

Department of Defense



National Guard and Reserve Equipment Report for Fiscal Year 2019

March 2018

NATIONAL GUARD AND RESERVE EQUIPMENT REPORT FOR FISCAL YEAR 2019

(NGRER FY 2019)

(In Accordance with Section 10541, Title 10, United States Code)

March 2018

**Prepared by
Department of Defense
Office of the Assistant Secretary of Defense for Readiness
Deputy Assistant Secretary of Defense
(Readiness Programming and Resources)
COL Samuel R. Cook, Editor
Washington, DC 20301-1500**

The estimated cost of this report or study for the Department of Defense is approximately \$598,000 in Fiscal Years 2017 - 2018. This includes \$212,000 in expenses and \$386,000 in DoD labor.
Generated on 2018Feb07 RefID: 6-DBCAE71

**An electronic version of this report can be found at:
<http://prhome.defense.gov/Readiness/Publications/>**



PERSONNEL AND
READINESS

UNDER SECRETARY OF DEFENSE
4000 DEFENSE PENTAGON
WASHINGTON, D.C. 20301-4000

FOREWORD

The Reserve Component (RC) of our Armed Forces has transitioned to an indispensable, lethal operational force that is frequently and routinely employed to meet the Nation's defense needs. Recognizing the invaluable contributions of the RC, the Department remains focused on ensuring the RCs are ready to fulfill the National Defense Strategy and have the resources to provide vital capabilities to meet national defense objectives at home and abroad.

However, the RCs are often reliant on overused and outdated legacy equipment. Budget constraints have forced the Military Services to create trade space among readiness, modernization, and force structure. With finite budgets and competing requirements, the RCs have developed innovative equipping strategies to meet their equipment challenges. In spite of these efforts, they have been unable to keep pace with rapid technological change which has resulted in a growing capability gap with the Active Component. This report identifies opportunities for investment to both restore readiness and improve interoperability.

The central theme for this year's report is transparency reform as part of overall Defense reform. The most effective way to ensure RC integration into the Total Force is through concurrent and proportional fielding of equipment. The best way to achieve that is through a policy of transparency and traceability of procurement investment and funding.

Chapter one presents an overview of the Department's plan to implement specific National Guard and Reserve Budget Line Item Numbers designed to achieve greater transparency and the oversight required by Congress. Added benefits of implementation identified in the report include: fulfilling other statutory requirements; improving auditability; and, supporting the Secretary of Defense's lines of effort.

Chapters two through six provide detailed narratives and data for each RC for Fiscal Year (FY) 2019 and projected data through FY 2021. Overall, this National Guard and Reserve Equipment Report illustrates the reform, investment and financial auditability needed to achieve a well-balanced, seamlessly integrated, and capabilities based Total Force.

Sincerely,

A handwritten signature in cursive script that reads "Robert L. Wilkie".

Robert L. Wilkie

Table of Contents

Chapter 1 Overview

I. Introduction	1-1
II. Operational Reserve Component Equipping Process and Associated Challenges	1-2
III. Scope of the Report	1-7
IV. Equipment Shortages	1-8
V. Equipment Procurement	1-9
VI. Reserve Component Equipping Challenges	1-12
A. Army National Guard (ARNG)	1-12
B. Army Reserve (AR)	1-13
C. United States Marine Corps Reserve (USMCR)	1-14
D. United States Navy Reserve (USNR)	1-15
E. Air National Guard (ANG)	1-15
F. Air Force Reserve (AFR)	1-16
G. United States Coast Guard Reserve (USCGR)	1-17

Chapter 2 United States Army Reserve Components

I. Army Overview	2-1
A. Army Planning Guidance	2-1
B. Army Equipping Guidance	2-2
C. Plan to Fill Mobilization Shortages in the RC	2-2
D. Initiatives Affecting RC Equipment	2-3
E. Plan to Achieve Full Compatibility Between Active Component (AC) and RC	2-4
F. Army Component Equipment Modernization	2-4
II. Army National Guard Overview	2-5
A. Current Status of the Army National Guard	2-5
B. Changes Since the Last NGRER	2-10
C. Future Years Program (FY 2018–FY 2020)	2-11
D. Summary	2-19

Table 1: ARNG Consolidated Major Item Inventory and Requirements

Table 2: ARNG Average Age of Equipment

Table 3: ARNG Service Procurement Program - Reserve (P-1R)

Table 4: ARNG National Guard and Reserve Equipment Appropriations (NGREA) Procurements

Table 5: ARNG Projected Equipment Transfer/Withdrawal Quantities

Table 6: ARNG FY 2014 Planned vs Actual Procurements and Transfers

Table 7: ARNG Major Item of Equipment Substitution List

Table 8: ARNG Significant Major Item Shortages

III. United States Army Reserve Overview	2-20
A. Current Status of the Army Reserve	2-20
B. Future Years Program (FY 2018–FY 2020)	2-26
C. Summary	2-36

Table 1: USAR Consolidated Major Item Inventory and Requirements

Table 2: USAR Average Age of Equipment

Table 3: USAR Service Procurement Program - Reserve (P-1R)

Table 4: USAR NGREA Procurements

Table 5: USAR Projected Equipment Transfer/Withdrawal Quantities

Table 6: USAR FY 2014 Planned vs Actual Procurements and Transfers

Table 7: USAR Major Item of Equipment Substitution List

Table 8: USAR Significant Major Item Shortages

Chapter 3 United States Marine Corps Reserve (USMCR)

I. Marine Corps Overview	3-1
A. Marine Corps Planning Guidance	3-1
B. Marine Corps Equipping Policy	3-2
C. Plan to Fill Equipment Shortages in the RC	3-2
D. Initiatives Affecting RC Equipment	3-2
E. Plan to Achieve Full Compatibility Between AC and RC	3-2
II. Marine Corps Reserve Overview	3-4
A. Current Status of the Marine Corps Reserve	3-4
B. Changes Since the Last NGRER	3-6
C. Future Years Program (FY 2018–FY 2020)	3-7
D. Summary	3-9

Table 1: USMCR Consolidated Major Item Inventory and Requirements

Table 2: USMCR Average Age of Equipment

Table 3: USMCR Service Procurement Program - Reserve (P-1R)

Table 4: USMCR NGREA Procurements

Table 5: USMCR Projected Equipment Transfer/Withdrawal Quantities

Table 6: USMCR FY 2014 Planned vs Actual Procurements and Transfers

Table 7: USMCR Major Item of Equipment Substitution List Table 8: USMCR Significant Major Item Shortages

Chapter 4 United States Navy Reserve (USNR)

I. Navy Overview	4-1
A. Navy Planning Guidance	4-1
B. Navy Equipping Policy	4-1
C. Plan to Fill RC Equipment Mobilization Requirements	4-2
D. Initiatives Affecting RC Equipment	4-2
E. Plan to Achieve Full Compatibility Between AC and RC	4-4
II. Navy Reserve Overview	4-5
A. Current Status of the Navy Reserve	4-5
B. Changes Since the Last NGRER	4-15
C. Future Years Program (FY 2018–FY 2020)	4-15
D. Summary	4-16

Table 1: USNR Consolidated Major Item Inventory and Requirements

Table 2: USNR Average Age of Equipment

Table 3: USNR Service Procurement Program Reserve (P-1R)

Table 4: USNR NGREA Procurements

Table 5: USNR Projected Equipment Transfer/Withdrawal Quantities

Table 6: USNR FY 2014 Planned vs Actual Procurements and Transfers

Table 7: USNR Major Item of Equipment Substitution List

Table 8: USNR Significant Major Item Shortages

Chapter 5 United States Air Reserve Components

I. United States Air Force Overview	5-1
A. Air Force Planning Guidance	5-1
B. Air Force Equipping Policy	5-2
C. Plan to Fill Modernization Shortages in the RC	5-2
D. Initiatives Affecting RC Equipment	5-3
E. Plan to Achieve Full Compatibility Between AC and RC	5-4
II. Air National Guard Overview	5-5
A. Current Status of the Air National Guard	5-5
B. Changes Since the Last NGRER	5-18
C. Future Years Program (FY 2018–FY 2020)	5-18
D. Summary	5-19

Table 1: ANG Consolidated Major Item Inventory and Requirements

Table 2: ANG Average Age of Equipment

Table 3: ANG Service Procurement Program - Reserve (P-1R)

Table 4: ANG NGREA Procurements

Table 5: ANG Projected Equipment Transfer/Withdrawal Quantities

Table 6: ANG FY 2014 Planned vs Actual Procurements and Transfers

Table 7: ANG Major Item of Equipment Substitution List
 Table 8: ANG Significant Major Item Shortages

III. Air Force Reserve Overview	5-20
A. Current Status of the Air Force Reserve	5-20
B. Changes Since the Last NGRER	5-28
C. Future Years Program (FY 2018–FY 2020)	5-28
D. Summary	5-29

Table 1: AFR Consolidated Major Item Inventory and Requirements
 Table 2: AFR Average Age of Equipment
 Table 3: AFR Service Procurement Program - Reserve (P-1R)
 Table 4: AFR NGREA Procurements
 Table 5: AFR Projected Equipment Transfer/Withdrawal Quantities
 Table 6: AFR FY 2014 Planned vs Actual Procurements and Transfers
 Table 7: AFR Major Item of Equipment Substitution List
 Table 8: AFR Significant Major Item Shortages

Chapter 6 United States Coast Guard Reserve (USCGR)

I. Coast Guard Overview	6-1
A. Coast Guard Planning Guidance	6-2
B. Coast Guard Equipping Policy	6-3
C. Plan to Fill Equipment Shortages in the RC	6-3
D. Initiatives Affecting RC Equipment	6-4
II. Coast Guard Reserve Overview	6-5
A. Current Status of the Coast Guard Reserve	6-5
B. Changes Since the Last NGRER	6-8
C. Future Years Program (FY 2018–FY 2020)	6-8
D. Summary	6-9

Table 1: USCGR Consolidated Major Item Inventory and Requirements
 Table 2: USCGR Average Age of Equipment
 Table 3: USCGR Service Procurement Program - Reserve (P-1R)
 Table 4: USCGR NGREA Procurements
 Table 5: USCGR Projected Equipment Transfer/Withdrawal Quantities
 Table 6: USCGR FY 2014 Planned vs Actual Procurements and Transfers
 Table 7: USCGR Major Item of Equipment Substitution List
 Table 8: USCGR Significant Major Item Shortages

Appendix A: Report Requirements, Terminology, and Definitions

Appendix B: National Guard Equipment Reporting Requirements

Appendix C: Principles of Modernization

Appendix D: DoD Report to Congress on Equipment Transparency Report (ETR)
Alternatives

Appendix E: Points of Contact

Appendix F: Acronym Glossary

Chapter 1 Overview

I. Introduction

The 2018 National Defense Strategy states that we cannot expect success fighting tomorrow's conflicts with yesterday's weapons or equipment.¹ Until recently, the Budget Control Act (BCA) perpetuated an equipping model that was designed for a Cold War Era strategic reserve and stressed by unpredictable funding, continuous operations, and the rapid pace of technological change. The Congress has just passed a new budget deal that lifts BCA budget caps for Fiscal Year (FY) 2018 and FY 2019. Until that deal is fully implemented, the realities of current force hardware will be a factor in war planning.

As illustrated in Figure 1-1,² the value of the Reserve Components (RC) equipment requirements has almost doubled since 2001, reflecting, in part, the emerging requirements for advanced equipment needed to enhance compatibility with the Active Components (AC). During the same

time period, funding received by the RC through Defense Appropriations and National Guard and Reserve Appropriations (NGREA) remained relatively constant. Historically, the Services' budget for RC equipment procurement funding is less than 5 percent of the total DoD procurement request. This growth in requirements without a corresponding increase in new procurement funding

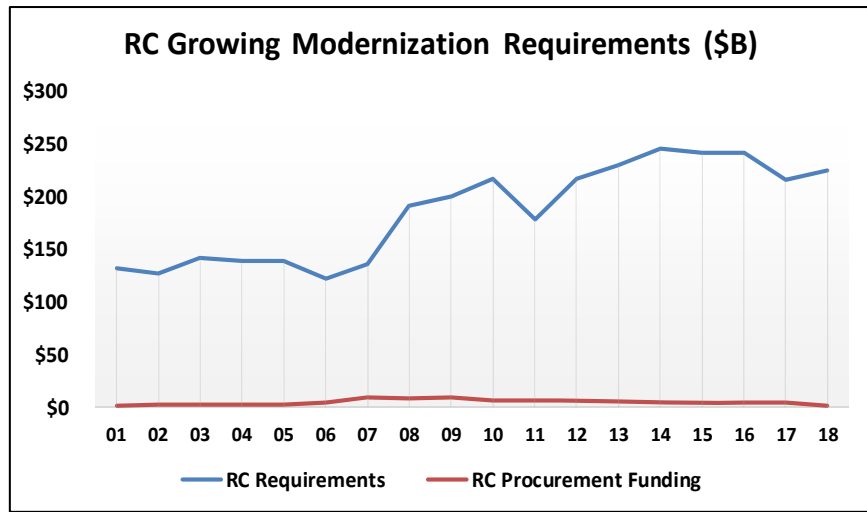


Figure 1-1. RC Growing Modernization Requirements

has increased the proportion of older equipment in the inventory. Sustained operations and a reduction in Operation and Maintenance funding caused additional strain on the readiness of reserve forces. The challenges detailed above are exacerbated by budget reductions stemming from the 2011 BCA. The lack of an adequate stable budget over such a long period of time has been incredibly damaging to the military force, serving to hinder modernization efforts and leading to deteriorating readiness. The unintended consequence has been a growing RC equipment modernization deficit. The RCs are often reliant upon overused and outdated equipment, subject to a widening capability gap with the AC, and unable to maintain pace with rapid technological change.

¹ Summary of the 2018 National Defense Strategy of the United States of America, *Sharpening the American Military's Competitive Edge*, p. 6.

² Data extracted from FY 2001 NGRER through FY 2018 NGRER and P-1R submissions from 2001 through 2018.

Over the past decade senior Department of Defense (DoD) leaders and Members of Congress have recognized the growing RC equipment challenges and proposed addressing them through increased transparency of equipment procurement appropriations. It is the Department's position that desired funding and item inventory transparency can be achieved through the implementation of specific Guard and Reserve Budget Line Item Numbers (BLINs), mutually exclusive from the Active Component BLINs. Therefore, the Department plans to proceed with implementing RC BLINs in future Presidential Budget (PRESBUD) requests (P-1).³ Reforming this process will improve financial auditability and provide greater transparency over equipment procurement, from the budget estimate submission, to appropriation of funds, to the delivery of equipment to the unit. By ensuring a predictable funding stream, it will also enable proportional and concurrent fielding of new equipment to the RCs, reducing the modernization deficit and advancing Total Force readiness.

The remainder of this chapter provides a review of the requirement for an operational reserve; examines the existing RC equipping process and the associated systemic challenges; and, provides a further description of DoD's transparency reform initiative, including how it meets Congressional intent and aligns with Secretary of Defense (SECDEF) lines of effort.

II. Operational Reserve Component Equipping Process and Associated Challenges

Times have changed since the RCs were relied upon as purely a strategic reserve. Over the past two decades, RCs have consistently provided significant depth in operational capabilities and strategic capacity in support of ongoing military operations. The need for an operational reserve was first validated in the 2008 Commission on the National Guard and Reserve Final Report (CNGR), which deemed the operational reserve a "necessity" and found "no reasonable alternative" considering "the threats that the United States faces at home and abroad, the looming fiscal challenges the nation confronts, the projected demands for forces, the unique capabilities resident in the reserve components, and their cost-effectiveness."⁴ Taking an important step in satisfying the commission's recommendations, in October 2008 the Department published DoD Directive (DODD) 1200.17, *Managing the Reserve Components as an Operational Force*. This directive, along with DoD Instruction 1235.12, *Accessing the Reserve Components* (initially published Feb, 2010) collectively codified an operational reserve and established principles and overarching policies for managing the RCs as an effective operational force and provided substantive steps for Total Force integration.

Through their missions at home and abroad, the RCs have consistently demonstrated their value and have continued to provide both a connection with and a commitment to the American people. Since 9/11, in response to emerging global security demands, nearly one million citizen Soldiers, Sailors, Airmen, Marines, and Coast Guardsmen have been activated in support of ongoing military operations.⁵ These include combat operations in Iraq and Afghanistan, theater security cooperation missions, and foreign humanitarian support. The RCs also provide critical

³ Office of the Under Secretary of Defense for Personnel and Readiness, *Department of Defense Report to Congress on Reserve Component Equipment Transparency*, October 2017.

⁴ Commission on the National Guard and Reserves, *Transforming the National Guard and Reserves into a 21st Century Operational Force*, Final Report Executive Summary, January 31, 2008, p. 7.

⁵ Reserve Forces Policy Board Report FY17-01, *Improving the Total Force Using the National Guard and Reserves*, November 1, 2016, p. 25.

support for exercises, training events, and maintenance of equipment, all necessary to improve warfighting readiness. At home, the demand for National Guard and Reserve units to bolster state and local capabilities responding to hurricanes, flooding, wildfires, and other emergencies has not slowed.

While increasing global instability and natural disasters accelerated the transformation from a strategic reserve to an operational reserve, corresponding updates to the Cold-War era equipping model have not been instituted. Looking to the future, demand for an operational reserve is not expected to wane. However, the RCs will be challenged in meeting this demand without change. After years of analysis and discussion, the time for reform has arrived.

Processes for Equipping Reserve Components: To explore how best to reform the RC equipping process, it is necessary to understand the current method of providing equipment to the RCs as well as the associated systemic challenges. There are three fundamental mechanisms for equipping the RC: Redistribution; National Guard and Reserve Equipment Appropriations (NGREA); and Procurement Appropriations.

Redistribution. The Services continue to employ a redistribution model commonly referred to as “cascading” as the primary means for equipping their respective RCs. Cascading is the redistribution of older legacy items into National Guard and Reserve units as new equipment is delivered to the AC. This traditional method was used extensively to equip a strategic reserve for large scale mobilizations in response to Cold-War Era scenarios.

NGREA. The RCs also rely on funding from Congress for equipment procurement (Figure 1-2).⁶ A major funding source for the RCs is NGREA. Congress uses NGREA to allocate funding for RC equipment distinct from the annual President’s Budget (PRESBUD) submission. NGREA, created in 1981, was a response to AC budget priorities and was intended to supplement the Services’ base procurement appropriations for the RC. NGREA is not meant to relieve the AC from the appropriate funding and equipping of their respective National Guard and Reserve components.

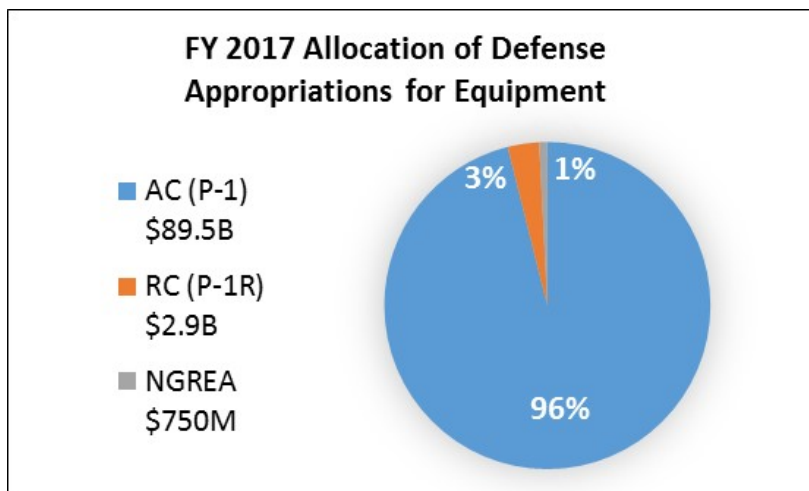


Figure 1-2. Allocation of Defense Appropriations

Procurement Appropriations.

The RC procurement request for equipment is included in the PRESBUD submission and is based on validated requirements. The PRESBUD’s procurement request reflects the Department’s combined request for the AC and RC. A unique budget exhibit, the P-1R, contains

⁶ Office of the Secretary of Defense (Comptroller)/CFO Defense Budget Materials, Procurement Programs Reserve Components (P-1R), <http://comptroller.defense.gov/Budget-Materials/>.

only the Services' procurement budget request for the RC. The P-1R consolidates the individual requests documented in applicable program Budget Line Item Justification (P-40) exhibits.⁷ While the P-1R accurately reflects the RC procurement portion of the PRESBUD, the lack of separate BLINs for the RC precludes the ability to audit how changes in line item funding affect procurement of RC equipment. For example, changes to equipment pricing may lead to a reduction in the number of end items that can be procured. There is no rigorous method to document if the reduction is applied to the AC or RC equipment request.

Systemic Challenges of the RC Equipping Process: Despite the requirement in DoDD 1200.17 to manage the RCs as an effective operational force integrated with the ACs, systemic challenges associated with how the RC equipping requirements are funded continue to impede policy implementation.

Redistribution. Cascading has proven to be an unsuitable equipping mechanism, as it does not reflect the current operational environment in the National Military Strategy. Cascading sends signals to both our Service members and their representatives about the notion of the Total Force. As a practical matter, redistributing aging systems into these units creates compatibility and interoperability gaps between AC and RC units. It creates a scenario where RCs serve as “pit-stops” for divestiture, slowing efforts to advance lethality and improve readiness. Cascading prolongs impending service life extension programs and life cycle maintenance actions. It also delays modernization programs and transfers the rising cost of maintaining aging systems to the RC without a corresponding increase in funding, further constraining operations and maintenance budgets.

The trend for labeling both cascaded and existing RC equipment as “modern” continues for items previously considered outdated and identified for divestiture. While this may be justified in some instances, it confuses the fundamental issue of equipment interoperability between the RC and AC while simultaneously masking underlying funding shortfalls. The process for determining modernization rates is calculated on an aggregate scale and often includes high-density low-cost items. When measured against low-density high-cost mission essential systems, modernization rates become inflated and cause incompatibility issues between AC and RC formations. These modernization ratings are not codified and are subject to interpretation and change.

NGREA. With respect to funding, the Department witnessed a decline in RC equipment procurement dollars between FY 2011 and FY 2017, dropping to the lowest levels in a decade (Figure 1-3). Although NGREA has enabled the RCs to partially fill critical requirements, investments are limited to contract availability and subject to significant Congressional restrictions. As a planning tool, it is unpredictable as it falls outside normal appropriations which limits the ability to forecast or build long-term investment strategies.

⁷ Ibid.

Procurement Appropriations. Outside of NGREA, equipment procurement decisions are centrally managed by the Services. In periods of fiscal uncertainty and declining budgets, RC enabler programs are disproportionately affected by AC reprioritization and reprogramming actions. As a result, RC programs have been chronically underfunded. Funding continued to decline at an exponential rate (60 percent reduction since 2009) as reflected in Figure 1-3. This limits the RC Chiefs’ ability to project and generate readiness, making them more dependent upon the Services’ investments and increasingly reliant on NGREA.

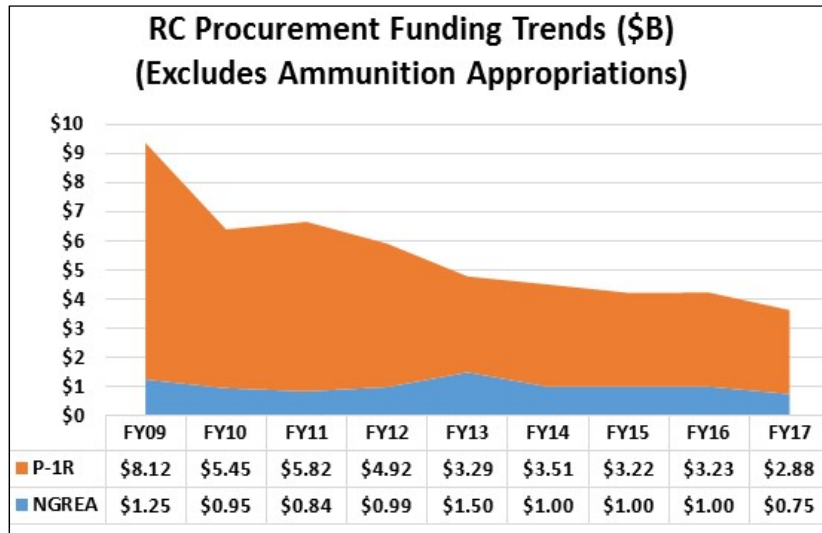


Figure 1-3. RC Procurement Funding Trends (\$B)

Other Factors. Another limiting aspect of the current equipping model is that it is slow to respond to the pace of change, minimizing the fielding to the RCs of new technology designed to increase lethality, improve readiness, reduce vulnerabilities and enhance safety. When RC requirements are not prioritized into capital investments, concurrent fielding of technology does not occur, further compounding incompatibility challenges. DoD and Congress have previously recognized the need for proportional and concurrent fielding of new equipment across the Total Force. Reserve Component Chiefs testified in 2010 that expanding opportunities for concurrent fielding of new capabilities and systems is critical to maintain a reserve force with operational capability and strategic depth. They further testified that the RCs needed to be fielded the same equipment so that they can provide a pre-trained, pre-equipped force that can mobilize and deploy.⁸ The same point was again made in a 2016 report where a key recommendation stated that, to the extent possible, RC forces should have the same systems and equipment as their AC counterparts.⁹ And, in 2017 testimony, problems with the lack of concurrent fielding were highlighted anew.¹⁰

⁸ Hearing before the Military Personnel Subcommittee of the Committee on Armed Services, House of Representatives, *Supporting the Reserve Components as an Operational Reserve and Key Reserve Personnel Legislative Initiatives*, April 15, 2010, p.13.

⁹ Joseph Adams et al, “Sharing the Burden and Risk: An Operational Assessment of the Reserve Components in Operation Iraqi Freedom” prepared for the Reserve Forces Policy Board and the Office of the Under Secretary of Defense (Personnel and Readiness), October 2016.

¹⁰ Statement of Lieutenant General Maryanne Miller, Chief Air Force Reserve, Testimony before the Senate Appropriations Subcommittee on Defense, April 26, 2017 and *2017 Posture of the United States Army Reserve* submitted to the Senate Appropriations Committee by Lieutenant General Charles D Luckey, Chief of Army Reserve, April 26, 2017.

Transparency Reform:

What I've found over many years, in many different organizations is, if you take good people and good ideas and match them with bad processes, the bad processes will win 9 out of 10 times.

- Secretary James Mattis

The requirement for increased funding transparency to procure equipment for the National Guard and Reserve Components has been well documented. The CNGR stated that equipment readiness is a matter not just of adequate funding, but also of ensuring oversight of funding allocations.¹¹ DoDD 1200.17 required that RC resourcing plans ensure visibility to track resources from formulation, appropriation, and allocation through execution. In the decade since the 2008 release of the CNGR and publication of the DoDD, there have been significant efforts to review and improve the transparency of RC equipment funding, procurement, and delivery in order to meet the oversight requirement. However, the Department continues to fall short of meeting this mandate. It is still extremely difficult to track RC equipment from its appearance in budget documents to its delivery. Because equipment is procured by the Services on an integrated level, there is no discrete identification of funding for RC equipment during budget execution. As a result, the quantities and funding estimated in the President's Budget for RC equipment cannot be authoritatively traced to delivery of equipment to National Guard and Reserve.¹²

The Senate Committee on Appropriations agrees, making clear in Senate Report 114-263 accompanying the FY 2017 Defense Appropriations Bill its dissatisfaction with the current process and their desire for reform. The report states: "The Committee strongly supports the Department of Defense's policy of transparency and traceability of procurement funding for the reserve components. However, the Committee notes that the Department continues to have difficulty tracking funding requests for equipment for the reserve components. The Equipment Transparency Report (ETR), intended to provide such visibility, lacks the consistency and reliability needed to be definitive and is, by the Department's own admission, unreliable. The Committee supports the practice of including Reserve Component funding requests in parent service budgets, but seeks a clearer way to determine the impact of funding on actual equipment procurement."¹³

Implementation of Specific Guard and Reserve Budget Line Item Numbers (BLINs): In response to congressional concern with lack of RC equipment transparency, DoD submitted a report (October 2017) on alternatives to the ETR to the Defense committees (See Appendix D). In the report, the Department details plans to proceed with implementing specific Guard and Reserve BLINs within existing Procurement appropriations. Existing BLINs would be separated into distinct AC, Guard and Reserve line items. (For example, the Army's existing Joint Light Tactical Vehicle line item would be separated into three lines: Joint Light Tactical Vehicle, Joint Light Tactical Vehicle – Army National Guard, and Joint Light Tactical Vehicle – Army Reserve.) The Services would retain flexibility to adjust funding within the reprogramming

¹¹ Commission on the National Guard and Reserves, *Transforming the National Guard and Reserves into a 21st Century Operational Force*, Final Report Executive Summary, January 31, 2008, p. 51.

¹² Office of the Under Secretary of Defense for Personnel and Readiness, *Department of Defense Report to Congress on Reserve Component Equipment Transparency*, October 2017.

¹³ Senate Report 114-263, DoD Appropriations Bill, 2017, May 26, 2016.

thresholds established by Congress in order to address emerging priorities. This revised model has the benefit of providing the auditable transparency of equipment procurement from allocation of funds to the delivery of equipment to the unit. This separate BLIN approach is also consistent with other recent reform initiatives. For example, Drug Interdiction funding has been separated into three distinct lines to include a specific National Guard budget line item to provide greater transparency and oversight of the program and its budget execution.¹⁴

In sum, the implementation of BLINs will provide required oversight, is in line with congressional requirements, and has proven to be successful in other appropriations. This reform fulfills statutory requirements, improves auditability, and is aligned with Secretary of Defense (SECDEF) lines of effort.¹⁵

- **Readiness Line of Effort.** The Department has prioritized restoring military readiness as we build a more lethal force. Transparency reform that incorporates a BLIN-level of base budget management envisages a level of predictability essential to rebuilding readiness in the RCs. Simultaneously, this reform will facilitate concurrent fielding of new technology required to increase lethality and effectiveness. Increasing interoperability with the AC will improve the RCs' ability to provide trained, combat-ready forces.
- **Business Reform Line of Effort.** BLIN implementation reflects the Department's commitment to improving budget discipline and effective resource management and streamlining requirements and acquisition processes. Increasing transparency supports a long term investment strategy and serves to minimize reprogramming actions between components.
- **Enhanced Audit Readiness.** The Department is entering into a full, agency wide financial statement audit as required by statute. Increased transparency through BLIN implementation will advance audit readiness efforts by establishing binding exhibits, subject to review and enabling oversight and traceability of funds from funding request through actual equipment delivery.
- **Certification.** This initiative is expected to allow the Chief, National Guard Bureau to definitively certify, per Title 10, Section 10541, receipt and non-receipt of expected items.

III. Scope of the Report

The National Guard and Reserve Equipment Report (NGRER), mandated in section 10541 of title 10, United States Code, is a statutory reporting requirement that reflects Congressional interest in ensuring a well-equipped and robust RC capability within the Armed Forces. The NGRER identifies major items of equipment in the RC inventories that are important to the Services, DoD, and Congress, and outlines how that equipment is being acquired and disposed of by the Reserves for the budget year and the two succeeding years. Data on equipment included in the report consist of high-value, mission-essential equipment requirements, critical equipment

¹⁴ DoD Appropriations Act, 2017, Defense Conference Report – Division C, H.R. 244, May 5, 2017, p. 83.

¹⁵ Secretary of Defense Memorandum, *Implementation Guidance for Budget Directives in the National Security Presidential Memorandum on Rebuilding the U.S. Armed Forces*, Jan 31, 2017.

shortages, Service procurements, supplemental funding for the RC, and items procured with NGREA funding.

The FY 2008 National Defense Authorization Act (NDAA) directed new equipment reporting requirements for the National Guard’s capability to perform its Federal responsibilities in response to an emergency or major disaster. This guidance is highlighted in its entirety in Appendix A, and the National Guard Bureau responds to the requirements in Appendix B.

The four charts in this chapter present a broad overview of previous major items reported in the NGRER, major item shortages in terms of dollar amounts, and the recent tracking through the current budget year of procurement funding for the RC. These introductory tables are summary and historical in nature and do not indicate the comprehensive dollar requirement that would be needed to fully fund Reserve capabilities. Detail on potential costs, such as modernization of existing systems is contained, where appropriate, in the chapters of the respective individual RC.

RC inventories include thousands of different types of equipment. The FY 2019 NGRER highlights 854 major equipment types whose total dollar value comprises approximately 85 percent of the value of all RC equipment. This report presents the results of analysis of RC inventories based primarily on the dollar value of the equipment, which allows the aggregation, comparison, and summary of diverse types of equipment. The procurement costs are from the Services’ official data and are either the latest procurement cost adjusted for inflation or the current replacement cost.

Chart 1-1 shows the number of types of equipment included in previous NGRERs to Congress. These numbers are provided for perspective and comparison with previous reports and do not represent the entire inventory of RC major items.

Chart 1-1. Items of Equipment Reported in Recent NGRERs

Reserve Component	FY 2014 NGRER	FY 2015 NGRER	FY 2016 NGRER	FY 2017 NGRER	FY 2018 NGRER	FY 2019 NGRER
ARNG	271	320	305	261	243	309
AR	230	231	238	322	390	236
USMCR	212	201	205	183	168	165
USNR	42	40	36	36	30	33
ANG	30	29	29	26	27	26
AFR	18	17	16	17	15	14
USCGR	74	75	69	71	70	71
Total	877	913	898	916	943	854

IV. Equipment Shortages

Chart 1-2 shows the dollar value of the current total major equipment requirements and inventories for each RC. The information this table displays indicates the requirement for new procurement for the RC; however, it does not indicate capabilities, shortfalls, or compatibility mismatch with the AC due to modernization requirements. For example, it does not include substitute items of equipment in determining shortages of Army RC equipment.

In any fiscal environment, there are never enough resources to fund every requirement. The Department of Defense, through its Planning, Programming, Budgeting, and Execution (PPBE) process, has determined that overall risk to the Active and Reserve Components is acceptable and that the allocation of resources between the two components is balanced correctly.

The Army National Guard (ARNG) and Army Reserve (AR) equipment shortage costs depicted in Chart 1-2 show the cost based on requirements and on-hand inventories without recognition of authorized substitutes per Congressional guidance. Table 1-2 indicates a \$16B total shortage cost for the ARNG and \$6.3B for the AR. More information on the Army’s equipping strategy and their use of authorized substitutions can be found in Chapter 2, Section I of this report.

The Marine Corps Reserve (USMCR) reflects a \$1.9B shortage of its major items; however, the USMCR is equipped to a home station training allowance only. More information on the Marine Corps equipping strategy and the USMCR’s use of a training allowance can be found in Chapter 3 of this report.

The Navy Reserve reports a significant increase in the shortage of equipment value since the last report, from \$609M to \$5.8B. In preparation for the audit readiness review, errors in the formula previously used for calculating the shortage values were discovered and corrected. More information on the Navy’s equipping status can be found in Chapter 4 of this report.

Chart 1-2. Beginning FY 2017 Reserve Component Equipment Shortages

Reserve Component	Requirements (\$M)	On-hand (\$M)	Shortage (\$M)	Shortage (% of Req'd \$s)
ARNG	106,000.0	90,000.0	16,000.0	15.1%
AR	33,000.0	26,740.0	6,260.0	19.0%
USMCR	9,205.2	7,310.5	1,894.7	20.6%
USNR	10,215.5	4,440.6	5,774.9	56.5%
ANG	39,383.2	37,211.9	2,171.3	5.5%
AFR	26,466.1	25,196.6	1,269.5	4.8%
USCGR	169.4	139.2	30.2	17.8%
Total	224,439.4	191,038.8	33,400.6	14.9%

Note: Requirements, on-hand, and shortage entries are total equipment value, excluding substitutes per Congressional Guidance.

V. Equipment Procurement

The RC procurement funding levels for the period FY 2009–FY 2018 are provided in Chart 1-3. The two sources of RC procurement funding are the RC portion of the Service base procurement appropriations and the separate NGREA funding provided by Congress to meet urgent equipment needs of the RCs.

The RC portion of the base Service procurement funding is provided in the Service Procurement Programs–Reserve Components (P-1R), a budget exhibit in the annual PRESBUD. Chart 1-3 updates the P-1R values for past fiscal years as each new PRESBUD is released. The P-1R funding for a given fiscal year appears in three successive PRESBUDs, as the original budget

request, followed by P-1R updates in two successive PRESBUDs. The P-1R updates for a fiscal year reflect changes to the original request that may increase or decrease the procurement funding intended for the RCs. Those changes should include the actual Congressional appropriation enacted, Supplemental funding, Overseas Contingency Operations (OCO) funding, and Service reprogramming.

As shown in Chart 1-3, the total RC P-1R funding has decreased steadily from an FY 2009 peak of \$8.2B down to \$3.4B in FY 2019. Table 1-4 shows a downward trend in the percentage of DoD procurement levels for RC back to the levels seen from FY 2003 to FY 2006. The depiction of these two corresponding trends leads to concerns that the decreasing RC new procurement will result in a higher reliance on legacy systems, increased vulnerability of divestiture, increased operating costs, and will widen the gap of interoperability between the AC and RC.

The FY 2018 P-1R data for the ARNG and AR as shown in Chart 1-3, is not consistent with prior years' requests for procurement funding. However, adjustments to the Army's requested procurement funding for ARNG and AR were made in the FY 2019 P-1Rs bringing it back into alignment with previous years' requests. The Army data submitted for FY 2018 requires further analysis and is representative of challenges in delivering desired levels of transparency.

Total annual NGREA funding added by Congress has averaged \$1.05B from FY 2009 to FY 2017. As a percentage of total RC procurement funding, NGREA has increased from 13 percent in FY 2009 to 20 percent in FY 2017. In FY 2016, NGREA funding is 68 percent of the AFR's total procurement funding and 56 percent of the ANG's.

Chart 1-3. Reserve Component Procurement Funding

FY	Procurement Funding Source	RC Procurement Funding (\$M)							Total	Grand Total
		ARNG	AR	USMCR	USNR	ANG	AFR			
2009	President's Budget P-1R (PY)	5,867.9	1,267.0	33.4	203.4	624.4	170.1	8,166.1	\$9,413.9	
	NGREA	778.6	127.3	62.4	62.4	154.7	62.4	1,247.8		
	Total	6,646.5	1,394.3	95.7	265.8	779.0	232.5			
2010	President's Budget P-1R (PY)	3,094.4	1,482.6	40.3	137.0	541.1	155.3	5,450.6	\$6,400.6	
	NGREA	575.0	85.0	45.0	55.0	135.0	55.0	950.0		
	Total	3,669.4	1,567.6	85.3	192.0	676.1	210.3			
2011	President's Budget P-1R (PY)	3,929.4	1,198.0	24.5	135.9	432.3	95.2	5,815.2	\$6,660.0	
	NGREA	250.0	137.6	69.0	70.0	250.0	68.2	844.8		
	Total	4,179.4	1,335.5	93.5	205.9	682.3	163.4			
2012	President's Budget P-1R (PY)	3,262.2	968.0	8.5	170.1	315.9	190.6	4,915.3	\$5,908.6	
	NGREA	320.3	145.0	63.0	75.0	315.0	75.0	993.3		
	Total	3,582.4	1,113.0	71.5	245.1	630.9	265.6			
2013	President's Budget P-1R (PY)	1,643.9	667.0	19.2	376.1	276.8	310.9	3,293.9	\$4,788.9	
	NGREA	460.0	240.0	120.0	90.0	455.0	130.0	1,495.0		
	Total	2,103.9	907.0	139.2	466.1	731.8	440.9			
2014	President's Budget P-1R (PY)	1,952.1	382.0	59.0	187.8	231.9	696.6	3,509.3	\$4,509.3	
	NGREA	315.0	175.0	60.0	65.0	315.0	70.0	1,000.0		
	Total	2,267.1	557.0	119.0	252.8	546.9	766.6			
2015	President's Budget P-1R (PY)	1,851.2	551.8	59.1	145.3	361.4	254.8	3,223.5	\$4,423.5	
	NGREA	415.0	185.0	60.0	65.0	415.0	60.0	1,200.0		
	Total	2,266.2	736.8	119.1	210.3	776.4	314.8			
2016	President's Budget P-1R (PY)	1,928.9	431.2	51.4	257.4	269.0	54.6	2,992.6	\$3,992.6	
	NGREA	330.0	140.0	10.0	50.0	330.0	140.0	1,000.0		
	Total	2,258.9	571.2	61.4	307.4	599.0	194.6			
2017	President's Budget P-1R (PY)	1,953.5	417.7	32.6	394.1	298.9	67.0	3,163.9	\$3,913.9	
	NGREA	247.5	105.0	7.5	37.5	247.5	105.0	750.0		
	Total	2,201.0	522.7	40.1	431.6	546.4	172.0			
2018	President's Budget P-1R (CY)	675.0	50.4	32.9	221.7	260.5	83.3	1,323.9		
	NGREA									
	Total									
2019	President's Budget P-1R (R)	2,159.2	471.8	142.3	331.3	267.7	72.3	3,444.6		
	NGREA									
	Total									

Note 1: P-1R values reflect latest FY update in President's Budget. R: Request; CY: Current Year; PY: Prior Year.
 Note 2: The above figures do not include Ammunition procured for the RC.
 Note 3: USNR figures include USMCR aircraft procurement funds.
 Note 4: 2011-2013 NGREA reduced by \$16.9M FY 2013 Sequestration Reduction.
 Note 5: 2018 and 2019 NGREA values will not be available until after FY 2019 NGRER is published.

Chart 1-4. Total Active and Reserve Component Procurement Funding

FY	P-1 Total (\$M)	AC Total (\$M)	RC Total (\$M)	RC %	PRESBUD P-1 & P-1R Funding Source
2003	54,187.0	52,202.6	1,984.4	3.7%	Prior-Year
2004	55,685.8	54,188.3	1,497.5	2.7%	Prior-Year
2005	71,951.7	70,022.9	1,928.8	2.7%	Prior-Year
2006	75,380.8	72,701.4	2,679.4	3.6%	Prior-Year
2007	101,308.4	93,414.8	7,893.6	7.8%	Prior-Year
2008	125,306.0	119,191.7	6,114.3	4.9%	Prior-Year
2009	98,081.3	89,915.2	8,166.1	8.3%	Prior-Year
2010	97,601.1	92,150.5	5,450.6	5.6%	Prior-Year
2011	92,146.2	86,331.0	5,815.2	6.3%	Prior-Year
2012	81,205.3	76,289.9	4,915.3	6.1%	Prior-Year
2013	68,465.1	65,171.1	3,293.9	4.8%	Prior-Year
2014	67,496.4	63,987.1	3,509.3	5.2%	Prior-Year
2015	69,700.3	66,476.8	3,223.5	4.6%	Prior-Year
2016	80,285.0	77,292.4	2,992.6	3.7%	Prior-Year
2017	83,050.0	79,886.2	3,163.9	3.8%	Prior-Year
2018	81,184.2	79,860.4	1,323.9	1.6%	Current-Year
2019	81,256.7	77,812.0	3,444.6	4.2%	Request

Note 1: P-1 and P-1R values reflect latest FY update in President's Budget (Request, Current Year, or Prior Year).

Note 2: P-1 & P-1R values do not include Ammunition appropriations.

Note 3: P-1 values include only appropriations displayed in P-1R:
 Army: Aircraft, Missile, W&TCV, and Other Procurement
 Navy & Air Force: Aircraft, Other Procurement, and Marine Corps.

VI. Reserve Component Equipping Challenges

This segment briefly summarizes the principal equipping concerns of each RC. The components' individual chapters treat these subjects in more detail.

A. Army National Guard (ARNG)

The ARNG is no longer solely the strategic reserve of the past, but also an operational force, providing significant capability through rotational support to combatant commanders. Given the current global threat environment, reliance on ARNG capabilities is expected to increase. In spite of this, historical equipment funding reductions have left the ARNG chronically underfunded, necessitating the Army to make difficult decisions to trade modernization improvements for readiness. It is therefore necessary to ensure proper and auditable funding levels for critical ARNG modernization shortfalls are met while preventing capability gaps elsewhere.

In order to meet enhanced readiness posture equipment requirements while reducing post-mobilization timelines, the ARNG is steadily working to improve its interoperability with the Army and Joint forces. Specific major areas requiring modernization include: Armor Brigade Combat Teams, future network applications, engineering equipment, and transportation and sustainment equipment. Improvements to ARNG equipment will also enhance responsiveness in support of the governors for domestic missions protecting life and property. In order to achieve modernization goals and build and retain readiness, the ARNG requires Congressional support for dedicated, and sustained funding.

The top focus areas for Army National Guard are:

- Achieve sustained and predictable funding.
- Modernize ARNG Mission Command Systems in pace with the Army.
- Modernize three least modern ARNG Armor Brigade Combat Teams (ABCT).
- Modernize the ARNG helicopter fleet in accordance with Aviation Restructure Initiative decisions and the National Commission on the Future of the Army.
- Man, equip, train and deploy four Brigade Combat Teams (BCT) per year through Combat Training Center (CTC) rotations in support of Army Contingency Plans.
- Support, sustain and execute the Army's Associated Units program with Ready ARNG forces.
- Complete manning, equipping, and training of the ARNG's second Stryker Brigade Combat Team (SBCT) and execute CTC validation in FY 2020.
- Begin transitioning the ARNG's tactical wheeled vehicle fleet to the Joint Light Tactical Vehicle beginning in FY 2021.

Chapter 2, Section II of this report provides a more detailed discussion of these focus areas.

B. Army Reserve (AR)

In an era of persistent conflict, the Army Reserve has demonstrated the ability to fully integrate with the Army as an operational force by providing consistently reliable capabilities to Combatant Commands. However, the unpredictable fiscal environment over the last five years forced difficult resource prioritization decisions resulting in a chronically underfunded Army Reserve and creating compatibility gaps between critical enabling capabilities required to support maneuver forces. Unique capabilities have been especially at risk due to the persistent absence of investments in sustainment-based enabling platforms, the majority of which reside in the Army Reserve.

The Army Reserve is focused on restoring readiness that builds capacity and improves lethality by improving efficiencies through policy and business reforms. The absence of dedicated funding, compounded by fiscal uncertainty and the lack of funding transparency in the current budget process, continues to affect modernization efforts and will limit new procurement for enabler capabilities well beyond FY 2021.

The top AR focus areas are:

- Attain more predictable and balanced funding to support enabler force modernization concurrent with maneuver forces.
- Prioritize resources to generate full-spectrum readiness for critical enabler capabilities.
- Pursue a new definition for equipment modernization to account for employability and effectiveness within a non-permissive environment.
- Seek policy enhancements that provide increased visibility of resource allocations & develop metrics to project readiness.

Additional information about the AR focus areas can be found in Chapter 2, Section III of this report.

C. United States Marine Corps Reserve (USMCR)

The Marine Corps is currently conducting a large scale equipment modernization of the entire aviation force and ensuring combat support and logistics are the most modern and capable. For the most part, USMCR units remain highly interoperable with their AC counterparts due to the Marine Corps' Total Force approach to equipment fielding and management. However, fiscal uncertainty and decreasing mobilizations have adversely affected the equipment modernization of the RC and have forced the prolonged operation of legacy equipment.

The Marine Corps Reserve's top focus areas are:

- **Constrained Resource Environment.** Limited resources will impact current operations, equipment reset, and the ability to maintain warfighting readiness while modernizing the force.
- **Transition to KC-130J Super Hercules.** The RC currently maintains a mixed fleet of KC-130J and legacy KC-130T aircraft that have completely different logistics, maintenance and aircrew requirements.
- **Shortage of Mobile Integrated Remains Collection System.** The Marine Corps' sole mortuary affairs capability resides in the RC, which currently lacks this mission essential equipment.
- **Delayed Aviation and Ground Equipment Modernization.** Delayed fielding increases equipment compatibility challenges and results in a requirement to concurrently maintain both new and legacy equipment which has become increasingly costly and negatively affects overall readiness.

A more detailed discussion of these challenges can be found in Chapter 3, Section II of this report.

D. United States Navy Reserve (USNR)

Today's integrated force structure is the result of Navy's imperative to optimize the interoperability and operational effectiveness of the Navy Reserve. The Navy Reserve depends on availability of modern and compatible hardware to quickly and seamlessly assimilate with AC units to execute the mission. Unfortunately, sustained high operational tempo for the Navy Reserve has accelerated equipment degradation and service-life expenditure, compounding the problems associated with an aging fleet and causing maintenance shortfalls and a growing backlog.

The Navy Reserve's primary equipment concerns are replacing the P-3C aircraft (35 years old) and F/A-18A+ aircraft (31 years old) that operate at a significantly higher cost, produce lower readiness rates, and provide lesser capability than their projected replacement platforms. The Coastal Riverine Force requires modernization and outfitting as well. To ensure the Navy Reserve can support AC requirements, dedicated funding is needed for future investments in Navy Reserve hardware.

The top USNR focus areas are:

- Predictable and dependable funding.
- Achieving and maintaining readiness levels for aging systems.
- Aircraft procurement (P-8A, F/A-18E, KC-130J, & F-5N/F).
- Coastal Riverine Force (CRF), Naval Construction Force (NCF), and Navy Expeditionary Logistics Support Group (NAVELSG) equipment.
- AC/RC equipment incompatibility.

A more detailed discussion of these challenges can be found in Chapter 4, Section II of this report.

E. Air National Guard (ANG)

The continued budgetary restrictions and resultant cuts in defense spending present fundamental challenges to the sustainment, modernization, and recapitalization of the ANG's legacy equipment. Over the past several years, the Air Force has been forced to make difficult decisions to meet operational needs, deciding to invest heavily in fleet recapitalization and compliance initiatives, leaving certain critical fleet modernization requirements "below the line."

While some improvements were made to the equipment status of the ANG, ANG leadership is intent on improving the Air Force's oldest legacy aircraft and major weapon systems to ensure their forces are capable of meeting our global security and domestic mission responsibilities. Specifically, ANG requires investments in equipment modernization and recapitalization to be interoperable with AC missions. This is critical for ensuring Air Guardsmen properly train to a single standard required to seamlessly integrate the ANG with the Total Force. Support equipment for sustaining ANG aircraft remains a challenge as well, as original manufacturers no longer produce some of these items or may no longer be viable, thereby increasing maintenance costs.

The top focus areas for Air National Guard are:

- Adequate funding for weapon system modernization efforts.
- Adequate funding to procure modern, updated equipment to more effectively support the ANG Defense Support to Civil Authorities (DSCA) mission and aging fleet of aircraft.

Chapter 5, Section II of this report provides additional information about ANG equipment challenges.

F. Air Force Reserve (AFR)

Sustained global commitments and funding reductions have eroded the AFR to be one of the smallest, oldest-equipped, and least ready forces across the full-spectrum of operations in service history. In FY 2016 and FY 2017 budgets, the Air Force made adjustments to balance near-term readiness with future modernization. However, sustained operations, an aging fleet, and reduced manpower have left AFR readiness at a near all-time low. Compounded by fiscal uncertainty and inconsistent funding, the AFR has been unable to fully execute a readiness recovery plan or implement a plan to recapitalize the fleet.

Given an increased emphasis on the AFR's operational role, stable and predictable funding is essential to maintain legacy equipment. Similarly, dedicated funding to support proportional and concurrent fielding of new weapons systems is vital.

The top equipment focus areas for Air Force Reserve are:

- Lack of predictable funding limits mitigating efforts to control rising maintenance costs of aging fleets and presents challenges to concurrent fielding of new technologies.
- Aircraft modernization to maintain readiness and compatibility to support the Combatant Commanders.
- Recapitalization of AFR HC-130 Fleet, the only fixed wing Personnel Recovery platform in the AF inventory.
- Diminishing Manufacturing Sources negatively impact the necessary repair capability to maintain readiness.
- Vehicles & Support Equipment have been chronically underfunded to accommodate other modernization efforts.
- Training Simulators must keep pace with aircraft modernization and force structure changes to best produce mission ready aircrew.

A more detailed discussion of these challenges can be found in Chapter 5, Section II of this report.

G. United States Coast Guard Reserve (USCGR)

The United States Coast Guard Reserve (USCGR) provides critical competencies vital to the USCG's capability to lead, manage, and coordinate the Nation's response to acts of terrorism, disasters, or other emergencies in the maritime domain. However, uncertain annual budget cycles do not allow for the equipping and training of a force of sufficient size and capability to surge across all Coast Guard statutory missions. In response, the USCGR has transitioned to a "contingency-based" workforce designed to meet a more limited set of prioritized mission areas.

Adequate funding to support equipment procurement and maintenance as well as necessary training to operate and maintain the equipment is critical to sustaining an effective operational reserve. The USCG continues to aggressively pursue replacement of its aging boat platforms, weapons, and other equipment. Once procured and fielded, the Reserve Component (RC) will require additional training to become proficient on the new equipment and maintain operational readiness. Last year's modest increase in the Reserve Training Appropriation base funding did not fully address current resource level restrictions. This negatively impacted the Coast Guard's ability to access, train, and retain the necessary Reserve workforce.

Therefore, the top USCGR focus areas are:

- Predictable and steady funding to sustain USCG operational integration.
- Obtaining sufficient training capacity to ensure proficiency on updated platforms.
- Maximizing availability of operational platforms for RC training.

More information about the USCGR equipping challenges can be found in Chapter 6, Section II of this report.

Chapter 2

United States Army Reserve Components

I. Army Overview

A. Army Planning Guidance

Our Army must remain capable of accomplishing its mission - anytime, anywhere. It is increasingly clear that the ability to conduct decisive action to deter, deny, compel, and defeat the threat of war posed by nation-states represents the most demanding challenge we face. A ready Army will retain the agility to operate across the full spectrum of operations and remain prepared to prevent, shape, and win against existential threats. The Army must be able to fight state and sub-state disruptors in the *Current Fight* without mortgaging future force development, prepare to fight regional peer military powers in the *Next Fight*, and build options against technologically advanced peer with global reach in the *Future Fight*.

The Department of the Army has a mandate in Title 10 to design, build, man, train, equip, sustain, and mobilize/demobilize the Reserve Component of the Army. Institutionally, the Army exercises Title 10 authorities to translate resources, people, and other inputs into a ready and modern force. As the Army looks beyond the Future Years Defense Plan, the Army must chart a course that rapidly closes today's vulnerability gaps and lays the groundwork in *force application, force design, force modernization, force generation, and human capital* to face the looming threats of tomorrow.

Now through 2025—Build a Bigger, Stronger and Modern Army

In the near term, the Army must modernize, grow (for land forces, capability derives from both systems and capacity), and maintain readiness to meet the challenges of the current counterterrorism/counterinsurgency fight while restoring lethality, mobility, agility, protection, mission command capabilities and training readiness for peer military threats. Three lines of effort will address force structure shortfalls, fill capability gaps with readily available systems, and prioritize research & development (R&D) along with science & technology (S&T) investments needed now to mature emerging capabilities. If we do not invest in these gaps now, we run the risk of an Army that is in danger of losing against a peer adversary, putting at risk victory in war and credible deterrence and inviting miscalculation by our adversaries.

2025 to 2035—Restore Dominance and Transition the Army for the Future

In the mid-term, while the Army pursues prototyping, demonstration, and Low-Rate Initial Production (LRIP) of next generation combat vehicles for eventual procurement, the Army must modernize much of its remaining combat vehicle fleet while integrating new capabilities. These high-payoff capabilities enable ground forces to persist, operate and dominate in an Anti-Access/Anti-Denial (A2AD) battlefield and include: manned-unmanned teaming, enhanced lethality of direct fires, survive and project indirect fires, radio frequency (RF)-guided munitions, decide faster, asymmetric vision, and advanced technologies for alternative communications and electronic warfare. As the Army transitions from a blend of "current force" systems and "emerging" technology we must identify conditions under which we can cease modernizing

legacy combat platforms to begin integrating next generation combat vehicles and future vertical lift.

2035 to 2050—Build an Army for a Fundamentally Different Conflict Environment

In the Future Fight, the character of warfare may be difficult to define, however broad outlines can be anticipated. The Army will operate in smaller units of action with decentralized command and control requiring more efficient energy use to reduce logistics requirements and lines of communications. Furthermore, headquarters units must be able to support formations operating autonomously with advanced sensor integration and mission management capabilities to effectively conduct intelligence, surveillance, and reconnaissance (ISR), joint fires, and sustainment operations. To successfully operate on this fundamentally different battlefield, the Army must not only implement its own modern systems, but must also undergo careful study of the emerging geo-political changes, new methods of warfare, and technological trends with a degree of innovation, integration, alignment, and agility heretofore unachievable with our current organizational and bureaucratic processes.

B. The Army Equipping Guidance

The Army Equipping Guidance (AEG) 2013 through 2016 describes the strategic environment and how it relates to equipping the force. The guidance includes the policy and goals for equipping the Total Army within the operating and generating force of each of the components; Active Component (AC) and Reserve Components (RC). The underlying foundation of the guidance is to identify and minimize equipping risks and costs as the Army transitions from the past 15 years of conflict, through sequestration, toward regionally aligned and mission tailored forces.

C. The Army's plan to fill Mobilization shortages in the RC

The Army fills shortages within the RC as part of the total force fielding plan. Current and planned operations/missions are prioritized to determine fielding priorities across the Army. The plan encompasses three lines of effort: 1) Equipping units for their missions, 2) Increasing readiness by redistributing equipment, and 3) Saving money.

1. Equipping Units for Their Missions

The Army's force generation process is the Sustainable Readiness Model (SRM), which enables the synchronization of resources to optimally meet known demands and to minimize the risk to contingency demand. The SRM permits the identification of feasible Readiness Objectives for each unit/capability type in the Army and prioritizes units to build decisive action Readiness while avoiding Readiness cliffs.

The SRM seeks to fully operationalize the RC by leveraging the unique capabilities of Army National Guard (ARNG) and USAR forces to support early and mid-deploying forces as identified in War Plans by appropriately improving RC readiness as a key element of the Army's operational depth. Army Force Generation (ARFORGEN), the previous force generation model, was not intended to recognize and resource the unique functional and multi-functional unit contributions of the RC. The SRM will provide Army leaders with an analytic basis in order to

make resource decisions that enhance the readiness of selected RC units creating greater operational depth across the Total Army.

2. Increasing Readiness by Redistributing Equipment

The focus of the supporting effort is to move on hand equipment already in the Army inventory to increase overall unit readiness. As result of the drawdown from Afghanistan, the Army is transitioning away from a theater provided equipment model to a pre-positioned and training activity set. The AEG also ensures continuing equipment paybacks to the RC in accordance with Department of Defense Instruction (DODI) 1225.06, *Equipping the Reserve Forces*.

3. Saving Money

This last line of effort emphasizes Army processes and policies that take into account the significant reduction in funding under the Budget Control Act (BCA), also known as Sequestration. The Army must focus on preserving as much of the budget as possible for force modernization required to achieve and sustain future capabilities. As such, the Army must divest expensive older systems, excess equipment on-hand (EOH), and non-standard equipment (NSE) when appropriate while ensuring equipment distribution and redistribution is accomplished at the lowest levels.

D. Initiatives Affecting RC Equipment.

The Army is transitioning away from a theater provided equipment model to a pre-positioned and training activity sets in order to push equipment forward into areas of potential conflict providing both equipment for training and potential use in the event of crisis. Additionally, changes to force structure such as additional Armor Brigade Combat Teams and Security Force Assistance Brigades (SFABs) require extensive amounts of equipment in order to operationalize units. The second order effect is that potential cascades to the RC are delayed as new units are made ready and equipment sets are established worldwide.

In 2008, as a result of the Commission on the National Guard and Reserves, the Secretary of Defense directed the Military Services to provide increased transparency of equipping the RC. The Army's effort to ensure RC equipment is properly tracked from the resourcing phase until delivery to particular units is known as transparency. The format for this tracking effort, called the Equipment Transparency Report (ETR), was standardized for all of the Military Services and is provided semiannually to the Office of the Assistant Secretary of Defense for Readiness (OASD/R).

Implementing this mandate requires two steps: First, component-level funding and procurement quantities are included on key Congressional budget exhibits; and the second, is tracking delivery of funded equipment. Collecting the data is still largely a manual process for the Army because the databases currently in use were not designed to link a piece of equipment delivered to a unit with the funding that resourced the procurement. Department of Defenses (DoDs) Item Unique Identification (IUID) effort will enable visibility of this process, and Army is working diligently, through a general officer level forum, to establish governance and enforcement of the laws, regulations, and policies governing IUID.

In addition, the Army has undertaken a three-pronged effort to increase accuracy of quantity start-points for reporting, through linking the subordinate planning and programming systems

that contain this level of detail to the ETR. This will provide clearer indications of deviations from the planned delivery of items to the RC. The Army is also investigating additional methods to provide discrete traceability through the financial management systems that retains the component-level splits through funds disbursement and contracting. The Army believes that these improvements, in conjunction with IUID, could potentially allow the Chief, National Guard Bureau, to definitively certify, per Title 10, Section 10541, receipt and non-receipt of expected items.

E. Army Plan to Achieve Compatibility between AC and RC

The Army's plan to achieve compatibility between the AC and the RC makes use of the SRM. The SRM seeks to fully operationalize the RC by leveraging the unique capabilities of ARNG and USAR forces to support early and mid-deploying forces as identified in our War Plans by appropriately improving RC readiness as a key element of the Army's operational depth. Furthermore, within the SRM construct, units associated with the Mission phase, or aligned for the Contingency phase are not required to maintain the exact same modernization levels, but must be compatible—regardless of the component. Army Modernization priorities will account for units' interoperability. Cross-Component unit compatibility requires sufficient equipment on hand to enable both targeted training readiness levels and integrated training exercises. Key to this is the synchronization of fielding plans and training programs.

F. Army Component Equipment Modernization.

The competitive advantage that the United States has long enjoyed is eroding. We are being challenged in every domain of warfare: land, maritime, air, cyber and space, and the challenges are growing in scale and complexity. Our recent focus on fighting wars of insurgency and terrorism allowed our adversaries to make improvements on their modernization efforts and erode our advantages enjoyed since World War II. Our Army must regain our overmatch and competitive advantage against emerging threats, competitors, and adversaries. We have worked hard in recent years to increase our readiness and strengthen our formations and now must modernize our capabilities to increase our lethality against emerging regional and global near-peer adversaries. This modernization strategy has one simple focus: make Soldiers and units more lethal.

The Army's equipping approach categorizes equipment to help establish a "modernization path." Over time, as systems transition from Developmental to Legacy or Obsolete it becomes misleading to think older equipment is less modern based on the equipment's age. In many cases equipment age has very little to do with the level of modernization. This approach provides for more modern replacements and substitute equipment (equal to or more modern than the item it is replacing) to maintain unit readiness and technological overmatch over extended procurement periods. This makes sure the warfighter is provided with the most capable equipment.

In summary, the Army's "modernized" equipping approach to providing America's Army with the most modern equipment looks forward to the capabilities the Warfighter must have to fight and win, makes best use of limited resources, and is the most cost effective method.

II. Army National Guard Overview

“I expect demand to increase in the future, and we must rely more heavily on our National Guard to meet that demand...my number one priority is readiness”

- GEN Mark A. Milley, 39th Chief of Staff, Army, NGAUS, 137th General Conference

A. Current Status of the Army National Guard

1. General Overview

The Army National Guard of the United States, consists of 343,000 Soldiers, is a Federal Reserve of the Army, and is a Domestic Response Force to the governors of the 54 States, Territories and the District of Columbia. The ARNG makes up about 35 percent of the Total Army and retains nearly 40 percent of the Army’s Operating Forces and 22 percent of its Generating Forces.

The ARNG is a proven member of the Total Army Force, providing critical capabilities to combatant commanders. Throughout FY 2017, the ARNG deployed Soldiers to 26 countries and supported 13 named military operations. The ARNG mobilized 15,236 Soldiers around the world in support of Title 10 operations, which include 6,711 Soldiers to Kuwait, 1,372 Soldiers to Afghanistan, and 328 Soldiers to Iraq among others. In all, seventeen battalion-sized and 138 company-sized organizations deployed as part of a Ready Operational Reserve to the Total Force in support of worldwide commitments.

Top ARNG Focus Areas

- Modernize ARNG Mission Command Systems in pace with the Army
- Modernize three least modern ARNG Armor Brigade Combat Teams (ABCT)
- Modernize the ARNG helicopter fleet in accordance with Aviation Restructure Initiative decisions and the National Commission on the Future of the Army
- Man, equip, train and deploy four Brigade Combat Teams (BCT) per year through Combat Training Center (CTC) rotations in support of Army Contingency Plans
- Support, sustain and execute the Army's Associated Units program with Ready ARNG forces
- Complete manning, equipping, and training of the ARNG's second Stryker Brigade Combat Team (SBCT) and execute CTC validation in fiscal year (FY) 2020
- Begin transitioning the ARNG's tactical wheeled vehicle fleet to the Joint Light Tactical Vehicle beginning in FY 2021

a. Status of the ARNG as an Operational Force

“We must program and plan for the right resources in order to provide our units with the right training, manning and equipping to meet our objectives. We must capitalize on the parity and interoperability that has been built over 15 years of war.”

- LTG Timothy J. Kadavy, 20th Director, Army National Guard, Vision and Strategy

As an Operational Force, the ARNG provides significant rotational capabilities to the combatant commands in support of ongoing military operations aimed at defeating our enemies, deterring our adversaries, and reassuring our allies. While the Army looks ahead at the next fight and assesses the capabilities of our near-peer competitors, we expect reliance on the ARNG to increase. In order to meet enhanced readiness posture equipment requirements and reduce post-

mobilization timelines, the ARNG is implementing initiatives to ensure interoperability with the Army and Joint forces through modernization that will also facilitate responsiveness to the governors for domestic missions. The ARNG will implement these initiatives in accordance with the Army’s SRM and focus its policies and prioritization of resources on high demand units affording them additional training days and CTC rotations. In this manner, the ARNG will be able to deliver two Armored or Stryker Brigades and up to four Armed Reconnaissance Battalions within 30–90 days of notification, sustain two Infantry Brigade Combat Teams, two Division Headquarters, and Army Priority Units at enhanced readiness postures. Simultaneously, the ARNG will execute support as part of the Army’s Associated Unit Pilot program and integrate ARNG units with AC units to enhance Total Army capabilities.

The Nation’s investment in an Operational ARNG further builds Army capacity at reduced cost. Less than 17 percent of the personnel serve full-time. The Director, ARNG’s priorities seek to maximize unit equipment readiness by modernizing combat platforms and updating mission command systems while responsibly stewarding our Nation’s resources. These priorities ultimately support the National Military Strategy, leverage capacity and capabilities of the Total Force, and optimize and align the ARNG to support the Department of Defense and the Army’s strategic priorities. Access to and availability of modernized equipment to maintain interoperability with the Total Force and our allies is key to the success of the Federal and state missions of the ARNG.

b. Defense Support of Civil Authorities and State Missions

ARNG support of civil authorities encompasses a myriad of mission sets ranging from asset protection, support to local law enforcement and natural disaster relief to border protection, counterdrug and numerous other missions; *see Table 2-1 FY17 Defense Support of Civil Authorities and State Missions.*

Table 2-1. FY 2017 Defense Support of Civil Authorities and State Missions

Event Type	Event Amount	Event Type	Event Amount
Key asset protection	3	Search and rescue	34
Law enforcement support	4	Water support	7
Winter storm response	13	Severe weather	7
Flood response	15	Tornado Response	4
Special event	5	Joint Operations Center support	1
Wild Fire	17	Southwest border support	3
Hurricane response	11	Counterdrug support	54
Medical support	2	Civil Support Team (WMD-CST) response	113

In 2010, DoD increased its domestic Chemical, Biological, Radiological, and Nuclear (CBRN) authorizations and policies by rebalancing the Federal and state military force contributions to the Nation’s response preparedness structure resulting in ten National Guard (NG) Homeland Response Forces (HRF) and seventeen CBRN Enhanced Response Force Posture (CERFP)

elements. The ARNG, along with Air National Guard (ANG) personnel, now comprise 55 percent of total force (10,535) personnel assigned to the entire DoD CBRN Response Enterprise.

When directed by the Secretary of Defense, coordinated by the Chief, National Guard Bureau (CNGB), and upon consent of the affected governors, the NG HRF and CERFP alert, assemble, and deploy to save lives and mitigate human suffering, and prepares for follow-on forces. The National Guard Bureau (NGB) will continue to reshape its ability to counter current and future natural or manmade Weapons of Mass Destruction (WMD) material threats and attacks resulting in cataclysmic events. In addition, the HRF and CERFP, along with Weapons of Mass Destruction-Civil Support Teams (WMD-CST), one per state and territory, provide crucial support to state and local civil authorities, while strengthening existing efforts with Federal interagency partners.

In order to be ready and available to respond to domestic emergencies, it is key the ARNG’s Essential-10 capabilities receive the most modern and available equipment. The Essential-10 consist of Aviation/Airlift, Command and Control (C2), Chemical, Biological, Radiological, Nuclear, and high-yield Explosives (CBRNE), Engineering, Medical, Communications, Transportation, Security, Logistics and Maintenance.

2. Status of Equipment

a. Equipment On-hand

Biannually the ARNG aggregates equipment at the national level to provide an overall percentage of authorized EOH. This aggregated analysis identifies equipment available for Domestic Operations along with Critical Dual Use (CDU) equipment required to meet ARNG Essential-10 domestic capabilities. The ARNG and Headquarters, Department of the Army (HQDA) G3/5/7 update the CDU list annually to reflect changes to force structure and units’ Modified Tables’ of Equipment (MTOE) from the previous year. The Director, ARNG submits recommendations for the CDU list to HQDA G3/5/7 for vetting and approval. As of June 2017, the ARNG’s authorized equipment EOH was 94 percent for MTOE and 89 percent for CDU equipment. Equipment available to the governors is currently 90 percent and 84 percent respectively as a result of unit deployments; *see Table 2-2, ARNG top CDU shortages in accordance with Essential-10 requirements to meet domestic missions.*

Table 2-2. Army National Guard Top CDU Shortages

Capability	Equipment Type	Shortage Value
Engineering	Excavator: Hydraulic (HYEX) Type I	\$30.8M
Engineering	Tractor Full Tracked High Speed (Deuce)	\$19.502M
Transportation	Semitrailer lowbed: 25T 4 Wheel W/E	\$111.186M
Transportation	Semitrailer flatbed: breakbulk/container transporter	\$132.159M

b. Average Age of Major Items of Equipment

The average age of ARNG equipment at the beginning of FY 2018 is provided in *Table 2, Average Age of Equipment*. An increase in manufacture and recapitalization programs through FY 2017 alleviated the historical issue associated with aging equipment. In the past, the ARNG received much of its equipment through cascades from the AC. This equipment was often already at or near the end of its planned service life for programmed replacements, and rebuilding efforts could not keep up with the needs of the ARNG. There is a direct correlation between procurement and depot maintenance budgets. If the current budget levels remain the same or decrease, the average age of the fleet will continue to increase. *Table 2-3* below provides a list of the top ARNG legacy equipment items that have surpassed their economic usefulness and exceeded their expected life cycle.

Table 2-3. Army National Guard Top Legacy Equipment

Nomenclature	Line Item Number	Average Age (years)	Economic Useful Life (years)
Semitrailer Low Bed: 25 Ton 4 Wheel W/E	S70517	48.6	20-25
Carrier 120 Millimeter Mortar: Self-propelled Armored	C10990	44.5	25-30
Launch M60 Series Tank Chassis Trnsptg:40 & 60 ft. Bridge	L43664	44.3	25-30
Recovery Vehicle Full Tracked: Medium M88A1	R50681	39.7	25-30
Tractor Full Tracked Low Speed: DSL Med DBP w/Winch	W76816	35.3	15-40

c. Compatibility of Current Equipment with AC

As an operational component, the ARNG serves with the AC across all theaters. As the Army transitions from the ARFORGEN process to the SRM, ARNG units will be fielded with the most capable equipment available to meet mission requirements, resulting in greater AC/RC compatibility. Currently, the ARNG’s primary compatibility focus is on communication platforms that are critical to interoperability.

d. Maintenance

A large percentage of ARNG maintenance facilities are over 50 years old, and do not meet current design requirements that enable a safe, environmentally-friendly workplace to execute the maintenance mission. Two-level maintenance coupled with more technologically complex and modernized equipment is increasing the need for specialized tools, lift and overhead requirements, and floor space. The current total Military Construction funding for the ARNG’s long range construction planning for surface equipment maintenance facilities is estimated at \$2.67B based on input from the Planning Resource for Infrastructure Development and Evaluation (PRIDE) database. Field-level maintenance is the first line of effort in sustaining ARNG equipment readiness as it transitions through the SRM and much of the equipment supports a dual-status mission for homeland security/defense and emergency operation missions. ARNG maintenance facilities must keep pace with an increased size and technologically advanced fleet of combat and support equipment.

The ARNG Surface Depot Maintenance Program is a strategic and often an operational component that supports ARNG fleet readiness. The ARNG Depot Program, through depot

overhaul and rebuild programs, sustains EOH readiness levels and enables critical combat and support equipment through life-cycle. ARNG depot sustainment activities maintain fleet reliability and reduce the excessive demand placed on Operating Tempo (OPTEMPO) spending. ARNG Depot Maintenance Program funding for FY 2017 was \$123.27M. This is 76.2 percent of the ARNG's critical requirement of \$161.85M for FY 2017. Funding levels that support ARNG critical requirements for FY 2018–FY 2023 are critical to sustaining the ARNG fleet as increased OPTEMPO places greater demand on ARNG equipment availability. Any decrease in the depot maintenance program funding will reduce operational readiness levels and impact the availability of combat and combat support systems to ARNG units conducting training, overseas deployments and Domestic Operations (DOMOPS).

The ARNG Field Level Home Station Reset Program is vital to restoring necessary combat power to support Sustainable Readiness Model timelines. In FY 2017 the ARNG Field Level Home Station Reset Program restored 102,700 pieces of critical unit equipment returning from overseas deployments and contingency operations. Maintenance performed on this equipment returned it to Technical Manual 10/20 standards within 365 days of returning to home station.

HQDA mandates that 100 percent of deployed equipment be identified for induction into the Sustainment Maintenance program prior to continental United States redeployment. The timely return of ARNG equipment post redeployment and Sustainment Maintenance to the units is critical to maintaining a high state of unit readiness in order to fulfill ARNG mission requirements.

e. Overall Equipment Readiness

The number one priority of the Army, Chief of Staff and the Director, ARNG is readiness. Transfers and withdrawals of equipment is crucial to improving unit readiness. Utilizing equipment already available across the Army and its Reserve Components enhances this effort and preserves funding and resources. This process also allows the National Guard to work with outside agencies such as the Army's Sustainment Command (ASC) and the Defense Logistics Agency to reduce excess equipment and strengthen unit readiness.

The ARNG continues to work with the Army to ensure deploying units receive the most modern equipment, and that unit utilization planning is prioritized in accordance with the ARNG Operational Demand Based Resourcing Priorities for equipping modernization guidance. The ARNG, working with the Army, places a high level of importance on deploying unit compatibility, interoperability, and modernization commensurate to AC units.

f. Other Equipment Specific Issues

As a result of increased MTOE unit equipment prioritizations and readiness demand requirements, ARNG Generating Force (GF), i.e., Table of Distribution and Allowances (TDA) units, receive fewer less modern equipment that result in decreased institutional support and affects overall ARNG training readiness efforts. Likewise, cross leveling of equipment to support priority units' further impacts resources available to GF units. Equipping ARNG GF units will continue to be a challenge to overall readiness.

Additionally, the ARNG continues to adhere to the current DoD Instruction (DoDI) 1225.06, *Equipping the Reserve Forces*. All transfers and replacements of equipment approved by the Secretary of Defense for transfer are tracked by ARNG along with HQDA, Army Materiel Command, and ASC personnel. The ARNG, in conjunction with the other agencies, continues to follow the replacement of requirements identified and approved by the Secretary of Defense from the 2003 to 2008 timeframe. For example, in 2017 the ARNG, working with the Army under DoDI 1225.06 transferred 73 pieces of equipment valued at \$833.5M. This agreement cost consisted primarily of helicopter transfers between federalized ARNG units and the Army for theater warfighting needs. Anticipated requests to support future urgent warfighter needs, either intra or inter component, will continue to be staffed and approved in accordance with DoDI 1225.06. Continued diligence by all stakeholders will preserve and maintain ARNG readiness and EOH levels, better positioning the Guard to fulfill both its homeland response and Federal missions.

B. Changes since last NGRER

The most significant change from the previous National Guard and Reserve Equipment Report (NGRER) reflects a shortfall reduction of approximately \$1.4B in rotary wing aircraft as a result of program changes resulting from the Aviation Restructure Initiative and application of National Commission on the Future of the Army recommendations in *Table 8 Significant Major Item Shortages*. This is due to the retention of 72 Apache AH-64D aircraft as a result of the National Commission on the Future of the Army recommendations and the subsequent turn-in of UH-60L Blackhawks and the turn-in of already programmed UH-60L Blackhawks to be replaced by UH-60M model Blackhawks. The resultant overall change for Blackhawk helicopters is 105 aircraft in the aggregate for FY 2018. Final stationing of the four Aerial Reconnaissance Battalions is still pending.

A significant reduction in Armored Capability shortages resulting from increased requirements versus equipment available occurred over the past year in combination with M2A3 Bradley Pure-fleeting Initiative and conversion of all ABCTs to the new three maneuver battalion MTOE design for increased lethality. The new design added an additional battalion, reorganized the mix of Abrams tanks and Bradley Fighting Vehicles, and added a company of (14) Abrams tanks to the Armored Reconnaissance Battalion. This conversion resulted in ten fewer authorized Bradleys per ABCT, and the M2A3 Pure-fleeting Initiative filled each of the ARNG's two modernized ABCTs with their full complement of M2A3s. As a result, there is no residual shortage of Bradley Fighting Vehicles this year. However, a shortage of one company of (14) M1A2 SEPv2 Abrams tanks persists in one of the ARNG's two modernized ABCTs. The ARNG currently has one fully modernized SEPv2 M1A2 Abrams tank/M2A3 Fighting Vehicle ABCT, one SEPv2/M2A3 ABCT short (14) SEPv2 tanks, and three ABCTs equipped with the Army's least modern M1A1 AIM-SA Abrams tanks and M2A2 ODS-SA Bradley Fighting Vehicles.

Compared with last year, current ABCT modernization plans now includes the M1A1 AIM-SA Abrams tank and M2A2 ODS-SA Bradley Fighting Vehicle variants that comprise 60 percent of the ARNG armored fleet, or three ABCTs. As part of the Army Chief of Staff's "*Least to Most*" ABCT Modernization Strategy, ARNG modernization will occur via the cascade of a complete conversion to fully modern digital armor force of the M1A2 SEPv2 Abrams tanks and M2A3 Bradleys from the Active Component. The timing and sequence of those cascades depends upon

the fielding of M1A2 SEPv3 Abrams and M2A4 Bradleys to the Active Component ABCTs, which is yet to be determined, but will not be before FY 2021. The ARNG's residual M1A2 SEPv2 shortage could be filled either through cascades or separately, using excess SEPv2 seed tanks from the initial SEPv3 production run.

The Warfighter Informational Network Increment 2 (WIN-T Inc. 2), provides On-The-Move (OTM) Mission Command capabilities from the Commanders to subordinate units. Currently there is a requirement for BCTs and Divisions to be fielded the WIN-T Inc. 2. The Army, Chief of Staff made the decision since the last report to cease fielding for the Total Army due to system reliability and procurement cost over time, is reinvesting the dollars in other equipment. In order to meet the OTM Mission Command requirement, the ARNG is currently scheduled to complete fielding of Joint Battle Command-Platform (JBC-P) and Joint Capabilities Release (JCR) by FY 2023. JBC-P and JCR in conjunction with WIN-T Inc. 1 b EOL, currently present in the ARNG, will provide OTM. The ARNG is currently scheduled to complete JBC-P and JCR fielding by FY 2023.

C. Future Years Program (FY 2019–FY 2021)

1. FY 2021 Equipment Requirements

Table 1 Consolidated Major Item Inventory and Requirements provides the projected FY 2019–FY 2021 major equipment inventories and requirements.

2. Anticipated New Equipment Procurements

The ARNG's first procurement and fielding of the new Joint Light Tactical Vehicle (JLTV) is currently scheduled for FY 2021. Current programmed quantities in FY 2019 to field a partial ARNG Infantry BCT (IBCT) set of 507 JLTVs will occur in FY 2021 at a total cost of \$170M pending no changes to funding. The remainder is programmed in FY 2020 for delivery in FY 2022 along with a second partial IBCT equipment set to be set aside for the ARNG's second IBCT fielding scheduled to occur in FY 2023. The total programmed quantities in FY 2020 is 887 JLTVs at a cost of \$340M and 507 more programmed in FY 2021 for FY 2023 delivery at a cost of \$170M. These programmed quantities will complete the first two IBCT JLTV unit sets in the ARNG. The ARNG will continue to modernize the High Mobility Multipurpose Wheeled Vehicle (HMMWV) Ambulances, Tube-Launched, Optically tracked, Wire-guided, Improved Target Acquisition System Weapons Carriers, and HMMWV Cargos to sustain the Light Tactical Vehicle (LTV) fleet in the interim as a critical command and control transportation asset during domestic operations.

3. Anticipated Transfers from AC to ARNG

Table 5 Projected Equipment Transfers/Withdrawal Quantities. Currently the only programmed transfer of equipment to the ARNG from the AC in the Army Sustainment Command Logistics Information Warehouse's Lead Materiel Integrator Distribution Support Tool is the Laser Target Locator Module (LTLM). The LTLM provides day and night capabilities that locate targets and transmit target data. The Army is scheduled to transfer a quantity of four to the ARNG out of a total requirement of 3,870 LTLMs. Due to contract disputes the ARNG did not receive any LTLM fielding in FY 2017 but is expected to receive a quantity in late FY 2018 or beyond.

4. Anticipated Withdrawals from ARNG Inventory

Table 5 Projected Equipment Transfers/Withdrawal Quantities. The ARNG will transfer 8,822 pieces of excess equipment to the Active Army, United States Army Reserve, or Army Prepositioned Stocks. The ARNG will turn in 238,177 pieces of equipment that have been declared obsolete, are being displaced by newer equipment, or the capability is no longer required in the force. Some major systems displaced by newer equipment include rifles and protective masks. Soldier System equipment is the most affected as the ARNG transitions from the M40/M42 protective mask to the M50/M51 and transition from the M16A2/A4 rifles to the M4A1 Carbine. Older generation trucks and communication equipment declared obsolete are being withdrawn from inventory. Removing older equipment from the ARNG’s inventory linked to timely new and documented equipment replacements is critical to keeping pace with modernization and resourcing.

5. Equipment Shortages and Modernization Shortfalls at the End of FY 2021

Table 8 Significant Major Items Shortages provide equipment inventories, shortfalls, and modernization requirements for the ARNG at the end of FY 2021 for wartime missions not currently funded in the Five Year Defense Plan(FYDP) and is consistent with other unfunded equipment data submitted by the Service.

a. Aviation Portfolio

The Army National Guard owns 43 percent of the total Army Aviation structure consisting of rotary-wing, fixed-wing, Unmanned Aircraft System (UAS) platforms and enablers for Aviation Ground Support Equipment (AGSE) and Air Traffic Control Systems (ATS).

Investment in New Procurement and Modernization: The current data reflects a snapshot of FY 2019–2021 requirements and funding levels. The Aviation Restructure Initiative recommendations allow the ARNG to retain four Attack Reconnaissance Battalions with a total of 72 AH-64 Apache Attack Helicopters and will require the migration of approximately 60 UH-60L Blackhawks back to the Army. ARNG UH-60A Blackhawk divestment is scheduled for FY 2024, with M-model Blackhawk buyout forecast for the late 2020s. One System Remote Video Terminal (OSRVT) fielding is expected to continue through 2nd Quarter FY 2018 and Shadow V2 upgrades will conclude in FY 2019; *see Table 2-4 for current ARNG modernization shortfalls.*

Table 2-4. Army National Guard Top Aviation Modernization Shortfalls

Nomenclature	Line Item Number	Procurement Unit Cost (PUC)	Total PUC Cost
UH-60 Ext. Stores Subsystem (ESSS)	E21985	\$676.1K	\$486.8M
Warn Radar Sys Counterterm: AN/AAR-57	W62187	\$452K	\$312.8M
Detecting Set, Laser AN/AVR-2B (V)1	L60482	\$108.3K	\$97.3M

b. Maneuver Portfolio

The Army National Guard provides 30 percent of the Armored and 20 percent of the Stryker Brigade Combat Team (ABCT and SBCT) capabilities for the Army. The fleet of combat

vehicles in the portfolio consists of Abrams tanks, Bradley and Stryker Infantry Fighting Vehicles, HERCULES recovery vehicles, and the M113 armored personnel carrier family of vehicles.

Investment in New Procurement and Modernization: Two paths will improve the interoperability and modernization levels of ARNG combat vehicles in FY 2018 through FY 2022 and beyond. First, network upgrades will be applied to all ARNG Abrams tanks and Bradley Fighting Vehicles between FY 2018 and FY 2022. These upgrades include the most modern friendly force tracking and battle command systems, which will improve situational awareness and better enable integration of ARNG and AC formations. Second, the Army, Chief of Staff’s “Least to Most” Modernization Strategy will raise the modernization level of ARNG ABCTs through cascades of more modern Abrams and Bradleys from the AC, moving the remainder of the ARNG’s ABCTs from analog to digitized platforms. Currently three of the ARNG’s five ABCTs have less modern Abrams and Bradleys. Cascades are not expected before FY 2021, but could potentially begin within FY 2019 through FY 2023. The shortfall of fourteen Abrams tanks listed in the *Table 2-5* below reflects one company that is authorized M1A2 SEPv2 Abrams tanks, but is currently filled with M1A1 AIM-SA Abrams tanks.

Table 2-5. Army National Guard Top Maneuver Modernization Shortfalls

Nomenclature	Line Item Number	Procurement Unit Cost (PUC)	Total PUC Cost
Tank Combat Full Tracked 120mm M1A2	T13305	\$7.6M	\$106.4M

c. Soldier Portfolio

The Soldier Portfolio comprises (or consist of) individual/crew-served weapons, thermal weapons sights, night vision, Improved Target Acquisition Systems (ITAS), Common Remotely Operated Weapon Stations (CROWS), mortars, and other weapon support items. The portfolio fundamentally supports maintaining the ARNG as an operational force.

Investment in New Procurement and Modernization: Key accomplishments projected for this period include pure-fleeting the Thermal Weapons Sights family, which is scheduled for completion in FY 2019. Also, HQDA has prioritized the modernization and procurement of Enhanced Night Vision Goggles (ENVG), the newest and most modern night vision goggle. HQDA will be fielding new ENVGs beginning in late FY 2018. Crew-served weapons, specifically the Multi-Role Anti-Armor/Anti-Personnel Weapon System (MAAWS) is a critical capability for dismounted Soldiers against armor and hardened structures. The ARNG has a current planned shortfall of 620 MAAWs that is not scheduled to be met until FY 2025 or possibly after. However, only 416 requirements are documented so far, and mostly in Special Operations Detachments and some Light Infantry Battalions, but not all; planning intent is that all IBCTs be fielded MAAWS. Additionally documentation is not keeping pace with planning and equipping efforts. Until this problem is mitigated, the ARNG will continue to experience issues in procurement turbulence and shortfalls with MAAWs as well as other key equipping areas; *see Table 2-6.*

Table 2-6. Army National Guard Top Soldier Modernization Shortfalls

Nomenclature	Line Item Number	Procurement Unit Cost (PUC)	Total PUC Cost
84mm Recoilless Rifle M3, MAAWS	R45101	\$16.6K	\$10.3M

d. Air and Missile Defense (AMD) Portfolio

The Army National Guard provides 78 percent of the Army’s Short Range Air Defense (SHORAD) structure. The portfolio consists of 7 Avenger Battalions, 3 Air Defense Brigades, 1 Army Air and Missile Command, 1 Air Defense Regional Training Institute, and 72 Air and Missile Airspace Management systems.

Investment in New Procurement and Modernization: The ARNG Air and Missile Defense modernization path is currently funded FY 2022. Modernization of the current Avenger and C2 systems are scheduled to begin with fielding of Integrated Air and Missile Integrated Battle Command System (IAMD IBCS) and Indirect Fire Protection Capability Block 1 & 2 (IFPC-2) in FY 2024. Additionally, extensive obsolescence mitigation and modification upgrades are planned for some major line items in Avenger and Air Defense and Airspace Management (ADAM) C2 systems to maintain operational readiness.

e. Indirect Fires Portfolio

The Indirect Fires portfolio in the ARNG supports all BCTs and accounts for 70 percent of the Army’s Field Artillery Echelons above Brigades (EAB) force structure. The Indirect Fires portfolio consists of Field Artillery platforms, munitions, sensors and command and control systems. Major items include: M119A3 and M777A2 Howitzers, Paladins, Multiple Launch Rocket System (MLRS), High Mobility Artillery Rocket System (HIMARS), Q-50 Lightweight Counter Mortar Radar, and Q-53 Counter Fire Target Acquisition Radar.

