DEPARTMENT OF DEFENSE

NATIONAL GUARD AND RESERVE EQUIPMENT REPORT FOR FISCAL YEAR 2018

March 2017

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(NGRER FY 2018)

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

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READINESS

FOREWORD

The Reserve Component (RC) of our Armed Forces has consistently proven to be an indispensable part of our Nation's military power. The global demands on the U.S. military since 2001 have necessitated a shift away from the Cold-War model of a "strategic reserve" to an "Operational and Strategic Reserve Force" that is an integrated part of the Total Force.

Managing the RC as an operational force according to the readiness standards instructed in the DoD Directive 1200.17, *Managing the Reserve Components as an Operational Force,* has been complicated by both the increasing operational demands for the RC coupled with the fiscal constraints imposed by the Budget Control Act of 2011. Consequently, RC equipment procurement and modernization resourcing have been challenged to sustain a strong and robustly equipped operational and strategic reserve force.

Recognizing the invaluable contributions of the RC, we share Congress' concern for rebuilding Total Force readiness and restoring U.S. military capacity. We appreciate the opportunity provided by Congress to define Equipment Modernization in an effort to enable transparent appropriation decisions. Appendix C is a consolidation of Service inputs that outline their equipment modernization principles and introduces a capability-based modernization model. Additionally, work is in progress with each Service and their respective RCs to develop additional alternatives for the Equipment Transparency Report. At a time when Congress and the Department are making strategic decisions impacting Total Force readiness, the importance of accurately tracking the equipment status of the RC cannot be overstated. As requested, the Department will propose a viable course of action to achieve the desired transparency of RC equipment funding and delivery.

The RC has always had strong support from our Nation's elected representatives. This advocacy reflects its indispensable role in projecting and generating U.S. military power required to protect and defend national interests at home and abroad. National Guard and Reserve forces must be appropriately funded and equipped to meet the increasing global demands of the 21st century while fulfilling their obligations to the Total Force.

Sincerely,

Dr. Elizabeth P. Van Winkle
Principal Director, Force Resiliency,
Performing the Duties of the
Assistant Secretary of Defense for Readiness

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Chapter 1 Overview

I. Reserve Component Equipping Challenges (Operational & Strategic Reserve Forces)

The attacks on September 11, 2001, ushered in a new era of emerging threats and global instability marked by an increasing demand for U.S. military power. This resulted in the unexpected evolution of an enduring requirement for an Operational Reserve Force, necessitating a shift away from a Cold-War era construct intended to sustain a Strategic Reserve.

The requirement for an operational reserve was validated in the 2008 Commission on the National Guard and Reserve Final Report, which concluded there is no reasonable alternative to the Nation's continuing increased reliance on its Reserve Components for missions at home and abroad. In October 2008, the Department published DoD Directive (DODD) 1200.17, *Managing the Reserve Components as an Operational Force*. The directive established principles and overarching policies for managing the Reserve Components (RC) as an effective operational force and provided substantive steps for Total Force integration.

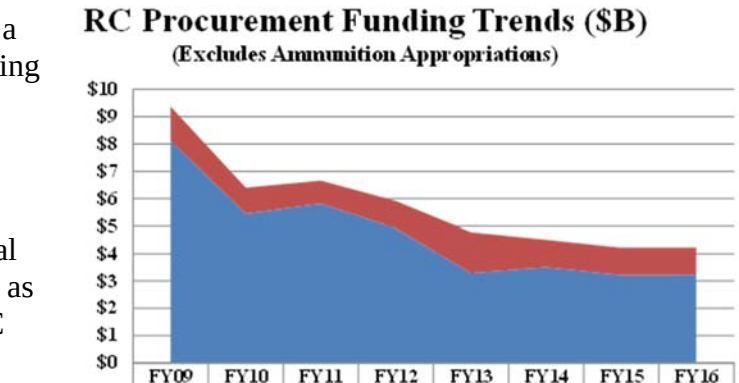
Processes for Equipping Reserve Components: The annual President's Budget (PRESBUD) request for procurement appropriations is based on validated requirements determined by and for the Total Force. The PRESBUD reflects and integrates two requests; the P-1, which contains the official Active and Reserve Component budget request, and the P-1R, which is provided as an estimate solely for information purposes and is not associated with actual appropriations. Despite the expectations of DoD and Congressional leaders associated with the P-1R, the Reserve Components rely on equipment filtered through the Active Component (AC) and their associated priorities.

In 1981 Congress created an equipment appropriation for RCs that stood apart from the PRESBUD submission entitled the National Guard and Reserve Equipment Appropriation (NGREA). NGREA was a response to AC budget priorities and was intended to supplement the Services' base procurement appropriations for the RC. However, the Services retain their Title 10 responsibility to fund and equip their respective RCs.

The Services continue to employ an equipping mechanism termed "cascading" as the primary method for equipping their respective RCs. Cascading is the redistribution of older legacy items into 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.

Systemic Challenges in Equipping the Reserve Component: Despite the 2008 directive, systemic challenges impeding policy implementation persist. The Budget Control Act (BCA) of 2011 is complicating steps in accounting for Operational Reserve Forces in procurement resourcing models. Budget reductions stemming from the BCA are further hindering modernization efforts and deteriorating readiness. As such, equipment modernization remains the limiting factor in building readiness and sustaining an Operational Reserve Force that is technically compatible and integrated with the "Total Force."

Equipment procurement processes are centrally managed by the Services. In a period of fiscal uncertainty and declining budgets, RC enabler programs are disproportionately affected through reprioritization and reprogramming actions. As a result, funding for RC programs is declining at an exponential rate (60 percent reduction since 2009) as reflected in Figure 1-1. This limits RC Chiefs in their ability to project and generate readiness, making them dependent upon the Services' investments and increasingly reliant on NGREA.



	FY09	FY10	FY11	FY12	FY13	FY14	FY15	FY16
NGREA	$1.25	$0.95	$0.84	$0.99	$1.495	$1.00	$1.00	$1.00
Base Budget	$8.12	$5.45	$5.82	$4.92	$3.29	$3.51	$3.22	$3.23

Figure 1-1 RC Procurement ($B)

The Department is witnessing a decline in RC equipment procurement funding, in some cases falling back to pre-9/11 levels or even lower. Although NGREA has enabled the RCs to partially fill critical requirements, investments are limited to contract availability, and it is subject to significant Congressional restrictions. As a planning tool, it is unpredictable as it falls outside normal appropriations and limits the ability to forecast.

Cascading is an unsuitable equipping mechanism, as it does not reflect the current operational environment, which has seen a historic reliance on Reserve and Guard units over the last decade. 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. Cascading prolongs impending service life extension programs and life cycle maintenance actions. It also delays modernization programs, transfers the rising cost of maintaining aging systems to the RC, which impacts limited operation 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 obfuscates the fundamental issue of equipment interoperability between the RC and AC while simultaneously masking underlying funding shortfalls. 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 confuse incompatibility issues between AC and RC formations.

Under current conditions, 20th century processes inhibit the ability to acquire and integrate 21st century technology across the "Total Force." RC forces are increasingly challenged in achieving operational readiness standards required to respond to growing demands. As a result, preparing RC forces for deployment still relies on a Cold-War era model of "Mobilize, Train, and Deploy," rather than the directed "Train, Mobilize, and Deploy" model consistent with managing an operational reserve.

Options: Introduce steps to renew process improvements needed to create efficiencies balancing the enduring demands for generating and sustaining an operational and strategic reserve. Remedies must set conditions for building RC operational capabilities and sustaining strategic capacity in support of national security objectives. Conditions must include complete transparency within the appropriation process in order to achieve consistent and reliable visibility of the RC equipping modernization posture. At a time when we rely upon a strong and robustly equipped RC as an integral part of the Total Force, we share Congress' concerns over RC funding and equipping processes. The Department appreciates the opportunity to provide alternatives to the current Equipment Transparency Report and modernization efforts, which will offer ways to improve the visibility and accountability of the budgeting process through delivery of equipment to RC units.

It is imperative that the Services' RC appropriations achieve three distinct goals. First, Reserve-specific appropriations must ensure the continued operational and interoperability capability and capacity of Reserve forces. Second, base budget management should enforce predictability essential to projecting readiness, while minimizing reprogramming actions between components. Third, resource management must allow the requisite transparency to enable oversight and traceability of funds from funding request through equipment delivery.

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

The FY 2008 National Defense Authorization Act 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 charts 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 2018 NGRER highlights 943 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 2013 NGRER	FY 2014 NGRER	FY 2015 NGRER	FY 2016 NGRER	FY 2017 NGRER	FY 2018 NGRER
ARNG	365	271	320	305	261	243
AR	215	230	231	238	322	390
USMCR	150	212	201	205	183	168
USNR	42	42	40	36	36	30
ANG	30	30	29	29	26	27
AFR	20	18	17	16	17	15
USCGR	53	74	75	69	71	70
Total	**875**	**877**	**913**	**898**	**916**	**943**

III. Equipment Shortages

Chart 1-2 shows the dollar value of the current total major equipment requirements and inventories for each RC. The information this chart 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. Chart 1-2 indicates an $18.4B total shortage cost for the ARNG and $7.6B for the AR. The Army Reserve independently calculated a shortage value of $8.6B. The Army Reserve assessment identified discrepancies in individual item pricing and unverifiable projected deliveries totaling $1B. More information on the Army's equipping strategy and their use of authorized substitutions can be found in the Service's Chapter 2, Section I.

The Marine Corps Reserve (USMCR) reflects a 28.7 percent 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 the Service's Chapter 3.

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

Reserve Component	Requirements ($M)	On-hand ($M)	Shortage ($M)	Shortage (% of Reqd $s)
ARNG	104,307.0	85,887.2	18,419.8	17.7%
AR	32,886.0	25,272.8	7,613.2	23.2%
USMCR	9,732.2	6,940.8	2,791.4	28.7%
USNR	9,661.1	9,051.8	609.3	6.3%
ANG	47,500.0	40,600.0	6,900.0	14.5%
AFR	21,888.3	21,780.5	107.8	0.5%
USCGR	163.4	148.9	14.5	8.9%
Total	**226,138.0**	**189,682.0**	**36,456.0**	**16.1%**

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

IV. Equipment Procurement

The RC procurement funding levels for the period FY 2009–FY 2017 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 a FY 2009 peak of $8.2B down to $2.9B in FY 2017. Chart 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 and widen the gap of interoperability between the AC and RC.

Total annual NGREA funding added by Congress has averaged $1.1B from FY 2009 to FY 2016. However, NGREA has almost doubled from 13 percent of the total RC procurement funding in FY 2009 to 24 percent in FY 2016. In FY 2016, NGREA funding is 72 percent of the AFR's total procurement funding and 55 percent of the ANG's.

Chart 1-3. Reserve Component Procurement Funding

FY	Procurement Funding Source	RC Procurement Funding ($M)							
		ARNG	**AR**	**USMCR**	**USNR**	**ANG**	**AFR**	**Total**	**Grand Total**
2009	President's Budget P-1R (PY)	5,867.9	1,267.0	33.4	203.4	624.4	170.1	8,166.1	
	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**		**$9,413.9**
2010	President's Budget P-1R (PY)	3,094.4	1,482.6	40.3	137.0	541.1	155.3	5,450.6	
	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**		**$6,400.6**
2011	President's Budget P-1R (PY)	3,929.4	1,198.0	24.5	135.9	432.3	95.2	5,815.2	
	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**		**$6,660.0**
2012	President's Budget P-1R (PY)	3,262.2	968.0	8.5	170.1	315.9	190.6	4,915.3	
	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**		**$5,908.6**
2013	President's Budget P-1R (PY)	1,643.9	667.0	19.2	376.1	276.8	310.9	3,293.9	
	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**		**$4,788.9**
2014	President's Budget P-1R (PY)	1,952.1	382.0	59.0	187.8	231.9	696.6	3,509.3	
	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**		**$4,509.3**
2015	President's Budget P-1R (PY)	1,851.2	551.8	59.1	145.3	361.4	254.8	3,223.5	
	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**		**$4,423.5**
2016	President's Budget P-1R (CY)	2,098.4	477.0	73.5	257.4	269.0	54.6	3,230.0	
	NGREA	330.0	140.0	10.0	50.0	330.0	140.0	1,000.0	
	Total	**2,428.4**	**617.0**	**83.5**	**307.4**	**599.0**	**194.6**		**$4,230.0**
2017	President's Budget P-1R (R)	1,978.2	421.4	36.6	199.8	192.0	50.3	2,878.4	
	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 P-1R values will not be available until FY 2018 President's Budget request is released.
Note 6: 2017 NGREA values will not be available until after FY 2018 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	80,338.6	77,108.6	3,230.0	4.0%	Current Year
2017	74,110.0	71,231.6	2,878.4	3.9%	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: FY 2018 P-1 and P-1R values will not be available until FY 2018 President's Budget is passed.
Note 3: P-1 & P-1R values do not include Ammunition appropriations.
Note 4: 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.

V. 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 Nation's investment in an Operational ARNG provides responsiveness, flexibility, and readiness available in a Reserve Component where less than 20 percent of the personnel serve in a full-time manning capacity. Enhancing the readiness posture of early deploying ARNG units in support of the National Military Strategy, the ARNG is planning to deliver two Armored or Stryker Brigades and up to four Armed Reconnaissance Battalions (ARB) within 30–90 days of notification. Additionally, the ARNG will sustain two Infantry Brigade Combat Teams, two Division Headquarters, and Army Early Response Forces, at an enhanced readiness posture. The ARNG will also support the Army's Associated Unit Pilot (AUP) program, integrating ARNG units with Active Component units to enhance Total Army capabilities. The ARNG continues to

deploy numerous units in support of Federal and state missions as well as the State Partnership Program in numerous countries around the world.

The Army National Guard's top equipping focus areas include:

- Maintain ARNG as an Operational Force: manned, equipped, and trained to provide Unified Land Operations and domestic crises capabilities.
- Support the development and execution of the AUP program.
- Modernize the ARNG helicopter fleet while executing Aviation Restructure Initiative decisions and National Commission on the Future of the Army recommendations.
- Man, equip, and deploy 4 Brigade Combat Teams (BCT) per year through Combat Training Center (CTC) rotations in support of Army Contingency Plans.
- Man, equip, and train the ARNG's second Stryker Brigade Combat Team in FY 2017 and FY 2018, executing a CTC validation exercise in FY 2020.
- Begin transition of the ARNG's tactical wheeled vehicle fleet to the Joint Light Tactical Vehicle.

These specific focus areas are addressed further in Chapter 2, Section II of this report.

B. Army Reserve (AR)

As a critical component of our Nation's defense, the Army Reserve is designed to provide specialized units not found anywhere else in the Army and joint forces. This includes sustainment, medical, transportation, engineering, and cyber capabilities too expensive to maintain in the AC but essential for enabling major operations whether at home or abroad.

Over the last 15 years, the Army Reserve realized improvements in equipment modernization and equipment on-hand, while making strides to become more aligned as part of the operational force. However, the fiscal constraints imposed on the Army following enactment of the Budget Control Act diminished equipment modernization momentum and added challenges to maintaining Army Reserve readiness in the near to mid-term.

The Army Reserve's top equipping focus areas include:

- Set the conditions to forecast and generate readiness, with emphasis on critical capabilities
- Achieve a more predictable and balanced funding profile in the budget process
- Advance transparency process accuracy for equipment procurement and deliveries
- Pursue policy adjustments that afford greater visibility of future equipping requirements and enhance readiness reporting

These specific focus areas are addressed further in Chapter 2, Section III of this report.

C. United States Marine Corps Reserve (USMCR)

Within the Marine Corps, the AC and RC are integrated as a Total Force. Through the employment of the concept of "mirror-imaging," 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.

The Marine Corps Reserve's top equipping challenges include:

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

These first two challenges are symptomatic of the broader issue associated with fielding to the Marine Corps Reserve requirement regarding the aviation and ground equipment modernization effort within the Marine Corps. In addition to the KC-130J and RQ-21A, Marine Corps aviation is concurrently transitioning to the F-35B/C, MV-22, AH-1Z, UH-1Y, 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 Vehicle (ACV) and the Joint Light Tactical Vehicle (JLTV) are set to begin during the current Future Years Defense Plan. A decrease in procurement funding and unit activations has created a corresponding decrease in Reserve equipment fielding prioritization. As the Marine Corps continues its modernization efforts, it's critical the RC maintain pace with the AC to ensure significant capability gaps are not created.

These specific challenges are addressed further in Chapter 3, Section II of this report.

D. United States Navy Reserve (USNR)

The current fiscal climate has compelled DoD to make difficult choices across a wide range of competing requirements in future budget years. The Navy will continue to integrate its Active and Reserve Components into a cohesive Total Force, balancing readiness and modernization priorities to meet operational requirements.

Achieving equipment compatibility with the AC is critical to the Navy Reserve mission and is one of its top equipment priorities. Procurement and upgrade programs as well as Congressional adds have improved RC equipment modernization and compatibility; however equipment challenges remain. For instance, recapitalization of the F/A-18A+ and P-3C fleets remains critical for these squadrons to seamlessly operate with the fleet and provide relevant combat capability. Additionally, for the Coastal Riverine Force (CRF), Naval Construction Force (NCF), and Navy Expeditionary Logistics Support Group (NAVELSG) units, the ability to fully fund equipment requirements remains a significant challenge.

The Navy Reserve's top equipping challenges include:

- Aircraft procurement (C-40A, F/A-18E, P-8A, KC-130J)
- Expeditionary equipment procurement (CRF, NCF, and NAVELSG)
- Equipment incompatibility with Active Component

These specific challenges are addressed further in Chapter 4, Section II of this report.

E. Air National Guard (ANG)

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 for both home and overseas missions, flying 36 percent of the Air Force cargo and refueling missions each day and being ready to deploy overseas in 72-hours or less. ANG provides this support from 90 wings with 1,083 aircraft in its fleet. Guard Airmen supported more than 11,400 Air Force requests for

overseas deployments and operate remotely piloted aircraft around the clock, totaling nearly 85,000 combat hours worldwide

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, acquisition, and test processes to ensure that ANG's fleet of aircraft is safe, modern, and fully integrated.

The Air National Guard's top equipping challenges include:

- Adequate funding for weapon system modernization efforts
- Adequate funding to procure necessary air and ground equipment to more effectively support domestic operations and Federal missions

These specific challenges are addressed further in Chapter 5, Section II of this report.

F. Air Force Reserve (AFR)

The Air Force Reserve engages across the full spectrum of operations, providing day-to-day operational capability to maintain ongoing missions while retaining the strategic capacity to respond to national crises. The strength of the AFR comes from its Tier 1 readiness levels, which allows for timely utilization of a multitude of military capabilities. Over the last year, more than 5,000 Reservists contributed each day to global Air and Space Expeditionary Force (AEF) deployments and day-to-day missions to support the Active Component such as cargo airlift, Single Integrated Operational Plan (SIOP) nuclear alert, Reaper and refueling operations, and Joint Chiefs of Staff and Major Command exercises.

Air Force Reserve equipment requires compatibility with the AC to support applicable Air Force and joint missions, with the exception of "unique" missions performed by the AFR (e.g., weather, aerial spray, and aerial firefighting). This compatibility with the AC is also critical to ensuring the Selected Reserve has the ability to train to the same standards as the AC and be ready to operate seamlessly with AC counterparts. With congressional funding received to date, the AFR has been able to keep its mission equipment technologically compatible with the AC. With the average age of AFR aircraft approaching 50 years, it is becoming more apparent that replacement of those aircraft by the AC for the AFR is necessary. Maintainability, mission capability, AC compatibility, and increasing operational costs dictate replacement in the near future of almost the entire AFR fleet.

The Air Force Reserve's top equipping challenges include:

- Defensive Systems: improve aircraft survivability during combat operations
- Data Link and Secure Communications: improve/provide voice and data communications for combat missions
- Diminishing Manufacturing Sources and Obsolescence Issues: modernize avionics and recapitalization of aging aircraft

- Precision Attack: improve targeting and survivability

These specific challenges are addressed further in Chapter 5, Section III of this report.

G. United States Coast Guard Reserve (USCGR)

The Coast Guard Reserve force provides critical competencies vital to the Coast Guard's capability to lead, manage, and coordinate the Nation's response to acts of terrorism, disasters, or other emergencies in the maritime domain. As an integrated force multiplier, Reserve personnel serve alongside AC members in support of Department of Homeland Security programs and Coast Guard missions. The Coast Guard 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 missions support.

Adequate funding to support equipment procurement, maintenance, and necessary training to operate and maintain the equipment is critical to sustaining an effective operational reserve. The Coast Guard Reserve 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 Coast Guard operational integration, which is essential in responding to various contingencies and fulfilling the security demands of the Nation.

The Coast Guard Reserve's top equipping challenges include:

- Obtaining sufficient training capacity to ensure proficiency on updated platforms
- Maximizing availability of operational platforms for RC training

These specific challenges are addressed further in Chapter 6, Section II of this report.

Chapter 2
United States Army Reserve Components

I. Army Overview

A. Army Planning Guidance

The next twenty-five years will not be like the last. The Army is at risk now and that risk increases in areas of previous overmatch against existential, peer adversaries capable of high-end conventional warfare in complex, contested environments. The Army must be able to: fight state and non-state disruptors without mortgaging future force development; prepare to fight peer powers without overinvesting; and build options against peer powers in the future.

The Department of the Army has a mandate to design, build, man, train, equip, sustain, and mobilize/demobilize 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.

Near-term (now through 2025)—Current Fight
The Current Fight includes counterterrorism operations; civil wars and sectarian/ethnic conflicts primarily in the Middle East and Africa; the steady deterrence of disruptive states; and efforts to enable stability and build partner capacity globally. Conflict against these state and non-state actors will likely be more violent, close, brutal, and protracted. As messy and chaotic as this mix of state and non-state challengers is, it is not an existential threat to the United States. The challenge for the Army will be fighting the Current Fight without mortgaging future force development. The *2016–2017 Army Readiness Guidance* outlines some early examples of how the Army will approach the Current Fight in an era of great power competition and existential threats.

Mid-term (2025 to 2035)—Next Fight
In the Next Fight, U.S. forces must be capable of fighting into and under a sophisticated Anti-Access/Anti-Denial envelope against the conventional forces of peer nation-states that have the advantage of interior lines. Warfare will be extremely violent, lethal, and fast paced with compressed decision cycles that will strain the limits of force generation and power projection capabilities. This area is the greatest gap—ceding it to our adversaries gives them the initiative and prevents the full measure of the Joint Force to be employed. Today's Army must make the appropriate research, development, and acquisition investments to address gaps in long-range precision and area fires; air, missile, rocket, and unmanned aerial system defenses; policy-compliant area denial munitions; combat vehicle and aviation protection; and cyber electromagnetic resilient systems.

Long-term (2035 to 2050)—Future Fight
In the Future Fight, the character of warfare may be difficult to define in the present; however, broad outlines can be anticipated. Certainly, the Future Fight will involve transporting, fighting, and sustaining a geographically dispersed Army and multinational forces over exceptionally long

and contested distances, probably into an opposed littoral environment against a technologically sophisticated and numerically superior enemy that will initially possess positional advantage. The appropriate investments must be made now; otherwise, it will be too late for a generation of Army leaders to act effectively.

B. 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. Army 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 ARNG and United States Army Reserve (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 or procurable in the near term 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 guidance 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) of 2011, 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 when appropriate while ensuring equipment distribution and redistribution is accomplished at the lowest levels.

In all cases, decisions must be based on accurate knowledge of EOH. Accountability of equipment must be established and maintained through accurately and rapidly documenting inventories to enable 100 percent visibility. The Army's effort to ensure AC and RC equipment is properly accounted for and distributed to the appropriate component is known as transparency. Implementing congressionally mandated transparency requires two steps: first, component-level funding and procurement quantities are included on key congressional budget exhibits; and second, delivery of funded equipment is tracked. The format for this tracking effort was standardized for all of the Military Services and is called the Equipment Transparency Report (ETR) that is provided semiannually to the Office of the Assistant Secretary of Defense for Readiness (OASD[R]).

D. Initiatives Affecting RC Equipment.

The Army is transitioning away from a theater provided equipment model to a pre-positioned and training activity set in order to push equipment forward into areas of potential conflict, providing equipment for both training and potential use in the event of crisis. Additionally, changes to force structure (e.g., 15th Armored Brigade Combat Team) 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.

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 Equipping Assessment

Equipping an Army with the latest and most modern equipment requires a process that determines the capabilities the Warfighter must have and whether those capabilities are technically feasible and affordable given the current fiscal environment. Accomplishing this task

in a fiscally constrained and operationally uncertain environment requires the Army to continually review resource planning and prioritization methods.

Prioritization impacts which weapon systems are purchased and what units will receive them first. Priority for fielding is not related to component affiliation – it is related to the type of capability required to support Defense Planning Scenarios. The Army may also choose to focus on combat formations over enablers since the skills and equipment needed for a Brigade Combat Team (BCT) take longer to acquire and train than most enablers (e.g. Truck Companies). The Army places a high value on enablers with an understanding that they are required to conduct full spectrum operations. However, it is possible to acquire additional depth in less time than combat formations, and in many instances by rapidly contracting additional support where and when needed. This strategy will impact the RC where a large portion of the Army's enabler structure resides.

The planning to provide the most modern equipment available to the Army may go back decades. For example, the procurement and fielding of a weapon system may span more than 20 years. The time line can be potentially impacted by a number of factors, including but not limited to the limitation of resources, size of our fleets, and cost of individual weapons. The synchronization of this effort has three key objectives: first, maintain readiness by ensuring units have required equipment; second, provide the Warfighter the newest and most capable equipment as soon as possible; and third, ensure investments for new equipment are focused on the most modern equipment that is or will be in production and not today's equipment shortages. Achieving these three objectives requires the Army to retain legacy equipment needed to fill unit requirements while procuring more modern equipment as replacements.

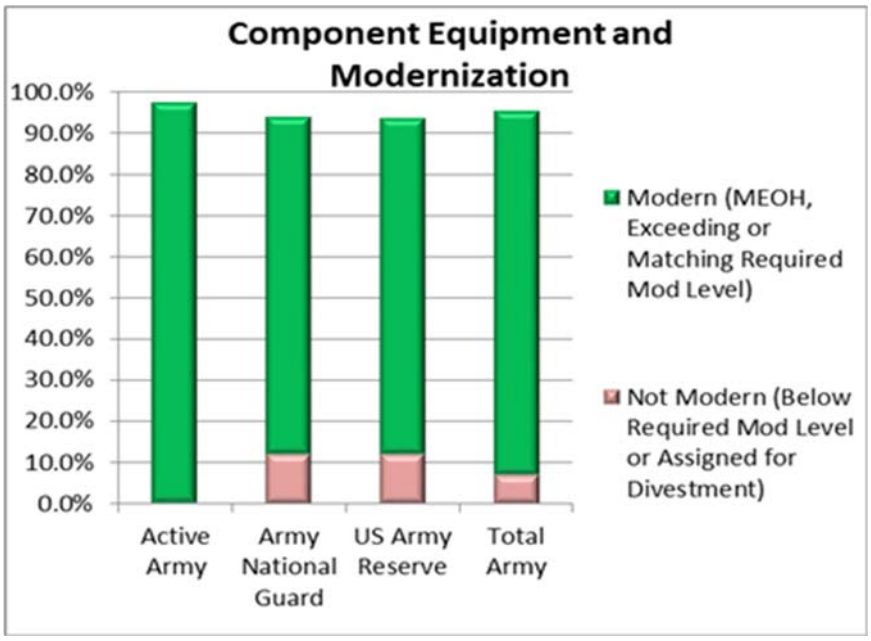
This plan is the Army's "modernized" approach which provides more modern replacements and substitute equipment (equal to or more modern than the item it is replacing) to maintain unit readiness and technological overmatch over extended procurement periods. This ensures the Warfighter is provided with the newest and most capable equipment. One of the greatest challenges is ensuring that commands and units recognize modern replacements are incoming, rather than attempt to reorder legacy equipment.

G. Army Component Equipment Modernization

The Army's "modernized" 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. Equipment that is "not modern" may be relatively old, but that is secondary to it being considered obsolete or only suitable for training.

The Army has identified 7.2 percent of EOH as "not modern" in Figure 2-1 below. This equipment is planned for divestiture and represents areas requiring modernization. In simple terms—the Army plans to increase the "modern" equipment and divest "not modern" equipment.

Figure 2-1 Component Equipment and Modernization



II. Army National Guard Overview

A. Current Status of the Army National Guard

1. General Overview

In FY 2016, the Army National Guard (ARNG) mobilized 10,284 Soldiers around the world in support of Title 10 operations. This included 4,448 to Kuwait, 920 to Afghanistan, 782 to Djibouti (Horn of Africa,) 848 to Cuba (Guantanamo Bay,) 610 to Qatar, 457 to the United Arab Emirates, 443 to Jordan, 427 to U.S. locations (National Capitol Region, Base Support,) 599 to Kosovo, 237 to Egypt, 137 to Uganda (Horn of Africa,) 116 to Bahrain, 72 to Iraq, and 188 to other locations. These numbers accounted for 13 battalion-sized units and 57 company-sized units.

Congress' continued support of Army procurement and the Army's continued utilization of the ARNG increased the ARNG's Equipment On-Hand (EOH), Critical Dual Use (CDU) equipment, and overall equipment modernization levels. In 2011, the Modified Table of Organization and Equipment (MTOE) EOH was at 77 percent. At the end of 2016, MTOE EOH was up to 93 percent, and MTOE CDU EOH was at 89 percent.

Top ARNG Focus Areas

- Maintain ARNG as an Operational Force: manned, equipped, and trained to provide Unified Land Operations and domestic crises capabilities.
- Support the development and execution of the Army's Associated Unit Pilot (AUP) program.
- Modernize the ARNG helicopter fleet while executing Aviation Restructure Initiative decisions and National Commission on the Future of the Army recommendations.
- Man, equip, and deploy 4 Brigade Combat Teams (BCT) per year through Combat Training Center (CTC) rotations in support of Army Contingency Plans.
- Man, equip, and train the ARNG's second Stryker Brigade Combat Team in FY 2017 and FY 2018, executing a CTC validation exercise in FY 2020.
- Begin transition of the ARNG's tactical wheeled vehicle fleet to the Joint Light Tactical Vehicle.

a. Status of the ARNG as an Operational Force

Although the ARNG is now at a historically high level of readiness, Army operational and contingency plans require increased readiness in select formations. Therefore, the ARNG will closely track readiness through a training model to support the 21st century Army and focusing its policies and prioritizing resources. Select units required by high priority operational plans will be provided with additional training days and additional Combat Training Center (CTC) rotations. ARNG will optimize its capability to conduct combined arms live fire training and improve the transition from training through deployment.

The Nation's investment in an Operational ARNG provides responsiveness, flexibility, and readiness available in a Reserve Component (RC) where less than 20 percent of the personnel serve in a full-time manning capacity. Enhancing the readiness posture of early deploying ARNG units in support of the National Military Strategy, the ARNG is planning to deliver two Armored or Stryker Brigades and up to four Armed Reconnaissance Battalions (ARB) within 30–90 days of notification. Additionally, the ARNG will sustain two Infantry Brigade Combat Teams, two Division Headquarters, and Army Early Response Forces at an enhanced readiness posture. The ARNG will also support the Army's Associated Unit Pilot (AUP) program, integrating ARNG

units with Active Component (AC) units to enhance Total Army capabilities. The ARNG continues to deploy numerous units in support of Federal and state missions as well as the State Partnership Program in numerous countries around the world.

b. Defense Support of Civil Authorities and State Missions

In 2016, the ARNG performed well over 200 state missions (see Table 2-1 below) in support of civil authorities. This year heavily exercised the ARNG's peacetime mission in the area of winter storm responses for Oklahoma, Louisiana, and Virginia. In addition, Louisiana, Missouri, South Carolina, and Texas all experienced unprecedented flooding requiring ARNG response. Late in FY 2016, ARNG played a significant role in Hurricane Matthew response to include the states of Florida, Georgia, South Carolina, North Carolina, and Virginia. During 2016, the ARNG also provided 161 days in support of Flint, Michigan, because of contaminated drinking water and participated in 101 events consisting of 1,115 employments.

Table 2-1. FY 2016 Defense Support of Civil Authorities and State Missions

Event Type	Event Amount	Event Type	Event Amount
Key asset protection	2	Search and rescue	20
Law enforcement support	1	Water support	4
Winter storm response	21	Severe weather	3
Flood response	10	Explosive ordnance disposal (EOD) response	2
Special event	8	Joint Operations Center support	8
Wild Fire	6	Southwest border support	6
Hurricane response	8	Counterdrug support	54
Medical support	2	Civil Support Team (WMD-CST) response	101

i. Chemical, Biological, Radiological, Nuclear (CBRN) Response Enterprise

Currently, there are new ways of developing Weapons of Mass Destruction (WMD) through improved technological methods, which could make dangerous agents more widely available and easier to use by terrorists, who remain willing and capable of threatening U.S. citizens. In 2010, the Department of Defense (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—with the assembly of 10 National Guard (NG) Homeland Response Forces (HRF), one per Federal Emergency Management Agency (FEMA) region. As a result, the DoD CBRN Response Enterprise (CRE) was enhanced. The NG (Army and Air) comprises 55 percent of total force (10,535) personnel assigned to the entire DoD CRE.

The National Guard Bureau (NGB) Concept of Operations details the organization and employment of the Homeland Response Force (HRF) and Chemical, Biological, Radiological, Nuclear, and High-Yield Explosives (CBRNE) Enhanced Response Force Package (CERFP). Under state control, these NG forces consist of the Weapons of Mass Destruction-Civil Support

Team (WMD-CST), CERFP, and HRF, which are identified together as the NG CBRN Response Enterprise (NG-CRE). Under Federal control, these forces consist of the Defense CBRN Response Force with Joint Task Force-Civil Support as its core, and two Command and Control (C2) CBRN Response Elements (C2CRE).

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 NGB will continue to reshape its ability to counter current and future natural or manmade WMD material threats and attacks resulting in a cataclysmic events. In addition, the HRF, CERFP, and WMD-CST provide crucial support to state and local civil authorities, while deepening existing efforts with Federal interagency partners.

ii. ARNG Division Headquarters, Joint Domestic All-Hazards Response Team

The Joint Domestic All-Hazards Response Team (JDART) was developed by the NGB to provide a deployable joint ARNG and Air National Guard regionalized and decentralized approach to provide support for significant incidents. A key to the All-Hazards Support concept is to provide The Adjutant Generals (TAGs) with an additional Mission Command option that has options including a scalable Army Division Headquarters, or Air Operations Center (AOC) Headquarters, capable of augmenting a NG Joint Force Headquarters-State (JFHQ-State) staff's inherent core functions. The JDART concept supports both NGB's and JFHQ-State's All-Hazards response plans. In cooperation with the NGB, the supporting and supported states' TAG will coordinate the deployment of the requested JDART assets to enhance response capabilities during an All-Hazards incident, a catastrophic event, or a National Security Special Event.

The JDART can deploy in a variety of scalable options to support states staff. JDART may support states in a variety of ways to include:

- Perform Title-32 (state) activities and Title-10 (Federal) activities in support of an All-Hazards event for an affected state.
- Provide a deployable provisional staff augmentation to conduct Joint Reception Staging Onward Integration and additional Mission Command Staff (J1, J2, J3, J4, J5, J6, J8), and Special Staff (liaison officers, Judge Advocate General, Public Affairs, and Medical).
- Deploy liaison officers in support of an affected state.
- Place Incident Awareness and Assessment subject matter experts in support of an affected state.

The Services will identify an Army Division Headquarters, or AOC Headquarters to be prepared to execute a JDART mission during an All-Hazards or catastrophic event, and upon request of a supported state's Adjutant General or the CNGB. The JDART is not a program of record, and there is no funding associated with this be-prepared-to-deploy mission.

c. Support to Security Cooperation and Building Partner Capacity

The ARNG participated in 60 Joint Exercise Program (JEP) and Army Service Component Command (ASCC) exercises that built partner capacity and fostered enduring relationships with foreign nations, while simultaneously supporting ASCC theater security objectives. To achieve readiness aim points, the ARNG oversees Deployment Training program planning, resourcing,

and funding, ensuring ARNG capabilities for exercises, engagements, mission support, and exchanges. Over 16,000 ARNG Soldiers deployed to conduct Security Cooperation Activities in support of the Army. For example. 1,200 ARNG Soldiers, composed of elements of the 116th Armor Brigade Combat Team (Idaho, Montana, and Oregon ARNG) with support from the 125th Multirole Bridge Company (South Carolina ARNG) participated in SABER GUARDIAN at the Romanian Land Force Combat Training Center in Cincu, Romania. SABER GUARDIAN is part of United States European Command's JEP that is designed to enhance joint combined interoperability with allied and partner nations.

2. Current Status of Equipment

The ARNG's Equipping Posture Dashboard is published semiannually using data points in June and December. The ARNG coordinates closely with Headquarters, Department of the Army (HQDA) G8 to ensure business rules and data sets are an exact match for each effort. The Commander's Unit Status Report, also used, assigns added weight to mission essential equipment, providing the average level of readiness. The Dashboard then aggregates this data at the enterprise level, assigning all equipment an equal level of importance. This aggregation represents the true overall percentage of authorized EOH.

The Dashboard highlights equipment availability to the governors (e.g. not deployed) to include CDU Essential-10 Category equipment. On an annual basis, the ARNG and HQDA G3/5/7 work together to update the CDU list based on MTOE changes and force structure divestment during the previous year. The Director, ARNG (DARNG) submits recommendations for the updated CDU list to HQDA G3/5/7 for vetting and approval. This list is then published on the HQDA G8 website.

a. Equipment On-hand

At of the end of 2016, the ARNG's authorized equipment EOH was 93 percent for MTOEs and 89 percent for CDU equipment. Force structure changes resulted in a 90 percent and 84 percent availability of MTOE and CDU equipment to the governors. This is a direct result of a four percent decrease in CDU equipment authorizations. While the ARNG did not physically lose equipment from these changes, it prompted an update to the CDU equipment list.

As part of an overall Army Enterprise effort to track equipment, the ARNG is realigning equipment in accordance with HQDA directives by utilizing the Lead Materiel Integrator-Decision Support Tool (LMI-DST), a web-based equipment-tracking platform. This provides the ARNG the ability to see EOH against authorized equipment, thereby identifying shortfalls.

i. Table of Distribution and Allowances Unit Equipment (TDA)

The ARNG equips TDAs in accordance with the DARNG equipping priorities. Decreasing resources, delayed or cancelled programs, and deferred modernization often leave TDAs receiving less modern equipment due to their priority vice deploying units receiving the most current and modern equipment. This will likely continue as the Force is reshaped, and as processes and procedures for procurement change along with systemic challenges.

ii. Equipment Cross-leveling

The Army Chief of Staff directed readiness to be priority number one. The ability to cross-level equipment plays a significant role in improving unit readiness. This process is the preferred method since the equipment is already available in another unit or command. Currently, LMI-DST is the system for equipment cross-leveling at all echelons, both internally and between states.

iii. DoD Instruction 1225.06-Equipment Transfer to Contingency Operations

The current DoD Instruction (DODI) 1225.06, *Equipping the Reserve Forces*, provides a process that continues to provide a safeguard to ensure ARNG equipment is available and readiness levels are maintained within the 54 states and territories. Previous equipment transfers in support of overseas contingency operations (OCO) and the replacement plans for equipment are regularly reviewed, tracked, and received by the ARNG. As progress is made, emphasis on the importance of preserving current equipment and receiving replacement equipment (within the RC) cannot be diminished. The ARNG must be prepared to respond to contingencies, both at home and abroad.

DODI 1225.06 transfers may be identified by HQDA, ARNG, or other agencies. The ARNG staff coordinates with the HQDA staff to best meet the needs of the combatant commanders and the Army. DODI 1225.06 procedures provide greater transparency and traceability controls over RC equipment transfers. This includes transfers from one component to another, transfers within a component, diversions of planned distributions, as well as equipment inducted into maintenance facilities. Additionally, the instruction provides enhanced reporting requirements to provide enhanced transparency and accountability of ARNG equipment. The Army has also published additional supplementary instructions that clearly outline and define the Army's internal processes and procedures that will be used to transfer ARNG and United States Army Reserve (USAR) equipment in accordance with DODI 1225.06. The ARNG, in conjunction with the Army Sustainment Command and HQDA G8, continues to monitor replacement requirements established since 2003 and approved by the Secretary of Defense. Through regularly scheduled Integrated Product Team meetings, consisting of members from HQDA, Army Materiel Command, ARNG, and USAR, all theater equipment transfers and replacement plans are properly annotated and tracked. The ARNG continues to work closely with the Army Sustainment Command and HQDA to ensure equipment is returned and future transfers are properly executed.

iv. Property Accountability and Excess

The current ARNG equipment accountability rate average is 99.5 percent accurate. Critical established programs in place to ensure the most accurate accountability include the quarterly Campaign on Property Accountability report, the quarterly Excess Equipment report, and the monthly General Equipment follow-on testing. Through these programs and others managed at the state level, the ARNG continually maintains equipment accountability and has made vast improvements towards more accurate inventory management and equipment readiness.

b. Average Age of Major Items of Equipment

The average age of ARNG equipment at the beginning of FY 2017 is provided in T*able 2 Average Age of Equipment*. An increase in manufacture and recapitalization programs through

FY 2016 alleviated the historical issue associated with aging equipment. In the past, the ARNG received much of its equipment through AC cascading actions. This cascaded equipment was often already at or near the end of its planned service life, and 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, the average age of the fleet will continue to decrease.

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 Army Force Generation (ARFORGEN) process to the Sustainable Readiness Model (SRM), the ARNG's 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 Issues

i. Field-Level Maintenance

Many ARNG maintenance facilities are over 50 years old, and their current design does not provide a safe, environmentally-friendly workplace to perform the maintenance mission. Two-level maintenance coupled with more complex and modernized equipment has increased the need for specialized tools, lift and overhead requirements, and floor space. The current total Military Construction funding required for modernizing ARNG surface equipment maintenance facilities is estimated at $2.15B based on input from the ARNG Installation Division's Infrastructure Development and Evaluation database. Field-level maintenance is critical to sustaining ARNG equipment readiness as it transitions through SRM. Additionally, this equipment supports 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.

ii. National-Level Maintenance

The ARNG Surface Depot Maintenance Program is a strategic component for maintaining ARNG fleet readiness. This program, through depot overhaul and rebuild programs, sustains EOH and enables critical combat and support equipment to reach its projected expected 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 2016 was $99.93M. This is 58.7 percent of the ARNG's critical requirement of $170M for FY 2016. Sustaining funding levels for FY 2017–FY 2022 is critical to sustaining ARNG fleets as OPTEMPO increases, placing greater demand on ARNG equipment. Any decrease in program funding will reduce the operational readiness levels for combat and combat support systems for ARNG units conducting training, overseas deployments and Domestic Operations (DOMOPS).

iii. Home Station Reset

Under the Home Station Reset program in FY 2016, the ARNG continued to restore equipment returning from overseas deployments and contingency operations to Technical Manual 10/20 standards within 365 days of returning to home station. In FY 2016, the ARNG Home Station

Field Level Reset Program, a subset of the Home Station Reset, completed the reset of 139,763 pieces of equipment.

iv. Automatic Reset Induction

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

e. Modernization Programs and Shortfalls

The Army, coupled with Congress' emphasis to modernize the Total Army, increased EOH across all Army components and brought ARNG equipment more in line with the AC in both EOH and equipment modernization. Continued Congressional support funding to the ARNG is a critical factor in meeting the Secretary of the Army and the Army Chief of Staff's strategic vision to build the "right mix" of fully interoperable AC/RC units.

The Army defines equipment modernization as procurement or modification to EOH in order to fill emerging capability gaps. Based on June 2016 data, the projected ARNG MTOE EOH is 93 percent. This reflects the ARNG's potential "go-to-war" levels. Modernized EOH (MEOH) is used to measure the Army's modernization progress. MEOH excludes older substitutes and shows the modern inventory against requirements. Using the MEOH methodology, the FY 2016 MEOH percentage for the ARNG is 93 percent. The MEOH allows the Army to measure equipment quality over time to the aggregate and component levels.

The ARNG is currently equipped and modernized at levels higher than any time in its history. This is a direct result of resourcing and legal authorities that Congress dedicated and the Army enacted over the past fifteen years. These efforts continue to be key to the ARNG's Equipment Modernization Strategy in support of the Army's mission; however as mission demand changes, capability gaps emerge in equipment modernization. Modernization is a continual effort and resourcing reductions generate risk to the ARNG and the Army.

i. High Mobility Multipurpose Wheeled Vehicle (HMMWV) Ground Ambulances

Modernizing the HMMWV Ground Ambulance fleet remains a high priority for the ARNG as they are critical assets to the ARNG's Federal and state missions. The ARNG purchased 503 HMMWV Ground Ambulances with FY 2010 and FY 2013 National Guard and Reserve Equipment Appropriation (NGREA) funding, and 106 HMMWV Ground Ambulances with FY 2015 NGREA funding. NGREA funding combined with directed Congressional funding from FY 2013 to FY 2016, will result in the ARNG achieving 100 percent of its ambulance requirement and an 89 percent modernized ambulance fleet.

ii. Capability Set

The Capability Set is a package of network components, associated equipment, and software that provides an integrated network capability from the tactical operations center to the dismounted Soldier. The systems included in the Capability Set will change over time due to acquisition strategy and system maturity. Near term fielding for the ARNG will include the Warfighter Information Network-Tactical (WIN-T) Increment 2 and Joint Battle Command-Platform. In

addition to new mission command systems, updated software will be included for existing systems. WIN-T Increment 2 is the core system that provides the Brigade Combat Team (BCT) commander mission command capabilities "on the move." HQDA is currently funded to field up to three Capability Sets per year and plans to field two of these sets to the ARNG beginning in FY 2018. At the planned fielding rate, the ARNG will not be fully fielded until after FY 2030.

f. Overall Equipment 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 G3's 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.

g. Other Equipment Specific Issues

The Army continues to support the ARNG's equipping strategies as an operational force; however, maintenance sustainment will remain a challenge. Full-time maintenance technician manning levels are unable to keep pace with the increased demand for equipment readiness based on OPTEMPO. This impacts the ARNG's long term ability to sustain equipment readiness levels.

B. Changes since the Last NGRER

1. Preserving the Operational Army National Guard

The Director, ARNG's top three priorities are to maintain readiness for the current operational environment, shape the future ARNG through a deliberate leader development process, and sustain the force by taking care of its Soldiers, civilians, and their families. These priorities support the National Defense Strategy, leveraging the capacity and capabilities of the Total Force, and are optimized and aligned to support DoD and Army strategic priorities.

The ARNG recognizes the importance of access to and availability of modernized equipment to maintain interoperability with the Total Force and our Nation's allies. Funding available to modernize the ARNG in tandem with the AC is key to securing interoperability.

The Army's SRM seeks to maintain readiness throughout all phases of train up, deployment, and recovery. The ARNG prioritizes equipment to units scheduled for deployment within the SRM. The challenge is maintaining readiness and modernized equipment on a five-year SRM cycle. The five-year (one to four mobilization-to-dwell ratio) cycle provides consistency and predictability for equipment fielding, but is less frequent than the AC. If the Army intends to preserve agility, ARNG employment utilization is key. Continuous operations that require rotational flexibility to support global demand must be equipped and modernized on par with the AC. It will be necessary for urgent demand ARNG units to maintain a four-year (one to three mobilization-to-dwell ratio) cycle in the SRM to meet future Army mission requirements.

2. Significant Major Item Shortages

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

the ARNG at the end of FY 2020. The highest priority item shortages are not necessarily driven by shortfall costs, but rather by our ability as a force to maximize readiness across all of the varied missions mentioned above.

C. Future Years Program (FY 2018–FY 2020)

Operating in a fiscally constrained environment creates challenges to funding and procuring equipment for the ARNG. The ARNG is programmed to receive approximately $6.44B in FY 2018–FY 2020 in base funding (an overall increase from previous years). This base funding value includes $1.81B in FY 2018, $2.17B in FY 2019, and $2.46B in FY 2020. These values do not include pay and allowances or research and development and are subject to change in the FY 2018 President's Budget submission.

1. FY 2020 Equipment Requirements

Table 1 Consolidated Major Item Inventory and Requirements provides projected FY 2018–FY 2020 major equipment inventories and requirements.

2. Anticipated New Equipment Procurements

a. Base Budget

Table 3 Service Procurement Program-Reserve (P-1R) provides the list of programmed ARNG equipment procurements in FY 2018–FY 2020.

b. National Guard and Reserve Equipment Appropriation (NGREA) Procurements

The ARNG uses NGREA funding to mitigate key readiness shortfalls in equipment and modernization efforts. In FY 2016, NGREA funded more than $292M in aviation; command and control systems; DOMOPs; engineering, communications equipment; intelligence, sustainment, and security systems in support of homeland defense and defense support of civil authorities' missions. The ARNG also invested $38M of FY 2016 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.

3. Anticipated Transfers from AC to RC

Table 5 Projected Equipment Transfer/Withdrawal Quantities provides a list of equipment the AC projects to cascade to the ARNG. The AC has received a large influx of newly procured equipment, especially for AC units rotating overseas. In addition, as forces are reduced, equipment requirements will also be reduced. It is anticipated that as force structure changes are implemented, new as well as excess AC equipment will allow the AC to transfer a portion of their older equipment to the ARNG to fill shortages and replace equipment that has been categorized as obsolete. The Army anticipates that it will cascade drawdown equipment to the ARNG through FY 2017.

4. Funding for New and Displaced Equipment Training

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 2015, the ARNG

received $27.1M for NET/DET training events and activities amounting to a reduction of $10.3M from the previous year.

Reductions in equipment training resources will significantly impact unit readiness as in the case of Global Combat Support System (GCSS)-Army and Nuclear, Biological, and Chemical (NBC)-Reconnaissance Vehicles (NBCRVs). The ARNG is directed to field GCSS-Army by FY 2017. GCSS-Army is the primary system utilized to track deliveries of new equipment and enable the CNGB to comply with required equipment delivery certifications. Additionally, the training requirement for the NBCRV, one of the most costly, technologically advanced pieces of equipment in the ARNG inventory and a WMD-CST mission multiplier, has the longest NET timeline for completion and is currently scheduled to be fielded in FY 2017 with Capability Sets in FY 2018. These are critical high demand capabilities among several that are significantly impacted by any reduction in NET funding and directly affect the ARNG's ability to support the states and territories during fielding and implementation.

5. ARNG Equipping Strategy

Equipping today's ARNG force remains a top priority for ARNG senior leadership. Providing Soldiers and units the required equipment in a timely manner needed to execute assigned missions is critical to carrying out DOMOPS and facilitating Federal missions. This strategy targets units in support of ongoing OCO and named operations; ensures a robust domestic response capability; is designed to meet SRM aim points; and facilitates interoperability between AC, USAR, and ARNG units. The aim points are based upon the Army's resourcing priorities and the Dynamic Army Resourcing Priorities List. Aim points provide a means to track unit readiness through the SRM force pools, allowing for accurate, timely decisions designed to mitigate risk to manning, equipping, and resourcing in accordance with Army priorities.

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

While ARNG modernization levels are within one percent of AC levels, there are areas of concern. The equipment items in each of the following portfolios are critical to the ARNG through 2020. These systems fulfill the ARNG's equipping strategies to meet requirements. These shortages are not conclusive, pending determination on the Army's way ahead as a result of the National Commission on the Future of the Army's (NCFA) recommendations and their application.

a. Maneuver Portfolio

The Maneuver Portfolio encompasses families of combat systems including Bradley and Stryker Fighting Vehicles, HERCULES Recovery Vehicles, and Abrams Tanks. The ARNG Stryker and Armored Brigade Combat Teams (ABCTs) have a projected FY 2017 rate of fill of 100 percent of the portfolio's authorized vehicles. While the most modern Abrams and Bradley variants, and all HERCULES vehicles are planned for full modernization, most of the ARNG Abrams and Bradley fleet is planned to receive only limited field modernization upgrades. ARNG leadership is concerned this will lead to interoperability, sustainment, and training challenges that will increase the time and funding required to complete an ABCT's mobilization.

b. Soldier Portfolio

The Soldier Portfolio includes individual/crew-served weapons, thermal weapons sights, night vision, Improved Target Acquisition Systems (ITAS), Common Remotely Operated Weapon Stations (CROWS), robotic autonomous systems, mortars, and other weapon support items. The portfolio fundamentally supports maintaining the ARNG as an operational force. Key accomplishments projected for this period include pure-fleeting the Thermal Weapons Sights family, which is scheduled for completion in FY 2017. Portfolio priorities include reducing the Soldier load to improve performance and overmatch capabilities. EOH remains healthy with an emphasis on modernization and documentation.

c. Air and Missile Defense (AMD) Portfolio

The AMD portfolio includes space, Ground-based Midcourse Defense (GMD), and Short Range Air Defense (SHORAD) to provide Army commanders with an adaptive, flexible, and integrated AMD force, enabling the defeat of a full range of aerial threats across Unified Land Operations. Improved Sentinel radars are fully fielded and are being modernized to improve mobility and detection. However, there are concerns with the Mission Command System (MCS) upgrades that enable enhanced interoperability with the Joint Force to improve situational awareness. Additionally, there are serious concerns with regard to the dwindling inventory and replacement of the Avenger Stinger-based SHORAD system, which is scheduled to remain in the ARNG into the 2030's.

d. Aviation Portfolio

The Aviation Portfolio includes all rotary-wing, fixed-wing, and unmanned aircraft systems [UAS]) and enablers, including Aviation Ground Support Equipment (AGSE). UH-72A Lakotas are fully fielded, and all CH-47 Chinooks will be modernized to F-models by FY 2017. UH-60L to UH-60V Blackhawk modernization will begin in 2018. ARNG UH-60A Blackhawk divestment is scheduled for FY 2024, with M-model Blackhawk buyout forecast for the late 2020's. Common Aviation Tool Sets complete fielding in FY 2017, completing modernization of existing aviation maintenance equipment. One System Remote Video Terminal (OSRVT) fielding is expected to continue through 2nd Quarter FY 2018. Shadow V2 upgrades will conclude in FY 2019. The Aviation Combined Arms Tactical Trainer (AVCATT) and Apache Longbow Cockpit Trainers will require upgrades as UH-60V Blackhawks, Manned-Unmanned Teaming (MUM-T), UH-72A Lakotas, and AH-64E Apache upgrades continue. An additional concern is the aging fixed-wing fleet that provides dual-use support to domestic and warfighter missions.

The current *Table 8 Significant Major Items Shortages* data reflects a snapshot of FY 2018–2020 requirements and funding levels, post full Aviation Restructure Initiative (ARI) adjustments, and Pre-NCFA recommendations. NCFA recommendations would retain four Attack Reconnaissance Battalions of 72 AH-64 Apache Attack Helicopters in the ARNG and will require the migration of approximately 60 UH-60L Blackhawks back to the Army. These NCFA recommendation requirement adjustments, if completely adopted, will not be captured in total until Program Objective Memorandum (POM) 2020–2024.

e. Indirect Fires Portfolio

The Indirect Fires Portfolio consists of field artillery platforms, munitions, sensors, and command and control systems with funding priority dedicated to the Paladin Integrated Management (PIM) fielding, which begins in FY 2019. Platforms achieve full modernization and increased quantities to meet the BCT 2020 construct by FY 2018. Lightweight Counter Mortar Radar fielding has increased with availability on par with the AC, and will fully field by FY 2018. The ARNG began fielding Q-53 Quick Reaction Capability Radars in FY 2016 to replace legacy Q-36 and Q-37 Firefinder radars and should conclude in FY 2021.

f. Mission Command Portfolio

The Mission Command Portfolio consists of the Army digital command and control, communication, computer, and intelligence (C4I) systems. Joint Capabilities Release-Blue Force Tracker (JCR-BFT) and Joint Battle Command-Platform (JBC-P) are the key situational awareness systems that link communication devices, sensors, vehicles, aircraft, and weapons platforms in a seamless digital network to provide a clear, continuous, and common picture of the battlefield. The JCR-BFT/JBC-P Tactical Operations Center system and a vehicular-mounted system are currently being fielded to the ARNG. The ARNG continues to experience improvements in command and control system modernization and readiness; however, concerns about future fielding still exist. Reductions in command and control system equipment may negatively impact ARNG WIN-T Increment 2 and Capability Set equipment procurement. More importantly, this could affect ARNG interoperability with other Army elements as well as joint and allied forces.

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

The NBC Force Protection Portfolio consists of systems required to support combat and domestic chemical, biological, radiological, and nuclear activities. The ARNG has a significant shortfall for the Chemical/Biological Protective Shelter (CBPS). The CBPS is a CDU system consisting of two configurations (M8 and M8E1). The CBPS M8E1 system is tentatively set to start fielding 4th Quarter FY 2017 and will be completed by FY 2019.

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. The ARNG has 16 systems on-hand and 5 additional systems are scheduled for fielding in FY 2017, leaving a shortage of 12 systems, which will be fielded as the systems become available. This equipment issue is compounded by a shortage of funds dedicated to the program manager for the Prophet's Displaced Equipment Training (DET), which was addressed in POM 2018–2022 submission.

i. Mobility Portfolio

The Mobility Portfolio provides versatile and affordable engineer equipment to enable success for U.S. forces across the continuum of Unified Land Operations. The ARNG currently has a majority of the total Army engineer force structure. This portfolio includes counter explosive hazard, construction, bridging mobility, counter mobility, mines and munitions, engineer support systems, and protection specific Remote and Autonomous Systems (RAS). The portfolio strategy

is to invest in a set of capabilities to assure mobility across the battle space. The near-term priority is to focus on science and technology investment on developing U.S. compliant family of scatterable mines and modernizing route clearance vehicles. The mid-term investment is to address Army family of boats and motors that are currently underfunded. The current contract contains a fraction of the total requirement, and no quantities have been allocated to the ARNG (312 motors, 240 combat assault craft, and 72 combat raid craft).

j. Combat Service Support (CSS) Sustainment Portfolio

The CSS Sustainment Portfolio consists of medical, fuel, water, maintenance, and field feeding equipment. The Modular Fuel System-Tank Rack Module (MFS-TRM) and Load Handling System Compatible Water Tank Rack (HIPPO) provide increased fuel and water capability and capacity while simultaneously decreasing personnel requirements. Both systems are Critical Dual Use items that significantly add to the modularity of distribution systems. The MFS-TRM experienced considerable production complications in FY 2016, but is expected to reach full-rate production in FY 2017. The ARNG has only received 23 of the 1,471 requirement. The ARNG has received 36 percent of its HIPPO requirement, but at this time production of the HIPPO has ceased due to systems failing in harsh winter. The Sustainment Portfolio equipment systems are typically not high-cost items, and the ARNG has improved both its EOH levels and equipment modernization levels utilizing NGREA funding. The Sustainment Portfolio equipment is critical to both combat and domestic missions.

k. Combat Service Support Transportation Portfolio

The CSS Transportation Portfolio consists of Light Tactical Vehicles (LTV), Medium Tactical Vehicles (MTV), Heavy Tactical Vehicles (HTV), Mine Resistant Ambush Protected (MRAP) Vehicles, and Tactical Cargo Trailers. Army and NGREA funds significantly increased ARNG transportation assets and modernization levels. The Army's future Tactical Wheeled Vehicle (TWV) strategy is to sustain and recapitalize most families of vehicles through FY 2017. The HMMWV fleet consists of 55 percent up-armored HMMWVs, the most modern in the Army. Ground ambulances are critical to the ARNG's Federal and state missions. NGREA and Congressional funding since 2013 will result in the ARNG achieving 100 percent of its ambulance requirement and 89 percent modernized ambulance fleet. Modernizing the ambulance fleet remains a high priority for the ARNG. The ARNG's MTV fleet is at 100 percent fill with a 71 percent modernization level, capitalized through NGREA funding. The first generation Family of Medium Tactical Vehicles (FMTV) are approaching 17 years of service life. Continued funding for FMTV will be critical to maintain modernization. The Army and the ARNG have significant 34-ton and 25-ton Semitrailer shortfalls. Although the Army is exploring multiple solutions, including commercial off-the-shelf options, the Army-wide Semitrailer shortfall is unresolved. A new Palletized Loading System (PLS) recapitalization contract will allow the ARNG to modernize existing PLS assets.

D. Summary

The men and women of the ARNG have defended our Nation throughout its history. Guard Soldiers serve in over 2,600 communities across the United States, its territories and the District. The previous 15 years of war highlighted the need for a Total Army force including an Operational ARNG. Guard Soldiers’ collective strength, leadership, and courage significantly helped the Nation prevail through the challenges of war in both Iraq and Afghanistan.

Congressional funding significantly improved ARNG equipment readiness and modernization to historically high levels. Congress' continued support will enable the ARNG's ability to conduct Unified Land Operations and DOMOPS, as a member component of the Total Army as it transitions from war to an Expeditionary Force.

ARNG

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 2017 unit cost estimates are provided by the Military Departments.

