2024 WEAPONS SYSTEM MODERNIZATION PRIORITIES BOOK

AIR NATIONAL GUARD

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TABLE OF CONTENTS

SECTION I AIR SUPERIORITY / GLOBAL PRECISION ATTACK

Section I Point of Contacts

 Division Chief: Col Michael McDermott

 Branch Chief:

SECTION II RAPID GLOBAL MOBILITY

Section II Point of Contacts
Division Chief: Col Michael McDermott
Branch Chief: Lt Col Clark Grosvenor

SECTION III SPACE SUPERIORITY/CYBERSPACE SUPERIORITY

Section III Point of Contacts
 Division Chief: Mr. Ronald Skaggs
 Branch Chief:

SECTION IV COMMAND AND CONTROL

Section IV Point of Contacts
 Division Chief: Mr. Ronald Skaggs
 Branch Chief:

SECTION V GLOBAL INTEGRATED ISR

Section V Point of Contacts
  Division Chief: Mr. Ronald Skaggs
  Branch Chief Intel:
  Branch Chief Airborne ISR/MQ-9:

SECTION VI SPECIAL OPERATIONS/PERSONNEL RECOVERY

Section VI Point of Contacts
  Division Chief: Col Michael McDermott
  Branch Chief:

SECTION VII SIMULATION AND DISTRIBUTED MISSION OPERATIONS

Section VII Point of Contacts
Division Chief: Mr. Ronald Skaggs
Branch Chief: Capt Bill Pena

SECTION VIII AGILE COMBAT SUPPORT

Section VIII Point of Contacts
 Division Chief: Mr. Ronald Skaggs
 Branch Chief: Lt Col Aaron Pauli

Introduction

The 2024 Air National Guard (ANG) Weapons Systems Modernization Priorities Book documents capability priorities identified during the October 2023 Air Reserve Component Weapons and Tactics (WEPTAC) Conference. WEPTAC hosted representatives from all ANG and Air Force Reserve (AFR) units, as well as representation from the active component.

The 2024 WEPTAC Book is organized into eight sections identified by its appropriate Service Core Function or functional category.

Air Superiority / Global Precision Attack
Rapid Global Mobility
Space Superiority / Cyberspace Superiority
Command and Control
Global Integrated ISR
Special Operations / Personnel Recovery
Simulation and Distributed Mission Operations
Agile Combat Support

The 2024 WEPTAC Book is further organized into 27 tabs. Each Tab begins with a summary page of capabilities identified at WEPTAC, categorized as Critical (Crucial - within the next one to three years), Essential (Vital - within the next three to five years), or Desired (Enhances mission success in the five-year timeframe).

For each Critical capability identified, an information paper is included within the weapon system Tab. A header within each information paper identifies its appropriate Service Core Function or functional category as one of the following:

The State Matrix, found on the next page, identifies ANG weapons systems locations by state/territory. These depictions reflect the force structure as of 01 Dec 2023

State Matrix

Weapons System Reference Table by State (01 Dec 2023)

Refer to Weapon System Tabs for Specific Information (Classic Associate Units are shown in red.)

	A-10	B-2	C-17	C-130H/J	Special Mission C-130	C-32B, E-8C, C-40	F-15	F-35	F-16	F-22	HH-60	KC-135	KC-46	MQ-9	AOC, BCC, CRC	Cyber, Space	DCGS, MC-12W	GA/ST/TACP	Range
AK			•	H	HC						•	•			BCC	Space		GA	
AL									•			•					DCGS		
AR				H										•		Cyber	DCGS		
AZ									•			•		•			RC-26B		
CA			J		HC		•				•			•		CY/SP(2)	DCGS	GA	
CO									•							Space(3)			Range
CT				H											CRC				
DC						C-40			•										
DE				H												Cyber			
FL							•								AOC	Space			
GA				H											CRC		DCGS	TACP	
GU																Space			
HI			•							•		•			AOC/BCC	Space	DCGS		
IA												•		•	CRC	Cyber	DCGS		DMO
ID	•															Cyber		TACP	
IL				H								•			AOC			TACP	
IN	•																DCGS	TACP	Range
KS												•			CRC	Cyber(3)	DCGS	TACP	Range
KY				H														ST	
LA							•											TACP	
MA							•										DCGS		
MD	•			H												Cyber(3)			
ME												•							
MI	•											•		•	AOC	Cyber			
MN				H						•									
MO		•		H											AOC				Range
MS			•									•			AOC/CRC			TACP	Range
MT				H															
NC			•	H														TACP	
ND														•			DCGS		
NE												•							
NH													•						
NJ					C-32B				•			•				Cyber		TACP	Range
NM					HC/MC					•							DCGS		
NV				H													DCGS		
NY			•		HC/LC						•			•	AOC/BCC	Space		GA/TACP	Range
OH				H					•			•		•	CRC				
OK									•								MC-12W	TACP	
OR							•								CRC			ST	
PA												•		•	AOC	Cyber		TACP	Range
PR				H											CRC				
RI				J												Cyber			
SC									•										
SD									•										
TN			•									•		•		Cyber	DCGS		
TX				H					•					•		Cyber		TACP	Range
UT												•			CRC		DCGS		
VA										•						Cyber	DCGS		
VI																			
VT								•	•							Cyber			
WA												•			BCC	Cyber(2)		TACP	
WI									•			•			CRC				Range
WV			•	H															
WY				H															