Investment in New Procurement and Modernization: Currently the Indirect Fires platforms will achieve modernization goals (objectives) to meet the ARNG’s 2020 strategy by FY 2018. This will be met with the completion of M777A2 and M119A3 fielding. The portfolio will also support the EAB redesign growth of the Paladin to the 3x6 design formation by FY 2022. The ARNG began fielding Q-53 Counter Fire Target Acquisition Radar in FY 2016 to replace the legacy Q-36 and Q-37 Firefinder radars. If no other competing demands exist across the Army, the ARNG will require only one additional Q53 Radar to meet its full documented requirement by FY 2022; *see Table 2-7*. Beginning in FY 2019, the portfolio’s next major investment is the Paladin Integrated Management (PIM). Current program estimates indicate this system will be fielded to one ABCT per year.

Table 2-7. Army National Guard Top Indirect Fires Modernization Shortfalls

Nomenclature	Line Item Number	Procurement Unit Cost (PUC)	Total PUC Cost
Counter Fire Target Acquisition Radar Q53	R05016	\$13.1M	\$13.1M

f. Mission Command Portfolio

ARNG Infantry BCTs lag at least a generation behind the most modern mission command systems in Army Infantry BCTs for on-the-move capability. As a result, communication compatibilities and interoperability gaps exist. Since the Army discontinued the WIN-T program, JBC-P is the only Mission Command System that provides the on-the-move functionality to close existing capability gaps in command post structure and vehicles. 80 percent of ARNG units currently utilizes the legacy JCR vehicle-based systems and Control Station which will lose Authority to Operate (ATO) in FY 2018. JBC-P will replace the JCR Control Station and Vehicle Mounted system. JBC-P is currently being fielded to the ARNG but will not be complete until FY 2022-2023.

Investment in New Procurement and Modernization: Resource prioritization for Mission Command systems targets brigade-sized units for modernization and fielding for on-the-move capability. However, the current resourcing and prioritization does not adequately field the total force, and specifically those echelons above brigade company size enabling units within the five year acquisition life cycle. *See Table 2-8.*

Table 2-8. Army National Guard Top Mission Command Modernization Shortfalls

Nomenclature	Line Item Number	Procurement Unit Cost (PUC)	Total PUC Cost
JBC-P LOG (Control Station)*	C05054	\$19.9K	\$22.6M
JBC-P LOG (Vehicle Mounted)*	C05055	\$16.6K	\$104.2M
JBC-P (Command Post)*	C05037	\$16K	\$24.2M
JBC-P (Mounted)*	C05036	\$15.6K	\$358.2M

* Critical Dual Use Equipment

g. Nuclear, Biological, and Chemical (NBC) Force Protection Portfolio

The NBC and Force Protection Portfolios consist of weapon systems that prevent or mitigate hostile actions against Army personnel, resources, facilities, and critical information. The NBC major capabilities include contamination avoidance, collective protection and consequence management. Force Protection systems such as Integrated Base Defense, Explosive Ordnance Disposal and Military Information Operation protect Soldiers from asymmetrical and unconventional mass destruction terrorist attacks. Both NBC and Force Protection weapon systems provide domestic operation capabilities against man-made disasters.

Investment in New Procurement and Modernization: Army NBC Force Protection investments are centered on emerging technologies in Contamination Avoidance, Explosive Ordnance, Forensic Protective Systems, and Individual Protection. The ARNG will achieve over 90 percent fill for Transportable Robotics, Radiac Sets, and M41 Protective Masks by FY 2020. *Table 2-9* provides the ARNG’s top modernization shortfalls for NBC and Force Protection. The ARNG has a modernization requirement for 12 NBC Reconnaissance Vehicle (NBCRV) Stryker variant vehicles; however Army shortages in NBCRVs remain in the Total Army and no way ahead for fielding them has been determined.

Table 2-9. Army National Guard Top NBC Force Protection Modernization Shortfalls

Nomenclature	Line Item Number	Procurement Unit Cost (PUC)	Total PUC Cost
Chemical Biological Protective Shelter (CBPS Electric)	Z01533	\$838K	\$76.3M
NBC Reconnaissance Vehicle (NBCRV)*	N96543	\$4.5M	\$54M

* Critical Dual Use Equipment

h. Intelligence and Electronic Warfare (IEW) Portfolio

The IEW Portfolio consists of systems to support military intelligence and electronic warfare activities. The ARNG has a capability shortfall for the Prophet Spiral 1 ground-based tactical signals intelligence/electronic warfare system.

Investment in New Procurement and Modernization: The Prophet is a 24-hour, all weather, near-real-time, ground-based, and tactical signals intelligence/electronic warfare capability organic to the BCT and Expeditionary Military Intelligence brigades. Each Prophet system includes one Control Vehicle and 2 or 3 Sensors depending on the unit type. The Prophet equipment shortfall is due to unapproved funding for Prophet fielding teams, delayed Prophet Sensor availability and retrofit schedule, and delayed Continental United States (CONUS) fielding schedule due to theater priorities. These systems are critical for maintaining and developing the highly-perishable signals intelligence (SIGINT) skills associated with the 35N (SIGINT Analyst) and 35P (Crypto logic Linguist) occupational specialties.

Table 2-10. Army National Guard Top IEW Modernization Shortfalls

Nomenclature	Line Item Number	Procurement Unit Cost (PUC)	Total PUC Cost
Data Analysis Center: AN/MSW-24	D77801	\$318,000	\$8.6M
Detecting System Countermeasures: AN/MLQ-40	D04182	\$887,000	\$77.2M

i. Engineering and Mobility Portfolio

The ARNG Engineering and Mobility Portfolio provides a versatile mix of capabilities, which includes armored engineer vehicles, bridge support systems, construction, counter explosive hazard vehicles, engineer command and control, and mines and munition area denial systems. Army National Guard currently owns 74 percent of the total Army Engineer force structure and enabling Engineer formations to provide support throughout the range of military operations to include homeland response and domestic support of civil authorities.

Investment in New Procurement and Modernization: In FY 2018, the Army’s base budget procurement funding (\$141M) accounts for 23 percent of the total Mobility Portfolio investments of (\$606M). FY 2019–FY 2021 base budget funding (\$440M) primarily reflects investments in modernization of Armored Engineer Vehicles, Construction Earthmoving, Construction Tools and Modifications, Bridge Support Systems, Counter Explosive Hazard Vehicles and Enablers to target the modernization shortfalls below; *see Table 2-11.*

Table 2-11. Army National Guard Top Engineering & Mobility Modernization Shortfalls

Nomenclature	Line Item Number	Procurement Unit Cost (PUC)	Total PUC Cost
Assault Breacher Vehicle: (ABV)	A05001	\$5.1M	\$61.5M
Transporter Common Bridge M1977A4	T05067	\$400K	\$107.2M
Excavator: Hydraulic Type I (HYEX)	E27792	\$350K	\$30.8M
Medium Mine Protective Vehicle Type II	M05044	\$1.05M	\$2.1M
Medium Mine Protective Vehicle Type I	M74226	\$905K	\$36.2M

j. Combat Service Support (CSS) Sustainment Portfolio

This portfolio is comprised of maintenance, medical, quartermaster, and munitions capabilities that are, in many cases, essential to both the National Guard’s wartime mission and domestic operations. The Load Handling System Compatible Water Tank Rack (HIPPO) and Modular Fuel System Tank Rack Module (MFS-TRM) offer increased fuel and water capability and capacity while simultaneously decreasing personnel requirements. The Assault Kitchen (AK) is a trailer-mounted or ground-based field feeding kitchen used for the rapid delivery and feeding of hot meals on the move for up to 250 personnel. The Maintenance Support Device is used for troubleshooting, diagnostic testing, and hosting Interactive Electronic Technical Manuals (IETMs).

Investment in New Procurement and Modernization: The ARNG is expected to receive less than 40 percent of its HIPPO & MFS-TRM requirement collectively through FY 2023. Similarly, the Maintenance Support Device will only be filled to 68 percent of its requirement, severely hindering maintenance capabilities throughout the ARNG. With the termination of the Assault Kitchen in FY 2020, the ARNG will have a 20 percent shortfall in this critical field feeding kitchen line identification number at the conclusion of the program. The Sustainment Portfolio is one of the most diverse portfolios as it provides critical support to both combat and domestic missions. National Guard and Reserve Equipment Appropriation (NGREA) investments in these systems have significantly improved the ARNG’s EOH status. *Table 2-12* highlights future investment costs necessary to meet these sustainment capabilities.

Table 2-12. Army National Guard Top Sustainment Modernization Shortfalls

Nomenclature	Line Item Number	Procurement Unit Cost (PUC)	Total PUC Cost
Load Handling System Compatible Water Tank Rack (HIPPO)	T32629	\$131.9K	\$104.5M
Modular Fuel System, Tank Rack Module (MFS-TRM)	T20131	\$55K	\$52.0M
Assault Kitchen (AK)	A94943	\$51.4K	\$21.2M
Maintenance Support Device (MSD)	T92889	\$16K	\$65.6M

k. Combat Service Support Transportation Portfolio

The ARNG Tactical Wheeled Vehicle (TWV) fleet is composed of multiple vehicle types and variants to achieve the full spectrum of combat missions, homeland defense (HD), and defense support of civil authorities (DSCA) operations. TWV capabilities are essential to the Army’s mission and reside in almost every formation within the ARNG. The TWV fleet includes Light, Medium, and Heavy Tactical Vehicles with associated trailers, as well as the Mine Resistant Ambush Protected (MRAP) family of vehicles.

Investment in New Procurement and Modernization: The ARNG received funding over the last five years through NGREA and congressional funding to improve and modernize transportation capabilities through new procurement and recapitalization of Light and Heavy Tactical Vehicles. The Army and the ARNG have significant 34-ton and 25-ton Semitrailer shortages and current procurement is not enough to mitigate the capabilities and health of trailer shortfalls; *see Table 2-13.*

Table 2-13. Army National Guard Top Transportation Modernization Shortfalls

Nomenclature	Line Item Number	Procurement Unit Cost (PUC)	Total PUC Cost
Semitrailer 34ton	S70159	\$70.8K	\$132.2M

6. Other, Funding for New and Displaced Equipment Training and NGREA

New Equipment Training (NET) and Displaced Equipment Training (DET) funding is based on new equipment quantities scheduled for fielding in any given year. In FY 2017 the ARNG received \$22.6M for NET/DET training events and activities amounting to only a slight increase over the previous year, and less than half the full requirement. Limited training resources in support of equipping efforts will continue to significantly impact unit readiness and result in the states and territories utilizing other funds to support NET/DET. For example, in order to convert the 81st SBCT (comprising three states) in FY 2017, the ARNG had to prioritize funding support to the 81st at the detriment of the remaining states and territories for validated NET/DET requirements. In order for the remaining states to conduct NET/DET activities, some states had to use other training accounts in order to complete fieldings with NET. Though the states report execution of other training resources to the ARNG, ultimately this impacts readiness overall.

The ARNG uses NGREA funding to mitigate key readiness shortfalls in equipment and modernization efforts and is thankful for Congress’ continued support. The ARNG obligated 99.9 percent of \$415M for FY 2015 NGREA, and already committed 80.2 percent of FY 2016 NGREA. The FY 2017 NGREA request will fund more than \$181M in aviation; communications, cyber, domestic operations, intelligence, maintenance, security, and engineering systems in support of HD and DSCA missions. The ARNG also invested \$66.5M of FY 2017 NGREA funding for the procurement of simulators and training systems to support both individual and collective training. These purchases support the ARNG’s priority funding areas outside of the normal base budget, and continue to impress Congress’ commitment to maintain a fully modernized and ready ARNG.

D. Summary

The ARNG is partnering with the Army in over 2,600 communities across the United States, its territories and the District of Columbia to provide a robust military presence and domestic response capability. The ARNG is no longer the strategic reserve of the past, but rather an operational force that supports the full spectrum of domestic and global demands. Since 11 September, 2001, the ARNG has operated outside the “one weekend a month” framework, and as a result our Soldiers and units are now an operational force capable of conducting unified land operations at home and overseas as part of the Total Army. As demands increase, the ARNG will require continued and sustained Congressional support for funding and modernization to ensure timely delivery of equipment necessary to build and retain readiness.

Consolidated Major Item Inventory and Requirements

NOTE: This table provides a comprehensive list of selected major equipment items. It provides the projected inventory quantity on-hand (QTY O/H) at the beginning/end of the selected fiscal year (FY). It also provides the quantity required (QTY REQ) to meet the full wartime requirements of the Reserve Component. In accordance with Title 10, the QTY REQ number provides the recommendation as to the quantity and type of equipment that should be in the inventory of each Reserve Component. FY 2018 unit cost estimates are provided by the Military Departments.

Nomenclature ¹	Equip No.	Unit Cost	Begin FY 2019 QTY O/H	Begin FY 2020 QTY O/H	Begin FY 2021 QTY O/H	End FY 2021 QTY O/H	End FY 2021 QTY REQ
Air Defense							
Fire Unit Vehicle-mounted: Avenger	F57713	\$1,090,277	277	277	277	277	252
Radar Set Enhanced: AN/MPQ-64A3(V)1	R05014	\$4,176,000	74	74	74	74	72
Radio Set: AN/USQ-140(V)2(C)	R42399	\$376,000	77	77	77	77	93
Aircraft							
Airplane Cargo Transport: C-12F	A30062	\$3,068,422	28	28	28	28	48
Airplane Cargo-Transport: C-26	A46758	\$800,000	9	9	9	9	0
CH-47F Improved Cargo Helicopter*	C15172	\$34,035,255	156	156	156	156	156
Helicopter Light Utility (LUH) UH-72A*	H31329	\$1,544,090	209	209	209	209	192
Helicopter Utility: UH-60A*	K32293	\$16,967,644	206	206	206	206	225
Helicopter Utility: UH-60L*	H32361	\$16,967,644	438	438	438	438	446
Helicopter Utility: UH-60M*	H32429	\$25,812,583	143	143	143	143	208
Helicopter Attack: AH-64D	H48918	n/d	59	59	59	59	96
MEDEVAC Helicopter: HH-60M*	M33458	\$16,967,644	66	66	66	66	90
Terminal Video Multifunctional Remote UAS: AN/USQ-210	T81951	\$80,000	979	979	979	979	1,150
Unmanned Aerial Vehicle (UAV): (TUAV-SHADOW)	U05001	\$1,349,691	52	52	52	52	96
Unmanned Aircraft: RQ-7BV2	U05012	\$738,194	48	48	48	48	16
Aviation							
Air Traffic Control Central: AN/TSW-7A*	A27624	\$5,789,000	11	11	11	11	2
Command System: Tactical AN/TSQ-221*	C61597	\$3,000,000	21	21	21	21	24
Computer System: Digital	C18391	\$47,918	915	915	915	915	915
Maintenance Platform: Hyd Adj to 10ft H 44 1/2 in W	M02470	\$1,916	168	168	168	168	0
Mobile Tower System (MOTS)	M05009	\$7,770,313	4	4	4	4	14
Radar Set: AN/TPN31*	R17126	\$3,701,502	16	16	16	16	16
Test Stand Engine: Semitrailer-mtd Acft Diagnostics Flex Eng	T00229	\$1,900,000	4	4	4	4	4
Tester: Pitot and Static Systems TS-4463/P*	T03597	\$31,763	218	218	218	218	171
Tool Kit Aircraft Maintenance: MOS 68J/68M Basic	W59034	\$1,620	360	360	360	360	176
Tool Set Aviation Unit Maintenance: Set No 2 Airmobile*	W60206	\$575,000	51	51	51	51	43
UH-60 Kit Aeromedical Evacuation*	K40878	\$130,839	215	215	215	215	225
Battle Command and Control (C2)							
Computer Set: Digital (JBC-P) AN/UYK-128B(V)3	C05036	\$16,275	964	964	964	964	2,992
Computer Set: Digital (JBC-P LOG) AN/UYQ-90B(V)4	C05055	\$16,676	12	12	12	12	1,191
Computer Set: Digital (JBC-P LOG) AN/UYQ-90B(V)5	C05054	\$16,875	28	28	28	28	298
Computer Set: Digital (JBC-P) AN/GYK-62G	C05037	\$16,000	0	0	0	0	108
Computer System: Digital*	C27963	\$19,737	6,231	6,231	6,231	6,231	5,266
Distribution System Elec: 120/208V 3PH 40AMP*	F55485	\$8,850	1,048	1,048	1,048	1,048	1,291
Distribution System Elec: 120V 1PH 60AMP*	F55553	\$10,123	2,093	2,093	2,093	2,093	2,178

Consolidated Major Item Inventory and Requirements

Nomenclature ¹	Equip No.	Unit Cost	Begin FY 2019 QTY O/H	Begin FY 2020 QTY O/H	Begin FY 2021 QTY O/H	End FY 2021 QTY O/H	End FY 2021 QTY REQ
Feeder System Electrical: 3PH 100 AMP	F55621	\$12,885	458	458	458	458	466
Feeder System Electrical: 3PH 200 AMP	F55689	\$17,280	95	95	95	95	105
Generator Set: DED 60kW 400Hz Skid-mtd	G62960	\$34,578	4	4	4	4	9
Generator Set: DED TM 10kW 60Hz*	G42170	\$19,177	1,302	1,302	1,302	1,302	23
Generator Set: DED TM 5kW 60Hz*	G42238	\$25,135	1,093	1,093	1,093	1,093	470
Generator Set: DED 5kW 50/60Hz Skid-mtd*	G42488	\$19,177	238	238	238	238	1,544
Generator Set: DED 10kW 400Hz Skid-mtd*	G74779	\$25,533	88	88	88	88	68
Generator Set: DED 10kW 60Hz Skid-mtd*	G74711	\$25,533	1,883	1,883	1,883	1,883	23
Generator Set: DED 15kW 50/60Hz Skid-mtd*	G12170	\$23,724	217	217	217	217	17
Generator Set: DED 30kW 50/60Hz Skid-mtd*	G74575	\$29,340	89	89	89	89	28
Generator Set: DED 5kW 60Hz Skid-mtd*	G11966	\$19,177	1,907	1,907	1,907	1,907	450
Generator Set: DED 15kW 60Hz 3Ph AC 120/208 240/416V Skd Tac Util	J35835	\$23,724	1	1	1	1	6
Generator Set: DED 10kW 400Hz Skid-mtd	G75018	\$25,533	72	72	72	72	35
Generator Set: DED 30kW 50/60Hz Skid-mtd	G75200	\$29,340	4	4	4	4	68
Generator Set: DED 15kW 50/60Hz Skid-mtd*	G49966	\$23,724	39	39	39	39	404
Generator Set: DED 10kW 50/60Hz Skid-mtd*	G07461	\$25,533	426	426	426	426	1,882
Generator Set: DED 10kW 400Hz mtd on M116A2 PU-799*	G53403	\$33,519	14	14	14	14	0
Generator Set: DED TM PU-802*	G53778	\$32,187	988	988	988	988	0
Generator Set: DED Trailer-mtd (TM) PU-803*	G35851	\$41,800	296	296	296	296	0
Generator Set: DED TM 60kW 400Hz PU-806 Chassis	G17460	\$43,751	3	3	3	3	0
Generator Set: DED TM 60kW 50/60Hz PU-805 Chassis*	G78306	\$47,007	207	207	207	207	0
LTT Trailer-mtd: PP-3001 5 kW 50/60 Hz	L27002	\$19,177	3	3	3	3	14
LTT Trailer-mtd: PU-2001 5 kW 50/60 Hz	L26934	\$25,135	388	388	388	388	803
LTT Trailer-mtd: PU-2002 10 kW 50/60 Hz	L84622	\$19,177	461	461	461	461	1,643
LTT Trailer-mtd: PU-2012 10kW 400Hz	L84758	\$45,443	14	14	14	14	28
Navigation Set: Satellite Signals AN/GSN-13	N96180	\$67,088	6	6	6	6	28
Nett Warrior System	N05004	\$12,457	88	88	88	88	379
Power Plant: Electric DED TM 5kW 60Hz AN/MJQ-35*	P28083	\$19,177	48	48	48	48	2
Power Plant: Diesel TM 10kW 60Hz AN/NJQ-37*	P42262	\$53,929	122	122	122	122	58
Power Plant: Electric TM 30kW 50/60Hz AN/MJQ-40*	P42126	\$47,007	71	71	71	71	18
Power Plant: Electric TM 60kW 50/60Hz AN/MJQ-41*	P42194	\$47,007	44	44	44	44	21
Trailer-mtd: PP-3102 10kW 50/60Hz M200A1	T39849	\$72,145	57	57	57	57	86
Trailer-mtd: PP-3105 30kW 50/60Hz 2M200A1	T39917	\$47,007	29	29	29	29	70
Trailer-mtd: PP-3106 60kW 50/60Hz 2M200A1	T93232	\$47,007	57	57	57	57	83
Trailer-mtd: PU-2101 15kW 50/60Hz M200A1	T40090	\$44,157	359	359	359	359	1,248
Trailer-mtd: PU-2102 30kW 50/60Hz M200A1	T39954	\$41,800	122	122	122	122	451
Trailer-mtd: PU-2103 60kW 50/60Hz M200A1	T60034	\$47,007	1	1	1	1	239
Trailer-mtd: PU-2113 60kW 400Hz M200A1	T93368	\$43,751	2	2	2	2	15
Utility Receptacle*	U89185	\$5,457	3,124	3,124	3,124	3,124	3,073
Battle Command Transport Networks							
Accessory Kit and Electronic Equipment: MK-3090/V	A05012	\$269,019	0	0	0	0	79
Central Communications: AN/MSC-82	C05022	\$3,100,000	0	0	0	0	70

Consolidated Major Item Inventory and Requirements

Nomenclature ¹	Equip No.	Unit Cost	Begin FY 2019 QTY O/H	Begin FY 2020 QTY O/H	Begin FY 2021 QTY O/H	End FY 2021 QTY O/H	End FY 2021 QTY REQ
Communication System: AN/MRC-150	C05023	\$1,850,000	0	0	0	0	73
Repeater Set Radio: AN/TRC-219	R05004	\$1,066,695	0	0	0	0	13
Satellite Communication Subsystem: AN/TSC-185(V)3	S05013	\$734,226	0	0	0	0	70
Switching Group Digital Data: OB-123/T	S05014	\$212,843	0	0	0	0	14
Battlespace Awareness							
Central Communications: AN/TSQ-226(V)1	C43263	\$635,000	8	8	8	8	8
Central Communications: AN/TSQ-226(V)3*	C43399	\$139,750	44	44	44	44	44
Central Communications: AN/TSQ226(V)2	C43331	\$2,056,822	2	2	2	2	4
Computer System: Digital AN/PYQ-3	C18312	\$32,900	238	238	238	238	250
Computer System: Digital AN/PYQ-8	C77823	\$11,900	273	273	273	273	250
Detecting System Countermeasures: AN/MLQ-40(V)4	D04182	\$1,997,000	52	52	52	52	94
Ground Station Tactical Intelligence: AN/TSQ-179*	T37036	\$4,644,000	25	25	25	25	38
Processing Center Intelligence Version 2: AN/TYQ-103(V)*	C18176	\$1,200,000	22	18	18	18	38
Server Intelligence Fusion: AN/TYQ-94(V)2*	A35397	\$56,000	406	406	406	406	406
Workstation Geospatial Intelligence: AN/TYQ-71(V)*	D11498	\$443,968	131	131	131	131	130
Workstation Portable Multifunction: AN/TYQ-93(V)*	A35329	\$4,000	2,489	2,486	2,486	2,486	2,083
Battalion Command Post (Switching Group): OM-XXX*	B67234	\$250,000	531	531	531	531	500
Central Office Telephone Automatic: AN/TTC-XXX	C18291	\$156,510,000	6	6	6	6	8
Central Office: Telephone Automatic	C20617	\$4,081,375	16	16	16	16	16
Communication System: Tactical Terminal Control System (TTCS)*	C59125	\$998,000	27	27	27	27	28
Computer Set General: AN/GKY-33E	C18297	\$18,000	206	206	206	206	465
Computer System Digital: AN/PYQ-10(C)*	C05002	\$2,000	44,656	44,656	44,656	44,656	74,270
Encryption-Decryption Equipment: KG-250X	E05011	\$8,900	300	300	300	300	1,438
Encryption-Decryption Equipment: KG-175D	E05004	\$23,457	2,462	2,462	2,462	2,462	2,041
Joint Node Network (JNN) Central Ofc Telephone Auto: AN/TTC*	J05001	\$2,472,271	153	153	153	153	135
Receiver Suite: AN/TSR-8*	R30658	\$175,090	220	220	220	220	351
Satellite Communication System: AN/TSC-156*	S23268	\$4,000,000	36	36	36	36	48
Terminal: Satellite Communication AN/TSC-154	T81733	\$4,411,733	77	77	77	77	109
Combat Mobility							
Anti-Personnel Mine Clearing System: Remote Control (M160)	A05002	\$2,141,791	1	1	1	1	25
Assault Breacher Vehicle (ABV)	A05001	\$4,659,500	15	15	15	15	21
Boat Bridge Erection Inboard Engine: Shallow Draft*	B25476	\$224,258	130	130	130	130	126
Bridge Armor Vehicle Launch Scissor TY: CL 60 Alum 60ft	C20414	\$87,742	29	29	29	29	16
Bridge Armored Vehicle Launched Scissors TY: 63 ft (AVLB) MLC 70*	B31098	\$7,645,450	58	58	58	58	64
Bridge Fixed: Rapidly	B24592	\$1,302,000	7	7	7	7	8
Detecting Set Mine: Portable Metallic (AN/PSS-11)	G02341	\$24,641	2,774	2,774	2,774	2,774	12
Detecting Set: Mine AN/PSS-14	D03932	\$24,641	3,574	3,574	3,574	3,574	8,263
Detecting Set: Mine AN/PSS-14C	D05016	\$14,000	0	0	0	0	8
High Mobility Engineer Excavator (Hmee): Type I*	H53576	\$405,500	291	291	291	291	489
Instrument Set Reconnaissance and Surveying: AN/TKQ-5	D17191	\$97,291	623	623	623	623	1,230
Launch M60 Series Tank Chass Trnsptg: 40 and 60 ft Bridge TY CL60*	L43664	\$4,641,558	87	87	87	87	80

Consolidated Major Item Inventory and Requirements

Nomenclature ¹	Equip No.	Unit Cost	Begin FY 2019 QTY O/H	Begin FY 2020 QTY O/H	Begin FY 2021 QTY O/H	End FY 2021 QTY O/H	End FY 2021 QTY REQ
Loader Scoop Type: 2.5 Cubic Yard*	L76897	\$150,000	126	126	126	126	109
Loader Scoop Type: DSL 2-1/2cu yd Hinge Frme w/Multi Purp Bucket*	L76556	\$141,500	257	257	257	257	41
Mine Protected Clearance Vehicle	M05004	\$1,451,707	58	58	58	58	76
Mine Resistant Vehicle	M74226	\$540,000	27	27	27	27	63
SOF Demolition Kit: M303	S93791	\$31,671	110	110	110	110	148
Supplementary Set Bridge	U60216	\$90,852	8	8	8	8	20
Tool Kit: Urban Ops	T30195	\$55,240	446	446	446	446	811
Tractor Wheeled: DSL 4X4 W/Excavator and Front Loader*	T34437	\$328,201	41	41	41	41	35
Tractor Wheeled: Industrial*	T34505	\$328,201	205	205	205	205	179
Transporter Common Bridge*	T91308	\$302,274	621	621	621	621	568
Urban Operations: Platoon Kit	U88092	\$100,155	254	254	254	254	525
Vehicle Mounted Mine Detection (VMMD) System	V05001	\$2,828,522	126	126	126	126	152
Vehicle Optics Sensor System (VOSS)	V05007	\$623,333	6	6	6	6	14
Field Logistics							
Armament Repair Shop Set (ARSS)	A05031	\$420,000	24	24	24	24	92
Assault Kitchen (Ak)	A94943	\$57,963	473	473	473	473	941
Calibration Set Secondary Transfer: Standards	C72574	\$713,335	9	9	9	9	12
Fire Suppression Refill System (FSRS)	Z05273	\$269,000	0	0	0	0	36
Forward Area Water Point Supply System: (FAW SS)*	F42612	\$151,958	237	237	237	237	45
Hydraulic Sys Test and Repair Unit (Mx3):	H05002	\$86,547	222	222	222	222	259
Kitchen: Company Level Field Feeding	K28601	\$57,963	193	193	193	193	36
Light Capability Rough Terrain Forklift (LCRTF): 5K*	L05010	\$104,181	463	463	463	463	614
Load Handling Sys (LHS): 2000 Gal Comp Water Tank-Rack (Hippo)*	T32629	\$151,958	471	471	471	471	1,328
Machinist's Measuring Tool Set (MMTS)	M20190	\$1,149	509	509	509	509	998
Maintenance Support Device:*	T92889	\$14,376	10,158	10,158	10,158	10,158	14,027
Metal Working and Machining Shop Set (MWMSS): Type 1	Z05057	\$596,083	0	0	0	0	56
Metal Working and Machining Shop Set (MWMSS): Type 2	Z05058	\$471,914	0	0	0	0	53
Modular Fuel System-Tank Rack Module: W/Retail Capability	T20131	\$58,278	34	34	34	34	1,540
Petroleum Quality Analysis System: Enhanced (PQAS-E)	P25743	\$1,513,000	9	9	9	9	18
Test Kit Mask Protective: M41	T62350	\$7,790	2,876	2,876	2,876	2,876	2,765
Trailer Tank Water (Camel): 800gal 5-ton W/E	T05047	\$85,825	128	128	128	128	131
Transfer Set: Standards (Sup/Eq) AN/GSM-439	T05046	\$151,469	9	9	9	9	12
Transfer: Set Standards AN/GSM-440	T05045	\$713,335	5	5	5	5	12
Water Purification: Reverse Osmosis 3000 gph Trailer-mtd*	W47225	\$455,871	75	75	75	75	72
Force Protection							
Alarm Biological Agent Automatic: (BIDS) M31A2*	A48680	\$1,408,429	98	98	98	98	98
Chemical Biological Protective Shelter (CBPS Electric)	Z01533	\$837,984	0	0	0	0	94
Decontaminating Apparatus Power Driven Skid-mtd: Multipurp	F81880	\$29,500	132	132	132	132	126
Public Address Set: AN/TIC-43	Z01674	\$58,024	0	0	0	0	432
Joint Service: Transportable Decontamination	J01197	\$33,000	1,543	1,543	1,543	1,543	1,514
Nuclear Bio Chem Recon Veh: (NBC RV)*	N96543	\$8,024,127	69	69	69	69	81

Consolidated Major Item Inventory and Requirements

Nomenclature ¹	Equip No.	Unit Cost	Begin FY 2019 QTY O/H	Begin FY 2020 QTY O/H	Begin FY 2021 QTY O/H	End FY 2021 QTY O/H	End FY 2021 QTY REQ
General Engineering							
All Terrain Crane Type II: (Heavy)*	Z05089	\$4,003,000	0	0	0	0	74
Compactor High Speed: Tamping Self-Propelled (CCE)*	E61618	\$135,186	95	95	95	95	64
Crane Wheel-mtd: Hydraulic Light 7-1/2 ton W/Cab*	C36151	\$165,922	220	220	220	220	143
Crane: Wheel Mounted Hydraulic 25-ton All Terrain AT422T*	C36586	\$382,000	152	152	152	152	112
Crush Screen and Wash Plant: Dsl/Elec Drvn Whl-mtd 150-225 Tph	F49673	\$2,766,000	8	8	8	8	7
Drilling Machine Well: Rotary Truck-mtd 600ft Min	D95754	\$2,950,375	3	3	3	3	3
Engineer Rapid Airfield Construction Capability: Type II	Z05120	\$68,560	0	0	0	0	108
Excavator: Hydraulic (HYEX) Type I Multipurpose Crawler Mount*	E27792	\$354,259	119	119	119	119	197
Excavator: Hydraulic (HYEX) Type II Mltipurpose Crawler Mount*	E41791	\$354,259	11	11	11	11	7
Excavator: Hydraulic (HYEX) Type III Multipurpose Crawler Mount*	E27860	\$354,259	15	15	15	15	7
Hydraulic Electric Pneumatic Petroleum Operate Equip (HEPPOE)	H05004	\$347,558	284	284	284	284	416
Mixer Concrete Module: Pls 2600 gal	M81382	\$127,160	34	34	34	34	39
Roller Motorized Steel Wheel: 2 Drum Tandem 10-14 ton (CCE)*	S11711	\$101,449	22	22	22	22	16
Roller Motorized: Vibratory Roller Type II*	R11127	\$88,000	181	181	181	181	211
Scraper Earth Moving Self-Propelled: 14-18 cu yd (CCE)*	S56246	\$668,031	87	87	87	87	97
Scraper Earthmoving: 14-18 cu yd	S05029	\$700,875	242	242	242	242	203
Scraper Elevating: Self Propelled 9-11 cu yd Sectionalized*	S30039	\$441,923	120	120	120	120	132
Self Propelled Concrete Saw	Z05126	\$97,200	0	0	0	0	30
Tactical Water Distribution Equip Set (TWDS-RDF)*	T09094	\$350,000	2	2	2	2	5
Tractor Fl Trkd Low Spd: Dsl Lgt Dbp Air Dropbl W/Angdoz W/Winch	W76285	\$71,441	2	2	2	2	20
Tractor FT: Low Speed - T9 Type II W/Ripper	T05016	\$316,096	208	208	208	208	185
Tractor FT: Low Speed - T5 Type II W/Ripper	T05026	\$199,262	64	64	64	64	61
Tractor Full Tracked High Speed: Armored Combat Earthmover (ACE)*	W76473	\$887,050	59	59	59	59	50
Tractor Full Tracked High Speed: Deployable Lt Engineer (DEUCE)*	T76541	\$398,000	74	74	74	74	120
Tractor Full Trckd Low Spd: DSL Med Dbp W/Buldoz W/Scarif Ripper*	W83529	\$354,000	96	96	96	96	8
Tractor Full Trckd Low Spd: Dsl Med Dbp W/Buldoz W/Scarif Winch*	W76816	\$354,000	139	139	139	139	15
Tractor Full Tracked Low Speed: T5	T05029	\$188,638	56	56	56	56	57
Tractor Full Tracked Low Speed: T9*	T05015	\$316,096	248	248	248	248	206
Truck Well Drilling Support	T94171	\$84,792	3	3	3	3	8
Water Well Drill Rig: Rotary Truck-mtd 1700 ft Min	W05007	\$1,750,000	4	4	4	4	5
Maneuver Combat Vehicles							
Anti-Tank Guided Missile Vehicle (ATGM)	A83852	\$5,696,258	18	18	18	18	18
Carrier 120mm Mortar: Self Propelled Armored	C10990	\$511,343	102	102	102	102	90
Carrier Armored Command Post: Full Tracked	C11158	\$1,011,652	343	343	343	343	372
Carrier Cargo Tracked: 1.5-ton M973	C11280	\$125,969	104	104	104	104	12

Consolidated Major Item Inventory and Requirements

Nomenclature ¹	Equip No.	Unit Cost	Begin FY 2019 QTY O/H	Begin FY 2020 QTY O/H	Begin FY 2021 QTY O/H	End FY 2021 QTY O/H	End FY 2021 QTY REQ
Carrier Command Communication Vehicle: Articulated Trkd 1.5-ton	C11651	\$209,490	12	12	12	12	4
Carrier Command Post: Light Tracked	D11538	\$1,011,652	174	174	174	174	86
Carrier Personnel Full Tracked: Armored (RISE)	C18234	\$511,343	607	607	607	607	570
Command Variant Vehicle (CV)	C41314	\$3,725,807	36	36	36	36	60
Engineer Squad Vehicle (ESV)	J97621	\$4,957,665	13	13	13	13	24
Fighting Vehicle: Full Tracked Infantry (IFV) M2A3	F60564	\$6,661,335	265	265	265	265	250
Fighting Vehicle: Full Tracked Infantry Hi Survivability (IFV)	F40375	\$3,006,569	28	28	28	28	0
Fire Support Vehicle (FSV)	F86821	\$3,694,633	20	20	20	20	26
Infantry Carrier Vehicle (ICV)	J22626	\$3,704,123	211	211	211	211	260
Knight: Armored	K29708	\$1,820,000	76	76	76	76	57
Medical Evacuation Vehicle (MEV)*	M30567	\$3,785,691	27	27	27	27	50
Mobile Gun System (MGS)	M57720	\$7,060,155	18	18	18	18	24
Mortar Carrier Vehicle (MCV)	M53369	\$3,935,629	47	47	47	47	72
Operation Desert Storm (ODS) Situational Awareness (SA): M2A2	P19727	\$3,006,569	383	383	383	383	375
Reconnaissance Vehicle (RV)	R62673	\$2,544,614	95	95	95	95	114
Recovery Vehicle Full Tracked: Heavy M88A2	R50885	\$3,824,219	115	115	115	115	110
Recovery Vehicle Full Tracked: Medium	R50681	\$3,593,524	201	201	201	201	171
Tank Combat Full Tracked: 120mm Gun	T13168	\$7,598,833	308	308	308	308	261
Tank Combat Full Tracked: 120mm Gun M1A2	T13305	\$7,598,833	151	151	151	151	174
Maneuver Systems							
Surveillance System: Scout Long Range AN/TAS-8*	S02976	\$514,063	967	967	967	967	717
Target Acquisition System: TOW Improved ITAS M41	T24690	\$725,000	710	710	710	710	700
Medical Field Systems							
Analyzer Blood (AB)	A83359	\$8,281	191	191	191	191	193
Automatic External Defibrillator (AED)	A05034	\$2,720	87	87	87	87	288
Computer Set: Digital AN/TYQ-106(V)1	C18345	\$3,000	2,961	2,961	2,961	2,961	1,992
Computer Set: Digital AN/TYQ-107(V)1	C18277	\$4,046	2,061	2,061	2,061	2,061	1,629
Computer Set: Digital AN/TYQ-107(V)2	C18209	\$3,254	248	248	248	248	318
Computer System: Digital AN/TYQ-105(V)1	C27503	\$1,700	10,940	10,940	10,940	10,940	10,131
Computer System: Digital AN/TYQ-108(V)3	C27639	\$30,207	547	547	547	547	465
Defibrillator Monitor Recorder: 120/230V 50/60Hz AC or DC*	D86072	\$19,000	575	575	575	575	802
Dental Field Treatment Operating System	D44052	\$20,843	68	68	68	68	68
Dental Filmless Imaging System (DFIS)	D44302	\$38,749	81	81	81	81	67
Electrocardiograph: Solid State Amplifier Port115V 60Hz Ac	E17591	\$4,479	105	105	105	105	74
Medical Equipment Set Air Ambulance*	M29213	\$26,864	292	292	292	292	315
Medical Equipment Set Ground Ambulance*	M26413	\$24,217	1,783	1,783	1,783	1,783	1,838
Medical Equipment Set Tactical Combat Medical Care*	M30499	\$45,000	826	826	826	826	838
Medical Equipment Set Water Qual Analysis Preventive Medicine*	Y36849	\$15,154	41	41	41	41	50
Medical Filmless Imaging System	M30817	\$150,000	74	74	74	74	76
Monitor Patient Vital Signs (MVS)	M66626	\$18,000	449	449	449	449	314
Oxygen Generator: Field Portable (OGFP)	P05027	\$18,831	0	0	0	0	2,252

Consolidated Major Item Inventory and Requirements

Nomenclature ¹	Equip No.	Unit Cost	Begin FY 2019 QTY O/H	Begin FY 2020 QTY O/H	Begin FY 2021 QTY O/H	End FY 2021 QTY O/H	End FY 2021 QTY REQ
Pump Intravenous Infusion Piv	P16161	\$7,408	517	517	517	517	864
Refrigerator Solid State Bio:*	R64126	\$11,012	176	176	176	176	182
Sink Unit Surgical Scrub and Utensil Hospital Field: 110V 60C AC*	T60464	\$1,638	118	118	118	118	144
Sterilizer Surg Instr Dress: Pres Extr Htdcrs 12-1/2 by 12-1/2In	U39016	\$10,761	135	135	135	135	136
Ultra Sound Diagnostic System: Hand-Carried	U26813	\$79,351	8	8	8	8	67
Ventilator Volume Portable*	V99788	\$12,120	472	472	472	472	656
X-Ray: Apparatus Dental Miniature*	X38819	\$8,042	74	74	74	74	67
Soldier Systems							
Illuminator Integrated: Small Arms Storm MLRF	J68653	\$14,008	2,447	2,447	2,447	2,447	8,552
Laser: Target Locator Module	L05003	\$39,106	1,922	1,926	1,926	1,926	3,674
Maneuverable Canopy 6 (MC 6): Personnel Parachute System	A46878	\$5,140	5,642	5,642	5,642	5,642	7,972
Military Freefall Advanced RAM Air Parachute System	M05026	\$12,000	216	216	216	216	633
Night Vision Device: AN/PSQ-20	N07848	\$87,670	2,746	2,746	2,746	2,746	10,135
Carbine 5.56 Millimeter: M4A1							
Carbine 5.56mm: M4A1	C06935	\$1,772	61,651	61,651	61,651	61,651	255,773
M205: Machine Gun Tripod	X05002	\$4,013	6,096	5,477	5,477	5,477	11,072
Mount Tripod Machine Gun: Heavy Caliber .50	M75577	\$4,013	15,315	15,315	15,315	15,315	12,093
Rifle 5.56mm: M16A2*	R95035	\$1,773	76,999	70,028	70,028	70,028	108
Rifle: 5.56mm M4*	R97234	\$2,076	106,663	106,663	106,663	106,663	0
Rifle: 5.56mm M16A4	R97175	\$1,773	8,182	7,325	7,325	7,325	0
Strike							
A3 Bradley Fire Support Team (BFIST): W/Fire Support Sensor System (FS3)	A70576	\$4,393,650	19	19	19	19	65
High Mobility Artillery Rocket System: HIMARS	H53326	\$4,628,795	199	199	199	199	192
Howitzer Light Towed: M119A3	H05007	\$1,400,000	195	195	195	195	228
Howitzer Medium Self Propelled	H57642	\$13,322,229	233	233	233	233	114
Howitzer Medium Towed: M777	H57916	\$3,571,429	171	171	171	171	234
Lightweight Counter Mortar Radar: AN/TPQ-50	L05007	\$74,302,592	74	74	74	74	123
Multiple Launch Rocket System (MLRS): M270A1 Improved Launcher	M82581	\$4,493,091	34	34	34	34	32
Radar Set: AN/TPQ-36(V)10	R14284	\$8,500,000	27	27	27	27	24
Radar System: Counter Fire Target Acquisition Radar	R05016	\$14,830,000	8	8	8	8	27
Support Systems							
Container Handling*	C27294	\$42,249	1,495	1,495	1,495	1,495	851
Container Handling: Container Handling Unit (CHU)*	C84862	\$42,249	70	70	70	70	0
Container Handling: Heavy Exp Mobil Tact Trk (HEMTT)*	C84930	\$42,249	22	22	22	22	47
Firing Device Demolition: Mk152 Mod 0	F60336	\$61,157	163	163	163	163	380
Joint Precision Airdrop System (JPADS): 10K	J05004	\$54,000	28	28	28	28	38
Platform: Container Roll In/Roll Out*	B83002	\$25,097	14,663	14,663	14,663	14,663	17,600
Trailers							
Palletized Load System: Trailer-CTE	P05025	\$63,731	250	250	250	250	325
Semitrailer Flat Bed: Breakbulk/Cont Transporter 22-1/2 ton*	S70027	\$42,678	3,374	3,374	3,374	3,374	3,311

Consolidated Major Item Inventory and Requirements

Nomenclature ¹	Equip No.	Unit Cost	Begin FY 2019 QTY O/H	Begin FY 2020 QTY O/H	Begin FY 2021 QTY O/H	End FY 2021 QTY O/H	End FY 2021 QTY REQ
Semitrailer Flatbed: Breakbulk/Container Transporter Commercial 34-ton*	S70159	\$70,787	2,009	2,009	2,009	2,009	3,960
Semitrailer Low Bed: 25-ton 4-Wheel W/E*	S70517	\$262,852	190	190	190	190	555
Semitrailer Low Bed: 70-ton Heavy Equipment Transporter (HET)	S70859	\$610,664	647	647	647	647	630
Semitrailer Tank: 5000 Gal Bulk Haul Self-Load/Unload*	S10059	\$146,093	310	310	310	310	360
Semitrailer Tank: 5000 Gal Fuel Dispensing Automotive*	S73372	\$198,020	204	204	204	204	139
Trailer Cargo: 1-1/2 ton 2-Wheel	W95811	\$50,433	62	62	62	62	98
Trailer Cargo: 12-ton Light Engineer Utility Trailer	Z05224	\$135,907	0	0	0	0	485
Trailer Cargo: 5-ton Light Engineer Utility Trailer	Z05186	\$113,944	0	0	0	0	448
Trailer Cargo: MTV W/Dropsides M1095*	T95555	\$50,433	5,393	5,393	5,393	5,393	5,429
Trailer Flatbed: 5-ton 4-Wheel General Purpose	T96883	\$50,433	111	111	111	111	1
Trailer: Palletized Loading 8X20 M1076*	T93761	\$105,000	4,880	4,880	4,880	4,880	6,074
Trucks							
M-ATV UI W/Crow System	M05029	\$575,000	90	90	90	90	58
M-ATV UI W/OGPK	M05030	\$575,000	102	102	102	102	102
Tractor Line Haul: M915A5*	T88858	\$212,000	1,014	1,014	1,014	1,014	1,980
Truck Ambulance: 2-Litter Armd 4X4 (HMMWV)	T38707	\$397,000	6	6	6	6	1
Truck Ambulance: 4-Litter Armd 4X4 (HMMWV)*	T38844	\$397,000	1,825	1,825	1,825	1,825	1,642
Truck Cargo: 2 1/2 ton 4X4 LMTV W/E W/W LAPES/AD	T42063	\$203,039	2	2	2	2	9
Truck Cargo: 4X4 LMTV W/E	T60081	\$157,982	2,581	2,581	2,581	2,581	2,733
Truck Cargo: 4X4 LMTV W/E W/W*	T60149	\$157,982	505	505	505	505	120
Truck Cargo: 5-ton 6X6 MTV W/E LAPES/AD	T41036	\$210,180	59	59	59	59	103
Truck Cargo: 5-ton 6X6 MTV W/E W/W LAPES/AD	T41104	\$220,616	13	13	13	13	13
Truck Cargo: 5-ton WO/Winch*	T41515	\$255,952	4,689	4,689	4,689	4,689	5,648
Truck Cargo: Heavy PLS Transporter 15-16.5 ton 10X10*	T40999	\$1,075,209	929	929	929	929	839
Truck Cargo: Heavy PLS Transporter 15-16.5 ton 10X10 W/MHE*	T41067	\$1,075,209	166	166	166	166	84
Truck Cargo: MTV W/E*	T61908	\$255,952	3,043	3,043	3,043	3,043	1,556
Truck Cargo: MTV W/E W/W*	T41135	\$255,952	134	134	134	134	607
Truck Cargo: W/MHE WO/Winch	T59584	\$255,889	568	568	568	568	560
Truck Cargo: WO/Winch*	T59448	\$157,982	3,646	3,646	3,646	3,646	3,926
Truck Dump: 10-ton WO/Winch*	T65342	\$242,585	1,360	1,360	1,360	1,360	1,081
Truck Dump: 20-ton DED 12 cu yd Cap (CCE)*	X44403	\$211,764	539	539	539	539	596
Truck Dump: 5-ton 6X6 MTWV/E LAPES/AD	T65526	\$242,585	9	9	9	9	0
Truck Dump: 5-ton 6X6 W/E	X43708	\$242,585	4	4	4	4	0
Truck Dump: MTV W/E	T64911	\$242,585	13	13	13	13	49
Truck Dump: MTV W/E W/W	T64979	\$383,786	0	0	0	0	18
Truck Palletized Loading: M1074A1	T55236	\$406,000	118	118	118	118	176
Truck Tractor: M107A1	T05012	\$461,970	536	536	536	536	630
Truck Tractor: (LET)*	T60946	\$319,009	1,280	1,280	1,280	1,280	1,171
Truck Tractor: LET 6X6 66000 GVW W/W C/S*	T91656	\$250,614	137	137	137	137	78
Truck Tractor: Line Haul C/S 50000 GVWR 6X4 M915*	T61103	\$212,000	1,021	1,021	1,021	1,021	120
Truck Tractor: M1088A1P2 W/Winch	T61375	\$242,669	21	21	21	21	0

Consolidated Major Item Inventory and Requirements

Nomenclature¹	Equip No.	Unit Cost	Begin FY 2019 QTY O/H	Begin FY 2020 QTY O/H	Begin FY 2021 QTY O/H	End FY 2021 QTY O/H	End FY 2021 QTY REQ
Truck Tractor: MTV W/E*	T61239	\$242,669	941	941	941	941	1,139
Truck Tractor: MTV W/E W/W*	T61307	\$242,669	24	24	24	24	250
Truck Tractor: WO/Winch*	T88983	\$242,669	2,059	2,059	2,059	2,059	1,926
Truck Utility: ECV Armament Carrier W/IAP Armor Ready M1151A1*	T34704	\$129,376	5,360	5,360	5,360	5,360	4,940
Truck Wrecker*	T94671	\$690,707	726	726	726	726	549
Truck Wrecker: M984A4*	T63161	\$886,000	599	599	599	599	525
Truck Wrecker: MTV W/E W/W*	T94709	\$690,707	61	61	61	61	114
Truck Wrecker: Tactical 8X8 HEMTT W/Winch*	T63093	\$886,000	481	481	481	481	552
Truck: Palletized Loading*	T81874	\$418,000	1,043	1,043	1,043	1,043	989
1. "*" indicates a Critical Dual Use (CDU) equipment item							

ARNG

Table 2

Average Age of Equipment

NOTE: This table provides the average age of selected major equipment items. The average age provides a projected average age of the fleet at the start of FY 2018.

Nomenclature	Equip No.	Average Age	Remarks
Air Defense			
Fire Unit Vehicle Mounted: (Avenger)	F57713	22	
Aircraft			
Airplane: Cargo Transport C-26	A46758	25	
Helicopter Light Utility (LUH): UH-72A*	H31329	7	
Helicopter Utility: UH-60A*	K32293	35	
Helicopter Utility: UH-60L*	H32361	26	
Helicopter Utility: UH-60M*	H32429	11	
Helicopter Attack: AH-64D*	H48918	14	
Battle Command and Control			
Distribution System Elec: 120/208V 3PH 40AMP*	F55485	15	
Distribution System Elec: 120V 1PH 60AMP*	F55553	11	
Generator Set: DED TM 10kW 60Hz PU-798*	G42170	14	
Generator Set: DED TM 5kW 60Hz PU797*	G42238	13	
Generator Set: DED Skid-mtd 10kW 60Hz*	G74711	12	
Generator Set: DED Skid-mtd 15kW 50/60Hz*	G12170	13	
Generator Set: DED Skid-mtd 30kW 50/60Hz*	G74575	12	
Generator Set: DED Skid-mtd 5kW 60Hz*	G11966	14	
Generator Set: DED Trailer-mtd (TM) 10kW 400Hz PU-799	G53403	15	
Generator Set: DED Trailer-mtd (TM) PU-802	G53778	13	
Generator Set: DED TM PU-803	G35851	14	
Generator Set: DED Trailer-mtd (TM) 60kW 400Hz PU-806	G17460	13	
Generator Set: DED TM 60kW 50/60Hz PU805 Chassis	G78306	17	
LTT Trailer-mtd: PP-3001 5 kW 50/60Hz	L27002	11	
LTT Trailer-mtd: PU-2001 5 kW 50/60Hz	L26934	4	
LTT Trailer-mtd: PU-2002 10 kW 50/60Hz	L84622	5	
LTT Trailer-mtd: PU-2012 10 kW 400Hz	L84758	4	
Power Plant: Electric DED TM 5kW 60Hz AN/MJQ-35*	P28083	17	
Power Plant: Diesel TM 10kW 60Hz AN/NJQ-37*	P42262	17	
Power Plant: Electric TM 30kW 50/60Hz AN/MJQ-40*	P42126	14	
Power Plant: Electric TM 60kW 50/60Hz AN/MJQ-41*	P42194	11	
Trailer-Mtd: PP-3102 10 kW 50/60Hz M200A1	T39849	5	
Trailer-Mtd: PP-3105 30 kW 50/60Hz 2M200A1	T39917	3	
Trailer-Mtd: PP-3106 60 kW 50/60Hz 2M200A1	T93232	4	
Trailer-Mtd: PP-2101 15 kW 50/60Hz M200A1	T40090	4	
Trailer-Mtd: PP-2102 30 kW 50/60Hz M200A1	T39954	4	
Trailer-Mtd: PP-2103 60 kW 50/60Hz M200A1	T60034	4	
Trailer-Mtd: PP-2113 60 kW 400Hz M200A1	T93368	11	
Utility Receptacle*	U89185	19	
Battlespace Awareness			
Central: Communications AN/TSQ-226(V)3*	C43399	11	
Satellite Communication System: AN/TSC-156*	S23268	3	
Terminal: Satellite Communication AN/TSC-154	T81733	11	

ARNG Average Age of Equipment

Table 2

Nomenclature	Equip No.	Average Age	Remarks
Combat Mobility			
Assault Breacher Vehicle (ABV)	A05001	29	
Boat Bridge Erection Inboard Engine: Shallow Draft*	B25476	22	
Bridge Armored Vehicle Launched Scissors TY: 63 ft (AVLB) MLC 70*	B31098	32	
Bridge Fixed: Rapidly	B24592	15	
Detecting Set: Mine Portable Metallic (AN/PSS-11)	G02341	38	
Detecting Set: Mine AN/PSS-14	D03932	10	
High Mobility Engineer Excavator (HMEE): Type I*	H53576	6	
Launch M60 Series Tank Chassis Transpt: 40/60ft Bridge TY CL60*	L43664	44	
Loader Scoop Type: 2.5 cubic yard*	L76897	5	
Loader Scoop Type: DSL 2-1/2 cu yd w/Multi Purp Bucket*	L76556	33	
Mine Protected Clearance Vehicle	M05004	5	
Mine Resistant Vehicle	M74226	4	
Tractor Wheeled: DSL w/Excavator & Front Loader*	T34437	29	
Tractor Wheeled: Industrial*	T34505	8	
Transporter Common Bridge*	T91308	17	
Vehicle Mounted Mine Detection (VMMD) System	V05001	5	
Field Logistics			
Armament Repair Shop Set (ARSS)	A05031	2	
Calibration Set Secondary Transfer: Standards	C72574	10	
Hydraulic Systems Test and Repair Unit (MX3)	H05002	4	
Light Capability Rough Terrain Forklift (LCRTF): 5K*	L05010	4	
Load Handling Sys (LHS): 2K gal Comp Water Tank-Rack (HIPPO)*	T32629	8	
Water Purification: Reverse Osmosis 3K gph Trailer-mounted	W47225	23	
Force Protection			
Decontaminating Apparatus Power Driven Skid-mtd: Multipurpose	F81880	15	
Joint Service: Transportable Decontamination	J01197	9	
Nuclear Bio Chem Recon Veh: (NBC RV)*	N96543	6	
General Engineering			
Compactor High Speed: Tamping Self-Propelled (CCE)*	E61618	19	
Crane: Wheel-mounted Hydraulic Light 7-1/2 ton w/Cab*	C36151	27	
Crane: Wheel-mounted Hydraulic 25-ton All Terrain AT422T*	C36586	17	
Crush Screen and Wash Plant: DSL/Elec Drvn Whl-mtd 150-225 TPH	F49673	18	
Drilling Machine Well: Rotary Truck-mtd 600ft Min	D95754	30	
Excavator: Hydraulic (HYEX) Type I Multipurpose Crawler Mount*	E27792	18	
Excavator: Hydraulic (HYEX) Type II Multipurpose Crawler Mount*	E41791	16	
Excavator: Hydraulic (HYEX) Type III Multipurpose Crawler Mount*	E27860	16	
Mixer Concrete Module: PLS 2600 gallon	M81382	13	
Roller Motorized Steel Wheel: 2 Drum Tandem 10-14 ton (CCE)*	S11711	19	
Roller Motorized: Vibratory Roller Type II*	R11127	17	
Scraper Earthmoving: SP 14-18 cu yd (CCE)*	S56246	33	
Scraper Earthmoving: 14-18cCu yd	S05029	3	
Scraper Elevating: SP 9-11 cu yd sectionalized*	S30039	10	
Tractor Full Tracked Low Speed: DSL LGT DBP Air Dropbl W/Angdoz W/Winch	W76285	55	

ARNG

Table 2

Average Age of Equipment

Nomenclature	Equip No.	Average Age	Remarks
Tractor Full Tracked Low Speed: DSL LGT DBP Sectnlzd Air Transpbl w/ATT	W76268	31	
Tractor Full Tracked Low Speed - T9 Type II w/Ripper	T05016	4	
Tractor Full Tracked Low Speed - T5 Type II w/Ripper	T05026	4	
Tractor FT HS: Armored Combat Earthmover (ACE)*	W76473	26	
Tractor FT HS: Deployable LT Engineer (DEUCE)*	T76541	16	
Tractor FT LS: DSL Med DBP w/Buldoz w/Scarif Ripper*	W83529	34	
Tractor FT LS: DSL Med DBP w/Buldoz w/Scarif Winch*	W76816	35	
Tractor Full Tracked Low Speed: T5	T05029	4	
Tractor Full Tracked Low Speed: T9*	T05015	4	
Truck Well Drilling Support	T94171	30	
Maneuver Combat Vehicles			
Anti-Tank Guided Missile Vehicle: (ATGM)	A83852	13	
Carrier 120mm Mortar: Self Propelled Armored	C10990	45	
Carrier Armored Command Post: Full Tracked	C11158	34	
Carrier Cargo Tracked: 1.5 ton M973	C11280	29	
Carrier Command Communication Vehicle: Articulated Trkd 1-1/2 ton	C11651	29	
Carrier Command Post: Light Tracked	D11538	35	
Carrier Personnel Full Tracked: Armored (RISE)	C18234	32	
Command Variant Vehicle (CV)	C41314	11	
Engineer Squad Vehicle (ESV)	J97621	11	
Fighting Vehicle: Full Track Infantry (IFV) M2A3	F60564	23	
Fighting Vehicle: Full Track Infantry HI Survivability (IFV)	F40375	21	
Fire Support Vehicle (FSV)	F86821	13	
Infantry Carrier Vehicle (ICV)	J22626	11	
Knight: Armored	K29708	8	
Medical Evacuation Vehicle: (MEV)*	M30567	10	
Mobile Gun System (MGS)	M57720	11	
Mortar Carrier Vehicle (MCV)	M53369	15	
Operation Desert Storm (ODS) Situational Awareness (SA): M2A2	P19727	21	
Reconnaissance Vehicle (RV)	R62673	11	
Recovery Vehicle Full Tracked: Heavy M88A2	R50885	12	
Recovery Vehicle Full Tracked: Medium	R50681	40	
Tank Combat Full Tracked: 120mm Gun	T13168	25	
Tank Combat Full Tracked: 120mm Gun M1A2	T13305	28	
Maneuver Systems			
Target Acquisition System: TOW Improved ITAS M41	T24690	9	
Strike			
A3 Bradley Fire Support Team (BFIST): W/Fire Support Sensor System (FS3)	A70576	27	
High Mobility Artillery Rocket System: HIMARS	H53326	8	
Howitzer Light Towed: M119A3	H05007	11	
Howitzer Medium Self Propelled	H57642	29	
Howitzer Medium Towed: M777	H57916	8	
Multiple Launch Rocket System: (MLRS) M270A1 Improved Launcher	M82581	24	
Radar Set: AN/TPQ-36(V)10	R14284	11	

ARNG Average Age of Equipment

Table 2

Nomenclature	Equip No.	Average Age	Remarks
Support Systems			
Container Handling Unit (CHU)*	C84862	12	
Container Handling: Heavy Expanded Mobility Tactical Truck (HEMTT)*	C84930	9	
Container Platform: Roll-In/Roll-Out*	B83002	23	
Trailers			
Palletized Load System: Trailer-CTE	P05025	3	
Semitrailer Flatbed: Breakbulk/Cont Transporter 22-1/2-ton*	S70027	23	
Semitrailer Flatbed: Breakbulk/Container Transporter 34-ton*	S70159	27	
Semitrailer Low Bed: 25-ton 4-wheel*	S70517	49	
Semitrailer Low-bed: 70-ton Heavy Equip Transporter (HET)	S70859	17	
Semitrailer Tank: 5K-gal Bulk Haul Self-Load/Unload*	S10059	17	
Semitrailer Tank: 5K-gal Fuel Dispensing Automotive*	S73372	23	
Trailer Cargo: 1-1/2 ton 2-Wheel	W95811	26	
Trailer Cargo: MTV W/Dropsides M1095*	T95555	7	
Trailer Flatbed: 5-ton 4-Wheel General Purpose	T96883	23	
Trailer: Palletized Loading 8X20*	T93761	11	
Trucks			
M-ATV UI W/Crow System	M05029	11	
M-ATV UI W/OGPK	M05030	7	
Tractor Line Haul: M915A5*	T88858	7	
Truck Ambulance: 2 Litter Armored (HMMWV)	T38707	29	
Truck Ambulance: 4 Litter Armored (HMMWV)*	T38844	24	
Truck Cargo: 2 1/2 ton 4X4 LMTV W/W LAPES/AD	T42063	19	
Truck Cargo: LMTV	T60081	13	
Truck Cargo: LMTV W/W*	T60149	13	
Truck Cargo: 5-ton 6X6 MTV LAPES/AD	T41036	19	
Truck Cargo: 5-ton 6X6 MTV W/W LAPES/AD	T41104	12	
Truck Cargo: 5-ton WO/Winch*	T41515	6	
Truck Cargo: Heavy PLS Transporter 15-16.5 ton 10X10*	T40999	14	
Truck Cargo: Heavy PLS Transporter 15-16.5 ton w/MHE*	T41067	23	
Truck Cargo: MTV*	T61908	12	
Truck Cargo: MTV W/W*	T41135	13	
Truck Cargo: W/MHE WO/Winch	T59584	6	
Truck Cargo: WO/Winch*	T59448	7	
Truck Dump: 10-ton WO/Winch*	T65342	6	
Truck Dump: 20-ton DED 12 cu yd Cap (CCE)*	X44403	25	
Truck Dump: 5-ton 6X6 MTV W/E LAPES/AD	T65526	20	
Truck Dump: 5-ton 6X6 W/E	X43708	29	
Truck Dump: MTV	T64911	21	
Truck Palletized Loading: M1074A1	T55236	15	
Truck Tractor: M107A1	T05012	5	
Truck Tractor: (LET)*	T60946	6	
Truck Tractor: LET 6X6 66000 GVW W/W C/S*	T91656	18	
Truck Tractor: Line Haul C/S 50000 GVW 6X4 M915*	T61103	22	
Truck Tractor: M1088A1P2 W/Winch	T61375	7	

ARNG
Average Age of Equipment

Table 2

Nomenclature	Equip No.	Average Age	Remarks
Truck Tractor: MTV*	T61239	8	
Truck Tractor: MTV W/W*	T61307	12	
Truck Tractor: WO/Winch*	T88983	6	
Truck Utility: ECV Armament Carrier M1151A1*	T34704	9	
Truck Wrecker*	T94671	5	
Truck Wrecker: M984A4*	T63161	11	
Truck Wrecker: MTV W/W*	T94709	12	
Truck Wrecker: Tactical HEMTT W/W*	T63093	19	
Truck: Palletized Loading*	T81874	8	
1. "*" indicates a Critical Dual Use (CDU) equipment item			

Service Procurement Program - Reserve (P-1R)

NOTE: This table identifies the dollar value of programmed equipment procurement as identified in the P-1R exhibit of the FY 2019 President's Budget Request. All values are costs in dollars and exclude ammunition procurements. Deliveries of procured equipment normally take one to two years before they arrive in the inventory; e.g., items procured in FY 2019 are expected to arrive in RC inventories in FY 2020 or FY 2021.

Nomenclature	FY 2019	FY 2020 ¹	FY 2021 ¹
Aircraft			
UH-60 Blackhawk M Model (MYP)	139,764,000		
UH-60 Blackhawk A and L Models	81,188,000		
Modification of Aircraft			
CH-47 Cargo Helicopter Modifications (MYP)	1,744,000		
Network and Mission Plan	46,973,000		
Communications, Navigation, and Surveillance	65,357,000		
Global Air Traffic Management (GATM) Rollup	10,834,000		
RQ-7 Unmanned Aerial Vehicle (UAV) Modifications	4,000,000		
Unmanned Aircraft System (UAS) Modifications	3,600,000		
Support Equipment and Facilities			
Common Ground Equipment	19,266,000		
Aircrew Integrated Systems	11,122,000		
Air Traffic Control	13,331,000		
Other Missiles			
Multiple Launch Rocket System (MLRS) Reduced Range Practice Rockets (RRPR)	6,249,000		
Modification of Missiles			
Stinger Modifications	55,115,000		
Avenger Modifications	28,309,000		
High Mobility Artillery Rocket System (HIMARS) Modifications	5,752,000		
Tracked Combat Vehicles			
M109 FOV Modifications	10,593,000		
Paladin Integrated Management (PIM)	259,490,000		
Assault Breacher Vehicle	26,003,000		
Joint Assault Bridge	71,128,000		
Weapons and Other Combat Vehicles			
Multi-Role Anti-Armor Anti-Personnel Weapon System	1,043,000		
Compact Semi-Automatic Sniper System	17,468,000		
Carbine	10,847,000		
Handgun	6,048,000		
M777 Howitzer Modifications	1,308,000		
M4 Carbine Modifications	14,336,000		

Service Procurement Program - Reserve (P-1R)

Nomenclature	FY 2019	FY 2020 ¹	FY 2021 ¹
M2 .50 cal Machine Gun Modifications	16,927,000		
M119 Howitzer Modifications	2,792,000		
Tactical and Support Vehicles			
Tactical Trailers/Dolly Sets	8,502,000		
Joint Light Tactical Vehicle	101,476,000		
Truck, Dump, 20-ton (CCE)	3,240,000		
Family of Medium Tactical Vehicles (FMTV)	7,504,000		
Firetrucks & Associated Firefighting Equipment	434,000		
Family of Heavy Tactical Vehicles (FHTV)	25,821,000		
Modification of In-service Equipment	81,162,000		
Nontactical Vehicles, Other	272,000		
Communications and Electronics Equipment			
Signal Modernization Program	16,580,000		
Joint Incident Site Communications Capability	13,895,000		
Transportable Tactical Command Communications	10,000,000		
Super High Frequency (SHF) Terminal	4,000,000		
SMART-T (Space)	2,750,000		
Global Broadcast Service (GBS)	3,000,000		
Common Operating Environment (COE) Tactical Server Infrastructure (TSI)	7,191,000		
Handheld Manpack Small Form Fit (HMS)	30,000,000		
Radio Terminal Set, MIDS-LVT(2) [Multifunctional Information Distribution System-Low Volume Terminal 2]	1,829,000		
Spider Family of Networked Munitions Increment	2,852,000		
Unified Command Suite	16,307,000		
Family of Medical Communications for Combat Casualty Care	7,197,000		
Communications Security (COMSEC)	7,740,000		
Home Station Mission Command Centers (HSMCC)	5,000,000		
Distributed Common Ground System - Army (DCGS-A) (MIP)	62,200,000		
Trojan (MIP)	150,000		
Lightweight Counter Mortar Radar	3,278,000		
Sentinel Modifications	18,299,000		
Night Vision Devices	60,331,000		
Small Tactical Optical Rifle Mounted (STORM) Micro-Laser Range Finder (MLRF)	8,466,000		
Radiation Monitoring Systems	5,768,000		
Indirect Fire Protection Family of Systems	3,541,000		
Family of Weapon Sights (FWS)	22,486,000		
Joint Battle Command - Platform (JBC-P)	150,003,000		
Joint Effects Targeting System (JETS)	26,630,000		
Computer Ballistics: Lightweight Handheld Mortar Ballistic Computer (LHMBC) XM32	2,320,000		

Service Procurement Program - Reserve (P-1R)

Nomenclature	FY 2019	FY 2020 ¹	FY 2021 ¹
Counterfire Radars	156,083,000		
Air & Missile Defense Planning and Control System (AMDPCS)	1,107,000		
Network Management Initialization and Service	2,894,000		
Maneuver Control System (MCS)	19,008,000		
Reserve Component Automation System (RCAS)	16,738,000		
Tactical Digital Media	1,000,000		
Items Less Than \$5M (Surveying Equipment)	667,000		
Other Support Equipment			
Protective Systems	1,224,000		
Family of Non-Lethal Equipment (FNLE)	3,793,000		
CBRN Defense	5,136,000		
Tactical Bridge - Float Ribbon	31,479,000		
Common Bridge Transporter (CBT) Recapitalization	23,958,000		
Handheld Standoff Minefield Detection System - HST	2,500,000		
Ground Standoff Minefield Detection System (GSTAMIDS)	7,051,000		
Area Mine Detection System (AMDS)	2,087,000		
Husky Mounted Detection System (HMDS)	22,920,000		
Robotic Combat Support System (RCSS)	1,773,000		
Items Less Than \$5M (Countermine Equipment)	3,601,000		
Family of Boats and Motors	2,269,000		
Heaters and Environmental Control Units (ECUs)	4,000,000		
Ground Soldier System	30,000,000		
Mobile Soldier Power	7,267,000		
Field Feeding Equipment	4,587,000		
Cargo Aerial Delivery & Personnel Parachute System	6,960,000		
Family of Engineer Combat and Construction Sets	5,500,000		
Distribution Systems, Petroleum & Water	5,105,000		
Combat Support Medical	12,130,000		
Mobile Maintenance Equipment Systems	8,871,000		
Items Less Than \$5M (Maintenance Equipment)	1,105,000		
All Terrain Cranes	2,910,000		
High Mobility Engineer Excavator (HMEE)	16,262,000		
Construction Equipment Extended Service Program (ESP)	12,830,000		
Items Less Than \$5M (Construction Equipment)	4,630,000		
Generators and Associated Equipment	30,971,000		
Family of Forklifts	2,126,000		
Training Devices, Nonsystem	7,595,000		
Aviation Combined Arms Tactical Trainer	4,629,000		
Gaming Technology in Support of Army Training	2,838,000		
Calibration Sets Equipment	2,321,000		

Service Procurement Program - Reserve (P-1R)

Nomenclature	FY 2019	FY 2020 ¹	FY 2021 ¹
Integrated Family of Test Equipment (IFTE)	25,308,000		
Test Equipment Modernization (TEMOD)	3,637,000		
Modification of In-service Equipment (OPA-3)	1,509,000		
Total	\$2,159,190,000		
1. P-1R Exhibit for FY 2019 President's Budget does not provide projected procurement data beyond FY 2019.			

National Guard and Reserve Equipment Appropriation (NGREA) Procurements

NOTE: This table identifies the dollar value of planned equipment procurements with the National Guard and Reserve Equipment Appropriation (NGREA). These funds are available for a three-year period from the year of appropriation. Deliveries of procured equipment normally take one to two years from date of procurement before they arrive in the inventory; e.g., items procured in FY 2018 would be expected to arrive in RC inventories in FY 2019 or FY 2020. All values are costs in dollars.

Nomenclature	FY 2016	FY 2017	FY 2018 ¹
FY 2016 NGREA Equipment			
Aviation			
Weather Sensor	\$450,000		
Digital Voice Switch	380,000		
Airfield Automation System	175,000		
Air Traffic Control Testing, Measuring, & Diagnostics Equipment	1,350,000		
Crash Alarm System Upgrade	530,000		
Reservoir Servicing Unit	409,200		
Deployment Support Kits	1,750,000		
Shadow Set Upgrade	11,000,000		
Forward Looking Infrared Radar (FLIR) Upgrade (A-Kit and B-Kit) (UH-60)	18,240,000		
Civilian Communications Package (A-Kit and B-Kit)	11,760,000		
Precision Approach Radar Training System	150,000		
Radio Test Set	2,014,000		
Synthetic Flight Simulator	1,500,000		
Virtual Maintenance Trainer	500,000		
Reduced Size Extended Range Fuel System	8,712,000		
Reduced Size Extended Range Fuel System, Unit Support Package	480,000		
Reduced Size Extended Range Fuel System, Intermediate Support Package	559,000		
Borescope	594,000		
Internal Auxiliary Fuel Tank System (A-Kit and B-Kit)	24,948,000		
Blade Folding System	2,043,000		
Cockpit Upgrades	3,498,000		
Long Skid Shoes	254,000		
Shadow Crew Trainer Upgrades	950,000		
Maintenance Support Package	776,000		
Command and Control Systems			
Power Supply	3,228,000		
Communications			
Multi-band Receiver, Geospatial	916,800		
GuardNet and Storage Area Network Modernization	49,229,100		
Domestic Operations			
Audio Visual Equipment	2,300,000		
Information Management System, CBRN	20,454,000		
Area-Rae Wireless Toxic Gas Detector System Modernization	10,505,100		
Detection System, Radiological	5,004,600		
Thermal Desorber Accessory	2,262,900		
Personal Protective Equipment Modernization	1,618,800		

National Guard and Reserve Equipment Appropriation (NGREA) Procurements

Nomenclature	FY 2016	FY 2017	FY 2018 ¹
Portable-Radiation, Personnel Monitor	864,000		
Engineering			
Motorized Grader	3,801,000		
High Mobility Engineer Excavator	13,200,000		
Squad Kit: Urban Operations	16,683,000		
Platoon Kit: Urban Operations	25,760,000		
Intelligence			
Sensitive Compartmented Information Facility (SCIF) Systems	7,500,000		
Logistics			
Carpenters Tool Kit Squad, Type I	2,368,000		
Carpenters Supplemental Tool Kit, Type II	1,359,600		
Carpenters Tool Kit, Type III	1,392,000		
Electrician's Tool Kit, Type IV	2,550,000		
Mason & Concrete Tool Kit, Type V	1,669,700		
Modular Fuel System/Tank Rack Module	4,250,000		
Maintenance			
Maintenance Support Device	1,275,000		
Security			
Command Launch Unit Retro Fit (Javelin), Block 1	14,808,000		
Training			
Conduct of Fire Trainer Mobile Situational Awareness Upgrade	8,400,000		
Mobile Distributed Learning Classroom Equipment	5,220,000		
Modified Record Fire Range Targetry Package	1,440,400		
Automated Infantry Squad Battle Course	107,000		
Automated Record Fire Range Targetry Package	1,680,600		
Combat Pistol Qualification Course Package	540,200		
Engagement Skills Trainer Technology Refresh	5,070,000		
Training / Aviation			
Control Tower Training System	1,620,000		
Maintenance Trainer	3,500,000		
Non-rated Crew Manned Module Simulator Upgrades	4,200,000		
Aviation Combined Arms Tactical Trainer Upgrade	3,500,000		
Transportation			
Truck, Wrecker RECAP	4,500,000		
Truck, Palletized Loading (M1074/M1075)	4,200,000		
<u>FY 2017 NGREA Equipment</u>			
Aviation			
Civilian Communications Package (A-Kit and B-Kit) (H-60)		\$36,260,000	
Civilian Communications Package (A-Kit and B-Kit) (UH-72)		12,720,000	
Forward Looking Infrared Radar (FLIR) Upgrade (A-Kit and B-Kit) (UH-60)		9,774,200	
Tool Kit Equipment Sets (AH-64)		15,126,300	
Communications			
Joint Incident Site Communications Capability		17,000,000	

National Guard and Reserve Equipment Appropriation (NGREA) Procurements

Nomenclature	FY 2016	FY 2017	FY 2018 ¹
Training / Cyber			
Cyber Brigade/Battalion Training Equipment Package		18,000,000	
Cyber Protection Team Training Flyaway Kits		2,200,000	
Domestic Operations			
Information Management System, CBRN Response Enterprise		18,564,000	
Trailer, Decontamination		1,239,000	
Small Unit Support Vehicle		16,560,000	
Intelligence			
Sensitive Compartmented Information Facility (SCIF) Systems		3,000,000	
Temporary SCIF Systems		1,000,000	
Maintenance			
Maintenance Support Device		162,000	
Security			
Reaction Force Crowd Control Support Module		22,440,000	
Training			
Engine Diagnostics/Troubleshooting Trainer		1,250,000	
Conduct of Fire Trainer Mobile Situational Awareness Upgrade		11,319,100	
Mobile Distributed Learning Classroom -- Lite Equipment		1,980,000	
FlexTrain Systems		42,000,000	
Multipurpose Training Range, Targetry		1,121,000	
Multi-intelligence Entry Training Device		1,500,000	
Training / Aviation			
Cockpit Academics Procedural Trainer		3,074,400	
Synthetic Flight Training Simulator Upgrade		1,250,000	
Aviation Combined Arms Tactical Trainer Upgrade		3,000,000	
Engineering			
Hydraulic, Electric, Pneumatic, Petroleum Operated Equipment (HEPPOE)		6,960,000	
Total	\$330,000,000	\$247,500,000	
1. Service FY 2018 NGREA equipment list was not available in time for publication in the NGRER. Equipment list for FY 2018 will be provided in next year's NGRER.			

Projected Equipment Transfer/Withdrawal Quantities

NOTE: This table portrays the planned equipment transfers (Active to Reserve), withdrawals (-), and decommissioning (-). Transferred equipment is commonly called "cascaded equipment," or equipment that is provided to the RC once the AC receives more modern equipment. Although this table highlights a three-year period, many Services will not know exact quantities of transfers or withdrawals until year of execution, due to the uncertainty of the procurement/delivery cycle of new equipment.

Nomenclature	Equip No.	FY 2019 Qty	FY 2020 Qty	FY 2021 Qty	Remarks
Battlespace Awareness					
Processing Center Intelligence Version 2: AN/TYQ-103(V)*	C18176	-4			
Workstation Portable Multifunction: AN/TYQ-93(V)*	A35329	-3			
Medical Field Systems					
Oxygen Generator: Field Portable (OGFP)	P05027	-24			
Soldier Systems					
Laser: Target Locator Module	L05003	+4			
M205: Machine Gun Tripod	X05002	-619			
Rifle 5.56mm: M16A2*	R95035	-6,971			
Rifle: 5.56mm M16A4	R97175	-857			
1. "*" indicates a Critical Dual Use (CDU) equipment item					

FY 2015 Planned vs Actual Procurements and Transfers

NOTE: This table compares planned Service procurements and transfers to the RC in FY 2015 with actual procurements and transfers. FY 2015 is selected as these are the most recent funds to expire. Because the procurement cycle is normally one to two years from funding to delivery, this table identifies only deliveries through the end of FY 2017. Procurement and NGREA columns reflect cost values in dollars.

Nomenclature	Equip No.	FY 2015 Transfers (# of items)		FY 2015 Procurements (\$s)		FY 2015 NGREA (\$s)	
		Plan	Actual	Plan	Actual	Plan	Actual
<u>FY 2015 Planned Transfers & Withdrawals</u>							
<i>ARNG indicated no planned transfers or withdrawals for FY 2015 in its FY 2015 NGRER Table 5.</i>							
<u>FY 2015 Service Procurement Programs – RC (P-1R) Equipment</u>							
Aircraft							
UH-60 Blackhawk M Model (MYP)				\$424,680,000	\$524,800,000		
Modification of Aircraft							
Utility/Cargo Airplane Modifications				3,893,000	0		
Utility Helicopter Modifications				55,917,000	24,594,000		
Network and Mission Plan				11,682,000	39,113,000		
Communications, Navigation, and Surveillance					46,318,000		
Global Air Traffic Management (GATM) Rollup					16,730,000		
RQ-7 Unmanned Aerial Vehicle (UAV) Modifications				34,125,000	34,125,000		
Support Equipment and Facilities							
Common Ground Equipment				16,225,000	16,225,000		
Air Traffic Control				27,836,000	27,836,000		
Other Missiles							
Indirect Fire Protection Capability Increment 2-I							
Multiple Launch Rocket System (MLRS) Reduced Range Practice Rockets (RRPR)				8,677,000	6,910,000		
Modification of Missiles							
Improved Target Acquisition System (ITAS) / TOW Modifications				19,676,000	19,676,000		
MLRS Modifications				2,000,000	2,000,000		
High Mobility Artillery Rocket System (HIMARS) Modifications				3,523,000	3,523,000		
Spares and Repair Parts (Missiles)				226,000	0		
Weapons and Tracked Combat Vehicles (WTCV)							
Fire Support Team (FIST) Vehicle (Modifications)				24,714,000	24,714,000		
Howitzer, Medium Self-propelled Full-tracked 155mm M109A6 (Modifications)				17,786,000	17,786,000		
Improved Recovery Vehicle (M88A2 Hercules)				23,351,000	23,351,000		
M88 Family of Vehicles (FOV) Modifications				169,000	169,000		
Mortar Systems				1,500,000	0		
XM320 Grenade Launcher Module (GLM)				4,870,000	4,870,000		
Carbine				9,144,000	6,391,000		
Handgun				1,599,000	0		
M777 Howitzer Modifications				7,148,000	7,148,000		
M2 .50 cal Machine Gun Modifications				8,095,000	8,095,000		
M119 Howitzer Modifications				28,613,000	28,613,000		

FY 2015 Planned vs Actual Procurements and Transfers

Nomenclature	Equip No.	FY 2015 Transfers (# of items)		FY 2015 Procurements (\$s)		FY 2015 NGREA (\$s)	
		Plan	Actual	Plan	Actual	Plan	Actual
Tactical and Support Vehicles							
Tactical Trailers/Dolly Sets				3,111,000	0		
Semitrailers, Flatbed				160,000	160,000		
ARNG HMMWV Modernization Program				0	160,000,000		
Family of Medium Tactical Vehicles (FMTV)				0	19,590,000		
Firetrucks & Associated Firefighting Equipment				414,000	0		
Family of Heavy Tactical Vehicles (FHTV)				19,570,000	22,925,000		
Palletized Load System (PLS) Extended Service Program (ESP)				36,598,000	36,598,000		
Modification of In-service Equipment				17,904,000	16,237,000		
Communications and Electronics Equipment							
Warfighter Information Network-Tactical (WIN-T) - Ground Forces Tactical Network				150,338,000	12,935,000		
Joint Incident Site Communications Capability				7,915,000	7,915,000		
Super High Frequency (SHF) Term				3,867,000	3,867,000		
SMART-T (Space)				4,400,000	4,400,000		
Global Broadcast Service (GBS)				3,250,000	0		
Joint Tactical Radio System				44,800,000	0		
Army Materiel Command (AMC) Critical Items - OPA-2				12,446,000	12,446,000		
Tactical Communications and Protective System				4,395,000	0		
Unified Command Suite				17,445,000	17,445,000		
Family of Medical Communications for Combat Casualty Care				12,171,000	12,171,000		
Communications Security (COMSEC)				6,163,000	6,773,000		
Prophet Ground				8,927,000	0		
Distributed Common Ground System - Army (DCGS-A) (MIP)				24,742,000	24,742,000		
Counterintelligence (CI) and Human Intelligence (HUMINT) Automated Reporting and Collection System (CHARCS) (MIP)				665,000	554,000		
Lightweight Counter Mortar Radar				8,810,000	8,810,000		
Sentinel Modifications				36,926,000	33,336,000		
Night Vision Devices				72,671,000	40,391,000		
Small Tactical Optical Rifle Mounted (STORM) Micro-Laser Range Finder (MLRF)				8,500,000	8,500,000		
Indirect Fire Protection Family of Systems				14,000,000	0		
Family of Weapon Sights (FWS)				10,000,000	0		
Artillery Accuracy Equipment				1,700,000	1,700,000		
Profiler				1,475,000	0		
Joint Battle Command - Platform (JBC-P)				15,173,000	15,173,000		
Joint Effects Targeting System (JETS)				11,000,000	0		
Modification of In-service Equipment (Lightweight Laser Designator/Rangefinder [LLDR])				5,725,000	6,512,000		
Mortar Fire Control System				4,593,000	24,447,000		
Counterfire Radars				209,050,000	154,520,000		
Fire Support Command & Control (C2) Family				2,553,000	2,553,000		
Air & Missile Defense Planning and Control System (AMDPCS)				15,886,000	15,886,000		
Network Management Initialization and Service				5,313,000	5,313,000		

ARNG

Table 6

FY 2015 Planned vs Actual Procurements and Transfers

Nomenclature	Equip No.	FY 2015 Transfers (# of items)		FY 2015 Procurements (\$s)		FY 2015 NGREA (\$s)	
		Plan	Actual	Plan	Actual	Plan	Actual
Maneuver Control System (MCS)				35,681,000	41,222,000		
Global Combat Support System - Army (GCSS-A)				27,726,000	27,726,000		
Reconnaissance and Surveying Instrument Set				5,809,000	9,189,000		
Items Less Than \$5M (Surveying Equipment)				1,704,000	1,704,000		
Other Support Equipment							
Ground Standoff Minefield Detection System (GSTAMIDS)				6,405,000	6,405,000		
Husky Mounted Detection System (HMDS)				4,080,000	4,080,000		
Explosive Ordnance Disposal (EOD) Equipment				3,013,000	3,013,000		
Remote Demolition Systems				819,000	819,000		
Items Less Than \$5M (Countermines Equipment)				2,381,000	1,469,000		
Heaters and Environmental Control Units (ECUs)				3,115,000	0		
Ground Soldier System				10,660,000	0		
Field Feeding Equipment				10,780,000	10,780,000		
Cargo Aerial Delivery & Personnel Parachute System				1,400,000	1,400,000		
Family of Engineer Combat and Construction Sets				17,714,000	0		
Items Less Than \$5M (Engineer Support)				5,939,000	0		
Distribution Systems, Petroleum & Water				19,733,000	19,733,000		
Combat Support Medical				11,052,000	11,052,000		
Mobile Maintenance Equipment Systems				10,967,000	11,959,000		
Items Less Than \$5M (Maintenance Equipment)				1,323,000	1,384,000		
Scrapers, Earthmoving				0	6,106,000		
Compactor				1,617,000	2,146,000		
Hydraulic Excavator				0	1,646,000		
Tractor, Full Tracked				13,464,000	12,570,000		
All Terrain Cranes				4,938,000	4,938,000		
Plant, Asphalt Mixing				667,000	667,000		
Enhanced Rapid Airfield Construction Capability (ERACC)				7,515,000	14,924,000		
Construction Equipment ESP				9,565,000	6,019,000		
Items Less Than \$5M (Construction Equipment)				4,405,000	0		
Generators and Associated Equipment				53,104,000	21,477,000		
Family of Forklifts				3,199,000	3,199,000		
Training Devices, Nonsystem				10,395,000	29,574,000		
Close Combat Tactical Trainer				4,746,000	2,706,000		
Aviation Combined Arms Tactical Trainer				4,395,000	3,062,000		
Gaming Technology in Support of Army Training				4,700,000	2,188,000		
Calibration Sets Equipment				2,173,000	2,370,000		
Integrated Family of Test Equipment (IFTE)				10,842,000	10,355,000		
Test Equipment Modernization (TEMOD)				7,067,000	4,373,000		
Modification of In-service Equipment (OPA-3)				3,713,000	7,498,000		
Army Materiel Command (AMC) Critical Items - OPA-3				4,542,000	4,542,000		

FY 2015 Planned vs Actual Procurements and Transfers

Nomenclature	Equip No.	FY 2015 Transfers (# of items)		FY 2015 Procurements (\$s)		FY 2015 NGREA (\$s)	
		Plan	Actual	Plan	Actual	Plan	Actual
<u>FY 2015 National Guard and Reserve Equipment Appropriation (NGREA) Equipment</u>							
Aviation							
Forward Looking Infrared Radar (FLIR) (A-Kit and B-Kit)						\$39,788,043	\$0
Civilian Communications Package (A-Kit and B-Kit)						23,520,000	39,335,750
Internal Auxiliary Fuel Tank System (A-Kit and B-Kit)						9,240,000	9,240,000
Display Unit (Day Heads Up Display) Upgrade						5,170,000	0
Blade Folding System						2,777,800	3,317,661
Gimbaled Raven Upgrade						1,525,000	0
Deployment Support Kit						1,152,000	3,858,250
Water Purification Kit						414,807	414,807
Aviation Ground Power Unit						95,540	132,070
Communications							
Armory as a Docking Station						1,800,000	0
Virtual Machine End Devices						880,000	880,000
GuardNet Security Log Management						857,990	2,657,990
Information Technology Training Center Classroom Modernization						282,900	282,900
Information Technology Training Center Computing Infrastructure Modernization						100,000	100,000
Domestic Operations							
Robotics Sensor Integration						11,400,000	11,400,000
Radiological Detector, High-Resolution w/Mapping						7,930,000	7,930,000
Chemical Detectors						2,737,128	2,737,128
Instantaneous Bio-analyzer and Collector						2,337,000	2,337,000
Gamma Spectrometer						2,077,000	2,077,000
Radiac Set						1,974,000	35,536,176
Detector Kit, Multi-Gas						1,926,940	1,926,940
Survey Computers						351,750	351,750
Joint Force Headquarters							
Sensitive Compartmented Information Facility (SCIF) Systems						8,000,000	8,000,000
Technical Surveillance Countermeasures Equipment Set						1,800,000	2,700,000
Logistics							
Assault Kitchen						4,200,000	4,200,000
Maintenance							
Maintenance Support Device						2,156,000	2,156,000
Training							
Virtual Convoy Operations Trainer (VCOT C3) upgrade						20,605,445	20,605,445
Transportable Blackhawk Operations Simulator						20,000,000	7,500,000
Multipurpose Range Complex Target System Upgrade						20,000,000	20,000,000
Synthetic Flight Simulator						18,000,000	7,155,000
Containerized Range System (Modularized Small Arms Range)						12,256,138	2,000,000
Operator Driver Simulator (ODS) Upgrade						11,003,278	11,003,278
Mobile Distributed Learning Classroom						9,518,670	9,518,670
Stryker RWS-TTT Crew Trainer Upgrades						8,266,544	14,784,396

ARNG

Table 6

FY 2015 Planned vs Actual Procurements and Transfers

Nomenclature	Equip No.	FY 2015 Transfers (# of items)		FY 2015 Procurements (\$s)		FY 2015 NGREA (\$s)	
		Plan	Actual	Plan	Actual	Plan	Actual
Mobile-Close Combat Tactical Trainer Upgrade						7,600,000	7,600,000
Non-Rated Crew Member Manned Module						3,000,000	3,000,000
Transportation							
Truck Cargo, Heavy Palletized Load System (PLS) Transporter RECAP						101,581,937	115,635,030
Truck Ambulance, HMMWV						33,100,000	39,222,998
Truck Utility, ECV TOW/ITAS Carrier, RECAP						15,574,090	15,403,761
Total				\$1,869,453,000	\$1,851,181,000	\$415,000,000	\$415,000,000

Major Item of Equipment Substitution List

NOTE: This table identifies equipment authorized by the Service to be used as a substitute for a primary item of equipment. The table also identifies whether or not the item is deployable in wartime. This data meets the Title 10 requirement to identify substitutes that are not the most desired equipment item.

