



**United States Army
Nonappropriated Fund
Employee Retirement Plan**

**Actuarial Valuation Report
as of October 1, 2021**

Produced by Cheiron

April 2022

TABLE OF CONTENTS

<u>Section</u>	<u>Page</u>
Letter of Transmittal	i
Foreword	ii
Section I Summary	1
Section II Disclosures Related to Risk	9
Section III Statutory Valuation Exhibits.....	22
Section IV Annual Report Prescribed by P.L. 95-595	27

LETTER OF TRANSMITTAL

April 29, 2022

Ms. Anita Janssen
Chief, NAF Personnel Services Division
U.S. Army Family and MWR Command
P.O. Box 340309
Fort Sam Houston, TX 78234

Dear Ms. Janssen:

At your request, we have conducted our annual actuarial valuation of the United States Army Nonappropriated Fund Employee Retirement Plan as of October 1, 2021. The results of the valuation are contained in this report.

The purpose of this report is to present the annual actuarial valuation of the United States Army Nonappropriated Fund Employee Retirement Plan. This report is for the use of the United States Army Nonappropriated Fund Employee Retirement Plan and its auditors in preparing financial reports in accordance with applicable law and accounting requirements.


This report and its contents have been prepared in accordance with generally recognized and accepted actuarial principles and practices and our understanding of the Code of Professional Conduct and applicable Actuarial Standards of Practice set out by the Actuarial Standards Board as well as applicable laws and regulations. Furthermore, as credentialed actuaries, we meet the Qualification Standards of the American Academy of Actuaries to render the opinion contained in this report. This report does not address any contractual or legal issues. We are not attorneys and our firm does not provide any legal services or advice.

This actuarial report was prepared exclusively for the United States Army Nonappropriated Fund Employee Retirement Plan for the purpose described herein. Other users of this actuarial report are not intended users as defined in the Actuarial Standards of Practice, and Cheiron assumes no duty or liability to any other user.

Sincerely,



Kevin J. Woodrich, FSA, MAAA, EA
Principal Consulting Actuary



Alison Chafin, FSA, MAAA, EA
Consulting Actuary

cc: Anne Bright
Justin Runkel, ASA, MAAA, EA (Cheiron)

**UNITED STATES ARMY NONAPPROPRIATED FUND EMPLOYEE RETIREMENT PLAN
ACTUARIAL VALUATION AS OF OCTOBER 1, 2021**

FOREWORD

Cheiron has performed the actuarial valuation of the United States Army Nonappropriated Fund Employee Retirement Plan (“Plan”) as of October 1, 2021. The purpose of this report is to:

- 1) **Determine the actuarial contribution rate** for the fiscal year beginning October 1, 2022.
- 2) **Measure and disclose**, as of the valuation date, the financial condition of the Plan.
- 3) **Indicate trends** in the financial progress of the Plan.
- 4) **Provide specific information** and documentation required by P.L. 95-595.

An actuarial valuation establishes and analyzes Plan assets and liabilities on a consistent basis and traces the progress of both from one year to the next. It includes measurement of the Plan’s investment performance as well as an analysis of actuarial liability gains and losses.

Section I presents a summary containing our findings and discloses important trends experienced by the Plan in recent years, as well as a projection of the expected financial condition of the Plan in the future.

Section II assesses and discloses various actuarial risk measures of the Plan.

Section III contains various exhibits used in determining the financial condition of the Plan.

Section IV includes the required disclosures and specific information required by P.L. 95-595.

Within Section IV of this report is a summary of the Plan’s membership at the valuation date, a summary of the major provisions of the Plan, and the actuarial methods and assumptions used in the valuation.

In preparing our report, we relied on information (some oral and some written) supplied by the Employee Benefits Office. This information includes, but is not limited to, the plan provisions, employee data, and financial information. We performed an informal examination of the obvious characteristics of the data for reasonableness and consistency in accordance with Actuarial Standard of Practice No. 23.

Future valuation results may differ significantly from the current valuation due to such factors as the following: plan experience differing from that anticipated by the assumptions, changes in assumptions, and changes in plan provisions or applicable law.

**UNITED STATES ARMY NONAPPROPRIATED FUND EMPLOYEE RETIREMENT PLAN
ACTUARIAL VALUATION AS OF OCTOBER 1, 2021**

SECTION I – SUMMARY

Comments

Despite the primary focus given each year on the most recently computed valuation results, it is important to remember that each valuation is merely a snapshot of the long-term progress of the Plan. It is more important to judge a current year's valuation results relative to historical trends and trends expected into the future.

In this section, we first discuss the current year's results in relation to trends of the Plan over the past fifteen years. For the fiscal year ending September 30, 2022, employers are contributing to the Plan at the rate of 7.60% of payroll. For the fiscal year ending September 30, 2023, the value of benefits being accumulated (Normal Cost) plus administrative expenses are 8.36% of payroll, which is net of the 2.00% employee contribution currently in effect. In addition to the Normal Cost and administrative expenses, a 15-year level amortization of the Unfunded Actuarial Liability (UAL) is included in the actuarial employer contribution rate. Since the Plan is over 100% funded at October 1, 2021, the actuarial contribution rate is reduced to reflect a credit due to the amortization of the surplus. The resulting actuarial contribution rate for fiscal year 2022-23 is 6.31% of payroll.

The amounts and rates on the tables found in Exhibit IV-8 Tables 2A and 2B, respectively, reflect a 40-year amortization of the UAL. These results are not indicative of the Plan's funding goals but rather our understanding of the information required to be disclosed under P.L. 95-595. If this understanding is incorrect, these tables can be modified accordingly.

After looking at current and historical results, we show projections of the contribution rate and funding status. Please remember that these projections make certain assumptions about future experience regarding investment returns, salary increases, inflation, contribution levels, and participant behavior. We cannot know what will actually happen, but these projections should provide a better understanding of the Plan's dynamics. Future experience of the Plan, particularly the financial market performance, will greatly impact what future contributions are necessary.

Our long-term funding projections show that the current employer contribution rate of 7.60% is anticipated to increase the funded ratio over time if all actuarial assumptions are exactly realized, including earning 7.25% on the Actuarial Value of Assets each year. To illustrate the significant impact investment returns have on the financial health of the Plan, we have also included projections where future investment returns mirror historical periods with varying returns.

**UNITED STATES ARMY NONAPPROPRIATED FUND EMPLOYEE RETIREMENT PLAN
ACTUARIAL VALUATION AS OF OCTOBER 1, 2021**

SECTION I – SUMMARY

Recent Experience

The financial markets outperformed the assumed 7.50% rate of return for the fiscal year ending September 30, 2021. The actual return net of investment expenses on a Market Value basis was approximately 29.54%. The return on an Actuarial Value basis, which smooths recent market fluctuations, was approximately 12.25%. This return equated to an investment gain of \$96.2 million on an actuarial basis.

On the liability side, the Plan's experience resulted in an actuarial gain of \$58.8 million (approximately 2.77% of the total Actuarial Liability). This liability gain was attributable to the following sources:

- a) salaries for actives increasing less than expected (\$47.0 million gain),
- b) favorable experience from active participants retiring, terminating, dying, and becoming disabled differently than assumed (\$3.9 million gain),
- c) favorable experience on inactive participants (\$28.5 million gain), including the 1.3% cost of living adjustment awarded April 1, 2021 being lower than the assumed 3.0%,
- d) favorable experience for participants due an account balance (\$1.2 million gain),
- e) benefit payments costing less than expected (\$1.9 million gain),
- f) administrative expenses costing more than expected (\$3.6 million loss),
- g) new entrants entering the Plan (\$13.5 million loss),
- h) participants returning to work (\$5.6 million loss), and
- i) improvements in the data provided to us (\$1.0 million loss).

Economic assumptions were reviewed and a demographic experience study was performed for the period October 1, 2015 to September 30, 2020. Based on our analysis, demographic assumption changes were adopted by the Board in September 2021, and economic assumption changes were adopted by the Board in April 2022. In addition to changes in demographic assumptions, the discount rate assumption decreased from 7.50% to 7.25%, the cost-of-living adjustment assumption increased from 3.00% to 3.25%, and the general wage inflation assumption increased from 3.50% to 3.75%. The demographic and economic assumption changes increased the Actuarial Liability by \$110.0 million and added 2.46% to the actuarial employer contribution rate. Further details on the assumption changes are provided in Exhibit IV-10 later in this report.

Despite the increase in Actuarial Liability from the assumption changes, the collective gain on investment and liability experience over the last year combined with continued recognition of past investment gains and contributions made to the Plan caused the Plan's funding ratio (Actuarial Value of Assets divided by Actuarial Liability) to increase from 104.1% at October 1, 2020 to 106.6% at October 1, 2021. On a Market Value basis, the funded status increased from 105.5% to 124.7% during this period.

Several types of liabilities are calculated and presented in this report. Note that these liabilities are not appropriate for settlement purposes, including the purchase of annuities and the payment of lump sums.

UNITED STATES ARMY NONAPPROPRIATED FUND EMPLOYEE RETIREMENT PLAN
ACTUARIAL VALUATION AS OF OCTOBER 1, 2021

SECTION I – SUMMARY

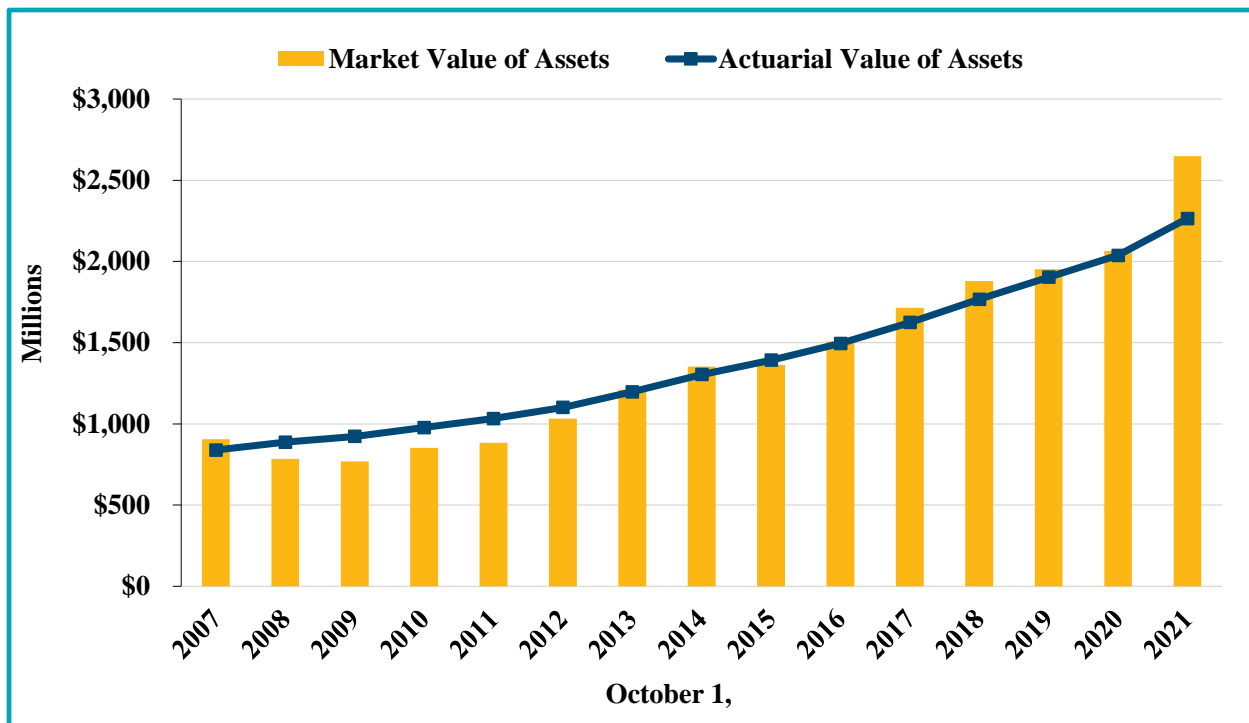
Trends

It is important to take a step back from these latest results and view them in the context of the Plan’s recent history. In the following pages, we present a series of charts that display key factors of the valuations in previous years.

Growth in Assets

The following chart compares the Market Value of Assets (MVA) and the Actuarial Value of Assets (AVA). The AVA represents market values that have been “smoothed” based on actuarial methods to mitigate the effects of the volatility exhibited by the capital markets. The AVA is used to evaluate the Plan’s ongoing unfunded liability (or surplus). Note how this actuarial technique has provided a smoother progression of assets over the last 15 years.

After unfavorable investment returns in 2008 and 2009, the Market Value has increased in each of the past twelve years. The Actuarial Value of Assets of \$2,264 million as of September 30, 2021, is less than the Market Value of \$2,649 million as of the same date. This difference of \$385 million represents the net deferred investment gain that will be recognized in the Actuarial Value of Asset over the next few years. This will help mitigate the impact on the funded status if the Plan were to have unfavorable investment experience in the near future.



**UNITED STATES ARMY NONAPPROPRIATED FUND EMPLOYEE RETIREMENT PLAN
ACTUARIAL VALUATION AS OF OCTOBER 1, 2021**

SECTION I – SUMMARY

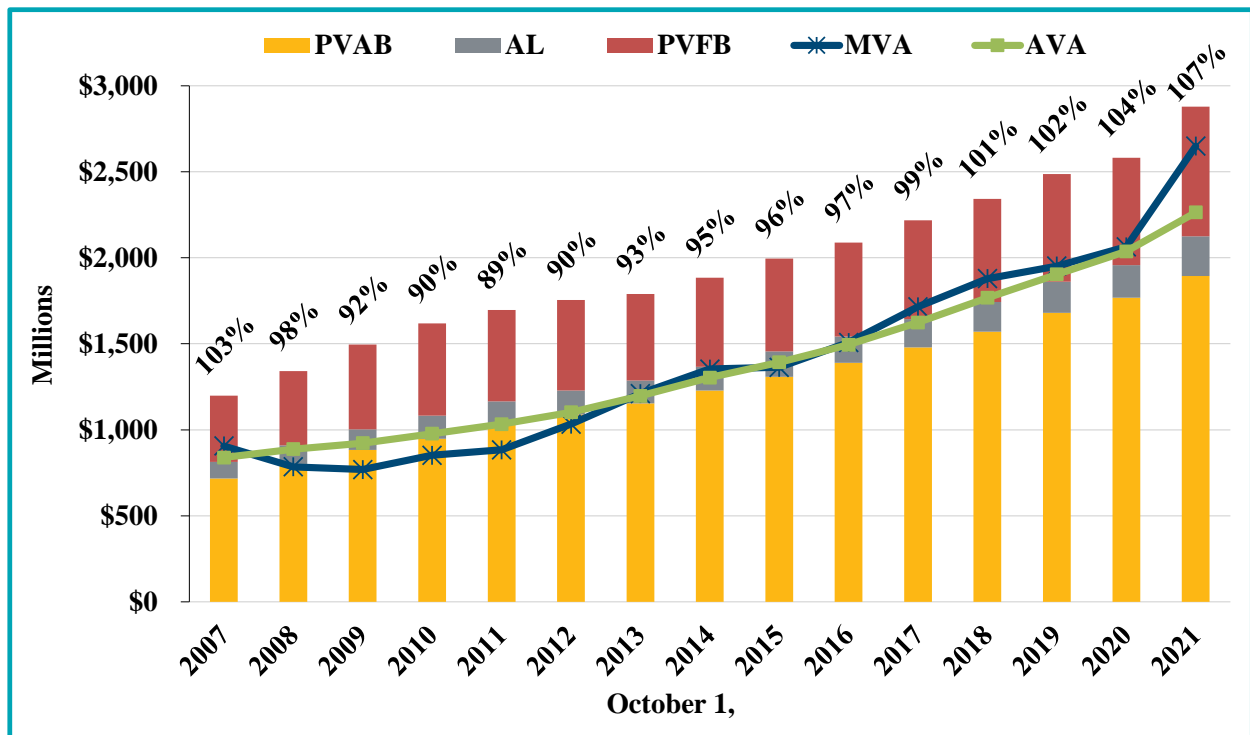
Assets and Liabilities

The three colored bars represent the three different measures of liability mentioned in this report. The amount represented by the top of the maroon bars, the Present Value of Future Benefits (PVFB), is the amount needed to provide all benefits for the current participants and their beneficiaries. If the Plan had assets equal to the PVFB, then no future contributions (neither from the employer nor from members) would be needed for the current members if all the assumptions were realized. However, since contributions will continue to be made on a participant’s behalf over their working career, it is not necessary to have assets near the PVFB.