F-16

- **Defensive Counter Air (DCA)**
- **Counter-Sea and Suppression of Enemy Air Defenses**
- **Long-Range Strike and Offensive Counter Air**
- **Strike Coordination and Reconnaissance (SCAR)**
- **Close Air Support (CAS) and Forward Air Control (Airborne)**
- **ANG F-16 Units Provide 37% of the Total Fleet**

ANG F-16s are engaged around the globe in operations including NOBLE EAGLE and INHERENT RESOLVE. Since 2003, ANG F-16Cs have fulfilled many of CENTCOM's precision-guided munitions and close air support (CAS) taskings, including convoy escort, dedicated infrastructure defense, border patrol, and raid support. The ANG operates 332 Block 25/30/32/40/42/50/52 F-16C/Ds. The ANG F-16 aircraft make up 56% of the nation's Aerospace Control Alert (ACA) fighter force and provide a near-constant presence in operational theaters conducting CAS and DCA. Capability enhancements to the Block 40/42 and Block 50/52 aircraft make them the Air Force's only 4th Generation suppression of enemy air defenses (SEAD)-capable aircraft.

 Modernization efforts are underway to improve ANG F-16s by fielding Open Systems Enclave (OSE) capability, future datalink compatibility, secure line-of-sight and beyond-line-of-sight communication suites, and multi-spectral targeting capability.

F-16
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Critical Capabilities List

F-16C+/CM (Block 30/32/40/42/50/52)
- Low Latency, High Bandwidth, Resilient, Datalink Capability Connected Via Wide-Band Apertures and Software Defined Radios
- Open System Enclave Capable of Hosting Algorithms Enabling 4th, 5th, and 6th Generation Interoperability as Well as Cooperative Pairing and Semi-Autonomous Operations
- Digital Infrared Search and Track System and Active Electronically Scanned Array Radar for Multi-Spectral Detect and Track Beyond Visual Range
- Electronic Warfare Suite Capable of Geo-Location and Advanced Processing for Integration of Sensors, Radio Frequencies, and Digital Radar Warning Receiver Signals
- Rapidly Reprogrammable Digital Radio Frequency Modulation Electronic Attack and Wide-Band Decoys

Essential Capabilities List

- Reliable Digital Standby Attitude, Altitude and Heading Reference System
- Tactical Autopilot with Auto-Throttle, and Advanced Flight Control Computer Supporting Weapons Delivery Against Air and Ground Targets
- Increased Weapon Carriage Capability with Common Flexible Weapons Interface or Rapid Integration

- Carriage Capability for Advanced Infrared and Radio Frequency Expendable Countermeasures
- Continued Advanced Targeting Pod Development to Enable Increased Target Identification at Range

Desired Capabilities List

- Modernized Aircraft Boresight Enhancement Program for High-Precision Fusion and Long-Range Targeting
- Color, Night Vision Compatible Helmet Mounted Display and 3D Audio for Post-Block F-16
- Podded Directed Energy Weapon for Counter Cruise Missile and Small Unmanned Systems
- Capabilities to Track and Engage Surface Vessels

F-16: LOW LATENCY, HIGH BANDWIDTH, RESILIENT, DATALINK CAPABILITY CONNECTED VIA WIDE-BAND APERATURES AND SOFTWARE DEFINED RADIOS

1. Background. ANG F-16s require secure, high speed, two-way data passage to operate in challenged/austere remote areas. Reception of off-board targeting, real time threat information, mission assignment changes, air tasking orders, mission data files, and the sharing of aircraft sensor data is critical to success in the high end fight. A low latency, high bandwidth, resilient data pathway for information passage increases the F-16s ability to operate in joint, multi-generation aircraft packages while maximizing pilot situational and threat awareness and allowing real time dynamic targeting. An improved data passage system enables connectivity and communication to all combatants when F-16s are operating outside traditional communications architectures, as in Agile Combat Employment operations or when legacy communication or datalink is being denied. All 332 ANG F-16s require Tactical Targeting Network Technology (TTNT).

2. Program Details.

Quantity	Unit Cost	Program Cost
TTNT NRE	N/A	**$10,000,000**
332 TTNT Radios	**$500,000**	**$166,000,000**
Total		**$176,000,000**

F-16: OPEN SYSTEM ENCLAVE CAPABLE OF HOSTING ALGORITHMS ENABLING 4TH/5TH/6TH GENERATION INTEROPERABILITY AS WELL AS COOPERATIVE PAIRING AND SEMI-AUTONOMOUS OPERATIONS

1. Background. ANG F-16 aircraft require an Open System Enclave (OSE) to enhance cyber security to protect the aircraft, capitalize on MDS-agnostic technologies, and enable instant integration with other generations of aircraft and systems including Collaborative Combat Aircraft.