Nomenclature[1]	Equip No.	Unit Cost	Begin FY 2018 QTY O/H	Begin FY 2019 QTY O/H	Begin FY 2020 QTY O/H	End FY 2020 QTY O/H	End FY 2020 QTY REQ
Air Defense							
Center Communications Operations: AN/TSQ-253(V)5	C17156	$12,000,000	3	3	3	3	6
Center Communications Operations: AN/TSQ-253(4)	C77942	$1,683,868	1	1	1	1	1
Center Communications Operations: AN/TSQ-253(V)2	C78192	$6,981,600	2	2	2	2	5
Center Communications Operations: AN/TSQ-253(V)3	C78135	$5,832,100	2	2	2	2	4
Center Communications Operations	C18033	$3,748,800	70	71	71	71	69
Command System: Tactical	C91673	$2,000,000	72	72	72	72	72
Computer: Tactical AN/GYQ-88	C77755	$68,500	143	145	145	145	144
Fire Unit Vehicle-mtd: Avenger	F57713	$1,090,277	258	258	258	258	252
Radar Set: Sentinel AN/MPQ-64	G92997	$4,176,000	16	16	16	16	8
Aircraft							
Airplane Cargo Transport: C-12D	A29812	$1,967,301	1	1	1	1	0
Airplane Cargo Transport: C-12F *	A30062	$3,068,422	28	29	29	29	32
CH-47F Improved Cargo Helicopter *	C15172	$34,035,255	144	144	144	144	144
Helicopter Cargo Transport: CH-47D *	H30517	$29,682,872	50	50	50	50	12
Helicopter Light Utility (LUH) UH-72A *	H31329	$1,544,090	194	194	194	194	160
Helicopter Utility: UH-60A *	K32293	$16,967,644	225	225	225	225	45
Helicopter Utility: UH-60L *	H32361	$16,967,644	490	566	597	597	510
Helicopter Utility: UH-60M *	H32429	$17,044,052	186	196	204	218	186
Helicopter Attack: AH-64D	H48918	$18,389,000	113	113	113	113	0
HH-60L: MEDEVAC Helicopter	U84291	$16,967,644	10	10	10	10	180
Tactical Unmanned Aerial Vehicles System: Shadow	T09343	$32,940,000	21	21	28	33	0
Aviation							
Helicopter Internal Cargo Handling System (HICHS) CH-47 *	H31079	$482,131	28	28	28	28	39
Launcher Rocket Aircraft: 2.75-inch 19-tube M261	L45131	$7,160	285	285	285	285	0
Peculiar Ground Support Equipment: Deployment Support Kit	P05012	$66,950	87	87	87	87	0
Sling Cargo Aerial Delivery: 500 Lb Cap Type A7A	T76903	$56	191	191	191	191	0
Sling Cargo Aerial Transport: W/Multiple Leg Sling	T80571	$829	4	4	4	4	0
Survival Kit Aircraft: Basic 4-Person	S72693	$1,277	846	846	846	846	1,017
Survival Kit Aircraft: (2-Man) Aircraft Modular Survival System (AMSS)	S72943	$977	243	243	243	243	192
Survival System, Aircraft Personnel	BB8056	$6,800	173	173	173	173	0
Tester: Pitot and Static Systems TS-4463/P *	T03597	$31,763	121	121	126	126	151
Tool Kit: Aircraft Crash Rescue *	L27293	$707	259	259	259	259	225
Battle Command and Control (C2)							
Battle Command Common Services (BCCS) CPOF Stack AN/TYQ-146	B73507	$141,644	4	4	4	4	0
Command and Control System: AN/GYQ-97A	C56327	$65,000	20	20	20	20	20

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Table 1

Consolidated Major Item Inventory and Requirements

Nomenclature[1]	Equip No.	Unit Cost	Begin FY 2018 QTY O/H	Begin FY 2019 QTY O/H	Begin FY 2020 QTY O/H	End FY 2020 QTY O/H	End FY 2020 QTY REQ
Communications Set AN/UYK-128(V)2	FJ1013	$0	6	6	6	6	0
Command Center System: AN/TSQ-243	C61665	$117,642	568	568	568	568	536
Command System Tactical: AN/TYQ-155 (V) 1 *	C61290	$103,558	527	527	527	527	448
Command System Tactical *	C40996	$1,011,652	254	254	254	254	245
Communication Subsystem: AN/TSQ-259 *	C88821	$105,088	473	473	473	473	416
Computer Set: Digital FBCB2	FJ1007	$31,172	257	257	257	257	0
Computer Set: Digital AN/GYK-62B *	C13866	$16,530	1,132	1,132	1,132	1,132	904
Computer Set: AN/UYK-128(V)3 *	C18378	$31,172	23,442	23,442	23,442	23,442	20,620
Computer Set: Digital AN/UYK-128(V)1	C05069	$15,954	780	780	780	780	335
Computer System: Digital AN/PYQ-13 (GCCS-A)	C27588	$374,324	197	197	197	197	248
Computer System: Digital *	C27963	$19,737	8,796	10,179	11,295	11,866	5,148
Computer System: Digital AN/PYQ-12	C18641	$64,000	558	558	558	558	497
Computer System: Digital AN/PYQ-16	C18891	$14,396	217	217	217	217	176
Computer System: Digital AN/GYK-61	C18448	$69,488	1,194	1,194	1,194	1,194	1,434
Computer System: Digital AN/UYQ-90(V)2 *	C18278	$18,932	9,100	9,100	9,100	9,100	8,029
Generator Set: DED 60kW 400Hz Skid-mtd	G62960	$34,578	10	10	10	10	9
Generator Set: DED 60kW 50/60Hz Skid-mtd	G63256	$34,578	145	175	175	175	175
Generator Set: DED TM 10kW 60Hz *	G42170	$19,177	1,348	1,348	1,348	1,348	46
Generator Set: DED TM 5kW 60Hz *	G42238	$25,135	1,122	1,122	1,122	1,122	409
Generator Set: DED 5kW 50/60Hz Skid-mtd *	G42488	$19,177	1,016	1,265	1,536	1,669	1,075
Generator Set: DED 10kW 400Hz Skid-mtd *	G74779	$25,533	106	106	106	106	73
Generator Set: DED 10kW 60Hz Skid-mtd *	G74711	$25,533	1,666	1,666	1,666	1,666	194
Generator Set: DED 15kW 50/60Hz Skid-mtd *	G12170	$23,724	208	279	279	279	235
Generator Set: DED Skid-mtd 30kW 400Hz	G74643	$28,250	1	1	1	1	0
Generator Set: DED 30kW 50/60Hz Skid-mtd *	G74575	$29,340	41	41	41	41	25
Generator Set: DED 3kW 60Hz Skid-mtd *	G18358	$12,304	7,015	7,077	7,111	7,111	7,144
Generator Set: DED 5kW 60Hz Skid-mtd *	G11966	$19,177	1,897	1,897	1,897	1,897	842
Generator Set: DED 60kW 400Hz Skid-mtd	G18052	$34,578	12	12	12	12	6
Generator Set: DED 60kW 50/60Hz Skid-mtd *	G12034	$34,578	166	166	166	166	0
Generator Set: DED 10kW 400Hz Skid-mtd	G75018	$25,533	45	45	45	45	21
Generator Set: DED 30kW 50/60Hz Skid-mtd	G75200	$29,340	67	78	78	78	29
Generator Set: DED 15kW 50/60Hz Skid-mtd *	G49966	$23,724	221	265	295	371	266
Generator Set: DED 10kW 400Hz mtd on M116A2 PU-799 *	G53403	$33,519	25	25	25	25	17
Generator Set: DED TM PU-802 *	G53778	$32,187	1,092	1,092	1,092	1,092	26
Generator Set: DED Trailer-mtd (TM) PU-803 *	G35851	$41,800	324	324	324	324	216
Generator Set Diesel Engine TM: PU-804	G35919	$45,636	1	1	1	1	0
Generator Set: DED 28V DC MEP-501A *	G36169	$25,135	53	53	53	53	6
Generator Set: DED 60Hz AC MEP-531A *	G36237	$12,304	2,201	2,359	2,359	2,429	2,429
Generator Set: DED TM 15kW 60Hz	G78374	$38,518	116	116	116	116	5
Generator Set: DED TM 60kW 400Hz PU-806 Chassis	G17460	$43,751	14	14	14	14	0
Generator Set: DED TM 60kW 50/60Hz PU-805 Chassis *	G78306	$47,007	168	168	168	168	14
Generator Set: DED 10kW 50/60Hz Skid-mtd *	G07461	$25,533	1,777	2,049	2,151	2,276	1,890
LTT Trailer-mtd: PP-3001 5kW 50/60Hz	L27002	$19,177	9	16	16	16	15

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Table 1

Consolidated Major Item Inventory and Requirements

Nomenclature[1]	Equip No.	Unit Cost	Begin FY 2018 QTY O/H	Begin FY 2019 QTY O/H	Begin FY 2020 QTY O/H	End FY 2020 QTY O/H	End FY 2020 QTY REQ
LTT Trailer-mtd: PU-2001 5kW 50/60Hz	L26934	$25,135	646	675	1,031	1,200	1,200
LTT Trailer-mtd: PU-2002 10kW 50/60Hz	L84622	$19,177	521	1,047	1,140	1,230	1,595
LTT Trailer-mtd: PU-2003 15kW 50/60Hz	L84690	$38,518	44	78	80	80	120
Power Plant: Electric DED TM 5kW 60Hz AN/MJQ-35 *	P28083	$19,177	79	79	79	79	45
Power Plant: Diesel TM 10kW 60Hz AN/NJQ-37 *	P42262	$53,929	127	127	127	127	76
Power Plant: Electric TM 30kW 50/60Hz AN/MJQ-40 *	P42126	$47,007	90	90	90	90	45
Power Plant: Electric TM 60kW 50/60Hz AN/MJQ-41 *	P42194	$47,007	53	53	53	53	37
Power Plant: Electric DED TM	P63530	$28,000	156	156	156	156	8
Power Plant: Utility (Medium) *	P63394	$120,000	182	182	182	182	154
Power Plant: Utility (Medium) *	P63462	$120,000	1,719	1,719	1,719	1,719	1,415
Power Supply: PP-6224/U *	P40750	$4,401	3,440	3,440	3,440	3,440	10,465
Trailer-mtd: PP-3102 10kW 50/60Hz M200A1	T39849	$72,145	89	127	127	127	68
Trailer-mtd: PP-3105 30kW 50/60Hz 2M200A1	T39917	$47,007	61	93	96	96	47
Trailer-mtd: PP-3106 60kW 50/60Hz 2M200A1	T93232	$47,007	64	76	89	89	75
Trailer-mtd: PU-2101 15kW 50/60Hz M200A1	T40090	$44,157	599	944	1,009	1,095	1,329
Trailer-mtd: PU-2102 30kW 50/60Hz M200A1	T39954	$41,800	298	336	372	408	332
Trailer-mtd: PU-2113 60kW 400Hz M200A1	T93368	$43,751	15	15	19	28	10
Trailer-mtd: PP-3003 15kW 50/60Hz	T49579	$28,000	191	191	191	191	188
Battlespace Awareness							
Data Analysis Central: AN/MSW-24	D77801	$1,369,000	17	17	17	17	26
Detecting System Countermeasures: AN/MLQ-40(V)4	D04182	$1,997,000	38	38	38	38	85
Battle Command Transport Networks							
Battalion Command Post (Switching Group): OM-XXX *	B67234	$250,000	516	516	516	516	435
Central Office: Telephone Automatic AN/TTC-56(V)3	C20617	$4,081,375	14	14	14	14	16
Communication Subsystem: AN/USQ-165	C05001	$35,650	36	36	36	36	36
Frequency Hopping Multiplexer: TD-1456VRC	F99520	$88,007	880	896	896	896	894
Joint Node Network (JNN) Central Office Telephone Auto *	J05001	$2,472,271	154	154	154	154	129
MBITR: Maritime Version	M27045	$7,700	186	186	186	186	196
MBITR: Urban Version *	M18029	$7,700	1,568	1,568	1,568	1,568	2,193
Net Control Station: AN/TSQ-158	N04580	$306,082	7	7	7	8	14
Radio Set: AN/PRC-148	FA100W	$0	2,739	2,739	2,739	2,739	0
Radio Set: Grid Reference AN/GRC-229D	R91580	$54,158	21	21	21	30	42
Radio Set: AN/PRC-119F(C) *	R83141	$97,565	8,837	8,837	8,837	8,837	7,653
Radio Set: AN/VRC-87F(C) *	R67296	$97,565	675	679	679	679	675
Radio Set: AN/VRC-88F(C) *	R67330	$97,565	1,329	1,329	1,329	1,329	781
Radio Set: AN/VRC-89F(C) *	R44999	$97,565	4,608	4,608	4,535	4,535	4,535
Radio Set: AN/VRC-91F(C) *	R68146	$97,565	10,916	10,916	11,020	10,983	10,957
Radio Set: AN/VRC-92F(C) *	R45543	$97,565	13,959	13,959	13,959	13,959	13,509
Radio Set: AN/VSQ-2D(V)1	P49587	$50,250	327	756	756	756	663
Radio Set: AN/VSQ-2D(V)2	P99724	$50,250	26	26	26	26	21
Radio Set: AN/VSQ-2D(V)4	R78005	$81,374	2	2	2	2	7
Handheld Type 1 Radio *	R55336	$8,473	10,697	10,697	10,697	10,697	561
Radio Terminal: LOS Multi-channel AN/TRC-190C(V)1 *	R90451	$2,472,271	396	396	396	396	362

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Table 1

Consolidated Major Item Inventory and Requirements

Nomenclature[1]	Equip No.	Unit Cost	Begin FY 2018 QTY O/H	Begin FY 2019 QTY O/H	Begin FY 2020 QTY O/H	End FY 2020 QTY O/H	End FY 2020 QTY REQ
Radio Terminal: LOS Multi-channel AN/TRC-190C(V)3 *	R90587	$2,472,271	206	206	206	206	185
Radio Test Set: AN/GRM-122 *	R36178	$108,000	515	515	515	515	488
Teleconference System: AN/TYQ-122	T43146	$2,472,271	162	162	162	162	313
Combat Mobility							
Assault Breacher Vehicle (ABV)	A05001	$4,659,500	30	37	42	42	18
Boat Bridge Erection Inboard Engine: Shallow Draft *	B25476	$1,156,605	164	164	164	164	154
SOF Demolition Kit: M303	S93791	$31,671	143	231	235	235	234
Tool Kit: Urban Operations	T30195	$77,049	322	327	330	343	803
Urban Operations: Platoon Kit	U88092	$175,445	215	235	243	257	521
Field Logistics							
Advanced Aviation Forward Area Refueling Sys (AAFARS) *	F42611	$454,000	117	117	116	116	113
Forward Area Water Point Supply System (FAW SS) *	F42612	$151,958	236	236	236	236	41
Fuel System Supply Point (FSSP) Type-3 120K *	F04898	$1,320,650	48	48	48	48	51
Hydraulic System Test and Repair Unit (MX3)	H05002	$86,547	310	316	328	337	326
LHS-compatible 2K-gal Water Tank-Rack (HIPPO) *	T32629	$151,958	1,046	1,141	1,173	1,201	1,160
Modular Fuel System (MFS): Pump Rack Module (PRM)	Z01595	$454,000	0	0	0	0	4
Multi-temperature Refrigerate Container System (MTRCS) *	M30688	$141,027	320	335	353	353	353
Petroleum Quality Analysis System (PQAS)	P25493	$1,598,846	1	1	1	1	0
Petroleum Quality Analysis System	P25743	$1,513,000	14	19	21	21	19
Rough Terrain Container Handler: Kalmar RT240 *	R16611	$868,103	34	34	34	34	28
Tank Unit Liquid Dispensing Trailer Mounting	V19950	$2,000	382	383	383	384	472
Test Station Electrical Electronic Equipment Containerized	Z01554	$8,551,000	5	5	6	6	2
Tool Outfit Hydraulic System: Test and Repair 3/4-ton TM	T30377	$86,547	11	11	11	11	2
Trailer Tank Water: 400-gal 1-1/2 ton *	W98825	$85,825	3,032	3,097	3,118	3,140	3,355
Truck Dolly: Steel Gen Utility Type w/Wheels wo/Pad	X43160	$632	0	0	0	0	126
Truck Lift Fork: DED 4000-lb Capacity OPT LH	X48863	$85,000	9	9	9	9	0
Truck Lift Fork: DED 6000 lb Capacity 130 in LH	X48876	$29,000	1	1	1	1	0
Truck Lift Fork: DED 6000-lb Variable Reach RT Ammo-hdlg	T48944	$72,370	149	149	149	149	0
Truck Lift Fork: DED 4000-lb Capacity Rough Terrain *	T49255	$98,681	240	240	240	240	144
Truck Lift Fork: DSL/Gas/LPG 6000-lb OPT LH	X51722	$31,545	8	8	8	8	0
Truck Lift Fork: Variable Reach Rough Terrain *	T73347	$158,836	682	682	682	682	585
Water Purification: Reverse Osmosis 3K-gph TM *	W47225	$455,871	66	72	72	72	72
Water Storage/Distribution Set: 40K-gpd (Brigade) *	W55968	$121,746	6	6	6	6	52
Water Purifier: Lightweight *	W30051	$163,409	155	155	155	155	80
Force Protection							
Battlefield Anti-intrusion System: AN/PRS-9	B57077	$23,289	3,529	3,529	3,529	3,529	3,402
Chem-Bio Protective Shelter: M8 *	C07506	$1,635,636	20	20	20	20	43
Chem-Bio Protective Shelter (CBPS)	Z01533	$1,635,636	15	24	26	28	116
Joint Chemical Agent Detector *	J00697	$5,996	19,004	19,331	19,410	19,410	19,403
Lighting Kit Motion Detector (LKMD): AN/GAR-2	L02015	$5,860	8,127	8,127	8,127	8,127	7,544
Mask Chem-Bio Joint Service General Purpose: M50	M12986	$400	88,164	194,956	196,186	196,820	267,301
Mask Chem-Bio: Combat Crewman: M51	M13236	$400	4,914	20,505	20,636	20,636	23,622

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Consolidated Major Item Inventory and Requirements

Nomenclature[1]	Equip No.	Unit Cost	Begin FY 2018 QTY O/H	Begin FY 2019 QTY O/H	Begin FY 2020 QTY O/H	End FY 2020 QTY O/H	End FY 2020 QTY REQ
General Engineering							
Hydraulic-Electric-Pneumatic-Petroleum Operated Equipment (HEPPOE)	H05004	$180,850	296	297	299	310	421
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	111	111	111	111	90
Carrier Personnel Full Tracked: Armored (RISE)	C18234	$511,343	830	830	830	830	562
Command Variant Vehicle (CV)	C41314	$3,725,807	60	60	60	60	60
Engineer Squad Vehicle (ESV)	J97621	$4,957,665	24	24	24	24	24
Fighting Vehicle: Full Tracked Cavalry (CFV) M3A3	F90796	$6,661,335	29	29	29	29	0
Fighting Vehicle: FT Cavalry High Survivability (CFV)	F60530	$3,006,569	9	9	9	9	0
Fighting Vehicle: Full Tracked Infantry (IFV) M2A3	F60564	$6,661,335	170	233	233	233	233
Fighting Vehicle: FT Infantry High Survivability (IFV)	F40375	$3,006,569	6	6	6	6	0
Fire Support Vehicle (FSV)	F86821	$3,694,633	26	26	26	26	26
Infantry Carrier Vehicle (ICV)	J22626	$3,704,123	260	260	260	260	260
Medical Evacuation Vehicle (MEV) *	M30567	$3,785,691	28	28	28	28	50
Mobile Gun System (MGS)	M57720	$7,060,155	9	24	24	24	24
Mortar Carrier Vehicle (MCV)	M53369	$3,935,629	72	72	72	72	72
Operation Desert Storm (ODS) Situational Awareness (SA): M2A2	P19727	$3,006,569	540	540	540	540	392
ODS SA: M3A2	P19795	$3,006,569	65	65	65	65	0
Reconnaissance Vehicle (RV)	R62673	$2,544,614	87	114	114	114	114
Recovery Vehicle Full Tracked: Heavy M88A2	R50885	$3,757,480	165	173	179	180	127
Recovery Vehicle Full Tracked: Medium	R50681	$3,593,524	173	176	178	178	178
Tank Combat Full Tracked: 120mm Gun	T13168	$7,598,833	317	317	317	317	261
Tank Combat Full Tracked: 120mm Gun M1A2	T13305	$7,598,833	157	174	174	174	174
Maneuver Systems							
Drivers Enhancers: AN/VAS-5 *	D41659	$64,965	4,055	4,651	4,669	4,669	4,669
Surveillance System: Scout Long Range AN/TAS-8 *	S02976	$514,063	1,019	1,019	1,019	1,019	717
Target Acquisition System: TOW Improved ITAS M41	T24690	$725,000	700	700	700	700	700
Medical Field Systems							
Medical Equip Set (MES): Chemical Agent Patient Treatment *	M23673	$28,097	873	876	876	876	873
MES: Combat Medic *	U65480	$3,261	5,452	5,452	5,483	5,638	4,480
Soldier Systems							
Acoustic GDS: PILAR MK-IIW Vehicle	A09441	$55,660	16	16	16	16	16
Acoustic GDS: PILAR	A06293	$55,440	16	16	16	16	16
Basic Sight Assembly: Support Equipment (TOW 2)	B39044	$83,388	8	8	8	8	5
Helmet Unit: Integrated (IHADSS)	H35257	$15,270	585	585	585	585	8
Image Intensifier, Night Vision	FA5535	$12,739	1	1	1	1	0
Laser: Target Locator Module	L05003	$61,930	2,171	2,171	2,171	2,171	3,752
Marker: Laser System	M14868	$95,000	34	34	34	34	108
Mini Eyesafe Laser IR Observation Set (MELIOS): AN/PVS-6	M74849	$43,128	3,232	3,232	3,232	3,232	3,203
Night Vision Sight: AN/PVS-1	FA5575	$12,910	7	7	7	7	0

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Table 1

Consolidated Major Item Inventory and Requirements

Nomenclature[1]	Equip No.	Unit Cost	Begin FY 2018 QTY O/H	Begin FY 2019 QTY O/H	Begin FY 2020 QTY O/H	End FY 2020 QTY O/H	End FY 2020 QTY REQ
Rope Assembly: Insertion and Extraction System	R22995	$1,352	335	335	335	335	388
Sensor, Infrared	FA550P	$0	69	69	69	69	0
Target Locator Module	T27471	$43,128	1,153	1,153	1,153	1,153	3,433
Viewer Night Vision	FA5597	$6,172	12	12	12	12	0
Mounted Water Ration Heater (MWRH)	W52987	$567	164	164	164	164	0
Soldier Weapons							
Command Launch Unit: (Javelin) 13305405-119	C60750	$243,732	2,588	2,588	2,588	2,588	2,577
Launcher Grenade: M320 *	L03621	$3,139	682	682	682	682	328
Launcher Grenade: M320A1	L69080	$4,876	23,032	23,032	23,032	23,032	22,869
Machine Gun: 5.56mm M249	M09009	$4,298	27,671	27,671	27,671	27,671	24,746
Machine Gun: 7.62mm Fixed	L92352	$7,808	900	900	900	900	870
Machine Gun: 7.62mm Fixed RH Feed	M92420	$7,808	977	977	977	977	714
Machine Gun: 7.62mm M240L	M92454	$14,404	3,012	3,012	3,012	3,012	2,955
Machine Gun: 7.62mm M240H	M92591	$11,597	1,680	1,740	1,740	1,740	1,740
Machine Gun: Caliber .50 HB Flexible (Ground & Vehicle)	L91975	$11,370	3,127	3,127	3,127	3,127	1,060
Machine Gun: Caliber .50 Heavy Fixed Turret Type	L91701	$15,259	1,795	1,863	1,863	1,863	1,863
Machine Gun Grenade: 40mm Mk19 Mod III	M92362	$17,085	8,830	8,830	8,830	8,830	8,741
Machine Gun: 7.62mm M240B	M92841	$14,404	12,252	12,252	12,252	12,252	11,607
Machine Gun: Caliber .50	M39331	$15,000	13,958	13,985	14,116	14,132	14,101
Machine Gun: 5.56mm M249 Light	M39263	$4,298	4,834	4,834	4,834	4,834	7,248
Rifle 5.56mm: M4 *	R97234	$2,076	138,525	138,525	138,525	138,525	134
Rifle Sniper Caliber .50: M107	R45351	$17,672	631	631	631	631	630
Rifle Sniper: M110	R45601	$14,216	526	526	526	526	504
Strike							
Aiming Circle	A22496	$3,725	944	976	976	976	976
Computer System, Digital: AN/PYG-2(V)1	C40495	$8,114	291	291	291	291	48
Computer Set: AN/GYG-1(V)1	C17936	$65,973	17	2	2	2	0
Computer Set: AN/GYG-1(V)3	C18004	$155,600	22	22	22	22	12
Computer System, Digital: AN/GYK-56 (AFATDS)	C05018	$15,452	262	268	268	268	270
Computer System, Digital: AN/PYG-1	C53293	$14,978	582	602	602	602	602
Fire Support Team Vehicle: Bradley (BFIST)	F86571	$4,393,650	3	3	3	3	0
Howitzer Light Towed: M119	H57505	$1,400,000	137	137	137	137	0
Howitzer Medium Towed: M777	H57916	$3,571,429	210	234	234	234	234
Knight: Armored	K29708	$1,820,000	118	118	118	118	66
Meteorological Measuring Set: Profiler AN/TMQ-52	M36361	$92,000	4	4	4	4	0
Plotting Board Indirect Fire: Azimuth	P07900	$441	343	343	343	343	0
Quadrant Fire Control: Gunners	Q03468	$737	536	536	536	536	443
Radar Set: AN/TPQ-37(V)9	A41666	$8,500,000	15	15	15	15	5
Radar System: Counter Fire Target Acquisition Radar	Z00737	$8,500,000	29	38	52	58	40
Range Finder-Target Designator: Laser AN/PED-1	R60282	$294,366	843	892	907	907	892
Support Systems							
Container Handling *	C27294	$42,249	1,256	1,256	1,256	1,256	889

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Table 1

Consolidated Major Item Inventory and Requirements

Nomenclature[1]	Equip No.	Unit Cost	Begin FY 2018 QTY O/H	Begin FY 2019 QTY O/H	Begin FY 2020 QTY O/H	End FY 2020 QTY O/H	End FY 2020 QTY REQ
Trailers							
Semitrailer Flatbed: Breakbulk/Container 22-1/2-ton *	S70027	$42,678	3,583	3,583	3,583	3,583	3,311
Semitrailer Flatbed: Breakbulk/Container 34-ton *	S70159	$70,787	3,744	3,744	3,744	3,744	3,960
Semitrailer Low Bed: 25-ton 4-wheel W/E *	S70517	$262,852	186	186	186	186	556
Trucks							
Truck Ambulance: 2-Litter Armored HMMWV	T38707	$397,000	5	5	5	5	1
Truck Ambulance: 4-Litter Armored HMMWV *	T38844	$397,000	1,876	1,876	1,876	1,876	1,651
Truck Cargo: 5-ton wo/Winch *	T41515	$255,952	5,169	5,224	5,264	5,277	6,050
Truck Cargo: Heavy PLS Transporter 15-16.5 ton w/MHE *	T41067	$1,075,209	380	380	380	380	92
Truck Cargo: 8X8 HEMTT w/LHS *	T96496	$367,575	815	815	815	815	714
Truck Utility TOW/ITAS Carrier w/IAP Armor-ready: M1167	T34840	$207,760	431	439	452	452	700
Truck Wrecker *	T94671	$690,707	675	675	675	682	641
Truck Wrecker: M984A4 *	T63161	$886,000	413	572	584	596	596
Truck Wrecker: Tactical HEMTT W/W *	T63093	$886,000	629	629	629	629	499
Truck: Palletized Loading System (PLS) *	T81874	$418,000	895	1,361	1,385	1,417	1,417
1. "*" indicates a Critical Dual Use (CDU) equipment item							

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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 2017.

Nomenclature	Equip No.	Average Age	Remarks
Aircraft			
Aerial Scout Helicopter: OH-58D	A21633	20	
Helicopter Cargo Transport: CH-47D	H30517	5	
Helicopter Light Utility (LUH): UH-72A	H31329	6	
Helicopter Utility: UH-60L	H32361	25	
Helicopter Utility: UH-60M	H32429	4	
Helicopter Attack: AH-64D	H48918	13	
Helicopter Utility: UH-60A	K32293	34	
Airplane Cargo Transport: C-12D	A29812	33	
Airplane: Cargo Transport C-26	A46758	24	
Airplane: Cargo Transport	BA108Q	24	
Aviation			
Aviators Night Vision Imaging System: AN/AVS-6(V)1	A06352	14	
Battle Command and Control (C2)			
Computer System: Digital AN/TYQ-109(V)1	C27707	11	
Generator Set: DED Skid-mtd 5kW 60Hz	G11966	13	
Generator Set: DED TM PU-803	G35851	13	
Generator Set: DED: 60Hz AC MEP-531A	G36237	14	
Generator Set: DED TM 10kW 60Hz	G40744	29	
Generator Set: DED TM 10kW 60Hz	G42170	12	
Generator Set: DED TM 5kW 60Hz	G42238	11	
Generator Set: DED Trailer-mtd (TM) PU-802	G53778	10	
Generator Set: DED Skid-mtd 10kW 60Hz	G74711	11	
Generator Set: DED TM 60kW 50/60Hz PU805 Chassis	G78306	17	
Generator Set: DED TM 15kW 60Hz	G78374	11	
Power Plant: Electric TM 30kW 50/60Hz AN/MJQ-40	P42126	13	
Power Plant: Diesel TM 10kW 60Hz AN/NJQ-37	P42262	17	
Combat Mobility			
Boat Bridge Erection Inboard Engine: Shallow Draft	B25476	22	
Cradle: Improved Boat (IBC) M14	C33925	13	
Interior Bay Bridge Floating	K97376	15	
Launch M60 Series Tank Chassis Transpt: 40/60ft Bridge	L43664	44	
Loader Scoop Type: DED w/5 Cy Gp Bucket (CCE)	L76321	39	
Loader Scoop Type: DSL 2-1/2 cu yd w/Multi Purp Bucket	L76556	33	
Pallet: Bridge Adapter (BAP) M15	P78313	11	
Ramp Bay Bridge Floating	R10527	16	
Tractor Wheeled: DSL w/Excavator & Front Loader	T34437	28	
Transporter Common Bridge	T91308	16	
Tractor FT HS: Armored Combat Earthmover (ACE)	W76473	26	
Field Logistics			
Containerized Kitchen (CK)	C27633	9	
Truck Lift Fork: DED 50K lb Cont Hdlr Rough Terrain	T48941	35	
Truck Lift Fork: Variable Reach Rough Terrain	T73347	10	

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Table 2

Average Age of Equipment

Nomenclature	Equip No.	Average Age	Remarks
Water Purification: Reverse Osmosis 3Kgph TM	W47225	23	
General Engineering			
Crane: Whl-mounted Hydraulic 25-ton All Terrain AT422T	C36586	16	
Distributor Water Tank Type: 6K-gal Semitrailer-mtd (CCE)	D28318	33	
Excavator: Hydraulic (HYEX) Type I	E27792	18	
Excavator: Hydraulic (HYEX) Type II	E41791	16	
Compactor High Speed: Tamping Self-Propelled (CCE)	E61618	18	
Grader Road Motorized: DED Heavy (CCE)	G74783	32	
Fire Fighting Equipment Set: TM Multipurpose	H56391	33	
Scraper Elevating: SP 9-11 cu yd sectionalized	S30039	9	
Scraper Earth Moving: SP 14-18 cu yd (CCE)	S56246	32	
Truck Concrete: Mobile Mixer 8 cu yd (CCE)	T42725	37	
Tractor FT HS: Deployable Lt Engineer (DEUCE)	T76541	15	
Tractor FT LS: DSL Med DBP w/Buldoz w/Scarif Winch	W76816	37	
Tractor FT LS: DSL Med DBP w/Buldoz w/Scarif Ripper	W83529	31	
Tractor FT LS: DSL Hvy DBP w/Buldoz w/Ripper (CCE)	W88699	40	
Maneuver Combat Vehicles			
Carrier Personnel Full Tracked: Armored (RISE)	C18234	31	
Cavalry Fighting Vehicle: M3	C76335	33	
Fighting Vehicle: Full Track Infantry Hi Survivability (IFV)	F40375	24	
Fighting Vehicle: Full-Track Cavalry Hi Survivability (CFV)	F60530	27	
Fire Support Vehicle (FSV)	F86821	12	
Infantry Carrier Vehicle (ICV)	J22626	11	
Engineer Squad Vehicle (ESV)	J97621	10	
Mortar Carrier Vehicle (MCV)	M53369	14	
Mobile Gun System (MGS)	M57720	10	
Recovery Vehicle Full Tracked: Medium	R50681	39	
Tank Combat Full Tracked: 120mm Gun	T13168	24	
Strike			
Carrier Ammunition Tracked Vehicle (CATV)	C10908	25	
Carrier Cargo: Tracked 6-ton	D11049	48	
Howitzer Light Towed: M119	H57505	10	
Howitzer Medium Self Propelled	H57642	28	
Howitzer Medium Self Propelled: 155mm	K57667	46	
Support Systems			
Container Platform: Roll-In/Roll-Out	B83002	20	
Container Handling Unit (CHU)	C84862	12	
Trailers			
Semitrailer Tank: 5K-gal Bulk Haul Self-Load/Unload	S10059	17	
Semitrailer Flatbed: Breakbulk/Cont Transporter 22-1/2-ton	S70027	22	
Semitrailer Flatbed: Breakbulk/Container Transporter 34-ton	S70159	26	
Semitrailer Low-bed: 40-ton 6-wheel	S70594	26	
Semitrailer Low-bed: 70-ton Heavy Equip Transporter (HET)	S70859	16	
Semitrailer Tank: 5K-gal Fuel Dispensing Automotive	S73372	22	
Semitrailer Van: Repair Parts Storage 6-ton 4-wheel	S74832	44	

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Table 2

Average Age of Equipment

Nomenclature	Equip No.	Average Age	Remarks
Trailer Flatbed: 11-ton 4-wheel (HEMAT)	T45465	16	
Trailer: Palletized Loading 8X20	T93761	11	
Trailer Cargo: MTV W/Dropsides M1095	T95555	6	
Trailer Cargo: High Mobility 1-1/4-ton	T95924	9	
Trailer: Light Tactical 3/4-ton	T95992	8	
Trailer Flatbed: M1082 Cargo LMTV w/Dropsides	T96564	9	
Trucks			
Truck Utility: TOW Carrier Armored (HMMWV)	T05096	30	
Truck Utility: Heavy Variant (HMMWV) 10K GVW	T07679	18	
Truck Utility: ECV Armament Carrier M1151A1	T34704	8	
Truck Ambulance: 2 Litter Armored (HMMWV)	T38707	27	
Truck Ambulance: 4 Litter Armored (HMMWV)	T38844	24	
Truck Cargo: Tactical HEMTT w/Lt Crane W/W	T39518	29	
Truck Cargo: Tactical HEMTT w/Med Crane	T39586	24	
Truck Cargo: Tactical HEMTT w/Med Crane W/W	T39654	26	
Truck Cargo: Heavy PLS Transporter 15-16.5 ton 10X10	T40999	14	
Truck Cargo: Heavy PLS Transporter 15-16.5 ton w/MHE	T41067	22	
Truck Cargo: MTV W/W	T41135	12	
Truck Cargo: MTV w/MHE	T41203	12	
Truck Tank: Fuel Servicing 2500G HEMTT W/W	T58161	22	
Truck Tractor: Heavy Equipment Transporter (HET)	T59048	19	
Truck Cargo: Tactical HEMTT w/Lt Crane	T59278	29	
Truck Cargo: LMTV	T60081	12	
Truck Cargo: LMTV W/W	T60149	12	
Truck Tractor: Line Haul C/S 50000 GVW 6X4 M915	T61103	21	
Truck Tractor: MTV	T61239	8	
Truck Tractor: MTV W/W	T61307	12	
Truck Utility: Cargo/Troop Carrier (HMMWV)	T61494	25	
Truck Utility: Cargo/Troop Carrier W/W (HMMWV)	T61562	27	
Truck Cargo: MTV LWB	T61704	12	
Truck Cargo: MTV LWB W/W	T61772	12	
Truck Cargo: MTV	T61908	11	
Truck Wrecker: Tactical HEMTT W/W	T63093	18	
Truck Dump: MTV	T64911	20	
Truck Tank: Fuel Servicing 2500G HEMTT	T87243	19	
Truck Tractor: LET 6X6 66000 GVW W/W C/S	T91656	16	
Truck Utility: Armt Carrier Armored (HMMWV)	T92242	28	
Truck Utility: Armt Carrier Armored W/W (HMMWV)	T92310	27	
Truck Utility: ECV Up-Armored (HMMWV)	T92446	15	
Truck Van: LMTV	T93484	12	
Truck Wrecker: MTV W/W	T94709	11	
Truck Cargo: Tactical 8X8 HEMTT w/LHS	T96496	11	
Truck Dump: 20-ton DED 12 cu yd Cap (CCE)	X44403	24	

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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 2018 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 2018 are expected to arrive in RC inventories in FY 2019 or FY 2020.

Nomenclature	FY 2018	FY 2019	FY 2020
P-1R data from FY 2018 President's Budget Submission was not available in time for publication in the FY 2018 NGRER.			
The FY 2018 P-1R will be available on the Office of the Under Secretary of Defense (Comptroller) public web site (http://comptroller.defense.gov/Budget-Materials/) upon release of the FY 2018 President's Budget Submission.			

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 2017 would be expected to arrive in RC inventories in FY 2018 or FY 2019. All values are costs in dollars.

Nomenclature	FY 2015	FY 2016	FY 2017[1]
FY 2015 NGREA Equipment			
Aviation			
Civilian Communications Package (A-Kit and B-Kit)	$39,335,750		
Internal Auxiliary Fuel Tank System (A-Kit and B-Kit)	9,240,000		
Deployment Support Kit	3,858,250		
Blade Folding System	3,317,661		
Water Purification Kit	414,807		
Aviation Ground Power Unit	132,070		
Communications			
GuardNet Security Log Management	2,657,990		
Virtual Machine End Devices	880,000		
Information Technology Training Center Classroom Modernization	282,900		
Information Technology Training Center Computing Infrastructure Modernization	100,000		
Domestic Operations			
Radiac Set	35,536,176		
Robotics Sensor Integration	11,400,000		
Radiological Detector, High-Resolution w/Mapping	7,930,000		
Chemical Detectors	2,737,128		
Instantaneous Bio-analyzer and Collector	2,337,000		
Gamma Spectrometer	2,077,000		
Detector Kit, Multi-Gas	1,926,940		
Survey Computers	351,750		
Joint Force Headquarters			
Sensitive Compartmented Information Facility (SCIF) Systems	8,000,000		
Technical Surveillance Countermeasures Equipment Set	2,700,000		
Logistics			
Assault Kitchen	4,200,000		
Maintenance			
Maintenance Support Device	2,156,000		
Training			
Virtual Convoy Operations Trainer (VCOT C3) upgrade	20,605,445		
Multipurpose Range Complex Target System Upgrade	20,000,000		
Stryker RWS-TTT Crew Trainer Upgrades	14,784,396		
Operator Driver Simulator (ODS) Upgrade	11,003,278		
Mobile Distributed Learning Classroom	9,518,670		
Mobile-Close Combat Tactical Trainer Upgrade	7,600,000		
Transportable Blackhawk Operations Simulator	7,500,000		

National Guard and Reserve Equipment Appropriation (NGREA) Procurements

Nomenclature	FY 2015	FY 2016	FY 2017[1]
Synthetic Flight Simulator	7,155,000		
Containerized Range System (Modularized Small Arms Range)	2,000,000		
Non-Rated Crew Member Manned Module	3,000,000		
Transportation			
Truck Cargo, Heavy Palletized Load System (PLS) Transporter RECAP	115,635,030		
Truck Ambulance, HMMWV	39,222,998		
Truck Utility, ECV TOW/ITAS Carrier, RECAP	15,403,761		
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 2015	FY 2016	FY 2017[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 Compartment Information Facility 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	
Total	**$415,000,000**	**$330,000,000**	

1. Service FY 2017 NGREA equipment list was not available in time for publication in the NGRER. Equipment list for FY 2017 will be provided in next year's NGRER.

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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 2018 Qty	FY 2019 Qty	FY 2020 Qty	Remarks
Aircraft					
Airplane Cargo Transport: C-12F	A30062	+1			
Helicopter Utility: UH-60L	H32361	+32			
Aviation					
ANVIS/Heads Up Display Device: AN/AVS-7	A84881	+6			
Aviation Light: Utility Mobile Maintenance Cart (ALUMMC)	A05033	+1			
Battle Damage Assessment and Repair System: BDAR	B85617			+2	
Command System: Tactical AN/TSQ-221	C61597		+1		
Radar Set: AN/TPN-31	R17126		+1		
Test Set Aircraft Fuel Quantity Gage and Indicator: Portable	V77715	+2			
Tester: Pitot and Static Systems TS-4463/P	T03597		+5		
Battle Command and Control					
ACC Kit Elec CAISI 2.0	A40443	+4	+20		
Distribution System Elec: 120/208V 3PH 40amp	F55485	+28	+20		
Generator Set: DED 15kW 50/60Hz Skid-mtd	G12170	+49			
Generator Set: DED 3kW 60Hz Skid-mtd	G18358	+62	+1		
Generator Set: DED 15kW 50/60Hz Skid-mtd	G49966	+1			
Generator Set: DED 60Hz AC MEP-531A	G36237	+72		+58	
LTT Trailer-mtd: PU-2002 10kW 50/60Hz	L84622	+1	+3		
LTT Trailer-mtd: PU-2003 15kW 50/60Hz	L84690		+2		
Battlespace Awareness					
Computer System: Digital AN/PYQ-3	C18312	+18			
BC Transport Network					
Cable Assembly Special Purpose Electrical: CX-11230/G 1/4 mile	C63645		+2		
Communication System: AN/MRC-149	C05021	+22			
Computer System Digital: AN/PYQ-10(C)	C05002	+3	+376		
Encryption-Decryption Equipment: KGV-72	E05008		+148	+255	
Frequency Hopping Multiplexer: TD-1456VRC	F99520	+16			
Key Processor KP	K05001		+3	+6	
Mast: AB-1339A/G	M13833	+4			
Net Control Station: AN/TSQ-158	N04580			+1	
Radio Set, Grid Reference: AN/GRC-229D	R91580			+9	
Radio Set: AN/PRC-112	R82903	+33			
Radio Set: AN/TRC-230	Z05310	+25			
Radio Set: AN/VRC-104(V)6 150 watt W/ PRC-150 HF Radio	R87139		+21		
Radio Set: AN/VRC-117(V)1	Z05322	+4			
Radio Set: AN/VRC-91F(C)	R68146		+104		

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Projected Equipment Transfer/Withdrawal Quantities

Nomenclature	Equip No.	FY 2018 Qty	FY 2019 Qty	FY 2020 Qty	Remarks
Radio Set: AN/VSQ-2D(V)1	P49587	+429			
Remote Control Unit KY 100: KY 100 AIRTERM	R71740			+14	
Speech Security Equipment: TSEC/KY-57	S01373		+3		
Combat Mobility					
Control Remote Landmine System: M71	C96840		+8		
Detecting Set: Mine AN/PSS-14	D03932			+6	
Dispenser Mine: M139 (HTLD)	D30897	+2			
Instrument Set Reconnaissance and Surveying: AN/TKQ-5	D17191	+13			
Loader Scoop Type: DSL 2-1/2 cu-yd Hinge Frame W/Multi Purp Bucket	L76556	+5			
Tractor Wheeled: DSL 4X4 W/Excavator and Front Loader	T34437		+4		
Tractor Wheeled: Industrial	T34505		+1		
Field Logistics					
Assault Ktchen: (AK)	A94943	+125			
Calibrator Set Radiac: AN/UDM-2	C75606	+1			
Diagnostic Test Set	D12196	+3			
Drum Fabric Collapsible: Potable Water	G68998	+17			
Electronic Shop Shelter Mounted Avionics: AN/ASM-146	H01907	+5			
Electronic Shop Shelter Mounted Avionics: AN/ASM-147	H01912		+1		
Forward Area Refueling Equipment: (FARE)	H94824	+6			
Forward: Repair System (FRS)	F64544	+22	+7		
Frequency Selective Levels Meter: AN/USM-490	F60502	+1			
Generator Signal: SG-1366 ()/U	G05005	+21	+3		
Heater: Duct Type Portable 1200-00 Btu	H00586	+20	+6	+5	
Kitchen Field Trailer Mounted: mtd on M103A3 Trailer	L28351	+21			
Maintenance Tool Kit: Electric Connector (Ifte)	M03339	+1			
Modulation Meter: ME-523 ()/U F/Elect Current Testers	M61743	+8			
Purging Kit Fire Control: Org Maint	P70517	+20	+11		
Radio Frequency Power Test Set: AN/URM-213	R22666	+4			
Sanitation Center: Food	S33399		+5		
Shop Equipment: Contact Maintenance Ord/Eng Truck Mounting	S25681	+23	+49		
Shower: Portable 12 Head	S62898	+2	+1		
Tank and Pump Unit Liquid Dispensing Truck Mounting	V12141	+1		+1	
Tank Unit Liquid Dispensing Trailer Mounting	V19950	+1		+1	
Test Set Aviators Night Vision Imaging System: TS-3895/UV	T53471	+1			
Test Set Telephone: TS-3647/G	T96642	+16			
Test Set Transmission Telecom: AN/USM-608	T49280	+1	+1		
Test Stand Engine	T00161		+5		
Tool Kit Electric Equipment: TK-101/GSQ	W37483	+25			
Tool Kit Electronic System Maintenance	T38254	+7	+1		
Tool Kit Small Arms Repairman: Ordnance	W51910	+14	+2	+3	
Tool Kit Welders	W58075		+3		
Trailer Tank Water: 400-gal 1-1/2 ton	W98825	+65	+21	+22	

ARNG
Projected Equipment Transfer/Withdrawal Quantities

Nomenclature	Equip No.	FY 2018 Qty	FY 2019 Qty	FY 2020 Qty	Remarks
Water Purification: Reverse Osmosis 3K-gph TM	W47225	+6			
Force Protection					
CBRN Dismounted Reconnaissance: (SKO)	C05051		+3		
Collective Protection Equipment: NBC Simplified M20	C79000			+2	
Decontaminating Apparatus: Pwr Drvn Lt Wt	D82404		+8		
Joint Chemical Agent Detector	J00697	+84	+27		
Mask Chem-Bio Joint Service General Purpose: M50	M12986		+1,230	+634	
Mask Chem-Bio: Combat Vehicle Crewman: M51	M13236		+131		
Radiac Set: AN/PDR-75A	R30925	+36	+7		
Radiac Set: AN/VDR-2	R20684	+3	+135	+6	
General Engineering					
Comp Unit Rty: Air Trailer-mtd DED 250cfm 100psi	E72804		+4		
Crane: Wheel-mtd Hydraulic 25-ton All Terrain AT422T	C36586			+4	
Scraper Earthmoving: 14-18 cu-yd	S05029	+35	+7		
Tractor Full Tracked: Low Speed T-5 Type II W/Ripper	T05026	+1			
Tractor Full Tracked: Low Speed: T5	T05029	+3			
Maneuver Combat Vehicles					
Fighting Vehicle: Full Tracked Infantry (IFV) M2A3	F60564	+57			
Recovery Vehicle Full Tracked: Medium	R50681	+2	+2		
Maneuver Systems					
Drivers Enhancers: AN/VAS-5	D41659	+125	+18		
M32 Lightweight Hand-Held: Mortar Ballistic Computer (LHMBC)	M32043		+18		
Night Vision Sight Set: AN/UAS-11	N05050	+1			
Medical Field Systems					
Defibrillator Monitor Recorder: 120/230V 50/60Hz AC or DC	D86072	+1			
Other Systems					
Compass Magnetic Unmounted: Mil Graduations	E63728	+109			
Soldier Systems					
Bailout Parachute	B05002	+6			
Mount Machine Gun: 40mm MK93	M12647			+9	
Parachute: Personnel	P68275	+125			
Soldier Weapons					
Machine Gun 7.62mm: Six Barrels	L92323		+2		
Support Systems					
Bag Cargo Aerial Delivery: Cotton Duck Collapsible Square OD	B14181		+276		
Bar: Attitude Control Rectangular 8 ft	B25414		+6		
Clarinet: B-Flat Plastic Body W/Mouthpiece Lyre and Case	E28713	+12			
Coupling Airdrop Extraction Force Transfer: M1 High Cap 20 ft	F25844		+6		
Cymbal: Dance Hi-Hat Type Matched Pair	F70640	+2			
Drum Bass: Field Band Type W/Accessories	G68590	+2			
Parachute Cargo Extraction: Ringslot 28-ft Diameter	N67125		+112		
Platform: Container Roll In/Roll Out	B83002			+39	

ARNG
Projected Equipment Transfer/Withdrawal Quantities

Nomenclature	Equip No.	FY 2018 Qty	FY 2019 Qty	FY 2020 Qty	Remarks
Side Rail Type V: 20-ft Platform	S98545		+10		
Trombone Tenor: Rotary B-Flat to F Slide W/Mouthpiece Lyre/Case	X34144	+1			
Trailers					
Chassis Trailer: Generator 2-1/2 ton 2-wheel W/E	E02807	+6			
Trailer Bolster: General Purpose 4-ton 4-wheel W/E	W94536	+12			
Trailer Flatbed: 5-ton 4-wheel General Purpose	T96883	+143	+7	+5	
Trucks					
M-ATV UI CROWS with WIN-T SNE	M05027	+78			
Tractor Line Haul: M915A5	T88858		+1		
Truck Cargo: 5-ton 6X6 MTV W/E LAPES/AD	T41036		+6		
Truck Cargo: MTV LWB W/E	T61704	+3	+166	+6	
Truck Cargo: Tactical 8X8 Heavy Expanded Mobility W/W W/Lt Crane	T39518		+29		
Truck Dump: MTV W/E W/W	T64979	+3			
Truck Palletized (LHS): M1120A4	T55054	+187	+8	+13	
Truck Utility TOW/ITAS Carrier w/IAP Armor-ready: M1167	T34840	+8	+13		
Truck Van: Expansible 5-ton 6X6 (Army)	X62237	+3			
Truck Van: M1079A1P2 WO/Winch	T62359	+3			

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Table 6

FY 2014 Planned vs Actual Procurements and Transfers

NOTE: This table compares planned Service procurements and transfers to the RC in FY 2014 with actual procurements and transfers. FY 2014 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 2016. Procurement and NGREA columns reflect cost values in dollars.

Nomenclature	Equip No.	FY 2014 Transfers (# of items)		FY 2014 Procurements ($s)		FY 2014 NGREA ($s)	
		Plan	Actual	Plan	Actual	Plan	Actual
FY 2014 Planned Transfers & Withdrawals							
Air Defense							
Radar Set: Sentinel AN/MPQ-64	G92997	+1	+6				
Aircraft							
Helicopter Light Utility (LUH) UH-72A	H31329	+5	+48				
Helicopter Utility: UH-60L	H32361	+6	+21				
Helicopter Utility: UH-60M	H32429	+23	+20				
Helicopter Utility: UH-60A	K32293	+1	-26				
HH-60M MEDEVAC Helicopter	M33458	+12	0				
Aerial Scout Helicopter: OH-58D	A21633	+3	+1				
Battle Command and Control (C2)							
Computer Set: AN/UYK-128(V)3	C18378	+1,518	+2,174				
Rigid Wall Shelter: Command Post	R98145	+55	+8				
Computer System: Digital AN/TYQ-105(V)1	C27503	+1,579	+593				
Generator Set: DED TM PU-803	G35851	+6	-16				
Generator Set: DED TM 10kW 60Hz	G42170	+5	-148				
Generator Set: DED TM 15kW 60Hz	G78374	+1	-10				
Battle Command Transport Networks							
Radio Set: AN/VRC-88F(C)	R67330	+22	+102				
Radio Set: AN/PRC-119F(C)	R83141	+165	+340				
Radio Set: AN/VRC-89F(C)	R44999	+300	+312				
Radio Set: AN/VRC-91F(C)	R68146	+76	+623				
Field Logistics							
Load Handling Sys: 2K-gal Comp Water Tank-Rack (HIPPO)	T32629	+107	+69				
Shop Equip: Contact Maintenance Ord/Eng Truck Mounting	S25681	+148	+37				
Truck Lift Fork: Variable Reach Rough Terrain	T73347	+14	+24				
Force Protection							
Decontaminating Apparatus: Pwr Drvn Lt Wt	D82404	+78	-10				
Joint Service: Transportable Decontamination	J01197	+2	+178				
Alarm: Chemical Agent Automatic M22	A33020	+290	-1,809				
Monitor: Chemical Agent	C05701	+320	-500				
Nuclear, Biological, Chemical (NBC) Recon Vehicle	N96543	+7	+10				

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Table 6

FY 2014 Planned vs Actual Procurements and Transfers

Nomenclature	Equip No.	FY 2014 Transfers (# of items)		FY 2014 Procurements ($s)		FY 2014 NGREA ($s)	
		Plan	Actual	Plan	Actual	Plan	Actual
General Engineering							
Tractor FT LS: DSL Med DBP w/Buldoz w/Scarif Winch	W76816	+1	-59				
Excavator: Hydraulic (HYEX) Type I	E27792	+12	+13				
Distributor Water Tank Type: 6K-gal Semitrailer-mtd (CCE)	D28318	+7	-19				
Maneuver Combat Vehicles							
Fighting Vehicle: Full Tracked Cavalry (CFV) M3A3	F90796	+1	+29				
Surveillance System: Scout Long Range AN/TAS-8	S02976	+89	+48				
Medical Field Systems							
Medical Equipment Set Chemical Agent Patient Treatment	M23673	+2	+54				
Medical Equipment Set Ground Ambulance	M26413	+3	-85				
Medical Equipment Set Tactical Combat Medical Care	M30499	+3	+67				
MES Combat Medic	U65480	+30	+771				
Soldier Systems							
Night Vision Goggles: AN/PVS-5	N04456	+30	+42,391				
Night Vision Goggle: AN/PVS-7B	N05482	+675	-670				
Soldier Weapons							
Machine Gun: 5.56mm M249	M09009	+11	-13				
Machine Gun: 5.56mm M249 Light	M39263	+3	+155				
Rifle: 5.56mm M16A2	R95035	+26	-6,922				
Strike							
Fire Support Team Vehicle: Bradley (BFIST)	F86571	+11	-15				
Radar Set: AN/TPQ-37(V)9	A41666	+4	0				
Trailers							
Trailer: Light Tactical 3/4-ton	T95992	+6	-353				
Trucks							
Truck Dump: 20-ton DED 12 cu yd Cap (CCE)	X44403	+5	-21				
FY 2014 P-1R Equipment							
Aircraft							
Helicopter, Light Utility (LUH)				$96,227,000	75,000,000		
UH-60 Blackhawk M Model (MYP)				551,241,000	545,777,000		
CH-47 Helicopter				198,000,000	236,600,000		
Modification of Aircraft							
Utility/Cargo Airplane Modifications				3,131,000	0		
Utility Helicopter Modifications				42,742,000	27,197,000		
Network and Mission Plan				0	22,544,000		
GATM Rollup				0	4,614,000		
RQ-7 Unmanned Aircraft Vehicle (UAV) Modifications				0	27,889,000		

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Table 6

FY 2014 Planned vs Actual Procurements and Transfers

Nomenclature	Equip No.	FY 2014 Transfers (# of items)		FY 2014 Procurements ($s)		FY 2014 NGREA ($s)	
		Plan	Actual	Plan	Actual	Plan	Actual
Missiles							
Javelin (AAWS-M) System Summary				0	18,810,000		
Multiple Launch Rocket System (MLRS) Reduced Range Practice Rockets (RRPR)				8,122,000	8,222,000		
Modification of Missiles							
Improved Target Acquisition System (ITAS) / TOW Modifications				6,630,000	20,000,000		
MLRS Modifications				2,284,000	2,284,000		
High Mobility Artillery Rocket System (HIMARS) Modifications				2,491,000	2,491,000		
Spares and Repair Parts				0	158,000		
Weapons and Tracked Combat Vehicles (WTCV)							
Fire Support Team (FIST) Vehicle (Modifications)				16,478,000	16,478,000		
Howitzer, Medium Self-propelled Full-tracked 155mm M109A6 (Modifications)				1,908,000	4,769,000		
M88 Family of Vehicles (FOV) Modifications				12,903,000	12,903,000		
Integrated Air Burst Weapon System Family				17,604,000	0		
Mortar Systems				1,500,000	1,500,000		
XM320 Grenade Launcher Module (GLM)				3,606,000	3,608,000		
Common Remotely Operated Weapons Station				23,000,000	0		
M777 Howitzer Modifications				6,825,000	5,075,000		
M2 .50 cal Machine Gun Modifications				14,000,000	9,281,000		
M119 Howitzer Modifications				7,483,000	9,233,000		
Tactical and Support Vehicles							
Tactical Trailers/Dolly Sets				1,850,000	1,333,000		
Semitrailers, Flatbed				6,841,000	5,133,000		
ARNG HMMWV Modernization Program					100,000,000		
Family of Medium Tactical Vehicles (FMTV)				150,367,000	163,925,000		
Firetrucks & Associated Firefighting Equip				0	308,000		
Family of Heavy Tactical Vehicles (FHTV)				5,762,000	1,648,000		
Modification of In-service Equipment				4,404,000	9,677,000		
Mine-Resistant Ambush-Protected (MRAP) Mods				0	7,069,000		
Communications and Electronics Equipment							
Warfighter Information Network-Tactical (WIN-T) - Ground Forces Tactical Network				161,444,000	122,873,000		
Joint Incident Site Communications Capability				7,869,000	7,869,000		
Global Broadcast Service (GBS)				26,106,000	8,203,000		
Joint Tactical Radio System				88,483,000	0		
Mid-Tier Networking Vehicular Radio (MNVR)				0	3,123,000		
Tactical Communications and Protective System				8,273,000	0		
Unified Command Suite				18,000,000	8,000,000		
Family of Medical Communications for Combat Casualty Care				9,450,000	9,440,000		
Information Systems Security Program (ISSP)				1,415,000	0		
Communications Security (COMSEC)				2,400,000	0		
Prophet Ground				5,600,000	0		
Distributed Common Ground System - Army (DCGS-A) (MIP)				34,600,000	15,100,000		

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Table 6

FY 2014 Planned vs Actual Procurements and Transfers

Nomenclature	Equip No.	FY 2014 Transfers (# of items)		FY 2014 Procurements ($s)		FY 2014 NGREA ($s)	
		Plan	Actual	Plan	Actual	Plan	Actual
Counterintelligence (CI) and Human Intelligence (HUMINT) Automated Reporting and Collection System (CHARCS) (MIP)				639,000	639,000		
Lightweight Counter Mortar Radar				14,835,000	17,340,000		
Sentinel modifications				21,683,000	10,350,000		
Night Vision Devices				52,604,000	0		
Night Vision, Thermal Weapon Sight				3,277,000	0		
Small Tactical Optical Rifle Mounted (STORM) Micro-Laser Range Finder (MLRF)				3,000,000	3,000,000		
Green Laser Interdiction System (GLIS)				516,000	266,000		
Artillery Accuracy Equipment				200,000	1,534,000		
Profiler				2,141,000	2,742,000		
Joint Battle Command - Platform (JBC-P)				17,829,000	10,883,000		
Modification of In-service Equipment (Lightweight Laser Designator/Rangefinder [LLDR])				7,653,000	6,815,000		
Mortar Fire Control System				4,771,000	4,771,000		
Counterfire Radars				149,201,000	124,201,000		
Fire Support Command & Control (C2) Family				17,126,000	17,126,000		
Battle Command Sustainment Support System (BCS3)				3,201,000	0		
Forward Area Air Defense (FAAD) C2				2,440,000	2,440,000	.	
Air & Missile Defense Planning and Control System (AMDPCS)				23,543,000	8,231,000		
Network Management Initialization and Service				14,092,000	5,729,000		
Maneuver Control System (MCS)				5,458,000	3,187,000		
Global Combat Support System - Army (GCSS-A)				20,493,000	17,538,000		
Reconnaissance and Surveying Instrument Set				10,901,000	10,901,000		
Items Less Than $5M (Surveying Equipment)				1,615,000	634,000		
Other Support Equipment							
Family of Non-lethal Equipment (FNLE)				388,000	0		
Base Defense Systems (BDS)				7,231,000	0		
Ground Standoff Minefield Detection System (GSTAMIDS)				8,579,000	0		
Explosive Ordnance Disposal (EOD) Equipment				4,184,000	4,094,000		
Items Less Than $5M (Countermine Equipment)				339,000	637,000		
Heaters and Environmental Control Units (ECUs)				2,064,000	0		
Field Feeding Equipment				10,270,000	6,490,000		
Cargo Aerial Delivery & Personnel Parachute System				992,000	992,000		
Family of Engineer Combat and Construction Sets				16,376,000	12,542,000		
Items Less Than $5M (Engineer Support)				1,758,000	336,000		
Distribution Systems, Petroleum & Water				36,086,000	26,924,000		
Combat Support Medical				6,735,000	21,651,000		
MEDEVAC Mission Equipment Package (MEP)				22,804,000	0		
Mobile Maintenance Equipment Systems				9,155,000	5,971,000		
Items Less Than $5M (Maintenance Equipment)				2,387,000	1,833,000		
Scrapers, Earthmoving				17,505,000	18,661,000		
Mission Modules - Engineering				9,721,000	0		
Hydraulic Excavator				26,063,000	0		

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Table 6

FY 2014 Planned vs Actual Procurements and Transfers

Nomenclature	Equip No.	FY 2014 Transfers (# of items)		FY 2014 Procurements ($s)		FY 2014 NGREA ($s)	
		Plan	Actual	Plan	Actual	Plan	Actual
Tractor, Full Tracked				11,531,000	15,691,000		
All Terrain Cranes				8,740,000	0		
High Mobility Engineer Excavator (HMEE)				14,840,000	1,348,000		
Enhanced Rapid Airfield Construction Capability (ERACC)				6,642,000	0		
Construction Equipment ESP				7,240,000	4,097,000		
Items Less Than $5M (Construction Equipment)				4,103,000	3,872,000		
Generators and Associated Equipment				41,183,000	0		
Family of Forklifts				871,000	871,000		
Training Devices, Nonsystem				26,036,000	25,996,000		
Close Combat Tactical Trainer				8,011,000	264,000		
Aviation Combined Arms Tactical Trainer				8,496,000	8,496,000		
Gaming Technology in Support of Army Training				4,969,000	2,419,000		
Calibration Sets Equipment				1,952,000	1,281,000		
Integrated Family of Test Equipment (IFTE)				25,343,000	10,454,000		
Test Equipment Modernization (TEMOD)				6,565,000	8,188,000		
Modification of In-service Equipment (OPA-3)				2,655,000	2,498,000		
FY 2014 NGREA Equipment							
Aviation							
Forward-looking Infrared Radar (FLIR) Upgrade (A-Kit and B-Kit) (UH-60)						$42,560,000	$24,000,000
Internal Auxiliary Fuel Tank System (A-Kit and B-Kit) (UH-60)						7,400,000	7,454,387
Hydraulic Rescue Hoist Guard Support Equipment with Magnetic Inspection System (UH-60)						1,818,420	0
Civilian Communication Package A-Kit and B-Kit						12,054,000	16,754,000
Display Unit Upgrade (Day Heads-Up Display)						5,170,000	5,028,864
Rescue Hoist: Mission Equipment Package (UH-72A)						1,280,004	0
Settling Protectors (UH-72A)						701,400	690,434
Blade Folding System (UH-72A)						254,350	1,548,855
Training Enhancement Seats (UH-72A)						164,500	0
Aviation Ground Power Unit 2860-A (UH-72A)						96,624	95,504
Water Purification Kit (UH-72A)						79,540	78,477
Communications							
Network Access Control (GuardNet Security Modernization)						8,000,000	8,000,000
Routers - (GuardNet Modernization)						6,741,000	11,885,502
Routers - (Armory as a Docking Station)						4,508,000	4,508,000
Virtual Machine End Devices (Virtual Desktop Environment)						1,400,000	1,400,000
Telephony Enterprise Session Controllers Package (Enterprise Voice Over IP [VoIP] Telephony)						750,000	750,000
Cyber Training Range Configuration						514,000	10,520,000
Domestic Operations							
Radiological Back Pack Detection Monitoring System						8,775,000	10,903,650
Medical Telemetry System (WMD-CST/HRF/CERFP)						4,389,000	4,389,000
Lightweight Inflatable Decontamination System (LIDS)						4,275,000	5,374,620