Required Item Nomenclature	Reqd Item Equip No.	Substitute Item Nomenclature	Substitute Item Equip No.	FY 2018 Qty	Deployable?	
					Yes	No
Aircraft						
Helicopter Utility: UH-60M	H32429	Helicopter Utility: UH-60L*	H32361	8	X	
MEDEVAC Helicopter: HH-60M	M33458	Helicopter Utility: UH-60L*	H32361	10	X	
		HH-60L MEDEVAC Helicopter	U84291	10	X	
Unmanned Aerial Vehicle (UAV): (TUAV-SHADOW)	U05001	Unmanned Aircraft: RQ-7BV2	U05012	24	X	
Aviation						
Mobile Tower System (MOTS)	M05009	Air Traffic Control Central: AN/TSW-7A*	A27624	8	X	
Battle Command and Control (C2)						
Computer Set: Digital (JBC-P LOG) AN/UYQ-90B(V)4	C05055	Navigation Set: Satellite Signals AN/PSN-13	N96248	382	X	
Computer Set: Digital (JBC-P) AN/GYK-62G	C05037	Computer Set Digital: AN/GYK-65	C78804	14	X	
Generator Set: DED 5kW 50/60Hz Skid-mtd	G42488	Generator Set: DED 5kW 60Hz Skid-mtd*	G11966	1,080	X	
Generator Set: DED 5kW 60Hz Skid-mtd	G11966	Generator Set: DED 10kW 60Hz Skid-mtd	G74711	68	X	
Generator Set: DED 15kW 60Hz 3Ph AC 120/208 240/416V Skd Tac Util	J35835	Generator Set: DED TM PU-802	G53778	2	X	
		Generator Set: DED Trailer-mtd (TM) PU-803*	G35851	4	X	
Generator Set: DED 10kW 50/60Hz Skid-mtd	G07461	Generator Set: DED 10kW 60Hz Skid-mtd	G74711	1,476	X	
LTT Trailer-mtd: PP-3001 5 kW 50/60 Hz	L27002	Power Plant: Electric DED TM 5kW 60Hz AN/MJQ-35	P28083	8	X	
		Power Plant: Electric TM 30kW 50/60Hz AN/MJQ-40	P42126	3	X	
LTT Trailer-mtd: PU-2001 5 kW 50/60 Hz	L26934	Generator Set: DED TM 5kW 60Hz	G42238	293	X	
LTT Trailer-mtd: PU-2002 10 kW 50/60 Hz	L84622	Generator Set: DED TM 10kW 60Hz	G42170	1,117	X	
LTT Trailer-mtd: PU-2012 10kW 400Hz	L84758	Generator Set: DED 10kW 400Hz mtd on M116A2 PU-799	G53403	10	X	
Navigation Set: Satellite Signals AN/GSN-13	N96180	Navigation Set: Satellite Signals AN/PSN-13	N96248	28	X	
Trailer-mtd: PP-3102 10kW 50/60Hz M200A1	T39849	Power Plant: Diesel TM 10kW 60Hz AN/NJQ-37	P42262	17	X	
Trailer-mtd: PP-3105 30kW 50/60Hz 2M200A1	T39917	Power Plant: Electric TM 30kW 50/60Hz AN/MJQ-40	P42126	35	X	
Trailer-mtd: PP-3106 60kW 50/60Hz 2M200A1	T93232	Power Plant: Electric TM 60kW 50/60Hz AN/MJQ-41	P42194	28	X	
Trailer-mtd: PU-2101 15kW 50/60Hz M200A1	T40090	Generator Set: DED TM PU-802	G53778	864	X	
Trailer-mtd: PU-2102 30kW 50/60Hz M200A1	T39954	Generator Set: DED Trailer-mtd (TM) PU-803	G35851	232	X	
Trailer-mtd: PU-2103 60kW 50/60Hz M200A1	T60034	Generator Set: DED TM 60kW 50/60Hz PU-805 Chassis	G78306	178	X	
Trailer-mtd: PU-2113 60kW 400Hz M200A1	T93368	Generator Set: DED TM 60kW 400Hz PU-806 Chassis	G17460	4	X	
Detecting System Countermeasures: AN/MLQ-40(V)4	D04182	Detecting System: Countermeasures AN/MLQ-40(V)1	D02704	10	X	

Major Item of Equipment Substitution List

Required Item Nomenclature	Reqd Item Equip No.	Substitute Item Nomenclature	Substitute Item Equip No.	FY 2018 Qty	Deployable?	
					Yes	No
Processing Center Intelligence Version 2: AN/TYQ-103(V)	C18176	Processing Center Intelligence Multiple Truck Mounted: AN/TYQ-89	A52995	1	X	
Battle Command Transport Networks						
Terminal: Satellite Communication AN/TSC-154	T81733	Satellite Communications Terminal: AN/TSC-93A	S34963	10	X	
Combat Mobility						
Assault Breacher Vehicle (ABV)	A05001	Launcher Mine Clearing Line Charge Trailer Mounting: (MICLIC)	L67342	3	X	
Bridge Armored Vehicle Launched Scissors TY: 63 ft (AVLB) MLC 70	B31098	Bridge Armor Vehicle Launch Scissor TY: CL 60 Alum 60ft	C20414	12	X	
Detecting Set: Mine AN/PSS-14C	D05016	Detecting Set Mine: Portable Metallic (AN/PSS-11)	G02341	8	X	
Detecting Set: Mine AN/PSS-14	D03932	Detecting Set Mine: Portable Metallic (AN/PSS-11)	G02341	3,066	X	
High Mobility Engineer Excavator (HMEE): Type I	H53576	Tractor Wheeled: Industrial	T34505	68	X	
Loader Scoop Type: DSL 2-1/2cu yd Hinge Frme w/Multi Purp Bucket	L76556	Loader Scoop Type: 2.5 Cubic Yard	L76897	29	X	
Field Logistics						
Assault Kitchen (AK)	A94943	Kitchen: Company Level Field Feeding	K28601	204	X	
Hydraulic Sys Test and Repair Unit (Mx3):	H05002	Tool Outfit Hydraulic System: Test And Repair 3/4 Ton Tir Mtd	T30377	10	X	
Load Handling Sys (LHS): 2000 Gal Comp Water Tank-Rack (Hippo)	T32629	Forward Area Water Point Supply System: (FAW SS)	F42612	183	X	
Machinist's Measuring Tool Set (MMTS)	M20190	Tool Kit Machinist: Posts/Camps/Stations	W44512	1	X	
		Tool Kit Welders	W58075	266	X	
General Engineering						
All Terrain Crane Type II: (Heavy)	Z05089	Crane: Wheel Mounted Hydraulic 25-ton All Terrain AT422T	C36586	2	X	
Excavator: Hydraulic (HYEX) Type I Multipurpose Crawler Mount	E27792	Excavator: Hydraulic (HYEX) Type III Multipurpose Crawler Mount	E27860	3	X	
		Tractor Full Trckd Low Spd: Dsl Med Dbp W/Buldoz W/Scarif Winch	W76816	10	X	
Hydraulic Electric Pneumatic Petroleum Operate Equip (HEPPOE)	H05004	Tool Outfit Pioneer: Ptbl Hydraulic/Electric Tools Outfit (HETO)	W58486	30	X	
Scraper Earth Moving Self-Propelled: 14-18 cu yd (CCE)	S56246	Scraper Earthmoving: 14-18 cu yd	S05029	40	X	
Tractor FI Trkd Low Spd: Dsl Lgt Dbp Air Dropbl W/Angdoz W/Winch	W76285	Tractor FT: Low Speed - T5 Type II W/Ripper	T05026	8	X	
		Tractor Full Tracked High Speed: Deployable Lt Engineer (DEUCE)	T76541	4	X	
		Tractor Full Tracked Low Speed: T5	T05029	8	X	
Tractor Full Tracked High Speed: Deployable Lt Engineer (DEUCE)	T76541	Tractor Full Trckd Low Spd: Dsl Med Dbp W/Buldoz W/Scarif Winch	W76816	46	X	
Tractor Full Trckd Low Spd: Dsl Med Dbp W/Buldoz W/Scarif Winch	W76816	Tractor Full Tracked High Speed: Armored Combat Earthmover (ACE)	W76473	5	X	
		Tractor Full Trckd Low Spd: DSL Med Dbp W/Buldoz W/Scarif Ripper	W83529	2	X	
		Tractor Full Tracked Low Speed: T9	T05015	8	X	
Maneuver Combat Vehicle						
Carrier Armored Command Post: Full Tracked	C11158	Carrier Command Post: Light Tracked	D11538	38	X	
Command Variant Vehicle (CV)	C41314	Commander's Vehicle: Doubl Ev Hull (CVW)	C05052	1	X	

Major Item of Equipment Substitution List

Required Item Nomenclature	Reqd Item Equip No.	Substitute Item Nomenclature	Substitute Item Equip No.	FY 2018 Qty	Deployable?	
					Yes	No
Fighting Vehicle: Full Tracked Infantry (IFV) M2A3	F60564	Operation Desert Storm (ODS) Situational Awareness (SA): M2A2	P19727	3	X	
Fire Support Vehicle (FSV)	F86821	Knight: Armored	K29708	6	X	
Infantry Carrier Vehicle (ICV)	J22626	Infantry Carrier Vehicle: Double V Hull	J05009	16	X	
Reconnaissance Vehicle (RV)	R62673	Infantry Carrier Vehicle: Double V Hull	J05009	19	X	
Recovery Vehicle Full Tracked: Medium	R50681	Recovery Vehicle Full Tracked: Heavy M88A2	R50885	9	X	
Tank Combat Full Tracked: 120mm Gun M1A2	T13305	Tank Combat Full Tracked: 120mm Gun	T13168	10	X	
Soldier Systems						
Military Freefall Advanced RAM Air Parachute System	M05026	Parachute: Personnel	P68275	135	X	
Night Vision Device: AN/PSQ-20	N07848	Monocular Night Vision Device: AN/PVS-14	M79678	5,758	X	
Soldier Weapons						
Carbine 5.56mm: M4A1	C06935	Rifle: 5.56mm M4	R97234	117,770	X	
		Rifle 5.56mm: M16A2	R95035	84,793	X	
M205: Machine Gun Tripod	X05002	Mount Tripod Machine Gun: Heavy Caliber .50	M75577	3,415	X	
Rifle 5.56mm: M16A2	R95035	Machine Gun 5.56mm: M249	M09009	108	X	
Strike						
A3 Bradley Fire Support Team (BFIST): W/Fire Support Sensor System (FS3)	A70576	Armored: Reconnaissance	A40164	39	X	
Howitzer Light Towed: M119A3	H05007	Howitzer Light Towed: M119A2	H57505	60	X	
Radar System: Counter Fire Target Acquisition Radar	R05016	Radar Set: AN/TPQ-36(V)10	R14284	3	X	
		Radar Set: AN/TPQ-37(V)9	A41666	6	X	
Support Systems						
Container Handling: Heavy Exp Mobil Tact Trk (HEMTT)	C84930	Container Handling	C27294	16	X	
Trailers						
Trailer Cargo: 1-1/2 ton 2-Wheel	W95811	Trailer Flat Bed: M1082 Trlr Cargo LMTV W/Dropsides	T96564	120	X	
Trailer Cargo: 12-ton Light Engineer Utility Trailer	Z05224	Trailer Cargo: 1-1/2 ton 2-Wheel	W95811	16	X	
		Trailer Cargo: MTV W/Dropsides M1095	T95555	187	X	
		Trailer Flatbed: 5-ton 4-Wheel General Purpose	T96883	27	X	
Trailer Cargo: 5-ton Light Engineer Utility Trailer	Z05186	Trailer Flat Bed: M1082 Trlr Cargo LMTV W/Dropsides	T96564	211	X	
Trailer: Palletized Loading 8X20 M1076	T93761	Trailer Flat Bed: 11-ton 4-Wheel (HEMAT)	T45465	224	X	
Trucks						
Tractor Line Haul: M915A5	T88858	Truck Tractor: Line Haul C/S 50000 GVWR 6X4 M915	T61103	1,002	X	
Truck Ambulance: 2-Litter Armd 4X4 (HMMWV)	T38707	Truck Ambulance: 4-Litter Armd 4X4 (HMMWV)	T38844	1	X	
Truck Cargo: 2 1/2 ton 4X4 LMTV W/E W/W LAPES/AD	T42063	Truck Cargo: 2 1/2 ton 4X4 LMTV Lapes/Ad	T41995	5	X	
Truck Cargo: 5-ton 6X6 MTV W/E LAPES/AD	T41036	Truck Cargo: LWB WO/Winch	T93271	53	X	
Truck Cargo: 5-ton 6X6 MTV W/W LAPES/AD	T41104	Truck Cargo: 5-ton 6X6 MTV W/E LAPES/AD	T41036	1	X	
Truck Cargo: 5-ton WO/Winch	T41515	Truck Cargo: 4X4 LMTV W/E	T60081	500	X	

Major Item of Equipment Substitution List

Required Item Nomenclature	Reqd Item Equip No.	Substitute Item Nomenclature	Substitute Item Equip No.	FY 2018 Qty	Deployable?	
					Yes	No
Truck Cargo: MTV W/E W/W	T41135	Truck Cargo: MTV LWB W/W	T61772	8	X	
		Truck Cargo: MTV W/E	T61908	228	X	
Truck Cargo: W/MHE WO/Winch	T59584	Truck Cargo: 4X4 LMTV W/E	T60081	49	X	
Truck Cargo: WO/Winch	T59448	Truck Cargo: 4X4 LMTV W/E	T60081	85	X	
		Truck Cargo: 4X4 LMTV W/E W/W	T60149	97	X	
		Truck Cargo: LWB WO/Winch	T93271	82	X	
Truck Dump: 20-ton DED 12 cu yd Cap (CCE)	X44403	Truck Dump: 5-ton 6X6 W/E	X43708	23	X	
Truck Dump: MTV W/E	T64911	Truck Dump FMTV: 10 Ton	T65047	2	X	
		Truck Dump: 10-ton WO/Winch*	T65342	43	X	
Truck Dump: MTV W/E W/W	T64979	Truck Dump: 10-ton W/Winch	T65274	17	X	
Truck Palletized Loading: M1074A1	T55236	Truck Cargo: Heavy PLS Transporter 15-16.5 ton 10X10 W/MHE	T41067	1	X	
Truck Tractor: M107A1	T05012	Truck Tractor: Heavy Equipment Transporter (HET)	T59048	106	X	
Truck Tractor: MTV W/W	T61307	Truck Tractor: M1088A1P2 W/Winch	T61375	20	X	
		Truck Tractor: MTV W/E	T61239	45	X	
		Truck Tractor: WO/Winch	T88983	73	X	
Truck Wrecker: MTV W/E W/W	T94709	Truck Wrecker	T94671	101	X	

Significant Major Item Shortages

NOTE: This table provides a RC top ten prioritized (PR) shortage list for major equipment items required for wartime missions but which are currently not funded in the FYDP. It lists the total quantity required, the total unfunded requirement, the individual item cost, and the cost of the unfunded portion. This data is consistent with other unfunded equipment data submitted by the Service.

PR	Nomenclature	Total Req'd	# Items Short	Item Cost	Total Shortage Cost	Rationale/Justification
1	Rotary Medium Cargo Modernization	951	140	varies	\$2,808,872,187	UH/HH-60M helicopters, classified as Critical Dual Use (CDU) Items, replace UH-60A Helicopters in the ARNG Formations. The ARNG has sufficient UH-60s with modern substitutes, but the majority of the fleet is comprised of legacy H-60A/L variants. The divestitures of the H-60A/L are projected for FY 2023/2035 respectively, with the buyout for the UH/HH-60M being FY 2027/2028 and H-60V buy out occurring in FY 2036. There is a \$1.3B difference in shortage cost from FY 2017 to FY 2018 due to National Commission on the Future of the Army (NCFA) recommendation of turning in 30 UH-60s in order to keep 72 AH64s, then turning in 30 additional UH-60s to be converted from Lima to Mike models in ARNG Aviation. The ARNG is currently receiving H-60Ms as quickly as it can. Due to shortages in qualification school seats, which limit the rate at which H-60M qualified crews can be produced, this deficit, if not corrected will eventually result in a shortage of qualified crews.
2	Abrams Tank	174	14	\$7,598,833	\$106,383,662	Two of the ARNG's five Armored Brigade Combat Teams (ABCTs) are modernized and have M1A2 SEPv2 Abrams tanks. This shortage of 14 tanks represents one company in one of the two modernized ARNG ABCTs that still has M1A1 AIM-SA tanks. The get-well plan to modernize this company is coincident with the Army's overall "Least to Most" modernization strategy for ABCTs. As the newest Abrams variant, the M1A2 SEPv3, is produced and fielded to Active Component units, the ARNG will receive cascades of M1A2 SEPv2s. The cascades are not expected before FY 2021, but could begin within POM 19-23.
3	M3A3 Bradley Fire Support Team (BFIST) Vehicle	65	39	\$4,393,650	\$171,352,350	Two of the ARNG's five ABCTs are modernized and have M2A3 Bradleys, in Infantry Fighting Vehicle and BFIST variants. Each ABCT has 13 BFIST vehicles. This shortage of 39 M2A3 BFISTs represents the BFISTs found in the three unmodernized ABCTs. However, those three ABCTs are not short BFISTs; they have the M7 BFIST (a M2A2 ODS-SA variant). The get-well plan to modernize BFISTs across ARNG ABCTs is coincident with the Army's overall "Least to Most" modernization strategy for ABCTs. As the newest Bradley variant, the M2A4, is produced and fielded to Active Component units, the ARNG will receive cascades of M2A3s. The cascades are not expected before FY 2021, but could begin within POM 19-23.

Significant Major Item Shortages

PR	Nomenclature	Total Req'd	# Items Short	Item Cost	Total Shortage Cost	Rationale/Justification
4	Counterfire Radars	147	69	varies	\$359,840,300	<p>Radars units are operating with legacy systems, or no systems at all, which limits their ability to train on modern radar systems. The ARNG will continue to use legacy Firefinder Radars, where available, and follow the Headquarters, Department of the Army (HQDA) fielding plan until Full Materiel Release (to be determined) and Q-53 radar fielding is complete (expected FY 2022). However, Firefinder Radars are on the Master Divestiture List for divestment.</p>
5	Semitrailer: Low Bed: 25 Ton 4 Wheel W/E	604	420	\$262,852	\$110,397,840	<p>The Tactical Wheeled Vehicle (TWV) Reduction Study V reduced the prime mover requirements, but the reduction did not reduce trailer transport mobility requirements for maneuver units. ARNG owns the majority of the Army's Line Haul Transportation units and has a major shortfall in semitrailers. ARNG Equipment On-Hand (EOH) for M172 25-Ton Low Bed is 31%.</p>
6	Semitrailer Flatbed: Breakbulk/Container Transporter 34-Ton	3,960	1,873	\$70,787	\$132,584,051	<p>The Tank-automotive and Armaments Command (TACOM) conducted a safety inspection on the M872 Series fleet due to corrosion concerns. A total of 3,849 M872 A0-A3's were found to be corroded beyond repair for total Army. ARNG Equipment On-Hand (EOH) for M872 34-Ton Flat Bed is 52%. Current procurement of 140 M872A4s is only enough to sustain Active Component European and Army prep-positioned stocks (APS) Sets.</p>
7	All Terrain Crane Type II: (Heavy)	27	27	\$4,003,000	\$108,081,000	<p>This crane will provide horizontal and vertical construction companies, route clearance companies, equipment support platoons, and multi-role bridge companies with heavy lift and long reach capabilities needed to support maneuver brigade combat teams. The Heavy Crane is needed in the multi-role bridge company to lift the line of communication bridge (LOCB) and the Vehicle Mounted Mine detector red conex containers in the clearance company. This is the only system capable of lifting and placing the T-Wall barriers and is classified as a critical dual use item, replacing the 25 Ton Crane. To smooth funding through the Extended Planning Period, funds were reduced and moved to other weapon systems within the assured mobility portfolio.</p>
8	Excavator: Hydraulic (HYEX) Type I Multipurpose Crawler Mount	173	80	\$354,259	\$28,340,720	<p>The HYEX provides excavation and lifting capabilities for units performing construction missions in support of military and national goals and objectives. The system is used in support of major construction projects, protective shelters, and bridging operations. The HYEX is a commercial off-the-shelf (COTS) item, and only 20 systems have been procured for the ARNG for the next fiscal year, with no more scheduled in the near-term.</p>

ARNG

Significant Major Item Shortages

PR	Nomenclature	Total Req'd	# Items Short	Item Cost	Total Shortage Cost	Rationale/Justification
9	Force Protection	81	12	\$8,024,127	\$96,289,519	The ARNG has a shortage of 12 due to the program being discontinued. No future procurement for this system is available. The recommended solution would be redistribution/reprioritization of equipment; however, the Army as a whole is critically short this requirement. The Nuclear, Biological, Chemical Reconnaissance Vehicle (NBCRV) is capable of hosting existing and planned chemical, biological, radiological, and nuclear (CBRN) detection capabilities. It provides situational awareness and detects to warn via cooperative CBRN networks and Reconnaissance (RECCE) to increase the combat power of the deployed force, and to minimize force effectiveness degradation under CBRN conditions. The NBCRV performs CBRN RECCE (route, area, and zone), CBRN surveys (to determine extent of contamination), CBRN surveillance, and CBRN sampling in support of early entry and full spectrum operations. The NBCRV is an organic vehicle to Armor and Stryker Brigade Combat Teams (BCT) and Combat Support CBRN Companies and helps maximize commonality of the platform while simultaneously reducing the maintenance footprint and variety of logistic support.
10	Chemical, Biological, Radiological, Nuclear	91	91	\$837,984	\$76,256,544	This program has been delayed for over three years due to an unapproved technical manual (TM). This program is scheduled to begin fielding in 3rd Quarter 2018. The CBPS has the capability for quick assembly/disassembly and provides enough working space for four medical personnel and four to eight litter/ambulatory patients. The CPBS is designed for emergency medical use in the forward battle areas. The Chemical/Biological Protection Shelter (CBPS) is an integration of modular components consisting of a small enclosure, air conditioning, heating, filtration and overpressure, internal primary and auxiliary power source, and deployable structure.

III. Army Reserve Overview

A. Current Status of the Army Reserve

1. General Operational Overview

America's Army Reserve (AR) is a force-providing command of 199,000 Soldiers, and 11,000 Department of Defense Civilians who reside in every U.S. state and territory. The Army Reserve provides 20 percent of the Army's force structure, to include nearly half of the Army's total maneuver support and a quarter of the force generating capability for mobilization base expansion. The Army Reserve is manned, trained, and equipped to provide quick access to units required to deliver critical enabling capabilities in support of the Total Army and Joint Force. As an enabler-centric force, the Army Reserve provides most of the critical theater sustainment units and capabilities required to conduct early entry and theater opening operations to include: in-land petroleum distribution, common-user-land-transportation, command and control of seaport operations, management and distribution of bulk supplies, advanced medical care, aviation, chemical, wet and dry gap-bridging, and theater engineer capabilities.

Top Army Reserve Focus Areas
<ul style="list-style-type: none">• Attain more predictable and balanced funding to support enabler force modernization concurrent with maneuver forces• Prioritize resources to generate full-spectrum readiness for critical enabler capabilities• Pursue a new definition for equipment modernization to account for employability and effectiveness within a non-permissive environment• Seek policy enhancements that provide increased visibility of resource allocations & ability to project readiness

In an era of persistent conflict, the Army Reserve has demonstrated the ability to fully integrate with the Army as an operational force, by providing reliable capabilities to combatant commands. Currently, the Army Reserve has over 15,000 Soldiers deployed across 20 time-zones to meet full-spectrum operational demands, such as theater security cooperation, foreign humanitarian support, and HD/DSCA. While today's Army Reserve is the most experienced in its history, multiple years of unpredictable funding and difficult resourcing decisions have left much of the critical enabler equipment within the Army Reserve either totally obsolete or incompatible with maneuver forces.

a. The Army Reserve as an Operational Force

America's Army Reserve generates combat-ready units & Soldiers for the Army & Joint Warfighter that are trained, equipped, & lethal to win our Nation's wars.
- LTG Charles D. Luckey, 33rd Chief of Army Reserve and 8th Commanding General, U.S. Army Reserve

The current level of instability and unprecedented worldwide threats necessitate funding for retaining an operational Army Reserve that is compatible with the Total Army and fully capable of providing unique theater-level sustainment and logistics functions. As the current security environment drives a much larger force requirement on highly compressed mobilization timelines, generating readiness remains the Army Reserve's highest priority. At the same time, unpredictable funding has led to resourcing decisions that are focused on generating readiness along a tiered path. To that end, the Army Reserve has concentrated training, equipping and manning priorities to meet the challenge of generating full-spectrum readiness for Focused Readiness units. These units are primarily early entry and theater opening capabilities, most

critical to rapidly support the warfighter, capable of deploying into a theater within a matter of days and weeks. Through the Sustainable Readiness Model, other units considered operational and strategic depth forces will remain sized, trained, and postured to protect National interests, including HD and DSCA missions. Quickly generating and deploying units of action require the most capable modern equipment to close compatibility gaps and ensure units have the same level of protection, lethality, mobility, and common operating systems as the joint force they are fighting alongside.

b. Homeland Defense and Defense Support of Civil Authorities

America’s Army Reserve is uniquely postured with Soldiers and equipment co-located in over 1,100 communities to employ capabilities critical to HD and DSCA, including search and rescue, aviation, engineer, transportation, medical, water and fuel distribution, and communications support. The Army Reserve provides an immediate and deliberate response to DSCA demands. These responses differ in the authorities under which they are conducted and the source of the support requested.

In the wake of Hurricane Harvey, Army Reserve Soldiers provided support under Immediate Response Authority. Army Reserve Soldiers executed over 28 missions to rescue and evacuate 4,700 people and transport 100 emergency responders. Soldiers also provided immediate response in the aftermath of Hurricanes Irma and Maria that included transportation support for port assessments, road clearance, and command and control teams. Specifically, units stationed in Puerto Rico, were missioned to provide capabilities required for the movement of commodities, support for mortuary affairs, restoration of power, and opening of roadways. The agility of Army Reserve capabilities ensured successful support to state, territory and other Federal agencies as part of hurricane assistance operations during FY 2017.

A preponderance of the Army’s chemical and biological agent defense units are resident in the Army Reserve, and fully integrated into the standing Department of Defense task force postured for response to CBRN events. A mission force comprised of units assigned to the CBRN Response Element conducts tasks for CBRN response operations in support of combatant commanders and civil authorities in order to save lives, minimize human suffering, maintain public confidence, and mitigate the effects of CBRN incidents.

Readiness and availability of Army Reserve CDU equipment is essential in order to respond to HD and DSCA events. CDU equipment on-hand posture including substitutes is 90 percent, with a \$1.5B shortfall. Table 2-14 highlights the top Army Reserve CDU equipment shortage values by capability.

Table 2-14. Army Reserve Top CDU Shortages

Capability	Equipment Type	Shortage Value
Combat Bridge Transport–M1977A4	Bridging–Wet Gap	\$103M
Bridge Erection Boat	Bridging–Wet Gap	\$88M
Load Handling System–2,000 Gal Water	Water Distribution	\$49M
Chemical Biological Protective Shelter	Force Protection	\$75M

2. Status of Equipment

a. Equipment On-hand

Army Reserve EOH is 74 percent excluding substitute items and 93 percent with authorized substitutes, all of which are considered modern by Army standards. While equipment identified as mission-essential is only filled at 68 percent, creating gaps in critical capabilities crucial to early entry and theater opening operations. Equipment on-hand posture is artificially high, due in part to requirements reductions associated with force structure changes, incremental documentation of equipment authorizations, and redistribution of excess legacy equipment. Reduced new procurement funding and increased reliance on cascaded legacy equipment to fill Army Reserve shortages is projected to continue well beyond FY 2021.

Equipment routinely enters and exits the Army Reserve inventory during fiscal year equipment cycles. In fiscal year 2017, the Army Reserve divested more equipment than it received through cascades or new procurement. The disparity between incoming and outgoing inventory illustrates the current lack of funding for new procurement. Equipment divestment rates have increased as legacy equipment is identified as obsolete or has become a cost burden to maintain in the inventory.

b. Average Age of Major Items of Equipment

In the aggregate, Army Reserve equipment averages 27-years. This is a direct result of an equipping strategy that is reliant on reallocation of equipment as the primary means to equip the Army Reserve. The influx of this cascaded equipment in conjunction with the lack of investments in new enabler procurement programs has created an aging and incompatible fleet. Increased reliance on cascading of legacy equipment creates dependence on depot maintenance service life extension programs to achieve minimally acceptable readiness levels. Table 2-15 compares Army Reserve equipment age with economic useful life.

Table 2-15. Army Reserve Top Legacy Equipment

Nomenclature	Line Item Number	Average Age (years)	Economic Useful Life (years)
Armored Vehicle Launched Bridge*	L43664	42	25-30
M113A3 Armored Personnel Carrier	C18234	32	25-30
Semitrailer Flatbed 34-Ton*	S70159	28	17-25
Trailer Tank Bulk Petroleum 7.5K*	S73119	26	17-25
Heavy Dump Truck 20-Ton*	X44403	25	20-25
Bridge Erection Boat*	B25476	24	20-25

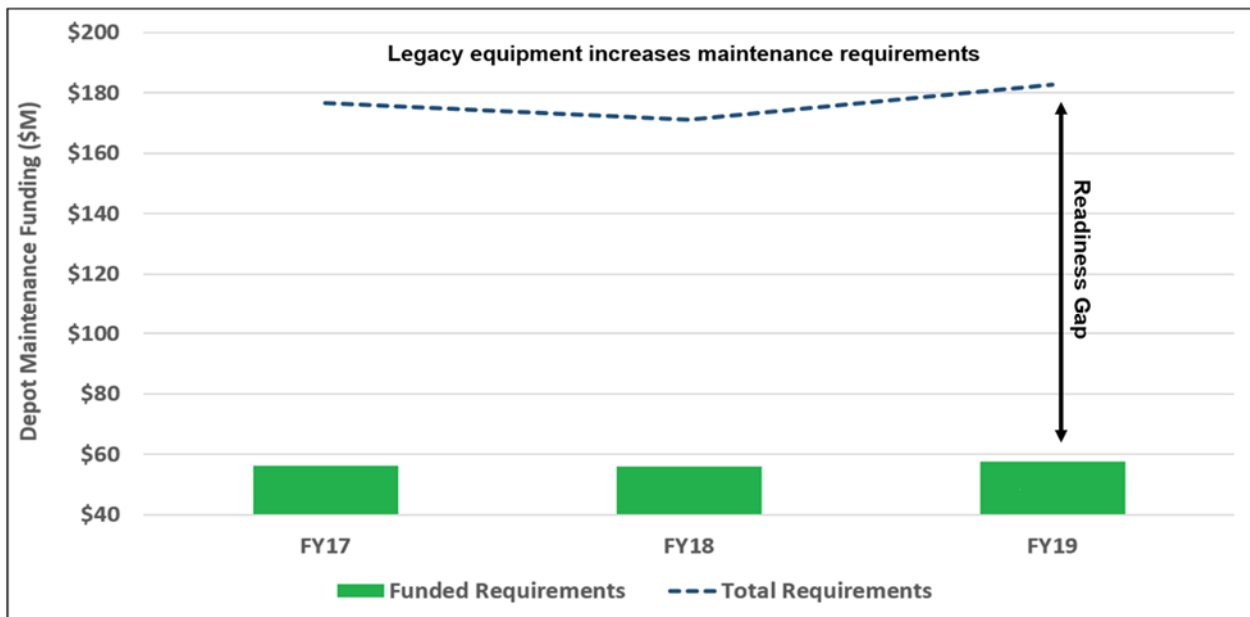
* Critical Dual Use (CDU) Equipment

c. Maintenance

Army Reserve depot maintenance service life extension programs are critical to sustain readiness levels required of an operational force. However, maintenance funding since 2014 has decreased by an average of 60 percent even as the age of equipment continues to rise. From 2001 to 2013, Army Reserve maintenance funding averaged \$110M annually. Since 2014, annual depot

maintenance funding has been reduced to an average of \$60M per year. This significantly adds to an enduring depot maintenance backlog with funding steadily declining to levels well below requirements which were previously funded at 60 percent. In 2018, Army Reserve’s total requirement equaled \$171M, yet the Army Reserve received less than 33 percent (\$55M). Figure 2-2 illustrates the widening gap in required and funded depot-level maintenance. This gap is projected to remain flat through FY 2021.

Figure 2-2 Army Reserve Depot Maintenance (Required vs. Funded)



d. Compatibility of Current Equipment with the Active Component

In the current threat environment, ground forces must fully integrate with the other services to project power from land into all domains. Joint force interoperability, particularly within the Joint Logistics Enterprise, must include full integration of Army Reserve capabilities. This drives the need for concurrent fielding of modern equipment to ensure compatibility requirements are met for maintaining an operational reserve. The Army Reserve requires predictable and dedicated funding to concurrently field new technology required to close growing compatibility gaps and control rising maintenance costs. The Army Reserve can achieve higher levels of compatibility with increased prioritization and investments in enabler programs.

e. Equipment Modernization

Ten years after the 2008 Commission on the NGR, equipment modernization remains the central limiting factor in achieving readiness objectives required of an operational reserve. Army Reserve enabler programs are chronically underfunded which constrains efforts to project and generate readiness. The process of cascading aging equipment to the Army Reserve construes readiness reporting by valuing quantity over quality, or EOH over modernization. For example, 100 percent of the Army Reserve’s current inventory is being reported as modern despite 20 percent of the inventory being identified for divestment. As such, readiness reporting metrics do not account for widening technology gaps inhibiting the integration of Army Reserve capabilities with the Total Force. This has led to systemic readiness issues across numerous capabilities

essential to opening and setting a theater of operations required to support the joint force in Unified Land Operations. Table 2-16 below illustrates examples of persistent compatibility gaps within critical equipment capabilities measured against globally deployable screening criteria.

Table 2-16. Army Reserve Compatibility Gaps

Gaps	Legacy Platform	Risk	Modern Platform
Protection	Light Tactical Vehicle Fleet (LTV)	64% of current LTV fleet does not meet the minimum force protection standards for global deployment to non-permissive threat environments.	Joint Light Tactical Vehicle (JLTV)
Mobility	Armored Vehicle Launched Bridge (AVLB)	AR provides 55% of total EAB Army bridging capability; AVLB is two generations behind the most modern Joint Assault Bridge (JAB) and mounted on an M60 chassis.	Joint Assault Bridge (JAB)
Sustainability	Bridge Erection Boat (BEB)	AR provides 37% of the total Army requirement; legacy fleet is beyond EUL, while new model provides improved reliability & sustainability utilizing embedded diagnostics.	Bridge Erection Boat (BEB) (B05006 Variant)
Lethality	M16 Rifle	80% of current on-hand in the AR are legacy M16 models identified for divestment; modern optics & grenade launchers will not mount on legacy models.	M4A1 Carbine
Network Interoperability	Movement Tracking System/FBCB2	32% of AR mounted command and control legacy systems are not network capable; AR has fielded 356 JBC-P systems or 3% of the total requirement.	Joint Battle Command - Platform

Lack of resource prioritization for enabler programs further compounds efforts to modernize the Army Reserve. Prioritization for concurrent funding and fielding of current technologies is critical to reverse degrading readiness capabilities and overcome aging legacy systems or obsolescence. Revisions to readiness reporting and budgetary policy are required to ensure inclusive prioritization of programming and budgeting for concurrent fielding of the latest enabler system technologies.

3. Transparency

The Army Reserve appreciates the opportunity to address statutory requirements and provide recommendations to improve transparency, auditability, and traceability of equipment from budget submission through delivery. Since inception, the transparency process has not sufficiently progressed to meet congressional intent, requiring stakeholders to address systemic challenges to achieve desired outcomes that include:

- Automated data collection for tracking delivery quantities to appropriations by fiscal year.
- Development of an auditable system within the centrally managed budget and procurement processes that authoritatively identifies fund execution for RC equipment.

- Establishment of AR component budget line items, reliable funding splits, and improved visibility of fielding plan adjustments.
- Ability to account for funding and quantities programmed, but not received.

The Army Reserve remains committed to supporting process improvements that deliver compliance with statutory requirements. However, the current Service Procurement Programs—Reserve (P-1R) is a non-binding budget exhibit that is not subject to audibility reviews. Short of a separate RC procurement appropriation, implementation of a RC-specific Budget Line Item Number (BLIN) within the Service Procurement Programs (P-1) budget exhibit offers the greatest opportunity to fulfill the transparency mandate and achieve audit readiness. The RC-specific BLIN will improve process collaboration between Army components while providing the predictability required to project and generate future readiness.

4. Army Reserve Equipping Strategy

Our goal is to equip an enduring operational reserve compatible with joint forces and ensure Army Reserve Soldiers are prepared at all times to deploy and perform any mission assigned. In order to accomplish this, the Army Reserve is focused on the following lines of effort, in line with Secretary of Defense Guidance to strengthen the U.S. Armed Forces: restoring readiness, building capacity and improving lethality, and improving efficiencies through policy and business reforms.

The Army Reserve is focused on building and sustaining high levels of readiness across the formation in order to provide the capacity necessary to support unified land operations. Building readiness across the force ensures the necessary reserve capabilities are available to set-the-theater and enhance lethality of the total force. For instance, the Army Reserve provides nearly all of the theater-level bulk fuel capability required to rapidly deploy forces. Providing necessary bulk fuel through-put to combat formations directly supports increased lethality in sustainment of combat operations. Funding and fielding current generation platforms and compatible equipment enables seamless support while providing necessary Soldier protection in an emerging threat environment.

The Army Reserve equipment strategy is representative of Army priorities that match current funding levels. The Army's equipping strategy is to selectively modernize and build new only by exception. In selective modernization, the Army Reserve receives new equipment along an incremental path over a longer time horizon. Improvements to transparency through RC-specific BLINS on P-1s will give the Army Reserve a more realistic and predictable site picture in projecting and generating future readiness. The Army Reserve will prioritize available resources to enhance readiness of priority units, providing joint forces with critical capabilities and capacity necessary for contingency response. In the near-term, the main effort is on early deploying formations, consisting of units prepared for deployment and required within the first 0 to 90 days. The Focused Readiness construct rationalizes equipping and modernization strategies across lines of effort to improve survivability-protection, mobility-speed, lethality, interoperability, and sustainability.

5. Equipping Successes

Procurement of the new high mobility multi-wheeled vehicle Ambulance is an example of an extremely successful modernization program for the Army Reserve. From FY 2013 to 2017, Congress dedicated \$137 million for the Army Reserve to procure 460 HMMWV Ambulances. The ambulance modernization program was solely funded through congressional support and marks the first time predictable funding led to concurrent fielding of an enabling program and restored an Army Reserve legacy capability to the most current generation featuring the latest technology.

B. Future Years Program (FY 2019–FY 2021)

1. New Equipment Procurements

a. Base Budget

Consistent funding is critical to current and future readiness. Without predictable funding, the Army Reserve, along with all components of the Total Army, will have difficulty meeting the operational capability requirements of the Army and Combatant Commands in a full spectrum environment.

- 2017 U.S. Army Reserve Posture Statement by LTG Charles D. Luckey, Chief of Army Reserve

The importance of sustaining operational Army Reserve capabilities requires consistent, adequate, and predictable funding. Budget uncertainty coupled with funding caps has negatively affected modernization and equipping investments. The Army has nearly half of the funding for modernization and equipment than it had eight years ago, while the Army Reserve has less than 75 percent. Two decades of modernization challenges coupled with prioritization decisions has led to incremental upgrades to existing systems. Since 2013, over 270 modernization programs have been delayed, restructured or canceled altogether, the majority of which supported the modernization of enabler platforms needed to support theater-sustainment and logistics capabilities. Reductions have impacted all Army components, but disproportionately affects the enabler-centric Army Reserve. Figure 2-3 depicts the Army Reserve portion of the base budget profile for FY 2010–FY 2021. FY 2010 represents peak funding required to sustain and equip an operational reserve. The funding profile flattened beginning in FY 2013 a trend that is projected to continue through FY 2021, with the Army Reserve averaging less than 4 percent of the total base equipping budget. Increased reliance on Army Reserve operational capabilities requires adequate funding to meet current and future demands.

Figure 2-3. Army Reserve Procurement Funding

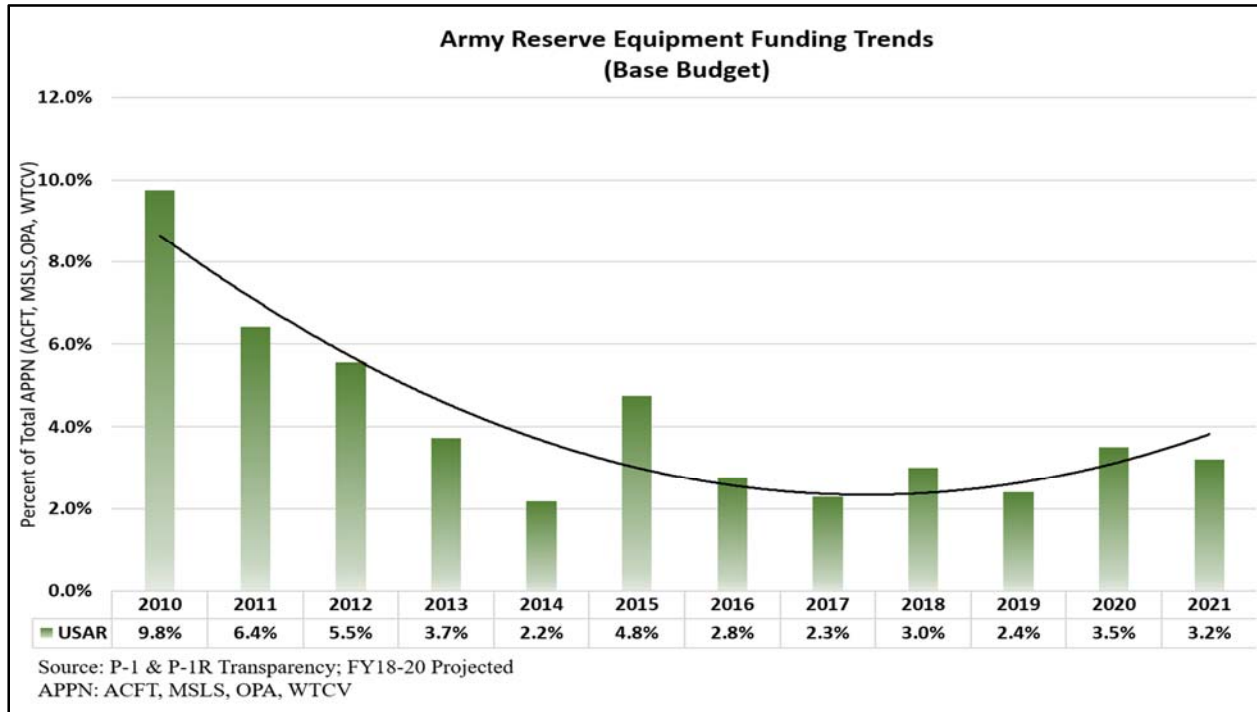
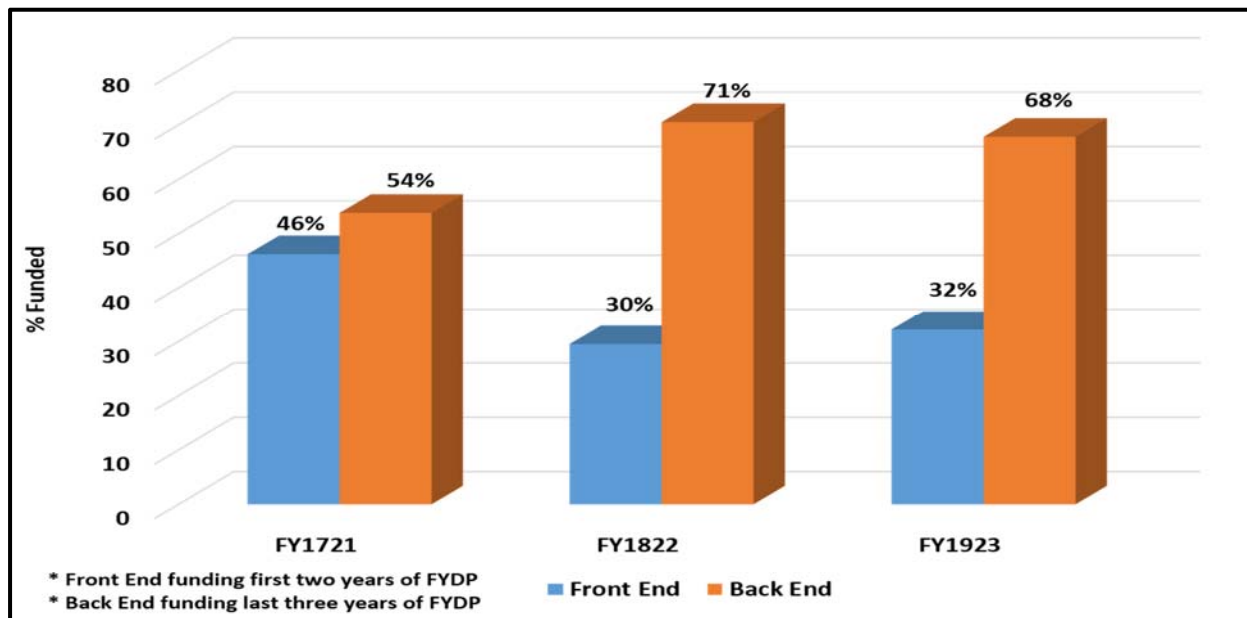


Figure 2-4 displays Army Reserve base funding for the last three budget cycles, illustrating a trend of continually funding the majority of equipment at the end of each cycle. As a result of this investment strategy, the Army Reserve is unable to realize a funding profile that provides balanced modernization with the total force, creating readiness gaps for key enablers.

Figure 2-4 Army Reserve Base Funding Profile—Back Loaded

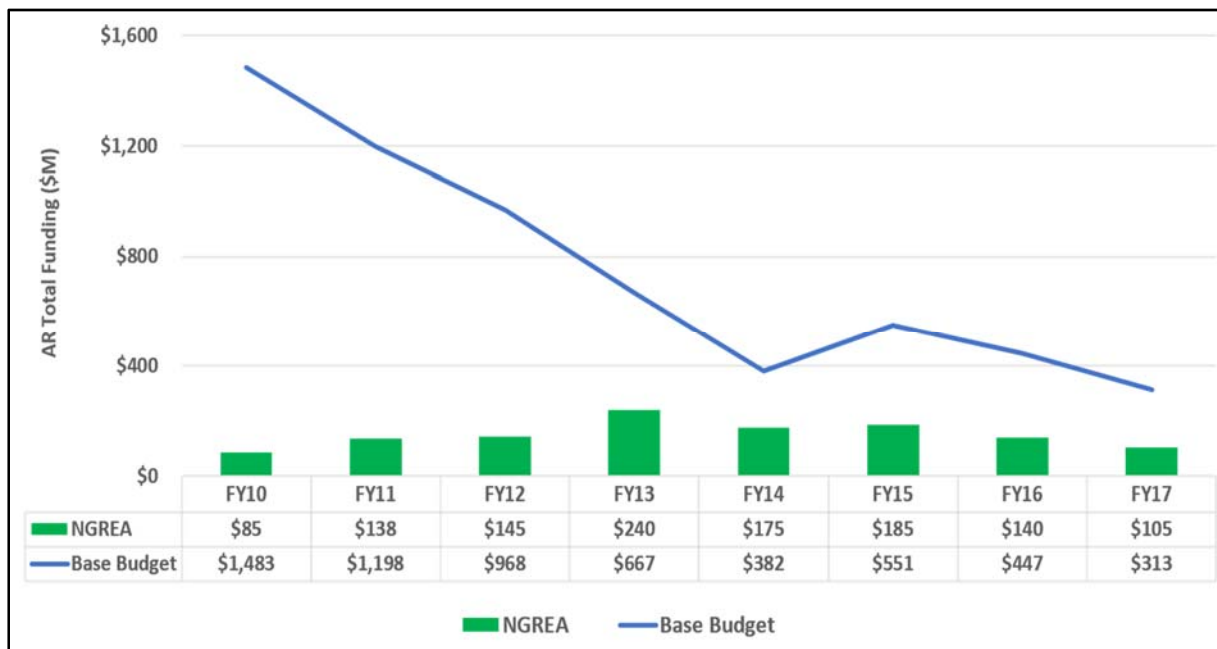


Limited funding will continue to affect modernization efforts for the foreseeable future and hinder new procurement for AR capabilities well beyond FY 2021. In lieu of new equipment fielding, the primary method for equipping the Army Reserve is through redistribution of cascaded equipment. In this process, equipment that is superseded by a newer generation platform along a modernization path is cascaded to Army Reserve formations then ultimately classified as “obsolete” and divested from the Army. The cascade model of equipping becomes a strategic storage cycle for strategic reserve formations. This method allows strategic depth units to train and sustain readiness levels acceptable for a strategic reserve. However, in order to globally deploy Focused Readiness units to a non-permissive environment, concurrent fielding of new and fully-compatible equipment is required to fulfill early entry and theater opening requirements. This will ensure a high state of equipment and training readiness, while providing the same level of protection, mobility and lethality as the joint force for early deployed Soldiers.

b. National Guard and Reserve Equipment Appropriation (NGREA)

The Army Reserve appreciates continued congressional support in funding the above base account. NGREA has been invaluable resource that supported the Chief of Army Reserve in fielding newer systems not prioritized or programmed for funding in the base procurement budget. NGREA allocated to the Army Reserve from FY 2015 to 2016 enabled investments in tactical wheeled vehicles (\$164M), Engineer (\$28M), simulations (\$23M), and field logistics (\$21M). In FY 2017, \$105 million in NGREA accounted for 25 percent of the total equipment budget allocated to the Army Reserve. As Figure 2-5 below indicates, congressional support for above base funding has been critical in modernizing Army Reserve capabilities. The graph illustrates the nexus between a declining base budget and NGREA funding trend lines.

Figure 2-5. Army Reserve Base–NGREA Funding



2. Anticipated Transfers from Active Component to Reserve Component

Table 5 Projected Equipment Transfer/Withdrawal Quantities reflects planned equipment transfers from AC to the Army Reserve from FY 2019–FY 2021.

3. Anticipated Withdrawals from Army Reserve Inventory

The Army Reserve transferred 30 five-thousand gallon fuel tankers to United States Army European Command (USAEUR) in support of ongoing operational mission support. Equipment payback plans in accordance with DODI 1225.06 requirements are approved with anticipated equipment return or replacement not later than FY 2019.

4. Equipment Shortages and Modernization Shortfalls

Army Reserve equipment shortages and modernization shortfalls are based on data derived from the Army's 980K force structure analysis. The following portfolio funding narratives highlight Army Reserve equipment shortages and resource shortfalls. Army business rules do not allow for advance documentation of validated equipping requirements prior to resourcing and fielding. The embedded data tables include both documented and validated Basis of Issue Plans requirements. Based on the published FY 2016 Army projections, the total Army Reserve equipment shortage value is \$6.2B. The Army Reserve shortage value decrease of \$1.4B from the FY 2018 to FY 2019 report is attributed to overall adjustments in requirements, delayed documentation of new equipment requirements, accelerated divestment and cascading of legacy equipment to fill shortages in-lieu of procuring new equipment. For example, accelerated divestment of legacy equipment and requirements reductions combined with minimal base budget investments reduced the mission command portfolio shortage value by \$800M.

a. Aviation Portfolio

The Army Reserve owns six percent of the total Army aviation structure, with a fleet consisting of both fixed-wing and rotary-wing aircraft. Every Army Reserve aircraft is considered a CDU capability suitable for both contingency operations and HD/DSCA missions.

Investments in New Procurement and Modernization: Army Reserve is reliant on base funding for aircraft procurement and modernization programs. The base funding profile reflects emphasis on rotary-wing investments, particularly CH-47F model Chinook procurements in FY 2018. FY 2019–FY 2021 funding is focused on ground support equipment and C-12 fixed-wing aircraft upgrades (see Table 2-17.)

Table 2-17. Aviation Procurement Funding

Funding Source	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021
Base Budget (P-1R)	\$13M	\$16M	\$166M	\$30M*	\$19M*	\$24M*

* Projected

Aviation Restructuring Initiative (ARI): The Army Reserve is on track to complete conversion of two rotary-wing Attack Reconnaissance Battalions to Assault Helicopter Battalions by the end of FY 2018 as required by ARI. The UH-60L Blackhawk airframe replaced the AH-64D Apache, with a final growth of 48 airframes to 60 airframes under the assault helicopter unit design. The Army Reserve’s top critical documented shortages within the Aviation Portfolio are listed in Table 2-18 below.

Table 2-18. Aviation Top Equipment Shortages

Capability	Required	On-Hand	Shortage	FY 2021 On-Hand Projected	Unfunded Requirement
HH-60M Black Hawk MEDEVAC*	60	30	30	30	\$510M
C-12 Airplane*	32	30	2	30	\$16M

* Critical Dual Use Equipment

Aviation Focal Points:

- The Army Reserve will complete CH-47 aircraft modernization in FY 2018. Heavy Lift helicopter companies will be equipped with the most modern F model platforms.
- 50 percent (2 of 4) of Air Ambulance Companies are equipped with the most-modern HH-60M Blackhawk models. The remaining units are equipped with UH-60L and HH-60L MEDEVAC variants. Army strategy to address remaining unfunded rotary-wing platform modernization will consist of new procurement and cascading actions beyond FY 2021.
- The Future Utility Aircraft (FUA) is anticipated to replace legacy C-12 airframes, which average 25 years of age. Resource decisions have delayed FUA production beyond FY 2021.

b. Mission Command Portfolio

The Mission Command portfolio consists of four capability areas: transport, applications, enablers, and integration that facilitate joint interoperability. The rate of technology advancement is outpacing the ability of the Army to resource modern systems evenly across the total force. The Army Reserve is multiple generations behind in the most modern mission command systems, creating communication compatibility gaps with the Total Force. As the Mission Command modernization strategy is implemented, the Army Reserve is not sufficiently prioritized within fielding plans to achieve battlefield commonality. It is difficult to discern the portfolio funding outlook due to fiscal constraints driving continued requirement adjustments and reprogramming actions. However, total Army Reserve Mission Command equipment modernization budget shortfall estimates exceed \$600M based on documented and validated future requirements.

Mission Command Focal Points:

- Resource prioritization for Mission Command systems favor maneuver units. Resourcing is not adequate to field to the total force or keep pace with the replacement of obsolete equipment.

- Approximately 32 percent of Army Reserve mounted command and control systems are not network capable. The Army investment strategy accelerates procurement to address legacy system network compatibility challenges by FY 2019 and seeks complete modernization by FY 2023.
- Legacy tactical radio systems require cryptologic upgrades to remain network worthy. Projected fielding for modern systems is limited, forcing the Army to reduce system requirements to offset near to mid-term modernization costs.

c. Transportation Portfolio

The majority of the Army’s EAB transportation capability resides within the Army Reserve. The portfolio consists of motor transport and watercraft platforms. The Army Reserve provides over 50 percent of total Army watercraft and 43 percent of motor transport units, comprising light, medium, and heavy Tactical Wheeled Vehicles.

Investments in New Procurement and Modernization: In FY 2016 and FY 2017, base budget funding (\$132M) accounted for 57 percent of total TWV portfolio investments (\$231M), while NGREA funding (\$99M) allowed the Army Reserve to fill unfunded modernization gaps across the fleet. Base budget declines in FY 2017 and FY 2018 are indicative of resource limitations and Army decisions to shift funding to higher priority programs. Increased funding in FY 2020 and 2021 reflect initial investments in the Joint Light Tactical Vehicle to begin fielding in FY 2022 and supports the Service Life Extension Program for the Landing Craft Utility watercraft fleet.

Table 2-19. Tactical Wheeled Vehicles Procurement Funding

Funding Source	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021
Base Budget (P-1R)	\$117M	\$15M	\$24M	\$36M*	\$223M*	\$61M*
NGREA Investment	\$63M	\$36M				

* Projected

The current fiscal environment creates funding gaps for fleet modernization in the near to mid-term, but provides a funding solution to upgrade 50 percent of legacy fleets to meet armor-capable strategy goals. Delayed investments in new procurement and recapitalization programs will increase sustainment costs required to maintain readiness levels of the legacy TWV fleet and risks interoperability with the Total Force. Top unfunded shortfalls are listed in Table 2-20.

Table2-20. Tactical Wheeled Vehicles Top Equipment Shortages

Capability	Required	On-Hand	Shortage	FY 2021 On-Hand Projected	Unfunded Requirement
Joint Light Tactical Vehicle (JLTV)	14,687	0	14,687	0	\$4.9B
M915A5*	2,414	985	1429	985	\$500M
M872 34 Ton Trailer*	1,700	860	840	860	\$36M
Heavy Dump Truck - 20 Ton*	357	0	357	21	\$ 71M

* Critical Dual Use Equipment

Transportation Focal Points:

- The Light Tactical Vehicle fleet investment strategy is pending an FY 2018 Army decision on future platform requirements. The current LTV fleet will remain HMMWV centric and approximately 36 percent armor-capable through at least FY 2024, when Army Reserve is projected to begin JLTV fielding in greater quantities. Requirements equal approved basis of issue plans however Army is still determining the procurement objective.
- The production of the armor-capable M915A5 Line-Haul Tractor ceased prior to fulfilling Army Reserve fleet shortages and modernization requirements. There is no plan to restart production of this critical theater opening capability until FY 2032, leaving only 40 percent of the total Army Reserve line haul fleet capable of global deployment to a non-permissive threat environment.
- Corrosion problems have affected the suitability of over 74 percent (849 of 1,155) of the Army Reserve M872A0-A3 34 ton trailer fleet for deployment and readiness of cargo line-haul theater opening assets. Although the Army is working diligently to establish a viable near-term mitigation solution, a robust replacement strategy is not expected to begin until FY 2023.
- The Heavy Dump Truck (20 Ton) investment strategy is limited to modernizing approximately 12 percent (43 of 357) of the total Army Reserve legacy fleet to an armor-capable variant by FY 2023. Army is exploring options to replace the remaining fleet which is at or beyond economic useful life.

d. Mobility and Engineering Portfolio

The Army Reserve provides 36 percent of the Army’s EAB Mobility structure. The portfolio consists of construction, tactical bridging, engineer support, command and control, mines and munitions, counter explosive hazard and armored vehicle systems. Mobility equipment shortages and modernization budget shortfalls exceed \$938M in documented requirements.

Investments in New Procurement and Modernization: In FY 2016 and FY 2017, the Army’s base budget procurement funding (\$156M) accounts for 73 percent of the total Mobility portfolio investments (\$214M) with NGREA funding (\$58M) filling critical funding gaps. Increased funding in FY 2019–FY 2021 (\$501M) reflects investments in Army Reserve combat mobility systems, particularly dry and wet gap bridging equipment (see Table 2-21 below.)

Table 2-21. Mobility Procurement Funding

Procurement Source	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021
Base Budget (P-1R)	\$95M	\$61M	\$80M	\$124M*	\$126M*	\$251M*
NGREA Investment	\$29M	\$29M				

* Projected

The Army’s near to mid-term base budget strategy focuses on resetting and modernizing engineer capabilities resident in Brigade Combat Teams and assumes greater risk in EAB enabler equipment acquisition. Extending procurement timelines for mission essential Mobility equipment is directly impacting Army Reserve readiness posture by placing a greater burden on maintaining less optimal legacy platforms well beyond their economical useful life and creating

capability gaps with the Total Force. Top mobility unfunded equipment modernization shortages are listed in Table 2-22 below.

Table 2-22. Mobility Top Equipment Shortages and Modernization Challenges

Capability	Required	On-Hand	Shortage	FY 2021 On-Hand Projected	Unfunded Requirement
Joint Assault Bridge (JAB)*	96	0	96	6	\$513M
Common Bridge Transport - M1977A4*	504	56	448	238	\$99M
Bridge Erection Boat (BEB)*	126	0	126	28	\$88M
Heavy Crane (50 Ton)	75	0	75	8	\$101M

* Critical Dual Use Equipment

Mobility and Engineering Focal Points:

- The JAB replaces the legacy 60 year old Armored Vehicle Assault Bridge platform. Priority for fielding is focused on modernizing Armor Brigade Combat Teams in the near-term. The Army Reserve is projected to modernize 1 of 16 Mobility Augmentation Companies by FY 2021. Proposed funding in FY 2019 and 2020 was shifted to FY 2021 and beyond resulting in a projected decrease of 16 systems fielded before FY 2021.
- New start programs to upgrade both the Common Bridge Transport to an armor-capable model and replace legacy Bridge Erection Boats began in FY 2017–2018. Based on Army investment priorities, Army Reserve is projected to modernize 2 of 9 Multi-Role Bridge companies by FY 2021.
- Force design updates increased Heavy Crane requirements by 47 percent and surpasses the current acquisition objective, leaving the Army Reserve with an unfunded requirement.

e. Field Logistics Portfolio

The portfolio comprises maintenance, medical, bulk supply, and liquid logistics capabilities, the majority of which are CDU items. Over 50 percent of the Army’s capacity for Field Logistics resides in the Army Reserve. Unique capabilities include 92 percent of the Total Army’s bulk petroleum support, 88 percent of general supply, 49 percent water storage/distribution and 59 percent of medical capabilities.

Investments in New Procurement and Modernization: FY 2016–FY 2017 Army base budget procurement funding (\$72M) accounted for 62 percent of total Field Logistics portfolio investments (\$117M), with NGREA funding (\$45M) accounting for the remaining 38 percent. FY 2017–FY 2021 base funding is primarily aimed at modernizing medical systems/equipment, fuel/water storage and distribution systems, maintenance tool/diagnostic sets and material handling equipment (see Table 2-23 below.)

Table 2-23. Field Logistics Procurement Funding

Procurement Source	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021
Base Budget (P-1R)*	\$37M	\$35M	\$38M	\$35M*	\$30M*	\$39M*
NGREA Investment	\$26M	\$19M				

* Projected

The Field Logistics portfolio has and continues to be on a minimum sustainment funding rate since enactment of the BCA. Significant challenges impacting readiness and interoperability include shortages and modernization gaps within petroleum delivery and storage capabilities. The lack of investment to modernize liquid logistic platforms at the echelons above brigade level degrades early entry and theater-opening storage capacity and bulk distribution required to support joint forces in a non-permissive environment. Top equipment modernization shortages are listed in Table 2-24 below.

Table 2-24. Field Logistics Critical Equipment Shortages

Capability	Required	On-Hand	Shortage	FY 2021 On-Hand Projected	Unfunded Requirement
Mobile Tactical Retail Refueling System (MTRRS)	813	0	813	44	\$41M
Fuel Trailer 7.5k-M1062P1*	480	0	480	0	\$60M
Water Trailer-2000 Gal*	492	48	444	117	\$49M
Rough Terrain Forklift - 5K*	1,067	352	715	501	\$42M

* Critical Dual Use Equipment

Field Logistics Focal Points:

- Investments in the 2,000 gallon water trailer and Rough Terrain Forklift are delayed due to follow-on contract implementation and limited resources. The fielding time horizon for both systems will extend well beyond FY 2026.
- The Army does not have a funded strategy thru FY2026 to replace the legacy 7,500 gallon bulk fuel trailer that is beyond economic useful life. The Army Reserve owns 100 percent of the requirement for this critical Theater Opening capability.

Medical Focal Points:

- The Combat Support Hospital (CSH) is transitioning to the Field Hospital (FH) Force Design Update (FDU) requiring equipped and modernized Regional Training Sites to sustain medical readiness through collective training opportunities.
- Based on the Army equipping strategy for medical equipment, only 4 out of the 16, 248-bed Army Reserve Combat support hospitals are equipped based on Army fielding strategy for medical equipment.
- Risk is mitigated through fielding of minimal hospital sets maintained at three Regional Training Sites-Medical (RTS-MED) that support multi-component and Joint collective training requirements. A total resource shortfall of \$66M exists to modernize all three sites.

f. Force Protection and Soldier Portfolios

The Force Protection portfolio consists of CBRNE Defense, Civil Affairs and Military Information Support Operations (CA/MISO), and Military Police. The Soldier portfolio consists of individual and crew items required for combat.

Investments in New Procurement and Modernization: FY 2016–FY 2017 Army base budget procurement funding (\$68M) accounts for 91 percent of the total Force Protection and Soldier portfolio investments (\$75M), with NGREA funding (\$7M) accounting for the remaining 9 percent. The FY 2017–FY 2021 base budget funding primarily reflects investments in modernization of individual Soldier weapons and NBC protection equipment 2-25 below.

Table 2-25. Force Protection and Soldier Procurement Funding

Funding Source	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021
Force Protection & Soldier Base Budget (P-1R)	\$26M	\$42M	\$35M	\$32M*	\$36M*	\$14M*
FP NGREA Investment	\$6M	\$1M				

* Projected

Limited funding for force protection modernization programs increases the risk in bio detection and protection capabilities required to provide responsive support for HD and DSCA missions and limits abilities to bolster the force protection posture. The Army Reserve’s top critical shortages within the Force Protection and Soldier portfolios are listed in Table 2-26 below.

Table 2-26. Force Protection and Soldier Top Equipment Shortages

Capability	Required	On-Hand	Shortage	FY 2021 On-Hand Projected	Unfunded Requirement
Rifle 5.56mm: M4A1	144,573	20,365	124,208	77,688	\$47M
Chemical/Biological Protective Shelter (CBPS)*	97	0	97	42	\$45M

* Critical Dual Use Items

Force Protection and Soldier Focal Points:

- 77 percent of current on-hand carbines are obsolete M16 models identified for divestment. Modern optics and grenade launchers will not mount on the M16. Funding to complete the Army M4A1 pure fleet strategy is delayed beyond FY 2021.
- The CBPS is a critical dual-use item that provides a mobile, self-contained, rapidly deployable system for both chemical and medical units to conduct environmentally controlled operations. After many contract delays, fielding commences in April 2018 and the Army Reserve will receive 42 systems thru FY 2020.

C. Summary

Funding to retain the Army Reserve as an operational force is important, as the demand for our trained and ready formations consisting of unique enabling capabilities remains high. Contingency plans require ready and trained Soldiers, equipped to deploy on short notice and integrate with joint forces in order to build theater-level capacity with maneuver support and sustainment capabilities such as: bulk fuel, transportation, theater engineers, civil affairs, medical, bulk supply, chemical, port opening, and watercraft. In order to meet operational and future contingency demands, the Army Reserve as with the rest of the Army, requires long-term predictable funding balanced across maneuver, maneuver support and sustainment capabilities.

In the current fiscal environment, Army Reserve formations are primarily equipped through cascading of legacy equipment while incrementally modernized with the Total Army. Resources to fill Army Reserve shortage requirements with the most modern compatible equipment is lower than pre-911 funding profiles with less than 4 percent of the total equipment budget. As such, the implementation of RC-specific BLINs on P-1s will increase visibility of base procurement funding from appropriation to delivery and support requests to prioritize investments for enabler-centric equipment platforms. NGREA continues to provide the Chief of Army Reserve a valuable resource to fill base budget gaps for priority capabilities that enhance training and ensures unit readiness for deployment to a decisive action environment.

Army Reserve Soldiers must be ready to operate within non-permissive environments globally as part of a compatible and fully-interoperable force. Army Reserve units enable lethality by performing early entry operations, setting theater logistics and sustainment capabilities and capacity to provide support. Through a balanced investment strategy, metrics to project readiness, and modernization programs based on building compatibility, the Army Reserve will achieve a higher state of readiness to deploy as a critical part of the Total Army and Joint Force.

Consolidated Major Item Inventory and Requirements

NOTE: This table provides a comprehensive list of selected major equipment items. It provides the projected inventory quantity on-hand (QTY O/H) at the beginning/end of the selected fiscal year (FY). It also provides the quantity required (QTY REQ) to meet the full wartime requirements of the Reserve Component. In accordance with Title 10, the QTY REQ number provides the recommendation as to the quantity and type of equipment that should be in the inventory of each Reserve Component. FY 2018 unit cost estimates are provided by the Military Departments.

Nomenclature	Equip No.	Unit Cost	Begin FY 2019 QTY O/H	Begin FY 2020 QTY O/H	Begin FY 2021 QTY O/H	End FY 2021 QTY O/H	End FY 2021 QTY REQ
Air Defense							
Center: Communications Operations	C18033	\$3,748,800	5	5	5	5	5
Radio Set: AN/USQ-140(V)2(C)	R42399	\$3,766,000	2	2	2	2	5
Aircraft							
Airplane Cargo Transport: C-12D	A29812	\$1,967,301	4	4	4	4	0
Airplane Cargo Transport: C-12F	A30062	\$3,068,422	15	15	15	15	32
Airplane, Utility: UC-35B	A05015	\$7,000,000	5	5	5	5	0
Airplane, Cargo Transport	BA108Q	\$2,150,000	2	2	2	2	0
CH-47F Improved Cargo Helicopter	C15172	\$34,035,255	36	36	36	36	36
Helicopter Utility: UH-60L	H32361	\$16,967,644	78	82	84	84	84
Helicopter Utility: UH-60M	H32429	\$17,044,052	46	46	46	46	0
HH-60L: MEDEVAC Helicopter	U84291	\$16,967,644	5	5	5	5	15
MEDEVAC Helicopter: HH-60M	M33458	\$16,967,644	30	45	45	45	30
Small Unmanned Aircraft System: Raven B	S83835	\$21,889	45	45	45	45	86
Utility Cargo Aircraft: UC-35A	U05004	\$7,000,000	9	9	9	9	16
Aviation							
Air Traffic Control Central: AN/TSW-7A	A27624	\$5,789,000	1	2	2	2	2
Battle Damage Assessment and Repair Sys: BDAR	B85617	\$110,000	12	12	12	12	17
CH-47 Crashworthy Extended Range Fuel	C22759	\$595,000	12	12	12	12	12
Command System: Tactical AN/TSQ-221	C61597	\$3,000,000	2	2	2	2	2
Communication System: Tactical Terminal Control System (TTCS)	C59125	\$998,000	3	3	4	4	4
Power Unit Auxiliary: Aviation Multi-Output Gted (AGPU)	P44627	\$1,000,000	20	20	20	20	20
Radar Set: AN/TPN-31	R17126	\$3,701,502	1	1	1	1	2
UH-60 External Stores Subsystem (ESSS)	E21985	\$676,111	8	8	8	8	60
Battle Command and Control (C2)							
Command System Tactical	C40996	\$1,011,652	14	14	14	14	14
Mission Equipment Package: Airborne Command and Control	C28796	\$4,900,000	2	2	2	2	0
Battlespace Awareness							
Central: Communications AN/TSQ-226(V)2	C43331	\$2,056,822	4	4	4	4	4
Detecting System Countermeasures: AN/MLQ-40(V)4	D04182	\$1,997,000	4	4	4	4	16
Digital Topographic System: AN/TYQ-67(V)	D10281	\$1,053,000	7	7	7	7	6
Ground Station Tactical Intelligence: AN/TSQ-179	T37036	\$4,644,000	3	4	4	4	4
Battle Command Transport							
Antenna: BB-1404/TRC	A81826	\$1,066,695	22	22	22	22	30
Central Office: Telephone Automatic	C20617	\$4,081,375	10	10	10	10	10

USAR

Table 1

Consolidated Major Item Inventory and Requirements

Nomenclature	Equip No.	Unit Cost	Begin FY 2019 QTY O/H	Begin FY 2020 QTY O/H	Begin FY 2021 QTY O/H	End FY 2021 QTY O/H	End FY 2021 QTY REQ
Joint Node Network (JNN) Central Office Telephone Auto	J05001	\$2,472,271	30	30	30	30	29
Radio Terminal Set: AN/TRC-170 (V)3	R93035	\$2,233,375	20	20	20	20	20
Radio Terminal: Line of Sight Multi-channel AN/TRC-190E(V)1	R90451	\$2,472,271	138	138	138	138	138
Radio Terminal: Line of Sight Multi-channel AN/TRC-190F(V)3	R90587	\$2,472,271	62	62	62	62	62
Satellite Communication System: AN/TSC-156	S23268	\$4,000,000	24	24	24	24	30
Teleconference System: AN/TYQ-122	T43146	\$2,472,271	35	35	35	35	122
Terminal: Satellite Communication AN/TSC-155	T81733	\$4,411,733	8	8	8	8	19
Transit Case Tropo-Scatter Radio	Z762FD	\$300,000	30	41	42	48	0
Transportable Tactical Command Communications (T2C2) V2	Z730FD	\$640,325	8	8	8	8	0
Video Teleconference System: AN/TYQ-122A	P05024	\$2,472,271	4	4	4	4	0
Combat Mobility							
Anti-Personnel Mine Clearing System: Remote Control (M160)	A05002	\$2,141,791	24	32	35	35	24
Boat Bridge Erection Inboard Engine: Shallow Draft	B25476	\$1,156,605	115	115	115	115	126
Boat: Bridge Erection	B05006	\$550,000	43	51	54	59	0
Bridge Armor Veh Launch Scissor CL60 Alum 60-ft Lg of Span	C20414	\$87,742	59	59	59	59	0
Bridge Armored Veh Launched Scissors: 63-ft (AVLB) MLC 70	B31098	\$7,645,450	42	42	42	42	96
Bridge Heavy Dry: Supt (HDSB) 40M MLC96	B26007	\$1,869,741	36	36	36	36	36
Carrier Bridge Launching: Joint Assault XM1074	Z00963	\$9,352,370	52	52	52	63	0
High Mobility Engineer Excavator (HMEE) Type I	H53576	\$328,201	208	266	284	290	132
Interior Bay Bridge Floating	K97376	\$435,703	270	270	270	270	270
Launch M60 Series Tank Chass Trnsptg: 40 & 60 ft Bridge Ty CL60	L43664	\$4,641,558	105	105	105	105	96
Launcher Heavy Dry Support Bridge (HDSB)	L67660	\$10,631,000	36	36	36	36	36
Line of Communication 50-meter Dry Gap Bridge: Fixed	Z01603	\$1,266,158	2	2	2	2	0
Loader Scoop Type: 2.5 Cubic Yard	L76897	\$150,000	48	48	48	48	33
Loader Scoop Type: DED 4X4 W/5 Cy Gp Bucket (CCE)	L76321	\$230,851	0	0	0	0	16
Loader Scoop Type: DSL 2-1/2 cu-yd Hinge Frame w/Multipurpose Bucket	L76556	\$141,500	5	5	5	5	26
Loader Scoop Type: Heavy Type II Loader	L15041	\$250,000	61	61	67	73	73
Loader Skid Steer: Type III	L77147	\$53,548	228	228	228	228	165
Loader Skid Steer: Type III	L77215	\$328,201	452	452	452	452	244
Man Transportable Robotic System (MTRS-RC)	Z01251	\$143,000	72	72	72	88	72
Medium Flail	M05031	\$1,986,450	24	24	24	24	24
Mine Protected Clearance Vehicle	M05004	\$1,451,707	72	72	72	72	72
Medium Mine Protected Vehicle (MMPV) Type II	Z05225	\$350,000	186	247	273	282	264
Ramp Bay Bridge Floating	R10527	\$525,068	108	108	108	108	108
Tractor Wheeled: DSL 4X4 w/Excavator & Front Loader	T34437	\$328,201	12	12	12	12	151
Tractor Wheeled: Industrial	T34505	\$328,201	251	251	251	251	238
Transporter Common Bridge	T91308	\$302,274	474	474	474	474	504
Vehicle Mounted Mine Detection (VMMD) System	V05001	\$2,828,522	144	144	144	144	144

USAR

Table 1

Consolidated Major Item Inventory and Requirements

Nomenclature	Equip No.	Unit Cost	Begin FY 2019 QTY O/H	Begin FY 2020 QTY O/H	Begin FY 2021 QTY O/H	End FY 2021 QTY O/H	End FY 2021 QTY REQ
Field Logistics							
3K Tactical Water Purification System:	Z05003	\$750,000	14	14	14	14	0
Assault Kitchen	A94943	\$57,963	99	99	99	99	148
Force Provider Module: Houses 550 Soldiers Transportable	F28973	\$11,614,850	4	4	4	4	6
Forward: Repair System (FRS)	F64544	\$285,591	239	239	239	239	239
Fuel System Supply Point: FSSP Type 3 120K	F04898	\$1,320,650	92	92	92	92	76
Kitchen Field Trailer-mtd: mtd on M103A3 Trailer	L28351	\$351,688	583	583	583	583	574
Laundry Advanced System (LADS): Trailer-mtd	L70538	\$1,022,444	107	107	107	107	108
Mobile Tactical Retail Refueling System: (MTRRS)	Z05002	\$45,000	145	164	197	242	0
Modern Burner Unit (MBU) Mobile Kitchen Trailer (MKT)	JA1004	\$3,790	263	263	263	263	0
Modular Fuel System-Tank Rack Module with Retail Capability	T20131	\$127,167	0	0	0	0	53
Petroleum Quality Analysis System: Enhanced	P25743	\$1,513,000	26	26	28	28	32
Rough Terrain Container Handler: Kalmar RT240	R16611	\$868,103	328	328	332	332	344
Shower: Portable 12 Head	S62898	\$1,200,000	127	127	127	130	136
Tactical Water Purification System (TWPS) 1500 gph	T14017	\$455,871	33	34	34	34	34
Trailer Tank Water (Camel): 800 gal 5-ton W/E	T05047	\$85,825	1	1	1	1	0
Trailer Tank Water: 400-gal 1.5-ton 2-wheel	W98825	\$85,825	981	981	981	981	1,374
Truck Lift Fork: DED 50K lb Cont Hdlr Rough Terrain 48-in LC	T48941	\$868,103	40	40	40	40	0
Water Purification: Reverse Osmosis 3000-gph Trailer-mtd	W47225	\$455,871	46	48	60	60	66
Force Protection							
Alarm Biological Agent Automatic: (BIDS) M31A2	A48680	\$1,408,429	350	350	350	350	350
CBRN Dismounted Reconnaissance: (SKO)	C05051	\$1,071,000	0	0	0	0	32
Chemical-Biological Protective Shelter (CBPS): M8	C07506	\$1,635,636	2	2	2	2	0
Chemical-Biological Protective Shelter: (CBPS Electric)	Z01533	\$1,635,636	12	16	18	20	99
Ground Based Operational Surveillance System Expeditionary	Z797FD	\$835,000	4	4	5	6	0
Integrated Ground Security, Surveillance & Response	Z688FD	\$355,000	11	11	12	15	0
JBAIDS Augmentation Set:	J05007	\$500,000	6	7	7	7	24
Man-Portable Radiological System (MRDS)	Z835FD	\$1,117,000	6	6	6	6	0
Mask Chemical-Biological: M45	M12736	\$466	1,384	1,384	1,384	1,384	1,029
Mask Chem-Bio Joint Service General Purpose: Field M50	M12986	\$400	25,304	25,304	25,304	25,304	133,076
Mask Chem-Bio Joint Service General Purpose: Combat Vehicle Crewman M51	M13236	\$400	409	409	409	409	4,107
Nuclear Biological Chemical Recon Vehicle (NBCRV)	N96543	\$8,024,127	64	64	64	64	64
Robot, Explosive Ordnance Disposal	RB8501	\$156,110	18	18	18	18	0
Public Address Set: Acoustic Hailing Device	Z01674	\$12,563,712	500	560	665	773	0
General Engineering							
All Terrain Crane Type II: (Heavy)	Z05089	\$4,003,000	22	27	30	34	61
Crane Wheel-mtd: Hydraulic Light 7.5-ton w/Cab	C36151	\$165,922	25	27	27	27	27
Crane: Wheel Mounted Hydraulic 25-ton All Terrain AT422T	C36586	\$382,000	95	95	99	99	98
Engineer Mission Module-Water Distributor (EMM-WD): Type II	E05007	\$668,953	124	124	124	124	111
Excavator: Hydraulic Type I Multipurpose Crawler Mount	E27792	\$354,259	81	82	82	82	147

USAR

Table 1

Consolidated Major Item Inventory and Requirements

Nomenclature	Equip No.	Unit Cost	Begin FY 2019 QTY O/H	Begin FY 2020 QTY O/H	Begin FY 2021 QTY O/H	End FY 2021 QTY O/H	End FY 2021 QTY REQ
Hydraulic Electric Pneumatic Petroleum Operated Equip (HEPPOE)	H05004	\$180,850	171	179	180	183	293
M1158 Truck: HEMTT Based Water Tender	M31997	\$668,953	42	42	42	42	42
Motorized Grader	M05001	\$277,000	151	151	151	151	173
Paving Machine: Bituminous Material	P05023	\$2,773,125	6	6	6	6	6
Scraper Earth Moving Self-Propelled: 14-18 Cu Yd (CCE)	S56246	\$668,031	70	70	70	70	12
Scraper Earthmoving: 14-18 Cu Yd	S05029	\$668,031	130	141	152	152	211
Scraper Elevating: Self Propelled 9-11 Cu Yd Sectionalized	S30039	\$441,923	29	29	29	29	36
Tactical Water Distribution Equip Set: (TWDS-RDF)	T09094	\$350,000	4	4	4	4	6
Tractor Full Tracked Low Speed: T9 Type II w/Ripper	T05016	\$316,096	138	138	138	138	122
Tractor FT LS: T-5 Type II W/Ripper	T05026	\$199,262	12	12	12	12	12
Tractor FT HS: Armored Combat Earthmover (ACE)	W76473	\$887,050	68	68	68	68	64
Tractor FT HS: Deployable LT Engineer (Deuce)	T76541	\$398,000	9	9	9	9	12
Tractor Full Tracked Low Speed: T5	T05029	\$188,638	12	12	12	12	12
Tractor Full Tracked Low Speed: T9	T05015	\$316,096	212	212	212	212	217
Truck: Tactical Firefighting 8X8 Hvy Exp Mov	T82180	\$878,461	70	70	70	70	68
Maneuver							
Carrier Armored Command Post: Full Tracked	C11158	\$1,011,652	25	25	25	25	25
Carrier Command Post: Light Tracked	D11538	\$1,011,652	26	26	26	26	22
Carrier Personnel Full Tracked: Armored (RISE)	C18234	\$511,343	343	343	343	343	336
Recovery Vehicle Full Tracked: Medium	R50681	\$3,593,524	47	47	47	47	47
Medical							
Computerized Tomography Scanner Field	C79284	\$749,275	8	10	15	19	24
Dental Materiel Set Oral: Maxillofacial Surgery	D65925	\$335,526	0	0	0	1	14
Medical Materiel Set Central Materiel Service	M08417	\$855,010	6	7	9	10	42
Medical Materiel Set Maxo-Facialhead Neck Surg Augmentation	M09098	\$401,072	7	7	7	7	6
Medical Materiel Set Medical Supply: 164 Bed CSH Co	M14585	\$450,000	0	0	0	0	22
Medical Materiel Set Neurosurgery Augmentation: DEPMEDS	M48305	\$211,674	7	7	7	7	6
Medical Materiel Set Pharmacy: 84 Bed CSH Co	M73254	\$152,915	6	9	9	9	14
Medical Materiel Set Post-Op/ICU Ward	M09576	\$331,047	3	8	8	8	64
Medical Materiel Set Radiology Computerized Tomography	M09826	\$908,000	8	9	9	9	22
Medical Materiel Set Triage/Emergency/Pre-Op	M73050	\$440,645	25	30	30	30	28
MES Forward Surgical Team:	M45375	\$402,331	26	26	26	26	22
Soldier Systems							
Armament Subsystem: Remotely Operated	A90594	\$236,751	734	743	752	752	752
Family of Weapon Sights-Individual (FWS - I)	Z751FD	\$203,500	162	162	162	311	0
Mini Eyesafe Laser IR Observation Set (MELIOS): AN/PVS-7	M74849	\$43,128	520	903	921	921	873
Soldier Weapons							
Carbine 5.56mm: M4A1	C06935	\$1,772	109,409	136,734	169,756	191,742	107,212
Command Launch Unit: (Javelin) 13305405-119	C60750	\$243,732	90	90	90	90	90
Launcher Grenade: M320	L03621	\$3,139	41	88	144	188	188

USAR

Table 1

Consolidated Major Item Inventory and Requirements

Nomenclature	Equip No.	Unit Cost	Begin FY 2019 QTY O/H	Begin FY 2020 QTY O/H	Begin FY 2021 QTY O/H	End FY 2021 QTY O/H	End FY 2021 QTY REQ
Launcher Grenade: M320A1	L69080	\$4,876	4,202	6,999	6,999	6,999	6,882
Machine Gun 5.56mm: M249	M09009	\$4,298	13,611	13,611	13,611	13,611	10,852
Machine Gun: 7.62mm M240L	M92454	\$14,404	174	174	174	174	158
Machine Gun 7.62mm: M240H	M92591	\$11,597	269	269	269	269	216
Machine Gun Caliber .50: HB Flexible (Ground & Vehicle) W/E	L91975	\$11,370	3,051	3,051	3,051	3,051	509
Machine Gun: Caliber .50 Heavy Fixed Turret Type	L91701	\$15,259	275	387	387	387	480
Machine Gun Grenade 40mm: MK19 Mod III	M92362	\$17,085	2,195	2,222	2,222	2,222	2,097
Machine Gun: 7.62mm M240B	M92841	\$14,404	6,824	6,860	6,860	6,871	6,871
Machine Gun: Caliber .50	M39331	\$15,000	3,407	4,657	4,657	4,657	4,559
Machine Gun: Light 5.56mm M249	M39263	\$4,298	2,623	2,623	2,623	2,623	3,183
Pistol 9mm: M11	P47365	\$426	842	842	842	864	864
Pistol 9mm Automatic: M9	P98152	\$426	24,096	24,096	24,096	24,096	22,778
Strike							
Security Surveillance System	S05022	\$750,000	6	6	6	6	0
Command and Control System: AN/TSQ-284 (HCCC)	C05019	\$8,807,000	5	5	5	5	4
Crane Barge: 89 to 250 ton	F36090	\$8,000,104	2	2	2	2	3
Trailers							
40 Ton Semitrailer	Z05037	\$262,852	88	95	95	154	441
Light Tactical Trailer: 3/4 ton	T95992	\$27,859	6,540	6,540	6,540	6,540	5,117
Next Generation Semi-Trailer, Low Bed, 25-ton	Z842FD	\$176,000	26	26	26	26	0
Palletized Load System: Trailer-CTE	P05025	\$63,731	622	895	1,073	1,073	0
Semitrailer Flatbed: Breakbulk/Container Transporter 34-ton	S70159	\$70,787	1,596	1,596	1,596	1,596	1,700
Semitrailer Low Bed: 25-ton 4-wheel W/E	S70517	\$262,852	127	127	127	127	90
Semitrailer Low Bed: 40-ton 6-wheel W/E	S70594	\$145,247	673	679	679	679	439
Semitrailer Low Bed: 70-ton HET	S70859	\$610,664	581	581	581	581	480
Semitrailer Tank: 5000-gal Bulk Haul Self-Load/Unload	S10059	\$146,093	1,058	1,058	1,058	1,058	1,080
Semitrailer Tank: 5K gal Fuel Dispensing Automotive W/E	S73372	\$198,020	469	469	469	469	403
Semitrailer Tank: Petroleum 7500-gal Bulk Haul	S73119	\$198,020	403	403	403	403	480
Semitrailer Van: Electronic 3-6 ton 2-wheel 30-ft Body W/E	S74353	\$24,125	1	1	1	1	0
Semitrailer Van: Supply 12-ton 4-wheel W/E	S75175	\$84,466	53	58	58	58	58
Semitrailer: Tank	S11084	\$90,610	82	82	82	82	0
Trailer Bolster: General Purpose 4-ton 4-wheel W/E	W94536	\$9,618	198	198	198	198	192
Trailer Cargo: 1-1/2 ton 2-wheel W/E	W95811	\$50,433	8	8	8	8	235
Trailer Cargo: High Mobility 1-1/4 ton	T95924	\$9,615	2,191	2,217	2,254	2,255	2,255
Trailer Cargo: MTV W/Dropsides M1095	T95555	\$50,433	2,329	2,329	2,329	2,329	2,274
Trailer Flat Bed: 11-ton 4-wheel (HEMAT)	T45465	\$75,331	120	120	120	120	11
Trailer Flat Bed: M1082 Trailer Cargo LMTV W/Dropsides	T96564	\$74,826	1,766	1,766	1,766	1,766	1,617
Trailer Flatbed: 5-ton 4-wheel General Purpose	T96883	\$50,433	27	27	27	27	712
Trailer, Cargo: 12-ton, Light Engineer Utility Trailer	Z05224	\$31,100	351	426	494	562	0
Trailer, Cargo: 5-ton, Light Engineer Utility Trailer	Z05186	\$24,300	351	425	493	561	0
Trailer: Flat Bed	T64618	\$55,875	5	22	22	22	56

USAR

Table 1

Consolidated Major Item Inventory and Requirements

Nomenclature	Equip No.	Unit Cost	Begin FY 2019 QTY O/H	Begin FY 2020 QTY O/H	Begin FY 2021 QTY O/H	End FY 2021 QTY O/H	End FY 2021 QTY REQ
Trailer: Palletized Loading 8X20	T93761	\$63,731	3,018	3,206	3,207	3,207	3,207
Trucks							
Armored Security Vehicle (ASV): Wheeled	A93374	\$1,019,000	372	372	372	372	480
Tractor Line Haul: M915A5	T88858	\$212,000	985	985	985	985	961
Truck Ambulance: 4-Litter Armored HMMWV	T38844	\$397,000	366	366	366	366	366
Truck Cargo: 2.5-ton W/Winch	T42131	\$157,982	173	173	173	173	0
Truck Cargo: 5-ton 6X6 MTV W/E LAPES/AD	T41036	\$210,180	21	21	21	21	18
Truck Cargo: 5-ton 6X6 MTV W/E W/W LAPES/AD	T41104	\$220,616	0	0	0	0	1
Truck Cargo: 5-ton WO/Winch	T41515	\$255,952	2,643	2,643	2,648	2,662	2,777
Truck Cargo: LWB WO/Winch	T93271	\$255,952	343	343	343	375	299
Truck Cargo: M977A4	T59532	\$350,102	172	172	172	172	0
Truck Cargo: M985A4	T59380	\$342,365	114	114	114	114	114
Truck Cargo: Tactical 8X8 HEMTT w/LHS	T96496	\$367,575	127	487	487	487	487
Truck Cargo: Tactical 8X8 HEMTT W/Med Crane	T39586	\$342,365	208	208	208	208	0
Truck Cargo: Tactical 8X8 HEMTT	T39654	\$342,365	26	26	26	26	0
Truck Cargo: WO/Winch	T59448	\$157,982	1,686	1,686	1,686	1,686	1,696
Truck Dump FMTV 10-ton: M1157	T65115	\$383,786	0	0	0	0	23
Truck Dump FMTV: 10-ton	T65047	\$242,585	4	4	4	4	0
Truck Dump: 10-ton W/Winch	T65274	\$383,786	179	179	179	179	93
Truck Dump: 10-ton WO/Winch	T65342	\$242,585	584	584	585	587	529
Truck Dump: 20-ton DED 12 cu-yd Cap (CCE)	X44403	\$211,764	323	340	347	350	370
Truck Dump: MTV W/E W/W	T64979	\$383,786	1	1	1	1	23
Truck Materials Handling-Container Hoisting: M1148A1P2	T54516	\$899,231	0	0	0	0	220
Truck Palletized (LHS): M1120A4	T55054	\$367,575	941	941	941	941	796
Truck Tank: Fuel Servicing 2500-gal 8X8 HEMTT	T87243	\$499,182	117	134	134	134	134
Truck Tank: Fuel Servicing 2500-gal 8X8 HEMTT	T58161	\$499,182	56	56	56	56	18
Truck Tank: WO/Winch	T58318	\$499,182	262	262	274	285	285
Truck Tractor: M107A1	T05012	\$461,970	360	360	360	360	0
Truck Tractor: LET	T60946	\$319,009	898	898	898	898	833
Truck Tractor: Heavy Equipment Transporter (HET)	T59048	\$461,970	182	188	188	188	480
Truck Tractor: LET 6X6 66000 GVW W/W C/S	T91656	\$250,614	272	272	272	272	26
Truck Tractor: Line Haul C/S 50000 M915	T61103	\$212,000	1,380	1,380	1,380	1,380	1,380
Truck Tractor: M1088A1P2 W/Winch	T61375	\$242,669	6	6	6	6	0
Truck Tractor: MTV W/E	T61239	\$242,669	443	443	443	443	324
Truck Tractor: MTV W/E W/W	T61307	\$242,669	41	41	41	41	30
Truck Tractor: WO/Winch	T88983	\$242,669	848	848	865	895	891
Truck Utility ECV TOW/ITAS Carrier - Armor Ready: M1167	T34840	\$207,760	8	8	8	8	8
Truck Utility Expanded Capacity Enhanced 4X4: M1165A1	T56383	\$153,760	1,268	1,268	1,268	1,268	1,277
Truck Utility Expanded Capacity Enhanced: M1152A1	T37588	\$153,760	1,461	1,461	1,461	1,461	2,153
Truck Utility: Armt Carrier Armd 1-1/4 ton W/E (HMMWV)	T92242	\$129,376	104	104	104	104	264
Truck Utility: Cargo/Troop Carrier HMMWV	T61494	\$153,760	15	15	15	15	956

USAR

Table 1

Consolidated Major Item Inventory and Requirements

Nomenclature	Equip No.	Unit Cost	Begin FY 2019 QTY O/H	Begin FY 2020 QTY O/H	Begin FY 2021 QTY O/H	End FY 2021 QTY O/H	End FY 2021 QTY REQ
Truck Utility: ECV Armament Carrier - Armor Ready M1151A1	T34704	\$129,376	4,856	4,856	4,856	4,856	3,657
Truck Utility: Expanded Capacity, Up-armored HMMWV	T92446	\$129,376	109	109	109	109	48
Truck Utility: Heavy Variant HMMWV 10000 GVW W/E	T07679	\$153,760	9,356	9,398	9,398	9,398	9,124
Truck Utility: M1152-Expanded Capacity Enhanced	T11588	\$124,270	108	108	108	108	0
Truck Van: M1079A1P2 WO/Winch	T62359	\$232,284	173	174	175	175	175
Truck Wrecker	T94671	\$690,707	177	177	177	185	106
Truck Wrecker: M984A4	T63161	\$886,000	342	342	342	342	342
Truck Wrecker: MTV W/E W/W	T94709	\$690,707	124	124	124	124	82
Truck Wrecker: Tactical 8X8 HEMTT W/Winch	T63093	\$886,000	190	190	190	190	129
Truck, Surrogate MRAP Training Veh: M923A2, MRAP Cat II	YF202N	n/d	1	1	1	1	0
Truck: Expandable Van WO/Winch	T67136	\$372,440	258	264	269	276	332
Truck: Palletized Loading System (PLS)	T81874	\$418,000	1,208	1,344	1,456	1,456	2,123
Watercraft							
Landing Craft Mechanized: 69-ft	L36739	\$174,650	8	8	8	8	8
Landing Craft Mechanized: Mod2	L36654	\$1,700,000	1	1	1	1	1
Landing Craft Utility: RORO 245 to 300 ft	L36989	\$5,000,000	12	12	14	16	4
Tug: Large Coastal and Inland Waterway Diesel	T68330	\$12,500,000	2	2	2	2	3
Tug: Small 900 Class	T68398	\$3,600,000	6	6	6	6	6
Vessel Logistic Support: 245 to 300 ft length	V00426	\$11,033,333	3	3	3	3	2

USAR

Table 2

Average Age of Equipment

NOTE: This table provides the average age of selected major equipment items. The average age provides a projected average age of the fleet at the start of FY 2018.