2. Program Details.

Quantity	Unit Cost	Program Cost
NRE	N/A	$10,000,000
332 Aircraft Hardware Kits / Infrastructure Modifications	$50,000	$16,600,000
Total		$26,600,000

F-16: DIGITAL INFRARED SEARCH AND TRACK SYSTEM AND ACTIVE ELECTRONICALLY SCANNED ARRAY RADAR FOR MULTI-SPECTRAL DETECT AND TRACK BEYOND VISUAL RANGE

1. Background. All ANG F-16s require the APG-83 for defensive counter air (DCA), fighter integration and a digital Infrared Search and Track (IRST) system to execute DCA, cruise missile defense, and offensive counter air (OCA) missions effectively. The APG-83 is fielded on ANG F-16s, but not all ANG F-16s are equipped with the IRST radar. IRST systems provide an additional method of target location, tracking, and identification of airborne threats with reduced radar cross sections and presence of electronic attack. This is critically important given current adversaries focus and improvements on degradation and/or denial of portions of the radio frequency spectrum. IRST will provide an improved capability for ANG F-16s to meet combatant commander requirements in DCA and OCA missions.

2. Program Details.

Quantity	Unit Cost	Program Cost
IRST NRE	**N/A**	**$30,000,000**
90 IRST Pods	**$3,500,000**	**$315,000,000**
Total		**$345,000,000**

F-16: ELECTRONIC WARFARE SUITE CAPABLE OF GEO-LOCATION AND ADVANCED PROCESSING FOR INTEGRATION OF SENSORS, RADIO FREQUENCIES, AND DIGITAL RADAR WARNING RECEIVER SIGNALS

1. Background. ANG F-16s require a robust integrated electronic attack suite to counter current and future radars. All ANG F-16 aircraft electronic warfare (EW) suites are comprised of a series of EW equipment designed in the 1980s, providing inadequate defensive situational awareness and countermeasures against many current and future radar systems. Both systems suffer from sustainment and capability issues against modern threat systems. The attributes of this integrated suite shall incorporate an upgraded radar warning receiver (RWR), a digital radio frequency memory upgraded electronic attack (EA) pod, a pylon missile warning system (MWS), and the ALQ-213 legacy electronic combat (EC) integration system. The F-16 fleet has two legacy analog RWRs (ALR-69 and ALR-56M) and two legacy analog EA pods (ALQ-131 and ALQ-184) that require sustainment and digital-based performance upgrades. The ALQ-213 EC integration system is installed on all F-16 Block 30/32 aircraft, but it must be installed on the remaining 30 F-16 Block 40/42/50/52, of which 174 have been procured. F-16s will remain at risk to many current and all advanced threat systems, negatively impacting the pilot's ability to survive, accomplish assigned missions, and meet combatant commander requirements.

2. Program Details.

Quantity	Unit Cost	Program Cost
ALR-69A NRE	N/A	$25,000,000
332 ALR-69A Upgrades	$600,000	$199,200,000
EA Pod NRE	N/A	$10,000,000
70 EA Pod Upgrades	$1,320,000	$92,400,000
ALQ-213 NRE	N/A	$15,000,000
30 ALQ-213 Kits	$160,000	$4,800,000
MWS NRE	N/A	$10,000,000
70 MWS Sets	$1,100,000	$77,000,000
Total		$433,400,000

F-16: RAPIDLY REPROGRAMMABLE DIGITAL RADIO FREQUENCY MODULATION ELECTRONIC ATTACK AND WIDE-BAND DECOYS

1. Background. ANG F-16s require digital radio frequency modulation (DRFM) electronic attack, and defensive wide-band decoys. DRFM electronic attack capability, combined with towed and expendable wide-band decoys enables survival in contested environments.

2. Program Details.

Quantity	Unit Cost	Program Cost
DRFM NRE	**N/A**	**$25,000,000**
Advanced Wide-Band Decoy Units	**N/A**	**$100,000,000**
Total		**$125,000,000**

F-22

- **Air Dominance**
- **Homeland Defense**
- **ANG F-22 Units Provide 11% of the Total Fleet**

The ANG flies and maintains F-22s at all F-22 operational and test locations. The ANG has two F-22 classic associate units and one operational F-22 squadron. Aerospace Control Alert (ACA) support is provided by F-22s flying out of Alaska and Hawaii. F-22 pilots, maintainers, and aircraft routinely and continually support operations in CENTCOM, EUCOM, and INDOPACOM, as well as exercises worldwide. In addition to combat operations and exercises , ANG F-22s play an essential role in Operational Test (OT) and training future F-22 pilots at the F-22 Formal Training Unit (FTU).

Primary ANG F-22 modernization focuses on common configuration and modernization to counter technological advances made by peer competitors. Enhancements in communication systems will allow F-22s to maintain air dominance at longer ranges from support assets. Improved GPS capabilities, data link improvements, and a helmet-mounted display will increase the F-22s distinct first-shot, first-kill advantage. Agile Combat Employment initiatives enable the F-22 to posture, operate, and survive within the contested environment

F-22
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Critical Capabilities List

- Helmet-Mounted Display
- Dispersed Low-Observable Strike Synchronization and Survival System
- Agile Combat Portable Oil, Hydraulic, and Nitrogen Systems
- Cockpit Global Positioning System Signal Repeater
- Data Link Improvements

Essential Capabilities List

- Improved Simulator Capabilities
- Accurate Training Platforms for Peer Threats
- Combat Identification Improvements
- Common Countermeasure Dispensers and Controllers for F-22 and F-35 Aircraft
- External Multi-Communication Node and Beyond-Line-of-Sight Communications

Desired Capabilities List

- Leverage F-35 Capabilities and Technologies
- New Integrated Forebody and Radar Improvements
- Engine Upgrades
- Common Configuration
- Low-Observable Reduction and Sustainment Improvements