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Table 6

FY 2014 Planned vs Actual Procurements and Transfers

Nomenclature	Equip No.	FY 2014 Transfers (# of items)		FY 2014 Procurements ($s)		FY 2014 NGREA ($s)	
		Plan	Actual	Plan	Actual	Plan	Actual
Engineering							
Engineer Equipment Set: Urban Operations Squad Kit						23,048,000	0
Engineer Equipment Set: Urban Operations Platoon Kit						18,400,000	0
Hydraulic Electric Pneumatic Petroleum Operated Equipment (HEPPOE)						20,125,000	20,125,000
Heavy Crane, Type II						11,000,000	0
7-Man Combat Raiding Craft with 1 motor each						8,918,000	0
15-man Combat Assault Craft with 2 motors each						2,975,000	0
Instrument Set, Reconnaissance & Surveying (ENFIRE AN/TKQ-5)						8,452,500	8,452,500
Special Operations Forces Demolition Kit, M303						2,703,200	10,993,081
Portable Concrete Mixer						1,759,500	11,703,086
Intelligence							
Sensitive Compartmented Information Facility (SCIF) Equipment Set						9,000,000	6,300,000
Logistics							
Assault Kitchen						4,200,000	4,200,000
Multi-Temperature Refrigerated Container System (MTRCS)						2,520,000	2,520,000
Maintenance							
Maintenance Support Device						2,212,000	0
Surveillance							
Lightweight Counter Mortar Radar (LCMR), AN/TPQ-50						7,200,000	0
Training							
Call For Fire Trainer (CFFT)						12,369,000	12,369,000
Deployable Force-on-Force Instrumented Range System (FLEXTRAIN)						12,189,549	59,492,714
Mobile Distributed Learning Classroom						5,709,000	11,072,000
Fixed and Mobile Distributed Learning Classroom Computers						3,240,000	3,240,000
Common Driver Trainer (CDT) System and Upgrades						5,301,000	0
Engagement Skills Trainer Technology Refresh						5,070,000	0
Modular Small Arms Training System (8-Lane)						3,514,177	8,815,177
Training/Aviation							
Synthetic Flight Simulator (UH-72A)						14,000,000	19,700,000
Transportable Blackhawk Operations Simulator (TBOS) (UH-60M)						10,000,000	15,600,000
Non-rated Crew Member Manned Module (NCM3)						3,500,000	6,685,613
Universal Mission Simulator						3,463,248	5,720,000
Shadow Crew Trainer Upgrade						2,199,988	2,199,988
Transportation							
Engineering Change Proposal (ECP) Freight/Tarps and Bows (FMTV)						1,000,000	803,319
Additional funding ($8,372,772) reprogrammed from another Reserve Component							
Total				**$2,288,071,000**	**$1,952,067,000**	**$315,000,000**	**$323,372,772**

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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 2017 Qty	Deployable?	
					Yes	No
Air Defense						
Radar Set, Enhanced AN/MPQ-64A3(V)1	R05014	Radar Set, Enhanced: AN/MPQ-64A3 (V1)	Z866FD	3	X	
Radar Set Sentinel AN/MPQ-64A1 (MOD)	G92997	Radar Set, Enhanced AN/MPQ-64A3(V)1:	R05014	8	X	
Aircraft						
Ground Control Station (GCS): (TUAV-SHADOW)	G39497	Universal Ground Control Station 788 (UGCS-788):	U05011	8	X	
Helicopter Utility: UH-60A	K32293	Helicopter Utility: UH-60M	H32429	23	X	
Helicopter Utility: UH-60L	H32361	Helicopter Utility: UH-60M	H32429	90	X	
Portable Ground Control Station: SHADOW	P05001	Portable Ground Control Station (PGCS):	P05038	9	X	
Portable Ground Data Terminal (PGDT): (TUAV-SHADOW)	P05002	Portable Ground Data Terminal	Z05158	3	X	
		Portable Ground Data Terminal:	P05037	9	X	
Unmanned Aerial Vehicle (UAV): (TUAV-SHADOW)	U05001	Unmanned Aircraft RQ-7BV2	Z05161	8	X	
		Unmanned Aircraft RQ-7BV2	U05012	28	X	
Aviation						
Detecting Set: Laser AN/AVR-2B(V)1	L60482	Laser Detecting Set: AN/AVR-2A(V)1	L60414	121	X	
Battle Command and Control (C2)						
Communications Central: AN/ASC-15E	C59313	Mission Equipment Package: Airborne Command and Control	C28796	2	X	
Computer Set Digital: AN/GYK-62	C13866	Computer Set Digital: (JBC-P) AN/GYK-62G	C05037	208	X	
Computer Set Digital: AN/UYK-128	C18378	Computer Set Digital (JBC-P): AN/UYK-128B(V)3	C05036	4,490	X	
Computer System Digital: AN/TYQ-161 (V)1 LOMAT V1	Z01765	Computer Set Digital: SAMS-1E-V1	C27838	32	X	
		Computer Set Digital: SAMS-2E-V2	C27906	104	X	
		Computer System Digital: AN/TYQ-161 (V)1 LOMAT V1	C05070	165	X	
		Computer System Digital: AN/TYQ-109(V)1	C27707	24	X	
		Computer System Digital: AN/TYQ-109(V)2	C27775	245	X	
Computer System Digital: AN/TYQ-161 (V)3 SSMS	Z01766	Computer System Digital: AN/TYQ-161 (V)3 SSMS	C05074	1	X	
Computer System Digital: AN/TYQ-161 (V) 4 (MT-OM)	Z01774	Computer Set Digital: SAMS-1E-V1	C27838	47	X	
		Computer System Digital: AN/TYQ-161 (V) 4 (MT-OM)	C05075	10	X	
Computer System Digital: AN/TYQ-161 (V)5 USS	Z01775	Computer System Digital: AN/TYQ-109(V)1	C27707	2	X	
		Computer System Digital: AN/TYQ-161 (V)5 USS	C05076	203	X	
Computer System Digital: AN/UYQ-90(V)2	C18278	Computer Set Digital: (JBC-P LOG) AN/UYQ-90B(V)4	C05055	524	X	
Gen Set: DED Skid-mtd 3kW 60Hz	G18358	Gen Set: DED Skid-mtd 5kW 60Hz	G11966	87	X	
		Small Tactical Electric Power (STEP) 3kW	Z805FD	505	X	
Generator Set Diesel Engine TM: PU-803	G35851	Gen Set: DED Skid-mtd 30kW 50/60Hz	G74575	23	X	
		Trailer-mtd: PU-2102/30 kW/50/60 Hz/M200A1	T39954	83	X	

Major Item of Equipment Substitution List

Required Item Nomenclature	Reqd Item Equip No.	Substitute Item Nomenclature	Substitute Item Equip No.	FY 2017 Qty	Deployable?	
					Yes	No
Generator Set: Diesel TM 60kW 50/60Hz PU805 Chassis W/Fende	G78306	Trailer-mtd: PU-2103/60 kW/50/60 Hz/M200A1	T60034	4	X	
LTT Trailer-mtd: PP-3001/5 kW/50/60 Hz	L27002	Power Plant ELEC DED TM: 5kW 60Hz AN/MJQ-35	P28083	13	X	
LTT Trailer-mtd: PP-3101/5 kW/50/60 Hz/M200A1	L27070	Power Plant ELEC DED TM: 5kW 60Hz AN/MJQ-36	P28151	2	X	
Power Plant: Electric Trailer-mtd 60kW 50/60Hz AN/MJQ 41	P42194	Trailer-mtd: PP-3106/ 60 kW/ 50/60 Hz/ 2M200A1	T93232	15	X	
Power Supply: PP-6224/U	P40750	Power Supply: PP-2953/U	P38588	519	X	
Rigid Wall Shelter: Command Post	R98145	Command System: Tactical	C40996	13	X	
		Shelter Nonexpandable: S-842A/G	S01428	5	X	
		Shelter: NonExpd LTWR MP Rigid-Wall S788 HMMWV-mtd	S01563	16	X	
Trailer-mtd: PP-3102/10 kW/ 50/60Hz / M200A1	T39849	Power Plant: Diesel TM 10kW 60Hz AN/NJQ-37	P42262	17	X	
Trailer-mtd: PP-3105/30 kW/ 50/60 Hz / 2M200A1	T39917	Power Plant: Electric TM 30kW 50/60Hz AN/MJQ-40	P42126	21	X	
Trailer-mtd: PP-3106/60 kW/ 50/60 Hz /2M200A1	T93232	Power Plant: Electric TM 60kW 50/60Hz AN/MJQ 41	P42194	28	X	
Trailer-mtd: PU-2102/30 kW/ 50/60 Hz /M200A1	T39954	Generator Set Diesel Engine TM: PU-803	G35851	203	X	
Trailer-mtd: PU-2103/60 kW/ 50/60 Hz/ M200A1	T60034	Generator Set: Diesel TM 60kW 50/60Hz PU805 Chassis W/Fende	G78306	157	X	
Battlespace Awareness						
Detecting System Countermeasures: AN/MLQ-40(V)4	D04182	Detecting System Countermeasures: AN/MLQ-44B(V)1	Z05381	20	X	
Digital Topograph System: AN/TYQ-67(V)	D10281	Workstation Geospatial Intelligence: AN/TYQ-71(V)	D11498	2	X	
Battle Command Transport Networks						
Antenna: AB-1404/TRC	A81826	Repeater Set Radio: AN/TRC-219	R05004	13	X	
Battalion Command Post Switching Group: OM-XXX	B67234	Central Communications: AN/MSC-82	C05022	20	X	
Cable Assembly Special Purpose Electrical: CX-11230/G 1/4 mile	C63645	Cable Assembly FiberOptic: CX-13295()/G	C54995	25	X	
Computer System Digital AN/PSQ-17	C18380	Computer Digital Mission Planner: AN/PYQ-19	C05003	18	X	
Radio Set: AN/PRC-104A	R55200	Radio Set: AN/PRC-150A(C)	R62247	348	X	
		Radio Set: AN/VRC-104(V)5	R44706	125	X	
		Radio Set: AN/VRC-104(V)6 150 watt W/ PRC-150 HF Radio	R87139	1	X	
Radio Set: AN/PRC-112	R82903	Radio Set AN/PRQ-7:	R31430	45	X	
Radio Set: AN/PSC-5	R57606	Radio Set: AN/PRC-117F(V)2(C)	R87207	1,401	X	
Radio Set: AN/VRC-87F(C)	R67296	Radio Set: AN/VRC-88F(C)	R67330	4	X	
Speech Security Equipment: TSEC/KY-57	S01373	KY-99: MINTERM	K47623	156	X	
Teleconference System: AN/TYQ-122A	T43146	Video Teleconference System: AN/TYQ-122A	P05024	18	X	
Terminal: Satellite Communications AN/TSC-154	T81733	Satellite Communications Terminal: AN/TSC-93A	S34963	10	X	
Combat Mobility						
Launcher Mine Clearing Line Charge Trailer Mounting: (MICLIC)	L67342	Assault Breacher Vehicle (ABV)	A05001	60	X	

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Table 7

Major Item of Equipment Substitution List

Required Item Nomenclature	Reqd Item Equip No.	Substitute Item Nomenclature	Substitute Item Equip No.	FY 2017 Qty	Deployable?	
					Yes	No
Loader Scoop Type: DSL 2-1/2Cu Yd Hinge Frme W/Multi Purp Bucket	L76556	Loader Scoop Type: 2.5 Cubic Yard	L76897	33	X	
Munition: Network Command (Spider)	M92387	Dispensing Set Munition Network Command: Spider M7E1	Z05313	61	X	
Tractor Wheeled: DSL 4X4 W/Excavator and Front Loader	T34437	High Mobility Engineer Excavator (HMEE): Type I	H53576	82	X	
		Loader Skid Steer: Type III	L77215	73	X	
Tractor Wheeled: Industrial	T34505	High Mobility Engineer Excavator (HMEE): Type I	H53576	16	X	
Vehicle Optics Sensor System: (VOSS)	Z05280	Vehicle Optics Sensor System: (VOSS)	V05007	21	X	
Field Logistics						
Electronic Shop Shelter Mounted Avionics: AN/ASM-146 Less Power	H01907	Electronic Shop Semitrailer-mtd: AN/ASM-189 Less Power	H01855	118	X	
Electronic Shop Shelter Mounted Avionics: AN/ASM-146 Less Power	H01912	Electronic Shop Semitrailer-mtd: AN/ASM-189 Less Power	H01857	6	X	
Floodlight Set Elec: 4 Floodlights 120V 150W Ptbl Mtd on Tripod	H79358	Floodlight Set Trailer Mounted: 3 Floodlights 1000 Watt	F79334	29	X	
Forward Area Refueling Equipment: (FARE)	H94824	Forward Area Refueling System: Advanced Aviation (AAFARS)	F42611	2	X	
Heater: Duct Type Portable 1200-00 Btu	H00586	Heater: Duct Type Portable 350K Btu	H00654	74	X	
Kitchen Field Trailer Mounted: mtd on M103A3 Trailer	L28351	Containerized Kitchen: CK	C27633	60	X	
Laundry Advanced System: (LADS) Trailer-mtd	L70538	Containerized Batch Laundry: (CBL)	C28019	2	X	
Multimeter Digital Display: AN/USM-486	M23954	Multimeter AN/GSM-437	M05023	18	X	
Oscilloscope: OS-303 G (TEMOD)	P32409	Oscilloscope Digital Handheld (Odhh):	P43667	4	X	
		Oscilloscope: OS-305()/U	Z05056	89	X	
Shop Equip General Purpose Rep Semitrailer-mtd	T10549	Metal Working and Machining Shop Set (MWMSS): Type 1	Z05057	13	X	
Shop Equip Instr and Fire Control Sys Repair: FM Basic Less Power	T31784	Armament Repair Shop Set (ARSS):	A05031	13	X	
Shop Equipment Artillery: Field Maint Set N Less Pwr	T24523	Armament Repair Shop Set (ARSS):	A05031	9	X	
Shop Equipment Auto Maint and Repair: Om Common No 1 Less Power	W32593	Forward: Repair System (FRS)	F64544	1	X	
Shop Equipment Machine Shop: FM Basic Less Power	T15644	Metal Working And Machining Shop Set (Mwmss): Type 1	Z05057	45	X	
		Shop Equipment Machine Shop: FM Heavy Less Power	T15640	12	X	
Shop Equipment Machine Shop: Fm Heavy Suppl No 1 Less Power	T15641	Metal Working and Machining Shop Set (MWMSS): Type 1	Z05057	15	X	
Shop Equipment Small Arms Repair Shelter-mtd	T16597	Armament Repair Shop Set (ARSS):	A05031	3	X	
Shop Equipment: Welding	W48391	Shop Equipment Welding (SEW) II	Z831FD	2	X	
Shop Set Small Arms: Field Maintenance Basic Less Power	W51499	Armament Repair Shop Set (ARSS):	A05031	53	X	
Test Facility Base Shop (BSTF/S): Single Port AN/TSM-191(V)3	T92961	Test Station Electrical Electronic Equipment Containerized	Z01554	1	X	
Test Set Electronic Systems: Direct Support (Desets)	T52849	Test Station Electrical Electronic Equipment Containerized	Z01554	3	X	
Test Set Optical Fiber: TS-4320(P)/G	T24009	Optical Time Domain Reflectometer (OTDR)	Z697FD	24	X	
Test Set Radio Frequency Power: AN/USM-491	T89944	RF Power Meter Test Set	Z682FD	68	X	

Major Item of Equipment Substitution List

Required Item Nomenclature	Reqd Item Equip No.	Substitute Item Nomenclature	Substitute Item Equip No.	FY 2017 Qty	Deployable?	
					Yes	No
Tool Set Vehicle Full Tracked: Org Maint Suppl No 2 Less Power	W65747	Shop Equipment: Automotive Vehicle	S25885	1	X	
Trailer Tank: Water 400 Gallon 1-1/2 ton 2-Wheel W/E	W98825	Trailer Tank Water (Camel): 800 Gal 5-ton W/E	T05047	177	X	
Truck Lift Fork: Dsl Drvn 4000 Lb Cap Rough Terrain	T49255	Light Capability Rough Terrain Forklift (LCRTF): 5K	L05010	5	X	
Voltmeter Digital: AN/GSM-64	Y14526	Multimeter AN/GSM-437: ()	M05023	5	X	
Water Purification: Reverse Osm-Osis 3000 gph Trailer-mtd	W47225	3K Tactical Water Purification System:	Z05003	6	X	
Force Protection						
Chemical-Biological Protective Shelter (CBPS): M8	C07506	Chemical-Biological Protective Shelter (CBPS Electric)	Z01533	6	X	
Mask Chem-Bio Joint Service General Purpose: Combat Vehicle Crewman M51	M13236	Mask Chemical Biological: Combat Vehicle M42	M18526	20,297	X	
Radiac Set: AN/PDR-75A	R30925	Joint Personal Dosimeter (Individual) (JPD-Ind)	Z836FD	400	X	
General Engineering						
All Terrain Crane Type II: (Heavy)	Z05089	Crane: Wheel-mtd Hydraulic 25-ton All Terrain AT422T	C36586	2	X	
Crane Truck-mtd: Army Aircraft Maintenance and Positioning	F43003	Crane Wheel Mtd: Hydraulic Light 7-1/2 Ton W/Cab	C36151	1	X	
Crane: Wheel-mtd Hydraulic 25-ton All Terrain AT422T	C36586	All Terrain Crane Type II: (Heavy)	Z05089	9	X	
Drilling Machine Well: Rotary Truck Mtd 600 ft Min	D95754	Water Well Drill Rig: Rotary Trk-mtd 1700-ft Min	Z01253	5	X	
Paving Machine Bituminous Material: DED Crwlr-Mtd 12-ft	N75124	Paving Machine: Bituminous Material	P05023	8	X	
Saw Abrasive Disk Masonry: Gas Drvn 18 inch Blade	S34508	Self Propelled Concrete Saw	Z05126	21	X	
Tool Kit Carpenters: Engineer Platoon W/Chest	W34511	Type II Carpenters Supplemental Tool Kit (CSTK)	Z05393	52	X	
Tool Kit Carpenters: Engineer Squad W/Chest	W34648	Type I Carpenters Tool Kit Squad (CTKS)	Z05399	64	X	
Tool Kit Electricians: Set No 1	W36977	Type IV Electricians Tool Kit (ETK)	Z05398	39	X	
Tool Kit Pipefitters: 1/8 to 2 inch Pipe	W48622	Type VI Plumbers & Pipefitters Tool Kit (PPTK)	Z05394	37	X	
Tool Kit Pipefitters: 2-1/2 to 4 inch Pipe	W48759	Type VI Plumbers & Pipefitters Tool Kit (PPTK)	Z05394	72	X	
Tool Kit: Eng Construction Carpenter Shop (CTS)	T16988	Type III Carpenters Tool Kit (CTK)	Z05395	3	X	
Tractor Full Trkd Low Spd DSL Lgt Dbp Air Dropbl W/Angdoz W/W	W76285	Tractor Full Trkd Low Spd T-5 Type II W/Ripper	T05026	3	X	
		Tractor Full Trckd Low Spd: T5	T05029	2	X	
Truck Well Drilling Support	T94171	Water Well Drill Rig: Tender Truck	W05004	4	X	
Maneuver Combat Vehicle						
Carrier Armored Command Post: Full Tracked	C11158	Armored Multi Purpose Vehicle (AMPV)	Z628FD	26	X	
		Carrier Command Post: Light Tracked	D11538	2	X	
Engineer Squad Vehicle (ESV)	J97621	Engineer Squad Vehicle: Double V Hull (ESVV)	E05010	1	X	
Fire Support Vehicle (FSV)	F86821	Knight: Armored	K29708	12	X	
Medical Evacuation Vehicle (MEV)	M30567	Truck Ambulance: 4-Litter Armd 4X4 W/E (HMMWV)	T38844	27	X	

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Table 7

Major Item of Equipment Substitution List

Required Item Nomenclature	Reqd Item Equip No.	Substitute Item Nomenclature	Substitute Item Equip No.	FY 2017 Qty	Deployable?	
					Yes	No
Reconnaissance Vehicle (RV)	R62673	Infantry Carrier Vehicle: Double V Hull	J05009	15	X	
		Infantry Carrier Vehicle (ICV)	J22626	15	X	
Recovery Vehicle Full Tracked: Medium	R50681	Recovery Vehicle Full Tracked: Heavy M88A2	R50885	12	X	
Maneuver Systems						
Launcher Grenade Smoke: Screening RP M250	L44680	Launcher Grenade Armament Subsystem: Screening Red Phospho M239	L44612	45	X	
Night Vision Sight Set: AN/UAS-11	N05050	Suveillance System: Scout Long Range AN/TAS-8	S02976	7	X	
Medical Field Systems						
Anesthesia Apparatus Gas: W/O2 Monitor N2O O2 : Volatile LIQ 4 CY CAP Port	A62773	Anesthesia Apparatus Field	A63297	1	X	
Dental Equipment Set Operatory Field Lightweight:	D95480	Dental Equipment Set: Comprehensive Dentistry Field	D43802	1	X	
Medical Vital Signs Simulator (MVSS)	Z05358	Analyzer Non-Invasive Blood Pressure: (ANBP)	A27104	2	X	
		Simulator Medical Functions: Battery Op Port Self-Contained	S56720	3	X	
Monitor-Recorder ECG	M79195	Monitor Patient Vital Signs: (MVS)	M66626	10	X	
Operating and Treatment Unit Dental Field	P19377	Dental Field Treatment Operating System	D44052	8	X	
Ultra Sound Diagnostic System: Hand-Carried	U26813	Ultrasound Unit Diagnostic: Veterinary (USUDV)	U05009	1	X	
Other Systems						
Countermeasures Set: AN/VLQ-12 (V)3	Z01524	Countermeasures Set: AN/VLQ-12 (V)3	C05082	363	X	
Universal Ground Control Station 788 (UGCS-788)	Z05159	Universal Ground Control Station 788 (UGCS-788)	U05011	6	X	
Unmanned Aircraft RQ-7BV2	Z05161	Unmanned Aircraft RQ-7BV2	U05012	2	X	
Soldier Systems						
Bayonet Multipurpose System: XM9	B49004	Bayonet-Knife: W/Scabbard for M16A1 Rifle	B49272	79	X	
Bayonet-Knife: W/Scabbard for M16A1 Rifle	B49272	Bayonet Multipurpose System: XM9	B49004	10,369	X	
Mount Machine Gun: 40mm MK93	M12647	Mount Machine Gun: MK64 Mod9	M74823	1,552	X	
Mount Machine Gun: MK64 Mod9	M74823	Mount Machine Gun: 40mm MK93	M12647	18	X	
Night Vision Sight Crew Served Weapon: AN/TVS-5	N04596	Medium Weapon Thermal Sight (MWTS): AN/PAS-13(V)2	S90535	18	X	
Night Vision: Goggle	N05482	Monocular Night Vision Device: AN/PVS-14	M79678	137,058	X	
		Night Vision Device: AN/PSQ-20	N07848	1,696	X	
Parachute: Personnel	P68275	Military: Freefall Advanced Ram Air Parachute System	M05026	1,023	X	
Sight Night Vision Sniperscope AN/PVS-10	S90433	Sight Night Vision (SNS): AN/PVS-30	S60342	4	X	
Soldier Weapons						
Launcher Grenade: M320A1	L69080	Launcher Grenade: M203A2	L69012	4,824	X	
Machine Gun 7.62mm: M240L	M92454	Machine Gun: 7.62mm M240B	M92841	99	X	
Machine Gun Caliber .50: Hb Flexible (Ground and Vehicle) W/E	L91975	Machine Gun Grenade 40mm: MK19 Mod III	M92362	42	X	
		Machine Gun: Caliber .50	M39331	593	X	
Machine Gun: Caliber 50	M39331	Machine Gun: Caliber .50 HB Flexible (Ground & Vehicle)	L91975	2,863	X	
Machine Gun: Light 5.56Mm M249	M39263	Machine Gun 5.56mm: M249	M09009	2,340	X	
Pistol 9mm Automatic: M9	P98152	Pistol 9mm: M11	P47365	21	X	

Major Item of Equipment Substitution List

Required Item Nomenclature	Reqd Item Equip No.	Substitute Item Nomenclature	Substitute Item Equip No.	FY 2017 Qty	Deployable?	
					Yes	No
Shotgun 12 Gauge Riot Type: 20-inch Barrel	T39223	Shotgun: 12 Gauge	S40541	14	X	
Shotgun: 12 Gauge	S40541	Shotgun 12 Gauge Riot Type: 20-inch Barrel	T39223	36	X	
Strike						
Computer Set Field Artillery General: AN/GYK-47(V)5	F55607	Computer System Digital: AN/GYK-51	C01155	2	X	
		Computer System Digital: AN/PSG-14(V)1 LFED	C04819	6	X	
Radar Set: AN/TPQ-37(V)9	A41666	Radar System: Counter Fire Target Acquisition Radar	Z00737	1	X	
Range Finder-Target Designator: Laser AN/PED-1	R60282	Mod of In-Svc Equipment (LLDR LIH)	Z826FD	49	X	
Support Systems						
Comp Unit RCP: Air 5 HP Gas and Diesel Driven 5.1 CFM 3200 PSI	C74517	Type II High Pressure Breathing: Air Compressor-Fires	T05054	6	X	
Outboard Motor Gasoline: 35 HP Silenced Waterproofed	P34402	FOBAM Outboard Motor	Z05182	154	X	
X-Ray Apparatus: Radiographic Industrial	X91036	Future Radiographic System (FRS)	Z612FD	66	X	
Trailers						
40 Ton Semitrailer	Z05037	Semitrailer Low Bed: 40-ton 6-Wheel W/E	S70594	180	X	
Semitrailer Low Bed: 25-ton 4-Wheel W/E	S70517	Next Generation Semitrailer, Low Bed, 25-ton	Z842FD	292	X	
Trailer Bolster: General Purpose 4-ton 4-Wheel W/E	W94536	Trailer, Cargo: 12-ton, Light Engineer Utility Trailer	Z05224	2	X	
		Trailer, Cargo: 5-ton, Light Engineer Utility Trailer	Z05186	43	X	
Trailer Bolster: General Purpose 4-ton 4-Wheel W/E	W94536	Water Well Drill Rig: Mud Trailer	W05006	4	X	
Trailer Cargo: 1-1/2 ton 2-Wheel W/E	W95811	Trailer Flat Bed: M1082 Trailer Cargo LMTV W/Dropsides	T96564	61	X	
Trailer Flatbed: 5-ton 4-Wheel General Purpose	T96883	Trailer Cargo: 1-1/2 ton 2-Wheel W/E	W95811	42	X	
		Trailer Cargo: MTV W/Dropsides M1095	T95555	183	X	
Trucks						
Truck Cargo: 2 1/2 ton 4X4 LMTV W/E W/W LAPES/AD	T42063	Truck Cargo: 2 1/2 ton 4X4 LMTV W/E LAPES/AD	T41995	4	X	
Truck Cargo: 5-ton 6X6 MTV W/E LAPES/AD	T41036	Truck Cargo: 2 1/2 ton 4X4 LMTV W/E LAPES/AD	T41995	9	X	
Truck Cargo: 5-ton 6X6 MTV W/E LAPES/AD	T41036	Truck Cargo: MTV W/E	T61908	77	X	
Truck Cargo: 5-ton 6X6 MTV W/E W/W LAPES/AD	T41104	Truck Cargo: 5-ton 6X6 MTV W/E LAPES/AD	T41036	2	X	
Truck Cargo: 5-ton 6X6 XLWB W/E	X41105	Truck Cargo: LWB WO/Winch	T93271	82	X	
Truck Cargo: MTV LWB W/E	T61704	Truck Cargo: LWB WO/Winch	T93271	15	X	
Truck Cargo: MTV W/E W/W	T41135	Truck Cargo: W/MHE WO/Winch	T59584	33	X	
Truck Cargo: Tactical 8X8 HEMTT W/LT Crane	T59278	Truck Cargo: M977A4	T59532	140	X	
		Truck Cargo: Tactical HEMTT W/LHS	T96496	104	X	
		Truck Cargo: Tactical HEMTT W/Med Crane	T39586	144	X	
		Truck Cargo: Tactical HEMTT W/W Med Crane	T39654	20	X	
Truck Cargo: Tactical 8X8 HEMTT W/LT Crane	T39518	Truck Cargo: Tactical HEMTT W/Med Crane	T39586	18	X	
		Truck Cargo: Tactical HEMTT W/W Med Crane	T39654	24	X	

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Table 7

Major Item of Equipment Substitution List

Required Item Nomenclature	Reqd Item Equip No.	Substitute Item Nomenclature	Substitute Item Equip No.	FY 2017 Qty	Deployable?	
					Yes	No
Truck Cargo: WO/Winch	T59448	Truck Cargo: 4X4 LMTV W/E	T60081	680	X	
Truck Dump: FMTV 10-ton	T65047	Truck Dump: 10-ton W/Winch	T65274	67	X	
		Truck Dump: 10-ton WO/Winch	T65342	112	X	
Truck Dump: MTV W/E	T64911	Truck Dump: 10-ton WO/Winch	T65342	13	X	
Truck Dump: MTV W/E W/W	T64979	Truck Dump: 10-ton W/Winch	T65274	15	X	
Truck Materials Handling-Container Hoisting: M1148A1P2	T54516	Truck: Materials Handling-Container	T45435	1	X	
Truck Tractor W/Main Recovery Winch: M983A2 LET	T59415	Truck Tractor: (LET)	T60946	14	X	
Truck Tractor: MTV W/E W/W	T61307	Truck Tractor: MTV W/E	T61239	132	X	
		Truck Tractor: WO/Winch	T88983	1	X	
Truck Utility: Armament Carrier Armored (HMMWV)	T92242	Nuclear Bio-Chem Recon Veh (NBC RV)	N96543	9	X	
		Truck Utility Expanded Capacity Enhanced: M1152A1	T37588	8	X	
		Truck Utility: Expanded Capacity 4X4 W/E HMMWV M1113	T61630	1	X	
		Truck Utility: Heavy Variant HMMWV 4X4 10000 GVW W/E	T07679	10	X	
Truck Utility: Armament Carrier Armored W/W (HMMWV)	T92310	Truck Utility: ECV Armament Carrier W/IAP Armor Ready M1151A1	T34704	23	X	
		Truck Utility: Expanded Capacity HMMWV M1113	T61630	1	X	
Truck Utility: Cargo/Troop Carrier (HMMWV)	T61494	M-ATV UI (CROWS) W/ WIN-T POP	M05028	16	X	
		M-ATV UI CROWS W/ WIN-T SNE	M05027	57	X	
		M-ATV UI W/ OGPK	M05030	846	X	
		Truck Utility: Heavy Variant HMMWV 4X4 10000 GVW W/E	T07679	4,504	X	
Truck Utility: Expanded Capacity HMMWV M1113	T61630	Truck Utility: Heavy Variant HMMWV 4X4 10000 GVW W/E	T07679	1,164	X	
Truck Utility: Heavy Variant HMMWV 10000 GVW	T07679	M-ATV UI W/ OGPK	M05030	61	X	
		Truck Utility Expanded Capacity Enhanced: M1165A1	T56383	1,422	X	
		Truck Utility Expanded Capacity Enhanced: M1152A1	T37588	25	X	
		Truck Utility: Expanded Capacity HMMWV M1113	T61630	71	X	
		Truck Utility: M1152-Expanded Capacity Enhanced	T11588	323	X	
Truck Utility: S250 Shelter Carrier (HMMWV)	T07543	Truck Utility Expanded Capacity Enhanced: M1152A1	T37588	243	X	
		Truck Utility: Expanded Capacity HMMWV M1113	T61630	163	X	
Truck Van: M1079A1P2 WO/Winch	T62359	Truck Van: LMTV W/E	T93484	39	X	

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Table 8

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	831	241	varies	$4,092,946,206	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. H-60As are no longer in procurement, and are being input into the A-A-L REMAN line, which will produce the final 26 H-60Ls in FY 2018, at which time the line will shut down, retool, and resume operations as the L-L-V line, producing the first 10 H-60Vs (also in FY 2018) which will be directed to ARNG TDA positions. 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. The rate of crew qualification will be expedited starting in FY 2018 upon the introduction of the H-60V, which shares a common qualification standard as the H-60M.
2	Abrams Tank	174	87	$7,598,833	$661,098,471	Current modernization plans to address the protection and lethality for the threat, do not include M1A1 AIM-SA tanks, which comprise 20% of the Army's Armored Brigade Combat Team (ABCT) fleet and 60% of the ARNG's. Currently, the Army Requirements Oversight Council is considering a change in the modernization plan to include M1A1 AIM-SA tanks, however the cost is currently un-programmed. Modernizing on-hand ARNG M1A1 AIM-SA tanks (to enable a cascade of M1A2 SEPv2s from Active Component) will cost approximately $3.7B.
3	Bradley Fighting Vehicle	233	120	$6,661,335	$799,360,200	Current modernization plans to address the protection and lethality for the threat, do not include M2A2 ODS-SA Bradleys, which comprise 20% of the Army's ABCT fleet and 60% of the ARNG's. Currently, the Army Requirements Oversight Council is considering a change in the modernization plan to include M2A2 ODS-SA Bradleys; however, the cost is currently un-programed. The two modernized ARNG ABCTs will be pure-fleeted with M2A3s in FY 2017. Modernizing on-hand M2A2 ODS-SAs (to enable a cascade of M2A3s from Active Component) will cost approximately $1.9B.

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Table 8

Significant Major Item Shortages

PR	Nomenclature	Total Req'd	# Items Short	Item Cost	Total Shortage Cost	Rationale/Justification
4	Joint Battle Command - Platform (JBC-P)	5,001	5,001	varies	$316,027,823	JBC-P is a digital battle command information system that integrates on-the-move near real-time battle command and control (C2) and situational awareness (SA) information from platforms to echelons above and across all battlefield functional areas via satellite L-band communications. On December 31, 2016, service will be terminated for the Movement Tracking System (MTS) software. Due to hardware "End of Life", legacy MTS hardware will no longer function on the network, and cannot be upgraded to the next version software/operating system. The ARNG will lose this capability across its force (~7,074 platforms). The known replacement item is JBC-P and will begin fielding to ARNG units in FY 2017.
5	Warfighter Information Network Terrestrial (WIN-T) (Increment II)	350	350	varies	$347,581,787	WIN-T INC II provides on-the-move capability by implementing a mobile infrastructure that employs both military and commercial satellite connectivity and line-of-sight (terrestrial) radios. This capability allows commanders to disseminate decisions while on the move with applications that can control maneuver, fires, and intelligence functions all from inside vehicle, rather than from a fixed position. Currently, the ARNG is scheduled to start fielding WIN-T INC II systems in FY 2018.
6	Distribution Systems, Fuel & Water	2,778	2,320	varies	$312,009,275	Tank Rack Module (TRM) & Load Handling System Compatible Water Tank Rack (HIPPO) systems provide increased fuel and water capability while simultaneously decreasing the personnel requirements of legacy systems. Both systems are Critical Dual Use that significantly add to the modularity of distribution operations. The Modular Fuel System - Tank Rack Module experienced considerable production complications in FY 2016, but is expected to reach full rate production in FY 2017. ARNG has received 23 of the 1,474 required systems as of October 25, 2016. HIPPO: The ARNG has received 468 of the 1,295 required systems as of October 25, 2016. Production of this system has been halted due to contract termination for consistently failing in harsh winter conditions. The future of this system's production is uncertain at this time.
7	Semitrailer: Flatbed 25-ton	607	429	$262,852	$112,763,508	The ARNG is short both 34-ton and 25-ton semitrailers. ARNG Equipment On-Hand (EOH) for M172 25-Ton Low Bed is 30%. M872 34-Ton Flat Bed is failing safety tests in large numbers due to corrosion. ARNG owns the majority of the Army's Line Haul Transportation units and has a major shortfall in semitrailers. Existing fleet age is over 20 years in most cases and the majority, if not the entire trailer fleet, will need modernization in coming years. The ARNG requires a new contract to procure new semitrailers and finish fielding the existing 34-ton and 25-ton semitrailer fleet. The Tactical Wheeled Vehicle (TWV) Reduction Study V will reduce prime mover requirements, but the reduction will not reduce trailer transport mobility requirements for maneuver units. There is currently no contract to purchase trailers.

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Table 8

Significant Major Item Shortages

PR	Nomenclature	Total Req'd	# Items Short	Item Cost	Total Shortage Cost	Rationale/Justification
8	Indirect Fires	291	291	varies	$350,203,550	Radar 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 HQDA fielding plan until Full Materiel Release (to be determined) and Q-53 radar fielding is complete (expected FY 2022).
9	All Terrain Crane Type II: (Heavy)	27	27	$4,003,000	$108,081,000	ARNG has a requirement of 90 All Terrain Crane Type II: 50T (Heavy) with zero on hand. 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.
10	Carrier Bridge Launching: Joint Assault XM1074	4	4	$9,352,370	$37,409,480	The Carrier Bridge Launching: Joint Assault Bridge (JAB) is a full-tracked, low profile land combat assault vehicle, which possesses armor protection and a high degree of maneuverability and tactical agility. The JAB transports and rapidly emplaces a heavy assault bridge in a hostile environment while offering the crew protection from enemy fire. The JAB can launch the Scissor Bridge in less than five minutes providing the ability to cross an 18.3 meter gap. The JAB is the principal assault bridging asset in the mobility augmentation companies (MAC). JAB is allocated to support heavy brigade combat teams (HBCT) and armored cavalry regiments (ACR) in all types of combat operations, under any conditions. As part of an offensive combined arms team, the JAB will deploy with lead element to rapidly emplace a mobility asset for the maneuver force. Because of funding setbacks to support initial operational testing, the ARNG will not reach its total requirement 92 JABs until 2029.

III. Army Reserve Overview

Given the past 3 years of reduced funding coupled with the uncertainty of future funding, the Army risks going to war with insufficient readiness to win decisively. Therefore, ***the Army's #1 priority is readiness****.*

- GEN Mark A. Milley, 39th Chief of Staff, Army

A. Current Status of the Army Reserve

1. General Operational Overview

Top Army Reserve Focus Areas

- Set the conditions to forecast and generate readiness, with emphasis on critical capabilities
- Achieve a more predictable and balanced funding profile in the budget process
- Advance transparency process accuracy for equipment procurement and deliveries
- Pursue policy adjustments that afford greater visibility of future equipping requirements and enhance readiness reporting

The Army Reserve is America's federal ground reserve force consisting of over 198,000 Soldiers with a footprint that includes all 50 states, five territories, and more than 30 countries. Representing 20 percent of the total Army structure and nearly half the early-entry and set-the-theater (EE/STT) capabilities critical for Unified Land Operations, the Army Reserve supports requirements to provide ready and lethal forces to Combatant Commanders around the globe. The Army Reserve mitigates operational risk with a significant cost-savings to the Nation, while generating strategic deterrence and preserving the President's expeditionary options.

Globally engaged during persistent conflict for the last 15 years, over 335,000 Army Reserve Soldiers have mobilized and deployed in support of Total Army and Joint Force objectives. The Army Reserve must remain postured to respond to evolving threats, by maintaining combat-ready Soldiers and units-of-action prepared to provide the capabilities the Army requires across vastly different theaters of operation. Therefore, it is imperative to build and sustain the most capable and lethal federal reserve force in the history of the Nation. After several years of fiscal instability and resource reductions, the Army Reserve's ability to provide the combat multipliers and strategic depth the Army needs to support the full range of military operations is at risk.

a. The Army Reserve as an Operational Force

We're going to build an Army Reserve that is more capable, more ready and more lethal than any federal reserve that America has ever seen.

- LTG Charles D. Luckey, 33rd Chief of Army Reserve and 8th Commanding General, U.S. Army Reserve

Generating readiness is the Army Reserve's top priority. However, the enabler centric Army Reserve is not well positioned for prioritization of resources in a constrained fiscal environment. Department of Defense Directive (DODD) 1200.17 *Managing the Reserve Components as an Operational Force*, issued in 2008, established policies to support the management of the Reserve Component as part of the operational force. Although the Army Reserve did realize a period of progress in equipment modernization aimed at transformation from tiered readiness to operational force standards, modernization gains relied heavily on Congressional supplemental

funding. The Army's base budget was never adjusted to sustain long-term equipment modernization efforts for the Army Reserve. The Budget Control Act (BCA) of 2011, and implementation of fiscal constraints associated with sequestration stemmed the Army Reserve funding momentum necessary to remain positioned as a viable portion of the operational force.

The velocity of technology continues to outpace the Army's modernization strategy and the resources required to procure and sustain the most modern equipment across the entire force. As such, the Army has been forced to adopt an investment strategy that prioritizes limited resources to development of combat platforms, while assuming greater risk in enabler systems. Within this investment model, funding for enabler equipment is consistently harvested for reprogramming to higher priority procurement actions. The Army Reserve will continue to experience widening equipment compatibility gaps in the near to mid-term at the expense of readiness, significantly jeopardizing integration with Total Army and Joint Forces.

b. Homeland Defense (HD) and Defense Support of Civil Authorities (DSCA)

Army Reserve civilian-enhanced military skills and technical capabilities are present in more than 1,100 communities across the Nation. Section 12304a of title 10 U.S. Code allows the Army Reserve to provide emergency assistance for HD/DSCA engagements up to 120 days in response to a governor's request. These powers are a perfect fit for the Army Reserve's immediate response authority, permitting the actions required to save lives, prevent human suffering, or mitigate great property damage. The Army Reserve Critical Dual Use (CDU) equipment on-hand posture excluding legacy items is 87 percent, with shortfalls exceeding $1.5B. Table 2-2 highlights the top Army Reserve CDU shortage values by capability.

Table 2-2. Army Reserve Top CDU Shortages

Capability	Equipment Type	Shortage Value
Line Haul Tractor – M915A5	Cargo & Petroleum Transport	$495M
Combat Bridge Transport – M1977A4	Bridging – Wet Gap	$187M
Bridge Erection Boat	Bridging – Wet Gap	$113M
Load Handling System – 2,000 Gal Water	Water Distribution	$76M
Chemical Biological Protective Shelter	Force Protection	$75M

In June 2016, Army Reserve Soldiers of the 811th Ordnance Company acting under immediate response authority to historic flooding in Rainelle, West Virginia, took part in a coordinated emergency response effort with local authorities to provide rescue operations, route clearance, and shelter. Soldiers evacuated over 250 citizens, conducted swift water rescues, provided power generation, and delivered food and water to the community.

2. Status of Equipment

a. Equipment On-hand

The Army Reserve's Equipment On-hand (EOH) excluding legacy substitute items is 82 percent for FY 2017. When including substitutes, EOH improved from 82 to 92 percent. The rise in EOH with substitute items represents the post-BCA trend of reduced new procurement funding and increased reliance on cascaded legacy equipment to fill Army Reserve shortages. This approach

places less capable equipment in Army Reserve formations, widening compatibility gaps and diminishing the ability to meet minimum readiness standards for worldwide deployment. In addition, the strategy of cascading older equipment to fill EOH shortages places an added burden on the Army Reserve to manage elevated sustainment costs over an extended timeframe. In order to mitigate readiness risks, the Army Reserve will focus available resources on efforts to acquire and maintain the most modern platforms, particularly those required for EE/STT enabling capabilities.

b. Average Age of Major Items of Equipment

Equipment approaching or beyond economic useful life (EUL) is a mounting challenge across Army Reserve fleets. Aging equipment causes operational and sustainment costs to increase, while equipment serviceability rates steadily decline. Army initiatives to mitigate the fiscal effects of aging platforms include an aggressive accelerated divestment strategy to cull excess and obsolete items, as well as targeted requirement reductions for systems deemed unaffordable. Examples include:

- The M113 Armored Personnel Carrier fleet consists of old, less reliable, platforms that are cost prohibitive to maintain. The Army has not yet identified a replacement platform for echelons above brigade (EAB) units, but life-cycle extension programs for this systems is funded at one percent of fleet requirements through FY 2020.
- The Army's Light Tactical Vehicle (LTV) phased implementation plan was designed to purge obsolete platforms and right size fleet requirements. Requirement adjustments for High Mobility Multipurpose Wheeled Vehicles (HMMWV) from 12 to 6 variants will allow realignment of excess and divestment of obsolete models, resulting in a 25 percent reduction of the total fleet. This strategy is expected to generate substantial sustainment cost savings over time.

Table 2-3. Army Reserve Top Legacy Equipment

Nomenclature	Line Item Number	Average Age (years)	Economic Useful Life (years)
Armored Vehicle Launched Bridge*	L43664 & C20414	42	25-30
M113A3 Armored Personnel Carrier	C18234	30	25-30
Semitrailer Flatbed 34-Ton*	S70159	27	17-25
Trailer Tank Bulk Petroleum 7.5K*	S73119	24	17-25
Heavy Dump Truck 20-Ton*	X44403	23	20-25
Bridge Erection Boat*	B25476	22	20-25

* Critical Dual Use (CDU) Equipment

c. Maintenance

Depot maintenance funding is essential for extending service life and maintaining readiness across Army Reserve fleets. During the peak resourcing years of 2008 to 2013, The Army Reserve averaged $149M in depot funding annually. From 2014 to 2016 annual depot programming dropped to an average of $63M, representing a 58 percent decline. In FY 2017, watercraft maintenance requirements will absorb 56 percent of the total maintenance budget.

FY 2018 to FY 2020 program funding is projected at 53 percent of requested, leaving a $545M total resource shortfall. The downward trend in maintenance funding is particularly problematic when combined with the decline in new procurement and expectation that Army Reserve must maintain legacy equipment for extended time horizons.

d. Compatibility of Current Equipment with the Active Component

Based on current fiscal realities and the Army base budget investment model, Army Reserve cannot achieve or sustain sufficient compatibility levels with the Total Force. BCA-induced resource reductions have forced Army leadership to make difficult programmatic decisions that adversely affect modernization efforts, particularly for enabler systems resident in Army Reserve formations. In the last five years Army has ended, delayed, or restructured contracts for some 270 programs, with a large portion directly linked to key Army Reserve capabilities. For example, the M915A5 armor-capable line haul tractor contract expired in 2014 with the Army Reserve achieving only 41 percent fleet modernization. The Army Reserve is the least modern component even though it owns 50 percent of the total Army line haul capability. Based on the timeframe to restart a line haul tractor program, 59 percent of the Army Reserve fleet will remain unable to meet the minimum force protection requirements for global deployment to a non-permissive threat environment beyond 2035.

e. Equipment Modernization

The Army views equipment modernization as the procurement or modification of a platform to improve performance and fill capability gaps. Based on forecasted Army equipment on-hand calculations excluding substitute items, the Army Reserve overall equipment modernization level is expected to rise from 74 to 82 percent in 2018. The eight percent increase follows a post-BCA pattern of modernization escalation despite a steep decline in new procurement funding and equipment deliveries during the same period. The modernization level for the Army Reserve has increased by 14 percent since 2013, revealing potential flaws in Army business rules that diminish the value of the modernization statistic. Challenges include:

- The introduction or removal of a singular high density item to the inventory or reclassifying the modernization level of a high density piece of legacy equipment. For example, recent Army decisions to reclassify legacy M16 rifles and M40 protective masks as modern raised the Army Reserve aggregate modernization level 10 percent by adding over 270,000 items to the calculation. This type of increase overshadows modernization challenges associated with low-density, mission-critical equipment such as aircraft.
- Providing adequate business rule metrics to account for equipping disparities such as age, force protection standards, lethality, and compatibility gaps. For example, hardware for existing legacy Army Reserve mounted Mission Command systems is considered modern, even though approximately 32 percent of current on-hand items are not authorized to operate on the Army network due to hardware and software incompatibility.

Modernization standards must include metrics to differentiate equipment capable of global deployment to non-permissive threat environments. Short of making this distinction, Army Reserve modernization levels will appear high, placing greater value on quantity over quality and improperly informing readiness reporting. It is imperative to provide an accurate equipment

posture, so Army senior leaders can assess impacts on training, readiness, and the ability to achieve integration with the Total Force.

3. Transparency

> *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.*
>
> **- Senate Committee on Appropriations, Department of Defense Appropriations Bill, 2017**

Since 2008, DODI 1225.06, *Equipping the Reserve Forces*, mandates Army compliance to provide traceability of RC equipment procurements through submission of a semiannual Equipment Transparency Report. Eight years after implementation, the process has not progressed from a manual to an automated system, creating significant challenges with data accuracy for linking deliveries to appropriations by fiscal year. A 2015 study commissioned by the Office of the Assistant Secretary of Defense (Readiness), Readiness Programming and Resources (OASD[R], RP&R) determined centralized procurement management does not allow funding identification during budget execution or authoritative traceability of delivery to Army Reserve units. Among the OASD(R),RP&R report potential solutions, the Army Reserve concurs with establishing a budget line item number exclusive to the Army Reserve and business rules that emphasize governance throughout the budgeting process to increase visibility and accountability. Absent renewed process improvement efforts, the Equipment Transparency Report will remain an arduous task Army Reserve is unable to validate.

4. Army Reserve Equipping Strategy

The desired end state of the Army Reserve's equipping strategy is to equip and modernize an enduring operational Army Reserve compatible with Total Army and Joint Forces. The end state is aligned with DoD's Total Force policy directive to manage the Reserve Components as a completely integrated portion of the operational force. Insufficient funding jeopardizes the ability to achieve modernization goals and marginalizes the Total Force concept. In the current fiscal environment, a more predictable and balanced funding strategy with a multi-phased prolonged approach is needed to achieve the desired end state.

In the near-term, the Army Reserve will carefully consider acceptance of redistributed equipment, accelerate divestment, and refocus investments to maximize cost-avoidance. In some cases, declining lower quality cascaded equipment prevents absorbing unfunded maintenance costs and subsequently creates flexibility for limited investments in unfunded enabler programs. Where feasible, the Army Reserve investment strategy will take advantage of non-developmental-items (NDI) and commercial-off-the-shelf (COTS) solutions to improve modernization of critical early entry and theater opening capabilities.

In the near to mid-term, the Army Reserve supports maximizing cost-avoidance measures through recapitalization and depot life-cycle extension programs. The Army Reserve seeks to capitalize on existing public-private partnerships (PPP) between Army depots and defense industrial base partners to gain efficiencies and maximize cost-avoidance in achieving modernization goals. When sufficient means are available, Army Reserve will induct equipment

into depot maintenance rebuild and life-cycle extension programs to offset the absence of new procurements.

The final phase includes a long-term and enduring approach for documenting requirements, revising policy, and obtaining a balanced investment strategy. Timely documentation of requirements enables the Army Reserve to accurately depict shortage values and forecast sustainment costs. Introducing needed policy revisions and establishing a dedicated and sustained funding rate will slow and reverse the effects of sequestration and ensure compliance with DoD Total Force policy to manage the Army Reserve as an operational force that is integrated with Joint Forces.

5. Equipping Successes

In FY 2016, the Army Reserve continued conversion of two Attack Reconnaissance Battalions to Assault Helicopter Battalion design under the Army's Aviation Restructure Initiative. Once completed in FY 2019, the Army Reserve will have a completely modern rotary-wing fleet postured to meet the full spectrum of military operations. The Army Reserve also made tremendous progress in modernizing the aging legacy ground ambulance fleet as a direct result of Congressional funding support, which will provide enough resources to upgrade the entire fleet by FY 2020.

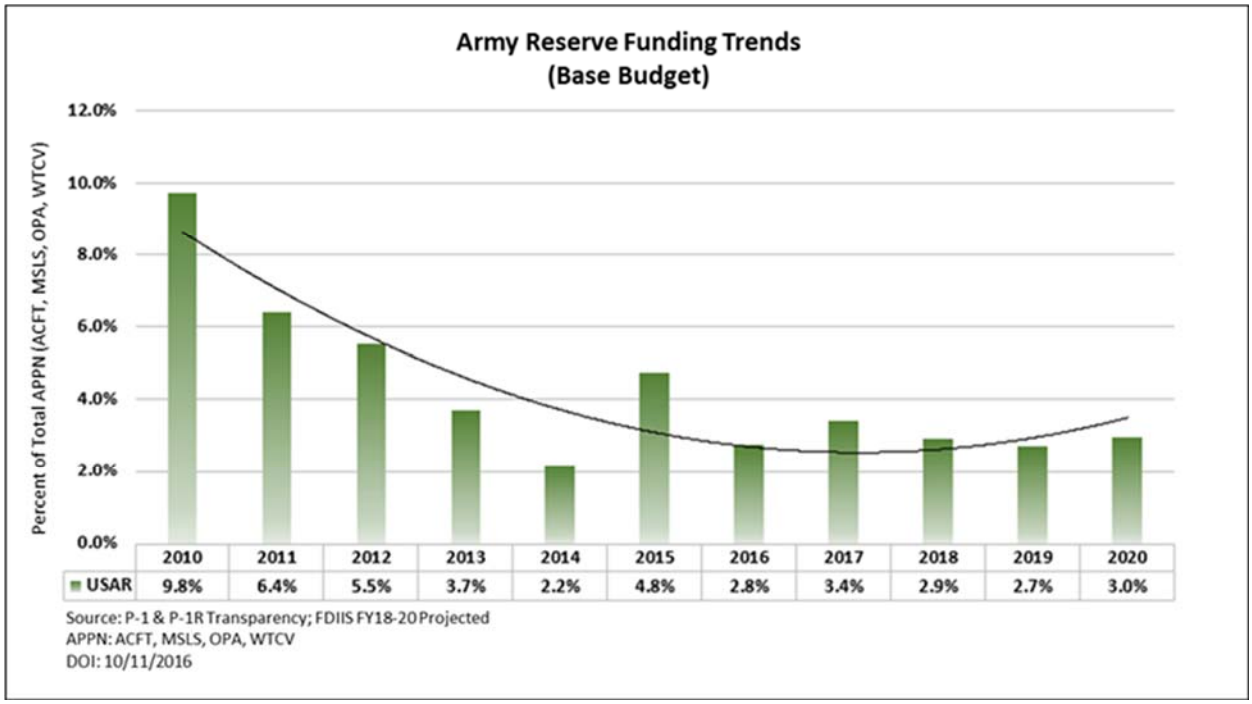
B. Future Years Defense Program (FY 2018–FY 2020)

1. New Equipment Procurements

a. Base Budget

The BCA-induced resource reductions have impacted the Army Reserve’s ability to close critical capability gaps and build future readiness essential to respond to emerging global security threats. Figure 2-2 depicts the Army Reserve portion of the base budget profile for FY 2010–FY 2020. Total funding from FY 2013–FY 2020 of $3.8B represents an average annual funding level of 3.2 percent of the total base, a substantial reduction from peak funding in FY 2010. The fiscal environment caused a loss of momentum in transitioning the Army Reserve to an operational force, with Army accepting risk and curtailing equipment modernization efforts for enabler systems. The Army Reserve requires a predictable and balanced funding profile to achieve the full spectrum readiness needed to support Total Force requirements.

Figure 2-2. Army Reserve Procurement Funding



b. National Guard and Reserve Equipment Appropriation (NGREA)

NGREA funding has been an invaluable resource, enabling the Chief of Army Reserve to procure priority readiness items not funded in the base budget. As Figure 2-3 below indicates, Congressional support for above the base funding has been an invaluable resource in the post-BCA fiscal era. The graph provides a total view of base and NGREA funding from FY 2010–FY 2016, clearly showing how NGREA funding has mitigated the negative effects of BCA-induced base budget reductions for the Army Reserve.

Figure 2-3. Army Reserve Base – NGREA Funding

2. Anticipated Transfers from Active Component to Reserve Component

Table 5 Projected Equipment Transfer/Withdrawal Quantities reflects equipment transfers from AC to the Army Reserve from FY 2018–FY 2020.

3. Anticipated Withdrawals from Army Reserve Inventory

The Army Reserve has temporarily stationed Engineer bridging equipment in Europe to support Army wet gap crossing capability requirements. Additionally, the Army Reserve has provided Engineer construction equipment to First Army to meet pre-mobilization training requirements for Reserve Component units at Fort Bliss, Texas. Equipment payback plans in accordance with DODI 1225.06 requirements are pending approval with anticipated equipment return or replacement not later than FY 2018.

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 includes both documented and validated Basis of Issue Plans (BOIP) requirements. Based on Army projections, the total Army Reserve equipment shortage value is $8.6B. However, when including undocumented BOIP requirements, the projected shortage value exceeds $10.3B.

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 completely 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 2015 and FY 2018. FY 2019–FY 2020 funding is focused on ground support equipment and C-12 fixed-wing aircraft upgrades (see Table 2-4.)

Table 2-4. Aviation Procurement Funding

Funding Source	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020
Base Budget (P-1R)	$308M	$13M	$13M	$224M*	$27M*	$19M*

* Projected

Aviation Restructuring Initiative: The Army Reserve continues the conversion of two rotary-wing Attack Reconnaissance Battalions (ARB) to Assault Helicopter Battalions (AHB). The UH-60L Blackhawk airframe will replace the AH-64D Apache, and the fleet will increase from 48 to 60 under the new assault helicopter unit design. The Army Reserve is on schedule to complete the ARI directed conversion by FY 2018.

The Army Reserve's top critical documented shortages within the Aviation Portfolio are listed in Table 2-5 below.

Table 2-5. Aviation Top Equipment Shortages

Capability	Required	On-Hand	Shortage	FY 2020 On-Hand Projected	Unfunded Requirement
HH-60M Black Hawk MEDEVAC*	60	30	30	30	$510M
C-12 Airplane*	32	15	17	15	$52M

* 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. The Army strategy to address remaining unfunded rotary-wing platform modernization will consist of new procurement and cascading actions beyond FY 2020.
- The Fixed Wing Utility Aircraft (FUA) is projected to replace legacy C-12 airframes, which average 25 years of age. Resource decisions will delay FUA production beyond FY 2020.

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 $1.3B.

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 2025.
- Legacy tactical radio systems require cryptological upgrades to remain network worthy. Projected fielding for modern systems is limited, forcing the Army to consider requirement reductions 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 (TWV).

Investments in New Procurement and Modernization: In FY 2015 and FY 2016, base budget funding ($181M) accounted for 54 percent of total TWV portfolio investments ($335M), while NGREA funding ($154M) 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. Increases in FY 2019 and FY 2020 primarily reflect projected investments in recapitalization programs, particularly the aging HMMWV fleet.

Table 2-6. Tactical Wheeled Vehicles Procurement Funding

Funding Source	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020
Base Budget (P-1R)	$64M	$117M	$15M	$13M*	$74M*	$90M*
NGREA Investment	$92M	$62M				

* Projected

The current fiscal environment creates funding gaps for fleet modernization in the near to mid-term and only provides a funding solution to upgrade 50 percent of legacy fleets to meet armor-capable requirements. 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 2-7 below.

Table 2-7. Tactical Wheeled Vehicles Top Equipment Shortages

Capability	Required	On-Hand	Shortage	FY 2020 On-Hand Projected	Unfunded Requirement
Joint Light Tactical Vehicle (JLTV)	10,400	0	10,400	0	$3.1B
Line Haul Tractor - M915A5*	2,400	985	1,415	985	$495M
Palletized Loading System - M1075A1*	1,963	1,084	879	1,278	$316M
HEMTT LHS – M1120A4*	1,313	978	335	1,026	$120M
Heavy Dump Truck - 20 Ton*	323	225	98	225	$34M

* Critical Dual Use Equipment

Transportation Focal Points:

- The production of the armor-capable M915A5 Line-Haul Tractor ceased prior to fulfilling Army Reserve fleet shortages and modernization requirements. There is no timeline to restart production of this critical theater opening capability, leaving only 40 percent of the total Army Reserve line haul fleet capable of global deployment to a non-permissive threat environment well beyond FY 2020.
- The recent discovery of an M872 medium cargo trailer corrosion problem affects the suitability of over 68 percent (1,142 of 1,680) of the Army Reserve 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 26 percent of the total Army Reserve legacy fleet to an armor-capable variant by FY 2020.
- The Light Tactical Vehicle (LTV) 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.

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 $813M in documented requirements and over $1.3B when including undocumented modernized requirements.

Investments in New Procurement and Modernization: In FY 2015 and FY 2016, the Army's base budget procurement funding ($134M) accounts for 83 percent of the total Mobility portfolio investments ($161M) with NGREA funding ($27M) filling critical funding gaps. Increased funding in FY 2019–FY 2020 ($306M) reflects investments in Army Reserve combat mobility systems, particularly dry and wet gap bridging equipment (see Table 2-8 below.)

Table 2-8. Mobility Procurement Funding

Procurement Source	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020
Base Budget (P-1R)	$39M	$95M	$61M	$80M*	$149M*	$157M*
NGREA Investment	$16M	$11M				

* 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 2-9 below.

Table 2-9. Mobility Top Equipment Shortages and Modernization Challenges

Capability	Required	On-Hand	Shortage	FY 2020 On-Hand Projected	Unfunded Requirement
Joint Assault Bridge (JAB)*	96	0	96	19	$507M
Common Bridge Transport - M1977A4*	504	0	504	112	$187M
Bridge Erection Boat (BEB)*	126	0	126	28	$113M

Medium Mine Protected Vehicle (RG31)	264	0	184	80	$101M
Heavy Crane (50 Ton)	77	0	91	8	$104M

* 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 3 of 16 Mobility Augmentation companies by FY 2020.
- New start programs to upgrade both the Common Bridge Transport to an armor-capable model and replace legacy Bridge Erection Boats begin in FY 2017–2018. Based on Army investment priorities, Army Reserve is projected to modernize 1 of 9 Multi-Role Bridge companies by FY 2020.
- Fielding of the RG31, resident in Engineer Route Clearance units, is under way. Army Reserve anticipates fielding approximately 30 percent (80 of 264) by FY 2020.
- 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 2015–FY 2016 Army base budget procurement funding ($76M) accounted for 58 percent of total Field Logistics portfolio investments ($130M), with NGREA funding ($54M) accounting for the remaining 42 percent. FY 2017–FY 2020 base funding is primarily aimed at modernizing fuel/water storage and distribution systems, maintenance tool/diagnostic sets and material handling equipment (see Table 2-10 below.)

Table 2-10. Field Logistics Procurement Funding

Procurement Source	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020
Base Budget (P-1R)*	$39M	$37M	$36M	$38M*	$38M*	$51M*
NGREA Investment	$28M	$26M*				

* Projected

The Field Logistics portfolio has been 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 EAB 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 2-11 below.

Table 2-11. Field Logistics Critical Equipment Shortages

Capability	Required	On-Hand	Shortage	FY 2020 On-Hand Projected	Unfunded Requirement
Mobile Tactical Retail Refueling System (MTRRS)	813	0	813	100	$121M
Fuel Trailer 7.5k – M1062P1*	480	81	399	81	$40M
Water Trailer – 2000 Gal*	766	51	715	200	$76M
Rough Terrain Forklift - 5K*	1,067	303	764	503	$42M
Yard Tractor – M878A2	284	200	84	200	$8M

* Critical Dual Use Equipment

Field Logistics Focal Points:

- Investments in MTRRS, the 2,000 gallon water trailer and Rough Terrain Forklift are delayed due to contract challenges and limited resources. The fielding time horizon for all three systems will extend well beyond FY 2020.
- The Army does not have an investment strategy 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.
- The program for the M878A2 Yard Tractor expired before Army Reserve shortages were filled, forcing the extended use of obsolete M915 tractors identified for divestment as an in-lieu-of alternative.
- Both the Fuel Trailer 7.5K and Yard Tractor are ideal candidates for an NDI or COTS procurement solution.

f. Force Protection and Soldier Portfolios

The Force Protection portfolio consists of Chemical, Biological, Radiological, Nuclear, and High-yield Explosives (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 2015–FY 2016 Army base budget procurement funding ($54M) accounts for 63 percent of the total Force Protection and Soldier portfolio investments ($86M), with NGREA funding ($32M) accounting for the remaining 37 percent. The FY 2017–FY 2020 base budget funding primarily reflects investments in modernization of individual Soldier weapons and NBC protection equipment (see Table 2-12 below.)