Nomenclature	Equip No.	Average Age	Remarks
Aircraft			
Airplane, Utility, UC-35B	A05015	15	
CH-47F Improved Cargo Helicopter	C15172	5	
Helicopter Utility, UH-60L	H32361	22	
Helicopter, Medevac, HH-60M	M33458	5	
Utility Cargo Aircraft: UC-35A	U05004	19	
Combat Mobility			
Boat Bridge Erection Inboard Engine: Shallow Draft	B25476	20	
Armored Vehicle Launched Bridge (AVLB) Scissors: 63-ft MLC 70	B31098	22	
Interior Bay Bridge Floating	K97376	21	
Launch M60 Series Tank Chassis	L43664	39	
Loader Scoop Type: DSL 2-1/2 cu-yd-Hinge Frame w/Multipurpose Bucket	L76556	40	
Ramp Bay Bridge Floating	R10527	24	
Tractor Wheeled: DSL 4x4 w/Excavator & Front Loader	T34437	28	
Transporter Common Bridge	T91308	16	
Field Logistics			
Kitchen Field Trailer-mtd: Mtd on M103A3 Trailer	L28351	24	
Laundry Advanced System (LADS): Trailer-mtd	L70538	16	
Water Purification: Reverse Osmosis 3000-gph Trailer-mtd	W47225	25	
Trailer Tank Water: 400-gal 1-1/2 ton	W98825	44	
General Engineering			
Excavator: Hydraulic Type I Multipurpose Crawler	E27792	22	
Tractor Full Tracked (FT) HS, Deployable LT Engineer (Deuce)	T76541	18	
Crane Wheel-mtd: Hydraulic Light 7.5-ton w/Cab	C36151	28	
Maneuver Combat Vehicles			
Carrier Armored Command Post: Full Tracked	C11158	23	
Carrier Personnel Full Tracked: Armored (Rise)	C18234	33	
Trailers			
Trailer Cargo: High Mobility 1-1/4 ton	T95924	9	
Semitrailer Tank: 5000-gal Bulk Self-Load/Unload	S10059	25	
Semitrailer Flatbed: Breakbulk/Container 34-ton	S70159	29	
Semitrailer Low Bed: 25-ton 4-wheel W/E	S70517	57	
Semitrailer Low Bed: 40-ton 6-wheel W/E	S70594	25	
Semitrailer Low Bed: 70-ton HET	S70859	21	
Semitrailer Tank: Petroleum 7500-gal Bulk Haul	S73119	26	
Trucks			
Truck Ambulance: 4-Litter Armored HMMWV	T38844	15	
Truck Dump: 20 Ton DSL 12 cu yd Capacity (CCE)	X44403	24	
Truck Tractor: Heavy Equipment Transporter (HET)	T59048	22	

USAR
Average Age of Equipment

Table 2

Nomenclature	Equip No.	Average Age	Remarks
Truck Tractor: Line Haul C/S 50000 M915	T61103	24	
Truck Utility: Cargo/Troop Carrier HMMWV	T61494	25	
Truck Utility: Expanded Capacity Up-armored HMMWV	T92446	14	
Truck Tank: Fuel Servicing 2500-gal 8X8 Heavy Expanded Mob	T87243	22	
Truck Tractor: MTV W/E	T61239	12	
Trucker Wrecker: Tactical 8X8 Heavy Expanded Mobility w/Winch	T63093	20	
Watercraft			
Landing Craft Mechanized: 69-ft	L36739	36	
Landing Craft Utility: RORO 245 to 300 ft	L36989	46	
Tug: Small 900 Class	T68398	18	
Vessel Logistic Support: 245 to 300 ft	V00426	30	

Service Procurement Program - Reserve (P-1R)

NOTE: This table identifies the dollar value of programmed equipment procurement as identified in the P-1R exhibit of the FY 2019 President's Budget Request. All values are costs in dollars and exclude ammunition procurements. Deliveries of procured equipment normally take one to two years before they arrive in the inventory; e.g., items procured in FY 2019 are expected to arrive in RC inventories in FY 2020 or FY 2021.

Nomenclature	FY 2019	FY 2020¹	FY 2021¹
Modification of Aircraft			
Utility/Cargo Airplane Modifications	\$8,054,000		
Network and Mission Plan	4,945,000		
Communications, Navigation, and Surveillance	8,170,000		
Global Air Traffic Management (GATM) Rollup	1,354,000		
Support Equipment and Facilities			
Common Ground Equipment	1,512,000		
Air Traffic Control	1,694,000		
Weapons and Tracked Combat Vehicles (WTCV)			
Compact Semi-Automatic Sniper System	241,000		
Carbine	20,084,000		
Handgun	3,116,000		
M4 Carbine Modifications	1,592,000		
Tactical and Support Vehicles			
Tactical Trailers/Dolly Sets	6,422,000		
Truck, Dump, 20-ton (CCE)	1,080,000		
Family of Medium Tactical Vehicles (FMTV)	7,845,000		
Modification of In-service Equipment	88,208,000		
Communications and Electronics Equipment			
Super High Frequency (SHF) Terminal	1,000,000		
SMART-T (Space)	250,000		
Global Broadcast Service (GBS)	1,000,000		
Common Operating Environment (COE) Tactical Server Infrastructure (TSI)	4,089,000		
Family of Medical Communications for Combat Casualty Care	10,069,000		
Communications Security (COMSEC)	5,161,000		
Distributed Common Ground System - Army (DCGS-A) (MIP)	4,665,000		
Trojan (MIP)	150,000		
Radiation Monitoring Systems	3,040,000		
Joint Battle Command - Platform (JBC-P)	56,251,000		
Network Management Initialization and Service	1,537,000		
Maneuver Control System (MCS)	19,007,000		
Reconnaissance and Surveying Instrument Set	1,018,000		
Reserve Component Automation System (RCAS)	11,158,000		
Tactical Digital Media	1,000,000		
Items less than \$5M (Surveying Equipment)	667,000		

USAR

Table 3

Service Procurement Program - Reserve (P-1R)

Nomenclature	FY 2019	FY 2020 ¹	FY 2021 ¹
Other Support Equipment			
Protective Systems	431,000		
Family of Non-Lethal Equipment (FNLE)	868,000		
CBRN Defense	4,000,000		
Tactical Bridge, Float Ribbon	32,959,000		
Common Bridge Transporter (CBT) Recapitalization	9,395,000		
Handheld Standoff Minefield Detection System (HST)	2,500,000		
Ground Standoff Minefield Detection System (GSTAMIDS)	4,929,000		
Area Mine Detection System (AMDS)	1,855,000		
Robotic Combat Support System (RCSS)	725,000		
Items Less Than \$5M (Countermining Equipment)	4,228,000		
Family of Boats and Motors	876,000		
Heaters and Environmental Control Units (ECUs)	3,000,000		
Family of Engineer Combat and Construction Sets	2,687,000		
Distribution Systems, Petroleum & Water	780,000		
Combat Support Medical	8,093,000		
Mobile Maintenance Equipment Systems	3,802,000		
Items Less Than \$5M (Maintenance Equipment)	1,000,000		
Scrapers, Earthmoving	7,961,000		
All Terrain Cranes	4,578,000		
High Mobility Engineer Excavator (HMEE)	15,747,000		
Construction Equipment Extended Service Program (ESP)	12,830,000		
Items Less Than \$5M (Construction Equipment)	1,473,000		
Army Watercraft Extended Service Program (ESP)	9,976,000		
Generators and Associated Equipment	10,691,000		
Family of Forklifts	6,031,000		
Training Devices, Nonsystem	27,600,000		
Aviation Combined Arms Tactical Trainer	5,786,000		
Gaming Technology in Support of Army Training	1,703,000		
Integrated Family of Test Equipment (IFTE)	1,136,000		
Test Equipment Modernization (TEMOD)	1,966,000		
Modification of In-service Equipment (OPA-3)	7,797,000		
Total	\$471,782,000		
1. P-1R Exhibit for FY 2019 President's Budget does not provide projected procurement data beyond FY 2019.			

National Guard and Reserve Equipment Appropriation (NGREA) Procurements

NOTE: This table identifies the dollar value of planned equipment procurements with the National Guard and Reserve Equipment Appropriation (NGREA). These funds are available for a three-year period from the year of appropriation. Deliveries of procured equipment normally take one to two years from date of procurement before they arrive in the inventory; e.g., items procured in FY 2018 would be expected to arrive in RC inventories in FY 2019 or FY 2020. All values are costs in dollars.

Nomenclature	FY 2016	FY 2017	FY 2018 ¹
FY 2016 NGREA Equipment			
Mission Command			
Engineer Command & Control (C2) Reconnaissance & Survey System	\$6,500,000		
Logistics Automation Systems	250,000		
Command Post Shelter	600,000		
Mobile Communication System	280,000		
Tactical Radio Platform (Dual AC/DC)	170,000		
SATCOM System	410,000		
SATCOM Terminal (65CM)	720,000		
SATCOM Terminal (95CM)	230,000		
Tactical Networking System	400,000		
First Responder Communication System	1,000,000		
Engineer			
Mixer, Concrete	1,500,000		
Hand Held Mine Detection	3,000,000		
Hydraulic Electric Pneumatic Petroleum Operated Equipment (HEPPOE)	2,200,000		
Mobile Power Tool Set	500,000		
Motorized Grader	1,500,000		
Vibratory Plate Compactor	250,000		
Self Propelled Concrete Saw	200,000		
Assault Craft (15 Man)	360,000		
Assault Craft Boat Motors	800,000		
Field Logistics			
Truck Lift Fork: 5K Rough Terrain	7,500,000		
Test Measurement Diagnostic Equipment	520,000		
Mobile Tactical Retail Refueling System	1,700,000		
Load Handling System: 2000G Water	2,240,000		
Expeditionary Shower Facility (8-10 Stall)	760,000		
Field Laundry System	170,000		
Logistics Support Area Equipment Package	130,000		
Lighting Equipment Kit	75,000		
Medium Pressurized Storage Unit	152,500		
Large Pressurized Storage Unit	35,000		
Equipment Protective Cover Package	157,500		
Maintenance Support Device V3	8,750,000		
Armament Repair Shop Set	250,000		
Metal Working and Machining Shop Set: Type I	465,000		
Metal Working and Machining Shop Set: Type II	150,000		

National Guard and Reserve Equipment Appropriation (NGREA) Procurements

Nomenclature	FY 2016	FY 2017	FY 2018 ¹
Measuring Tool Set Machinist	105,000		
Fire Suppression Refill System	2,200,000		
Oscilloscope: OS-305	400,000		
Tactical Power			
Fuel Efficient / Clean Power Generator (250KW)	480,000		
Fuel Efficient / Clean Power Generator (75/120KW)	200,000		
Power Distribution System	700,000		
Environmental Control Unit	420,000		
Tactical Wheeled Vehicles			
HMMM/WV Modernization	16,500,000		
Palletized Loading System	19,000,000		
HEMTT Cargo	19,000,000		
HEMTT Fuel Tanker	1,950,000		
HEMTT Wrecker	4,000,000		
HEMTT Load Handling System	13,200,000		
Truck Tractor - Yard	1,000,000		
Medium Tactical Truck	2,750,000		
Light Utility Trailer	1,600,000		
Semitrailer Fuel Tanker	500,000		
Heavy Equipment Trailer	2,500,000		
Force Protection			
Driver Vision Enhancement	2,000,000		
Small Unmanned Ground Vehicle	3,000,000		
Concealment Package	570,000		
Simulators			
Multiple Amputee Trauma Trainer	2,500,000		
Common Driver	1,000,000		
Transportation Reserve	500,000		
<u>FY 2017 NGREA Equipment</u>			
Engineer Command and Control (C2) Reconnaissance & Survey System		\$1,625,000	
Logistics Automation Systems		250,000	
Command Post Shelter		450,000	
Mobile Communication System		280,000	
Tactical Radio Platform (Dual AC/DC)		170,000	
Satellite Communications (SATCOM) System		600,000	
Tactical Networking System		800,000	
Hand Held Mine Detection		800,000	
Mobile Power Tool Set		700,000	
Engineer Rapid Airfield Construction Capability		1,500,000	
Bridge Erection Boat		5,400,000	
High Mobility Engineer Excavator (HMEE)		1,290,000	
T-9 Dozer		1,390,000	
Scraper		4,000,000	

National Guard and Reserve Equipment Appropriation (NGREA) Procurements

Nomenclature	FY 2016	FY 2017	FY 2018 ¹
Urban Operations Platoon Support Equipment		510,000	
Urban Operations Squad Support Equipment		700,000	
Vertical Skills Construction Kit		1,120,000	
Assault Craft (15 Man)		380,000	
Assault Craft Boat Motors		600,000	
Truck Lift Fork: 5K Rough Terrain		7,350,000	
Mobile Tactical Retail Refueling System		1,700,000	
Load Handling System: 2000G Water		4,200,000	
Maintenance Support Device V3		5,325,000	
Test Set Aviators Night Vision Imaging System		126,000	
Light Tactical Vehicle Modernization		19,800,000	
Palletized Loading System		7,600,000	
HEMTT Modernization		10,920,000	
HEMTT Load Handling System		3,300,000	
Medium Tactical Truck		2,475,000	
Medium Utility Trailer		500,000	
Light Utility Trailer		400,000	
Heavy Equipment Trailer		500,000	
Survey Vehicle		1,500,000	
Fuel Efficient/Clean Power Generators		320,000	
Power Distribution Systems		700,000	
Environmental Control Unit		30,000	
M4A1 Carbine		489,000	
Modular Small Arms Range (MSAR)		6,000,000	
Common Driver Trainer		6,700,000	
Unstabilized Gunnery Trainer		2,000,000	
Transportation Reserve		500,000	
Total	\$140,000,000	\$105,000,000	
1. Service FY 2018 NGREA equipment list was not available in time for publication in the NGRER. Equipment list for FY 2018 will be provided in next year's NGRER.			

Projected Equipment Transfer/Withdrawal Quantities

NOTE: This table portrays the planned equipment transfers (Active to Reserve), withdrawals (-), and decommissioning (-). Transferred equipment is commonly called "cascaded equipment," or equipment that is provided to the RC once the AC receives more modern equipment. Although this table highlights a three-year period, many Services will not know exact quantities of transfers or withdrawals until year of execution, due to the uncertainty of the procurement/delivery cycle of new equipment.

Nomenclature	Equip No.	FY 2019 Qty	FY 2020 Qty	FY 2021 Qty	Remarks
Aircraft					
Airplane Cargo - Transport: C-12F	A30062	+3			
CH-47F Improved Cargo Helicopter	C15172	+12			
Helicopter Utility: UH-60L	H32361	+9			
Small Unmanned Aircraft System (SUAS): Raven B (MIP)	S83835	+3			
Aviation					
Power Unit Auxiliary: Aviation Multi-Output GTED (AGPU)	P44627	+2			
Battle Command and Control					
Command System: Tactical	C40996	+8			
Battlespace Awareness					
Central: Communications AN/TSQ226(V)2	C43331	+2			
Detecting System Countermeasures: AN/MLQ-40(V)4	D04182	+11			
Digital Topographic System: AN/TYQ-67(V)	D10281	+3			
Battle Command Transport Networks					
Antenna: AB-1404/TRC	A81826	+3			
Radio Terminal: Line of Sight Multi Channel AN/TRC-190E(V)1	R90451	+2			
Radio Terminal: Line of Sight Multi Channel AN/TRC-190F(V)3	R90587	+2			
Combat Mobility					
Bridge Armored Vehicle Launched Scissors TY: 63 Ft (AVLB) MLC 70	B31098	+4			
Loader Scoop Type: 2.5 cubic yard	L76897		+1		
Loader Scoop Type: DSL 2-1/2 cu yd Hinge Frame W/Multi Purpose Bucket	L76556		+1		
Transporter Common Bridge:	T91308	+165			
Field Logistics					
Force Provider Module: Houses 550 Soldiers Transportable	F28973	+5			
Rough Terrain Container Handler (RTCH): Kalmar RT240	R16611	+12			
Water Purification: Reverse OSMOSIS 3000 Gph Trailer Mounted	W47225	+4			
Force Protection					
Nuclear Biological Chemical Reconnaissance Vehicle (NBC RV)	N96543	+8			
Medical Field Systems					
Dental Materiel Set Oral: Maxillofacial Surgery	D65925		+1		
Soldier Systems					
Mini Eyesafe Laser Infrared Observation Set (MELIOS): AN/PVS-6	M74849	+369			
Soldier Weapons					
Launcher Grenade: M320	L03621	+57	+20		
Launcher Grenade: M320A1	L69080	+147			
Machine Gun: 7.62mm M240B	M92841	+521	+38		
Machine Gun: Caliber 50	M39331	+68			

USAR

Table 5

Projected Equipment Transfer/Withdrawal Quantities

Nomenclature	Equip No.	FY 2019 Qty	FY 2020 Qty	FY 2021 Qty	Remarks
Strike					
Computer System Digital: AN/GYK-56 (AFATDS)	C05018	+2			
Trailers					
Trailer Flat Bed: M1082 Trailer Cargo LMTV w/ Dropsides	T96564	+191	+94		
Trucks					
Tractor Line Haul: M915A5	T88858	+2			
Truck Cargo: 5 Ton 6x6 MTV W/E W/W LAPES/Ad	T41104	+1			
Truck Cargo: Tactical 8x8 Heavy Expanded Mob W/LHS	T96496	+57			
Truck Palletized (LHS): M1120A4	T55054	+93			
Truck Tractor: Heavy Equipment Transporter (HET)	T59048	+82			
Truck Tractor: Line Haul C/S 50000 GVWR 6x4 M915	T61103	+99			
Truck Tractor: M1088A1P2 W/Winch	T61375		+4		
Truck Tractor: MTV W/E	T61239	+11	+11		
Truck Wrecker	T94671	+14			

FY 2015 Planned vs Actual Procurements and Transfers

NOTE: This table compares planned Service procurements and transfers to the RC in FY 2015 with actual procurements and transfers. FY 2015 is selected as these are the most recent funds to expire. Because the procurement cycle is normally one to two years from funding to delivery, this table identifies only deliveries through the end of FY 2017. Procurement and NGREA columns reflect cost values in dollars.

Nomenclature	Equip No.	FY 2015 Transfers (# of items)		FY 2015 Procurements (\$s)		FY 2015 NGREA (\$s)	
		Plan	Actual	Plan	Actual	Plan	Actual
<u>FY 2015 Planned Transfers & Withdrawals</u>							
<i>USAR indicated no planned transfers or withdrawals for FY 2015 in its FY 2015 NGRER Table 5.</i>							
<u>FY 2015 Service Procurement Programs – RC (P-1R) Equipment</u>							
Aircraft							
UH-60 Blackhawk M Model (MYP)				\$111,180,000	\$108,210,000		
CH-47 Helicopter				198,000,000	151,445,000		
Modification of Aircraft							
Utility/Cargo Airplane Modifications				5,434,000	0		
Network and Mission Plan				1,230,000	4,117,000		
Comms, Nav Surveillance					5,790,000		
GATM Rollup					2,091,000		
Support Equipment and Facilities							
Common Ground Equipment				1,269,000	3,269,000		
Air Traffic Control				1,082,000	1,082,000		
Weapons and Tracked Combat Vehicles (WTCV)							
XM320 Grenade Launcher Module (GLM)				1,630,000	1,630,000		
M2 .50 cal Machine Gun Modifications				6,830,000	6,830,000		
Tactical and Support Vehicles							
Tactical Trailers/Dolly Sets				2,376,000	0		
Family of Medium Tactical Vehicles (FMTV)					29,811,000		
Family of Heavy Tactical Vehicles (FHTV)				3,341,000	0		
Palletized Load System (PLS) Extended Service Program (ESP)				30,349,000	30,349,000		
Modification of In-service Equipment				7,778,000	6,981,000		
Communications and Electronics Equipment							
Warfighter Information Network-Tactical (WIN-T) - Ground Forces Tactical Network				21,234,000	8,752,000		
Super High Frequency (SHF) Term				1,419,000	1,419,000		
Global Broadcast Service (GBS)				1,170,000	0		
Army Materiel Command (AMC) Critical Items - OPA-2				3,607,000	3,607,000		
Family of Medical Communications for Combat Casualty Care				10,051,000	10,051,000		
Army Civil Affairs (CA)/Military Information Support Operations (MISO) GPF Equipment				2,878,000	5,124,000		
Communications Security (COMSEC)				3,082,000	3,384,000		
Distributed Common Ground System - Army (DCGS-A) (MIP)				2,159,000	2,159,000		
Counterintelligence (CI) and Human Intelligence (HUMINT) Automated Reporting and Collection System (CHARCS) (MIP)				67,000	656,000		
Night Vision Devices				22,935,000	14,048,000		
Joint Battle Command - Platform (JBC-P)				10,768,000	10,768,000		
Air & Missile Defense Planning and Control System (AMDPCS)				5,443,000	5,443,000		

USAR

Table 6

FY 2015 Planned vs Actual Procurements and Transfers

Nomenclature	Equip No.	FY 2015 Transfers (# of items)		FY 2015 Procurements (\$s)		FY 2015 NGREA (\$s)	
		Plan	Actual	Plan	Actual	Plan	Actual
Network Management Initialization and Service				2,823,000	2,823,000		
Maneuver Control System (MCS)				9,244,000	10,305,000		
Global Combat Support System - Army (GCSS-A)				35,812,000	35,812,000		
Reconnaissance and Surveying Instrument Set				3,380,000	0		
Items less than \$5M (Surveying Equipment)				1,032,000	1,032,000		
Other Support Equipment							
Ground Standoff Minefield Detection System (GSTAMIDS)				6,406,000	6,406,000		
Husky Mounted Detection System (HMDS)				3,338,000	3,338,000		
Remote Demolition Systems				1,710,000	1,710,000		
Heaters and Environmental Control Units (ECUs)				922,000	0		
Field Feeding Equipment				660,000	660,000		
Cargo Aerial Delivery & Personnel Parachute System				132,000	273,000		
Family of Engineer Combat and Construction Sets				7,984,000	0		
Quality Surveillance Equipment				1,435,000	1,435,000		
Distribution Systems, Petroleum & Water				3,070,000	3,070,000		
Combat Support Medical				11,569,000	10,673,000		
Mobile Maintenance Equipment Systems				2,217,000	2,305,000		
Items Less Than \$5M (Maintenance Equipment)				33,000	779,000		
Scrapers, Earthmoving				3,298,000	6,106,000		
Compactor				1,615,000	1,520,000		
Hydraulic Excavator				4,938,000	1,646,000		
Tractor, Full Tracked				2,130,000	11,577,000		
Enhanced Rapid Airfield Construction Capability				2,098,000	0		
Construction Equipment ESP				3,156,000	3,895,000		
Items Less Than \$5M (Construction Equipment)				2,344,000	0		
Generators and Associated Equipment				2,503,000	8,105,000		
Family of Forklifts				4,064,000	4,064,000		
Training Devices, Nonsystem				5,085,000	4,279,000		
Aviation Combined Arms Tactical Trainer				2,511,000	1,757,000		
Gaming Technology in Support of Army Training				1,514,000	2,038,000		
Integrated Family of Test Equipment (IFTE)				2,712,000	3,452,000		
Test Equipment Modernization (TEMOD)				1,606,000	2,300,000		
Modification of In-service Equipment (OPA-3)				2,733,000	1,536,000		
Army Materiel Command (AMC) Critical Items - OPA-3				1,843,000	1,843,000		
FY 2015 National Guard and Reserve Equipment Appropriation (NGREA) Equipment							
Command and Control Systems							
Engineer Command and Control (C2) Recon & Survey System						\$2,400,000	\$2,586,520
Logistics Automation System						255,000	2,231,970
Engineer							
Urban Ops Platoon Support Equipment						4,250,000	0
Urban Ops Squad Support Equipment						350,000	0
Engineer Rapid Airfield Construction Capability						2,250,000	3,360,000
Hand Held Mine Detection - AN/PSS-14 REV 6						2,100,000	0

FY 2015 Planned vs Actual Procurements and Transfers

Nomenclature	Equip No.	FY 2015 Transfers (# of items)		FY 2015 Procurements (\$s)		FY 2015 NGREA (\$s)	
		Plan	Actual	Plan	Actual	Plan	Actual
Mobile Power Tool Set						1,500,000	3,287,953
Self Propelled Concrete Saw						1,500,000	0
Hydraulic Electric Pneumatic Petroleum Operated Equipment (HEPPOE)						900,000	12,705,000
Mixer, Concrete						800,000	0
Assault Craft Boat Motors (15 Man)						800,000	0
Assault Craft (15 Man)						600,000	0
Vibratory Plate Compactor						500,000	0
Global Positioning System - Survey						450,000	464,510
Field Logistics							
Load Handling System: 2000G Water						6,750,000	0
Fuel System Supply Point: 300K						6,000,000	0
Rough Terrain Cargo Handler (RTCH)						5,000,000	0
Laundry Advanced System Trailer						3,720,000	0
Petroleum Distribution System						2,800,000	0
Truck Lift Fork: 5K Rough Terrain						1,500,000	6,773,367
Assault Kitchen						840,000	0
Petroleum Quality Analysis System						700,000	0
Refueling System: Aviation HEMMT Tanker						400,000	0
Test Measurement Diagnostic Equipment						310,000	11,363,180
Tactical Wheeled Vehicles							
HMMWV General Purpose						19,500,000	0
HMMWV Ambulance (M997A3)						13,200,000	13,320,082
Truck Medium Tactical						15,000,000	14,890,816
Driver Vision Enhancement						11,900,000	10,415,600
HEMTT Modernization (Cargo)						10,800,000	44,857,680
HEMTT Modernization (POL)						10,400,000	0
HEMTT LHS						7,500,000	0
Palletized Loading System Modernization						6,000,000	21,212,675
Heavy Equipment Trailer						3,450,000	0
Heavy Dump Truck						2,500,000	0
Semitrailer Fuel Tanker						1,125,000	0
Truck Tractor - Yard						600,000	0
Light Engineer Utility Trailer						500,000	0
Force Protection							
Chemical Biological Protective Shelter (M8E1)						24,200,000	17,877,530
Individual Radiological Dosimeter						1,800,000	1,200,000
Simulators							
Multiple Amputee Trauma Trainer						5,750,000	1,731,936
Transportation Common Driver						2,800,000	12,056,160
Weapons Gunnery Trainer						800,000	4,000,000
Transportation Reserve						500,000	665,021
Total						\$591,229,000	\$551,755,000
						\$185,000,000	\$185,000,000

Major Item of Equipment Substitution List

NOTE: This table identifies equipment authorized by the Service to be used as a substitute for a primary item of equipment. The table also identifies whether or not the item is deployable in wartime. This data meets the Title 10 requirement to identify substitutes that are not the most desired equipment item.

Required Item Nomenclature	Reqd Item Equip No.	Substitute Item Nomenclature	Substitute Item Equip No.	FY 2018 Qty	Deployable?	
					Yes	No
Aircraft						
HH-60L: Medevac Helicopter	U84291	Helicopter Utility: UH-60L	H32361	24	X	
Utility Cargo Aircraft: UC-35A	U05004	Airplane, Utility: UC-35B	A05015	5	X	
Battlespace Awareness						
Detecting System Countermeasures: AN/MLQ-40(V)4	D04182	Detecting System: Countermeasures AN/MLQ-40(V)1	D02704	1	X	
Battle Command Transport Networks						
Satellite Communication System: AN/TSC-156	S23268	Satellite Communications Terminal: AN/TSC-93A	S34963	5	X	
Terminal: Satellite Communication AN/TSC-154	T81733	Satellite Communications Terminal: AN/TSC-93A	S34963	4	X	
Combat Mobility						
Bridge Armored Vehicle Launched Scissors TY: 63 FT (AVLB) MLC 70	B31098	Bridge Armor Vehicle Launch Scissor TY: CL 60 ALUM 60 FT LG OF SPAN	C20414	51	X	
High Mobility Engineer Excavator (HMEE): Type I	H53576	Tractor Wheeled: Industrial	T34505	29	X	
Loader Scoop Type: DSL 2-1/2CU YD Hinge Frame W/Multiple Purpose Bucket	L76556	Loader Scoop Type: 2.5 Cubic Yard	L76897	15	X	
Tractor Wheeled: DSL 4X4 w/Excavator & Front Loader	T34437	Tractor Wheeled: Industrial	T34505	51	X	
Field Logistics						
Assault Kitchen: (AK)	A94943	Kitchen: Company Level Field Feeding	K28601	40	X	
Rough Terrain Container Handler (RTCH): Kalmar RT240	R16611	Truck Lift Fork: DED 50K lb Container Handler Rough Terrain 48-in LC	T48941	38	X	
Shower: Portable 12 Head	S62898	Bath Unit Portable: GED 8-9 SH Less Power	B43663	2	X	
Force Protection						
Chemical Biological Protective Shelter: (CBPS Electric)	Z01533	Chemical - Biological Protective Shelter (CBPS): M8	C07506	1	X	
Mask Chemical Biological Joint Service General Purpose: Field M50	M12986	Mask Chemical Biological: M40	M12418	86,134	X	
Mask Chem-Bio Joint Service General Purpose: Combat Vehicle Crewman M51	M13236	Mask Chemical Biological: Combat Vehicle M42	M18526	2,843	X	
General Engineering						
All Terrain Crane Type II: Heavy	Z05089	Crane: Wheel Mounted Hydraulic 25-Ton All Terrain AT422T	C36586	9	X	
Excavator: Hydraulic (HYEX) Multipurpose Crawler Mount	E27792	Tractor Full Tracked Low Speed: DSL MED DBP W/BULDOZ W/SCARIF WINCH	W76816	71	X	
Hydraulic Electric Pneumatic Petroleum Operate Equip: HEPPOE	H05004	Pneumatic Tool and Compressor Outfit: 250 CFM TRLR MTD	P11866	14	X	
		Tool Outfit Pioneer: PTBL Hydraulic/Electric Tools Outfit (HETO)	W58486	54	X	
Scraper Earthmoving Self-Propelled: 14-18 CU YD (CCE)	S56246	Sscraper Earthmoving: 14-18 CU YD	S05029	22	X	
Tractor Full Tracked High Speed: Deployable LT Engineer (DEUCE)	T76541	Tractor Full Tracked Low Speed: DSL MED DBP W/BULDOZ W/SCARIF WINCH	W76816	3	X	

Major Item of Equipment Substitution List

Required Item Nomenclature	Reqd Item Equip No.	Substitute Item Nomenclature	Substitute Item Equip No.	FY 2018 Qty	Deployable?	
					Yes	No
Soldier Systems						
Mini Eyesafe Laser Infrared Observation Set (MELIOS): AN/PVS-6	M74849	Laser: Target Locator Module	L05003	34	X	
		Target Locator Module	T27471	17	X	
Soldier Weapons						
Carbine 5.56mm: M4A1	C06935	Rifle 5 56mm: M4	R97234	16,788	X	
		Rifle 5.56mm: M16A2	R95035	84,714	X	
Launcher Grenade: M320A1	L69080	Launcher Grenade 40mm: Sgle Shot Rifle mtd Ditchble	L44595	1,569	X	
		Launcher Grenade: M203A2	L69012	1,176	X	
Machine Gun Caliber .50: HB Flexible (Ground & Vehicle) W/E	L91975	Machine Gun Grenade 40mm: MK19 Mod4 Upgunned Weapon Station	M05019	3	X	
		Machine Gun Grenade 40mm: MK19 Mod III	M92362	37	X	
Machine Gun Caliber .50: Heavy Fixed Turret Type	L91701	Machine Gun Grenade .50: HB Flexible (Ground and Vehicle) W/E	L91975	204	X	
Machine Gun: 7.62mm M240B	M92841	Machine Gun 7.62mm: M240L	M92454	45	X	
Machine Gun: Caliber 50	M39331	Machine Gun Caliber .50: HB Flexible (Ground & Vehicle) W/E	L91975	2,506	X	
Machine Gun Light: 5.56mm M249	M39263	Machine Gun 5.56mm: M249	M09009	734	X	
Pistol 9mm: M11	P47365	Pistol 9mm Automatic: M9	P98152	329	X	
Trailers						
Palletized Load System: Trailer-CTE	P05025	Trailer Flat Bed: 11-Ton 4-Wheel (HEMAT)	T45465	103	X	
		Trailer: Palletized Loading 8X20	T93761	26	X	
Semitrailer Tank: 5000-gal Bulk Haul Self-Load/Unload W/E	S10059	Semitrailer Tank: 5K-gal Fuel Dispensing Automotive W/E	S73372	46	X	
Trailer Cargo: 1-1/2 ton 2-wheel W/E	W95811	Trailer Flat Bed: M1082 Trailer Cargo LMTV w/Dropsides	T96564	58	X	
Trailer Cargo: 12-Ton Light Engineer Utility Trailer	Z05224	Trailer Bolster: General Purpose 4-Ton 4-Wheel W/E	W94536	3	X	
		Trailer Cargo: MTV W/Dropsides M1095	T95555	56	X	
		Trailer Flatbed: 5-Ton 4-Wheel General Purpose	T96883	10	X	
Trailer Cargo: 5-Ton Light Engineer Utility Trailer	Z05186	Trailer Flat Bed: M1082 Trailer Cargo LMTV W/Dropsides	T96564	149	X	
Trailer Cargo: High Mobility 1-1/4 ton	T95924	Light Tactical Trailer: 3/4 ton	T95992	133	X	
Trucks						
Armored Security Vehicle: Wheeled w/Mount (ASV)	A93374	Truck Utility: ECV Armament Carrier W/IAP Armor Ready M1151A1	T34704	94	X	
Truck Ambulance: 4-Litter Armd 4X4 W/E (HMMWV)	T38844	Truck Ambulance: 2-Litter Armd 4X4 W/E (HMMWV)	T38707	46	X	
Truck Cargo: 5-Ton 6X6 MTV W/E LAPES/AD	T41036	Truck Cargo: 5-Ton 6X6 MTV W/E W/W LAPES/AD	T41104	1	X	
Truck Cargo: 5-Ton WO/Winch	T41515	Truck Cargo: 5-Ton 6X6 MTV W/E LAPES/AD	T41036	18	X	
		Truck Cargo: MTV W/E W/W	T41135	43	X	
Truck Cargo: M985A4	T59380	Truck Cargo: Tactical 8X8 Heavy Expanded Mobility Y W/Med Crane	T39586	56	X	
		Truck Cargo: Tactical 8X8 Heavy Expanded Mobility W/W Med Crane	T39654	2	X	
Truck Cargo: Tactical 8X8 Heavy Expanded Mob W/LHS	T96496	Truck Cargo: Heavy PLS Transporter 15-16.5 ton 10X10	T40999	79	X	

USAR

Table 7

Major Item of Equipment Substitution List

Required Item Nomenclature	Reqd Item Equip No.	Substitute Item Nomenclature	Substitute Item Equip No.	FY 2018 Qty	Deployable?	
					Yes	No
Truck Cargo: WO/Winch	T59448	Truck Cargo: 4X4 LMTV W/E W/W	T60149	119	X	
		Truck Cargo: LWB WO/Winch	T93271	24	X	
		Truck Cargo: W/MHE WO/Winch	T59584	2	X	
Truck Dump FMTV: 10-Ton	T65047	Truck Dump: 10-Ton W/Winch	T65274	4	X	
Truck Dump: 20-Ton DSL DRVN 12 CU YD CAP (CCE)	X44403	Truck Dump: 5-Ton 6X6 W/E	X43708	50	X	
Truck Materials Handling-Container Hoisting: M1148A1P2	T54516	Truck Cargo: MTV W/E W/W	T41135	7	X	
Truck Tank: Fuel Servicing 2500-gal 8X8 Heavy Exp Mob	T87243	Truck Tank: Fuel Servicing 2500-gal 8X8 Heavy Exp Mob W/Winch	T58161	22	X	
		Truck Tank: WO/Winch	T58318	22	X	
Truck Tractor: Heavy Equipment Transporter (HET)	T59048	Truck Tractor: M107A1	T05012	72	X	
Truck Tractor: Line Haul C/S 50000 GVWR 6X4 M915	T61103	Tractor Line Haul: M915A5	T88858	27	X	
Truck Tractor: MTV W/E	T61239	Truck Tractor: WO/Winch	T88983	34	X	
Truck Tractor: MTV W/E W/W	T61307	Truck Tractor: M1088A1P2 W/Winch	T61375	8	X	
		Truck Tractor: WO/Winch	T88983	28	X	
Truck Wrecker: MTV W/E W/W	T94709	Truck Wrecker	T94671	44	X	
Truck: Expandable Van WO/Winch	T67136	Truck Van: Expansible 5-Ton 6X6 (ARMY)	X62237	7	X	
		Truck Van: Expansible MTV W/E M1087A1	T41271	30	X	

Significant Major Item Shortages

NOTE: This table provides a RC top ten prioritized (PR) shortage list for major equipment items required for wartime missions but which are currently not funded in the FYDP. It lists the total quantity required, the total unfunded requirement, the individual item cost, and the cost of the unfunded portion. This data is consistent with other unfunded equipment data submitted by the Service.

PR	Nomenclature	Total Req'd	# Items Short	Item Cost	Total Shortage Cost	Rationale/Justification
1	Joint Battle Command - Platform (JBC-P)	12,597*	12,241	\$13K	\$159M	JBC-P provides migration of legacy mounted battlespace awareness and logistics systems to a common application. Based on pending adjustments, the Army Reserve requirement is expected to increase by approximately 1,700 systems by FY 2020. Currently, approximately 32% of Army Reserve mounted command and control legacy systems are not network capable. The Army investment strategy accelerates procurement to address legacy system network compatibility challenges by FY 2019 and seeks complete modernization by FY 2023.
2	Joint Light Tactical Vehicle (JLTV)	14,687*	14,687	\$335K	\$4.9B	The JLTV program begins full-rate production in FY 2019. Army Reserve is not scheduled to begin fielding until FY 2024, and 64% of the current Light Tactical Vehicle (LTV) fleet does not meet the minimum force protection standards for global deployment to a non-permissive threat environment. Funding projections indicate the Army Reserve LTV fleet will remain less than 40% armor capable through FY 2025.
3	Common Bridge Transport (CBT) - M1977A4	504*	266	\$370K	\$99M	The CBT is the prime mover for mobility engineer bridging equipment used for spanning wet gap obstacles. The M1977A4 model replaces legacy vehicles that exceed economic useful life and provides an armor variant capable of global deployment to a non-permissive environment. Army Reserve is resourced to field 4 of 9 companies (56 systems each) by FY 2021.
4	Bridge Erection Boat (BEB) B05006 Variant	126*	126	\$900K	\$88M	The BEB program is a new start modern replacement for a legacy fleet already at or beyond economic useful life. Army Reserve owns 37% of the total Army requirement. Production begins in FY 2018 with a fielding time horizon stretching beyond FY 2030. Due to limited resources, production capacity, and funding prioritization, Army Reserve is projected to receive funding to modernize just 2 of 9 companies (14 boats each) by FY 2021.
5	Joint Assault Bridge (JAB)	96*	96	\$6M	\$576M	The JAB is a modern tracked bridging capability designed to enhance dry gap crossing for heavy armored combat units. The Army Reserve owns 55% of the total Echelon Above Brigade Army capability. The JAB will replace legacy Armored Vehicle Launch Bridges that exceed economic useful life. Army Reserve will field the first JAB systems in FY 2021.
6	Carbine 5.56mm - M4A1	144,000	123,635	\$700	\$87M	80% of current on-hand carbines in the Army Reserve are legacy M16 models identified for divestment. Modern optics and grenade launchers will not mount on the M16. Funding for the Army M4A1 pure fleet strategy is delayed beyond FY 2021. The Army Reserve must maintain three carbine variants until resourcing is made available.

Significant Major Item Shortages

PR	Nomenclature	Total Req'd	# Items Short	Item Cost	Total Shortage Cost	Rationale/Justification
7	Mission Command Transport, Command Post and Enabler Systems	75,523*	18,502	Varies	\$600M	Requirement reductions and accelerated divestment of legacy systems, particularly satellite and tactical radio equipment, drastically reduced the budgetary shortfall by \$800M. The majority of the current budget shortfall is based on emerging command post and enabler systems. Incremental investments are needed to prevent an insurmountable funding challenge and widening network interoperability gaps. Failure to stay current will impact the ability to communicate, visualize the battle space, and synchronize the elements of combat power.
8	Line Haul Tractor - M915A5; 7.5K Petroleum Semitrailer; M872 34 Ton Cargo Trailer	4,580	2,715	Varies	\$533M	The Army Reserve owns 50% of the total Army line haul capability, to include 90% of the bulk petroleum transportation assets. The M915 contract expired in FY 2014 before Army Reserve completed fielding the M915A5 armor capable variant. Only 40% of the existing Army Reserve M915 fleet is armor capable. The entire 7,500 gallon tanker semitrailer fleet exceeds economic useful life. There is currently no Army investment strategy for these critical Early Entry / Theater Opening capabilities. Corrosion problems have affected the suitability of over 74 percent (849 of 1,155) of the Army Reserve M872A0-A3 34-ton trailer fleet for deployment and readiness of cargo line-haul theater opening assets. A robust replacement strategy is not expected to begin until FY 2023.
9	Medical	3,160	1,420	Varies	\$67M	In accordance with the Army Equipping and Modernization Strategy and Army Medicine Equipping Strategy, only 4 of the 16 248-bed Army Reserve Combat Support Hospitals are fully equipped. This equipping risk is mitigated through the maintenance of three Army Reserve Regional Training Sites - Medical that support multi-component and joint collective training requirements. These sites require equipment upgrades to support ongoing medical force design updates.
10	All Terrain Crane Type II (Heavy)	75	8	\$1.5M	\$101M	Army Reserve owns 35% of the total Army Construction Engineer force structure. The Heavy Crane will provide horizontal and vertical construction companies, route clearance companies, and multirole bridge companies with heavy lift and long reach capabilities needed to support the force. Army Reserve projects to have 8 on-hand by FY 2021.
<p>* Quantities not limited to documented requirements; includes validated requirements captured in Basis of Issue Plan documents and Army Acquisition / Procurement Objectives.</p>						

Chapter 3

United States Marine Corps Reserve (USMCR)

I. Marine Corps Overview

“The Marine Corps remains *the* Nation’s Expeditionary Force-in-Readiness, able to answer the Nation’s call in any clime and place. In meeting that mandate, Marines are forward-deployed and forward-engaged responding to crises around the world – managing instability, building partner capacity, strengthening allies, projecting influence – meeting the requirements of our Geographic Combatant Commanders.”¹ The Marine Corps’ global presence, achieved through basing and highly mobile Marine Air Ground Task Forces (MAGTFs), gives the Commander in Chief a vast range of strategic, operational, and tactical options to protect the Nation’s interests. Marine forces operate in all warfighting domains: land, maritime, air, cyberspace, and space. The Marine Corps is capable of responding to the full spectrum of threats: conventional, irregular, or hybrid.

Fundamental to our character as a Marine Corps is our role as the Nation’s force-in-readiness. We must continue to be ready for operations across the range of military operations (ROMO). At the same time, we recognize the current and future fight may not be what we experienced in the past. It will encompass not just the domains of land, air and sea, but also space and the cyber domain. It will include information operations and operations across the electromagnetic spectrum. It will involve rapidly changing and evolving technologies and concepts, which will force us to be more agile, flexible and adaptable.²

A. Marine Corps Planning Guidance

1. Strategic Concept of the Marine Corps

We are committed to optimizing our force structure for crisis response and forward presence.

The Marine Corps, as an integral part of both the Naval Force and the Combined/Joint Force, must be a tailorable, flexible, and versatile force capable of responding to any crisis across the full ROMO. We must be a coherent and fully integrated *Naval Force* that can contribute to deterrence, provide maritime security, perform sea control, and project power ashore to impose our will upon adversaries. We must be an *Expeditionary Force* that is trained and equipped and able to operate in austere conditions and hostile environments. We must be an *Agile Force* that can navigate the physical and cognitive dimensions of complex situations and seize the initiative. We must be a *Lethal Force* with a 21st century approach to combined arms that integrates information warfare and seeks to destroy and defeat our enemies across five domains– air, land, sea, space, and cyberspace. Ultimately, we must continue to be a *Winning Force*. As Marines have always done, when our Nation calls upon us, we must fight and win regardless of the dimension or domain. *Victory is our legacy — in the past, now, and in the future.*³

¹ Statement by the Commandant of the Marine Corps before Senate Committee on Armed Services Concerning The Commandant’s Posture of the United States Marine Corps, June 15, 2017, p. 3.

² Commandant of the Marine Corps, *Marine Corps Operating Concept: How an Expeditionary Force Operates in the 21st Century*, September 2016, p. 32.

³ *Ibid.*, p. 4.

2. Marine Corps Total Force Concept

In the Marine Corps, the AC and RC are integrated as a Total Force. Through the employment of the “mirror-imaging” concept, AC and RC forces are manned, trained, and equipped to the same standards, thereby enabling RC forces to be seamlessly employed as an integral part of the Marine Corps’ operating forces. “Our ability to meet future force commitments requires a total force approach to readiness. In the past, our reserve forces provided an institutional shock absorber to meet expanding requirements, particularly in sustained major operations. Looking forward, our reserves may play more of a complementary role in specific areas.”⁴

B. Marine Corps Equipping Policy

The Marine Corps develops an Approved Acquisition Objective (AAO) for peacetime and wartime requirements to equip and sustain the Total Force. This materiel management approach ensures that equipment is sourced and aligned with the Service’s equipping strategy, which is based on the Force Generation Process, deployment schedule, and the Commandant of the Marine Corps’ guidance. It also reduces latency in distribution, and improves the visibility and transparency of the materiel distribution process.

C. Plan to Fill Equipment Shortages in the RC

RC units maintain equipment based upon the unit’s Training Allowance (T/A), which is a portion of the warfighting equipment requirement set forth in the unit’s Table of Equipment (T/E). All equipment above the T/A (the difference or ‘delta’ between the T/E and the T/A) is stored at Marine Corps Logistics Bases and other “in stores” locations. Globally pre-positioned equipment can be utilized to bring RC units to full T/E equipping levels should the need arise. This methodology, known as “global sourcing,” has been used effectively to satisfy past RC, as well as AC unit equipment shortfalls.

D. Initiatives Affecting RC Equipment

The Marine Corps is currently conducting a large scale equipment modernization of the entire aviation force, increasing the lethality of our infantry, and ensuring our combat support and logistics are the most modern and capable. The result will be a Marine Corps that is the most advanced and ready – *a 5th Generation Marine Corps* - capable of dominating the battlefield in all five domains – air, land, sea, space, and cyberspace.⁵ In certain cases, fiscal uncertainty and decreasing mobilizations have adversely affected the equipment modernization of the RC by forcing the prolonged operation of legacy equipment. The requirement to concurrently maintain both legacy and new equipment has become increasingly costly and negatively affects overall readiness.

E. Plan to Achieve Full Compatibility between AC and RC

For the most part, RC units remain highly interoperable with their AC counterparts due to the Marine Corps’ Total Force approach to equipment fielding and management. AC and RC Forces are manned, trained and equipped to the same standards, facilitating the seamless employment of RC Forces to meet combatant commander requirements. Marine Forces Reserve mission

⁴ Ibid., p. 7.

⁵ Ibid., p. 16.

essential equipment readiness levels are sufficient and capable of supporting all home station training requirements, as well as current operational deployments. The use of National Guard and Reserve Equipment Appropriation (NGREA) funding has been beneficial in ensuring parity between the RC and AC. The Marine Corps Reserve will continue to leverage NGREA funding to achieve full compatibility between the AC and RC as required.

II. Marine Corps Reserve Overview

A. Current Status of the Marine Corps Reserve

1. General Overview

Reserve units are organized, trained, and equipped in the same manner as their active counterparts and are operationally interchangeable with them. All Marines, both AC and RC, stand ready to answer their Nation's call to arms.

Top RC Equipping Challenges

- Transition to KC-130J Super Hercules
- Transition to the RQ-21A Blackjack Small Tactical Unmanned Aircraft System (STUAS)
- Aviation and Ground Equipment Modernization

Marine Corps Reserve units have been fully engaged across the Globe over the past 16 years in theater security cooperation activities and overseas contingency operations, serving side by side with the Active Component. Organized as traditional Marine Air Ground Task Force, Marine Reservist from each of the Major Subordinate Commands have made tremendous impact across a diverse spectrum of operations in support of every geographic combatant commander's operational and theater security cooperation requirements in addition to Service Commitments.⁶

The Marine Corps Reserve has since expanded its mission beyond the strategic level. It is now engaged at the operational level and has operational requirements ranging from individual augmentation of AC staffs, security cooperation engagements, and multinational exercises to contingency operations, humanitarian assistance missions, and other steady state missions.

The AC has fully fielded the KC-130J Super Hercules, while the RC fielding lags significantly behind as only seven of the 24 KC-130Js have been delivered, and nine are programmed to the RC. The RC currently maintains a mixed fleet of KC-130J and legacy KC-130T aircraft that have completely different logistics, maintenance, and aircrew requirements. The longer the RC maintains both airframes, the longer the RC will need to invest in duplicative logistics, maintenance, and training.

The RC is scheduled to be fully fielded with the RQ-21A system in FY 2018. The accelerated fielding to the RC is a success story in ensuring parity between the AC and RC. The RQ-21A will provide the Marine Expeditionary Force and subordinate commands (Regiments and Marine Expeditionary Units) a dedicated intelligence, surveillance, and reconnaissance system capable of delivering intelligence products directly to the tactical commander in real time. The transition to the RQ-21A system presents forecasted challenges with aircrew requirements and logistics that the Service plans to mitigate through the use of training devices and other materiel solutions.

The challenges above are reflective of the broader issue of delayed fielding to the meet the Reserve requirement for aviation and ground equipment modernization. In addition to the KC-130J, Marine Corps Aviation is concurrently transitioning to the F-35B/C, AH-1Z, and CH-53K platforms. For ground vehicles, modernizations of the Amphibious Assault Vehicle (AAV) and Light Armored Vehicle (LAV) fleets are ongoing, and transitions to the Amphibious Combat

⁶ Commander, Marine Forces Reserve, *Statement before Senate Appropriations Subcommittee on Defense Concerning Marine Corps Reserve*, April 26, 2017, p. 3.

Vehicle (ACV) and the Joint Light Tactical Vehicle (JLTV) are set to begin during FY 2020. As the Marine Corps continues its modernization efforts, it's critical the RC maintain pace with the AC to ensure interoperability.

2. Status of Equipment

Geographic dispersion of Marine Corps Reserve units and their limited storage capacity are why proper accountability of equipment and validation of the T/A are essential to maintaining overall readiness. The RC will continue to meet the Commandant's first priority of providing the best trained and equipped Marine units all the while protecting and maintaining the enduring readiness of the Reserve equipment pool. Marine Forces Reserve is critically deficient in Individual Combat Clothing and Equipment. This deficiency is registered on the FY 2017 Calendar Year Deficiency List. Enhanced Small Arms Protective Inserts (ESAPI) plates make up the bulk of the shortfall at a cost of \$40M. Through global equipment sourcing, the RC has ensured the equipment sets of those units augmenting and reinforcing the AC are on par with AC equipment sets.

a. Equipment On-hand

The Marine Corps continues to ensure the RC has the assets to train through its use of a T/A, which is not typically used to source operational requirements. *Table 1 Consolidated Major Item Inventory and Requirements* provides the combined projected equipment inventories and requirements of Marine Corps Reserve units for the period FY 2019 through FY 2021. These quantities reflect the additional equipment maintained by Marine Corps Logistics Command that accounts for the difference between full wartime equipment requirements and unit T/As. The equipment items listed in *Table 8 Significant Major Item Shortages* reflect the highest priority programs that if fielded, will directly enhance the RC's current unit readiness.

b. Average Age of Major Items of Equipment

The equipment listed in *Table 2 Average Age of Equipment* provides the average age of selected major equipment items at the start of FY 2018. The average age of RC equipment is currently consistent with the age of equipment in the AC with some exceptions such as the KC-130T. The majority of ground combat systems that are at the end of their life cycle have programs that will extend the life cycle of that equipment through upgrades and modifications, or have fielding of new equipment planned.

c. Compatibility of Current Equipment with Active Component

While the achievement of equipment compatibility remains challenging due to Total Force priorities, the RC remains near parity with AC counterparts. That said, the fiscal instability of the past eight years and the continued reality of ongoing budgetary uncertainty disrupt our ability to program long term activities and directly challenge our efforts to improve current and future readiness. To continue to meet operational commitments and maintain a ready force, your Marine Corps requires fiscal stability.

d. Maintenance Challenges

The restructuring of RC units and personnel realignments have subsequently changed the equipment sets and maintenance capabilities of those units across the Marine Corps Reserve. The

RC uses Overseas Contingency Operations (OCO) dollars for Contract Logistics Support Teams to provide units with essential maintenance support and mitigate the equipment maintenance challenges; however, this means that a reduction of OCO dollars would decrease the availability of contract maintenance support teams to supplement the RC maintainers. The structure realignment coupled with geographic dispersion of maintenance capabilities increase the need to maintain Contract Logistics Support Teams. To provide the RC the required maintenance capabilities, budgeting for Contract Logistics Support as well as external AC support will need to be planned for in the baseline budget.

e. Modernization Programs and Shortfalls

Marine Corps modernization programs are designed to keep pace with the changing requirements of current and future operations. The RC uses various funding sources such as the base procurement budget and NGREA to execute these programs and fill equipment shortfalls.

- **Combat Equipment Modernization:** The Marine Corps must sustain and upgrade an appropriate number of the AAV to serve as a bridge to the ACV. The RC AAVs are not scheduled to receive upgrades until 2021, which exceeds the current service life (2018) by three years. The Marine Corps has requested that the AAV service life be extended to 2035.
- **Aviation Modernization:** The RC is integrated into the Marine Corps Aviation fielding and modernization plan, which has effectively maintained readiness with some exceptions. NGREA funding has been heavily utilized to upgrade aging KC-130T aircraft with new components such as Engine Instrument Display Systems, Electronic Propeller Control Systems, Tactical Air Navigation Systems, Weather Radar Replacements, and Hose Reel Improvements. This funding has allowed the RC to mitigate the KC-130J fielding delay by maximizing the utility of remaining legacy aircraft.
- **Command and Control Modernization:** Upgrades to the Combat Operation Centers and command, control, communications, and computer related programs and infrastructure will enable the Marine Corps Reserve to sustain its high level of operational readiness in support of global mission requirements.

f. Overall Equipment Readiness

Equipment readiness of RC units remains consistent with AC readiness levels. This is accomplished through regular review of T/A ensuring that RC units have only what is accessed as necessary equipment to train. Another contributing factor to equipment readiness is the use of Contract Logistics Support teams. The regular review of T/A and the use of contract maintenance support teams ensure RC equipment remains at a high state of operational readiness.

B. Changes since the Last NGRER

The fielding of the RQ-21A, originally scheduled for FY 2020, has been moved to FY 2018. Continued reductions in OCO funding and other procurement funding will increasingly constrain the RC's maintenance and procurement capacity.

C. Future Years Program (FY 2019–FY 2021)

1. FY 2021 Equipment Requirements

The Marine Corps will continue to pursue current and emerging ground and aviation equipment requirements in order to modernize the Total Force. During this effort, the RC will strive to maintain equipment parity with its AC counterparts to the maximum extent possible.

2. Anticipated New Equipment Procurements

a. KC-130J Super Hercules

Accelerating the RC transition to the KC 130J is the number one priority for the Marine Corps Reserve. It is also the most expensive Reserve equipment shortfall, costing over \$632M to purchase the remaining nine unfunded aircraft for the RC. The KC-130J is a multi-role, multi-mission tactical tanker/transport aircraft developed to replace the KC-130F/R/T models. The KC-130J has increased range and speed, lower cost per flight hour, better fuel efficiency, improved reliability, and better maintainability. The AC completed the KC-130J transition in FY 2011, which left 28 KC-130T aircraft in the RC. Budget challenges have resulted in competing Aircraft Procurement Navy appropriation priorities within the Navy and Marine Corps. This factor has delayed (by five years) the fielding of the KC-130J to the RC. Only seven aircraft have been delivered to the RC, and nine additional aircraft are programmed. Compatibility differences between the KC-130J and KC-130T are creating significant challenges in training, manning, and logistical support.



b. RQ-21A Blackjack



The RC is scheduled to be fully fielded with two RQ-21A systems (five aircraft per system) starting in FY 2018. This is a success story as the fielding to the RQ-21A system has been a top equipment priority for the RC for the past several years. The system provides persistent maritime and land-based tactical reconnaissance, surveillance, and target acquisition data collection and dissemination capabilities to the warfighter. The air vehicle's open-architecture configuration can integrate new payloads quickly and can

carry sensor payloads as heavy as 25 pounds.

c. Joint Light Tactical Vehicle



The JLTV Family of Vehicles (FoV) is a U.S. Army-led, joint vehicle program to replace the high mobility multipurpose wheeled vehicle (HMMWV). The JLTV will provide the Marine Air Ground Task Force with modern expeditionary light combat and tactical mobility while increasing the protection level of our light vehicle fleet. The JLTV FoV comprises two and four door variants and restores payload, protection, and enhanced performance to the light fleet. Low Rate Initial

Production started in FY 2016 with Full Rate Production and fielding beginning in FY 2019. The Marine Corps plans to procure 5,500 vehicles to replace the highest risk portion of the 17,000 vehicle light fleet by FY 2022. The RC is slated to receive 133 vehicles to replace all HMMWV TOW anti-armor missile carriers and a portion of HMMWV Heavy Gun Carriers assigned to its infantry battalions. Based on available funding, the Marine Corps plans to replace all 2-door and 4-door HMMWVs with JLTVs by 2030.

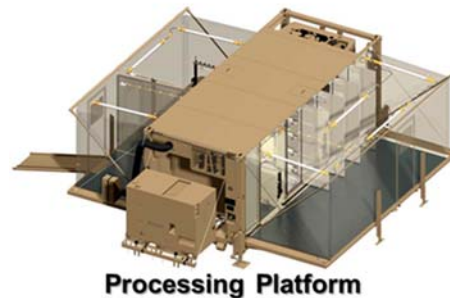
3. Anticipated New Equipment Requirements

a. Mobile Integrated Remains Collection System

The Mobile Integrated Remains Collection System (MIRCS) is required equipment per DoD standards for mortuary affairs operations. The system is in the process of becoming a Marine Corps program of record for procurement and fielding to the RC Personnel Retrieval and Processing (PRP)

Company. The Marine Corps' sole mortuary affairs capability resides in this Reserve unit, which currently lacks the mission-essential MIRCS

equipment required to complete its mission. The MIRCS is a modular, self-contained, International Organization for Standardization (ISO)-compatible platform that is used for processing and storing human remains to support mortuary affairs operations. The system has a refrigerated storage area capable of storing sixteen remains, a processing area, an administrative area, and supply storage compartments. The MIRCS comes equipped with all components necessary to deploy, move, and operate in support of military and peacetime operations. Twelve systems are required for the PRP Company to become fully mission capable.



Processing Platform

b. Amphibious Combat Vehicle

The acquisition contract for ACV 1.1 is currently in the Engineering and Manufacturing Development phase with a Total Force AAO of 204. The vehicle is planned to partially replace the Marine Corps' aging AAV fleet, which has been in service since the 1970s. ACV 1.1 provides advanced generation, fully amphibious, armored lift capability to the Marine Air Ground Task Force. ACV supports ship-to-objective maneuvers by providing the capability to self-deploy from amphibious ships. A seamless transition between sea and land enables the seizure of beach landing zones where conditions preclude other types of entry and facilitates rapid build-up of combat



power ashore before an enemy can react. The Marine Corps requires the ACV to achieve an over-the-horizon, joint forcible-entry capability that aligns with future amphibious concepts of operation.

c. Ground/Air Radar System

A highly mobile multi-mission radar system designed to fully support worldwide expeditionary requirements is needed to replace legacy radar systems. An advanced radar system is required to provide a multi-faceted detection and tracking capability to enable engagements of a wide range of hostile threats. The AN/TPS-80 Ground/Air Task Oriented Radar (G/ATOR) Block 1 provides Air Defense /Surveillance designed to detect fixed-wing/rotary-wing aircraft, cruise missiles, and unmanned aircraft systems. Block 2 provides detection of rockets, artillery, and mortars. Block 4 offers a robust air traffic control capability to ensure the safety of Marines worldwide. The proven Active Electronically Scanned Array radar technology enhances operational capabilities and gives the AN/TPS-80 G/ATOR system the ability to perform multi-mission tasks at significantly lower operation and maintenance costs compared to existing radar systems. G/ATOR's multi-network capability ensures compatibility with additional DoD command and control systems.



4. Anticipated Transfers from AC to RC

One MV-22B aircraft from VMM-764 will be transferred to the AC during calendar year 2018.

5. Anticipated Withdrawals from RC Inventory

Twelve KC-130T aircraft and 19 AH-1W aircraft are scheduled to be removed from the RC inventory as part of the platforms' "sundown" plan.

6. Equipment Shortages and Modernization Shortfalls at the End of FY 2021

The RC wartime requirements are addressed in *Table 1 Consolidated Major Item Inventory and Requirements*, which delineates the major item shortfalls that are anticipated to exist at the end of FY 2021. *Table 8 Significant Major Item Shortages* presents the RC's highest priority unfunded equipment and modernization shortfalls affecting Reserve unit training allowances.

D. Summary

"The Marine Corps is our Nation's force-in-readiness and will continue to be most ready when our Nation is least ready. As part of the Total Force Marine Corps, Marine Forces Reserve must remain manned, trained, and equipped to provide forces to the AC to respond across the operational spectrum and in all five warfighting domains. Although this unstable and increasingly dangerous operating environment is further complicated by a constrained resource environment, we must continue current operations, reset our equipment, and maintain our warfighting readiness while modernizing the force."⁷

⁷ Ibid., p.26.

USMCR

Table 1

Consolidated Major Item Inventory and Requirements

NOTE: This table provides a comprehensive list of selected major equipment items. It provides the projected inventory quantity on-hand (QTY O/H) at the beginning/end of the selected fiscal year (FY). It also provides the quantity required (QTY REQ) to meet the full wartime requirements of the Reserve Component. In accordance with Title 10, the QTY REQ number provides the recommendation as to the quantity and type of equipment that should be in the inventory of each Reserve Component. FY 2018 unit cost estimates are provided by the Military Departments.

Nomenclature	Equip No.	Unit Cost	Begin FY 2019 QTY O/H	Begin FY 2020 QTY O/H	Begin FY 2021 QTY O/H	End FY 2021 QTY O/H	End FY 2021 QTY REQ
Aircraft							
Aircraft, Fighter/Attack, F/A-18A++	F/A-18A++	\$36,100,000	12	12	12	12	12
Aircraft, Fighter, F-5F	F-5F	\$19,100,000	1	1	1	1	1
Aircraft, Fighter, F-5N	F-5N	\$5,000,000	11	11	11	11	11
Aircraft, Refueling/Cargo, KC-130J	KC-130J	\$87,118,244	7	11	12	13	24
Aircraft, Refueling/Cargo, KC-130T	KC-130T	\$79,610,000	12	9	5	0	0
Aircraft, Utility/Cargo, UC-12W	UC-12W	\$15,500,000	2	2	2	2	2
Aircraft, Utility/Cargo, UC-35C	UC-35C	\$33,500,000	2	2	2	2	2
Aircraft, Utility/Cargo, UC-35D	UC-35D	\$33,500,000	4	4	4	4	4
Helicopter, Attack, AH-1W	AH-1W	\$19,510,000	31	31	12	12	0
Helicopter, Attack AH-1Z	AH-1Z	\$30,450,000	0	0	12	12	28
Helicopter, Utility, UH-1Y	UH-1Y	\$25,240,000	21	21	21	21	21
Helicopter, Cargo, CH-53E	CH-53E	\$56,900,000	6	6	6	6	8
Tilt-rotor, Cargo, MV-22B	MV-22B	\$104,027,000	24	24	24	24	24
RQ-21A Blackjack System	RQ-21A	\$12,789,000	2	2	2	2	2
Fuselage Trainer, KC-130J	KC-130J FUT	\$16,743,316	0	0	0	0	2
Cockpit Procedures Trainer, KC-130J	KC-130J CPT	\$4,840,449	1	1	1	1	2
Observer Training Aid, KC-130J	KC-130J OTA	\$3,213,873	0	0	0	0	2
Aircrew Procedures Trainer, AH-1W	AH-1W APT	\$4,500,000	1	1	1	1	1
Flight Training Device, UH-1Y	UH-1Y FTD	\$16,400,000	2	2	2	2	2
Flight Training Device, CH-53E	CH-53E FTD	\$10,611,000	1	1	1	1	1
Containerized Flight Training Device, MV-22B	MV-22B CFTD	\$9,239,000	2	2	2	2	2
Communications & Electronics							
TRSS Day/Night Imager, V2 (IMAGER 2)	A0003	\$24,373	0	0	0	0	102
Communications Sub-System	A0032	\$1,325,179	16	16	16	16	16
Digital Terrain Analysis Mapping System Light	A0059	\$10,556	3	3	3	3	4
High Frequency Vehicle System	A0067	\$53,234	154	154	154	154	210
Remote Subscriber Access Module - Transition Switch Module (TSM)	A0124	\$69,886	96	41	41	41	41
Deployable End Office Suite - Transition Switch Module (TSM)	A0125	\$461,217	27	27	38	38	38
Tactical Handheld Radio (THHR)	A0129	\$4,800	1,244	1,273	1,273	1,273	2,087
Radio Set	A0139	\$47,828	72	72	72	72	109
Radio Set	A0153	\$224,839	38	38	38	63	63
Power Module	A0172	\$5,165	9	9	9	9	27

USMCR

Table 1

Consolidated Major Item Inventory and Requirements

Nomenclature	Equip No.	Unit Cost	Begin FY 2019 QTY O/H	Begin FY 2020 QTY O/H	Begin FY 2021 QTY O/H	End FY 2021 QTY O/H	End FY 2021 QTY REQ
Comm Security Module (CSM)	A0173	\$44,550	114	91	91	91	91
LAN Service Module (LSM)	A0174	\$92,330	58	58	58	58	91
Computer Digital Data Transfer	A0175	\$2,615	82	82	82	82	116
LAN Extension Module	A0176	\$27,930	219	219	219	361	361
Application Server Module (ASM)	A0177	\$14,980	58	58	58	58	91
Very Small Aperture Terminal - Small (VSAT-S)	A0234	\$80,000	21	21	21	21	33
Very Small Aperture Terminal - Medium (VSAT-M)	A0241	\$90,000	9	9	9	9	13
Very Small Aperture Terminal - Large (VSAT-L)	A0242	\$295,000	14	14	14	14	26
VSAT Master Reference Terminal (MRT)	A0244	\$105,000	7	7	7	7	13
Combat Operations Center (COC) V(3)	A0254	\$1,698,000	5	5	5	5	12
Combat Operations Center (COC) V(4)	A0255	\$1,220,000	21	21	21	21	22
Combat Operations Center (COC) V(2)	A0271	\$4,950,000	1	1	1	1	2
Wan Services Module (WSM) V2	A0312	\$41,850	118	118	118	118	165
Group 1 Unmanned Aircraft System (UAS), Raven	A0321	\$305,564	0	0	0	0	36
Group 3 UAS, Shadow	A0355	\$6,089,932	2	0	0	0	0
Intelligence/Operations Workstation	A0932	\$2,810	166	166	166	166	167
Radar Set, Firefinder	A1440	\$7,500,000	8	5	5	5	5
Radar Set, Air Traffic Control, Ltwt	A1500	\$3,777,000	1	1	1	1	2
Radar Set	A1503	\$15,217,555	1	1	1	1	2
Radio Set	A1957	\$43,986	181	181	181	181	286
Radio Set, Multiband (Maritime)	A2044	\$7,431	204	204	204	204	558
Terminal, Radio, Troposcatter, Digital	A2179	\$1,500,000	15	15	15	15	28
TRSS Radio Repeater Set	A2300	\$22,687	65	65	65	65	96
Advanced Field Artillery Tactical Data System	A2555	\$45,200	135	135	135	135	163
Target Loc, Desig & Hand-Off Sys (TLDHS)(Blk II)	A2560	\$42,000	149	149	149	149	175
Tactical SATCOM, Transportable (SMART-T)	A3232	\$825,000	6	6	6	6	9
Sensor, Ground, Unattended	A3255	\$867,264	6	6	6	6	6
Engineer							
Air Conditioner, Horizontal, 1.5-ton, 60Hz, 18K Btu	B0003	\$10,021	113	113	113	113	7
Air Conditioner, 5-ton, 60K; R-22	B0008	\$20,251	105	86	86	86	86
Environmental Control Unit, Horizontal, 36K Btu; R-22	B0014	\$15,092	484	269	269	269	269
Integrated Trailer, Environmental Control Unit and Generator (ITEG)	B0018	\$98,000	8	4	4	4	4
Distribution System, Mobile Elect PWR, 5kW (Indoor)	B0027	\$4,500	307	307	307	307	252
Distribution System, Mobile Elect PWR, 5kW (Outdoor)	B0028	\$7,500	436	436	436	436	355
Distribution System, Mobile Elect PWR, 15kW	B0029	\$8,800	167	167	167	167	197
Distribution System, Mobile Elect PWR, 30kW	B0030	\$16,100	197	197	197	197	141
Distribution System, Mobile Elect PWR, 100kW	B0031	\$28,500	99	99	99	99	80
Distribution System, Mobile Elect PWR, 300kW	B0032	\$22,100	23	23	23	23	23
All Terrain Crane (ATC) Mac-50	B0038	\$578,000	10	10	10	10	26

USMCR

Table 1

Consolidated Major Item Inventory and Requirements

Nomenclature	Equip No.	Unit Cost	Begin FY 2019 QTY O/H	Begin FY 2020 QTY O/H	Begin FY 2021 QTY O/H	End FY 2021 QTY O/H	End FY 2021 QTY REQ
Airfield Damage Repair (ADR) Kit	B0039	\$450,000	3	3	3	3	7
Medium Crawler Tractor (John Deer)	B0060	\$253,000	36	36	36	36	56
Tractor, Rubber Tire, Articulated Steering, Mp	B0063	\$198,708	117	117	117	117	106
Light Weight Water Purification System	B0071	\$194,580	19	19	19	19	53
Air Conditioner, MCS Horizontal, 60Hz, 9K Btu; R-22	B0074	\$9,510	99	99	99	99	17
Grader, Road, Motorized	B0078	\$236,008	25	25	25	25	21
Low Metallic Signature Mine Detector	B0102	\$23,976	102	102	102	102	186
Boat, Bridge Erection, Inboard Engine	B0114	\$249,187	10	10	10	10	63
Interior Bay, M17	B0121	\$111,968	57	57	57	57	108
Ramp Bay	B0122	\$134,112	27	27	27	27	45
Bridge, Medium Girder, Dry Gap	B0152	\$964,515	13	13	13	13	12
Container Handler, RT, Kalmar	B0392	\$525,000	10	10	10	10	8
M9 Armored Combat Earthmover	B0589	\$1,000,000	9	9	9	9	20
Tactical Airfield Fuel Dispensing System (TAFDS) (Firestone)	B0675	\$331,062	2	1	1	1	9
Amphibious Assault Fuel System (AAFS)	B0685	\$1,238,680	5	5	5	5	9
Generator Set, 3kW, 60Hz, Skid-mtd	B0730	\$9,922	220	220	220	220	182
Generator Set, Skid Mtd, 10kW/60Hz, TQD	B0891	\$19,912	121	121	121	121	225
Generator Set, Skid Mtd, 30kW/60Hz, TQD	B0953	\$22,046	114	114	114	114	284
Generator, Ltwt, Man-Portable	B0980	\$5,262	230	230	230	230	71
Generator Set, Skid-mtd, 60kW/60Hz, TQD	B1021	\$26,956	94	94	94	94	211
Generator Set, 100kW, 60Hz, Skid-mtd, TQD	B1045	\$67,000	192	192	192	192	58
Refueling System, Expedient, Helo	B1135	\$101,863	8	8	8	8	9
Pump Module, Fuel (SIXCON)	B1580	\$23,350	138	138	138	138	135
Roller, Compactor, Vibratory, Self-Propelled	B1785	\$63,000	8	8	8	8	10
Storage Tank Module, Fuel (SIXCON)	B2085	\$6,948	434	434	434	434	432
Storage Tank Module, Water (SIXCON)	B2086	\$5,524	315	315	315	315	307
Sweeper, Rotary, Vehicle Mounting	B2127	\$130,000	2	6	6	6	6
Loader, Backhoe (BHL)	B2483	\$83,359	25	25	25	25	34
Truck, Forklift, Variable Reach	B2561	\$99,245	61	61	61	61	67
Forklift, RT, Lt Capability (LRTF)	B2566	\$74,750	91	91	91	91	89
Purification System, Water, Tactical	B2605	\$350,000	21	21	21	21	33
General Supply							
Escalation of Force-Mission Modules (EOF-MM)	C0104	\$422,000	8	8	8	8	9
Device, Propulsion, Diver	C4549	\$77,270	18	18	18	18	20
Raiding Craft, Combat, Rubber, Inflatable (CRRC)	C5901	\$10,500	57	57	57	57	86
Motor Transport							
Truck, Armored, Cargo 7-ton, W/O Winch Reducible	D0003	\$294,176	112	112	112	112	467
Truck, Armored, XLWB, W/O Winch Reducible	D0005	\$181,000	0	0	0	0	55
Truck, Armored, Dump 7-ton W/O Winch Reducible	D0007	\$173,900	9	9	9	9	40

USMCR

Table 1

Consolidated Major Item Inventory and Requirements

Nomenclature	Equip No.	Unit Cost	Begin FY 2019 QTY O/H	Begin FY 2020 QTY O/H	Begin FY 2021 QTY O/H	End FY 2021 QTY O/H	End FY 2021 QTY REQ
Truck, RTAA, Tractor, 7-ton, W/O Winch	D0009	\$220,000	37	37	37	37	20
Truck, Armored, Tractor, 7-ton, W/O Winch, Reducible	D0013	\$220,000	16	16	16	16	44
Truck, Armored, Wrecker, 7-ton, W/Winch Non-Reducible	D0015	\$400,000	49	49	49	49	53
Truck, Utility, Expanded Capacity, Enhanced, M1152	D0022	\$186,729	335	335	335	335	346
Truck, Utility, Expanded Capacity, Armament Carrier	D0030	\$238,500	714	714	714	714	741
Truck, Utility, Expanded Capacity, C2/GP Vehicle	D0031	\$104,668	142	142	142	142	129
Truck, Utility, ECV, TOW Carrier, Armored	D0032	\$222,487	52	52	52	52	64
Truck, Utility, Expanded Capacity, Fully-armored (2-door)	D0033	\$193,595	204	204	204	204	294
Truck, Utility, Ground Mobility Vehicle, Armored (4-door)	D0034	\$321,959	171	171	171	171	237
Truck, RTAA, Cargo, 7-ton, W/O Winch	D0198	\$141,022	675	675	675	675	465
Semitrailer, Refueler, 5,000 gal	D0215	\$214,064	23	23	23	23	64
Semitrailer, Lowbed, 40-ton	D0235	\$61,710	46	46	46	46	60
Trailer, Cargo, Resupply for HIMARS	D0861	\$56,156	38	38	38	38	36
Truck Cargo 22.5-ton, 10X10, (LVSR)	D0886	\$724,828	136	136	136	136	218
Truck, Tractor, 10X10 (LVSR)	D0887	\$653,179	44	44	44	44	59
Truck, Ambulance, 4-Litter, Armored, 2 1/4-ton, HMMWV	D1001	\$142,918	68	68	68	68	87
Truck, Ambulance, 2-Litter, Soft Top, 2 1/4-ton, HMMWV	D1002	\$68,212	33	33	33	33	38
Truck, RTAA, XLWB Cargo, 7-ton, W/O Winch	D1062	\$238,424	89	89	89	89	169
HIMARS, Armored Resupply Vehicle, Non-Reducible	D1063	\$404,398	32	32	32	32	36
Truck, Fire Fighting, Aircraft and Structure	D1064	\$162,562	26	26	26	26	18
Truck, RTAA, Dump, 7-ton, W/O Winch	D1073	\$167,561	45	45	45	45	34
Truck, Util, Cargo/Troop Carr, 1 1/4-ton, W/Equip, HMMWV	D1158	\$60,409	615	520	520	520	520
Truck, Utility: Internally Transportable Vehicle, Light Strike Variant (ITV-LSV)	D1161	\$256,547	0	0	0	0	30
Truck, Wrecker, 10X10 (LVSR)	D1214	\$256,547	15	15	15	15	21
Ordnance & Weapons							
Scout Sniper Mid-Range Night Sight (SSMRNS)	E0020	\$8,795	519	519	519	519	441
Portable Lightweight Designator Rangefinder (PLDR)	E0042	\$79,400	78	78	78	78	104
Saber System	E0055	\$970,000	78	78	78	78	92
MTRS EOD Packbot	E0064	\$164,484	2	2	2	2	3
Semiautomatic Sniper System (SASS)	E0103	\$8,500	390	390	390	390	160
Circle, Aiming	E0180	\$6,814	92	92	92	92	96
Javelin	E0207	\$133,063	74	74	74	74	64
Equipment Set, Night Vision	E0330	\$116,014	24	24	24	24	0
Howitzer, Lightweight, Towed, 155mm	E0671	\$2,500,000	48	48	48	48	48
Assault Amphibious Vehicle (AAV), Command	E0796	\$838,420	5	5	5	5	9
Assault Amphibious Vehicle, Personnel	E0846	\$644,780	63	63	63	63	182
Assault Amphibious Vehicle, Recovery	E0856	\$2,000,000	5	5	5	5	5
Launcher, Rocket, Assault, 83mm	E0915	\$6,500	193	193	193	193	189
Launcher, Tubular, F/GM TOW Weapon System	E0935	\$75,742	26	24	24	0	0

USMCR

Table 1

Consolidated Major Item Inventory and Requirements

Nomenclature	Equip No.	Unit Cost	Begin FY 2019 QTY O/H	Begin FY 2020 QTY O/H	Begin FY 2021 QTY O/H	End FY 2021 QTY O/H	End FY 2021 QTY REQ
Light Armored Vehicle (LAV), Anti-Tank	E0942	\$2,091,280	14	14	14	14	24
LAV, Command & Control (Battalion)	E0946	\$592,911	10	10	10	10	10
LAV, Light Assault, 25mm	E0947	\$543,918	87	87	87	87	88
LAV, Logistics	E0948	\$1,883,020	23	23	23	23	22
LAV, Mortar	E0949	\$2,507,080	13	13	13	13	12
LAV, Maintenance/Recovery	E0950	\$2,183,920	8	8	8	8	8
Machine Gun, Cal .50, Browning, HB Flexible	E0980	\$8,118	834	834	834	834	637
Machine Gun, Medium, 7.62mm, Ground Version	E0989	\$7,927	1,751	1,751	1,751	1,751	1,444
Heavy Machine Gun, 40mm	E0994	\$15,320	605	605	605	605	552
Common Laser Range Finder System	E1048	\$26,236	488	488	488	488	545
Mortar, LW Company, 60mm, M224A1	E1065	\$64,652	132	132	132	132	72
Mortar, Medium, 81mm, Extended Range	E1095	\$133,500	159	159	159	159	76
Recovery Vehicle, Full-tracked, Heavy, W/Equip	E1378	\$2,748,846	14	14	14	14	24
Neutralization Device, Ordnance, Remote, MK3MOD0	E1385	\$198,000	2	2	2	2	3
Rifle, Sniper, 7.62mm, M40A5	E1460	\$7,503	147	147	147	147	137
Rifle, Scoped, Special Application, .50 Cal.	E1475	\$12,078	158	158	158	158	71
Rocket System, Artillery, High Mobility (HIMARS)	E1500	\$5,033,000	18	18	18	18	18
Receiver, Infrared (Stinger)	E1837	\$24,068	4	4	4	4	4
Tank, Combat, Full-tracked, 120mm Gun	E1888	\$2,393,439	49	49	49	49	86
Sight, Weapon, Thermal, Medium (MTWS)	E1975	\$11,300	1,271	1,271	1,271	1,271	1,232
Sight, Weapon, Thermal, Heavy (HTWS)	E1976	\$11,999	1,470	1,470	1,470	1,470	1,215

Note: The above table reflects estimated on-hand and Reserve-In-Stores quantities against the full wartime requirement. USMC equipping strategy is that the RC maintains on-hand a Training Allowance only. The Training Allowance is the portion of the wartime requirement necessary to conduct home station training. USMC operating concepts rely on global sourcing and pre-positioned assets for combat. When activated, the USMC plans on RC units falling in on either pre-positioned equipment or assets already in theater from previous rotations.