Instead, the Actuarial Liability (AL), represented by the top of the gray bar, is the liability measure used for funding purposes. The AL is the portion of the PVFB which is not attributable to future Normal Costs.

The top of the yellow bar represents the present value of benefits that participants have accrued as of that date. This measure of liability is often referred to as the Present Value of Accumulated Benefits (PVAB).

For funding purposes, we compare the Actuarial Value of Assets (AVA), which is represented by the green line, to the AL in developing the funding ratio. These are the percentages shown in the graph labels. Finally, the Market Value of Assets (MVA) is represented by the blue line.



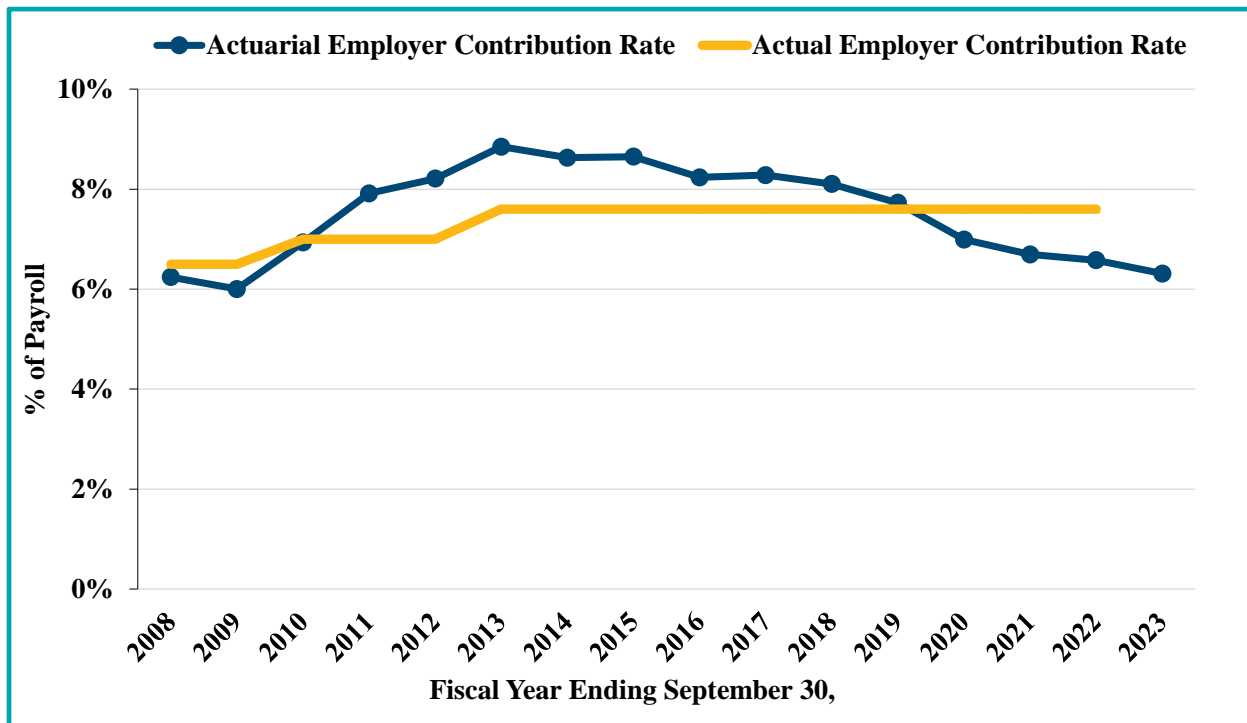
UNITED STATES ARMY NONAPPROPRIATED FUND EMPLOYEE RETIREMENT PLAN
ACTUARIAL VALUATION AS OF OCTOBER 1, 2021

SECTION I – SUMMARY

Employer Contribution Rates

The following graph shows the actual employer contribution rate (yellow line) compared to the actuarially calculated employer contribution rate (blue line), denominated as a percent of payroll. The actuarially calculated employer rate represents the employer Normal Cost including assumed administrative expenses plus a 15-year level amortization of any unfunded liability (or surplus). This 15-year level amortization is a rolling amortization. However, this actuarially calculated employer contribution rate should not necessarily be construed as a recommended contribution level as this will not fully amortize the unfunded (or surplus) Actuarial Liability.

As of the previous valuation, the underlying employer actuarial rate was 6.58% for fiscal year 2021-22 and was expected to decrease to 6.46% for the fiscal year 2022-23 if all the assumptions had been realized, including a 7.50% investment return. Favorable asset and demographic experience outweighed higher liabilities from assumption changes resulting in an actuarial contribution rate of 6.31% for fiscal year 2022-23. It is important to note that the current employer contribution policy of 7.60% is more than the actuarial contribution rate but is less than the value of the benefit earned by participants for one more year of service, known as Normal Cost, and administrative expenses equaling 8.36% of pay. This is net of the employee contribution rate of 2.00% of pay employees currently contribute.



**UNITED STATES ARMY NONAPPROPRIATED FUND EMPLOYEE RETIREMENT PLAN
ACTUARIAL VALUATION AS OF OCTOBER 1, 2021**

SECTION I – SUMMARY

Valuation Results

The following table provides a summary of the results from the October 1, 2021 actuarial valuation. Presented alongside the current year results are results from the prior valuation at October 1, 2020.

Exhibit I-1				
Summary of Principal Results				
<i>(\$ in millions)</i>				
	<u>October 1, 2021</u>	<u>October 1, 2020</u>	<u>% Change</u>	
<u>Participant Data</u>				
(a) Retired Members and Beneficiaries*	8,988	9,092	(1.1%)	
(b) Vested Deferred Members	4,827	4,047	19.3%	
(c) Non-Vested Participants Due Account Balance	27,633	27,066	2.1%	
(d) Active Members	<u>16,084</u>	<u>15,677</u>	2.6%	
(e) Total Participants [(a) + (b) + (c) + (d)]	57,532	55,882	3.0%	
(f) Annual Salaries of Active Members	\$ 734.4	\$ 695.5	5.6%	
(g) Annual Retirement Allowances for Retired Members and Beneficiaries	\$ 85.6	\$ 85.7	(0.1%)	
<u>Assets and Liabilities</u>				
(h) Present Value of Future Benefits	\$ 2,879.1	\$ 2,580.8	11.6%	
(i) Actuarial Liability	\$ 2,124.2	\$ 1,956.6	8.6%	
(j) Actuarial Value of Assets	\$ 2,264.2	\$ 2,037.5	11.1%	
(k) Unfunded Actuarial Liability [(i) - (j)]	\$ (140.0)	\$ (80.9)		
(l) Funding Ratio on Actuarial Basis [(j) ÷ (i)]	106.6%	104.1%	2.5%	
(m) Market Value of Assets	\$ 2,649.1	\$ 2,064.1	28.3%	
(n) Funding Ratio on Market Basis [(m) ÷ (i)]	124.7%	105.5%	19.2%	
(o) Present Value of Accumulated Plan Benefits	\$ 1,894.5	\$ 1,767.4	7.2%	
<u>Contribution Results</u>				
	<u>Fiscal Year End</u>	<u>Fiscal Year End</u>		
	<u>September 30, 2023</u>	<u>September 30, 2022</u>		
(p) Total Annual Normal Cost with Expenses	\$ 73.5	\$ 66.1	11.2%	
(q) Expected Employee Contributions	(14.7)	(13.9)	5.8%	
(r) UAL Amortization	(14.6)	(8.5)	71.8%	
(s) Interest to Middle of Year	<u>2.1</u>	<u>2.1</u>	0.0%	
(t) Actuarial Contribution [(p) + (q) + (r) + (s)]	\$ 46.3	\$ 45.8	1.1%	
(u) As a % of Payroll	6.31%	6.58%	(0.27%)	

* Includes 20 participants receiving benefits from Ameritas Life Insurance Corporation as of 10/1/2020 and 15 as of 10/1/2021. Cost of living increases granted after 1980 for these 15 participants total \$57,697 per year with an Actuarial Liability of \$176,300 as of 10/1/2021. The Actuarial Liability for these increases is included above.

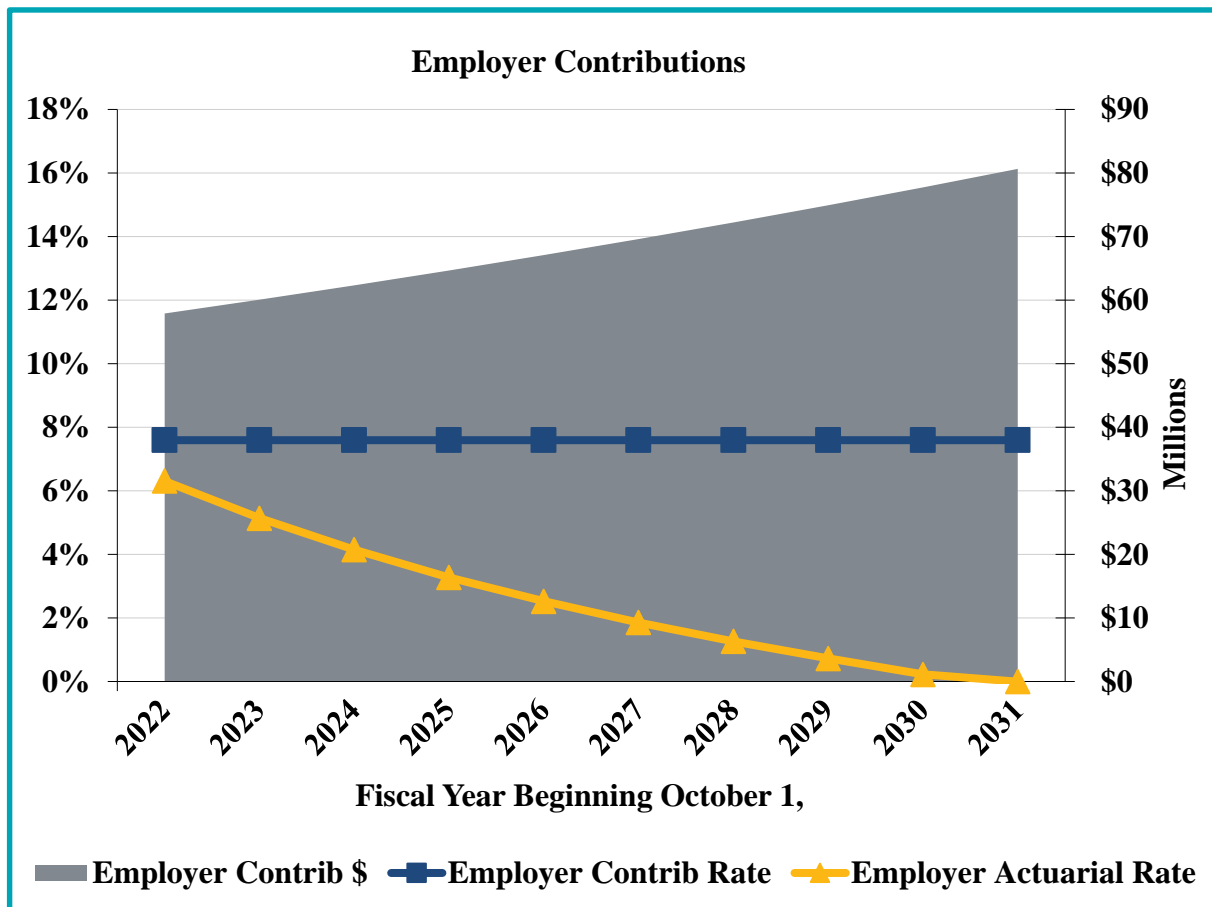
**UNITED STATES ARMY NONAPPROPRIATED FUND EMPLOYEE RETIREMENT PLAN
ACTUARIAL VALUATION AS OF OCTOBER 1, 2021**

SECTION I – SUMMARY

Future Outlook

The two charts that follow show the expected progress of the Plan over the next ten years assuming that the Plan’s assets earn the assumed 7.25% on their *market value*.

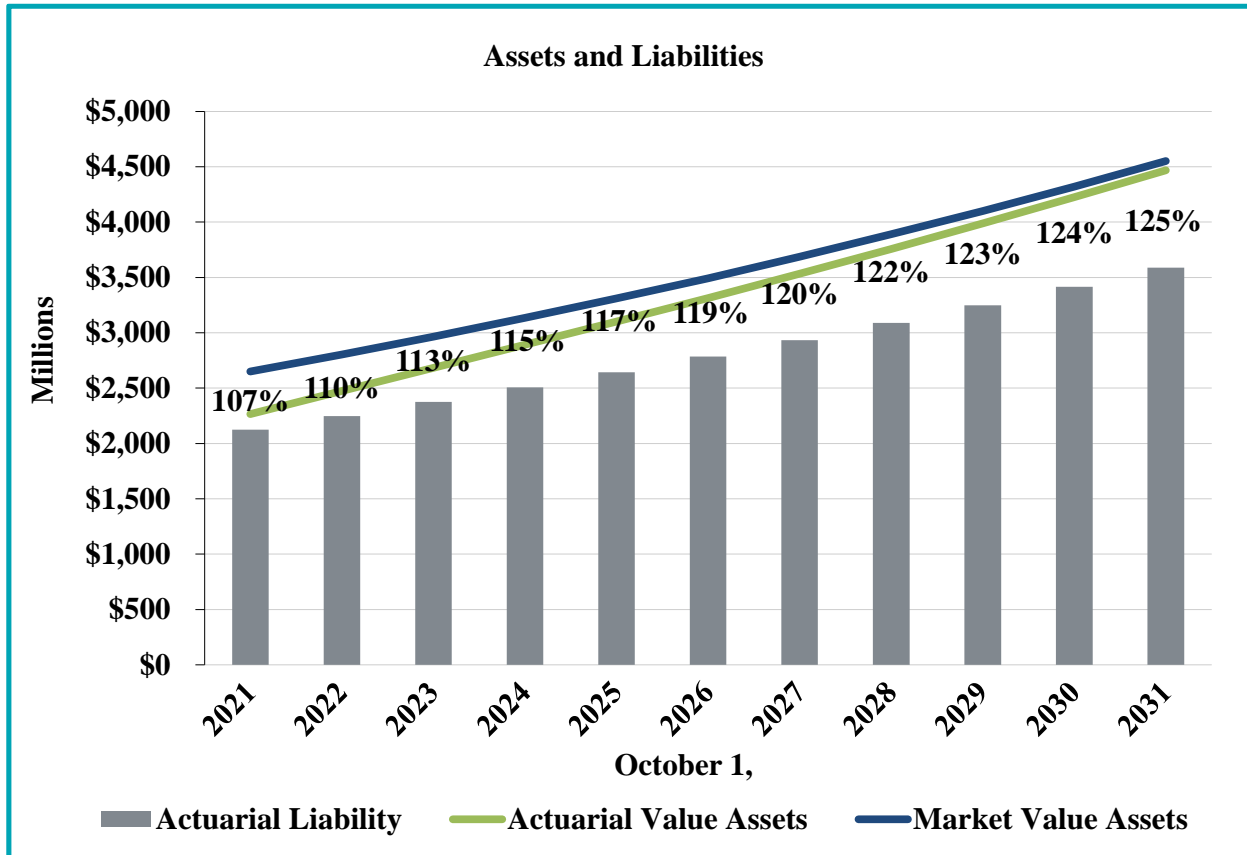
In the chart below, the gray shaded area represents the anticipated dollar amount (aligned with the amounts on the right axis) contributed by the employer at 7.60% of payroll. The employer contribution rate is shown by the blue line, and the employer actuarial rate is shown by the yellow line (aligned with the percentages on the left axis). If all actuarial assumptions are met, the employer actuarial rate is expected to remain less than the actual 7.60% rate being contributed and will steadily decrease from 6.31% for FY 2022-23 to 0.00% for FY 2031-32 as the actuarial assets continue to recognize past net investment gains and the employers continue to contribute at the 7.60% level and the employees at the 2.00% level. The projected contributions do not reflect any additional employer contributions for other sources such as portability and DRS or service buybacks. These additional contributions are intended to offset the additional liabilities that would be recognized in our valuation as these events occur.