Table 2-12. Force Protection and Soldier Procurement Funding

Funding Source	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020
Force Protection & Soldier Base Budget (P-1R)	$28M	$26M	$43M*	$37M*	$37M*	$54M*
FP NGREA Investment	$26M	$6M				

* Projected

Limited funding for force protection modernization programs increases the risk in biodetection and protection capabilities required to provide responsive support for HD and DSCA missions and limits abilities to bolster force protection posture. The Army Reserve's top critical shortages within the Force Protection and Soldier portfolios are listed in Table 2-13 below.

Table 2-13. Force Protection and Soldier Top Equipment Shortages

Capability	Required	On-Hand	Shortage	FY 2020 On-Hand Projected	Unfunded Requirement
Rifle 5.56mm: M4A1	144,573	9,764	134,809	17,071	$82M
Chemical/Biological Protective Shelter (CBPS)*	108	0	108	40	$75M
Common Remotely Operated Weapon Station (CROWS)**	521	0	521	TBD	N/A

* Critical Dual Use Items, ** Procured with OCO funding

Force Protection and Soldier Focal Points:

- 80 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 2020.
- 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. Army Reserve is pending delivery of 24 systems procured with FY 2015 NGREA funds. Army projects resourcing 16 systems with base funds by FY 2020, with the balance dependent on joint funding beyond FY 2021.
- The Army procurement of CROWS systems is complete. However, unfunded and un-fielded systems are delaying the delivery and installation on Army Reserve platforms.

C. Summary

Over the last 15 years, the Army Reserve realized improvements in equipment modernization and equipment on-hand, while making strides to become more aligned as part of the operational force. However, the fiscal constraints imposed on the Army following enactment of the BCA diminished equipment modernization momentum and added challenges to maintaining Army Reserve readiness in the near to mid-term. FY 2018–FY 2020 base budget projections indicate a continued focus on prioritizing limited resources for re-setting and modernizing combat formations, while assuming risk in EAB enabler capabilities. The Army Reserve will struggle to close the $8.6B modern equipment shortfall gap, which creates a compatibility risk in formations equipped with less than modern platforms. Near-term mitigation strategies will rely heavily on redistribution of legacy equipment to fill shortages and requirement reductions to offset resource

shortfalls. This investment strategy will simultaneously challenge the ability to maintain legacy systems in the out years at a time when depot maintenance funds continue to decline.

In order to win in a complex world, the Army Reserve must be postured for the threats and challenges of a rapidly evolving global security environment, to include those that span the spectrum of operations across all domains. To that end, the Army Reserve will re-tool and re-train its forces for full spectrum readiness, to include properly led, fully manned, effectively trained, and appropriately equipped first-deployer units of action across a wide array of capabilities. These formations, to include early-entry/set-the-theater units, will be maintained in place until further notice, to enhance stability, mitigate the cascading impacts of cross-leveling, and rationalize training and equipping strategies.

USAR

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 2017 unit cost estimates are provided by the Military Departments.

Nomenclature	Equip No.	Unit Cost	Begin FY 2018 QTY O/H	Begin FY 2019 QTY O/H	Begin FY 2020 QTY O/H	End FY 2020 QTY O/H	End FY 2020 QTY REQ
Air Defense							
Center: Communications Operations	C18033	$3,748,800	5	5	5	5	5
Computer: Tactical AN/GYQ-88	C77755	$68,500	15	15	15	15	15
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 Cargo Transport: CH-47D	H30517	$29,682,872	18	18	18	18	0
Helicopter Utility: UH-60A	K32293	$16,967,644	6	38	38	38	8
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
Helicopter: Attack AH-64D	H48918	$18,389,000	0	24	24	24	24
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
OSRVT Transceiver	P05003	$80,000	54	54	54	54	0
Small Unmanned Aircraft System: Raven B	S83835	$21,889	45	45	45	45	86
Terminal Video Multifunctional Remote UAS: AN/USQ-210	T81951	$80,000	145	145	145	145	143
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
Mobile Tower System (MOTS)	M05009	$7,770,313	2	2	2	2	0
Peculiar Ground Support Equipment: Deployment Support Kit	P05012	$66,950	10	10	10	10	0
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
Shelter: Tactical Expandable Oneside	S01291	$224,333	94	99	107	110	110
Shop Equipment Contact Maintenance (SECM): Aviation	S30224	$66,864	2	2	2	2	0
Tool Kits (Aircraft Maintenance)	MC8004	$200,766	179	179	179	179	0
Tool Set Aircraft Maintenance	T59439	$3,600,000	2	2	2	2	3
Tool Set Aviation Unit Maintenance: Set No 2 Airmobile	W60206	$575,000	8	9	10	10	7

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Table 1

Consolidated Major Item Inventory and Requirements

Nomenclature	Equip No.	Unit Cost	Begin FY 2018 QTY O/H	Begin FY 2019 QTY O/H	Begin FY 2020 QTY O/H	End FY 2020 QTY O/H	End FY 2020 QTY REQ
UH-60 External Stores Subsystem (ESSS)	E21985	$676,111	8	8	8	8	60
Battle Command C2							
Command System Tactical	C40996	$1,011,652	14	14	14	14	14
Communication Set, Satellite (SDN-LITE)	B05003	$35,000	141	141	141	141	25
Mission Equipment Package: Airborne Command and Control	C28796	$4,900,000	2	2	2	2	0
Rigid Wall Shelter: Command Post	R98145	$1,011,652	0	0	0	0	10
Shelter: Nonexpandable S250	S01427	$1,011,652	16	16	16	16	10
Shelter: Nonexpandable LTWR MP Rigid-Wall S788 mtd HMMWV	S01563	$1,011,652	19	19	19	19	19
Tactical Local Area Network (TACLAN)	T05021	$888,955	0	0	0	0	1
Battlespace Awareness							
Central: Communications AN/TSQ-226(V)3	C43399	$139,750	0	0	0	0	5
Central: Communications AN/TSQ-226(V)2	C43331	$2,056,822	4	4	4	4	4
Data Analysis Central: AN/MSW-24	D77801	$1,369,000	2	2	2	2	0
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	FB8556	$395,007	43	43	43	43	0
Antenna AS 4429 Lightweight High Gain X Band System (LHGXA)	FB852Y	$416,666	7	7	7	7	0
Antenna: BB-1404/TRC	A81826	$1,066,695	22	22	22	22	30
Battalion Command Post Switching Group: OM-XXX	B67234	$250,000	143	143	143	143	141
Central Office: Telephone Automatic	C20617	$4,081,375	10	10	10	10	10
Computer Group: Tactical OL-783(V)3/T	C05044	$573,557	2	2	2	2	2
Computer Group: Tactical OL-783(V)4/T	C05043	$388,148	2	2	2	2	3
Computer System: Digital AN/PSQ-17	C18380	$394,827	0	0	0	0	21
Cryptographic Speech Equip: MTU Tsec/KY 100 AIRTERM	C52700	$12,861	474	488	488	488	185
Joint Node Network (JNN) Central Office Telephone Auto	J05001	$2,472,271	30	30	30	30	29
Radio Set AN/PRC-150C HF Radio Manpack	FA2053	$97,565	15	15	15	15	0
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
Radio Test Set: AN/GRM-122	R36178	$108,000	106	106	106	106	101
Radio, High Frequency, Manpack	FA200W	$19,207	6	6	6	6	0
Receive Suite: AN/TSR-8	R30658	$175,090	5	5	5	5	62
RIS-LITE Communications System	J00719	$400,000	17	17	17	17	0
Receiver/Transmitter Radio	FA2012	$53,086	116	116	116	116	0
Satellite Communication Subsystem, AN/TSC 167A(V)2	FA956M	$279,237	2	2	2	2	0
Satellite Communication Subsystem	S05011	$397,000	25	25	25	25	0
Satellite Communication System: AN/TSC-156	S23268	$4,000,000	24	24	24	24	30
Satellite Communication Subsystem	S05012	$372,000	145	145	145	145	0
Satellite Communications Terminal: AN/TSC-93A	S34963	$825,000	13	13	13	13	0

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Tactical Network Operations & Management System (TNMS)	Z643FD	$737,000	9	9	9	9	0
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 Erection Set Fixed Bridge: UK Medium Girder Bridge	C22126	$1,869,741	1	1	1	1	0
Bridge Fixed: Highway Alum UK Medium Girder Bridge 100-ft LG CL60	C22811	$1,869,741	1	1	1	1	0
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	YF2074	$497,302	1	1	1	1	0
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
Pallet: Bridge Adapter (BAP) M15	P78313	$133,441	378	378	378	378	378
Ramp Bay Bridge Floating	R10527	$525,068	108	108	108	108	108
Reinforcement Set: Medium-Girder Bridge	C27309	$1,869,741	1	1	1	1	0
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
Trailer Set Mine DE:	T05003	$460,000	1	1	1	1	0
Transporter Common Bridge	T91308	$302,274	474	474	474	474	504
Urban Operations: Platoon Kit	U88092	$175,445	98	103	103	103	198
Vehicle Mounted Mine Detection (VMMD) System	V05001	$2,828,522	144	144	144	144	144

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Field Logistics							
3K Tactical Water Purification System:	Z05003	$750,000	14	14	14	14	0
Armament Repair Shop Set (ARSS)	A05031	$345,000	27	29	30	34	0
Assault Kitchen	A94943	$57,963	99	99	99	99	148
Crane Wheel Mounted: Hyd Rough Terrain (RTCC)	C39398	$450,194	5	5	5	5	0
Force Provider Module: Houses 550 Soldiers Transportable	F28973	$11,614,850	4	4	4	4	6
Forward Area Refueling Equipment: (FARE)	H94824	$454,000	23	23	23	23	0
Forward Area Refueling System: Advanced Aviation	F42611	$454,000	29	29	29	29	10
Forward Area Water Point Supply System: (FAW SS)	F42612	$151,958	87	87	87	87	0
Forward: Repair System (FRS)	F64544	$285,591	239	239	239	239	239
Frequency Selective Levels Meter: AN/USM-490	F60502	$8,524	13	13	13	13	14
Fuel System Supply Point: 800K	F05034	$1,320,650	15	15	15	15	12
Fuel System Supply Point: FSSP Type 3 120K	F04898	$1,320,650	92	92	92	92	76
Fuel System Supply Point: Type 4 300K	F04966	$1,320,650	71	71	76	76	150
Fuel System Supply Point: Portable 60K gal	J04717	$1,320,650	68	68	68	68	0
Hammer, Pile Driver, Self Powered	EA9584	$138,523	2	2	2	2	0
Hoseline Outfit Fuel Handling: 4-in Diameter Hose	K54707	$473,736	40	40	44	44	76
Kitchen Field Trailer-mtd: mtd on M103A3 Trailer	L28351	$351,688	583	583	583	583	574
Kitchen: Company Level Field Feeding	K28601	$57,963	10	10	10	10	4
Laboratory Petroleum Semitrailer-mtd	L33800	$650,000	1	1	1	1	0
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
Radar Test Set Identification Friend or Foe: AN/UPM-155	R19417	$124,000	1	1	1	1	1
Refueling System: Aviation HEMMT Tanker	R66273	$39,786	24	27	27	27	27
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
Tank and Pump Unit Liquid Dispensing Truck mounting	V12141	$96,549	718	718	718	718	731
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
Truck Lift Fork: DED 6K lb Variable Reach RT Ammo Hdlg	T48944	$72,370	7	7	7	7	0
Truck Lift Fork: DED 10K lb Cap 48-in Ld Ctr Rough Terrain	T49119	$158,836	85	85	85	85	4
Truck Lift Fork: DED 4000K lb	T49255	$98,681	503	503	503	503	434
Truck Lift Fork: Elec 6000 lb 180 in LH	X50900	$20,272	1	1	1	1	0
Truck Lift Fork: Gas PT 6000 lb	X51791	$14,411	2	2	2	2	2
Truck Lift: Fork Variable Reach Rough Terrain	T73347	$158,836	1,027	1,027	1,027	1,027	904
Truck Tractor Yard: 46000 GVW 4X3	T60353	$96,051	87	87	87	87	138
Water Purification: Reverse Osmosis 3000-gph Trailer-mtd	W47225	$455,871	46	48	60	60	66
Water Storage/Distribution Set: 40000 gpd (Brigade)	W55968	$121,746	0	0	0	0	33

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Water Storage/Distribution Set: 800K Gallon	W37311	$200,508	2	2	2	2	0
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 Augumentation 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: Combat Vehicle M42	M18526	$400	3,883	3,883	3,883	3,883	0
Mask Chemical Biological: M40	M12418	$400	134,613	134,613	134,613	134,613	793
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 Chemical-Biological: MPU-6(V)/P	M19855	$3,500	119	119	119	119	68
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 Truck Mounted: Aircraft Maintenance & Positioning	F43003	$165,922	7	11	11	11	0
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
Distributor Water Tank Type: 6K gal Semitrailer-mtd (CCE)	D28318	$668,953	11	11	11	11	0
Distributor Water: Self Propelled 2500-gal Sectionalized	D28804	$504,230	11	11	11	11	6
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
Excavator: Hydraulic (HYEX) Type III Multipurpose Crawler	E27860	$354,259	2	2	2	2	0
Grader Road Motorized: Diesel Driven Heavy (CCE)	G74783	$277,000	6	6	6	6	6
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: Diesel Driven 12-ft	N75124	$2,773,125	1	1	1	1	0
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

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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 FT LS: DSL Med Buldoz W/Scarif Ripper	W83529	$316,096	50	50	50	50	0
Tractor FT LS: DSL Med DBP w/Buldoz & Scarif Winch	W76816	$316,096	121	121	121	121	69
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
Drivers Enhancers: AN/VAS-5	D41659	$64,965	630	630	630	630	629
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
Fluid Warming System (FWS)	F81245	$28,984	78	78	78	78	384
Medical Equipment Set Blood Bank Processing Det: Lab	M23423	$341,478	4	4	4	4	4
Medical Equipment Set X-Ray Field Lightweight:	M45613	$150,000	11	11	11	11	5
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
Optical Equipment Set Multivision Augmentation:	P47705	$63,913	10	10	10	11	12
Optical Fabrication Unit: Portable Field	N22073	$74,128	51	51	51	51	36
Optometry Equipment Set Field Combat:	N23712	$74,267	12	12	12	12	8
Patient Oxygen Distribution System	P05033	$38,594	33	43	45	54	0
Patient Oxygen Distribution System	Z05376	$38,594	0	0	0	0	80
Tent: Extendable Modular 64Lx20W Medical Forest Green Type II	T47745	$432,000	80	80	80	80	322
Veterinary Equipment Set Det: 50 Patient Small Animal	M30136	$170,638	16	16	16	18	12
Waste Water Management Set Hospital: MRI 84 Bed	W49853	$212,000	16	19	22	24	22
Soldier Systems							
Armament Subsystem: Remotely Operated	A90594	$236,751	734	743	752	752	752
Family of Weapon Sights-Crew (FWS - C)	Z752FD	$15,800	18	18	18	35	0
Family of Weapon Sights-Individual (FWS - I)	Z751FD	$203,500	162	162	162	311	0
Heavy Weapon Thermal Sight (HWTS): AN/PAS-13(V)3	S90603	$11,896	7,576	7,576	7,576	7,576	7,119

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Nomenclature	Equip No.	Unit Cost	Begin FY 2018 QTY O/H	Begin FY 2019 QTY O/H	Begin FY 2020 QTY O/H	End FY 2020 QTY O/H	End FY 2020 QTY REQ
Helmet Unit: Integrated (IHADSS)	H35257	$15,270	81	81	81	81	75
Illuminator Integrated: Small Arms Storm MLRF	J68653	$25,547	75	75	75	75	0
Laser: Target Locator Module	L05003	$61,930	78	78	78	78	61
Mini Eyesafe Laser IR Observation Set (MELIOS): AN/PVS-7	M74849	$43,128	520	903	921	921	873
Mounting Kit: F/M548A1	M18293	$50,000	57	57	57	57	64
Night Vision Device: AN/PSQ-20	N07848	$87,670	162	162	162	324	0
Target Locator Module	T27471	$43,128	806	806	806	806	776
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 40mm: Single Shot Rifle	L44595	$4,876	3,858	3,858	3,858	3,858	256
Launcher Grenade: M203A2	L69012	$4,876	1,378	1,378	1,378	1,378	16
Launcher Grenade: M320	L03621	$3,139	41	88	144	188	188
Launcher Grenade: M320A1	L69080	$4,876	4,202	6,999	6,999	6,999	6,882
Launcher Grenade: M203A1	L46007	$4,876	40	40	40	40	0
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, 40mm Grenade, MK19 Mod4 Upgunned	M05019	$11,304	18	18	18	18	0
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
Modular Handgun System	Z647FD	$600	12,729	13,129	15,198	18,287	0
Mounted Machine Gun Optic	Z867FD	$0	975	975	975	1,613	0
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
Rifle 5 56mm: M4	R97234	$2,076	22,175	22,175	22,175	22,175	11,375
Rifle 5.56mm: M16A2	R95035	$1,773	97,826	97,826	97,826	97,826	436
Rifle: 5.56mm M16A4	R97175	$1,773	2,942	2,942	2,942	2,942	0
Shotgun 12 Gauge Riot Type: 20-inch Barrel	T39223	$2,985	518	518	518	518	112
Shotgun: 12 Gauge	S40541	$2,985	1,321	1,321	1,321	1,321	1,108
Strike							
Howitzer Light Towed: 105mm	K57392	$1,400,000	0	0	0	0	3
Range Finder-Target Designator: Laser AN/PED-1	R60282	$294,366	6	6	6	6	2
Security Surveillance System	S05022	$750,000	6	6	6	6	0
Armor Set Suppl Small Arms W/58 Gal FTFS: Frag FMTV	A37814	$54,425	10	10	10	10	0
Cargo Set General Hatch	D08483	$26,955	19	19	19	19	28
Combat Assault Craft	Z05183	$26,000	44	52	66	88	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

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Table 1

Consolidated Major Item Inventory and Requirements

Nomenclature	Equip No.	Unit Cost	Begin FY 2018 QTY O/H	Begin FY 2019 QTY O/H	Begin FY 2020 QTY O/H	End FY 2020 QTY O/H	End FY 2020 QTY REQ
Fifth Wheel: Assembly	F60598	$80,000	33	33	33	33	39
Joint Precision Airdrop System: (JPADS) 10K	J05004	$121,190	18	18	18	18	0
Locomotive Diesel: 56-1/2 in Ga 80-ton D-Fs	L80724	$1,611,769	2	2	2	2	0
Training Set Instructional: (DDTC)	Z01513	$268,000	1	1	1	1	0
Trailers							
40 Ton Semitrailer	Z05037	$262,852	88	95	95	154	441
Chassis Trailer: Generator 2-1/2 ton 2-wheel W/E	E02807	$7,558	83	83	83	83	82
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 Flat Bed: Breakbulk/Cont Transporter 22-1/2 ton	S70027	$42,678	785	785	785	785	598
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
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: 2-Litter Armored HMMWV W/E	T38707	$397,000	9	9	9	9	0
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: 4X4 LMTV W/E	T60081	$157,982	1,941	1,941	1,941	1,941	1,689
Truck Cargo: 4X4 LMTV W/E W/W	T60149	$157,982	342	342	342	342	66
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 6X6 XLWB W/E	X41105	$255,952	1	1	1	1	0

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Table 1

Consolidated Major Item Inventory and Requirements

Nomenclature	Equip No.	Unit Cost	Begin FY 2018 QTY O/H	Begin FY 2019 QTY O/H	Begin FY 2020 QTY O/H	End FY 2020 QTY O/H	End FY 2020 QTY REQ
Truck Cargo: 5-ton W/Winch	T41447	$255,952	25	25	25	25	0
Truck Cargo: 5-ton WO/Winch	T41515	$255,952	2,643	2,643	2,648	2,662	2,777
Truck Cargo: Drop Side 5-ton 6X6 W/Winch W/E	X40931	$255,952	3	3	3	3	0
Truck Cargo: Heavy PLS Transporter 15-16.5 ton 10X10	T40999	$1,075,209	1,119	1,119	1,119	1,119	131
Truck Cargo: Heavy PLS Transporter 15-16.5 ton 10X10 W/MHE	T41067	$1,075,209	78	78	78	78	0
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: MTV LWB W/E	T61704	$255,952	11	17	17	17	88
Truck Cargo: MTV LWB W/E W/W	T61772	$255,952	4	4	4	4	0
Truck Cargo: MTV W/E	T61908	$255,952	935	935	935	935	501
Truck Cargo: MTV W/E W/W	T41135	$255,952	200	200	200	200	118
Truck Cargo: MTV W/MHE W/E	T41203	$255,889	19	19	19	19	0
Truck Cargo: Tactical 8X8 HEMTT w/LHS	T96496	$367,575	127	487	487	487	487
Truck Cargo: Tactical 8X8 HEMTT W/Lt Crane	T59278	$350,102	38	38	38	38	207
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: Tactical 8X8 HEMTT W/Lt Crane	T39518	$350,102	3	3	3	3	4
Truck Cargo: W/MHE WO/Winch	T59584	$255,889	21	21	21	22	12
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: 5-ton 6X6 W/E	X43708	$242,585	129	129	129	129	0
Truck Dump: 5-ton 6X6 W/Winch W/E	X43845	$383,786	7	7	7	7	0
Truck Dump: MTV W/E	T64911	$242,585	24	24	24	24	0
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 W/Main Recovery Winch: M983A2 LET	T59415	$319,009	13	13	13	13	34
Truck Tractor: M107A1	T05012	$461,970	360	360	360	360	0
Truck Tractor: LET	T60946	$319,009	898	898	898	898	833
Truck Tractor: 5-ton 6X6 W/Winch W/E	X59463	$242,669	1	1	1	1	0
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

Consolidated Major Item Inventory and Requirements

Nomenclature	Equip No.	Unit Cost	Begin FY 2018 QTY O/H	Begin FY 2019 QTY O/H	Begin FY 2020 QTY O/H	End FY 2020 QTY O/H	End FY 2020 QTY REQ
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
Truck Utility: Cargo/Troop Carrier 1-1/4 ton W/W (HMMWV)	T61562	$153,760	2	2	2	2	2
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 W/E HMMWV M1113	T61630	$153,760	398	398	398	398	368
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 Utility: S250 Shelter Carrier W/E (HMMWV)	T07543	$153,760	2	2	2	2	21
Truck Van: Expansible 5-ton 6X6	X62237	$372,440	11	11	11	11	2
Truck Van: Expansible MTV W/E M1087A1	T41271	$372,440	84	84	84	84	3
Truck Van: LMTV W/E	T93484	$232,284	61	61	61	61	22
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	$0	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							
Barge Deck Cargo: Nonprop Sec Nesting	B31060	$24,230	1	1	1	1	0
Boat Landing Craft Inflatable: 7 Person	B84293	$19,000	5	5	5	5	0
Boat Landing Inflatable: Assault Craft Nylon Cloth 15 Man	B83856	$23,598	274	274	274	274	180
Boat Reconnaissance: Pneumatic 3-Man	B84404	$5,000	63	63	63	63	0
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

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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 2017.

Nomenclature	Equip No.	Average Age	Remarks
Aircraft			
Airplane, Utility, UC-35B	A05015	15	
CH-47F Improved Cargo Helicopter	C15172	5	
Helicopter Cargo Transport, CH-47D	H30517	26	
Helicopter Utility, UH-60L	H32361	23	
Helicopter, Medevac, HH-60L	U84291	12	
Helicopter, Medevac, HH-60M	M33458	6	
Utility Cargo Aircraft: UC-35A	U05004	19	
Combat Mobility			
Boat Bridge Erection Inboard Engine: Shallow Draft	B25476	22	
Armored Vehicle Launched Bridge (AVLB) Scissors: 63-ft MLC 70	B31098	23	
Detecting Set: Mine AN/PSS-14	D03932	10	
Interior Bay Bridge Floating	K97376	11	
Launch M60 Series Tank Chassis	L43664	36	
Loader Scoop Type: DSL 2-1/2 cu-yd w/Multipurpose Bucket	L76556	31	
Ramp Bay Bridge Floating	R10527	11	
Tractor Wheeled: DSL 4x4 w/Excavator & Front Loader	T34437	26	
Transporter Common Bridge	T91308	19	
Tractor Full Tracked High Speed: Armored Combat Earthmover (ACE)	W76473	23	
Field Logistics			
Dolly Set Lift Transportable Shelter: 7 1/2 ton	D34883	16	
Electronic Shop Shelter-mtd Avionics: AN/ASM-146	H01907	12	
Electronic Shop Shelter-mtd Avionics: AN/ASM-147	H01912	14	
Kitchen Field Trailer-mtd: Mtd on M103A3 Trailer	L28351	22	
Laundry Advanced System (LADS): Trailer-mtd	L70538	14	
Tractor Wheeled: DED 4X4 w/Forklift and Crane Att (HMMH)	T33786	27	
Truck Lift Fork: DED 4000-lb Capacity Rough Terrain	T49255	30	
Truck Tractor: Yd 46000 GVW 4X2	T60353	13	
Tank and Pump Unit Liquid Dispensing Truck Mounting	V12141	22	
Tank and Unit Liquid Dispensing Trailer Mounting	V19950	27	
Water Purification: Reverse Osmosis 3000-gph Trailer-mtd	W47225	27	
Trailer Tank Water: 400-gal 1-1/2 ton	W98825	24	
General Engineering			
Compressor Unit, Trailer-mtd 250-cfm 100-psi	E72804	31	
Distributor Water Tank: 6000-gal Semitrailer-mtd	D28318	33	
Excavator: Hydraulic Type I Multipurpose Crawler	E27792	15	
Tractor Full Tracked (FT) HS, Deployable LT Engineer (Deuce)	T76541	17	
Crane Wheel-mtd: Hydraulic Light 7.5-ton w/Cab	C36151	27	
Tractor Full Tracked Low Speed: DSL MED w/Buldoz & Scarif Winch	W76816	18	

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Table 2

Average Age of Equipment

Nomenclature	Equip No.	Average Age	Remarks
Maneuver Combat Vehicles			
Carrier Armored Command Post: Full Tracked	C11158	20	
Carrier Personnel Full Tracked: Armored (Rise)	C18234	28	
Trailers			
Trailer Cargo: High Mobility 1-1/4 ton	T95924	8	
Semitrailer Tank: 5000-gal Bulk Self-Load/Unload	S10059	18	
Semitrailer Flatbed: Breakbulk/Container 34-ton	S70159	30	
Semitrailer Low Bed: 25-ton 4-wheel W/E	S70517	46	
Semitrailer Low Bed: 40-ton 6-wheel W/E	S70594	27	
Semitrailer Low Bed: 70-ton HET	S70859	24	
Semitrailer Tank: Petroleum 7500-gal Bulk Haul	S73119	25	
Trucks			
Truck Ambulance: 4-Litter Armored HMMWV	T38844	23	
Truck Dump: 20 Ton DSL 12 cu yd Capacity (CCE)	X44403	23	
Truck Tractor: Heavy Equipment Transporter (HET)	T59048	20	
Truck Tractor: Line Haul C/S 50000 M915	T61103	14	
Truck Utility: Armt Carrier, Armored, W/W HMMWV	T92310	27	
Truck Utility: Cargo/Troop Carrier HMMWV	T61494	24	
Truck Utility: Cargo/Troop Carrier W/W HMMWV	T61562	26	
Truck Utility: Expanded Capacity Up-armored HMMWV	T92446	12	
Truck Utility: S250 Shelter Carrier HMMWV	T07543	26	
Truck Cargo: Heavy PLS Transporter 15-16.5 Ton 10X10	T40999	15	
Truck Cargo: MTV W/E W/W	T41135	14	
Truck Tank: Fuel Servicing 2500-gal 8X8 Heavy Expanded Mob	T87243	19	
Truck Tractor: MTV W/E	T61239	13	
Trucker Wrecker: Tactical 8X8 Heavy Expanded Mobility w/Winch	T63093	19	
Watercraft			
Barge Deck or Liquid Cargo: Nonprop	B31197	60	
Crane Barge: 89 to 250-ton	F36090	16	
Landing Craft Mechanized: 69-ft	L36739	44	
Landing Craft Utility: RORO 245 to 300 ft	L36989	25	
Tug: Large Coastal and Inland Waterway Diesel	T68398	22	
Tug: Small 900 Class	T68398	15	
Vessel Logistic Support: 245 to 300 ft	V00426	21	

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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 2018 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 2018 are expected to arrive in RC inventories in FY 2019 or FY 2020.

Nomenclature	FY 2018	FY 2019	FY 2020
P-1R data from FY 2018 President's Budget Submission was not available in time for publication in the FY 2018 NGRER.			
The FY 2018 P-1R will be available on the Office of the Under Secretary of Defense (Comptroller) public web site (http://comptroller.defense.gov/Budget-Materials/) upon release of the FY 2018 President's Budget Submission.			

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 2017 would be expected to arrive in RC inventories in FY 2018 or FY 2019. All values are costs in dollars.

Nomenclature	FY 2015	FY 2016	FY 2017[1]
FY 2015 NGREA Equipment			
Command and Control Systems			
Engineer Command and Control (C2) Recon & Survey System	$9,052,680		
Logistics Automation System	1,200,000		
Engineer			
Hand Held Mine Detection - AN/PSS-14 REV 6	2,100,000		
Self Propelled Concrete Saw	7,040,000		
Hydraulic Electric Pneumatic Petroleum Operated Equipment (HEPPOE)	12,075,840		
Global Positioning System - Survey	9,310,140		
Field Logistics			
Load Handling System: 2000G Water	13,500,000		
Rough Terrain Cargo Handler (RTCH)	5,000,000		
Truck Lift Fork: 5K Rough Terrain	2,196,761		
Test Measurement Diagnostic Equipment	310,000		
Tactical Wheeled Vehicles			
HMMWV General Purpose	18,460,000		
HMMWV Ambulance (M997A3)	13,200,000		
Truck Medium Tactical	15,000,000		
Driver Vision Enhancement	18,235,000		
HEMTT Modernization (Cargo)	10,800,000		
HEMTT Modernization (POL)	10,400,000		
Palletized Loading System Modernization	6,000,000		
Semitrailer Fuel Tanker	1,125,000		
Truck Tractor - Yard	500,000		
Force Protection			
Chemical Biological Protective Shelter (M8E1)	18,108,531		
Individual Radiological Dosimeter	1,200,000		
Simulators			
Multiple Amputee Trauma Trainer	5,750,000		
Transportation Common Driver	2,800,000		
Weapons Gunnery Trainer	800,000		
Transportation Reserve	836,048		
FY 2016 NGREA Equipment			
Mission Command			
Engineer C2 Recon & Survey System		$6,500,000	
Logistics Automation Systems		250,000	
Command Post Shelter		600,000	
Mobile Communication System		280,000	

National Guard and Reserve Equipment Appropriation (NGREA) Procurements

Nomenclature	FY 2015	FY 2016	FY 2017[1]
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	
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			
HMMMWV Modernization		16,500,000	
Palletized Loading System		19,000,000	

National Guard and Reserve Equipment Appropriation (NGREA) Procurements

Nomenclature	FY 2015	FY 2016	FY 2017[1]
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	
Total	**$185,000,000**	**$140,000,000**	

1. Service FY 2017 NGREA equipment list was not available in time for publication in the NGRER. Equipment list for FY 2017 will be provided in next year's NGRER.

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Table 5

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 2018 Qty	FY 2019 Qty	FY 2020 Qty	Remarks
Aircraft					
Helicopter Utility: UH-60A	K32293	+32			
Helicopter Utility: UH-60L	H32361	+4	+2		
Helicopter Attack: AH-64D	H48918	+14			
Aviation					
Air Traffic Control Central: AN/TSW-7A	A27624	+1			
Communication System: Tactical Terminal Control System (TTCS)	C59125		+1		
Shelter: Tactical Expandable Oneside	S01291		+8	+3	
Battle Command and Control					
Acc Kit Elec CAISI 2.0	A40443	+5	+8	+1	
Air Conditioner: FL/Wall A/C AC 115V 1Ph 50-60Cy 9000Btu Cmp Hz	A23828	+1	+2		
Air Conditioner: FL/Wall A/C AC 208V 3Ph 60Cy 18000 Btu Cmp Hz	A24463	+7			
Computer Set Digital: AN/TYQ-151(V)3	C61068	+1			
Com ULLS-AE W/PTR	C40745	+2			
Command System Tactical: AN/TYQ-155 (V)1	C61290	+1			
Computer Set Digital: AN/GYK-62	C13866	+83			
Computer Set Digital: AN/UYK-128	C18378	+542	+871		
Computer System Digital: AN/PYQ-16	C18891	+1			
Computer System Digital AN/UYQ-90(V)2	C18278	+547			
Distribution System Elec: 120/208V 3PH 40AMP	F55485		+22	+3	
Generator Set: DED 30kW 50/60Hz Skid-mtd	G74575	+6			
Generator Set: DED 60Hz AC MEP-531A	G36237	+59	+54	+38	
Generator Set: Diesel Engine Trailer PU-807A	G17528	+4		+1	
Panel Power Distribution: 60Hz 400amp	P60558	+2			
BC Transport Networks					
Radio Set AN/PRQ-7	R31430	+48			
Radio Set: AN/PRC-119F(C)	R83141	+8			
Radio Set: AN/VRC-89F(C)	R44999		+22		
Combat Mobility					
Loader Scoop Type: Heavy Type II Loader	L15041		+6	+6	
Field Logistics					
Containerized Batch Laundry (CBL)	C28019	+2	+2	+2	
Hoseline Outfit Fuel Handling: 4-in Diameter Hose	K54707		+4		
Hydraulic System Test and Repair Unit (MX3)	H05002		+1		
Rough Terrain Container Handler: Kalmar RT240	R16611		+2		

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Table 5

Projected Equipment Transfer/Withdrawal Quantities

Nomenclature	Equip No.	FY 2018 Qty	FY 2019 Qty	FY 2020 Qty	Remarks
Shelter: Tactical Expandable Two side	S01359	+2			
Shower: Portable 12 Head	S62898			+3	
Tent: Extendable Modular 16Lx20W Central Medical Forest Green	T71755		+2		
Test Set: Radar TS-4530A/UPM	T99847		+29		
Water Purification: Reverse Osmosis 3K-gph TM	W47225	+2			
General Engineering					
Crane: Wheel Mounted Hydraulic 25-ton All Terrain AT422T	C36586		+4		
Tool Kit Mason & Concrete Finishers: Brick Stone & Concrete	W44923			+4	
Maneuver Systems					
Launcher Grenade Armament Subsystem: M257	L44031	+15	+15		
Medical Field Systems					
Analyzer Anesthetic Gas AAG	A00098		+3	+2	
Analyzer Clinical Chemistry (ACC)	A55800			+2	
Analyzer Hematology (AH)	A84342			+2	
Computer System: Digital AN/TYQ-108(V)1	C41358		+1	+3	
Computer System: Digital AN/TYQ-108(V)2	C27571		+2		
Dental Materiel Set Oral: Maxillofacial Surgery	D65925			+1	
Electromagnetic Radiation Meter: ME-513/U	E99290	+20			
Generator Oxygen Medical System: Portable POGS 33	C74952	+6	+5	+2	
Medical Equipment Set Air Ambulance:	M29213	+9			
Medical Filmless Imaging System	M30817	+2	+1	+2	
Medical Materiel Set Central Materiel Svc Spec Aug: 164 Bed CSH Co	M08951		+3	+1	
Medical Materiel Set Central Materiel Service	M08417		+2	+1	
Medical Materiel Set Intermediate Care Ward	M08599		+11	+6	
Medical Materiel Set Orthopedic Surgery Augmentation	M32074		+2	+1	
Medical Materiel Set X-Ray Low Capacity Portable	M73175		+1	+1	
Medical Oxygen Generator (MOG)	M73675		+5		
Medical Materiel Set X-Ray Radiographic	M86675	+2	+3	+1	
Monitor Patient Vital Signs	M66558		+10	+14	
Optical Equipment Set Multivision Augmentation	P47705			+1	
Pump Intravenous Infusion PIV	P16161		+157		
Sink Unit Surgical Scrub and Utensil Hospital Field: 110V 60C AC	T60464	+21	+23		
Sterilizer Surgical Dressing: Pressure Fuel HTD CRS 16X36 in	S39122		+2	+4	
Table Operating Field	T00029		+1	+1	
Tent: Extendable Modular 16Lx20W Medical Forest Green Type V	T71619	+2			
Thermoregulator: Patient Auto:Manual	T00381	+6	+5	+3	
Ventilator Volume Portable	V99788			+84	
X-Ray Apparatus Radiographic Medical	X92545	+2			
Soldier Systems					
Bayonet Multipurpose System: XM9	B49004	+2,729			
Binocular: M25	B67907		+31		
Mini Eyesafe Laser IR Observation Set (MELIOS): AN/PVS-6	M74849	+383	+18		

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Projected Equipment Transfer/Withdrawal Quantities

Nomenclature	Equip No.	FY 2018 Qty	FY 2019 Qty	FY 2020 Qty	Remarks
Soldier Weapons					
Launcher Grenade: M320	L03621	+47	+56	+44	
Machine Gun: Caliber .50 Heavy Fixed Turret Type	L91701	+87			
Machine Gun Grenade: 40mm Mk19 Mod III	M92362	+8			
Machine Gun: 7.62mm M240B	M92841	+36			
Pistol 9mm: M11	P47365			+22	
Support Systems					
Cabinet Solution Warming:	C50111		+2	+1	
Container Handling	C27294	+28			
Trailers					
Semitrailer Van: Supply 12 ton 4-wheel W/E	S75175	+5			
Trailer Cargo: High Mobility 1-1/4 ton	T95924	+25	+37	+1	
Trucks					
Truck Cargo: MTV LWB W/E	T61704	+6			
Truck Cargo: 8X8 HEMTT w/LHS	T96496	+360			
Truck Dump: 20-ton DED 12 cu-yd Cap (CCE)	X44403	+6	+5		
Truck Tank: Fuel Servicing 2500-gal 8X8 Heavy Expanded Mobility	T87243	+16			
Truck Tractor: Heavy Equipment Transporter (HET)	T59048	+6			
Truck Van: M1079A1P2 wo/Winch	T62359	+1	+1		
Truck: Palletized Loading System (PLS)	T81874	+69	+2		

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Table 6

FY 2014 Planned vs Actual Procurements and Transfers

NOTE: This table compares planned Service procurements and transfers to the RC in FY 2014 with actual procurements and transfers. FY 2014 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 2016. Procurement and NGREA columns reflect cost values in dollars.

Nomenclature	Equip No.	FY 2014 Transfers (# of items)		FY 2014 Procurements ($s)		FY 2014 NGREA ($s)	
		Plan	Actual	Plan	Actual	Plan	Actual
FY 2014 Planned Transfers & Withdrawals							
Air Defense							
Computer: Tactical AN/GYQ-88	C77755	+2	+4				
Battle Command and Control (C2)							
Computer Set: AN/UYK-128(V)3	C18378	+784	+643				
Computer System Digital AN/UYQ-90(V)2	C18278	+10	+122				
Distribution System Elec: 120/208V 3ph 40amp	F55485	+30	+0				
Distribution System Elec: 120V 1ph 60amp	F55553	+463	+23				
Gen Set DED TM: 10kW 60Hz	G42170	+7	+38				
Gen Set DED TM: 5kW 60Hz	G42238	+183	+99				
Generator Set Diesel Engine TM: PU-802	G53778	+11	+32				
Loudspeaker NGLS-Mounted	L26899	+14	+29				
Navigation Set: Satellite Signals AN/GSN-13	N96180	+16	+0				
Battlespace Awareness							
Data Analysis Central: AN/MSW-24	D77801	+2	+0				
Battle Command Transportable Networks							
Joint Base Station (JBS): LITE	J00719	+15	+2				
Joint Node Network (JNN) Central Ofc Telephone Auto	J05001	+10	+3				
Radio Set: AN/VRC-90F(C)	R68044	+50	+946				
Satellite Communication System: AN/TSC-156	S23268	+1	+0				
Combat Mobility							
Bridge Heavy Dry: Supt (HDSB) 40m MLC96	B26007	+3	+4				
Loader Skid Steer: Type Ii	L77147	+46	+12				
Mine Protected Clearance Vehicle	M05004	+6	+0				
Mine Resistant Vehicle	M74226	+54	+0				
Munition: Network Command (Spider)	M92387	+3	+0				
Vehicle Mounted Mine Detection (VMMD) System	V05001	+12	+0				
Field Logistics							
Laundry Advanced System: (LADS) Trailer-mounted	L70538	+17	+18				
Load Handling Sys: 2000G Comp Water Tank-Rack (HIPPO)	T32629	+16	+32				
Mobile Integrated Remains: Collection System	M57970	+5	+101				
Rough Terrain Container Handler (RTCH): KALMAR RT240	R16611	+28	+23				

FY 2014 Planned vs Actual Procurements and Transfers

Nomenclature	Equip No.	FY 2014 Transfers (# of items)		FY 2014 Procurements ($s)		FY 2014 NGREA ($s)	
		Plan	Actual	Plan	Actual	Plan	Actual
Tank & Pump Unit Liquid Dispensing Truck Mounting	V12141	+36	+6				
Truck Lift Fork: Variable Reach Rough Terrain	T73347	+64	+106				
Water Storage/Distribution Set: 40K GPD (Brigade)	W55968	+2	+0				
Force Protection							
Collective Protection Equipment: NBC Simplified M20	C79000	+4	+98				
Nuclear, Biological, and Chemical (NBC) Recon Vehicle	N96543	+32	+12				
General Engineering							
Comp Unit RCP: Air Rec Gas and DED 88.5cfm 100psi	E69790	+4	+0				
Tool Kit Pipe Cutting Grooving and Beveling	W48485	+5	+0				
Maneuver Systems							
Drivers Enhancers: AN/VAS-5	D41659	+205	+8				
Medical Field Systems							
Medical Equipment Set Ground Ambulance	M26413	+2	+32				
Medical Filmless Imaging System	M30817	+17	+19				
Soldier Systems							
Binocular: M25	B67907	+384	+152				
Heavy Weapon Thermal Sight (HWTS): AN/PAS-13(V)3	S90603	+1,319	+210				
Medium Weapon Thermal Sight (MWTS): AN/PAS-13(V)2	S90535	+3,520	+432				
Night Vision Device: AN/PSQ-20	N07848	+892	+0				
Sight: Thermal AN/PAS-13B(V)1	S60356	+389	+82				
Soldier Weapons							
Command Launch Unit: (Javelin) 13305405-119	C60750	+14	+27				
Launcher Grenade: M320	L03621	+460	+16				
Launcher Grenade: M320A1	L69080	+908	+711				
Machine Gun 7.62mm: M240L	M92454	+48	+114				
Machine Gun Grenade: 40mm Mk19 Mod III	M92362	+9	+120				
Machine Gun: Caliber 50	M39331	+346	+1,952				
Rifle: 5.56mm M4	R97234	+1,333	+1,456				
Support Systems							
Joint Precision Airdrop System: (JPADS)	J00947	+60	+0				
Platform: Container Roll-in/Roll-out	B83002	+11	+1,072				
Trailers							
Trailer Cargo: MTV w/Dropsides M1095	T95555	+150	+1,780				
Trailer Flatbed: M1082 Trlr Cargo LMTV w/Dropsides	T96564	+4	+95				
Trailer: Palletized Loading 8X20	T93761	+35	+451				

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Table 6

FY 2014 Planned vs Actual Procurements and Transfers

Nomenclature	Equip No.	FY 2014 Transfers (# of items)		FY 2014 Procurements ($s)		FY 2014 NGREA ($s)	
		Plan	Actual	Plan	Actual	Plan	Actual
Trucks							
Truck Cargo: 5-ton WO/W	T41515	+133	+579				
Truck Dump: 10-ton W/W	T65274	+31	+49				
Truck Dump: 10-ton WO/W	T65342	+89	+256				
Truck Wrecker: M984A4	T63161	+46	+196				
Truck: Expandable Van WO/Winch	T67136	+26	+35				
FY 2014 P-1R Equipment							
Modification of Aircraft							
Utility/Cargo Airplane Modifications				$4,674,000	0		
Utility Helicopter Mods				0	17,678,000		
Network and Mission Plan				0	2,373,000		
GATM Rollup				0	1,983,000		
Weapons and Tracked Combat Vehicles (WTCV)							
XM320 Grenade Launcher Module (GLM)				1,209,000	1,205,000		
Common Remotely Operated Weapons Station				6,180,000	0		
M2 50 Cal Machine Gun Mods				0	7,648,000		
Tactical Trailers/Dolly Sets				800,000	1,334,000		
Family of Medium Tactical Vehicles (FMTV)				63,628,000	86,684,000		
Family of Heavy Tactical Vehicles (FHTV)				4,820,000	1,250,000		
Palletized Load System (PLS) Extended Service Program (ESP)				0	17,226,000		
Heavy Expanded Mobile Tactical Truck (HEMTT) Extended Service Program (ESP)				39,525,000	38,325,000		
Modification of In-service Equipment (OPA-1)				4,403,000	0		
Mine-Resistant Ambush-Protected (MRAP) Modifications				0	7,069,000		
Communications and Electronics Equipment							
Warfighter Information Network-Tactical (WIN-T) - Ground Forces Tactical Network				2,441,000	5,000,000		
Global Broadcast Service (GBS)				2,100,000	500,000		
Family of Medical Communications for Combat Casualty Care				12,461,000	8,971,000		
Reserve Civil Affairs (CA)/Military Information Support Operations (MISO) GPF Equipment				61,096,000	58,468,000		
Information Systems Security Program (ISSP)				707,000	0		
Communications Security (COMSEC)				1,201,000	0		
Night Vision Devices				10,987,000	0		
Small Tactical Optical Rifle Mounted (STORM) Micro-Laser Range Finder (MLRF)				1,000,000	1,000,000		
Green Laser Interdiction System (GLIS)				500,000	250,000		
Joint Battle Command - Platform (JBC-P)				0	7,724,000		
Battle Command Sustainment Support System (BCS3)				8,823,000	0		
Air & Missile Defense Planning and Control System (AMDPCS)				3,924,000	0		
Network Management Initialization and Service				6,039,000	3,044,000		
Maneuver Control System (MCS)				20,663,000	552,000		
Global Combat Support System - Army (GCSS-A)				26,458,000	22,644,000		
Reconnaissance and Surveying Instrument Set				6,540,000	6,540,000		
Items less than $5M (Surveying Equipment)					981,000		

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FY 2014 Planned vs Actual Procurements and Transfers

Nomenclature	Equip No.	FY 2014 Transfers (# of items)		FY 2014 Procurements ($s)		FY 2014 NGREA ($s)	
		Plan	Actual	Plan	Actual	Plan	Actual
Other Support Equipment							
Family of Non-lethal Equipment (FNLE)				130,000	0		
Base Defense Systems (BDS)				2,060,000	0		
Ground Standoff Minefield Detection System (GSTAMIDS)				1,514,000	0		
Items Less Than $5M (Countermine Equipment)				105,000	197,000		
Heaters and Environmental Control Units (ECUs)				982,000	0		
Field Feeding Equipment				10,656,000	9,175,000		
Cargo Aerial Delivery & Personnel Parachute System				401,000	401,000		
Family of Engineer Combat and Construction Sets				8,155,000	10,300,000		
Distribution Systems, Petroleum & Water				1,653,000	1,653,000		
Combat Support Medical				3,460,000	8,049,000		
Mobile Maintenance Equipment Systems				1,200,000	1,288,000		
Items Less Than $5M (Maintenance Equipment)				198,000	154,000		
Scrapers, Earthmoving				6,059,000	11,197,000		
Hydraulic Excavator				18,044,000	0		
Tractor, Full Tracked				4,036,000	9,123,000		
All Terrain Cranes				4,966,000	0		
High Mobility Engineer Excavator (HMEE)				2,968,000	1,685,000		
Enhanced Rapid Airfield Construction Capability				2,139,000	0		
Construction Equipment ESP				4,826,000	1,232,000		
Items Less Than $5M (Construction Equipment)				1,716,000	2,085,000		
Generators and Associated Equipment				22,305,000	0		
Family of Forklifts				2,262,000	2,262,000		
Training Devices, Nonsystem				5,432,000	7,443,000		
Close Combat Tactical Trainer				2,671,000	0		
Aviation Combined Arms Tactical Trainer				4,854,000	4,854,000		
Gaming Technology in Support of Army Training				1,493,000	2,419,000		
Integrated Family of Test Equipment (IFTE)				3,736,000	2,614,000		
Test Equipment Modernization (TEMOD)				2,250,000	3,025,000		
Modification of In-service Equipment (OPA-3)				20,675,000	4,384,000		
FY 2014 NGREA Equipment							
Aviation							
Test Set Aircraft Fuel Quantity Gage						$60,000	$0
Tool Kit Tube Swaging, Set B						80,000	0
Tool Kit Electrical Repairer, Aircraft						40,000	0
Survival Kit Aircraft, Basic 4-person						60,000	0
Command and Control Systems							
Engineer C2 (ENFIRE)						2,800,000	12,932,476
Command and Control (C2) Rapid Deployable Vehicle						350,000	9,644,441
Engineer							
Hydraulic System Test and Repair Unit						2,000,000	7,459,159
Mixer, Concrete						875,000	6,996,385
AN/PSS-14 Revision 6, Handheld Mine Detection System						9,800,000	0

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Table 6

FY 2014 Planned vs Actual Procurements and Transfers

Nomenclature	Equip No.	FY 2014 Transfers (# of items)		FY 2014 Procurements ($s)		FY 2014 NGREA ($s)	
		Plan	Actual	Plan	Actual	Plan	Actual
Bridge Erection Boat						1,600,000	0
Remote Frequency-Remote Activated Munitions						7,000,000	0
Special Operations Forces Demo Kit - M303						3,375,000	0
Global Positioning System - Survey						340,000	3,158,647
Urban Ops Platoon Support Equipment						6,460,000	8,853,024
Urban Ops Squad Support Equipment						3,710,000	4,517,747
Family of Boat Motors (7 & 15 Man)						5,600,000	0
Field Logistics							
Modular Fuel System-Tank Rack						450,000	546,000
Petroleum Quality Analysis System						1,360,000	0
RT240 Rough Terrain Cargo Handler (RTCH)						4,500,000	0
Truck Lift Fork, 5000lb Rough Terrain						7,500,000	11,960,000
Food Sanitation Center						4,320,000	0
Cabinet Solution Warming						40,000	0
Coagulation Timer Unit: Plasma Semiautomatic Testing						20,000	0
MMS X-Ray Radiographic						6,500,000	0
Surgical Equipment Sterilization System						800,000	0
Tactical Wheeled Vehicles							
HMMWV Ambulance						18,000,000	18,327,214
Palletized Loading System						20,800,000	27,835,650
HEMTT Cargo						15,600,000	17,600,000
HEMTT Load Handling System (LHS)						15,360,000	19,176,400
Truck, CST Response (4x4)						975,000	2,220,000
Tactical Operations Center (TOC) Trailer, Tandem Axle						175,000	0
Cargo Trailer, Tandem Axle (15' 2")						100,000	0
Utility Trailer, Tandem Axle						50,000	0
Medical Response Vehicle						100,000	0
Force Protection							
Chemical, Biological, Radiological, and Nuclear (CBRN) Small Unmanned Ground Vehicle						200,000	310,167
Radiac Set: AN/PDR-75A						18,000,000	17,454,368
Simulators							
Engagement Skills Trainer 3000						1,500,000	1,412,600
Multiple Amputee Trauma Trainer (MATT)						500,000	10,483,251
Construction Equipment Virtual Trainer (CEVT)						6,000,000	0
Transportation Common Driver						4,800,000	0
Rough Terrain Cargo Handler (RTCH)						1,100,000	0
ATLAS II Forklift						1,100,000	0
Engineer Change Proposal (ECP) Reserve						500,000	0
Transportation Reserve						500,000	712,471
Additional funding ($6,600,000) reprogrammed from another Reserve Component							
Total				**$431,125,000**	**$381,989,000**	**$175,000,000**	**$181,600,000**

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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 2017 Qty	Deployable?	
					Yes	No
Aircraft						
Utility Cargo Aircraft: UC-35A	U05004	Airplane, Utility: UC-35B	A05015	5	X	
Battle Command Transport Networks						
Teleconference System: AN/TYQ-122	T43146	Video Teleconference System: AN/TYQ-122A	P05024	4	X	
Terminal: Satellite Communication AN/TSC-155	T81733	Satellite Communications Terminal: AN/TSC-93A	S34963	11	X	
Combat Mobility						
Boat Bridge Erection Inboard Engine: Shallow Draft	B25476	Boat: Bridge Erection	B05006	11	X	
Loader Scoop Type: DED 4X4 W/5 Cy Gp Bucket (CCE)	L76321	Loader Scoop Type: Heavy Type II Loader	L15041	15	X	
Tractor Wheeled: DSL 4X4 w/Excavator & Front Loader	T34437	Loader Skid Steer: Type III	L77215	5	X	
Field Logistics						
Rough Terrain Container Handler: Kalmar RT240	R16611	Truck Lift Fork: DED 50K lb Container Handler Rough Terrain 48-in LC	T48941	41	X	
Shower: Portable 12 Head	S62898	Bath Unit Portable: GED 8-9 Sh	B43663	2	X	
Trailer Tank Water: 400-gal 1.5-ton 2-wheel	W98825	Trailer Tank Water (Camel): 800 gal 5-ton	T05047	1	X	
Truck Tractor Yard: 46000 GVW 4X3	T60353	Truck Tractor: Line Haul C/S 50000 M915	T61103	5		X
Water Purification: Reverse Osmosis 3000-gph Trailer-mtd	W47225	3K Tactical Water Purification System:	Z05003	14	X	
Force Protection						
Mask Chemical Biological: M40	M12418	Mask Chem-Bio Joint Service General Purpose: Field M50	M12986	13	X	
Mask Chem-Bio Joint Service General Purpose: Combat Vehicle Crewman M51	M13236	Mask Chemical Biological: Combat Vehicle M42	M18526	3,653	X	
General Engineering						
Crane: Wheel Mounted Hydraulic 25-ton All Terrain AT422T	C36586	All Terrain Crane Type II: (Heavy)	Z05089	10	X	
Soldier Systems						
Mini Eyesafe Laser IR Observation Set (MELIOS): AN/PVS-7	M74849	Laser: Target Locator Module	L05003	39	X	
		Target Locator Module	T27471	41	X	
Soldier Weapons						
Launcher Grenade: M320	L03621	Launcher Grenade 40mm: Single Shot Rifle	L44595	47	X	
Machine Gun Caliber .50: HB Flexible (Ground & Vehicle) W/E	L91975	Machine Gun Grenade 40mm: MK19 Mod III	M92362	5	X	
Machine Gun Grenade 40mm: MK19 Mod III	M92362	Machine Gun, 40mm Grenade, MK19 Mod4 Upgunned	M05019	18	X	
Machine Gun: 7.62mm M240B	M92841	Machine Gun: 7.62mm M240L	M92454	16	X	
Machine Gun: Caliber .50	M39331	Machine Gun Caliber .50: HB Flexible (Ground & Vehicle) W/E	L91975	2,643	X	
Trailers						
Semitrailer Low Bed: 40-ton 6-wheel W/E	S70594	40 Ton Semitrailer	Z05037	26	X	

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Table 7

Major Item of Equipment Substitution List

Required Item Nomenclature	Reqd Item Equip No.	Substitute Item Nomenclature	Substitute Item Equip No.	FY 2017 Qty	Deployable?	
					Yes	No
Semitrailer Tank: 5000-gal Bulk Haul Self-Load/Unload	S10059	Semitrailer Tank: 5K gal Fuel Dispensing Automotive W/E	S73372	39	X	
Semitrailer Tank: Petroleum 7500-gal Bulk Haul	S73119	Semitrailer Tank: 5K gal Fuel Dispensing Automotive W/E	S73372	27	X	
Trailer Cargo: 1-1/2 ton 2-wheel W/E	W95811	Trailer Flat Bed: M1082 Trailer Cargo LMTV W/Dropsides	T96564	73	X	
Trailer Cargo: High Mobility 1-1/4 ton	T95924	Light Tactical Trailer: 3/4 ton	T95992	26	X	
Trailer Flatbed: 5-ton 4-wheel General Purpose	T96883	Trailer Cargo: MTV W/Dropsides M1095	T95555	14	X	
Trailer: Palletized Loading 8X20	T93761	Palletized Load System: Trailer-CTE	P05025	188	X	
Trucks						
Truck Cargo: 5-ton 6X6 MTV W/E W/W LAPES/AD	T41104	Truck Cargo: 5-ton 6X6 MTV W/E LAPES/AD	T41036	1	X	
Truck Cargo: 5-ton 6X6 XLWB W/E	X41105	Truck Cargo: LWB WO/Winch	T93271	10	X	
Truck Cargo: MTV LWB W/E	T61704	Truck Cargo: LWB WO/Winch	T93271	6	X	
Truck Cargo: Tactical 8X8 HEMTT w/LHS	T96496	Truck Cargo: Heavy PLS Transporter 15-16.5 ton 10X10	T40999	185		X
		Truck Palletized (LHS): M1120A4	T55054	175	X	
Truck Cargo: Tactical 8X8 HEMTT W/Lt Crane	T39518	Truck Cargo: Tactical 8X8 HEMTT W/Med Crane	T39586	1	X	
Truck Cargo: WO/Winch	T59448	Truck Cargo: 4X4 LMTV W/E	T60081	139	X	
Truck Dump FMTV 10-ton: M1157	T65115	Truck Dump: 10-ton W/Winch	T65274	9	X	
Truck Dump: MTV W/E W/W	T64979	Truck Dump: MTV W/E	T64911	8	X	
Truck Tank: Fuel Servicing 2500-gal 8X8 HEMTT	T87243	Truck Tank: Fuel Servicing 2500-gal 8X8 HEMTT	T58161	17	X	
Truck Tractor W/Main Recovery Winch: M983A2 LET	T59415	Truck Tractor: LET	T60946	21	X	
Truck Tractor: Heavy Equipment Transporter (HET)	T59048	Truck Tractor: M107A1	T05012	358	X	
Truck Tractor: Line Haul C/S 50000 M915	T61103	Tractor Line Haul: M915A5	T88858	24	X	
Truck Utility: Armt Carrier Armd 1-1/4 ton W/E (HMMWV)	T92242	Truck Utility: ECV Armament Carrier - Armor Ready M1151A1	T34704	160	X	
Truck Utility: Cargo/Troop Carrier HMMWV	T61494	Truck Utility: Heavy Variant HMMWV 10000 GVW W/E	T07679	797		X
Truck Utility: Cargo/Troop Carrier 1-1/4 ton W/W (HMMWV)	T61562	Truck Utility: Heavy Variant HMMWV 10000 GVW W/E	T07679	1		X
Truck Utility: Heavy Variant HMMWV 10000 GVW W/E	T07679	Truck Utility Expanded Capacity Enhanced 4X4: M1165A1	T56383	243	X	
		Truck Utility: Expanded Capacity W/E HMMWV M1113	T61630	22		X
		Truck Utility: M1152-Expanded Capacity Enhanced	T11588	108	X	
Truck Utility: S250 Shelter Carrier W/E (HMMWV)	T07543	Truck Utility: Heavy Variant HMMWV 10000 GVW W/E	T07679	2		X
Truck Van: M1079A1P2 WO/Winch	T62359	Truck Van: LMTV W/E	T93484	1		X

* Equipment deployability based on global deployment to a non-permissive threat environment

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Table 8

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[1] Req'd	# Items Short	Item Cost	Total Shortage Cost	Rationale/Justification
1	Joint Battle Command - Platform (JBC-P)	11,415	2,915	$14K	$41M	JBC-P provides migration of legacy mounted battlespace awareness & logistics systems to a common application. Based on pending adjustments, the FY 2017 requirement is expected to increase by ~1,700 systems by FY 2020. ~32 percent 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 2025.
2	Joint Light Tactical Vehicle (JLTV)	10,400	10,400	$300K	$3.1B	The JLTV program begins full rate production in FY 2019. Army Reserve is not scheduled to begin fielding until FY 2024 & 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	504	$370K	$187M	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 & provides an armor variant capable of global deployment to a non-permissive environment. Army Reserve is resourced to field 1 of 9 companies (56 systems) by FY 2020.
4	Bridge Erection Boat (BEB) B05006 Variant	126	126	$900K	$113M	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 1 of 9 companies (14 boats) by FY 2020.
5	Carbine 5.56mm - M4A1	144.5K	134.8K	$700	$82M	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 2020. The Army Reserve must maintain four carbine variants until resourcing is made available.
6	Joint Assault Bridge (JAB)	96	78	$6.5M	$507M	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 Echelons Above Brigade Army capability. The JAB will replace legacy Armored Vehicle Launch Bridges that exceed economic useful life. The funding shortage reflects unfunded costs minus 18 systems programmed in the base budget for fielding by FY 2020.

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Table 8

Significant Major Item Shortages

PR	Nomenclature	Total[1] Req'd	# Items Short	Item Cost	Total Shortage Cost	Rationale/Justification
7	Construction Engineer Equipment	1,067	528	Varies	$227M	Army Reserve owns 35% of the total Army Construction Engineer force structure. A force design update combining vertical and horizontal construction capabilities significantly increased requirements for a multitude of systems. This budget shortfall reflects unfunded requirements for heavy cranes, scrapers, motorized graders, excavators, and modern tool sets.
8	Mission Command - Transport Network Systems	49,137	8,231	Varies	$701M	Satellite systems and tactical radios represent the majority of the budget shortfall. Maneuver units remain the resource and fielding priority for emerging technology. Incremental investments are needed to prevent an insurmountable funding challenge and widening compatibility gaps. Failure to stay current will impact the ability to communicate, visualize the battle space, and synchronize the elements of combat power.
9	Line Haul Tractor - M915A5 & 7.5K Petroleum Semitrailer	2,880	1,875	Varies	$497M	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.
10	Chemical Biological Protective Shelter (CBPS) - M8E1	108	68	$1.1M	$75M	The CBPS system provides a mobile, self-contained, rapidly deployable system for both chemical and medical units to conduct environmentally controlled operations. Army Reserve is pending delivery of 24 systems procured with FY 2015 NGREA funds. Army projects resourcing 16 systems with base funds by FY 2020, with the balance pending joint funding beyond FY 2021.

1. Total Requirement values include documented requirements and validated requirements captured in Basis of Issue Plan documents and Army Acquisition / Procurement objectives.

Chapter 3 United States Marine Corps Reserve

I. Marine Corps Overview

"Our core mission, as directed by Title 10, of providing relevant naval expeditionary forces in readiness, able to respond rapidly across the range of military operations, remains our first priority."[1] The Marine Corps' global presence, achieved through basing and highly mobile Marine Air Ground Task Forces, 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, cyber, and space. The Marine Corps is capable of responding to the full spectrum of threats: conventional, irregular, or hybrid.

> The Marine Corps has a unique ability to task organize and "mix and match" capabilities to operate as a naval expeditionary force, a crisis response force, or engage in sustained ground combat ashore. Our strength lies in our ability to operate across the range of military operations and do so in a cost efficient, operationally effective, and tactically sound manner. However, the Marine Corps is not only the "first to fight", but is often first to respond to natural disasters, to Embassies in crisis in foreign lands, and to Combatant Command requests for skilled training, Joint and Combined exercise participation, and partner capacity building with allied forces.[2]

A. Marine Corps Planning Guidance

1. Strategic Concept of the Marine Corps

The Marine Corps is structured to project timely and responsive combat power across the globe at an economical cost.