USMCR

Table 2

Average Age of Equipment

NOTE: This table provides the average age of selected major equipment items. The average age provides a projected average age of the fleet at the start of FY 2018.

Nomenclature	Equip No.	Average Age	Remarks
Aircraft			
Aircraft, Fighter/Attack, F/A-18A++	F/A-18A++	27	
Aircraft, Refueling/Cargo, KC-130T	KC-130T	24	
Aircraft, Refueling/Cargo, KC-130J	KC-130J	7	
Aircraft, Utility/Cargo, UC-12W	UC-12W	7	
Aircraft, Utility/Cargo, UC-35C	UC-35C	18	
Aircraft, Utility/Cargo, UC-35D	UC-35D	14	
Aircraft, Fighter, F-5F	F-5F	39	
Aircraft, Fighter, F-5N	F-5N	37	
Tilt-rotor, Cargo, MV-22B	MV-22B	4	
Helicopter, Attack, AH-1W	AH-1W	23	
Helicopter, Utility, UH-1Y	UH-1Y	3	
Helicopter, Cargo, CH-53E	CH-53E	25	
Communications/Electronics			
High Frequency Vehicle System	A0067	12	
Radio Set	A0153	10	
Very Small Aperture Terminal - Small (VSAT-S)	A0234	5	
Very Small Aperture Terminal - Medium (VSAT-M)	A0241	5	
Very Small Aperture Terminal - Large (VSAT-L)	A0242	4	
VSAT Master Reference Terminal (MRT)	A0244	5	
Combat Operations Center (COC) V(3)	A0254	2	
Combat Operations Center (COC) V(4)	A0255	2	
Combat Operations Center (COC) V(2)	A0271	2	
Radio Set	A1957	20	
Motor Transport			
Truck, Armored, Cargo 7-ton, W/O Winch Reducible	D0003	12	
Truck, Armored, XLWB, W/O Winch Reducible	D0005	12	
Truck, Armored, Dump 7-ton W/O Winch Reducible	D0007	9	
Truck, RTAA, Tractor, 7-ton, W/O Winch	D0009	7	
Truck, Armored, Tractor, 7-ton, W/O Winch, Reducible	D0013	7	
Truck, Armored, Wrecker, 7-ton, W/Winch Non-Reducible	D0015	7	
Truck, Utility, Expanded Capacity, Enhanced, M1152	D0022	9	
Truck, Utility, Expanded Capacity, Armament Carrier	D0030	9	
Truck, Utility, Expanded Capacity, C2/GP Vehicle	D0031	9	
Truck, Utility, ECV, TOW Carrier, Armored	D0032	9	
Truck, Utility, Expanded Capacity, Fully-armored (2-door)	D0033	9	
Truck, Utility, Ground Mobility Vehicle, Armored (4-door)	D0034	9	
Truck, RTAA, Cargo, 7-ton, W/O Winch	D0198	12	
Semitrailer, Refueler, 5,000 gal	D0215	15	
Semitrailer, Lowbed, 40-ton	D0235	15	

USMCR

Table 2

Average Age of Equipment

Nomenclature	Equip No.	Average Age	Remarks
Trailer, Cargo, Resupply for HIMARS	D0861	12	
Truck Cargo 22.5-ton, 10X10, (LVSR)	D0886	6	
Truck, Tractor, 10X10 (LVSR)	D0887	4	
Truck, Ambulance, 4-Litter, Armored, 2 1/4-ton, HMMWV	D1001	14	
Truck, Ambulance, 2-Litter, Soft Top, 2 1/4-ton, HMMWV	D1002	14	
Truck, RTAA, XLWB Cargo, 7-ton, W/O Winch	D1062	12	
HIMARS, Armored Resupply Vehicle, Non-Reducible	D1063	9	
Truck, Fire Fighting, Aircraft and Structure	D1064	33	
Truck, RTAA, Dump, 7-ton, W/O Winch	D1073	9	
Truck, Wrecker, 10X10 (LVSR)	D1214	5	
Ordnance & Weapons			
Saber System	E0055	4	
Javelin	E0207	4	
Equipment Set, Night Vision	E0330	28	
Howitzer, Lightweight, Towed, 155mm	E0671	8	
Assault Amphibious Vehicle (AAV), Command	E0796	42	
Assault Amphibious Vehicle, Personnel	E0846	42	
Assault Amphibious Vehicle, Recovery	E0856	42	
Launcher, Rocket, Assault, 83mm	E0915	32	
Launcher, Tubular, F/GM TOW Weapon System	E0935	28	
Light Armored Vehicle (LAV), Anti-Tank	E0942	25	
LAV, Command & Control (Battalion)	E0946	23	
LAV, Light Assault, 25mm	E0947	26	
LAV, Logistics	E0948	24	
LAV, Mortar	E0949	25	
LAV, Maintenance/Recovery	E0950	30	
Recovery Vehicle, Full-tracked, Heavy, W/Equip	E1378	8	
Rocket System, Artillery, High Mobility (HIMARS)	E1500	6	
Tank, Combat, Full-tracked, 120mm Gun	E1888	18	

Service Procurement Program - Reserve (P-1R)

NOTE: This table identifies the dollar value of programmed equipment procurement as identified in the P-1R exhibit of the FY 2019 President's Budget Request. All values are costs in dollars and exclude ammunition procurements. Deliveries of procured equipment normally take one to two years before they arrive in the inventory; e.g., items procured in FY 2019 are expected to arrive in RC inventories in FY 2020 or FY 2021.

Nomenclature	FY 2019	FY 2020 ¹	FY 2021 ¹
Weapons and Combat Vehicles			
Assault Amphibious Vehicle (AAV7A1) Product Improvement Program (PIP)	\$322,000		
155mm Lightweight Towed Howitzer	6,000		
Artillery Weapons System	3,068,000		
Modification Kits	2,512,000		
Guided Missiles and Equipment			
Anti-Armor Missile - Javelin	167,000		
Anti-Armor Missile - TOW	186,000		
Communications and Electronics Equipment			
Items under \$5M (Communications & Electronics)	48,000		
Radar Systems	4,382,000		
Ground/Air Task Oriented Radar (G/ATOR)	119,357,000		
Fire Support System	1,352,000		
Intelligence Support Equipment	529,000		
Command Post Systems	2,158,000		
Communications Switching & Control Systems	2,448,000		
Support Vehicles			
Motor Transport Modifications	237,000		
Family of Tactical Trailers	668,000		
Engineer and Other Equipment			
Tactical Fuel Systems	54,000		
Power Equipment Assorted	1,833,000		
Amphibious Support Equipment	199,000		
Family of Construction Equipment	2,282,000		
Items less than \$5M (Engineer)	510,000		
Spares and Repair Parts			
Total	\$142,318,000		

1. P-1R Exhibit for FY 2019 President's Budget does not provide projected procurement data beyond FY 2019.

National Guard and Reserve Equipment Appropriation (NGREA) Procurements

NOTE: This table identifies the dollar value of planned equipment procurements with the National Guard and Reserve Equipment Appropriation (NGREA). These funds are available for a three-year period from the year of appropriation. Deliveries of procured equipment normally take one to two years from date of procurement before they arrive in the inventory; e.g., items procured in FY 2018 would be expected to arrive in RC inventories in FY 2019 or FY 2020. All values are costs in dollars.

Nomenclature	FY 2016	FY 2017	FY 2018 ¹
<u>FY 2016 NGREA Equipment</u>			
Laser Designator, AN/PEQ-19 Joint Terminal Attack Controller Laser Target Designator (JTAC LTD)	\$2,926,591		
Visual Database Development for AH-1Z and UH-1Y Flight Training Devices	2,693,656		
Radio Set, AN/PRC-117F(V)	2,003,850		
Video Terminal, Multi (Video Scout)	1,311,000		
Global Combat Support System-Marine Corps (GCSS-MC) Mobile Training Suite	508,046		
Common Laser Rangefinder, AN/PEQ-13	262,360		
Counterintelligence and Human Intelligence Equipment Program (CIHEP) Media Exploitation Suite (Light)	230,000		
Night Vision Goggles (NVG) Mounting Device	38,500		
Tool Kit, Fiber Optic	14,348		
Tool Kit Medium Tactical Vehicle Replacement (MTVSR), Logistics Vehicle System Replacement (LVSR), Hydraulic	11,649		
<u>FY 2017 NGREA Equipment</u>			
M7 Rifle Optics		\$4,505,823	
H-1 Advanced Boresight Equipment		1,500,000	
Intelligence Analysis System (IAS) Tier III Intelligence Workstation (IW)		1,001,325	
F-5 Tactical Combat Training System (TCTS) Pods		492,852	
Total	\$10,000,000	\$7,500,000	
1. Service FY 2018 NGREA equipment list was not available in time for publication in the NGRER. Equipment list for FY 2018 will be provided in next year's NGRER.			

Projected Equipment Transfer/Withdrawal Quantities

NOTE: This table portrays the planned equipment transfers (Active to Reserve), withdrawals (-), and decommissioning (-). Transferred equipment is commonly called "cascaded equipment," or equipment that is provided to the RC once the AC receives more modern equipment. Although this table highlights a three-year period, many Services will not know exact quantities of transfers or withdrawals until year of execution, due to the uncertainty of the procurement/delivery cycle of new equipment.

Nomenclature	Equip No.	FY 2019 Qty	FY 2020 Qty	FY 2021 Qty	Remarks
Aircraft, Refueling/Cargo, KC-130T	KC-130T	-3	-4	-5	KC-130T reductions per the platform sundown plan.
Helicopter, Attack, AH-1W	AH-1W		-19		AH-1W reductions per the platform sundown plan.

USMCR

Table 6

FY 2015 Planned vs Actual Procurements and Transfers

NOTE: This table compares planned Service procurements and transfers to the RC in FY 2015 with actual procurements and transfers. FY 2015 is selected as these are the most recent funds to expire. Because the procurement cycle is normally one to two years from funding to delivery, this table identifies only deliveries through the end of FY 2017. Procurement and NGREA columns reflect cost values in dollars.

Nomenclature	Equip No.	FY 2015 Transfers (# of items)		FY 2015 Procurements (\$s)		FY 2015 NGREA (\$s)	
		Plan	Actual	Plan	Actual	Plan	Actual
<u>FY 2015 Planned Transfers & Withdrawals</u>							
Aircraft, Refueling/Cargo, KC-130J	KC-130J	+3	+3				
Aircraft, Refueling/Cargo, KC-130T	KC-130T	-12	-10				
Helicopter, Attack, AH-1W	AH-1W	+2	+10				
Helicopter, Cargo, CH-46E	CH-46E	-8	-8				
Tilt-rotor, Cargo, MV-22B	MV-22B	+4	+4				
<u>FY 2015 Service Procurement Programs – RC (P-1R) Equipment</u>							
Weapons and Combat Vehicles							
Assault Amphibious Vehicle (AAV7A1) Product Improvement Program (PIP)				\$354,000	\$326,000		
155mm Lightweight Towed Howitzer				619,000	619,000		
High Mobility Artillery Rocket System				3,154,000	3,154,000		
Weapons and Combat Vehicles under \$5M				816,000	722,000		
Modification Kits				3,365,000	3,196,000		
Guided Missiles and Equipment							
Javelin				286,000	286,000		
Follow-on to Shoulder-Launched Multipurpose Assault Weapon (SMAW)				918,000	894,000		
Anti-Armor Weapons System-Heavy (AAWS-H)				177,000	177,000		
Communications and Electronics Equipment							
Unit Operations Center				185,000	185,000		
Repair and Test Equipment				3,758,000	3,384,000		
Items under \$5M (Communications & Electronics)				39,000	39,000		
Air Operations Command and Control (C2) System				41,000	0		
Radar Systems				2,552,000	375,000		
Fire Support System				3,452,000	0		
RQ-11 Unmanned Aerial Vehicle (UAV)				411,000	411,000		
Distributed Common Ground System (DCGS)-Marine Corps				473,000	325,000		
Common Computer Resources				588,000	0		
Command Post Systems				6,183,000	0		
Radio Systems				15,682,000	15,682,000		
Communications Switching & Control Systems				6,932,000	5,136,000		

USMCR

Table 6

FY 2015 Planned vs Actual Procurements and Transfers

Nomenclature	Equip No.	FY 2015 Transfers (# of items)		FY 2015 Procurements (\$s)		FY 2015 NGREA (\$s)	
		Plan	Actual	Plan	Actual	Plan	Actual
Support Vehicles							
Motor Transport Modifications				469,000	464,000		
Family of Tactical Trailers				2,470,000	1,565,000		
Engineer and Other Equipment							
Environmental Control Equipment				361,000	361,000		
Bulk Liquid Equipment				667,000	667,000		
Tactical Fuel Systems				2,770,000	1,770,000		
Power Equipment Assorted				1,910,000	1,210,000		
Amphibious Support Equipment				200,000	200,000		
Material Handling Equipment				3,727,000	3,727,000		
Container Family				821,000	0		
Family of Construction Equipment				1,913,000	1,913,000		
Items less than \$5M (Engineer and Other Equipment)				241,000	241,000		
Spares and Repair Parts							
				0	2,150,000		
<u>FY 2015 National Guard and Reserve Equipment Appropriation (NGREA) Equipment</u>							
KC-130J Fuselage Trainer						\$18,000,000	\$15,036,976
KC-130T Weather Radar Replacement						1,700,000	1,700,000
AH-1Z Flight Training Device						17,045,013	9,955,325
Wideband Manpack Tactical Radios AN/PRC-117G						8,640,000	8,640,000
Marine Corps Common Hardware Suite General Purpose Tactical Laptop Computer						6,738,060	4,191,922
Marine Corps Common Hardware Suite Rugged Tablet Convertible Laptop Computer						717,707	717,707
Marine Corps Common Hardware Suite Rugged Tactical Laptop Computer						513,520	513,520
Marine Corps Cyber Range Node Training and Simulation Environment						4,251,000	4,251,000
Visual Database Upgrade for CH-53E Flight Training Device						2,377,000	2,377,000
Geospatial Mapping Computers						17,700	17,700
KC-130J Observer Training Aid (OTA)						0	2,438,024
KC-130T Engine Instrument Display Systems (EIDS) and Electronic Propeller Control System (EPCS) Modification						0	525,000
Light Weight Water Purification System						0	4,800,000
M7 Rifle Combat Optics						0	4,835,827
Total				\$65,534,000	\$49,179,000	\$60,000,000	\$60,000,000

USMCR

Table 7

Major Item of Equipment Substitution List

NOTE: This table identifies equipment authorized by the Service to be used as a substitute for a primary item of equipment. The table also identifies whether or not the item is deployable in wartime. This data meets the Title 10 requirement to identify substitutes that are not the most desired equipment item.

Required Item Nomenclature	Reqd Item Equip No.	Substitute Item Nomenclature	Substitute Item Equip No.	FY 2019 Qty	Deployable?	
					Yes	No

**Service Does Not Use Substitution to Satisfy Major Item
Equipment Requirements**

Significant Major Item Shortages

NOTE: This table provides a RC prioritized (PR) shortage list for major equipment items required for wartime missions but which are currently not funded in the FYDP. It lists the total quantity required, the total unfunded requirement, the individual item cost, and the cost of the unfunded portion. This data is consistent with other unfunded equipment data submitted by the Service.

PR	Nomenclature	Total Req'd	# Items Short	Item Cost	Total Shortage Cost	Rationale/Justification
1	KC-130J Aircraft	24	8	\$79,061,000	\$632,488,000	Fielding of the KC-130J began in FY 2015 and will continue through FY 2030. The extended nature of this fielding timeline results in significant operational and training compatibility issues as the Active Component (AC) has already fielded the KC-130J. To date the RC has 7 aircraft delivered and 9 aircraft programmed.
2	RQ-21A Production Pack	2	2	\$2,090,000	\$4,180,000	Initial Spares pack for the RQ-21 Small Tactical Unmanned Aircraft System (STUAS). The production pack is essential to RQ-21 maintenance and operation. Initial purchase of this production pack allows for rapid repair and replacement of critical parts that have a known high failure rate, and allows time for units to budget for future sustainment funding.
3	Mobile Integrated Remains Collection System (MIRCS)	12	12	\$525,333	\$6,304,000	The RC Personnel Retrieval and Processing Company currently does not possess the MIRCS consistent with DoD standards and doctrinal employment of Mortuary Affairs Collection Point (MCAP) operations which has degraded the unit's ability to conduct Mission Essential Tasks. The MIRCS is in the process of becoming a Marine Corps program of record.
4	F-5N/F Martin Baker MK-16 Ejection Seats	13	13	\$366,807	\$4,768,491	Continuing to operate the F-5N/F with the outdated ejection seat will increase the risk of injury to pilots during ejection due to the current seat performance and height/weight range. Additionally, aircrew will continue to experience unnecessary back pain due to poor ergonomics.
5	Tactical Decision Kit	8	8	\$273,000	\$2,184,000	These Tactical Decision Kits (TDK) are meant to provide a means to challenge Marines to think critically, innovate smartly, and adapt rapidly in complex environments against adaptive enemies.
6	Tandem Offset Resupply Delivery System (TORDS)	6	6	\$35,843	\$215,058	Marine Forces Reserve (MARFORRES) Reconnaissance units were not fielded TORDS. Providing 4th Reconnaissance Battalion Marines with the TORDS facilitates much needed qualification training (equipment required to perform training), and allows qualified Marines to maintain proficiency, expands capabilities, and will bring them on par with AC counterparts. TORDS is currently unfunded for the Reserve Component.

Chapter 4 United States Navy Reserve (USNR)

I. Navy Overview

A. Navy Planning Guidance

In *A Design for Maintaining Maritime Superiority*, the Chief of Naval Operations articulated a collaborative vision for the future Navy by establishing a framework of four lines of effort:

- Strengthen Naval Power at and from sea
- Achieve high velocity learning at every level
- Strengthen our Navy Team for the future
- Expand and strengthen our network of partners¹

By utilizing this framework, the desired outcome is “a ready Naval Force that produces leaders and teams who learn and adapt to achieve maximum possible performance, and who achieve and maintain high standards to be ready for decisive operations and combat.”²

The Navy Reserve plays a vital role in today’s complex environment and focuses its actions on strengthening those lines of effort. In the *Navy Reserve Strategic Design and Action Plan*, the Chief of Navy Reserve states:

The Navy Reserve, as an integrated element of the Total Force must have the maneuverability, flexibility, and agility to adjust its focus where and when it is needed to support the Navy’s design...the ability to maneuver across all domains within the four lines of effort on demand.³

The Navy Reserve is instrumental in working with the Active Component to accomplish the Navy’s mission by focusing on delivering a ready and accessible force, providing valued capabilities, and enabling the entire spectrum of service provided by our sailors and Civilians. Aligning and fully resourcing the Navy Reserve is absolutely critical to readiness and successful mission accomplishment.

B. Navy Equipping Policy

DoD instruction 1225.06⁴ states that all units will be equipped to accomplish assigned missions and shall have a responsive, balanced, and sustainable equipment and distribution program to effectively meet mission requirements. Priorities for distribution of equipment should be given to units scheduled for deployment. Equipment priorities for RC units will be determined with the

¹ *A Design for Maintaining Maritime Superiority*, January 2016, p. 6-8.

² *Ibid*, p. 8.

³ *Navy Reserve Strategic Design and Action Plan*, October 2017, p. 6.

⁴ *Equipping the Reserve Forces*, May 16, 2012, p. 2.

same methodology as AC units with the same mobilization mission and following Chief of Naval Operations (CNO) established guidance.

C. Plan to Fill RC Equipment Mobilization Requirements

The Navy's Total Force concept has proven successful over the last 15 years of combat operations. AC and RC sailors operate interchangeably in many capability areas. Major operational and contingency plans require RC units to deploy as integrated parts of Navy's warfighting plan. Reserve equipment allocation mirrors that of the AC and plays a significant role in how the Navy executes its missions. The Navy Reserve maintains equipment as training or mobilization assets; in many instances the RC will deploy with AC equipment. Equipment requirements and shortfalls are identified during the resource allocation process, which the Navy then prioritizes.

D. Initiatives Affecting RC Equipment

In the *Navy Reserve Strategic Design and Action Plan*, the Chief of Navy Reserve outlines three core principles that will guide Navy Reserve actions:

1. Warfighting: we will be a ready, lethal, and cost-effective force;
2. Innovation: we will be highly leveraged with industry experience and on pace with current and future technologies;
3. Teamwork: we will be a high performing team.⁵

In conjunction with these three core principles, the Chief of Navy Reserve outlines the way the Navy Reserve does business by focusing on four key areas: simplify, enable, leverage, and resource.⁶ Working together, the Navy and Navy Reserve have a number of ongoing initiatives to recapitalize or upgrade several aging platforms, procure small unmanned aerial vehicles to support a RC mission growth area in naval special warfare (NSW), and procure a new patrol boat platform to replace the current aging legacy inventory. Specific examples are below:

- **P-8A:** As the Maritime Patrol and Reconnaissance Force (MPRF) continues its transition from the P-3C to the P-8A, the RC will play an increasingly critical role. RC P-3C squadrons are presently scheduled for the platform's final Global Force Management deployment in FY 2020 with concurrent assumption of the Littoral Surveillance Radar System (LSRS) mission set and Major Contingency Operation "Ready Reserve" status through FY 2022. There are currently no plans to extend the P-3C service life or maintain P-3C maintenance support capabilities beyond the Full Operational Capability (FOC) of the P-8's Advanced Airborne Sensor, the LSRS replacement. For the MPRF to maintain its full strategic and operational capability, RC Patrol (VP) squadrons will need to recapitalize with P-8A aircraft.
- **F/A-18 Hornet:** The Navy Reserve operates 33 legacy F/A-18 aircraft (25 F/A-18A+, 2 F/A-18B, and 6 F/A-18C) shared between two squadrons. These squadrons play a critical role in providing adversary support to the Navy and also serve as the strike fighter (VFA) strategic

⁵ *Navy Reserve Strategic Design and Action Plan*, October 2017, p. 4.

⁶ *Ibid*, p. 4.

reserve. With an average airframe age of greater than 25 years, the capability gap between RC legacy F/A-18s and the AC's F/A-18E Super Hornets is growing:

RC strike-fighter aircraft are also in need of recapitalization. The F-18A+ aircraft being flown by Navy Reserve are some of the oldest in operation. Significant maintenance and systemic compatibility limitations negatively impact aircraft availability rates and cause these squadrons to struggle to meet their strategic and operational mission. Navy plans to address this shortfall through a "waterfall" process in which F/A-18C and eventually F/A-18E/F aircraft are to be transferred to the RC. This will occur as F-35C and additional F/A-18E/F aircraft are either procured or available via increased depot production throughput.⁷

Recapitalized RC squadrons will also serve as a more viable strategic reserve, seamlessly operate with AC F/A-18E/F and F-35C aircraft, and support Global Force Management Allocation Plan (GFMAP) requirements.

- **Unmanned Aircraft Systems (UAS):** The Navy is actively planning to integrate RC manpower to meet requirements in the newest generation of UAS platforms. These platforms include the MQ-4C Triton, the MQ-8B/C Fire Scout, and RQ-20 Puma. The periodic and predictable nature of the Triton mission is particularly well suited for Reserve sailors. Current plans call for the RC to assume 20 percent of the Triton mission by the scheduled FY 2023 FOC. NSW's organic intelligence, surveillance, and reconnaissance (ISR) capabilities have grown exponentially and NSW RC is tasked with providing 40 percent of the deployed capability. RQ-20 Puma will be the primary platform for small UAS (SUAS) mission.
- **C-130T/KC-130T:** The Fleet Logistics Support Wing (FLSW) C-130T and KC-130T aircraft are a crucial part of Navy-Unique Fleet-Essential Airlift (NUFEA) requirements. They serve as a connector between strategic airlift points and provide global logistics support while specializing in providing airlift for oversized cargo. While other Services are replacing their legacy C-130 aircraft with the new KC-130J, the Navy has extended the life of its C-130Ts and KC-130Ts through an innovative Aircraft Obsolescence Upgrade that will enable these aircraft to continue to support fleet requirements. Nineteen of the 24 aircraft are currently scheduled to receive this upgrade but these aging airframes will require recapitalization.
- **F-5 Tiger II:** The Navy Reserve operates 31 F-5 Tiger II aircraft (29 F-5N and 2 F-5F) in an adversary support role to the AC. The F-5 is both economical and suitable for training fleet pilots in basic fighter maneuvers and air-to-air tactics; however, adversary threats have advanced to such a degree that the legacy F-5 is currently unable to simulate advanced air-to-air threats. Investing in F-5 capability upgrades will significantly increase the F-5's ability to provide advanced, threat-representative air-to-air training to deploying carrier air wings and student pilots. Current Navy Reserve adversary capacity is able to meet only about 25 percent of the fleet's annual sortie requirement. F-5 procurements represent a low-cost option to retain and improve the Navy's adversary capability as the cost-effective F-5 is expected to remain in service through FY 2025 and beyond. Procuring additional F-5s, at a fraction of the cost of other modern fighter aircraft, will help alleviate this shortfall.

⁷ Chief of Navy Reserve Statement, Hearing before the Senate Appropriations Committee Subcommittee on Defense, April 26, 2017, p. 15.

- **HH-60H/MH-60S:** The Navy Reserve’s only helicopter sea combat squadron, HSC-85 provides the Navy’s only dedicated Special Operations Forces (SOF) support. Its HH-60Hs had proven to be an effective SOF support aircraft but with an average airframe age of 24 years, the growing costs of operation and modernization upgrades became unsupportable. HSC-85 is scheduled to complete transitioning from legacy HH-60H to MH-60S in FY 2019. The younger MH-60S offers lower operating costs, compatibility within the HSC community and will be crucial to confront and counter emerging threats, while providing baseline SOF support capabilities.
 - **Coastal Riverine Force (CRF):** In FY 2014, the Navy Reserve CRF assumed CONUS high-value unit escort missions from the United States Coast Guard. The RC CRF also supports this mission while forward-deployed. These CONUS missions encompassed six locations across both coasts in FY 2018. With the expanded RC mission and the challenges exacerbated by the expiration of 73 percent of the current 34’ patrol boats service life in FY 2019 within the Future Years Defense Program, the CRF will require modernization and outfitting. The 40’ Force Protection, Large (FPL) boats are the designated replacement program for the aging 34’ FPL patrol boats with procurement commencing in FY 2018. Additional critical CRF equipment needs are replacement of the patrol boat navigation simulators, tactical radios/radio base stations, Light Service Support Vehicles (LSSV), Litter Carriers, and Maintenance trucks, and completion of required alterations to the Medium Tactical Vehicle Replacement (MTVR) fleet.
 - **Space and Naval Warfare Systems Command (SPAWAR) Reserve Program (SRP):** The SRP acquired and developed training kits utilizing NGREA funds over the past several fiscal years, allowing for the assembly of three CYBER Security Mobile Training Kits and two Virtual Machine (VM) Ware mobile training kits in support of SRP Network Operations Support Teams (NSTs). These teams travel to fleet concentration areas to deliver classroom foundational information technology training, security simulation laboratories, virtualized server technologies, and certification testing. The SRP NSTs presently conduct approximately 40 detachments per year, training and testing nearly 1,000 Information Warfare community students from 200 Fleet commands.

E. Plan to Achieve Full Compatibility between AC and RC

In a fiscally constrained environment, the Navy balances many competing priorities to include AC/RC compatibility. It is absolutely critical that the Navy and Navy Reserve make every effort achieve interoperability where applicable to the Total Force. This will ensure safe, effective, and efficient mission accomplishment. The following are several recent NGREA procurements that have greatly improved AC/RC compatibility: Navy Enterprise Tactical Command and Control (NETC2) system upgrades and expansion kits, Fire Arms Training Systems (FATS), expeditionary surveillance control center platforms, MTVR upgrades, and LSSVs. Due to funding limitations, the Navy prioritizes equipment inventories to provide the most capable systems to meet mission requirements while minimizing the effects of equipment shortfalls and incompatibility throughout the fleet.

II. Navy Reserve Overview

A. Current Status of the Navy Reserve

1. General Overview

The Navy Reserve is comprised of over 59,000 highly-skilled and cost-effective sailors who form a unique workforce that the Navy relies upon as a dependable source of strength. As stated by the Chief of Navy Reserve in congressional testimony before the Senate Appropriations Committee Subcommittee on Defense:

Today's force structure is the result of Navy's imperative to optimize the interoperability and operational effectiveness of the Navy Reserve.

As a direct result of the Navy Reserve's force structure realignment, most Reserve sailors now routinely work and train alongside their Active Component (AC) counterparts. Due to the high levels of personnel and mission readiness attained as a result of this synergy, Reserve sailors are able to provide a rapid response to calls for support, often on a moment's notice. Additionally, where appropriate, Reserve Component (RC) hardware units are aligned and integrated with AC unit training and deployment cycles. These RC units, comprised of military professionals with extensive operational experience, act as force multipliers through mission augmentation and provide surge capacity where and when needed. This is one of the most cost-efficient and mission-effective models available across all reserve components today.⁸

On any given day, approximately one-quarter of Navy Reserve sailors are on full-time duty either through mobilizations, deployments, Full Time Support, or Active Duty Operational Support. In FY 2017, Reserve sailors filled 78 percent of the Navy's total Individual Augmentee requirements, enabling AC sailors to remain in critical at-sea billets. Many others provide their expertise on a part-time basis as Selected Reserve (SELRES). This ready and accessible force provides required on-call capabilities and is ideally suited to take on periodic and predictable work. When their work is complete, SELRES sailors return to their civilian careers and leave the Navy payroll, providing increased capacity at a reduced cost.

The Navy Reserve provides crucial capabilities for urgent missions and operational support. Recent examples include:

- In early FY17, in support of Hurricane Matthew Humanitarian Assistance/Disaster Relief (HA/DR) efforts, the FLSW demonstrated phenomenal flexibility and capability with short-notice response. Within hours of notification, VR-61 re-dispatched to New Orleans, Louisiana, to pick-up tail rotors for a MEDEVAC helicopter in Haiti, enabling repair and return to relief operations in minimal time. At the same time, VR-64 mobilized two aircrews, a maintenance detachment, and one aircraft to Guantanamo Bay, Cuba, for U.S. Fleet Forces

Top Navy Reserve Equipping Challenges

- Predictable and dependable funding
- Achieving & Maintaining Readiness Levels for Aging Systems
- Aircraft procurement (F/A-18E, P-8A, KC-130J, & F-5N/F)
- Coastal Riverine Force (CRF), Naval Construction Force (NCF), and Navy Expeditionary Logistics Support Group (NAVELSG) Equipment
- AC/RC Equipment incompatibility

⁸ Chief of Navy Reserve Statement, Hearing before the Senate Appropriations Committee Subcommittee on Defense, April 26, 2017, p. 2.

Command (USFF) tasking that delivered critical emergency supplies and transportation for personnel conducting damage and repair assessments.

- In late FY 2017, in support of Humanitarian Assistance/Disaster Relief efforts associated with Hurricanes Harvey, Irma and Maria, the FLSW completed more than 30 high priority missions. All five C-40 squadrons, combined, flew 340 hours, transported nearly 1,500 personnel, including evacuees, and 100 tons of supplies and equipment before and immediately following the storms. Several of those missions supported Defense Support of Civil Authority operations.
- Annually, four Reserve fighter squadrons provide over 80 percent of the Navy's dedicated adversary or "Red Air" support. This delivers critical tactical aviation expertise by simulating airborne threats in order to prepare Fleet Naval Aviators for the rigors of air-to-air combat.
- Reserve pilots comprising 14 percent of the instructor cadre in the Naval Air Training Command provide more than 20 percent of the total instructional flight hours, annually.

a. Fleet Air Logistics

The FLSW provides 100 percent of the Navy's organic, global intra-theater airlift capability for the fleet and combatant commands (CCMDs). The FLSW consists of 12 squadrons and two executive transport detachments operating C-40A, C-20G, C-37A/B, and C-130T/KC-130T aircraft.

C-40A Clipper: The C-40A is the designated replacement for Navy Reserve legacy C-20G aircraft. Within the 2017 Defense Appropriation Act, \$207M is appropriated to procure two additional C-40A aircraft for the Navy Reserve. Procurement and delivery of two C-40A Clipper aircraft is projected for 2019. This will complete the replacement of legacy C-20G and fill 100 percent (17 of 17) of modernization shortages. The C-40A's increased range and payload provides the Navy an organic intra-theater logistics airlift capability and capacity, which solely reside in the Navy Reserve. Completing the transition to the modern C-40A aircraft provides the Navy Reserve with a common platform essential to supporting efforts to improve and maintain aircraft availability. Today, 15 C-40As are operated by VR-56 at Naval Air Station (NAS) Ocean, Virginia; VR-57 at NAS North Island, California; VR-58 at NAS Jacksonville, Florida; VR-59 at NAS Joint Reserve Base (JRB) Fort Worth, Texas; and VR-61 at NAS Whidbey Island, Washington.

C-130T/KC-130T: The C-130T remains the most requested airlift asset in the Navy Reserve fleet based on its versatile capability. The C-130T avionics systems, however, continues to face resourcing challenges that threaten future compliance with international flight standards. Additionally, the C-130T/KC-130Ts are not uniformly configured throughout the fleet. This requires local training sites to maintain multiple variations of training devices. In the short term, mission sustainment will be accomplished using the current aircraft inventory and will be enhanced by the ongoing Aircraft Obsolescence Upgrade effort. In the long term, the Navy C-130T/KC-130T fleet's capability will be limited due to the lack of cockpit standardization, a certified Global Positioning System (GPS), and an enhanced altitude reporting capability. The current C-130T/KC-130T inventory consists of 24 aircraft (19 C-130T and 5 KC-130T) operated by VR-53 at Joint Base (JB) Andrews, Maryland; VR-54 at NAS JRB New Orleans, Louisiana;

VR-55 at NAS Point Mugu, California; VR-62 at NAS Jacksonville, Florida; and VR-64 at McGuire Air Force Base, New Jersey.

C-20G and C-37A/B: The Secretary of the Navy has designated one C-20G and four C-37A/B aircraft for transportation of the Department of the Navy's senior distinguished visitor (DV) Code 2 and select DV Code 3 officials. VR-1 operates out of JB Andrews, Maryland, and two forward-deployed Executive Transport Detachment sites are located at JB Pearl Harbor-Hickam, Hawaii, and NAS Sigonella, Italy.

b. Tactical Aviation

The Tactical Support Wing (TSW) provides a strategic reserve for the Navy's carrier air wings, expeditionary Airborne Electronic Attack (AEA), and adversary training. The TSW is comprised of five squadrons: one VAQ (EA-18G), one VFA (F/A-18), and three VFC (F/A-18 and F-5 F/N).

EA-18G: VAQ-209 has been integral to the AEA GFMAP by deploying continuously in support of CCMD requirements around the world. The EA-18G provides full-spectrum AEA to counter enemy air defenses and communication networks, including the employment of anti-radiation missiles. VAQ-209 provides a formidable operational and strategic reserve capability by mitigating the Navy's AEA capacity and capability gaps with the Navy's newest and most effective tactical airframe. The squadron is scheduled for GFMAP deployments in FY 2020 and FY 2022. VAQ-209 operates out of NAS Whidbey Island, Washington.

F/A-18 Hornet: Two Reserve F/A-18 squadrons provide a critical strategic reserve strike fighter capability through their ability to augment deployed carrier air wings. Due to their age, material condition, and legacy avionics, the Navy is exploring options for recapitalizing these legacy RC squadrons with newer platforms. The current plan is to transition the two squadrons to F/A-18C aircraft over the next three years. The F/A-18E or F-35C would provide sustainable platforms to meet the Navy's future warfare capabilities. Additionally, while the two squadrons are the Navy's only dedicated advanced adversary squadrons, they currently lack the capacity and capability to meet all fleet adversary requirements. As a result, AC F/A-18 aircraft provide approximately 50 percent of the Navy's core adversary requirement, decreasing service life of AC aircraft, and negatively impacting AC aircrew training and readiness. Recapitalizing the two RC squadrons with F/A 18E's would meet the capability requirement, decrease the adversary capacity deficit, and simultaneously improve fleet aircraft sustainability and aircrew readiness. The Navy Reserve F/A-18 squadrons are VFA-204 at NAS JRB New Orleans, Louisiana, and VFC-12 at NAS Oceana, Virginia.

F-5 Tiger II: Two F-5 squadrons, together with RC F/A-18s and Contract Air Support (CAS), provide approximately 50 percent of the Navy's total adversary support. The Navy utilizes F-5 aircraft and highly experienced fighter pilots to prepare carrier air wings for deployment and to train Fleet Replacement Squadron student pilots in the basics of air-to-air combat. Adversary force requirements are expanding with the fleet introduction of the EA-18G and F-35C. While adversary support is a critical enabler of warfighting readiness, the Fleet assessed the current F-5 program as insufficient due to shortfalls in capacity and capability. Upgrades to the current F-5s as well as procurement of additional F-5 aircraft would decrease the capacity gap. Navy Reserve F-5s are flown at VFC-13 at NAS Fallon, Nevada, and VFC-111 at NAS Key West, Florida.

c. Maritime Patrol and Reconnaissance Aircraft (MPRA)

The RC operates two Marine Patrol and Reconnaissance Force (MPRF) squadrons. Both squadrons provide the following Navy MPRF support: Antisubmarine Warfare (ASW), Anti-Surface Warfare (ASU) and Counter-Transnational Organized Crime (CTOC) operations; intelligence, surveillance, and reconnaissance (ISR); homeland defense contingency operations; humanitarian assistance and disaster relief support; and both fleet and North Atlantic Treaty Organization exercise support. RC squadrons are currently conducting GFM deployments in support of the MPRF transition from the P-3C to the P-8A. The Navy is considering plans to recapitalize the RC P-3C fleet with P-8A aircraft. The Navy Reserve's MPRF squadrons operate at VP-62 at NAS Jacksonville, Florida, and VP-69 at NAS Whidbey Island, Washington.

d. Rotary-Wing Aviation

Navy Reserve helicopter squadrons perform a variety of fleet support missions including ASW, ASU, CTOC operations, SAR, Maritime Interdiction Operations (MIO), dedicated rotary-wing support to SOF, and airborne mine countermeasures (AMCM). The RC provides two helicopter squadrons and two Tactical Support Units (TSUs) in support of the Navy's rotary-wing fleet.

MH-60R: HSM-60, the Navy Reserve's only helicopter maritime strike squadron, is tasked to support fleet requirements including ASW, ASU, CTOC operations, SAR and MIO missions. HSM-60 operates MH-60Rs at NAS Jacksonville, Florida.

HH-60H/MH-60S: In FY 2016, following budgetary pressure and congressional guidance, the Navy reorganized the Navy Reserve's dedicated rotary-wing support to SOF. Two dedicated RC SOF support squadrons, HSC-84 and HSC-85, consolidated into one HH-60H squadron and two TSUs embedded at the Helicopter Sea Combat (HSC) Wing Weapons Schools at NAS Norfolk, Virginia (TSU Atlantic), and NAS North Island, California (TSU Pacific). The TSUs retain RC expertise in rotary-wing support to the SOF mission area. The TSUs incrementally increase the Navy's overall SOF-support capability through integration with HSC fleet squadron training syllabi and readiness programs, while also offering a deployable surge capacity for SOF contingencies worldwide. HSC-85 has flown thousands of hours during sustained SOF combat operations in Iraq with zero losses to enemy action and thousands of mishap-free flight hours of SOF training and support in the United States Pacific Command AOR. HSC-85 will finish its transition to the MH-60S in FY 2019. HSC-85 operates out of NAS North Island, California.

MH-53E: The RC is responsible for personnel and equipment associated with seven MH-53E helicopters in support of two composite AC/RC AMCM squadrons. HM-14 and HM-15 comprise 100 percent of the Navy's total AMCM capability. RC sailors provide critical operational support for forward-deployed MH 53E detachments in the United States Central Command and United States Pacific Command areas of responsibility. HM-14 and HM-15 operate out of NAS Norfolk, Virginia.

e. Coastal Riverine Force (CRF)

The Navy Reserve CRF is an operational reserve that protects critical maritime infrastructure, embarks in military and strategic sealift vessels, and escorts fleet units operating in and around ports across the world. In addition to conducting CONUS high-value unit protection missions, the RC CRF conducts rotational deployments in support of United States Africa Command and

United States Central Command. It also provides mission-enabling augmentation to AC Coastal Riverine Squadrons (CRS) as required. Each RC CRS has geographically dispersed subordinate companies and high value unit protection detachments. In FY 2018, the CRF took possession of six NGREA-funded Mk VI Patrol Boats, located in Norfolk and San Diego. The expansion of the CONUS high-value unit protection mission, coupled with forward deployed operations, has stressed the ability of the CRF to provide sufficient patrol boats for RC operations and training. The most critical CRF equipment needs are replacement of the Force Protection, Large (FPL) patrol boats, patrol boat navigation simulators, tactical radios/radio base stations, LSSV Litter Carriers and Maintenance trucks, and completion of required alterations to the MTRV fleet. The 40' FPL is the designated replacement program for the aging FPL patrol boats with procurement commencing in FY18. The current 34' FPL boats are rapidly approaching the end of their service life as 73 percent of the inventory will exceed its service life in FY 2019. The RC CRF consists of four Coastal Riverine Squadrons (CRS): CRS 1 at San Diego, California; CRS 8 at Newport, Rhode Island; CRS 10 at Jacksonville, Florida; and CRS 11 at Seal Beach, California.

f. Naval Construction Force (NCF)

Navy Reserve NCF units provide a wide range of capability in support of Navy and joint forces, including the construction of bridges, airfields, forward operating bases, and roads, as well as civic projects for partner nations. The RC NCF represents almost half of the Total Naval Construction Force capacity. The RC NCF consists of two Naval Construction Regiments (NCR), five Naval Mobile Construction Battalions (NMCB), and five Construction Battalion Maintenance Unit (CBMU) detachments. Although the RC NCF has experienced significant force reductions over the past several fiscal years, they maintain capacity to support GFMAR requirements and unplanned contingencies. RC battalions continue to deploy as detachments in a rotation with AC in support of missions in the United States Central Command and United States Africa Command areas of responsibility. As a result, funding is required to upgrade command, control, communications, computers, and intelligence (C4I) equipment, tactical data networks, radio communication systems, and required vehicle alterations to the MTRV fleet. Development of port and airfield damage repair capabilities in support of operational plan requirements will require additional investment to ensure compatibility with active NCF forces. Gulfport, Mississippi, is home to 7th NCR, NMCB 14, NMCB 27 and CBMU 202. 1st NCR, NMCB 18, NMCB 22, and NMCB 25 are homeported in Port Hueneme, California. Additional CBMU detachments are in Norfolk, Virginia; Jacksonville, Florida; San Diego, California; and Pearl Harbor, Hawaii.

g. Navy Expeditionary Logistics Support Group (NAVELSG)

NAVELSG units deliver global expeditionary logistics with AC and RC personnel to include: port and air terminal cargo handling, fuels distribution, ordnance reporting and handling, and customs and postal operations. The recent additions of fuel supply and expeditionary munitions loading will require additional investment in the near term. The Navy Reserve accounts for over 90 percent of NAVELSG forces. NAVELSG consists of three Navy Expeditionary Logistics Regiments (NELR) and six Navy Cargo Handling Battalions (NCHB). The 2nd NELR is located in Williamsburg, Virginia; the 4th NELR in Jacksonville, Florida; and the 5th NELR in Port Hueneme, California. NCHB 5 is located at Tacoma, Washington; NCHB 8 at Fort Dix, New Jersey; NCHB 10 at Yorktown, Virginia; NCHB 11 at Jacksonville, Florida; NCHB 13 at Gulfport, Mississippi; and NCHB 14 at Port Hueneme, California.

h. Combat Camera

Combat Camera (COMBATCAM) has one detachment at Naval Base Norfolk, Virginia. The detachment serves as a visual information acquisition unit providing aerial and surface visual documentation for combat operations, joint and fleet exercises, and contingency operations throughout the joint force.

i. Navy Expeditionary Intelligence Command

Navy Expeditionary Intelligence Command (NEIC) delivers maritime expeditionary intelligence forces that respond to rapidly evolving irregular warfare requirements. Functional area capabilities provided by NEIC include tactical ground and maritime human intelligence, intelligence exploitation, expeditionary intelligence analysis, and tactical electronic warfare/information operations. With unique access to areas normally inaccessible to more traditional intelligence assets, NEIC provides expeditionary and joint forces timely and actionable intelligence. Reserve sailors support Foreign Military Intelligence Collection Activities (FORMICA) debriefing and training and also augment deploying units on an individual basis. NEIC operates at Dam Neck Annex in Virginia Beach, Virginia.

j. Surface Warfare

RC sailors support Surface Warfare through the following major surface and amphibious warfare areas: Littoral Combat Ship (LCS) support units, surface readiness detachments, surface and mine warfare development, Afloat Cultural Workshops, Tactical Air Control Squadrons, and Naval Beach Group (NBG) activities consisting of Amphibious Construction Battalions, Naval Beach Master Units, and, Assault Craft Units. Additionally, RC sailors provide critical sustained operational support to worldwide surface deployments through the recently developed Reserve Component to Sea (RC2C) initiative.

The Navy Reserve LCS mission is to provide and maintain trained RC sailors and equipment in an optimized state of readiness to support global LCS mission requirements. The Navy will fund approximately 1,000 RC billets across 26 LCS units by FY 2019. RC LCS units are organized to provide strategic support for warfighting requirements as well as operational support during normal and surge operations. RC LCS units will augment the AC LCS squadron and division staffs, support global seaframe maintenance, stand shipboard antiterrorism/force protection watches and provide trained sailors to fill unplanned critical personnel losses (i.e. unplanned loss pool) while delivering approximately 20,000 days of support per year. Shipboard maintenance and watch support remain the primary lines of effort for LCS SELRES. There are an additional six surface readiness support units on both coasts with nearly 300 Reserve sailors that provide maintenance and watch-stander support to the Navy's cruiser/destroyer and amphibious ships. These units also maintain a cadre of sailors with critical high-demand, low-density skills such as Chaplains, Judge Advocates, Supply Officers, and Command Historians that support the headquarters staffs on each coast. There are also two Afloat Cultural Workshop units that provide a candid and non-attributable assessment to unit commanders of their command climate in order to identify concerns before they impact unit effectiveness. This capability currently only resides in the RC.

In support of the Naval Beach Group mission, Navy Reservists play a critical role in fulfilling mission requirements. Seamlessly integrated with their AC counterparts (Assault Craft Units,

Amphibious Construction Battalions, and Beach Master Units) the RC provides trained, qualified, and mission capable sailors to augment the AC and allow for the full operational capability required to fulfill mission demands. The RC is charged with maintaining qualified boat crews, beach party teams, and Seabees, of which approximately 80 percent of Amphibious Construction Battalion TWO's billets reside in the RC. In addition, the RC owns, operates, and maintains ten Maritime Prepositioning Force Utility Boats in five different locations for training, assault follow-on echelon offload mission support, and several other homeport support requirements. As the Naval Beach Groups provide ship-to-shore transport support, the RC's ability to maintain qualified personnel and quickly integrate with their AC Naval Beach Group units continues to play an increasingly important role in meeting mission demands around the globe.

k. Naval Special Warfare (NSW)

With an increasing emphasis on RC capability to support global NSW operations, the community has reorganized its RC to provide critical tactical UAS capability on an enduring basis. These UAS elements provide key ISR support to Theater Special Operations Commands (TSOCs) that are indistinguishable from their AC counterparts. NSW has tasked the NSW RC to maintain a 2.0 deployable UAS ISR capability. The NSW RC mans, trains, and equips its RC to be interoperable with the AC force. Critical NSW deployed tactical ISR capability is provided by the RC. To support this significant ISR capability, more robust communications and processing, exploitation and dissemination (PED) capability is required. NSW RC ISR analysis elements are small teams requiring reach-back analysis of full-motion video (FMV) and other large data files. ISR analysis reports must also be transported across multiple operational centers and command posts, requiring high-speed data transfer systems identical to AC equipment. The enduring support provided by the NSW RC across all NSW mission areas requires more robust and realistic training during pre-mobilization and dwell training periods. This requirement exceeds current capacity of the NSW RC and other commands. Additional UAS systems, communications equipment, advanced medical treatment and casualty evacuation equipment and state-of-the-art marksmanship trainers are required to meet the high readiness standards for NSW RC personnel. The NSW RC quickly integrates with the AC in blended units for final deployment training prior to mobilization to meet critical mission requirements in support of national and theater objectives as one force.

l. Military Sealift Command (MSC)

Military Sealift Command is the Maritime Component Commander for sealift missions for United States Transportation Command (USTRANSCOM) and the Type Commander for MSC ships for United States Fleet Forces Command. MSC is the seaborne transportation provider for DoD with the responsibility of providing worldwide strategic sealift and ocean transportation for all military forces. Nearly 900 SELRES are assigned to 40 MSC units worldwide. MSC is represented by five geographic area commands (Atlantic, Pacific, Europe, Middle East, and Far East), which exercise tactical control of all assigned USTRANSCOM and MSC forces assigned to the numbered fleet commanders. When mobilized, RC units are responsible for establishing MSC port offices to assist with sealift operations. Navy Reserve cargo afloat rig teams (CART) are utilized to augment civil service mariners aboard combat logistics force ships which transfer food, fuel, ammunition, and other critical supplies to combatant ships at sea. CARTs are

composed of RC sailors highly trained in underway replenishment operations for both connected and vertical replenishment.

m. Submarine Force

The RC submarine force's four main missions are undersea warfare operations, expeditionary maintenance, force protection, and submarine rescue. RC sailors support undersea warfare operations thus enabling the AC to sustain 24/7 antisubmarine warfare operations both ashore and at sea. RC expeditionary maintenance sailors augment submarine tender crews to provide maintenance support to deployed submarines. They also deploy to augment guided-missile submarine crews during forward-deployed maintenance periods. RC sailors also provide force protection to vessels away from their home port. Additionally, the RC provides 56 percent of the submarine force's undersea rescue team and is ready to execute a submarine rescue anywhere in the world within 72 hours.

n. Space and Naval Warfare Systems Command (SPAWAR)

As the Navy's Information Warfare systems command, Space and Naval Warfare Systems Command develops, delivers, and sustains communications and information capabilities for warfighters, keeping them connected around the world, on land, at sea, and in flight. Comprised of a space support activity, two system centers, and partnerships with three program executive offices, SPAWAR provides the hardware and software needed to execute Navy missions. SPAWAR is at the forefront of research, engineering, and acquisition to provide and sustain fleet capabilities. SPAWAR delivers capabilities in the fields of ISR, command and control, cyber warfare, information and knowledge management, and meteorology and oceanography. SPAWAR works closely with the fleet, systems commands, and Navy partners to seamlessly and effectively deliver capability by acquiring and integrating sensors, communications, weapons, information and control systems for existing and future ships, aircraft, submarines, and unmanned systems. Many RC sailors who support SPAWAR leverage advanced technical degrees and extensive technical experience. SPAWAR's RC personnel bring directly applicable knowledge, skills, and abilities that directly support SPAWAR missions.

o. Naval Air Systems Command (NAVAIR)

Naval Air Systems Command provides full life-cycle support of naval aviation aircraft, weapons, and systems to the Navy and Marine Corps team. The NAVAIR Reserve program's long commitment to manned systems and recent UAS focus have proven invaluable to the NAVAIR test teams fielding these rapidly evolving capabilities. NAVAIR actively integrates the unique skill sets Reservists bring to bear from their civilian career fields.

p. Information Warfare

Commander, Naval Information Force Reserve (CNIFR) operates and maintains nine of 28 Joint Reserve Intelligence Centers (JRIC) in Aurora, Colorado; Detroit, Michigan; Ft. Worth, Texas; Jacksonville, Florida; Millington, Tennessee; Minneapolis, Minnesota; New Orleans, Louisiana; Norfolk, Virginia; and San Diego, California under the DoD Joint Reserve Intelligence program. JRICs are state-of-the-art intelligence centers with a sensitive compartmented information facility and secure intelligence community connectivity that enables personnel from all Services to provide real-world intelligence production to support their gaining commands and agencies.

Various DoD agencies and combatant commanders also utilize these sites. From FY 2013-2016, Fleet Cyber Command began staffing cyber protection teams comprised of AC, RC, and civilian personnel from a pool of Information Warfare personnel consisting of cryptologists, intelligence specialists, information technology technicians, and information warfare officers. Currently, CNIFR is one of the Navy Reserve's largest future growth areas.

q. Bureau of Medicine and Surgery

RC Navy Expeditionary Medical Training Institute provides tiered readiness training for expeditionary medical facility (EMF) platforms and Marine Forces Reserve. The Bureau of Medicine and Surgery has a defined requirement to maintain four RC EMF operational platforms and sailors supporting these platforms require continuous training to maintain currency and qualifications for deployment.

r. Public Affairs

The U.S. Navy Office of Information advocates for the equipment needs of its 10 dedicated Reserve units and any other Navy Reserve units supporting public affairs missions. RC Public Affairs Officers and Mass Communication Specialists provide a variety of communication and visual imagery production in direct support of the CNO's Maritime Strategy. Additionally, their mission is to provide strategic counsel, contribute to operational planning, and execute communication activities in support of National objectives, joint combat operations, and Navy missions.

s. Naval Sea Systems Command - Surge Maintenance

Surge Maintenance (SURGEMAIN) sailors work with their respective shipyard civilian counterparts to conduct modernization and depot-level maintenance and repairs. The SURGEMAIN program provides significant annual cost avoidance over contractor labor at four shipyards: Norfolk, Virginia; Pearl Harbor, Hawaii; Portsmouth, New Hampshire; and Puget Sound, Washington. SURGEMAIN is also one of the Navy Reserve's largest future growth areas.

t. Naval Explosive Ordnance Disposal Technology Division

RC Naval Explosive Ordnance Disposal Technology Division's responsibilities include explosive ordnance disposal technology and logistics management support for the Services. The unit assists in the development of intelligence, equipment, and procedures to counter explosive threats in support of DoD and other government agencies and consists of 44 SELRES personnel.

2. Status of Equipment

a. Equipment On-hand

Table 1 Consolidated Major Item Inventory and Requirements provides projected RC major equipment requirements and on-hand inventories to meet assigned missions.

b. Average Age of Major Equipment Items

With a Reserve Force that maintains increasingly older equipment, particularly RC aircraft, there is a compelling need to recapitalize or modernize some of the Navy Reserve's most expensive assets:

Aircraft recapitalization is without question Navy Reserve's number one equipping priority and is critical to the Navy Reserve's ability to provide required operational support to the Naval Aviation Enterprise.⁹

The Navy Reserve's primary concerns are P-3C aircraft (35 years old) and F/A-18A+ aircraft (31 years old) that operate at a significantly higher cost, produce lower readiness rates, and provide lesser capability than their projected replacement platforms. There are no plans to fund P-3C sustainment after the AC patrol squadrons have completed the transition to the P-8A however, discussions for resolution are still ongoing. The Navy plans to address the F/A-18 shortfall through a "waterfall" process in which F/A-18C and eventually F/A-18E/F aircraft are to be transferred to the RC, occurring as F-35C and F/A-18E/F are procured or produced for the AC. To ensure the Navy Reserve can support AC requirements, the Navy will need to make future investments in RC equipment. *Table 2 Average Age of Equipment* provides the average age of major equipment.

c. Compatibility of Current Equipment with the AC

Navy Reserve equipment requires compatibility with the AC to support applicable Navy assigned missions. Achieving equipment compatibility with the AC is critical to the Navy Reserve in ensuring the RC has the ability to train to the same standards and be ready to seamlessly operate with AC counterparts. While procurement and upgrade programs, Congressional adds, and NGREA funds have helped improve RC equipment capability and compatibility, significant challenges still remain. *Table 8 Significant Major Item Shortages* provides the equipment recapitalization priorities of the Navy Reserve.

d. Maintenance Issues

Navy Reserve equipment maintenance continues to remain a high priority and funding for RC readiness mirrors that of the AC. Due to budgetary constraints, depot throughput limitations, and high operations tempo, both the AC and the RC are confronted with maintenance shortfalls and backlogs. The high operational tempo for the Navy Reserve has accelerated equipment degradation and service-life expenditure. Modernized replacement assets such as the F/A-18E, P 8A, KC-130J, and 40' FPL would reduce maintenance issues and produce significant maintenance cost avoidance as well as increasing fleet support with reliable aircraft.

e. Modernization Programs and Shortfalls

The Department of the Navy maintains a prioritized list of unfunded equipment requirements, which is used to inform development of the Unfunded Priority List (UPL). When directed, the

⁹ Chief of Navy Reserve Statement, Hearing before the Senate Appropriations Committee Subcommittee on Defense, April 26, 2017, p. 14.

CNO forwards the UPL to Congress for resourcing consideration. The Navy Reserve's top-ten unfunded equipment requirements are provided in *Table 8 Significant Major Item Shortages*.

B. Changes since the Last NGRER

The following statements represent the latest changes since publication of the FY 2018 NGRER.

- The Navy Reserve accepted six Mk VI Patrol Boats and issued three each to Coastal Riverine Groups ONE and TWO, completing programmed acquisition.
- The FY 2017 Congressional Defense Appropriation funded the procurement of C-40A #16 and #17, which upon delivery will meet the risk-reduced red-line requirement for these aircraft.
- The Navy Reserve accepted six F/A-18C aircraft transferred from the AC and will reach a planned inventory of 35 aircraft to begin FY 2021.
- In FY 2018, VR-51's two C-20G aircraft were stricken from the Navy inventory, in preparation for receipt of C-40A #16 and #17 this year.
- HSC-85 will finish its transition from the HH-60H to the MH-60S in FY 2019.

C. Future Years Program (FY 2019–FY 2021)

1. FY 2021 Equipment Requirements

Table 1 Consolidated Major Item Inventory and Requirements identifies major equipment requirements and on-hand inventories projected from FY 2019 to FY 2021.

2. Anticipated New Equipment Procurements

In FY2017, Congress appropriated \$37.5M in NGREA for the Navy Reserve. This funding is being used for major improvements to existing capabilities and critical safety upgrades that will enhance the survivability of Navy personnel and equipment. *Table 4 NGREA Procurements* provides the list of these purchases.

3. Anticipated Withdrawals and Transfers from AC to RC

Table 5 Projected Equipment Transfer/Withdrawal Quantities identifies major RC equipment forecasted for withdrawal or decommissioning and anticipated equipment transfers from the AC to the RC.

4. Remaining Equipment Shortages and Modernization Shortfalls at the End of FY 2021

Table 1 Consolidated Major Item Inventory and Requirements and *Table 8 Significant Major Item Shortages* provide a listing of the RC's projected on-hand equipment inventories and requirements through FY 2021.

D. Summary

The complex and challenging fiscal environment compels DoD decision makers to make tough decisions regarding future capabilities and the equipment that supports those capabilities. The Chief of Navy Reserve states:

Almost fifteen years of increased operational tempo within a constrained procurement environment has taken a toll on the aircraft and equipment that RC sailors operate. Navy Reserve's integrated force structure depends on the ability to quickly and seamlessly assimilate with AC units to execute the mission. Accordingly, the Navy Reserve depends on the availability of modern, compatible hardware. As the Navy continues to prioritize investments in advanced aircraft, weapons systems and equipment, the total force must ensure that RC procurement is likewise adequately resourced in these accounts as well. This will ensure that RC forces maintain high levels of safety, interoperability, and readiness.¹⁰

The United States Navy continues to be the world's most dominant and premier naval force. Modernized equipment, across all RC capabilities and mission areas, is critical to achieving an integrated Total Force that operates across all spectrums and maintains the highest standards for safety, interoperability, and readiness.

¹⁰ Ibid, p. 14.

Consolidated Major Item Inventory and Requirements

NOTE: This table provides a comprehensive list of selected major equipment items. It provides the projected inventory quantity on-hand (QTY O/H) at the beginning/end of the selected fiscal year (FY). It also provides the quantity required (QTY REQ) to meet the full wartime requirements of the Reserve Component. In accordance with Title 10, the QTY REQ number provides the recommendation as to the quantity and type of equipment that should be in the inventory of each Reserve Component. FY 2018 unit cost estimates are provided by the Military Departments.

Nomenclature	Equip No.	Unit Cost	Begin FY 2019 QTY O/H	Begin FY 2020 QTY O/H	Begin FY 2021 QTY O/H	End FY 2021 QTY O/H	End FY 2021 QTY REQ
Aircraft							
Aircraft, Transport, C-40A (Boeing 737-700)	C-40A	\$85,100,000	15	17	17	17	17
Aircraft, Transport, C-130T (Hercules)	C-130T	\$58,900,000	19	19	19	19	19
Aircraft, Transport, KC-130T (Hercules)	KC-130T	\$66,000,000	5	5	5	5	5
Aircraft, Transport, C-20G (Gulfstream)	C-20G	\$64,000,000	3	1	1	1	1
Aircraft, Transport, C-37A (Gulfstream)	C-37A	\$66,300,000	1	1	1	1	1
Aircraft, Transport, C-37B (Gulfstream)	C-37B	\$63,000,000	3	3	3	3	3
Aircraft, Patrol, P-3C (Orion)	P-3C	\$109,900,000	12	12	12	12	12
Aircraft, Electronic Attack, EA-18G (Growler)	EA-18G	\$79,500,000	5	5	5	5	5
Aircraft, Fighter/Attack, F/A-18A+ (Hornet)	F/A-18A+	\$73,900,000	25	21	16	0	0
Aircraft, Fighter/Attack, F/A-18B (Hornet)	F/A-18B	\$73,900,000	2	0	0	0	0
Aircraft, Fighter/Attack, F/A-18C (Hornet)	F/A-18C	\$77,400,000	6	10	15	35	35
Aircraft, Fighter, F-5F (Tiger II)	F-5F	\$19,800,000	2	2	2	2	2
Aircraft, Fighter, F-5N (Tiger II)	F-5N	\$2,700,000	29	29	29	29	29
Helicopter, Combat SAR, HH-60H (Seahawk)	HH-60H	\$31,000,000	6	0	0	0	0
Helicopter, ASW, MH-60R (Seahawk)	MH-60R	\$37,700,000	7	7	7	7	7
Helicopter, NSW, MH-60S (Seahawk)	MH-60S	\$26,200,000	6	11	11	11	11
Helicopter, Mine Warfare, MH-53E (Sea Dragon)	MH-53E	\$56,100,000	7	7	7	7	7
Aviation Simulators							
C-130T Simulator	C-130T SIM	\$8,893,000	3	3	3	3	3
F-5 Simulator	2F213	\$4,000,000	2	2	2	2	2
FA-18C Simulator	2F193A	\$7,964,000	1	1	1	1	1
Naval Beach Group							
Maritime Prepositioning Force Utility Boat	MPF-UB	\$1,000,000	10	10	10	10	10
Naval Beach Group Table of Allowance (TOA) Equipment	NBG	\$26,705,722	1	1	1	1	1
Naval Construction Force (NCF)							
Construction Battalion Maintenance Unit TOA	CBMU	\$12,749,195	2	2	2	2	2
Naval Mobile Construction Battalion TOA	NMCB	\$77,770,071	5	5	5	5	5
Naval Construction Regiment TOA	NCR	\$15,237,250	2	2	2	2	2
Construction Capability Augment TOA	NCFCCA	\$275,313,278	1	1	1	1	1
NAVCONTGRU Equipment	NCGEQP	\$16,057,000	2	2	2	2	2

USNR

Table 1

Consolidated Major Item Inventory and Requirements

Nomenclature	Equip No.	Unit Cost	Begin FY 2019 QTY O/H	Begin FY 2020 QTY O/H	Begin FY 2021 QTY O/H	End FY 2021 QTY O/H	End FY 2021 QTY REQ
Coastal Riverine Force (CRF)							
Squadron TOA Equipment	CORIVGRUSQ	\$16,341,074	4	4	4	4	4
Coastal Riverine Company TOA	CORIV-CO	\$23,720,656	16	16	16	16	16
MK VI Patrol Boat	MKVIPB	\$17,900,000	5	6	6	6	6
Navy Expeditionary Logistics Support Group (NAVELSG)							
Navy Expeditionary Logistics Regiment TOA	NELR	\$4,434,360	3	3	3	3	3
Navy Cargo Handling Battalion (Commercial) TOA	NAVCARGOBN (C)	\$36,018,504	2	2	2	2	2
Navy Cargo Handling Battalion (Tactical) TOA	NAVCARGOBN (T)	\$43,175,058	1	1	1	1	1

USNR

Table 2

Average Age of Equipment

NOTE: This table provides the average age of selected major equipment items. The average age provides a projected average age of the fleet at the start of FY 2018.

Nomenclature	Equip No.	Average Age	Remarks
Aircraft			
Aircraft, Transport, C-40A (Boeing 737-700)	C-40A	9	
Aircraft, Transport, C-130T (Hercules)	C-130T	24	
Aircraft, Transport, KC-130T (Hercules)	KC-130T	28	
Aircraft, Transport, C-20G (Gulfstream)	C-20G	23	
Aircraft, Transport, C-37A (Gulfstream)	C-37A	15	
Aircraft, Transport, C-37B (Gulfstream)	C-37B	11	
Aircraft, Patrol, P-3C (Orion)	P-3C	35	
Aircraft, Electronic Attack, EA-18G (Growler)	EA-18G	8	
Aircraft, Fighter/Attack, F/A-18A+ (Hornet)	F/A-18A+	31	
Aircraft, Fighter/Attack, F/A-18B (Hornet)	F/A-18B	33	
Aircraft, Fighter/Attack, F/A-18C (Hornet)	F/A-18C	26	
Aircraft, Fighter, F-5F (Tiger II)	F-5F	21	
Aircraft, Fighter, F-5N (Tiger II)	F-5N	38	
Helicopter, Combat SAR, HH-60H (Seahawk)	HH-60H	24	
Helicopter, ASW, MH-60R (Seahawk)	MH-60R	6	
Helicopter, ASW, MH-60S (Seahawk)	MH-60S	11	
Helicopter, Mine Warfare, MH-53E (Sea Dragon)	MH-53E	24	
Aviation Simulators			
C-130T Simulator	C-130T SIM	28	
F-5 Simulator	2F213	8	
F/A-18C Simulator	2F193A	8	
Naval Beach Group			
Maritime Prepositioning Force Utility Boat	MPF-UB	6	
Naval Beach Group Table of Allowance (TOA) Equipment	NBG	2	
Naval Construction Force (NCF)			
Construction Battalion Maintenance Unit TOA	CBMU	9	
Naval Mobile Construction Battalion (NMCB) TOA	NMCB	9	
Naval Construction Regiment TOA	NCR	7	
Construction Capability Augment TOA	NCFCCA	10	
NAVCONTGRU Equipment	NCGEQP	10	
Coastal Riverine Force (CRF)			
Squadron TOA Equipment	CORIVGRUSQD	11	
Coastal Riverine Company	CORIV-CO	11	
MK VI Patrol Boat	MKVIPB	2	
Navy Expeditionary Logistics Support Group (NAVELSG)			
Navy Expeditionary Logistics Regiment Staff TOA	NELRHQ	9	
Navy Cargo Handling Battalion (Commercial) TOA	NAVCARGOBN (C)	9	
Navy Cargo Handling Battalion (Tactical) TOA	NAVCARGOBN (T)	9	

Service Procurement Program - Reserve (P-1R)

NOTE: This table identifies the dollar value of programmed equipment procurement as identified in the P-1R exhibit of the FY 2019 President's Budget Request. All values are costs in dollars and exclude ammunition procurements. Deliveries of procured equipment normally take one to two years before they arrive in the inventory; e.g., items procured in FY 2019 are expected to arrive in RC inventories in FY 2020 or FY 2021.

Nomenclature	FY 2019	FY 2020¹	FY 2021¹
Other Aircraft			
KC-130J	\$270,446,000		
Modification of Aircraft			
Adversary Aircraft	14,606,000		
H-53 Series	725,000		
C-130 Series	16,185,000		
Cargo/Transport Aircraft (A/C) Series	8,932,000		
Other Procurement			
Construction & Maintenance Equipment	7,449,000		
Tactical Vehicles	1,464,000		
Items Under \$5M - Civil Engineering Support Equipment	8,338,000		
Personnel & Command Support Equipment			
C4ISR Equipment	834,000		
Physical Security Equipment	2,350,000		
Total	\$331,329,000		
1. P-1R Exhibit for FY 2019 President's Budget does not provide projected procurement data beyond FY 2019.			

National Guard and Reserve Equipment Appropriation (NGREA) Procurements

NOTE: This table identifies the dollar value of planned equipment procurements with the National Guard and Reserve Equipment Appropriation (NGREA). These funds are available for a three-year period from the year of appropriation. Deliveries of procured equipment normally take one to two years from date of procurement before they arrive in the inventory; e.g., items procured in FY 2018 would be expected to arrive in RC inventories in FY 2019 or FY 2020. All values are costs in dollars.

Nomenclature	FY 2016	FY 2017	FY 2018 ¹
<u>FY 2016 NGREA Equipment</u>			
F/A-18A+ Joint Helmet-mounted Cueing System (JHMCS)	\$1,737,529		
F-5 Terrain Avoidance Warning System (TAWs)/Traffic Collision Avoidance System (TCAS) Reconfiguration	1,200,000		
Multifunctional Information Distribution System (MIDS)/ Joint Tactical Radio System (JTRS) Concurrent Multi-netting (CMN)-4 Terminals for F/A-18A+	3,100,000		
F-5 Portable Environmental Protective Equipment	590,000		
C-20G Dunlop Brake Upgrade	3,406,596		
Medium Tactical Vehicle Replacement (MTVR) Upgrades to Support Radio Communication, Blue Force Tracker and Improvised Explosive Device (IED) Defeat Systems	22,047,177		
Crew-served Weapon Simulators for High-value Unit (HVU) Escort Reserve Units	2,173,032		
C-130T Quick Don Oxygen Mask	665,280		
F-5 Radar Cockpit Display Unit Software Update	1,100,000		
F-5 Tactical Combat Training System Pod Wi-Fi Modification	3,010,000		
F-5 Simulator Upgrade/Technology Refresh	5,000,000		
Fleet Logistics Support Squadron 51 (VR-51) Commercial Support Equipment	319,000		
Space and Naval Warfare Systems Command (SPAWAR) Cybersecurity Training Kits	206,000		
Naval Sea Systems Command (NAVSEA) Combined Explosives Exploitation Cell Platoon Table of Allowance (TOA)	1,014,890		
NAVSEA Security Force Training Equipment	70,685		
NAVSEA Dive Unit Automated External Defibrillator	12,927		
NAVSEA Diving Equipment	46,884		
Light Service Support Vehicle (LSSV)	3,540,000		
Expeditionary Surveillance Control Center (ESCC) Trailer Sensor Platforms (TSP)	660,000		
60kW Advanced Medium Mobile Power Systems (AMMPS)	100,000		
<u>FY 2017 NGREA Equipment</u>			
F-5 Ejection Seats		\$13,440,625	
Navy Enterprise Tactical Command & Control 2 (NETC2) v2.0		9,816,000	
C-130T/2F107 Simulator Modernization		9,130,000	
PAO Multimedia Kits		1,298,800	
NETC2 v2.0 Expansion Kit		1,136,000	
Expeditionary Surveillance Control Central Trailer Sensor Platform		880,000	
Fire Arms Training Systems (FATS)		720,000	
C-40A Weather Radar Upgrade		600,000	
Anti-terrorism/Force Protection (AT/FP) Visit, Board, Search, and Seizure (VBSS) SRX-2200 Radio		224,541	
60kW Advanced Medium Mobile Power Source (AMMPS)		150,000	

National Guard and Reserve Equipment Appropriation (NGREA) Procurements

Nomenclature	FY 2016	FY 2017	FY 2018 ¹
Neutrally Buoyant Ballistic Plate (NBBP) 10x12 Torso Plate		78,366	
K9 limited ARC explosive storage magazines		18,890	
Ear Defenders (NSN 4240-01-519-6066)		6,778	
Total	\$50,000,000	\$37,500,000	
1. Service FY 2018 NGREA equipment list was not available in time for publication in the NGRER. Equipment list for FY 2018 will be provided in next year's NGRER.			

Projected Equipment Transfer/Withdrawal Quantities

NOTE: This table portrays the planned equipment transfers (Active to Reserve), withdrawals (-), and decommissioning (-). Transferred equipment is commonly called "cascaded equipment," or equipment that is provided to the RC once the AC receives more modern equipment. Although this table highlights a three-year period, many Services will not know exact quantities of transfers or withdrawals until year of execution, due to the uncertainty of the procurement/delivery cycle of new equipment.

Nomenclature	Equip No.	FY 2019 Qty	FY 2020 Qty	FY 2021 Qty	Remarks
Aircraft, Fighter/Attack, F/A-18B (Hornet)	F/A-18B	-2			F/A-18Bs being replaced by F/A-18Cs.
Aircraft, Fighter/Attack, F/A-18A+ (Hornet)	F/A-18A+	-4	-5	-16	F/A-18A+ being replaced by F/A-18Cs.
Aircraft, Fighter/Attack, F/A-18C (Hornet)	F/A-18C	+4	+5	+20	F/A-18A+ being replaced by F/A-18Cs.
Aircraft, Transport, C-20G (Gulfstream)	C-20G	-1			Aircraft will be retired December 2018.
Helicopter, Combat SAR, HH-60H (Seahawk)	HH-60H	-11			Planned retirement of legacy aircraft.
Helicopter, SOF Support, MH-60S (Seahawk)	MH-60S	+10			Transfer to RC to replace legacy HH-60H aircraft.

FY 2015 Planned vs Actual Procurements and Transfers

NOTE: This table compares planned Service procurements and transfers to the RC in FY 2015 with actual procurements and transfers. FY 2015 is selected as these are the most recent funds to expire. Because the procurement cycle is normally one to two years from funding to delivery, this table identifies only deliveries through the end of FY 2017. Procurement and NGREA columns reflect cost values in dollars.

Nomenclature	Equip No.	FY 2015 Transfers (# of items)		FY 2015 Procurements (\$s)		FY 2015 NGREA (\$s)	
		Plan	Actual	Plan	Actual	Plan	Actual
<u>FY 2015 Planned Transfers & Withdrawals</u>							
Frigate, Guided Missile (Perry Class) Flight III	FFG	-5	-5				
Naval Mobile Construction Battalion PGI TOA	P25P GIRC	-2	-3				
Naval Construction Regiment TOA	P29	-2	-1				
Intelligence Exploitation Team TOA Equipment	G11IE T	-2	-2				
<u>FY 2015 Service Procurement Programs – RC (P-1R) Equipment</u>							
Other Aircraft							
KC-130J				\$92,290,000	\$88,870,000		
Modification of Aircraft							
Adversary Aircraft				8,418,000	4,900,000		
H-53 Series				20,643,000	20,643,000		
C-130 Series				21,656,000	18,781,000		
Cargo/Transport Aircraft (A/C) Series				10,085,000	1,720,000		
Other Procurement							
Standard Boats				1,128,000	0		
Passenger Carrying Vehicles				202,000	0		
Items Under \$5M - Civil Engineering Support Equipment				739,000	940,000		
Materials Handling Equipment				11,000	0		
C4ISR Equipment				1,850,000	1,850,000		
Physical Security Equipment				724,000	724,000		
<u>FY 2015 National Guard and Reserve Equipment Appropriation (NGREA) Equipment</u>							
MK VI Patrol Boat						\$35,800,000	\$37,208,017
Coastal Riverine Force (CRF) Squadron - Navy Enterprise Tactical Command and Control (NETC2) Outfitting						13,200,000	0
Combatant Craft Forward-looking Infrared Sensor (CCFLIR)						6,064,682	2,768,776
Night Vision Goggles (NVG) Head Up Display (HUD) Mod/Install for HSM-60						2,940,000	1,803,642
C/KC-130T EF-5992 Fuel Tank Sealant						1,700,000	0
Standard Navy Double Lock (SNDL) Recompression Chamber						1,571,000	1,614,632
C-20G Brake Upgrade						1,050,000	998,050
C-20D/C-20G Emergency Vision Assurance Systems (EVAS)						300,000	212,941
F/A-18A & Joint Helmet Mounted Cueing System (JHMCS)						974,295	974,295
Mission Package Training System (MPTS)						750,000	749,741
Submarine Force (SUBFOR) Reserve Protection Total Obligation Authority (TOA) Equipment						151,985	151,985
Operations Post Mission Analysis (OPMA) Trainers						150,000	149,199
Visit Board Search and Seizure (VBSS) Equipment						133,333	133,333

USNR

Table 6

FY 2015 Planned vs Actual Procurements and Transfers

Nomenclature	Equip No.	FY 2015 Transfers (# of items)		FY 2015 Procurements (\$s)		FY 2015 NGREA (\$s)	
		Plan	Actual	Plan	Actual	Plan	Actual
C-40A Emergency Vision Assurance Systems (EVAS)						214,705	198,404
Medium Tactical Vehicle Replacement (MTVR) Upgrades to support Radio Communication, Blue Force Tracker, and Improvised Explosive Device (IED) Defeat Systems						0	10,734,498
MK VI Patrol Boat Weapon System						0	4,710,000
Naval Mobile Construction Battalion Communication System 60kW AAMPS Generators						0	1,007,776
C-130T Quick Don Oxygen Mask						0	181,000
C-20G Flap Actuators						0	692,707
F/A-18 / F-5 Filthy Badger Pod Upgrade						0	626,004
MH-60R Task Trainers						0	50,000
HH-60 Blue Force Tracker						0	35,000
Total				\$157,746,000	\$138,428,000	\$65,000,000	\$65,000,000

Major Item of Equipment Substitution List

NOTE: This table identifies equipment authorized by the Service to be used as a substitute for a primary item of equipment. The table also identifies whether or not the item is deployable in wartime. This data meets the Title 10 requirement to identify substitutes that are not the most desired equipment item.

Required Item Nomenclature	Reqd Item Equip No.	Substitute Item Nomenclature	Substitute Item Equip No.	FY 2019 Qty	Deployable?	
					Yes	No

Service Does Not Use Substitution to Satisfy Major Item Equipment Requirements

Significant Major Item Shortages

NOTE: This table provides a RC top ten prioritized (PR) shortage list for major equipment items required for wartime missions but which are currently not funded in the FYDP. It lists the total quantity required, the total unfunded requirement, the individual item cost, and the cost of the unfunded portion. This data is consistent with other unfunded equipment data submitted by the Service.

PR	Nomenclature	Total Req'd	# Items Short	Item Cost	Total Shortage Cost	Rationale/Justification
1	P-8A	8	8	\$168,800,000	\$1,350,400,000	Procures eight P-8As to fill patrol, reconnaissance, and intelligence gathering capability gap. This aircraft would recapitalize the aging P-3C and improve antisubmarine warfare, anti-surface warfare, and armed intelligence, surveillance, and reconnaissance (ISR) while leveraging the skills of the many RC pilots that already fly this airframe in their civilian jobs.
2	Strike Fighter Aircraft	24	24	\$88,700,000	\$2,128,800,000	Procures 24 F/A-18E aircraft to equip the RC with an evolutionary upgrade from the F/A-18A. It is a fleet representative combat tested aircraft and would ensure the RC fighter attack community was compatible with the current air wings and able to seamlessly integrate with the AC.
3	Small Unmanned Aircraft Systems (UAS)	10	10	\$512,888	\$5,128,880	The Reserve Component's Naval Special Warfare Group 11 (NSWG-11) deploys tactical elements from its Reserve Seal Teams to support geographic combatant commander (GCC) requirements as articulated in the Global Force Management Allocation Plan (GFMAP). Part of these deployable elements are Reserve SEAL squads (NSW Task Elements), Reserve Special Warfare Combatant Crewman (SWCC) Detachments, and Reserve Unmanned Aircraft System (UAS) Detachments. Each of these tactical elements are required to be issued small, man-portable UAS (Group 1 UAS) to support unit organic tactical intelligence, surveillance, and reconnaissance (ISR). These man-portable systems are part of a Special Operations Command program of record called Small Unmanned Aircraft Systems (SUAS).
4	C-130J	24	24	\$82,900,000	\$1,989,600,000	Procures C-130J aircraft to replace the aging and maintenance-intensive C-130T aircraft. The C-130 fleet is a crucial part of Navy-unique fleet-essential airlift (NUFEA) requirements. They serve as a connector between strategic airlift points and provide global logistics support while specializing in providing airlift for outsized cargo.
5	Force Protection Large / 40' Patrol Boat	96	77	\$2,850,000	\$219,450,000	Current Force Protection Large (FP-L) patrol boats are rapidly approaching the end of their service life. Continued operations beyond the end of their service life requires service life extension availabilities beyond service life and risk catastrophic mechanical and/or mission failure. The addition of the RC High-value Unit (HVV) mission requirement increases the requirement for patrol boats. Currently FP-Ls are being sourced from the RC squadrons training allotment as well as suitable substitute patrol boats reactivated from Naval Sea Systems Command's Boat Inventory Manager. The 40' Patrol Boat is the designated replacement program for the aging FP-L patrol boats.

Significant Major Item Shortages

PR	Nomenclature	Total Req'd	# Items Short	Item Cost	Total Shortage Cost	Rationale/Justification
6	Patrol Boat Simulator	3	3	\$4,425,000	\$13,275,000	Current motion platform simulator is for weapons training only and does not have the capability to simulate up to a four boat formation conducting operational training in conditions similar to required deployment areas. Additionally, it does not have the ability to provide basic navigation, maneuvering, or multi-boat simulation. Coastal Riverine Force RC units have no ability to exercise and learn basic skills aside from underway training, subject to craft availability due to condition/maintenance down time, or weather. This simulator provides an efficient, controllable, and repeatable medium for learning basic to advanced individual and team skills for the MK VI and PBX Patrol Boats as well as other boat platforms that will make underway training more effective, particularly with high utilization of assets for operational tasking. Systems to be located (2) CONUS (San Diego, CA; Norfolk, VA) and (1) OCONUS (Bahrain), where our Reserve forces currently deploy.
7	Light Service Support Vehicles (LSSVs)	38	30	varies	\$2,806,040	The Coastal Riverine Force (CRF) and Navy Expeditionary Logistics Group (NAVELSG) are short LSSVs, specifically the litter carrier and maintenance trucks. Delayed procurement to initially outfit and replace overage platforms for the Navy Reserve TOAs will negatively impact overall CRF readiness and required operational capabilities.
8	Expeditionary Communications Gear	365	189	varies	\$9,598,750	The Naval Construction Force (NCF) and NAVELSG require significant technical refresh and system upgrades for their expeditionary communications gear, primarily VHF/UHF/SATCOM radios and base stations. This gear was programmed for replacement but not funded due to budgetary reductions. These systems are needed in order for NCF and NAVELSG units to meet communications requirements in support of required operational capabilities.
9	F-5F	4	2	\$19,800,000	\$39,600,000	Current NAVAIR modeling has the two USNR F-5s running out of service life in the mid 2020s. As USNR will most likely operate the F-5 until well into the 2030s, the community needs additional two-seaters for training.
10	F-5N	35	6	\$2,700,000	\$16,200,000	Six additional F-5s would alleviate systemic support shortages in the community. This number increased from five after one F-5N was lost in August 2017.

Chapter 5

United States Air Reserve Components

I. United States Air Force Overview

AIR FORCE MISSION

Fly, Fight, and Win...in Air, Space, and Cyberspace

AIR FORCE VISION

The World's Greatest Air Force, Powered by Airmen, Fueled by Innovation

A. Air Force Planning Guidance

The Air Force is always there, providing for the Nation's security across all domains by controlling and exploiting air and space to deliver Global Vigilance, Global Reach, and

Global Power to the Joint Force and allies. In a world of continual conflict and accelerating threats posed by near-peer competitors, the Joint Force's success demands the Air Force maintain a competitive advantage today while preserving an asymmetrical advantage for the future. To do this, the Air Force continues its emphasis on readiness recovery and improved lethality. Its focus is on growing Air Force end-strength and increasing investment for readiness, nuclear deterrence operations, space, cyber, combat air forces, and infrastructure.

In order to ensure our Air Force remains lethal and ready when the nation calls, the Air Force must restore readiness, cost-effectively modernize, drive innovation, develop exceptional leaders, and strengthen our alliances. These priority areas allow the Air Force to defend the homeland, own the high ground, and project power in concert with allies and partners. While restoring readiness is primarily about the size of the force, quality training, and munitions, for the long term the Air Force must modernize its weapon systems and equipment to defeat emerging threats. The top three acquisition programs to modernize the Air Force are the F-35A fighter, the KC-46 tanker, and the B-21 bomber.

The F-35A is essential to our national security—a stealthy multi-role fighter needed to own the high ground and project power against increasingly capable adversaries. Hence, the FY 2018 budget request funds the purchase of the next 46 F-35A fighters with a goal of reaching 60 per year in the future. The budget also focuses on restoring readiness and modernizing the Air Force's 55 combat-coded fighter squadrons.

Recent entry into initial production of the KC-46 Pegasus tanker enhances the Air Force's air refueling capability. The KC-46 program modernizes the aerial refueling fleet, providing global mobility for the joint force and allies. The Air Force expects to sustain steady state production of 15 KC-46 aircraft a year throughout the Future Years Defense Program (FYDP).

In addition, the Air Force is rapidly developing the B-21 Raider long-range strike bomber. The B-21 will form the backbone of the future bomber force, ensuring the ability of the nation's leaders to hold targets at risk around the world with both conventional and nuclear weapons.

While the F-35A fighter, the KC-46 tanker, and the B-21 bomber are the top Air Force modernization priorities, there are a number of other ongoing modernization efforts. These include upgrades of F-22A, F-15, and F-16 aircraft so that they remain viable, along with B-52, B-1, and B-2 bombers for strategic delivery of advanced munitions. Additionally, in the realm of intelligence, surveillance and reconnaissance, the Air Force continues to support the MQ-9 Reaper, RQ-4 Global Hawk, and RC-135 Rivet Joint upgrade strategies.

The Fiscal Year 2018 President's Budget request supports special operations and combat search and rescue with the purchase of two HC-130J and five MC-130J aircraft. The Air Force also sustains its commitment to command and control by funding several upgrades to the E-3 Airborne Warning and Control System (AWACS).

B. Air Force Equipping Policy

The components of the Air Force—Active, Guard and Reserve—make up the Total Force (TF) which executes the Air Force five core missions in the air, space, and cyberspace domains. Integration of all three components into a Total Force enables an agile and flexible response in today's complex strategic environment. Therefore, the Air Force must leverage the optimal mix of operational forces across the Total Force to shift quickly and efficiently from one mission to another. The Air Force seeks to balance capabilities across the components to meet the Nation's military challenges now and into the future.