**UNITED STATES ARMY NONAPPROPRIATED FUND EMPLOYEE RETIREMENT PLAN
ACTUARIAL VALUATION AS OF OCTOBER 1, 2021**

SECTION I – SUMMARY

The following chart entitled Assets and Liabilities shows the projected funding status. Over the next decade, the Plan is projected to increase from 107% funded to 125% funded on an actuarial value basis. This trend is based on continued employer and employee contributions at 7.60% and 2.00% of payroll, respectively.



However, it is very important to note that these projections, while valid as baseline projections, **are not going to occur** as experience never conforms exactly to assumptions from year to year. As a result, in Section II of this report, *Disclosures Related to Risk*, we stress test the underlying investment return assumption by varying future returns to demonstrate the impact on the overall health of the Plan.

SECTION II – DISCLOSURES RELATED TO RISK

Introduction

Actuarial Standard of Practice (ASOP) No. 51 was published by the Actuarial Standards Board to provide guidance to actuaries on the assessment and disclosure of risks related to the possibility that future pension plan experience will deviate from assumptions. This standard does not introduce new concepts to actuarial work; it simply attempts to provide some codification of the practice. Our reports have routinely included stress testing of the valuation results showing the impact of future experience deviating from the underlying assumptions.

The pension plan's actuarial valuation results are dependent on assumptions about future economic and demographic experience. Based on actuarial standards of practice, the assumptions represent a reasonable estimate for future experience. However, actual experience will never conform exactly to the assumptions and may differ significantly from the assumptions. This deviation is the risk that pension plan sponsors undertake in relying on a pension plan's actuarial valuation results.

This section of this report is intended to identify the primary drivers of these risks, provide background information and assessments about these identified risks, and communicate the significance of these risks to the Plan.

Identification of Risks

For pension plans, the three primary valuation results that can significantly differ from those expected are in the assets, liabilities, and contributions. While there are several factors that could lead to these results being different, we believe the primary risks to this Plan are:

- Investment risk,
- Longevity and other demographic risks,
- Plan change risk,
- Contribution risk, and
- Assumption change risk.

Other risks that we have not identified may also turn out to be important.

Investment Risk is the potential for investment returns to deviate from what is expected. When actual investment returns are lower than the investment assumption used in the actuarial valuation (currently 7.25% per year), the unfunded liability will increase and the period of time over which the unfunded liability is expected to be paid will increase. Conversely, when actual returns exceed the assumption, the resulting unfunded liability measurements and amortization period will be lower than anticipated.

UNITED STATES ARMY NONAPPROPRIATED FUND EMPLOYEE RETIREMENT PLAN
ACTUARIAL VALUATION AS OF OCTOBER 1, 2021

SECTION II – DISCLOSURES RELATED TO RISK

Longevity and Other Demographic Risk is the potential for mortality or other demographic experience to be different than expected. Generally, these risks emerge slowly over time as the actual experience deviates from what was expected. In addition, the extensive number of assumptions related to longevity and demographic experience often result in offsetting factors contributing to the Plan's overall liability experience.

Plan Change Risk is the potential for the provisions of the Plan to be changed such that the funding or benefits are changed materially. In addition to the actual payments to and from the Plan being changed, future valuation measurements can also be impacted, with plan changes leading to deviations between actual future measurements and those expected by the current valuation.

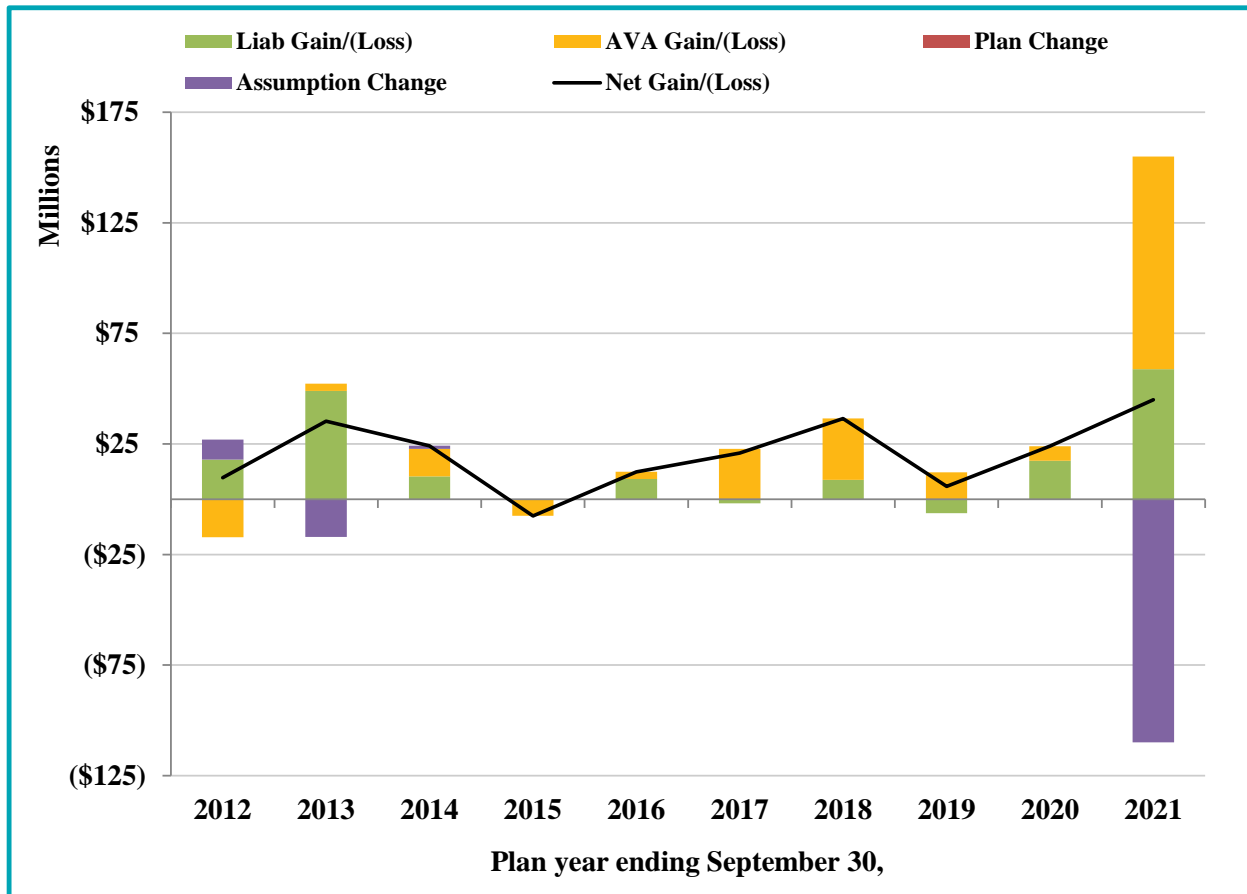
Contribution Risk is the potential for actual future contributions to deviate from expected future contributions, or that the anticipated contributions will be inadequate to fund the plan benefits. There are different sources of contribution risk ranging from the sponsor choosing a contribution level that does not adequately fund the Plan to material changes in the contribution base (e.g., covered employees, covered payroll, sponsor revenue) that affect the amount of contributions the Plan can collect.

Assumption Change Risk is the potential for the environment to change such that future valuation assumptions are adjusted to be different than the current assumptions. For example, declines in interest rates over time may result in a change in the assumed rates of return used in the valuation. A healthier workforce may result in changes in employee behavior such that retirement rates are adjusted to reflect employees working longer. Assumption change risk is an extension of the risks previously identified, but rather than capturing the risk as it is experienced, it captures the cost of recognizing a change in the environment when the current assumption is no longer reasonable. The chart on the following page illustrates the impact of the Plan's assumption changes over the past ten valuations, including the \$110 million impact for the assumption changes made concurrent with this valuation. However, these assumption changes are necessary in hopes to better align expected experience with actual experience for a more accurate calculation of the Plan's future obligations.

**UNITED STATES ARMY NONAPPROPRIATED FUND EMPLOYEE RETIREMENT PLAN
ACTUARIAL VALUATION AS OF OCTOBER 1, 2021**

SECTION II – DISCLOSURES RELATED TO RISK

In understanding the impact of some of these risks, it is useful to look at past experience deviations. These deviations are commonly referred to as actuarial gains and losses. The following graph shows the components of changes in the Unfunded Actuarial Liability (UAL) for the last ten years, including liability gains/(losses), investment gains/(losses) on the Actuarial Value of Assets, plan changes, and assumption changes. The net UAL change is shown by the dark line.



As described previously and evident in this chart, investment gains/(losses), liability gains/(losses), and assumption changes have been risks for the Plan.

Actuarial liability gains/(losses), as shown by the green bars, have historically been driven by salaries and annual cost of living adjustments differing from their respective underlying assumptions. Over the past ten years, the Plan has experienced net gains, effectively reducing the UAL during this time.

Investment gains/(losses) on an actuarial, or smoothed, basis, as shown by the gold bars, have been an impactful source of gains/(losses) in a typical year. The amount of these investment gains/(losses) can vary significantly from year to year as they are subject to volatility from the financial markets.

**UNITED STATES ARMY NONAPPROPRIATED FUND EMPLOYEE RETIREMENT PLAN
ACTUARIAL VALUATION AS OF OCTOBER 1, 2021**

SECTION II – DISCLOSURES RELATED TO RISK

Assumption changes, shown in the purple bars, consist of changes to economic and demographic assumptions and can be significant to the Plan. Concurrent with this valuation, changes to the economic assumptions resulted in a \$128 million increase in liabilities. In contrast, demographic assumption changes reduced liabilities by \$18 million, illustrating how economic assumption changes can drive changes in the UAL more so than changes in demographic assumptions and that changes in assumptions can have offsetting effects on the Plan. Another example of assumption changes offsetting one another is seen in 2014, where changes to the economic assumptions increased the UAL by just \$7 million. This was due to the real rate of return, or the amount the discount rate exceeds the general inflation assumption, remaining level as the discount rate, general wage increase, and general inflation assumptions were each decreased by 0.50%. Conversely, the economic assumption changes in 2021 had a compounding impact as the real rate of return was decreased from 4.50% to 4.00% due to lowering the discount rate from 7.50% to 7.25% while increasing both the general wage increase and inflation assumption to 3.25% and 3.75% respectively.

UNITED STATES ARMY NONAPPROPRIATED FUND EMPLOYEE RETIREMENT PLAN
ACTUARIAL VALUATION AS OF OCTOBER 1, 2021

SECTION II – DISCLOSURES RELATED TO RISK

Plan Maturity Measures

As pension plans become more mature, the identified risks become of more significant concern. As a result, it has become increasingly important to examine measures that indicate a pension plan's maturity level.

The balance of this section discloses and examines three maturity measures: the asset leverage ratio, the support ratio, and the net cash flow ratio.

Asset Leverage Ratio

Typically, one of the most important pension plan maturity measures is the asset leverage ratio — the Market Value of Assets divided by the Plan's payroll. The greater the plan's assets are relative to payroll, the more vulnerable the plan is to investment volatility. The following example demonstrates this.

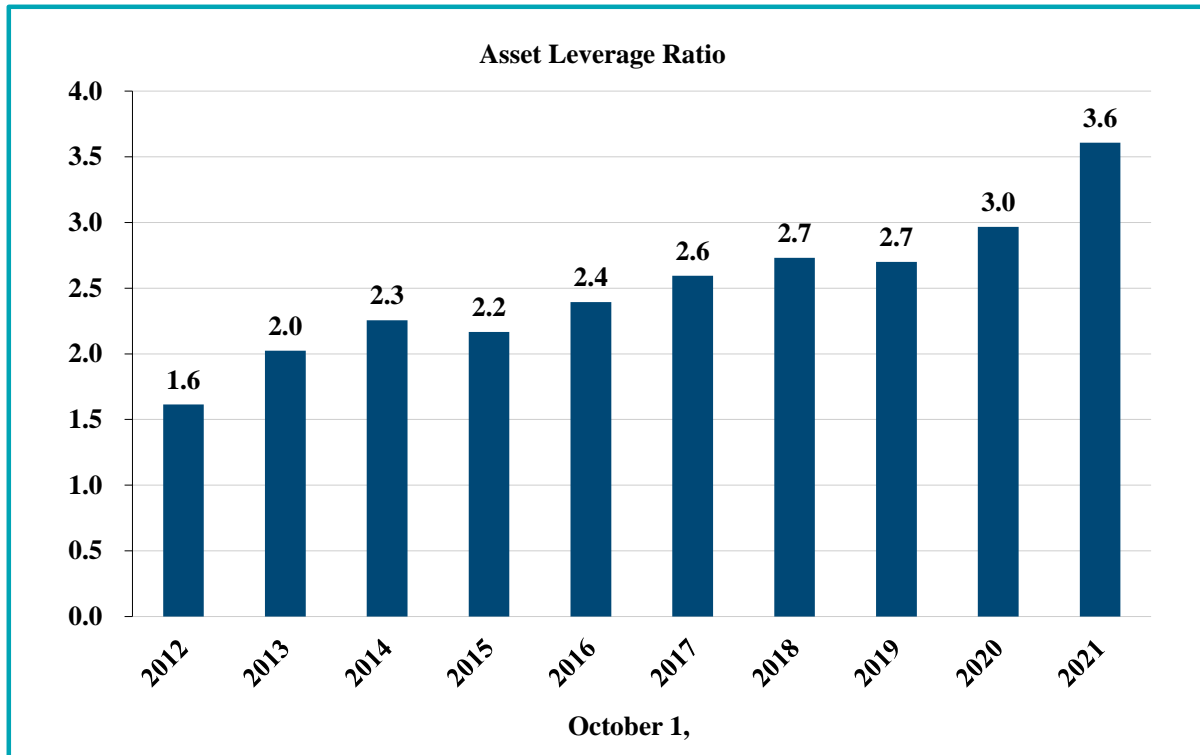
(\$ in millions)		
	Plan A	Plan B
Plan Assets	\$ 5,000	\$ 5,000
Payroll	\$ 500	\$ 1,000
Asset Leverage Ratio	10.0	5.0
10% Investment Loss	\$ 500	\$ 500

This example shows two plans that both experience a 10% investment loss equaling \$500 million. Although their assets are the same, because the size of payroll for Plan A is half of that of Plan B, its asset leverage ratio is 10 and Plan B's ratio is 5. This means that Plan A has to make up (i.e., amortize) that loss over a payroll that is half as large as Plan B's.

UNITED STATES ARMY NONAPPROPRIATED FUND EMPLOYEE RETIREMENT PLAN
ACTUARIAL VALUATION AS OF OCTOBER 1, 2021

SECTION II – DISCLOSURES RELATED TO RISK

The following chart shows that the Plan’s Asset Leverage ratio has more than doubled since 2012, growing from a ratio of 1.6 to a ratio of 3.6. This means that the impact of a major economic downturn would be more than double the impact it was a decade ago, presenting additional challenges when trying to make up the lost investment income through additional contributions.