F-22: HELMET-MOUNTED DISPLAY

1. Background. ANG F-22 pilots require a night vision compatible, color helmet-mounted display (HMD). Multiple simulations and an operational utility assessment conducted by the 422nd Test and Evaluation Squadron demonstrated that using an HMD provides a distinct first-shot, first-kill advantage. Although this advantage applies to within-visual-range engagements, the HMD also substantially increases friend and foe situational awareness during beyond-visual-range intercepts. HMD technology provides the capability to cue and verify high-off-boresight (HOBS) sensor and weapon information through the display of weapons employment zones and visual cues of target and friendly aircraft locations. Originally conceived as a weapons cueing system, the HMD has evolved into a force multiplier because of its ability to enhance situational awareness during all phases of flight and across all mission sets. For example, the HMD provides threat information visual cues while the pilot is "eyes-out" of the cockpit, warning of dangers and providing critical information to allow the pilot to maneuver the aircraft away from terrain or threats. Similarly, F-22s tasked with identifying targets of interest during homeland defense missions would be better able to quickly and efficiently visually locate and identify small aircraft, unmanned systems, and cruise missiles. Lack of an HMD limits the lethality of the F-22 and puts the aircraft at a disadvantage in certain situations against less formidable and less capable aircraft. The acquisition of an HMD for each ANG F-22 aircraft will greatly increase the lethality and survivability of the F-22.

2. Program Details.

Quantity	Unit Cost	Program Cost
Helmet Mounted Display NRE	**N/A**	**$5,000,000**
50 Helmet Mounted Displays*	**$300,000**	**$15,000,000**
Total		**$20,000,000**

* Includes 10% spares

F-22: DISPERSED LOW-OBSERVABLE STRIKE SYNCHRONIZATION AND SURVIVAL SYSTEM

1. Background. ANG F-22 pilots require a mobile, handheld, low probability of intercept, low probability of exploitation, secure, over the horizon, standardized means of data passage within a pre-determined fighting force. An established communication primary, alternate, contingency, emergency plan has yet to be disseminated to the ANG and Combat Air Forces (CAF). Acquiring and dispersing handheld satellite communicators will provide a baseline means of communication, meeting all the above requirements. Handheld satellite communicators will be used in training to establish standardized tactics, techniques, and procedures, and maintained for global contingency operations. This product will enhance our ability to synchronize quiet, quick, on target, and on time operations in any AOR.

2. Program Details.

Quantity	Unit Cost	Program Cost
44 Handheld Satellite Communicators	**$8,500**	**$374,000**
44 Tablets and Cases	**$1,000**	**$44,000**
Total		**$418,000**

F-22: AGILE COMBAT HANDHELD OIL, HYDRAULIC, AND NITROGEN SYSTEMS

1. Background. ANG F-22s require internally carried and man portable oil, hydraulic, and nitrogen servicing systems via travel pods or personal pelican cases. Self-contained maintenance capabilities will be required for sustained operations in dispersed and austere locations. Given limited airlift assets, providing pilots and multi-capable airman the necessary tools and training to sustain operations with minimal support affords additional pallet positions for higher priority items/movements. Smaller, man portable systems enable a quicker deployment by leveraging self-carriage capabilities and/or tanker cargo areas without sacrificing fuel. Routine F-22 servicing requires oil, hydraulic fluid, and air for the Stored Energy System. These products are a vital portion of the Agile Combat Employment problem set that the Air Force is grasping to solve.

2. Program Details.

Quantity	Unit Cost	Program Cost
20 Oil Pumps	**$7,724**	**$154,480**
20 Hydraulic Pumps	**$7,305**	**$146,100**
10 Nitrogen Delivery Backpacks	**$9,932**	**$99,320**
Total		**$399,900**

F-22: COCKPIT GLOBAL POSITIONING SYSTEM SIGNAL REPEATER

1. Background. ANG F-22s require Global Positioning System (GPS) cockpit repeater kits as a backup means of GPS-based navigation. Various tactical aircraft are already utilizing Electronic Flight Bag (EFB) tablets in the Central and Pacific Command areas of responsibility under local commander authority for use during combat sorties. USAF F-15E and U.S. Navy F/A-18E/Fs use these tablets for navigational situational awareness and tracking friendly forces. This tablet technology is often the only tool available to discriminate between friendly and hostile locations during dynamic targeting scenarios, especially considering the recent loss of Mode 4. Air Combat Command is currently providing EFBs for use in F-22 aircraft; however, the F-22 cannot receive GPS signals in the cockpit due to proprietary canopy characteristics. A lack of GPS signal reception in the cockpit limits the EFB to usage as a digital repository of flight information publications. The EFB becomes a backup means of GPS based navigation and in cases of various electrical failures, the F-22 requires a simple repeater of the aircraft's received GPS signal in the cockpit for all 21 ANG F-22 aircraft.

2. Program Details.

Quantity	Unit Cost	Program Cost
23 GPS Repeater Kits	**$14,473**	**$332,879**
Total		**$332,879**

* Includes 10% spares

F-22: DATA LINK IMPROVEMENTS

1. Background. ANG F-22s require data link infrastructure improvements to increase interoperability with differing platforms. The F-22 has a very capable intra-flight data link system. The F-35 also has a very capable, but incompatible intra-flight data link system. In the future, both aircraft will be able to transmit and receive a Link-16 data link. However, most of the high-quality data available within F-22/F-35 formations will not be passed over Link-16. Upgrading the F-22 data link will allow more F-22 formation members to receive high-quality data and will allow for more F-22/F-35 data link interoperability. All 21 ANG F-22s require an updated data link capability.