As the Air Force acquires new equipment, the equipping policy is such that force integration plans should adhere to the principle of proportional and concurrent fielding across the components. This means that, in advance of full integration, new equipment will arrive at Air Reserve Component units simultaneously with its arrival at Active Component units in the proportional share of each component. As the Air Force Reserve and Active Component become fully integrated, the Air Force works to ensure that the Air National Guard receives new technology concurrent with the integrated units. The Air Force identified Air Force Policy Directive 10-3 as an appropriate source authority to implement this recommendation and developed a plan to update the guidance accordingly. Issued November 2017, the updated policy includes the concept of concurrent and proportional fielding and retirement of equipment throughout the components.

C. Plan to Fill Equipment Shortages in the RC

The Air Force continually seeks to maximize the value of the RC, most notably through its unit associations. The Air Force exemplifies this relationship through Total Force Integration initiatives.

Most notably, in January 2013, the Secretary of the Air Force established the Total Force Task Force to conduct a comprehensive review of the TF to balance the strengths of each component and develop strategic options on the appropriate TF capabilities mix to meet current and future Air Force requirements. This effort transitioned to the Total Force Continuum (TF-C) and continued efforts to refine the analytic tools used to analyze each mission area. Overall, the TF-C team focuses on two primary lines of effort: Balance and One Air Force. Balance develops strategic Force Mix Options ensuring TF capabilities meet future requirements. One Air Force identifies legal, policy, operational and organizational changes required to enhance the TF

integration to include management and oversight of Total Force Associations. In addition to these lines of effort, the Air Force also incorporated and codified many of the National Commission on the Structure of the Air Force's recommendations into the strategy, planning, and programming process. This included establishing TF-C as a permanent staff in the Air Force headquarters. TF-C's efforts to identify areas requiring legislative changes and policy relief remain a priority and an integral aspect of the Air Force Deputy Chief of Staff for Strategic Plans and Requirements' work and are necessary steps toward meeting RC modernization needs.

Additionally, the Air Force published Air Force Policy Memorandum (AFPM) 90-10, Total Force Integration (TFI), on 27 October 2016. This AFPM provides policy for planning TFI initiatives across all components of the Air Force, including organizational roles and responsibilities. It also provides frameworks for integration that includes incorporating, to the maximum extent possible, the principles of concurrent fielding and retirement of equipment and technology among the components.

The Air Force's fielding of the KC-46, F-35A, and new combat rescue helicopter serve to underscore the Service's commitment to concurrent and proportional fielding of equipment amongst the components. Plans for all of these new acquisition programs include the Air Reserve Components (ARC) to meet operational requirements, provide a strategic reserve, and support the ARC operational demand.

D. Initiatives Affecting RC Equipment

The Air Force strategic documents provide the guideposts and resourcing vectors with which the Air Force is synchronizing budget and acquisition decisions with strategy for the long term. One of the Air Force's guiding principles steering the strategy and budget process is the plan to maximize the contribution of the Total Force. To meet the Air Force's bold vision for the future, difficult trades between force structure, readiness, and modernization affect both the AC and RC.

Current efforts to streamline organizations through co-location and functional integration include plans to develop initial pilot programs to explore multiple integrated organizational constructs. As an example, full-time reservists integrate fully in the Headquarters Air Force Personnel Directorate. The first Integrated Wing is established at Seymour Johnson AFB, NC, future home of the KC-46. The I-Wing Pilot Program is an interim step to derive lessons learned for potential application to larger organizations. The Pilot Program is addressing and assessing possible savings and potential reduction of duplicative processes and facilities.

As previously mentioned, the Air Force published AFPM 90-10, TFI, on 27 October 2016. In addition to concurrent fielding, this AFPM provides policy for planning TFI initiatives across all components of the Air Force, including organizational roles and responsibilities. It also provides foundational principles for TFI efforts leveraging the strengths of each component and, ultimately, the Service. Complementing the publication of AFPM 90-10 was the substantial revision of Air Force Instruction (AFI) 90-1001, Planning Total Force Associations (TFAs), published in January 2017. This issuance streamlines Headquarters Air Force involvement in the approval process while also requiring deliberate planning to leverage the Air Reserve Component in operations.

During Calendar Year 2016, the Air Force reviewed six association proposals expanding capacity in various mission sets. These TFAs included intelligence, aviation, and public affairs. Three of these association proposals included Air Force Reserve (AFR) integration with intelligence operations at Offutt Air Force Base (AFB), Nebraska; Fort Meade, Maryland; and Joint Base (JB) San Antonio-Lackland, Texas. Integration continued in flying operations with the Air National Guard and the CV-22 at Hurlburt Field, Florida, in addition to the AFR with the C-130J at Little Rock AFB, Arkansas. AFR integration expanded with the Combat Camera portfolio of public affairs at JB Charleston, South Carolina. Once these proposals receive final approval, the Air Force will have 117 TFAs across the United States supporting combatant commanders throughout the world every day.

E. Plan to Achieve Full Compatibility between AC and RC

To maintain a fully compatible force structure ready for full-spectrum of military operations, the Air Force continues to maximize the contributions of the Total Force. Chief Master Sergeant of the Air Force Kaleth O. Wright states, “To remain the world’s most dominant Air Force, it’s important that we have the right Airmen with the right skill set and the right attitude in the right place at the right time. This applies across the board, whether you’re a Guardsman, Active Duty or a Reservist. The enemy doesn’t make the distinction and neither should we.” Reserve Components provide critical capabilities and capacity necessary to execute the national defense strategy and achieving the right balance is critical to shaping the future Joint Force. Finding the optimal balance of roles and strengths among each of the components enables the Air Force to be agile, affordable, and capable of meeting the needs of combatant commanders in a demanding and uncertain strategic environment.

As the Air Force modernizes its weapon systems, it is concurrently fielding all new weapon systems (e.g., KC-46 tanker, F-35A fighter, and B-21 bomber) in all the components from the start. This policy enables effective management of new weapon systems and leverages the experience of the Reserve Components. Additionally, the Air Force seeks to continue to increase reserve mission share in Command and Control, Mobility, Cyber, and Space. Acknowledging the importance of improving interoperability among components, the Air Force seeks to identify and eliminate existing structural and cultural barriers to functioning as One Air Force.

II. Air National Guard (ANG) Overview

A. Current Status of the Air National Guard

1. General Overview

The motto “Always Ready, Always There” as outlined in the 2018 National Guard Bureau Posture Statement, sums up the capability, capacity, and selfless willingness of the citizen Airmen of the 54 States, territories, and the District of Columbia to serve the needs of the country at home and abroad. The Air National Guard is fully vested in fighting America’s wars and supports each Air Force core mission area as a fully integral member of the Total Air Force.

Top ANG Equipping Challenges

- Adequate funding for weapon system modernization efforts
- Adequate funding to procure modern, updated equipment to more effectively support the ANG DSCA mission and aging fleet of aircraft

The ANG’s citizen Airmen maintain a readiness posture capable of deploying anywhere in the world within 72 hours or less while also providing 30 percent of the Air Force’s daily fighter missions, 30 percent of its strategic and tactical airlift missions, and, 44 percent of its air refueling missions. ANG provides this support from 90 wings, with 106,900 Airmen and 1,111 aircraft in its fleet. Guard Airmen supported more than 16,120 Air Force requests for overseas deployments to 56 different countries, while operating remotely piloted aircraft around the clock and maintaining 24/7 airspace protection at home in America’s skies.¹

Another key operational mission of the ANG centers on protecting the homeland and supporting civil authorities. Examples include counterdrug state operators assisted law enforcement agencies taking a total of \$21.8B in illicit drugs off the street in FY 2016; Air National Guard members responded to nearly 60 natural disasters and other events within the United States. To maintain these, and many other efforts, the ANG requires the continued modernization and sustainment of its fleet and equipment assets to preserve and increase its combat readiness and domestic operations capabilities. Through a combination of Air Force funding and supplemental National Guard and Reserve Equipment Appropriation (NGREA) funds, the ANG can continue fighting America’s wars by supporting combatant commanders while protecting the homeland and supporting civil authorities.

2. Current Status of Equipment

ANG support equipment and vehicle inventory fill-rate is 92 percent this year. This fill rate is a result of validation of Communications and Logistics data sources from previous submissions.

a. Equipment On-hand

Table 1 Consolidated Major Item Inventory and Requirements provides projected RC major items include air refueling, air support, airlift, fighter, and rescue aircraft.

¹ 2018 National Guard Bureau Posture Statement, March 2017.

b. Average Age of Major Items of Equipment

The average age of ANG aircraft is now 30.1 years with the oldest platform being the KC-135T fleet at an average age of 56 years.² Support equipment for sustaining ANG aircraft remains a challenge as original manufacturers no longer produce some of these items or may no longer be viable, thereby increasing maintenance costs.

Note: See *Table 2 Average Age of Equipment* for the average age of major equipment items as of the start of FY 2017.

c. Compatibility of Current Equipment with Active Component

The ANG requires equipment modernization to be compatible with AC missions. This is critical for ensuring Air Guardsmen properly train to a single standard required to seamlessly integrate the ANG with the Total Force. With continued Congressional funding, the ANG will be able to maintain compatibility with the AC on its mission support equipment.

d. Maintenance Issues

The ANG operates and maintains the oldest aircraft in the Air Force inventory. Aircraft support and test equipment is critical to daily maintenance operations at all ANG flying units. Much of the equipment used in testing aircraft systems is nearing the end of its designated useful life and is increasingly difficult to sustain and expensive to repair. The ANG functions at a prolonged high operations tempo, driving the need for efficient maintenance processes and robust supply chains. Devices enhancing maintenance efficiency and safety, while improving capabilities, also improve aircraft availability, reduce operating costs, and enhance agile combat support. Equipment such as the maintenance inspection platforms and digital test equipment reduce aircraft downtime, allow logistics personnel to maintain a high rate of sortie generation, and ensure the longevity, relevance, reliability, and responsiveness of the aging fleet. ANG Weapon Systems Sustainment Working Group outlined the following maintenance concerns regarding legacy system sustainment and shortfalls.

Support and Test Equipment: Currently, the ANG relies upon outdated test equipment to sustain an aging fleet of aircraft that frequently breaks and incurs high sustainment costs. This is an inefficient use of funds and manpower and hampers mission reliability. Updating to digital replacements for certain test equipment items, such as the Pneumatic Cabin Pressure Tester, Active Bus Tester, and Remote Engine Trim Test Set will enable maintenance personnel to troubleshoot and repair aircraft in a fraction of the time required by older methods. Sustaining modern weapons systems has become increasingly more difficult and expensive as ANG utilizes aging test sets based on 1970s and 1980s technology. Munitions and weapons test sets require stable power to reduce the risk of electrical damage to the test set or the connected asset. Modernizing the power carts will provide units with clean, consistent power, prevent costly damage to Air Force assets, and maximize aircraft availability. While some support equipment modernization was completed last year, the majority of aircraft support equipment was designed

² Ibid.

and built in the 1980s and is not on par with current technology. Legacy equipment remains labor-intensive and costly to operate, regularly presenting significant safety concerns.

The ANG continues to explore innovative solutions to these challenges by working with industry partners to find off the shelf solutions, which consolidate multiple functions, are more efficient to operate, and enhance maintenance efficiency and safety.

Isochronal Maintenance and Inspection Stands: ANG lacks the necessary C-17 maintenance inspection stands to perform required inspections and maintenance. ANG's KC-135 inspections stands no longer meet Air Force Occupational Safety and Health or Occupational Safety and Health Administration standards as these aging stands average 30 years old. Maintenance organizations mitigate the safety concerns by refitting the existing stands however, these efforts are not consistent in their design and are not a permanent solution. Consequently, the ANG needs to purchase five new C-17 stands and nine new KC-135 inspection stands totaling \$22M to alleviate unnecessary risk, allow maintainers to focus on aircraft specific tasks, and provide a safe working environment.

e. Modernization Programs and Shortfalls

The annual Air Reserve Component Weapons and Tactics and ANG Domestic Capability Priorities Conferences remain the primary clearinghouses for ANG modernization efforts. At the Weapons and Tactics Conference, field operations, maintenance, and support experts ANG-wide identify and vet critical shortfalls collaboratively with headquarters staff-level functional area managers. The process includes review of command and control (C2); cyber; intelligence, surveillance, and reconnaissance (ISR); training; and simulator systems as well as weapons delivery, airlift, and tanker platforms. These capability shortfalls are documented in the annual Weapons Systems Modernization Priorities book and Domestic Capability Priorities book. For FY 2017, this process documented a \$9.7B shortfall for modernization and recapitalization of the ANG aircraft fleet and associated equipment.

The Domestic Capability Priorities Conference identifies and prioritizes capability shortfalls for federal and non-federal support of civil authorities during a domestic emergency. The conference is organized by functional areas to mirror the Federal Emergency Management Agency's Emergency Support Function framework and aligns requirements with the Chief, National Guard Bureau's core capabilities. The output from this conference is published in the annual ANG Domestic Capability Priorities Book. The 2018 DCP book identified \$480M in capability priorities.

The ANG Modernization Book and the Domestic Capability Priorities Book, available at <http://www.ang.af.mil/Home/ANG-Priorities-Books/ANG>, illustrate how ANG leverages NGREA to modernize 22 major weapons systems and purchase equipment for ANG domestic operations (covering 11 of 15 Emergency Support Functions). Priorities for modernization include: aircraft sensors, legacy cockpit upgrades (communications/datalink), aircraft defensive system upgrades, simulators, and Battlefield Airmen equipment. Priorities for equipment supporting domestic operations include: equipment for first responders, command and control equipment, emergency mobile medical facilities, CBRNE response equipment, and urban search and rescue equipment. These modernization and equipping efforts are detailed below.

A-10: In 2014, the ANG began the A-10 modernization for use in austere locations with limited ground support. The addition of a parking brake allows refueling without requiring ground personnel to place and remove chocks. Testing and configuration control of the A-10 austere operations suite is expected to be complete in early 2018 with fielding completed in late 2019. Advanced Targeting Pod (ATP) digital output upgrades with color video provide high-resolution feeds, coupled with high definition displays, enabling visual identification of friendly and enemy forces from greatly increased standoff ranges. The installation of High Resolution Displays (HRDS) in the A-10 allows for full utilization of targeting pod improvements. The Conversion Fuel Tank program, which modifies excess F-15 external fuel tanks for use on the A-10, will improve the A-10's range and loiter time. NGREA funding will also support the integration of noise-cancelling and 3D Audio which increases situational awareness by spatially separating aural warning and radio signals and providing angular cueing to ground and air threats when used in conjunction with a Helmet Mounted Cueing System (HMCS). Finally, the installation of a Selective Availability Anti-Spoofing Module (SASSM) Embedded Global Positioning System (GPS)/Inertial Navigation System (EGI), will improve navigational accuracy in a GPS-denied environment. Air Combat Command (ACC) approved these modernization efforts, which will be complete in FY 2021.

Battle Control Center (BCC): Currently, the BCCs lack the ability to share information across different classification levels. ANG BCCs are in four locations; Alaska, Hawaii, Washington State, and New York. Due to aging infrastructure, the BCCs require continual modernization of C2 systems including beyond line-of-sight (BLOS) satellite communications (SATCOM) and integration of advanced sensors into existing radar architectures. Modernization of the BCC sensors to detect low flying, slow aircraft is critical for the BCC's ability to work collaboratively with Aerospace Control Alert fighter aircraft and ground-based air defense units to ensure the safety of this Nation. The constantly evolving advanced data link capabilities need to be incorporated into the BCCs and are required to pass critical tasking messages to perform integrated fire control. BCC Live Virtual Constructive/Distributed Mission Operations delivers reduced capabilities due to a lack of integration with 5th generation fighter systems. Along with advanced sensor integration, interagency and joint partnerships are critical to performing the Air Defense component of the Homeland Defense mission. A Cross Domain Enterprise Service would allow BCCs to integrate tactical data links, provide functional redundancy to the Air Event Information Sharing Service, integrate joint service tactical data links, and facilitate Defense Support of Civil Authorities through the Situational Awareness Geospatial Enterprise application. Current NGREA funding is providing simulators to facilitate Air Battle Manager crew training separate from the real world operations floor, in addition to upgrading data link terminals and SATCOM radios for the Alaska and Hawaii BCCs. Due to funding constraints and installation of systems, the BCC Modernization is expected to last 5-7 years.

Battlefield Airmen (BA): The BA weapon system is comprised of Combat Controller Teams (CCT), Guardian Angels (GA), Special Operations Weather Teams, and Tactical Air Control Parties (TACP). ANG continues to pursue solutions to close critical modernization gaps in BA. The top priority is the BA interoperable communications program, which provides BA with both enhanced situational awareness and communication capabilities. The unfunded requirement for interoperable communications equipment is expected to exceed \$10B, the ANG is forecasting to supplement the Air Combat Command battlefield equipment with NGREA funds for 14 TACP, 2 CCT, and 3 GA squadrons. ANG BA requires continuous modernization with coded spot

trackers, short-wave infrared devices, mission recording equipment, and tactical vehicles to remain viable and relevant as a Total Force partner. Optimal employment capability requires BA forces to have wireless solutions, improved night vision devices, advanced tactical headsets, and less-than-lethal weapons. The mission of GAs is not solely special operations; they contribute to daily rescue missions from home station, and require domestic or dual-use equipment.

C-130H: Legacy C-130H aircraft safety and compliance requirements are being addressed via Avionics Modernization Program (AMP) Increments 1 and 2. This includes Communication, Navigation, and Surveillance/Air Traffic Management (CNS/ATM) as well as Automatic Dependent Surveillance-Broadcast (ADS-B) to ensure global airspace access. The fleet is also exploring performance and fuel savings initiatives with a 3.5 engine upgrade proposal, while digitizing the electronic propeller controller system and upgrading propeller performance to a modernized, high performance eight-bladed propeller (NP-2000).

Additionally, the Single Pass Precision Airdrop (SPPAD) program has begun operational testing with the addition of a LITENING Pod to increase the accuracy and delivery of personnel and equipment. Improvements to the Real-Time Information in the Cockpit (RTIC) program are being integrated to increase data link capabilities. An upgraded radar warning receiver (ALR-69A) will be implemented on the fleet, which enhances operations in hostile environments.

C-130J: The C-130J requires the RTIC system, which will include upgraded hardware/software to provide an airborne Dynamic Retasking Capability and an integrated processor that will improve operational effectiveness. The RTIC system will be the baseline for SPPAD implementation to increase the accuracy and delivery of personnel and equipment during airdrop operations. Additionally, the ANG is integrating Block 20 Large Aircraft Infrared Countermeasures (LAIRCM) on the C-130J with a future plan to upgrade the system to Block 30 LAIRCM. The SPPAD assessment from C-130H testing and fielding will be utilized for similar upgrades to the C-130J.

C-17: C-17 operators, along with other mobility air forces operators, have identified the need for better, more reliable, means of communication between aircrew and C2 entities. The RTIC system will include upgraded hardware/software to provide an airborne dynamic re-tasking capability and an integrated processor that will improve operational effectiveness. These improvements include: integrated data link, upgraded satellite communications, and an electronic flight bag. To increase operational effectiveness in a hostile environment, the C-17 community has identified Block 30 LAIRCM as the most effective measure against man-portable air defense systems. To counter radar threats, the C-17 requires an upgraded digital radar warning receiver to defeat current and future radar threats. For deployment to austere operating locations, the C-17 has the ability to “tanker” in fuel for other airborne assets; however, they do not have the ability to offload the fuel. Forward air refueling point carts and equipment will enable the C-17 to stockpile fuel in forward areas for use by other coalition aircraft. Laser attacks are becoming more prevalent worldwide. A laser-resistant windscreen film has been developed to adhere to the windscreen in Mobility Air Forces (MAF) aircraft and protect the aircrew against dangerous laser pointers. The laser-resistant windscreen will protect aircrews from laser threats and also eliminate the need for personal laser eye protection.

C-32B: The C-32 community requires an enhanced Flight Vision System technology, which would enable the flight crew to operate with reduced weather minimums allowing improved placement and access for the aircraft's no-fail federal government crisis response mission.

C-40: To enhance C-40 employment capabilities during worldwide operations, an electronic flight bag has been identified as a mission-essential capability. The C-40 routinely operates in third world countries where access to critical flight publications is not always available. An electronic flight bag, coupled with an already integrated high-speed data internet capability, provides instant access to all required flight publications. An electronic flight bag eliminates the need for bulky and expensive paper flight publications.

Air Operations Centers (AOCs): The five ANG AOC weapon system baseline sites upgraded to Recurring Event 13 with Major Command provided funding supplemented with NGREA funds to bring the sites closer to combatant command AOC standards in terms of applications and information assurance. ANG-funded Joint Range Extensions have provided significant advantages to the Air Operations Group (AOG) distributed mission operations capability. A scaled Core Radio Package (CRP) for each of the ANG AOG sites will improve communication and maximize use of this tool. The CRP consists of multiple radios, antennas, and data-link functionality essential to operating Joint Range Extensions, ensuring continuity with AOG training. Failure to upgrade all ANG sites will adversely affect the AOG's ability to maintain mission-capable personnel due to incompatibility of C2 mission applications and deficiencies in data interoperability between AOGs and assigned AOC locations. Proposed upgrades include Recurring Event 13 and CRP, which are critical components for improving the AOGs ability to support their assigned geographic AOCs and enhance process integration within the AOC mission. NGREA funds are being applied towards procuring Cross Domain Solutions "SecureView" (\$600K) and Information Support Server Environment (ISSE) (\$5M).

Control and Reporting Center (CRC)/Air Control Squadron: The CRC capabilities are adapting to meet future C2 requirements while sustaining relevant systems through several efforts within this mission design series. Significant realignment of mission capabilities is projected to streamline battle management internal to C2 mission assets. For instance, there is currently insufficient funding to provide a permanent solution for the bed-down of the planned Operations Module (OM) modernized system at all units. Secondly, there are challenges in the housing and protection of tactical communication equipment in adverse environmental conditions. Thirdly, there are difficulties fulfilling live mission training requirements, as well as enabling an effective approach to support airframe and ground mission crew training scenarios. Previous NGREA funds were used to field The Integrated Digital Mission Recording and Playback system for the OMs. This represents a major forensics reconstruction capability allowing mission playback to mitigate current degradation in debriefing, safety, and training. ACC's efforts to maintain the AN/TPS-75 and replace it with the 3D Long-Range Radar (3DLRR) will fulfill mission requirements. The AN/TYQ-24A service life extension program (SLEP) and modernization program addresses critical mission shortfalls and urgent requirements identified in recent evaluations. Fielding of the AN/TYQ-24A is expected to be complete in Mid-2018. These efforts will ensure the CRC can meet any tasking requiring battle management/C2 capabilities. Continued mission requirement transformation outpaces planned upgrades to mission capabilities and SLEP of the AN/TPS-75 Radar leading to a \$33.7M shortfall. The estimated fielding timeline for the 3DLRR to ANG units is 2025.

Cyber Warfare (CW) and Information Operations: ANG is investing NGREA funds to equip nine ANG CW units with a Virtual Interconnected Training Environment (VITE) training capability. ANG continues to improve its cyber capabilities by equipping cyber units with the training equipment necessary to perform the mission. The Garrison Interceptor Platform and the VITE provide state of the art capability for training to defend critical infrastructure in a realistic environment. Phase 3 of VITE implementation is estimated to be complete by Jan 2019. The initial deliveries to ANG units was extremely positive.

Distributed Common Ground System (DCGS): The ANG has three fully functional multiple intelligence core sites in Indiana, Kansas and Massachusetts, three fully functional GEOINT sites Distributed Ground Station in Alabama, Arkansas and Nevada, along with two classic associate sites in California and Virginia. There are also three Distributed Mission Sites (DMS) in the ANG (DMS-Utah is a unit equipped site and two classic associates at DMS- Georgia and DMS-Hawaii.) The ANG is working Air Force Life Cycle Management Center (AFLMC) to resolve training shortfalls and is explore potential manning implications. Additionally, the ANG plans to utilize NGREA funds to modernize electronic-attack mitigation equipment at these sites. The modernization of exploitation workstations at the three legacy full-motion video only sites Alabama, Arkansas and Nevada was completed in FY16. However, overall equipment capabilities Campus Area Network/Local Area Network, Trusted Management Area Network, and associated infrastructure (switches and routers) remain outdated and in need of replacement or modernization. Open Architecture (OA) operational pilot program began in FY 2017 at Reno ANG Base, Nevada and Terre Haute ANG Base, Indiana. This pilot program is being used to prove the OA capability and lay the ground work for testing and accreditation at future locations. Otis Air National Guard Base continues to provide operational expertise in the development of OA with Air Force Research Lab. ANG continues to work with ACC and AFLMC to understand the operational and sustainment impacts with OA.

E-8C Joint Surveillance Target Attack Radar System (JSTARS): The ANG fully supports ACC in pursuing the recapitalization of JSTARS. To address current operational requirements the ANG continues to invest NGREA funds to accelerate modernization of the E-8C JSTARS platform. NGREA funding is delivering a Global Imagery Server, which provides imagery products in standard/native data formats, and is capable of storing and serving worldwide imagery data, which is layered with multiple geospatial data sources to support JSTARS battle management and surveillance. NGREA was also used to fund the maritime integrated Automatic Identification System, which identifies and locates vessels by electronically exchanging data with other nearby ships and vessel tracking services stations, greatly enhancing JSTARS's ability to distinguish between neutral and suspect maritime entities. The Integrated Broadcast System, which provides data feeds from airborne and overhead electronics intelligence collectors and allows JSTARS to detect and track a host of mobile threats, including enemy air defense and theater ballistic missiles assets, is being modernized using NGREA. NGREA is also being applied to upgrade the E-8C Weapon System Trainer, which will improve pilot simulator training in, among other things, air-to-air refueling. Current plans will use NGREA funding to provide an airborne Top Secret/Sensitive Compartmentalized Information connectivity by integrating Joint Worldwide Intelligence Communications System laptops onto the aircraft. To extend the E-8C's service life, the Air Force is procuring and installing kits for an upgrade of the primary mission equipment to resolve issues caused by diminished manufacturing sources. ACC

approved these modernization efforts, which will conclude when the JSTARS Recapitalization aircraft become available.

EC-130J: The ANG continues to work with Air Force Special Operations Command (AFSOC) to identify and field capability requirements. NGREA funding in FY 2015 and FY 2016 supported the Special Operations Forces Air Mission Suite-Enhanced Situational Awareness (SAMS-ESA) as well as a roll-on/roll-off capability. SAMS-ESA is the AFSOC solution to meet the enhanced situational awareness requirement. The roll-on/roll-off Special Airborne Mission Installation and Response (SABIR) system will be used to hold broadcast antennas/pods, which, in conjunction with the Removable Airborne Military Information Support Operations System, are necessary to achieve United States Special Operations Command's (USSOCOM) core competencies. Finally, ANG is working with AFSOC to procure a simulator for the ANG EC-130J.

Engineering: Shortages in firefighting, search and rescue, explosive ordnance disposal (EOD) equipment, water production kits, and Chemical, Biological, Radiological, Nuclear (CBRN) detection and support equipment continue to inhibit the ANG's ability to perform home station and overseas deployments, or provide support to civil authorities. The ANG is exploring a joint fielding of potable water production with the ARNG for pre and post disaster civil assistance. Initial estimate is \$5M to field one complete kit in each of the 10 Federal Emergency Management Agency (FEMA) Regions with one additional kit each for Alaska, Hawaii and Puerto Rico. There is a continued need for explosive detection devices and personal protective equipment for EOD. To mitigate this shortfall, the ANG has procured 19 man-portable robots, which will enhance reliability of remote-controlled robot systems, providing increased safety and survivability to ANG EOD personnel and local communities. Furthermore, the ANG has fielded state-of-the-art CBRN detection equipment to 90 Civil Engineer Readiness and Emergency Management Flights. This detection equipment fills a critical gap for detecting chemical agents in gaseous and vapor forms. ANG CBRN personnel have also identified the need for CBRN robots. CBRN robots will enable hazardous material response personnel to gather real-time readings in a hazardous material release area, reducing the risk of exposure to personnel. To enhance C2 operations during support to civil authorities and National Security Events, Emergency Management personnel have identified the requirement to modernize the 21 FEMA Type II Mobile Emergency Operations Centers.

Expeditionary Air Traffic Control: The 1950s analog-based AN/MPN-14K is still the primary ANG deployable Air Traffic Control system. It has received only minor radar upgrades since the 1980s. Sustainment of this legacy system is increasingly difficult, as many of the subsystems are no longer commercially available or produced. ANG will replace these legacy systems with a total of 10 AN/MPN-14K systems and 20 Deployable Instrument Landing Systems. The Deployable Radar Approach Control allows the safe sequencing and separation of aircraft and can be directly interfaced with the National Airspace System. It offers primary and secondary radar capabilities as well as a complete air-to-ground communications suite designed to conduct air traffic control operations in austere environments. The Deployable Instrument Landing System will replace Precision Approach Radar on the existing MPN-14K. The system will provide precision approach guidance to equipped aircraft with a decision height of 200 feet and ½-mile visibility. ANG is scheduled to reach initial operational capability (IOC) in FY 2019 and full operational capability (FOC) in FY 2026 with these systems (Deployable Instrument

Landing System IOC in FY 2018 and FOC in FY 2022 and the Deployable Radar Approach Control IOC in FY 2019 and FOC in FY 2026).

F-5C: ANG operates 58 percent of the F-15C/D fleet and CONUS units provide 31 percent of the Nation's Aerospace Control Alert (ACA) assets, spanning five alert sites and providing 24-hour homeland defense. Upgrading obsolete Mechanically-Scanned Array radars to modernized Active Electronically Scanned Array (AESA) radars on ANG F-15Cs provides combatant commanders essential updated air superiority and homeland defense capability, and remains the first priority for modernizing all ANG F-15C/D aircraft. The Air Force identified and validated defensive shortfalls in the Eagle Passive Active Warning Survivability System (EPAWSS) Capability Development Document, initiated development funding in FY 2013, and since removed EPAWSS production funding for F-15C aircraft with the recent FY 2018 Presidential Budget submission. Meanwhile, sustainment funding of the legacy Tactical Electronic Warfare Suite (TEWS) was terminated in FY 2012, leaving the Eagle with no current or planned electronic warfare system. Modernization upgrades for the Electronic Warfare suite and any interim solutions require the following capabilities: electronic warfare situational awareness improvements, self-protection capabilities that include radar cross-section reduction, infrared countermeasures, and defensive jamming, and offensive electronic attack. NGREA funds are being used to procure and install the hardware required to carry the critically important back-of-launcher high-capacity external countermeasures system. The third-highest modernization priority is the out-of-band multi-spectral search and track systems, such as Infrared Search and Track (IRST), enabling the F-15C to detect and track targets in highly-contested electromagnetic environments. Future capability to increase persistence and reduce workload on an already strained tanker fleet includes the addition of Conformal Fuel Tanks (CFTs). This ANG effort will integrate CFTs, demonstrate their operational utility, and directly support the United States Northern Command (USNORTHCOM) and United States Pacific Command mission of providing homeland defense by increasing fighter aircraft range and on-station time. With current and required future mission system upgrades, the legacy displays and communication architecture are inadequate due to display size, outdated technology, and minimal audio integration. Replacement of legacy displays in all (123)F-15C aircraft with larger color and smart color display systems increases ANG F-15C lethality by displaying offensive and defensive data more intuitively to the pilot. An updated helmet mounted cueing system will facilitate day to night transition missions and provide integrated night vision capability that decreases pilot fatigue by lowering the system weight and incorporating 3-dimensional audio. In response to a USNORTHCOM urgent operational need for BLOS communication capability for Alert aircraft, the ANG has worked with the system program office to field, with NGREA funding, an initial, standalone SATCOM capability that is now in need of proper integration.

F-16: The highest priority upgrade for the F-16 fleet continues to be sustainment and replacement of the current radar system. The aging, mechanically-scanned array radar continues to require significant sustainment and is ineffective in all but the most permissive of operational environments. While ANG continues to look at a means of replacing the most failure-prone components of the radar system with upgraded, digital components, the Air Force is working with OSD to field AESA radars on F-16s tasked with the ACA mission. The requirement to field AESA on ACA-tasked F-16s stems from an OSD-validated Joint Urgent Operational Need from USNORTHCOM. Upon fielding of this requirement, a determination will be made at the OSD level as to whether AESA should proliferate to a portion or all of the remaining F-16 fleet.

ANG is executing NGREA to fund the installation of secure line-of-sight (SLOS) and BLOS communications suites; higher data rate processors for vital systems upgrades; high-resolution Center Display Units; Helmet-mounted Integrated Targeting (HMIT) system; enhanced self-protection suites to include 3-dimensional audio; and the advanced identification, friend or foe (AIFF) combined interrogator transponder, a system acknowledged by USNORTHCOM as a critical requirement for homeland defense. In past years, ANG NGREA funding has supported Block 30 HMIT, Center Display Units, ALQ-213 processor upgrades, and Ethernet, X-mux, and the Commercial Fire Control Computer, which increases avionics processing power and bandwidth to enable carriage of advanced weapons, such as the small diameter bomb. The Air Force has, thus far, funded updates to the Operational Flight Program software required to support all of these systems, but all modification hardware and installs have been NGREA funded. Other NGREA funded acquisitions include Block 42 ALQ-213, Block 40 AIFF, and Block 40/50 joint helmet-mounted cueing system (JHMCS). Additionally, the radar warning receiver system (ALR-69) on pre-Block (25/30/32) and Block 42 F-16s is nearing obsolescence, and the replacement system (ALR-69A) is unfunded.

The ANG is pursuing ALR-69A as a modernization effort using Congressionally-appropriated funding, but initially only on aircraft equipped with the AESA radar system. To counter the proliferation of infrared-guided, man-portable, shoulder-launched surface-to-air missiles, the ANG is investigating procurement of an off-the-shelf pylon-mounted missile warning system for the ANG F-16 fleet. The ANG procured a second ARC-210 radio for pre-block F-16s to enable simultaneous SLOS and BLOS operations, and future capability includes a three-dimensional audio system to reduce pilot workload by synchronizing and spatially separating multiple radios. Link-16 Multifunctional Information Distribution System Joint Tactical Radio System (MIDS-JTRS) is also being funded by the ANG through NGREA as an advanced data link to help facilitate 5th-4th generation communication. The ANG is funding an integration effort to allow the use of the AN/ASQ-236 Synthetic Aperture Radar pod. This effort will allow the self-generation of high quality targeting coordinates in all weather conditions, day and night.

HC/MC-130: The ANG began the transition from the HC/MC-130 legacy to the HC-130J platform in FY 2017 with the first aircraft arriving at the 176th Wing in Alaska in May 2017. The program will replace thirteen legacy HC/MC-130s with twelve HC-130Js over the next three years. The 8.33 radio upgrade is necessary for the HC-130 to operate in the modern airspace structure. The Heavy Equipment Airdrop (HEA) upgrade included several modifications which enables the aircraft to drop larger payloads. In 2017, the 8.33 radio upgrade and HEA bins will complete installation on all aircraft.

HH-60G: ANG and the Air Force Reserves are working together to test and field the Blue Force Tracker 2 and Link-16 system to build the crews and C2 situational awareness. A Full Motion Video capability will be added to the aircraft with the procurement of Rover 6 for the HH-60. A Helmet Mounted Heads Up Display will provide, within the field-of-view of the aircrew, flight data as well as the geographic location of friendly, hostile, and survivor positions. An approved and funded initiative to replace HH-60s lost in combat will return the number of Air Force aircraft to 112 by FY 2020. The ANG will receive 18 of the refurbished HH-60Gs in 2018 to fill its authorized requirement.

KC-135: The KC-135 must be prepared to operate in high-threat areas of operation. To safeguard against man-portable air defense systems, the ANG is leading the integration of the Block 30 Large Aircraft Infrared Countermeasures system. Funding required to complete the LAIRCM Program, \$235.5M. RTIC provides a baseline for future growth to establish the KC-135 as a data relay platform when equipped with Link 16 and Tactical Data Link. RTIC was successfully demonstrated and is identified as a critical requirement on the KC-135. To reduce the risk of midair collisions, new external overt and covert lighting will be installed on the KC-135. Funding required to complete the RTIC Program, \$107.5M. The KC-135 operates in all temperature extremes. Currently, there is no internal ground cooling capability on the aircraft, and the flight deck temperatures can reach up to 160 degrees Fahrenheit in many deployed locations. The KC-135 ground cooling capability has been identified as a critical requirement to ensure mission requirements are achieved. Funding required for the ground cooling Program, \$8M. For future operations in contested GPS environments, a jam-resistant GPS will be essential to successful operations, and jam-resistant GPS is identified as a critical capability for the KC-135.

LC-130: The current modernization projects for the LC-130 aircraft are expected to be complete in FY 2020. All 10 of the LC-130s now have the Electronic Propeller Control System installed and an initial install of the NP2000 eight bladed propeller. This program is fully funded, and the ANG plans to procure additional propeller upgrades for other C-130 variants to maximize the benefits of significantly increased reliability and performance. The LC-130 will also be the first aircraft to receive the T56 3.5 engine upgrade - installations are planned for FY 2018. The SABIR articulating arm is operational on the LC-130 as a temporary modification, and ANG continues to work with the C-130 Program Office to make it a permanent roll-on/roll-off capability. The LC-130 Crevasse Detection Radar, which enables the pilot to identify and avoid crevasses in deep ice-field locations, is operational, but updates to the radar continue to improve its usefulness. ANG is also working closely with the National Science Foundation to streamline the process that enables the science community to use the LC-130 for research purposes. Use of innovative equipment that has minimal impact on the structure of the aircraft will speed the approval process and significantly reduce engineering efforts. Since the cost to replace these aircraft is unattainable under current fiscal constraints, the ANG plans to continue to operate this National Interest/Security Platform up to 2040. However, the LC-130 will require major modifications to ensure operational viability well into the future. The LC-130 is part of the current Air Force C-130 avionics update program and the ANG continues to emphasize the importance of this program so it will receive priority on the upgrade schedule and ensure the aircraft can meet its mission requirements.

Operational Training Infrastructure (OTI), Simulation and Range Instrumentation: OTI is the overarching training technology that encompasses and links all aspects of simulation, including Distributed Mission Operations and range instrumentation, into a virtual battlespace environment. The ability to connect simulators for mission rehearsal events and exercises adds a significant and required level of realism to simulator training.

The ANG procures simulators through Air Force programs as well as designing and building simulators in-house to meet training requirements. The ANG simulator programs recently fielded or funded include: 17 KC-135 Boom Operator Simulation Systems, 17 ANG Advanced Joint Terminal Attack Controller Simulation Systems, 17 C-130H Multi-Mission Crew Trainers

(MMCT), one HH-60G MMCT, 27 F-16C Mission Tactics Trainers, one RC- 26 Mission Sensor Operator Trainer, 4 Battle Command Center Battlespace Access Training Systems (BATS), 14 RPA MALET Joint Aircrew Trainers, and, technology as well as upgrades for the F-15 and F-16 unit simulators. Current OTI upgrades at the ANG's 12 air-to- ground ranges include high and medium fidelity surrogate target systems and advanced laser scoring systems. Simulators programed for delivery in FY17 include nine C-130 MMCTs and two BATS. In addition, the ANG initiated procurement of a high-fidelity, next generation C/EC/HC-130J Reconfigurable Weapons System Trainer (RWST) for delivery in FY19. The RWST will increase simulator training effectiveness for C-130J training by allowing aircrew from all C-130J variants to train in one simulator, significantly reducing costs. Finally, the ANG developed a Relocatable Simulator Shelter (RSS) project to provide a cost-effective, non-real property solution for the lack of on-base facilities to house new ANG simulators. The RSS is available in several sizes to house nearly all of the simulators in production.

MC-12: The MC-12 is a FY 2015 addition to the ANG that is owned by USSOCOM with AFSOC operational control, and flown by the Oklahoma ANG. ANG has coordinated with USSOCOM for the addition of FY 2016 funds to the overall system modernization plan. ANG NGREA will be put towards outfitting the ANG MC-12 aircraft with engine infrared (IR) signature suppressor and a high definition IR sensor in the existing electro-optical (EO)/IR sensor ball. All ANG modernizations for the MC-12 will be an easily installed, removed or a Roll on/Roll off capability for the 9 aircraft the ANG operate.

Medical: ANG has used NGREA funding to modernize its Expeditionary Medical Support (EMEDS) assemblages. Upgrades include deployable oxygen systems, tents, and other medical equipment. ACC Manpower and Equipment Force Packaging teams are modernizing the EMEDS sets' equipment authorizations and tailoring assets to rapidly deploy for a federal mission or a domestic response. Upgrading ANG EMEDS with new equipment ensures alignment of resources with the AC and enables the medical units to continue providing modern lifesaving, patient care, and treatment tools for medical first responders and the patients in their care. The 27 Chemical, Biological, Radiological, Nuclear, and High-yield Explosives (CBRNE) Enhanced Response Force Package (CERFP)/Homeland Response Force teams are often geographically separated from the mass casualty event and unable to provide the level of care needed in the initial hours of the event.

MQ-1/MQ-9: ANG has 12 Remotely Piloted Aircraft (RPA) units and one Classic Association unit. There are eight ANG RPA units without a simulator, and there is currently no established continuation training program for the RPA enterprise.

Additionally, as there is no established Continuation Training or Flying Hour Program for the RPA units in the CONUS, an additional Mission Simulator/Trainer is required at each ANG RPA unit. The MQ-9 has a single line-of-sight (LOS) radio and suffers from poor reception and up to a two-second satellite-relay delay. MQ-9 crews require access to multiple in-theater radios and direct voice access to key C2 players. A new communications suite should be an Internet Protocol (IP)-based communications solution that integrates intercom, LOS radios, and telephone into a single headset with three- dimensional audio. The system would also allow any Ground Control Stations (GCS) to talk directly to other geographically separated GCS.

Other identified capability gaps are mission debrief systems to enable aircrew to better capture operational experience and share with the community, an onboard data link for increased situational awareness and transfer of targeting information, and a deployable/mobile Launch and Recovery Element kit that includes a containerized GCS.

Lastly, the ANG continues to work with the Air Force operations and Army test communities to meet Federal Aviation Administration (FAA)-imposed sense-and-avoid requirements for RPA operations in the National Airspace System (NAS). This research and development effort will culminate in the fielding of a transportable ground-based sense-and-avoid system for both Army and Air Force RPA training and civil support missions in the NAS. While primarily designed for homeland training and operations, it will also provide significant deployable combat capability to combatant commanders. The Air National Guard has also partnered with United States Southern Command and Air Force Research Laboratory in a Joint Capability Test Demonstration for an airborne sense and avoid system on the MQ-9. If approved and funded, the ANG will be one of the primary transition partners for this effort.

RC-26B: Six Block 25 aircraft will be under contract soon to be modified to the Block 25R configuration with new Mission Management Software, an upgraded communication suite to include integrated civil support/law enforcement radio capability, a new modern EO/IR sensor turret, and BLOS data capability. FY 2017 funds were allocated to expand the Block 25R upgrade to the entire 13 aircraft fleet and continue spiral improvements to the Mission System, making the Block 25R the fleet baseline. FY 2017 funds were also allocated to modernize the avionics of the fleet and will incorporate global CNS/ATM compliance. Future plans include aircraft upgrades to allow the carriage of additional equipment for increased capabilities both onboard and in an external pod.

Security Forces (SF): The ANG is actively filling SF equipment shortfalls utilizing NGREA funds. Security Forces face an extremely high operations tempo with air expeditionary force deployments and missions in support of civil authorities. The completion of the less-than-lethal force kit procurement has positioned SF to address both state and combatant commander requirements when called into service. Recent and past active shooter events have highlighted the need for an enhanced response capability. Within the last year, the ANG has fielded active shooter kits for SF units, equipping 7,649 SF personnel supporting the 54 States and territories with the necessary level IV armor and medical kits to combat active shooter situations. Utilizing NGREA funding, the ANG has procured Surveillance, Target Acquisition, and Night Observation (STANO) equipment, close quarter combat training safety kits, and modernized a portion of the SF vehicle fleet to equip Security Forces Defenders to meet their Title 10 and domestic response missions. SF personnel have also identified additional equipment requirements that include, Law Enforcement Ensemble Kits (LEEK), Interoperable Radios, Use of Force Simulators, and Precision Engagement and Assessment Sensors that will enable SF Squadrons to provide mission ready Airmen. Additionally, the ANG's shortage of available ranges to conduct small arms qualification training degrades operational readiness for SF and Civil Engineers specifically, and for all ANG personnel preparing for deployment.

Space Operations: ANG is working in partnership with Air Force Space Command (AFSPC) in order to aggressively modernize key components. The 233 Space Group/137 Space Warning Squadron is entering conversion in 2017 as it replaces its legacy Mission Ground System

equipment with the Space Based Infrared System (SBIRS) Survivable/Endurable Evolution (S2E2). This critical equipment upgrade is crucial for operational viability. The 114 Space Control Squadron (SPCS) and 216 SPCS are in conversion and are accomplishing Operational Acceptance/Development Testing on the latest mission equipment. Additionally, ANG plans to modernize 20 Space semi-tractors needed by the 233 Space Group with their survivable missile warning and nuclear detonation detection mission. The semi-tractors are needed to mobilize SBIRS Mobile Ground Terminals (SMGT) and Universal Ground Nuclear Detection Terminals (UGNT). In the future, close coordination between AFSPC and ANG will be crucial to ensure the viability and readiness of ANG Space Operations units.

B. Changes since the Last NGRER

The continued budgetary restrictions and resultant cuts in defense spending present fundamental challenges to the sustainment, modernization, and recapitalization of the ANG's legacy equipment. The Air Force has been forced to make difficult decisions to meet operational requirements while under significant fiscal restraints. Accordingly, the Air Force has decided to invest heavily in fleet recapitalization and compliance initiatives, leaving some critical fleet modernization requirements and initiatives "below the line." ANG continues to work within Air Force and DoD requirements development, acquisitions, and test processes to ensure that ANG's fleet of aircraft is safe, modern, and fully integrated.

Provided below is a list of significant changes since the publication of the previous NGRER.

- F-35 Lightning II being established at 158th Fighter Wing, Burlington, Vermont.
- KC-46 Pegasus being established at 157th Air Refueling Wing, Pease, New Hampshire.

C. Future Years Program (FY 2019–FY 2021)

1. FY 2021 Equipment Requirements

Table 1 Consolidated Major Item Inventory and Requirements provides projected FY 2019–FY 2021 major equipment inventories and requirements.

2. Anticipated New Equipment Procurements

Table 3 Service Procurement Program–Reserve (P-1R) lists planned procurements for the ANG from the FY 2019 President's Budget request. *Table 4 NGREA Procurements* provides ANG planned NGREA procurements for FY16–FY18.

3. Anticipated Transfers from AC to ANG

Table 5 Projected Equipment Transfer/Withdrawal Quantities lists planned ANG transfers for FY 2019–FY 2021.

4. Anticipated Withdrawals from ANG Inventory

Table 5 also lists planned ANG major equipment withdrawals for FY 2019–FY 2021, including the force structure changes discussed in Section II, paragraph B of this chapter.

5. Equipment Shortages and Modernization Shortfalls at the End of FY 2020

ANG lines of effort focus on supporting the 21st Century Guard Airmen, War Readiness, and modernization and recapitalization of its weapon systems, equipment and vehicles to support both combat and civil support operations. Though not an all-inclusive list, some expected shortfalls for these lines of effort include F-15/F-16 AESA radars, Multi-Mission Design Series RTIC, and the C-130 Global Airspace Access and Modernized Cockpit Instrumentation. This document provides further clarification on equipment and modernization shortfalls anticipated through the end of FY 2021 in the description of individual weapons systems modernization in the preceding “Modernization Programs and Shortfalls” section of this chapter and in the “ANG Equipment Shortfalls” section in Appendix B.

Table 1 Consolidated Major Item Inventory and Requirements and *Table 8 Significant Major Item Shortages* provide ANG equipment inventories, shortfalls, and modernization requirements.

D. Summary

The ANG’s effort is guided by the 2018 Director of the Air National Guard’s Priorities and Lines of Effort: Readiness: Today’s Fight; 21st Century Guard Airmen; and, Build for Tomorrow’s Fight. Through the judicious expenditure of corporate Air Force funds, supplemented by the skillful and prudent application of NGREA, the ANG will continue to field relevant and ready forces. These forces provide ANG and Air Force planners significantly improved capabilities that contribute to both the federal and state missions. While some improvements were made to the equipment status of the ANG, ANG leadership continues to focus on improving the Air Force’s oldest legacy aircraft and major weapon systems to ensure ANG forces are capable of meeting our global security and domestic mission responsibilities. ANG leadership is committed to facing these challenges through prudent, well-researched, and forward thinking modernization efforts to provide the best value to the Total Force.

Consolidated Major Item Inventory and Requirements

NOTE: This table provides a comprehensive list of selected major equipment items. It provides the projected inventory quantity on-hand (QTY O/H) at the beginning/end of the selected fiscal year (FY). It also provides the quantity required (QTY REQ) to meet the full wartime requirements of the Reserve Component. In accordance with Title 10, the QTY REQ number provides the recommendation as to the quantity and type of equipment that should be in the inventory of each Reserve Component. FY 2018 unit cost estimates are provided by the Military Departments.

Nomenclature	Equip No.	Unit Cost	Begin FY 2019 QTY O/H	Begin FY 2020 QTY O/H	Begin FY 2021 QTY O/H	End FY 2021 QTY O/H	End FY 2021 QTY REQ
Air Refueling							
Air Refueling, KC-135R	KC-135R	\$53,100,000	139	140	140	140	140
Air Refueling, KC-135T	KC-135T	\$53,100,000	24	24	24	24	24
Air Refueling, KC-46A	KC-46A	n/d	12	12	12	12	12
Airlift							
Airlift, C-130H	C-130H	\$21,000,000	123	123	123	121	121
Airlift, C-130J	C-130J	\$61,664,000	16	16	16	26	26
Airlift, C-17A	C-17A	\$235,400,000	50	50	50	50	50
Airlift, LC-130H ¹	LC-130H	\$21,000,000	10	10	10	10	10
Electronic Warfare (EW)							
EW, E-8C	E-8C/AOT	\$221,700,000	13	13	12	12	12
EW, EC-130J	EC-130J	\$50,700,000	7	7	7	7	7
Fighter							
Fighter, A-10C	A-10C	\$13,000,000	85	85	42	42	42
Fighter, F-15C	F-15C	\$25,400,000	123	123	123	123	123
Fighter, F-15D	F-15D	\$24,400,000	14	14	14	14	14
Fighter, F-16C	F-16C	\$7,000,000	290	290	290	310	310
Fighter, F-16D	F-16D	\$7,200,000	45	45	45	45	45
Fighter, F-22A	F-22A	\$160,100,000	20	20	20	20	20
Fighter, F-35A	F-35A	n/d	2	20	20	20	20
Intelligence, Surveillance, and Reconnaissance (ISR)							
Reconnaissance, MC-12W ²	MC-12W	\$17,000,000	9	9	9	9	9
Reconnaissance, RC-26B	RC-26B	\$4,200,000	13	13	13	13	13
Operational Support							
Op Support, C-32B	C-32B	\$115,700,000	2	2	2	2	2
Op Support, C-40C	C-40C	\$75,500,000	3	3	3	3	3
Rescue							
Rescue, HC-130N	HC-130N	\$21,000,000	2	0	0	0	0
Rescue, HC-130P	HC-130P	\$21,000,000	3	0	0	0	0
Rescue, HH-60G	HH-60G	\$11,900,000	18	18	18	18	18
Rescue, HC-130J	HC-130J	\$70,400,000	8	12	12	12	12

Consolidated Major Item Inventory and Requirements

Nomenclature	Equip No.	Unit Cost	Begin FY 2019 QTY O/H	Begin FY 2020 QTY O/H	Begin FY 2021 QTY O/H	End FY 2021 QTY O/H	End FY 2021 QTY REQ
Miscellaneous Equipment							
MD-1A/B	MD-1A/B	\$1,600,000	31	31	31	31	31
MQ-9A	MQ-9A	\$8,700,000	24	24	24	24	24
(1) Four LC-130s are National Science Foundation (NSF)-owned.							
(2) MC-12Ws are United States Special Operations Command (USSOCOM)-owned.							

Average Age of Equipment

NOTE: This table provides the average age of selected major equipment items. The average age provides a projected average age of the fleet at the start of FY 2018.

Nomenclature	Equip No.	Average Age	Remarks
Air Refueling			
Air Refueling, KC-135R	KC-135R	56	
Air Refueling, KC-135T	KC-135T	57	
Airlift			
Airlift, C-130H	C-130H	28	
Airlift, C-130J	C-130J	12	
Airlift, C-17A	C-17A	17	
Airlift, LC-130H	LC-130H	32	
Electronic Warfare (EW)			
EW, E-8C	E-8C	48	
EW, EC-130J	EC-130J	17	
Fighter			
Fighter, A-10C	A-10C	36	
Fighter, F-15C	F-15C	34	
Fighter, F-15D	F-15D	33	
Fighter, F-16C	F-16C	27	
Fighter, F-16D	F-16D	29	
Fighter, F-22A	F-22A	12	
Operational Support			
Op Support, C-21A	C-21A	29	
Op Support, C-32B	C-32B	13	
Op Support, C-40C	C-40C	14	
Rescue			
Rescue, HC-130N	HC-130N	23	
Rescue, HC-130P	HC-130P	51	
Rescue, HH-60G	HH-60G	26	
Rescue, MC-130P	MC-130P	50	
Miscellaneous Equipment			
MQ-1B	MQ-1B	8	
MQ-9A	MQ-9A	6	

Service Procurement Program - Reserve (P-1R)

NOTE: This table identifies the dollar value of programmed equipment procurement as identified in the P-1R exhibit of the FY 2019 President's Budget Request. All values are costs in dollars and exclude ammunition procurements. Deliveries of procured equipment normally take one to two years before they arrive in the inventory; e.g., items procured in FY 2019 are expected to arrive in RC inventories in FY 2020 or FY 2021.

Nomenclature	FY 2019	FY 2020 ¹	FY 2021 ¹
Modification of Inservice Aircraft			
A-10	\$2,708,000		
F-15	65,689,000		
F-16	33,798,000		
F-22A	17,108,000		
C-17A	4,985,000		
C-130	4,643,000		
C-135	32,068,000		
H-60	13,991,000		
Aircraft Replacement Support Equipment	734,000		
Vehicular Equipment			
Passenger Carrying Vehicles	194,000		
Medium Tactical Vehicle	156,000		
Cargo and Utility Vehicles	247,000		
Joint Light Tactical Vehicles	372,000		
Security and Tactical Vehicles	97,000		
Special Purpose Vehicles	97,000		
Runway Snow Removal and Cleaning Equipment	303,000		
Base Maintenance Support Vehicles	1,998,000		
Electronics and Telecommunications Equipment			
Air Traffic Control and Landing System	24,640,000		
Theater Air Control Systems Improvement	9,856,000		
Air and Space Operations Center (AOC)	600,000		
Base Information Transport Infrastructure (BITI) Wired	1,270,000		
Tactical Communications-Electronic Equipment	25,766,000		
Base Communications Infrastructure	9,028,000		
Other Base Maintenance and Support Equipment			
Personal Safety and Rescue Equipment	335,000		
Mechanized Material Handling Equipment	1,887,000		
Base Procured Equipment	860,000		
Distributed Common Ground System (DCGS) - AF	14,300,000		
Total	\$267,730,000		

1. P-1R Exhibit for FY 2019 President's Budget does not provide projected procurement data beyond FY 2019.

National Guard and Reserve Equipment Appropriation (NGREA) Procurements

NOTE: This table identifies the dollar value of planned equipment procurements with the National Guard and Reserve Equipment Appropriation (NGREA). These funds are available for a three-year period from the year of appropriation. Deliveries of procured equipment normally take one to two years from date of procurement before they arrive in the inventory; e.g., items procured in FY 2018 would be expected to arrive in RC inventories in FY 2019 or FY 2020. All values are costs in dollars.

Nomenclature	FY 2016	FY 2017	FY 2018 ¹
FY 2016 NGREA Equipment			
Air Superiority / Global Precision Attack			
Advanced Targeting and Radar Enhancements	\$19,471,555		
Combat Air Forces (CAF) Avionics Upgrades	38,105,356		
CAF Defensive Systems Upgrades	12,133,676		
CAF Helmet Mounted Cueing System	20,702,567		
CAF Combat Operations Enablers	13,617,086		
Rapid Global Mobility			
C-130/KC-135 Tactical Data Link, Avionics, and Communications Upgrade	16,910,000		
C-130H/LC-130 Podded Sensors	14,762,270		
C-130H/J, KC-135, EC/HC/MC-130 Defensive Systems	36,793,622		
C-130H/LC-130 Enhanced Engine and Propulsion Systems	1,700,000		
C-130/KC-135 Interior/Exterior Night Vision Lighting	650,000		
Personnel Recovery / Special Operations			
HH-60G Communication, Avionics, Data Link, and Defensive Upgrade	12,036,964		
HC/MC/EC-130 Communication, Avionics, Cargo Compartment, Refueling, Engine, and Defensive System Upgrade	1,001,530		
EC-130 Avionics, and Defensive System Equipment	1,756,000		
Battlefield Airmen/Special Tactics/Guardian Angel/Joint Terminal Attack Controller Equipment	10,208,783		
Simulation / Distributed Mission Operations / Training			
Battlefield Airmen Simulators	3,837,256		
Mobility Air Forces (MAF) Simulators	2,475,000		
CAF Simulators	9,030,000		
Distributed Mission Operations / Live Virtual Construct	8,534,000		
ANG Range and Instrumentation Upgrades	2,654,000		
Command and Control (C2) Simulators (AOC, BCC, CRC, DCGS, JSTARS)	10,391,410		
Intelligence, Surveillance, and Reconnaissance (ISR) Simulators (RC-26, MC-12, RPA)	1,570,000		
Global Integrated ISR / Space Superiority / Cyberspace Superiority / C2 / Incident Awareness and Assessment			
Cyber Training Equipment/Cyber Operations Modernization	14,392,139		
Command and Control (C2) Systems and Comm/Links Modernization	8,736,572		
Space Systems and Training Equipment Upgrades	3,110,361		
MQ-1/MQ-9 Communications and Ground Station Upgrades	2,881,018		
MQ-1/MQ-9 Data Link, Advanced Podded Sensors and Systems	8,364,595		
MC-12W Communications, Avionics, & Sensors	6,000,000		
E-8C Joint Surveillance Targeting Attack Radar System (JSTARS) Communication and System Upgrade	7,512,000		

National Guard and Reserve Equipment Appropriation (NGREA) Procurements

Nomenclature	FY 2016	FY 2017	FY 2018 ¹
Agile Combat Support			
Logistics Support Equipment	22,068,200		
Logistics Test Equipment	538,250		
Mass Care Support Equipment	800,000		
Explosive Ordnance Disposal Robots and Equipment	1,658,866		
Emergency Management Equipment	7,943,757		
Security Forces Equipment and Vehicles	7,653,167		
<u>FY 2017 NGREA Equipment</u>			
Air Superiority / Global Precision Attack			
Combat Air Forces (CAF) Helmet Mounted Cueing System		\$7,500,000	
CAF Communications Suite Upgrade		9,900,000	
CAF Avionics Upgrades		21,696,000	
CAF Defensive Systems Upgrades		6,950,000	
Advanced Targeting and Radar Enhancements		10,000,000	
CAF Combat Operations Enablers		6,210,000	
Rapid Global Mobility			
Mobility Air Forces (MAF) Communications and Avionics		14,670,000	
MAF Defensive Systems		18,800,000	
C-130/KC-135 Interior/Exterior Night Vision Lighting		1,090,000	
Personnel Recovery / Special Operations			
HH-60G Communication, Avionics, Data Link, and Defensive Upgrade		11,425,000	
EC-130 Avionics, and Defensive System Equipment		1,750,000	
Battlefield Airmen/Special Tactics/Guardian Angel/Joint Terminal Attack Controller Equipment		10,516,126	
Simulation / Distributed Mission Operations (DMO) / Training			
MAF Simulators		10,475,000	
CAF Simulators		14,890,000	
Distributed Mission Operations / Live Virtual Construct Equipment		4,355,000	
ANG Range and Instrumentation Upgrades		1,601,000	
Command and Control (C2) Simulators (AOC, BCC, CRC, DCGS, JSTARS)		4,020,000	
Intelligence, Surveillance, and Reconnaissance (ISR) Simulators (RC-26, MC-12, RPA)		2,530,000	
Space, Cyber/Information Operations (IO), Command and Control (C2), and Intelligence, Surveillance, and Reconnaissance (ISR)			
Cyber Training Equipment/Cyber Operations Modernization		3,075,000	
Command and Control (C2) Systems and Comm/Link Modernization		14,075,000	
Space Systems and Training Equipment Upgrades		5,068,000	
Intelligence, Information, Imagery, Analysis, and Assessment Upgrades		300,000	
MQ-9 Communications and Ground Station Upgrades		2,850,000	
MQ-9 Data Link, Advanced Podded Sensors and Systems		5,000,000	
RC-26B Avionics, Communications and Sensor Upgrades		10,849,800	
E-8C Joint Surveillance Targeting Attack Radar System (JSTARS) Communication and System Upgrade		9,875,000	
Agile Combat Support			
Logistics Support Equipment		2,248,200	
Logistics Test Equipment		3,444,000	

National Guard and Reserve Equipment Appropriation (NGREA) Procurements

Nomenclature	FY 2016	FY 2017	FY 2018 ¹
Public Health and Medical Services Equipment		2,274,274	
Mass Care Support Equipment		3,276,000	
Explosive Ordnance Disposal Robots and Equipment		4,157,000	
Fire Fighting Equipment and Vehicles		1,729,600	
Emergency Management Equipment		4,000,000	
Security Forces Equipment and Vehicles		16,900,000	
Total	\$330,000,000	\$247,500,000	
1. Service FY 2018 NGREA equipment list was not available in time for publication in the NGRER. Equipment list for FY 2018 will be provided in next year's NGRER.			

Projected Equipment Transfer/Withdrawal Quantities

NOTE: This table portrays the planned equipment transfers (Active to Reserve), withdrawals (-), and decommissioning (-). Transferred equipment is commonly called "cascaded equipment," or equipment that is provided to the RC once the AC receives more modern equipment. Although this table highlights a three-year period, many Services will not know exact quantities of transfers or withdrawals until year of execution, due to the uncertainty of the procurement/delivery cycle of new equipment.

Nomenclature	Equip No.	FY 2019 Qty	FY 2020 Qty	FY 2021 Qty	Remarks
Air Refueling					
Air Refueling, KC-135R	KC-135R	+1			
Airlift					
Airlift, C-130H	C-130H			-2	
Airlift, C-130J	C-130J			+10	
Electronic Warfare					
EW, E-8C	E-8C		-1		
Fighter					
Fighter, A-10C	A-10C		-43		
Fighter, F-16C	F-16C			+20	
Fighter, F-35	F-35	+18			
Rescue					
Rescue, HC-130N	HC-130N	-2			
Rescue, HC-130P	HC-130P	-3			
Rescue, HC-130J	HC-130J	+4			

FY 2015 Planned vs Actual Procurements and Transfers

NOTE: This table compares planned Service procurements and transfers to the RC in FY 2015 with actual procurements and transfers. FY 2015 is selected as these are the most recent funds to expire. Because the procurement cycle is normally one to two years from funding to delivery, this table identifies only deliveries through the end of FY 2017. Procurement and NGREA columns reflect cost values in dollars.

Nomenclature	Equip No.	FY 2015 Transfers (# of items)		FY 2015 Procurements (\$s)		FY 2015 NGREA (\$s)	
		Plan	Actual	Plan	Actual	Plan	Actual
FY 2015 Planned Transfers & Withdrawals							
Airlift							
Airlift, C-17A	C-17A	+8	+8				
Airlift, C-5A	C-5A	-3	-3				
Electronic Warfare (EW)							
EW, RC-26B	RC-26B	-11	0				
FY 2015 Service Procurement Programs – RC (P-1R) Equipment							
Modification of Inservice Aircraft							
F-15				\$51,455,000	\$232,260,000		
F-16				30,000	0		
F-22A				15,537,000	13,007,000		
C-17A				23,170,000	14,722,000		
C-40				1,500,000	1,500,000		
C-130				4,166,000	30,686,000		
C-135				21,299,000	13,690,000		
H-60				1,907,000	370,000		
Aircraft Replacement Support Equipment							
				824,000	448,000		
Vehicular Equipment							
Passenger Carrying Vehicles				258,000	258,000		
Medium Tactical Vehicle				1,914,000	1,914,000		
Security and Tactical Vehicles				712,000	712,000		
Runway Snow Removal & Cleaning Equipment				1,874,000	1,878,000		
Electronics and Telecommunications Equipment							
Air Traffic Control & Landing System				2,025,000	1,905,000		
General Information Technology				3,709,000	3,709,000		
AF Global Command & Control System				10,090,000	10,090,000		
Theater Battle Management C2 System				150,000	150,000		
Air & Space Operations Center - Weapon System				1,752,000	1,752,000		
Information Transport Systems				0	5,490,000		
Tactical Communications-Electronic Equipment				1,288,000	1,288,000		
Base Communications Infrastructure				13,334,000	13,334,000		
Communications & Electronics Modifications				1,416,000	1,416,000		

FY 2015 Planned vs Actual Procurements and Transfers

Nomenclature	Equip No.	FY 2015 Transfers (# of items)		FY 2015 Procurements (\$)		FY 2015 NGREA (\$)	
		Plan	Actual	Plan	Actual	Plan	Actual
Other Base Maintenance and Support Equipment							
Night Vision Goggles				2,714,000	2,714,000		
Mechanized Material Handling Equipment				2,645,000	2,645,000		
Contingency Operations				5,448,000	5,448,000		
<u>FY 2015 National Guard and Reserve Equipment Appropriation (NGREA) Equipment</u>							
Combat Air Forces (CAF) Communications Suite Upgrade						\$24,571,900	\$5,563,569
CAF Defensive Systems Upgrades						21,760,243	21,604,479
CAF Avionics Upgrades						21,375,000	19,375,000
CAF Combat Operations Enablers						15,600,000	28,568,390
CAF Advanced Identification Friend or Foe (AIFF), GPS, and Sensor Enhancements						9,820,400	9,400,000
CAF Simulators						7,930,000	10,072,601
CAF Helmet Mounted Cueing System						5,233,350	9,902,300
C-130 / KC-135 Tactical Data Link, Avionics, and Communications Upgrade						25,400,000	18,180,120
C-130H/LC-130 Podded Sensors						16,500,000	8,940,000
C-130H/J, KC-135, EC/HC/MC-130 Defensive Systems						13,000,000	22,970,124
C-130H / LC-130 Enhanced Engine and Propulsion Systems						16,100,000	4,231,926
C-130 / KC-135 Interior/Exterior Night Vision Lighting						6,925,000	0
C/EC/HC/MC-130J Simulator						20,000,000	23,000,000
HC/MC/EC-130 Communication, Avionics, Cargo Compartment, Refueling, Engine, and Defensive System Upgrade						9,300,000	5,000,783
EC-130 Avionics, and Defensive System Equipment						1,500,000	1,960,847
C-130 Mission Crew Trainer						800,000	800,000
KC-135 Boom Operator Simulator System (BOSS) / Flight Deck Simulator Upgrade						181,000	120,000
RC-26B Avionics, Communications, and Sensor Upgrade						19,085,000	59,000
Aircraft Support Equipment						17,300,000	10,519,625
Special Tactics/Guardian Angel Joint Terminal Attack Controller Equipment						16,483,521	33,915,714
Command and Control (C2) Systems and Communication/Links Modernization						15,557,200	12,620,033
Flight Line and Back Shop Advanced Logistics Equipment						15,530,000	1,569,205
Security Forces Equipment and Vehicles						12,453,200	19,400,065
HH-60G Communication, Avionics, and Defensive Upgrades						10,895,368	14,732,804
HH-60 / RC-26 Aircrew Procedures Trainer						1,000,000	1,000,000
Logistics and Vehicle Equipment						10,329,195	9,129,852
Emergency Management Equipment						9,677,857	10,817,995
C-17 Extended Range Tank Install						8,504,320	8,659,389
MQ-1 / MQ-9 Communications and Ground Station Upgrades						8,172,400	9,945,400
Advanced Targeting and Radar Enhancements						7,502,677	51,940,766
Mass Care Support Equipment						7,400,000	8,657,669
Space Systems and Training Equipment Upgrades						6,250,000	1,727,767
MQ-1 / MQ-9 Data Link, Advanced Podded Sensors and Systems						4,500,000	8,308,949
Civil Engineering Equipment Upgrades						4,430,956	4,057,515
Public Health and Medical Services Equipment						4,140,140	1,887,705
E-8C Joint Surveillance Targeting Attack Radar System (JSTARS) Communication and System Upgrade						4,000,000	4,779,395
Joint Terminal Air Controller (JTAC) Simulators with ARCNet Gateways						3,032,000	2,882,000

FY 2015 Planned vs Actual Procurements and Transfers

Nomenclature	Equip No.	FY 2015 Transfers (# of items)		FY 2015 Procurements (\$s)		FY 2015 NGREA (\$s)	
		Plan	Actual	Plan	Actual	Plan	Actual
Distributed Mission Operations Equipment						2,350,000	357,399
ANG Range and Instrumentation Upgrades						2,260,000	1,736,798
Command and Control Training Equipment						2,026,800	895,000
Fire Fighting Equipment and Interoperable Communications						2,004,200	869,816
Fire Fighting Vehicles						1,205,281	0
ISR and Targeting Simulation						1,318,000	840,000
Intelligence, Information, Imagery, Analysis, and Assessment Upgrades						1,137,000	0
Cyber Training Equipment / Cyber Operations Modernization						457,992	4,000,000
Total				\$169,217,000	\$361,386,000	\$415,000,000	\$415,000,000

Major Item of Equipment Substitution List

NOTE: This table identifies equipment authorized by the Service to be used as a substitute for a primary item of equipment. The table also identifies whether or not the item is deployable in wartime. This data meets the Title 10 requirement to identify substitutes that are not the most desired equipment item.

Required Item Nomenclature	Reqd Item Equip No.	Substitute Item Nomenclature	Substitute Item Equip No.	FY 2019 Qty	Deployable?	
					Yes	No

**Service Does Not Use Substitution to Satisfy Major Item
Equipment Requirements**

Significant Major Item Shortages

NOTE: This table provides a RC top ten prioritized (PR) shortage list for major equipment items required for wartime missions but which are currently not funded in the FYDP. It lists the total quantity required, the total unfunded requirement, the individual item cost, and the cost of the unfunded portion. This data is consistent with other unfunded equipment data submitted by the Service.

PR	Nomenclature	Total Req'd	# Items Short	Item Cost	Total Shortage Cost	Rationale/Justification
1	F-16 AESA Radar Test and Initial Fielding (Phase 1)	24	24	\$10,750,000	\$220,900,000	ANG F-16 Block 25/30/32/40/42/50/52 aircraft require Active Electronically Scanned Array (AESA) radars to effectively execute doctrinally tasked mission sets including homeland defense. AESA radars provide a critical capability for Aerospace Control Alert (ACA) F-16s to detect and track multiple airborne targets of interest in dense civilian air traffic environments near major population centers. AESA radars will improve the capability of ANG F-16s in diverse mission sets, including close air support, surface attack, and defensive counter-air. Additionally, AESA radars eliminate several components associated with mechanical radars, thus improving reliability and reducing sustainment costs.
2	C-130 Avionics Modernization Plan (AMP) Phase 1 and 2	147	147	\$8,000,000	\$1,380,000,000	This two phase program will first upgrade the C-130H fleet to comply with Federal Aviation Administration (FAA) Communication, Navigation, Surveillance / Air Traffic Management (CNS/ATM) requirements. These upgrades meet International Civil Aviation Organization 2020 requirements. AMP Phase 2 will upgrade analog displays to glass displays and provide the digital backbone necessary to allow continued modernization of the C-130H. Additionally, planned upgrades to navigation systems, defensive systems, and flight management hardware/software will provide operational effectiveness well into the future.
3	Mobile/Deployable Remotely Piloted Aircraft (RPA) Sense and Avoid Capability	9	9	\$2,500,000	\$22,500,000	The current Remotely Piloted Aircraft (RPA) configuration and equipment, along with international and FAA safety requirements, limit the ability to operate RPAs in international and domestic airspace. RPA flight operations require specific, International Civil Aviation Organization (ICAO), FAA, or foreign approvals, which restrict aircraft airspace routing and altitude. These restrictions inhibit aircrew training and degrade operational flexibility during Federal and state missions. An RPA operating with a Ground-Based Sense and Avoid (GBSAA) system meets the requirement of collision-avoidance contained in the ICAO Rules of the Air and FAA Federal Aviation Regulations (FAR). GBSAA systems incorporate low cost commercial off-the-shelf active radar sensors to provide ANG with an affordable, scalable, and transportable sense and avoid system.
4	Multi-Mission Design Series Real Time Information In the Cockpit (RTIC) for KC-135 Aircraft	170	170	\$750,000	\$154,500,000	Provides secure line-of-sight and beyond line-of-sight radios and data link to enable KC-135 aircrews to participate in network-centric operations. Provides continuous positions of friendly and hostile forces to expedite mission execution. Enables rapid re-tasking of aircraft to maximize efficiency of refueling operations.

Significant Major Item Shortages

PR	Nomenclature	Total Req'd	# Items Short	Item Cost	Total Shortage Cost	Rationale/Justification
5	C-130 Propulsion Improvements	147	147	\$7,750,000	\$1,279,250,000	Provides efficiency and performance improvements for the C-130H model aircraft. Although the overall size of the H-model fleet may decrease over time, the ANG will continue operating this aircraft for the foreseeable future. As a result the C-130H can and should have an established modernization program for all aspects of the weapon system. Propulsion modernization is three different initiatives including the 3.5 engine upgrade, NP2000 eight-bladed propeller, and the Electronic Propeller Control System (EPCS). The 3.5 engine program updates the compressor and turbine stages of the T56 engine, and the resulting engines provide a 10% fuel savings and a 24% improvement in time on wing. The NP2000 eight-bladed propellers improve takeoff performance and low speed power, and significantly reduce maintenance requirements and deployed spares. The EPCS replaces mechanical control systems with digital controls that improve accuracy, eliminate all planned maintenance, and significantly improve the reliability of the components. When combined, these systems will improve the overall efficiency, improve the performance, and extend the life of the T56 engines.
6	Digital Radar Warning Receiver (RWR) (C-130/F-16/C-17)	298	298	\$735,000	\$219,030,000	ANG aircraft perform demanding missions in close proximity to radio frequency (RF) based threats. Combat plans rely heavily on airlift for logistical support to front-line troops, requiring mobility aircraft to operate closer to adversary RF surface-to-air missile systems. At present, ANG C-130Hs have limited to no RF detection capability, and ANG C-17s currently do not have onboard radar warning receiver (RWR). The current F-16 Block 40/42/50/52 electronic warfare (EW) suite processor computers were designed in the 1980s and are not configured to provide advanced EW systems integration. Increased situational awareness is needed to correlate onboard and off-board threat detection, terrain masking, and optimized dynamic rerouting capabilities to avoid or minimize exposure to threats. A RWR with geolocation capability in dense RF environments is critical for all ANG C-130H, C-130J, and C-17 aircraft. A fully automated and integrated electronic attack suite processor enables ANG Block 40/42/50/52 F-16C aircraft to fully integrate existing and planned upgrades to the F-16 EW suite.

Significant Major Item Shortages

PR	Nomenclature	Total Req'd	# Items Short	Item Cost	Total Shortage Cost	Rationale/Justification
7	F-15 Conformal Fuel Tanks	115	115	\$3,700,000	\$425,500,000	Adding conformal fuel tanks (CFTs) and additional weapons stations to the F-15C/D provides the single greatest impact to combat operations planning for air dominance through 2040. These modifications are vital elements of the Air Component Commander's ability to deliver persistent, lethal air superiority. CFTs enable one formation of F-15s to provide nearly twice the normal duration of coverage in contested environments without the need for air refueling support or landing to reload weapons. CFTs also streamline weapons development and integration for all versions of F-15s through standardized weapons communication, thereby enabling the exploitation of rapid evolutions in weapons development throughout the F-15 fleet. Combatant commands can quickly exploit the advantages of a common F-15 fleet if all aircraft readily accommodate advanced weapons or off-the-shelf defensive countermeasure upgrades, such as a pylon-mounted fiber-optic towed decoy. With an aging air refueling fleet, anti-access/area denial (A2AD) challenges, and a decreasing number of air dominance platforms, F-15 CFTs help to mitigate the impact of these critical limitations.
8	Mobility Air Forces (MAF) Simulators	16	16	\$8,425,000	\$134,800,000	The ANG currently has 23 C-130 wings but only possesses one high fidelity simulator. In order to meet training requirements, a mix of both high and medium fidelity simulators are required, including 3 additional C-130J Reconfigurable Weapon System Trainers (RWST), 2 additional C-130H Weapon System Trainers (WST), 8 additional C-130H Multi-Mission Crew Trainers (MMCT), and 3 C-130J Multi-Mission Crew Trainers.
9	Targeting Pod Upgrades	250	250	\$920,000	\$230,000,000	The ANG utilizes a large number of advanced targeting pods (ATP) across multiple aircraft types. ATPs give ANG aircraft precision targeting capability and the ability to get accurate coordinates of objects of interest, the ability to observe areas of interest, and an improved navigation capability, day or night. The ANG plans to utilize ATP capabilities on additional platforms. The ANG is also evaluating several ATP upgrades that will allow improved communications and sensing. ATP upgrades allow ANG platforms to take advantage of the new capabilities without incurring expensive Group A aircraft modification costs. ANG's goal is to obtain an open architecture in all of its ATPs. This will allow the utilization of available space for the latest technological advances and the ability to adapt ATPs to tomorrow's needs. Open architecture ATPs will also allow easy swapping of an ATP's components and software, thereby changing its capabilities based on mission requirements. ANG requires new ATPs for aircraft that do not have them, and modification of its current ATP inventory with new open architecture.

Significant Major Item Shortages

PR	Nomenclature	Total Req'd	# Items Short	Item Cost	Total Shortage Cost	Rationale/Justification
10	RPA Ground Control Station (GCS) Modernization	34	34	\$353,000	\$12,002,000	The MQ-1/9 cockpit, referred to as the Ground Control Station (GCS), was originally designed only as a test control station for new Remotely Piloted Aircraft (RPA) technology. Without further development of the cockpit system, urgent operational and combat needs pressed it into service as the actual operating console for the GCS. The inefficiencies of the GCS cockpit limit aircrew ability to fly the aircraft and manage the mission. The GCS's awkward human machine interface has been the cause of aircraft accidents, mission effectiveness degradation, and mission failure.

III. Air Force Reserve Overview

The average age of the Air Force fleet is 27 years old, and the Reserve fleet is, on average, nine years older. Recapitalization is essential to ensure the AFR remains combat-ready today and relevant for tomorrow's fight.

- Lt Gen Maryanne Miller, Commander Air Force Reserve

A. Current Status of the Air Force Reserve

1. General Overview

For 70 years, this nation has called on the Air Force Reserve to support national security objectives in all types of military and humanitarian operations around the globe. Today nearly 70,000 Reserve Airmen, across 71 locations, are postured to respond to any crisis or contingency when needed. In fact, on any given day, there are currently 6,000 Air Force Reservists on active duty orders operating in air, space, and cyber domains, supporting overseas contingencies and other stateside operations. In order to remain viable for today's fight and postured for tomorrow's, it is critical the AFR not only sustain but improve its readiness and ensure it integrates into key mission sets to support the joint fight. However, constrained defense budgets and a lack of fiscal stability stress AFR readiness levels and threaten its ability to reach and sustain full-spectrum readiness.

Top Air Force Reserve Equipment Focus Areas

- **Aircraft Modernization** to maintain readiness and compatibility to support the Combatant Commanders
- **Recapitalization of AFR HC-130 Fleet**, the only fixed wing Personnel Recovery platform in the AF inventory
- **Diminishing Manufacturing Sources** negatively impact the necessary repair capability to maintain readiness
- **Vehicles & Support Equipment** have been chronically underfunded to accommodate other modernization efforts
- **Training Simulators** must keep pace with aircraft modernization and force structure changes to best produce mission ready aircrew

Weapon system sustainment baseline funding has been below 80 percent for the past few years. Additional Overseas Contingency Operations (OCO) funding takes AFR's sustainment funding to what is considered a low risk posture, but weapon systems remain stressed due to aging fleets, depot modifications, corrosion, and supply issues. The average age of the AFR fleet is 36 years old, nine years older than the AC's fleet. Modernization would help solve AFR's legacy aircraft supply chain and test equipment issues, so funding of requested Reserve modernization projects, even in this fiscally constrained environment, must be a top priority until aging systems are replaced. AFR's current efforts revolve around upgrading legacy systems to enhance situational awareness and improve combat effectiveness. These upgrades ensure the AFR maintains its combat capability and interoperability with the active component and improves its ability to provide combat-ready forces while making the most efficient use of precious resources and dollars. Within the Combat Air Forces (CAF) fleet, we are facing non-current fielding issues as the F-16 bridges the gap until the F-35 reaches full operational capability. As the Air Force revitalizes its readiness and expands into new mission sets, we must concurrently field the same

Mission Design Series (MDS) to allow for synchronized training and resources. The key to success in achieving balance between today's fight and tomorrow's threat is investing in the right equipment and the right manning, and maintaining stable and predictable funding.

In spite of funding instability and the need for modernization, the AFR fleet of 315 aircraft stands ready. Across 45 flying units, in both the MAF and CAF, as well as 620 supporting units spanning all aspects of Agile Combat Support (ACS), the Air Force Reserve will continue to meet the demands of a dynamic and volatile threat environment while supporting the joint warfighter with the highest level of service.

a. Mobility Air Forces

54 percent of the AFR capability exists in the MAF, which contributes a significant number of aircrews in diverse mission areas at the highest levels of force readiness. Of the Air Force's total mobility competencies, the AFR contributes 18 percent of aerial refueling, 18 percent of tactical airlift, 60 percent of Aeromedical Evacuation, 33 percent of Air Mobility Operations Squadrons, 25 percent of Air Force aerial firefighting, 50 percent of Special Airlift Mission capability, 56 percent of the Airlift Control Flights, 100 percent of the C-5 Formal Training Unit (FTU) pipeline, 100 percent of Air Force aerial spray mission, and 100 percent of the Air Force's weather reconnaissance mission.

C-5: The AFR currently possesses 11 C-5 Galaxy aircraft and will grow to 16 Total Aircraft Inventory (TAI) in 2018 with the completion of the Reliability Enhancement and Re-engining Program (RERP), marking the entire inventory's conversion to the C-5M. This effort marks the first major upgrade of AFR's C-5 fleet in its 30 year service life. Based on projected mission effectiveness gains of this conversion, the AFR's fleet was cut in half, from 32 to 16 aircraft, split between the two unit-equipped operating bases in Westover Air Reserve Base (ARB), MA, and Joint Base San Antonio Lackland (JBSA Lackland), TX. JBSA Lackland is home to the Air Force's only C-5M FTU, supporting pipeline aircrew training for the entire fleet, and the smaller fleet size limits aircraft availability to support training making it more reliant on simulators. The C-5M conversion is the quintessential example for how aircraft simulator modernization, or lack thereof, impacts readiness. The funding for simulator modernization is currently programmed through the lead command, Air Mobility Command (AMC). It requires additional time and added complexity for coordination within Military Construction (MILCON) appropriations, often leaving the AFR to rely on NGREA funds to purchase capacity in the short term.

C-17: The C-17A Globemaster III provides the Air Force with inter-theater and intra-theater airlift. The AFR owns 18 C-17s, with an additional eight projected to transfer in 2019 to Pittsburgh ARB, PA, a previous C-130 unit. With this unit re-missioning, infrastructure, to include aircraft simulators, and C-17 support equipment must be purchased to ensure aircrew and maintainer training and proficiency in support of mission readiness.

C-130H: The C-130H Hercules is a multi-role cargo platform that now resides completely in the ARC. The AFR owns and operates 48 C-130H aircraft, 26 percent of the fleet, and provides Modular Airborne Firefighting System capability and Modular Aerial Spray System (MASS) capability, in addition to its cargo carrying and delivery roles. The MASS is tasked as the only large area fixed-wing aerial spray capability within DoD to control disease-carrying insects, pest insects, and oil spill dispersal, and its capabilities were used extensively in Hurricane Harvey

relief. The platform requires AMP upgrades to comply with international airspace regulations, and this legacy system is further exacerbated by parts obsolescence in some of the air cooling fan components used to regulate avionics systems; all of this impacts the aircraft's availability to operate, not just internationally, but particularly in hot and austere locations that do not have ground support equipment.

C-130J: The C-130J is the latest and most technologically advanced model of the C-130, with increased fuel efficiency, greater range, and increased reliability and maintainability than previous models. The AFR owns ten C-130Js and ten WC-130J aircraft residing with the 403rd Wing stationed at Keesler AFB, Mississippi. Unique to the AFR, the 53rd Weather Reconnaissance Squadron provides ongoing Hurricane Hunter support to National Hurricane and National Winter Storm operation plans. In 2017, the AFR's WC-130Js proved instrumental in simultaneously tracking Hurricanes Harvey, Irma, and Marie, affecting Texas, Louisiana, Florida, the Caribbean Islands, and several other gulf and eastern seaboard states. These aircraft will also need modernization of communications, navigation, and surveillance capabilities to meet future air traffic management and flight safety standards. AFR is currently funding a software upgrade to the Aerial Reconnaissance Weather Officer station but still requires a real time radar image transmission capability to best serve the weather community.

KC-135R: The KC-135R Stratotanker provides air refueling, airlift, and aeromedical evacuation capabilities. The AFR owns 72 KC-135R aircraft, 18 percent of the total force fleet that just celebrated its 60th year of flight. The tanker fleet is one of the most heavily tasked in support of current overseas contingency operations, as well as at home to act as a force extender to other aircraft getting to or coming home from the fight. In anticipation of KC-46 conversions and KC-10 divestiture, the AFR postured its existing KC-135 fleet to better support the warfighter. However, limited resourcing has adversely impacted the AFR's ability to become fully operational at Niagara ARB, NY, and Beale AFB, CA, due to lack of support equipment and supply spares.

C-40C: The C-40C provides worldwide air transportation for the Executive Branch, congressional members and delegations, DoD officials, high-ranking U.S. and foreign dignitaries, as well as other numerous operations support needs. The AFR owns and operates four C-40C aircraft, 36 percent of the total fleet, all residing at the 932nd Airlift Wing, Scott AFB, Illinois.

b. Combat Air Forces

Approximately, six percent of the Air Force's CAF structure resides in the AFR. Currently, the AFR capabilities include B-52H, A-10C, F-16C, HH-60G, HC-130P, and Guardian Angel units. The AFR associates with the AC in the operation of F-15C/D, F-22, F-35, and B-1B weapon systems. While the AFR does not own hardware in these operational areas, we still have equipping requirements for the pilots who operate these aircraft.

B-52: The B-52H Stratofortress serves as the workhorse of the conventional bomber fleet, possessing intercontinental range and a large, diverse weapons payload. The AFR operates 18 B-52 aircraft, 24 percent of the AF fleet, assigned to the 307th Bomb Wing, Barksdale AFB, LA. Currently, the 307th Bomb Wing is the only unit that produces new aircrew for this aircraft through their FTU, providing 100 percent of the formal training for B-52 aircrew combat

employment. As expected on a 60 year old platform, parts obsolescence and diminishing manufacturing sources plague the community, costing valuable aircraft availability to enhance mission readiness. As this platform is projected to exceed the 100 year mark, it's critical to modernize and regularly reconstitute the fleet, as well as solve parts sustainment issues.

A-10: The A-10C Thunderbolt II is a multi-role ground attack fighter. The AFR owns 55 A-10 aircraft, 19 percent of the AF fleet, between Whiteman AFB, MO, and Davis-Monthan AFB, AZ. The ongoing debate about the future of the A-10 platform has created programmatic uncertainty to modernize and even sustain the fleet. In the current funding program of record, only 30 of the 55 AFR aircraft will receive critical wing upgrades necessary to enable their continued combat employment. This decrease in training asset and aircraft availability will not only reduce pilot readiness but will further complicate gaining Close Air Support (CAS) proficiency of our Battlefield Airmen.