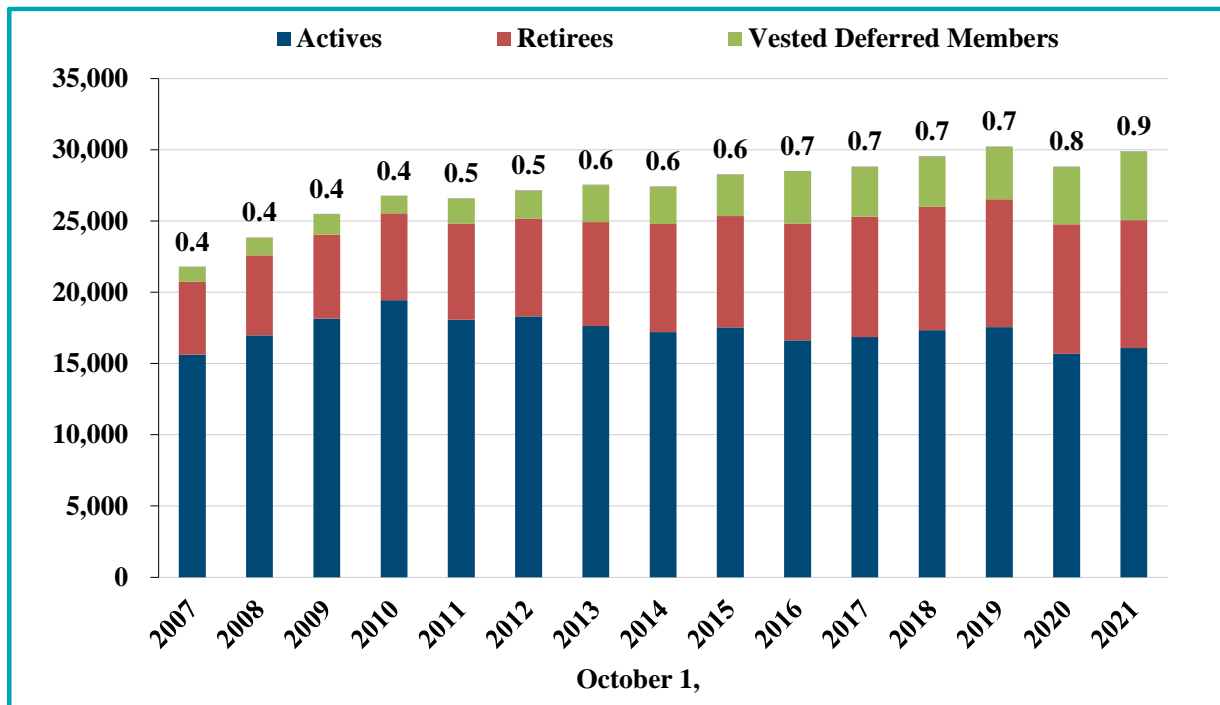


**UNITED STATES ARMY NONAPPROPRIATED FUND EMPLOYEE RETIREMENT PLAN
ACTUARIAL VALUATION AS OF OCTOBER 1, 2021**

SECTION II – DISCLOSURES RELATED TO RISK

Support Ratio

A commonly used measure of plan maturity is the Support Ratio, the ratio of inactive members (those receiving benefits or entitled to a deferred benefit) to the number of active members (those currently accruing benefits in the Plan). The greater this ratio, the more likely that the Plan will develop negative cash flows. Since contributions are only made on behalf of active members, adverse investment performance places a relatively heavier burden on active members to recover via future contributions. We continue to monitor the support ratio as a means of reflecting the relative risks the Plan has to investment volatility.



The numbers above the bars in the preceding chart show the historical support ratio for the Plan has increased gradually over the period shown but is still less than 1.0. A support ratio of less than 1.0 means there are still more active participants than inactive participants. Growth in this ratio over time is to be expected as the Plan matures. The drop in total participants in 2020 was primarily due to the 10% decrease in the number of actives for that year due to a hiring freeze at the onset of the COVID-19 global pandemic.

The Boston College’s Center for Retirement Research, NASRA and the Center for State and Local Government Excellence maintain the Public Plan Database that contains the majority of state plans as well as many large municipal plans. The median support ratio for the plans within this database has been just over 1.0 in recent years. Therefore, the Plan’s support ratio of 0.9 suggests that this Plan is still less mature than most plans in the database.

In addition to the participants shown in this chart, there are 27,633 participants who are no longer working but are entitled to a refund of their employee contribution account balance.

**UNITED STATES ARMY NONAPPROPRIATED FUND EMPLOYEE RETIREMENT PLAN
ACTUARIAL VALUATION AS OF OCTOBER 1, 2021**

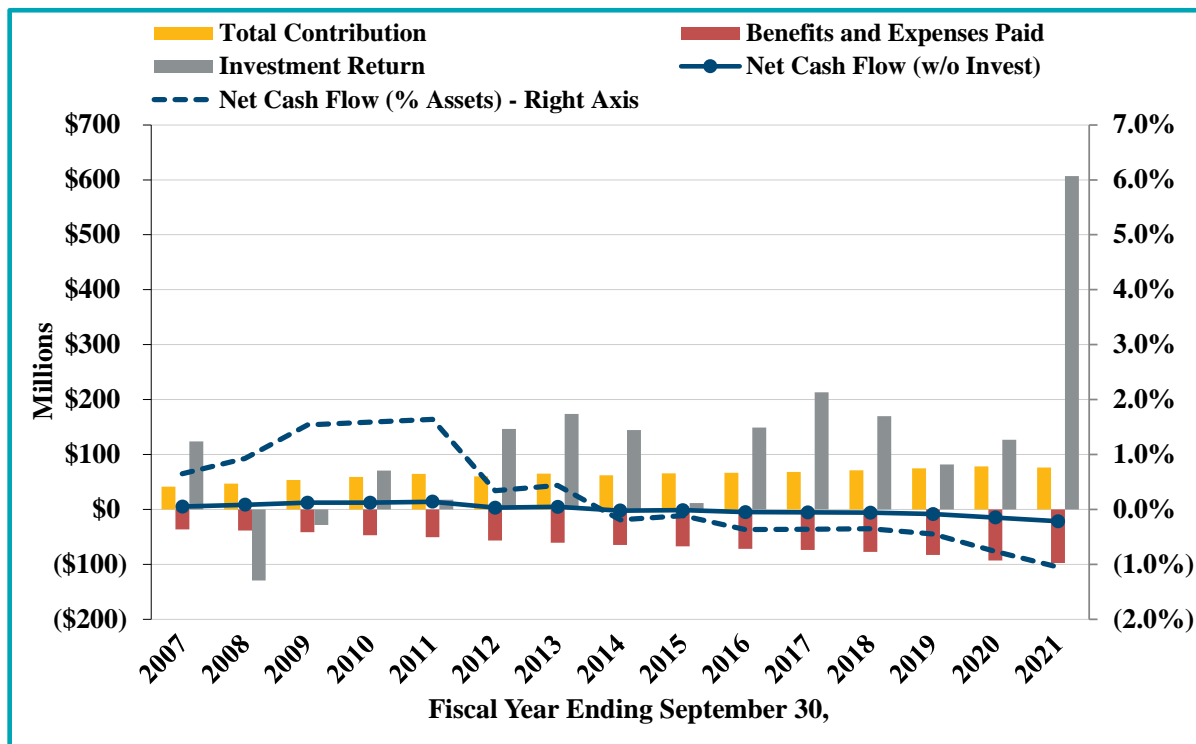
SECTION II – DISCLOSURES RELATED TO RISK

Net Cash Flow Ratio

Another and more important measure of plan maturity is the ratio of the net cash flow (contributions less benefits and expenses) to the market value of plan assets. With shrinking workforces, aging Baby Boomers, and retirees living longer, most plans pay out more in benefits than they receive in contributions each year, leading to negative net cash flows, excluding investment income.

Plans with significant negative cash flows are more vulnerable to market declines. When plans with negative net cash flows suffer investment losses, they need to liquidate enough assets to pay for benefits in excess of contributions. That means these plans will need to earn higher returns to rebuild their assets to the previous levels. A plan that is in a negative cash flow position must rely on investment returns at least as much as the negative cash flow in order for the assets to increase. However, negative cash flows are expected with maturing plans, and a plan’s asset allocation may be adjusted to minimize sensitivity to investment risk.

The following graph shows the Plan’s historical cash flows – employer, member, and other contributions (gold bars) compared to the benefit payments and administrative expenses from the Plan (maroon bars). The Plan experienced a positive cash flow prior to 2014. However, the past eight fiscal years have reflected a negative cash flow position, as shown by the solid blue line on a dollar-basis and dashed blue line as a percentage of the Market Value of Assets turning negative. The negative cash flow of \$21.6 million for the period ending September 30, 2021 amounted to 1.0% of assets. The 29.54% investment return well exceeded this threshold, causing the market value of assets to grow from last year.



SECTION II – DISCLOSURES RELATED TO RISK

Assessment of Future Risks

Stress Testing the Plan's Funded Status and Contribution Levels

The fundamental risk to the Plan is that contributions will not adequately fund Plan benefits. In assessing this risk, we performed stress tests on the Plan's funded status and contribution level by varying future investment returns. It is imperative to note that the baseline projections shown in Section I, while valid as an illustration of the Plan's sensitivity to future investment returns, **will not occur** as experience never conforms exactly to assumptions from year to year.

With varying annual investment earnings, the charts that follow show the volatility in the contributions (top graph) and in the Plan's funded status (bottom graph). Note that these graphs reflect illustrative scenarios and are not intended to reflect future expectations.

The first two illustrative scenarios show what the coming decade would look like if the Plan's investment returns were to mirror two different periods in history – one associated with a bull market (mimicking investment performance from 1950 to 1959) and the other reflecting a bear market (mimicking 1931 to 1940). The investment returns for these two periods average 12.35% and 3.31%, respectively, which are very different from the assumed investment return of 7.25%. A third scenario shows a 10-year period averaging close to 7.25% annually but with much more volatility than the baseline scenario.

What these charts show is that whether the Plan is fully funded or poorly funded, future investment returns can quickly alter the financial position of the Plan. It is impossible to judge the financial soundness of a plan with a single-year point measurement. What is more important to consider is the Plan's conservatism in funding benefits, as well as the discipline and ability for the Plan to consistently contribute an adequate amount.

**UNITED STATES ARMY NONAPPROPRIATED FUND EMPLOYEE RETIREMENT PLAN
ACTUARIAL VALUATION AS OF OCTOBER 1, 2021**

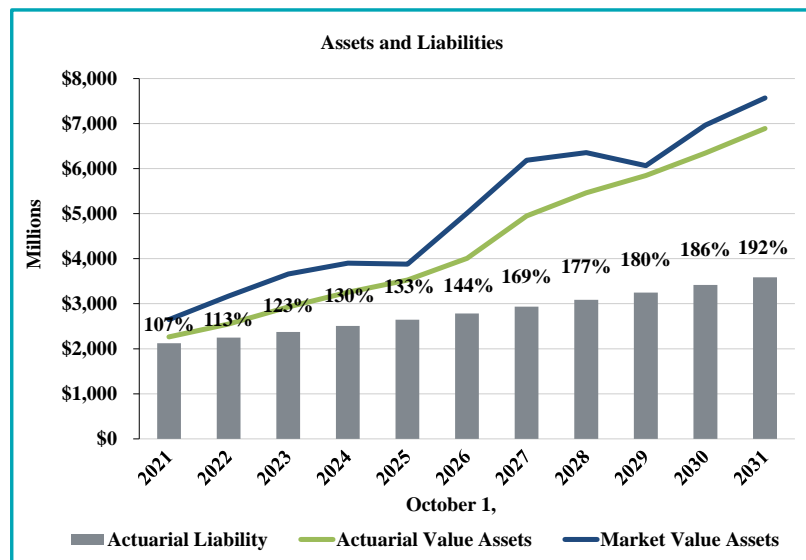
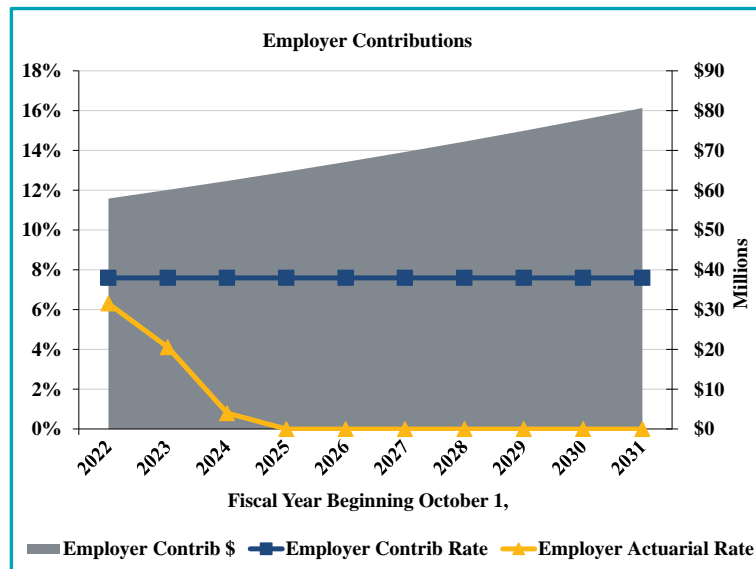
SECTION II – DISCLOSURES RELATED TO RISK

Assuming Investment Returns for Next 10 Years Follows 1950 – 1959 (Bull Market)

The chart below demonstrates how the funded status could change if investment returns were to mirror 1950 – 1959, a period of a bull market, based on a portfolio invested 60% in equities and 40% in fixed income. The returns during this period would be as follows:

PYE 9/30	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	Avg for Period
As If	1950	1951	1952	1953	1954	1955	1956	1957	1958	1959	
Return	21.13%	16.86%	7.83%	0.71%	30.79%	24.74%	3.74%	-3.50%	16.21%	9.82%	12.35%

Under this scenario, the favorable investment returns and continued employer contribution rate of 7.60% would result in the employer actuarial contribution rate going to 0% and the Plan’s projected funded status increasing to 192% by the end of the period shown.



**UNITED STATES ARMY NONAPPROPRIATED FUND EMPLOYEE RETIREMENT PLAN
ACTUARIAL VALUATION AS OF OCTOBER 1, 2021**

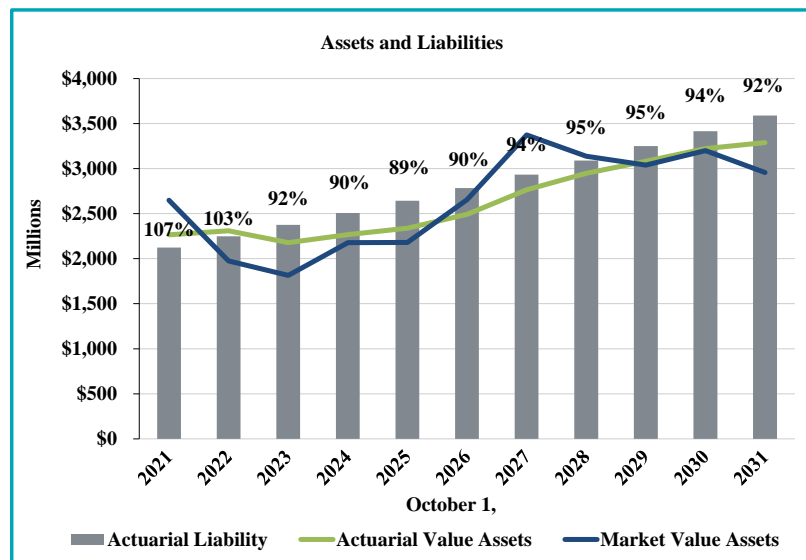
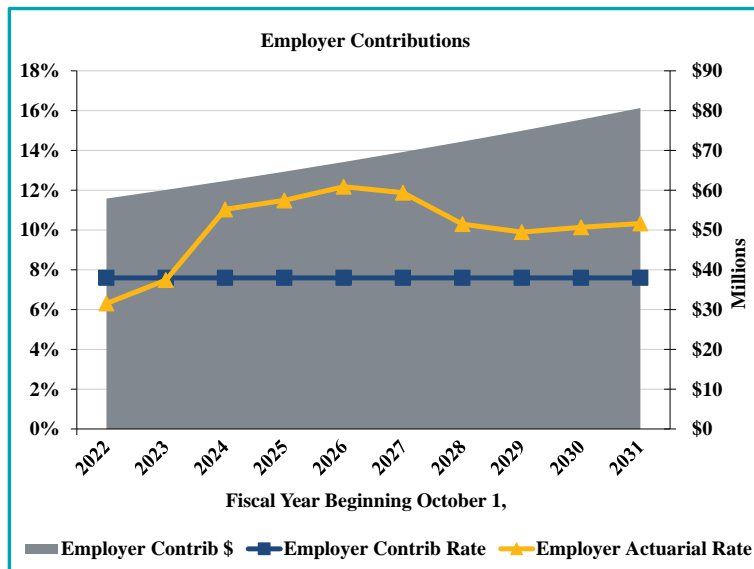
SECTION II – DISCLOSURES RELATED TO RISK

Assuming Investment Returns for Next 10 Years Follows 1931 – 1940 (Bear Market)

The chart below demonstrates how the funded status could change if investment returns were to mirror 1931 – 1940, a period of a bear market, based on a portfolio invested 60% in equities and 40% in fixed income. The returns during this period would be as follows:

PYE 9/30	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	Avg for Period
As If	1931	1932	1933	1934	1935	1936	1937	1938	1939	1940	
Return	-24.25%	-6.20%	22.79%	2.35%	24.65%	29.50%	-5.14%	-0.98%	7.83%	-5.18%	3.31%

Under this scenario, the unfavorable investment returns along with the continued employer contribution rate of 7.60% would result in wide swings to the employer actuarial contribution rate and the Plan’s projected funded status decreasing to 92% by the end of the period shown.



