$0	\$6,300	\$0			
88	7,598	310	0	9,893	0	5	0	0	\$10,871	\$23,842	\$0	\$5,634	\$0			
89	6,538	332	0	8,655	0	2	0	0	\$10,728	\$23,611	\$0	\$11,171	\$0			
90	5,789	297	0	7,619	0	1	0	0	\$10,922	\$23,556	\$0	\$5,355	\$0			
91	4,569	274	0	5,913	0	0	0	0	\$11,172	\$23,963	\$0	\$0	\$0			
92	3,132	198	0	4,083	0	0	0	0	\$11,507	\$23,951	\$0	\$0	\$0			
93	2,159	127	0	4,24	0	0	0	0	\$11,668	\$24,275	\$0	\$0	\$0			
94	1,298	56	0	3,32	0	0	0	0	\$11,678	\$23,439	\$0	\$0	\$0			
95	904	36	0	255	0	0	0	0	\$12,158	\$23,346	\$0	\$0	\$0			
96	640	37	0	187	0	0	0	0	\$11,739	\$23,656	\$0	\$0	\$0			
97	436	12	0	116	0	0	0	0	\$11,425	\$23,065	\$0	\$0	\$0			
98	302	18	0	68	0	0	0	0	\$11,106	\$22,598	\$0	\$0	\$0			
99	184	15	0	53	0	0	0	0	\$11,183	\$21,979	\$0	\$0	\$0			
100	126	7	0	32	0	0	0	0	\$10,290	\$21,736	\$0	\$0	\$0			
101	75	9	0	20	0	0	0	0	\$10,794	\$22,861	\$0	\$0	\$0			
102	37	2	0	10	0	0	0	0	\$12,188	\$20,475	\$0	\$0	\$0			
103	21	0	0	4	0	0	0	0	\$13,734	\$20,827	\$0	\$0	\$0			
104	0	0	0	8	0	0	0	0	\$15,702	\$26,034	\$0	\$0	\$0			
105	5	0	0	2	0	0	0	0	\$13,182	\$16,318	\$0	\$0	\$0			
106	4	1	0	1	0	0	0	0	\$5,260	\$15,309	\$0	\$0	\$0			
107	1	0	0	1	0	0	0	0	\$0	\$32,124	\$0	\$0	\$0			
108	0	0	0	0	0	0	0	0	\$0	\$0	\$0	\$0	\$0			
109	1	0	0	1	0	0	0	0	\$0	\$21,996	\$0	\$0	\$0			
110	0	0	0	0	0	0	0	0	\$0	\$0	\$0	\$0	\$0			
Total	1,076,117	102,643	4,196	1,457,400	44,736	6,934	78,853	4,408	\$12,139	\$22,257	\$15,824	\$7,973	\$22,936			
60+	650,644	31,297	12	773,267	32,184	6,927	1,497	40	\$12,089	\$21,239	\$15,927	\$7,969	\$22,361			
62+	577,060	28,365	3	255,875	861,303	24,096	6,326	738	\$11,909	\$21,053	\$16,398	\$7,867	\$23,595			
65+	475,893	24,529	0	218,454	10,945	4,905	229	8	\$11,626	\$20,994	\$16,908	\$7,644	\$23,198			

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) 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 12/1/20 cost of living increase of 1.3%.

Technical Reference to the FY 2020 Valuation of the Military Retirement System

DoD Retired Military Valuation Data as of Year-End FY 2020

All DoD

Age	Number				Average Annual Net Retired Pay				Reserve				CSB				
	Non Disabled	Perm Disabled	Temp Disabled	Reserve Retired	TERA Non-Dis	TERA Res Ret	CSB Non-Dis	CSB Dis	Total	TERA Non-Dis	TERA Res Ret	Reserve Retired	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	\$0	\$0	\$0
17	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
19	0	0	1	2	0	0	0	0	\$6,821	\$13,588	\$0	\$11,333	\$0	\$0	\$0	\$0	\$0
20	0	11	0	0	30	0	0	0	\$7,781	\$9,710	\$0	\$9,003	\$0	\$0	\$0	\$0	\$0
21	0	21	67	0	88	0	0	0	\$1,405	\$8,033	\$0	\$6,452	\$0	\$0	\$0	\$0	\$0
22	0	52	66	0	118	0	0	0	\$4,133	\$7,900	\$0	\$6,067	\$0	\$0	\$0	\$0	\$0
23	0	92	109	0	202	0	0	0	\$5,184	\$5,184	\$0	\$4,324	\$0	\$0	\$0	\$0	\$0
24	0	137	127	0	264	0	0	0	\$5,342	\$5,274	\$0	\$4,271	\$0	\$0	\$0	\$0	\$0
25	0	183	162	0	345	0	0	0	\$5,493	\$5,466	\$0	\$4,419	\$0	\$0	\$0	\$0	\$0
26	1	280	175	0	456	0	0	0	\$3,632	\$5,720	\$0	\$4,519	\$0	\$0	\$0	\$0	\$0
27	0	409	156	0	565	0	0	0	\$3,678	\$6,507	\$0	\$4,459	\$0	\$0	\$0	\$0	\$0
28	0	527	167	0	694	0	0	0	\$3,853	\$5,627	\$0	\$4,280	\$0	\$0	\$0	\$0	\$40,068
29	1	849	166	0	1,016	0	1	0	\$3,724	\$7,243	\$0	\$4,316	\$0	\$0	\$0	\$0	\$0
30	0	1,185	186	0	1,371	0	0	0	\$3,753	\$7,063	\$0	\$4,201	\$0	\$0	\$0	\$0	\$0
31	1	1,506	196	0	1,703	0	0	0	\$4,362	\$6,989	\$0	\$4,698	\$0	\$0	\$0	\$0	\$0
32	0	1,891	170	0	2,061	0	0	0	\$4,587	\$7,669	\$0	\$4,841	\$0	\$0	\$0	\$0	\$0
33	1	2,238	188	0	2,427	1	0	0	\$4,854	\$7,532	\$0	\$5,067	\$0	\$0	\$0	\$0	\$0
34	8	2,956	211	0	3,175	7	0	0	\$5,429	\$9,916	\$0	\$5,762	\$0	\$0	\$0	\$0	\$0
35	43	3,305	236	0	3,584	41	2	0	\$5,688	\$9,893	\$0	\$6,118	\$0	\$0	\$0	\$0	\$7,531
36	62	3,699	231	0	3,992	62	6	0	\$6,238	\$11,074	\$0	\$6,726	\$0	\$0	\$0	\$0	\$14,350
37	144	3,748	195	0	4,087	138	7	0	\$6,735	\$12,342	\$0	\$7,415	\$0	\$0	\$0	\$0	\$14,489
38	764	3,775	218	0	4,757	206	9	0	\$7,502	\$13,350	\$0	\$10,346	\$0	\$0	\$0	\$0	\$19,894
39	2,780	3,511	193	0	6,484	369	399	0	\$8,247	\$16,798	\$0	\$13,471	\$0	\$0	\$0	\$0	\$15,616
40	5,950	3,456	247	0	9,653	681	130	0	\$9,669	\$19,788	\$0	\$19,197	\$0	\$0	\$0	\$0	\$16,080
41	8,823	3,325	254	0	12,402	1,013	145	0	\$10,962	\$22,896	\$0	\$21,195	\$0	\$0	\$0	\$0	\$19,989
42	10,958	3,154	242	0	15,200	1,094	203	0	\$12,108	\$22,206	\$0	\$22,727	\$0	\$0	\$0	\$0	\$20,377
43	13,258	3,122	209	0	16,889	1,190	266	0	\$13,624	\$26,179	\$0	\$24,492	\$0	\$0	\$0	\$0	\$20,497
44	15,287	2,949	164	0	18,400	1,130	332	0	\$14,995	\$28,361	\$0	\$26,197	\$0	\$0	\$0	\$0	\$21,335
45	17,375	2,815	138	0	20,328	928	343	0	\$15,700	\$28,250	\$0	\$27,421	\$0	\$0	\$0	\$0	\$21,203
46	19,511	2,849	132	0	22,492	682	405	0	\$17,306	\$29,909	\$0	\$28,438	\$0	\$0	\$0	\$0	\$22,007
47	21,340	2,767	113	0	24,220	506	421	0	\$18,042	\$31,242	\$0	\$29,357	\$0	\$0	\$0	\$0	\$23,084
48	23,380	2,915	106	0	26,401	391	436	0	\$18,629	\$31,610	\$0	\$30,271	\$0	\$0	\$0	\$0	\$23,641
49	26,700	2,872	94	0	29,666	326	437	0	\$19,289	\$32,180	\$0	\$31,159	\$0	\$0	\$0	\$0	\$24,828
50	29,613	2,964	96	0	32,673	241	439	0	\$19,532	\$30,754	\$0	\$32,065	\$0	\$0	\$0	\$0	\$25,021
51	29,774	2,686	83	5	32,548	153	359	0	\$19,816	\$34,208	\$51,366	\$32,668	\$0	\$0	\$0	\$0	\$25,438
52	30,641	2,486	62	6	33,055	112	292	0	\$20,033	\$34,208	\$42,505	\$33,668	\$0	\$0	\$0	\$0	\$27,165
53	32,646	2,235	45	22	34,948	79	198	0	\$20,045	\$36,338	\$47,974	\$33,672	\$0	\$0	\$0	\$0	\$28,432
54	35,323	2,212	47	43	37,625	90	133	0	\$19,404	\$31,966	\$48,215	\$33,752	\$0	\$0	\$0	\$0	\$28,778
55	38,080	2,119	24	104	40,327	192	78	0	\$19,347	\$32,170	\$43,787	\$33,829	\$15,840	\$13,694	\$24,574	\$24,415	\$24,574
56	41,295	2,158	33	194	43,680	397	80	0	\$19,743	\$28,644	\$41,768	\$33,590	\$14,984	\$0	\$24,138	\$26,629	\$26,629
57	43,425	2,080	29	377	45,911	868	51	0	\$19,177	\$42,907	\$40,125	\$32,975	\$14,083	\$27,241	\$24,349	\$27,048	\$27,048
58	44,587	2,091	14	627	47,319	1,641	2	0	\$18,765	\$38,051	\$35,941	\$32,481	\$14,137	\$26,607	\$24,073	\$26,227	\$26,227
59	45,679	1,884	23	1,372	48,958	2,856	13	0	\$18,961	\$36,472	\$34,297	\$32,149	\$14,301	\$32,529	\$23,719	\$25,035	\$25,035
60	46,209	1,821	7	7,551	55,588	3,974	205	0	\$18,586	\$28,958	\$21,900	\$30,239	\$13,931	\$13,931	\$23,629	\$23,475	\$23,475
61	45,495	1,803	5	17,190	64,493	4,755	353	0	\$18,847	\$28,348	\$19,336	\$28,137	\$16,063	\$16,063	\$23,439	\$27,693	\$27,693
62	44,540	1,584	6	17,357	63,297	5,411	7	0	\$18,390	\$46,150	\$19,063	\$28,024	\$17,474	\$17,474	\$23,314	\$23,314	\$23,314
63	43,749	1,643	3	17,859	63,254	5,776	187	4	\$17,625	\$49,085	\$19,009	\$27,886	\$18,966	\$18,966	\$26,935	\$34,207	\$34,207
64	42,027	1,546	1	17,828	61,402	5,240	139	2	\$18,450	\$96,131	\$18,510	\$27,709	\$20,323	\$20,323	\$26,661	\$18,309	\$18,309
65	41,201	1,506	0	17,343	60,050	4,423	85	4	\$18,412	\$18,412	\$0	\$27,812	\$21,995	\$21,995	\$26,962	\$27,575	\$27,575
66	40,567	1,513	0	16,425	58,905	3,586	62	93	\$17,533	\$17,533	\$0	\$27,854	\$23,484	\$23,484	\$25,356	\$32,142	\$32,142
67	39,253	1,514	0	16,550	57,317	2,749	62	36	\$18,105	\$18,105	\$0	\$27,945	\$24,709	\$24,709	\$24,077	\$24,077	\$24,077
68	38,936	1,535	0	18,376	58,847	2,038	55	29	\$17,806	\$17,806	\$0	\$27,407	\$23,484	\$23,484	\$25,470	\$47,868	\$47,868
69	35,895	1,506	0	18,140	55,541	1,556	486	14	\$17,991	\$32,927	\$17,991	\$16,069	\$27,343	\$11,695	\$11,695	\$38,859	\$38,859
70	34,705	1,802	0	19,252	55,759	1,083	410	0	\$16,477	\$16,477	\$0	\$16,748	\$24,715	\$24,715	\$11,183	\$42,468	\$42,468

Technical Reference to the FY 2020 Valuation of the Military Retirement System

DoD Retired Military Valuation Data as of Year-End FY 2020

All DoD

Age	Non Disabled		Temp Disabled		Reserve Retired		Number		TERA Res Ret		CSB Non-Dis		CSB Dis	
	Non Disabled	Temp Disabled	Temp Disabled	Reserve Retired	Total	TERA Non-Dis	TERA Res Ret	Non Disabled	Temp Disabled	Temp Disabled	TERA Res Ret	TERA Non-Dis	CSB Non-Dis	CSB Dis
71	35,105	2,179	0	21,229	58,513	838	443	0	0	0	\$34,082	\$14,032	\$0	\$0
72	35,447	2,672	0	22,799	60,719	671	477	0	0	0	\$34,611	\$12,588	\$0	\$0
73	35,801	2,403	0	24,239	62,652	573	459	0	0	0	\$35,464	\$13,156	\$0	\$0
74	35,531	2,230	0	24,322	62,203	460	417	0	0	0	\$36,000	\$14,933	\$0	\$0
75	24,300	1,355	0	16,824	42,659	279	262	0	0	0	\$36,807	\$16,540	\$0	\$0
76	24,028	1,335	0	15,616	40,979	185	207	0	0	0	\$36,992	\$18,132	\$0	\$0
77	24,708	1,116	0	14,559	40,383	151	174	0	0	0	\$37,876	\$20,559	\$0	\$0
78	25,337	1,076	0	13,830	40,243	114	169	0	0	0	\$38,510	\$21,836	\$0	\$0
79	22,408	854	0	10,720	33,982	77	131	0	0	0	\$35,571	\$21,083	\$0	\$0
80	21,241	750	0	9,023	31,014	37	96	0	0	0	\$35,571	\$24,646	\$0	\$0
81	20,314	605	0	8,457	29,376	26	107	0	0	0	\$35,870	\$26,127	\$0	\$0
82	19,806	585	0	8,046	28,437	30	116	0	0	0	\$35,504	\$25,577	\$0	\$0
83	19,698	522	0	7,571	27,791	12	120	0	0	0	\$35,424	\$25,624	\$0	\$0
84	18,187	456	0	6,839	25,482	11	91	0	0	0	\$35,738	\$25,449	\$0	\$0
85	16,501	427	0	6,207	23,135	8	95	0	0	0	\$36,103	\$26,086	\$0	\$0
86	14,823	426	0	5,381	20,630	5	64	0	0	0	\$37,582	\$25,810	\$0	\$0
87	12,756	403	0	4,371	17,530	2	49	0	0	0	\$38,074	\$25,430	\$0	\$0
88	11,466	410	0	4,001	15,877	4	8	0	0	0	\$38,775	\$24,371	\$0	\$0
89	9,834	429	0	3,606	13,869	3	5	0	0	0	\$39,234	\$22,875	\$0	\$0
90	8,704	382	0	3,355	12,441	0	1	0	0	0	\$39,286	\$24,439	\$0	\$0
91	6,811	359	0	2,552	9,722	1	1	0	0	0	\$39,523	\$24,384	\$0	\$0
92	4,838	273	0	1,836	6,947	0	3	0	0	0	\$40,871	\$27,164	\$0	\$0
93	3,195	170	0	1,103	4,468	1	0	0	0	0	\$40,249	\$27,798	\$0	\$0
94	1,948	93	0	835	2,876	1	0	0	0	0	\$40,963	\$33,027	\$0	\$0
95	1,498	75	0	765	2,238	0	0	0	0	0	\$44,166	\$36,550	\$0	\$0
96	1,207	72	0	693	1,972	0	0	0	0	0	\$47,985	\$31,603	\$0	\$0
97	839	51	0	518	1,408	0	0	0	0	0	\$47,488	\$34,611	\$0	\$0
98	629	54	0	388	1,071	0	0	0	0	0	\$48,549	\$36,289	\$0	\$0
99	431	56	0	281	768	0	0	0	0	0	\$51,260	\$34,478	\$0	\$0
100	305	40	0	188	533	0	0	0	0	0	\$48,638	\$39,136	\$0	\$0
101	192	25	0	122	339	0	0	0	0	0	\$49,008	\$28,463	\$0	\$0
102	100	10	0	71	181	0	0	0	0	0	\$48,446	\$37,970	\$0	\$0
103	53	7	0	25	85	0	0	0	0	0	\$49,415	\$50,155	\$0	\$0
104	17	3	0	16	36	0	0	0	0	0	\$50,787	\$38,575	\$0	\$0
105	13	0	0	8	21	0	0	0	0	0	\$49,920	\$33,209	\$0	\$0
106	9	1	0	5	15	0	0	0	0	0	\$54,874	\$1,101	\$0	\$0
107	3	0	0	2	5	0	0	0	0	0	\$51,680	\$4,369	\$0	\$0
108	0	1	0	0	1	0	0	0	0	0	\$91,800	\$0	\$0	\$0
109	1	0	0	0	1	0	0	0	0	0	\$21,996	\$0	\$0	\$0
110	1	0	0	0	1	0	0	0	0	0	\$46,356	\$0	\$0	\$0
Total	1,448,022	123,504	5,417	427,024	2,003,967	59,474	10,057	84,000	4,954	\$35,631	\$14,689	\$16,266	\$28,957	\$24,429
60+	910,572	39,988	22	424,274	1,374,856	44,080	10,044	1,627	47	\$34,325	\$18,471	\$39,306	\$20,616	\$24,857
62+	818,868	36,364	10	399,533	1,254,775	35,351	9,172	808	22	\$34,590	\$18,466	\$32,029	\$28,553	\$26,185
65+	688,642	31,591	0	346,489	1,066,722	18,924	6,948	261	9	\$35,099	\$18,515	\$0	\$28,672	\$24,458

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 military receiving payment from DoD.
Temporarily Retired (TERA) retirees and payments are shown for informational purposes only.
Temporarily Disabled (Temp Dis) retirees and payments are shown for informational purposes only.
Complimentary 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 12/1/20 cost of living increase of 1.3%.