2. Program Details.

Quantity	Unit Cost	Program Cost
Data Link Hardware NRE	**N/A**	**$69,000,000**
23 Data Link Kits	**$2,000,000**	**$46,000,000**
Total		**$115,000,000**

* Includes 10% spares

Tab C

F-15

- **Air Dominance**
- **Homeland Defense**
- **ANG F-15 Units Provide 41% of the Total Fleet**

The F-15 has been the backbone of our nation's Air Superiority fleet for over 40 years and will continue to be a key asset to the Combantant Commander and Homeland Defense. ANG F-15C units provide 31 percent of the nation's Aerospace Control Alert (ACA) fighters, spanning five alert sites in the continental United States. These alert sites provide 24-hour homeland defense. Full data link interoperability and overhead connectivey gives F-15C/D/EXs the ability to be a key node in the nation's long range kill web as well destroy the peer threat's key nodes.

In the past three years, ANG F-15s deployed to OCONUS and CONUS locations on Theater Security Packages in support of Combatant Commander taskings, ensuring continued American air dominance presence in contested airspace. ANG F-15C squadrons also took part in joint & international exercises including Checkered Flag, Air Defender, Sentry Eagle, Neptune Hawk, Northern Edge, Sentry Aloha, Sentry Savannah, and Operation Noble Eagle.

Half of F-15C/D/EX combat capability resides within the ANG. The fielding of the F-15EX allows the ANG F-15C/EX and AD F-15E/EX to have a synergistic relationship lost with the divestment of AD F-15C. The ANG possesses 45% of all air dominance assets available for Air Expeditionary Forces (AEF) commitments and ACA tasking. The ANG also operates the USAF's only F-15C formal flying training unit.

Modernization and sustainment programs are vital to improving aircraft capabilities for both overseas contingency operations and homeland defense. Upgrades recapitalize and repair long-range air dominance kill chains, while drastically increasing 5th gen survivability in contested environments. These programs include the Block Upgrade 2 data link, new Air-to-Air weapons integration, multi-spectral search and track technologies, Persistent-Low Earth Orbit data flow, and modern integrated communications suite.

F-15
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Critical Capabilities List

- Multi-Domain Connectivity for Long Range Kill Chain
- Field Redundant, Secure, Beyond Line-of-Sight Capable Datalinks
- Emerging Weapons Integration
- Multi-Spectral Search/Track/Identification/Target with Advanced Data Link
- Rapid-Updateable, Internal System Integration Open System Enclave

Essential Capabilities List

- Advanced Helmet Mounted Display
- High-Fidelity Distributed Mission Operations-Capable Simulators with Modern Threat Replication
- High Bandwidth Internal Communication
- Modular Self Protection / Electronic Warfare System with Fiber Optic Towed Decoy
- Counter Infrared

Desired Capabilities List

- Internal P6 Integration to Enable Live Virtual Construct (LVC) Training
- Directed Energy Protection for Sensors

F-15: MULTI-DOMAIN CONNECTIVITY FOR LONG RANGE KILL CHAIN

1. Background. ANG F-15s require data on targets from over the horizon using existing Proliferated Low Earth Orbit (P-LEO) constellations that can be a redundant system to provide the data. The long-range kill chain executed by the F-15 must first have a cue from over the horizon. Homeland Defense missions require a long-range cue to orient defense assets to the correct location. To accomplish this, the F-15C can be used to conduct risk reduction missions for F-15EX by installing P-LEO commercial antennas inside the cockpit with a system to receive the data. This system can investigate connections to the current Passive Attack Display (PAD) the F-15C is utilizing (additionally as a risk reduction for F-15EX) or investigate a different pathway of pushing data to the pilot and/or the aircraft (e.g., via MIL-STD 1760 to MUX BUS 1553 to the Advanced Display Core Processor). In addition, high bandwidth internal communication capability will enable redundancy in connectivity through the Mobile User Objective System.

2. Program Details.

Quantity	Unit Cost	Program Cost
150 P-LEO Terminals	**$50,000**	**$7,500,000**
PAD NRE	**N/A**	**$500,000**
Total		**$8,000,000**