**UNITED STATES ARMY NONAPPROPRIATED FUND EMPLOYEE RETIREMENT PLAN
ACTUARIAL VALUATION AS OF OCTOBER 1, 2021**

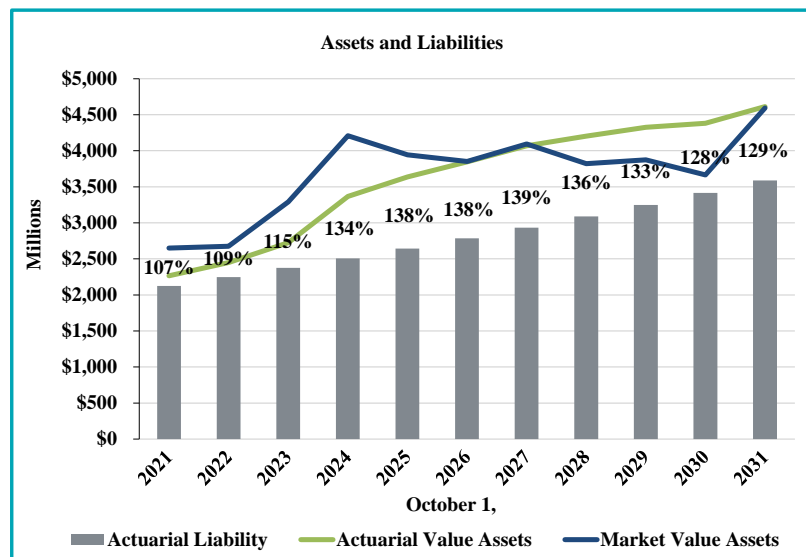
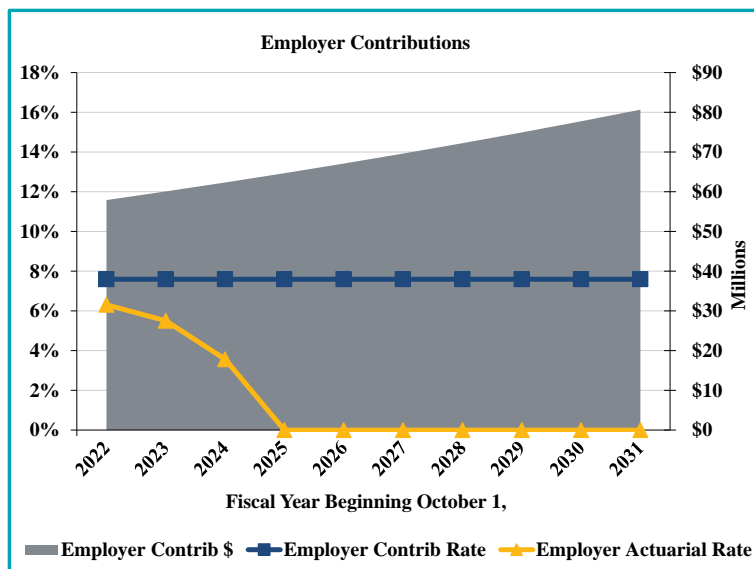
SECTION II – DISCLOSURES RELATED TO RISK

Assuming Investment Returns for Next 10 Years Averages 7.29% Annually

The chart below demonstrates how the funded status could change if investment returns were to mirror 1934 – 1943, a period where the average investment return was similar to the current assumption of 7.25%, based on a portfolio invested 60% in equities and 40% in fixed income. The returns during this period would be as follows:

PYE 9/30	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	Avg for
As If	1934	1935	1936	1937	1938	1939	1940	1941	1942	1943	Period
Return	2.35%	24.65%	29.50%	-5.14%	-0.98%	7.83%	-5.18%	3.22%	-3.49%	27.82%	7.29%

Under this scenario, the investment returns along with the continued employer contribution rate of 7.60% would result in the employer actuarial contribution rate going to 0% and the Plan’s projected funded status increasing to 129% by the end of the period shown. Even though the average return for this period is nearly the assumed rate of 7.25%, the funded status and employer contributions experience much more volatility than the baseline scenario.



**UNITED STATES ARMY NONAPPROPRIATED FUND EMPLOYEE RETIREMENT PLAN
ACTUARIAL VALUATION AS OF OCTOBER 1, 2021**

SECTION II – DISCLOSURES RELATED TO RISK

The Plan, by order of the Commanding General, may increase the employee contribution rate of 2.00% if the funded status is projected to fall below 90% within the following 20 years. If the employee contribution were to increase, the employer contribution would increase as well. The bear market scenario projects the funded status to fall below the 90% threshold. Since these projections are provided for illustrative purposes only, we have assumed that the employee and employer contribution rates remain at 2.00% and 7.60%, respectively. However, if the Commanding General were to order contribution rate increases, the funded percentage would be higher than shown in these projections.

To reiterate, the previous scenarios illustrate not only the importance of the investment returns themselves but also the timing of the returns over the period.

**UNITED STATES ARMY NONAPPROPRIATED FUND EMPLOYEE RETIREMENT PLAN
ACTUARIAL VALUATION AS OF OCTOBER 1, 2021**

SECTION III – STATUTORY VALUATION EXHIBITS

Exhibit III-1

Development of Actuarial Value of Assets

1. Actuarial Value of Assets as of October 1, 2020	\$ 2,037,540,007
2. Amount in (1) with interest of 7.50% to September 30, 2021	2,190,355,508
3. Contributions (Employer, Employee, and Other) for Plan Year ended September 30, 2021	76,206,250
4. Interest on Contributions assuming payments made uniformly throughout the year to September 30, 2021	2,806,072
5. Disbursements from Trust except investment expenses, October 1, 2020 through September 30, 2021	97,813,650
6. Interest on disbursements made uniformly throughout the year to September 30, 2021 at 7.50% per year	<u>3,601,701</u>
7. Expected Actuarial Value of Assets as of September 30, 2021 = (2) + (3) + (4) - (5) - (6)	\$ 2,167,952,479
8. Actual Market Value of Assets at September 30, 2021	\$ 2,649,104,256
9. Excess of (8) over (7)	\$ 481,151,777
10. Pro-forma Actuarial Value of Assets at September 30, 2021 = (7) + 20% of (9)	\$ 2,264,182,834
11. Maximum value = 1.20 x (8)	\$ 3,178,925,107
12. Minimum value = 0.80 x (8)	\$ 2,119,283,405
13. Actuarial Value of Assets as of September 30, 2021 = (10), but not more than (11) nor less than (12)	\$ 2,264,182,834

**UNITED STATES ARMY NONAPPROPRIATED FUND EMPLOYEE RETIREMENT PLAN
ACTUARIAL VALUATION AS OF OCTOBER 1, 2021**

SECTION III – STATUTORY VALUATION EXHIBITS

Exhibit III-2 Employer Actuarial Rate	
1. Actuarial Liability	\$ 2,124,215,719
2. Actuarial Value of Assets	<u>2,264,182,834</u>
3. Unfunded Actuarial Liability [(1) - (2)]	\$ (139,967,115)
4. Normal Cost plus Administrative Expenses	73,489,484
5. 15-Year Amortization of Unfunded Actuarial Liability	(14,555,882)
6. Estimated Employee Contribution	14,688,940
7. Interest on (4) and (5) for Half Year *	<u>2,098,965</u>
8. Net Employer Actuarial Contribution: (4) + (5) - (6) + (7)	\$ 46,343,627
9. Active Member Payroll	\$ 734,447,023
10. Employer Actuarial Rate as a Percentage of Active Member Payroll: (8) / (9)	6.31%

* Contributions are assumed to be made uniformly throughout the year.

**UNITED STATES ARMY NONAPPROPRIATED FUND EMPLOYEE RETIREMENT PLAN
ACTUARIAL VALUATION AS OF OCTOBER 1, 2021**

SECTION III – STATUTORY VALUATION EXHIBITS

Exhibit III-3 Ten-Year Projection of Retirees					
Plan Year Ending <u>9/30</u>	<u>Current</u> <u>Retirees*</u>	<u>From</u> <u>Deferreds</u>	<u>From</u> <u>Actives</u>	<u>Total</u> <u>Retirees</u>	<u>Annual</u> <u>Benefits**</u>
2022	8,763	887	86	9,736	\$ 103,991,917
2023	8,527	1,004	711	10,242	111,399,177
2024	8,283	1,123	1,288	10,694	118,862,275
2025	8,033	1,231	1,833	11,097	126,725,693
2026	7,777	1,343	2,312	11,432	135,014,121
2027	7,516	1,465	2,723	11,704	139,727,890
2028	7,250	1,577	3,069	11,896	148,554,607
2029	6,980	1,678	3,382	12,040	157,357,538
2030	6,705	1,785	3,653	12,143	166,670,507
2031	6,429	1,883	3,865	12,177	175,966,960

* Includes number of participants and their cost of living benefits to be paid from Ameritas Life Insurance Corporation.

** Assumes that the \$19.7 million in account balances for the 27,633 non-vested participants due a refund of their employee contributions are paid uniformly over next five years.

The projection above is based on the October 1, 2021 census data provided and does not reflect any employees expected to be hired after that date.

**UNITED STATES ARMY NONAPPROPRIATED FUND EMPLOYEE RETIREMENT PLAN
ACTUARIAL VALUATION AS OF OCTOBER 1, 2021**

SECTION III – STATUTORY VALUATION EXHIBITS

Exhibit III-4 Summary of Census Data as of October 1, 2021		
<u>A. ACTIVE PARTICIPANTS</u>		
1.	Number	16,084
2.	Total Annual Valuation Payroll (as reported)	\$ 734,447,023
3.	Average Age	45.4
4.	Average Credited Service	9.5
5.	Average Annual Pay [2. ÷ 1.]	\$ 45,663
6.	Average Accumulated Employee Contributions with Interest	\$ 7,814
<u>B. INACTIVE PARTICIPANTS</u>		
7.	Terminated Vested Participants:	
a.	Number	4,827
b.	Total Monthly Benefit	\$ 1,768,689
c.	Average Monthly Benefit [7b. ÷ 7a.]	\$ 366
8.	Currently Retired Participants, Disableds and Beneficiaries (non-Ameritas):	
a.	Number	8,973
b.	Total Monthly Benefit	\$ 7,129,732
c.	Average Monthly Benefit [8b. ÷ 8a.]	\$ 795
9.	Participants receiving cost-of-living benefits from Ameritas Life Insurance Corporation:	
a.	Number	15
b.	Total Monthly Benefit	\$ 4,808
c.	Average Monthly Benefit [9b. ÷ 9a.]	\$ 321
10.	Non-Vested Participants due an Account Balance	
a.	Number	27,633
b.	Balance	\$ 19,680,209

UNITED STATES ARMY NONAPPROPRIATED FUND EMPLOYEE RETIREMENT PLAN
ACTUARIAL VALUATION AS OF OCTOBER 1, 2021

SECTION III – STATUTORY VALUATION EXHIBITS

Exhibit III-5						
Data Reconciliation from the Prior to the Current Valuation*						
	Active	Vested Deferred	Disability			
	<u>Participants</u>	<u>Members</u>	<u>Retirements</u>	<u>Retirees</u>	<u>Beneficiaries</u>	<u>Total</u>
October 1, 2020	15,677	4,047	165	7,808	1,119	28,816
New Hires	2,738	N/A	N/A	N/A	N/A	2,738
Terminated without a Vested Benefit or Died without a Survivor Benefit	(1,339)	0	(9)	(249)	(80)	(1,677)
Vested Termination	(1,147)	1,147	0	0	0	0
Died with a Survivor Benefit	(4)	(3)	0	(34)	41	0
Rehired Inactives	360	(360)	0	0	0	0
Disablements	(1)	0	99	(98)	0	0
Retirements	(200)	(4)	0	204	0	0
Inactives not in Valuation Data Last Year	<u>0</u>	<u>0</u>	<u>0</u>	<u>13</u>	<u>9</u>	<u>22</u>
October 1, 2021	16,084	4,827	255	7,644	1,089	29,899

* A reconciliation was not performed for non-vested participants due a refund of their account balance.

UNITED STATES ARMY NONAPPROPRIATED FUND EMPLOYEE RETIREMENT PLAN
ACTUARIAL VALUATION AS OF OCTOBER 1, 2021

SECTION IV – ANNUAL REPORT PRESCRIBED BY P.L. 95-595

Report for Plan Year Ending
September 30, 2021

Exhibit IV-1

General Information Sheet

1. Name of Plan: U.S. Army Nonappropriated Fund Employee Retirement Plan
2. Name and address of Plan Sponsor:

U.S. Army Community and Family Support Center
NAF Employee Benefits Office
P.O. Box 340309
Fort Sam Houston, Texas 78234
3. Name and phone number of Plan Administrator (or other responsible Plan official):

Anita Janssen
Chief, NAF Personnel Services Division
(210) 466-1620
4. Type of plan entity: Single-employer plan
5. Date plan established: January 1, 1966
6. Information on plan participants at the beginning of plan year:

Participant data was collected as of October 1, 2021

Active participants	16,084
Separated employees entitled to deferred benefits	4,827
Retired, disabled and beneficiaries	8,988
Former non-vested participants due an account balance	<u>27,633</u>
Total Participants	57,532
7. Type of plan: Defined benefit pension plan
8. Administrative cost: See Note 4.
9. During the current plan year, the Plan was not merged into nor consolidated with another plan nor were assets or liabilities transferred to another plan.
10. The Plan is funded through BGI U.S. Debt, Janus Midcap, Ameritas (formerly Bankers Life of Nebraska), Adams Street Partners, Inc. (formerly Brinson Partners, Inc.), Wells Capital Management Small Cap, RREEF America REIT II, UBS - RESA, Artisan

**UNITED STATES ARMY NONAPPROPRIATED FUND EMPLOYEE RETIREMENT PLAN
ACTUARIAL VALUATION AS OF OCTOBER 1, 2021**

SECTION IV – ANNUAL REPORT PRESCRIBED BY P.L. 95-595

International Value, AS CO Invest IV, Angelo Gordon Core + Realty, UBS Trumbull TPG Value Fund, AS Growth EQ VII, Blackstone Hedge, SSGA S&P 500 Flagship, Harding Loevner, Newfleet Mgmt., Baille Gifford EAFE, Lazard Asset Mgmt., U.S. Army N.A.F. Retirement Trust (SSGA STIF), Sprucegrove, and Prudential Core Plus.

11. This valuation was performed based on active, retiree and vested terminated data as of October 1, 2021.
12. The Projected Unit Credit actuarial cost method was used in completing Tables 1 and 2. A summary of the actuarial methods is attached.
13. Actuarial assumptions:

1. Economic:

- (1) Rate of return on plan investments: 7.25% per annum.
- (2) Ratio of salary expected at normal retirement age (62) to salary for a new entrant at:

	<u>Men</u>	<u>Women</u>
Age 25	7.25	7.25
Age 40	4.15	4.15
Age 55	1.98	1.98

- (3) Inflation Rate (in relation to plan provisions for post-retirement benefit adjustments): 3.25% per annum.

2. Decrements:

- (1) Basis of mortality assumptions:

Amount-weighted RP-2006 Mortality Table (same as RP-2014 adjusted back to 2006 using Scale MP-2014), adjusted by 115% for males and 110% for females:

Non-Annuitants: Employee Tables, Total Dataset
Retirees, Beneficiaries: Healthy Annuitant Tables, Total Dataset
Disabled Retirees: Disabled Retiree Table

The mortality rates are projected generationally from the base year using Projection Scale MP-2020.

- (2) (a) Normal retirement age: 62 and 5 years of service.
- (b) Lowest age at which employee may voluntarily retire with full benefits: age 55 with 30 years of service or age 60 with 20 years of service.