DoD Survivor Valuation Data as of Year-End FY 2020

Age	SBP		RCSBP		Minimum Income		Number		Average Annual Net Survivor Pay		Total
	SBP	RCSBP	SBP	RCSBP	Minimum Income	Death on Active Duty	SBP	RCSBP	Minimum Income	Death on Active Duty	
0	13	4	10	0	27	\$23,988	\$6,915	\$0	\$7,775	\$0	\$15,454
1	1	0	43	0	44	\$12,144	\$0	\$0	\$8,053	\$0	\$8,146
2	0	0	39	0	39	\$0	\$0	\$0	\$8,362	\$0	\$8,362
3	1	0	120	0	121	\$9,420	\$0	\$0	\$7,983	\$0	\$7,995
4	2	2	229	0	233	\$4,758	\$1,080	\$0	\$7,322	\$0	\$7,322
5	3	0	192	0	195	\$5,692	\$0	\$0	\$7,723	\$0	\$7,691
6	14	3	449	0	466	\$9,601	\$8,944	\$0	\$7,780	\$0	\$7,842
7	13	0	337	0	350	\$6,650	\$0	\$0	\$7,756	\$0	\$7,715
8	32	0	852	0	884	\$6,215	\$0	\$0	\$7,874	\$0	\$7,814
9	34	0	1,076	0	1,110	\$6,722	\$0	\$0	\$7,504	\$0	\$7,480
10	58	1	1,109	0	1,168	\$6,573	\$1,446	\$0	\$7,953	\$0	\$7,879
11	61	6	889	0	956	\$6,145	\$2,557	\$0	\$8,385	\$0	\$8,205
12	77	5	799	0	881	\$7,239	\$2,698	\$0	\$9,032	\$0	\$8,839
13	141	16	863	1	1,021	\$8,270	\$5,721	\$0	\$11,144	\$2,556	\$10,654
14	103	13	454	0	570	\$10,334	\$4,871	\$0	\$12,361	\$0	\$11,824
15	151	23	486	0	660	\$10,501	\$5,118	\$0	\$12,689	\$0	\$11,925
16	102	29	198	0	329	\$12,812	\$6,770	\$0	\$14,128	\$0	\$13,071
17	198	31	214	0	443	\$12,040	\$8,791	\$0	\$14,683	\$0	\$13,089
18	122	11	112	0	245	\$12,103	\$8,307	\$0	\$13,206	\$0	\$12,437
19	122	15	82	1	220	\$12,676	\$8,740	\$0	\$12,534	\$1,204	\$12,303
20	51	9	88	0	148	\$11,883	\$10,857	\$0	\$11,942	\$0	\$11,855
21	75	16	79	0	170	\$13,490	\$10,342	\$0	\$12,689	\$0	\$12,821
22	36	11	52	0	99	\$12,879	\$9,890	\$0	\$9,343	\$0	\$10,689
23	34	6	37	0	77	\$15,910	\$4,772	\$0	\$6,476	\$0	\$10,509
24	56	10	34	2	102	\$15,374	\$10,393	\$0	\$5,074	\$7,266	\$11,293
25	40	3	32	0	75	\$11,040	\$10,544	\$0	\$5,101	\$0	\$8,487
26	34	3	54	0	91	\$12,278	\$3,704	\$0	\$4,601	\$0	\$7,440
27	37	8	55	0	100	\$15,327	\$7,749	\$0	\$5,778	\$0	\$9,469
28	26	5	68	0	99	\$18,343	\$5,225	\$0	\$5,010	\$0	\$8,522
29	51	9	80	1	141	\$12,725	\$7,695	\$0	\$5,152	\$2,052	\$8,031
30	37	4	109	0	150	\$12,434	\$6,318	\$0	\$5,271	\$0	\$7,066
31	44	8	122	0	174	\$11,895	\$7,116	\$0	\$5,832	\$0	\$7,424
32	65	8	115	0	188	\$14,365	\$6,978	\$0	\$4,947	\$0	\$8,290
33	39	11	103	2	155	\$10,092	\$11,578	\$0	\$5,405	\$4,209	\$7,007
34	86	4	134	0	224	\$11,967	\$5,283	\$0	\$5,673	\$0	\$8,082
35	92	10	131	0	233	\$13,646	\$8,101	\$0	\$6,082	\$0	\$9,155
36	89	10	160	0	259	\$11,790	\$5,776	\$0	\$5,917	\$0	\$7,930
37	87	17	159	0	263	\$12,985	\$8,356	\$0	\$6,495	\$0	\$8,762
38	113	13	146	0	272	\$11,716	\$5,984	\$0	\$6,563	\$0	\$8,676
39	88	11	134	0	233	\$10,469	\$7,168	\$0	\$7,279	\$0	\$8,479
40	131	33	138	3	305	\$13,403	\$7,411	\$0	\$7,496	\$3,362	\$9,983
41	135	28	121	5	289	\$13,440	\$7,842	\$0	\$8,333	\$4,090	\$10,598
42	164	30	112	0	306	\$12,055	\$8,400	\$0	\$8,991	\$0	\$10,575
43	143	38	116	1	298	\$14,578	\$8,435	\$0	\$11,038	\$13,056	\$12,412
44	134	43	117	0	294	\$11,308	\$7,847	\$0	\$11,068	\$0	\$10,706
45	198	42	94	2	336	\$13,601	\$8,987	\$0	\$11,462	\$7,272	\$12,388
46	249	58	119	2	428	\$14,873	\$9,071	\$0	\$12,179	\$1,596	\$13,276
47	237	64	99	3	403	\$13,254	\$9,125	\$0	\$12,170	\$1,791	\$12,247
48	293	83	110	10	496	\$15,256	\$8,170	\$0	\$15,352	\$4,624	\$13,877
49	327	97	97	9	530	\$14,305	\$8,621	\$0	\$12,689	\$2,334	\$12,766
50	371	132	129	4	636	\$13,753	\$8,106	\$0	\$13,674	\$1,725	\$12,489
51	451	141	121	8	721	\$13,729	\$8,154	\$0	\$15,879	\$2,556	\$12,876
52	604	199	117	15	935	\$15,109	\$8,649	\$0	\$13,668	\$2,800	\$13,356
53	643	197	111	27	978	\$16,839	\$9,116	\$0	\$13,437	\$3,147	\$14,519
54	577	201	105	2	885	\$12,223	\$8,238	\$0	\$17,211	\$2,676	\$11,888
55	686	258	112	5	1,061	\$11,903	\$7,912	\$0	\$15,511	\$2,333	\$11,268
56	825	298	122	4	1,249	\$12,296	\$8,726	\$0	\$15,399	\$2,705	\$11,717
57	950	379	87	7	1,423	\$12,542	\$8,359	\$0	\$16,705	\$2,259	\$11,652
58	1,044	461	101	7	1,613	\$11,943	\$8,716	\$0	\$18,264	\$4,715	\$11,385
59	1,220	527	105	10	1,862	\$12,363	\$7,907	\$0	\$20,581	\$3,659	\$11,519

Technical Reference to the FY 2020 Valuation of the Military Retirement System

DoD Survivor Valuation Data as of Year-End FY 2020

Age	SBP	RCSBP	Minimum Income	Number Active Duty	Death on Active Duty	RSFPP	Total	Average Annual Net Survivor Pay				Total
								SBP	RCSBP	Minimum Income	Death on Active Duty	
60	1,421	576	0	95	12	2,104	\$12,367	\$8,975	\$0	\$18,910	\$3,303	\$11,436
61	1,421	673	0	76	9	1,946	\$11,700	\$8,549	\$0	\$17,923	\$1,749	\$10,945
62	1,770	773	0	86	9	2,638	\$11,871	\$8,236	\$0	\$17,031	\$2,516	\$10,804
63	2,018	960	0	77	20	3,075	\$12,250	\$8,579	\$0	\$18,839	\$3,963	\$11,212
64	2,215	1,080	0	90	20	3,405	\$12,294	\$8,219	\$0	\$19,831	\$4,855	\$11,140
65	2,467	1,154	0	66	8	3,695	\$12,072	\$8,232	\$0	\$18,218	\$5,645	\$10,864
66	2,742	1,419	0	61	5	4,227	\$12,363	\$8,094	\$0	\$18,055	\$2,730	\$10,982
67	3,022	1,578	0	69	13	4,682	\$12,079	\$8,065	\$0	\$18,312	\$3,510	\$10,719
68	3,364	1,865	0	59	10	5,298	\$12,439	\$7,992	\$0	\$14,739	\$2,491	\$10,709
69	3,556	2,104	0	67	8	5,750	\$12,272	\$8,037	\$0	\$15,871	\$4,470	\$10,869
70	3,980	2,319	0	62	6	6,352	\$12,748	\$7,937	\$0	\$16,774	\$3,568	\$11,029
71	4,339	2,512	0	65	9	6,925	\$12,682	\$8,009	\$8,390	\$14,593	\$2,938	\$10,934
72	4,721	2,838	1	46	14	7,620	\$12,776	\$8,132	\$0	\$15,139	\$2,876	\$11,045
73	5,405	3,267	0	57	8	8,738	\$13,189	\$8,303	\$9,217	\$14,501	\$1,116	\$11,438
74	6,041	3,416	1	49	2	9,509	\$13,061	\$8,277	\$0	\$11,957	\$1,485	\$11,410
75	5,080	2,663	0	46	7	7,796	\$13,569	\$8,369	\$9,217	\$11,835	\$1,575	\$11,525
76	5,859	3,152	0	47	9	8,881	\$13,375	\$8,297	\$9,217	\$15,079	\$1,885	\$11,653
77	6,722	3,152	1	63	20	10,896	\$13,333	\$8,424	\$0	\$12,714	\$2,999	\$11,822
78	7,418	3,395	0	63	20	10,896	\$13,333	\$8,424	\$0	\$12,714	\$2,724	\$11,865
79	7,455	3,230	0	49	20	10,754	\$13,393	\$8,335	\$9,217	\$10,652	\$2,058	\$11,912
80	7,879	3,150	1	49	34	11,113	\$13,464	\$8,382	\$0	\$12,475	\$2,977	\$12,007
81	8,288	3,239	0	59	40	11,626	\$14,049	\$8,361	\$9,217	\$13,019	\$1,948	\$12,433
82	8,726	3,377	2	40	35	12,180	\$14,149	\$8,637	\$7,791	\$11,859	\$2,801	\$12,624
83	9,015	3,302	1	48	56	12,422	\$14,378	\$8,691	\$8,374	\$12,758	\$2,421	\$12,767
84	8,920	3,283	3	75	94	12,375	\$14,824	\$8,568	\$8,048	\$11,920	\$2,590	\$13,051
85	9,055	3,296	5	46	115	12,517	\$15,152	\$8,751	\$8,431	\$15,524	\$2,718	\$13,280
86	8,593	3,203	2	67	151	12,016	\$15,886	\$8,801	\$4,813	\$15,792	\$2,458	\$13,823
87	8,043	2,916	1	58	181	11,199	\$16,198	\$8,927	\$7,627	\$13,088	\$2,321	\$13,943
88	7,811	2,968	1	62	230	11,072	\$16,977	\$9,050	\$4,690	\$11,216	\$2,971	\$14,508
89	7,040	2,691	1	53	218	10,005	\$17,560	\$9,448	\$9,217	\$13,201	\$3,027	\$14,925
90	6,368	2,430	1	42	276	9,137	\$18,228	\$9,528	\$8,657	\$10,490	\$2,153	\$14,976
91	5,119	2,038	2	48	210	7,920	\$18,292	\$9,128	\$8,657	\$10,490	\$2,153	\$14,976
92	4,467	1,816	2	46	217	7,503	\$18,690	\$9,519	\$9,217	\$8,631	\$2,870	\$15,079
93	3,761	1,686	2	37	217	5,703	\$19,653	\$9,930	\$10,509	\$7,940	\$3,198	\$15,309
94	3,247	1,537	3	42	215	5,044	\$20,978	\$9,943	\$9,217	\$11,181	\$3,106	\$16,750
95	2,854	1,338	3	25	205	4,425	\$20,836	\$9,949	\$9,217	\$5,650	\$3,619	\$16,481
96	2,322	1,162	3	28	172	3,685	\$21,907	\$10,139	\$10,227	\$9,152	\$3,998	\$17,147
97	1,928	963	4	34	162	3,091	\$22,847	\$10,448	\$10,448	\$7,360	\$3,407	\$17,698
98	1,357	704	1	22	115	2,199	\$23,143	\$10,613	\$9,217	\$12,302	\$3,343	\$17,802
99	1,031	575	2	15	88	1,711	\$22,554	\$11,123	\$0	\$7,783	\$4,066	\$17,282
100	623	388	0	8	62	1,081	\$24,142	\$10,937	\$7,327	\$3,206	\$4,613	\$17,735
101	329	223	1	3	41	597	\$22,510	\$10,766	\$0	\$3,206	\$2,277	\$17,857
102	190	100	3	3	14	307	\$22,788	\$10,766	\$9,217	\$10,976	\$2,934	\$16,352
103	97	77	2	1	13	190	\$23,156	\$11,455	\$0	\$3,206	\$1,525	\$17,891
104	57	34	1	1	4	96	\$15,430	\$12,343	\$0	\$0	\$876	\$13,491
105	29	16	0	0	3	48	\$20,982	\$13,110	\$0	\$0	\$3,210	\$15,869
106	21	14	0	0	2	37	\$13,499	\$13,499	\$0	\$0	\$1,525	\$15,024
107	14	10	0	0	1	17	\$13,106	\$8,220	\$0	\$0	\$5,733	\$10,657
108	4	2	0	0	1	8	\$20,730	\$2,952	\$0	\$0	\$0	\$18,508
109	7	1	0	0	0	8	\$38,844	\$0	\$0	\$0	\$0	\$38,844
110	2	0	0	0	0	2	\$4,859	\$0	\$8,953	\$0	\$0	\$4,477
111	0	0	1	0	0	2	\$0	\$0	\$0	\$0	\$0	\$4,859
112	2	0	0	0	0	2	\$0	\$0	\$0	\$0	\$0	\$0
113	0	0	0	0	0	0	\$14,654	\$8,624	\$8,830	\$10,279	\$2,984	\$11,119
114	2	1	2	0	0	5	\$14,655	\$8,624	\$8,730	\$10,279	\$2,984	\$12,587
Total	210,214	92,386	49	14,870	3,535	321,054	\$14,762	\$8,637	\$8,730	\$14,367	\$2,973	\$12,764
60+	198,404	88,742	49	2,192	3,404	292,791	\$14,800	\$8,644	\$8,730	\$14,078	\$2,970	\$12,787
62+	195,392	87,493	49	2,019	3,387	288,340	\$14,890	\$8,651	\$8,730	\$13,519	\$2,970	\$12,845
65+	189,389	84,680	49	1,766	3,338	279,222						

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.
 SBP includes all reserve pay (but neither the reserve pay nor the reserve pay earned RCSBP).
 Pay included in 12/1/20 column is for pay earned in 12/1/20 column.
 Amounts include increased survivor benefits as part of Special Survivor Indemnity Allowance (NSDAA 2008, P.L. 111-31, and 115-91).
 Amounts do not reflect the phase-out of VA's DIC offset, which is effective in January 1, 2021.

APPENDIX D

ECONOMIC ASSUMPTIONS

	<u>Page</u>
Inflation.....	- 55 -
Interest Rate	- 55 -
Wage Growth.....	- 56 -
Table D-1: DoD Board of Actuaries' Long-Term Economic Assumptions.....	- 58 -

ECONOMIC ASSUMPTIONS

In June 2020, the Board approved the following economic assumptions for use in the valuation as of September 30, 2020: the rate of inflation (CPI) is assumed to be 2.50 percent per year; the investment return (interest rate) is 4.25 percent per year; and the basic pay scale increases are 2.75 percent per year. For access to the official transcript of the meeting, follow this link: <https://actuary.defense.gov/External-Links/>

As noted in the “Valuation Data and Procedure” section in the FY 2020 Valuation Report, the valuation results are highly sensitive to changes in these three primary economic assumptions. As background for approving the economic assumptions, the Board receives information from economists and actuaries as well as extensive historical data on inflation, interest rates, and wage growth. The Board analyzes past trends, the 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 Board’s approved 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 COLAs for labor contracts.