F-15: FIELD REDUNDANT, SECURE, BEYONE LINE-OF-SIGHT CAPABLE DATALINKS

1. Background. ANG F-15s require full secure, redundant, and beyond line-of-sight (BLOS) datalinks to ensure safety-of-flight, continued lethality during combat operations, and effective command and control during homeland defense missions. To ensure that all F-15s are fully combat capable, the remaining F-15C/D's, which are not allocated a Multi-Functional Information Distribution System Joint Tactical Radio System (MIDS-JTRS) / Advanced Display Core Processor (ADCP) II kit, must receive a Block Upgrade 2 (BU2) Link-16 terminal to allow the use of modern crypto. This would also immediately re-enable these aircraft to use their inherent Infrared Search and Track, a capability that MIDS-JTRS equipped aircraft will not have until CY24. 45 ANG F-15s require BU2 Terminal Conversion Kits. Due to the lack of sustainment funding, BU2 kits are critical to ensuring that all ANG F-15Cs are datalink capable through their scheduled divestment in FY27. MIDS-JTRS BU3 capabilities include BLOS (300nm), meshing, anti-jam improvements, redundant security, and the TTNT (Tactical Targeting Network Technology). The fielded F-15C/EX MIDS-JTRS terminals are BU3 capable; however, firmware, hardware, and aircraft connectivity hardware are required to unlock full BU3 capabilities. The USAF BU3 program of record does not include fielding hardware that enables TTNT while the USN does. The added TTNT capabilities are required to maximize combat capability between now and the fielding/integration of future datalinks. Fielding and testing BU3 capabilities in all ANG F-15C/EX is a low cost effort that will immediately enable long range kill chains, 4th and 5th gen survivability, advanced weapons integration, sensor integration, and Manned-Unmanned Teaming. ANG F-15C/EX require BU2 kits for non-ADCP II equipped aircraft and full BU3, to include TTNT, capabilities in the rest of the fleet.

2. Program Details.

Quantity	Unit	Program Cost
45 F-15C BU2 Terminal Conversion Kits	**$92,000**	**$4,140,000**
105 BU3 Firmware Updates	**$50,000**	**$5,250,000**
Total		**$9,390,000**

F-15: EMERGING WEAPONS INTEGRATION

1. Background. ANG F-15s require an upgraded Operational Flight Program to support new and existing weapons' capabilities. The rapid advancement in enemy threats holds key combat enablers at risk as well as threatens 5th/6th generation aircraft survivability. The F-15s range, endurance, and payload capabilities make it a key enabler in a peer fight. Additionally, improvements to enhance the F-15EX magazine must be accomplished to include conformal fuel tanks, the ability to carry 5 Joint Air-to-Surface Standoff Missiles, and approval to carry oversized weapons on stations 1 and 9. Lastly, hardware must be procured to allow carriage of new weapons that do not conform to legacy weapons stations.

2. Program Details.

Quantity	Unit	Program Cost
New Air-To-Air Weapons NRE	N/A	$10,000,000
128 Missile Launchers	$1,000,000	$128,000,000
Total		$138,000,000

F-15: MULTI-SPECTRAL SEARCH/TRACK/IDENTIFICATION/TARGET WITH ADVANCED DATA LINK

1. Background. ANG F-15s require multi-spectral search/track/identification/targeting systems with advanced data link on F-15C/EX aircraft. Dominance in the infrared (IR) and electromagnetic (EM) spectrum enables the long-range search, track, ID, and target of low observable aircraft and cruise missiles in Homeland Defense and in contested/degraded operations. The ANG F-15 fleet is currently equipped with a SNIPER targeting pod that will not receive any more upgrades. Fielding the LITENING pod to the F-15 fleet will immediately add Homeland Defense effectiveness due to its ability to display color as well as provide risk reduction to the F-15EX fleet. It is already integrated into the aircraft. Future LITENING pod upgrades (LA+) will drastically increase combat capabilities, specifically in cruise missile defense of the homeland. Infrared Search and Track (IRST) pods add a search and long-range capability beyond that of the targeting pods. The search capability greatly contributes to cruise missile defense. Continued fielding and improvements to IRST pods is required to ensure lethality and survivability of US assets in peer conflicts. The F-15EX will not have the capability to carry both an IRST and a targeting pod. Conformal fuel tanks, wiring of stations 5A and 5B, and pylons are required to enable IR spectrum dominance. All 48 ANG F-15EXs need IRST and targeting pods.

2. Program Details.

Quantity	Unit	Program Cost
IRST Pod NRE	N/A	$10,000,000
100 IRST Pods	$3,500,000	$350,000,000
Total		$360,000,000

F-15: RAPID UPDATEABLE INTERNAL SYSTEMS INTEGRATION OPEN SYSTEM ENCLAVE

1. Background. ANG F-15s require an Open System Enclave (OSE) which is critical to unlocking improved capabilities in testing, training, communication, and pilot decision making. Technological advancements in sensors, avionics, weapons, and Electronic Warfare (EW) are rapidly pushing fourth generation aircraft capabilities into obsolescence. Additionally, the pacing of Operational Flight Program (OFP) updates and acquisition does not meet the needs of our warfighters. Internal P6 integration provides an OSE capability and enables Live, Virtual, Constructive (LVC) training while the podded P6 solution does not. P6 integration in the F-15C enables the P6 program to stay on required timelines as well as provides risk reduction to future F-15E/EX OSE integration. It is imperative that F-15 OSE be developed in concert with 5th and 6th gen fighters. This will allow the F-15 to rapidly field new capabilities afforded through upgraded processing power and computer software, allowing ANG F-15EXs to remain relevant.

2. Program Details.

Quantity	Unit Cost	Program Cost
Writing Software Capability	1	$700,000
Total		$700,000

F-35A

- **Offensive Counter Air (SEAD / Escort)**
- **Maritime Strike Support**
- **Defensive Counter Air**
- **ARC F-35 Units Will Provide 30% of CAF Fleet in 2025**

The F-35A Lighning II (aka "Panther") will be the backbone of American airpower for the foreseeable future under ACC's fighter roadmap model. Combantant Commanders globally send continuous demand signals for F-35 presence as an instrument of strategic messaging and credible combat capability. The Air Reserve Components (ARC) currently have only 20 F-35As, all located in South Burlington, Vermont, but over the next 24 months, 18 Programmed Aircraft Authorization (PAA) squadrons will be fielded in Madison, Montgomery, Jacksonville and Fort Worth (24).