F-16C: The F-16C Fighting Falcon provides air-to-air and air-to-ground combat capabilities in a single-engine multi-role tactical fighter aircraft. The AFR owns 54 F-16s, just under 6 percent of the total fleet, residing at Naval Air Station Joint Reserve Base, Ft. Worth, TX, and Homestead ARB, FL. The AFR also teams with Air Combat Command to provide over 600 Reservists to man three classic associate units at Luke AFB, AZ, Hill AFB, UT, and Shaw AFB, SC. The AFR's aircraft are the oldest in the fleet at 30 years old, and are on average, 3-6 years older than the other components. The AFR fleet are all "pre-block" aircraft, meaning that they do not have as robust an avionics suite and radar capability, limiting their battlespace awareness and usefulness in a mixed fleet fight, particularly against 5th generation aircraft. Currently, the AFR fleet is not projected for the service life extension program, instead opting to recapitalize the mission through replacement with other weapons systems. While outside the FYDP, the current service life projection expires prior to new aircraft delivery, driving us to look at select modernization through radar upgrades to maintain relevancy to the combatant commanders.

HH-60G: The HH-60G Pave Hawk's mission is to conduct day or night operations into hostile environments to recover downed aircrew or isolated coalition personnel. The AFR owns 15 HH-60G aircraft, 15 percent of the total fleet, residing at Patrick AFB, FL, and Davis-Monthan AFB, AZ. At 26 years old, the current aircraft have limited command and control capability, which hampers the ability for personnel recovery, inter-fly with attack assets, and joint interoperability. Additionally, the current offensive and defensive capabilities are insufficient to survive major combat operations without extensive force packaging.

HC-130N: The HC-130N is the only dedicated fixed-wing Personnel Recovery platform in the Air Force inventory. The HC-130N provides air refueling of recovery force helicopters and tactical delivery via airdrop or air-land of rescue personnel watercraft, all-terrain vehicles, and direct assistance in advance of recovery vehicles. The AFR inventory is currently zero based on four aircraft (HC-130P variants) being retired due to long standing corrosion and maintenance issues. However, four HC-130N models are on loan from the Alaska Air National Guard at Patrick AFB, FL, and will remain there until they retire as part of the HC-130J recapitalization plan. The AFR is scheduled to recapitalize the fleet in early FY20 as they begin receiving HC-130J aircraft. The unit is programmed to operate a total of six aircraft but funding for the sixth HC-130J has not been secured to date.

Guardian Angel (GA): Guardian Angel is subset of the Battlefield Airmen weapon system consisting of Combat Rescue Officers (CROs), Pararescuemen, and Survival, Evasion, Resistance, and Escape (SERE) specialists operating together to provide a dedicated capacity to locate and recover isolated personnel in support of Combat Search and Rescue (CSAR) and Personnel Recovery (PR) programs. The AFR GA personnel and equipment are assigned to Patrick AFB, FL, Davis-Monthan AFB, AZ, and Portland International Airport, OR. These units do not possess their own aircraft and so must advocate through the other platforms that carry them to ensure their priorities are taken into consideration. Equipping this function is often treated like equipping pilots in associate units, and it is more sensitive to programming fluctuations and budget shortfalls.

c. Agile Combat Support

Agile Combat Support enables all other Air Force core functions by providing the essential capabilities and functions to deploy, establish, operate, and maintain operations of an airbase along with the associated services (sustain), and recover coalition air and space forces. The AFR provides deployable combat support and mission generation capability to the Air Force in various mission areas, to include:

- 20 percent of Air Force Explosive Ordnance Disposal capability
- 17 percent of Air Force Prime Base Engineer Emergency Force (Prime BEEF) civil engineer capability
- 18 percent of Air Force Rapid Engineer Deployable Heavy Operations Repair Squadron Engineers (RED HORSE) heavy construction capability
- 14 percent of Air Force Security Forces capability
- 9 percent of Air Force Petroleum, Oils, and Lubricants capability
- 9 percent of Air Force Material Management capability
- 10 percent of Air Force Ground Transportation capability
- 45 percent of Air Force Aerial Port capability

Other AF priorities have driven increased risk on the vehicle replacement and support equipment accounts, a centralized AF process, creating large shortfalls in both. Presently, the AFR has a \$13 million, 520 vehicle shortfall, or about 14 percent of its authorizations, and this is before the forecasted recapitalization across the FYDP, estimated to cost \$3 billion to reach Air Force Common Operating Level (AFCOL) 1. This recapitalization, or at least a partial recap, is necessary as the AFR vehicle fleet is several years older than our active counterparts. Within the AFR's fire emergency services (FES) vehicle fleet, 25 percent (13 of 51) are over 20 years old. No depot-level repair capability for FES vehicles exists, forcing units to maintain them until new procurement takes place. Aging FES vehicles alone account for over \$10M of the \$13M critical shortfall total, and unnecessarily challenge the emergency response capability at AFR installations. Additionally, mission conversions add new vehicle and support equipment requirements. For example, a high lift boom truck was not required while the 911 AW at Pittsburgh flew the C-130H aircraft, but is required for the C-17. No excess high lift boom trucks

are available and transferring one from other C-17 units would inhibit aircraft maintenance operations at the losing wing. New missions at the 914 AW, Niagara Falls, NY, and 940 ARW, Beale AFB, CA, are similar examples of aircraft conversions that are driving vehicle requirements. Finally, our support equipment account has historically provided easy offsets for aircraft modernization in regular programming, as well as falling below the line on the AFR NGREA priority list, leading to a 2,500 item backlog, estimated at \$93 million, which delays these same new units in becoming fully operational.

2. Current Status of Equipment

a. Equipment On-hand

Table 1 Consolidated Major Item Inventory and Requirements provides projected RC major equipment requirements and on-hand inventories to meet assigned missions. As of October 1, 2017, AFR possessed 275 of the 315 aircraft assigned to the inventory. However, this number is a snapshot in time. The difference between possessed and assigned is due to aircraft in scheduled Programmed Depot Maintenance (PDM), a must pay sustainment bill to reconstitute aircraft readiness. No major equipment end strength changes are planned or projected in FY2018.

b. Average Age of Major Items of Equipment

Table 2 Average Age of Equipment provides the average age of major equipment items as of October 1, 2017. The average age of AFR aircraft ranges from 11 years for the C-40Cs to nearly 60 years for KC-135Rs and B-52Hs. As aircraft increase in age, requirements for Operation and Maintenance (O&M) funding increase to maintain capability. Repair parts for legacy aircraft are not readily available due to the industrial base's limited ability to produce parts only used in the military. As such, the Air Force pays a premium price to restart parts production, often waiting long lead times for parts delivery. These factors often lead to reliance on the Aerospace Maintenance and Regeneration Group (AMARG), a.k.a. the Boneyard, at Davis-Monthan AFB, to pull parts off retired aircraft to sustain the needs of the field. However, this supply point, while used a last resort, is finite and cumbersome to tap. It increases maintenance downtime and decreases aircraft availability, and therefore must be mitigated to sustain the required capability needed to meet national defense demands.

c. Compatibility of Current Equipment with AC

AFR aircraft require modernization upgrades to be technically compliant with emerging requirements and to be compatible with the Total Force in order to seamlessly provide support to Air Force and joint missions. Achieving and maintaining a technically compatible AFR with the AC is also critical to ensuring the Selected Reserve has the ability to train to the same standards and be ready to operate seamlessly across the Total Force. The AFR's aging fleet requires a full replacement in the near-term to close growing technological gaps necessary for full integration with the Total Force and to control rising costs of maintaining legacy systems, some of which are generations behind Air Force like capabilities. The Air Force's recapitalization programs can close capability gaps. However, recapitalization programs often do not include the AFR's legacy systems. As a result, incompatibility challenges exist within the AFR's aging fleet of HC-130, C-130H, KC-135R, A-10, F-16C, and HH-60 aircraft. For example, now that the AC has divested itself of the C-130H, ARC C-130H rotations in the CENTCOM AOR will need to ensure equipment compatibility at AC bases and possibly deploy additional equipment to support

themselves. Furthermore, the FY2017 base budget included no ARC equity in Large Aircraft Infra-Red Counter-Measures. This upgrade provides aircrews aircraft defensive systems in contested environments. The last several years of fiscal constraints have led the Air Force to make the difficult decisions not to include these aircraft in the near term recapitalization plans or to replace through new procurements until the mid to long-term. AFR NGREA programs help bridge the legacy weapon system technology gaps with the AC, but inherently struggle to address the mission availability constraints associated with aging aircraft fleets.

d. Diminishing Manufacturing Sources and Materiel Shortages (DMSMS)/Obsolescence

Diminishing Manufacturing Sources and Material Shortages/Obsolescence is an increasingly difficult problem for DoD weapon systems because the manufacturing lives of many critical items get shorter while the life cycles of military weapon systems continue to be increased. As discussed in paragraph 2.b, Average Age of Major Items of Equipment, increasing weapon system life cycles and the accompanying DMSMS issues are an AFR issue. Across the Air Force, AMARG (aka Boneyard) is used as a routine supply source on multiple platforms, from A-10 centralized integrated control units to major structural components like vertical stabilizers for C-130 aircraft.

Materiel readiness is an immediate and urgent concern for the warfighter. Missions are affected when equipment cannot be supported. It is unacceptable for an MDS to be non-mission-capable due to a DMSMS issue. To allow a DMSMS situation to progress to the point of affecting a mission (because items are not available) does not support DoD combat readiness objectives, and is an indication of ineffective DMSMS management. In addition, ineffective DMSMS management can cause rapid escalation of the costs for items.

Traditionally, efforts to mitigate the effects of DMSMS have been reactive, i.e., the effects are addressed only when they are seen. This reactive approach to DMSMS solutions leads to decisions that put a premium on faster solution paths with attractive short-term gains to avoid system inoperability, while ignoring the long-term paths that would lead to wide-scale solutions with the capability of avoiding future DMSMS issues. To solve this issue with lower overall cost, DMSMS solutions must change from reactive to proactive. The building blocks of effective proactive management of DMSMS are established during the design and development of systems with investment into sustainment and eventual retirement plans.

e. Maintenance Issues

AFR is tracking several fleet-wide issues. Some issues span multiple platforms, like the lack of funding to procure authorized support equipment to improve readiness and corrosion concerns which the Air Force Corrosion Officer is currently examining.

F-16: Diminishing resources and increasing structural repairs continue to affect aircraft availability and readiness. Specifically, the left and right main landing gear collars continue to be manufactured at a lower rate than required by demand resulting in 30-day increase in aircraft down time for gear inspections. Additionally, multiple parts contracts were not renewed or were not awarded in time causing long lead times for spares; for example Commercial Fire Control Computers and hydraulic pumps. 23 aircraft, 42 percent of the AFR fleet, are due 6-year structure inspections based on the age and high utilization. This inspection will impact aircraft

availability and each day of additional aircraft down time is a day the warfighter does not have this capability guarding the skies overhead.

A-10: Fleet readiness is challenged due to parts supportability. Specifically, Centralized Integrated Control Units continue to drive aircraft down time and have been the highest driver of not mission capable aircraft across the Air Force fleet. This component translates weapons stores with avionics capabilities in the cockpit, and lack of this function renders the aircraft unable to execute combat missions or effective training sorties. Another challenge across the fleet stems from past years' uncertainty in programming, which led to shortages in the wing replacement program due to production stand down, affecting 45 percent of AFR aircraft. The flight hours of the wings have reached end of service life and create concern of inflight structural failure if not replaced or overhauled.

B-52: Due to age and corrosion, major structural repairs are lengthening repair times, both in field-level phase inspections and in PDM days, which takes an aircraft out of the fight for an average 292 days. In some instances, some structural components have not been manufactured before or in low supply and have a long lead time to manufacture. For example, one particular damaged skin panel has been through three cycles of PDM, a total of 15 years, without being replaced because no one makes the part.

C-130: This fleet is also experiencing part supportability issues, but because of fleet size and age, AMARG is generally exhausted as a source of supply. As an example, the air-conditioning cooling turbine is unsupported at this time due to non-availability of the bearing assembly. This system is critical to avionics cooling and binds the aircraft to fields that have sufficient ground equipment to provide the capability, limiting its downrange potential. The System Program Office has coordinated a solution with the manufacturer but there is still demand in the field. Additionally, the current C-130H propulsion system does not perform well in high density altitude environments and drives excessive maintenance costs. Upgrading the T-56 engine with the 3.5 Engine Enhancement Package (EEP) will increase engine life span, improve fuel economy, reduce takeoff distances, and increase the effective cargo capacity. Replacing dated four-bladed propellers with improved, modular eight-bladed propellers (NP2000) will provide improved thrust for heavy weight and short field operations, improving its support to its customers who count on it to get in and out of austere locations.

KC-135: After 60 years of flight, many parts are no longer stocked or procurable, and there is an increased reliance on boneyard pulls (i.e., Emergency Locator Transmitters, landing gear, throttle brackets, and legacy Auxiliary Power Unit starters). Additionally, expiring contracts and obsolescence are contributing factors in on-going maintenance issues (i.e. in 2018, Integrated Fuel Management Panel (IFMP) repairs will begin to taper off with no suitable substitute or replacement in place). The average backordered part took over 180-days to be procured and delivered. In FY2017, 33 aircraft (8 percent) fleet-wide were scheduled for Unscheduled Depot Level Maintenance (UDLM) or follow on warranty work, decreasing aircraft availability. Major structural repairs increased PDM flow days (23 percent increase between FY2014-FY2017). Aircraft conversions at Seymour Johnson AFB, Niagara ARB, and Beale AFB impacted hangar availability, which extended fuel system repair times and subsequent fly away requirements. At these same locations, lack of availability of support equipment and supply spares also negatively impacted aircraft availability.

C-5M: The continuation of the Reliability Enhancement and Reengineering Program (RERP) impacted aircraft availability, as did the elimination of the Backup Aircraft Inventory (BAI) program. The projected smaller sized units (8 Primary Assigned Aircraft) at JBSA Lackland impacted aircraft availability, FTU student pipeline output, and Airlift Squadron operations.

HH-60: The fleet continues to experience severe corrosion issues based on geographic location and continuous utilization, as well as parts supportability limitations. The Air Force Corrosion Office plans to conduct a study on corrosive environments throughout the Air Force, estimated to start in December 2017, though significant feedback has already been provided on new precautions that have been fielded, like corrosion protective coatings (CPC) and mobile aircraft wash systems (MAWS). Patrick AFB, where these assets are stationed, is one of 12 bases selected. While Depot Field Teams and UDLMs for corrosion repairs continue to affect enterprise aircraft availability, improvements have been noticed in the AFR fleet from the NGREA funded MAWS equipment.

f. Modernization Programs and Shortfalls

The AFR list of modernization shortfalls prioritizes improving aircraft defensive systems, modernizing communications, providing precision attack capability, upgrading radar and avionics across multiple platforms to maintain battlespace awareness, and addressing looming obsolescence issues. Modernization of aircraft and support equipment is required to maintain or reverse degraded capabilities, adapt to evolving threats, and overcome materiel age, DMSMS, or obsolescence. Table 8 Significant Major Item Shortages addresses program details of specific requirements identified through the AFR Prioritized Integrated Requirements List (PIRL) process; specifically, the AFR's unfunded, or underfunded, procurements or modernization programs affecting our ability to force project and generate readiness.

B. Changes since the Last NGRER

Beyond normal budget operations and planned NGREA execution, no significant basing decisions, mission changes, or other aircraft procurements have occurred. The only relevant fleet structure change since publication of the FY2017 NGRER was that one C-5 BAI was converted to Primary Assigned Aircraft (PAA) status, funding the AFR C-5 fleet at 16 aircraft instead of 15. This increase in resourcing enables improved maintenance and sustainment to produce mission ready pilots. Finally, two F-16C aircraft were lost in a mishap and were removed from the AFR attrition reserve roles, in accordance with published guidance.

C. Future Years Program (FY 2019–FY 2021)

1. FY 2021 Equipment Requirements

Table 1 Consolidated Major Item Inventory and Requirements provides projected FY2019–FY2021 major equipment inventories and requirements. It reflects programming for the type and quantity of each major end item of equipment for the AFR.

2. Anticipated New Equipment Procurements

Table 3 Service Procurement Program–Reserve (P-IR) lists planned procurements for the AFR from the FY2019 President's Budget request and *Table 4 NGREA Procurements* provides AFR planned NGREA procurements for FY2016–FY2018. Both these documents reflect the ongoing

efforts to modernize the AFR fleet. For example, the FY2017 base budget programmed for the C-17 conversion at Pittsburgh ARB, which broke ground on infrastructure in October 2017. But it does not program for KC-135 LAIRCM, which was funded through NGRE. The first AFR KC-135 was modified in FY2017 and is currently undergoing operational test and evaluation prior to full rate modification. The AF base budget did not program for any AFR large airframe aircraft to complete LAIRCM modifications. Table 1 shows equipment growth in the HC-130J aircraft in FY2019-FY2020, and KC-46 growth in FY2021.

3. Anticipated Transfers from AC to AFR

Table 5 Projected Equipment Transfer/Withdrawal Quantities lists planned AFR transfers for FY 2019–FY 2021. While multiple aircraft were loaned between units and components to accommodate mission requirements, the only permanent transfer occurs in FY2019, as the unit at Pittsburgh ARB converts from C-130Hs to C-17s. No further permanent transfers from the AC are projected across the FYDP.

4. Anticipated Withdrawals from AFR Inventory

Table 5 also lists planned AFR major equipment withdrawals for FY 2019–FY 2021, including the force structure changes discussed in Section II, paragraph B of this chapter. Over the FYDP, the AFR will convert 12 KC-135R aircraft to 12 KC-46 aircraft. The AFR will also divest six C-130H models as part of a larger Air Force movement plan, two being retired and four transferring to the ANG, while gaining three HC-130J models to support the rescue mission. The same mission is also set to gain one more HH-60 helicopter in addition to the one gain in FY2018. Finally, the AFR will gain one F-16D from the ANG in FY2020, in exchange for an F-16C transferred in FY2018.

5. Equipment Shortages and Modernization Shortfalls at the End of FY 2020

Table 1 Consolidated Major Item Inventory and Requirements and *Table 8 Significant Major Item Shortages* provide AFR equipment inventories, shortfalls, and modernization requirements. While the AFR does not have any aircraft shortages, as previously mentioned, there are numerous vehicle and support equipment shortages. Additionally, the aircraft we do have are not as capable as they could be to face the threats in today's evolving environment. Many initiatives are already in work, like Helmet Mounted Integrated Targeting, which spans multiple platforms, providing for our priority of precision targeting. Others still require research, test, and evaluation to develop the capability. Many initiatives are already flushed out and just require the resourcing to complete the modifications. Several of these initiatives and modifications are on-going, just not fully funded, and will still be in work at the end of 2020, based on securing additional funding or being completed in conjunction with aircraft PDM cycles, which span five years in most cases.

D. Summary

Sustained global commitments and funding reductions have eroded our Air Force Reserve to be one of the smallest, oldest-equipped, and least ready forces across the full-spectrum of operations, in our service history. In FY2016 and FY2017 budgets, we made necessary adjustments to balance near-term readiness with future modernization, but our readiness remains

at a near all-time low due to continuous combat operations, reduced manpower, an aging fleet, and inconsistent funding.

The Strategic Master Plan (SMP) foundational assumption on the use of the ARC has shifted from a strategic reserve augmenting AC capacity, to a force that is fully engaged and organized in Total Force operationally indistinguishable units. In addition to being a fully engaged Total Force partner, the SMP envisions the RC continuing to providing strategic depth and surge capacity. The USAF supports these efforts in ensuring the ARC is considered in all force structure planning choices, optimizing scarce equipment resources as necessary.

Given the SMP's increased emphasis on the RC's Total Force role, concurrent fielding of new weapons systems has never been more important. In our legacy platforms, it is important that funding be provided to maintain parity to support the National Military Strategy objectives. Top AFR challenges, including aircraft modernization through improved defensive system, data link and secure communications, and precision strike capability; recapitalizing the HC-130 fleet; addressing diminishing manufacturing sources and obsolescence; ACS support equipment and vehicles; and ensuring our training simulators keep pace with the aircraft and force structure. These are necessary to enable tip-of-the-spear warfighter mission accomplishment, but will remain unfulfilled without the budget support to address the concerns.

In this fast changing global security environment, our nation deserves no less than the finest combat capability our Air Force can deliver. The Total Force must be a lean, agile, efficient team that meets national security demands. With the help of the Secretary of Defense and Congress, we will be able to provide the Global Vigilance, Global Reach, and Global Power that America expects its Airmen to deliver.

Consolidated Major Item Inventory and Requirements

NOTE: This table provides a comprehensive list of selected major equipment items. It provides the projected inventory quantity on-hand (QTY O/H) at the beginning/end of the selected fiscal year (FY). It also provides the quantity required (QTY REQ) to meet the full wartime requirements of the Reserve Component. In accordance with Title 10, the QTY REQ number provides the recommendation as to the quantity and type of equipment that should be in the inventory of each Reserve Component. FY 2018 unit cost estimates are provided by the Military Departments.

Nomenclature	Equip No.	Unit Cost	Begin FY 2019 QTY O/H	Begin FY 2020 QTY O/H	Begin FY 2021 QTY O/H	End FY 2021 QTY O/H	End FY 2021 QTY REQ
Air Refueling							
Air Refueling, KC-135R	KC-135R	74,000,000	72	74	62	62	62
Air Refueling, KC-46A	KC-46A	n/d	0	0	9	12	12
Air Support							
Weather, WC-130J	WC-130J	\$73,800,000	10	10	10	10	10
Airlift							
Airlift, C-130H	C-130H	\$32,600,000	46	42	42	42	42
Airlift, C-130J	C-130J	\$69,500,000	10	10	10	10	10
Airlift, C-17A	C-17A	\$284,000,000	26	26	26	26	26
Airlift, C-5M	C-5M	\$328,000,000	16	16	16	16	16
Airlift, C-40C	C-40C	\$80,700,000	4	4	4	4	4
Bomber							
Bomber, B-52H	B-52H	\$99,900,000	18	18	18	18	18
Fighter							
Fighter, A-10C	A-10C	\$13,000,000	55	55	55	55	55
Fighter, F-16C	F-16C	\$21,800,000	50	50	50	50	50
Fighter, F-16D	F-16D	\$21,800,000	2	2	3	3	3
Rescue							
Rescue, HH-60G	HH-60G	\$27,000,000	16	16	17	17	17
Rescue, HC-130J	HC-130J	\$70,400,000	0	1	3	3	3

AFR

Table 2

Average Age of Equipment

NOTE: This table provides the average age of selected major equipment items. The average age provides a projected average age of the fleet at the start of FY 2018.

Nomenclature	Equip No.	Average Age	Remarks
Air Refueling			
Air Refueling, KC-135R	KC-135R	56	
Air Support			
Weather, WC-130J	WC-130J	16	
Airlift			
Airlift, C-130H	C-130H	25	
Airlift, C-130J	C-130J	13	
Airlift, C-17A	C-17A	16	
Airlift, C-5M	C-5M	30	
Airlift, C-40C	C-40C	9	
Bomber			
Bomber, B-52H	B-52H	56	
Fighter			
Fighter, A-10C	A-10C	37	
Fighter, F-16C	F-16C	30	
Fighter, F-16D	F-16D	30	
Rescue			
Rescue, HH-60G	HH-60G	27	

Service Procurement Program - Reserve (P-1R)

NOTE: This table identifies the dollar value of programmed equipment procurement as identified in the P-1R exhibit of the FY 2019 President's Budget Request. All values are costs in dollars and exclude ammunition procurements. Deliveries of procured equipment normally take one to two years before they arrive in the inventory; e.g., items procured in FY 2019 are expected to arrive in RC inventories in FY 2020 or FY 2021.

Nomenclature	FY 2019	FY 2020 ¹	FY 2021 ¹
Modification of Inservice Aircraft			
B-52	\$5,760,000		
A-10	1,740,000		
F-16	956,000		
C-5	14,087,000		
C-17A	1,164,000		
C-130	4,764,000		
C-135	14,689,000		
H-60	14,171,000		
Vehicular Equipment			
Passenger Carrying Vehicles	98,000		
Medium Tactical Vehicles	125,000		
Cargo and Utility Vehicles	2,527,000		
Joint Light Tactical Vehicle	372,000		
Security and Tactical Vehicles	56,000		
Special Purpose Vehicles	1,821,000		
Materials Handling Equipment	2,375,000		
Runway Snow Removal and Cleaning Equipment	75,000		
Base Maintenance Support Vehicles	271,000		
Electronics and Telecommunications Equipment			
Air Traffic Control & Landing System	800,000		
Air and Space Operations Center (AOC)	300,000		
Base Information Transport Infrastructure (BITI) Wired	405,000		
Tactical Communications-Electronics Equipment	4,783,000		
Base Communications Infrastructure	343,000		
Other Base Maintenance and Support Equipment			
Personal Safety and Rescue Equipment)	117,000		
Mechanized Material Handling Equipment	387,000		
Base Procured Equipment	105,000		
Total	\$72,291,000		

1. P-1R Exhibit for FY 2019 President's Budget does not provide projected procurement data beyond FY 2019.

National Guard and Reserve Equipment Appropriation (NGREA) Procurements

NOTE: This table identifies the dollar value of planned equipment procurements with the National Guard and Reserve Equipment Appropriation (NGREA). These funds are available for a three-year period from the year of appropriation. Deliveries of procured equipment normally take one to two years from date of procurement before they arrive in the inventory; e.g., items procured in FY 2018 would be expected to arrive in RC inventories in FY 2019 or FY 2020. All values are costs in dollars.

Nomenclature	FY 2016	FY 2017	FY 2018 ¹
<u>FY 2016 NGREA Equipment</u>			
Multi-Mission Design Series (MDS) Day/Night Helmet-mounted Integrated Targeting (HMIT)	\$21,000,000		
A-10/F-16 Anti-Jam Global Positioning System (GPS)	7,000,000		
F-16/B-52 AN/ASQ-236 All Weather Targeting Capability	30,000,000		
F-16 5th to 4th Generation Data Link	2,200,000		
LITENING	12,000,000		
F-16 Pylon Integrated Dispenser System (PIDS+) Missile Warning System	5,250,468		
F-16 ALR-69A Radar Warning Receiver (RWR)	5,300,000		
C-130 Yoke Mounted Switch	30,000		
KC-135 Large Aircraft Infrared Countermeasures (LAIRCM)	15,253,364		
C-130 Real Time Information in the Cockpit (RTIC)	700,000		
KC-135 LOS/BLOS Data Link & Internet Protocol Capability	3,800,000		
HC-130 Information Superiority ICS	1,499,532		
F-16 3-Digital Intercom/Spatial Awareness Audio	4,220,000		
F-16 2nd ARC-210 Mobile User Objective System (MUOS)	210,000		
(Guardian Angel [GA]) Side/Sector Scan SONAR	752,278		
(GA) Maritime Communications Capability - 1 per Guardian Angel (GA) operator	581,609		
(GA) Containerized Small Arms Range	1,889,539		
(GA) Razor Light Tactical Vehicle Upgrade	1,271,213		
C-17 Extended Range Modification with Enhanced On Board Inert Gas Generating System (OBIGGS)	10,000,000		
C-130 Modular Aerial Spray System (MASS)	2,990,121		
WC-130 Aerial Reconnaissance Weather Officer (ARWO) Station Upgrade	4,000,000		
F-16 Advanced Identification Friend or Foe (IFF)	2,500,000		
A-10 Parking Brake	1,750,000		
F-16 Advanced Data Transfer Equipment (ADTE) - Supports Auto GCAS	1,000,000		
Simulator Procurement and Upgrades	45,000		
Support Equipment	3,912,645		
Vehicles	486,394		
Expeditionary Forces Tactical Equipment	357,836		
<u>FY 2017 NGREA Equipment</u>			
Air Superiority / Global Precision Attack			
Combat Air Forces (CAF) Day/Night Helmet Mounted Integrated Targeting (HMIT)		\$2,200,000	
CAF Communications Upgrades		10,500,000	
CAF Avionics Upgrades		10,705,000	
CAF Defensive Systems Upgrades		7,600,000	

National Guard and Reserve Equipment Appropriation (NGREA) Procurements

Nomenclature	FY 2016	FY 2017	FY 2018 ¹
CAF Targeting and Radar Enhancements		25,605,000	
CAF Combat Operations Enablers		600,000	
Rapid Global Mobility			
Mobility Air Forces (MAF) Communications and Avionics		2,200,000	
MAF Defensive Systems		10,000,000	
Special Operations / Personnel Rescue / Guardian Angel			
Personnel Rescue Situational Awareness (PRSA)		24,200,000	
Guardian Angel Wings Personnel Recovery Mission Equipment		4,400,000	
Special Mission			
WC-130J Aerial Reconnaissance Weather Officer Station Upgrade		500,000	
Simulation			
Global Strike Simulators		2,000,000	
Agile Combat Support			
Cyber - Small Communications Package		1,800,000	
Support Equipment		2,150,000	
Vehicles		190,000	
Unit Mission Equipment		150,000	
Expeditionary Forces		150,000	
Chief Information Officer (CIO) Equipment		50,000	
Total	\$140,000,000	\$105,000,000	
1. Service FY 2018 NGREA equipment list was not available in time for publication in the NGRER. Equipment list for FY 2018 will be provided in next year's NGRER.			

Projected Equipment Transfer/Withdrawal Quantities

NOTE: This table portrays the planned equipment transfers (Active to Reserve), withdrawals (-), and decommissioning (-). Transferred equipment is commonly called "cascaded equipment," or equipment that is provided to the RC once the AC receives more modern equipment. Although this table highlights a three-year period, many Services will not know exact quantities of transfers or withdrawals until year of execution, due to the uncertainty of the procurement/delivery cycle of new equipment.

Nomenclature	Equip No.	FY 2019 Qty	FY 2020 Qty	FY 2021 Qty	Remarks
Air Refueling					
Air Refueling, KC-135R	KC-135R	+2	-12		(+2) Backup Aircraft Inventory; (-12) Tanker Conversion Plan
Air Refueling, KC-46A	KC-46A		+9	+3	
Airlift					
Airlift, C-130H	C-130H	-4			C-130H Movement Plan
Fighter					
Fighter, F-16D	F-16D		+1		(+1) Aircraft trade with ANG (lost C-model in FY 2018)
Rescue					
Rescue, HH-60G	HH-60G		+1		(+1) increase to rescue mission
Rescue, HC-130J	HC-130J	+1	+2		(+3) increase to rescue mission

FY 2015 Planned vs Actual Procurements and Transfers

NOTE: This table compares planned Service procurements and transfers to the RC in FY 2015 with actual procurements and transfers. FY 2015 is selected as these are the most recent funds to expire. Because the procurement cycle is normally one to two years from funding to delivery, this table identifies only deliveries through the end of FY 2017. Procurement and NGREA columns reflect cost values in dollars.

Nomenclature	Equip No.	FY 2015 Transfers (# of items)		FY 2015 Procurements (\$s)		FY 2015 NGREA (\$s)	
		Plan	Actual	Plan	Actual	Plan	Actual
<u>FY 2015 Planned Transfers & Withdrawals</u>							
Airlift							
Airlift, C-5A	C-5A	-2	+2				
Airlift, C-5B	C-5B	-11	+6				
Airlift, C-5M	C-5M	+10	0				
Rescue							
Rescue, HH-60G	HH-60G	+1	0				
<u>FY 2015 Service Procurement Programs – RC (P-1R) Equipment</u>							
Modification of Inservice Aircraft							
B-52				\$11,817,000	\$23,031,000		
C-5				0	4,498,000		
C-5M				254,320,000	195,464,000		
C-17A				22,187,000	1,596,000		
C-40				1,200,000	1,200,000		
C-130				2,550,000	295,000		
C-135				8,725,000	5,608,000		
H-60				1,164,000	1,480,000		
Vehicular Equipment							
Passenger Carrying Vehicles				75,000	75,000		
Medium Tactical Vehicles				3,633,000	1,286,000		
Security and Tactical Vehicles				428,000	428,000		
Runway Snow Removal & Cleaning Equipment				294,000	294,000		
Electronics and Telecommunications Equipment							
Air Traffic Control & Landing System				2,025,000	1,524,000		
AF Global Command & Control System				80,000	80,000		
Theater Battle Management C2 System				145,000	145,000		
Air & Space Operations Center - Weapon System				1,168,000	1,168,000		
Information Transport Systems				9,251,000	13,643,000		
Tactical Communications-Electronics Equipment				29,000	29,000		
Base Communications Infrastructure				322,000	322,000		
Communications & Electronics Modifications				1,416,000	1,416,000		
Other Base Maintenance and Support Equipment							
Night Vision Goggles				1,168,000	1,168,000		

FY 2015 Planned vs Actual Procurements and Transfers

Nomenclature	Equip No.	FY 2015 Transfers (# of items)		FY 2015 Procurements (\$s)		FY 2015 NGREA (\$s)	
		Plan	Actual	Plan	Actual	Plan	Actual
FY 2015 National Guard and Reserve Equipment Appropriation (NGREA) Equipment							
C-17 Extended Range Modification with Enhanced On Board Inert Gas Generating System (OBIGGS)						\$10,000,000	\$10,000,000
LITENING						8,922,993	6,802,999
A-10 Anti-Jam Global Positioning System (GPS)						5,100,000	5,100,000
A-10/F-16 Day/Night Helmet-Mounted Integrated Targeting (HMIT)						4,000,000	4,000,000
A-10 Second ARC-210 Radio						0	563,415
A-10 Parking Brake						458,000	0
A-10 PATS70A (Support Equipment)						416,502	416,502
B-52 Mission Data Recorder						3,500,000	4,058,040
F-16 Center Display Unit (CDU)						2,050,000	2,781,000
F-16 Second ARC-210 Beyond-line-of-sight (BLOS) with data transfer capability						1,500,000	1,430,962
F-16 3D Audio (Digital Intercom/Spacial Awareness Audio)						522,706	0
F-16 AN/ALR-69A Upgraded Electronic Warfare (EW) Suite						1,000,000	7,024,766
C-130 Electronic Propeller Control System (EPCS)						7,964,081	7,964,081
C-130 Real Time Information in the Cockpit (RTIC)						4,078,416	2,031,691
C-130 Large Aircraft Infrared Countermeasures (LAIRCM)						2,623,995	2,623,995
HC-130 Information Superiority						600,000	0
HC-130 AAQ-36 Forward Looking Infrared (FLIR)						120,000	0
KC-135 LAIRCM						1,423,000	1,009,942
Electronic Warfare Missile Warning System - Pylon Integrated Dispenser System (PIDS+)						2,472,515	1,807,217
Guardian Angel Personnel Recovery Mission Equipment						1,642,000	868,091
Combined Advanced Identification Friend or Foe (AIFF)						840,792	626,014
HH-60 Smart Color Multifunctional Display Interim Contractor Support (ICS)						615,000	400,000
Expeditionary Forces Tactical Equipment						100,000	122,446
Chief Information Officer (CIO) Board Project List						50,000	50,000
Support Equipment						0	300,051
Vehicles						0	18,788
Total				\$321,997,000	\$254,750,000	\$60,000,000	\$60,000,000

Major Item of Equipment Substitution List

NOTE: This table identifies equipment authorized by the Service to be used as a substitute for a primary item of equipment. The table also identifies whether or not the item is deployable in wartime. This data meets the Title 10 requirement to identify substitutes that are not the most desired equipment item.

Required Item Nomenclature	Reqd Item Equip No.	Substitute Item Nomenclature	Substitute Item Equip No.	FY 2019 Qty	Deployable?	
					Yes	No

Service Does Not Use Substitution to Satisfy Major Item Equipment Requirements

Significant Major Item Shortages

NOTE: This table provides a RC top ten prioritized (PR) shortage list for major equipment items required for wartime missions but which are currently not funded in the FYDP. It lists the total quantity required, the total unfunded requirement, the individual item cost, and the cost of the unfunded portion. This data is consistent with other unfunded equipment data submitted by the Service.

PR	Nomenclature	Total Req'd	# Items Short	Item Cost	Total Shortage Cost	Rationale/Justification
1	Multi Domain Secure Communication/ Data Link	various	various	various	\$91,915,000	<p>Modern cryptographic requirements and changes to satellite communications drive radio modernization and the proliferation of tactical data networks (TDNs) for tactical battlespace awareness by aircraft as well as ground parties and command and control (C2) entities have raised the expectation of aircraft integration into existing networks. The expectation of data link integration has also increased the cost of not being integrated. Costs include loss of potential critical data to the aircraft, such as friendly or hostile ground party locations along with other network aircraft location and associated data (heading, altitude, identification). Likewise, battlespace managers and ground parties may not have access to specific aircraft information without data link integration.</p> <p>(55 A-10s and 54 F-16C/Ds for a total of 109 at a cost of \$685K each and 6 HC-130s at a cost of \$200K each) (55 A-10s and 52 F-16Cs at a cost of \$150K each)</p>
2	Vehicle Sustainment/ Support	various	various	various	\$12,823,250	<p>Air Force Reserve Command (AFRC) provides vehicles for new missions, unit training, and sustainment of existing missions. Vehicle shortfalls range across all functional areas. As the average age increases, there is a direct correlation to a demand for more Operation and Maintenance (O&M) funding to maintain vehicles. Additionally, funding of fire servicing, fuels hydrant, and aircraft tow/servicing vehicles is at a critical point due to aging fleet, vacant authorizations, and new mission conversions. Vehicle acquisitions are chronically underfunded, receiving a relatively low priority.</p>
3	Aircraft Defensive Systems	various	various	various	\$243,690,000	<p>Considering the proliferation of evolving missile threats, many of the legacy AFR aircraft do not have defensive systems that are relevant and effective, placing pilots and mission effectiveness at an increasing risk. Current programs to address the evolving threat defensive systems are: the Block 30 Large Aircraft Infrared Countermeasures (LAIRCM) for the KC-135 (32 at \$2M each), the ALR-69A Digital Radar Warning Receiver in the F-16 and A-10 (55 A-10s and 54 F-16s at \$1.1M each), an active IR missile warning system into the F-16 Pylon Integrated Dispenser System Universal (PIDSU) pylon. (24 F-16s at \$1.46M each), and replace the current A-10 ALR-47 Infrared Missile Warning System with newer detectors capable of giving adequate warning to protect the aircraft. (55 A-10s at \$0.45M each)</p>

Significant Major Item Shortages

PR	Nomenclature	Total Req'd	# Items Short	Item Cost	Total Shortage Cost	Rationale/Justification
4	Support Equipment	various	various	various	\$28,289,367	Agile Combat Support (ACS) Support Equipment (SE) shortfalls for unit training, sustainment of existing missions, and mission conversions. SE shortfalls range across all functional areas, and as the average age of SE increases, there is a direct correlation to a demand for more Operation and Maintenance funding to preserve the capability.
5	Propulsion Upgrades (Engine/ Propellers)	42	42	\$6,047,620	\$254,000,040	The current C-130H propulsion system performs deficiently in high density altitude environments and drives excessive maintenance costs; it requires a comprehensive upgrade to improve performance and reliability; increase fuel efficiency; reduce airframe fatigue due to excessive vibration; decrease maintenance costs; and increase safety margins during critical phases of flight. Upgrading the T-56 engine with the 3.5 Engine Enhancement Package (EEP) will increase engine life span, improve fuel economy, reduce takeoff distances, and increase the effective cargo capacity. Replacing dated four-bladed propellers with improved, modular eight-bladed propellers (NP2000) will provide improved thrust for heavy weight and short field operations, while increasing fuel efficiency.
6	Avionics Upgrades	55	55	\$300,000	\$16,500,000	A-10 avionics displays in most legacy platforms are unable to match the signal quality of the information sent to them. Color high definition imagery is not displayed to the pilot. Targets are being missed and pilots are flying closer to the threats attempting to gain positive identification. Color high definition displays significantly improve mission success and safety while reducing pilot workload.
7	Radars	54	54	\$3,700,000	\$199,800,000	Current F-16 Block 30 radars have obsolescence/supportability problems that increase their maintenance cost and decrease their availability. A modern Actively Electronically Scanned Array (AESA) radar dramatically decreases maintenance cost and significantly increases availability, accuracy, lethality and allows better support of 5th Gen aircraft tactics.
8	Simulators (C-5, C-17, A-10)	various	various	various	\$46,000,000	Current state of simulators (sims) losing effectiveness due to disparity with actual aircraft configurations. AFRC supports 23 simulators across the Total Force. Periodically, training requirements dictate either new or upgraded sims. Over time, the differences will continue to grow and render the sims less useful for mission readiness training. The challenges associated with tying Military Construction (MILCON) and Lead Command (LC) coordination to sim requirements delays purchases and delivery of capability. This impacts our ability to meet combatant commanders' requirements to accomplish their mission.

Significant Major Item Shortages

PR	Nomenclature	Total Req'd	# Items Short	Item Cost	Total Shortage Cost	Rationale/Justification
9	Combat Search and Rescue (CSAR) HC-130 Fleet	6	1	\$120,000,000	\$120,000,000	AFRC recently retired all six of the 920th Rescue Wing's assigned HC-130 aircraft due to significant corrosion. Air Combat Command (ACC) worked an aircraft loaner plan in an attempt to provide aircraft and qualified crews to support their recent deployment and recurring, home-station mission requirements. The previously developed, long-term fielding plan allowing AFRC to recapitalize the fleet with the J-model is not responsive enough to quickly replace the unit's six aircraft. Without the required, assigned HC-130 aircraft the wing is struggling to maintain current/qualified aircrews, provide combat-ready Airmen, and prosecute stateside Personnel Recovery missions. Loaner aircraft provided had significant maintenance issues and have not been readily available to support mission requirements. Currently ACC is forecasting only funding for five of the six aircraft.
10	Aircraft Structures (A-10 wing and fuselage repairs)	various	various	various	\$256,520,000	A-10s require wing and fuselage repair to keep the aircraft flying to a 16,000 flying hour requirement. Twenty-two wings at \$8M each and fifty-five fuselages at \$1.464M each will address the structural issues for the A-10 fleet.

Chapter 6 United States Coast Guard Reserve (USCGR)

I. Coast Guard Overview

For more than two centuries, the United States Coast Guard (USCG) has performed increasingly complex missions in the most challenging of marine environments. In that time, our responsibilities have continuously expanded to encompass every aspect of maritime governance. By statute, the Coast Guard is an Armed Force, operating in the joint arena at any time and functioning as a specialized service under the Navy in time of war or when directed by the President. The Coast Guard leverages broad authorities, partnerships, and operational presence as a system to meet mission responsibilities. Employing our unique blend of military, law enforcement, humanitarian, and regulatory capabilities, we prevent incidents when possible and respond when necessary. Table 6-1 provides an overview of the programs listed in the 2013 Department of Homeland Security (DHS) Federal Program Inventory for the USCG and the corresponding 2002 Homeland Security Act missions that support them.

Table 6-1. Coast Guard Programs and Missions

DHS Program Inventory	USCG Missions (Homeland Security Act of 2002)
1. Defense Operations	Defense Readiness
2. Maritime Law Enforcement	Drug Interdiction
	Migrant Interdiction
	Living Marine Resources
	Other Law Enforcement
3. Maritime Prevention	Ports, Waterways and Coastal Security—Prevention Activities
	Marine Safety
	Marine Environmental Protection—Prevention Activities
4. Maritime Response	Search and Rescue
	Marine Environmental Protection—Response Activities
5. Maritime Security Operations	Ports, Waterways and Coastal Security—Operational Activities
6. Marine Transportation System Management	Aids to Navigation
	Ice Operations
7. Mission Support	Defense Readiness
	Ports, Waterways and Coastal Security
	Marine Environmental Protection
	Migrant Interdiction
	Marine Safety
	Aids to Navigation
	Other Law Enforcement

Coast Guard assets and personnel have deployed and operated under the control of DoD commands conducting major combat operations, humanitarian assistance, combating terrorism, and other missions. Coast Guard forces give the combatant commanders (CCDRs) capabilities to

interact with many regional maritime partners and provide a maritime law enforcement capability in their areas of responsibility.

Coast Guard forces are included in DoD contingency plans in order to mitigate redundancy and sub-optimal use of DoD capabilities resident in the national defense inventory. Use of Coast Guard forces is driven by force readiness, national security requirements, and risk-based decision-making principles. DHS and DoD cooperate under three key memoranda of agreements, which facilitate the following defense operation imperatives:

- Coast Guard inclusion in Maritime Homeland Defense Operations;
- DoD Support to Coast Guard Maritime Security Operations;
- Coast Guard Support of the National Military Strategy, specifically in the areas of
 - Maritime Interception and Interdiction Operations
 - Military Environmental Response
 - Port Operations, Security, and Defense
 - Theater Security Cooperation
 - Coastal Sea Control Operations
 - Rotary-Wing Air Intercept (RWAI) Operations
 - Combating Terrorism Operations
 - Maritime Operational Threat Response (MOTR) Support

The USCGR is a flexible, responsive operational force that exists to support the Coast Guard programs of maritime security, defense operations (domestic and expeditionary), maritime prevention and response. The Coast Guard depends on its RC to be always ready to mobilize with critical competencies in boat operations, contingency planning and response, expeditionary warfare, marine safety, port security, law enforcement, and mission support.

A key capability of the Coast Guard's Defense Operations program is the Port Security Unit (PSU), which maintains the ability to operate independently in an expeditionary environment or integrate with the Navy's Coastal Riverine Force. The eight Coast Guard PSUs are principally staffed with a RC complement of 150 reservists and are supported by a full-time complement of only six AC personnel. Also primarily staffed with reservists, the Coast Guard Mobile Support Unit (MSU) provides expeditionary logistics support capability to USCG capabilities and resources deployed in support of CCDRs. The MSU is air, sea, and land deployable within 96 hours after mobilization in support of both contingencies abroad and domestic emergencies.

A. Coast Guard Planning Guidance

The Coast Guard will prepare to address future risks by ensuring the capability and capacity to respond simultaneously to (a) one nationally significant response operation, (b) one regional

surge operation in a district, and (c) highest priority response operations locally. In order to be best prepared to adapt to this rapidly changing operating environment, the USCG has focused on four key strategies representing the most pressing concerns of the Coast Guard expected over the next four years. The areas of focus are the result of a risk-informed approach based on our understanding of the strategic landscape. They include:

- Western Hemisphere Strategy: Combating Networks, Securing Borders, and Safeguarding Commerce;
- Cyberspace Strategy: Defending Cyberspace, Enabling Operations, and Protecting Infrastructure
- Human Capital Strategy: Meeting the needs of our Mission, Service, and People
- Arctic Strategy: Improving Awareness, Modernizing Governance, and Broadening Partnerships in the Polar Regions

The Coast Guard Reserve is a contingency-based workforce which will provide ready and responsive personnel to meet mission requirements within the prioritized focus areas of Defense Operations; Ports, Waterways, and Coastal Security (PWCS); Incident Management and Response; and Mission Support. Coast Guard Operational Plans will dictate required competency and capability requirements, which shall be integrated into the Coast Guard Force Planning Construct to shape the size and composition of the current and future workforce.

Predictable and steady funding is critical to the Coast Guard's ability to address these strategic priorities, especially within the Reserve Component. Sequestration and Budget Control Act impacts since FY 2013 coupled with the uncertainty of annual budget cycles has complicated efforts to reshape the Coast Guard Reserve to address the surge mobilization requirements. Greater clarity and commitment for future budgets would provide much needed flexibility to Coast Guard planning officers. Specifically, long-term strategic accession and training decisions could be made more reasonably to help mitigate operational risk across all mission areas requiring Reserve Component support now or anticipated in the future.

B. Coast Guard Equipping Policy

As an integrated workforce, the USCG AC owns and manages all equipment, including equipment allocated for the RC. The AC provides equipment for RC mobilizations or surge operations using existing unit inventories, supporting units, or through procurement procedures using the USCG base budget programmed through the DHS budget.

C. Plan to Fill Equipment Shortages in the RC

In FY 2017, approximately 244 Selected Reserve (SELRES) personnel were mobilized in support of overseas contingency operations, a modest increase compared to FY 2016. In FY 2018 the personnel footprint for planned PSU missions will remain approximately 115 members per deployment (up from the previous level of 75 members in FY 2015) to support an increase in mission requirements at Guantanamo Bay, Cuba. This will accelerate the timeline for recapitalizing personal protective equipment (PPE) while maintaining the current recapitalization rate for boat platforms.

Recapitalization of Coast Guard operational assets (afloat and aviation) to meet daily steady-state mission requirements is a top organizational priority. Modernization and retention of existing operational assets is a secondary priority within the Coast Guard's austere budget environment. As with all Coast Guard missions, without significant growth in funding there will be impacts to equipment availability and readiness. Any surge in USCG support to DoD contingency operations must be accompanied by sufficient supplemental funding to ensure force readiness.

D. Initiatives Affecting RC Equipment

Recent reductions in USCG boat platforms necessitated a more strategic allocation of AC and RC personnel resources to balance mission execution requirements and training availability to support mobilization readiness.

The Boat Forces Reserve Management Plan (BFRMP) has better aligned positions with training capacity, ensuring units with reservists assigned have the type and number of platforms to support the training, certification, and recertification requirements of reservists assigned a boat forces related mobilization competency.

The initiative clearly defines readiness requirements, to ensure reservists are ready and capable to effectively conduct boat operations in support of USCG missions. The BFRMP is approximately halfway through the implementation phase and is anticipated to be fully implemented in FY 2019.

Approximately 82 percent of the SELRES force is directly assigned to AC units. These reservists train and perform their duties alongside AC personnel. They obtain invaluable experience in their assigned mobilization competencies through the regular execution of daily operations to meet USCG missions. The BFRMP in particular, established a ratio of reservists to platforms to ensure the effective training of assigned reservists. Additional analysis to determine the appropriate number of platforms required if Coast Guard operational planners determine more reservists with boat forces competencies are needed. The remaining 18 percent of the SELRES force are assigned to USCG Deployable Specialized Forces. The DoD-validated requirements for deployable USCG units in both annually recurring defense operations and potential contingency operations far exceed the capacity of a fully mobilized USCG Reserve Force. This poses a significant to high military risk to our Reserve Forces in the event of an actual contingency. These units include PSUs, Strike Teams, Mobile Support Unit, and the Navy's Coastal Riverine Force.

II. Coast Guard Reserve Overview

A. Current Status of the Coast Guard Reserve

1. General Overview

The Reserve Force provides critical competencies vital to the USCG's capability to lead, manage, and coordinate the Nation's response to acts of terrorism, disasters, or other emergencies in the maritime domain. Current appropriations do not support the training for a force of sufficient size and capability to surge across all Coast Guard statutory missions. As such, the RC has been described as "contingency-based" to meet a more limited set of prioritized mission areas.

Top Coast Guard Reserve Equipping Challenges

- Obtaining sufficient training capacity to ensure proficiency on updated platforms
- Maximizing availability of operational platforms for RC training

As an integrated force multiplier, Reserve personnel serve alongside AC members in support of DHS programs and USCG missions. The USCG depends on the Reserve force to be always ready to mobilize with critical competencies in boat operations, contingency planning and response, expeditionary warfare, marine safety, port security, law enforcement, and mission support. These competencies ensure the Coast Guard Reserve is ready to meet mission requirements across the four prioritized focus areas of Defense Operations; PWCS; Incident Response and Management; and Mission Support.

Between 2015 and 2017, the Coast Guard Reserve established validated capability requirements to best utilize the resources currently available within the Reserve Component. These efforts were integrated into the USCG Standard Operational Planning Process/Global Force Management (SOPP/GFM) regime, which provided increased visibility of RC readiness. This was the first time RC capabilities were included in the SOPP/GFM process providing greater visibility on the personnel capabilities resident in the RC available to meet mission requirements in the event of a domestic man-made or natural disaster. This Reserve specific focus was essential to establishing a baseline from which future workforce allocation decisions could be made. Beginning in 2017, Coast Guard RC requirements are being integrated into the wider Coast Guard Force Planning Construct providing greater visibility on impacts of future budgetary and workforce management decisions.

The RC is comprised of 7,000 funded billets or positions, which is approximately 16 percent of USCG's total force strength. The USCG Reserve Training Appropriation for FY 2017 provided \$112M for necessary expenses as authorized by law, which include operations; administration and maintenance of the Reserve program; personnel and training costs; and services. The Reserve Training Appropriation does not provide funding for personal protective equipment and machinery assets such as boats, vehicles, boat engines, and rescue equipment.

The Reserve Training Appropriation is limited by its inclusion within the Coast Guard's top line budgetary limits set by the Office of Management and Budget and the Department of Homeland Security. The Director of Reserve has not been called to provide testimony in alignment with Department of Defense peers; as such, resource adjustments must compete directly with Coast Guard operational requirements. Additional funding is necessary for an increase to discretionary spending which directly impacts RC enlistment/retention bonuses and tuition assistance. Annual

funding of approximately \$3M in Overseas Contingency Operations funding is utilized to sustain the additional training costs associated with PSU deployments at Guantanamo Bay, Cuba.

2. Status of Equipment

a. Equipment On-hand

Table 1 Consolidated Major Item Inventory and Requirements identifies the major equipment inventories for FY 2019–FY 2021. The AC procures and accounts for all RC equipment.

The RC uses two main boat platforms, the Transportable Port Security Boat (TPSB) and the Response Boat–Small (RB-S).

Coast Guard PSUs operate the TPSB for defense operations providing waterborne security and port defense operations. The USCG operates a total of 59 Generation IV TPSBs at the PSUs and at the Special Missions Training Center (SMTTC) in Camp Lejeune, North Carolina.

The RB-S serves as the primary training and employment platform for reservists assigned to USCG stations throughout the Nation. The USCG continues recapitalization of its RB-S fleet with production of the 29' RB-S II. The RB-S II, designed with an increased emphasis on functionality (e.g. speed, range, etc.) will gradually replace the Defender-class RB-S as the older assets reach the end of their service life. There are 115 RB-S and 265 RB-S II boats operating throughout the USCG. They handle a wide range of Coast Guard missions close to shore, including search and rescue; law enforcement; PWCS; drug and migrant interdiction; and environmental protection and response. The expected life cycle for both platforms is 10 years with an average age of 12 years for RB-S platforms and three years for RB-S II platforms. As new RB-S II are delivered from the manufacturer a one-for-one swap is conducted at the unit with the RB-S coming out of service at the same time the new RB-S II is put into service.



29' RB-S II



32' TPSB, Generation IV

b. Average Age of Major Items of Equipment

Table 2 Average Age of Equipment provides the projected average age of equipment at the start of FY 2018.

c. Compatibility of Current Equipment with AC

PSUs are primary inshore/harbor surface interdiction response assets that conduct overseas Naval Coastal Warfare missions of harbor defense and port security operations. They may also support domestic PWCS, as well as contingency operations in response to natural disasters and national emergencies. Due to their unique mission requirements, TPSBs are maintained mostly at PSUs. However, SMTC maintains four TPSBs used to fulfill training requirements. Additional TPSBs have been purchased solely for the Guantanamo Bay, Cuba, mission. The weapons systems and navigation packages are the same as those found in the AC and require periodic maintenance, upgrades, and repairs. TPSB communications systems have capacities beyond those on standard USCG boat platforms, and are compatible with DoD systems.

All other platforms and equipment used by the RC are shared with the AC.

d. Maintenance Issues

Units maintain an adequate preventative maintenance schedule but, in some cases, aged equipment such as high-mileage vehicles, tents, etc., require replacement, not maintenance. The transition to the Generation IV TPSB was completed in 2014. Long-term maintenance requirements resulting from extended and continual use in harsh operating environments are now being fully realized. Ongoing, continual use of the TPSB in Guantanamo Bay, Cuba, has pushed the platform and its maintenance to the limits. The USCG purchased seven additional TPSBs in 2015 and has implemented a depot-level maintenance plan that continually rotates TPSBs out of theater to spread the operational hours evenly across the fleet and facilitate more involved maintenance. Enrollment of the TPSB into the USCG internal maintenance and repair program has helped ensure availability for training platforms. However, parts availability has at times negatively impacted the TPSB's operational availability while deployed to Guantanamo Bay, Cuba. Issues of structural integrity have also manifested on several TPSBs with stress cracks occurring on all 55 platforms assigned to PSUs. Thru-hull cracks below the waterline have been identified on 13 of the 55 platforms, and PSU Force Management has collaborated with Small Boat Product Line on a comprehensive TPSB hull repair plan.

e. Modernization Programs and Shortfalls

The USCG continues to aggressively pursue replacement of its aging boat platforms, weapons, and other equipment. Once procured and fielded, the RC will require additional training to become proficient on the new equipment and maintain operational readiness.

The USCG Small Boat Product Line has achieved full integrated logistics support for the RB-S II and TPSB Generation IV boat fleet. A plan for the recapitalization of these assets has not yet been completed. Efforts to identify platform capability requirements and required funding are expected to begin shortly.

In FY 2014, PSUs completed the full transition from .40 caliber pistols to the 9mm pistol. The USCG contracted to transition M16A2 rifles to a full complement of M4 variant carbines at the same time. The fielding of the M4 has commenced, and a full transition to the M4 carbine is expected to be completed in FY 2018. This acquisition enables PSUs to realize efficiencies through existing DoD supply chains and logistical infrastructure.

f. Overall Equipment Readiness

The USCG Reserve has made strides in the PSU community to recapitalize, upgrade, and standardize major equipment systems; however, a high operating tempo over the last 14 years, in support of both expeditionary and domestic contingencies, has created a need to replace aging and rapidly degrading equipment. The TPSB Generation IV is at the middle of its life cycle, with an average age of 5.5 years per platform. Continual use in a harsh deployed environment has demonstrated the need for asset rotation and depot-level maintenance plans to ensure continued viability. This program requires ongoing support to operation and maintenance budgets to ensure operability of the boat platform on a routine basis. Maximum availability of operational boats for seamanship and gunnery training is imperative for RC personnel to attain required qualifications. Major purchases over the past two fiscal years for equipment such as all terrain forklifts and mobile armories has led to a more standardized, interoperable, and operationally flexible organization. Funding for maintenance budgets is critical to ensure the long-term availability of these components. The cost of repairing, maintaining, and recapitalizing PSU equipment is \$1.9M annually.

B. Changes since the Last NGRER

The Reserve Training Appropriation experienced modest growth in FY 2017 rising to a level of \$112M from the \$110M appropriated in FY 2016. This modest increase in base funding did not fully address resource shortfalls, which negatively impact the Coast Guard's ability to access, train, and retain the necessary Reserve workforce.

C. Future Years Program (FY 2019–FY 2021)

1. FY 2021 Equipment Requirements

Table 1 Consolidated Major Item Inventory and Requirements provides projected FY 2019 through FY 2021 inventories and requirements for major equipment. All equipment is procured and accounted for by the AC.

2. Anticipated New Equipment Procurements

The USCG is updating the aging RB-S I fleet with the RB-S II. The 29' RB-S II is a high-speed platform that handles a wide range of Coast Guard missions close to shore, including search and rescue; law enforcement; PWCS; drug and migrant interdiction; and environmental protection and response. By FY 2019, 100 percent of the RB-S II upgrades will be complete.

3. Anticipated Withdrawals from RC Inventory

Field kitchens will begin being removed from the PSU inventory in FY 2018. Anticipate all Field Kitchens to be removed by the end of FY 2019.

4. Remaining Equipment Shortages and Modernization Shortfalls at the End of FY 2021

Table 1 Consolidated Major Item Inventory and Requirements and *Table 8 Significant Major Item Shortages* provide RC equipment inventories, shortfalls, and modernization requirements.

USCG unit operations and maintenance fund managers include PPE in annual budget requests. In recent years, fiscal constraints have generated gaps between available and required funding.

Funding for PPE is based on a five-year cycle, which provides the unit enough funding to fully outfit each member with new/serviceable equipment at the end of a five-year period. The five-year cycle was developed in part based on the equipment service life and member assignments or transfers.

The AC provides PPE for both AC and RC personnel using its operation and maintenance funds. The Reserve Training Appropriation does not fund PPE for RC personnel. Approximately 4,700 filled positions, or 67 percent, of the RC have mobilization requirements requiring PPE to safely conduct USCG operations. The annual estimated PPE shortfall for RC personnel totals \$433K.

Table 6 2 provides the FY 2018 PPE funding shortfall. The absence of PPE funding diminishes Reserve mobilization readiness and the ability to safely train. Reservists must be properly outfitted to safely perform USCG operations to achieve and maintain their mobilization competencies.

Table 6-1. Coast Guard FY 2018 PPE Funding for the RC

Unit/PPE Type	Cost	# of Personnel	Total	Total/Year
Ashore (Reserve) Basic Ensemble (Boat Station)	\$1,780	1,584	\$2,819,520	\$563,904
Ashore (Reserve) Cold Ensemble (Boat Station)	\$1,854	1,044	\$1,935,576	\$387,115
Ashore (Reserve) Basic Ensemble (Aids to Navigation Team)	\$1,780	3	\$5,340	\$1,068
Ashore (Reserve) Cold Ensemble (Aids to Navigation Team)	\$1,854	3	\$5,562	\$1,112
Sector Ops (Reserve) Basic Ensemble	\$1,780	619	\$1,101,820	\$220,364
Sector Ops (Reserve) Cold Ensemble	\$1,854	425	\$787,950	\$157,590
Tactical (Reserve) Basic/Cold Ensemble (PSU)	\$3,634	320	\$1,162,880	\$232,576
PPE per Person Total		3,998	\$7,818,648	\$1,563,729
Total	\$7,818,648			
Total/Year	\$1,563,729			Annual Shortfall
Total Available	\$1,130,588			(\$433,141)

All members of the Coast Guard must wear specific equipment when conducting law enforcement missions. The AC provides equipment to conduct these missions to both the AC and RC using individual unit operation and maintenance funds. As with PPE, the RC does not procure law enforcement gear for RC members. The cost to outfit each member is approximately \$2,000.

D. Summary

The USCG depends on the Reserve force to be ready within 48 hours to mobilize with critical competencies in boat operations, contingency planning and response, expeditionary warfare, marine safety, port security, law enforcement, and mission support. The Coast Guard Reserve is fully integrated with the AC. Both components collaboratively train and jointly conduct day-to-day operations. This ensures Reserve members are properly trained for contingency operations and allows us to augment the AC.

Adequate funding to support equipment procurement and maintenance as well as necessary training to operate and maintain the equipment is critical to sustaining an effective operational reserve. The USCGR will continue to be an invaluable force, ready to perform the missions critical to maritime homeland security, national defense (domestic and expeditionary), and domestic disaster operations. Predictable and steady funding is critical to sustain USCG operational integration, which is essential in responding to various contingencies and fulfilling the security demands of the Nation.

USCGR

Table 1

Consolidated Major Item Inventory and Requirements

NOTE: This table provides a comprehensive list of selected major equipment items. It provides the projected inventory quantity on-hand (QTY O/H) at the beginning/end of the selected fiscal year (FY). It also provides the quantity required (QTY REQ) to meet the full wartime requirements of the Reserve Component. In accordance with Title 10, the QTY REQ number provides the recommendation as to the quantity and type of equipment that should be in the inventory of each Reserve Component. FY 2018 unit cost estimates are provided by the Military Departments.

Nomenclature	Unit Cost	Begin FY 2019 QTY O/H	Begin FY 2020 QTY O/H	Begin FY 2021 QTY O/H	End FY 2021 QTY O/H	End FY 2021 QTY REQ
Port Security Units (PSU)						
AN/PRC-117G Wideband, Multiband, Multi-mission Tactical Boat Radio	\$18,750	55	55	55	55	55
Fly Away Kit (Portable Satellite Communications Kit)	\$5,329	4	4	4	4	4
AN/PRC-152A Wideband, Handheld, Networking Radio	\$15,392	288	288	288	288	288
Power Amplifier RF-7800UL-V150 (1 per PRC-117G radio)	\$20,000	32	32	32	32	32
M4-Variant Rifle	\$1,100	176	1,032	1,032	1,032	1,032
SIG P229R DAK 9mm Pistol	\$660	528	528	528	528	528
Deployable Medical Officer Kits	\$111,000	3	3	3	3	3
Portable Armory	\$75,000	8	8	8	8	8
Portable loading ramps	\$14,780	24	24	24	24	24
Portable Scales	\$9,380	48	48	48	48	48
All Terrain Forklift	\$171,000	6	8	8	8	8
Polytetrafluoroethylene 32' Transportable Port Security Boat (TPSB) Covers	\$1,200	55	55	55	55	55
Vehicle, F550 Stake-bed (1 per unit)	\$56,000	6	6	6	6	8
Vehicle, F450 Pickup (5 per unit)	\$46,000	40	40	40	40	40
Vehicle, 15 PAX Van (1 per unit)	\$45,000	8	8	8	8	8
Generators with Distribution Panel	\$44,000	24	24	24	24	24
32' Transportable Port Security Boat (TPSB)	\$495,000	59	59	59	59	59
Utility Trailer (1 per unit)	\$7,000	8	8	8	8	8
Searchlight Set	\$7,700	8	8	8	8	8
Tactical Lighting Field Kits	\$5,100	8	8	16	16	16
Counter, Frequency (DC to 500HHZCW)	\$4,461	8	8	8	8	8
Analyzer, Communication	\$4,390	8	8	8	8	8
Computer, Laptop	\$4,000	16	16	16	16	16
Fuel Bladder 3K Gallons	\$3,885	24	24	24	24	24
Water Buffalo	\$47,000	8	8	8	8	8
Forklift	\$42,000	8	8	8	8	8
Fuel Containment Boom	\$2,200	24	24	24	24	32
Vidmar, Storage Container	\$3,246	32	32	32	32	88
Unity Triband Radio	\$5,000	110	110	110	110	110
Base X Shelter (6D31)	\$27,996	112	112	112	112	112
Water Bladder, 2K-gallon capacity	\$8,776	8	8	8	8	8
USCG Boat Forces						
Response Boat-Small I (RB-S I)	\$186,000	115	64	14	0	0
RB-S II	\$330,000	266	318	352	352	352

USCGR

Table 1

Consolidated Major Item Inventory and Requirements

Nomenclature	Unit Cost	Begin FY 2019 QTY O/H	Begin FY 2020 QTY O/H	Begin FY 2021 QTY O/H	End FY 2021 QTY O/H	End FY 2021 QTY REQ
Mobile Support Units (MSU)						
Trailers, Tools / Equipment	\$150,000	1	1	1	1	1
Truck, Stake-bed Class 8	\$126,000	2	2	2	2	2
Truck, Stake-bed	\$65,000	2	2	2	2	2
Generator, 240kW	\$120,000	4	4	4	4	4
Forklift, 10,000 lb	\$90,000	1	2	2	2	2
Trailer, Administrative Support	\$86,463	2	2	2	2	2
Trailer, Maintenance Shop	\$83,688	7	7	7	7	7
Trailer, Logistic Support Parts	\$58,462	6	6	6	6	6
Trailer, Open Bulk Storage	\$49,600	4	4	4	4	4
Truck, Pickup	\$45,000	2	2	2	2	2
A/C - H/P	\$10,000	4	4	4	4	4
Portable Welding/Cutting Shops	\$30,000	2	2	2	2	2
Generator, Magnum 25kW	\$10,000	4	4	4	4	4
CONEX Boxes, 40' X 8'	\$30,000	2	2	2	2	2
CONEX Boxes, 20' X 8'	\$12,000	8	8	8	8	8
CONEX Boxes, 8' X 8'	\$15,000	2	2	2	2	2
Power Distribution Center	\$12,000	4	4	4	4	4
AC&R Repair and Service Kits	\$10,000	2	2	2	2	2
DC Kit, Compressed Air & GenSet	\$8,000	2	2	2	2	2
Computer, Laptop	\$2,000	2	4	4	4	4
Gator, 6X6 Diesel Terrain Vehicle	\$6,500	3	3	3	3	3
Generator, Light Tower	\$5,716	5	5	5	5	5
Generator, Microsilent 12kW	\$3,500	4	4	4	4	4
Base X Shelter (6D31) Command	\$27,966	1	1	1	1	1
Base X Shelter (505) Maintenance	\$24,190	1	1	1	1	1
Drash Shelter (6S)	\$18,300	5	5	5	5	5
Drash Shelter (2S)	\$9,200	6	6	6	6	6
Environmental Control Unit (ECU), Drash	\$92,131	1	1	1	1	2
Diesel Powered Welder	\$3,000	1	1	1	1	1
Special Missions Training Center (SMTC)						
32' Transportable Port Security Boat (TPSB)	\$495,000	4	4	4	4	4
Environmental Control Unit (ECU), HP-2C/338 IPT	\$130,497	4	4	4	4	4
Base X Shelter (6D31)	\$27,966	1	1	1	1	1
Base X Shelter (505)	\$24,190	1	1	1	1	1
Base X Shelter (307)	\$18,445	4	4	4	4	4
Base X Shelter (305)	\$13,008	8	8	8	8	8
Base X Shelter (203)	\$8,392	3	3	3	3	3
Trailer, Tank	\$12,955	1	1	1	1	1
ISU 90 Shipping Container	\$8,600	1	1	1	1	1
* The AC manages all equipment for the Coast Guard Total Force.						

USCGR

Table 2

Average Age of Equipment

NOTE: This table provides the average age of selected major equipment items. The average age provides a projected average age of the fleet at the start of FY 2018.

Nomenclature	Average Age	Remarks
Port Security Units (PSU)		
32' Transportable Port Security Boat (TPSB)	6	
Radio Set AN/PRC-117G	4	
AN/PRC-152A Wideband, Handheld, Networking Radio	6	
Unity Triband Radio	2	Recently installed on TPSBs to replace the Motorola systems.
Portable Armory	5	Procurement actions for all 8 required portable armories have been completed. 1 of 8 delivered by start of FY 2018.
All Terrain Forklift	3	
All Terrain Vehicle, Gator (1 per unit)	4	
Vehicle, F550 Stake-bed (1 per unit)	6	
Vehicle, F450 Pickup (5 per unit)	6	
Vehicle, 15 PAX Van (GSA Leased, non-deployable)	3	
Generator 125kW with distro panel (3 per unit)	6	
Generator, Signal Synthesizer, Frequency, MG3641N (500 KHz to 1024 MHz AM/FM)	9	
Utility Trailer (1 per unit)	13	
Counter, Frequency (DC to 500HHZCW)	14	
Analyzer, Communication	12	
Fuel Bladder 3K Gallon	11	
Fuel Containment Boom	6	
Tents	6	
Tactical Field lighting kits	8	
Aircraft loading ramps	10	
Water Buffalo (1 per unit)	2	
Base X Shelters (14 per PSU)	6	
USCG Boat Forces		
Response Boat Small I (RB-S I)	12	
RB-S II	4	
Mobile Support Units (MSU)		
Truck, Stake-bed Class 8	6	
Truck, Stake-bed	14	
Truck, Pickup	13	
Gator, 6X6 Diesel Terrain Vehicle	8	
Generator, 240kW	11	
Generator, Light Tower	11	
Generator, Magnum 25kW	11	
Generator, Microsilent 12kW	14	
Forklift, 10,000 lb	13	
Trailers, Tools / Equipment	10	
Trailer, Administrative Support	9	

USCGR Average Age of Equipment

Table 2

Nomenclature	Average Age	Remarks
Trailer, Logistic Support Parts	10	
Trailer, Maintenance Shop	9	
Trailer, Open Bulk Storage	10	
Computer, Laptop	1	
A/C - H/P (Air Rover Units)	11	
Portable Welding/Cutting Shops	11	
CONEX Boxes, 40' X 8'	18	
CONEX Boxes, 20' X 8'	5	
CONEX Boxes, 8' X 8'	13	
Power Distribution Center	4	
AC&R Repair and Service Kits	8	
DC Kit, Compressed Air & GenSet	9	
Diesel Powered Welder	10	
Environmental Control Unit (ECU), HP4-DL	12	
Base X Shelter (6D31) Command	12	
Base X Shelter (505) Maintenance	12	
Drash Shelter (6S)	12	
Drash Shelter (2S)	12	
Special Missions Training Center (SMTC)		
32' Transportable Port Security Boat (TPSB)	5	
Environmental Control Unit (ECU), HP-2C/338 IPT	4	
Base X Shelter (6D31)	9	
Base X Shelter (505)	9	
Base X Shelter (307)	9	
Base X Shelter (305)	9	
Base X Shelter (203)	9	
Trailer, Tank	15	
ISU 90 Shipping Container	8	

USCGR

Table 3

Service Procurement Program - Reserve (P-1R)

NOTE: This table identifies the dollar value of programmed equipment procurement as identified in the P-1R exhibit of the FY 2019 President's Budget Request. All values are costs in dollars and exclude ammunition procurements. Deliveries of procured equipment normally take one to two years before they arrive in the inventory; e.g., items procured in FY 2019 are expected to arrive in RC inventories in FY 2020 or FY 2021.

Nomenclature	FY 2019	FY 2020	FY 2021

Table 3 not applicable for USCGR

National Guard and Reserve Equipment Appropriation (NGREA) Procurements

NOTE: This table identifies the dollar value of planned equipment procurements with the National Guard and Reserve Equipment Appropriation (NGREA). These funds are available for a three-year period from the year of appropriation. Deliveries of procured equipment normally take one to two years from date of procurement before they arrive in the inventory; e.g., items procured in FY 2018 would be expected to arrive in RC inventories in FY 2019 or FY 2020. All values are costs in dollars.

Nomenclature	FY 2016	FY 2017	FY 2018

Table 4 not applicable for USCGR

Projected Equipment Transfer/Withdrawal Quantities

NOTE: This table portrays the planned equipment transfers (Active to Reserve), withdrawals (-), and decommissioning (-). Transferred equipment is commonly called "cascaded equipment," or equipment that is provided to the RC once the AC receives more modern equipment. Although this table highlights a three-year period, many Services will not know exact quantities of transfers or withdrawals until year of execution, due to the uncertainty of the procurement/delivery cycle of new equipment.

Nomenclature	Equip No.	FY 2019 Qty	FY 2020 Qty	FY 2021 Qty	Remarks

Service has no planned transfers or withdrawals for the years FY 2019 thru FY 2021.

USCGR

Table 6

FY 2015 Planned vs Actual Procurements and Transfers

NOTE: This table compares planned Service procurements and transfers to the RC in FY 2015 with actual procurements and transfers. FY 2015 is selected as these are the most recent funds to expire. Because the procurement cycle is normally one to two years from funding to delivery, this table identifies only deliveries through the end of FY 2017. Procurement and NGREA columns reflect cost values in dollars.

Nomenclature	Equip No.	FY 2015 Transfers (# of items)		FY 2015 Procurements (\$s)		FY 2015 NGREA (\$s)	
		Plan	Actual	Plan	Actual	Plan	Actual

USCGR had no planned or actual transfers or procurements of major equipment during FY 2015

USCGR

Table 7

Major Item of Equipment Substitution List

NOTE: This table identifies equipment authorized by the Service to be used as a substitute for a primary item of equipment. The table also identifies whether or not the item is deployable in wartime. This data meets the Title 10 requirement to identify substitutes that are not the most desired equipment item.

Required Item Nomenclature	Reqd Item Equip No.	Substitute Item Nomenclature	Substitute Item Equip No.	FY 2019 Qty	Deployable?	
					Yes	No

**Service Does Not Use Substitution to Satisfy Major Item
Equipment Requirements**

Significant Major Item Shortages

NOTE: This table provides a RC prioritized (PR) shortage list for major equipment items required for wartime missions but which are currently not funded in the FYDP. It lists the total quantity required, the total unfunded requirement, the individual item cost, and the cost of the unfunded portion. This data is consistent with other unfunded equipment data submitted by the Service.

PR	Nomenclature	Total Req'd	# Items ¹ Short	Item Cost	Total Shortage Cost	Rationale/Justification
1	Vehicle, F550 Stake-bed	8	1	\$56,000	\$56,000	One required per Port Security Unit (PSU) for a total of eight. PSUs require a vehicle capable of towing a Transportable Port Security Boat (TPSB) and moving large equipment such as an ISU 90 container. Current vehicles are approaching end of life cycle and require recapitalization. Diesel fuel required for use outside the continental United States.
2	Deployable Medical Officer Kits	4	2	\$111,000	\$222,000	The medical officer kit allows PSUs to maintain self sustainability in a vulnerable joint security area where medical transportation for treatment by a Coast Guard medical officer incurs additional safety and security risks.
3	All Terrain Forklift	8	2	\$171,000	\$342,000	One required per Port Security Unit (PSU) for a total of eight. PSUs require a vehicle capable of moving large equipment such as an ISU 90 container in austere environments. Six forklifts were previously purchased. Two more need to be procured so that each PSU has this organic, standardized capability.
4	Palm Infrared, Thermal Imager	16	16	\$9,450	\$151,200	Needed for PSU Shoreside Security Divisions to maintain perimeter security and entry control points for life support areas (base camps).
5	Searchlight Set	8	8	\$7,700	\$61,600	Required by PSUs to conduct nighttime security operations.
6	Base X Field Tents	14	14	\$17,616	\$246,624	Required by PSUs for tactical safety and security; PSUs 305 and 311 each require seven Base X units.
7	Tactical Field Lighting Sets	16	16	\$5,100	\$81,600	Two sets required by each PSU for tactical safety and security.
8	Aircraft Loading Ramps	24	12	\$8,000	\$96,000	Two sets required by each PSU for air/sea/rail mobility and adherence to Air Force requirements.
<p>1. Shortage items are required for AC recapitalization of outdated equipment. The AC manages all equipment for the Coast Guard Total Force.</p>						

Appendix A

Report Requirements, Terminology, and Definitions

I. Report Requirements

A. Overview of Statutory Requirement

The DoD Authorization Act of 1982 (Public Law 97-86), as amended, established the requirement for DoD to provide an annual report to the Congress, by March 15th of each year, on the status of National Guard and Reserve equipment; hereafter referred to as the NGRER. The Goldwater-Nichols DoD Reorganization Act of 1986 amended Title 10 of the United States Code (U.S.C.) placing the reporting requirement under Section 115(b). The Congress in Public Law 103-337 transferred reporting requirements to a new Subtitle E, Reserve Components, Part I, Chapter 1013, which was redesignated Section 10541. In compliance with the FY 1993 National Defense Authorization Act (NDAA), Section 1134, Title XI, the NGRER was expanded to include a description of the current status of equipment incompatibility between the Active Component (AC) and Reserve Component (RC), the effect of that level of incompatibility, and the plan to achieve full compatibility. Finally, the FY 2008 NDAA, Sections 351(a), 351(c)(1), and 1826 added additional National Guard equipment reporting requirements to the NGRER. Sections 351(a) and 351(c)(1) added the requirement for an assessment of the extent to which the National Guard possesses the equipment required to suppress insurrections (10 U.S.C. §§ 331–333), provide assistance in cases of weapons of mass destruction or terrorist attacks (10 U.S.C. § 12304(b)), or to repel invasions, suppress rebellions, or execute the laws of the United States (10 U.S.C. § 12406) in an emergency or major disaster. Section 1826 required a statement of the accuracy of past National Guard equipment inventory projections, and a certification from the Chief of the National Guard Bureau setting forth the inventory of equipment items that were due to be procured in the preceding fiscal year, but were not received.

This report is prepared by the Office of the Assistant Secretary of Defense for Readiness with the assistance of the Department of the Army, the Department of the Navy, the Department of the Air Force, and the Department of Homeland Security (United States Coast Guard).

B. Current Law

The section below is an excerpt from Section 10541, Title 10, U.S.C. Changes required by the FY 2008 NDAA are highlighted.

National Guard and Reserve Component Equipment: Annual Report to Congress

(a) The Secretary of Defense shall submit to the Congress each year, not later than March 15, a written report concerning the equipment of the National Guard and the reserve components of the armed forces for each of the three succeeding fiscal years.

(b) Each report under this section shall include the following:

(1) Recommendations as to the type and quantity of each major item of equipment which should be in the inventory of the Selected Reserve of the Ready Reserve of each reserve component of the armed forces.

(2) A statement of the quantity and average age of each type of major item of equipment which is expected to be physically available in the inventory of the Selected Reserve of the Ready Reserve of each reserve component as of the beginning of each fiscal year covered by the report.

(3) A statement of the quantity and cost of each type of major item of equipment which is expected to be procured for the Selective Reserve of the Ready Reserve of each reserve component from commercial sources or to be transferred to each such Selected Reserve from the active-duty components of the armed forces.

(4) A statement of the quantity of each type of major item of equipment which is expected to be retired, decommissioned, transferred, or otherwise removed from the physical inventory of the Selected Reserve of the Ready Reserve of each reserve component and the plans for replacement of that equipment.

(5) A listing of each major item of equipment required by the Selected Reserve of the Ready Reserve of each reserve component indicating -

(A) the full war-time requirement of that component for that item, shown in accordance with deployment schedules and requirements over successive 30-day periods following mobilization;

(B) the number of each such item in the inventory of the component;

(C) a separate listing of each such item in the inventory that is a deployable item and is not the most desired item;

(D) the number of each such item projected to be in the inventory at the end of the third succeeding fiscal year; and

(E) the number of non-deployable items in the inventory as a substitute for a required major item of equipment.

(6) A narrative explanation of the plan of the Secretary concerned to provide equipment needed to fill the war-time requirement for each major item of equipment to all units of the Selected Reserve, including an explanation of the plan to equip units of the Selected Reserve that are short of major items of equipment at the outset of war.

(7) For each item of major equipment reported under paragraph (3) in a report for one of the three previous years under this section as an item expected to be procured for the Selected Reserve or to be transferred to the Selected Reserve, the quantity of such equipment actually procured for or transferred to the Selected Reserve.

(8) A statement of the current status of the compatibility of equipment between the Army reserve components and active forces of the Army, the effect of that level of incompatibility on combat effectiveness, and a plan to achieve full equipment compatibility.

(9) (Added by FY 2008 NDAA, Sections 351(a) and 351(c)(1)) An assessment of the extent to which the National Guard possesses the equipment required to perform the responsibilities of the National Guard pursuant to sections 331, 332, 333, 12304(b) and 12406 of this title in response to an emergency or major disaster (as such terms are defined in section 102 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act (42 U.S.C. 5122)). Such assessment shall—

(A) identify any shortfall in equipment provided to the National Guard by the Department of Defense throughout the United States and the territories and possessions of the United States that is likely to affect the ability of the National Guard to perform such responsibilities;

(B) evaluate the effect of any shortfall on the capacity of the National Guard to perform such responsibilities in response to an emergency or major disaster that occurs in the United States or a territory or possession of the United States; and

(C) identify the requirements and investment strategies for equipment provided to the National Guard by the Department of Defense that are necessary to plan for a reduction or elimination of any such shortfall.

(c) Each report under this section shall be expressed in the same format and with the same level of detail as the information presented in the annual Future Years Defense Program Procurement Annex prepared by the Department of Defense.

(d) (Added by FY 2008 NDAA, Section 1826) Each report under this section concerning equipment of the National Guard shall also include the following:

(1) A statement of the accuracy of the projections required by subsection (b)(5)(D) contained in earlier reports under this section, and an explanation, if the projection was not met, of why the projection was not met.

(2) A certification from the Chief of the National Guard Bureau setting forth an inventory for the preceding fiscal year of each item of equipment—

(A) for which funds were appropriated;

(B) which was due to be procured for the National Guard during that fiscal year; and

(C) which has not been received by a National Guard unit as of the close of that fiscal year.

II. Report Objective

Based upon the law, the Office of the Assistant Secretary of Defense for Readiness (Readiness Programming and Resources), with concurrence from all Services, has identified the following objectives:

- Provide the Services' plan to equip their Reserve forces in a time of constrained DoD budgets.
- Concentrate on FY 2018–FY 2020 RC requirements, procurements and changes.
- Provide an overview of current RC equipment from three perspectives:
 - current status of equipment on-hand.
 - future year equipment procurements for FY 2018–FY 2020
 - remaining shortfall for FY 2020 and beyond.
- Focus primarily on major items of equipment.

III. Report Contents

A. Overview (Chapter 1)

Chapter 1 presents a composite DoD perspective on National Guard and Reserve equipment and serves as the executive summary of the report.

B. Service Narratives and Data Tables (Chapters 2–6)

Chapters 2 through 6 present the status of each Service and their respective RC in terms of RC equipping policies and methodologies. Each chapter contains a Service and RC overview, and includes a discussion of current equipment status, future equipment procurements, and remaining shortfalls and unfunded requirements. Each chapter includes a review of the current status of equipment compatibility and interoperability between the AC and the RC of each Service, the effect of that level of compatibility/interoperability, and a plan to achieve full compatibility/interoperability.

RC data tables for each Service contain specific information on major items of equipment selected for review in this report and are placed at the end of each RC narrative section. The NGRER articulates data in eight tables (*Tables 1-8*) for each RC. In a situation where data tables are not applicable to a particular RC, a blank page has been inserted to note that table data is not applicable. The “Data Table Explanation” at the end of this section defines the data contained in *Tables 1-8*.

IV. Terminology and Definitions

Major Items of Equipment include aircraft, tanks, ships, trucks, engineer equipment and major items of support equipment. These items normally will include large dollar value requirements, critical RC shortages, Service and National Guard and Reserve Equipment Appropriation (NGREA) procured items, and any RC specific item which the Chief of the specific RC wishes to highlight.

Required Quantity is the total number of an item required to be on-hand or available to RC units to go to war and accomplish their missions. This includes requirements for war reserve and other stocks. The simplified term “requirement,” as used in this report, is synonymous with “full wartime requirement,” and satisfies the requirement in Title 10 to provide a “recommendation” as to the type and quantity of equipment needed in RC inventories.

On-hand Quantity is the equipment physically on-hand in RC or AC units or in war reserve and other stocks specifically designed for wartime use by the RC or AC.

Deployable Item is an item which, considering its suitability, operability, compatibility and supportability, will provide an expected degree of mission success sufficient to warrant its wartime operational employment.

Compatibility/Interoperability denotes the capability of two items of equipment to operate together in the same environment without interfering with one another and without degrading function or unit capability.

Substitute Item is not the most desired item but based upon its capability can be employed in wartime in lieu of a combat essential required item of equipment. It may not function at the same level of capability as the item in the AC for which it is the substitute.

Equipment Shortage (Shortfall) is the difference between the quantity required and the quantity on-hand, excluding substitute items and excess quantities beyond the required quantity.

Modernization Shortfall is the difference between the required quantity of the most modern item and the on-hand quantity of that item. Modernization shortfalls are not necessarily equipment shortages as most Services substitute older versions of an item for the most modern item. Therefore, modernization shortfalls are shortages of the most modern item only, and can have a significant effect upon compatibility and interoperability.

V. Data Tables

A. Table Contents

A separate set of Data Tables (*Tables 1-8*) is provided in Chapters 2 through 6 for each RC. These tables contain the required information relative to major items of equipment identified in the report. The following list identifies the separate data tables that are included in the report for each RC.

- Table 1: Consolidated Major Item Inventory and Requirements (This is an all-inclusive table while other tables are subsets of *Table 1*.)
- Table 2: Average Age of Equipment
- Table 3: Service Procurement Program - Reserve (P-1R)
- Table 4: National Guard and Reserve Equipment Appropriation (NGREA) Procurements
- Table 5: Projected Equipment Transfer/Withdrawal Quantities
- Table 6: FY 2015 Planned vs Actual Procurements and Transfers
- Table 7: Major Item of Equipment Substitution List
- Table 8: Significant Major Item Shortages

B. Table Explanations

The following paragraphs provide an explanation of the data table columns and data criteria by Table.

Table 1: Consolidated Major Item Inventory and Requirements. This table provides a comprehensive list of selected major items of equipment the RC chooses to highlight, by providing key administrative data, on-hand inventories and wartime requirements.

RC is the specific Reserve or National Guard entity, i.e., ARNG, USAR, USMCR, ANG, AFR, USNR, or USCGR.

Nomenclature is the description or common name of the item of equipment.

Equipment Number is the individual Service equipment identification code: Line Item Number for the Army; Table of Authorized Materiel Control Number for the Marine Corps; Equipment Cost Code for Navy engineering items; and National Stock Number for the Air Force.

Cost is the FY 2018 procurement cost per unit. If an item is no longer being procured, the inflation adjusted cost from the last procurement is shown. If an item is programmed for initial procurement beyond FY 2019, the data table depicts the projected unit cost at the time of procurement.

Quantity On-hand (QTY O/H) is the actual/projected item count for a particular item of equipment at a specified time.

Quantity Required (QTY REQ) is the authorized wartime requirement for a given item of equipment.

Table 2: Average Age of Equipment. This table is a subset of *Table 1* and highlights the average age of selected items of equipment.

Average Age is the calculated age of a given item of equipment. Since equipment is normally procured over several years, this figure provides an average age of the fleet at the start of FY 2018.

Table 3: Service Procurement Program - Reserve (P-1R). This table highlights items of equipment, which the Service intends to procure for their RC. The source of this data is the P-1R exhibit to the President's Budget.

Table 4: National Guard and Reserve Equipment Appropriation (NGREA) Procurements. This table highlights the items, which the RC plan on procuring with miscellaneous NGREA funds. Since these funds are available for three years, this table highlights those items in the current procurement cycle.