The DoD assumption for CPI is reasonably consistent with what is used in other parts of the government. In its 2020 report, the Civil Service Retirement System (CSRS) assumes a 2.40 percent CPI increase. The Trustees of the Social Security Administration (SSA) in their 2020 Annual Report made projections under three alternative sets of assumptions. Their intermediate assumption for CPI was 2.40 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 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 MRF 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 FY

2020 Valuation Report, the Fund is currently heavily invested in Treasury Inflation-Protected Securities (TIPS). TIPS allow the investor/institution to lock in the real interest rate for a given period of time.

The Board examines what real interest rates the Fund is expected to earn by the types of public debt securities in which the Fund is invested, as well as how future contributions can be invested under current and projected capital market assumptions. 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 in the near term.

After analyzing forecasts of government trust fund earnings, 1.75 percent was adopted as the assumed rate of real interest. Since 2.50 percent had been adopted as the inflation rate, the assumed nominal rate of interest is 4.25 percent ($4.25 = 2.50 + 1.75$). 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 2.3 percent in their 2020 report. The Board of Actuaries of the CSRS used a 1.60 percent real interest rate assumption in its 2020 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.

In making its recommendation for the real rate of the annual basic pay scale increase, the Board considered information presented and approved a real basic pay growth assumption of 0.25 percent, leading to a nominal growth of 2.75 percent ($2.75 = 0.25 + 2.50$). The Board of Actuaries of the CSRS assumed 0.25 percent real wage growth for its 2020 valuation. The Social Security Trustees’ 2020 report had an intermediate ultimate assumption for real wage growth of 1.14 percent. (For the MRS 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
2017	2.75	5.00	3.25	2.25	0.50
2018	2.75	5.00	3.25	2.25	0.50
2019	2.75	4.75	3.25	2.00	0.50
2020	2.50	4.25	2.75	1.75	0.25

NOTES:

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

APPENDIX E

NORMAL COST WEIGHTING FACTORS

	<u>Page</u>
Normal Cost Weighting Factors	- 60 -
Table E-1:Basic Payroll Percentage Distribution by Completed Years of Service.....	- 61 -

NORMAL COST WEIGHTING FACTORS

There are four different retirement benefit formulas that apply to different populations within the Military Retirement System⁴. (See Appendix A for a discussion of *Final Pay*, *High-3*, *CSB/Redux*, and *BRS* benefit formulas.) A single NCP for the entire population is obtained by weighting the NCP for each retirement group by its expected percentage of payroll in the relevant year⁵.

In order to continue to budget for NCPs well in advance of the valuation date, the Board 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.

⁴ 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 one-year open season starting January 1, 2018. NDAA 2016 also sunsets CSB/Redux and repeals all aspects of BBA 2013 (reduced annual COLAs for “working age” retirees), as amended.

⁵ For BRS, assumptions for the proportions of eligible members who “opted-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 and greater	100%	100%
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	- 63 -
Table F-1: Economic Factors.....	- 64 -
Table F-1: Active Duty.....	- 64 -
Table F-1: Reserve Duty.....	- 68 -
Table F-1: Retiree	- 69 -
Table F-1: Survivor.....	- 70 -

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 MRF. The model is used to compute the aggregate entry-age NCP, unfunded liability, and make long-term projections. In some cases slight adjustments to GORGO cash flow projections 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 SBP and member-spouse age differences.

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. Other parameters not described as well as numerical values not shown in the table may be requested from OACT 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 2.75 percent.
2) CPI (Inflation)	A parameter for each of the next nine fiscal years specifies the annual inflation rate for that year. A tenth parameter specifies the inflation rate for all subsequent years. The value for the valuation is 2.50 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 4.25 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 CSB election status who have elected spouse or spouse/child coverage under the SBP.

TABLE F-1 (continued)

<u>Item</u>	<u>Description/Value</u>
2) Full Offsets	<p>A member who is disabled may waive all or part of his or her retired pay to receive benefits from the 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.</p>
3) Partial VA Offsets	<p>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.</p>
4) Disability Factor	<p>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.</p>

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 DIC from the VA. 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 MRF. 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 \$40,376.
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 active/reserve.

YOS	<u>Active</u>	<u>Selected Reserve</u>
	Officer/ Enlisted	Officer/ Enlisted
0	100%	100%
1	100%	100%
2	69%	76%
3	45%	19%
4	43%	19%
5	40%	18%
6	39%	18%
7	34%	16%
8	30%	18%
9	24%	16%
10	18%	16%
11	13%	14%
12	9%	12%
13	6%	10%
14	3%	8%
15	0%	5%
16	0%	4%
17	0%	3%
18	0%	2%
19	0%	2%

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 are 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) 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%.
5) 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 active/reserve. See item (11) of the Active Duty section.

TABLE F-1 (continued)

<u>Item</u>	<u>Description/Value</u>
6) 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.
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 developing 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.

TABLE F-1 (continued)

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.
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.

TABLE F-1 (continued)

<u>Item</u>	<u>Description/Value</u>
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 \$1,357.

APPENDIX G

ACTIVE DUTY RATES

	<u>Page</u>
Active Duty Rate Description.....	- 73 -
Active Duty Rate Formulas	- 75 -
Summary of Years on which Active Duty Rates Are Based	- 76 -
Death Rates for Nonretired Military	- 77 -
Officer Nondisability, Temporary Disability and Permanent Disability Retirement	- 78 -
Enlisted Nondisability, Temporary Disability and Permanent Disability Retirement.....	- 79 -
Officer Withdrawal, Reentrant, and Net Loss	- 80 -
Enlisted Withdrawal, Reentrant, and Net Loss.....	- 81 -
Percentage Distribution of New Entrants	- 82 -
Paygrade Transfer	- 83 -
Officer Promotion and Merit Basic Pay Increase Scales	- 84 -
Enlisted Promotion and Merit Basic Pay Increase Scales	- 85 -

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 reason. 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). The valuation results for active duty members and the full-time normal costs are 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-term actuarial assumptions. Full-time reservist experience is included in the data used to develop the rates. Even though in reality some active duty members terminate and later join the reserves, for valuation purposes there is no explicit assumption modeling anyone who terminates from the active duty and is rehired as a reservist.

The Board approved the use of updated disabled decrement rates for FY 2020. Previously, active duty disability retirement rates were updated in a prior year's (September 30, 2015), valuation based on 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 the 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 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 a four-year period) compared to what the new disability rates produce. The current update is based on rescaling the underlying experience period to FYs 2015-2019 without similar removal or additional adjustments.

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>	<u>2016-2019</u>
Death				X	X	
Nondisability Retirement	X	X	X			
Temporary Disability Retirement*					X	X
Permanent Disability Retirement*					X	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 subtracted additional disability retirements from withdrawals, thereby affecting withdrawal rates and reducing the impact on the percentage making 20 year retirement.

DEATH RATES FOR NONRETIRED MILITARY

(AGE NEAREST BIRTHDAY)

<u>Age</u>	<u>Officer</u>	<u>Enlisted</u>
16	0.00047	0.00066
17	0.00047	0.00068
18	0.00045	0.00069
19	0.00044	0.00070
20	0.00043	0.00072
21	0.00043	0.00073
22	0.00042	0.00074
23	0.00042	0.00074
24	0.00042	0.00073
25	0.00041	0.00073
26	0.00040	0.00071
27	0.00040	0.00070
28	0.00040	0.00068
29	0.00040	0.00068
30	0.00040	0.00066
31	0.00039	0.00066
32	0.00040	0.00065
33	0.00039	0.00065
34	0.00040	0.00065
35	0.00040	0.00066
36	0.00041	0.00066
37	0.00041	0.00065
38	0.00041	0.00066
39	0.00042	0.00066
40	0.00043	0.00067
41	0.00043	0.00068
42	0.00043	0.00068
43	0.00045	0.00070
44	0.00046	0.00071
45	0.00048	0.00073
46	0.00050	0.00075
47	0.00053	0.00078
48	0.00056	0.00082
49	0.00059	0.00085
50	0.00063	0.00089
51	0.00068	0.00094
52	0.00072	0.00098
53	0.00077	0.00103
54	0.00082	0.00108
55	0.00087	0.00114
56	0.00093	0.00120
57	0.00099	0.00127
58	0.00105	0.00133
59	0.00112	0.00140
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 derivati

**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	0.00079	0.00076
1	0.00000	0.00153	0.00078
2	0.00000	0.00200	0.00149
3	0.00000	0.00219	0.00196
4	0.00000	0.00244	0.00177
5	0.00000	0.00231	0.00189
6	0.00000	0.00258	0.00315
7	0.00000	0.00271	0.00210
8	0.00000	0.00277	0.00309
9	0.00000	0.00248	0.00347
10	0.00000	0.00253	0.00311
11	0.00000	0.00237	0.00274
12	0.00000	0.00217	0.00302
13	0.00000	0.00194	0.00356
14	0.00000	0.00193	0.00312
15	0.00000	0.00186	0.00324
16	0.00000	0.00166	0.00411
17	0.00000	0.00138	0.00446
18	0.00000	0.00081	0.00293
19	0.24226	0.00241	0.00469
20	0.19855	0.00314	0.00664
21	0.15670	0.00227	0.00599
22	0.14035	0.00282	0.00494
23	0.14080	0.00282	0.00622
24	0.13852	0.00288	0.00583
25	0.18068	0.00256	0.00459
26	0.18650	0.00430	0.00675
27	0.22063	0.00403	0.00542
28	0.20068	0.00484	0.00838
29	0.49335	0.00563	0.01078
30	0.36916	0.00727	0.01352
31	0.27108	0.00589	0.00583
32	0.25075	0.00589	0.00583
33	0.26246	0.00589	0.00583
34	1.00000	0.00589	0.00583

*** The increase in disability rates, particularly 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	0.00306	0.00076
1	0.00000	0.00501	0.00250
2	0.00000	0.00625	0.00407
3	0.00000	0.00734	0.00534
4	0.00000	0.00701	0.00554
5	0.00000	0.00689	0.00594
6	0.00000	0.00676	0.00696
7	0.00000	0.00717	0.00728
8	0.00000	0.00718	0.00858
9	0.00000	0.00731	0.00902
10	0.00000	0.00699	0.00962
11	0.00000	0.00689	0.01085
12	0.00000	0.00649	0.01058
13	0.00000	0.00631	0.01097
14	0.00000	0.00620	0.01030
15	0.00000	0.00528	0.01209
16	0.00000	0.00335	0.00927
17	0.00000	0.00225	0.00713
18	0.00000	0.00116	0.00467
19	0.41845	0.00529	0.01081
20	0.29726	0.00513	0.01242
21	0.26382	0.00427	0.00948
22	0.22687	0.00423	0.00710
23	0.28964	0.00442	0.00568
24	0.18408	0.00347	0.00480
25	0.33455	0.00436	0.00421
26	0.23743	0.00528	0.00425
27	0.23809	0.00500	0.00425
28	0.18686	0.00527	0.00990
29	0.77268	0.00886	0.01261
30	0.64353	0.01345	0.01753
31	0.42514	0.01525	0.00456
32	0.50059	0.01525	0.00456
33	0.40643	0.01525	0.00456
34	1.00000	0.01525	0.00456

*** The increase in disability rates, particularly 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)

Years of Service	Withdrawal	Reentrant ***	Net Loss
0	0.01713	0.11937	-0.10224
1	0.02056	0.03298	-0.01242
2	0.06830	0.02574	0.04256
3	0.11938	0.02898	0.09040
4	0.10589	0.01964	0.08625
5	0.09048	0.01703	0.07345
6	0.09311	0.01444	0.07867
7	0.08155	0.01400	0.06755
8	0.07306	0.01200	0.06106
9	0.06422	0.01155	0.05267
10	0.06241	0.00872	0.05369
11	0.04999	0.00798	0.04201
12	0.03200	0.00656	0.02544
13	0.02084	0.00557	0.01527
14	0.01291	0.00467	0.00824
15	0.00673	0.00368	0.00305
16	0.00322	0.00291	0.00031
17	0.00023	0.00252	-0.00229
18	0.00000	0.00246	-0.00246
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	0.10263	0.03043	0.07220
1	0.09857	0.00769	0.09088
2	0.17794	0.01394	0.16400
3	0.34908	0.02745	0.32163
4	0.15283	0.01394	0.13889
5	0.15051	0.01128	0.13923
6	0.10704	0.00966	0.09738
7	0.11781	0.00918	0.10863
8	0.08554	0.00761	0.07793
9	0.08041	0.00682	0.07359
10	0.04557	0.00540	0.04017
11	0.03508	0.00453	0.03055
12	0.02530	0.00347	0.02183
13	0.01289	0.00282	0.01007
14	0.01015	0.00223	0.00792
15	0.00000	0.00188	-0.00188
16	0.00000	0.00154	-0.00154
17	0.00000	0.00145	-0.00145
18	0.00000	0.00139	-0.00139
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

Years of Service	ENLISTED (BY ENTRY AGE)										
	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	- 88 -
Summary of Years on which Reserve Rates Are Based	- 90 -
Officer and Enlisted New Entrant Distribution	- 91 -
Officer and Enlisted, Selected and Non-Selected, Reserve Death	- 92 -
Officer Selected Reserve Non-Transfer/Retirement Separation.....	- 93 -
Enlisted Selected Reserve Non-Transfer/Retirement Separation	- 94 -
Officer Selected Reserve Reentrant.....	- 95 -
Enlisted Selected Reserve Reentrant	- 96 -
Officer Selected Reserve Non-Transfer/Retirement Net Separation.....	- 97 -
Enlisted Selected Reserve Non-Transfer/Retirement Net Separation	- 98 -
Officer Selected Reserve Paygrade Transfer	- 99 -
Enlisted Selected Reserve Paygrade Transfer	- 100 -
Officer Non-Selected Reserve with 20 Good Years Non-Retirement Separation.....	- 101 -
Enlisted Non-Selected Reserve with 20 Good Years Non-Retirement Separation	- 102 -
Officer Selected Reserve to Non-Selected Reserve with 20 Good Years Transfer.....	- 103 -
Enlisted Selected Reserve to Non-Selected Reserve with 20 Good Years Transfer	- 104 -
Officer and Enlisted, Selected and Non-Selected, Retirement	- 105 -
Officer and Enlisted Selected Reserve Temporary and Permanent Disability Retirement ...	- 106 -
Officer Selected Reserve Average Points Per Year.....	- 107 -
Enlisted Selected Reserve Average Points Per Year	- 108 -

RESERVE DUTY RATES

(Continued)

Officer Selected Reserve Career Points Adjustment - 109 -
Enlisted Selected Reserve Career Points Adjustment..... - 110 -
Officer Non-Selected Reserve with 20 Good Years Average Points Per Year - 111 -
Enlisted Non-Selected Reserve with 20 Good Years Average Points Per Year..... - 112 -
Officer Reentering Selected Reserve Average Points - 113 -
Enlisted Reentering Selected Reserve Average Points..... - 114 -
Officer and Enlisted Non-Selected Reserve with 20 Good Years Blow-Up - 115 -
Officer Selected Reserve to Non-Selected Reserve with 20 Good Years Transfer Blow-Up- 116 -
Enlisted Selected Reserve to Non-Selected Reserve with 20 Good Years Transfer Blow-Up- 117 -
Officer Non-Selected Reserve with 20 Good Years Adjustment due to Transfer Blow-Up. - 118 -
Enlisted Non-Selected Reserve with 20 Good Years Adjustment due to Transfer Blow-Up- 119 -
Officer Selected Reserve Promotion and Merit Basic Pay Increase Scales (PAMS)..... - 120 -
Enlisted Selected Reserve Promotion and Merit Basic Pay Increase Scales (PAMS) - 121 -
Officer Non-Selected Reserve with 20 Good Years PAMS - 122 -
Enlisted Non-Selected Reserve with 20 Good Years PAMS - 123 -

RESERVE DUTY RATES DESCRIPTION

Modeling decrement rates for reserves is similar to modeling decrement rates for active duty, although there are additional challenges due to members moving between active and reserve components, the structure of the reserve force, limitations of the reserve data, and 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 and are the reservists for whom normal costs are paid. The non-Selected Reserves with 20 good years⁶ 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-up⁷ 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. Below is a description of the rates used in the reserve valuation process.

In general, the data for the rates was taken from the RCCPDS files as of September 30 for Fiscal Years 2005 through 2009. As stated in the Summary of Changes for the September 30, 2020, Valuation in the FY 2020 Valuation Report, the experience periods for disability rates, grey area loss rates, grey area blow-up factors, nondisabled reserve retirement rates, and average points per year for selected reservists were updated. 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 OACT.

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

⁶ This includes the category commonly referred to as the “grey area” as well as other non-Selected Reservists with 20 qualifying retirement years.

⁷ 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-retire reservists the year before. The need for such “blow up” factors is one of many challenges in modeling reservists.

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.

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 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

RATE	2005	2006	2007	2008	2009	2010- 2014	2015	2016	2017	2018	2019
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
Disability Retirement* (Permanent/Temporary; Officer/Enlisted; Selected)							X	X	X	X	X
Average Points Per Year (Officer/Enlisted; Selected)									X	X	X
Average Points Per Year (Officer/Enlisted; Non- Selected)	X	X	X	X	X						
Career Points Adjustment (Officer/Enlisted; Non- 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
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 subtracted additional disability retirements from withdrawals, thereby affecting withdrawal rates and reducing the impact on the percentage making 20 year retirement.