In 2022, ANG F-35s rapidly deployed to EUCOM on short notice , alleviating a RegAF unit's tasking, supporting AFFORGEN deployment requirements and fulfilling a Combatant Commander's Fifth Generation aircraft requirement. This agile voluntary deployment demonstrated ARC manpower readiness and an ability to satisfy the Combatant Commander's intent. It also encapsulated an efficient two year Mission Design Series Conversion featuring joint & international exercises including a Red Flag, Checkered Flag, Northern Lightning, and Weapons System Evaluation Program.

Despite a relatively young aircraft fleet, modernization is already a critical priority in the rapidly changing landscape of software defined combat capabilities. Although the F-35's external low observable design will remain formidable in a large capacity force, it's ability to evolve and modernize internally will be the key to success. These modernization efforts should include relevant and rapid Mission Data File reprogramming via Crowd Sourced Flight Data across multi level security domains, beyond line of sight communications, and advanced tactical datalinks to leverage multi domain common operating pictures and future Collaborative Combat Aircraft. Additionally, we'll require omni-directional electronic attack and protection throughout a broader scope of the electromagnetic spectrum and better access to multi-static and passive long range kill chains.

F-35A
FY 2023 Weapons and Tactics Conference

Critical Capabilities List

- Open System Enclave
- Foundational Ace Support
- Aircraft-Integrated Beyond Line-of-Sight Capability
- High-Capacity, Pre and Post Fusion Data Collection
- Active Operational Flight Program Agnostic Expendable Countermeasures

Essential Capabilities List

- Enhanced Rapid Reprogramming Capability for Broad-Bandwidth Active Countermeasures, Pod-Based Electronic Protection Technology, And On-Board Combat Identification
- Continued Development of Aircraft Internal Embedded Training Solutions for Use With MESA/Tech Refresh Software
- ARC-Focused, Home-Station Airspace Expansion Initiatives to Support Live-Fly Training in Missionized Sorties
- Semi-Autonomous Maneuvering Programming Using Integrated Digital Flight Controls and Sensor-Based Predictive Logic for Target Destruction or Avoidance

F-35: OPEN SYSTEM ENCLAVE

1. Background. ANG F-35s require an Open System Enclave (OSE) for edge computing and cross platform compatible applications via Government Reference Architecture and Open Mission Systems standard. Using Operational Flight Program (OFP) development as the single option for adding capability to the F-35A is too slow, too expensive, and fails to leverage the power of diverse airmen innovators. Our aircraft is at risk of being out-developed by near-peer competitors without an effort to accelerate change. Installation of Quick Reaction Instrumentation Package on F-35A aircraft will provide both power at the 1394 Port and a variety of system-generated messages for incorporation in variety of airmen developed applications. This solution also utilizes commercial off the shelf computing capability and integration with tablet controls for processing of OFP output messages in applications. Further integration with P6 bay capabilities and open radio architecture create significant potential in the development of communication solutions for host aircraft and outside entities.

2. Program Details.

Quantity	Unit Cost	Program Cost
OSE NRE	**N/A**	**$25,000,000**
Total		**$25,000,000**

F-35: FOUNDATIONAL AGILE COMBAL EMPLOYMENT SUPPORT

1. Background. ANG F-35s require aircraft portable communication kits to integrate on aircraft for combat employment. Unless pre-positioned communications equipment is available, F-35A formations that arrive at potentially austere locations have zero capability to communicate with hub locations to prepare for subsequent missions, upload and download data for mission planning, and contribute data to central hubs for rapid reprogramming support. Required hardware must fit in current aircraft storage compartments, be capable of Beyond Line-of-Sight (BLOS) uplink and downlink of voice and data communications and have solar charging capability or significant battery life. Aircraft-integrated BLOS capability would also support the satisfaction of these requirements.

2. Program Details.

Quantity	Unit	Program Cost
Communication Kit NRE	**N/A**	**$15,000,000**
20 Communication Kits	**$250,000**	**$5,000,000**
Total		**$20,000,000**

F-35: AIRCRAFT-INTEGRATED BEYOND LINE-OF-SIGHT CAPABILITY

1. Background. The F-35 currently has no fielded Beyond Line-of-Sight (BLOS) communication capability. When considering kill chains which extend beyond a few hundred miles, this presents an obvious obstacle in connecting multi-domain sensors to shooters at the tactical edge. It is also problematic when consideration operations from austere spoke locations in an Agile Combat Employment construct. Aircraft-integrated BLOS capability must be brought to the F-35A in one of a variety of waysto include open radio architecture and aperture sharing using open-source enclave, direct integration of satellite communications, another BLOS waveform, or the ability to transfer data to and from another aircraft/node.