> Marines will continue to operate as part of a forward naval expeditionary force capable of maintaining forward presence for steady state, crisis response, and contingency operations. We do not have the luxury of focusing on one identity, paradigm, or capability. As a crisis response force, we require capabilities that enable immediate employment and sustainment across the range of military operations, providing our nation's leaders strategic decision space. In addition, we must be able to enable surging joint forces, especially when access is likely to be challenged. Marines cannot pick and choose mission sets. We must ensure our capabilities meet our unique tasks.[3]

2. Marine Corps Total Force Concept

Within the Marine Corps, the Active Component (AC) and Reserve Component (RC) are integrated as a Total Force. Through the employment of the concept of "mirror-imaging," 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. "The Marine Corps is a Total Force: Active and Reserve... but all Marine! The men and women of the

[1] Commandant of the Marine Corps, U.S. Marine Corps Service Strategy 2016, p. 2.
[2] Ibid.
[3] Ibid, p. 3.

Reserve have established a proud legacy and remain a critical factor to the success of our Corps."[4]

B. Marine Corps Equipping Policy

The Marine Corps develops a Total Force Approved Acquisition Objective (AAO) for each new item of equipment by balancing warfighting requirements with budgetary constraints. 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 Commandant of the Marine Corps guidance. It also reduces latency in distribution, and improves 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 wartime allowance 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 AC and RC unit equipment shortfalls.

D. Initiatives Affecting RC Equipment

The Marine Corps is currently conducting a large scale equipment modernization initiative. "Modernization is future readiness. The recapitalization of our force is essential to our future readiness with investments in ground combat vehicles, aviation, command and control, and digitally interoperable protected networks."[5] In certain cases, fiscal uncertainty and decreasing activations have adversely affected the RC's fielding priorities within the Total Force modernization effort by forcing prolonged operation of legacy equipment. The requirement to concurrently maintain both legacy and new equipment has become increasingly costly, and negatively affect overall readiness.

E. Plan to Achieve Full Compatibility between AC and RC

Equipment within the Marine Corps is essentially mirrored between the AC and RC due to horizontal fielding. However, certain instances have occurred where there has been a detrimental lack of mission-essential equipment parity between RC and corresponding AC units. The Marine Corps Reserve has and continues to use National Guard and Reserve Equipment Appropriation (NGREA) funding to close some of these parity gaps.

[4] Commandant of the Marine Corps, Marine Corps Reserve Centennial Statement, August 29, 2016.
[5] Commandant of the Marine Corps, Statement before Senate Appropriations Defense Subcommittee on Navy and Marine Corps FY17 Budget Request, March 2, 2016, p. 14-15.

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
- Procurement of the RQ-21A Blackjack Small Tactical Unmanned Aircraft System (STUAS)
- Aviation and Ground Equipment Modernization

> We are a Total Force and, as such, the Marine Corps Reserve continues to be integrated in all areas of the Marine Corps. We have been fully engaged across the globe over the past 15 years of combat operations, serving as the essential shock absorber and force enabler for our Active Component.[6]

The Marine Corps Reserve has since expanded its mission to include not only the strategic level, but also the operational engagement level. These operational requirements range from individual augmentation of AC staffs, security cooperation engagements, multinational exercises, and other steady state missions.

The KC-130J fielding to the Marine Corps AC has been completed, while the RC fielding lags significantly behind as only six of the remaining 21 KC-130Js to be fielded to the RC are programmed across the Future Years Defense Program (FYDP). The RC currently maintains a mixed fleet of KC-130J and legacy KC-130T aircraft, which have completely different logistics, maintenance, and aircrew requirements. The longer the RC maintains both airframes, the longer the RC has to invest in duplicative logistics, maintenance, and training.

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 RQ-21A is expected to be renamed to the MQ-21A to reflect the multi-role nature of this aircraft. The program remains in low-rate initial production despite procurement for the AC having started in FY 2014. The RC units are the last to be fielded the RQ-21A, which is currently set for FY 2020. Lack of these systems within the RC creates a significant capability gap with AC forces throughout the projected seven-year fielding period.

The previous two challenges are symptomatic of the broader issue associated with fielding to the Reserve requirement regarding the aviation and ground equipment modernization effort within the Marine Corps. In addition to the KC-130J and RQ-21A, Marine Corps aviation is concurrently transitioning to the F-35B/C, MV-22, AH-1Z, UH-1Y 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 Vehicle (ACV) and the Joint Light Tactical Vehicle (JLTV) are set to begin during the current FYDP. A decrease in

[6] Commander, Marine Forces Reserve, Statement before Senate Appropriations Subcommittee on Defense Concerning Marine Corps Reserve, March 16, 2016, p. 2.

procurement funding and unit activations has created a corresponding decrease in Reserve equipment fielding prioritization. As the Marine Corps continues its modernization efforts, it's critical the RC maintain pace with the AC to ensure significant capability gaps are not created.

2. Status of Equipment

Due to the unique geographic dispersion of Marine Corps Reserve units and their limited storage capacity, proper accountability of equipment and validation of the T/A is essential to maintain overall readiness. The RC will continue to meet the Commandant's first priority of providing the best trained and equipped Marine units while also protecting the enduring readiness of the Reserve equipment pool. Through global equipment sourcing, the RC has ensured the equipment sets of 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 routinely 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 2018 through FY 2020. 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 T/A.

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. 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 already have fielding of new equipment planned.

c. Compatibility of Current Equipment with Active Component

Although complete equipment compatibility is difficult to achieve due to Total Force priorities, it remains near parity between the AC and RC. This is expected to become more of a challenge as decreases in activations and fiscally-driven fielding constraints either reduces the initial fielding of new equipment programs, or places the RC last in the fielding plan.

d. Maintenance Challenges

The short and long term maintenance as well as sustainment of RC equipment remains a challenge. Reserve unit structure and personnel realignments have changed the characteristics of some RC units, which subsequently changed their equipment sets and maintenance requirements. In previous fiscal years, the RC used Contract Logistics Support Teams to alleviate equipment downtime; however, the reduction of baseline funding throughout DoD drastically decreased the use of maintenance support teams to supplement the RC maintainers. Couple that with the lack of proper support facilities, lack of logistics information systems training, and geographic dispersion of maintainers and the maintenance challenges quickly become significant to the point

of affecting readiness. To provide the RC the required maintenance capabilities, budgeting for Contract Logistics 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 ever-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. The RC continues to effectively maintain its T/A equipment in a high state of operational readiness.

B. Changes since the Last NGRER

Continued reductions in Overseas Contingency Operations and NGREA funding will increasingly constrain the RC’s maintenance and procurement capacity.

C. Future Years Program (FY 2018–FY 2020)

1. FY 2020 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 $1.2B to purchase an additional 21 aircraft. 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 will be delivered to the RC by of the end of FY 2017, and only six additional aircraft are programmed in the current FYDP. Compatibility differences between the KC-130J and KC-130T are creating significant challenges in training, manning, and logistical support.

b. RQ-21A Blackjack

Reserve procurement of the RQ-21A has been delayed creating an equipment parity gap with the AC. The first two RC systems will not be delivered until FY 2020, which is 7 years after AC fielding has been completed. The ability of RC VMU Squadrons to conduct mission essential training will be greatly diminished as a result. The RQ-21A Blackjack, is a larger twin-tailed follow-on to the ScanEagle selected in 2010 for procurement by the Navy and Marine Corps to fill the requirement for a Small Tactical Unmanned Aircraft System (STUAS). 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. To better reflect the expanded capability set of this platform, the Marine Corps is making efforts to rename the program of record to MQ-21A.

c. Joint Light Tactical Vehicle

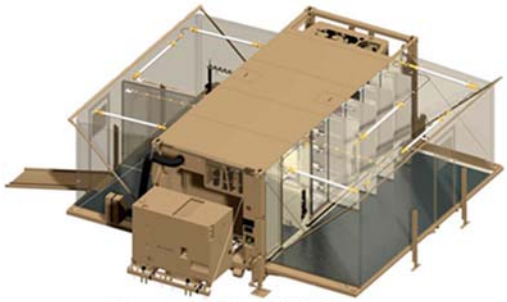
The Joint Light Tactical Vehicle (JLTV) Family of Vehicles (FoV) is a U.S. Army-led, joint vehicle program to replace the high mobility multipurpose wheeled vehicle (HMMWV). The JLTV will provide the Marine Air Ground Task Force with modern expeditionary light combat and tactical mobility while increasing 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 Amphibious Combat Vehicle (ACV) 1.1 is awaiting award 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. The ACV acquisition strategy is in development and subject to Marine Corps decision regarding required capabilities.

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) system 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. In addition to providing a broad range of optimized radar capabilities, AN/TPS-80 G/ATOR provides automatic adaptability via scalable open system architecture. G/ATOR's multi-network capability ensures compatibility with additional DoD command and control systems.

4. Anticipated Transfers from AC to RC

There are no anticipated major equipment transfers from the Active to Reserve Component in the foreseeable future.

5. Anticipated Withdrawals from RC Inventory

Nine KC-130T aircraft are scheduled to be removed from the RC inventory as part of the platform's "sundown" plan. Additionally, the Lightweight Counter-Mortar Radar and Deployable End Office Suite - Transition Switch Module systems are being phased out of Marine Corps Reserve inventory.

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

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 2020. *Table 8 Significant Major Item Shortages* presents the RC's highest priority unfunded equipment and modernization shortfalls affecting Reserve unit training allowances.

D. Summary

"Reserve Component units remain highly interoperable with their Active Component Counterparts. Active and Reserve Component Forces are manned, trained and equipped to the same standards, thereby facilitating the seamless employment of Reserve Component Forces to meet Combatant Commander requirements."[7] Modernizing our force and maintaining the equipment readiness necessary to meet this high standard of RC to AC compatibility is essential to our future readiness as a total force. As unit activations have lessened and funding has decreased, equipping the force has become increasingly difficult. In order to preserve the integrity of the total force the Marine Corps must ensure that total force integration between the AC and RC remain paramount.

[7] Ibid., p. 3.

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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 2017 unit cost estimates are provided by the Military Departments.

Nomenclature	Equip No.	Unit Cost	Begin FY 2018 QTY O/H	Begin FY 2019 QTY O/H	Begin FY 2020 QTY O/H	End FY 2020 QTY O/H	End FY 2020 QTY REQ
Aircraft							
Aircraft, Fighter/Attack, F/A-18A++	F/A-18A++	$36,100,000	11	11	11	11	15
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	13
Aircraft, Refueling/Cargo, KC-130J	KC-130J	$79,061,000	7	11	12	13	15
Aircraft, Refueling/Cargo, KC-130T	KC-130T	$79,610,000	14	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	3	3	3	3	3
Helicopter, Attack, AH-1W	AH-1W	$19,510,000	37	38	25	25	25
Helicopter, Attack AH-1Z	AH-1Z	$30,450,000	0	0	7	7	7
Helicopter, Utility, UH-1Y	UH-1Y	$25,240,000	26	26	26	26	26
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-7B Shadow System	RQ-7B	$15,400,000	2	2	2	2	3
RQ-21A Blackjack System	RQ-21A	$12,789,000	0	0	0	0	3
Tactical Operational Flight Trainer, F/A-18A++	F/A-18A++ TOFT	$4,969,000	1	1	1	1	1
Flight Training Device, KC-130J	KC-130J FTD	$25,000,000	1	1	1	1	2
Fuselage Trainer, KC-130J	KC-130J FUT	$15,500,000	0	0	0	0	2
Cockpit Procedures Trainer, KC-130J	KC-130J CPT	$2,500,000	1	1	1	1	2
Observer Training Aid, KC-130J	KC-130J OTA	$2,000,000	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
Institutional Mission Simulator, RQ-7B	RQ-7B IMS	$800,000	1	1	1	1	1
Communications & Electronics							
Communications Sub-System	A0032	$1,325,179	16	16	16	16	16
High Frequency Vehicle System	A0067	$53,234	153	153	153	153	210
Remote Subscriber Access Module - Transition Switch Module (TSM)	A0124	$69,886	136	136	68	68	68
Deployable End Office Suite - Transition Switch Module (TSM)	A0125	$461,217	32	0	0	0	0
Tactical Handheld Radio (THHR)	A0129	$4,800	1,244	1,273	1,273	1,273	2,087

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Consolidated Major Item Inventory and Requirements

Nomenclature	Equip No.	Unit Cost	Begin FY 2018 QTY O/H	Begin FY 2019 QTY O/H	Begin FY 2020 QTY O/H	End FY 2020 QTY O/H	End FY 2020 QTY REQ
Radio Set	A0139	$47,828	77	72	72	72	109
Radio Set	A0153	$224,839	38	37	37	37	63
Radar Set (LCMR)	A0169	$341,084	5	0	0	0	0
Comm Security Module (CSM)	A0173	$44,550	69	69	69	69	69
LAN Service Module (LSM)	A0174	$92,330	69	69	69	69	69
Computer Digital Data Transfer	A0175	$2,615	72	72	72	72	72
LAN Extension Module	A0176	$27,930	275	275	275	275	275
Application Server Module (ASM)	A0177	$14,980	68	68	68	68	68
Very Small Aperture Terminal - Small (VSAT-S)	A0234	$80,000	25	25	25	25	33
Very Small Aperture Terminal - Medium (VSAT-M)	A0241	$90,000	10	10	10	10	13
Very Small Aperture Terminal - Large (VSAT-L)	A0242	$420,000	14	14	14	14	26
VSAT Master Reference Terminal (MRT)	A0244	$105,000	7	7	7	7	11
Combat Operations Center (COC) V(3)	A0254	$1,848,286	8	8	8	8	12
Combat Operations Center (COC) V(4)	A0255	$1,372,700	20	20	20	20	22
Combat Operations Center (COC) V(2)	A0271	$2,500,000	1	1	1	1	1
Mobile Tactical Air Operations Module (TAOM)	A0305	$2,657,000	2	2	2	2	2
Wan Services Module (WSM) V2	A0312	$41,850	120	120	120	120	165
Group 1 Unmanned Aircraft System (UAS), Raven	A0321	$305,564	22	22	22	22	36
Group 3 UAS, Shadow	A0355	$2,000,500	2	2	2	2	3
Intelligence/Operations Workstation	A0932	$10,000	207	207	207	207	157
Radar Set, Firefinder	A1440	$3,002,536	4	4	4	4	5
Radar Set, Air Traffic Control, Ltwt	A1500	$4,000,000	1	1	1	1	2
Radar Set	A1503	$13,217,555	1	1	1	1	2
Radio Set	A1957	$43,986	217	217	217	217	286
Radio Set, Multiband (Maritime)	A2044	$7,431	225	225	225	225	558
Terminal, Radio, Troposcatter, Digital	A2179	$1,500,000	17	18	18	18	28
TRSS Radio Repeater Set	A2300	$22,687	65	65	65	65	96
Advanced Field Artillery Tactical Data System	A2555	$45,200	153	153	153	153	153
Target Loc, Desig & Hand-Off Sys (TLDHS)(Blk II)	A2560	$27,000	237	237	237	237	237
Tactical SATCOM, Transportable (SMART-T)	A3232	$825,000	6	6	6	6	13
Sensor, Ground, Unattended	A3255	$867,264	6	6	6	6	6
Engineer							
Air Conditioner, Horizontal, 1.5-ton, 60Hz, 18K Btu	B0003	$5,267	209	209	209	209	7
Air Conditioner, 5-ton, 60K; R-22	B0008	$20,000	126	126	126	126	82
Environmental Control Unit, Horizontal, 36K Btu; R-22	B0014	$14,500	847	847	847	847	256
Integrated Trailer, Environmental Control Unit and Generator (ITEG)	B0018	$85,000	40	40	40	40	15
Distribution System, Mobile Elect PWR, 5Kw (Indoor)	B0027	$4,500	435	435	435	435	251
Distribution System, Mobile Elect PWR, 5Kw (Outdoor)	B0028	$7,500	562	562	562	562	353
Distribution System, Mobile Elect PWR, 15Kw	B0029	$8,800	208	208	208	208	196

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Consolidated Major Item Inventory and Requirements

Nomenclature	Equip No.	Unit Cost	Begin FY 2018 QTY O/H	Begin FY 2019 QTY O/H	Begin FY 2020 QTY O/H	End FY 2020 QTY O/H	End FY 2020 QTY REQ
Distribution System, Mobile Elect PWR, 30Kw	B0030	$16,100	287	287	287	287	140
Distribution System, Mobile Elect PWR, 100Kw	B0031	$28,500	136	136	136	136	79
Distribution System, Mobile Elect PWR, 300Kw	B0032	$22,100	31	31	31	31	23
All Terrain Crane (ATC) Mac-50	B0038	$578,000	10	10	10	10	26
Airfield Damage Repair (ADR) Kit	B0039	$450,000	3	3	3	3	7
Medium Crawler Tractor (John Deer)	B0060	$253,000	37	37	37	37	56
Tractor, Rubber Tire, Articulated Steering, Mp	B0063	$198,708	119	119	119	119	106
Light Weight Water Purification System	B0071	$121,784	20	20	20	20	45
Air Conditioner, MCS Horizontal, 60Hz, 9K Btu; R-22	B0074	$10,000	140	140	140	140	17
Grader, Road, Motorized	B0078	$236,008	26	26	26	26	21
Low Metallic Signature Mine Detector	B0102	$35,156	101	101	101	101	186
Boat, Bridge Erection, Inboard Engine	B0114	$128,537	16	16	16	16	63
Interior Bay, M17	B0121	$111,968	57	57	57	57	108
Ramp Bay	B0122	$134,112	29	29	29	29	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	10	10	10	10	20
Tactical Airfield Fuel Dispensing System (TAFDS) (Firestone)	B0675	$331,062	1	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	293	293	293	293	182
Generator Set, Skid Mtd, 10Kw/60Hz, TQD	B0891	$13,635	303	303	303	303	225
Generator Set, Skid Mtd, 30Kw/60Hz, TQD	B0953	$26,705	213	213	213	213	284
Generator, Ltwt, Man-Portable	B0980	$5,262	340	340	340	340	71
Generator Set, Skid-mtd, 60Kw/60Hz, TQD	B1021	$16,722	214	214	214	214	211
Generator Set, 100Kw, 60Hz, Skid-mtd, TQD	B1045	$35,141	96	96	96	96	58
Refueling System, Expedient, Helo	B1135	$101,863	8	8	8	8	9
Pump Module, Fuel (SIXCON)	B1580	$23,350	140	140	140	140	135
Roller, Compactor, Vibratory, Self-Propelled	B1785	$155,150	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	318	318	318	318	307
Sweeper, Rotary, Vehicle Mounting	B2127	$130,000	6	6	6	6	6
Loader, Backhoe (BHL)	B2483	$78,000	27	27	27	27	34
Truck, Forklift, Variable Reach	B2561	$85,491	57	57	57	57	67
Forklift, RT, Lt Capability (LRTF)	B2566	$33,000	127	127	127	127	89
Purification System, Water, Tactical	B2605	$350,000	11	11	11	11	33
General Supply							
Escalation of Force-Mission Modules (EOF-MM)	C0104	$422,000	5	5	5	5	9
Device, Propulsion, Diver	C4549	$77,270	18	18	18	18	20
Raiding Craft, Combat, Rubber, Inflatable (CRRC)	C5901	$12,389	57	57	57	57	86

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Consolidated Major Item Inventory and Requirements

Nomenclature	Equip No.	Unit Cost	Begin FY 2018 QTY O/H	Begin FY 2019 QTY O/H	Begin FY 2020 QTY O/H	End FY 2020 QTY O/H	End FY 2020 QTY REQ
Motor Transport							
Truck, Armored, Cargo 7-ton, W/O Winch Reducible	D0003	$153,900	100	100	100	100	445
Truck, Armored, XLWB, W/O Winch Reducible	D0005	$237,300	0	0	0	0	84
Truck, Armored, Dump 7-ton W/O Winch Reducible	D0007	$173,900	2	2	2	2	40
Truck, RTAA, Tractor, 7-ton, W/O Winch	D0009	$220,000	38	38	38	38	19
Truck, Armored, Tractor, 7-ton, W/O Winch, Reducible	D0013	$220,000	16	16	16	16	54
Truck, Armored, Wrecker, 7-ton, W/Winch Non-Reducible	D0015	$400,000	50	50	50	50	55
Truck, Utility, Expanded Capacity, Enhanced, M1152	D0022	$179,831	410	410	410	410	346
Truck, Utility, Expanded Capacity, Armament Carrier	D0030	$229,689	742	742	742	742	746
Truck, Utility, Expanded Capacity, C2/GP Vehicle	D0031	$204,413	153	153	153	153	126
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	160	160	160	160	295
Truck, Utility, Ground Mobility Vehicle, Armored (4-door)	D0034	$321,959	137	137	137	137	239
Truck, RTAA, Cargo, 7-ton, W/O Winch	D0198	$216,801	718	718	718	718	440
Semitrailer, Refueler, 5,000 gal	D0215	$214,064	23	23	23	23	64
Semitrailer, Lowbed, 40-ton	D0235	$22,947	46	46	46	46	58
Trailer, Cargo, Resupply for HIMARS	D0861	$56,156	38	38	38	38	36
Truck Cargo 22.5-ton, 10X10, (LVSR)	D0886	$724,828	135	135	135	135	242
Truck, Tractor, 10X10 (LVSR)	D0887	$653,179	44	44	44	44	59
Truck, Ambulance, 4-Litter, Armored, 2 1/4-ton, HMMWV	D1001	$137,638	68	68	68	68	87
Truck, Ambulance, 2-Litter, Soft Top, 2 1/4-ton, HMMWV	D1002	$39,210	34	34	34	34	38
Truck, RTAA, XLWB Cargo, 7-ton, W/O Winch	D1062	$238,424	91	91	91	91	141
HIMARS, Armored Resupply Vehicle, Non-Reducible	D1063	$404,398	36	36	36	36	36
Truck, Fire Fighting, Aircraft and Structure	D1064	$162,562	12	12	12	12	18
Truck, RTAA, Dump, 7-ton, W/O Winch	D1073	$229,576	46	46	46	46	34
Truck, Util, Cargo/Troop Carr, 1 1/4-ton, W/Eqp, HMMWV	D1158	$34,735	605	605	605	605	536
Truck, Utility: Internally Transportable Vehicle, Light Strike Variant (ITV-LSV)	D1161	$256,547	0	0	0	0	30
Truck, Wrecker, 10X10 (LVSR)	D1214	$1,013,405	15	15	15	15	25
Ordnance & Weapons							
Scout Sniper Mid-Range Night Sight (SSMRNS)	E0020	$8,795	530	530	530	530	441
Portable Lightweight Designator Rangefinder (PLDR)	E0042	$79,400	79	79	79	79	108
Saber System	E0055	$970,000	78	78	78	78	92
MTRS EOD Packbot	E0064	$164,484	1	1	1	1	3
Semiautomatic Sniper System (SASS)	E0103	$8,500	197	197	197	197	160
Circle, Aiming	E0180	$3,725	108	108	108	108	96
Javelin	E0207	$126,824	75	75	75	75	64
Equipment Set, Night Vision	E0330	$116,014	23	23	23	23	0
Howitzer, Lightweight, Towed, 155mm	E0671	$1,600,000	48	48	48	48	48
Assault Amphibious Vehicle (AAV), Command	E0796	$838,420	5	5	5	5	9

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Table 1

Consolidated Major Item Inventory and Requirements

Nomenclature	Equip No.	Unit Cost	Begin FY 2018 QTY O/H	Begin FY 2019 QTY O/H	Begin FY 2020 QTY O/H	End FY 2020 QTY O/H	End FY 2020 QTY REQ
Assault Amphibious Vehicle, Personnel	E0846	$644,780	63	63	63	63	182
Assault Amphibious Vehicle, Recovery	E0856	$2,000,000	5	5	5	5	7
Launcher, Rocket, Assault, 83mm	E0915	$37,604	208	208	208	208	189
Launcher, Tubular, F/GM TOW Weapon System	E0935	$75,742	20	20	20	20	26
Light Armored Vehicle (LAV), Anti-Tank	E0942	$840,637	18	18	18	18	24
LAV, Command & Control (Battalion)	E0946	$592,911	10	10	10	10	10
LAV, Light Assault, 25mm	E0947	$543,918	88	88	88	88	88
LAV, Logistics	E0948	$386,380	22	22	22	22	22
LAV, Mortar	E0949	$435,797	12	12	12	12	12
LAV, Maintenance/Recovery	E0950	$431,368	8	8	8	8	8
Machine Gun, Cal .50, Browning, HB Flexible	E0980	$8,118	896	896	896	896	637
Machine Gun, Medium, 7.62mm, Ground Version	E0989	$6,578	1,761	1,761	1,761	1,761	1,444
Heavy Machine Gun, 40mm	E0994	$15,320	609	609	609	609	552
Common Laser Range Finder System	E1048	$26,236	526	526	526	526	557
Mortar, LW Company, 60mm, M224A1	E1065	$55,879	72	72	72	72	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	10	10	10	10	20
Neutralization Device, Ordnance, Remote, MK3MOD0	E1385	$198,000	0	0	0	0	3
Rifle, Sniper, 7.62mm, M40A5	E1460	$7,503	149	149	149	149	137
Rifle, Scoped, Special Application, .50 Cal.	E1475	$6,405	80	80	80	80	71
Rocket System, Artillery, High Mobility (HIMARS)	E1500	$2,500,000	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	48	48	48	48	84
Sight, Weapon, Thermal, Medium (MTWS)	E1975	$17,591	1,307	1,307	1,307	1,307	1,232
Sight, Weapon, Thermal, Heavy (HTWS)	E1976	$19,306	1,496	1,496	1,496	1,496	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.

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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 2017.

Nomenclature	Equip No.	Average Age	Remarks
Aircraft			
Aircraft, Fighter/Attack, F/A-18A++	F/A-18A++	30	
Aircraft, Refueling/Cargo, KC-130T	KC-130T	23	
Aircraft, Refueling/Cargo, KC-130J	KC-130J	7	
Aircraft, Utility/Cargo, UC-12W	UC-12W	6	
Aircraft, Utility/Cargo, UC-35C	UC-35C	17	
Aircraft, Utility/Cargo, UC-35D	UC-35D	13	
Aircraft, Fighter, F-5F	F-5F	38	
Aircraft, Fighter, F-5N	F-5N	36	
Tilt-rotor, Cargo, MV-22B	MV-22B	8	
Helicopter, Attack, AH-1W	AH-1W	22	
Helicopter, Utility, UH-1Y	UH-1Y	2	
Helicopter, Cargo, CH-53E	CH-53E	22	
RQ-7B Shadow System	RQ-7B	8	
Communications/Electronics			
High Frequency Vehicle System	A0067	11	
Radio Set	A0153	8	
Very Small Aperture Terminal - Small (VSAT-S)	A0234	4	
Very Small Aperture Terminal - Medium (VSAT-M)	A0241	4	
Very Small Aperture Terminal - Large (VSAT-L)	A0242	3	
VSAT Master Reference Terminal (MRT)	A0244	4	
Combat Operations Center (COC) V(3)	A0254	8	
Combat Operations Center (COC) V(4)	A0255	8	
Combat Operations Center (COC) V(2)	A0271	7	
Radio Set	A1957	19	
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	12	
Truck, RTAA, Tractor, 7-ton, W/O Winch	D0009	12	
Truck, Armored, Tractor, 7-ton, W/O Winch, Reducible	D0013	12	
Truck, Armored, Wrecker, 7-ton, W/Winch Non-Reducible	D0015	10	
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	9	

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Table 2

Average Age of Equipment

Nomenclature	Equip No.	Average Age	Remarks
Semitrailer, Lowbed, 40-ton	D0235	14	
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	8	
Truck, Fire Fighting, Aircraft and Structure	D1064	28	
Truck, RTAA, Dump, 7-ton, W/O Winch	D1073	12	
Truck, Wrecker, 10X10 (LVSR)	D1214	4	
Ordnance & Weapons			
Saber System	E0055	6	
Javelin	E0207	6	
Equipment Set, Night Vision	E0330	30	
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	34	
Launcher, Tubular, F/GM TOW Weapon System	E0935	30	
Light Armored Vehicle (LAV), Anti-Tank	E0942	24	
LAV, Command & Control (Battalion)	E0946	22	
LAV, Light Assault, 25mm	E0947	25	
LAV, Logistics	E0948	23	
LAV, Mortar	E0949	24	
LAV, Maintenance/Recovery	E0950	29	
Recovery Vehicle, Full-tracked, Heavy, W/Equip	E1378	10	
Rocket System, Artillery, High Mobility (HIMARS)	E1500	9	
Tank, Combat, Full-tracked, 120mm Gun	E1888	19	

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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 2018 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 2018 are expected to arrive in RC inventories in FY 2019 or FY 2020.

Nomenclature	FY 2018	FY 2019	FY 2020
P-1R data from FY 2018 President's Budget Submission was not available in time for publication in the FY 2018 NGRER.			
The FY 2018 P-1R will be available on the Office of the Under Secretary of Defense (Comptroller) public web site (http://comptroller.defense.gov/Budget-Materials/) upon release of the FY 2018 President's Budget Submission.			

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 2017 would be expected to arrive in RC inventories in FY 2018 or FY 2019. All values are costs in dollars.

Nomenclature	FY 2015	FY 2016	FY 2017[1]
FY 2015 NGREA Equipment			
KC-130J Fuselage Trainer	$15,036,976		
KC-130J Observer Training Aid (OTA)	2,438,024		
KC-130T Weather Radar Replacement	1,700,000		
KC-130T Engine Instrument Display System (EIDS) and Electronic Propeller Control System (EPCS) Modification	525,000		
AH-1Z Flight Training Device	17,045,013		
Wideband Manpack Tactical Radios AN/PRC-117G	8,640,000		
Marine Corps Common Hardware Suite General Purpose Tactical Laptop Computer	6,738,060		
Rugged Tablet Convertible Laptop Computer	717,707		
Marine Corps Common Hardware Suite Rugged Tactical Laptop Computer	513,520		
Marine Corps Cyber Range Node Training and Simulation Environment	4,251,000		
Visual Database Upgrade for CH-53E Flight Training Device	2,377,000		
Geospatial Mapping Computers	17,700		
FY 2016 NGREA Equipment			
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	
Laser Designator, AN/PEQ-19 (JTACLTD)		901,800	
Global Combat Support System-Marine Corps (GCSS-MC) Mobile Training Suite		871,000	
Directional Laser, LA-9/P		366,380	
Man Portable Video Downlink (MPVDL)		200,651	
Tactical Handheld Radio (THHR), AN/PRC-152(V)1		182,400	
Very Small Aperture Terminal (VSAT) - Large		295,000	
Very Small Aperture Terminal (VSAT) - Small		240,000	
Common Laser Rangefinder, AN/PEQ-13		262,360	
Counterintelligence and Human Intelligence Equipment Program (CIHEP) Media Exploitation Suite (Light)		230,000	
Laser Transmitter		161,700	
Thermal Sight, AN/PAS-25		90,000	
Radio Set Single Vehicle Adapter, AN/VRC-112		77,760	
Night Vision Goggles (NVG) Mounting Device		38,500	
Aircraft Tire Bead Breaker		25,794	
Cable Kit, Fiber Optic		22,152	
Tool Kit, Fiber Optic		14,348	
Tool Kit MTVR/LVSR, Hydraulic		11,649	
Total	**60,000,000**	**$10,000,000**	

1. Service FY 2017 NGREA equipment list was not available in time for publication in the NGRER. Equipment list for FY 2017 will be provided in next year's NGRER.

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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 2018 Qty	FY 2019 Qty	FY 2020 Qty	Remarks
Aircraft, Refueling/Cargo, KC-130J	KC-130J	+4	+1	+1	New aircraft deliveries.
Aircraft, Refueling/Cargo, KC-130T	KC-130T	-5	-4	-5	KC-130T reductions per the platform sundown plan.
Remote Subscriber Access Module - Transition Switch Module (TSM)	A0124		-68		RSAM Approved Acquisition Objective (AAO) being reduced across the USMC inventory.
Deployable End Office Suite - Transition Switch Module (TSM)	A0125	-32			DEOS disposal underway. To be removed from entire USMC inventory by FY 2018.
Radar Set (LCMR)	A0169	-5			Reserve AAO reducing to zero.

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Table 6

FY 2014 Planned vs Actual Procurements and Transfers

NOTE: This table compares planned Service procurements and transfers to the RC in FY 2014 with actual procurements and transfers. FY 2014 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 2016. Procurement and NGREA columns reflect cost values in dollars.

Nomenclature	Equip No.	FY 2014 Transfers (# of items)		FY 2014 Procurements ($s)		FY 2014 NGREA ($s)	
		Plan	Actual	Plan	Actual	Plan	Actual
FY 2014 Planned Transfers & Withdrawals							
Helicopter, Cargo, CH-46E	CH-46E	-13	-7				
Helicopter, Utility, UH-1N	UH-1N	-6	-15				
FY 2014 P-1R Equipment							
Weapons and Combat Vehicles							
Assault Amphibious Vehicle (AAV7A1) Product Improvement Program (PIP)				$351,000	$351,000		
Light Armored Vehicle (LAV) PIP				954,000	0		
155mm Lightweight Towed Howitzer				597,000	597,000		
High Mobility Artillery Rocket System				1,893,000	1,893,000		
Weapons and Combat Vehicles under $5M				1,715,000	1,715,000		
Modification Kits				4,756,000	4,756,000		
Guided Missiles and Equipment							
Anti-Armor Weapons System-Heavy (AAWS-H)				167,000	167,000		
Communications and Electronics Equipment							
Unit Operations Center				2,295,000	1,070,000		
Repair and Test Equipment				3,584,000	3,584,000		
Items under $5M (Communications & Electronics)				39,000	39,000		
Air Operations Command and Control (C2) System				608,000	608,000		
Radar Systems				2,142,000	2,142,000		
Fire Support System				1,390,000	1,353,000		
Intelligence Support Equipment				1,072,000	1,071,000		
RQ-11 Unmanned Aerial Vehicle (UAV)				410,000	410,000		
Common Computer Resources				347,000	0		
Command Post Systems				3,835,000	0		
Radio Systems				186,000	186,000		
Communications Switching & Control Systems				4,582,000	2,679,000		
Support Vehicles							
Motor Transport Modifications				1,595,000	1,579,000		
Family of Tactical Vehicles				8,323,000	3,731,000		
Engineer and Other Equipment							
Environmental Control Equipment				2,848,000	2,848,000		
Bulk Liquid Equipment				3,108,000	3,108,000		
Tactical Fuel Systems				3,084,000	2,179,000		
Power Equipment Assorted				4,393,000	4,393,000		
Amphibious Support Equipment				898,000	898,000		

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Table 6

FY 2014 Planned vs Actual Procurements and Transfers

Nomenclature	Equip No.	FY 2014 Transfers (# of items)		FY 2014 Procurements ($s)		FY 2014 NGREA ($s)	
		Plan	Actual	Plan	Actual	Plan	Actual
Material Handling Equipment				4,688,000	1,416,000		
Container Family				1,088,000	1,088,000		
Family of Construction Equipment				3,134,000	3,013,000		
Items less than $5M (Engineer)				454,000	454,000		
Spares and Repair Parts							
Spares and Repair Parts				5,000	5,000		
FY 2014 NGREA Equipment							
Helmet Display Tracker System (HDTS) A and P Kits (AH-1)						$6,656,304	$3,632,162
HDTS Helmets (AH-1)						1,433,500	807,418
HDTS Fast Characterization Tool (FACT) (AH-1)						837,435	837,435
HDTS Ready Room Units (AH-1)						300,174	300,174
HDTS Advanced Sight & Display Computer (ASDC) Loader (AH-1)						81,831	0
Request Pending						50,690,756	0
Common Laser Range Finder-Integrated Capability (CLRF-IC)						0	13,145,300
Abrams Integrated Display and Targeting System (AIDTS) for the M1A1 Abrams Tank						0	5,723,100
Slew to Cue (STC) upgrade to the M1A1 Abrams Tank						0	2,444,000
Tactical Exploitation Group-Remote Workstation (TEG-RWS)						0	1,582,000
Communications Security (COMSEC) Equipment						0	327,000
Funding ($30,963,311) reprogrammed to other Reserve Components							
Total				**$64,541,000**	**$47,333,000**	**$60,000,000**	**$28,798,589**

USMCR
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

Service Does Not Use Substitution to Satisfy Major Item Equipment Requirements

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Table 8

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	21	15	$79,061,000	$1,185,915,000	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. Only six aircraft are programmed for the Reserve Component (RC) within the Future Years Defense Program (FYDP).
2	RQ-21 Small Tactical Unmanned Aircraft System (STUAS)	9	9	$10,000,000	$90,000,000	RC procurement delayed due to budgetary constraints. Lack of systems creates significant capability gap between RC and AC. The RC is unable to execute the entire range of assigned mission-essential tasks without system procurement.
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	Lightweight Water Purification System	53	29	$202,441	$5,870,789	Without NGREA funding the next available opportunity to fund this effort would be during POM-19 (if funds are approved). Current funds until FY 2021 are planned for two new start programs and sustainment of existing Stores Account Code (SAC) 3 items.
5	Logistics Vehicle System Replacement (LVSR) Wrecker Unarmored	25	10	$1,013,405	$10,134,050	Marine Forces Reserve (MARFORRES) units use the MKR15 wrecker as a recovery asset on improved roads, highways, and cross-country terrain. The wrecker is equipped as a universal recovery asset vice a MTVR wrecker. NGREA funding will cover shortfalls in the Table of Equipment. The MKR15 fielding efforts is currently unfunded for MARFORRES units throughout the FYDP.
6	M7 Rifle Combat Optic (RCO)	7,456	7,456	$864	$6,441,984	MARFORRES infantry units are equipped with the inferior legacy Rifle Combat Optic (RCO) for their M4 service rifles. AC infantry units are being provided an improved M7 RCO beginning in FY 2016. NGREA funding will equip all MARFORRES infantry Marines with improved M7 RCOs, bringing them on par with AC counterparts. Providing MARFORRES infantry Marines with the M7 RCO streamlines training, extends service life, and improves reliability. The M7 modernization effort is currently unfunded for MARFORRES units throughout the FYDP.

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Table 8

Significant Major Item Shortages

PR	Nomenclature	Total Req'd	# Items Short	Item Cost	Total Shortage Cost	Rationale/Justification
7	Sniper Range Finder	335	335	$7,600	$2,546,000	During FY 2018 AC infantry and reconnaissance units will be fielded the Sniper Range Finder to support accurate ranges to target for ballistic firing solution calculations. MARFORRES will not be fielded and reach Full Operational Capability until late FY 2023 unless funding is provided to procure the systems prior to FY 2019.
8	Intelligence Analysis System (IAS) Tier III Intelligence Workstation (IW)	330	169	$10,385	$1,755,065	The RC is not appropriately equipped for the Intelligence sections to conduct daily operations during a drill weekend and the unit's Annual Training period. Procurement will enable the Selected Marine Corps Reserve (SMCR), Active reserve, and AC Marines assigned to individual units to conduct mission essential daily tasks.

Chapter 4
United States Navy Reserve

I. Navy Overview

A. Navy Planning Guidance

For over two centuries, the United States Navy has served as a solid foundation for America's security and prosperity. At any given time, over 50,000 Sailors are deployed across the globe performing a myriad of aviation, surface, subsurface, expeditionary, and information warfare missions that protect American interests both at home and abroad." The framework for advancing those interests is set forth by the Chief of Naval Operations (CNO) in the 2016 *A Design for Maintaining Maritime Superiority* through four specific lines of effort: warfighting, learning faster, strengthening our Navy team, and building partnerships. The United States Navy Reserve plays an integral role in strengthening those lines of effort. The CNO states:

> We are one Navy Team – comprised of a diverse mix of active duty and reserve Sailors, Navy Civilians, and our families – with a history of service, sacrifice and success. We will build on this history to create a climate of operational excellence that will keep us ready to prevail in all future challenges.[1]

The United States Navy Reserve provides strategic depth and delivers operational capability to the Navy, Marine Corps, and joint forces that is strategically aligned with Navy mission requirements and valued for high levels of readiness, innovation, and agility. As a result of these efforts, the Navy Reserve has maintained an increased operational pace for more than 15 years as follows:

> The Navy Reserve's ability to maintain consistently high levels of readiness is the result of a combination of our integrated force structure, enforcement of military standards, and the operational support our Sailors routinely perform. In any given week nearly 25 percent of the Navy Reserve is delivering operational support to the Navy and the Joint Force across the globe, generating readiness as a regular product of the way we do business. The Navy Reserve is poised and able to respond rapidly to operational surge demand signals because a surge is simply an extension of how we operate on a daily basis. In fact, Navy relies on RC Sailors to fill 75 percent of Individual Augmentation mobilizations in support of the Joint Force. Over 75,000 mobilizations since 9/11 bear witness to the success and effectiveness of this force generation model.[2]

The Navy Reserve plays a significant role in accomplishing the Navy's mission and focuses on delivering a ready and accessible force, providing valued capabilities, and enabling the service of our Sailors and Civilians. Fully aligning and resourcing the Navy Reserve is critical to readiness and successful mission accomplishment.

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[1] *A Design for Maintaining Maritime Superiority*, January 2016, p. 7.
[2] Chief of Navy Reserve Statement, Hearing before the Senate Subcommittee on Defense, March 16, 2016, p. 6-7.

B. Navy Equipping Policy

Navy policy, which applies to both Active Component (AC) and Reserve Component (RC), 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 same methodology as AC units with the same mobilization mission and following CNO established guidance.

Within the Fleet Readiness Enterprise, five warfare enterprises (Naval Aviation Enterprise, Surface Warfare Enterprise, Undersea Warfare Enterprise, Naval Information Warfare Enterprise, and Naval Expeditionary Combat Enterprise) identify RC requirements established per required operational capability/projected operational environment guidance for new equipment as part of the Navy's resource-allocation process. This equipment is used to generate and sustain fleet readiness during at-home training and forward-based operations and is ready to surge in response to a request for forces.

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

The Chief of Navy Reserve promulgated a strategic plan *Navy Reserve Vision 2015–2025: Our Course to the Future*, which outlines five strategic imperatives:

1. Keep pace with Navy's future capabilities
2. Maintain a ready force for tomorrow
3. Actively employ each Sailor's unique capabilities
4. Deliver technologically advanced solutions
5. Develop transformational leaders

In alignment with the Navy Reserve Vision, the Navy has multiple ongoing initiatives to modernize and improve RC operational capabilities in support of the CNO's lines of effort. Significant examples follow.

- **C-40A Clipper**: The Navy Reserve accepted the delivery of one C-40A cargo aircraft in FY 2017. The C-40A is a replacement for the retired C-9B and aging C-20G aircraft and remains a critical RC requirement. The minimum inventory requirement is 17 C-40A aircraft. To date, 15 of the 17 have been procured through a combination of National Guard and

Reserve Equipment Appropriation (NGREA) funds, Congressional adds, and the President's Budget. Funding sources for these aircraft are displayed in Table 4-1.

Table 4-1. RC C-40A Funding

FY	Quantity	Funding source
1997	2	NGREA
1998	1	NGREA
1999	1	NGREA
2000	1	President's Budget
2001	1	Congressional add
2003	1	Congressional add
2004	1	President's Budget
2005	1	President's Budget
2009	2	President's Budget
2010	1	President's Budget
2011	1	Congressional add
2012	1	NGREA
2013	1	Congressional add

- **F/A-18 Hornet**: The Navy Reserve operates 33 legacy F/A-18 aircraft (29 F/A-18A+, 2 F/A-18B, and 1 F/A-18C) shared between two squadrons. In addition to providing adversary support, these squadrons play a critical role as the strike fighter (VFA) strategic reserve. With an average airframe age of 30 years, RC aircraft are increasingly less capable than modern F/A-18E Super Hornets. As a result, RC squadrons face challenges in meeting requirements for advanced strike tactics and simulating current advanced threat aircraft. As Naval Aviation prepares for potential adversaries, RC Hornets will need to be recapitalized with next generation capability to continue to provide realistic threat-representative training for Fleet Naval aviators. Recapitalized RC squadrons will also serve as a more capable 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 and the MQ-8B/C Fire Scout. 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 Full Operational Capability (FOC).

- **F-5 Tiger II**: The Navy Reserve operates 32 F-5 Tiger II aircraft (30 F-5N and 2 F-5F) in an adversary support role to the AC. While the F-5 is economical and suitable for training Fleet pilots in basic fighter maneuvers, air-to-air tactics 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 improve the F-5's ability to provide advanced, threat-

representative air-to-air training to deploying carrier air wings and student pilots. Current Navy adversary capacity is able to meet only about 50 percent of the Fleet's annual sortie requirement. Procuring additional F-5s (at a fraction of the cost of other modern fighter aircraft) will help alleviate this shortfall. The proposed 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 at least FY 2025.

- **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 Global Force Management (GFM) deployments in FY 2018 and 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 FOC of the Advanced Airborne Sensor and its corresponding 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.

- **C-130T/KC-130J**: The Fleet Logistics Support Wing (FLSW) C-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 through an innovative Aircraft Obsolescence Upgrade that will enable Navy Reserve C-130Ts to continue supporting fleet requirements and increase NUFEA aircraft availability for worldwide logistics tasking. Nineteen of the 24 aircraft are currently scheduled to receive this upgrade with initial operational capability slated for FY 2018. In the long-term, aging C-130T airframes will require recapitalization with the KC-130J.

- **MH-60R**: The Navy Reserve's only helicopter maritime strike squadron, HSM-60, is now located at Naval Air Station (NAS) Jacksonville, Florida, and continues to support fleet requirements for Anti-Submarine Warfare (ASW), Anti-Surface Warfare (ASU), Counter-Transnational Organized Crime (CTOC) operations, Search and Rescue (SAR), and Maritime Interdiction Operations (MIO) missions. To further enhance the RC MH-60R capabilities, NGREA-funded aircraft modifications are underway to install Heads Up Display (HUD) capability in five of the squadron's seven MH-60R aircraft

- **HH-60H/MH-60S**: The Navy Reserve's only helicopter sea combat squadron, HSC-85 operates 10 legacy HH-60H helicopters in a dedicated Special Operations Forces (SOF) support role. The HH-60H has proven to be an effective SOF support aircraft with the RC flying thousands of hours during sustained SOF combat operations in Iraq without a single loss to enemy action. With an average airframe age of 23 years, the HH-60H requires significant modernization upgrades to confront and counter emerging threats and provide baseline SOF support capabilities. While the AC has transitioned from the HH-60H to the MH-60S, inventory shortfalls and SOF support capability gaps have prevented the RC transition; no upgrade or recapitalization plan currently exists. The RC transitioning to the MH-60S will improve efficiencies, reduce operating and training costs, and ensure the RC has an advanced helicopter to support SOF operations. With a Congressional mandate for the

Navy Reserve to provide dedicated SOF support, the Navy Reserve will need to modernize or recapitalize to a next-generation dedicated SOF support helicopter.

- **Coastal Riverine Force (CRF)**: In FY 2014, the Navy Reserve CRF assumed continental United States (CONUS) high-value unit escort missions from the United States Coast Guard. These missions have expanded to six locations across both coasts in FY 2017. With this expanded RC mission, associated force structure, and challenges exacerbated by the obsolescence of the current Patrol Boats within the Future Years Defense Program, the CRF will require additional resourcing for full modernization and outfitting.

- **Space and Naval Warfare Systems Command (SPAWAR) Reserve Program (SRP)**: SPAWAR Military Management Office and the SPAWAR Reserve Program (SRP) acquired equipment through the last several years of the NGREA purchases that has allowed for the assembly of 15 mobile equipment kits in support of SRP Network Operations Support Teams (NSTs). These teams travel to fleet concentration areas to deliver classroom foundational information technology training, network and security simulation laboratories, and online testing access. The SRP NSTs presently conduct approximately 30 training and certification detachments as well as training and testing nearly 500 Information Warfare community students from about 200 fleet commands annually. These kits also enable Fleet user training of virtualized server technologies vital to new afloat network systems and facilitate the purchase of circuit repair assemblies and microscopes for maintenance of Unmanned Underwater Vehicles (UUV) and Surface Unmanned Vehicles (SUV).

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. The Navy must have interoperability between all elements of the Total Force to ensure safe and effective mission accomplishment. The following are several recent NGREA procurements that have greatly improved AC/RC compatibility: night vision goggles heads-up display modifications for MH-60R aircraft; F/A-18A+ joint helmet-mounted cueing system which enabled a common fleet configuration that enhanced interoperability; littoral combat ship (LCS) Firearms Training Simulator (FATS) for weapons familiarization and qualification sustainment for increased CONUS and outside CONUS in-port watch standing capacity; and search and rescue (SAR) swimmer equipment will enable qualified Navy Reserve SAR swimmers to train for and execute potential surge support to LCS. 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

Navy Reserve Vision 2015-2016: Our Course to the Future, in alignment with the Chief of Naval Operations' *A Design for Maintaining Maritime Superiority*, articulated a collaborative vision where the RC will continue to build on the operational proficiencies in order to remain ready to respond to emerging missions.

Top Navy Reserve Equipping Challenges

- Aircraft procurement (C-40A, F/A-18E, P-8A, KC-130J)
- Expeditionary equipment procurement (Coastal Riverine Force [CRF], Naval Construction Force [NCF], and Navy Expeditionary Logistics Support Group [NAVELSG])
- Equipment incompatibility with AC

The Navy Reserve motto of "*Ready now. Anytime. Anywhere.*" serves as a pledge to provide ready capabilities when and where needed. As stated by the Chief of Navy Reserve in testimony before the Senate Subcommittee on Defense:

> Most Reserve Sailors now routinely work and train alongside their AC counterparts. Due to the high levels of personnel and mission readiness attained as a result of this synergy, our Sailors are able to provide a rapid response to calls for support from the Navy and Joint Force, often on a moment's notice. Additionally, where appropriate, our hardware units are aligned and integrated with active component training and deployment cycles. These RC units, comprised of military professionals with extensive operational experience, act as force multipliers through mission augmentation and surge capacity where and when needed.[3]

The Navy Reserve is comprised of a highly-skilled and cost-effective workforce that is relied upon as a dependable source of strength to mitigate risk and offset cost. Navy Reserve Sailors play a vital role for combatant commanders (CCDRs) around the globe for Naval and joint force operations, so vital in fact that Congress enacted legislation that added a new section to United States Code Title 10 (12304b) allowing Reserve forces to be ordered to active duty in support of CCDR's preplanned missions:

> When the Secretary of a military department determines that it is necessary to augment the active forces for a preplanned mission in support of a combatant command, the Secretary may, subject to subsection (b), order any unit of the Selected Reserve (as defined in section 10143(a) of this title), without the consent of the members, to active duty for not more than 365 consecutive days.[4]

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 2016, 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) participating through Inactive Duty Training, Annual Training, or Active Duty for Training. This ready and accessible force provides

[3] Ibid., p. 2.
[4] 10 U.S.C § 12304b.

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. Furthermore, Navy Reserve Sailors bring a reliable surge capability, thereby providing increased capacity at a reduced cost.

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

- The Fleet Logistics Support Wing (FLSW) supported an emergent crew swap for the USS FLORIDA consisting of 178 sailors and 11 tons of cargo when a previously scheduled military airlift was canceled within one week of the planned departure date. Despite the short notice, two C-40As were able to support the mission and transported the crew and cargo from Jacksonville, Florida, to Souda Bay, Greece. This single mission generated significant cost avoidance for the Navy while validating Reserve capabilities to support future crew swaps.
- In 2016, four Reserve fighter squadrons provided over 80 percent of the Navy's dedicated adversary or "Red Air" support, delivering critical tactical aviation expertise to simulate airborne threats to prepare Fleet Naval Aviators for the rigors of air-to-air combat.
- Navy Expeditionary Combat Command (NECC) Reserve CRF squadrons assumed the high-value unit escort mission from the United States Coast Guard and provided essential protection for vessels transiting in and out of six U.S. ports.
- Reserve pilots comprising 13 percent of the instructor cadre in the Naval Air Training Command flew over 20 percent of the total instructional flight hours.

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 detachments operating C-40A, C-20G, C-37A/B, and C-130T aircraft.

C-40A Clipper: The C-40A is the designated replacement for Navy Reserve C-20G aircraft. It offers increased range, payload, reliability, and the unique capability of simultaneously carrying hazardous cargo and passengers. Significant airlift recapitalization was initiated in FY 1997 when defense committees approved procuring the first two C-40A aircraft with NGREA, thus initiating the replacement effort for the C-9B fleet. Thirteen more C-40As were procured between FY 1998 and FY 2013 through a combination of NGREA, Congressional adds, and the President's Budget. Today, 15 C-40As are operated by VR-56 at NAS Oceana, 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, continue to face resourcing challenges that threaten future compliance with international flight standards. The C-130T/KC-130T fleet is not uniformly configured, and thus requiring 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, the lack of a certified Global Positioning System (GPS), and the lack of 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 (DON) 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 Hickam-Pearl Harbor, 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, F-5 F/N).

EA-6B/EA-18G: VAQ-209 operates out of NAS Whidbey Island, Washington, and has been integral to the AEA Global Force Management Allocation Plan (GFMAP) by deploying continuously in support of CCMD requirements around the world. In FY 2013, the Navy relocated VAQ-209 from JB-Andrews, Maryland, to NAS Whidbey Island, Washington, and recapitalized legacy EA-6B aircraft with five EA-18G Growler aircraft. 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 critical operational and strategic reserve AEA capability by mitigating the Navy's AEA capacity and capability gaps with the Navy's newest and most proficient tactical airframe. The squadron completed a successful operational deployment to the United States Pacific Command area of responsibility in FY 2016 and is currently on the GFMAP for future deployments.

F/A-18 Hornet: Two Reserve F/A-18 squadrons, VFA-204 at NAS JRB New Orleans, Louisiana, and VFC-12 at NAS Oceana, Virginia, 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 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 over 30 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.

F-5 Tiger II: Two F-5 squadrons, VFC-13 at NAS Fallon, Nevada, and VFC-111 at NAS Key West, Florida, provide more than 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 fleet as well as procurement of additional F-5 aircraft would facilitate decreasing this capacity gap.

c. Maritime Patrol and Reconnaissance Aircraft (MPRA)

The RC operates two Marine Patrol and Reconnaissance Force (MPRF) squadrons: VP-62 at NAS Jacksonville, Florida, and VP-69 at NAS Whidbey Island, Washington. Both squadrons account for 13 percent of the Navy's MPRF supporting ASW, ASU, and 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.

d. Rotary-Wing Aviation

Navy Reserve helicopter squadrons perform a variety of fleet support missions including ASW, ASU, CTOC operations, SAR, 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. These RC units will consist of HSM-60 at NAS Jacksonville, Florida; HSC-85 and TSU Pacific at NAS North Island, California; and TSU Atlantic at NAS Norfolk, Virginia.

HSM-60 and MH-60R: HSM-60, the Navy's premier ASW and ASU helicopter squadron, is tasked with fleet requirements including ASW, ASU, CTOC operations, and SAR. Since transitioning to the MH-60R, HSM-60 completed their first operational deployment with the MH-60R.

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 consolidated into one HH-60H squadron and two TSUs embedded at the Helicopter Sea Combat (HSC) Wing Weapons Schools at NAS Norfolk, Virginia, and NAS North Island, California. HSC-85 is the Naval Aviation Enterprise's only squadron dedicated to the support of SOF. The TSUs retain RC expertise in the rotary-wing support to the SOF mission area with RC aircrew incrementally increasing the Navy's overall SOF-support capability through integration with HSC fleet squadron training syllabi and readiness programs as well as provide a deployable surge capacity for SOF contingencies worldwide.

MH-53E: The RC is also 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, both operating out of Norfolk, Virginia, comprise approximately 30 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.

e. Coastal Riverine Force

The Navy Reserve Coastal Riverine Force (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 escort missions, the RC CRF conducts rotational deployments in support of United States Africa Command and United States Central Command. The RC CRF consists of four Coastal Riverine Squadrons (CRS) manned by approximately 2,900 RC Sailors: CRS 1 at San Diego, California; CRS 8 at Newport, Rhode Island; CRS 10 at Jacksonville, Florida; and CRS 11 at Seal Beach, California. Each RC CRS has geographically dispersed subordinate companies and high value unit protection detachments. From FY 2015 to FY 2016, the AC transferred four companies to the Navy Reserve, which increased Navy Reserve CRF capabilities by 25 percent. The expansion of the CONUS high-value unit protection mission, coupled with forward-deployed operations, continues to strain the CRF's ability to adequately provide patrol boats for RC operations and training. The CRF's most critical equipment modernization requirement is replacement of the Force Protection, Large (FPL) patrol boats, which are at or near the end of their service life. PB-X is the designated replacement program for the aging FPL patrol boats. Other CRF critical equipment upgrades and shortfalls include replacing expeditionary surveillance sensor platforms, replacing Light Service Support Vehicles and filling inventory shortages, and completing vehicle modernization upgrades for the medium tactical vehicle replacement (MTVR) fleet.

f. Naval Construction Force

Navy Reserve Naval Construction Force (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 undertaking civic projects for partner nations. The RC NCF consists of two Naval Construction Regiments (NCR) and five Naval Mobile Construction Battalions (NMCB). The NCRs are the 1st NCR at Santa Barbara, California, and the 7th NCR at Gulfport, Mississippi. The five NMCBs are NMCB 14 and NMCB 27 at Gulfport, Mississippi, and NMCB 18, NMCB 22, and NMCB 25 at Port Hueneme, California. The RC NCF is comprised of approximately 3,850 Reserve Sailors and represents almost half of the Total Force NCF capacity.

Despite significant force reductions, the RC NCF maintains the capacity to support GFMAP requirements and unplanned contingencies. RC battalions continue to deploy as detachments and integrate with the AC to support missions in the United States Central Command and United States Africa Command areas of responsibility. As a result, additional funding is required to modernize command, control, communications, computers, and intelligence (C4I) equipment, tactical data networks, radio communication systems, and the MTVR fleet to fulfill an enduring demand for NCF capabilities.

g. Navy Expeditionary Logistics Support Group

Navy Reserve Navy Expeditionary Logistics Support Group (NAVELSG) units deliver worldwide expeditionary logistics with AC and RC personnel. Missions include port and air terminal cargo handling, fuel distribution, ordnance reporting and handling, and customs and postal operations. The Navy Reserve accounts for over 90 percent of NAVELSG and is comprised of approximately 2,425 Reserve Sailors. The RC NAVELSG consists of three Navy

Expeditionary Logistics Regiments (NELR) and six Navy Cargo Handling Battalions (NCHB). The three NELRs are the 2nd NELR in Williamsburg, Virginia; the 4th NELR in Jacksonville, Florida; and the 5th NELR in Port Hueneme, California. The six NCHBs are NCHB 5 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. Additional funding is required to procure small arms weapons simulators, modernized radio communication systems, vehicle modernization of the MTVR fleet, and generators supporting communications systems.

h. Combat Camera

Combat Camera (COMBATCAM) has two RC detachments of 26 total personnel stationed in Norfolk, Virginia and San Diego, California. COMBATCAM 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 debriefing and training as well as augment deploying units on an individual basis. NEIC includes 143 Reserve personnel and operates at Dam Neck Annex in Virginia Beach, Virginia.

j. Surface Warfare

Over 4,000 RC Sailors support Surface Warfare through the following major surface and amphibious warfare areas: LCS, Amphibious Construction Battalions, Naval Beach Group, Beach Master Units, surface readiness detachments, assault craft units, tactical air control, surface and mine warfare development, and Afloat Culture Workshops. Additionally, RC Sailors provide critical operational support to worldwide surface deployments.

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 for 20 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. LCS units will augment the LCS squadron staffs, seaframe maintenance, shipboard antiterrorism/force protection watches, SAR swimmers, and mission module support while delivering a minimum of 20,000 days of support per year. Maintenance of LCS seaframes remains the primary focus area of the RC LCS effort and constitutes approximately 60 percent of the overall RC contribution to the LCS program.

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

The Reserve Component's Naval Special Warfare (NSW) community includes Naval Special Warfare Group 11 (NSWG-11) which overseas two sea-air-land (SEAL) teams that are charged with deploying forces worldwide in support of NSW and joint SOF requirements. Combined, the NSW RC includes the three (Full-time Support) FTS commands, 15 Navy Reserve Units (NRUs), and 16 regional NSW detachments, comprising of 1,054 FTS and SELRES billets. Approximately seven percent of total SEAL and Special Warfare Combatant-craft crewmen billets reside in the RC, which are in addition to a variety of specialized intelligence, aviation, and construction personnel providing key support to SOF operations. NSW continues to reorganize and transform its RC to provide tactical ISR elements to its organic deployable force structure. By FY 2018, NSW will deploy three full-time 12-man detachments in support of joint SOF and Theater Special Operations Commands accounting for 50 percent of NSW's organic tactical ISR capability.

l. Military Sealift Command

Military Sealift Command (MSC) 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 RC Sailors are assigned to 44 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 Navy's submarine force is supported by 1,600 RC Sailors. 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

As the Navy's Information Warfare systems command, Space and Naval Warfare Systems Command (SPAWAR) 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 400 Reservists bring directly applicable knowledge, skills, and abilities that directly support SPAWAR missions.

o. Naval Air Systems Command

Naval Air Systems Command (NAVAIR) 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. The Navy Reserve supports NAVAIR with approximately 250 RC personnel.

p. Information Warfare

Commander, Navy Information Force Reserve (CNIFR) operates and maintains nine of 28 Joint Reserve Intelligence Centers (JRIC) in 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 roughly 1,000 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 funded for over 6,950 RC billets and scheduled to increase to 7,500 billets by FY 2018.

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 (BUMED) has a defined requirement to maintain four RC EMF operational platforms and sailors supporting these platforms require ongoing training to maintain currency and qualifications for deployment.

r. Public Affairs

Public affairs officers and mass communication specialists support the Chief of Navy Information (CHINFO) in execution of DON public affairs. 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. The Navy Reserve public affairs cadre consists of over 500 personnel.

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 currently funded for 1,500 Reserve billets and scheduled to increase to 2,100 billets by FY 2020.

t. Naval Explosive Ordinance Disposal Technology Division

RC Naval Explosive Ordinance Disposal Technology Division's (NAVEODTECHDIV) 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. Of particular concern are P-3C aircraft (34 years old) and F/A-18A+ aircraft (30 years old) that operate at a significantly higher cost, produce lower readiness rates, and provide lesser capability than their projected replacement platforms. 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

Achieving equipment compatibility with the AC is critical to the Navy Reserve mission and is one of its top equipment priorities. Procurement and upgrade programs as well as Congressional adds have improved RC equipment modernization and compatibility; however equipment challenges remain. For instance, as noted in *Table 8 Significant Major Item Shortages*, recapitalization of the F/A-18A+ and P-3C fleets remains critical for these squadrons to seamlessly operate with the fleet and provide relevant combat capability. Additionally, for the CRF, NCF, and NAVELSG units, the ability to fully fund equipment requirements remains a significant challenge.

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 challenges, 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, and KC-130J 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 procurement requirements which is used to inform development of the Unfunded Priority List (UPL). When directed, the CNO forwards the UPL to Congress for resourcing consideration. In the FY 2017 UPL presented to Congress, the CNO requested two C-40As for the Navy Reserve. Including the C-40A shortfalls, 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 2017 NGRER.