New Entrant Distribution

By Paygrade (Officer/Enlisted)

Entry Age	Officer	Enlisted	Total
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	0.00045		
17	0.00028	0.00052		
18	0.00028	0.00058		
19	0.00028	0.00067		
20	0.00028	0.00073		
21	0.00028	0.00077		
22	0.00027	0.00079		
23	0.00028	0.00080		
24	0.00028	0.00078		
25	0.00029	0.00076		
26	0.00029	0.00073		
27	0.00029	0.00070		
28	0.00030	0.00068		
29	0.00031	0.00067		
30	0.00031	0.00066	0.00024	0.00044
31	0.00033	0.00066	0.00024	0.00044
32	0.00033	0.00067	0.00025	0.00044
33	0.00034	0.00066	0.00026	0.00044
34	0.00035	0.00065	0.00026	0.00044
35	0.00036	0.00065	0.00027	0.00043
36	0.00037	0.00065	0.00028	0.00042
37	0.00037	0.00064	0.00028	0.00042
38	0.00037	0.00065	0.00029	0.00041
39	0.00038	0.00066	0.00028	0.00042
40	0.00039	0.00069	0.00029	0.00043
41	0.00039	0.00072	0.00030	0.00052
42	0.00040	0.00073	0.00030	0.00063
43	0.00041	0.00076	0.00035	0.00072
44	0.00041	0.00077	0.00039	0.00082
45	0.00043	0.00078	0.00044	0.00092
46	0.00044	0.00078	0.00049	0.00101
47	0.00045	0.00078	0.00055	0.00110
48	0.00048	0.00078	0.00061	0.00122
49	0.00050	0.00079	0.00068	0.00134
50	0.00052	0.00080	0.00077	0.00149
51	0.00054	0.00083	0.00088	0.00167
52	0.00057	0.00087	0.00102	0.00188
53	0.00059	0.00094	0.00119	0.00215
54	0.00062	0.00104	0.00142	0.00247
55	0.00065	0.00117	0.00170	0.00288
56	0.00067	0.00132	0.00207	0.00340
57	0.00070	0.00150	0.00252	0.00406
58	0.00074	0.00169	0.00307	0.00489
59	0.00076	0.00192	0.00371	0.00585
60	0.00079	0.00218	0.00439	0.00686
61	0.00082	0.00246	0.00510	0.00789
62	0.00084	0.00277	0.00581	0.00890
63	0.00086	0.00312	0.00651	0.00989

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.

Reserve Retirement Rates

By Reserve Status and Paygrade

Age	Selected		Non-Selected	
	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	0.001	0.001	0.000	0.000
40	0.001	0.002	0.000	0.000
41	0.001	0.001	0.001	0.000
42	0.001	0.002	0.000	0.000
43	0.002	0.002	0.002	0.000
44	0.002	0.003	0.002	0.000
45	0.002	0.003	0.001	0.000
46	0.002	0.003	0.001	0.000
47	0.003	0.003	0.001	0.000
48	0.004	0.004	0.001	0.000
49	0.004	0.004	0.001	0.000
50	0.006	0.004	0.002	0.006
51	0.006	0.004	0.002	0.000
52	0.010	0.003	0.002	0.000
53	0.011	0.004	0.004	0.000
54	0.015	0.004	0.007	0.001
55	0.013	0.007	0.011	0.001
56	0.025	0.011	0.019	0.004
57	0.048	0.023	0.032	0.008
58	0.060	0.076	0.054	0.023
59	0.275	0.397	0.457	0.399
60	0.462	0.813	0.906	0.850
61	0.234	0.515	0.382	0.284
62	0.317	0.660	0.234	0.133
>62	0.162	0.389	0.081	0.053

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

Selected Reserve Disability Retirement Rates

By Disability Type and Paygrade

PEBD Years of Service	Permanent		Temporary	
	Officer	Enlisted	Officer	Enlisted
Under 1	0.00000	0.00013	0.00000	0.00020
1	0.00000	0.00027	0.00000	0.00015
2	0.00108	0.00094	0.00000	0.00027
3	0.00108	0.00121	0.00000	0.00036
4	0.00108	0.00129	0.00075	0.00039
5	0.00108	0.00180	0.00137	0.00046
6	0.00104	0.00212	0.00209	0.00050
7	0.00117	0.00182	0.00270	0.00052
8	0.00115	0.00199	0.00305	0.00050
9	0.00122	0.00271	0.00302	0.00056
10	0.00160	0.00328	0.00294	0.00066
11	0.00163	0.00371	0.00247	0.00082
12	0.00126	0.00396	0.00225	0.00088
13	0.00125	0.00415	0.00206	0.00082
14	0.00153	0.00404	0.00197	0.00076
15	0.00163	0.00367	0.00186	0.00078
16	0.00144	0.00344	0.00205	0.00073
17	0.00128	0.00344	0.00257	0.00072
18	0.00147	0.00359	0.00252	0.00071
19	0.00209	0.00478	0.00245	0.00076
20	0.00294	0.00628	0.00275	0.00078
21	0.00356	0.00659	0.00230	0.00084
22	0.00379	0.00796	0.00225	0.00100
23	0.00311	0.00952	0.00319	0.00107
24	0.00289	0.01028	0.00476	0.00109
25	0.00393	0.01095	0.00534	0.00112
26	0.00501	0.01155	0.00507	0.00123
27	0.00566	0.01219	0.00458	0.00132
28	0.00552	0.01326	0.00467	0.00127
29	0.00526	0.01360	0.00480	0.00117
30	0.00548	0.01431	0.00482	0.00111
31	0.00542	0.01484	0.00479	0.00108
32	0.00532	0.01422	0.00500	0.00101
33	0.00516	0.01287	0.00509	0.00094
34	0.00430	0.01217	0.00480	0.00091
35	0.00260	0.01284	0.00459	0.00094
36	0.00000	0.01321	0.00493	0.00103
37	0.00000	0.01232	0.00570	0.00110
38	0.00000	0.01052	0.00638	0.00113
39	0.00000	0.00825	0.00672	0.00109
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 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	1.031	1.072	0.990	0.977
60	1.054	1.091	0.986	0.977
61	1.443	2.609	0.910	0.917
62	2.870	6.591	0.823	1.045
>62	2.313	5.818	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.

Officer Selected Reserve Promotion and Merit Increase Scales (PAMS)

PAMS 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	0.000	0.041	1.161	0.523	1.007	1.011	1.007	1.012	1.016	1.022	1.028	1.034	1.040	1.046	1.052	1.058	1.064	1.070	1.076	1.082	1.088	1.094	1.100	1.106	1.112	1.118	1.124	1.130	1.136	1.142	1.148	1.154	1.160	1.166	1.172	1.178	1.184	1.190	1.196	1.202	1.208	1.214	1.220	1.226	1.232	1.238	1.244	1.250	1.256	1.262	1.268	1.274	1.280	1.286	1.292	1.298	1.304	1.310	1.316	1.322	1.328	1.334	1.340	1.346	1.352	1.358	1.364	1.370	1.376	1.382	1.388	1.394	1.400	1.406	1.412	1.418	1.424	1.430	1.436	1.442	1.448	1.454	1.460	1.466	1.472	1.478	1.484	1.490	1.496	1.502	1.508	1.514	1.520	1.526	1.532	1.538	1.544	1.550	1.556	1.562	1.568	1.574	1.580	1.586	1.592	1.598	1.604	1.610	1.616	1.622	1.628	1.634	1.640	1.646	1.652	1.658	1.664	1.670	1.676	1.682	1.688	1.694	1.700	1.706	1.712	1.718	1.724	1.730	1.736	1.742	1.748	1.754	1.760	1.766	1.772	1.778	1.784	1.790	1.796	1.802	1.808	1.814	1.820	1.826	1.832	1.838	1.844	1.850	1.856	1.862	1.868	1.874	1.880	1.886	1.892	1.898	1.904	1.910	1.916	1.922	1.928	1.934	1.940	1.946	1.952	1.958	1.964	1.970	1.976	1.982	1.988	1.994	2.000	2.006	2.012	2.018	2.024	2.030	2.036	2.042	2.048	2.054	2.060	2.066	2.072	2.078	2.084	2.090	2.096	2.102	2.108	2.114	2.120	2.126	2.132	2.138	2.144	2.150	2.156	2.162	2.168	2.174	2.180	2.186	2.192	2.198	2.204	2.210	2.216	2.222	2.228	2.234	2.240	2.246	2.252	2.258	2.264	2.270	2.276	2.282	2.288	2.294	2.300	2.306	2.312	2.318	2.324	2.330	2.336	2.342	2.348	2.354	2.360	2.366	2.372	2.378	2.384	2.390	2.396	2.402	2.408	2.414	2.420	2.426	2.432	2.438	2.444	2.450	2.456	2.462	2.468	2.474	2.480	2.486	2.492	2.498	2.504	2.510	2.516	2.522	2.528	2.534	2.540	2.546	2.552	2.558	2.564	2.570	2.576	2.582	2.588	2.594	2.600	2.606	2.612	2.618	2.624	2.630	2.636	2.642	2.648	2.654	2.660	2.666	2.672	2.678	2.684	2.690	2.696	2.702	2.708	2.714	2.720	2.726	2.732	2.738	2.744	2.750	2.756	2.762	2.768	2.774	2.780	2.786	2.792	2.798	2.804	2.810	2.816	2.822	2.828	2.834	2.840	2.846	2.852	2.858	2.864	2.870	2.876	2.882	2.888	2.894	2.900	2.906	2.912	2.918	2.924	2.930	2.936	2.942	2.948	2.954	2.960	2.966	2.972	2.978	2.984	2.990	2.996	3.002	3.008	3.014	3.020	3.026	3.032	3.038	3.044	3.050	3.056	3.062	3.068	3.074	3.080	3.086	3.092	3.098	3.104	3.110	3.116	3.122	3.128	3.134	3.140	3.146	3.152	3.158	3.164	3.170	3.176	3.182	3.188	3.194	3.200	3.206	3.212	3.218	3.224	3.230	3.236	3.242	3.248	3.254	3.260	3.266	3.272	3.278	3.284	3.290	3.296	3.302	3.308	3.314	3.320	3.326	3.332	3.338	3.344	3.350	3.356	3.362	3.368	3.374	3.380	3.386	3.392	3.398	3.404	3.410	3.416	3.422	3.428	3.434	3.440	3.446	3.452	3.458	3.464	3.470	3.476	3.482	3.488	3.494	3.500	3.506	3.512	3.518	3.524	3.530	3.536	3.542	3.548	3.554	3.560	3.566	3.572	3.578	3.584	3.590	3.596	3.602	3.608	3.614	3.620	3.626	3.632	3.638	3.644	3.650	3.656	3.662	3.668	3.674	3.680	3.686	3.692	3.698	3.704	3.710	3.716	3.722	3.728	3.734	3.740	3.746	3.752	3.758	3.764	3.770	3.776	3.782	3.788	3.794	3.800	3.806	3.812	3.818	3.824	3.830	3.836	3.842	3.848	3.854	3.860	3.866	3.872	3.878	3.884	3.890	3.896	3.902	3.908	3.914	3.920	3.926	3.932	3.938	3.944	3.950	3.956	3.962	3.968	3.974	3.980	3.986	3.992	3.998	4.004	4.010	4.016	4.022	4.028	4.034	4.040	4.046	4.052	4.058	4.064	4.070	4.076	4.082	4.088	4.094	4.100	4.106	4.112	4.118	4.124	4.130	4.136	4.142	4.148	4.154	4.160	4.166	4.172	4.178	4.184	4.190	4.196	4.202	4.208	4.214	4.220	4.226	4.232	4.238	4.244	4.250	4.256	4.262	4.268	4.274	4.280	4.286	4.292	4.298	4.304	4.310	4.316	4.322	4.328	4.334	4.340	4.346	4.352	4.358	4.364	4.370	4.376	4.382	4.388	4.394	4.400	4.406	4.412	4.418	4.424	4.430	4.436	4.442	4.448	4.454	4.460	4.466	4.472	4.478	4.484	4.490	4.496	4.502	4.508	4.514	4.520	4.526	4.532	4.538	4.544	4.550	4.556	4.562	4.568	4.574	4.580	4.586	4.592	4.598	4.604	4.610	4.616	4.622	4.628	4.634	4.640	4.646	4.652	4.658	4.664	4.670	4.676	4.682	4.688	4.694	4.700	4.706	4.712	4.718	4.724	4.730	4.736	4.742	4.748	4.754	4.760	4.766	4.772	4.778	4.784	4.790	4.796	4.802	4.808	4.814	4.820	4.826	4.832	4.838	4.844	4.850	4.856	4.862	4.868	4.874	4.880	4.886	4.892	4.898	4.904	4.910	4.916	4.922	4.928	4.934	4.940	4.946	4.952	4.958	4.964	4.970	4.976	4.982	4.988	4.994	5.000	5.006	5.012	5.018	5.024	5.030	5.036	5.042	5.048	5.054	5.060	5.066	5.072	5.078	5.084	5.090	5.096	5.102	5.108	5.114	5.120	5.126	5.132	5.138	5.144	5.150	5.156	5.162	5.168	5.174	5.180	5.186	5.192	5.198	5.204	5.210	5.216	5.222	5.228	5.234	5.240	5.246	5.252	5.258	5.264	5.270	5.276	5.282	5.288	5.294	5.300	5.306	5.312	5.318	5.324	5.330	5.336	5.342	5.348	5.354	5.360	5.366	5.372	5.378	5.384	5.390	5.396	5.402	5.408	5.414	5.420	5.426	5.432	5.438	5.444	5.450	5.456	5.462	5.468	5.474	5.480	5.486	5.492	5.498	5.504	5.510	5.516	5.522	5.528	5.534	5.540	5.546	5.552	5.558	5.564	5.570	5.576	5.582	5.588	5.594	5.600	5.606	5.612	5.618	5.624	5.630	5.636	5.642	5.648	5.654	5.660	5.666	5.672	5.678	5.684	5.690	5.696	5.702	5.708	5.714	5.720	5.726	5.732	5.738	5.744	5.750	5.756	5.762	5.768	5.774	5.780	5.786	5.792	5.798	5.804	5.810	5.816	5.822	5.828	5.834	5.840	5.846	5.852	5.858	5.864	5.870	5.876	5.882	5.888	5.894	5.900	5.906	5.912	5.918	5.924	5.930	5.936	5.942	5.948	5.954	5.960	5.966	5.972	5.978	5.984	5.990	5.996	6.002	6.008	6.014	6.020	6.026	6.032	6.038	6.044	6.050	6.056	6.062	6.068	6.074	6.080	6.086	6.092	6.098	6.104	6.110	6.116	6.122	6.128	6.134	6.140	6.146	6.152	6.158	6.164	6.170	6.176	6.182	6.188	6.194	6.200	6.206	6.212	6.218	6.224	6.230	6.236	6.242	6.248	6.254	6.260	6.266	6.272	6.278	6.284	6.290	6.296	6.302	6.308	6.314	6.320	6.326	6.332	6.338	6.344	6.350	6.356	6.362	6.368	6.374	6.380	6.386	6.392	6.398	6.404	6.410	6.416	6.422	6.428	6.434	6.440	6.446	6.452	6.458	6.464	6.470	6.476	6.482	6.488	6.494	6.500	6.506	6.512	6.518	6.524	6.530	6.536	6.542	6.548	6.554	6.560	6.566	6.572	6.578	6.584	6.590	6.596	6.602	6.608	6.614	6.620	6.626	6.632	6.638	6.644	6.650	6.656	6.662	6.668	6.674	6.680	6.686	6.692	6.698	6.704	6.710	6.716	6.722	6.728	6.734	6.740	6.746	6.752	6.758	6.764	6.770	6.776	6.782	6.788	6.794	6.800	6.806	6.812	6.818	6.824	6.830	6.836	6.842	6.848	6.854	6.860	6.866	6.872	6.878	6.884	6.890	6.896	6.902	6.908	6.914	6.920	6.926	6.932	6.938	6.944	6.950	6.956	6.962	6.968	6.974	6.980	6.986	6.992	6.998	7.004	7.010	7.016	7.022	7.028	7.034	7.040	7.046	7.052	7.058	7.064	7.070	7.076	7.082	7.088	7.094	7.100	7.106	7.112	7.118	7.124	7.130	7.136	7.142	7.148	7.154	7.160	7.166	7.172	7.178	7.184	7.190	7.196	7.202	7.208	7.214	7.220	7.226	7.232	7.238	7.244	7.250	7.256	7.262	7.268	7.274	7.280	7.286	7.292	7.298	7.304	7.310	7.316	7.322	7.328	7.334	7.340	7.346	7.352	7.358	7.364	7.370	7.376	7.382	7.388	7.394	7.400	7.406	7.412	7.418	7.424	7.430	7.436	7.442	7.448	7.454	7.460	7.466	7.472	7.478	7.484	7.490	7.496	7.502	7.508	7.514	7.520	7.526	7.532	7.538	7.544	7.550	7.556	7.562	7.568	7.574	7.580	7.586	7.592	7.598	7.604	7.610	7.616	7.622	7.628	7.634	7.640	7.646	7.652	7.658	7.664	7.670	7.676	7.682	7.688	7.694	7.700	7.706	7.712	7.718	7.724	7.730	7.736	7.742	7.748	7.754	7.760	7.766	7.772	7.778	7.784	7.790	7.796	7.802	7.808	7.814	7.820	7.826	7.832	7.838	7.844	7.850	7.856	7.862	7.868	7.874	7.880	7.886	7.892	7.898	7.904	7.910	7.916	7.922	7.928	7.934	7.940	7.946	7.952	7.958	7.964	7.970	7.976	7.982	7.988	7.994	8.000	8.006	8.012	8.018	8.024	8.030	8.036	8.042	8.048	8.054	8.060	8.066</

APPENDIX I

RETIREE AND SURVIVOR RATES

	<u>Page</u>
Retiree and Survivor Rates Description.....	- 125 -
Retiree and Survivor Decrement Rate Formulas	- 126 -
Summary of Years on which Retiree and Survivor Rates are Based.....	- 128 -
Officer Retired Death (Non-, Permanent, and Temporary Disability)	- 129 -
Enlisted Retired Death (Non-, Permanent, and Temporary Disability).....	- 131 -
Active Duty Other Losses from Nondisability	- 133 -
Reserve Duty Other Losses from Nondisability.....	- 134 -
Other Loss and Nontransfer Losses from Temporary Disability	- 135 -
Transfer from Temporary Disability to Permanent Disability.....	- 136 -
Other Losses from Permanent Disability.....	- 137 -
Retiree Divorce	- 138 -
Surviving Spouse Remarriage	- 139 -
Surviving Child Coverage Termination	- 140 -
Surviving Spouse Death	- 141 -
Spouse Death	- 142 -
Surviving Spouse Other Loss	- 143 -

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 VA or Civil Service. In order to compute the normal cost contributions with and without regard to Concurrent Receipt benefits (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.⁸

The data for the retiree and survivor rates were taken from files maintained by DMDC as of September 30 for the years 2007 through 2016. These files were created by 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 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.