UNITED STATES ARMY NONAPPROPRIATED FUND EMPLOYEE RETIREMENT PLAN
ACTUARIAL VALUATION AS OF OCTOBER 1, 2021

SECTION IV – ANNUAL REPORT PRESCRIBED BY P.L. 95-595

- (3) Basis of withdrawal assumptions:
Table based on turnover adjusted to reflect the Plan's experience.

A summary of the assumptions and changes made since the prior report is attached.

14. A summary of the Plan provisions and changes made since the prior report is attached.

I declare that I have examined this report, including accompanying tables and statements, and to the best of my knowledge and belief it is true, correct, and complete.

Signature of Plan Administrator:

Anita Janssen
Chief, NAF Personnel Services Division

Date:

UNITED STATES ARMY NONAPPROPRIATED FUND EMPLOYEE RETIREMENT PLAN
ACTUARIAL VALUATION AS OF OCTOBER 1, 2021

SECTION IV – ANNUAL REPORT PRESCRIBED BY P.L. 95-595

Exhibit IV-2

Statement of Enrolled Actuary

This report has been prepared pursuant to P.L. 95-595 for the year ending September 30, 2021. To the best of my knowledge, the report is complete and accurate. It should be noted, however, that the asset information shown has not been audited by Cheiron, Inc. In addition, the liabilities shown in this report are from the United States Army Nonappropriated Retirement Plan Valuation Report as of October 1, 2021, as prepared by Cheiron, Inc. In my opinion, the actuarial assumptions appear to be individually reasonable related to the experience of the Plan and to reasonable expectations and represent my best estimate of anticipated experience under the Plan.

Signature:



Alison Chafin, FSA, MAAA, EA
Enrolled Actuary
#20-08294
Cheiron, Inc.
9115 Harris Corners Parkway, Suite 380
Charlotte, NC 28269

Date: April 29, 2022

**UNITED STATES ARMY NONAPPROPRIATED FUND EMPLOYEE RETIREMENT PLAN
ACTUARIAL VALUATION AS OF OCTOBER 1, 2021**

SECTION IV – ANNUAL REPORT PRESCRIBED BY P.L. 95-595

Exhibit IV-3		
Statement of Net Assets Available for Benefits		
	<u>September 30, 2021</u>	<u>September 30, 2020</u>
<u>Assets</u>		
Investments and Deposit administration contracts		
BGI U.S. Debt	\$ 53,213,267	\$ 53,660,633
Janus Midcap	207,304,600	154,830,804
Ameritas (Bankers Life of Nebraska)	46,021	40,985
Adams Street Partners (formerly Brinson)	348,174,737	244,970,702
Wells Capital Management Small Cap	155,270,032	102,964,525
RREEF America REIT II	59,152,653	52,428,631
UBS - RESA	46,888,714	50,415,555
Artisan International Value	157,995,713	108,001,889
AS CO Invest IV	9,907,962	0
Angelo Gordon Core + Realty	9,425,846	11,476,148
UBS Trumbull TPG Value Fund	56,811,873	48,312,992
AS Growth EQ VII	6,203,582	0
Blackstone Hedge	114,710,192	103,510,209
SSGA S&P 500 Flagship	669,778,251	637,683,659
Harding Loevnier	52,890,874	43,680,550
Newfleet Mgmt	124,429	124,420
Baillie Gifford EAFE	105,512,691	87,828,815
Lazard Asset Mgmt	105,372,953	83,999,272
U.S. Army N.A.F. Ret. Trust (SSGA STIF)	132,012,276	21,492,853
Sprucegrove	107,869,642	81,977,923
Prudential Core Plus	<u>262,053,400</u>	<u>163,171,727</u>
Total Investments	\$ 2,660,719,708	\$ 2,050,572,292
Receivables		
Employer and employee contributions	\$ 4,155,272	\$ 4,056,603
Interest Receivable	4,729	17,531
Accounts Receivable	<u>7,129,547</u>	<u>8,956,093</u>
Total Receivables	\$ 11,289,548	\$ 13,030,227
Cash on deposit with U.S. Army Banking and Investment Fund	<u>\$ 4,436,261</u>	<u>\$ 14,723,894</u>
Total Assets	\$ 2,676,445,517	\$ 2,078,326,413
<u>Liabilities</u>		
Accounts payable and accrued liabilities	<u>27,341,261</u>	<u>14,247,472</u>
Net Assets Available for Benefits	\$ 2,649,104,256	\$ 2,064,078,941

**UNITED STATES ARMY NONAPPROPRIATED FUND EMPLOYEE RETIREMENT PLAN
ACTUARIAL VALUATION AS OF OCTOBER 1, 2021**

SECTION IV – ANNUAL REPORT PRESCRIBED BY P.L. 95-595

Exhibit IV-4		
Statement of Changes in Net Assets Available for Benefits		
	Fiscal Year Ending September 30, 2021	Fiscal Year Ending September 30, 2020
1. Net assets available for benefits at beginning of Plan year	\$ 2,064,078,941	\$ 1,952,211,628
2. Investment Income:		
(a) Net appreciation (depreciation) in fair value of investments	\$ 541,908,527	\$ 89,886,130
(b) Interest	14,623,613	10,170,184
(c) Other income	66,583,293	36,835,555
(d) Less: Investment expenses	<u>16,482,718</u>	<u>10,095,901</u>
(e) Total	\$ 606,632,715	\$ 126,795,968
3. Contributions: (Note 5)*		
(a) Employer	\$ 59,967,270	\$ 65,219,751
(b) Employee	<u>16,238,980</u>	<u>12,872,895</u>
(c) Total	\$ 76,206,250	\$ 78,092,646
4. Total additions (2) + (3)	\$ 682,838,965	\$ 204,888,614
5. Benefits paid directly to participants		
(a) Refunds	\$ 1,152,585	\$ 1,848,387
(b) Annuities	<u>91,403,117</u>	<u>85,992,713</u>
(c) Total	\$ 92,555,702	\$ 87,841,100
6. Administrative Expenses	\$ 5,257,948	\$ 5,180,201
7. Total deductions (5) + (6)	\$ 97,813,650	\$ 93,021,301
8. Net additions (deductions): (4) - (7)	\$ 585,025,315	\$ 111,867,313
9. Net assets available for benefits at end of Plan year: (1) + (8)	\$ 2,649,104,256	\$ 2,064,078,941

* Includes all other contributions for Portability and DSR Income, Service Buyback Income, Conversion Income, GPC Rebate, and Miscellaneous Income. For FYE 2021, the Employee portion of other contributions are included with total Employee Contributions. In prior Fiscal Years, these amounts were allocated to Employer Contributions.

**UNITED STATES ARMY NONAPPROPRIATED FUND EMPLOYEE RETIREMENT PLAN
ACTUARIAL VALUATION AS OF OCTOBER 1, 2021**

SECTION IV – ANNUAL REPORT PRESCRIBED BY P.L. 95-595

Exhibit IV-5		
Statement of Present Value of Accumulated Plan Benefits		
	<u>October 1, 2021</u>	<u>October 1, 2020</u>
<u>Present Value of Accumulated Plan Benefits</u>		
Vested Benefits		
Participants Currently Receiving Payment*	\$ 976,685,306	\$ 958,760,267
Other Participants	860,775,976	753,382,356
Total Vested Benefits	\$ 1,837,461,282	\$ 1,712,142,623
Non-vested Benefits	\$ 56,997,336	\$ 55,275,922
Total Present Value of Accumulated Plan Benefits	\$ 1,894,458,618	\$ 1,767,418,545
Interest Rate Used	7.25%	7.50%

* Includes remaining liability under the Plan for participants receiving benefits from Ameritas Life Insurance Corporation.

**UNITED STATES ARMY NONAPPROPRIATED FUND EMPLOYEE RETIREMENT PLAN
ACTUARIAL VALUATION AS OF OCTOBER 1, 2021**

SECTION IV – ANNUAL REPORT PRESCRIBED BY P.L. 95-595

Exhibit IV-6

Statement of Changes in Present Value of Accumulated Plan Benefits

	Fiscal Year Ending September 30, 2021	Fiscal Year Ending September 30, 2020
1. Present Value of Accumulated Plan Benefits at beginning of Plan year	\$ 1,767,418,545	\$ 1,680,552,648
2. Increase (decrease) during the year attributable to:		
(a) Benefits accumulated and actuarial (gain) or loss	\$ 19,801,642	\$ 51,900,039
(b) Interest due to decrease in discount period	129,148,299	122,806,958
(c) Plan amendment(s)	0	0
(d) Changes in actuarial assumptions	70,645,834	0
(e) Benefit Payments	<u>(92,555,702)</u>	<u>(87,841,100)</u>
3. Net increase (decrease):	\$ 127,040,073	\$ 86,865,897
4. Present value of Accumulated Plan Benefits at end of Plan year	\$ 1,894,458,618	\$ 1,767,418,545

**UNITED STATES ARMY NONAPPROPRIATED FUND EMPLOYEE RETIREMENT PLAN
ACTUARIAL VALUATION AS OF OCTOBER 1, 2021**

SECTION IV – ANNUAL REPORT PRESCRIBED BY P.L. 95-595

Exhibit IV-7

Table 1

Actuarial Status Information

	<u>October 1, 2021</u>	<u>October 1, 2020</u>
1. Present Value of Future Benefits:		
(a) Annuitants now on roll *	\$ 976,685,306	\$ 958,760,267
(b) Separated employees	172,615,903	94,043,178
(c) Participants due an account balance	19,680,209	19,444,522
(d) Active participants	<u>1,710,144,129</u>	<u>1,508,505,515</u>
(e) Total	\$ 2,879,125,547	\$ 2,580,753,482
2. Less: Present Value of Future Normal Cost Contributions	<u>754,909,828</u>	<u>624,115,897</u>
3. Actuarial Liability [(1e) - (2)]	\$ 2,124,215,719	\$ 1,956,637,585
4. Less: Actuarial Value of Assets	<u>2,264,182,834</u>	<u>2,037,540,007</u>
5. Unfunded Actuarial Liability [(3) - (4)]	\$ (139,967,115)	\$ (80,902,422)
6. Normal cost as a percentage of covered payroll (mid-year) **		
(a) Employee	2.00%	2.00%
(b) Employer	<u>8.36%</u>	<u>7.85%</u>
(c) Total	10.36%	9.85%
7. Ratio of Assets in fund to Present Value of Future Benefits for Annuitants now on Roll		
(a) Line 1(a) plus accumulated employee contributions	\$ 1,102,367,343	\$ 1,084,186,659
(b) Actuarial Value of Assets divided by (a)	2.05	1.88
(c) Ratio in (b) last year	1.88	1.79
(d) Ratio in (b) two years ago	1.79	1.79

* Includes remaining liability under the Plan for participants receiving benefits from Ameritas Life Insurance Corporation.

** Includes assumed administrative expenses.

**UNITED STATES ARMY NONAPPROPRIATED FUND EMPLOYEE RETIREMENT PLAN
ACTUARIAL VALUATION AS OF OCTOBER 1, 2021**

SECTION IV – ANNUAL REPORT PRESCRIBED BY P.L. 95-595

**Exhibit IV-8
Table 2A**

**Comparison of Actuarial Funding with Actual Contributions
(in dollars)**

(1)	(2)	(3)	(4)	(5)	(6)	(7)
Plan Year	Total Normal Cost*	40-Year Amortization of Unfunded Liability*	Total (Col. 2 plus Col. 3)	Actual Contributions To Plan From All Sources	Difference (Col. 5 less Col. 4)	Col. 5 divided by Col.4
2021-22	\$ 76,106,868	\$ (10,433,272)	\$ 65,673,596	N/A	N/A	N/A
2020-21	68,506,934	(6,195,545)	62,311,389	\$ 76,206,250	\$ 13,894,861	1.22
2019-20	67,453,186	(3,267,673)	64,185,513	78,092,646	13,907,133	1.22
2018-19	64,566,732	(1,879,595)	62,687,137	74,627,561	11,940,424	1.19
2017-18	62,150,810	1,520,910	63,671,720	71,206,914	7,535,194	1.12
2016-17	58,494,078	3,617,517	62,111,595	68,148,275	6,036,680	1.10
2015-16	57,667,269	4,905,747	62,573,016	66,534,445	3,961,429	1.06
2014-15	54,514,642	4,853,237	59,367,879	65,711,312	6,343,433	1.11
2013-14	53,673,556	7,215,422	60,888,978	62,325,623	1,436,645	1.02
2012-13	53,829,936	10,217,157	64,047,093	65,313,651	1,266,558	1.02
2011-12	54,141,214	10,635,437	64,776,651	59,846,992	(4,929,659)	0.92
2010-11	54,736,827	8,457,840	63,194,667	64,449,655	1,254,988	1.02
2009-10	50,902,344	6,495,113	57,397,457	59,150,588	1,753,131	1.03
2008-09	45,326,221	1,789,591	47,115,812	53,667,209	6,551,397	1.14
2007-08	40,733,684	(2,030,452)	38,703,232	47,032,806	8,329,574	1.22
2006-07	38,457,296	(711,664)	37,745,632	41,621,364	3,875,732	1.10
2005-06	35,387,224	(100,202)	35,287,022	39,596,220	4,309,198	1.12
2004-05	31,724,981	1,209,066	32,934,047	35,435,693	2,501,646	1.08
2003-04	27,016,602	(752,297)	26,264,305	30,115,404	3,851,099	1.15
2002-03	20,651,255	(971,529)	19,679,726	24,486,375	4,806,649	1.24
2001-02	19,120,495	(3,961,885)	15,158,610	22,674,448	7,515,838	1.50
2000-01	17,889,965	(6,198,677)	11,691,288	19,171,038	7,479,750	1.64

* Amounts as of mid-year. Beginning in 2005, \$1.4 million added as administrative expense assumption. Beginning in 2014, \$1.8 million added as administrative expense assumption.

**UNITED STATES ARMY NONAPPROPRIATED FUND EMPLOYEE RETIREMENT PLAN
ACTUARIAL VALUATION AS OF OCTOBER 1, 2021**

SECTION IV – ANNUAL REPORT PRESCRIBED BY P.L. 95-595

**Exhibit IV-8 cont.
Table 2B**

**Comparison of Actuarial Funding with Actual Contributions
(as percentage of estimated active member payroll for the year)**

(1)	(2)	(3)	(4)	(5)	(6)
Plan Year	Total Normal Cost*	40-Year Amortization of Unfunded Liability*	Total (Col. 2 plus Col. 3)	Actual Contributions To Plan From All Sources	Difference (Col. 5 less Col. 4)
2021-22	10.36%	(1.42%)	8.94%	N/A	N/A
2020-21	9.85	(0.89)	8.96	10.96%	2.00%
2019-20	9.33	(0.45)	8.88	10.80	1.92
2018-19	9.38	(0.27)	9.11	10.85	1.74
2017-18	9.40	0.23	9.63	10.77	1.14
2016-17	9.29	0.57	9.86	10.82	0.96
2015-16	9.17	0.78	9.95	10.58	0.63
2014-15	9.08	0.81	9.89	10.95	1.06
2013-14	8.97	1.21	10.18	10.42	0.24
2012-13	8.41	1.60	10.01	10.20	0.19
2011-12	8.52	1.67	10.19	9.41	(0.78)
2010-11	8.40	1.30	9.70	9.89	0.19
2009-10	8.42	1.07	9.49	9.78	0.29
2008-09	8.47	0.33	8.80	10.03	1.23
2007-08	8.60	(0.43)	8.17	9.93	1.76
2006-07	8.46	(0.16)	8.30	9.16	0.86
2005-06	8.52	(0.02)	8.50	9.54	1.04
2004-05	8.26	0.31	8.57	9.23	0.66
2003-04	8.37	(0.23)	8.14	9.33	1.19
2002-03	7.58	(0.36)	7.22	8.99	1.77
2001-02	8.04	(1.67)	6.37	9.53	3.16
2000-01	8.42	(2.92)	5.50	9.02	3.52

* Amounts as of mid-year. Beginning in 2005, \$1.4 million added as administrative expense assumption. Beginning in 2014, \$1.8 million added as administrative expense assumption.