- HSC-84 has decommissioned and two TSU were stood up at NAS Norfolk, Virginia, and NAS North Island, California.
- HSM-60 transitioned from the SH-60B to the MH-60R helicopter and relocated from NAS Mayport, Florida, to NAS Jacksonville, Florida.
- Navy accepted its 15th C-40A from Boeing in early FY 2017 and remains two aircraft short of the established minimum inventory required of 17 C-40A aircraft.
- The Secretary of the Navy approved inventory removal of the Navy's last C-20D by signing the FY 2017 Validation of Service Secretary Controlled Aircraft (SSCA).
- Reserve Component F/A-18A+ inventory increased from 26 to 29 aircraft via a transfer from AC inventory to improve RC operational readiness

C. Future Years Program (FY 2018–FY 2020)

1. FY 2020 Equipment Requirements

Table 1 Consolidated Major Item Inventory and Requirements identifies major equipment requirements and on-hand inventories projected from FY 2018 to FY 2020.

2. Anticipated New Equipment Procurements

In FY 2015, significant NGREA funding was provided to NECC CRF units to procure MK VI patrol boats, communications equipment, and visual enhancement systems. This funding will reduce the equipment shortfalls for these units and increase material and operational readiness. *Table 4 NGREA Procurements* identifies these requirements. *Table 6 FY 2014 Planned vs Actual Procurements and Transfers* identifies anticipated new procurement using NGREA and Procurement Programs - Reserve Component (P-1R) base budget.

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 2020

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 2020.

D. Summary

The current fiscal climate has compelled DoD to make difficult choices across a wide range of competing requirements in future budget years. The Navy will continue to integrate its Active and Reserve Components into a cohesive Total Force, balancing readiness and modernization priorities to meet operational requirements. As 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 vital to ensure integration with AC counterparts. The Navy Reserve's top equipment priorities are the recapitalization of aging aircraft for Reserve aviation squadrons and the purchase of expeditionary hardware and equipment for NECC forces. Both the DoD and the Navy continue to develop and invest in unmanned systems; as this capability matures, Reserve participation is paramount to minimize cost and capitalize on the civilian technical expertise of our citizen-sailors. Finally, the Navy's development of innovative cyber and information warfare capabilities drives reliance on advanced technology that must be protected and defended against all adversaries. Investments in SPAWAR Reserve equipment aids the command's mission of acquiring, integrating, and defending fleet capabilities for sensors, communications, weapons, information and control systems for existing and future ships, aircraft, submarines, and unmanned systems.

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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 2017 unit cost estimates are provided by the Military Departments.

Nomenclature	Equip No.	Unit Cost	Begin FY 2018 QTY O/H	Begin FY 2019 QTY O/H	Begin FY 2020 QTY O/H	End FY 2020 QTY O/H	End FY 2020 QTY REQ
Aircraft							
Aircraft, Transport, C-40A (Boeing 737-700)	C-40A	$92,000,000	15	15	15	15	17
Aircraft, Transport, C-130T (Hercules)	C-130T	$57,500,000	19	19	19	19	19
Aircraft, Transport, KC-130T (Hercules)	KC-130T	$64,000,000	5	5	5	5	5
Aircraft, Transport, C-20G (Gulfstream)	C-20G	$63,000,000	3	3	3	3	3
Aircraft, Transport, C-37A (Gulfstream)	C-37A	$65,300,000	1	1	1	1	1
Aircraft, Transport, C-37B (Gulfstream)	C-37B	$62,000,000	3	3	3	3	3
Aircraft, Patrol, P-3C (Orion)	P-3C	$107,900,000	12	12	12	12	12
Aircraft, Electronic Attack, EA-18G (Growler)	EA-18G	$78,400,000	5	5	5	5	5
Aircraft, Fighter/Attack, F/A-18A+ (Hornet)	F/A-18A+	$72,100,000	29	29	29	29	19
Aircraft, Fighter/Attack, F/A-18B (Hornet)	F/A-18B	$72,100,000	2	2	0	0	0
Aircraft, Fighter/Attack, F/A-18C (Hornet)	F/A-18C	$75,400,000	1	0	0	0	10
Aircraft, Fighter, F-5F (Tiger II)	F-5F	$19,300,000	2	2	2	2	2
Aircraft, Fighter, F-5N (Tiger II)	F-5N	$2,500,000	30	30	30	30	30
Helicopter, Combat SAR, HH-60H (Seahawk)	HH-60H	$30,400,000	11	11	11	11	11
Helicopter, ASW, MH-60R (Seahawk)	MH-60R	$36,900,000	7	7	7	7	7
Helicopter, Mine Warfare, MH-53E (Sea Dragon)	MH-53E	$55,000,000	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	$12,023,090	2	2	2	2	2
Naval Mobile Construction Battalion TOA	NMCB	$77,901,287	5	5	5	5	5
Naval Construction Regiment TOA	NCR	$13,654,654	2	2	2	2	2
Construction Capability Augment TOA	NCFCCA	$254,249,128	1	1	1	1	1
NCF Training Allowance TOA	NCFTRNG	$46,188,000	1	1	1	1	1
COMBATCAM TOA Equipment	COMBATCAM	$3,309,933	1	1	1	1	1

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Table 1

Consolidated Major Item Inventory and Requirements

Nomenclature	Equip No.	Unit Cost	Begin FY 2018 QTY O/H	Begin FY 2019 QTY O/H	Begin FY 2020 QTY O/H	End FY 2020 QTY O/H	End FY 2020 QTY REQ
Coastal Riverine Force (CRF)							
Squadron Headquarters TOA Equipment	CORIVGRUSQDHQ	$13,433,195	4	4	4	4	4
Coastal Riverine Company TOA	CORIV-CO	$14,319,813	16	16	16	16	16
MK VI Patrol Boat	MKVIPB	$17,900,000	5	6	6	6	6
Navy Expeditionary Logistics Support Group							
Navy Expeditionary Logistics Regiment TOA	NELRHQ	$4,388,698	3	3	3	3	3
Navy Cargo Handling Battalion (Commercial) TOA	NAVCARGOBN (C)	$36,168,010	2	2	2	2	2
Navy Cargo Handling Battalion (Tactical) TOA	NAVCARGOBN (T)	$42,584,731	1	1	1	1	1

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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 2017.

Nomenclature	Equip No.	Average Age	Remarks
Aircraft			
Aircraft, Transport, C-40A (Boeing 737-700)	C-40A	10	Includes new aircraft (#15) delivery anticipated early FY 2017
Aircraft, Transport, C-130T (Hercules)	C-130T	22	
Aircraft, Transport, KC-130T (Hercules)	KC-130T	27	
Aircraft, Transport, C-20G (Gulfstream)	C-20G	22	
Aircraft, Transport, C-37A (Gulfstream)	C-37A	14	
Aircraft, Transport, C-37B (Gulfstream)	C-37B	10	
Aircraft, Patrol, P-3C (Orion)	P-3C	34	
Aircraft, Electronic Attack, EA-18G (Growler)	EA-18G	7	
Aircraft, Fighter/Attack, F/A-18A+ (Hornet)	F/A-18A+	30	
Aircraft, Fighter/Attack, F/A-18B (Hornet)	F/A-18B	32	
Aircraft, Fighter/Attack, F/A-18C (Hornet)	F/A-18C	25	
Aircraft, Fighter, F-5F (Tiger II)	F-5F	20	
Aircraft, Fighter, F-5N (Tiger II)	F-5N	37	
Helicopter, Combat SAR, HH-60H (Seahawk)	HH-60H	23	
Helicopter, ASW, MH-60R (Seahawk)	MH-60R	7	
Helicopter, Mine Warfare, MH-53E (Sea Dragon)	MH-53E	23	
Aviation Simulators			
C-130T Simulator	C-130T SIM	28	
F-5 Simulator	2F213	8	
FA-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	14	
Naval Mobile Construction Battalion (NMCB) TOA	NMCB	12	
Naval Construction Regiment TOA	NCR	10	
Construction Capability Augment TOA	NCFCCA	12	
NCF Training Allowance TOA	NCFTRNG	12	
COMBATCAM TOA Equipment	COMBATCAM	6	
Coastal Riverine Force (CRF)			
Squadron Headquarters TOA Equipment	CORIVGRUSQDHQ	10	
Coastal Riverine Company	CORIV-CO	10	
MK VI Patrol Boat	MKVIPB	1	
Navy Expeditionary Logistics Support Group (NAVELSG)			
Navy Expeditionary Logistics Regiment Staff TOA	NELRHQ	8	
Navy Cargo Handling Battalion (Commercial) TOA	NAVCARGOBN (C)	8	
Navy Cargo Handling Battalion (Tactical) TOA	NAVCARGOBN (T)	8	

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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 2018 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 2018 are expected to arrive in RC inventories in FY 2019 or FY 2020.

Nomenclature	FY 2018	FY 2019	FY 2020
P-1R data from FY 2018 President's Budget Submission was not available in time for publication in the FY 2018 NGRER.			
The FY 2018 P-1R will be available on the Office of the Under Secretary of Defense (Comptroller) public web site (http://comptroller.defense.gov/Budget-Materials/) upon release of the FY 2018 President's Budget Submission.			

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 2017 would be expected to arrive in RC inventories in FY 2018 or FY 2019. All values are costs in dollars.

Nomenclature	FY 2015	FY 2016	FY 2017[1]
FY 2015 NGREA Equipment			
MK VI Patrol Boat	$35,887,000		
Combatant Craft Forward-looking Infrared Sensor (CCFLIR)	2,768,776		
Night Vision Goggles (NVG) Head Up Display (HUD) Mod/Install for HSM-60	2,940,000		
C/KC-130T EF-5992 Fuel Tank Sealant	1,613,000		
Standard Navy Double Lock (SNDL) Recompression Chamber	1,614,632		
C-20G Brake Upgrade	1,050,000		
C-20D/C-20G Emergency Vision Assurance Systems (EVAS)	300,000		
F/A-18A & Joint Helmet-mounted Cueing System (JHMCS)	974,295		
Mission Package Training System (MPTS)	750,000		
Submarine Force (SUBFOR) Reserve Protection Table of Allowance (TOA) Equipment	151,985		
Operations Post Mission Analysis (OPMA) Trainers	150,000		
Visit Board Search and Seizure (VBSS) Equipment	133,333		
C-40A Emergency Vision Assurance Systems (EVAS)	214,705		
Medium Tactical Vehicle Replacement (MTVR) Upgrades to support Radio Communication, Blue Force Tracker, and Improvised Explosive Device (IED) Defeat Systems	10,734,498		
MK VI Patrol Boat Weapon System	4,710,000		
Naval Mobile Construction Battalion Communication System 60kW AAMPS Generators	1,007,776		
FY 2016 NGREA Equipment			
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		26,347,177	
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		168,000	
SPAWAR Cybersecurity Circuit Repair Equipment Suites		38,000	

National Guard and Reserve Equipment Appropriation (NGREA) Procurements

Nomenclature	FY 2015	FY 2016	FY 2017[1]
Naval Sea Systems Command (NAVSEA) Security Force Training Equipment		70,685	
NAVSEA Dive Unit Automated External Defibrillator		12,927	
NAVSEA Diving Equipment		46,884	
NAVSEA Combined Explosives Exploitation Cell Platoon Table of Allowance (TOA)		1,014,890	
Total	**$65,000,000**	**$50,000,000**	

1. Service FY 2017 NGREA equipment list was not available in time for publication in the NGRER. Equipment list for FY 2017 will be provided in next year's NGRER.

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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 2018 Qty	FY 2019 Qty	FY 2020 Qty	Remarks
Aircraft, Fighter/Attack, F/A-18B (Hornet)	F/A-18B		-2		Transferred to RC until F/A-18A+ RBA rates increase, will eventually return to AC
Aircraft, Fighter/Attack, F/A-18C (Hornet)	F/A-18C	-1			Currently in storage Fleet Readiness Center Southwest (FRCSW); planned transfer to AC upon PDM completion

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Table 6

FY 2014 Planned vs Actual Procurements and Transfers

NOTE: This table compares planned Service procurements and transfers to the RC in FY 2014 with actual procurements and transfers. FY 2014 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 2016. Procurement and NGREA columns reflect cost values in dollars.

Nomenclature	Equip No.	FY 2014 Transfers (# of items)		FY 2014 Procurements ($s)		FY 2014 NGREA ($s)	
		Plan	Actual	Plan	Actual	Plan	Actual
FY 2014 Planned Transfers & Withdrawals							
Aircraft, Electronic Attack, EA-6B	EA-6B	-4	-4				
Naval Mobile Construction Battalion PGI TOA	P25PGIRC	-2	-2				
Naval EOD Operational Support Unit TOA	J04EODSU	-2	-2				
Maritime Civil Affairs OPS Planning Staff TOA	E01MCATR	+17	+17				
Intelligence Exploitation Team TOA Equip	G11IET	-2	-2				
FY 2014 P-1R Equipment							
Other Aircraft							
KC-130J				$166,646,000	$101,346,000		
Modification of Aircraft							
Adversary Aircraft				2,992,000	2,390,000		
H-53 Series				40,852,000	40,852,000		
C-130 Series				18,911,000	18,911,000		
Cargo/Transport Aircraft (A/C) Series				14,587,000	17,487,000		
Other Procurement							
Standard Boats				1,103,000	0		
Passenger Carrying Vehicles				340,000	0		
Construction & Maintenance Equipment				354,000	0		
Tactical Vehicles				398,000	1,280,000		
Items Under $5M - Civil Engineering Support Equipment				1,577,000	1,430,000		
Materials Handling Equipment				902,000	332,000		
C4ISR Equipment				1,856,000	0		
Physical Security Equipment				2,441,000	2,104,000		
FY 2014 NGREA Equipment							
Coastal Riverine Force (CRF) MK VI Patrol Boat (2)						$32,000,000	$32,000,000
C-130T Simulator Modernization						16,500,000	12,300,000
C-130T Engine Instrument Display System (EIDS) & Electronic Propeller Control System (EPCS) Kits						4,500,000	4,216,409
C-40A Fleet Seating Standardization						5,947,272	5,827,878
C-40A Emergency Vision Assurance System (EVAS)						400,000	400,000
NSW Command, Control, Communications, Computers, and Intelligence (C4I)						2,416,546	2,416,546
NSW Operating Stock						1,057,182	1,671,215
Double Lock Recompression Chamber						1,400,000	1,435,967
Fire Arms Training System (FATS)						750,000	502,985
Underwater Rescue Command (URC) Diving & Medical Equipment						29,000	29,000
HH-60H: Day Heads-up Display (HUD)						0	1,413,000
HH-60H: Night Heads-up Display (HUD) Upgrade Aviator's Night Vision System (ANVIS) Compatible						0	793,044
Additional funding ($2,206,044) reprogrammed from another Reserve Component							
Total				**$252,959,000**	**$186,132,000**	**$65,000,000**	**$63,006,044**

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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

Service Does Not Use Substitution to Satisfy Major Item Equipment Requirements

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Table 8

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	C-40A	17	2	$92,000,000	$184,000,000	The C-40 is Navy's designated C-9B and C-20G replacement aircraft. Fifteen of 17 aircraft required to meet Navy's "risk adjusted" minimum inventory objective/red-line requirement have been procured. The procurement of the remaining two aircraft will enable Navy to meet wartime air logistics obligations and retire the C-20G airframe leading to further operational cost savings and improved capability/reliability. The Navy divested of the C-9B in 2014.
2	F/A-18E	24	24	86,600,000	$2,078,400,000	Procures 24 F/A-18E aircraft to equip the RC with an evolutionary upgrade from the F/A-18A. It is a 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	P-8A	8	8	170,400,000	$1,363,200,000	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.
4	Small Unmanned Aircraft Systems (PUMA)	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 systems (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).
5	F-5F	2	2	19,300,000	$38,600,000	Ensures the F-5 community retains a two-seat training capability through 2025. Two-seat F-5Fs have greater airframe restrictions, and modeling indicates current two-seaters are unlikely to remain in service until 2025.
6	KC-130J	24	24	81,200,000	$1,948,800,000	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.

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Table 8

Significant Major Item Shortages

PR	Nomenclature	Total Req'd	# Items Short	Item Cost	Total Shortage Cost	Rationale/Justification
7	MH-60S	13	13	$25,500,000	$331,500,000	Procures 13 MH-60S to replace aging and RC unique HH-60H airframes. The HH-60H is a legacy platform with high cost per flight hour, aging infrastructure, and parts and equipment obsolescence. Transitioning to the MH-60S, will enable the RC to exploit efficiencies of the greater Naval Aviation Enterprise, reduce overall operating and training costs, and support infrastructure while ensuring the RC has an advanced helicopter to support SOF operations.
8	F-5N	30	5	$2,500,000	$12,500,000	Requested aircraft consist of five F-5Ns to reduce systemic community shortages induced by aircraft sharing agreements and double-cycle sortie rates for Fleet Replacement Squadron (FRS) student training.
9	Patrol Boat Simulator	2	2	$4,425,000	$8,850,000	Current motion platform simulator is for weapons training only and does not have the ability to provide basic navigation, maneuvering, or multi-boat simulation. RC CRF does not have the ability to exercise and learn basic skills outside of underway training. Training is subject to the availability of assets that is dependent on multiple factors (asset condition, maintenance down time, weather, etc.). This simulator provides an efficient, controllable, and repeatable medium for learning basic to advanced individual and team skills for the MK VI, PB-X, and other boat platforms, and will increase the proficiency of Reserve sailors to make underway training more efficient. Both systems to be located CONUS.
10	PB-X Patrol Craft	96	38	$3,200,000	$121,600,000	PB-X is the designated replacement program for the aging 34' Force Protection Large (FPL) patrol boats that are rapidly approaching the end of their service life. Continued fielding of the 34' FPL patrol boats beyond the end of their service life requires service life extension availabilities and risks catastrophic mechanical and/or mission failure The addition of the RC HVU mission only increases the requirement for patrol boats. Currently 34' FPL Patrol boats are being sourced from the RC squadrons training allotment.

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

America's Airmen provide *Global Vigilance, Global Reach, and Global Power* in defense of our Nation and our Allies by executing five interdependent and integrated core missions: (1) Air and Space Superiority; (2) Global Integrated Intelligence, Surveillance, and Reconnaissance (ISR); (3) Rapid Global Mobility; (4) Global Strike; and (5) Command and Control. The effects the United States Air Force (USAF) creates through these enduring missions enable successful joint operations in support of national strategic guidance such as the Quadrennial Defense Review (QDR) and the National Military Strategy (NMS). However, 25 years of continuous operations and budget uncertainty have taken its toll on the USAF's ability to balance capacity, capability, and readiness. Additionally, operating at reduced funding levels since 2013 has resulted in an Air Force that is less ready, less capable, and less viable than the one America demands and deserves. The resultant tough choices reflect acquisition and modernization priorities distributed among the Active Air Force, Air Force Reserve (AFR), and the Air National Guard (ANG).

In September of 2015, the Secretary of the Air Force (SECAF) and Chief of Staff, United States Air Force (CSAF) unveiled the *Air Force Future Operating Concept (AFFOC).* As the Air Force's overarching force development concept, it broadly portrays how the future Air Force will conduct its five core missions as part of a joint, interagency, or multinational force, or independently in support of national security objectives in the context of the anticipated future strategic and operational environment. It seeks to answer the question, "In 2035, how will Air Force forces deliver responsive and effective Global Vigilance, Global Reach, Global Power in the increasingly dynamic environment of the future?". Its central theme is to leverage operational agility, the ability to rapidly generate and shift among multiple solutions for a given challenge, as a way to adapt swiftly to any situation or enemy action. To achieve this, the Air Force must evolve how it conducts its five core missions.

The *USAF Strategic Master Plan (SMP)* and its four annexes serve as internal planning documents to guide long-term efforts to organize, train, and equip the Air Force to achieve the change directed by the USAF 30 year strategy document, *America's Air Force: A Call to the Future*, and the AFFOC. In the SMP, the Air Force considers not only resource and investment choices, but also structure, people, and processes. Uncertainty about the future, rapid rates of change, and a difficult fiscal environment, require the Air Force to pursue a path toward institutional strategic agility. The SMP translates *A Call to the Future's* imperatives (Agility and

Inclusiveness) and five strategic vectors as (1) Provide Effective 21st-Century Deterrence; (2) Maintain a Robust and Flexible Global ISR Capability; (3) Ensure a Full-Spectrum Capable, High-End Focused Force; (4) Pursue a Multi-Domain Approach to Core Missions; and (5) Continue the Pursuit of Game-Changing Technologies into authoritative guidance, goals, and objectives that span the people, places, things, and future of airpower over the next 20 years.

Faced with the challenges of aging aircraft, stressed fleets, and persistent global demands, today's Air Force senior leaders continue to foresee a more inclusive organization, which exercises greater reliance on the ANG and AFR. As stated by the current Air Force Chief of Staff, "We are at the point in our Air Force where we cannot accomplish our mission without the Guard and Reserve." The SMP reinforces this point as the Air Force remains fundamentally committed to the multi-component inclusive approach throughout its Strategy, Planning, and Programming Process. Acquisition and modernization decisions reflect the Air Force's adjustment to the reality that after extending aircraft service lives repeatedly, it is time to modernize or replace the older platforms.

B. Air Force Equipping Policy

The threats and challenges we face shape national guidance, which informs the QDR and the NMS. The Air Force then uses the strategic and fiscal guidance to prioritize investments and allocate resources to perform the core missions. Strategic placement of Air Force assets, such as aircraft, is determined through corporate-level processes involving both the Active and Reserve Components (AC and RC). The Air Force modernizes equipment through a partnership between the requirements of the Core Function Leads for mission capability as well as requirements determined by the RC to meet assigned missions. As the Air Force modernizes its weapon systems, it is concurrently fielding new weapon systems (e.g., KC-46, F-35, and B-21) in all the components from the start. This concurrent fielding policy enables effective management of new weapon systems and leverages RC experience.

Unfortunately, the Budget Control Act (BCA) of 2011 continues to hamper the Air Force's ability to plan for future-year budget actions. As such, the FY 2017 budget request represents a "pivot point" for the Air Force to continue the recovery necessary to ready the force for today's threats and provide the capabilities needed in the future. The progress made with the FY 2016 recovery budget must continue in FY 2017 and beyond. However, as it stands now, FY 2017 represents only a momentary pause in BCA-level funding, which will return in FY 2018 unless rescinded. Operating at BCA-levels in the future will only amplify known capacity, capability, and readiness shortfalls. The Air Force must focus on today's readiness to win current conflicts; however, it cannot afford to ignore future modernization. Without relief from the BCA, the Air Force will need to consider drastic actions, such as force structure reductions, manpower freezes, reduced readiness, and cancellations and/or delays of key modernization programs. In spite of budgetary challenges, the AC and RC continue to partner to ensure a mission-ready, mission-capable force to fulfill the Air Force's mission, vision, and priorities.

C. Plan to Fill Modernization Shortages in the RC

One of the top three areas of immediate interest in the Air Force is the need to balance today's readiness with modernization to field a full-spectrum capable, high-end focused force of the future. However, ensuring a credible nuclear deterrent capability, advancing space capabilities,

and retaining congressionally-mandated force structure, have put significant downward pressure on modernization efforts. The Air Force seeks the proper balance between readiness of today and modernization of the future. Additionally, increased incorporation of the RC helps provide efficiency as well as capability. Historically, the Air Force has led the Department of Defense in maximizing the value of the RC, especially through its unit associations. The Air Force continues to exemplify the relationship through Total Force Integration initiatives.

Most notably, in January 2013, the SECAF and CSAF established the Total Force Task Force to conduct a comprehensive review of the Total Force (TF) to balance the strengths of each component and develop strategic options on the appropriate Total Force 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. Additionally, One Air Force identifies legal, policy, operational, and organizational changes to enhance the TF integration to include management and oversight of Total Force Associations. Furthermore, the Air Force 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 include codifying the concurrent fielding principles in AF policy, are 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.

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.

To meet today's demands, the 2017 President's Budget (PB) strives to right size the Service and continues efforts to balance readiness and modernization despite funding challenges. As such, the Air Force intends to delay the A-10 and EC-130 retirements to maintain capacity in support of current operations. Additionally, the budget funds flying hours to their maximum executable level, invests in weapon system sustainment, and ensures combat exercises like Red Flag and Green Flag remain strong. Furthermore, it resources strategic assets such as the Space-Based Infrared System (SBIRS) to detect global missile launches. The Air Force also invests in preferred munitions capacity and the Combat Rescue Helicopter recapitalization program while continuing to grow from 26 Cyber Mission Force Teams to 39. Lastly, the Air Force budget funds improvements to Global Integrated ISR with a focus on the Remotely Piloted Aircraft (RPA) enterprise. These include increased benefits for aircrew, a program to train enlisted operators to fly the RQ-4 Global Hawk, a basing study to provide options to support flying RPAs on a schedule more conducive to steady-state operations, and other recommendations from the Culture and Process Improvement Program, a bottom-up review of issues impacting the RPA force.

Due to the Bipartisan Budget Act, the Air Force must prioritize in order to balance readiness and modernization. In this case, the Air Force must delay five F-35s and slow modernization of 4th-generation aircraft for airspace compliance and survivability. Additionally, it could not grow end strength beyond 317,000 despite critical capability gaps. Furthermore, the Air Force also delayed incremental replacement of the C-130H Hercules and took risk in facility and information technology infrastructure. Just as importantly, the Air Force must delay investment in aging critical infrastructure such as ranges, airfields, and taxiways, an action repeated annually since FY 2013 sequestration. Every year the Air Force delays these investments, operations and readiness are affected, and the eventual cost of improvements grows significantly.

The Air Force's FY 2017 budget request maintains the delicate balance between capability, capacity, readiness and future modernization. Informed by current geopolitical conditions and ongoing operations, this budget restores some capacity and makes additional investments in nuclear, space, cyber, ISR, and command and control capabilities while optimizing the TF efforts.

E. Plan to Achieve Full Compatibility between AC and RC

The Air Force acknowledges the importance of improving interoperability among components and, as a result, seeks to identify and eliminate existing structural and cultural barriers to functioning as One Air Force.

Correspondingly, to maintain an adequate force structure ready for the full-spectrum of military operations, the Air Force continues to maximize TF contributions. The current Secretary of the Air Force states, "Current fiscal realities, and a new generation of American Airmen, have made it imperative to evolve. A critical part of our evolution will be to make TF integration a permanent part of our culture." 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 RC members integrate fully in the Headquarters Air Force Personnel Directorate. Additionally, the first Integrated Wing is established at Seymour Johnson Air Force Base (AFB), North Carolina, future home of the KC-46. Furthermore, pending ongoing analysis, the Air Force seeks continued increase in RC share of Command and Control, Mobility, Cyber, and Space missions. The Air Force's future fielding of the KC-46, F-35, and new combat rescue helicopter all show the Service's commitment to concurrent and proportional fielding of equipment amongst the components. Plans for all of these new acquisition programs include the Reserve Components to meet operational requirements, provide a strategic reserve, and support the Reserve Components operational demand.

The Air Force provides a balanced portfolio of capabilities through five core missions in part through maximizing use of AC and RC forces. The continued research into the right mix of AC and RC as investigated by the TF-C, and the tactical level application by Total Force Integration initiatives contribute to building further compatibility between components. To develop options that balance TF capabilities to meet the full range of current and future mission requirements, the SECAF and CSAF committed to an assessment on a mission-by-mission basis to identify what capabilities belong in the ANG and AFR, and completed 100 percent of the evaluations. To remain effective, the Air Force must be deliberately planned for and appropriately and consistently funded. Also, mission evaluations must enable informed planning to execute a concurrent fielding for equipping all Air Force units. This integrated approach, combined with

the lead command and RC requirements driving aircraft-related spending will ensure the Air Force is ready to support the Joint Team. The United States Air Force continues to provide *Global Vigilance, Global Reach, and Global Power* for America through balanced support of the five core missions, force structure, readiness, modernization, and recapitalization.

II. Air National Guard Overview

A. Current Status of the Air National Guard

1. General Overview

Top ANG Equipping Challenges

- Adequate funding for weapon system modernization efforts
- Adequate funding to procure necessary air and ground equipment to more effectively support domestic operations and Federal missions

The 2017 National Guard Bureau Posture Statement explains how 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 for both home and overseas missions, flying 36 percent of the Air Force cargo and refueling mission each day and being ready to deploy overseas in 72-hours or less. ANG provides this support from 90 wings with 1,083 aircraft in its fleet. Guard Airmen supported more than 11,400 Air Force requests for overseas deployments and operate remotely piloted aircraft around the clock, totaling nearly 85,000 combat hours worldwide.[1]

Another key operational mission of the ANG centers on protecting the homeland and support of civil authorities. Examples include counterdrug state operators assisted law enforcement agencies in taking a total of $8.4B in illicit drugs off the street in FY 2015; ANG search and rescue units in Alaska, California, and New York completed more than 6,000 search and rescue missions, saving more than 3,000 lives, while providing around-the-clock rescue coverage.[2] To maintain these 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 remained at 97 percent this past year. This fill rate remained steady as a result of an infusion of $40M to the support equipment program from the ANG corporate process.

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. These platforms include air refueling, air support, airlift, fighter, and rescue aircraft.

b. Average Age of Major Items of Equipment

The average age of ANG aircraft is now 30.1 years with the oldest platforms being the KC-135R and KC-135T fleet at an average of 55 years. Support equipment for sustaining ANG aircraft

[1] 2017 National Guard Bureau Posture Statement, March 2016.
[2] Ibid.

continues to remain a challenge as original manufacturers no longer produce some of these items or may no longer be viable, thereby increasing maintenance costs.

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 AC

Air National Guard requires equipment modernization to be compatible with AC systems essential to supporting Air Force mission. This is critical in allowing the ANG to properly train to AC standards for seamless integration across all components. With continued congressional funding, the ANG will be able to maintain compatibility with the AC on its mission support equipment.

d. Maintenance Issues

ANG Weapon Systems Sustainment Working Group outlined the following maintenance concerns regarding legacy system sustainment and shortfalls.

Advanced Aircraft Test Equipment: Sustaining an aging fleet of aircraft requires the ANG to utilize outdated test equipment 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 Air Data / Pitot static test set, Stray Voltage Pre-Load Tester, Active Bus Tester, and multi-mission-design-series (MDS) hydrogen leak detector will enable maintenance personnel to troubleshoot and repair aircraft in a fraction of the time required by older methods.

Munitions/Weapons Test Equipment: Sustaining modern weapons systems has become increasingly more difficult and expensive as ANG utilizes aging test sets with worn parts. 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.

Munitions Support Equipment: ANG Munitions/Weapons communities support combat and training flying operations with obsolete and inadequate equipment. The Universal Ammunition Loading System (UALS) is approaching 30 years of use and exceeds the rated service life of 20 years. This condition results in a continual cycle of damage and deterioration to munitions assets and equipment. The UALS is critical to the loading/unloading of aircraft gun systems and the use of this system beyond its service life creates an upward trend of damaged 20mm rounds, damage to the aircraft interface and the UALS itself. Diminishing manufacturing sources for parts is forcing units to use refurbished parts or cannibalize parts from non-working units, furthering the repair process, and increasing the strain on supply chain sourcing. Metal fatigue and erosion of both structural and rotating components increases requests for authorizations to "locally repair" structural components not meant to be replaced under their 20-year service life plan. Modernization of the 134 UALS fleet will result in effective support of flying operations while decreasing the number of incidents, damaged assets, and UALS repair.

Advanced Support Equipment Required: While some support equipment modernization was completed last year, the majority of maintenance support equipment is obsolete. The obsolescent

and "legacy" equipment items remains labor-intensive to utilize, costly to operate, and regularly present significant safety concerns. ANG continues to explore innovative solutions to these challenges by working with industry partners to find items that consolidate multiple functions, are more efficient to operate, and enhance maintenance efficiency and safety, while improving capabilities.

Flight Line Generator (72kW): New modern 72kW generators are scheduled for delivery in FY 2017. ANG invested $17.2M in Operation and Maintenance (O&M) and NGREA funds to procure 310 generators (130 with FY 2014 O&M, 144 with FY 2015 O&M, and 36 with FY 2014 NGREA). As of FY 2016, there are still 45 remaining requirements to be filled.

C-17 and KC-135 Maintenance 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 age of this equipment through modifications in an attempt to refit the stands. These efforts are not consistent in their design and are not a permanent solution. Consequently, the ANG needs to purchase six new C-17 stands and 15 new KC-135 inspection stands at $45M 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 command and control (C2), cyber, 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. For FY 2016, this process documented an $11.2B 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 "Essential 10" core capabilities. The output from this conference is published in the annual ANG Domestic Capability Priorities Book.

A-10: In 2014, the ANG began installing parking brakes on the A-10 to support safe refueling operations in austere locations and reduce crew fatigue. The Improved Data Modem was upgraded with version 6 firmware, which was procured with NGREA funding. Version 6 firmware will facilitate communications among the A-10's various avionics systems. 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 installation of a helmet-mounted integrated system to simplify target acquisition and increase pilot situational awareness. Other NGREA supported modifications include the Lightweight

Airborne Radio System version 12 upgrade (LARS v12) (which dramatically decreases the time to determine the location of downed airmen during combat search and rescue missions) and the Selective Availability Anti-Spoofing Module Embedded Global Positioning System (GPS)/Inertial Navigation System, which will improve navigational accuracy in a GPS-denied environment. Air Combat Command (ACC) approved these modernization efforts, which will conclude in FY 2020.

Battle Control Center (BCC): ANG BCC's are in four locations; Alaska, Hawaii, Washington State, and New York. Due to aging infrastructure and the unique geographic challenges for Alaska and Hawaii, 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. Currently, the BCCs lack the ability to share information across different classification levels. 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.

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. Critical battlefield equipment was procured with NGREA funds for the 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 Increments 1 and 2. This includes Communication, Navigation, and Surveillance/Air Traffic Management as well as Automatic Dependent Surveillance-Broadcast to ensure global airspace access. The fleet is also exploring performance and fuel savings initiatives with a 3.5 engine upgrade proposal, while upgrading propeller performance to an 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 of delivery for personnel and equipment. Improvements to the Real-Time Information in the Cockpit Program (RTIC) 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: ANG is integrating Block 20 Large Aircraft Infrared Countermeasures (LAIRCM) on the C-130J. The LAIRCM is a high priority mission critical capability. The C-130J also has identified SPPAD as a critical capability. The SPPAD assessment from C-130H testing and fielding will be utilized for similar upgrades to the C-130J to increase the accuracy and delivery of personnel and equipment during airdrop operations. Upgrades to the RTIC system will include upgraded hardware/software to provide an airborne Dynamic Retasking Capability and an integrated processor that will improve operational effectiveness.

C-17: Extended range fuel tanks remains the most mission critical requirement for ANG's C-17 fleet. The extended range fuel tanks increase the C-17's fuel capacity by 65,000 pounds and extend the range by 1,800 nautical miles. The extended range enables execution of long-distance, time-critical missions (e.g., military support, aeromedical evacuation, humanitarian relief operations) reduces reliance on aerial refueling, takeoff and landing cycles, and overall wear and tear to the airframe. Additionally, C-17 operators, along with other mobility air forces operators, have identified the need for better, more reliable, means of communication between aircrew and command and control entities. The RTIC program will include upgraded hardware/software to provide an airborne Dynamic Retasking Capability and an integrated processor that will improve operational effectiveness. These improvements include integrated data link, upgraded satellite communications, and an electronic flight bag. Finally, 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.

C-21: ANG C-21 community identified an avionics upgrade as a mission essential requirement. An improved avionics suite will increase reliability and keep the fleet operationally viable.

C-40: To enhance worldwide employment 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.

Component Numbered Air Force in support of Active Duty Air Operations Centers (AOC): The five ANG AOC weapon system baseline sites were upgraded to Recurring Event 12 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 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 Targeting Application Workstations ($280K) to effectively support and train assigned personnel.

Control and Reporting Center (CRC)/Air Control Squadron: The CRC capabilities are adapting to meet future C2 requirements while sustaining relevant systems through several sustainment and modernization efforts within this mission design series. Significant realignment of mission capabilities is projected to streamline battle management internal to C2 mission assets. Continued mission-requirement transformation outpaces planned upgrades to mission capabilities and service life extension programs (SLEP) leading to a $33.7M shortfall. For instance, there is currently insufficient funding to provide a permanent solution to 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 Three-Dimensional Expeditionary Long-Range Radar will fulfill mission requirements. The AN/TYQ-23 SLEP and modernization program addresses critical mission shortfalls and urgent requirements identified in recent evaluations. These efforts will ensure the CRC can meet any tasking requiring battle management/C2 capabilities.

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 Virtual Interconnected Training Environment provide state of the art capability for training to defend critical infrastructure in a realistic environment.

Distributed Common Ground System (DCGS): The installation of signals intelligence and geospatial intelligence equipment at Otis Air National Guard Base (ANGB), Massachusetts, is complete, increasing the total ANG fully functional multiple intelligence core sites and Distributed Ground Stations (DGS) to three (DGS-Indiana, DGS-Kansas, and DGS-Massachusetts) ANG plans to modernize electronic protection features of equipment at these sites to maintain their capabilities.

Upgrading software and modernizing exploitation equipment for three legacy full-motion video-only sites (DGS-Alabama, DGS-Arkansas, and DGS-Nevada) is forecasted for completion in FY 2017. However, overall equipment remains outdated and requires modernization or replacement.

Open Architecture (OA) Operational Pilot Programs begins fielding in FY 2017 at Reno ANGB, Nevada, and Terre Haute ANGB, Indiana. These programs will be used to validate the OA capability and lay the groundwork for testing and accreditation at future locations. Otis ANGB continues to provide operational expertise in the development of OA with Air Force Research Lab. ANG continues to work with ACC and Air Force Life Cycle Management Center to further understand the operational and sustainment impacts with OA.

E-8C Joint Surveillance Target Attack Radar System (JSTARS): ANG fully supports ACC's JSTARS recapitalization efforts and remains committed to investing NGREA funds to modernize current E-8C JSTARS platforms. NGREA has fully funded Global Imagery Server (GIS) upgrades on primary mission equipment for 14 aircraft to mitigate issues caused by limited manufacturing sources. GIS provides imagery products 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 also fully funded the maritime integrated automatic identification system (AIS) on the same 14 aircraft. AIS identifies and locates vessels by electronically exchanging data with other nearby ships and vessel tracking services stations and greatly enhances JSTARS's ability to distinguish between neutral and suspect maritime entities. Only 14 aircraft will be modified with GIS and AIS with the last two aircraft retiring when the other 14 aircraft modifications are completed. The E-8C Weapon System Trainer is being upgraded to improve pilot simulator training in air-to-air refueling adding realism to the training. ACC approved these modernization efforts.

EC-130J: ANG works with Air Force Special Operations Command (AFSOC) to identify and field capability requirements. To bridge the gap in available capability while awaiting a long-term solution from AFSOC, the ANG completed funding for the enhanced situational awareness suite upgrade with NGREA. The Special Operations Forces Air Mission Suite Enhanced Situational Awareness is the AFSOC solution to meet the enhanced situational awareness requirement. This strategy permits warfighters to increase their capabilities years before other funding strategies mature. The capability required for optimum employment of the EC-130J relies greatly on the continued production of a Special Airborne Mission Installation and Response/Fly-Away Broadcast System solution, which allows all EC-130J aircraft to support military, psychological operations.

Engineering: Firefighting, search and rescue, explosive ordnance disposal (EOD) equipment, potable water production kits, and prime power equipment shortages continue to inhibit the ANG's ability to execute home station and overseas deployments, or provide support of civil authorities. Furthermore, the Air Force's FY 2017 Total Force Continuum implementation plan identifies an additional requirement for ANG prime power capability at nine different locations. Power generation equipment provides the capability to increase and maintain emergency power for hospitals, medical centers, evacuation shelters, and key facilities. Moreover, the prime power provides an "open the base" capability, for supporting expeditionary and contingency operations.

The National Guard Bureau is examining pre/post-disaster joint potable water production capability with the Department of the Army. Initial cost estimates for providing water production capabilities to ten locations is $5M.

Explosive Ordnance Disposal (EOD) detachments have an enduring mission essential requirement for explosive detection devices and personal protective equipment for EOD technicians. In an effort to fulfill requirements and mitigate funding shortfalls, ANG applied NGREA funds toward investments in 17 state-of-the-art, bomb-squad, emergency-response vehicles and 17 total containment vessels. Investments provided a modernized capability with cutting-edge equipment designed for the safe containment and removal of suspect objects containing explosives, hazardous toxic substances, and radioactive materials. When used in conjunction with remote-controlled robot systems, modernized capabilities, provides increased safety and survivability to ANG EOD personnel and the local community.

Expeditionary Air Traffic Control: The 1950's 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 radar 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-15C: ANG F-15C units provide 31 percent of the Nation's aerospace control alert (ACA) assets, spanning five alert sites and providing 24-hour homeland defense for the continental United States. These alert sites provide 24-hour homeland defense. Upgrading obsolete Mechanically-Scanned Array (MSA) 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 and initiated funding in FY 2013; however, sustainment funding of the legacy Tactical Electronic Warfare Suite (TEWS) was terminated in FY 2012.

Modernization upgrades for the Electronic Warfare suite and any interim solutions require the following capabilities: offensive electronic attack from supporting assets, electronic warfare situational awareness improvements, and self-protection capabilities that include radar cross-section reduction, infrared countermeasures, and defensive jamming. NGREA funds will also be used to procure and install the hardware required to carry the critically important back-of-launcher (BOL) external countermeasures system, dramatically improving ANG F-15C. The third-highest modernization priority are 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) 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 F-15C aircraft with larger color and/or 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 an initial, standalone SATCOM capability with NGREA funding.

F-16: The highest priority upgrade for the F-16 fleet continues to be sustainment and replacement of the current radar system. The aging, MSA radar continues to require significant sustainment, and is ineffective in all but the most permissive of operational environments. While the 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 the Office of the Secretary of Defense (OSD) to field AESA radar 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 fulfilling the ACA F-16 requirement, Joint Staff will determine if AESA should proliferate to a portion or all of the remaining F-16 fleet. NGREA is funding 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 Advance Integrated Friend or Foe 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 Electronic Warfare Management System 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 funded updates to the Operational Flight Program software required to support all of these systems, but all modification hardware and installations have been NGREA funded. Other NGREA funded acquisitions include Block 42 ALQ-213, Block 40, Advance Integrated Friend or Foe, 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. 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. 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 with NGREA as an advanced data link to help facilitate 5th-4th generation communication. ANG is funding integration efforts to allow the use of the AN/ASQ-236 Synthetic Aperture Radar pod. This effort enables the self-generation of high quality targeting coordinates in all weather, day and night.

HC/MC-130: This mainstay weapons system underwent several recent upgrades to include the installation of Blue Force Tracker 2, Full Motion Video, an external arm for mounting sensors, aircrew flight equipment storage racks, and crashworthy seats for loadmasters. ANG aircraft have integrated heavy equipment airdrop capabilities into the cargo compartment to ease the dismounting of para-rescue personnel. In addition to these modifications, all ANG HC/MC-130s require communication, data-link, and electro-optical/infrared (EO/IR) sensor improvements. These investments will greatly enhance the combat search and rescue capability and personnel recovery task force's effectiveness. ANG will begin transferring from the HC/MC-130 legacy to the HC-130J platform beginning in FY 2017 with the first aircraft arriving at the 176th Wing in Alaska in January 2017. The program will replace the thirteen legacy HC/MC-130s with twelve HC-130J's over the next three years.

HH-60G: Direct communication with civilian emergency responders will be achieved through a NGREA funded program to modernize the ANG HH-60G fleet's communication set. Teaming with the AFR, the ANG is replacing single-band SATCOM, very high frequency (VHF)/frequency modulation (FM), VHF/amplitude modulation (AM), and ultrahigh frequency (UHF)/AM radios with four ARC-210 multi-band radios. ANG is leading the fleet with the integration of the Smart, Multi-Function Color Display (SMFCD). The program will install the same SMFCD currently flying in the Marine Corps CH-53 in the cockpit of the HH-60G. ANG and AFR will begin testing and fielding Blue Force Tracker 2 and Link-16 systems to improve the crews and C2 situational awareness. Procurement of Rover 6 will provide the HH-60 with Full Motion Video capability. To remain ready and relevant to perform missions, the minimum upgraded capabilities essential to the HH-60G include upgraded communication, an SMFCD solution with data links, and a Helmet Mounted Heads Up Display. An approved and funded initiative to replace HH-60s lost in combat will return the number of Air Force (AF) aircraft to 112 by FY 2018. A recapitalization effort is also necessary, given the age of the fleet and a resultant increase in component failures causing increased maintenance cancellation rates. As currently planned, the Combat Rescue Helicopter program of record will fully recapitalize the HH-60 fleet.

KC-135: The KC-135 continues to be deployed to high-threat areas of operation. To safeguard against man-portable air defense systems, the ANG is leading the integration of a self-contained pod version of the Block 30 LAIRCM system. Block 30 LAIRCM paves the way for the integration of a self-defense system that provides autonomous protection against man-portable air defense systems. RTIC was successfully demonstrated on the KC-135. 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 hardware and software. New external overt and covert lighting was successfully demonstrated on the KC-135. This upgraded aerial refueling lighting system provides for more effective all-weather, day/night aerial refueling and reduces the risk of midair collisions. The KC-135 operates in all temperature extremes. Currently, there is no internal ground cooling capability on the aircraft. In some instances, flight deck temperatures can reach

up to 160 degrees Fahrenheit. The KC-135 ground cooling capability previously identified as a critical requirement. A jam-resistant GPS is essential to successful KC-135 operations in GPS contested environments. With sufficient funding, the ANG will continue to pursue the above system upgrades to ensure future operational mission success.

LC-130: The modernization of the LC-130 aircraft continues throughout 2016. All 10 of the LC-130s now have the Electronic Propeller Control System installed. The NP2000 program to replace the 4-bladed propellers with the 8-bladed variant is progressing, and a contract was awarded in 2016 to retrofit the fleet. 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. The Engine Program Office at Tinker AFB is spearheading the effort. A contract was awarded in FY 2016, and the first LC-130 fleet upgrade installations are planned for FY 2017. The Special Airborne Mission Installation and Response (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. Finally, as a special mission aircraft, the cost to replace these aircraft is unattainable under current fiscal constraints, and the ANG must plan to continue to operate this National Interest/Security Platform well beyond 2030. The LC-130 requires 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. ANG needs to continue 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.

Live, Virtual, Constructive (LVC) Simulation and Range Instrumentation: LVC is the overarching training technology that encompasses and links all aspects of simulation, including Distributed Mission Operations (DMO) 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 and effectiveness to simulator training. ANG procures simulators through USAF programs as well as designing and building simulators in-house to meet unique requirements. Current LVC modernization at ANG air-to-ground ranges include high and medium fidelity surrogate target systems and advanced laser scoring systems. Simulators programed for delivery in FY 2017 include nine C-130 Multi-Mission Crew Trainers (MMCT) and two Battlespace Access Training Systems (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 FY 2019. The RWST will uniquely modernize training by allowing aircrew from all C-130J variants to train in one simulator thereby reducing costs significantly. 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. Available in several sizes to house nearly all of the simulators in production, the RSS is a turnkey solution that will be adopted by the USAF. ANG has a near term requirement for 24 RSS.

MC-12: The MC-12 is a FY 2015 addition to the ANG that is owned by United States Special Operations Command (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 EO/IR sensor ball.

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, 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.

ANG is reviewing the outdated medical equipment in the 27 Chemical, Biological, Radiological, Nuclear, and High-yield Explosives (CBRNE) Enhanced Response Force Package (CERFP) units to determine if substitute equipment is compatible with the latest available technology. Equipment items are reaching or have reached the end of their life cycle and in some cases may no longer be supported by the manufacturers and need modernized replacements.

The 27 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. None of the 89 medical groups have organic first responder patient treatment equipment. Medical personnel require general-purpose first responder kits to render first aid in mass casualty environments. This capability is critical for triage, stabilization, and transportation of victims to a higher level of care.

Air National Guard domestic responses routinely include long-term patient care by Guardian Angel (GA) personnel on HC-130s, HH-60s, and numerous other platforms. Modernizing and incorporating new equipment into the GA medical equipment kits is necessary to improve long-term lifesaving/sustaining care capabilities. The legacy defibrillator currently used is too heavy, too large, has limited battery-operating time, and lacks critical care capabilities, 6 modernized defibrillators are needed for each of the 3 GA Units. Providing this capability will permit on-scene C2 and Wing C2 to track mission progress, ensuring adequate resources are provided at the correct time improving patient care. New transport mechanical ventilators have been developed that provide safe and effective ventilation during pre-hospital extended transport, which is common for GA missions. Mechanical ventilation is the standard of care in current medical protocols. However, these new automated mechanical ventilators control many critical ventilation variables allowing safe and reliable patient ventilation, preventing the medic from hyperventilating a patient. The use of these modern ventilators during GA missions frees the medic from supporting manual mechanical ventilation, allowing the medic to perform other critical lifesaving patient care procedures.

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 continental United States, an additional Mission Simulator/Trainer is required at each ANG RPA Mission Control Element location.

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 crew requires 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-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 are under contract 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 electro-optical/infrared sensor turret, and BLOS data capability. FY 2015 funds were allocated and put on contract 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 2015 funds were also allocated to modernize the avionics of the fleet and will incorporate global Communication, Navigation, and Surveillance/Air Traffic Management 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): ANG is actively filling SF equipment shortfalls utilizing NGREA funds. SFs experience an extremely high operations tempo with air expeditionary force deployments and missions in support of civil authorities. The recent completion of the less-than-lethal force kit procurement has positioned SF to meet 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 contracted active shooter kits for all SF units with the necessary level-IV body armor and medical kits to combat active shooter situations. SF personnel have identified additional equipment requirements to meet their Title 10 and domestic response missions. These include Surveillance, Target Acquisition, and Night

Observation (STANO) equipment, close quarter combat training safety kits, Law Enforcement Ensemble Kits (LEEK), and modernizing 50 percent of the ANG SF vehicle fleet to meet AF Standardized SF Vehicle requirements.

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 currently in conversion and are currently in Operational Testing/Development Testing on the latest mission equipment. This training/testing will ensure squadron readiness upon equipment delivery in FY 2017, which will enable the squadrons to support their planned deployments. In the future, close coordination with 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. The 2005 Defense Closure and Realignment Commission Final and Approved Recommendations affected 62 percent of ANG units and continues to impact the ANG's readiness and operational capability.

Also 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 2018–FY 2020)

1. FY 2020 Equipment Requirements

Table 1 Consolidated Major Item Inventory and Requirements provides projected FY 2018–FY 2020 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 2018 President's Budget request. *Table 4 NGREA Procurements* provides ANG planned NGREA procurements for FY 2015–FY 2017.

3. Anticipated Transfers from AC to ANG

Table 5 Projected Equipment Transfer/Withdrawal Quantities lists planned ANG transfers for FY 2018–FY 2020.

4. Anticipated Withdrawals from ANG Inventory

Table 5 also lists planned ANG major equipment withdrawals for FY 2018–FY 2020, 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, F-15/F-16/C-17 Radar Warning Receiver upgrades, 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 2020 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 FY 2017 President's Budget reemphasized the FY 2014 National Commission on the Structure of the Air Force report's core recommendations as defined in the USAF Strategic Framework's three priorities: Taking Care of People, Balancing Readiness and Modernization, and Making Every Dollar Count. ANG supports these priorities with focused and prudent use of NGREA funds over the past several years while supplementing corporate Air Force funds. This diligence has provided 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 AF's oldest aircraft and weapon systems to ensure it is capable of meeting our global security and domestic 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.

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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 2017 unit cost estimates are provided by the Military Departments.

Nomenclature	Equip No.	Unit Cost	Begin FY 2018 QTY O/H	Begin FY 2019 QTY O/H	Begin FY 2020 QTY O/H	End FY 2020 QTY O/H	End FY 2020 QTY REQ
Air Refueling							
Air Refueling, KC-135R	KC-135R	$53,100,000	139	139	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	0	12	12	12	12
Airlift							
Airlift, C-130H	C-130H	$21,000,000	124	124	124	124	124
Airlift, C-130J	C-130J	$61,664,000	20	20	28	28	28
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	16	16	16	16	16
EW, EC-130J	EC-130J	$50,700,000	3	3	3	3	3
Fighter							
Fighter, A-10C	A-10C	$13,000,000	85	63	63	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	292	318	318	318	318
Fighter, F-16D	F-16D	$7,200,000	44	44	46	46	46
Fighter, F-22A	F-22A	$160,100,000	20	20	20	20	20
Intelligence, Surveillance, and Reconnaissance (ISR)							
Reconnaissance, MC-12W[2]	MC-12W	$17,000,000	13	13	13	13	13
Operational Support							
Op Support, C-21A	C-21A	$2,300,000	2	2	2	2	2
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	2	0	0	0
Rescue, HC-130P	HC-130P	$21,000,000	3	3	0	0	0
Rescue, HH-60G	HH-60G	$11,900,000	20	20	20	20	20
Rescue, MC-130P	MC-130P	$21,000,000	4	0	0	0	0
Rescue, HC-130J	HC-130J	$70,400,000	4	8	12	12	12
Miscellaneous Equipment							
MD-1A/B	MD-1A/B	$1,600,000	21	21	21	21	21
MQ-1B	MQ-1B	$3,100,000	35	0	0	0	0
MQ-9A	MQ-9A	$8,700,000	47	47	48	48	48

1. Four LC-130s are National Science Foundation (NSF)-owned.

2. MC-12s are United States Special Operations Command (USSOCOM)-owned

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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 2017.

Nomenclature	Equip No.	Average Age	Remarks
Air Refueling			
Air Refueling, KC-135R	KC-135R	55	
Air Refueling, KC-135T	KC-135T	57	
Airlift			
Airlift, C-130H	C-130H	27	
Airlift, C-130J	C-130J	12	
Airlift, C-17A	C-17A	16	
Airlift, LC-130H	LC-130H	31	
Electronic Warfare (EW)			
EW, E-8C	E-8C	47	
EW, EC-130J	EC-130J	16	
Fighter			
Fighter, A-10C	A-10C	36	
Fighter, F-15C	F-15C	33	
Fighter, F-15D	F-15D	33	
Fighter, F-16C	F-16C	26	
Fighter, F-16D	F-16D	27	
Fighter, F-22A	F-22A	11	
Operational Support			
Op Support, C-21A	C-21A	28	
Op Support, C-32B	C-32B	12	
Op Support, C-40C	C-40C	13	
Rescue			
Rescue, HC-130N	HC-130N	23	
Rescue, HC-130P	HC-130P	50	
Rescue, HH-60G	HH-60G	26	
Rescue, MC-130P	MC-130P	50	
Miscellaneous Equipment			
MQ-1B	MQ-1B	8	
MQ-9A	MQ-9A	5	

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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 2018 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 2018 are expected to arrive in RC inventories in FY 2019 or FY 2020.

Nomenclature	FY 2018	FY 2019	FY 2020
P-1R data from FY 2018 President's Budget Submission was not available in time for publication in the FY 2018 NGRER.			
The FY 2018 P-1R will be available on the Office of the Under Secretary of Defense (Comptroller) public web site (http://comptroller.defense.gov/Budget-Materials/) upon release of the FY 2018 President's Budget Submission.			

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 2017 would be expected to arrive in RC inventories in FY 2018 or FY 2019. All values are costs in dollars.

Nomenclature	FY 2015	FY 2016	FY 2017[1]
FY 2015 NGREA Equipment			
Combat Air Forces (CAF) Defensive Systems Upgrades	$22,203,711		
CAF Avionics Upgrades	19,375,000		
CAF Combat Operations Enablers	28,568,390		
CAF Simulators	9,922,601		
CAF Helmet Mounted Cueing System	9,902,300		
CAF Advanced Identification Friend or Foe (AIFF), GPS, and Sensor Enhancements	9,236,648		
CAF Communications Suite Upgrade	6,000,000		
C-130/KC-135 Tactical Data Link, Avionics, and Communications Upgrade	21,782,170		
C-130H/LC-130 Enhanced Engine and Propulsion Systems	4,231,926		
C-130H/LC-130 Podded Sensors	9,500,000		
C-130H/J, KC-135, EC/HC/MC-130 Defensive Systems	19,368,074		
C/EC/HC/MC-130J Simulator	23,000,000		
HC/MC/EC-130 Communication, Avionics, Cargo Compartment, Refueling, Engine, and Defensive System Upgrade	5,002,782		
EC-130 Avionics, and Defensive System Equipment	1,960,847		
C-130 Mission Crew Trainer	800,000		
KC-135 Boom Operator Simulator System (BOSS) / Flight Deck Simulator Upgrade	120,000		
RC-26B Avionics, Communications, and Sensor Upgrade	40,422,690		
Aircraft Support Equipment	11,119,625		
Special Tactics/Guardian Angel/Joint Terminal Attack Controller Equipment	16,483,521		
Command and Control (C2) Systems and Comm/Links Modernization	12,654,339		
Flight Line and Back Shop Advanced Logistics Equipment	1,569,205		
Security Forces Equipment and Vehicles	19,400,065		
HH-60G Communication, Avionics, and Defensive Upgrade	14,759,483		
HH-60/RC-26 Aircrew Procedures Trainer	1,000,000		
Logistics and Vehicle Equipment	9,068,900		
Fire Fighting Equipment and Interoperable Communications	869,816		
Emergency Management Equipment	10,817,995		
C-17 Extended Range Tank Install	8,659,389		
MQ-1/MQ-9 Communications and Ground Station Upgrades	9,945,400		
Advanced Targeting and Radar Enhancements	27,933,093		
Mass Care Support Equipment	8,657,669		
Space Systems and Training Equipment Upgrades	1,654,717		
MQ-1/MQ-9 Data Link, Advanced Podded Sensors and Systems	7,412,000		
Civil Engineering Equipment Upgrades	4,057,515		
Public Health and Medical Services Equipment	1,887,705		

National Guard and Reserve Equipment Appropriation (NGREA) Procurements

Nomenclature	FY 2015	FY 2016	FY 2017[1]
E-8C Joint Surveillance Targeting Attack Radar System (JSTARS) Communication and System Upgrade	4,779,395		
Joint Terminal Air Controller (JTAC) Simulators with ARCNet Gateways	3,032,000		
Distributed Mission Operations Equipment	357,399		
ANG Range and Instrumentation Upgrades	1,617,830		
Command and Control Training Equipment	895,800		
Intelligence, Surveillance, and Reconnaissance (ISR) and Targeting Simulation	970,000		
Cyber Training Equipment/Cyber Operations Modernization	4,000,000		
FY 2016 NGREA Equipment			
Advanced Targeting and Radar Enhancements		$14,370,810	
Combat Air Forces (CAF) Avionics Upgrades		53,021,835	
CAF Defensive Systems Upgrades		13,691,593	
CAF Simulators		9,030,000	
CAF Helmet Mounted Cueing System		15,541,150	
CAF Combat Operations Enablers		12,988,000	
C-130/KC-135 Tactical Data Link, Avionics, and Communications Upgrade		16,910,000	
C-130H/LC-130 Podded Sensors		1,072,744	
C-130H/J, KC-135, EC/HC/MC-130 Defensive Systems		38,100,000	
C-130H/LC-130 Enhanced Engine and Propulsion Systems		10,000,000	
C-130/KC-135 Interior/Exterior Night Vision Lighting		650,000	
HH-60G Communication, Avionics, Data Link, and Defensive Upgrade		8,141,000	
HC/MC/EC-130 Communication, Avionics, Cargo Compartment, Refueling, Engine, and Defensive System Upgrade		5,160,000	
EC-130 Avionics, and Defensive System Equipment		1,756,000	
Battlefield Airmen/Special Tactics/Guardian Angel/Joint Terminal Attack Controller Equipment		9,758,783	
Battlefield Airmen Simulators		3,777,256	
Mobility Air Forces (MAF) Simulators		2,835,000	
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)		9,986,000	
Intelligence, Surveillance, and Reconnaissance (ISR) Simulators (RC-26, MC-12, RPA)		1,570,000	
Cyber Training Equipment/Cyber Operations Modernization		13,252,500	
Command and Control (C2) Systems and Comm/Links Modernization		10,458,000	
Space Systems and Training Equipment Upgrades		3,600,000	
Intelligence, Information, Imagery, Analysis, and Assessment Upgrades		465,000	
MQ-1/MQ-9 Communications and Ground Station Upgrades		1,250,000	
MQ-1/MQ-9 Data Link, Advanced Podded Sensors and Systems		8,102,089	
MC-12W Communications, Avionics, & Sensors		6,000,000	
E-8C Joint Surveillance Targeting Attack Radar System (JSTARS) Communication and System Upgrade		6,012,000	
Logistics Support Equipment		19,468,200	
Logistics Test Equipment		3,638,250	
Public Health and Medical Services Equipment		900,000	
Explosive Ordnance Disposal Robots and Equipment		3,113,000	

National Guard and Reserve Equipment Appropriation (NGREA) Procurements

Nomenclature	FY 2015	FY 2016	FY 2017[1]
Fire Fighting Equipment and Vehicles		1,552,790	
Emergency Management Equipment		9,525,105	
Security Forces Equipment and Vehicles		3,114,895	
Total	**$415,000,000**	**$330,000,000**	

1. Service FY 2017 NGREA equipment list was not available in time for publication in the NGRER. Equipment list for FY 2017 will be provided in next year's NGRER.

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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 2018 Qty	FY 2019 Qty	FY 2020 Qty	Remarks
Air Refueling					
Air Refueling, KC-135R	KC-135R		+1		
Air Refueling, KC-46A	KC-46A	+12			
Airlift					
Airlift, C-130J	C-130J		+8		
Fighter					
Fighter, A-10C	A-10C	-22		-21	
Fighter, F-16C	F-16C	+26			
Fighter, F-16D	F-16D		+2		
Rescue					
Rescue, HC-130N	HC-130N		-2		
Rescue, HC-130P	HC-130P		-3		
Rescue, MC-130P	MC-130P	-4			
Rescue, HC-130J	HC-130J	+4	+4		
Miscellaneous Equipment					
MQ-1B	MQ-1B	-35			
MQ-9A	MQ-9A		+1		

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Table 6

FY 2014 Planned vs Actual Procurements and Transfers

NOTE: This table compares planned Service procurements and transfers to the RC in FY 2014 with actual procurements and transfers. FY 2014 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 2016. Procurement and NGREA columns reflect cost values in dollars.