⁸ P.L. 114-328 changed the maximum temporary disability period from five years to three years for members placed on temporary disability after January 1, 2017. Members placed on temporary disability prior to that date were grandfathered. Temporary disabled retirees in the starting census in this valuation with more than three years were set equal to three years, and the three year rates were applied to them. Hence, the temporary disability rates shown in this report only go through three years. Notwithstanding what is shown in the rates, those still remaining on temporary disability at the end of the temporary disability period are assumed to be transferred to permanent disability.

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)

$$\frac{\text{Temporary disability deaths in category during the year}^9}{[\text{Number at beginning of year} - \frac{1}{2} (\text{Deaths} + \text{transfers} + \text{other losses})]}$$

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)

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

⁹ 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.

**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) ¹⁰

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

OTHER LOSS OF SURVIVING SPOUSE (by age nearest birthday)

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

¹⁰ Death rates of spouses of living retirees who elected SBP spouse, or spouse & child, coverage are based on a standard actuarial mortality table using data from private, public, and federal pension plans. This table is published by the Society of Actuaries (SOA) as 'RPH-2014 – Female/Male Tables.'

SUMMARY OF YEARS ON WHICH RETIREE AND SURVIVOR RATES ARE BASED

By Fiscal Year

<u>DEATH RATES</u>	<u>2007</u>	<u>2008</u>	<u>2009</u>	<u>2010</u>	<u>2011</u>	<u>2012</u>	<u>2013</u>	<u>2014</u>	<u>2015</u>	<u>2016</u>	<u>2017</u>	<u>2018</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 TO PD</u>												
Officer/Enlisted	X	X	X	X								
 <u>RETIREE DIVORCE</u>											X	X
 <u>SURVIVOR RATES</u>												
Remarriage								X	X	X		
Child Coverage Termination								X	X	X		
Surviving Spouse Death								X	X	X		
Surviving Spouse Other Loss								X	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
16	0.00028	0.00032	0.00180	0.00939	0.00890	0.00841
17	0.00028	0.00032	0.00180	0.00939	0.00890	0.00841
18	0.00028	0.00032	0.00180	0.00939	0.00890	0.00841
19	0.00028	0.00032	0.00180	0.00939	0.00890	0.00841
20	0.00028	0.00032	0.00180	0.00939	0.00890	0.00841
21	0.00028	0.00032	0.00180	0.00939	0.00890	0.00841
22	0.00028	0.00032	0.00182	0.00939	0.00890	0.00841
23	0.00028	0.00032	0.00185	0.00939	0.00890	0.00841
24	0.00028	0.00032	0.00188	0.00939	0.00890	0.00841
25	0.00028	0.00032	0.00191	0.00939	0.00890	0.00841
26	0.00028	0.00032	0.00194	0.00939	0.00890	0.00841
27	0.00028	0.00032	0.00197	0.00939	0.00890	0.00841
28	0.00028	0.00032	0.00200	0.00939	0.00890	0.00841
29	0.00028	0.00032	0.00203	0.00939	0.00890	0.00841
30	0.00028	0.00032	0.00206	0.00939	0.00890	0.00841
31	0.00029	0.00034	0.00208	0.00939	0.00890	0.00841
32	0.00031	0.00037	0.00211	0.00939	0.00890	0.00841
33	0.00032	0.00040	0.00214	0.00939	0.00890	0.00841
34	0.00034	0.00042	0.00217	0.00939	0.00890	0.00841
35	0.00035	0.00046	0.00235	0.00939	0.00890	0.00841
36	0.00037	0.00049	0.00237	0.00939	0.00890	0.00841
37	0.00038	0.00053	0.00240	0.00939	0.00890	0.00841
38	0.00040	0.00056	0.00242	0.00939	0.00890	0.00841
39	0.00042	0.00060	0.00244	0.00939	0.00890	0.00841
40	0.00043	0.00065	0.00201	0.00939	0.00890	0.00841
41	0.00045	0.00070	0.00202	0.00939	0.00890	0.00841
42	0.00048	0.00075	0.00204	0.00939	0.00890	0.00841
43	0.00050	0.00081	0.00205	0.00939	0.00890	0.00841
44	0.00052	0.00087	0.00207	0.00939	0.00890	0.00841
45	0.00054	0.00094	0.00323	0.00939	0.00890	0.00841
46	0.00056	0.00101	0.00299	0.00939	0.00890	0.00841
47	0.00059	0.00109	0.00280	0.00939	0.00890	0.00841
48	0.00066	0.00116	0.00266	0.00939	0.00890	0.00841
49	0.00074	0.00125	0.00257	0.00939	0.00890	0.00841
50	0.00083	0.00135	0.00254	0.00939	0.00890	0.00841
51	0.00093	0.00144	0.00257	0.00939	0.00890	0.00841
52	0.00105	0.00155	0.00266	0.00939	0.00890	0.00841
53	0.00120	0.00167	0.00281	0.00939	0.00890	0.00841
54	0.00135	0.00179	0.00304	0.00939	0.00890	0.00841
55	0.00152	0.00192	0.00334	0.00939	0.00890	0.00841
56	0.00171	0.00206	0.00372	0.00939	0.00890	0.00841
57	0.00193	0.00221	0.00417	0.00939	0.00890	0.00841
58	0.00217	0.00238	0.00471	0.00939	0.00890	0.00841
59	0.00244	0.00255	0.00534	0.00939	0.00890	0.00841
60	0.00274	0.00274	0.00606	0.00939	0.00890	0.00841
61	0.00309	0.00302	0.00687	0.00939	0.00890	0.00841
62	0.00349	0.00340	0.00778	0.00939	0.00890	0.00841
63	0.00396	0.00385	0.00878	0.00939	0.00890	0.00841
64	0.00450	0.00440	0.00988	0.00939	0.00890	0.00841
65	0.00512	0.00502	0.01109	0.00939	0.00890	0.00841

*** 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
66	0.00582	0.00572	0.01241			
67	0.00662	0.00652	0.01386			
68	0.00754	0.00741	0.01546			
69	0.00859	0.00842	0.01723			
70	0.00980	0.00957	0.01922			
71	0.01120	0.01088	0.02146			
72	0.01282	0.01239	0.02402			
73	0.01470	0.01412	0.02693			
74	0.01687	0.01612	0.03027			
75	0.01938	0.01845	0.03408			
76	0.02228	0.02119	0.03844			
77	0.02563	0.02440	0.04341			
78	0.02949	0.02816	0.04907			
79	0.03394	0.03259	0.05547			
80	0.03906	0.03776	0.06268			
81	0.04497	0.04382	0.07074			
82	0.05176	0.05086	0.07971			
83	0.05957	0.05901	0.08967			
84	0.06851	0.06838	0.10068			
85	0.07870	0.07905	0.11281			
86	0.09023	0.09113	0.12612			
87	0.10323	0.10466	0.14067			
88	0.11781	0.11968	0.15653			
89	0.13406	0.13620	0.17375			
90	0.15212	0.15421	0.19239			
91	0.17206	0.17368	0.21252			
92	0.19400	0.19460	0.23420			
93	0.21805	0.21695	0.25749			
94	0.24435	0.24075	0.28243			
95	0.27307	0.26604	0.30909			
96	0.30444	0.29288	0.33754			
97	0.34190	0.32523	0.36780			
98	0.38787	0.36564	0.39991			
99	0.44387	0.41547	0.43390			
100	0.51067	0.47511	0.46981			
101	0.58852	0.53899	0.50461			
102	0.66189	0.60940	0.54245			
103	0.74022	0.68511	0.58277			
104	0.82222	0.76481	0.62571			
105	0.90697	0.84856	0.67183			
106	0.99557	0.93655	0.72141			
107	1.08882	1.03002	0.77471			
108	1.18551	1.12778	0.83195			
109	1.28418	1.22861	0.89342			
110	1.38284	1.33067	0.95943			
111	1.48149	1.43775	1.03600			
112	1.57290	1.53544	1.11254			
113	1.65660	1.62663	1.19472			
114	1.73021	1.70872	1.28298			
115	1.79186	1.77957	1.37775			
116	1.84922	1.83991	1.48213			
117	1.89743	1.89055	1.59743			

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
16	0.00046	0.00042	0.00071	0.00616	0.00565	0.00514
17	0.00046	0.00042	0.00071	0.00616	0.00565	0.00514
18	0.00046	0.00042	0.00071	0.00616	0.00565	0.00514
19	0.00046	0.00042	0.00071	0.00616	0.00565	0.00514
20	0.00046	0.00042	0.00071	0.00616	0.00565	0.00514
21	0.00046	0.00042	0.00071	0.00616	0.00565	0.00514
22	0.00046	0.00042	0.00072	0.00616	0.00565	0.00514
23	0.00046	0.00042	0.00144	0.00616	0.00565	0.00514
24	0.00046	0.00042	0.00146	0.00616	0.00565	0.00514
25	0.00046	0.00042	0.00149	0.00616	0.00565	0.00514
26	0.00046	0.00042	0.00151	0.00616	0.00565	0.00514
27	0.00046	0.00042	0.00154	0.00616	0.00565	0.00514
28	0.00046	0.00042	0.00157	0.00616	0.00565	0.00514
29	0.00046	0.00042	0.00160	0.00616	0.00565	0.00514
30	0.00046	0.00042	0.00163	0.00616	0.00565	0.00514
31	0.00049	0.00045	0.00166	0.00616	0.00565	0.00514
32	0.00052	0.00050	0.00170	0.00616	0.00565	0.00514
33	0.00056	0.00054	0.00173	0.00616	0.00565	0.00514
34	0.00061	0.00059	0.00178	0.00616	0.00565	0.00514
35	0.00066	0.00064	0.00183	0.00616	0.00565	0.00514
36	0.00070	0.00070	0.00189	0.00616	0.00565	0.00514
37	0.00076	0.00076	0.00196	0.00616	0.00565	0.00514
38	0.00082	0.00083	0.00203	0.00616	0.00565	0.00514
39	0.00087	0.00091	0.00211	0.00616	0.00565	0.00514
40	0.00094	0.00099	0.00219	0.00616	0.00565	0.00514
41	0.00099	0.00108	0.00227	0.00616	0.00565	0.00514
42	0.00104	0.00118	0.00236	0.00616	0.00565	0.00514
43	0.00109	0.00128	0.00246	0.00616	0.00565	0.00514
44	0.00115	0.00139	0.00257	0.00616	0.00565	0.00514
45	0.00121	0.00152	0.00271	0.00616	0.00565	0.00514
46	0.00128	0.00166	0.00287	0.00616	0.00565	0.00514
47	0.00137	0.00181	0.00308	0.00616	0.00565	0.00514
48	0.00147	0.00197	0.00332	0.00616	0.00565	0.00514
49	0.00161	0.00215	0.00363	0.00616	0.00565	0.00514
50	0.00178	0.00233	0.00399	0.00616	0.00565	0.00514
51	0.00199	0.00255	0.00443	0.00616	0.00565	0.00514
52	0.00223	0.00277	0.00494	0.00616	0.00565	0.00514
53	0.00249	0.00302	0.00553	0.00616	0.00565	0.00514
54	0.00280	0.00329	0.00619	0.00616	0.00565	0.00514
55	0.00315	0.00358	0.00693	0.00616	0.00565	0.00514
56	0.00354	0.00390	0.00775	0.00616	0.00565	0.00514
57	0.00401	0.00425	0.00864	0.00616	0.00565	0.00514
58	0.00455	0.00462	0.00962	0.00616	0.00565	0.00514
59	0.00517	0.00503	0.01068	0.00616	0.00565	0.00514
60	0.00590	0.00549	0.01183	0.00616	0.00565	0.00514
61	0.00676	0.00599	0.01308	0.00616	0.00565	0.00514
62	0.00773	0.00662	0.01445	0.00616	0.00565	0.00514
63	0.00885	0.00736	0.01594	0.00616	0.00565	0.00514
64	0.01012	0.00823	0.01757	0.00616	0.00565	0.00514
65	0.01157	0.00922	0.01937	0.00616	0.00565	0.00514

*** 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
66	0.01320	0.01035	0.02135			
67	0.01503	0.01162	0.02354			
68	0.01707	0.01304	0.02597			
69	0.01934	0.01462	0.02869			
70	0.02185	0.01637	0.03171			
71	0.02465	0.01833	0.03507			
72	0.02774	0.02054	0.03880			
73	0.03113	0.02301	0.04291			
74	0.03486	0.02581	0.04743			
75	0.03889	0.02899	0.05238			
76	0.04323	0.03262	0.05781			
77	0.04793	0.03677	0.06376			
78	0.05305	0.04153	0.07027			
79	0.05864	0.04698	0.07739			
80	0.06478	0.05320	0.08515			
81	0.07158	0.06027	0.09360			
82	0.07911	0.06826	0.10276			
83	0.08746	0.07723	0.11270			
84	0.09677	0.08727	0.12345			
85	0.10716	0.09841	0.13506			
86	0.11875	0.11074	0.14755			
87	0.13171	0.12431	0.16094			
88	0.14617	0.13918	0.17524			
89	0.16228	0.15538	0.19045			
90	0.18021	0.17296	0.20660			
91	0.20016	0.19194	0.22370			
92	0.22232	0.21233	0.24178			
93	0.24691	0.23417	0.26088			
94	0.27421	0.25643	0.28102			
95	0.30450	0.27990	0.30224			
96	0.33812	0.30481	0.32462			
97	0.37812	0.33481	0.34817			
98	0.42672	0.37216	0.37290			
99	0.48528	0.41781	0.39884			
100	0.53348	0.47165	0.42600			
101	0.58611	0.53285	0.46049			
102	0.64189	0.60017	0.49741			
103	0.69953	0.67245	0.53696			
104	0.75914	0.74858	0.57930			
105	0.82034	0.82806	0.62501			
106	0.88350	0.91129	0.67437			
107	0.94982	0.99975	0.72770			
108	1.01891	1.09260	0.78524			
109	1.09025	1.18875	0.84732			
110	1.16319	1.28672	0.91432			
111	1.24295	1.39752	0.99206			
112	1.31671	1.49429	1.07049			
113	1.38898	1.58665	1.15512			
114	1.45841	1.67237	1.24644			
115	1.52359	1.74944	1.34497			
116	1.59874	1.81425	1.45385			
117	1.67131	1.86721	1.57452			

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

Year of Retirement			Year of Retirement		
One	Two	Three	One	Two	Three
1.639	1.176	1.070	1.368	1.228	1.067

Example: The DoD-specific Other/Nontransfer Loss rate (across all ages) for Officers in Year One of Retirement would be 0.0433, 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	One	Two
16	0.1281	0.1740	0.0626	0.0947
17	0.1281	0.1740	0.0626	0.0947
18	0.1281	0.1740	0.0626	0.0947
19	0.1281	0.1740	0.0626	0.0947
20	0.1281	0.1740	0.0626	0.0947
21	0.1281	0.1740	0.0626	0.0947
22	0.1281	0.1740	0.0626	0.0947
23	0.1281	0.1740	0.0626	0.0947
24	0.1281	0.1740	0.0626	0.0947
25	0.1281	0.1740	0.0626	0.0947
26	0.1281	0.1740	0.0626	0.0947
27	0.1281	0.1740	0.0626	0.0947
28	0.1281	0.1740	0.0626	0.0947
29	0.1281	0.1740	0.0626	0.0947
30	0.1281	0.1740	0.0626	0.0947
31	0.1281	0.1740	0.0626	0.0947
32	0.1281	0.1740	0.0626	0.0947
33	0.1281	0.1740	0.0626	0.0947
34	0.1281	0.1740	0.0626	0.0947
35	0.1281	0.1740	0.0626	0.0947
36	0.1281	0.1740	0.0626	0.0947
37	0.1281	0.1740	0.0626	0.0947
38	0.1281	0.1740	0.0626	0.0947
39	0.1281	0.1740	0.0626	0.0947
40	0.1281	0.1740	0.0626	0.0947
41	0.1281	0.1740	0.0626	0.0947
42	0.1281	0.1740	0.0626	0.0947
43	0.1281	0.1740	0.0626	0.0947
44	0.1281	0.1740	0.0626	0.0947
45	0.1281	0.1740	0.0626	0.0947
46	0.1281	0.1740	0.0626	0.0947
47	0.1281	0.1740	0.0626	0.0947
48	0.1281	0.1740	0.0626	0.0947
49	0.1281	0.1740	0.0626	0.0947
50	0.1281	0.1740	0.0626	0.0947
51	0.1281	0.1740	0.0626	0.0947
52	0.1281	0.1740	0.0626	0.0947
53	0.1281	0.1740	0.0626	0.0947
54	0.1281	0.1740	0.0626	0.0947
55	0.1281	0.1740	0.0626	0.0947
56	0.1281	0.1740	0.0626	0.0947
57	0.1281	0.1740	0.0626	0.0947
58	0.1281	0.1740	0.0626	0.0947
59	0.1281	0.1740	0.0626	0.0947
60	0.1281	0.1740	0.0626	0.0947
61	0.1281	0.1740	0.0626	0.0947
62	0.1281	0.1740	0.0626	0.0947
63	0.1281	0.1740	0.0626	0.0947
64	0.1281	0.1740	0.0626	0.0947
65	0.1281	0.1740	0.0626	0.0947

* Those still remaining on temporary disability at the end of the temporary disability period are assumed to be transferred to permanent disability.