Table 5: Projected Equipment Transfer/Withdrawal Quantities. This table portrays the planned equipment transfers (AC to RC), withdrawals, and decommissioning. Transfers are commonly called "cascaded" equipment or equipment that is provided to the RC once the AC receives more modern equipment items. Although this table highlights a three-year period, many Services do not know exact quantities of transfers or withdrawals until year of execution due to the uncertainty of the procurement/delivery cycle of new equipment.

Table 6: FY 2015 Planned vs Actual Procurements and Transfers. This table compares what the Service planned to procure and transfer to the RC in FY 2015 with actual procurements and transfers. Since the procurement cycle is normally one to three years from funding to delivery, this table identifies only what has been delivered through the end of FY 2017.

Planned Quantity is the item quantity the Service programmed to deliver to the RC as part of the budgeting process.

Actual Quantity is the item quantity the Service actually delivered or has in the procurement cycle to deliver to the RC.

Table 7: Major Item of Equipment Substitution List. A list of equipment authorized by the Service to be used as a substitute for a primary item of equipment. This table also identifies whether this substitute item is suitable for deployment in time of war.

Nomenclature (Required Item/Substitute Item), see *Table 1* description for nomenclature.

Equipment Number (Required Item/Substitute Item), see *Table 1* description for equipment number.



Table 8: Significant Major Item Shortages. The top ten items of equipment and modernization/upgrades, which are not funded in the FY 2019–FY 2021 Future Years Defense Program, are listed in this table in priority order. If additional funds were to become available, the RC would apply those funds to the highest priority item on this list.

Appendix B

National Guard Equipment Reporting Requirements

This appendix provides the DoD response to the requirement, in accordance with section 10541(b)(9) of title 10, United States Code (U.S.C.), for an assessment of the extent to which the National Guard possesses equipment necessary to perform certain specified federal missions in response to an emergency or major disaster in the United States (Section I,) and the requirement, in accordance with section 10541(d) of title 10, U.S.C., to provide a statement of accuracy on projections and a certification by the Chief of the National Guard Bureau regarding National Guard equipment (Section II.)

Figure B-1. Chief, National Guard Bureau Memorandum

	NATIONAL GUARD BUREAU 1636 DEFENSE PENTAGON WASHINGTON, DC 20301-1636
JAN 05 2018	
MEMORANDUM FOR DEPUTY ASSISTANT SECRETARY OF DEFENSE FOR READINESS	
SUBJECT: Certification and Statement of Accuracy to Accompany the Annual National Guard and Reserve Equipment Report	
References: Title 10 United States Code, Section 10541, "National Guard and Reserve Component Equipment: Annual Report to Congress"	
I submit this certification and statement of accuracy with the attached Fiscal Year (FY) 2019 National Guard and Reserve Equipment Report (NGRER) in accordance with (IAW) subsection (d) of the reference.	
The Army National Guard plans to fully-implement the Global Combat Support System- Army in FY 2018. The Air National Guard will employ a Tiger Team to establish a recurring certification process for strategic incorporation into the Defense Property Accounting System.	
I support the Office of the Secretary of Defense for Readiness, the Department of the Army and the Department of Air Force's continuous efforts to ensure funding identified by Congress for the National Guard ultimately procures equipment for the Reserves. The on-going in-depth analysis, however, must seek to achieve balance between Congressional appropriation transparency, equipment delivery, and the Military Services' desire for budgetary flexibility.	
The point of contact for this issue is Colonel Denise W. Boyer, National Guard Bureau Logistics and Engineering, at 703-607-1082.	
 Joseph L. Lengyel General, U.S. Air Force Chief, National Guard Bureau	
Attachment: As stated	
cc: ASA (M&RA) ASAF (M&RA) DARNG DANG	

I. National Guard Overview

“Always Ready, Always There” ... this is the motto of America’s National Guard. It embodies the character and spirit of all those who have served in the National Guard from its founding to those serving today. From militia companies mustering on village greens in response to Paul Revere’s warning, to the ever-evolving and complex world that we live in today, the National Guard is more resilient, relevant and ready than ever before.”¹

Sustaining all of the advantages of today’s National Guard into the future requires maintaining this high state of readiness through operational use, relevant training, and continued investment in modernization and force structure.² The first priority of the Chief, National Guard Bureau is to provide ready forces to the president and our governors and that readiness begins with force structure. The National Guard Bureau (NGB) is working with the Army and Air Force to develop a balanced array of combat and enabling forces that largely mirrors the Active Component and is modernized concurrently.³

NGB readiness also includes plans to replace and upgrade obsolete or aging National Guard facilities and warfighting equipment. Ensuring proper training facilities and the latest equipment allows for realistic training and greatly enhances the readiness of our forces.⁴ The NGB must also invest in innovation in high-priority mission sets such as Intelligence, Surveillance, and Reconnaissance and Remotely Piloted Aircraft to maintain our competitive advantage against evolving threats.⁵ Essential to achieving these readiness objectives is predictable and dependable investment by the Services and Congress.

“With this investment, our interoperability with the joint force will continue to deepen and evolve as we prepare to confront future threats—threats that are now global, emanate from all domains, and are adaptable and multi-functional in their forms. Only a well-integrated and well- trained force will keep our nation safe and secure our national interests.”⁶

A. National Guard Readiness for Emergencies and Major Disasters in the United States

Army and Air National Guard units are designed for combat. Our units and wings have the structure, equipment, and training to function independently anywhere in the world. The combat skills and equipment that enable a brigade combat team or flying squadron to mobilize and succeed in Afghanistan also enable them to respond to a natural disaster in the United States. From trucks and airplanes to radios and medical tents, our resources are ready for conflict overseas and missions here at home. No other force in the Nation is able to rapidly provide military equipment and capabilities during a domestic emergency like the National Guard. The

¹ Written Statement of GEN Joseph L. Lengyel, Chief, National Guard Bureau, before the Senate Appropriations Committee, Subcommittee on Defense, April 26, 2017, p. 2.

² *2015 National Guard Posture Statement*, p. 7.

³ Written Statement of GEN Joseph L. Lengyel, Chief, National Guard Bureau, before the Senate Appropriations Committee, Subcommittee on Defense, April 26, 2017, p. 7.

⁴ *2018 National Guard Bureau Posture Statement*, page 7

⁵ Written Statement of GEN Joseph L. Lengyel, Chief, National Guard Bureau, before the Senate Appropriations Committee, Subcommittee on Defense, April 26, 2017, p. 10.

⁶ *2018 National Guard Bureau Posture Statement*, p. 4.

vast majority of our equipment is available to state governors for use in saving lives and property when not supporting federal missions.⁷

B. Army National Guard Equipment

The Army National Guard Dashboard (see Figure B-2), presents a snapshot of Army National Guard (ARNG) equipment On-hand (EOH), Critical Dual Use (CDU) equipment by Essential 10 Capabilities, projected equipment fielding impact from July 2017 through September 2018, and EOH of Modernized versus Not Modern equipment. As of June 2017, the ARNG EOH for Modified Table of Organization (MTOE) required equipment stood at 94 percent and at 89 percent for CDU equipment. Further breakdown of those numbers is provided for equipment available for Domestic Operations available to the governor, with MTOE EOH at 90 percent and CDU EOH at 84 percent. Equipment not available to the governor is primarily a result of Title 10 mobilizations. Minor fluctuations in EOH occur due to Title 10 missions and force structure changes, but with EOH rolled up to state and national level, impact is minimal.

Figure B-2. Army National Guard Dashboard, June 2017

Army National Guard Dashboard June 2017																																																																																			
<p>Equipment On-hand</p> <table border="1"> <tr> <td>Overall MTOE Equipment:</td> <td>94%</td> </tr> <tr> <td>Overall CDU MTOE Equipment:</td> <td>89%</td> </tr> <tr> <td colspan="2">Current Equipment Available for Domestic Operations</td> </tr> <tr> <td>MTOE</td> <td>90%</td> </tr> <tr> <td>Critical Dual Use Equipment - MTOE</td> <td>84%</td> </tr> </table> <p>Projected ARNG MTOE EOH Jun 2017 94% Projected ARNG MTOE Critical Dual Use EOH Jun 2017 90%</p>		Overall MTOE Equipment:	94%	Overall CDU MTOE Equipment:	89%	Current Equipment Available for Domestic Operations		MTOE	90%	Critical Dual Use Equipment - MTOE	84%	<p>Current Status of Critical Dual Use Equipment</p> <table border="1"> <thead> <tr> <th>E-10</th> <th>MTOE EOH</th> <th>MTOE AVAIL</th> </tr> </thead> <tbody> <tr><td>Aviation</td><td>93%</td><td>87%</td></tr> <tr><td>CBRN</td><td>97%</td><td>84%</td></tr> <tr><td>Cmd & Control</td><td>64%</td><td>62%</td></tr> <tr><td>Engineering</td><td>92%</td><td>90%</td></tr> <tr><td>Logistics</td><td>94%</td><td>91%</td></tr> <tr><td>Maintenance</td><td>93%</td><td>90%</td></tr> <tr><td>Medical</td><td>97%</td><td>94%</td></tr> <tr><td>Security</td><td>99%</td><td>89%</td></tr> <tr><td>Communications</td><td>95%</td><td>92%</td></tr> <tr><td>Transportation</td><td>91%</td><td>88%</td></tr> </tbody> </table> <p>CDU FY 17 List</p>		E-10	MTOE EOH	MTOE AVAIL	Aviation	93%	87%	CBRN	97%	84%	Cmd & Control	64%	62%	Engineering	92%	90%	Logistics	94%	91%	Maintenance	93%	90%	Medical	97%	94%	Security	99%	89%	Communications	95%	92%	Transportation	91%	88%																																					
Overall MTOE Equipment:	94%																																																																																		
Overall CDU MTOE Equipment:	89%																																																																																		
Current Equipment Available for Domestic Operations																																																																																			
MTOE	90%																																																																																		
Critical Dual Use Equipment - MTOE	84%																																																																																		
E-10	MTOE EOH	MTOE AVAIL																																																																																	
Aviation	93%	87%																																																																																	
CBRN	97%	84%																																																																																	
Cmd & Control	64%	62%																																																																																	
Engineering	92%	90%																																																																																	
Logistics	94%	91%																																																																																	
Maintenance	93%	90%																																																																																	
Medical	97%	94%																																																																																	
Security	99%	89%																																																																																	
Communications	95%	92%																																																																																	
Transportation	91%	88%																																																																																	
<p>Equipment deliveries Jul 2017 - Sep 2018 are 22.5K pieces, including:</p> <table border="1"> <thead> <tr> <th>Category</th> <th>Sum of Quantity</th> </tr> </thead> <tbody> <tr><td>Air Defense</td><td>15</td></tr> <tr><td>Aviation</td><td>136</td></tr> <tr><td>Combat Service Support</td><td>47</td></tr> <tr><td>Command and Control</td><td>472</td></tr> <tr><td>Fire Support</td><td>70</td></tr> <tr><td>Intelligence and Electronic Warfare</td><td>87</td></tr> <tr><td>Maneuver</td><td>3,315</td></tr> <tr><td>Medical</td><td>1,878</td></tr> <tr><td>Mobility</td><td>225</td></tr> <tr><td>Nuclear Biological and Chemical</td><td>17</td></tr> <tr><td>Other</td><td>197</td></tr> <tr><td>Soldier</td><td>12,051</td></tr> <tr><td>Transportation</td><td>675</td></tr> </tbody> </table>		Category	Sum of Quantity	Air Defense	15	Aviation	136	Combat Service Support	47	Command and Control	472	Fire Support	70	Intelligence and Electronic Warfare	87	Maneuver	3,315	Medical	1,878	Mobility	225	Nuclear Biological and Chemical	17	Other	197	Soldier	12,051	Transportation	675	<p>Modernized Equipment On-Hand vs Requirements</p> <table border="1"> <thead> <tr> <th>Category</th> <th>Modern PCT</th> <th>NOT Modern PCT</th> <th>Total OH</th> </tr> </thead> <tbody> <tr><td>Air Defense</td><td>90%</td><td>0%</td><td>90%</td></tr> <tr><td>Aircraft</td><td>82%</td><td>0%</td><td>82%</td></tr> <tr><td>Battle Command</td><td>82%</td><td>0%</td><td>82%</td></tr> <tr><td>CBT Mobility</td><td>82%</td><td>0%</td><td>82%</td></tr> <tr><td>CBT Vehicle & Strike</td><td>94%</td><td>0%</td><td>94%</td></tr> <tr><td>Field Log</td><td>90%</td><td>0%</td><td>90%</td></tr> <tr><td>Force Protection</td><td>99%</td><td>0%</td><td>99%</td></tr> <tr><td>Medical Field Systems</td><td>94%</td><td>0%</td><td>94%</td></tr> <tr><td>Other</td><td>75%</td><td>0%</td><td>75%</td></tr> <tr><td>Soldier Systems/Weapons</td><td>98%</td><td>0%</td><td>98%</td></tr> <tr><td>Trucks</td><td>95%</td><td>0%</td><td>95%</td></tr> <tr><td>National Total OH</td><td>94%</td><td>0%</td><td>94%</td></tr> </tbody> </table>		Category	Modern PCT	NOT Modern PCT	Total OH	Air Defense	90%	0%	90%	Aircraft	82%	0%	82%	Battle Command	82%	0%	82%	CBT Mobility	82%	0%	82%	CBT Vehicle & Strike	94%	0%	94%	Field Log	90%	0%	90%	Force Protection	99%	0%	99%	Medical Field Systems	94%	0%	94%	Other	75%	0%	75%	Soldier Systems/Weapons	98%	0%	98%	Trucks	95%	0%	95%	National Total OH	94%	0%	94%
Category	Sum of Quantity																																																																																		
Air Defense	15																																																																																		
Aviation	136																																																																																		
Combat Service Support	47																																																																																		
Command and Control	472																																																																																		
Fire Support	70																																																																																		
Intelligence and Electronic Warfare	87																																																																																		
Maneuver	3,315																																																																																		
Medical	1,878																																																																																		
Mobility	225																																																																																		
Nuclear Biological and Chemical	17																																																																																		
Other	197																																																																																		
Soldier	12,051																																																																																		
Transportation	675																																																																																		
Category	Modern PCT	NOT Modern PCT	Total OH																																																																																
Air Defense	90%	0%	90%																																																																																
Aircraft	82%	0%	82%																																																																																
Battle Command	82%	0%	82%																																																																																
CBT Mobility	82%	0%	82%																																																																																
CBT Vehicle & Strike	94%	0%	94%																																																																																
Field Log	90%	0%	90%																																																																																
Force Protection	99%	0%	99%																																																																																
Medical Field Systems	94%	0%	94%																																																																																
Other	75%	0%	75%																																																																																
Soldier Systems/Weapons	98%	0%	98%																																																																																
Trucks	95%	0%	95%																																																																																
National Total OH	94%	0%	94%																																																																																
<p><small>Basis of Projections - O/H Inventory: 07Jul17; Requirements: FY18 MTOE requirements from Dec 2016 SACS File; Distributions: Jul 17 - Sep 18. POC: LTC Mark Nelson, 703-607-9073 ARNG-RMO.</small></p>		<p><small>Equipping Posture Updated Semiannually Current Status - O/H Inventory: 07Jul17 includes substitutes and modernized replacement Modern Equipment is Mod Level >= Mod Level Cut in SECO P from AE2S Jun 17 LINS Requirements: Dec 2016 SACS File. POC: COL Bruce Walton, 703-607-7475 ARNG-LGS</small></p>																																																																																	

⁷ 2015 National Guard Posture Statement, p. 32.

The Army recognizes the need to track Modernized Equipment On-Hand (MEOH. MEOH is used to measure the Army’s modernization progress and shows modern inventory against requirements, excluding older substitutes. Using the MEOH methodology, ARNG June 2017 MEOH is 94 percent when also redistributing excess modernized equipment first at Modernization Level 3 or higher to replace older obsolete equipment in the force pool. The MEOH allows the Army to measure the equipping quality of the force across time at the aggregate and component levels.

The *Current Status of Critical Dual Use (CDU) Equipment* table provided in the ARNG Dashboard lists the aggregate MTOE equipment EOH percentages (total and available to governors for use in Domestic Operations for each of the Essential-10 capabilities required by the ARNG for filling equipment shortfalls to support both federal and domestic missions. This Dashboard table lists MTOE EOH and MTOE available percentages for ARNG equipment in each of the Essential-10 which includes equipment on which ARNG focuses its efforts for modernization and filling shortages. The table identifies ARNG areas that should be given additional special attention. Specific CDU areas of concern to the ARNG, include but are not limited to Aviation, Chemical, Biological, Radiological, and Nuclear (CBRN, Command and Control, and Security within the Essential-10 requirements for domestic operations.

1. Army National Guard Equipment Shortfalls

Total Army modernization efforts significantly increased ARNG MEOH bringing the ARNG closer to parity with the Active Component Army. Maintaining compatibility and interoperability is critical to readiness and achieving the Director, Army National Guard’s strategic vision. Likewise the “right mix” of unit capabilities combined with modern equipment is essential to conducting both the ARNG’s federal and domestic missions. The ARNG is the Nation’s first military responder for domestic operations and homeland defense. Key to the ARNG’s domestic response success is the reduction of all CDU equipment shortfalls that impact the ARNG’s capability to respond to disasters and emergencies.

a. Aviation

ARNG Aviation provides a critical capability for domestic and Emergency Management first responders. ARNG rotary-wing capabilities are called upon to fight wildfires, provide patient movement to support hurricane response, and are key to enable responders' movements in the early aftermath of natural and manmade disasters. The Army’s planned replacement of ARNG A- model Blackhawk helicopters with L and M models by FY 2023 or sooner has not changed.

Although not a current shortfall, in order to maintain uninterrupted domestic response capabilities it is critical that one-for-one equipment exchanges be seamless. Maintaining ARNG aviation capacity to respond when needed, in stride with modernization upgrades, provides the governors necessary flexibility and predictability.

b. CBRN

Army Nuclear, Biological, and Chemical (NBC Force Protection investments are centered on emerging technologies in Contamination Avoidance, Explosive Ordnance, Forensic Protective Systems, and Individual Protection. The ARNG will achieve over 90 percent fill in Transportable Robotics, Radiac Sets, and M41 Protective Masks by FY 2020. The ARNG has a modernization

requirement for 12 NBC Reconnaissance Vehicle (NBCRV Stryker variant vehicles, however Army shortages in NBCRVs remain across the Total Army, and there is currently no way ahead for fielding. In addition to the NBCRV, the ARNG has a requirement for 94 Chemical Biological Protective Shelters (CBPS Electric) to support both its federal and state missions.

c. Command and Control

The ARNG continues to experience improvements in command and control system modernization and readiness; however, concerns about future fielding rates of modernization still exist. Any reductions in command and control system funding for ARNG will negatively impact the ARNG's capability and capacity to oversee military domestic response command and control operations. Real-time information needed by commanders to maximize federal and state domestic response efforts requires keeping pace with modernization.

d. Engineering

Engineering equipment provides a versatile and affordable emergency response capability in support of defense support of civil authorities (DSCA missions. The majority of the total Army engineer force structure resides in the ARNG and is often deployed outside the continental United States for other missions. The engineering portfolio shows significant shortages in Hydraulic Excavators, which are used to support debris reduction and rebuilding operations after domestic disasters, and the Urban Operations Squad and Platoon Kits, which fill a capability gap by providing Soldiers with special tools that enable them to conduct operations safer and more quickly directly supporting personnel recovery and structural assessments conducted by CERFP teams. The ARNG is also critically short of both 7-man and 15-man inflatable boats and motors, which are critical equipment for domestic flood response operations.

e. Communications

The ARNG is continuing to transition the Joint Incident Site Communications Capability (JISCC to the Disaster Incident Response Communications Terminal (DIRECT. The DIRECT system will provide tactical satellite, 4G Cellular, Wi-Fi, and radio cross-banding capabilities to the states in support of Domestic Operations. The DIRECT system is a program of record in the Warfighter Information Network-Tactical (WIN-T program of record. At this time, the ARNG expects the JISCC will lose its Authority to Operate in FY 2021. The current mitigation strategy is to utilize National Guard and Reserve Equipment Appropriation (NGREA to accelerate the fielding of all systems prior to FY 2021. DIRECT is fielded as of December 2017, 17 (9/58 percent of the ARNG 50 states and 4 territories. DIRECT is an information exchange requirement for the ARNG performing DSCA missions. Issued on a Table of Distribution and Allowances (TDA, this non-tactical system uses commercial coalition equipment with radio cross banding, commercial wireless, and 4G LTE via the WIN-T INC1 Joint Network Node. ARNG states currently fielded DIRECT are Maryland, Delaware, Florida, California, Hawaii, Indiana, Texas, Missouri, New Hampshire, North Dakota, Massachusetts, and Minnesota.

2. Effects of ARNG Shortfalls.

Modernizing ARNG domestic response capabilities remains chief among ARNG leadership priorities. Yet significant risk to domestic capabilities exist when any potential modernization does not occur. When resources are reduced and equipment production and deliveries are

delayed, the trickle-down effect impacts training and ultimately our Soldiers' abilities to execute their missions to their fullest potential.

Any shortfalls in command and control, and communications (C3) reduce the ARNG's ability to provide a tactical network, facilitate command and control, and insure communication among first responders, the Emergency Operations Centers (EOC), and soldiers in the field. As of August 8, 2017, the ARNG provided critical infrastructure protection, support to civil authorities and disaster relief 180 times and conducted 113 Civil Support Team (WMD-CST) response missions in addition to a significant Hurricane Harvey response. These missions reflect the criticality and importance of C3 capabilities and the need for keeping pace with technological improvements and modernization requirements.

Although the ARNG is currently 89 percent EOH for CDU equipment (including substitutes, significant shortages in critical capabilities like the HYEX excavator, Deuce tractor, 25 ton 4-Wheel lowbed trailer and the Breakbulk/Container Transporter exist. The total cost for modernizing this equipment exceeds \$239M. Without modernization of these Engineering and Transportation capabilities, the ARNG must respond for domestic emergencies with less modern or legacy equipment. As a result, shortages in these capabilities will remain, leave multiple engineer units to rely on smaller, less effective equipment and may result in contracted civilian equipment to support mission requirements.

3. Army National Guard Investment Strategies.

ARNG modernization funding decreased by approximately 39 percent over the past eight budget cycles; a result beginning with the 2011 Budget Control Act (BCA) and the 2012 National Defense Authorization Act. The Bipartisan Budget Act of 2013 and the transfer of Overseas Contingency Operations (OCO) funds to the Base in FY 2013 offered some relief, but these actions were limited by the overall impact of Sequestration. Although the Office of the Secretary of Defense (OSD) reviewed the FY 2017 and FY 2018 budget submission to gain additional efficiencies, the review focused on warfighting capabilities rather than state mission equipping requirements.

In order to mitigate the risk to CDU equipment and domestic response readiness, the National Guard invests through NGREA for modernization of key CDU equipment, critical Essential 10 equipment capabilities and training simulation. The ARNG received \$247.5M in NGREA for FY 2017 that included requests from the ARNG for 13 CDU capabilities but are not on the Army's list of CDU equipment. Though the ARNG submits recommendations for the CDU equipment list to the Army for vetting and approval biannually, without resources applied against these CDU capabilities, the ARNG will continue to assume risk in modernization.

C. Air National Guard Equipment

The Air National Guard continued to pursue modernization and replacement of its equipment to maintain readiness for both federal and state mission requirements. National Guard forces responded to 60 natural disasters and severe weather events in support of civil authorities in several states and territories.⁸ ANG members assisted residents of flooded neighborhoods in

⁸ 2018 National Guard Posture Statement, p. 15.

Baton Rouge, Louisiana; Houston, Texas; Puerto Rico; and St. Croix, U.S. Virgin Islands. ANG continued its use of the Domestic Capability Priorities conference concept to identify critical capability gaps for non-federalized homeland response across our broad array of roles and missions. Modernization and recapitalization of ANG support equipment and vehicles to meet both national defense and Domestic Operations (DOMOPS) requirements remains a steady focus. ANG preparations for Financial Improvement and Audit Readiness resulted in significant improvements to the overall accuracy of equipment status reporting this year. Most notably, previously unreported communications, command and control, and medical equipment were added as the systems of record data for these capabilities improved. Currently, ANG has 92 percent (341,442 pieces) of authorized support equipment and vehicles on-hand within the categories in Table B-1. (See Table B-1)

Table B-1. ANG Support Equipment (SE) and Vehicles.

September 2017							
CAPABILITY	AUTH QTY	INUSE QTY	FILL RATE	AUTH COST	INUSE COST	NEEDED QTY	NEEDED COST
Aviation SE	48,348	47,199	98%	\$256,768,320	\$244,539,614	1,149	\$12,228,706
Civil Support & Force Protection	5,579	5,527	99%	\$3,736,873	\$4,035,030	52	\$1,043,333
Command & Control	14,084	13,887	99%	\$537,006,011	\$537,879,905	197	\$28,012,309
Communication	4,763	3,649	77%	\$49,463,059	\$38,012,154	1,114	\$11,750,905
Engineering	22,181	22,697	102%	\$249,720,617	\$223,599,847	673	\$13,427,610
Logistics	93,607	76,154	81%	\$116,081,819	\$95,718,893	17,453	\$20,362,926
Maintenance	97,086	90,348	93%	\$2,596,347,722	\$2,194,779,368	6,738	\$401,568,354
Medical	11,912	11,806	99%	\$58,661,350	\$58,571,305	106	\$90,045
Security	57,121	56,240	98%	\$109,536,715	\$109,408,680	881	\$128,035
TOTAL SE	354,681	327,507	92%	\$3,977,622,486	\$3,506,544,796	28,363	\$471,077,690
VEHICLES	14,857	13,338	90%	\$1,875,859,142	\$175,650,017	1,519	\$1,700,209,125
TOTAL SE & VEHICLES	369,538	340,845	92%	\$5,853,481,628	\$5,137,990,405	29,882	\$2,171,286,815

Approximately 7 percent of ANG equipment is currently deployed in support of overseas contingencies.

D. ANG Equipment Shortfalls

A more detailed review of the ANG equipment health is described identified in Table B-1.

a. CBRN

The National Guard Chemical, Biological, Radiological, Nuclear (CBRN) Enhanced Response Force Package (CERFP), Homeland Response Force (HRF), and Expeditionary Medical Support (EMEDS) medical elements need to upgrade their advanced trauma medical equipment.

Requirements for specialized equipment, such as video laryngoscopes, defibrillators, bariatric litters, medical rapid response equipment, and infection control/prevention containment systems, have been validated through the Domestic Capability Priority, and are awaiting final funding approval.

b. Command and Control

ANG Command and Control organizations require systems upgrades in Air Operations Centers, Battle Control Centers as well as Control and Reporting Centers to meet Combatant Command

requirements. Command Control organizations operate with outdated equipment and software that is not on par with current technology and does create several operational limiting factors.

c. Communications

Military emergency response forces are often unable to conduct interoperable communications with their civilian emergency response forces when utilizing military-issue tactical radios. In addition, military C2 centers are not able to track their response personnel that have deployed into an affected area of operations. These military responders include personnel from capabilities such as: Firefighter and Emergency Services, Security Forces, Explosive Ordnance Disposal, HRF, CERFPs, and the C2 elements responsible for the tracking of responding forces. All these units need to establish voice communications with civilian and government partners at the critical initial phase of an event while waiting for the more robust Joint Incident Site Communications Capability and Mobile Emergency Operations Centers to be deployed to the incident location. Needed radios must be able to operate on civil networks and be compliant with Association of Public-Safety Communications Officials International Project 25 in both line-of-sight and trunked modes. Additionally, they should provide over-the-air geolocation data and offer National Security Agency Type 1 certification and programmable encryption. These radios will allow communications on common military and civilian VHF/UHF, AM/FM civil bands and grant automatic, instant connectivity among personnel entering the operational area. The encryption would provide state-of-the-art security when required. This effort is in line with the March 30, 2011, Presidential Policy Directive 8: National Preparedness, which is aimed at facilitating an integrated, all-of-Nation, capabilities-based approach to preparedness. Without these highly capable and interoperable radios, responders risk mission degradation or failure during domestic disaster response operations.

d. Engineering

Shortages in firefighting, search and rescue, explosive ordnance disposal (EOD) equipment, water production kits, and Chemical, Biological, Radiological, Nuclear (CBRN) detection and support equipment continue to inhibit the ANG's ability to perform home station and overseas deployments, or provide support to civil authorities.

e. Logistics

The ANG relies upon outdated equipment and vehicles to provide support in overseas and domestic operations. While some support equipment modernization was accomplished in 2017, the majority of equipment is outdated. Much of the ANG support equipment is 20+ years old and is approaching or has exceeded its projected life cycle

f. Medical

ANG domestic responses routinely include prolonged patient care by Guardian Angel (GA) personnel on HC-130s, HH-60s, and numerous other platforms. Relevant, modern, technologically advanced medical equipment is necessary to sustain this life-saving capability and to assure accurate tracking of patient movement. The current defibrillators on GA teams are outdated. They were designed for combat situations and are not adaptable for use with a variety of patient types, such as the elderly or children. Newer models of defibrillators are more portable, more adaptable for use on a wide variety of people, and are Wi-Fi-enabled to provide

continuity of care and expanded functionality. This upgraded capability would be focused at the four ANG rescue units located in New York, Alaska, Kentucky, and California. The current National Guard patient movement and tracking system has reached the end of its expected lifecycle and needs to be replaced. DoD solutions are currently in development, but are not projected to be available for 7 to 10 years. The National Guard is working to generate a patient/evacuee tracking system which will support both State/Local tracking requirements and interagency tracking requirements, and is working with DoD and interagency partners to develop and source this system.

g. Security

Security Forces (SF) provide civil disturbance response and force protection in environments that are difficult to control. A Mobile Entry Control Point (MECP) enables SF to quickly establish controlled access. This self-contained unit would provide ballistic protection (level III, heat, air conditioning, area lighting, and protection from the elements). The MECP would provide a more effective and efficient solution than using a vehicle as the control point's shelter. Some examples of how these MECPs would be used are supporting DOMOPS, crowd control, traffic control, and large-scale public events. A total of 93 MECPs will equip all ANG SF squadrons.

h. Transportation

The ANG vehicle overall fill rate remains at 90 percent, and these vehicles are critical enablers during domestic incidents. Fill rates do not address the age of the vehicles, however, which is properly represented by the health rate. For instance, the ANG cargo and utility vehicle fleet requires modernization as the health rate is only at 67.7 percent, meaning that over one-third of these vehicles are past their end-of-life and should be replaced or modernized. Because of this, ANG motor pools lack enough vehicles with the proper towing capacity to tow heavy equipment needed for DSCA events including: the Disaster Relief Bed-down Sets, Reverse Osmosis Water Purification Units, Tactical Field Religious Support Kits, Disaster Relief Mobile Kitchen Trailers, and Hazardous Materials response trailers. To be effective transporting medium-to-heavy payloads, ANG units need 1 ton-to-2½-ton vehicles with features such as crew cabs, diesel engines, four-wheel drive, dual rear wheels, and heavy duty tow and suspension kits. ANG fleet modernization would replace existing vehicles in the vehicle management sections at all ANG wings and geographically separated units requiring personnel and cargo transport to support incident responses.

2. Effects of ANG Shortfalls

Overall, the ANG has sufficient dual-use equipment for both the federal and state missions. However, as stated above in greater detail, key capability shortfalls remain in certain critical areas such as Communication and Logistics. Some are enhancements to current capabilities that will improve the overall effectiveness of existing efforts such as small arms training ranges, potable water production, storage and distribution, or the CERFP/HRF patient airway management equipment. Acquiring these assets significantly enhances potentially life-saving and sustaining abilities and more efficient means of protecting property, and increases the overall effectiveness of an ANG response to domestic events and natural disasters.

See Chapter 5, Section II, for additional information on ANG shortfalls in equipment and modernization. **ANG Priorities Books Link:** <http://www.ang.afmil/Home/ANG-Priorities-Books/>

3. ANG Requirements and Acquisition Strategies

ANG continues its focus on validating and mitigating readiness capability gaps and ensuring sustainment of these items is considered as an integral part when assessing life-cycle costs for any procurement. Gaps in capabilities critical to wartime and peacetime needs are identified and vetted in an open and rigorous forum of warfighters, who are experts in their respective weapons systems or fields. One venue is the annual Weapons and Tactics Conference, and its results are approved by the Director, ANG. A similar process is conducted at the annual Domestic Capability Priorities Conference. The capabilities identified and vetted at these conferences are translated into specific commercial off-the-shelf or government off-the-shelf solutions, and nearly always require only non-developmental integration into a weapons system. These capabilities and associated programs are documented in the annual *Air National Guard Weapons Systems Modernization Priorities book and Domestic Capability Priorities book*.

E. Specialized CBRN Equipment

1. Specialized CBRN Equipment Shortfalls

National Guard (NG CBRN Response Enterprise (CRE force elements, consisting of the Weapons of Mass Destruction Civil Support Teams (WMD-CSTs, Homeland Response Forces (HRFs and CBRN High-yield Explosive (CBRNE Enhanced Response Force Packages (CERFPs, provide defense support of civil authorities (DSCA during major or CBRN-related incidents. WMD-CST-provided capabilities are focused on assessing CBRN threat agents/substances and advising civil authorities on mitigating the effects of the identified CBRN agents/substances at a known or suspected CBRN incident. For CBRN incidents resulting from a nuclear detonation, WMD-CSTs need vehicle-mounted radiological detection capability to identify, assess, and depict such affected/potentially affected areas. Additionally, WMD-CSTs need modernized Field Analytics; stand-off detection (robotic systems; real-time biological detection; chemical point and area detection for low-level off-gassing and Non-traditional agents; and special nuclear materials detection capabilities. As follow-on force support to WMD-CSTs, CERFPs and HRFs assist local civil authorities by providing search and extraction capabilities to save lives, as well as CBRN decontamination and medical triage and stabilization capabilities to mitigate human suffering.

Collectively, NG CRE force elements lack a coherent solution that provides a tactical level Common Operating Picture (COP capability in order to: accurately capture situational awareness information; expedite management and sharing of mission-critical information internally (unit-level) and externally with other NG support organizations and DoD/civilian federal response partners; enable timely decision making; and, aid in overall effective response support.

As such, NG CRE force elements require a tactical-level and enterprise-capable COP and information management solution. NGB's means to address this requirement is to provide the NG CRE Information Management System (NG CIMS tool suite to all NG CRE force elements. The NG CIMS tool suite is comprised of software applications and hardware components,

including end user devices and tactical communications equipment. NG CIMS key equipment and software shortfalls include: Dismounted Strike Kit (DSK) hardware packages that enable extended beyond-line-of-site (BLOS) network access for distributed operations; Tactical Operational Centers that provide the necessary basic C2 tools for WMD-CSTs; and the CBRNE Mobile Field Kit application to enable the receipt, integration, display, and sharing of situational awareness data.

NG CRE force elements also need Physiological Monitors to provide necessary force protection and to assist leaders in effectively managing personnel work/rest cycles. HRFs and CERFPs need additional decontamination trailer systems to meet mass casualty decontamination throughput requirements.

2. Effects of Shortfalls of Specialized Equipment

A lack of a coherent NG CBRN COP capability results in poor tactical situational awareness among the CSTs, HRFs and CERFPs supporting a major or catastrophic CBRN incident and adversely impacts the effectiveness of NG HRF and CERFP life-saving efforts. Standoff, non-traditional agent and biological detection are recognized Department-wide capability shortfalls. Shortfalls of WMD-CST mobile radiological/nuclear detection equipment restricts detection capabilities to limited detection areas and requires extensive time to survey and assess broad areas of concern. Detection accuracy is also reduced due to the size and weight restrictions required with man-portable systems. WMD-CSTs are programmed to field a heavy unmanned ground vehicle to provide each CST the capability to remotely detect and monitor for an extended duration from a standoff distance, in the near term fielding of the Robot to all 57 CSTs will be completed by 15 January 2018. Shortfalls in WMD-CST detection and identification capabilities puts public safety and WMD-CST Soldiers/Airmen at risk. Additionally, it risks providing the necessary environmental assessment to support effective employment of HRFs and CERFPs during a major or catastrophic CBRN response.

3. Requirements and Acquisition Strategies for Specialized Equipment

NGB strategy is to use NGREA funding to procure suitable interim CBRN materiel solutions until NGB CBRN capability requirements are integrated into appropriate Chemical Biological Defense Program or Service Programs of Record.

II. Statement of Accuracy and Certification Relating to National Guard Equipment

Section 10541(d) of Title 10, U.S. Code requires this report to provide (1) a statement of the accuracy of National Guard equipment inventory projection reported in previous NGRERs, and (2) a certification by the Chief, National Guard Bureau (CNGB) of the inventory of equipment items that were due to be procured for the National Guard in the preceding fiscal year, but were not received. Figure B-1 provides a CNGB memorandum regarding “Certification and Statement of Accuracy to Accompany the Annual National Guard and Reserve Component Report.”

A. Army National Guard.

The Transparency process, in accordance with the FY 2008 National Defense Authorization Act (NDAA), is the auditable path of approved funding and new procurement quantities enacted to track appropriated funds and requirements through the acquisition cycle to equipment delivery. The Secretary of the Army approved the process on February 25, 2015 (Army Directive 2015-13 [Equipment Transparency Policy]) to identify roles and responsibilities for Transparency stakeholders; with the Assistant Secretary of the Army for Acquisition, Logistics and Technology identified as the secretariat and overall Army policy lead for Army Transparency.

The Army continues to seek transparency improvements to facilitate the ARNG’s ability to certify equipment deliveries. However, to date the ARNG is still unable to fully certify equipment delivery from appropriation and could not complete certification for new procurement and modernization for the last two consecutive quarters for FY 2017. This is in part due to both insufficient front end data system source information and no significant change from the preceding quarters. P-1 and P-1R Form inconsistencies, along with LIN quantity suppression below the Acquisition Category (ACAT) I level, make tracking equipment end-point deliveries impossible without the benefit of reliable upfront database sources to verify funding against delivery. The certification of materiel delivery requires 100 percent confidence that a unit received an item and can be traced back to an appropriation year.

The Army continues to oversee proposed changes and improved data collection in order to streamline the Transparency process, and believes that Item Unique Identification (IUID) at the equipment delivery end-point, in conjunction with fielding of the Global Combat Support System-Army (GCSS-A) in 2018, will provide the systematic database links required to fulfill Transparency. The ARNG has a requirement of 6,351 HHT Tablets and 7,066 Scanners that utilize legacy STAMIS reporting hardware. All 54 states, territories and the District must complete Department of Information Management training for hardware connection purposes before scheduled deliveries start in FY 2018 and end-user online training can begin.

The ARNG will continue to work with the Army as the Executive reporting Agent to Congress on Transparency, but until a holistic approach evolves that facilitates traceability from appropriation through delivery, it will be difficult to provide certification below ACAT Level.

B. Air National Guard

ANG continues to strengthen its visibility of equipment assets throughout the lifecycle with the use of Asset Marking and Tracking processes to enhance equipment accountability with existing systems and authoring policies that identify Functional Area Managers and commander responsibilities.

ANG revised process requires identification of the funding source on new equipment requisitions for DOMOPS-related equipment. Through this identification process, new equipment is tracked with a unique identifier in the Allowance Standards and on each authorized unit's accountable record. This provides cradle to grave asset visibility throughout the life cycle of these types of items that can be separated from other mission equipment. Additionally, ANG is aggressively working with the Air Force on modifications to the Defense Readiness Reporting System to incorporate visibility of assets, funding sources, status of resources, and other data-mining tools designed to provide a total picture of ANG equipment, personnel, and capability.

Moreover, ANG has implemented the use of the Defense Property Accountability System (DPAS) as the Financial Improvement and Audit Readiness (FIAR) compliant system of record for the vehicle fleet. Additionally, Air Force and ANG are working to make DPAS the Accountable Property System of Record for managing all equipment assets.

Finally, ANG units are conducting base-wide inventories of all assets as part of ANG's FIAR efforts. During Phase 1, our units reviewed all classified items, pilferable supplies, and support equipment recorded on Customer Authorization/Custody Receipt Listings and retained in customers' possession. Phase 2 concluded in March 2015 where we reviewed all remaining support equipment assets stored in the Logistics Readiness Squadrons and other supply activities. The final phase (Phase 3) is continuing to capture new acquisition information and purchase order data from the various procurement activities to provide the final reconciliation and receipt process that certification requires.

Appendix C

Principles of Modernization

I. Reporting Requirements

The Appropriations Subcommittee on Defense reinforced their continued support for maintaining fully modernized Reserve Components in the Committee on Appropriations, Senate Report 114-263, accompanying the Department of Defense Appropriations Bill, 2017. In their report, they noted that the codification of modernization principles would better allow for transparent appropriation decisions and thus directed the Secretary of Defense to promulgate service standards for reporting modern equipment. The Department responded to this requirement in the FY 2018 NGRER. The Department asked each of the Services to provide their definition of modern equipment and outline principles in order to develop an overarching definition that could be used department-wide. Based on the variation of this input, the Department determined that the term “modern equipment” was too vague and did not lend itself to a single definition. Instead, the Department presented a “modernization model” which proposed modernization criteria and defined standards by which the deployment of Forces could be best planned.

II. Objectives

The objective of this appendix is to build upon the analysis that was done last year to illustrate how dedicated investment, or lack thereof, affects the RCs ability to achieve Total Force compatibility standards. We use the example of the Air Force Reserve F-16C to show how a lack of predictable funding and investment has resulted in a capability on the verge of becoming not globally deployable. An excellent counter point is provided by the successful upgrades to ARNG and AR HMMWV ambulances resulting from dedicated funding. These investments will lead to the 100 percent replacement of the ARNG and AR ambulance fleets ensuring their long-term availability to support both domestic and global contingency missions. First, a review of the modernization model is presented, including an expanded discussion of how to best weigh risk in investment decisions with respect to obsolete equipment.

III. Modernization Model

The modernization model helps categorize equipment within a spectrum of “modernization” using a capability-based equipment planning diagram (Figure C-1). Within this appropriations planning tool, equipment is divided into three specific categories: cutting edge equipment; globally deployable equipment; and, not globally deployable equipment, with distinct criteria for each. Use of the model focuses attention on the level of risk being assumed and assists in making investment decisions (upgrade, replace, new procurement, or divest).¹

The model shows how centrifugal forces such as age, pace of technological advances, and overall capability push equipment “outward” towards obsolescence, while investment in new

¹ Upgrade means to integrate new technology into existing equipment; Replace means to exchange existing equipment with newer equipment through redistribution or cascading; New Procurement means to supplant existing equipment with newly purchased equipment; Divest means to dispose of outdated equipment no longer needed in the inventory.

procurement and upgrades serve as the force propelling equipment “inward” towards cutting edge capability.

Cutting Edge Equipment is a platform or piece of equipment that completely incorporates the latest technology and innovation. There are no components or sub-components which have upgrades or replacements identified and ready to be fielded. This equipment is within 10 years of its initial operating capability, a gauge of time at which consideration should be given to assessing the equipment and technologies that exist to upgrade, replace, or identify it as no longer “Cutting Edge.”

Globally Deployable Equipment includes Cutting Edge Equipment and equipment which meets the minimum standards for deployment and mission capability into all planned operating environments for that specific equipment, including all combatant command areas of responsibility, non-permissive and contested environments. This equipment must be: 1) technically compatible across associated joint and combined forces organizations, and; 2) logistically supportable—sufficiently sustainable in any deployment environment with existing maintenance support and supply chain.

Not Globally Deployable Equipment is all equipment that does not meet the criteria to be categorized as Globally Deployable or Cutting Edge Equipment. This equipment may be capable to meet mission requirements in certain operational requirements or deploy to certain combatant command areas of responsibility, but is not appropriate for use in a planned operating environment.

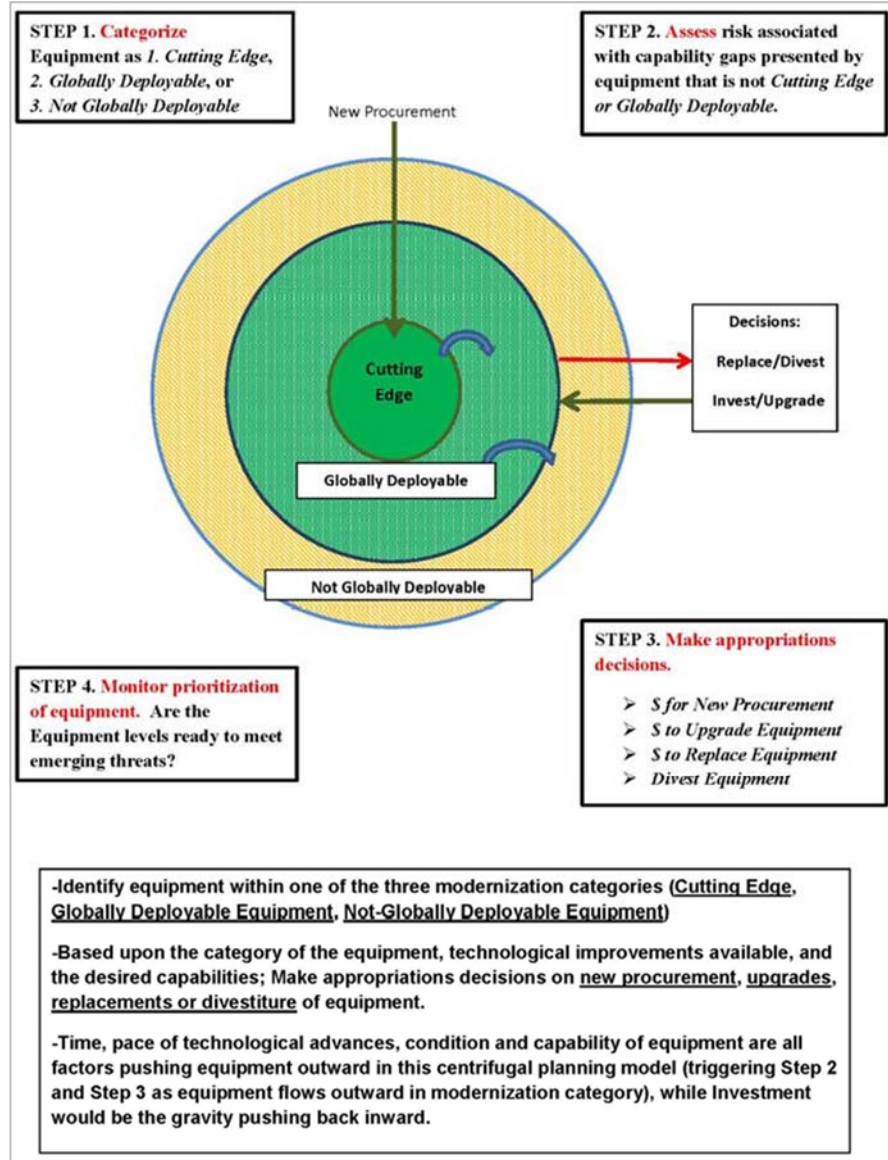


Figure C-1 Codification of Modernization Principles

Example 1: Air Force Reserve—F-16 Fighting Falcon Strike Fighter Capability

Capability Description: The F-16 Fighting Falcon is a compact, highly-maneuverable, multi-role fighter aircraft that provides air-to-air and air-to-ground combat power.²

Background Information: The AFR F-16 fleet are all Block 30 (pre-block) aircraft, built between 1986 and 1989.³ In 1989, the manufacturer developed the Block 40/42 (post-block) F-16 variant with improved navigation and avionics systems. The Common Configuration Implementation Program (CCIP) was introduced in 1997 which upgraded all of the Block 40/42/50/52 (post-block) F-16 variants to a common avionics configuration.⁴ The program successfully completed in 2011 with all Active Component aircraft configured to common & compatible systems.⁵ Due to inherent manufacturing differences between pre and post-block F-16s, the AFR F-16 fleet did not receive CCIP updates, leaving them with the Block 30 F-16 variant and creating a significant capability gap. The older systems on the AFR aircraft limited their battlespace awareness and full incorporation into a mixed force fight, particularly against 5th generation aircraft. The AFR successfully applied FY 2015 and FY 2016 NGREA funds to enhance integration of the F-16C fleet into the Total Force.

Critical F-16 Subsystems Requiring Investment Decision:

• Actively Electronically Scanned Array (AESA) Radars	\$199.8M
• Missile Warning System (PIDS+):	\$49.5M
• Anti-Jam Global Positioning System (GPS):	\$6.9M
• 3-Dimensional (3D) Spatial Awareness Audio:	\$6.9M
• ALR-69A Digital Radar Warning Receiver:	\$75.8M
• Link-16:	\$26.2M

Programming & Funding Profile: Not funded in the Future Years Defense Plan (FYDP). The Air Force Reserve Command (AFRC) has applied NGREA funding over the past four years.

Application of the Modernization Model. In this section, we illustrate how the modernization model can be applied to inform appropriation decisions.

Step #1: Categorize equipment. Equipment age, pace of technological advances, condition, and capability of equipment are driving factors necessitating modernization investments. The

² U.S. Air Force Reserve Modernization 2017, p. 47.

³ Ibid.

⁴ <https://www.lockheedmartin.com/us/news/features/2015/C1HistoryF16.html>

⁵ Ibid.

following criteria is applied to determine the categorization of equipment. This is the initial step in making an appropriation decision.

Cutting Edge Technology? **No.**

- *Latest Technology?* **No.** 1980s Block 30/32 technology is concentrated in the RCs, which is two generations behind the latest fielded Block 50/52 technology.
- *Upgrades or Replacements Identified?* **Yes.** There are newer advanced multi-role fighter aircraft available. Additionally, technical upgrades are available to improve interoperability and battle space awareness including: Active Electronically Scanned Array (AESA) Radar; Missile Warning System (PIDS+); Anti-Jam GPS; 3D Spatial Awareness Audio; ALR-69A Digital Radar Warning Receiver; and Link-16.
- *Within 10 Years of Initial Operating Capability (IOC)?* **No.** The AFR F-16 fleet are all Block 30 aircraft, built between 1986 and 1989. At 30 years old, they do not meet this criteria.

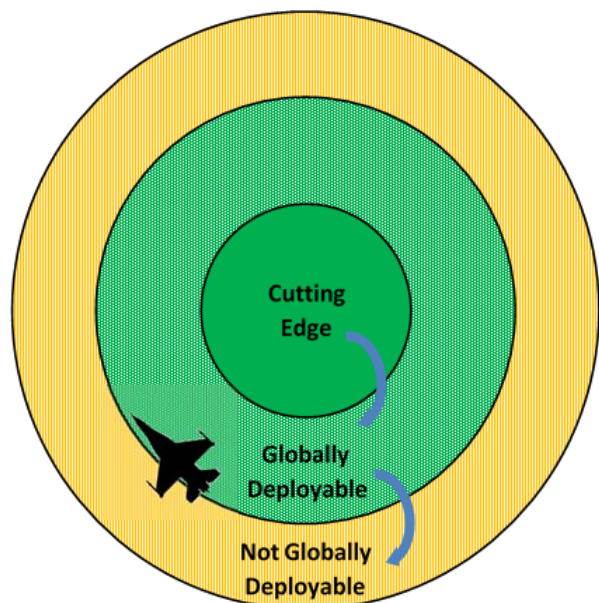
Globally Deployable? **Yes.**

- *Technically Compatible?* **Yes.** The AFR F-16Cs currently meet the minimum standards for deployment and mission capability to a non-permissive and contested environment. Block 30/32 subsystems were upgraded using NGREA funds thus ensuring the AFR F-16 aircraft remain technically compatible across associated joint and combined forces organizations.
- *Logistically Supportable?* **Yes.** AFR F-16C fleet is logistically supportable within the existing maintenance support and supply chain.

However, the AFR and AC must deal with diminishing manufacturing sources, materiel shortages, and lapses in contract logistics support. Repair parts for legacy aircraft are not readily available due to the industrial base's limited ability to produce parts only used in the military. As such, the Air Force pays a premium price to restart parts production and must withstand enduring long lead times for parts delivery. As a last resort, AFR and AC cannibalize parts from divested aircraft to satisfy the demands for repair parts to maintain the fleet. However, this supply point is finite and cumbersome to tap. It increases maintenance downtime and decreases aircraft availability.

Step #2: Assess risk associated with capability gaps presented by equipment that is not Cutting Edge or Globally Deployable.

Risk. Reduced strike fighter capacity and capability for responding to an increasingly complex and volatile global security environment. Obsolete technology further risks erosion to readiness



and lethality and increases vulnerability. Only through the use of NGREA has the AFR has been able to maintain the F-16C. Without an appropriation decision, AFR F-16C capability risks becoming Not Globally Deployable. Specifically:

- *Active Electronically Scanned Array (AESA) Radar*: Modern radar system dramatically increases availability, accuracy, lethality and allows better integration of 5th generation aircraft tactics while significantly decreasing maintenance cost.
- *Missile Warning System (PIDS+)*: Aircraft will remain increasingly vulnerable to missile threats and survivability will be degraded.
- *Anti-Jam Global Positioning System (GPS)*: Precision weapon accuracy and pilot situational awareness may be significantly compromised.
- *3-Dimensional (3D) Spatial Awareness Audio*. Pilots will be placed a greater risk of task saturation and loss of situational awareness due to information overload or confusion, resulting in degraded mission effectiveness and survivability.
- *ALR-69A Digital Radar Warning Receiver*. Current analog radar warning receiver does not provide sufficient missile warning, significantly degrading survivability.
- *Link-16*. Aircraft will become increasingly data-link isolated.

We cannot expect success fighting tomorrow’s conflicts with yesterday’s weapons or equipment. To address the scope and pace of our competitors’ and adversaries’ ambitions and capabilities, we must invest in modernization of key capabilities through sustained, predictable budgets.

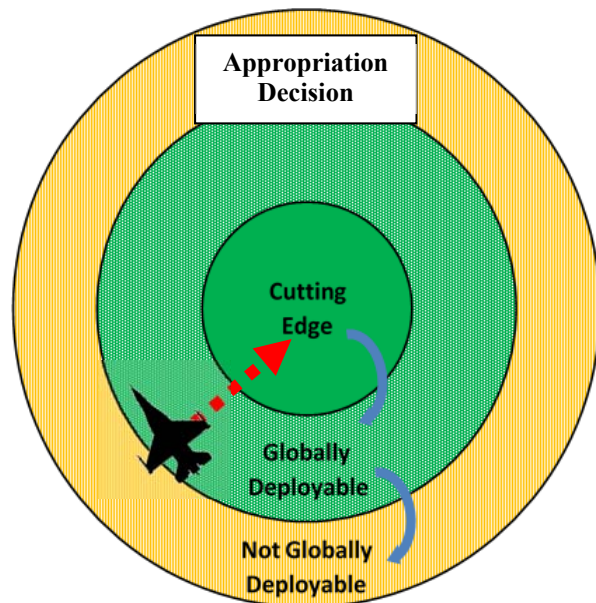
- 2018 National Defense Strategy, Secretary James Mattis

Step #3: Make Appropriation Decision. The decision to upgrade, replace, or divest is informed by the level of risks being assumed by the force.

Decision to Upgrade. Upgrades to interoperability and battlespace awareness are available to keep the AFR F-16C fleet in line with current and future planned post-block technology.

Decision to Replace. Updated technology is available through “cascading” to replace the legacy F-16C Block 30/32 fleet.

Decision to Procure New Equipment. Advanced cutting edge technology is in production and available for concurrent and proportional fielding.



Decision to Divest. Informed by the appropriation decision and force structure alignment.

Status. To date, no decision has been made. Using NGREA funding, the AFR has been able to make some upgrades to the F-16C fleet while pending appropriation decision. Until an appropriation decision is made, the legacy F-16C fleet capability will erode and will become Not Globally Deployable.

Step #4: Monitor prioritization of equipment. Through increased oversight and transparency, monitor appropriation to gain full value and ensure effective stewardship of resources.

Summary: Appropriation decisions to invest in modernization upgrades and recapitalization are essential to ensure the AFR remains combat ready and relevant. The lack of dedicated investment in the aging F-16C fleet will create challenges with interoperability, sustainability, training, and mission suitability. This example provides an illustration of the necessity to develop a concurrent and proportional fielding plan and divestment strategy for the Air Force.

Example 2: Army National Guard and Army Reserve—HMMWV Ambulance Capability

Capability Description: The HMMWV ambulance is the ground tactical medical evacuation (medevac) capability for the active and reserve components. These vehicles provide mobility for emergency situations and provide a quick link between casualties and emergency services.

Background Information: In FY 2012, the ARNG and USAR reported significant inventory shortfalls within the HMMWV ambulance fleet, challenging efforts to achieve readiness goals and provide capabilities vital to supporting combat and domestic operations.⁶ The ambulance fleet was comprised of legacy systems nearing 25 years of age and exceeding the ambulances manufactured service life. No fully funded strategy existed to replace or upgrade the aging fleet which was expected to remain in the RC inventory through 2040 and beyond. Congress recognized the critical medical ground evacuation mission role provided by the HMMWV ambulance variant and expressed concern over its age and the lack of a funding strategy.

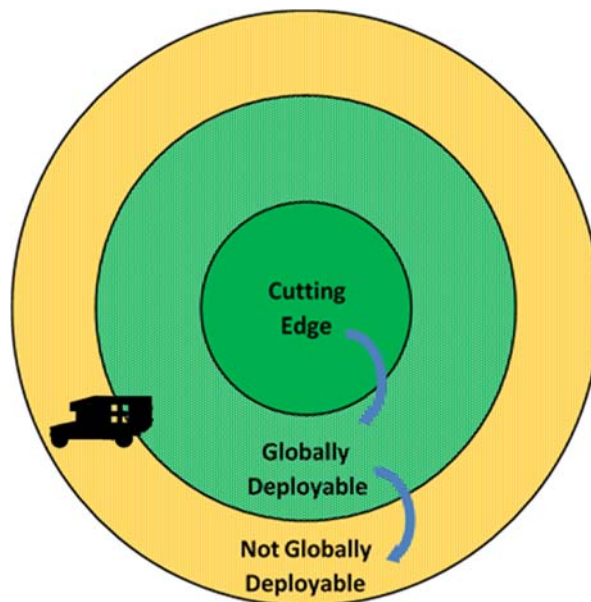
Programming & Funding Profile: In 2012, the HMMWV Ambulance was not funded in the Future Years Defense Plan (FYDP) nor was there a bridging strategy or an open production line for modernizing the fleet or filling shortages.

Application of the Modernization Model. In this section, we use the model to highlight the benefits of a transparent appropriation decision which provides sustained and predictable investments to restore readiness and modernize an ARNG and AR capability to be current for our time.

Step #1: Categorize equipment. Equipment age, pace of technological advances, condition, and capability of equipment are driving factors necessitating modernization investments. The following criteria was applied in determining the categorization of equipment. This is the initial step in making an appropriation decision.

Cutting Edge Technology? **No.**

- *Latest Technology?* **No.** The ambulances required updates to the power train, ventilation, and electrical systems in order integrate new technologies and support updates to ancillary equipment.
- *Upgrades or Replacements Identified?* **No.** In FY 2012, an acquisition strategy to upgrade or replace the HMMWV ambulance had not been defined.



⁶ Department of Defense, National Guard and Reserve Equipment Report for Fiscal Year 2012, February 2011, Chapter 2.

- *Within 10 Years of Initial Operating Capability (IOC)? No.* The ambulances on hand were over 25 years old, several generations behind, and exceeding the end of their economic useful life.

Globally Deployable? No. The M996 and M997 fleets were aging out and generating shortages in capabilities which could not fulfill the demands to provide support to first responders, nor did they meet the minimum standards for deployment into a contested environment.

- *Technically Compatible? No.* Aging HMMWV ambulance fleets could not keep pace with advances in medical technology.
- *Logistically Supportable? No.* Age was a factor in challenging efforts to maintain fleet readiness levels.

Step #2: Assess risk associated with capability gaps presented by equipment that is not Cutting Edge or Globally Deployable.

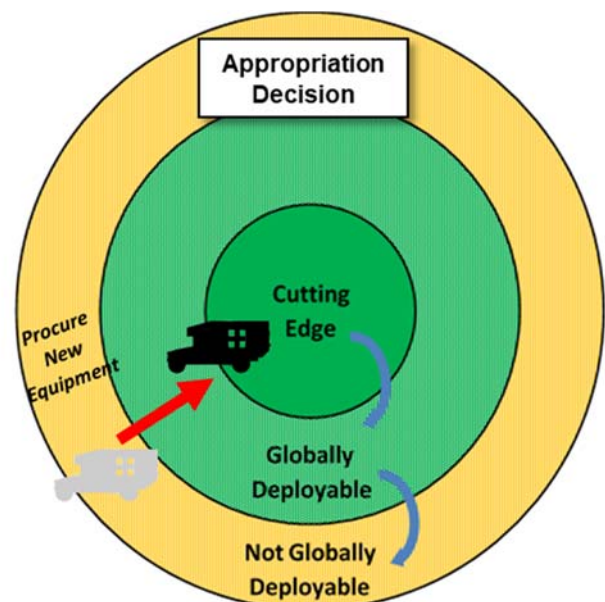
Risk. The aging HMMWV ambulance fleet combined with inventory shortages resulted in a degraded medical evacuation capability, reduced capacity, and declining readiness potentially places lives at risk.

Step #3: Make Appropriation Decision. The decision to upgrade, replace, invest in new procurement, or divest is informed by the level of risks being assumed by the force.

Decision to Upgrade? N/A. Upgrades were not available.

Decision to Replace? N/A. Shortages existed within the inventory and upgraded models were not available to replace legacy ambulances.

Decision to Procure New Equipment. In 2013 Congress appropriated dedicated funding, targeted specifically for the Guard and Reserve, to procure new M997A3 models to modernize the ambulance fleet. Dedicated investment to replace the outdated ambulance fleets means that the RCs have new cutting edge equipment capable of supporting advance medical technology. Since Congress made the decision to invest in this capability, over \$360M of Congressional funding had been provided between FY 13 and FY 15 to procure 455 ambulances for the ARNG and 155 ambulances for the AR.⁷ Additionally, with the support of Congress, ARNG & AR applied NGREA towards investments.



⁷ Hearing Before the Subcommittee on Tactical Air and Land Forces Hearing on Ground Force Modernization Budget Request, March 2, 2016

Decision to Divest. A cutting edge ambulance fleet allowed the RC to divest of the older M996 ambulance models as well as develop plans to divest older M997 models.

Outcome. Dedicated investment in this particular capability delivered technology that could potentially save lives. The ARNG now has an 89 percent modernized fleet and AR fleet is over 50 percent modernized with both RCs on track to be fully modernized in the near future.

Step #4: Monitor prioritization of equipment. Through increased oversight and transparency, monitor appropriation to gain full value and ensure effective stewardship of resources. Appropriated funding, combined with NGREA, provided a dedicated investment enabling Director, ARNG and Chief, Army Reserve to monitor funding and project delivery of new ambulances into the fleet.

Summary: This example closely aligns with the anticipated advantages of transparency reforms implementing Guard and Reserve specific BLINs into P-1 documents. Successes in modernizing the ARNG and AR HMMWV ambulance capability would not have been realized without a 2012 Congressional decision to appropriate funding for the ARNG and AR. The increased transparency and positive oversight management created a win-win scenario for the RCs, industrial base, and the Total Force. The appropriation decision enabled both the ARNG and AR to fill critical shortages, modernize, and improve readiness of the ARNG and AR HMMWV ambulance fleets. The investment decision also fostered a public private partnership between organic and military industrial base ultimately resulting in an enhanced integration of an improved RC capability into the Total Force.⁸

⁸ Ibid.

Appendix D
Report to Congress on Reserve Component Equipment Transparency

Department of Defense

**Report to Congress on Reserve Component
Equipment Transparency**



OCTOBER 2017

**Office of the Assistant Secretary of Defense
for Readiness**

The estimated cost of this report or study for the Department of Defense is approximately \$23,040 in Fiscal Years 2016 - 2017. This includes \$40 in expenses and \$23,000 in DoD labor.
Generated on 2017Jan03 RefID: F-4FFDC4C

REPORTING REQUIREMENT

On page 60 of Senate Report 114-263, accompanying S. 3000 of the Department of Defense Appropriations Bill, 2017, the Committee on Appropriations requests the following information:

“The Committee strongly supports the Department of Defense’s policy of transparency and traceability of procurement funding for the reserve components. However, the Committee notes that the Department continues to have difficulty tracking funding requests for equipment for the reserve components. The Equipment Transparency Report, intended to provide such visibility, lacks the consistency and reliability needed to be definitive and is, by the Department’s own admission, unreliable. The Committee supports the practice of including reserve component funding requests in parent service budgets, but seeks a clearer way to determine the impact of funding on actual equipment procurement. Therefore, the Committee directs the Secretary of Defense to provide a report to the congressional defense committees, not later than 180 days after enactment of this act, outlining improvements or alternatives to the Equipment Transparency Report.”

SUMMARY

Concerns related to equipping the Total Force, specifically those related to National Guard and Reserve equipment, have been studied exhaustively within the Office of the Secretary of Defense (OSD) since 2008. At one point the Department of Defense Inspector General reported "... the Services had trouble reporting execution data for the Reserve component procurements in the Active component accounts." Providing annual Equipment Transparency Reports (ETR) to Congress to address these concerns, however, has ultimately proven to be less than satisfactory.

Given apparent widespread acknowledgment that the current procurement process and ETR does not meet the intent of Congress, improve Department of Defense (DoD) equipment auditability, or advance total force readiness, OSD developed several courses of action that are addressed in this report. The most promising of the potential courses of action is development of a "Budget Line Item" solution, embedded within the President's Budget (P-1). This approach could enable a more auditable, total force equipping policy by finally linking front end procurement with actual execution. While developing the mechanics of this modification to the current process requires further collaboration within the Department, this approach appears most promising.

INTRODUCTION

Equipment “Transparency” within the context of this report refers to the visibility of the Reserve Component (RC) programming, budgeting formulation and execution processes, and the ultimate tracking of deliveries of procurement items to RC units.

Since 2008, there have been significant efforts to review and improve the transparency of RC equipment procurement and delivery. However, because equipment is procured by the Services on an integrated level, there is no discrete identification of funding for RC equipment during budget execution. As a result, the quantities and funding estimated in the President’s Budget for RC equipment cannot be authoritatively traced to delivery of equipment to Reserve and National Guard units. The effect of this has been the inability to ensure that funding identified by Congress for RC equipment ultimately procures items delivered to RC forces.

BACKGROUND

In letters to the Secretary of Defense in 2008 and 2009, congressional leaders emphasized their desire for full transparency on RC equipment funding, to include the ability to track equipment from appropriation through delivery. In response, then-Deputy Secretary of Defense, The Honorable William J. Lynn III, accepted the Commission on the National Guard and Reserves (CNGR) recommendations regarding the Oversight of Equipment Requirements and the Transparency of Reserve Component Procurement Funding,^{1 2} and subsequently directed the Under Secretary of Defense (Comptroller), and the Assistant Secretary of Defense for Reserve Affairs (ASD(RA)), in conjunction with the Military Departments and Services, to propose the best course of action.

Initially, a recommendation for separate RC appropriations was presented, but subsequently abandoned due to concerns expressed by the Military Services regarding appropriation flexibility. The ETR was implemented as the compromise solution. Along with the ETR, the Deputy Secretary of Defense also directed completion of an internal assessment of the ETR’s effectiveness at the end of fiscal year 2012.

The internal assessment completed by ASD(RA) found that preparing the ETR is an extremely manpower intensive process, and that it does not provide the desired transparency of RC equipment procurement and delivery. The assessment recommended that the Department consider other options, including separate budget lines or separate appropriations. The Military Services recommended a combination of stricter standards of accuracy for the RC procurement programs (the Procurement Programs – Reserve Component (P-1R³)), and retaining the ETR.

¹ CNGR Recommendation 42. Congress should require that total force equipment requirements be included in service and joint materiel development, acquisition, and procurement plans, production contracts, and delivery schedules.

² CNGR Recommendation 43. Program elements should be added to the DoD procurement budget justification material and accounting system to increase transparency with regard to reserve component procurement funding and to improve DoD’s ability to track delivery of equipment to the reserve components.

³ P-1R is a non-binding exhibit subset of (P1) and reflects the Service estimate for those funds that will be used to procure equipment for the National Guard and Reserve.

This has proven to be an ineffective effort, as the P-1R is a non-binding budget exhibit that is routinely adjusted without any mandated reporting requirements. Although the Military Services agreed that the ETR was not providing the desired transparency, they expressed concerns that separate appropriations would limit their flexibility for reprogramming actions.

In 2014, the Army Deputy Chief of Staff, G-8, requested an audit of the Army's ETR process. The Army Audit Agency found that Army managers "don't accurately report quantities of equipment delivered to the RC or the actual cost of equipment delivered." The conclusion was that the existing processes were insufficient to achieve the desired transparency goals or enable the Chief, National Guard to provide an annual statement of accuracy and certification of equipment, for which funds were appropriated, as required in 10 U.S.C. § 10541(d).

In 2015, ASD(RA) initiated an independent review of the ETR process aimed at offering unbiased recommendations for alternatives or improvements to the ETR. This review reached the same conclusions as previous internal assessments, stressing the importance of accurately tracking the equipment status of the RC at a time when the Department is making strategic decisions impacting Total Force readiness.

CURRENT SITUATION

Transparency efforts continue to face challenges with regard to the accuracy and completeness of the reporting for RC procurement budgeting and execution. Consequently, adequate visibility and accountability from the budgeting process through equipment delivery has not yet been achieved. The primary limitations are:

- Absence of systems that automatically tracks the key data elements through execution. As a result, the data collection required for the ETR must be input manually, particularly in the majority of the programs where the procurement contract is not solely dedicated to RC equipment.
- Multiple stakeholders across the planning, programming, budget, and execution process have various roles and responsibilities in identifying, funding, and procuring equipment for the RCs. No single organization has total visibility or responsibility for the entire process, which results in accumulated transparency challenges.

The Item-Unique Identification System (IUID) has been examined as a principle component in solving the transparency challenge. While there are gains to be made with automated delivery tracking systems, the IUID has been in development for over a decade and does not produce the transparency desired by Congress with regard to RC equipment and procurement. We have determined that, unless the process starts with a discrete identification of funding for RC equipment that is subject to established reprogramming threshold approvals, the estimates within the budget can never be authoritatively traced to delivery of equipment to Reserve and National Guard units.

ALTERNATIVES TO THE EQUIPMENT TRANSPARENCY REPORT

After nearly a decade of analysis, it is evident that no actionable gains can be made toward transparency of RC equipment procurement without a change at the starting point of the budgeting for this equipment. The Department needs to take actionable steps to produce improved accountability for funds intended for the Guard and Reserves, as well as achieving the certification requirement for the Chief, National Guard Bureau. The issues of transparency and the ETR fall directly under the larger requirement for the DoD to be audit ready by fiscal year 2018. The status quo, or enhancements to the existing ETR, will not achieve these goals.

In developing alternatives to the ETR, consideration was given toward the following courses of action (COA):

- COA 1 – Establish separate RC appropriations and discontinue the ETR.
 - Provides the most transparency and accountability, but limits Military Service appropriation flexibility.
- COA 2 – Create National Guard and Reserve specific Budget Line Item Numbers (BLINs) on the P-1 documents and discontinue the ETR.
 - Provides transparency and accountability while maintaining Military Service appropriation flexibility.
- COA 3 – Retain status quo with further attempts to enhance business rules within current processes.
 - Provides the least amount of change. Will not produce the desired transparency to ensure accountability. Would continue use of the ETR.

In our view, the most promising alternative to the ETR is COA 2, establishing National Guard and Reserve specific BLINs within current Appropriations. After seven years of trying to produce the desired transparency through the ETR, and several in-depth analyses, COA 2 appears to be the best course to achieve the balance between congressional transparency goals and the Military Services' desire for budgetary flexibility.

The Department plans to proceed with implementing specific Guard and Reserve BLINs on the P-1, which are mutually exclusive from the Active Component BLINs, would provide the desired transparency over RC equipment procurement, while also preserving the flexibility to allow the Military Services to move funds between the line items within reprogramming thresholds that are established by Congress.

The manpower and costing implications of establishing National Guard and Reserve specific BLINs have been analyzed extensively. While there are net additions of manpower needed in some areas, it is important to emphasize that there will also be offsets and reductions in staff functions associated with eliminating the need for the ETR; an estimated 12,000 man hours are required annually by the Army alone in preparing the ETR.

REFERENCES

- (1) Senate Report 114-263, pg. 60, accompanying the Department of Defense Appropriations Bill, 2017.
- (2) "Funding for Reserve Component Equipment: An Analysis of the Budget Process." A Report Prepared by the Federal Research Division, The Library of Congress, November 2007.
- (3) "Accountability and Transparency for Army and Army National Guard Funding." A Report Prepared by The Dreifus Associates Limited, April 2009.
- (4) Letter from Congress (Senators Leahy, Bond, and Representatives Davis, Taylor), to the Honorable Robert M. Gates and Admiral Mike Mullen, September 26, 2008.
- (5) Letter from Congress (National Guard Caucus Co-Chairs Senators Leahy and Bond), to the Honorable Robert M. Gates and Admiral Mike Mullen, February 2, 2009.
- (6) Deputy Secretary of Defense Memorandum of September 18, 2009, Final Plan for Commission on the National Guard and Reserve (CNGR) Recommendations #42/43.
- (7) Office of the Assistant Secretary of Defense (Reserve Affairs) ETR Assessment 2012.
- (8) Executive Summary and Report, U.S. Army Audit Agency, Equipment Transparency Report, Audit Report A-2014-0090-ALM to the Assistant Secretary of the Army (Acquisition, Logistics and Technology) and the Office of the Deputy Chief of Staff, G-8, August 27, 2014.
- (9) Office of the Assistant Secretary of Defense (Reserve Affairs) Reserve Component Equipment Transparency, August 21, 2015.
- (10) Office of the Assistant Secretary of Defense (Reserve Affairs) Reserve Component Equipment Transparency, August 21, 2015, (Appendices).
- (11) Department of Defense Instruction 1225.06, "Equipping the Reserve Forces," May 16, 2012

Appendix E Points of Contact

DEPARTMENT OF DEFENSE

**Office of the Assistant Secretary of Defense for Readiness
ATTN: OASD(R) RP&R
1500 Defense Pentagon, Room 2E586
Washington, DC 20301-1500**

Deputy Assistant Secretary of Defense for Readiness
(Readiness Programming and Resources)
(703) 693-7495

COL Samuel R. Cook
OASD(R), RP&R
Deputy Director, Equipment Resources and
Evaluation (703) 693-2134
Samuel.R.Cook.mil@mail.mil

UNITED STATES ARMY

**Office of the Assistant Secretary of the Army for Manpower and Reserve Affairs
ATTN: SAMR-FMMR
111 Army Pentagon, Room 2E485
Washington, DC 20301-0500**

LTC William P. Dillon (ASA/M&RA)
(703) 693-2464
William.P.Dillon4.mil@mail.mil

Ms. Patricia Handy (NGB)
(703) 607-1727
Patricia.A.Handy6.civ@mail.mil

Mr. Rickey F. Yates (ARNG-RMQ)
(703) 607-7891
Rickey.F.Yates.civ@mail.mil

LTC Stephen Skelton (OCAR-SED)
(703) 806-7400
Stephen.b.skelton2.mil@mail.mil

UNITED STATES MARINE CORPS

**Headquarters, United States Marine Corps
Office of Marine Forces Reserve
Naval Support Facility Arlington
701 South Courthouse Rd
Bldg. 12, Suite 2R125
Arlington, VA 22204-2463**

Mr. Andrew "Ike" Ryan
(703) 604-4478
Andrew.Ryan@usmc.mil

Maj Ismael "Izzy" Lara (MARFORRES)
(504) 697-8422
Ismael.lara@usmc.mil

UNITED STATES NAVY

**Headquarters, United States Navy
Office: Chief of Naval Operations
ATTN: CNO-N0958E
2000 Navy Pentagon
Washington, DC 20350-2000**

Mr. Ben Glon (OCNR)
(703) 614-1674
Ben.Glon1@navy.mil

UNITED STATES AIR FORCE

**Headquarters, United States Air Force
ATTN: SAF/MRR (Reserve Affairs)
1660 Air Force Pentagon, Room 5D742
Washington, DC 20330-1660**

Col Steven Combs (SAF/MRR)
(703) 697-6431
Steven.C.Combs2.mil@mail.mil

Col Brian Sims (NGB/A4)
(240) 612-8442
Brian.K.Sims.mil@mail.mil

Lt Col Mary Lent (AF/RE)
(703) 697-2085
Mary.Z.Lent.mil@mail.mil

UNITED STATES COAST GUARD

**Commandant (CG-13)
ATTN: Director Reserve & Military Personnel
United States Coast Guard
2703 Martin Luther King Jr. Ave, S.E. Stop 7907
Washington, DC 20593-7801**

CDR Alexander Foos
(202) 475-5430
Alexander.C.Foos.@uscg.mil

Appendix F

Acronym Glossary

Acronym	Nomenclature
AAO	Approved Acquisition Objective (Marine Corps)
AAV	amphibious assault vehicle
ABCT	Armored Brigade Combat Team
AC	Active Component(s)
ACA	Aerospace Control Alert
ACC	Air Combat Command
ACS	Agile Combat Support
ACV	Amphibious Combat Vehicle
ADS-B	Automatic Dependent Surveillance-Broadcast
AEA	airborne electronic attack
AEG	Army Equipping Guidance
AESA	Active Electronically Scanned Array
AFB	Air Force base
AFR	Air Force Reserve
AFRC	Air Force Reserve Command
AFSOC	Air Force Special Operations Command
AFSPC	Air Force Space Command
AGSE	aviation ground support equipment
AH	attack helicopter
AIFF	advanced identification, friend or foe
AM	amplitude modulation
AMC	Air Mobility Command (Air Force)
AMCM	airborne mine countermeasures
AMD	Air and Missile Defense
AMP	Avionics Modernization Program
ANG	Air National Guard
AOG	Air Operations Group
AR	Army Reserve
ARB	Air Reserve Base (Air Force)
ARC	Air Reserve Components
ARFORGEN	Army Force Generation
ARI	Aviation Restructuring Initiative
ARNG	Army National Guard
ASU	anti-surface warfare
ASW	antisubmarine warfare
ATM	Air Traffic Management
BA	Battlefield Airmen
BATS	Battlespace Access Training Systems
BCA	Budget Control Act of 2011
BCC	Battle Control Center (Air Force)
BCT	brigade combat team
BFRMP	Boat Forces Reserve Management Plan
BLOS	beyond line-of-sight
BOIP	Basis of Issue Plan
C2	command and control
C4I	command, control, communications, computers, and intelligence
CAF	combat air forces

CART	cargo afloat rig team
CBPS	chemical/biological protective shelter
CBRN	chemical, biological, radiological, and nuclear
CBRNE	chemical, biological, radiological, nuclear, and high-yield explosives
CBT	common bridge transport
CCDR	combatant commander
CCMD	combatant command
CCT	Combat Controller Team
CDU	Critical Dual Use
CERFP	CBRNE Enhanced Response Force Package
CFT	Conformal Fuel Tanks
CNGB	Chief, National Guard Bureau
CNIFR	Commander, Navy Information Force Reserve
CNO	Chief of Naval Operations
CNS	Communication, Navigation, Surveillance
COMBATCAM	combat camera
CONUS	continental United States
COP	common operational picture
COTS	commercial off-the-shelf
CRC	control and reporting center
CRE	CBRN Response Enterprise
CRF	Coastal Riverine Force
CROWS	Common Remotely Operated Weapon Station
CRP	Core Radio Package
CRS	coastal riverine squadron
CSS	combat service support
CST	Civil Support Team
CTC	Combat Training Center
CTOC	Counter-Transnational Organized Crime
CW	cyber warfare
DCGS	distributed common ground system
DET	Displaced Equipment Training
DHS	Department of Homeland Security
DIB	defense industrial base
DIRECT	Disaster Incident Response Communications Terminal
DMS	distributed mission sites
DMSMS	diminishing manufacturing sources and material shortages
DoD	Department of Defense
DODD	Department of Defense Directive
DODI	Department of Defense Instruction
DOMOPS	Domestic Operations
DPAS	Defense Property Accountability System
DSCA	defense support of civil authorities
DV	distinguished visitor
EA	electronic attack
EAB	echelons above brigade
EMEDS	Expeditionary Medical Support
EMF	expeditionary medical facility
EO	electro-optical
EOD	explosive ordnance disposal
EOH	equipment on-hand
EPAWSS	Eagle Passive Active Warning Survivability System

ETR	Equipment Transparency Report
EUL	economic useful life
FAA	Federal Aviation Administration
FATS	Firearms Training Simulator
FEMA	Federal Emergency Management Agency
FIAR	Financial Improvement and Audit Readiness
FLSW	Fleet Logistics Support Wing
FM	frequency modulation
FMTV	Family of Medium Tactical Vehicles
FOC	full operational capability
FoV	Family of Vehicles
FPL	Force Protection, Large
FTU	formal training unit
FUA	Fixed Wing Utility Aircraft
FY	fiscal year
FYDP	Future Years Defense Plan
G/ATOR	Ground/Air Task Oriented Radar
GA	Guardian Angel
GBSAA	Ground-based Sense and Avoid
GCS	ground control station
GCSS-A	Global Combat Support System-Army
GFM	Global Force Management
GFMAP	Global Force Management Allocation Plan
GOTS	government off-the-shelf
GPS	Global Positioning System
HD	homeland defense
HEA	Heavy Equipment Airdrop
HEMTT	heavy expanded mobility tactical truck
HH	Hospital Helicopter
HIPPO	Load Handling System Compatible Water Tank Rack
HMEE	High Mobility Engineer Excavator
HMIT	helmet-mounted integrated targeting
HMMWV	high mobility multipurpose wheeled vehicle
HQDA	Headquarters, Department of the Army
HRF	Homeland Response Force
HSC	helicopter sea combat squadron (Navy)
HSM	helicopter maritime strike squadron
HTV	Heavy Tactical Vehicle
HYEX	Hydraulic Excavators
IBCT	Infantry Brigade Combat Team
IEW	intelligence and electronic warfare
IOC	initial operational capability
IP	Internet protocol
IR	infrared
IRST	Infrared Search and Track
ISO	International Organization for Standardization
ISR	intelligence, surveillance, and reconnaissance
ITAS	Improved Target Acquisition System
IUID	Item Unique Identification

JAB	Joint Assault Bridge
JB	Joint Base
JBC-P	Joint Battle Command-Platform
JCR	Joint Capabilities Release
JHMCS	joint helmet-mounted cueing system
JISCC	Joint Incident Site Communications Capability
JLTV	Joint Light Tactical Vehicle
JRB	joint reserve base
JRIC	Joint Reserve Intelligence Center
JSTARS	Joint Surveillance Target Attack Radar System
JTRS	Joint Tactical Radio System
kHz	kilohertz
kW	kilowatt
LAIRCM	Large Aircraft Infrared Countermeasures
LAV	light armored vehicle
LCS	littoral combat ship
LEEK	Law Enforcement Ensemble Kit
LHS	Load Handling System
LOS	line-of-sight
LSRS	littoral surveillance radar system
LTV	Light Tactical Vehicle
LVSR	Logistics Vehicle System Replacement
MAF	mobility air forces
MASS	Modular Aerial Spray System (Air Force)
MCS	Maneuver Control System
MDS	mission design series
MECP	Mobile Entry Control Point
MEDEVAC	medical evacuation
MEOH	Modernized Equipment On-hand (MEOH) (Army)
MFS-TRM	Modular Fuel System-Tank Rack Module
MH	multimission helicopter
MIDS	Multi-functional Information Distribution System
MIO	maritime interdiction operations
MIRCS	Mobile Integrated Remains Collection System
MISO	military information support operations
MMCT	Multi-Mission Crew Trainers
MPRA	maritime patrol and reconnaissance aircraft
MPRF	Maritime Patrol and Reconnaissance Force
MRAP	Mine Resistant Ambush Protected
MSC	Military Sealift Command
MTOE	modified table of organization and equipment
MTRRS	Mobile Tactical Retail Refueling System
MTV	medium tactical vehicle
MTVR	Medium Tactical Vehicle Replacement
NAS	naval air station
NAVAIR	Naval Air Systems Command
NAVELSG	Navy Expeditionary Logistics Support Group
NBC	nuclear, biological, and chemical
NBCRV	NBC Reconnaissance Vehicle
NCF	naval construction force

NCFA	National Commission on the Future of the Army
NCHB	Navy cargo handling battalion
NCR	naval construction regiment
NDAA	National Defense Authorization Act
NEIC	Navy Expeditionary Intelligence Command
NELR	Navy expeditionary logistics regiment
NET	New Equipment Training
NG	National Guard
NG CIMS	National Guard CRE Information Management System
NGB	National Guard Bureau
NGREA	National Guard and Reserve Equipment Appropriation
NGRER	National Guard and Reserve Equipment Report
NMCB	naval mobile construction battalion
NST	Network Operations Support Team
NSW	naval special warfare
NSWG	naval special warfare group
NUFEA	Navy-unique fleet-essential airlift
O&M	Operation and Maintenance
OA	Open Architecture
OASD(R)	Office of the Assistant Secretary of Defense for Readiness
OASD(R),RP&R	OADR(R), Readiness Programming and Resources
OCO	overseas contingency operations
OM	Operations Module (Air Force)
OPTEMPO	operating tempo
OSD	Office of the Secretary of Defense
OSRVT	One System Remote Video Terminal
P-1	Service Procurement Programs
P-1R	Service Procurement Programs - Reserve Components
PIM	Paladin Integrated Management
PIRL	Prioritized Integrated Requirements List
PLS	palletized load system
POM	program objective memorandum
PPBE	Planning, Programming, Budgeting, and Execution
PPP	public-private partnerships
PRESBUD	President's Budget
Prime BEEF	Prime Base Engineer Emergency Force
PRP	Personnel Retrieval and Processing
PSU	port security unit
RB-S	Response Boat-Small
RC	Reserve Component(s)
RED HORSE	Rapid Engineer Deployable Heavy Operational Repair Squadron Engineer
RERP	reliability enhancement and re-engining program
RPA	remotely piloted aircraft
RSS	Relocatable Simulator Shelter (Air Force)
RTIC	Real Time Information in the Cockpit
RWR	radar warning receiver
RWST	Reconfigurable Weapons System Trainer
S2E2	Survivable/Endurable Evolution
SABIR	Special Airborne Mission Installation and Response
SATCOM	satellite communications

SBIRS	Space-Based Infrared System
SE	support equipment
SEAL	sea-air-land
SELRES	Selected Reserve
SERE	survival, evasion, resistance, and escape
SF	security forces
SHORAD	Short Range Air Defense
SLEP	service life extension program
SLOS	secure line-of-sight
SMP	Strategic Master Plan (Air Force)
SMTC	Special Missions Training Center
SOF	special operations forces
SPAWAR	Space and Naval Warfare Systems Command
SPCS	space control squadron
SPPAD	Single Pass Precision Airdrop
SRM	Sustainable Readiness Model
SRP	SPAWAR Reserve Program (SRP)
STANO	Surveillance, Target Acquisition, and Night Observation
STUAS	Small Tactical Unmanned Aircraft System
SURGEMAIN	Naval Sea Systems Command - Surge Maintenance
T/A	Training Allowance (Marine Corps)
T/E	Table of Equipment
TACP	tactical air control party
TCAS	Traffic Alert and Collision Avoidance System
TDA	Table of Distribution and Allowances (Army)
TF	Total Force
TF-C	Total Force Continuum
TOA	table of allowance (Navy)
TPSB	transportable port security boat
TSU	tactical support unit
TSW	Tactical Support Wing
TWV	tactical wheeled vehicle
U.S.	United States
U.S.C.	United States Code
UAS	unmanned aircraft system
UHF	ultrahigh frequency
UPL	Unfunded Priority List
USAF	United States Air Force
USAR	United States Army Reserve
USCG	United States Coast Guard
USCGR	United States Coast Guard Reserve
USMCR	United States Marine Corps Reserve
USNORTHCOM	United States Northern Command
USNR	United States Navy Reserve
USSOCOM	United States Special Operations Command
USTRANSCOM	United States Transportation Command
VAQ	tactical electronic warfare squadron (Navy)
VFA	strike fighter squadron (Navy)
VFC	fighter squadron composite (Navy)
VHF	very high frequency
VITE	Virtual Interconnected Training Environment

VP	patrol squadron (Navy)
VR	Fleet Logistics Support Squadron (Navy)
WIN-T	Warfighter Information Network-Tactical
WMD	weapons of mass destruction
WMD-CST	Weapons of Mass Destruction - Civil Support Team



**Office of the Under Secretary of Defense
(Personnel and Readiness)**
4000 Defense Pentagon
Washington, DC 20301-4000