Nomenclature	Equip No.	FY 2014 Transfers (# of items)		FY 2014 Procurements ($s)		FY 2014 NGREA ($s)	
		Plan	Actual	Plan	Actual	Plan	Actual
FY 2014 Planned Transfers & Withdrawals							
Airlift							
Airlift, C-5A	C-5A	-9	-10				
Electronic Warfare (EW)							
EW, RC-26B	RC-26B	-11	0				
Miscellaneous Equipment							
MQ-1B	MQ-1B	-8	0				
MQ-9A	MQ-9A	+5	+5				
FY 2014 P-1R Equipment							
Modification of Inservice Aircraft							
A-10				$23,389,000	$22,840,000		
F-15				57,169,000	37,558,000		
F-16				2,216,000	499,000		
F-22A				22,038,000	24,714,000		
C-17A				31,907,000	11,511,000		
C-40				0	600,000		
C-130				8,260,000	5,909,000		
C-135				12,574,000	38,000		
E-8				46,693,000	26,707,000		
H-60				9,047,000	2,064,000		
Aircraft Replacement Support Equipment				917,000	1,260,000		
Vehicular Equipment							
Passenger Carrying Vehicles				184,000	112,000		
Medium Tactical Vehicle				764,000	880,000		
Security and Tactical Vehicles				140,000	541,000		
Runway Snow Removal & Cleaning Equipment				1,274,000	1,709,000		
Electronics and Telecommunications Equipment							
Air Traffic Control & Landing System				14,859,000	14,382,000		
Battle Control System				994,000	0		
General Information Technology				0	3,506,000		
AF Global Command & Control System				400,000	40,400,000		
Theater Battle Management C2 System				150,000	150,000		
Air & Space Operations Center - Weapon System				10,000,000	2,000,000		
Tactical Communications-Electronic Equipment				7,613,000	1,975,000		
Base Communications Infrastructure				18,522,000	18,522,000		
Communications & Electronics Modifications				1,501,000	1,395,000		
Other Base Maintenance and Support Equipment							
Night Vision Goggles				363,000	363,000		

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Table 6

FY 2014 Planned vs Actual Procurements and Transfers

Nomenclature	Equip No.	FY 2014 Transfers (# of items)		FY 2014 Procurements ($s)		FY 2014 NGREA ($s)	
		Plan	Actual	Plan	Actual	Plan	Actual
Mechanized Material Handling Equipment				2,046,000	2,032,000		
Contingency Operations				13,400,000	10,229,000		
FY 2014 NGREA Equipment							
Air Superiority / Global Precision Attack							
Combat Air Forces (CAF) Communications Suite Upgrade						$29,403,142	$7,910,916
CAF Avionics Upgrades						28,640,288	55,096,162
CAF Combat Operations Enablers						8,400,000	25,455,193
CAF Defensive Systems Upgrades						4,950,243	9,520,066
CAF Helmet Mounted Cueing System						4,678,000	73,312
CAF Advanced Identification Friend, or Foe (AIFF), GPS, and Sensor Enhancements						3,660,000	0
Advanced Targeting and Radar Enhancements						1,300,000	24,649,654
Rapid Global Mobility							
C-130H/J, KC-135, EC/HC/MC-130 Defensive Systems						46,500,000	10,618,187
C-130H/LC-130 Enhanced Engine and Propulsion Performance						16,150,000	500,000
C-130/KC-135 Tactical Data Link and Communications Upgrade						10,600,000	31,234,231
C-130/KC-135 Interior and Exterior Night Vision Lighting						2,110,000	0
LC-130 Crevice Detection Equipment						2,000,000	1,859,998
C-40C Airborne Data Loader						255,000	0
Simulation / Distributed Mission Operations (DMO) / Training							
Joint Terminal Air Controller (JTAC) Simulators with ARCNET Gateways						15,232,000	16,809,190
C-130 Multi-Mission Crew Trainer						4,830,000	8,532,187
CAF Simulators						4,050,000	2,250,000
ANG Range and Instrumentation Upgrades						2,577,276	1,776,329
Command and Control Training Equipment						1,200,000	2,331,661
Cyber Training Equipment						954,700	0
KC-135 Boom Operator Simulator System (BOSS) / Flight Deck Simulator Upgrade						300,766	475,221
HH-60/RC-26 Aircrew Procedures Trainers						295,000	1,467,394
Distributed Mission Operations Equipment						140,000	138,692
Personnel Recovery / Special Operations							
EC-30, C-32 Communication, Avionics, and Defensive System Equipment						11,400,000	5,934,035
HH-60G Communication, Avionics, and Defensive Upgrade						6,895,368	19,415,615
Special Tactics/Guardian Angel/Joint Terminal Attack Controller Equipment						5,673,921	8,242,781
HC/MC/EC-130 Communication, Avionics, Cargo Compartment, Refueling, Engine, and Defensive Upgrade						5,069,000	608,988
Global Integrated ISR / Space Superiority / Cyberspace Superiority / C2 / Incident Awareness and Assessment							
E-8C Joint Surveillance Targeting Attack Radar System (JSTARS) Communication and System Upgrade						9,966,600	10,650,000
Command and Control (C2) System and Communications/Link Modernization						9,350,200	6,150,590
RC-26B Avionics, Communications, and Sensor Upgrade						7,860,000	0
Eagle Vision Capability Upgrades						5,000,000	5,000,000
Cyber Training Equipment/Cyber Operations Modernization						4,716,500	4,639,126
MQ-1/MQ-9 Virtual Common Operating System Modernization						2,500,000	0
MQ-1/MQ-9 Exploitation Data Upgrade						187,000	0

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Table 6

FY 2014 Planned vs Actual Procurements and Transfers

Nomenclature	Equip No.	FY 2014 Transfers (# of items)		FY 2014 Procurements ($s)		FY 2014 NGREA ($s)	
		Plan	Actual	Plan	Actual	Plan	Actual
Agile Combat Support							
Security Forces Equipment						11,446,725	18,152,783
Emergency Management Equipment						9,141,457	15,982,332
Flight Line and Back Shop Advanced Logistics Equipment						8,878,255	17,926,852
Joint Incident Site Communications Capability (JISCC) and Vehicles						8,500,000	1,028,000
Aircraft Support Equipment						7,203,250	3,231,283
Public Health and Medical Services Equipment						5,534,720	4,924,600
Firefighting Interoperable Communications						2,604,700	0
Explosive Ordnance Disposal (EOD) Equipment, Vehicles and Robots						2,265,936	0
Fire Fighting Vehicles						1,524,000	664,622
Prime Power Vehicles and Generators						1,055,953	0
Additional funding ($8,250,000) reprogrammed from another Reserve Component						0	
Total				**$286,420,000**	**$231,896,000**	**$315,000,000**	**$323,250,000**

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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

Service Does Not Use Substitution to Satisfy Major Item Equipment Requirements

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Table 8

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 2)	48	48	$4,000,000	$192,000,000	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	$1,176,000,000	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	C-130 Propulsion Improvements	147	147	$7,750,000	$1,139,250,000	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, eliminates all planned maintenance, and significantly improves 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.

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Table 8

Significant Major Item Shortages

PR	Nomenclature	Total Req'd	# Items Short	Item Cost	Total Shortage Cost	Rationale/Justification
4	Multi-Mission Design Series Real Time Information In the Cockpit (RTIC) for Mobility Air Forces (MAF) Aircraft	392	255	$750,000	$191,250,000	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.
5	Digital Radar Warning Receiver (RWR) (C-130/F-16/C-17)	436	436	$735,000	$320,460,000	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.
6	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.

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Table 8

Significant Major Item Shortages

PR	Nomenclature	Total Req'd	# Items Short	Item Cost	Total Shortage Cost	Rationale/Justification
7	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.
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.
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 was the cause of aircraft accidents, mission effectiveness degradation, and mission failure.

III. Air Force Reserve Overview

A. Current Status of the Air Force Reserve

1. General Overview

Top AFR Equipping Challenges

- **Defensive Systems**: Improve aircraft survivability during combat operations
- **Data Link and Secure Communications**: Improve/provide voice and data communications for combat missions
- **Diminishing Manufacturing Sources and Obsolescence Issues**: Modernize avionics and recapitalization of aging aircraft
- **Precision Attack**: Improve targeting and survivability

The Air Force Reserve (AFR) engages across the full spectrum of operations, providing day-to-day operational capability to maintain ongoing missions while retaining the strategic capacity to respond to national crises. The strength of the AFR comes from its Tier 1 readiness levels, which allows for timely utilization of a multitude of military capabilities. Over the last year, more than 5,000 Reservists contributed each day to global Air and Space Expeditionary Force (AEF) deployments and day-to-day missions to support the Active Component (AC) such as cargo airlift, Single Integrated Operational Plan (SIOP) nuclear alert, Reaper and refueling operations, and Joint Chiefs of Staff and Major Command (MAJCOM) exercises. The AFR provided direct and immediate domestic response as well as disaster relief for people and communities affected by U.S. western wildfires. Throughout this period, the Air Force Reserve Command (AFRC) was the fourth largest of ten MAJCOMs contributing to Total Force AEF requirements, providing an average of eight percent of the forces deployed in support of Operation(s) Noble Eagle, Enduring Freedom, Inherent Resolve and Freedom's Sentinel.

The AFR organizational quantity remains steady with an allocation of 34 flying wings with 29 unit equipped squadrons and 44 total-force association units. There are also 11 associate units in the AFR operating space mission partnerships: satellite command and control; missile warning; Joint Space Operations Center; warfare center research, development, and testing; space aggressor; and the National Security Space Institute. Additionally, the AFR has more than 620 operations and mission support units equipped to provide a wide range of services including medical and aeromedical evacuation, aerial support, functional flight test, civil engineering, security forces, intelligence, communications, mobility support, logistics, and transportation operations.

The AFR inventory has been temporarily reduced by approximately 15 percent due to various force structure changes, divestiture of the Pope AFB C-130H fleet, and conversions of C-5A/B to C-5M configurations. The current AFR inventory is 310 aircraft and 20 simulators, comprised of the A-10C, B-52H, C-5A/B/M, C-40C, C-17A, C-130H/J, HC-130N/P, WC-130J, F-16C, HH-60G, and KC-135R. These units, aircraft, crews and support personnel remain ready for operational assignment to the Air Combat Command, Air Force Global Strike Command, Air Education and Training Command, Air Mobility Command, Air Force Space Command, National Reconnaissance Office, and Air Force Special Operations Command, as well as unified commands upon activation. The AFR sustains readiness to meet the Nation's call.

In accordance with the United States Air Force's Strategic Master Plan (SMP), the AFR continues to meet the demands of a dynamic environment by providing capability in support of

joint operations while supporting the Total Force effort. Therefore, it is crucial the AFR properly equip our Airmen with the resources they need to effectively accomplish their mission. The National Guard and Reserve Equipment Appropriation (NGREA) has played an important role in preserving and modernizing critical AFR resources, which in-turn enables capabilities on-par with the AC.

The AFR operates a warfighter-driven requirements generation process. Each AFR Numbered Air Force commands and the Agile Combat Support (ACS) Combat Planning Councils submit an annual prioritized requirements list, which is rank ordered and integrated through the Headquarters AFRC corporate process into the Prioritized Integrated Requirements List (PIRL). The PIRL is then presented to the Headquarters AFRC Commander for approval. The PIRL executable items are extracted from this list based on "Priority," and used to determine the AFR's Fiscal Year Procurement List. The PIRL process differs from the traditional AFR budgeting process, in that PIRL requirements often consist of requirements which the lead MAJCOM holds responsibility. Such requirements are advocated for by AFR leadership with the lead MAJCOMs, and are deemed out of scope for the purposes of developing the AFR's Fiscal Year NGREA Procurement List. Based on refined Fiscal Year Procurement List, the AFR continues to effectively use NGREA to modernize aging equipment and ensure leading-edge combat capability.

NGREA bolsters modernization of critical Reserve Component (RC) equipment in the three major areas: Mobility Air Forces (MAF), Combat Air Forces (CAF), and ACS. NGREA execution has provided the AFR the ability to ensure legacy weapon systems are effective in mission execution due to various modernization efforts. Over the past several years, the AFR used NGREA funds for several programs in support of A-10s, F-16s, C-130s, KC-135s, C-40s, information systems, and simulators. Current efforts are detailed below.

a. Mobility Air Forces

The majority of the AFR capability exists in the MAF, which contributes a significant amount of aircrews in diverse mission areas at the highest levels of force readiness. The MAF consists of unit equipped squadrons, classic and active associations, and Formal Training Units (FTUs), all together comprises 18 percent of aerial refueling, 18 percent of tactical airlift, 30 percent of strategic airlift, 100 percent of Air Force aerial spray, and 100 percent of the Air Force's weather reconnaissance missions. Currently, the AFR owns and operates C-5A/B/M, C-17A, C-130H/J, WC-130J, KC-135R, and C-40C aircraft and equipment.

C-5 Galaxy: The C-5 Galaxy provides the Air Force with strategic inter-theater airlift in support of U.S. national defense. The AFR owns and operates 16 C-5 aircraft residing in the 433rd and 439th Airlift Wings located at Lackland Air Force Base (AFB), Texas and Westover Air Reserve Base (ARB) Massachusetts, respectively. The 433rd Airlift Wing is home to the Air Force's C-5M FTU, which supports aircrew training for the entire C-5 fleet. The Reliability Enhancement and Re-engining Program (RERP), scheduled for completion in FY 2018 is expected to negatively impact aircraft availability and mission capability at Lackland and Westover throughout the duration of the modification, currently scheduled for completion in the 3rd quarter of FY 2018. At the completion of RERP on the AFR C-5s, the entire inventory will be converted to the C-5M, and the 433rd Airlift Wing will assume the full C-5M FTU role from the AC. The FTU should recover to its full training capacity in April 2017.

The AFR associates with the AC at the 512th Airlift Wing, Dover AFB, Delaware, and 349th Air Mobility Wing, Travis AFB, California. Recently, the 512th Air Base Wing and the AFR's 433rd Airlift Wing at Joint-Base San Antonio - Lackland AFB, recently teamed up to assist in providing humanitarian relief to families in Yoro, Honduras in May 2016. The Central American region recently experienced intense flooding leading to insufficient crop yields. Existing and future planned NGREA acquisitions for the C-5 include a flare dispenser switch, next-generation missile warning system, secure voice and data communication, and an integrated situational awareness display.

C-17 Globemaster III: The C-17A Globemaster III provides the Air Force with inter-theater and intra-theater airlift in support of U.S. national defense. The AFR owns and operates a total of 16 C-17s residing at the 452nd Air Mobility Wing located at March ARB, California, and 445th Airlift Wing stationed at Wright-Patterson AFB, Ohio. The AFR's C-17 wings associate with the AC's six C-17 wings including 315th Airlift Wing, Charleston AFB, South Carolina; 446th Airlift Wing, McChord AFB, Washington; 514th Air Mobility Wing, McGuire AFB, New Jersey; 512th Airlift Wing, Dover AFB, Delaware; 349th Air Mobility Wing, Travis AFB, California; and the 730th Air Mobility Training Squadron, Altus AFB, Oklahoma.

Existing and future modernization requirements for the C-17 include extended-range fuel tank/on-board inert gas generating systems, upgraded aircraft defensive suites, and a common MAF mission computer or Real Time Information in Cockpit (RTIC) system like the C-130H's . Currently, AFR is funding extended range fuel tank/on-board inert gas generating system with NGREA funds. Air Mobility Command (AMC) diverted funding to the AC's last three installations, requiring the AFR to invest NGREA funding to procure the last remaining installations in FY 2016 and FY 2017.

C-130H Hercules: The C-130H Hercules provides the Air Force with capability to take off and land on short, unimproved runways normally found during austere operations. The C-130H provides rapid transportation of personnel or cargo for delivery day or night by parachute or landing. It can also be used for aeromedical evacuation of injured personnel. The AFR owns and operates 56 C-130H aircraft residing with the 94th Airlift Wing located at Dobbins ARB, Georgia; the 908th Airlift Wing, Maxwell AFB, Alabama; 911th Airlift Wing, Pittsburgh International Airport (IAP) Air Reserve Station (ARS), Pennsylvania; 910th Airlift Wing, Youngstown ARS, Ohio; 934th Airlift Wing, Minneapolis-St Paul IAP ARS, Minnesota; and the 302nd Airlift Wing, Peterson AFB, Colorado. The 302nd Airlift Wing at Peterson AFB, Colorado, provides Modular Airborne Firefighting System capability, and the 910th Airlift Wing at Youngstown ARS, Ohio, provides Modular Aerial Spray System capability and 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. In May 2016, the 94th Airlift Wing participated in Exercise Eager Lion 2016. The 94th's airmen worked with Royal Jordanian Armed Forces members to execute a wide variety of airlift missions, strengthening our relationship with the Hashemite Kingdom of Jordan and the Jordanian Armed Forces.

Existing and future modernization requirements for the C-130H include LAIRCM upgrades, avionics, improved propellers, upgraded engines, upgraded digital radar warning receiver, single-pass precision drop capability, integrated electronic warfare suite, secure/beyond line-of-sight communication capability, the Modular Aerial Spray System (MASS), and electronic propeller

control and balancing systems. AFR is currently funding these programs with NGREA. The current aerial spray system is over 20 years old, and parts are becoming obsolete and no longer in production making the system difficult to maintain. NGREA has fully funded both secure/beyond line-of-sight communication and electronic propeller control system, and installs will run through 2017. Single-pass precision drop and integrated electronic warfare suite are currently being tested and will be funded with NGREA once these programs mature and become executable.

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 and operates ten C-130Js and ten WC-130J aircraft residing with the 403rd Wing stationed at Keesler AFB, Mississippi. The 403rd's 815th Airlift Squadron C-130Js support ground operations through the delivery of paratroopers and equipment to austere runways at forward bases. They also conduct humanitarian relief missions and is available to conduct medical evacuations. The Wing's 53rd Weather Reconnaissance Squadron operates WC-130Js to provide ongoing Hurricane Hunter support to National Hurricane Hunter and National Winter Storm operation plans. In 2016, the AFR's WC-130Js proved instrumental in simultaneously tracking Hurricanes Madeline, Lester, Hermine, and Matthew affecting Hawaii, Florida, 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 on the WC-130J's with NGREA funds.

KC-135R Stratotanker: The KC-135R Stratotanker provides worldwide air refueling and airlift capabilities in support of U.S. national defense. The AFR owns and operates 68 KC-135R aircraft residing with the 434th Air Refueling Wing, Grissom ARB, Indiana; 452nd Air Mobility Wing, March ARB, California; 459th Air Refueling Wing, Andrews AFB, Maryland; 507th Air Refueling Wing, Tinker AFB, Oklahoma; 916th Air Refueling Wing, Seymour-Johnson AFB, North Carolina; and 940th Air Refueling Wing at Beale AFB, California. The AFR tanker force structure increases in FY 2017 with the addition of the 914th Air Refueling Wing, Niagara Falls ARS, New York.

Existing and future planned NGREA acquisitions for the KC-135R include modifying voice, data link, and digital data transfer capabilities as well as LAIRCM to enhance self-defense capabilities. The AFR is funding LAIRCM with current NGREA allocations. The AFR will modify 37 aircraft and rotate nine pods throughout the command as needed for training and operational needs. In FY 2017, AFR will partner with ANG in funding a joint program to equip the entire AFR and ANG KC-135R fleets with a Common MAF Mission Computer similar to the C-130H.

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 residing with the 932nd Airlift Wing stationed at Scott AFB, Illinois. The 932nd Airlift Wing is committed to providing the highest level of service to support war, peacetime, homeland defense, and contingency requirements for operational support airlift travel teams, critical missions, and DoD senior executives.

Existing and future planned NGREA acquisitions for the C-40C include crew rest kits to expand mission profiles, a fuel tank vapor inerting system, and to meet Federal Aviation Administration compliance, an avionics upgrade package consisting of: Identification, Friend or Foe (IFF) Mode 5/Automatic Dependent Surveillance - Broadcast (ADS-B) Out/ Selective Availability Anti-spoofing Module (SAASM)/Wide Area Augmentation System (WAAS)/Global Positioning System (GPS) and Selective Availability Anti-spoofing Module. AMC has prioritized these requirements as one of its top three priorities, and AFR will rely on lead command to fund. AFR is researching the possibility of using NGREA to fund its remaining three aircraft with Crew Rest Seats to expedite operational capability improvements for the AFR versus waiting for the lead MAJCOM's funding.

b. Combat Air Forces

Approximately, six percent of the Air Force's Combat Air Force structure resides in the AFR. Currently, the AFR CAF owned structure includes B-52H, A-10C, F-16C, HH-60G, HC-130N/P, 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, but does not own hardware in these operational areas.

B-52 Stratofortress: 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 B-52 aircraft assigned to the 307th Bomb Wing, Barksdale AFB, Louisiana. Currently, the 307th Bomb Wing is the only unit that produces new aircrew for this aircraft through the FTU, providing 100 percent of the formal training for B-52 aircrew combat employment. The 307th participated in the Slovak International Air Fest at Sliac Air Base, Slovakia, in August 2016, highlighting the strength of the U.S. commitment to the security of Europe. Future planned NGREA projects for the B-52H include installation of Digital Mission Data Recorders, AN/AAQ-28(V) LITENING Sensor Enhanced pods, Link 16 and Advanced Targeting Pod Multi-Function Color Displays (MFCD).

A-10 Thunderbolt II: The A-10C Thunderbolt II is a multi-role ground attack fighter. The AFR owns and operates 48 A-10 aircraft residing with the 442nd Fighter Wing at Whiteman AFB, Missouri, and the 924th Fighter Group stationed at Davis-Monthan AFB, Arizona. Since 2007, the AFR has teamed with Air Combat Command to maintain an A-10 associate unit at Moody AFB, Georgia. Recently in August 2016, eight A-10 Thunderbolt aircraft, assigned to the 442nd Fighter Wing, conducted highway landings on the Jägala-Käravete Highway in Northern Estonia. This exercise displayed the partnership between the United States and Estonia by practicing landing on alternative runways in case primary runways are not available in a combat environment. Existing and future planned NGREA expenditures for A-10C aircraft include an anti-jam GPS capability, night vision compatible landing gear lights, installation of a parking brake, digital integrated audio system upgrades, and incorporation of cockpit central display units.

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 and operates 48 F-16s residing with the 301st Fighter Wing at Naval Air Station Joint Reserve Base, Ft. Worth, Texas, and the 482nd Fighter Wing stationed at Homestead ARB, Florida. In the summer of 2016, the 301st Fighter Wing's F-16s deployed and provided direct support to Operation Freedom's Sentinel, aiming to maintain security and stability in Afghanistan. This was the second F-16C deployment

to employ the new NGREA-purchased helmet-mounted targeting capability and the new multifunction high definition smart display. The new helmet targeting system and smart display proved to be tactically and technologically successful in Afghanistan. AFR continues to install smart display, helmet-mounted targeting, advanced identification friend foe equipment, and additional ARC-210 radio during scheduled F-16 depot maintenance. The additional ARC-210 radio provides simultaneous secure line-of-sight (SLOS)/beyond line-of-sight (BLOS) communications capability.

Existing and future planned NGREA expenditures for the F-16C include a "technology refresh" for the GPS/Inertial Navigation System (INS), which provides jamming resistance improving accuracy and reliability; a three-dimensional audio system upgrade that significantly improves situational awareness, threat reaction, and communication intelligibility; a missile warning system to provide protection against the proliferation of shoulder fired missiles; a digital upgrade to the radar missile warning system providing greater sensitivity and accuracy improvements; and a new radar processor that improves reliability and performance. Radar upgrades are estimated to save $6M per year while increasing survivability and combat effectiveness in current and future threat environments.

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 and operates 13 HH-60G aircraft residing with the 920th Rescue Wing at Patrick AFB, Florida, and at the 943rd Rescue Group stationed at Davis-Monthan AFB, Arizona. The AFR had three to four HH-60 aircraft continuously deployed to the Horn of Africa through 2015. Additionally in 2016, the 920th's Rescue Airmen continued to support operations at Cape Canaveral Air Force Station, to include the recent launch of the third and fourth Orbital ATK-built Geosynchronous Space Situational Awareness Program satellites aboard Delta IV rockets. Existing and future NGREA programs for the HH-60G include Smart Color Multi-Function Display, navigation system upgrades, radar warning receiver, hostile fire indication system, communications suite, helmet-mounted integrated targeting, and blue-force tracker and IFF upgrades.

HC-130N/P: The HC-130P/N is the only dedicated fixed-wing Personnel Recovery platform in the Air Force inventory. The HC-130N/P 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 HC-130N/P inventory totals five aircraft based at the 920th Rescue Wing, Patrick AFB, Florida. The AFR HC-130 fleet is currently incorporating a state-of-the-art integrated electronic warfare suite. Existing and future NGREA programs for the HC-130N/P include hostile fire indication system and communication system upgrades. The AFR is working with the ANG to modernize the Air Reserve Components (ARC) HC-130 fleet communication, navigation, and surveillance capability to meet future air traffic management and flight safety standards, a top AFR priority.

Guardian Angel: Guardian Angel (GA) is subset of the Battlefield Airman (BA) Weapon System consisting of combat rescue officers, 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 and personnel recovery programs. The AFR GA personnel and equipment are assigned to the 920th Rescue Wing, Patrick AFB, Florida. Units subordinate to the 920th Rescue Wing GA are stationed at Davis-

Monthan AFB, Arizona, and Portland IAP, Oregon. Existing and planned NGREA executions for GA include replacement and upgrade of existing communication systems, self-defense systems, and personnel recovery mission equipment, tactical capability enhancement, and modern weapons accessories.

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
- 28 percent of Air Force Logistics Readiness Officer 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
- 20 percent of Air Force Logistics Planning capability
- 45 percent of Air Force Aerial Port capability.

Major ACS vehicle procurements are integrated with CAF and MAF modernization efforts that support AFR contributions to AF missions. Other AF priorities have increased pressure on the vehicle replacement account, with FY 2014 and FY 2015 cuts affecting all components. At the beginning of FY 2014, the AFR vehicle fleet was older than the AF fleet in five categories: passenger vehicles, cargo carriers, materials handling equipment, runway clearing vehicles, and construction equipment. The AFR and Warner Robins Air Logistics Complex (WR-ALC) have conducted several efforts that have partially mitigated the effects of AFR vehicle fleet age and shortfalls. These efforts include authorization reductions, transfers, and vehicle procurement of $4.5M in FY 2014 and another projected $6.9M in FY 2015. However, the total AFR critical vehicle procurement shortfall as of July 2016 is $10M. Existing and planned NGREA executions for ACS include vehicle purchases, engine test stands, and Isochronal Maintenance stands.

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. These platforms include air refueling, air support, airlift, bomber, fighter, and rescue aircraft.

b. Average Age of Major Items of Equipment

The average age of Air Force Reserve aircraft ranges from 10 years for the C-40Cs to a milestone 60 years for KC-135Rs and B-52Hs. As aircraft become older, there is a direct correlation to the demand for increased Operation and Maintenance (O&M) funding to maintain capability. The following factors drive increased funding demand: (1) fewer vendors, as a result of industry shifts to newer aircraft, forcing increased costs for replacement parts, (2) less-efficient aircraft drive up flying hour costs, and (3) mean-time-between-failure rate reductions. Combined, these factors increase maintenance requirements and decrease aircraft availability, and therefore must be mitigated to sustain the required capability needed to meet national defense demands.

Citizen Airman/Aug 2016 - Retired pilot Lt. Col. Ronald Brink commented in an article that a member of the Brink family has been flying the KC-135 Stratotanker aerial refueling aircraft almost continuously since 1964. The baton is about to be passed to the third generation, his grandson, Airman David Brink, a Boom Operator in training with the 931st Air Refueling Wing, McConnell AFB, KS. Lt Col Ronald Brink's son, Lt Col Randall Brink, and father to David, is currently serving as an Air Force Reserve Instructor Pilot with the 931st ARW. Their aircraft, the KC-135, just entered its 60th year of service.

See *Table 2 Average Age of Equipment* for the average age of major equipment items as of October 1, 2016.

c. Compatibility of Current Equipment with AC

Air Force Reserve equipment requires compatibility with the AC to support applicable AF and joint missions, with the exception of "unique" missions performed by the AFR (e.g., weather, aerial spray, and aerial firefighting). This compatibility with the AC is also critical to ensuring the Selected Reserve has the ability to train to the same standards as the AC and be ready to operate seamlessly with AC counterparts. With congressional funding received to date, the AFR has been able to keep its mission equipment technologically compatible with the AC. With the average age of AFR aircraft approaching 50 years, it is becoming more apparent that replacement of those aircraft by the AC for the AFR is necessary. Maintainability, mission capability, AC compatibility, and increasing operational costs dictate replacement in the near future of almost the entire AFR fleet. The AC has active recapitalization programs in place that do not always include replacement of AFR aircraft. Near-term replacement of HC-130, C-130H, KC-135R, A-10, F-16C, and HH-60 aircraft combined with the fiscal constraints in place, has led to some AFR aircraft not being included in recapitalization plans or in AFR replacements moved further out into the future. 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 fleet ages.

d. Maintenance Issues

AFR is tracking several fleet-wide wear issues on the A-10C related to the age of the aircraft, and the F-16 system program office has identified a high safety risk related to potential F-16C canopy structural fatigue failure that could lead to future fleet grounding. Inspections have been accelerated to address these issues. Combat rescue equipment continues to show increasing signs of age and overuse due to high demand of a very low number of airframes. The HH-60 fleet has serious structural issues, including cracks in 80 percent of aircraft 308 beams, which stretch over the roof of the helicopter and support as much as 20,000 pounds when the aircraft is fully loaded. AFR legacy HC-130 aircraft are scheduled to be replaced by ANG legacy HC-130 aircraft over the next seven years and will be utilized until AFR fields the HC-130J aircraft.

e. Diminishing Manufacturing Sources and Material Shortages (DMSMS)/Obsolescence

Diminishing Manufacturing Sources and Material Shortages (DMSMS)/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.

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 solution paths that would lead to generic families of solutions, or larger-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.

DMSMS management is a multidisciplinary process to identify issues resulting from obsolescence, loss of manufacturing sources, or material shortages; to assess the potential for negative impacts on schedule and/or readiness; to analyze potential mitigation strategies; and then to implement the most cost-effective strategy.

DMSMS management is inherently linked with reliability, maintainability, supportability, and availability. Within this context, it is important to plan for, minimize, and manage the risks associated with DMSMS issues, due to their detrimental impact on materiel readiness, operational mission capability, safety of personnel, and affordability.

Materiel readiness is an immediate and urgent concern for the warfighter. Missions are affected if equipment cannot be supported; either the equipment is not available for the mission, or it cannot be sustained throughout the mission. DMSMS issues can negatively affect supportability if the items needed to repair a system are not available or are in scarce supply. It is unacceptable for a system 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.

f. Modernization Programs and Shortfalls

The AFR list of modernization shortfalls categorically stresses improving aircraft defense, modernization of communications, providing precision attack, and addressing looming obsolescence issues. The following paragraph provides program details of specific requirements identified through the AFR PIRL, some of which are identified for NGREA fund mitigation strategies. *Table 8 Significant Major Item Shortages* lists significant NGREA programs deemed executable and forecast for the AFR's FY 2017 Procurement List.

Modernization of aircraft and support equipment is required to maintain or reverse degraded capabilities due to evolving threats, materiel age, DMSMS, and obsolescence. Major AFR MAF programs include upgrades for air traffic management, modular aerial spray systems, secure communications, missile warning and cockpit electronics. Major AFR CAF modernization programs include helmet-mounted targeting systems, avionics and display updates, commercial fire control computers, hostile fire indication systems, mission data recording systems, and Guardian Angel equipment. These efforts directly address capability shortfalls identified by theater combatant commanders during combat operations.

AFR C-130Hs require Communication, Navigation, Surveillance/Air Traffic Management (CNS/ATM) modifications to meet mandated compliance requirements of the International Civil Aviation Organization, Federal Aviation Administration, and other civil aviation authorities. This has been one of the AF's top identified modernization priorities since FY 2015. Legacy C-130H aircraft safety and compliance requirements are being addressed via Avionics Modernization Program (AMP) Increments 1 and 2. This includes CNS/ATM as well as ADS-B to ensure global airspace access. Air Force Materiel Command (AFMC) is currently working the acquisition strategy for both AMP Increment 1 and 2 and will fund this critical requirement. The savings gained through AMP Increment 1 over the original AMP program will be used to fund the initial start of the AMP Increment 2 effort.

The AFR will continue to equip and modernize its remaining 16 C-130Hs in FY 2016 with the RTIC data link system/Common MAF Mission Computer utilizing NGREA. The RTIC MAF Mission Computer modernization upgrades consist of ARC-210 and Situational Awareness Data Link (SADL) radios to provide crews with advanced SLOS and BLOS communications, situational awareness, and the ability to be dynamically mission retasked. This NGREA funded capability was identified as a combatant commander urgent operational need after program initiation. Modernization shortfalls also exist for Reserve C-130J, C-17A and C-5M aircraft. AFR C-130Js were modified with Group A wiring from the Dynamic Retasking Capability (DRC) Urgent Operational Need, but lack the Group B hardware due to the cancellation of the DRC program.

The AFR's C-130H MASS equipment is over 20 years old, no longer in production, and becoming increasingly more difficult and expensive to maintain. A program was initiated with FY 2013 NGREA funding to procure a replacement MASS for six C-130H aircraft. This improves system reliability and spray accuracy to meet current and future aerial spray applications directed by the Center for Disease Control and DoD.

AFR C-130H fleet has several capability shortfalls in its ability to accurately deliver airdrop loads in contested and degraded operations in both instrument and visual meteorological

conditions. Effective airdrop operations require early identification of the drop zone (crucial during on-call operations), real-time airdrop damage estimates, real-time winds (altitude to surface), displayed continuously calculated impact point / launch acceptability region, and post drop assessment. The AFR has initial plans for radar upgrades and is exploring the addition of targeting pods to provide a highly accurate all-weather single-pass airdrop capability with significant reduction in human induced errors. The project is forecast to be NGREA funded.

AFR C-130s require modernized radar warning receiver (RWR). Most of the AFR C-130Hs are not equipped with a RWR. Existing systems consist of an analog Radar Warning systems which suffer from significant performance, reliability, and maintainability shortfalls. An all-digital AN/ALR-69A would reduce aircrew workload by providing 360 degree identification, warning of unobserved missile engagements, and automatic cueing of onboard countermeasures to help defeat threats from surface-to-air and air-to-air radar guided missiles. Future NGREA efforts are being considered to address this capability shortfall.

AFR C-130Hs require Night Vision Imaging System (NVIS) lighting to enhance aircrew performance and situational awareness while operating in demanding night tactical environments with night vision goggles. Due to an aging analog instrumentation in the cockpit, Diminishing Manufacturing Sources (DMS) and obsolescence issues are a major concern. To address these issues, a digital cockpit is needed to maintain combat effectiveness and maximize survivability, in addition to addressing the NVIS capability needs. The lead MAJCOM is considering these requirements as a portion of the Increment AMP efforts.

As one of the AFR's top requirements, WC-130Js require an upgrade to their radar transmission capability. National Hurricane Operation Plans require radar imagery to be transmitted so forecasters can assess storm changes in real-time. Current data systems do not include the capability to capture radar images, and have limited satellite communications bandwidth to transmit imagery in a timely fashion. As recent 2016 hurricane activity, such as Category 1 storms Hermine and Matthew proved, access to real-time data greatly facilitates national, state, and local civic leaders in critical decision making for disaster preparation. Capability developmental efforts are in works with funding decisions pending.

AFR F-16s and simulators are receiving smart displays; helmet-mounted targeting; advanced Identification, Friend or Foe equipment; and a second ARC-210 radio during scheduled depot maintenance. These NGREA programs are ongoing and should complete installs in early FY 2016.

AFR A-10s requires critical cockpit modernization of avionics and displays, a jam-resistant GPS/INS, and an improved electronic warfare defensive suite. A-10Cs have received via NGREA funding the following: helmet-mounted targeting, LARS v12 combat search and rescue radio, and On Board Oxygen Generation System during scheduled depot inductions. The helmet-mounted integrated targeting (HMIT) program is ongoing and will require additional funding to complete.

The new AN/AAQ-28(V) LITENING Generation Four (G4) pod has proven to be a tactical and technological success. The AFR will be upgrading its fleet of 77 pods to the Sensor Enhanced (SE)/LITENING Digital Port (LDP) configuration through 2018 via NGREA funding. SE/LDP

will enhance the quality of video and speed of processing capability, as well as maximize the capability of LITENING with the color multifunction display capability inside the cockpit.

AFR B-52s require Digital Mission Data Recorders (DMDR) to maintain combat effectiveness and to effectively accomplish the FTU mission. The B-52 is not equipped with a modern DMDR or "black-box." Current "black box" system is an obsolescent 3/4 inch Airborne Video Tape, which is not operational or economically repairable. In the absence of a modernized automated data recorder, B-52 crews must manually record flight data. The DMDR provides a modernized digital recording capability, playback video, audio, and data from the Offensive Avionics System, targeting pods, radios, and aircraft's interphone. The DMDR affords the B-52 crew an ability to re-create the mission is an invaluable training aid that empowers mission requirements. Contract awarded for the DMDR in September 2016 via NGREA funding.

AFR Guardian Angel units require unique, often unfunded, mission essential equipment for use in extreme climates, intensive training scenarios, and contingency operations. Ongoing NGREA funded programs include equipment modernization for short-wave infrared night vision devices, weapons accessories, communication equipment, advanced rescue and safety equipment, and personal protective equipment. GA tactics and capabilities requirements constantly change with the operational environment to meet combatant commander needs.

AFR personnel recovery aircraft need hostile fire indication systems to counter the increasing threat from rocket-propelled grenades, anti-aircraft artillery, heavy machine guns, anti-tank guided missiles, and even small arms. This NGREA funded modification upgrades acoustic sensors in six HC-130s and 15 HH-60s, increasing the probability of hostile ground fire detection, and enabling the aircrew to take evasive maneuvers and increase aircraft survivability.

Finally, AFR's Agile Combat Support equipment has a current shortfall of approximately $100M for sustainment across all functional areas within the command. Assets required include maintenance stands, aircraft jack testers, cryogenics servicing trailers, corrosion control carts, avionics test stations, frequency converters, mobile generators, tow bars, and radios. Recent efforts to improve execution of the AFR's buy list with WR-ALC resulted in procurement of water jet cutters. Strategic airlift units no longer have to wait for contractors or depots to manufacture parts, saving O&M funds and improving aircraft availability of C-5 and C-17 aircraft.

B. Changes since the Last NGRER

The force structure changes announced with the FY 2017 President’s Budget included Air Force plans to retire 27 A-10 aircraft in FY 2018, and additional 28 A-10 aircraft in FY 2020. However, it is forecast that the 2017 NDAA guidance will pause these force structure changes until future guidance determines the future of the A-10 aircraft. *Tables 1* and *5* reflect these anticipated force structure change delays. The AFR is transitioning two airlift wings, the 914th Airlift Wing (AW), Niagara Falls ARS, New York, and the 911th AW, Pittsburgh International Airport (IAP) ARS, Pennsylvania, from the C-130H mission. The 914th AW will transition to KC-135 aircraft in FY 2017. The 911th AW will begin operating the C-17 in FY 2019. Both wings will divest eight C-130Hs and gain eight aircraft respectively. Other equipment changes include one F-16 identified to transfer to the ANG in FY 2018, supporting Pilot Manning issues by increasing the F-16 FTU. Additionally, four KC-135s are identified to be transferred to other

components in FY 2017, to set the stage for the KC-46 transition at Seymour Johnson AFB in FY 2020. These efforts retire the AF's oldest aircraft, makes room for newer models, and consolidate similar types of aircraft at common locations as much as possible.

Changes in the status of AFR's NGREA funded equipment programs include the following:

- The C-130 RTIC modification has been completed on 30 AFR C-130H aircraft at the 910th AW, 914th AW, 934th AW, 302nd AW, and the 913th AW. RTIC has been utilized to resolve an urgent-operational-need request to provide SLOS and BLOS capability to the combatant commander. RTIC provides crews enhanced situational awareness capability during airlift, airdrop, and other operations. The remaining 12 AFR aircraft will be modified in 2nd Quarter FY 2017.
- AFR completed upgrading 10 C-130Js from the 403rd at Keesler ARB with Block 20 LAIRCM.
- AFR has fully funded the C-130H RTIC program with NGREA. Installs are scheduled to be completed by 2nd Quarter of 2017.
- AFR has fully funded Electronic Propeller Control System with NGREA. Installs begin in FY 2017.
- AFR has fully funded the last remaining C-17 Extended Range Tank with installations scheduled for FY 2017.
- The Simulator and Distributed Mission Operations (DMO) program has made significant advancements this past year in providing better capability in the F-16C Multi-Task Trainers and the A-10C Full Mission Trainers. The 301st Fighter Wing, Joint Reserve Base Fort Worth, Texas, and 482nd Fighter Wing, Homestead ARB, Florida, have recently incorporated their second fully upgraded F-16C Multi-Task Trainer, complete with state-of-the-art 360-degree visual display systems, into their training programs. The expected delivery date for the third and fourth simulators at each of these locations will be February 2017. The AFR Simulator and DMO program experienced a setback when the HH-60G Pave Hawk Equivalent Distributive Repeatable Operational Simulator (PEDROS) was cancelled. Due to be delivered in July 2018 to the 943rd Rescue Squadron, Davis-Monthan AFB, Arizona, and another at the 920th Rescue Wing, Patrick AFB, Florida, in September 2019, the requirement still exists, and AFR is working with AFMC on a new acquisition strategy.
- AFR A-10s will receive an upgrade to the landing and taxi lights providing a visible-lights-out night-vision-goggle compatible landing capability. Combat fuel tanks, parking brake, and black-out landing/taxi capability greatly improve AFR A-10's capability to operate covertly from austere landing fields well beyond the capability of conventional fighter aircraft.
- Completion of the A-10C Operational Flight Program Suite 7.b in conjunction with the installation of HMIT and LARS v12, significantly increases search and rescue capability and integrates AN/AAQ-28(V) LITENING G4 and Advanced Targeting Pod capability.

- The F-16 Center Display Unit places a smart color multifunction display on the center pedestal. The Center Display Unit will reduce maintenance and significantly increase aircraft processing capacity. While the F-16s pass through the depot for the installation of the Center Display, HMIT, and ARC-210 radio, they are also receiving four structural modifications. Unfortunately, the structural modifications are significantly increasing the time the aircraft are in depot, thus slowing the modification installs. These programs are ongoing and will require additional funding to complete.
- In addition to incorporating HMIT and Center Display Unit functionality, the F-16 Software Capability Upgrade 8.0 (SCU-8) began fleet-wide installation in February 2013. SCU-8 also brings LITENING G4 Advanced Targeting Pod capability, digital Ethernet connectivity, Advanced Medium-Range Air-to-Air Missile (AMRAAM) digital integration, and many other refinements to the aircraft operational flight program. SCU-8 is fully funded by lead command and should be complete in FY 2016.
- Complete delivery of AFR's 12 new Sensor Enhanced (SE) pods occurred in March 2015. The four remaining block one to G4 upgrades and the first phase of G4 to SE kit upgrades were placed on contract in September 2014. The four block one to G4 upgrades were delivered in February 2016, and 17 G4 to SE kit upgrades were delivered in May 2016, with installations ongoing. An additional two SE pods were contracted in May 2016 with delivery to occur in 2017. Twenty "Plug and Play III" data link kits were contracted, continuing progress towards the end-state goal of all LITENING pods at a common SE/LDP capability level.
- HC-130 Heavy Equipment Airdrop (HEA) adds a cargo delivery system for heavy equipment to support rescue missions. The production installs were completed in August 2016.
- HC-130N/P Aircrew Flight Equipment (AFE) storage racks production installs were completed in August 2016
- HC-130N/P AAR-47B(V)2 Missile Warning/Threat Detection System production kit deliveries are scheduled for completion in February 2017.
- HH-60G Smart Multi-Function Color Display (SMFCD) kit deliveries started in October 2016. GA Emergency Water Rescue Craft (replacing a boat condemned by the Naval Safety Center) is scheduled for delivery to the 306th Rescue Squadron at Davis-Monthan AFB, Arizona, by Dec 2016.
- The AFR has leveraged NGREA funding to address critical ACS shortfalls. The 403rd Maintenance Wing, Keesler AFB, Mississippi, and the 908th Maintenance Squadron, Maxwell AFB, Alabama, received walk-in plastic media blast booths in April 2016. The 452nd Air Mobility Squadron at March AFB, California, received funding in May 2016 to procure an advance composite material clean room, a powder-curing oven, and a walk-in plastic media blast booth with an expected delivery of November 2016. The 94th Airlift Wing, Dobbins AFB, Georgia, and the 910th Airlift Wing, Youngstown ARB, Ohio, upgraded aging Enterprise Land Mobile Radio (ELMR) equipment. The ELMR program is ongoing and will require additional funding to complete.

C. Future Years Program (FY 2018–FY 2020)

1. FY 2020 Equipment Requirements

Table 1 Consolidated Major Item Inventory and Requirements provides projected FY 2018–FY 2020 major equipment inventories and requirements.

2. Anticipated New Equipment Procurements

Table 3 Service Procurement Program – Reserve (P-1R) lists planned procurements for the AFR from the FY 2018 President's Budget request. *Table 4 NGREA Procurements* provides AFR planned NGREA procurements for FY 2015–FY 2017.

3. Anticipated Transfers from AC to AFR

Table 5 Projected Equipment Transfer/Withdrawal Quantities lists planned AFR transfers for FY 2018–FY 2020.

4. Anticipated Withdrawals from AFR Inventory

Table 5 also lists planned AFR major equipment withdrawals for FY 2018–FY 2020, 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 2019

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

D. Summary

As discussed above in Section I.A. Air Force Planning Guidance, American Airmen provide *Global Vigilance, Global Reach, and Global Power*, which are prerequisites for successful joint operations, and continue to meet the military objectives set in the 2015 National Military Strategy (NMS).

To exploit the full capabilities of the Total Force, the USAF recognizes that the Active, Guard, Reserve, and civilian components of the Total Force each offer unique capabilities and strengths. The Strategic Master Plan (SMP), as signed by the SECAF and CSAF in 2015, dictates a flexible, responsive force structure and the identification of additional opportunities for integration between Active and Reserve Components.

The 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, it is important that funding be provided to support the NMS objectives. Top AFR equipping challenges, including defensive system improvements, data link and secure communications, precision strike capability,

addressing diminishing manufacturing sources and obsolescence, as well as the ACS support equipment and vehicles necessary to enable point-of-the-spear warfighter mission accomplishment, will remain unfulfilled without the budget support to address the concerns.

"The Air Force is fully vested in integrating to leverage the strengths of each component." said Lt. Gen. Maryanne Miller, the Chief of Air Force Reserve. "As one Air Force, we utilize the experience and capacity of our Reserve forces on a day to day basis, and we stand ready when called as Citizen Airmen. 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.

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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 2017 unit cost estimates are provided by the Military Departments.

Nomenclature	Equip No.	Unit Cost	Begin FY 2018 QTY O/H	Begin FY 2019 QTY O/H	Begin FY 2020 QTY O/H	End FY 2020 QTY O/H	End FY 2020 QTY REQ
Air Refueling							
Air Refueling, KC-135R	KC-135R	$74,000,000	72	72	62	62	62
Air Refueling, KC-46A	KC-46A	n/d	0	1	12	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	48	48	42	42	42
Airlift, C-130J	C-130J	$69,500,000	10	10	10	10	10
Airlift, C-17A	C-17A	$284,000,000	18	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	27	27	27
Fighter, F-16C	F-16C	$21,800,000	53	53	73	73	73
Fighter, F-16D	F-16D	$21,800,000	2	2	3	3	3
Rescue							
Rescue, HC-130N	HC-130N	$23,500,000	6	6	1	1	1
Rescue, HH-60G	HH-60G	$27,000,000	15	15	15	15	15
Rescue, HC-130J	HC-130J	$70,400,000	0	0	5	5	5

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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 2017.

Nomenclature	Equip No.	Average Age	Remarks
Air Refueling			
Air Refueling, KC-135R	KC-135R	55	
Air Support			
Weather, WC-130J	WC-130J	15	
Airlift			
Airlift, C-130H	C-130H	25	
Airlift, C-130J	C-130J	12	
Airlift, C-17A	C-17A	15	
Airlift, C-5M	C-5M	28	
Airlift, C-40C	C-40C	11	
Bomber			
Bomber, B-52H	B-52H	54	
Fighter			
Fighter, A-10C	A-10C	35	
Fighter, F-16C	F-16C	29	
Fighter, F-16D	F-16D	29	
Rescue			
Rescue, HC-130N	HC-130N	52	
Rescue, HH-60G	HH-60G	25	

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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 2018 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 2018 are expected to arrive in RC inventories in FY 2019 or FY 2020.

Nomenclature	FY 2018	FY 2019	FY 2020
P-1R data from FY 2018 President's Budget Submission was not available in time for publication in the FY 2018 NGRER.			
The FY 2018 P-1R will be available on the Office of the Under Secretary of Defense (Comptroller) public web site (http://comptroller.defense.gov/Budget-Materials/) upon release of the FY 2018 President's Budget Submission.			

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 2017 would be expected to arrive in RC inventories in FY 2018 or FY 2019. All values are costs in dollars.

Nomenclature	FY 2015	FY 2016	FY 2017[1]
FY 2015 NGREA Equipment			
C-17 Extended Range Modification with Enhanced On Board Inert Gas Generating System (OBIGGS)	$10,000,000		
LITENING	6,802,999		
A-10 Anti-Jam Global Positioning System (GPS)	5,100,000		
A-10/F-16 Day/Night Helmet-Mounted Integrated Targeting (HMIT)	4,000,000		
A-10 Second ARC-210 Radio	563,415		
A-10 PATS-70A (Support Equipment)	416,502		
B-52 Mission Data Recorder	3,500,000		
F-16 AN/ALR-69A Upgraded Electronic Warfare (EW) Suite	7,369,414		
F-16 Center Display Unit (CDU)	2,781,000		
F-16 Electronic Warfare Missile Warning System - Pylon Integrated Dispenser System (PIDS+)	1,807,217		
F-16 Second ARC-210 Beyond-line-of-sight (BLOS) with data transfer capability	1,500,000		
C-130 Electronic Propeller Control System (EPCS)	7,964,081		
C-130 Large Aircraft Infrared Countermeasures (LAIRCM)	2,623,995		
C-130 Real Time Information in the Cockpit (RTIC)	2,058,336		
KC-135 Large Aircraft Infrared Countermeasures (LAIRCM)	1,014,125		
Guardian Angel Personnel Recovery Mission Equipment	869,360		
Combined Advanced Identification Friend or Foe (AIFF)	840,792		
HH-60 Smart Color Multifunctional Display Interim Contractor Support (ICS)	400,000		
Expeditionary Forces Tactical Equipment	100,000		
Support Equipment	238,764		
Chief Information Officer (CIO) Board Project List	50,000		
FY 2016 NGREA Equipment			
Multi-Mission Design Series (MDS) Day/Night Helmet-mounted Integrated Targeting (HMIT)		$19,000,000	
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		6,000,000	
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		750,000	

Table 4

National Guard and Reserve Equipment Appropriation (NGREA) Procurements

Nomenclature	FY 2015	FY 2016	FY 2017[1]
F-16 3-Digital Intercom/Spatial Awareness Audio		4,220,000	
F-16 2nd ARC-210 Mobile User Objective System (MUOS)		210,000	
Side/Sector Scan SONAR		582,000	
Maritime Communications Capability - 1 per Guardian Angel (GA) operator		750,010	
Communications/Navigation for GAARC		402,640	
Containerized Small Arms Range		1,839,990	
Razor Light Tactical Vehicle Upgrade		920,000	
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		3,000,000	
Simulator Procurement and Upgrades		125,000	
Support Equipment		3,912,645	
Vehicles		489,594	
Expeditionary Forces Tactical Equipment		274,636	
Total	**$60,000,000**	**$140,000,000**	

1. Service FY 2017 NGREA equipment list was not available in time for publication in the NGRER. Equipment list for FY 2017 will be provided in next year's NGRER.

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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 2018 Qty	FY 2019 Qty	FY 2020 Qty	Remarks
Air Refueling					
Air Refueling, KC-135R	KC-135R		-10		
Air Refueling, KC-46A	KC-46A	+1	+11		
Airlift					
Airlift, C-130H	C-130H		-6		C-130H Movement Plan
Airlift, C-17A	C-17A	+8			Pittsburgh (8 Total Aircraft Inventory)
Fighter					
Fighter, A-10C	A-10C		-28		Whiteman/Davis-Monthan mission-design-series (MDS) conversion
Fighter, F-16C	F-16C		+20		Whiteman/Davis-Monthan MDS conversion
Fighter, F-16D	F-16D		+1		Whiteman/Davis-Monthan MDS conversion
Rescue					
Rescue, HC-130N	HC-130N		-5		New force structure, per Air Combat Command, calls for legacy HC-130 retirement by end of year FY 2019.
Rescue, HC-130J	HC-130J		+5		

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Table 6

FY 2014 Planned vs Actual Procurements and Transfers

NOTE: This table compares planned Service procurements and transfers to the RC in FY 2014 with actual procurements and transfers. FY 2014 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 2016. Procurement and NGREA columns reflect cost values in dollars.

Nomenclature	Equip No.	FY 2014 Transfers (# of items)		FY 2014 Procurements ($s)		FY 2014 NGREA ($s)	
		Plan	Actual	Plan	Actual	Plan	Actual
FY 2014 Planned Transfers & Withdrawals							
Airlift, C-5A	C-5A	-2	+2				
FY 2014 P-1R Equipment							
Modification of Inservice Aircraft							
B-52				$1,393,000	$4,322,000		
A-10				4,842,000	4,568,000		
F-16				24,000	24,000		
C-5M				700,614,000	668,165,000		
C-17A				7,653,000	4,234,000		
C-40				0	300,000		
C-130				18,934,000	3,495,000		
C-135				5,239,000	13,000		
H-60				5,110,000	1,762,000		
Aircraft Replacement Support Equipment				384,000	397,000		
Vehicular Equipment							
Passenger Carrying Vehicles				69,000	57,000		
Medium Tactical Vehicles				833,000	527,000		
Security and Tactical Vehicles				100,000	323,000		
Runway Snow Removal & Cleaning Equipment				219,000	276,000		
Electronics and Telecommunications Equipment							
Air Traffic Control & Landing System				1,091,000	679,000		
Weather Observation Forecast				0	7,000		
Theater Battle Management C2 System				145,000	145,000		
Air & Space Operations Center - Weapon System				2,000,000	4,000,000		
Information Transport Systems				2,657,000	1,384,000		
Tactical C-E Equipment				528,000	7,000		
Base Communications Infrastructure				357,000	357,000		
Communications & Electronics Modifications				1,501,000	1,395,000		
Other Base Maintenance and Support Equipment							
Night Vision Goggles				150,000	150,000		
Mechanized Material Handling Equipment				300,000	0		
FY 2014 NGREA Equipment							
Electronic Propeller Control System (EPCS)						$21,437,975	$21,170,314
KC-135 Large Aircraft Infrared Countermeasures (LAIRCM)						10,245,711	8,845,108
LITENING Targeting Pod Procurement & Spiral Upgrades						8,206,422	8,579,721
C-130 Large Aircraft Infrared Countermeasures (LAIRCM)						5,000,000	4,195,430

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Table 6

FY 2014 Planned vs Actual Procurements and Transfers

Nomenclature	Equip No.	FY 2014 Transfers (# of items)		FY 2014 Procurements ($s)		FY 2014 NGREA ($s)	
		Plan	Actual	Plan	Actual	Plan	Actual
C-130 Modular Aerial Spray System (MASS)						3,600,000	3,569,104
C-130 Secure Line-of-sight/Beyond Line-of-sight (SLOS/BLOS) Capability						420,025	3,764,271
HH-60 Blue Force Tracker & Remotely Operated Video Enhanced Receiver (ROVER)						4,500,000	3,861,304
HH-60 Tactical Situational Awareness Data Link (SADL)						300,000	0
Day/Night Helmet Mounted Integrated Targeting (HMIT)						1,800,000	1,799,998
A-10/F-16 Digital Intercom/Spatial Awareness Audio						1,334,000	0
Electronic Warfare Missile Warning System - Pylon Integrated Dispenser System (PIDS+)						1,243,700	1,243,700
Combined Advanced Identification Friend or Foe (AIFF) with Mode 5/S						2,362,200	2,503,784
Cockpit Modernization						2,000,000	2,000,000
F-16 Radio (2nd ARC-210)						780,000	667,232
Chief Information Officer (CIO) Board Project List						4,469,967	4,594,967
Guardian Angel Personnel Recovery Mission Equipment						2,000,000	2,857,999
AFR Expeditionary Security Forces Tactical Equipment						100,000	58,970
Support Equipment						100,000	127,652
Vehicles						100,000	91,039
A-10 Improved Data Modem (IDM)						0	145,000
F-16 Commercial Flight Control Computer (CFCC)						0	600,000
A-10 Parking Brake						0	10,448
C-130 Yoke Mounted Switch (YMS)						0	157,787
Simulator - F-16 Multi Task Trainer Upgrades						0	3,300,000
C-17 Engine Maintenance and Inspection Stands						0	1,390,866
Additional funding ($5,534,696) reprogrammed from another Reserve Component							
Total				**$754,143,000**	**$696,587,000**	**$70,000,000**	**$75,534,696**

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 2018 Qty	Deployable?	
					Yes	No

Service Does Not Use Substitution to Satisfy Major Item Equipment Requirements

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Table 8

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	Guardian Angel Weapon System	various	various	varies	$4,900,000	Guardian Angel (GA) executes multiple mission sets in various climates utilizing an assortment of equipment and weapons systems. GA's current weapon accessories are outdated and do not meet the demands of current weapons and mission requirements. Upgrades will fill tactical capability gaps in existing close-range defensive weapon systems in order to increase survivability for combat search and rescue (CSAR) Special Operations Forces (SOF) operators in three squadrons.
2	A-10 / F-16 / B-52 / HC-130 / HH-60 / Cyber--Link 16 Data Link	148	148	$300,000	$44,400,000	Link 16 provides real-time, jam-resistant, secure transfer of combat data, voice, and navigation information between dispersed battle elements. With Link 16, aircrews gain situational awareness by exchanging digital data over a communications link in real time.
3	C-130J Common MAF Mission Computer B Kits (Real Time Information in the Cockpit [RTIC])	8	8	$250,000	$2,000,000	Procures RTIC Group B kits to meet aircrew requirements. C-130J's have Group A wiring from a previous Urgent Operational Need (UON) through the Dynamic Retasking Capability (DRS) program, but do not have Group B hardware. RTIC provides critical threat, airspace, and C2 information. Solution exists, but AMC needs to approve.
4	C-130 Single Pass Precision Air Drop	42	42	$2,000,000	$84,000,000	Incorporates a precision targeting pod application to provide accurate, all-weather, single-pass airdrop capability while minimizing human-induced errors. Upgrades the APN-241 radar and incorporates Light Detection and Ranging (LIDAR) to acquire wind sensing data.
5	C-130 Next Generation Missile Warning System Upgrade	42	42	$300,000	$12,600,000	C-130H aircraft are baselined with the Block 10 Large Aircraft Infrared Countermeasures (LAIRCM) system. Block 10 was first installed in 2002 with ultraviolet (UV) missile warning sensors. The KC-135 and KC-46 aircraft will be equipped with the Block 30 next generation LAIRCM system. Block 30 next generation sensors are equipped to address the evolving threat of infrared (IR) surface-to-air-missiles. To meet this threat, C-130Hs need upgraded IR sensors.
6	C-130H Radar Warning Receiver (RWR)	42	42	$800,000	$33,600,000	Most of the AFR C-130Hs are not equipped with a RWR. The ones that are equipped rely on an analog RWR system with significant performance, reliability, and maintainability shortfalls. An all-digital ALR-69A would reduce aircrew workload by providing 360 degree identification, and warning of unobserved missile engagements and automatic cueing of onboard countermeasures to help defeat threats from surface-to-air and air-to-air radar guided missiles

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Table 8

Significant Major Item Shortages

PR	Nomenclature	Total Req'd	# Items Short	Item Cost	Total Shortage Cost	Rationale/Justification
7	C-17 SLOS/BLOS Data Link & Internet Protocol (IP) Capability	16	16	$350,000	$5,600,000	Without SLOS/BLOS communication and data link upgrades to the AFR C-17 fleet, aircrew and associated C2 platforms will not adequately interface in current and evolving mission environments resulting in degraded mission performance. This capability will allow the AFR to upgrade C-17 with voice, data link, and data transfer capability to provide aircrews the ability to report and receive battlespace info from command and control platforms.
8	B-52 Advanced Targeting Pod Multi-Function Color Display-Group A wiring	18	18	$200,000	$3,600,000	Upgrading to a digital Multi-Function Color Display (MFCD) will resolve the current targeting pod monitor's unsatisfactory mission-capable rate of 39% and the historic breakrate of 3.5 monitors per month. The current MFCD failure rates drive excess maintenance cannibalization actions. Currently, 59 out of 82 total B-52 MFCDs are inoperable; completion of the FTU ATP training requirement is also in jeopardy due to lack of MFCDs.
9	A-10/F-16 Anti-Jam Capability	112	112	$160,000	$17,920,000	Current Global Positioning (GPS) systems on the F-16 and A-10 are vulnerable to GPS jamming. AFR needs to replace with jam-resistant GPS systems. This will increase mission success, precision weapon accuracy, and pilot situation awareness.
10	F-16 All Weather Air-to-Ground (A/G) self targeting capability (ASQ-236 Radar Pod)	12	9	$7,600,000	$68,400,000	Low altitude weather provides cover for the enemy allowing them freedom of movement to conduct combat operations. The ASQ-236 Radar Pod will allow AFR F-16s to target enemy positions through the weather.

Chapter 6
United States Coast Guard Reserve

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 suboptimal 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 agreement, which facilitate the following defense operations 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; and
  - Maritime Operational Threat Response (MOTR) Support.

The United Coast Guard Reserve (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 Reserve Component (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 Active Component (AC) personnel.

Also primarily staffed with reservists, the Coast Guard Mobile Support Unit provides expeditionary logistics support capability to USCG capabilities and resources deployed in support of CCDRs. The Mobile Support Unit is air, sea, and land deployable within 96 hours of mobilization in support of both contingencies abroad and domestic emergencies.

A. Coast Guard Planning Guidance

The Coast Guard will plan and resource the appropriate levels of staffing for a broad array of contingencies. The Coast Guard will also 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 five 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
- Security Sector Assistance Strategy: Engage, help and enable our allies and foreign partners to contribute to common security challenges through our defense and interagency partnerships.

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 2016, approximately 150 Selected Reserve (SELRES) personnel were mobilized in support of overseas contingency operations, compared to 200 in FY 2015. Starting in FY 2017 the personnel footprint for planned PSU missions is expected to grow from 75 to 115 per deployment. This will accelerate the timeline for recapitalizing personal protective equipment (PPE) while maintaining the current recapitalization rate for boat platforms. The current austere federal budget environment has strained USCG operational resources, limiting funding to fill RC equipment shortages. As a result, any surge in USCG support to DoD contingency operations must be accompanied by sufficient supplemental funding to ensure proficiency in the short to mid-term.

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, standardizes Reserve personnel allowance lists at boat stations, and introduces new Boat Forces Reserve competencies to ensure reservists are ready and capable to effectively conduct boat operations in support of USCG missions. The BFRMP is being phased in on a four-year schedule and will 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. As a result, an increase in operational platforms would be required before any increase in Reserve end strength could be undertaken in this mission area. Increased personnel capacity is critical to reducing operational risk in domestic and expeditionary mission sets.

The remaining 18 percent of the SELRES force are assigned to USCG Deployable Specialized Forces, e.g., PSUs or Navy Coastal Riverine units. The DoD-validated requirements for deployable USCG units in both annually recurring defense operations and potential contingency operations that are captured in DoD operation and concept plans far exceed the capacity of a fully mobilized USCG reserve force, posing significant to high military risk to our reserve forces in the event of an actual contingency. These units include PSUs, Redeployment Assistance and Inspection Detachment (RAID) teams, 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

Top Coast Guard Reserve Equipping Challenges

- Obtaining sufficient training capacity to ensure proficiency on updated platforms
- Maximizing availability of operational platforms for RC training

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. 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 missions support.