OTHER LOSSES FROM PERMANENT DISABILITY

(Age Nearest Birthday)

DoD		Treasury		DoD		Treasury			
Age	Officer	Enlisted	Officer	Enlisted	Age	Officer	Enlisted	Officer	Enlisted
16	0.0709	0.3602	0.0344	0.3028	54	0.0119	0.0468	0.0077	0.0215
17	0.0709	0.3602	0.0344	0.3028	55	0.0114	0.0435	0.0073	0.0207
18	0.0709	0.3602	0.0344	0.3028	56	0.0110	0.0408	0.0069	0.0197
19	0.0709	0.3602	0.0344	0.3028	57	0.0107	0.0384	0.0065	0.0186
20	0.0709	0.3346	0.0344	0.2624	58	0.0105	0.0364	0.0061	0.0174
21	0.0709	0.3107	0.0344	0.2253	59	0.0103	0.0347	0.0058	0.0161
22	0.0709	0.2887	0.0344	0.1916	60	0.0102	0.0333	0.0054	0.0146
23	0.0709	0.2685	0.0344	0.1611	61	0.0102	0.0321	0.0051	0.0132
24	0.0709	0.2501	0.0344	0.1339	62	0.0102	0.0312	0.0048	0.0116
25	0.0709	0.2334	0.0344	0.1100	63	0.0102	0.0304	0.0046	0.0102
26	0.0670	0.2186	0.0323	0.0894	64	0.0103	0.0297	0.0043	0.0087
27	0.0633	0.2055	0.0302	0.0720	65	0.0103	0.0291	0.0041	0.0074
28	0.0598	0.1941	0.0283	0.0576	66	0.0103	0.0285	0.0040	0.0062
29	0.0565	0.1842	0.0266	0.0462	67	0.0103	0.0279	0.0038	0.0053
30	0.0533	0.1758	0.0249	0.0376	68	0.0102	0.0273	0.0037	0.0045
31	0.0503	0.1687	0.0234	0.0313	69	0.0101	0.0267	0.0037	0.0040
32	0.0475	0.1625	0.0220	0.0272	70	0.0100	0.0261	0.0036	0.0036
33	0.0448	0.1572	0.0207	0.0248	71	0.0098	0.0254	0.0036	0.0034
34	0.0422	0.1524	0.0195	0.0237	72	0.0095	0.0247	0.0036	0.0034
35	0.0398	0.1479	0.0184	0.0236	73	0.0092	0.0239	0.0036	0.0034
36	0.0375	0.1436	0.0175	0.0242	74	0.0089	0.0231	0.0036	0.0035
37	0.0354	0.1393	0.0166	0.0251	75	0.0086	0.0223	0.0036	0.0037
38	0.0333	0.1348	0.0157	0.0261	76	0.0082	0.0214	0.0037	0.0038
39	0.0313	0.1301	0.0150	0.0270	77	0.0079	0.0205	0.0037	0.0039
40	0.0294	0.1250	0.0143	0.0278	78	0.0075	0.0196	0.0038	0.0040
41	0.0275	0.1195	0.0137	0.0283	79	0.0071	0.0187	0.0038	0.0040
42	0.0258	0.1137	0.0131	0.0285	80	0.0068	0.0177	0.0039	0.0040
43	0.0241	0.1076	0.0125	0.0284	81	0.0064	0.0168	0.0039	0.0039
44	0.0225	0.1013	0.0120	0.0281	82	0.0060	0.0158	0.0040	0.0038
45	0.0210	0.0948	0.0115	0.0277	83	0.0057	0.0148	0.0041	0.0036
46	0.0196	0.0884	0.0111	0.0271	84	0.0054	0.0139	0.0042	0.0033
47	0.0182	0.0820	0.0106	0.0265	85	0.0051	0.0129	0.0043	0.0031
48	0.0170	0.0758	0.0102	0.0258	86	0.0048	0.0119	0.0044	0.0027
49	0.0159	0.0699	0.0098	0.0251	87	0.0046	0.0109	0.0045	0.0024
50	0.0149	0.0644	0.0094	0.0244	88	0.0044	0.0099	0.0047	0.0020
51	0.0140	0.0593	0.0090	0.0238	89	0.0042	0.0089	0.0049	0.0016
52	0.0131	0.0546	0.0085	0.0231	90	0.0041	0.0079	0.0050	0.0012
53	0.0125	0.0504	0.0081	0.0223					

*** 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	0.0408	0.0408	0.0408	0.0408	50	0.0068	0.0068	0.0068	0.0068
17	0.0376	0.0376	0.0376	0.0376	51	0.0059	0.0059	0.0059	0.0059
18	0.0345	0.0345	0.0345	0.0345	52	0.0051	0.0051	0.0051	0.0051
19	0.0318	0.0318	0.0318	0.0318	53	0.0043	0.0043	0.0043	0.0043
20	0.0292	0.0292	0.0292	0.0292	54	0.0037	0.0037	0.0037	0.0037
21	0.0269	0.0269	0.0269	0.0269	55	0.0031	0.0031	0.0031	0.0031
22	0.0247	0.0247	0.0247	0.0247	56	0.0028	0.0028	0.0028	0.0028
23	0.0227	0.0227	0.0227	0.0227	57	0.0026	0.0026	0.0026	0.0026
24	0.0208	0.0208	0.0208	0.0208	58	0.0026	0.0026	0.0026	0.0026
25	0.0190	0.0190	0.0190	0.0190	59	0.0026	0.0026	0.0026	0.0026
26	0.0175	0.0175	0.0175	0.0175	60	0.0027	0.0027	0.0027	0.0027
27	0.0161	0.0161	0.0161	0.0161	61	0.0027	0.0027	0.0027	0.0027
28	0.0148	0.0148	0.0148	0.0148	62	0.0025	0.0025	0.0025	0.0025
29	0.0138	0.0138	0.0138	0.0138	63	0.0021	0.0021	0.0021	0.0021
30	0.0129	0.0129	0.0129	0.0129	64	0.0016	0.0016	0.0016	0.0016
31	0.0124	0.0124	0.0124	0.0124	65	0.0010	0.0010	0.0010	0.0010
32	0.0121	0.0121	0.0121	0.0121	66	0.0004	0.0004	0.0004	0.0004
33	0.0121	0.0121	0.0121	0.0121	67	0.0000	0.0000	0.0000	0.0000
34	0.0123	0.0123	0.0123	0.0123	68	0.0000	0.0000	0.0000	0.0000
35	0.0129	0.0129	0.0129	0.0129	69	0.0000	0.0000	0.0000	0.0000
36	0.0136	0.0136	0.0136	0.0136	70	0.0000	0.0000	0.0000	0.0000
37	0.0144	0.0144	0.0144	0.0144	71	0.0000	0.0000	0.0000	0.0000
38	0.0151	0.0151	0.0151	0.0151	72	0.0000	0.0000	0.0000	0.0000
39	0.0156	0.0156	0.0156	0.0156	73	0.0000	0.0000	0.0000	0.0000
40	0.0157	0.0157	0.0157	0.0157	74	0.0000	0.0000	0.0000	0.0000
41	0.0155	0.0155	0.0155	0.0155	75	0.0000	0.0000	0.0000	0.0000
42	0.0150	0.0150	0.0150	0.0150	76	0.0000	0.0000	0.0000	0.0000
43	0.0142	0.0142	0.0142	0.0142	77	0.0000	0.0000	0.0000	0.0000
44	0.0132	0.0132	0.0132	0.0132	78	0.0000	0.0000	0.0000	0.0000
45	0.0121	0.0121	0.0121	0.0121	79	0.0000	0.0000	0.0000	0.0000
46	0.0109	0.0109	0.0109	0.0109	80	0.0000	0.0000	0.0000	0.0000
47	0.0098	0.0098	0.0098	0.0098	81	0.0000	0.0000	0.0000	0.0000
48	0.0088	0.0088	0.0088	0.0088	82	0.0000	0.0000	0.0000	0.0000
49	0.0078	0.0078	0.0078	0.0078					

*** 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	0.0100	38	0.0135
17	0.0100	39	0.0135
18	0.0100	40	0.0160
19	0.0100	41	0.0160
20	0.0100	42	0.0160
21	0.0100	43	0.0160
22	0.0100	44	0.0160
23	0.0100	45	0.0125
24	0.0100	46	0.0125
25	0.0100	47	0.0125
26	0.0100	48	0.0125
27	0.0100	49	0.0125
28	0.0100	50	0.0088
29	0.0100	51	0.0088
30	0.0260	52	0.0088
31	0.0260	53	0.0088
32	0.0260	54	0.0088
33	0.0260	55	0.0000
34	0.0260	56	0.0000
35	0.0135	57	0.0000
36	0.0135	58	0.0000
37	0.0135	59	0.0000

SURVIVING CHILD COVERAGE TERMINATION RATES

(Age Nearest Birthday)

<u>Age</u>	<u>Rate</u>
0	0.000
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	0.256
18	0.356
19	0.143
20	0.091
21	0.400
22	0.590
23	0.149

SURVIVING SPOUSE DEATH RATES ***

(Age Nearest Birthday)

Age	Rate	Age	Rate
0	0.00575	60	0.00820
1	0.00034	61	0.00865
2	0.00023	62	0.00924
3	0.00018	63	0.00998
4	0.00014	64	0.01085
5	0.00013	65	0.01185
6	0.00011	66	0.01297
7	0.00010	67	0.01421
8	0.00009	68	0.01553
9	0.00008	69	0.01694
10	0.00007	70	0.01844
11	0.00007	71	0.02002
12	0.00010	72	0.02169
13	0.00013	73	0.02347
14	0.00016	74	0.02541
15	0.00020	75	0.02756
16	0.00024	76	0.02996
17	0.00027	77	0.03271
18	0.00040	78	0.03586
19	0.00045	79	0.03948
20	0.00051	80	0.04364
21	0.00056	81	0.04843
22	0.00061	82	0.05388
23	0.00064	83	0.06007
24	0.00067	84	0.06709
25	0.00070	85	0.07496
26	0.00073	86	0.08378
27	0.00075	87	0.09358
28	0.00079	88	0.10441
29	0.00084	89	0.11633
30	0.00089	90	0.12939
31	0.00095	91	0.14361
32	0.00100	92	0.15906
33	0.00107	93	0.17579
34	0.00114	94	0.19383
35	0.00122	95	0.21323
36	0.00130	96	0.23404
37	0.00140	97	0.25627
38	0.00150	98	0.27991
39	0.00161	99	0.30497
40	0.00174	100	0.33145
41	0.00188	101	0.35922
42	0.00205	102	0.38833
43	0.00224	103	0.41875
44	0.00246	104	0.45050
45	0.00270	105	0.48358
46	0.00296	106	0.50777
47	0.00325	107	0.53316
48	0.00357	108	0.55983
49	0.00391	109	0.58783
50	0.00429	110	0.99355
51	0.00468	111	0.99474
52	0.00508	112	0.99594
53	0.00547	113	0.99713
54	0.00586	114	0.99833
55	0.00631	115	0.99953
56	0.00679	116	0.99977
57	0.00728	118	0.99992
58	0.00776	118	1.00000
59	0.00791	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)

Age	Rate	Age	Rate
0	0.00777	60	0.00667
1	0.00046	61	0.00347
2	0.00031	62	0.00372
3	0.00024	63	0.00399
4	0.00018	64	0.00428
5	0.00016	65	0.00460
6	0.00015	66	0.00504
7	0.00014	67	0.00552
8	0.00012	68	0.00606
9	0.00011	69	0.00666
10	0.00010	70	0.00733
11	0.00010	71	0.00809
12	0.00013	72	0.00892
13	0.00016	73	0.00987
14	0.00021	74	0.01093
15	0.00027	75	0.01211
16	0.00032	76	0.01344
17	0.00037	77	0.01492
18	0.00036	78	0.01659
19	0.00039	79	0.01844
20	0.00042	80	0.02051
21	0.00045	81	0.02432
22	0.00046	82	0.02882
23	0.00049	83	0.03416
24	0.00051	84	0.04047
25	0.00054	85	0.04791
26	0.00057	86	0.05666
27	0.00060	87	0.06693
28	0.00063	88	0.07894
29	0.00067	89	0.09292
30	0.00073	90	0.10926
31	0.00078	91	0.12836
32	0.00087	92	0.14203
33	0.00096	93	0.15620
34	0.00106	94	0.17087
35	0.00119	95	0.18603
36	0.00134	96	0.20291
37	0.00149	97	0.22055
38	0.00165	98	0.23898
39	0.00184	99	0.25815
40	0.00202	100	0.27796
41	0.00221	101	0.29815
42	0.00239	102	0.31849
43	0.00257	103	0.33888
44	0.00276	104	0.35887
45	0.00294	105	0.37870
46	0.00312	106	0.39797
47	0.00333	107	0.41645
48	0.00353	108	0.43425
49	0.00374	109	0.45107
50	0.00399	110	0.46704
51	0.00403	111	0.49562
52	0.00413	112	0.49562
53	0.00427	113	0.50171
54	0.00447	114	0.50075
55	0.00471	115	0.50000
56	0.00502	116	0.50000
57	0.00537	118	0.50000
58	0.00576	118	0.50000
59	0.00620	119	0.50000

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

Rates based on standard actuarial mortality table -- 'RPH-2014 - Female/Male Tables'

SURVIVING SPOUSE OTHER LOSS RATES

(Age Nearest Birthday)

<u>Age</u>	<u>Rate</u>	<u>Age</u>	<u>Rate</u>
0	0.0000	55	0.0000
1	0.0000	56	0.0000
2	0.0000	57	0.0000
3	0.0000	58	0.0000
4	0.0000	59	0.0000
5	0.0000	60	0.0000
6	0.0000	61	0.0000
7	0.0000	62	0.0000
8	0.0000	63	0.0000
9	0.0000	64	0.0000
10	0.0000	65	0.0000
11	0.0000	66	0.0000
12	0.0000	67	0.0000
13	0.0000	68	0.0000
14	0.0000	69	0.0000
15	0.0000	70	0.0000
16	0.0000	71	0.0000
17	0.0000	72	0.0000
18	0.0000	73	0.0000
19	0.0000	74	0.0000
20	0.0000	75	0.0000
21	0.0000	76	0.0000
22	0.0000	77	0.0000
23	0.0000	78	0.0000
24	0.0000	79	0.0000
25	0.0000	80	0.0000
26	0.0000	81	0.0000
27	0.0000	82	0.0000
28	0.0000	83	0.0000
29	0.0000	84	0.0000
30	0.0000	85	0.0000
31	0.0000	86	0.0000
32	0.0000	87	0.0000
33	0.0000	88	0.0000
34	0.0000	89	0.0000
35	0.0000	90	0.0000
36	0.0000	91	0.0000
37	0.0000	92	0.0000
38	0.0000	93	0.0000
39	0.0000	94	0.0000
40	0.0000	95	0.0000
41	0.0000	96	0.0000
42	0.0000	97	0.0000
43	0.0000	98	0.0000
44	0.0000	99	0.0000
45	0.0000	100	0.0000
46	0.0000	101	0.0000
47	0.0000	102	0.0000
48	0.0000	103	0.0000
49	0.0000	104	0.0000
50	0.0000	105	0.0000
51	0.0000	106	0.0000
52	0.0000	107	0.0000
53	0.0000	108	0.0000
54	0.0000	109	0.0000

*** The above Other Loss rates are used to calculate both the DoD and Treasury NCPs per P.L. 108-136. The rates are all '0.0000' and are shown for effect.

APPENDIX J

MORTALITY IMPROVEMENT FACTORS

	<u>Page</u>
Mortality Improvement Factors Description	- 145 -
Mortality Improvement Factors (Active / Reserve Duty).....	- 146 -
Mortality Improvement Factors (Nondisability Retirees from Active Duty)	- 148 -
Mortality Improvement Factors (Nondisability Retirees from Reserve Duty).....	- 152 -
Mortality Improvement Factors (Permanent Disability Retirees)	- 156 -
Mortality Improvement Factors (Surviving / Current Spouses)	- 160 -

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.

Mortality improvement (MI) factors project increasing life expectancies. The MI full generational factors in this valuation are based on the underlying experience period from FY 2000 through FY 2019 using military-specific data. Methods and assumptions for smoothing and projection utilize similar techniques to those in the Society of Actuaries (SOA) report on mortality improvement factors, titled “MP-2016¹¹”. The graduation method is updated in FY 2020 from the original 2D Whittaker Henderson model to a 2D P-spline model. These factors are used for retirees, survivors, and spouses of retirees.