UNITED STATES ARMY NONAPPROPRIATED FUND EMPLOYEE RETIREMENT PLAN
ACTUARIAL VALUATION AS OF OCTOBER 1, 2021

SECTION IV – ANNUAL REPORT PRESCRIBED BY P.L. 95-595

Exhibit IV-8 (continued)

Table 3-3a

Past and Projected Flow of Plan Assets

The Market Value of Assets and historical cash flows over the last fifteen years are shown in the Trends discussion of Section I – *Summary* and Section II – *Disclosures Related to Risk*.

The table on the next page projects the Plan’s expected contributions (both employer and employee), benefit payments, and administrative expenses over the next ten years. The expected employer contributions assume that the employers will continue to contribute a fixed 7.60% of pay and do not reflect the amount based on the actuarially determined contribution rate. Expected employee contributions are assumed to remain at 2.00% of payroll. As noted, the projected contributions do not reflect any additional employer contributions for other sources such as portability and DRS or service buybacks. These additional contributions are intended to offset the additional liabilities that would be recognized if any of these events actually occurs. Expected benefit payments are projected for the closed group valued as of October 1, 2021. Projecting any further than ten years using a closed group would not yield reliable projections due to the omission of new hires. Administrative expenses are assumed to increase by 3.25% a year.

The projections reflect that all the assumptions are realized, including an investment return of 7.25% per year and payroll growth of 3.75% per year. Future projections may differ significantly from what is presented in this report due to such factors as the following: plan experience differing from that anticipated by the assumptions, changes in assumptions, and changes in plan provisions or applicable law.

**UNITED STATES ARMY NONAPPROPRIATED FUND EMPLOYEE RETIREMENT PLAN
ACTUARIAL VALUATION AS OF OCTOBER 1, 2021**

SECTION IV – ANNUAL REPORT PRESCRIBED BY P.L. 95-595

**Exhibit IV-9
Ten-Year Projection of Cash Flows**

Plan Year Ending 9/30	Market Value of Assets (BOY)	Estimated Employer Contributions at 7.6%	Estimated Employee Contributions at 2.0%	Estimated Benefit Payments*	Estimated Administrative Expenses	Market Value of Assets (EOY)
2022	\$ 2,649,104,256	\$ 55,817,974	\$ 14,688,940	\$ 103,991,917	\$ 1,800,000	\$ 2,804,622,609
2023	2,804,622,609	57,911,148	15,239,775	111,399,177	1,858,500	2,966,422,562
2024	2,966,422,562	60,082,816	15,811,267	118,862,275	1,918,901	3,135,002,417
2025	3,135,002,417	62,335,922	16,404,190	126,725,693	1,981,265	3,310,543,639
2026	3,310,543,639	64,673,519	17,019,347	135,014,121	2,045,656	3,493,219,207
2027	3,493,219,207	67,098,776	17,657,573	139,727,890	2,112,140	3,687,360,840
2028	3,687,360,840	69,614,980	18,319,732	148,554,607	2,180,785	3,889,657,127
2029	3,889,657,127	72,225,542	19,006,722	157,357,538	2,251,661	4,100,845,037
2030	4,100,845,037	74,934,000	19,719,474	166,670,507	2,324,840	4,321,166,687
2031	4,321,166,687	77,744,025	20,458,954	175,966,960	2,400,397	4,551,431,779

* Assumes that the \$19.7 million in account balances for the 27,633 non-vested participants due a refund of their employee contributions are paid uniformly over next five years.

UNITED STATES ARMY NONAPPROPRIATED FUND EMPLOYEE RETIREMENT PLAN
ACTUARIAL VALUATION AS OF OCTOBER 1, 2021

SECTION IV – ANNUAL REPORT PRESCRIBED BY P.L. 95-595

Exhibit IV-9

NOTE 1 – VALUATION OF INVESTMENTS

Investments are stated at market value. The Plan's deposits with insurance carriers are valued at contract value. Contract value represents contributions made under the contract, plus interest income, plus realized security gains net of losses, plus unrealized security gains net of losses, less transfers of funds back to the U.S. Army Central Retirement Fund (ACRF), less funds used to meet ACRF obligations, less administrative expenses.

NOTE 2 – CONTRACTS WITH INSURANCE COMPANIES AND INVESTMENT MANAGEMENT AGREEMENT

The Plan has deposit administration contracts with an insurance company as described below:

Ameritas (Formerly Bankers Life of Nebraska)

On March 1, 1983, the Plan terminated its deposit administration contract with Ameritas. Under the terms of the termination agreement, Ameritas paid the Plan \$5,179,098 on September 1, 1987.

The Plan's only future obligation with respect to Ameritas is to pay the annual cost-of-living adjustments for the retirees for whom annuity contracts were purchased in 1983 when the agreement with Ameritas was terminated. The amount held on deposit with Ameritas at September 30, 2021 was \$46,021.

**UNITED STATES ARMY NONAPPROPRIATED FUND EMPLOYEE RETIREMENT PLAN
ACTUARIAL VALUATION AS OF OCTOBER 1, 2021**

SECTION IV – ANNUAL REPORT PRESCRIBED BY P.L. 95-595

Investment Management Agreement

The Plan also has investment management agreements with various companies. The agreements provide that the companies have sole responsibility for investing the funds under their management within certain pre-described guidelines, and those earnings on the funds are based solely on the performance of the investments with a performance goal expressed as a total rate of return as defined in the agreement. The fair value of investments under management agreements at September 30, 2021 was:

BGI U.S. Debt	\$ 53,213,267
Janus Midcap	207,304,600
Adams Street Partners, Inc. (formerly Brinson Partners, Inc.)	348,174,737
Wells Capital Management Small Cap	155,270,032
RREEF America REIT II	59,152,653
UBS - RESA	46,888,714
Artisan International Value	157,995,713
AS CO Invest IV	9,907,962
Angelo Gordon Core + Realty	9,425,846
UBS Trumbull TPG Value Fund	56,811,873
AS Growth EQ VII	6,203,582
Blackstone Hedge	114,710,192
SSGA S&P 500 Flagship	669,778,251
Harding Loevnier	52,890,874
Newfleet Mgmt.	124,429
Baillie Gifford EAFE	105,512,691
Lazard Asset Mgmt.	105,372,953
U.S. Army N.A.F. Ret. Trust (SSGA STIF)	132,012,276
Sprucegrove	107,869,642
Prudential Core Plus	262,053,400

NOTE 3 – CASH WITH ARMY BANKING AND INVESTMENT FUND

The Plan had \$4,436,261 invested in the United States Army Banking and Investment Fund (ABIF) at September 30, 2021. The ABIF acts as a pooling agent for all Army Nonappropriated activities and invests principally in U.S. Treasury securities, U.S. government agency securities, and certificates of deposit. The rate of interest paid to depositors is determined periodically by ABIF management.

NOTE 4 – RELATED PARTY TRANSACTION

Appropriated funds of the United States Army provide certain general administrative support, including office space, communication, and certain supplies to the U.S. Army Command which administers the Plan. The value of some of these contributed services and supplies is not currently available and thus, is not reflected in the accompanying financial statements.

**UNITED STATES ARMY NONAPPROPRIATED FUND EMPLOYEE RETIREMENT PLAN
ACTUARIAL VALUATION AS OF OCTOBER 1, 2021**

SECTION IV – ANNUAL REPORT PRESCRIBED BY P.L. 95-595

The Plan, the United States Army Medical/Life Fund (AMLF), and the 401(k) plan share common offices and administrative personnel. Common expenses are paid by the Plan and the AMLF and 401(k) plan allocated portions are reimbursed to the Plan. The balance due to the Retirement Plan as of September 30, 2021 for expenses allocated to the Army Medical/Life Fund and the 401(k) Saving Plan is \$2,239,026 and \$816,490, respectively.

The NAF Financial Services deducted employer and employee contributions from the various payroll cycles and remitted the funds to the Plan at a cost of \$1,224 in the year ended September 30, 2021. The accounting charges for the NAF Financial Services totaled \$893,266.

NOTE 5 – CONTRIBUTIONS

As a condition of participation, employees are required to contribute 2% of their salary to the Plan. Prior to January 1, 1991, employees were required to contribute 3% of their salary.

Effective January 1, 2001, new hires, rehires, and newly eligible employees may elect to stop contributing to the Plan after six months. The employee's past contribution will be refunded upon termination only if the employee elects a refund in lieu of future retirement benefits when vested.

Although they have not expressed any intention to do so, the United States Army Nonappropriated Fund has the right under the Plan to discontinue their contributions at any time and to terminate the Plan.

SECTION IV – ANNUAL REPORT PRESCRIBED BY P.L. 95-595

Summary of Methods and Assumptions as of October 1, 2021

A. Actuarial Methods

Exhibit IV-10

1. Calculation of Normal Cost and Actuarial Liability: The actuarial method used to determine the Normal Cost and Actuarial Liability was the Projected Unit Credit actuarial cost method described below.

Projected Unit Credit Actuarial Cost Method: The objective under this method is to allocate the total pension benefit to which each participant is expected to become entitled at retirement to the participant's past and future service. The allocation is accomplished by applying the Plan's accrual formula to the projected final salary at retirement.

An Actuarial Liability is calculated at the valuation date as the Present Value of Benefits allocated to service prior to that date.

The Unfunded Actuarial Liability at the valuation date is the excess of the Actuarial Liability over the Actuarial Value of Assets of the Plan.

The Normal Cost is the present value of those benefits which are expected to be allocated to service during the year beginning on the valuation date.

Under this method, differences between the actual experience and that assumed in the determination of costs and liabilities will emerge as adjustments in the Unfunded Actuarial Liability, subject to amortization.

2. Calculation of Actuarial Value of Assets: Market Value of Assets is the amount certified by outside auditors as available net assets. This includes funds on deposit with insurance companies, funds on deposit with the U.S. Army Banking and Investment Fund, cash, and accrued items.

As of October 1, 1997, the Actuarial Value of Assets was set equal to the Market Value of Assets. For each subsequent year, the Actuarial Value of Assets is calculated as follows:

(a) The prior year's Actuarial Value of Assets is

- Increased by actual contributions, interest at the assumed rate of return on prior year's actuarial value of assets for a full year and interest at an assumed rate of return on contributions for one-half year.
- Decreased by actual benefit payments, administrative expenses and other payments and interest at the assumed rate of return on these payments for one-half year.

(b) The amount from (a) above is the expected value.

UNITED STATES ARMY NONAPPROPRIATED FUND EMPLOYEE RETIREMENT PLAN
ACTUARIAL VALUATION AS OF OCTOBER 1, 2021

SECTION IV – ANNUAL REPORT PRESCRIBED BY P.L. 95-595

- (c) 20% of the difference between Market Value and expected value is added to “expected” value.
- (d) The result from (c) is the Actuarial Value of Assets adjusted, if necessary, to be not less than 20% below and not more than 20% above the Market Value of Assets.

3. Calculation of the Employer Actuarial Contribution Rate: The method for determining the employer actuarial contribution rate is as follows:

- (a) The Normal Cost as described on the previous page plus assumed administrative expenses; *plus*
- (b) A level dollar amount such that the Unfunded Actuarial Liability would be paid off in 15 years; *less*
- (c) Estimated employee contributions of 2% of payroll.

The amount calculated is adjusted with interest to the middle of the year and then divided by valuation earnings to convert to a percent of pay.

The Unfunded Actuarial Liability is calculated based upon a 15-year level dollar rolling amortization. This rate should not necessarily be construed as a recommended contribution level as this will not fully amortize the unfunded actuarial liability.

4. Valuation Software: Cheiron utilizes ProVal, an actuarial valuation software leased from Winklevoss Technologies (WinTech) to calculate the liabilities, normal costs, and projected benefit payments. We have relied on WinTech as the developer of ProVal. We have reviewed ProVal and have a basic understanding of it and have used ProVal in accordance with its original intended purpose. We have not identified any material inconsistencies in assumptions or output of ProVal that would affect this actuarial valuation.

5. Projection Model: This report includes deterministic projections of future contributions, assets, and funded status for the purpose of assisting the Leadership with the management of the Plan. We have used Cheiron’s *P-Scan* model to develop these projections. The model is also used to stress test the impact of volatile asset returns over the projection period.

The *P-Scan* projection uses projected benefit payments for current members but does not include projected benefit payments for new members. This limitation is not material for the next 20 years, but longer projection periods should be viewed with caution.

The *P-Scan* projection uses standard roll-forward techniques that implicitly assume a stable active population. Changes in the demographic characteristics of the active population will lead to different results.

SECTION IV – ANNUAL REPORT PRESCRIBED BY P.L. 95-595

Summary of Methods and Assumptions as of October 1, 2021

B. Actuarial Assumptions

Exhibit IV-10 (continued)

Rationale for Economic and Demographic Assumptions

All demographic assumptions and the administrative expense assumption were adopted by the Board in September 2021 on the basis of the proposals made by Cheiron as a result of an experience study covering the period October 1, 2015 through September 30, 2020. Please refer to the experience study presentation dated September 20, 2021 for the rationale to these assumptions. The investment return, general inflation, and annual rate of general wage inflation assumptions were adopted by the Board in April 2022. Please refer to the previously mentioned September 2021 experience study presentation as well as the revisit of economic assumptions in the March 2022 presentations for rationale of these economic assumptions.

1. Investment Return: 7.25% annually, net of investment expenses
2. General Inflation: 3.25% annually
3. Annual Rate of General Wage Increase: 3.75%
4. Annual Rate of Merit/Seniority Wage Increase (in addition to the General Wage Increase, applied multiplicatively): See Rates in Exhibit A
5. Social Security Wage Base: assumed to increase with general inflation
6. Administrative Expenses: \$1,800,000 assumed payable as of the middle of the year
7. Mortality:

Amount-weighted RP-2006 Mortality Table (same as RP-2014 adjusted back to 2006 using Scale MP-2014), adjusted by 115% for males and 110% for females:

Non-Annuitants: Employee Tables, Total Dataset

Retirees, Beneficiaries: Healthy Annuitant Tables, Total Dataset

Disabled Retirees: Disabled Retiree Table

The mortality rates are projected generationally from the base year using Projection Scale MP-2020.

8. Termination: Rates set forth in Exhibit A
9. Disability: Rates from disability set forth in Exhibit B

UNITED STATES ARMY NONAPPROPRIATED FUND EMPLOYEE RETIREMENT PLAN
ACTUARIAL VALUATION AS OF OCTOBER 1, 2021

SECTION IV – ANNUAL REPORT PRESCRIBED BY P.L. 95-595

10. Retirement Age: See Exhibit B

11. Form of payment and proportion of participants with eligible beneficiaries for survivor:

Participants are assumed to elect the Normal Benefit. 88% of participants are assumed to be married. 45% of participants are assumed to be married and elect the Normal Benefit for a participant who has a spouse. Wives are assumed two years younger than their husbands. For current in-pay participants, actual spouse date of birth is used if available as well as an actual form of payment elected.

12. Post-retirement cost-of-living adjustments: assumed to increase with general inflation

13. Future service accruals for active employees: 1.0 year of Credited Service earned per year

14. Noncontributing participants:

100% of inactive participants due an account balance are assumed to still be due a refund of their account balances. Non-vested participants entitled to a refund of the employee contributions are included in the valuation and are assumed to be paid out within five years. Vested participants are assumed to remain in service but continue in a noncontributory status.

15. Maximum benefit:

The maximum benefit payable under IRC Section 415, effective at the valuation date (\$230,000 for 2021) assumed to increase with general inflation.

16. Maximum pensionable pay:

IRC Section 401(a)(17) limit effective at valuation date (\$290,000 for 2021) assumed to increase with general inflation.

17. Changes since prior year:

Investment Return: from 7.50% to 7.25% annually, net of investment expenses

General Inflation: from 3.00% to 3.25% annually

Annual Rate of General Wage Increase: from 3.25% to 3.75% annually

Details of all demographic assumption changes can be found in the experience study presentation dated September 20, 2021 covering the period October 1, 2015 through September 30, 2020.