Given recent funding and end strength reductions, the USCG has undertaken a multi-year effort to establish a Reserve Force Planning Construct to review surge and mobilization requirements assigned to the RC. Integration of RC requirements into the USCG Standard Operational Planning Process / Global Force Management regime has greatly increased the visibility of RC readiness and highlight impacts of any future reductions in budgetary resources.

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 2016 provided $110M 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 total funding requirement of $163.4M reflects the total cost of equipping the Reserve. Annual funding of approximately $3M is required to sustain operations (exclusive of recapitalization costs).

2. Status of Equipment

a. Equipment On-hand

Table 1 Consolidated Major Item Inventory and Requirements identifies the major equipment inventories for FY 2018–FY 2020. 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 (SMTC) 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 152 RB-S and 219 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; ports, waterways and coastal security; drug and migrant interdiction; and environmental protection and response. The expected life cycle for both platforms is 10 years with an average age of 11 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 2017.

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 Ports, Waterways, and Coastal Security, 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 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. As such, long-term maintenance requirements resulting from extended use are just now being fully realized. Ongoing, continual use of the TPSB in Guantanamo Bay, Cuba has pushed the platform and its maintenance to the

limits. As a result, the CG purchased seven additional TPSBs 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.

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. In FY 2014, PSUs completed the full transition from .40 caliber pistols to a 9mm pistol. The USCG contracted to transition M16A2 rifles to a full complement of M4 variant carbines at the same time. However the full M4 transition has not yet been realized. The 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. The cost of recapitalizing the TPSB Generation IV boat fleet could exceed $27M based on the current inventory and cost per platform excluding potential costs associated with research and development or changes to ancillary/support equipment. The cost of recapitalizing the RB-S II platform will be addressed by the USCG AC given the integrated utilization of these platforms for steady state and surge mission requirements.

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 fourteen 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 approaching the middle of its 10-year life cycle with an average age of 4.5 years per platform. The USCG will be conducting a study shortly to determine whether to extend the life cycle of these assets or replace them. 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 operations 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, especially considering the minimal number of training days allotted per month/year. 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 was reduced from $114M in FY 2015 to $110M in FY 2016. Reductions in appropriation funding are negatively impacting RC training

opportunities necessary to ensure reservists can safely and proficiently operate USCG equipment.

C. Future Years Program (FY 2018–FY 2020)

1. FY 2020 Equipment Requirements

Table 1 Consolidated Major Item Inventory and Requirements provides projected FY 2018–FY 2020 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; ports, waterways and coastal security; drug and migrant interdiction; and environmental protection and response. By FY 2019, over 80 percent of the RB-S II upgrades will be complete.

3. Anticipated Withdrawals from RC Inventory

None to report.

4. Remaining 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 RC equipment inventories, shortfalls, and modernization requirements.

USCG unit operations and maintenance fund managers include personal protective equipment (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 64 percent, of the RC have mobilization requirements requiring PPE to safely conduct USCG operations. The annual estimated PPE shortfall for RC personnel totals $575K.

Table 6-2 provides the FY 2017 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 6-2. Coast Guard FY 2017 PPE Funding for the RC

Unit / PPE Type	Cost	# of Personnel	Total	Total/Year
Ashore (Reserve) Basic Ensemble (Boat Station)	$1,780	1,752	$3,118,560	$623,712
Ashore (Reserve) Cold Ensemble (Boat Station)	$1,854	1,203	$2,230,362	$446,072
Ashore (Reserve) Basic Ensemble (Aids to Navigation Team)	$1,780	6	$10,680	$2,136
Ashore (Reserve) Cold Ensemble (Aids to Navigation Team)	$1,854	5	$9,270	$1,854
Sector Ops (Reserve) Basic Ensemble	$1,780	707	$1,258,460	$147,578
Sector Ops (Reserve) Cold Ensemble	$1,854	398	$737,892	$132,358
Tactical (Reserve) Basic/Cold Ensemble (PSU)	$3,634	320	$1,162,880	$232,576
PPE per Person Total		4,391	$8,528,104	$1,705,620
Total	$8,528,104			
Total/Year	$1,705,620		Annual Shortfall	
Total Available	$1,130,588		($575,031)	

D. Summary

The USCG depends on the Reserve force to be ready within 72 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 Active Component. 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 Active Component.

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 2017 unit cost estimates are provided by the Military Departments.

Nomenclature	Unit Cost	Begin FY 2018 QTY O/H	Begin FY 2019 QTY O/H	Begin FY 2020 QTY O/H	End FY 2020 QTY O/H	End FY 2020 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 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
Palm Infrared, Thermal Imager	$9,450	0	0	0	0	16
Utility Trailer (1 per unit)	$7,000	8	8	8	8	8
Searchlight Set	$7,700	8	8	8	8	8
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	98	73	60	60	60
RB-S II	$330,000	257	282	295	295	295

USCGR

Table 1

Consolidated Major Item Inventory and Requirements

Nomenclature	Unit Cost	Begin FY 2018 QTY O/H	Begin FY 2019 QTY O/H	Begin FY 2020 QTY O/H	End FY 2020 QTY O/H	End FY 2020 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 2017.

Nomenclature	Average Age	Remarks
Port Security Units (PSU)		
32' Transportable Port Security Boat (TPSB)	5	
Radio Set AN/PRC-117G	3	
AN/PRC-152A Wideband, Handheld, Networking Radio	5	
Unity Triband Radio	1	Recently installed on TPSBs to replace the Motorola systems.
Portable Armory	5	To be replaced in FY17.
All Terrain Forklift	2	
All Terrain Vehicle, Gator (1 per unit)	3	
Vehicle, F550 Stake-bed (1 per unit)	5	
Vehicle, F450 Pickup (5 per unit)	5	
Vehicle, 15 PAX Van (GSA Leased, non-deployable)	2	
Generator 125kW with distro panel (3 per unit)	5	
Generator, Signal Synthesizer, Frequency, MG3641N (500 KHz to 1024 MHz AM/FM)	8	
Utility Trailer (1 per unit)	12	
Counter, Frequency (DC to 500HHZCW)	13	
Analyzer, Communication	11	
Fuel Bladder 3K Gallon	10	
Fuel Containment Boom	5	
Tents	5	
Water Buffalo (1 per unit)	1	
Base X Shelters (14 per PSU)	5	
USCG Boat Forces		
Response Boat Small I (RB-S I)	11	
RB-S II	3	
Mobile Support Units (MSU)		
Truck, Stake-bed Class 8	5	
Truck, Stake-bed	13	
Truck, Pickup	12	
Gator, 6X6 Diesel Terrain Vehicle	7	
Generator, 240kW	10	
Generator, Light Tower	10	
Generator, Magnum 25kW	10	
Generator, Microsilent 12kW	13	
Forklift, 10,000 lb	12	
Trailers, Tools / Equipment	9	
Trailer, Administrative Support	8	
Trailer, Logistic Support Parts	9	
Trailer, Maintenance Shop	8	

USCGR

Table 2

Average Age of Equipment

Nomenclature	Average Age	Remarks
Trailer, Open Bulk Storage	9	
Computer, Laptop	3	
A/C - H/P (Air Rover Units)	10	
Portable Welding/Cutting Shops	10	
CONEX Boxes, 40' X 8'	17	
CONEX Boxes, 20' X 8'	6	
CONEX Boxes, 8' X 8'	12	
Power Distribution Center	5	
AC&R Repair and Service Kits	7	
DC Kit, Compressed Air & GenSet	8	
Diesel Powered Welder	9	
Environmental Control Unit (ECU), HP4-DL	11	
Base X Shelter (6D31) Command	11	
Base X Shelter (505) Maintenance	11	
Drash Shelter (6S)	11	
Drash Shelter (2S)	11	
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	

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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 2018 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 2018 are expected to arrive in RC inventories in FY 2019 or FY 2020.

Nomenclature	FY 2018	FY 2019	FY 2020

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 2017 would be expected to arrive in RC inventories in FY 2018 or FY 2019. All values are costs in dollars.

Nomenclature	FY 2015	FY 2016	FY 2017

Table 4 not applicable for USCGR

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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 2018 Qty	FY 2019 Qty	FY 2020 Qty	Remarks

Service has no planned transfers or withdrawals for the years FY 2018 thru FY 2020.

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Table 6

FY 2014 Planned vs Actual Procurements and Transfers

NOTE: This table compares planned Service procurements and transfers to the RC in FY 2014 with actual procurements and transfers. FY 2014 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 2016. Procurement and NGREA columns reflect cost values in dollars.

Nomenclature	Equip No.	FY 2014 Transfers (# of items)		FY 2014 Procurements ($s)		FY 2014 NGREA ($s)	
		Plan	Actual	Plan	Actual	Plan	Actual

USCGR had no planned or actual transfers or procurements of major equipment during FY 2014

USCGR
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

Service Does Not Use Substitution to Satisfy Major Item Equipment Requirements

USCGR

Table 8

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	$160,000	$320,000	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	Air Craft Loading Ramps	24	12	$8,000	$96,000	Required by PSUs for air/sea/rail mobility.

1. Shortage items are required for AC recapitalization of outdated equipment. The AC manages all equipment for the Coast Guard Total Force.

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 2014 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 2018, 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 2017.

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 2014 Planned vs Actual Procurements and Transfers. This table compares what the Service planned to procure and transfer to the RC in FY 2014 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 2016.

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.

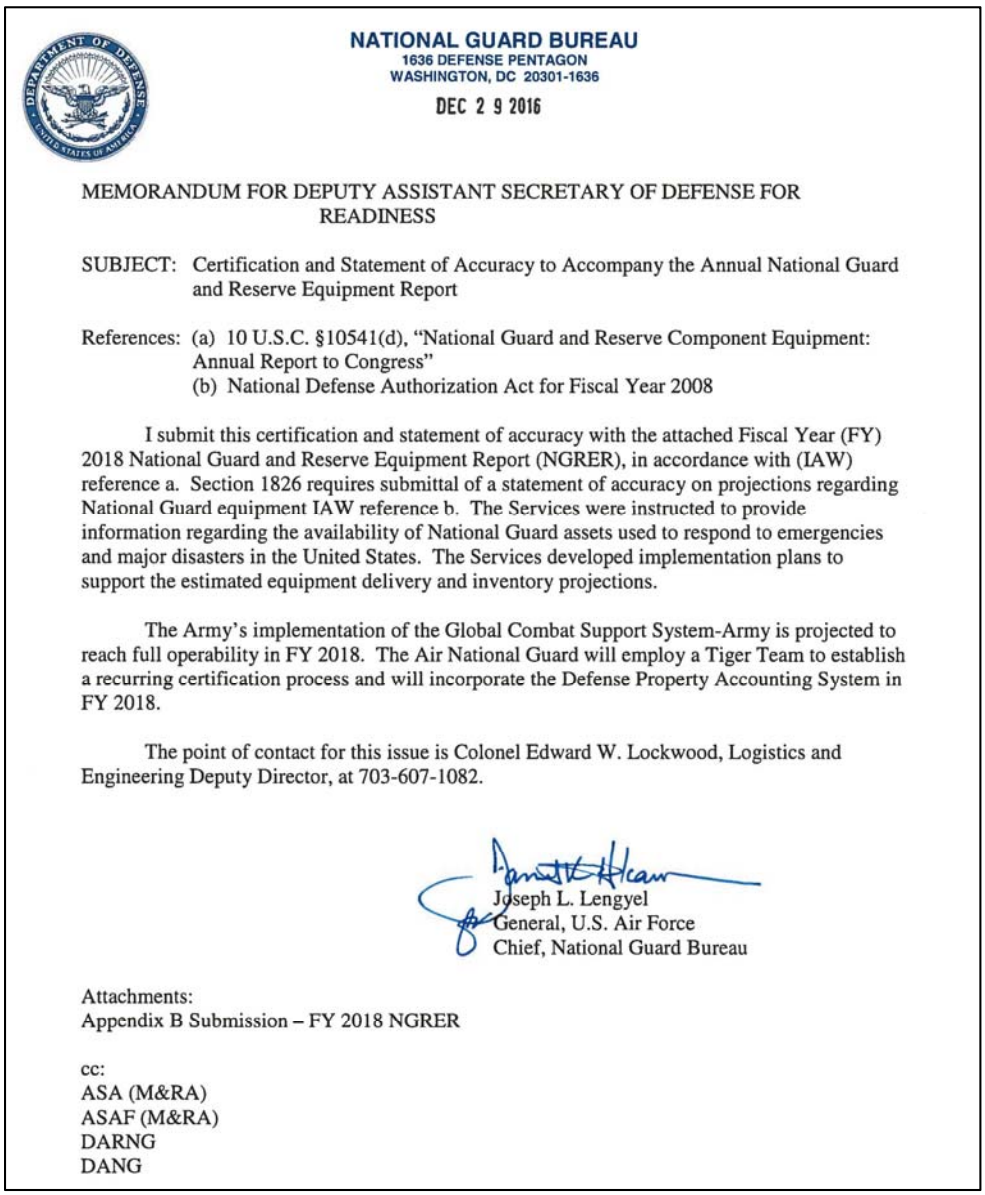
Nomenclature (Required Item/Substitute Item), see *Table 1* description for nomenclature.
Equipment Number (Required Item/Substitute Item), see *Table 1* description for equipment number.

Table 8: Significant Major Item Shortages. The top ten items of equipment and modernization/upgrades, which are not funded in the FY 2018–FY 2020 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, National Guard Bureau (CNGB) regarding National Guard equipment (Section II.)

Figure B-1. Chief, National Guard Bureau Memorandum



NATIONAL GUARD BUREAU
1636 DEFENSE PENTAGON
WASHINGTON, DC 20301-1636

DEC 2 9 2016

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: (a) 10 U.S.C. §10541(d), "National Guard and Reserve Component Equipment: Annual Report to Congress"
(b) National Defense Authorization Act for Fiscal Year 2008

I submit this certification and statement of accuracy with the attached Fiscal Year (FY) 2018 National Guard and Reserve Equipment Report (NGRER), in accordance with (IAW) reference a. Section 1826 requires submittal of a statement of accuracy on projections regarding National Guard equipment IAW reference b. The Services were instructed to provide information regarding the availability of National Guard assets used to respond to emergencies and major disasters in the United States. The Services developed implementation plans to support the estimated equipment delivery and inventory projections.

The Army's implementation of the Global Combat Support System-Army is projected to reach full operability in FY 2018. The Air National Guard will employ a Tiger Team to establish a recurring certification process and will incorporate the Defense Property Accounting System in FY 2018.

The point of contact for this issue is Colonel Edward W. Lockwood, Logistics and Engineering Deputy Director, at 703-607-1082.

Joseph L. Lengyel
General, U.S. Air Force
Chief, National Guard Bureau

Attachments:
Appendix B Submission – FY 2018 NGRER

cc:
ASA (M&RA)
ASAF (M&RA)
DARNG
DANG

I. National Guard Overview

In this time of uncertainty where national and global security challenges are intertwined with fiscal constraints, the National Guard stands ready to meet these challenges and open a new chapter in its long and proud history. This new chapter begins with a National Guard that is accessible, responsive, and capable.

The National Guard has a special role as the original homeland security and defense force. Using our unique array of authorities, we respond to the needs of the Nation and the states. The National Guard is positioned in nearly 3,000 communities to provide an immediate response to local, state, and national emergencies as well as ongoing domestic missions. Close ties with the states and local communities enable the National Guard to play a significant role in domestic emergencies.

As the combat reserve of the Army, we must ensure that our Army National Guard maintains a balanced force that is organized to conduct the full spectrum of missions and has the level of support to maintain baseline levels of readiness. To maintain these levels of readiness the National Guard must conduct dynamic training, such as Combat Training Center rotations and exercises. We must also employ units to achieve the necessary operational experience and leadership development. This includes predictable, rotational deployments that enable us to maintain the combat tested proficiency we have gained over the past decade.

"The Air National Guard, Air Force Reserve, and U.S. Air Force continue to work together to create the Total Air Force capable of meeting our domestic and global security requirements, both today and in the future. The Air National Guard's part of the Total Force plan includes hosting active duty Airmen in active associate organizations to help build the Total Force experience base. It also includes transitioning units to a broader range of high-priority missions in Intelligence, Surveillance, and Reconnaissance (ISR) such as Remotely Piloted Aircraft (RPA) as well as cyber missions."[1]

"When man-made or natural disasters impact the United States, our military community offers support to civil authorities in concert with other U.S. agencies. As part of that effort, we integrate military and civil capabilities through FEMA (Federal Emergency Management Agency)'s National Planning System and National Exercise Program. During domestic events, U.S. military forces---including National Guard and Reserve units---provide trained personnel, communications capabilities, lift and logistical and planning support. They work alongside civilian first-responders to mitigate the impact of such incidents and keep our citizens safe."[2]

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

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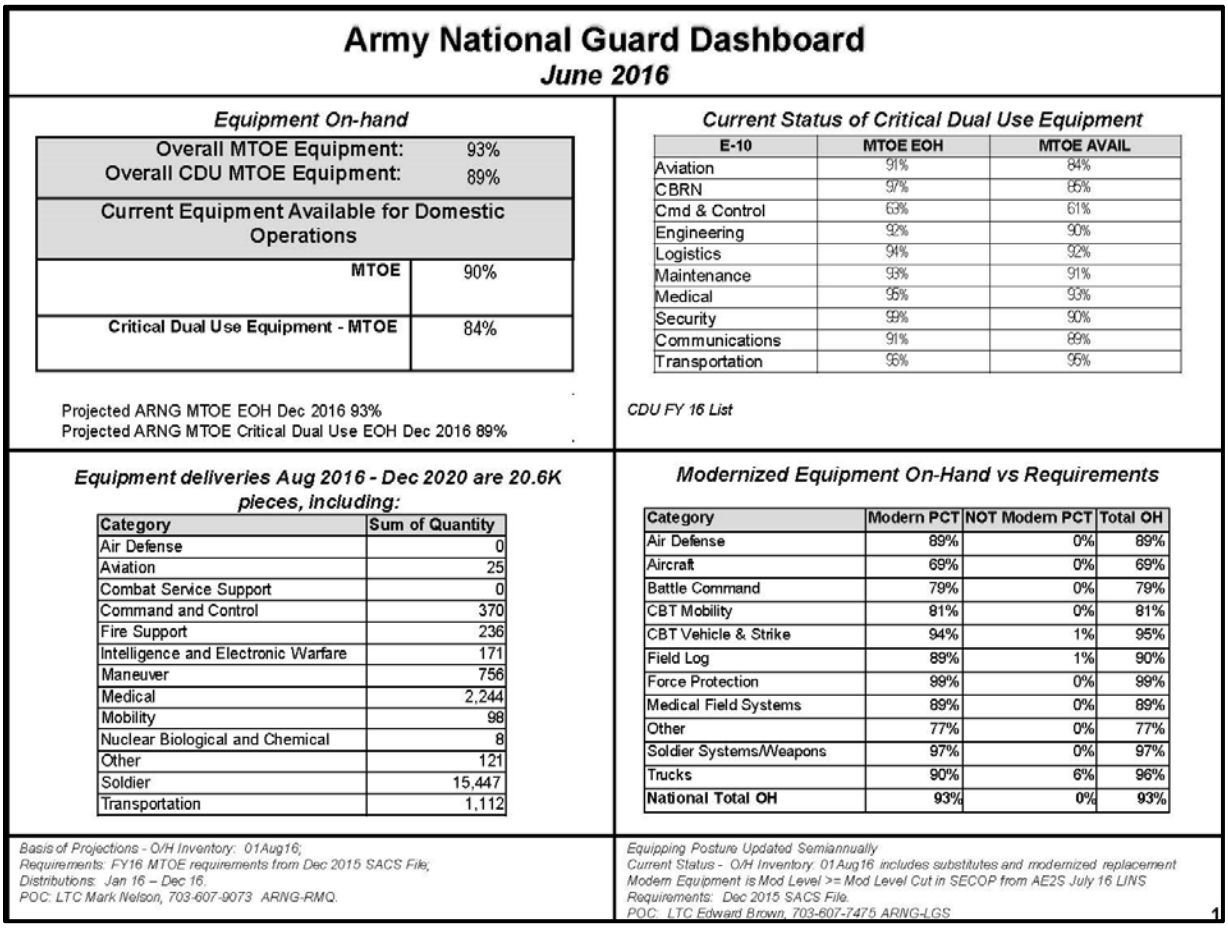
[1] *2016 National Guard Posture Statement*, p. 6.
[2] 2015 *National Military Strategy*, June 2015, p. 12.

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 vast majority of our equipment is available to state governors for use in saving lives and property when not supporting federal missions."[3]

B. Army National Guard Equipment

The Army National Guard Dashboard (see Figure B-2) provides a snapshot of Army National Guard (ARNG) equipment on-hand (EOH) percentage, the status of Critical Dual Use (CDU) items across the Essential 10 Capability areas, projected equipment fielding in the following two years, and the status of equipment modernization. As of June 2016, the ARNG had 93 percent of Modified Table of Organization and Equipment (MTOE) required equipment and 89 percent of CDU equipment with 90 and 84 percent available for Domestic Operations respectively to the governors. The primary reasons a piece of equipment is not available to a governor is that it is either in transit or is currently being used on a Title 10 mission such as a mobilization. For these reasons plus any force structure changes, EOH percentages will fluctuate, but should only be minor since equipment on-hand is aggregated at the state and national levels.

Figure B-2. Army National Guard Dashboard, June 2016



Army National Guard Dashboard
June 2016

Equipment On-hand

Overall MTOE Equipment:	93%
Overall CDU MTOE Equipment:	89%
Current Equipment Available for Domestic Operations	
MTOE	90%
Critical Dual Use Equipment - MTOE	84%

Projected ARNG MTOE EOH Dec 2016 93%
Projected ARNG MTOE Critical Dual Use EOH Dec 2016 89%

Current Status of Critical Dual Use Equipment

E-10	MTOE EOH	MTOE AVAIL
Aviation	91%	84%
CBRN	97%	85%
Cmd & Control	63%	61%
Engineering	92%	90%
Logistics	94%	92%
Maintenance	93%	91%
Medical	95%	93%
Security	99%	90%
Communications	91%	89%
Transportation	96%	95%

CDU FY 16 List

Equipment deliveries Aug 2016 - Dec 2020 are 20.6K pieces, including:

Category	Sum of Quantity
Air Defense	0
Aviation	25
Combat Service Support	0
Command and Control	370
Fire Support	236
Intelligence and Electronic Warfare	171
Maneuver	756
Medical	2,244
Mobility	98
Nuclear Biological and Chemical	8
Other	121
Soldier	15,447
Transportation	1,112

Basis of Projections - O/H Inventory: 01Aug16;
Requirements: FY16 MTOE requirements from Dec 2015 SACS File;
Distributions: Jan 16 – Dec 16.
POC: LTC Mark Nelson, 703-607-9073 ARNG-RMQ.

Modernized Equipment On-Hand vs Requirements

Category	Modern PCT	NOT Modern PCT	Total OH
Air Defense	89%	0%	89%
Aircraft	69%	0%	69%
Battle Command	79%	0%	79%
CBT Mobility	81%	0%	81%
CBT Vehicle & Strike	94%	1%	95%
Field Log	89%	1%	90%
Force Protection	99%	0%	99%
Medical Field Systems	89%	0%	89%
Other	77%	0%	77%
Soldier Systems/Weapons	97%	0%	97%
Trucks	90%	6%	96%
National Total OH	**93%**	**0%**	**93%**

Equipping Posture Updated Semiannually
Current Status - O/H Inventory: 01Aug16 includes substitutes and modernized replacement
Modern Equipment is Mod Level >= Mod Level Cut in SECOP from AE2S July 16 LINS
Requirements: Dec 2015 SACS File.
POC: LTC Edward Brown, 703-607-7475 ARNG-LGS

[3] *2015 National Guard Posture Statement*, p. 32.

The Army recognizes the need to identify Modernized Equipment On-Hand (MEOH). MEOH is used to measure the Army's modernization progress and excludes older substitutes to show modern inventory against requirements. Using the MEOH methodology, ARNG FY 2016 End of Year MEOH is 93 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 overtime at the aggregate and component levels.

The MEOH versus Requirements table provided in the ARNG Dashboard identifies those capabilities required by the ARNG for modernization and filling equipment shortfalls in support of both Federal and domestic missions. The Dashboard list includes 10 categories that contain Critical Dual Use (CDU) equipment of which ARNG focuses its efforts to fill equipment and modernization shortages. The table identifies ARNG category areas that should be given additional special attention. The current areas of focus with lower MEOH and EOH percentages include Aircraft, Battle Command, and Combat (CBT) Mobility.

1. Army National Guard Equipment Shortfalls.

Efforts by Congress to modernize the Total Army resulted in significantly increased MEOH levels in the ARNG, bringing ARNG equipment more in line with the Active Component (AC) inventory. This is critical to ensuring interoperability among all three components and to meeting the Secretary of the Army and Chief of Staff of the Army's strategic vision. The "right mix" of units combined with the most modern equipment to conduct both Federal and domestic missions is even more critical for the ARNG as the number one responder in support of Domestic Operations. The most important CDU shortfalls affecting ARNG's capability today to respond to disasters and emergencies are Aviation, Command and Control, Engineering, and Communications.

a. Aviation

ARNG Aviation provides a critical capability for domestic and Emergency Management first responders. Wild Fires, Hurricanes, Man-made and other disaster relief efforts often involve use of ARNG rotary wing capabilities in support of Domestic Operations. Although not a current shortfall, the Army's planned divestment of A-model Blackhawk helicopters in the ARNG by FY 2023 or sooner, for L and M model Blackhawks, should be seamless in order to continue uninterrupted domestic response capabilities. Maintaining ARNG aviation capacity to respond when needed in stride with modernization upgrades across the 54 states, territories, and the District provides flexibility and predictability for the governors.

b. 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 may 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.

c. Engineering

Engineering provides versatile and affordable engineer equipment capability in response to Domestic Operations. The majority of the total Army engineer force structure currently resides in the ARNG and is often deployed for missions other than domestic. ARNG Engineering equipment continues to grow and maintains a strong percentage of EOH. However, the engineering portfolio shows shortages in Hydraulic Excavators (HYEX), High Mobility Engineer Excavator (HMEE), and Heavy Scrapers. This equipment is used to support debris reduction and rebuilding operations after domestic disasters. In addition, shortages in inflatable boats and motors exist; a critical capability for domestic flood response operations.

d. Communications

The ARNG is working 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.

2. Effects of Army National Guard Shortfalls.

Modernizing ARNG domestic response capabilities continues to be among the highest of priorities for ARNG leadership. Yet significant risk to domestic capabilities exist with any potential modernization delays.

New Equipment Training (NET) for modernized helicopters requires pilots to conduct schoolhouse training through the Army's Training Requirements Resource System (ATRRS). Before a pilot can be qualified to fly a modernized aircraft, the pilot must attend training despite the equipment being previously fielded. A delay in qualification training can potentially find states with modern fielded aircraft and no pilot to fly in support. The current mitigation strategy requires the ARNG to prioritize training seats against forecasted fielding in future years.

With respect to Command and Control, and Communications, any shortfalls in these systems would reduce the ARNG's ability to provide a tactical network, facilitate command and control, and communicate with first responders during Domestic Operations. Minimizing the number of software versions and hardware devices being used in the field is key to maintaining interoperability between ARNG units and first responders.

The current Army strategy improves EOH for inflatable boats and HMEE over the next four years. However, uncertainty remains for HYEX and Heavy Scraper funding. The ARNG is considering NGREA as a mitigation strategy to procure the Heavy Scraper while the contract is open, but the Army is not planning on investing in HYEX for another seven years. As a result, shortages in these capabilities will remain, leaving multiple engineer units to rely on smaller, less effective equipment. In the interim, this results in significantly longer completion times, and in critical cases, units will need to contract civilian equipment to support mission requirements.

3. Army National Guard Investment Strategies.

ARNG modernization decreased by approximately 38 percent over the past seven 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 offered some relief in addition to the transfer of Overseas Contingency Operations (OCO) funds to the Base in FY 2013, but these actions were limited on the total effect of Sequestration; the latter being currently delayed.

In order to mitigate this risk to overall equipment readiness as a result of decreased modernization funding, the National Guard invested funding received from NGREA on training simulation, modernization of key CDU equipment, and critical essential 10 equipment capabilities sets.

C. Air National Guard Equipment

The Air National Guard continued to advance the state of its equipment readiness for both Federal and state mission requirements. This year in particular, ANG responded to several emergencies in support of civil authorities as the Nation has seen record weather events in several states. In January only, ANG members assisted residents of flooded neighborhoods in Jefferson City, Missouri; Baton Rouge, Louisiana; and Flint, Michigan, as well as, respond to record snowfalls in Delaware, Georgia, Kentucky, Maryland, New Jersey, New York, North Carolina, Pennsylvania, Tennessee, Virginia, and West Virginia. 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 Domestics 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 was added as the systems of record data for these capabilities improved. Currently, ANG has 97 percent (773,365 pieces) of authorized support equipment and vehicles on-hand within the categories of the Essential 10 Capabilities (see Table B-1.)

Table B-1. ANG Support Equipment (SE) and Vehicles

Capability	Auth Qty	In-use Qty	Fill Rate	Auth Cost ($M)	In-use Cost ($M)	Needed Qty	Needed Cost ($M)
Aviation Support Equipment	54,361	53,881	99%	$237.0	$229.7	480	$7.3
Civil Support & Force Protection	2,788	2,581	93%	$906.4	$839.1	207	$67.3
Command & Control	56,693	56,359	99%	$689.2	$685.1	334	$4.0
Communications	387,934	386,690	100%	$320.3	$308.7	1,244	$11.6
Engineering	22,621	22,331	99%	$233.1	$205.3	290	$27.9
Logistics	95,743	75,718	79%	$108.3	$87.6	20,025	$20.6
Maintenance	93,646	91,831	98%	$2,499.2	$2,193.9	1,815	$305.3
Medical	11,912	11,806	99%	$58.7	$58.6	106	$0.0
Security	58,189	57,416	99%	$112.9	$112.7	773	$0.2
Total Support Equipment (SE)	783,887	758,613	97%	$5,165.1	$4,720.8	25,274	$444.2
Vehicles	16,181	14,752	91%	$1,295.8	$976.9	1,429	$318.9
Total SE & Vehicles	800,068	773,365	97%	$6,460.9	$5,697.7	26,703	$763.1

* Data as of August 2016

Approximately 2.3 percent of ANG equipment is currently deployed in support of overseas contingencies.

1. ANG Equipment Shortfalls

A more detailed review of the ANG equipment health is described in the following Essential 10 capabilities.

a. CBRNE

The National Guard Chemical, Biological, Radiological, Nuclear, and High-yield Explosives (CBRNE) Enhanced Response Force Package (CERFP), Homeland Response Force (HRF), and Expeditionary Medical Support (EMEDS) medical elements need to upgrade their advanced trauma medical equipment. The National Guard Bureau (NGB) is assessing the need to adjust ANG Medical equipment modernization requirements to balance interoperability between Air Force medical packages with civilian medical packages for Chemical, Biological, Radiological, and Nuclear (CBRN) response. The validation of a requirement for Video Laryngoscopes and Defibrillators is a likely result of this assessment process as well as additional equipment requirements for bariatric litters, medical rapid response equipment, and infection control prevention containment system. NGB will complete assessment in FY 2017 and provide an update in FY 2019 NGRER.

b. Command and Control

ANG combat communications squadrons need a capability to diversify their ability to connect to the Defense Information System Network, ensuring uninterrupted access to critical unclassified and classified voice, data, and video for command and control (C2) systems. These C2 systems are vital to support domestic operations in the event of a disaster in which the telecommunications infrastructure is severely damaged. With the retirement of the obsolete AN/TRC-170 tropospheric scatter system as a backup communication path, most combat communications squadrons lack an alternate means of connectivity. A regional beyond line-of-sight (BLOS) microwave communications capability provides a reliable alternative means of reach-back to the Defense Information System Network. This next-generation system reduces the airlift requirement for deployment, contracting from six pallets to one. It also reduces set-up time for a two-man crew by an estimated 75 percent and achieves a significant reduction in training. This BLOS system will provide the means for all 39 ANG combat communication squadrons to establish a secure, robust, and reliable digital backbone from affected disaster areas.

c. Communications

Military emergency response forces are often unable to conduct interoperable voice communications with their civilian emergency response partners when utilizing military-issued tactical radios. In addition, military command and control centers are not able to track their response personnel that have been 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, HRFs, 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 beginnings 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's 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 20 March 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

ANG continues to field prime power teams, which consist of the equipment and 15 personnel that deploy during a disaster relief operation to provide electrical power, as well as technical assistance on power generation and distribution. The team provides limited installation, operation, and maintenance of emergency power generation systems. A team's equipment consists of 20 generators (eight 100 kilowatt (kW), seven 60 kW, and five 30 kW), wiring, supplies, tools, portable lighting, personal protection equipment, and three 10-ton tractors and 45-foot trailers to haul the equipment. The team can provide emergency power to civilian and

military facilities including clinics, nursing homes, police stations, command centers, and Joint Reception, Staging, Onward Movement, and Integration sites. Two of the fifteen total sites have been established and equipped at the 150th Special Operations Wing (Kirtland Air Force Base, New Mexico) and the 118th Air Wing (Nashville International Airport, Tennessee). A set of prime power equipment is needed at 13 additional sites to cover all 10 Federal Emergency Management Agency regions.

e. Logistics

Remotely Piloted Aircraft (RPA) can provide persistent infrared, day television, low light television, and full motion video to first responders and incident command posts during domestic operations. Rapidly deployable Launch and Recovery Element Mission Support Kits will enable RPAs to deploy anywhere in the Nation. The ability to fly RPAs from deployed locations rather than home station will increase time spent over the incident instead of traveling to and from a distant home airfield. The RPA rapid deployable launch and recovery mission support kit enables the ANG to conduct critical Incident Awareness and Assessment anywhere in the Nation in an effective, persistent, and timely manner. The kit includes a deployable Ground Control Station containing dual connectivity and communication relays, imagery data distribution, and tactical level interface capabilities, along with a web-based strategic live common operation picture. Six kits are needed to provide this capability with a total cost of $21M and would be staged at the five RPA units in North Dakota, New York, Texas, Arizona, and California with one extra spare.

f. Medical

ANG domestic responses routinely include long term patient care by Guardian Angel (GA) personnel on HC-130s, HH-60s and numerous other platforms. Improving this life saving care by modernizing and incorporating new equipment into the GA medical equipment kit is necessary. Modern defibrillators are smaller in size, capable of monitoring vitals for use on babies and the elderly, and provide the use of Wi-Fi for continuity of care. The current defibrillator used by GA teams is outdated and tailored for use in combat situations, not for emergency domestic situations where a variety of patients, such as elderly or children, are prevalent. Additionally, the new defibrillator must be able to send patient medical data to command and control or receiving facilities. Upgrading this capability would be focused at the four ANG rescue units located in New York, Alaska, Kentucky, and California.

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

ANG vehicle fill rates remain at 91 percent and are a critical enabler during domestic incidents. Fill rates do not address the age of the vehicles, however, which is properly represented by the

health rate. For instance, ANG cargo and utility vehicle fleet requires modernization as its health rate is only 61.8 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 DOMOPS 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 ½-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 also needs light-to-medium prime movers for towing a minimum of 10,000-20,000 pounds. ANG fleet modernization would replace or upgrade existing vehicles in the vehicle management sections at all ANG wings and geographically separated units requiring personnel and cargo transport to support incident responses.

Another shortfall is in the area of RPA sense and avoidance systems. Unrestricted access to the National Airspace System is critical for Title 32 civil support missions as well as Title 10 Defense Support of Civil Authorities missions. Current RPA equipment fails to satisfy Federal Aviation Administration (FAA) safety requirements, which limits the ability to operate RPAs in civil airspace. RPA operations in foreign civil airspace face similar issues due to international Civil Aviation Organization rules and safety requirements. These restrictions inhibit aircrew training and degrade operational flexibility during Federal and state missions. The FAA requires RPAs to operate with a level of safety equal to manned aircraft before approving unrestricted flight operations. Federal Aviation Regulation 91.113 Right-of-Way Rules requires all pilots to "see-and-avoid" other aircraft. The FAA is expected to authorize an equivalent "sense-and-avoid" solution for RPAs. An RPA operating with either an Airborne Collision Avoidance System for Unmanned Aircraft (the FAA's ACAS-Xu) or Ground-Based Sense and Avoid (GBSAA) system meets the sense and avoid and collision avoidance requirements. The FAA's ACAS X program will bring major enhancements to both surveillance and the advisory logic of the current Traffic Alert and Collision Avoidance System (TCAS) in use today. The new surveillance capabilities will enable collision avoidance protection for new user classes, including small, general-aviation aircraft that are not equipped with TCAS. Ten GBSAA systems are required. The objective is to provide each unit with one GBSAA system as a permanent installation and one to rapidly deploy for a regional incident. The 12 ACAS systems will support the 12 ANG units' aircraft.

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 do exist in certain critical areas. Some are enhancements to current capabilities that will improve the overall effectiveness of existing efforts such as the Mobile Entry Control Point, the RPA Launch and Recovery Element Mission Support Kits, or the CERFP/HRF trauma medical equipment. Other items are crucial to filling gaps in our current functions such as the RPA sense and avoidance systems, prime power kits, or interoperable radios. Acquiring these assets provide or enhance potentially life-saving and sustaining abilities, more efficient means of protecting property, and overall increases to the efficacy 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.

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, which was held in June 2015. The capabilities identified and vetted at these conferences are translated into specific commercial off-the-shelf (COTS) or government off-the-shelf (GOTS) 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.

Once valid DoD requirements are established, they are filled based on the mission priority of the unit and weapon system. ANG uses all available funding sources to fill equipment needs to include the annual DoD planning, programming, budgeting, and execution process; and Air Force central agencies like the Air Force Petroleum Agency or the Air Force Civil Engineering Center, for support items that are interchangeable across the Air Force enterprise. Such items include personal protective equipment, communications equipment, and some vehicles. ANG also fully utilizes NGREA funding to procure authorized dual-use support equipment or to modernize equipment to ensure its reliability, relevancy, and responsiveness to future national defense and DOMOPS missions.

D. Specialized Equipment

1. Specialized 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; and 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 (but is not limited to) 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 (MFK) 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 will result in poor tactical situational awareness among the CSTs, HRFs and CERFPs supporting a major or catastrophic CBRN incident and will adversely impact 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. 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 (CBDP) or Service programs of record.

II. Statement of Accuracy and Certification Relating to National Guard Equipment

Section 10541(d) of title 10, U.S.C. 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 is the auditable path, of funding and procurement quantities, approved 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.

Since implementation, The Army has shown steady transparency improvements towards achieving ARNG equipment certification. The ARNG has confidence in the level of fidelity and traceability that the Army has provided to date, however, this effort has not provided the capability to certify delivery of equipment. The certification of materiel delivery requires 100 percent confidence that a unit received an item that 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. The ability to systematically track new procurement funding from request to delivery requires linkages between several automated systems. Until the Army fully fields the Global Combat Support System-Army (GCSS-A) in 2018, the ability to systematically link the different databases with required data elements will not exist. The Army believes that once Item Unique Identification (IUID), through GCSS-A, is fully implemented, the capability will allow the ARNG to attain 100 percent auditable traceability as required by Congress. The ARNG requires accurate equipment appropriation and delivery data from Headquarters, Department of the Army (HQDA) to meet reporting requirements as outlined in the National Defense Authorization Act of 2008. In order to become fully transparent with equitable component participation in the equipping process, the ARNG is working as part of a unified Army effort with participation from ARNG; Assistant Secretary of the Army (Acquisition, Logistics and Technology); Assistant Secretary of the Army (Financial Management and Comptroller); HQDA, Office of the Deputy Chief of Staff for Logistics; and HQDA, Office of the Deputy Chief of Staff for Financial Management, G8 is required.

B. Air National Guard

ANG continues to work with the Air Force to incorporate 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 now actively uses methods to identify the funding source on new requisitions, allowing equipment tracked with a unique identifier in the Allowance Standards specifically for DOMOPS-related equipment. 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.

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) involves capturing 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
Codification of Modernization Principles

I. Reporting Requirements

Within the Department of Defense Appropriations Bill, 2017, Report of the Committee on Appropriations, Senate Report 114-263, accompanying S. 3000, the Appropriations Subcommittee on Defense requests the following information:

> The Committee continues to support maintaining fully modernized reserve components. However, the methods used by the services to characterize and report the status of military equipment modernization hinder Congress' ability to determine relative levels of modernization across the active and reserve components. The services must establish and codify modernization principles that articulate the definition of the term "modern equipment" in such a way as to allow for transparent appropriation decisions. The Committee also notes that equipment listed on service divestiture lists is not acceptable for characterization as "modern" if fielded to the reserve components. The Committee directs the Secretary of Defense to promulgate service standards for reporting modern equipment in time for those standards to be reflected in the National Guard and Reserve Equipment Report for Fiscal Year 2018.

II. Objectives

We appreciate the opportunity to reevaluate the methods in which the Department identifies "modern" equipment and assist in efforts to determine relative equipment capability levels across the Active and Reserve Components. Pursuing our shared interest in ensuring the highest possible readiness for all Components, we approached this task with the goal of providing the Committee with not only the most specific definitions as possible, but also a tool to focus appropriations decisions on the equipment that is at or near a change in status within the spectrum of "modernization." Forces will undoubtedly deploy with the equipment that is on-hand. The purpose of defining these standards is to best plan to deploy these Forces with the most cutting edge and deployable equipment as possible.

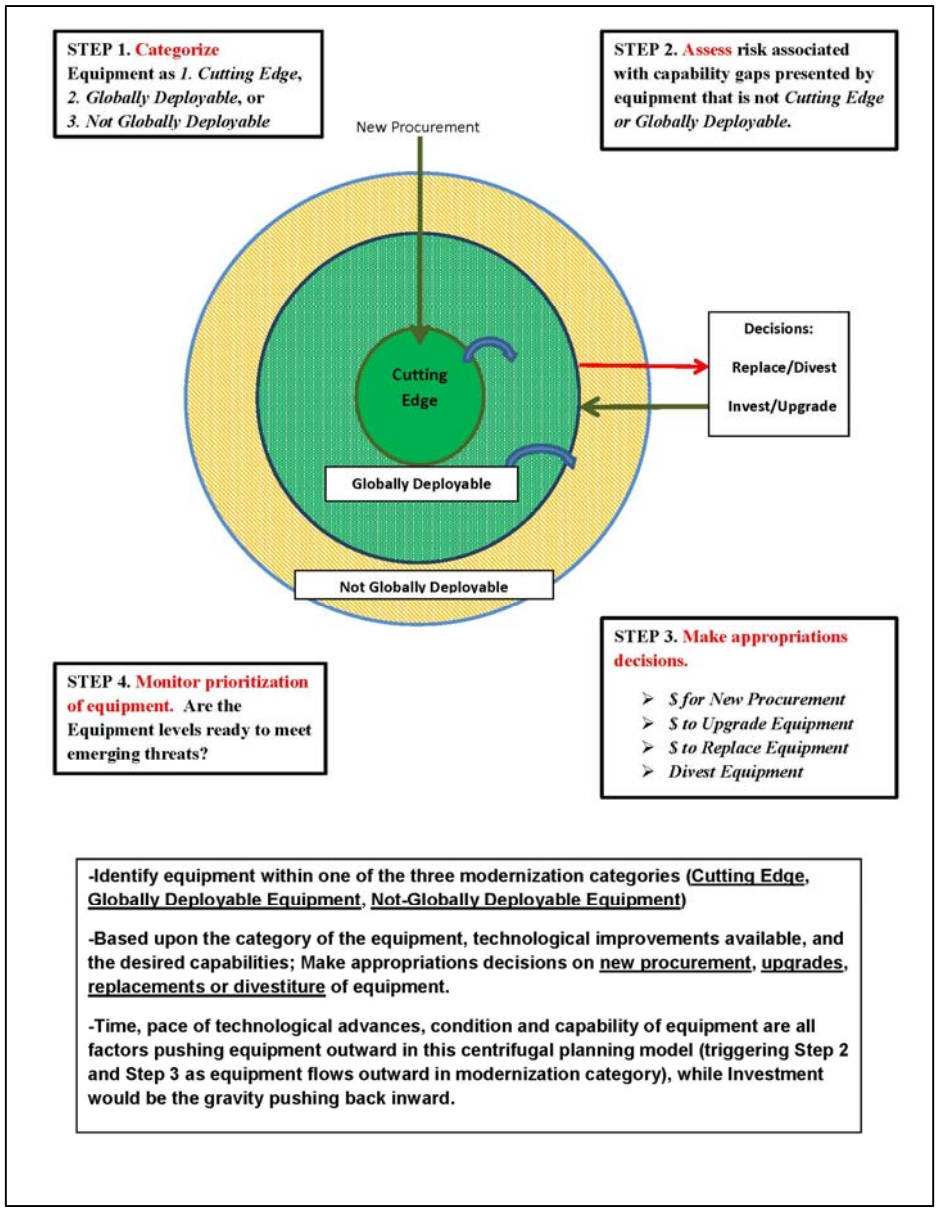
III. Terminology and Definitions

Recognizing the challenges that Congress faces in determining concrete levels of "modernization" across the Services, we identified the term "modern equipment" as being too vague and of little value in itself when facilitating appropriations decisions. We strove to develop a more concrete, tangible definition to help categorize equipment within a spectrum of "modernization" based upon a capability-based equipment planning diagram (Figure C-1).

Within this equipment appropriations planning tool, we broke up equipment into three specific categories, with tangible criteria for each, thus focusing attention to where risk and appropriations decisions need to be made (upgrade, divest, or replace).

Time since initial operating capability, pace of technological advances, and overall capability of the equipment are all centrifugal factors pushing equipment "outward" in this planning model, while investment would be the gravity pushing back inward.

Figure C-1 Codification of Modernization Principles



Cutting Edge Equipment is a platform or piece of equipment that completely incorporates the latest technology and innovation. There are no components are 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 force organizations (e.g., joint task force [JTF] or combined JTF), 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 Equipment. This equipment may be capable to meet certain operational requirements or deploy to certain combatant command areas of responsibility, but

not all for the planned operating environment of the specific equipment. Consideration should be given to costs associated with purchasing new equipment as compared to integrating new technologies into these systems or divesting of them. There is a financial tipping point at which it becomes more fiscally responsible to purchase new equipment in order to sustain the capabilities the warfighter requires rather than paying to keep legacy equipment relevant and supportable.

IV. Service Definitions of Modern Equipment and Principles

A. Army Definition of Modern Equipment and Principles

1. Purpose

Provide the Army modern equipment definition and principles to facilitate transparent appropriation decisions. We will also provide discussion and examples of how the Army uses divestiture to manage inventories, and explain that the characterization of equipment as modern is determined by the ability of the equipment to meet required capabilities.

2. Army Modern Equipment Definition and Principles.

Army equipment that meets required capabilities necessary to accomplish the mission is considered modern. As threats and environments change, new materiel solutions are developed to improve existing capabilities and resolve capability gaps. New materiel solutions provide equipment that is more modern due to greater capabilities than their older versions, but until new procurement and fielding is completed, both satisfy critical performance requirements and are considered modern.

The Army cannot afford to equip and sustain the Total Army with the most modern equipment; therefore equipment and formations are modernized incrementally based on Army operational needs and priorities. The Army synchronizes operational needs and priorities with available funding in order to maintain the highest level of readiness for all components. This means older versions of equipment are retained while more modern versions are procured and fielded to formations throughout the Army. As the more modern equipment is fielded, older versions of equipment may be redistributed to meet other demands or become excess inventory. For example: The M113A3 Armored Personnel Carrier (APC) will be partially replaced by the Armored Multipurpose Vehicle (AMPV) in FY 2021; and the High Mobility Multipurpose Wheeled Vehicle (HMMWV) and M1151 Up-Armored HMMWV requirements will be partially replaced by the Joint Light Tactical Vehicle (JLTV) in FY 2020.

The Army divestiture program includes participation from senior leaders in the Army National Guard (ARNG) and the United States Army Reserve (USAR) and receives monthly oversight from the Army Chief of Staff. The Army aggressively divests equipment that is obsolete, excess to need, or not economically feasible to repair. Equipment that no longer meets required capabilities or is excess becomes a candidate for divestment, but may still be retained by some units for training while the Army develops disposition instructions. This equipment is not deployable without specific approval. Once the Army determines a piece of equipment is no longer suitable for deployment or training, it is classified as obsolete. Obsolete equipment is defined as equipment that no longer meets required capabilities. At no time will the Army field obsolete equipment. As of November 2016, the Army divestiture program was tracking more than 1,287,574 pieces of equipment for possible divestment; less than 25 percent (320,286

pieces) are considered obsolete. Some of the remaining 75 percent may be close to being considered obsolete, or only suitable for training, but most of this inventory is considered modern.

An example of Army equipment divestment is the M16A2 rifle which is being replaced by the more modern M4 rifle. As the M4 is fielded, the M16A2 becomes excess equipment. In this case, the Army is partially divesting M16A2s as the M4 is fielded. Divestment of excess equipment does not change the equipment's suitability and classification as modern.

B. Marine Corps Equipment Modernization Principles

The Commandant of the Marine Corps strives to ensure that all units of the operating forces, whether they are in the Regular or the Reserve Establishment, are properly equipped. To that end, five characteristics are used to define "modern" equipment.

Mission Capable: Equipment enables units to effectively and successfully execute all Mission Essential Tasks associated with assigned and designed missions.

Interoperable: Equipment ensures that every unit is fully interoperable with other units of the Marine Corps, as well as with Joint and Naval partners and allies, as required by the mission.

Compliant: Equipment meets all U.S. standards for safety, compatibility, and mandatory key performance parameters, applicable multinational standards, requirements linked to treaties to which the United States is a signatory, and prescribed policy derived from treaties to which the United States is not a signatory.

Sustainable: Equipment can be reliably and affordably maintained and operated in combat ready status.

Integrate: The equipment's development and improvement have been informed by existing and emerging technologies and provide for coherence with the Service's understanding of potential future battlefield threats, operating concepts, and relevant capability modernization strategies.

C. Navy Equipment Modernization Reporting – Definition of Modern Equipment

Per DoD Instruction (DODI) 1225.06, *Equipping the Reserve Forces*, equipment distribution and modernization priorities for Reserve Component units shall be established by applying the same methodology as used for Active Component units having the same mission requirements.

Chief of Naval Operations Instruction (OPNAVINST) 4423.3E, *Equipping Reserve Forces*, states that Navy Reserve units shall be equipped to accomplish assigned missions and shall have an equipment and distribution program that is balanced, responsive to mission requirements, and sustainable. Priorities for distribution of equipment should be given to units scheduled to be deployed and/or employed first. Equipment priorities for Ready Reserve units will be established using the same methodology as regular units having the same mobilization mission.

For Navy, "Modern Equipment" is defined as equipment that has sufficient capability, operational availability, and reliability to accomplish the assigned mission, and is not listed for divestiture.

D. Air Force Modernization Principles

Preamble: In accordance with DoD Directive (DODD) 1200.17, *Managing the Reserve Components as an Operational Force*, it is DoD policy that Active Components (ACs) and Reserve Components (RCs) are integrated as a total force, and RCs shall be resourced to meet readiness requirements. DODI 1225.06, *Equipping the Reserve Forces*, "Establishes policies, assigns responsibilities, and prescribes procedures for accounting, procuring, and distributing items of new and combat-serviceable equipment for the Reserve Components (RCs) of the Military Services…".

Combat and Modern Equipment: Combat operations of almost any scale are exceptionally complex, requiring integration and synchronization of myriad activities ranging from individual actions to coordinated movements by large, geographically dispersed organizations. They are usually executed under dangerous, uncertain, austere, and urgent conditions that compound the challenge. Because of their complexity, combat operations are often vulnerable to single points of failure. The loss to enemy action or equipment failure of a key communications node, radar, or other "low density" but essential capability at a critical point can put an entire operation at risk.

At the basic level of combat operations, personnel must operate equipment, ranging from individual weapons to combat vehicles, aircraft, ships, and support equipment, in any environment. Executing tactical operations involves many different functions ranging from direct fire support to intelligence, surveillance, and reconnaissance to logistical and medical support. The joint task forces must be tied together by command, control, and communications networks for awareness of the friendly and enemy positions and orchestrate operations to achieve the assigned objectives. The effectiveness of the joint force depends on, to a large degree, the effectiveness of the equipment. U.S. forces, to include the RCs, must stay ahead of these evolutionary changes through development of new equipment and modifications to existing equipment.

Modern Equipment Defined: The Air Force considers equipment as modern if it meets the criteria to be deemed both relevant and logistically supportable.

Relevant: Equipment meets the standards, including interoperability, for deployment into the Combatant Command (CCMD) Area of Responsibility as follows:

- The equipment meets the Commander's requirements for deployment into the area in which it is being employed. The equipment/operator is able to accomplish the mission while defending against/evade/survive threats in the battle area. Equipment defensive and lethality capabilities can defend against hostile fire and repel threats with minimal to zero risk to U.S. forces.
- The equipment is compliant with CCMD requirements.
- The equipment is interoperable with U.S. and allied forces.

Logistically supportable: Equipment meets Air Force sustainment standards. Equipment sustainment performance is measured in numerous ways including sustainment costs, materiel and operational availability, reliability (often expressed in terms of Mean Time Between Failure,

Time on Wing, etc.), mean down time, repair throughput time, total turnaround time, availability of repair parts (Diminishing Manufacturing Sources and Material Shortages [DMSMS] / Obsolescence), and supply chain efficiency and effectiveness. Metrics may be levied by Air Force or Contractor Logistics Support (CLS) performance based logistics (PBL) contracts. Supportability is also affected by support equipment availability, maintenance personnel and training. Due to the rapid increase in weapon system digital complexity and associated shortening technical life cycles Diminishing Manufacturing Sources (DMS) is a support issue that must be managed for old and new equipment.

The Air Force continues to operate with certain “legacy” equipment which is relevant, but the mounting cost of sustaining the platform, overcoming diminishing availability of spare parts, and the cost associated with integrating emerging technology into legacy systems drives the need to divest the legacy equipment and recapitalize with next-generation equipment. There is a financial tipping point at which it becomes more fiscally responsible to purchase new equipment in order to sustain the capabilities the warfighter requires rather than paying to keep legacy equipment relevant and supportable. Once the legacy equipment reaches this tipping point, although it could remain relevant, it is deemed to be not logistically supportable due to the cost involved in meeting AF sustainment performance measures, and therefore is no longer considered modern equipment.

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Appendix E
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
ACAS	Airborne Collision Avoidance System
ACC	Air Combat Command
ACS	Air Control Squadron
ACS	Agile Combat Support
ACV	Amphibious Combat Vehicle
ADS-B	Automatic Dependent Surveillance-Broadcast
AEA	airborne electronic attack
AEF	air and space expeditionary force
AEG	Army Equipping Guidance
AESA	Active Electronically Scanned Array
AF	Air Force
AFB	Air Force base
AFE	Aircrew Flight Equipment
AFFOC	Air Force Future Operating Concept
AFMC	Air Force Materiel Command
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
AHB	Assault Helicopter Battalion
AIFF	advanced identification, friend or foe
AIS	automatic identification system
AM	amplitude modulation
AMC	Air Mobility Command (Air Force)
AMCM	airborne mine countermeasures
AMD	Air and Missile Defense
AMP	Avionics Modernization Program
AMPV	Armored Multipurpose Vehicle
AMRAAM	advanced medium-range air-to-air missile
ANG	Air National Guard
ANGB	Air National Guard Base
AOC	air and space operations center
AOG	Air Operations Group
APC	armored personnel carrier
AR	Army Reserve
ARB	Air Reserve Base (Air Force)
ARB	Attack Reconnaissance Battalion (Army)
ARC	Air Reserve Components
ARFORGEN	Army Force Generation
ARI	Automatic Reset Induction
ARNG	Army National Guard
ARS	Air Reserve Station (Air Force)

Acronym	Nomenclature
ASCC	Army Service Component Command
ASU	anti-surface warfare
ASW	antisubmarine warfare
ATM	Air Traffic Management
ATRRS	Army's Training Requirements Resource System
AUP	Associated Unit Pilot
AVCATT	Aviation Combined Arms Tactical Trainer
AW	airlift wing
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
BOL	back of launcher
BUMED	Bureau of Medicine and Surgery
C2	command and control
C2CRE	C2 CBRN Response Element
C4I	command, control, communications, computers, and intelligence
CA	civil affairs
CAF	combat air forces
CART	cargo afloat rig team
CBDP	Chemical and Biological Defense Program
CBL	Contractor Logistics Support
CBPS	chemical/biological protective shelter
CBRN	chemical, biological, radiological, and nuclear
CBRNE	chemical, biological, radiological, nuclear, and high-yield explosives
CBT	combat
CCDR	combatant commander
CCMD	combatant command
CCT	Combat Controller Team
CDU	Critical Dual Use
CERFP	CBRNE Enhanced Response Force Package
CFT	Conformal Fuel Tanks
CHINFO	Chief of Navy Information
CJTF	combined joint task force
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

Acronym	Nomenclature
CRS	coastal riverine squadron
CSAF	Chief of Staff, United States Air Force
CSS	combat service support
CST	Civil Support Team
CTC	Combat Training Center
CTC	Combat Training Center
CTOC	Counter-Transnational Organized Crime
CW	cyber warfare
DARNG	Director, Army National Guard
DCGS	distributed common ground system
DET	Displaced Equipment Training
DGS	distributed ground station
DHS	Department of Homeland Security
DIB	defense industrial base
DIRECT	Disaster Incident Response Communications Terminal
DMDR	Digital Mission Data Recorder
DMO	Distributed Mission Operations
DMS	diminishing manufacturing sources
DMSMS	diminishing manufacturing sources and material shortages
DoD	Department of Defense
DODD	Department of Defense Directive
DODI	Department of Defense Instruction
DOMOPS	Domestic Operations
DON	Department of the Navy
DPAS	Defense Property Accountability System
DRC	Dynamic Retasking Capability
DSCA	defense support of civil authorities
DSK	Dismounted Strike Kit
DV	distinguished visitor
EA	electronic attack
EAB	echelons above brigade
EE/STT	early-entry and set-the-theater
ELMR	Enterprise Land Mobile Radio
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

Acronym	Nomenclature
FPL	Force Protection, Large
FTS	full-time support
FTU	formal training unit
FUA	Fixed Wing Utility Aircraft
FY	fiscal year
FYDP	Future Years Defense Program
G/ATOR	Ground/Air Task Oriented Radar
G4	Generation Four (LITENING)
GA	Guardian Angel
GBSAA	Ground-based Sense and Avoid
GCS	ground control station
GCSS	Global Combat Support System
GCSS-A	Global Combat Support System-Army
GCSS-Army	Global Combat Support System-Army
GFM	Global Force Management
GFMAP	Global Force Management Allocation Plan
GIS	Global Imagery Server
GMD	Ground-based Midcourse Defense
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
HUD	Heads Up Display
HYEX	Hydraulic Excavators
IAP	International Airport
IEW	intelligence and electronic warfare
IFF	identification, friend or foe
INS	inertial navigation system
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

Acronym	Nomenclature
JBC-P	Joint Battle Command-Platform
JCR-BFT	Joint Capabilities Release–Blue Force Tracker
JDART	Joint Domestic All-Hazards Response Team
JEP	Joint Exercise Program
JFHQ	joint force headquarters
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
JTF	joint task force
JTRS	Joint Tactical Radio System
kHz	kilohertz
kW	kilowatt
LAIRCM	Large Aircraft Infrared Countermeasures
LARS	Lightweight Airborne Radio System
LAV	light armored vehicle
LCS	littoral combat ship
LDP	LITENING Digital Port
LEEK	Law Enforcement Ensemble Kit
LHS	Load Handling System
LMI-DST	Lead Materiel Integrator - Decision Support Tool
LOS	line-of-sight
LSRS	littoral surveillance radar system
LTV	Light Tactical Vehicle
LVC	Live, Virtual, Constructive
LVSR	Logistics Vehicle System Replacement
MAF	mobility air forces
MAJCOM	major command (Air Force)
MASS	Modular Aerial Spray System (Air Force)
MCS	Mission Command System (Army)
MDS	mission design series
MECP	Mobile Entry Control Point
MEDEVAC	medical evacuation
MEOH	Modernized Equipment On-hand (MEOH) (Army)
MFK	Mobile Field Kit
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

Acronym	Nomenclature
MTV	medium tactical vehicle
MTVR	Medium Tactical Vehicle Replacement
MUM-T	Manned-Unmanned Teaming
NAS	naval air station
NAS	National Airspace System
NAVAIR	Naval Air Systems Command
NAVELSG	Navy Expeditionary Logistics Support Group
NAVEODTECHDIV	Naval Explosive Ordinance Disposal Technology Division
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
NDI	non-developmental item
NECC	Navy Expeditionary Combat Command
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
NMS	National Military Strategy
NRU	Navy Reserve Unit
NST	Network Operations Support Team
NSW	naval special warfare
NSWG	naval special warfare group
NUFEA	Navy-unique fleet-essential airlift
NVIS	Night Vision Imaging System
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)
OPNAVINST	Chief of Naval Operations instruction
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
PB	President's Budget
PB	patrol boat
PBL	performance based logistics
PIM	Paladin Integrated Management
PIRL	Prioritized Integrated Requirements List

Acronym	Nomenclature
PLS	palletized load system
POM	program objective memorandum
PPBE	Planning, Programming, Budgeting, and Execution
PPE	personal protective equipment
PPP	public-private partnerships
PRESBUD	President's Budget
Prime BEEF	Prime Base Engineer Emergency Force
PRP	Personnel Retrieval and Processing
PSU	port security unit
QDR	Quadrennial Defense Review
RAID	Redeployment Assistance and Inspection Detachment
RAS	Remote and Autonomous Systems
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
SADL	situational awareness data link
SAR	search and rescue
SATCOM	satellite communications
SBIRS	Space-Based Infrared System
SCU-8	Software Capability Upgrade 8.0
SE	support equipment
SE	Sensor Enhanced (pods)
SEAL	sea-air-land
SECAF	Secretary of the Air Force
SELRES	Selected Reserve
SERE	survival, evasion, resistance, and escape
SF	security forces
SHORAD	Short Range Air Defense
SIOP	Single Integrated Operational Plan
SLEP	service life extension program
SLOS	secure line-of-sight
SMFCD	smart multi-function color display
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)
SSCA	Service Secretary Controlled Aircraft
STANO	Surveillance, Target Acquisition, and Night Observation

Acronym	Nomenclature
STUAS	Small Tactical Unmanned Aircraft System
SURGEMAIN	Naval Sea Systems Command - Surge Maintenance
SUV	Surface Unmanned Vehicle
T/A	Training Allowance (Marine Corps)
T/E	Table of Equipment
TACP	tactical air control party
TAG	the adjutant general
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)
TOW	tube launched, optically tracked, wire guided
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
UAH	Up-Armored HMMWV
UALS	Universal Ammunition Loading System
UAS	unmanned aircraft system
UHF	ultrahigh frequency
UPL	Unit 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
USS	United States ship
USSOCOM	United States Special Operations Command
USTRANSCOM	United States Transportation Command
UUV	Unmanned Underwater Vehicle
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
VMU	Marine Unmanned Aerial Vehicle Squadron
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
WR-ALC	Warner Robins Air Logistics Complex