Gender-specific adjustment factors are used to account for changes in the gender distribution expected to occur over time. These adjustment factors are similar to MI factors. From FY 2000 through 2019, the percentage of females among all retirees increased from about 3% to about 8% for both officers and enlisted. As the percentage of female recruits increases, the military retiree population lives longer and retiree liabilities increase.

Active and reserve duty personnel MI factors are based on the SOA standard actuarial mortality projection table, “MP-2016.” They are adjusted to reflect a 90%/10% male/female military population composition.

Based on comparisons with standard actuarial mortality improvement tables, post-retirement military-specific experience does not appear to mirror U.S. general population. In addition, military-specific MI experience exhibits noticeable differences within the various subgroups of military retirees. For instance, officers tend to have higher improvement than enlisted members.

Projecting future mortality trends presents a challenge due to fluctuations in the pattern of military-specific improvement over time. Emerging experience will continue to be monitored and reflect advanced modeling techniques in the projection of mortality, finding a reasonable balance between past experience and future expectations.

To keep this report manageable and prevent unintentional misuse, the MI factors and gender adjustment factors are not shown for each year of the projection (through FY 2099 and beyond). They may be requested from OACT if needed.

¹¹ For an in-depth discussion of MP-2016, see:
<https://www.soa.org/resources/experience-studies/2016/mortality-improvement-scale-mp-2016/>

Technical Reference to the FY 2020 Valuation of the Military Retirement System

MORTALITY IMPROVEMENT FACTORS

Applied to: Nondisability Retirees from Active Duty -- Officer [Factors only shown through 2037.]

Gender Mix: Uses gender-based projection adjustment factors/scales

(Age Nearest Birthday)

Table with columns for Age and Projection Year (2016-2026) containing mortality improvement factors for each age group from < 21 to > 115.

MORTALITY IMPROVEMENT FACTORS (continued)

Applied to: Nondisability Retirees from Reserve Duty -- Officer [Factors only shown through 2037.]

Gender Mix: Uses gender-based projection adjustment factors/scales

(Age Nearest Birthday)

Table with columns for Age and Projection Year (2027-2037). The table contains mortality improvement factors for ages 21 through 115.

APPENDIX K

25 YEAR PROJECTIONS

	<u>Page</u>
Projection Notes.....	- 163 -
Active Duty Personnel and Pay	- 164 -
Nonretired Reservists Personnel and Pay	- 165 -
Total Number of Retirees	- 166 -
Total Annual Retired Pay	- 167 -
Retiree Gain Statement	- 168 -
Total Number of Survivors	- 169 -
Total Annual Survivor Benefits	- 170 -
Total Projected Basic Pay and Retired Outlays.....	- 171 -

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 9 Footnotes in the FY 2020 Valuation Report 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, which were included in later legislation. 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 9 footnotes in the FY 2020 Valuation Report:

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

<u>Fiscal Year</u>	<u>Full COLA</u>	<u>Basic Pay</u>
2021	1.3%	3.0%
2022	2.3	2.6
2023	2.3	2.6
2024	2.3	2.6
2025	2.3	2.6
2026	2.3	2.6
2027	2.3	2.6
2028	2.3	2.6
2029	2.3	2.6
2030+	2.5	2.75

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
2020	252,529	1,167,131	1,419,660			
2021	254,474	1,174,419	1,428,893	\$19,035,376	\$39,288,148	\$58,323,524
2022	254,041	1,172,702	1,426,743	\$19,918,896	\$41,267,858	\$61,186,754
2023	255,249	1,170,436	1,425,685	\$22,369,496	\$46,361,584	\$68,731,080
2024	254,614	1,172,662	1,427,276	\$22,950,596	\$47,530,183	\$70,480,779
2025	254,833	1,173,577	1,428,410	\$23,530,948	\$48,787,716	\$72,318,664
2026	255,335	1,177,220	1,432,555	\$24,163,786	\$50,093,422	\$74,257,208
2027	255,193	1,178,610	1,433,803	\$24,801,312	\$51,456,736	\$76,258,049
2028	255,193	1,178,610	1,433,803	\$25,449,237	\$52,833,059	\$78,282,297
2029	255,193	1,178,610	1,433,803	\$26,114,991	\$54,231,071	\$80,346,063
2030	255,193	1,178,610	1,433,803	\$26,786,958	\$55,656,814	\$82,443,772
2031	255,193	1,178,610	1,433,803	\$27,498,735	\$57,186,758	\$84,685,493
2032	255,193	1,178,610	1,433,803	\$28,237,556	\$58,754,684	\$86,992,240
2033	255,193	1,178,610	1,433,803	\$29,000,671	\$60,320,926	\$89,321,596
2034	255,193	1,178,610	1,433,803	\$29,794,987	\$61,910,968	\$91,705,955
2035	255,193	1,178,610	1,433,803	\$30,616,280	\$63,550,589	\$94,166,869
2036	255,193	1,178,610	1,433,803	\$31,462,949	\$65,200,684	\$96,663,633
2037	255,193	1,178,610	1,433,803	\$32,328,141	\$66,852,169	\$99,180,310
2038	255,193	1,178,610	1,433,803	\$33,218,210	\$68,572,780	\$101,790,990
2039	255,193	1,178,610	1,433,803	\$34,139,982	\$70,389,009	\$104,528,991
2040	255,193	1,178,610	1,433,803	\$35,121,011	\$72,306,361	\$107,427,372
2041	255,193	1,178,610	1,433,803	\$36,126,025	\$74,281,572	\$110,407,597
2042	255,193	1,178,610	1,433,803	\$37,114,354	\$76,280,996	\$113,395,350
2043	255,193	1,178,610	1,433,803	\$38,128,371	\$78,356,079	\$116,484,449
2044	255,193	1,178,610	1,433,803	\$39,181,485	\$80,505,262	\$119,686,747
2045	255,193	1,178,610	1,433,803	\$40,274,067	\$82,714,875	\$122,988,942

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
2020	115,674	592,329	708,003			
2021	116,038	595,875	711,913	\$2,535,496	\$4,880,345	\$7,415,841
2022	115,677	595,560	711,238	\$3,280,499	\$6,289,941	\$9,570,440
2023	115,290	593,944	709,234	\$3,016,785	\$5,737,276	\$8,754,061
2024	115,655	594,210	709,865	\$3,124,079	\$5,892,335	\$9,016,413
2025	115,993	593,915	709,908	\$3,240,469	\$6,059,948	\$9,300,417
2026	116,438	596,674	713,112	\$3,361,929	\$6,239,802	\$9,601,730
2027	116,804	596,767	713,571	\$3,488,998	\$6,429,806	\$9,918,803
2028	116,880	596,768	713,647	\$3,619,264	\$6,608,606	\$10,227,870
2029	116,935	596,768	713,703	\$3,750,716	\$6,796,764	\$10,547,480
2030	116,972	596,768	713,740	\$3,881,580	\$6,990,188	\$10,871,768
2031	116,991	596,768	713,759	\$4,014,907	\$7,198,946	\$11,213,853
2032	116,995	596,769	713,763	\$4,146,587	\$7,416,113	\$11,562,699
2033	116,987	596,769	713,756	\$4,276,100	\$7,639,264	\$11,915,365
2034	116,967	596,769	713,736	\$4,406,771	\$7,866,622	\$12,273,393
2035	116,937	596,769	713,706	\$4,540,305	\$8,098,124	\$12,638,429
2036	116,897	596,769	713,666	\$4,676,627	\$8,332,066	\$13,008,693
2037	116,845	596,769	713,614	\$4,812,047	\$8,570,619	\$13,382,667
2038	116,785	596,769	713,554	\$4,945,979	\$8,814,973	\$13,760,952
2039	116,719	596,769	713,488	\$5,082,376	\$9,064,172	\$14,146,549
2040	116,650	596,769	713,419	\$5,222,510	\$9,316,142	\$14,538,652
2041	116,581	596,769	713,350	\$5,367,010	\$9,571,719	\$14,938,728
2042	116,512	596,769	713,281	\$5,519,043	\$9,833,170	\$15,352,214
2043	116,442	596,768	713,211	\$5,676,409	\$10,102,283	\$15,778,692
2044	116,370	596,768	713,139	\$5,838,941	\$10,379,555	\$16,218,497
2045	116,298	596,768	713,067	\$6,004,866	\$10,664,589	\$16,669,455

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	
2020	519,335	1,271,708	1,791,043	5,150	78,853	84,003	22,082	106,839	128,921	2,003,967
2021	522,039	1,272,734	1,794,774	5,493	82,634	88,127	22,581	106,242	128,822	2,011,722
2022	523,635	1,273,151	1,796,785	5,804	85,830	91,634	23,069	105,764	128,833	2,017,249
2023	525,389	1,274,044	1,799,433	6,065	88,452	94,518	23,557	105,282	128,839	2,022,783
2024	526,890	1,274,924	1,801,814	6,258	89,979	96,237	24,067	104,762	128,829	2,026,870
2025	527,879	1,273,897	1,801,776	6,404	90,961	97,365	24,580	104,260	128,840	2,027,968
2026	528,494	1,273,022	1,801,517	6,516	91,607	98,123	25,093	103,758	128,851	2,028,397
2027	528,644	1,270,556	1,799,200	6,601	91,985	98,585	25,603	103,285	128,889	2,026,423
2028	528,338	1,267,518	1,795,856	6,666	92,135	98,801	26,116	102,831	128,947	2,023,119
2029	527,702	1,263,808	1,791,510	6,713	92,128	98,842	26,621	102,397	129,019	2,018,538
2030	526,851	1,260,199	1,787,050	6,744	91,960	98,703	27,129	101,987	129,116	2,013,530
2031	525,497	1,255,366	1,780,863	6,761	91,663	98,424	27,633	101,609	129,241	2,006,513
2032	523,546	1,249,682	1,773,228	6,767	91,267	98,035	28,135	101,256	129,391	1,997,705
2033	521,290	1,243,834	1,765,124	6,763	90,780	97,543	28,635	100,949	129,584	1,988,081
2034	518,854	1,237,134	1,755,988	6,747	90,178	96,926	29,132	100,679	129,811	1,977,172
2035	516,181	1,230,138	1,746,319	6,725	89,498	96,223	29,625	100,427	130,052	1,965,435
2036	513,469	1,223,898	1,737,367	6,698	88,739	95,437	30,115	100,211	130,326	1,954,050
2037	510,964	1,217,620	1,728,584	6,666	87,896	94,562	30,602	100,043	130,645	1,942,496
2038	508,659	1,210,615	1,719,274	6,628	86,963	93,592	31,088	99,898	130,986	1,929,676
2039	506,429	1,203,297	1,709,726	6,585	85,933	92,518	31,572	99,762	131,334	1,915,585
2040	503,999	1,194,950	1,698,949	6,537	84,799	91,336	32,042	99,629	131,671	1,899,870
2041	502,457	1,188,031	1,690,488	6,483	83,555	90,037	32,505	99,500	132,006	1,885,605
2042	500,998	1,181,124	1,682,122	6,422	82,193	88,615	32,969	99,411	132,380	1,871,151
2043	499,693	1,174,062	1,673,755	6,354	80,707	87,062	33,424	99,334	132,758	1,856,400
2044	498,217	1,166,881	1,665,098	6,279	79,093	85,372	33,868	99,268	133,136	1,841,065
2045	496,796	1,160,056	1,656,852	6,195	77,346	83,541	34,301	99,216	133,518	1,825,816

*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.

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	
2021	\$25,157,005	\$29,752,874	\$54,909,878	\$236,403	\$1,876,803	\$2,113,206	\$667,723	\$1,268,994	\$1,936,717	\$58,959,801
2022	\$25,903,624	\$30,415,353	\$56,318,977	\$261,902	\$2,010,590	\$2,272,492	\$687,468	\$1,259,225	\$1,946,694	\$60,538,163
2023	\$26,691,716	\$31,188,428	\$57,880,144	\$287,098	\$2,138,423	\$2,425,521	\$709,590	\$1,256,322	\$1,965,912	\$62,271,577
2024	\$27,504,154	\$32,010,754	\$59,514,908	\$309,411	\$2,250,037	\$2,559,447	\$732,878	\$1,256,740	\$1,989,618	\$64,063,973
2025	\$28,319,394	\$32,852,276	\$61,171,671	\$329,299	\$2,345,257	\$2,674,556	\$757,369	\$1,260,998	\$2,018,367	\$65,864,594
2026	\$29,137,065	\$33,724,401	\$62,861,466	\$347,229	\$2,433,363	\$2,780,593	\$783,025	\$1,267,376	\$2,050,401	\$67,692,460
2027	\$29,957,384	\$34,617,658	\$64,575,042	\$364,291	\$2,518,035	\$2,882,326	\$809,923	\$1,275,820	\$2,085,742	\$69,543,111
2028	\$30,777,977	\$35,522,251	\$66,300,228	\$381,285	\$2,601,598	\$2,982,884	\$838,188	\$1,286,222	\$2,124,410	\$71,407,522
2029	\$31,602,971	\$36,447,764	\$68,050,736	\$398,660	\$2,689,118	\$3,087,778	\$867,644	\$1,298,158	\$2,165,802	\$73,304,316
2030	\$32,485,792	\$37,462,181	\$69,947,973	\$417,334	\$2,793,997	\$3,211,330	\$899,822	\$1,313,542	\$2,213,364	\$75,372,667
2031	\$33,387,539	\$38,513,121	\$71,900,660	\$438,710	\$2,923,233	\$3,361,943	\$933,909	\$1,331,092	\$2,265,001	\$77,527,604
2032	\$34,284,376	\$39,591,095	\$73,875,471	\$462,517	\$3,071,936	\$3,534,453	\$969,551	\$1,350,200	\$2,319,750	\$79,729,675
2033	\$35,177,753	\$40,699,499	\$75,877,252	\$484,634	\$3,218,355	\$3,702,989	\$1,006,800	\$1,371,097	\$2,377,897	\$81,958,137
2034	\$36,071,580	\$41,806,010	\$77,877,590	\$504,167	\$3,348,421	\$3,852,589	\$1,045,709	\$1,393,787	\$2,439,496	\$84,169,675
2035	\$36,964,835	\$42,932,734	\$79,897,569	\$520,508	\$3,466,130	\$3,986,638	\$1,086,231	\$1,417,809	\$2,504,040	\$86,388,247
2036	\$37,860,890	\$44,116,710	\$81,977,600	\$535,031	\$3,572,826	\$4,107,857	\$1,128,269	\$1,443,069	\$2,571,338	\$88,656,795
2037	\$38,771,251	\$45,325,189	\$84,096,441	\$548,188	\$3,669,696	\$4,217,883	\$1,171,986	\$1,469,932	\$2,641,918	\$90,956,243
2038	\$39,702,169	\$46,598,342	\$86,300,512	\$560,116	\$3,755,851	\$4,315,967	\$1,217,620	\$1,498,119	\$2,715,739	\$93,332,218
2039	\$40,645,257	\$47,885,856	\$88,531,113	\$570,489	\$3,832,914	\$4,403,402	\$1,265,142	\$1,526,788	\$2,791,930	\$95,726,445
2040	\$41,578,657	\$49,011,560	\$90,590,217	\$579,847	\$3,902,587	\$4,482,434	\$1,313,948	\$1,555,645	\$2,869,593	\$97,942,244
2041	\$42,559,762	\$50,218,708	\$92,778,470	\$588,307	\$3,963,261	\$4,551,568	\$1,363,511	\$1,584,556	\$2,948,066	\$100,278,104
2042	\$43,550,004	\$51,332,879	\$94,882,883	\$595,947	\$4,015,442	\$4,611,389	\$1,414,994	\$1,614,404	\$3,029,398	\$102,523,670
2043	\$44,553,199	\$52,428,936	\$96,982,135	\$602,297	\$4,056,111	\$4,658,408	\$1,468,422	\$1,645,289	\$3,113,711	\$104,754,254
2044	\$45,553,745	\$53,513,327	\$99,067,071	\$607,335	\$4,085,971	\$4,693,306	\$1,523,454	\$1,676,665	\$3,200,119	\$106,960,497
2045	\$46,562,165	\$54,601,942	\$101,164,108	\$611,054	\$4,102,625	\$4,713,679	\$1,579,940	\$1,708,627	\$3,288,567	\$109,166,354

*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.