**UNITED STATES ARMY NONAPPROPRIATED FUND EMPLOYEE RETIREMENT PLAN
ACTUARIAL VALUATION AS OF OCTOBER 1, 2021**

SECTION IV – ANNUAL REPORT PRESCRIBED BY P.L. 95-595

Exhibit A

<u>Service</u>	<u>Merit/Seniority Wage</u>		<u>Termination*</u>	
	<u>Increase</u>	<u>Male</u>	<u>Female</u>	
0	15.00%	30.00%	35.00%	
1	7.00%	25.00%	30.00%	
2	6.00%	20.00%	25.00%	
3	5.00%	15.00%	20.00%	
4	4.25%	13.00%	17.00%	
5	3.75%	11.00%	14.00%	
6	3.25%	9.00%	12.00%	
7	2.75%	8.00%	10.00%	
8	2.50%	7.00%	8.00%	
9	2.25%	6.50%	6.50%	
10	2.00%	6.25%	6.25%	
11	1.75%	6.00%	6.00%	
12	1.50%	5.50%	5.50%	
13	1.25%	5.00%	5.00%	
14	1.00%	4.50%	4.50%	
15	0.75%	4.00%	4.00%	
16	0.75%	3.00%	3.00%	
17	0.75%	2.75%	2.75%	
18	0.50%	2.50%	2.50%	
19	0.50%	2.25%	2.25%	
20	0.50%	2.00%	2.00%	
21	0.25%	2.00%	2.00%	
22	0.25%	2.00%	2.00%	
23	0.25%	2.00%	2.00%	
24	0.00%	2.00%	2.00%	
25+	0.00%	2.00%	2.00%	

* When members are eligible to retire, it is assumed that their termination rates are zero.

**UNITED STATES ARMY NONAPPROPRIATED FUND EMPLOYEE RETIREMENT PLAN
ACTUARIAL VALUATION AS OF OCTOBER 1, 2021**

SECTION IV – ANNUAL REPORT PRESCRIBED BY P.L. 95-595

Exhibit B

Retirement Rates* <i>Number of retirements per 1,000 members</i>			Disability <i>Number of Disablements per 1,000 members (sample rates)</i>	
<u>Age</u>	<u>Reduced</u>	<u>Unreduced</u>	<u>Age</u>	<u>Rate</u>
50	25	N/A	<35	0.14
51	25	N/A	35	0.16
52	50	N/A	40	0.28
53	50	N/A	45	0.60
54	75	N/A	50	1.04
55	75	200	55	1.19
56	75	140	60	2.16
57	75	100	62+	0.00
58	75	100		
59	100	125		
60	100	150		
61	150	175		
62	N/A	175		
63	N/A	175		
64	N/A	175		
65	N/A	200		
66	N/A	225		
67	N/A	175		
68	N/A	175		
69	N/A	175		
70+	N/A	1,000		

* 100% of terminated vested participants are assumed to retire at age 62.

**UNITED STATES ARMY NONAPPROPRIATED FUND EMPLOYEE RETIREMENT PLAN
ACTUARIAL VALUATION AS OF OCTOBER 1, 2021**

SECTION IV – ANNUAL REPORT PRESCRIBED BY P.L. 95-595

Data Assumptions and Methods

The methodology for preparing the data used for the valuation is based on upon the assumptions and methods as outlined below and described in the Data Memo provided to the Fund office dated January 14, 2022.

As requested by the Fund office, we developed an estimated terminated population for this valuation, as this information was not readily available. This includes members that are non-vested (due a return of their account balance) and vested (eligible for a future pension benefit). The estimated population consists of deferred members as of the last valuation (October 1, 2020) plus those who were actively employed as of the last valuation but not reported as active for this valuation, adjusted for refunds and members commencing pension payments by October 1, 2021.

The following table provides the assumptions and methods used to set key data fields used in the valuation.

Active Participants	Affected Group	Base Data Set Fields Used
Credited Service	All Actives	<ul style="list-style-type: none"> Based on the number of months reported in the “SCD_MONTHS_OF_SERVICE” data field, less the number of months that the calculation date (“SCD_CALC_DATE” data field) exceeds the valuation date, if any. An adjusted date of hire is retroactively calculated from the valuation date. If negative or zero “SCD_MONTHS_OF_SERVICE” and “SCD_DATE” is before 9/30/2021, assume 0 months of service for the valuation
Valuation Salary	All Actives	<ul style="list-style-type: none"> “SALARY_AMOUNT” (hourly rate of pay as of the valuation date) annualized based on 2080 hours worked in a year and adjusted back to PYE * 2021 assuming ½ year of salary inflation If rate of pay not available, use “FAE_AMT” (highest 3-yr average salary as of the valuation date) with PYE 2020 and PYE 2019 actual reported salary removed Otherwise, use prior year valuation salary adjusted to PYE 2021 with a year of salary inflation increases, or \$45,000 (rounded average valuation salary) All salary adjustments assume no merit increases given recent pay freezes and hiring freezes at the onset of the COVID-19 global pandemic
Accrued Benefit	All Actives	<ul style="list-style-type: none"> Calculated based on Credited Service and Valuation Salary
Account Balance	All Actives	<ul style="list-style-type: none"> Calculated based on prior year Account Balance and Valuation Salary

* Plan Year Ending

**UNITED STATES ARMY NONAPPROPRIATED FUND EMPLOYEE RETIREMENT PLAN
ACTUARIAL VALUATION AS OF OCTOBER 1, 2021**

SECTION IV – ANNUAL REPORT PRESCRIBED BY P.L. 95-595

Non-Vested & Vested Deferred	Affected Group	Base Data Set Fields Used
New MOD*	Hired since 2020 Valuation	<ul style="list-style-type: none"> This population is not included in the valuation, as the data is not available from the Fund office
Termination Date	Active in 2020 Valuation	<ul style="list-style-type: none"> “check date” (refund date), or middle of year if no refund
Service and Salary accrual to Termination Date	Active in 2020 Valuation	<ul style="list-style-type: none"> Assume full time work from prior valuation date (October 1, 2020) to assumed termination date
Account Balance	All Non-Vested Deferred	<ul style="list-style-type: none"> If Active in 2020 Valuation, calculate based on prior year account balance and estimated PYE 2021 salary at termination date If Non-Vested Deferred in 2020 Valuation, same as prior year account balance
Pension Amount	All Vested Deferred	<ul style="list-style-type: none"> If Active in 2020 Valuation, calculate based on estimated service and salary at termination date If Vested Deferred in 2020 Valuation, same as prior year pension amount

* Money on Deposit (Participants due an Account Balance)

In-Pay Participants	Affected Group	Base Data Set Fields Used
Status	All Retirees	<ul style="list-style-type: none"> Payees with a “Job Name” containing “Portee” references are all considered to be the obligation of Army NAF
Beneficiary Date of Birth	All Retirees	<ul style="list-style-type: none"> If beneficiary demographic information was not provided, assume wives are two years younger than their husbands
Beneficiary Gender	All Retirees	<ul style="list-style-type: none"> If beneficiary demographic information was not provided, assume beneficiary gender is opposite the participant
Payment Form	All Retirees	<ul style="list-style-type: none"> If the retiree’s elected benefit option was not provided, assume same as prior year “RP No Reduction” and “RP Early No Reduction” assumed to be single life annuities

UNITED STATES ARMY NONAPPROPRIATED FUND EMPLOYEE RETIREMENT PLAN
ACTUARIAL VALUATION AS OF OCTOBER 1, 2021

SECTION IV – ANNUAL REPORT PRESCRIBED BY P.L. 95-595

SUMMARY OF PLAN PROVISION AS OF OCTOBER 1, 2021

Exhibit IV-11

1. Effective Date of Plan:

January 1, 1966. Most recent amendment and reinstatement as of January 1, 2014.

2. Employees Eligible for Participation:

All employees of covered U.S. Army-NAF activities working at least 20 hours per week are eligible to become Participants on their date of employment. Effective January 1, 2001, new hires, rehires, and newly eligible employees are required to participate in the Plan for the first six months. Employee contributions are required for participation.

3. Definitions:

- (a) Earnings: Gross annual compensation as reported on Form W-2, plus the Participant's pre-tax contributions to the Employer's 401(k) plan or for health benefits, capped by the limit as indexed under the Code.
- (b) Final Average Earnings: The average of the highest 36 consecutive months of Earnings.
- (c) Credited Service: All service including unused sick leave from the date of employment to retirement, death, or termination, except that service on and after April 1, 1981, is counted only if the employee makes contributions to the Plan.
- (d) Covered Compensation: The amount specified in Table 1 of Attachment 1, as amended from time to time, of Internal Revenue Service Notice 89-70 for the Plan Year in which the Participant attains his Social Security Retirement Age.

4. Retirement Dates:

- (a) Normal Retirement Date: The first day of the month following the later of Participant's 62nd birthday and completion of 5 years of Credited Service.
- (b) Early Retirement Date: A Participant may retire on the first day of a month before age 62 provided:
 - (i) He has attained age 50 and has completed 20 years of Credited Service, or
 - (ii) He has attained age 52 and has completed 5 years of Credited Service, or
 - (iii) Attainment of age 50 and completion of 20 years of Credited Service on or after August 1, 1993 and prior to December 31, 1994, or on or after January 1, 1997, and is involuntarily separated from service or if the Employer shall have obtained a voluntary early retirement authority from the Assistant Secretary of the Army (Manpower and Reserve Affairs), or

UNITED STATES ARMY NONAPPROPRIATED FUND EMPLOYEE RETIREMENT PLAN
ACTUARIAL VALUATION AS OF OCTOBER 1, 2021

SECTION IV – ANNUAL REPORT PRESCRIBED BY P.L. 95-595

- (iv) Attainment of any age and completion of 25 years of Credited Service on or after August 1, 1993, and prior to December 31, 1994, or on or after January 1, 1997, and is involuntarily separated due to loss of position under a business-based action, per authority of the installation commander.
- (c) Disability Retirement Date: A Participant who becomes permanently disabled and unable to perform his duties may retire, provided that he:
 - (i) Has attained age 52 with 1 year of Credited Service or has completed 5 years of Credited Service if hired before January 1, 2009, or
 - (ii) Has completed 5 years of Credited Service if hired on or after January 1, 2009.
- (d) Deferred Retirement Date: A Participant may remain in employment beyond his Normal Retirement Date.

5. Pension Benefit at Normal Retirement:

- (a) Participants Eligible: All Participants who retire on their Normal Retirement Date.
- (b) Annual Benefit: The sum of (i), (ii), and (iii).
 - (i) 1.2% of Final Average Earnings plus 0.3% of Final Average Earnings in excess of Covered Compensation times Years of Credited Service not in excess of fifteen (15) years.
 - (ii) 1.6% of Final Average Earnings plus 0.3% of Final Average Earnings in excess of Covered Compensation times Years of Credited Service in excess of fifteen (15) years up to thirty (30) years.
 - (iii) 1.6% of Final Average Earnings times Years of Credited Service in excess of thirty (30) years.

But not less than the Participant's accrued benefit as of June 30, 1990 under the prior formula.

6. Pension Benefit at Early Retirement:

- (a) Participants Eligible: All Participants who retire on an Early Retirement Date.
- (b) Annual Benefit: Calculated as in item (5) based on Final Average Earnings and Credited Service at the time of early retirement, reduced by 4% for each year that early retirement precedes Normal Retirement Date. For retirement after attainment of age 55 and completion of 30 years of Credited Service, or after attainment of age 60 and completion of 20 years of Credited Service, no reduction in benefit is applicable.

UNITED STATES ARMY NONAPPROPRIATED FUND EMPLOYEE RETIREMENT PLAN
ACTUARIAL VALUATION AS OF OCTOBER 1, 2021

SECTION IV – ANNUAL REPORT PRESCRIBED BY P.L. 95-595

- (c) A Participant who retires on an Early Retirement Date shall receive an annual early retirement supplement payable until the Participant attains his Normal Retirement Date. This benefit continues to the surviving spouse if the participant elected a married form of payment and dies. The amount of the annual supplement shall be (i) \$192 or (ii) one-half percent (0.5%) of the Participant's Final Average Earnings whichever is less, times Years of Credited Service up to twenty-five (25) but shall not exceed \$4,800 per year. This annual supplement is increased by any Cost-of-Living Adjustments thereafter.
- (d) A Participant who retires on an Early Retirement Date as described in item 4(b)(iii) and (iv) above shall receive a benefit calculated as in item (5) based on Final Average Earning and Credited Service at the time of early retirement, reduced by 2% for each year that early retirement precedes age 55.

7. Pension Benefit at Disability Retirement:

- (a) Participants Eligible: All Participants who retire on a Disability Retirement Date.
- (b) Annual Benefit: The sum of (i) and (ii)
 - (i) 1.2% of Final Average Earnings times Years of Credited Service up to fifteen (15).
 - (ii) 1.6% of Final Average Earnings time Years of Credited Service in excess of fifteen (15).

The annual benefit shall not exceed 90% of Final Average Earnings when combined with Workers' Compensation.

8. Pension Benefit at Deferred Retirement:

- (a) Participants Eligible: All Participants who retire on a Deferred Retirement Date.
- (b) Annual Benefit: Calculated as in item (5) based on Final Average Earnings, Covered Compensation, and Credited Service at the time of actual retirement.

9. Vested Benefits:

- (a) Participants Eligible: All Participants who complete 5 years of Credited Service.
- (b) Annual Benefit: Calculated as in item (5) based on Final Average Earnings, covered Compensation, and Credited Service at the time of termination of employment if Participant does not elect to have his contributions with interest returned to him.

UNITED STATES ARMY NONAPPROPRIATED FUND EMPLOYEE RETIREMENT PLAN
ACTUARIAL VALUATION AS OF OCTOBER 1, 2021

SECTION IV – ANNUAL REPORT PRESCRIBED BY P.L. 95-595

10. Survivor Benefits:

- (a) Participants Eligible: Any Participant who was retired on account of disability or who completed 5 years of Credited Service, and at the time of death, either:
- (i) Was actively employed,
 - (ii) Was separated from active service entitled to a deferred benefit, but had not yet begun to receive retirement benefits, or
 - (iii) Retired under a disability benefit.

(b) Annual Benefit:

The eligible spouse survivor will receive the amount of benefit, including the early retirement supplement unreduced for early commencement that would have been paid had the Participant retired on the date of death and elected the normal form of payment for married participants.

If a Participant has retired on account of disability, his Spouse shall receive a benefit equal to the retirement benefit that would have been payable had the Participant retired at the time his disability commenced and elected the normal form of payment for married participants.

11. Employee Contribution:

- (a) Annual Contribution: 2% of Earnings, which may be increased by 0.40% for the first year, and 0.25% each succeeding year, to a maximum rate of 3.40% if the actuarial value of the Trust assets is trending below 90% of the Trust liabilities. The trend is defined as twenty years from the date of the Actuary report.
- (b) Interest Credited: 3% per annum.
- (c) Benefit: Employees, or their beneficiaries if they are deceased, are eligible to receive a refund of their contributions plus interest in the form of a lump sum.

12. Forms of Benefit Payment:

- (a) Normal Form: Reduced 55% joint and survivor annuity for married participants; life annuity for single participants. (For single participants, the excess of the retired Participant's contributions with interest over the sum of benefits paid is returned at his death in a lump sum payment to the retired Participant's beneficiary or estate).

UNITED STATES ARMY NONAPPROPRIATED FUND EMPLOYEE RETIREMENT PLAN
ACTUARIAL VALUATION AS OF OCTOBER 1, 2021

SECTION IV – ANNUAL REPORT PRESCRIBED BY P.L. 95-595

13. Optional Forms: Actuarially Equivalent 5 or 10-years Certain and Continuous, Life Annuity, or a 100% Contingent Annuitant option.

14. Cost of Living Adjustments:

Effective April 1, 1987, benefits paid to pensioners and beneficiaries as of April 1, 1987 were increased 0.25% for each month from the later of benefit commencement date or April 1, 1985 through December 1, 1986. Pensioners' benefits were previously increased in 1981, 1983, and 1985.

Effective April 1, 1988, and each April 1 thereafter, each participant and beneficiary receiving retirement or survivor benefits from the Plan shall be entitled to have the benefit he or she is then receiving increased by the same percentage as the increase in the average Consumer Price Index – Urban Wage Earners and Clerical Workers (CPI-W) for the third quarter of the preceding year, or by four percent (4%), whichever is the lesser figure. For those years when the Consumer Price Index exceeds 4%, the Benefits Program Manager and the Trustees, upon review of the financial conditions of the Plan, may recommend to the Commander increases of more than 4%.

14. Changes in Plan Provisions since Prior Valuation:

None