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
2021	15,949	35,406	348	3,941	1,291	4,592	\$53,353	\$22,199	\$67,049	\$30,641	\$51,061	\$20,184
2022	14,898	35,180	318	3,373	1,277	4,556	\$52,014	\$23,342	\$70,955	\$31,865	\$52,886	\$21,260
2023	15,150	36,018	268	2,821	1,268	4,547	\$52,886	\$24,310	\$75,102	\$33,574	\$55,325	\$22,444
2024	15,018	36,347	201	1,746	1,268	4,555	\$54,049	\$25,714	\$81,611	\$39,483	\$57,816	\$23,688
2025	14,652	34,758	155	1,225	1,266	4,566	\$55,701	\$26,853	\$86,745	\$44,462	\$60,596	\$25,020
2026	14,439	35,142	122	915	1,264	4,556	\$57,321	\$27,995	\$91,229	\$49,629	\$63,713	\$26,323
2027	14,150	33,765	96	675	1,262	4,572	\$58,953	\$29,203	\$95,993	\$54,446	\$67,243	\$27,792
2028	13,878	33,404	78	480	1,265	4,574	\$60,745	\$30,294	\$102,111	\$59,912	\$71,067	\$29,258
2029	13,731	32,906	62	359	1,260	4,574	\$62,343	\$31,231	\$107,438	\$63,845	\$75,334	\$30,795
2030	13,693	33,135	46	237	1,264	4,576	\$64,070	\$32,278	\$114,384	\$69,695	\$80,196	\$32,451
2031	13,362	32,027	35	154	1,263	4,582	\$65,860	\$33,323	\$121,916	\$74,834	\$85,558	\$34,308
2032	12,920	31,203	26	106	1,264	4,582	\$68,216	\$34,930	\$127,916	\$79,560	\$91,063	\$36,247
2033	12,754	31,029	17	71	1,265	4,601	\$69,861	\$36,125	\$136,874	\$83,212	\$97,091	\$38,398
2034	12,701	30,274	9	17	1,264	4,613	\$71,176	\$37,325	\$150,910	\$91,339	\$103,522	\$40,652
2035	12,564	29,995	5	7	1,264	4,608	\$72,582	\$38,211	\$161,786	\$98,550	\$110,033	\$42,820
2036	12,602	30,646	4	4	1,263	4,622	\$73,854	\$39,247	\$172,567	\$104,035	\$116,992	\$44,930
2037	12,849	30,487	3	2	1,263	4,648	\$74,745	\$39,879	\$181,998	\$109,417	\$124,774	\$47,106
2038	13,059	29,222	1	1	1,265	4,651	\$75,744	\$40,171	\$187,994	\$113,459	\$132,682	\$49,488
2039	13,107	28,052	0	0	1,267	4,642	\$76,559	\$39,774	\$0	\$0	\$141,208	\$52,212
2040	12,861	26,759	0	0	1,258	4,627	\$77,577	\$40,164	\$0	\$0	\$149,631	\$54,697
2041	13,604	27,462	0	0	1,255	4,612	\$77,329	\$39,919	\$0	\$0	\$158,173	\$56,909
2042	13,564	27,183	0	0	1,262	4,631	\$78,454	\$40,289	\$0	\$0	\$167,553	\$59,290
2043	13,567	26,712	0	0	1,259	4,626	\$79,669	\$40,843	\$0	\$0	\$175,972	\$61,525
2044	13,243	26,209	0	0	1,257	4,623	\$81,525	\$41,293	\$0	\$0	\$184,757	\$63,837
2045	13,123	26,102	0	0	1,255	4,626	\$83,295	\$41,768	\$0	\$0	\$193,755	\$66,198

*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.

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	Total
2020	209,933	281	92,386	49	14,870	3,535	321,054
2021	210,154	331	94,551	39	14,875	3,071	323,021
2022	209,997	390	96,713	32	14,861	2,651	324,644
2023	209,505	457	98,949	27	14,774	2,277	325,988
2024	208,710	534	101,252	23	14,621	1,949	327,089
2025	207,651	621	103,599	19	14,346	1,663	327,899
2026	206,373	720	105,969	16	13,965	1,416	328,459
2027	204,916	833	108,336	13	13,510	1,205	328,813
2028	203,299	960	110,677	11	12,931	1,026	328,903
2029	201,561	1,104	112,967	9	12,233	874	328,747
2030	199,751	1,266	115,175	8	11,531	746	328,474
2031	197,921	1,447	117,270	6	10,993	640	328,274
2032	196,106	1,650	119,215	5	10,522	552	328,045
2033	194,343	1,876	120,987	4	10,092	480	327,774
2034	192,667	2,128	122,562	3	9,753	420	327,522
2035	191,106	2,408	123,920	3	9,536	371	327,326
2036	189,673	2,718	125,035	2	9,415	331	327,151
2037	188,375	3,059	125,893	2	9,339	298	326,936
2038	187,210	3,435	126,478	1	9,297	271	326,653
2039	186,173	3,847	126,785	1	9,276	249	326,280
2040	185,253	4,295	126,817	1	9,280	230	325,809
2041	184,429	4,782	126,575	1	9,293	214	325,209
2042	183,684	5,307	126,075	1	9,307	200	324,467
2043	182,998	5,871	125,333	0	9,323	187	323,581
2044	182,353	6,473	124,377	0	9,339	176	322,557
2045	181,728	7,112	123,234	0	9,353	166	321,396

*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 included with the appropriate survivor category.

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	Total
2021	\$3,546,426	\$4,033	\$838,333	\$399	\$208,017	\$8,885	\$4,606,094
2022	\$3,604,956	\$4,980	\$877,583	\$324	\$213,480	\$7,788	\$4,709,111
2023	\$3,670,126	\$6,109	\$921,389	\$278	\$219,030	\$6,797	\$4,823,729
2024	\$3,733,676	\$7,447	\$968,321	\$237	\$223,878	\$5,919	\$4,939,479
2025	\$3,795,816	\$9,027	\$1,018,388	\$203	\$227,630	\$5,150	\$5,056,214
2026	\$3,856,811	\$10,901	\$1,071,464	\$173	\$230,103	\$4,482	\$5,173,934
2027	\$3,916,801	\$13,095	\$1,127,440	\$148	\$232,025	\$3,908	\$5,293,417
2028	\$3,975,888	\$15,682	\$1,186,181	\$126	\$233,321	\$3,417	\$5,414,615
2029	\$4,034,239	\$18,777	\$1,247,456	\$107	\$233,580	\$2,999	\$5,537,158
2030	\$4,098,360	\$22,408	\$1,312,938	\$91	\$233,938	\$2,647	\$5,670,383
2031	\$4,165,051	\$26,654	\$1,381,235	\$77	\$235,846	\$2,353	\$5,811,216
2032	\$4,233,000	\$31,545	\$1,451,366	\$66	\$238,758	\$2,108	\$5,956,843
2033	\$4,302,875	\$37,121	\$1,522,881	\$55	\$242,141	\$1,904	\$6,106,978
2034	\$4,375,411	\$43,490	\$1,595,402	\$47	\$246,477	\$1,737	\$6,262,564
2035	\$4,451,524	\$50,735	\$1,668,502	\$39	\$252,173	\$1,599	\$6,424,572
2036	\$4,531,851	\$58,947	\$1,741,689	\$32	\$258,928	\$1,487	\$6,592,934
2037	\$4,617,034	\$68,236	\$1,814,417	\$27	\$266,197	\$1,395	\$6,767,307
2038	\$4,707,475	\$78,733	\$1,886,214	\$22	\$273,945	\$1,320	\$6,947,710
2039	\$4,803,363	\$90,578	\$1,956,655	\$18	\$282,082	\$1,258	\$7,133,955
2040	\$4,905,026	\$103,901	\$2,025,400	\$15	\$290,679	\$1,207	\$7,326,228
2041	\$5,012,482	\$118,868	\$2,092,187	\$12	\$299,515	\$1,164	\$7,524,228
2042	\$5,125,707	\$135,606	\$2,156,831	\$10	\$308,550	\$1,127	\$7,727,831
2043	\$5,244,440	\$154,265	\$2,219,262	\$8	\$317,812	\$1,095	\$7,936,882
2044	\$5,368,871	\$174,993	\$2,279,494	\$6	\$327,250	\$1,065	\$8,151,679
2045	\$5,498,832	\$197,936	\$2,337,671	\$5	\$336,834	\$1,037	\$8,372,314

*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 benefits are included with the appropriate survivor category.

TOTAL PROJECTED BASIC PAY AND RETIRED OUTLAYS

(Dollar Amounts in Thousands)

Fiscal Year	Total Projected Basic Pay	Total Projected Outlays	Retired Outlays Over Basic Pay
2021	\$65,739,365	\$63,565,895	96.7%
2022	\$70,757,194	\$65,247,274	92.2%
2023	\$77,485,141	\$67,095,306	86.6%
2024	\$79,497,193	\$69,003,452	86.8%
2025	\$81,619,082	\$70,920,808	86.9%
2026	\$83,858,939	\$72,866,394	86.9%
2027	\$86,176,852	\$74,836,528	86.8%
2028	\$88,510,166	\$76,822,137	86.8%
2029	\$90,893,542	\$78,841,473	86.7%
2030	\$93,315,540	\$81,043,050	86.8%
2031	\$95,899,345	\$83,338,820	86.9%
2032	\$98,554,940	\$85,686,518	86.9%
2033	\$101,236,961	\$88,065,116	87.0%
2034	\$103,979,348	\$90,432,239	87.0%
2035	\$106,805,299	\$92,812,819	86.9%
2036	\$109,672,326	\$95,249,729	86.8%
2037	\$112,562,977	\$97,723,549	86.8%
2038	\$115,551,942	\$100,279,928	86.8%
2039	\$118,675,540	\$102,860,400	86.7%
2040	\$121,966,024	\$105,268,472	86.3%
2041	\$125,346,326	\$107,802,332	86.0%
2042	\$128,747,563	\$110,251,501	85.6%
2043	\$132,263,141	\$112,691,135	85.2%
2044	\$135,905,243	\$115,112,176	84.7%
2045	\$139,658,397	\$117,538,668	84.2%

*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.

APPENDIX L

TREASURY PAYMENTS

	<u>Page</u>
Method of Amortizing Changes in the Unfunded Liability	- 173 -
Calculation of the October 1, 2021, Treasury Payment.....	- 175 -
Table L-1: Total Treasury Payment.....	- 176 -
Table L-2: Calculation of October 1, 2021, Payment on Initial UFL.....	- 177 -
Table L-3: Calculation of October 1, 2021, Payment on UFL from Benefit Changes	- 178 -
Table L-4: Calculation of October 1, 2021, Payment on UFL from Assumption Changes ..	- 179 -
Table L-5: Calculation of October 1, 2021, Payment on UFL from Experience	- 180 -

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 MRS. The section also states that these methods and assumptions must be approved by the Board. The resulting payments are made by the Treasury to the MRF and do not affect the DoD budget.

There are three causes of changes in the Military Retirement System's unfunded liability—changes in benefits, annual experience gains or losses resulting from actual experience deviating from expected experience, and changes in actuarial assumptions used in the projected liability calculations. When a change in the unfunded liability does not fit into one of the three categories, the Board determines 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 20 years weighted by the absolute value of the new liability and 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 private pension plans to amortize changes in unfunded liabilities over a shorter time period. However, the methods applied to the MRF 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. As described in the Summary of Changes for the September 30, 2020, Valuation in the FY 2020 Valuation Report, at its July 2021 meeting, the Board adopted a methodology change for amortizing the unfunded liability, moving from maintaining separate remaining amortization periods for amortizing experience gains and losses, assumption changes, and benefit changes bases to a combined 20-year layered basis.

Under this new method, the remaining amortization period for the benefit changes, actuarial assumption changes, and actuarial experience gains and losses base will be reset to 20 years as of October 1, 2021. Going forward, the amortization period for any new basis will be 20 years. Annual payments on the initial UFL are also calculated to increase each year by the long-term basic pay scale increase assumption, and 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. OACT 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 offset 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 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, 2021,
TREASURY PAYMENT

The following pages display the calculation of the October 1, 2021, Treasury payment based on the September 30, 2020, valuation results and on amortization methods and assumptions approved by the Board. In order to avoid a projected shortfall in the MRF, the Board determined that, beginning with the FY 1998 payment, the total amortization period of the initial UFL would be decreased from 60 to 50 years. The Board again shortened the initial UFL amortization period in 2007 to 42 years in order for the payments to cover interest on the unfunded liability each year.

P.L. 108-136 required the 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 UFL payment in the October 1st contribution. For the October 1, 2021, Treasury payment, the actuarially determined amount due to Concurrent Receipt totals \$11.526 billion. This is computed using the full- and part-time NCPs in Table 6, item 8 of the Valuation of the Military Retirement System from the FY 2020 Valuation Report. The NCPs are multiplied by the DoD Comptroller-budgeted FY 2022 full- and part-time basic pay, \$67.2 billion and \$9.9 billion, respectively, i.e., \$11.526 billion equates to the sum of \$67.2 billion x 16.5% and \$9.9 billion x 4.4%.

Treasury concurrent receipt normal costs displayed on the next page reflect actuarially calculated amounts. However, due to the Budget Control Act of 2011, in both FY 2021 and 2022, actual Treasury contributions for these amounts were reduced (or sequestered). The reductions were 8.3% (or \$0.891 billion) in FY 2021 and 8.3% (or \$0.957 billion) in FY 2022. Consistent with past practice, at its July 2021 meeting the Board decided to treat the FY 2021 sequestered amount of \$0.891 billion as an experience loss in the FY 2020 valuation, and amortized it (brought forward with valuation interest rate) over one year. It is included in the October 1, 2021, (FY 2022) payment on the next page. (See “Unpaid contribution” of \$0.929 billion = \$0.891 billion x 1.0425.) The Board will likely treat the FY 2022 sequestered amount in the same manner (i.e., as a loss in the September 30, 2021, valuation and add it, with interest, to the October 1, 2022, (FY 2023) Treasury payment).

TABLE L-1

TOTAL TREASURY PAYMENT
OCTOBER 1, 2021 AND OCTOBER 1, 2020

(\$ in billions)

	<u>October 1, 2021</u>	<u>October 1, 2020</u>
Amortization payment for:		
1. Initial unfunded liability	\$103.197	\$100.414
2. Changes in benefits	\$7.679	\$9.196
3. Gains and Losses Amortization		
a. Changes in actuarial assumptions	\$15.309	\$9.550
b. Actuarial experience	(\$12.651)	(\$21.892)
c. Unpaid contribution	\$0.929	\$0.838
Total amortization payment	<u>\$114.463</u>	<u>\$98.106</u>
Normal cost payment	<u>\$11.526</u>	<u>\$10.736</u>
Total Treasury payment	\$125.989	\$108.842

Note: Normal cost payments have not reflected the sequestration-mandated reductions.

TABLE L-2

CALCULATION OF OCTOBER 1, 2021,
PAYMENT ON INITIAL UNFUNDED LIABILITY (UFL)

(\$ in billions)

1. Unamortized balance of initial UFL (10/1/19 balance x 1.0475)	9/30/20	\$581.324
2. Payment on UFL	10/01/20	\$100.414
3. Unamortized balance of initial UFL (1. - 2.)	10/01/20	\$480.910
4. Balance on 9/30/21 (3. x 1.0425)	9/30/21	\$501.348
5. Number of Annual Payments Remaining	9/30/21	5
6. Value of an annuity due for remaining amortization period at interest rate equal to $(1.0425 \div 1.0275) - 1$		4.8582
7. Payment on initial UFL due 10/1/21 (4. ÷ 6.)		\$103.197

TABLE L-3

CALCULATION OF OCTOBER 1, 2021,
PAYMENT ON UNFUNDED LIABILITY (UFL)
RESULTING FROM BENEFIT CHANGES

(\$ in billions)

1. Unamortized UFL balance due to benefit changes (10/1/19 balance x 1.0475)	9/30/20	\$138.010
2. Payment on UFL	10/01/20	\$9.196
3. Unamortized UFL balance after payment (1. - 2.)	10/01/20	\$128.814
4. Additional (new) UFL due to benefit changes	9/30/20	\$0.000
5. Unamortized UFL balance due to benefit changes (3. + 4.)	10/01/20	\$128.814
6. Balance on 9/30/21 (5. x 1.0425)	9/30/21	\$134.289
7. Number of years in new amortization schedule (absolute values used for all numbers)		20
8. Value of an annuity due for remaining amortization period at interest rate equal to $(1.0425 \div 1.0275) - 1$		17.4884
9. Payment on UFL due to benefit changes (6. ÷ 8.)	10/01/21	\$7.679

TABLE L-4

CALCULATION OF OCTOBER 1, 2021,
PAYMENT ON UNFUNDED LIABILITY (UFL)
RESULTING FROM ASSUMPTION CHANGES

(\$ in billions)

1. Unamortized balance of UFL due to assumption changes (10/1/19 balance x 1.0475)	9/30/20	\$218.179
2. Payment on UFL	10/01/20	\$9.550
3. Unamortized UFL balance after payment (1. - 2.)	10/01/20	\$208.629
4. Additional (new) UFL	9/30/20	\$48.188
5. Unamortized UFL balance due to assumption changes (3. + 4.)	10/01/20	\$256.816
6. Balance on 9/30/21 (5. x 1.0425)	9/30/21	\$267.731
7. Number of years in new amortization schedule (absolute values used for all numbers)		20
8. Value of an annuity due for remaining amortization period at interest rate equal to $(1.0425 \div 1.0275) - 1$		17.4884
9. Payment on UFL due to assumption changes (6. ÷ 8.)	10/01/21	\$15.309

TABLE L-5

CALCULATION OF OCTOBER 1, 2021,
PAYMENT ON UNFUNDED LIABILITY (UFL)
RESULTING FROM EXPERIENCE GAINS AND LOSSES

(\$ in billions)

1. Unamortized UFL balance due to experience gains and losses (10/1/19 balance x 1.0475)	9/30/20	(\$242.185)
2. Payment on UFL	10/01/20	(\$21.054)
3. Unamortized UFL balance after payment (1. - 2.)	10/01/20	(\$221.131)
4. Additional (new) UFL	9/30/20	\$8.897
5. Unamortized UFL balance due to experience gains and losses (3. + 4.)	10/01/20	(\$212.234)
6. Balance on 9/30/21 (5. x 1.0425)	9/30/21	(\$221.253)
7. Number of years in new amortization schedule (absolute values used for all numbers)		20.000
8. Value of an annuity due for remaining amortization period at interest rate equal to $(1.0425 \div 1.0275) - 1$		17.4884
9. Payment* on UFL due to experience gains and losses (6. \div 8.)	10/01/21	(\$12.651)

* Excludes payment on loss due to 10/1/20 unpaid (sequestered) contribution.