2. Program Details.

Quantity	Unit	Program Cost
BLOS NRE	**N/A**	**$12,000,000**
20 BLOS Kits	**$2,500,000**	**$50,000,000**
Total		**$62,000,000**

F-35: HIGH-CAPACITY, PRE AND POST FUSION DATA COLLECTION

1. Background. ANG F-35s required accurate Mission Data File (MDF) programming to maximize organic sensor capabilities to kill and survive in the modern battlespace. Programming is a constantly moving target because threats evolve quickly, intelligence information is imperfect, and government induced multi-level security barriers often prevent end-users from receiving timely, accurate and reliable information. Current tactical data recording options are insufficient in their capacity and their pre-fusion limitations. For improved rapid reprogramming, the addition of post-fusion messages provides more benefit to data aggregation centers. Quick Reaction Instrumentation Packages (QRIP) must be considered a baseline combat configuration for ANG F-35A aircraft. It must also be removed from consideration as a "test" capability to increase proliferation to ANG aircraft. The ANG must then leverage Crowd Source Flight Data available via QRIP and send it to the MDF reprogramming lab at the Unmanned Systems Research Laboratory. This data permits crucial updating to software-defined requirements significantly effecting survivability and lethality of ANG F-35A aircraft. With multiple information sources available from the F-35 Mission Design Series and other channels of the Intelligence Community, additional obstacles to overcome are multi-level security barriers and lack of automated and intelligent software tools to analyze information and implement relevant changes to MDFs.

2. Program Details.

Quantity	Unit Cost	Program Cost
MDF NRE	**N/A**	**$20,000,000**
Total		**$20,000,000**

F-35: ACTIVE, OPERATONAL FLIGHT PROGRAM-AGNOSTIC EXPENDABLE COUNTERMEASURES

1. Background. ANG F-35s require active, Operational Flight Program (OFP) agnostic expendable countermeasures. A broad portfolio of countermeasures makes the F-35A more survivable by increasing the likelihood of defeating enemy offensive capabilities. Countermeasures should be developed with a wide variety of mission customization, including the number of countermeasures and their function. Increased sources of reprogramming for active countermeasure variants add hybrid-vigor to the F-35A countermeasure portfolio. Diverse options further increase likelihood of having an effective source of self-defense. More detail on this critical priority is available in classified forums.

2. Program Details.

Quantity	Unit Cost	Program Cost
OFP Countermeasure NRE	N/A	$25,000,000
Total		$25,000,000

A-10

- **Close Air Support / Forward Air Control (Airborne)**
- **Combat Search and Rescue**
- **Strike Coordination and Reconnaissance**
- **ANG Units Provide 30% of the Total Fleet**

The A-10C Thunderbolt II is the U.S. Air Force's premiere ground attack platform. Having a near continuous deployment presence for over two decades, the A-10 was designed to provide close air support (CAS) to friendly ground forces in a contested environment. While the A-10 continues to excel at CAS, its missions have evolved to keep pace with the nation's warfighting priorities—the aircraft performs lead roles in combat search and rescue, forward air control, strike coordination and reconnaissance, air interdiction, and air operations in maritime surface warfare. The A-10 has a proven ability to bring massive firepower to the battlespace with scalable weapons effects while executing from close-in and standoff distances.

The ANG operates 63 A-10s in three fighter squadrons. The unique capabilities of ANG A-10s allow the aircraft to operate in a contested environment from austere airfields using its conversion fuel tank and jam-resistant GPS with a minimal logistics footprint. Threat situational awareness and communications clarity is enhanced through a three-dimensional audio system.

The A-10 fleet will continue contributing to contingency operations with efforts that focus on reducing risk to fifth and sixth generation assets and supporting the joint force. Current sustainment priorities include a Link 16 solution, the carriage and integration of advanced weapons, communication systems to sustain operational viability, a digital electronic warfare suite, and a high-definition interface, display, and recording system.

The A-10 remains ready and able to execute its mission *today*. With continued investment in the aircraft and the people who fly and support it, the A-10 will continue evolving to meet combatant commander requirements.

A-10
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Critical Capabilities List

- Link 16 Solution
- Carriage and Integration of Advanced Weapons to Support 5th/6th Generation Operations in a Contested, Degraded, and Operationally Limited Environment
- Communications Systems to Sustain Operational Viability
- Automated, Digital Electronic Warfare Suite
- Digital High-Definition Interface, Display, and Recording

Essential Capabilities List

- Counter-Unmanned Aircraft System (UAS) / Small Unmanned Aircraft System (SUAS) and Counter-Cruise Missile Engagement Capability
- Open Systems Architecture Computing System
- Organic All-Weather Targeting at Range
- Digital Suspension Equipment Integration (1760/Ethernet to all Stations)
- Joint Range Extension Applications Protocol (JREAP)-C and Common Integrated Broadcast (CIB) Connectivity

Desired Capabilities List

- Multi-Domain, Multi-Spectrum Electronic Attack Capability
- Standardized Squadron Deployable Communications and Mission Planning Suite

A-10: LINK 16 SOLUTION

1. Background. ANG A-10s require the ability to integrate on the same datalink network as the rest of the joint force. The legacy A-10 capability, Situation Awareness Data Link (SADL), is planned to phase out without a follow-on replacement for the capability, leaving the A-10 without an ability to communicate digitally among A-10s and with other platforms. Further, SADL continues to be inadequate due to a lack of fielded support infrastructure, frequency band constraints, and Joint Interface Control Cell support. The transition of ANG A-10 aircraft to a standard joint datalink will allow seamless deployment, connectivity, and interoperability with the entire joint force. All ANG A-10s require replacement datalink equipment due to the future mandates that will eliminate current SADL communications equipment.

2. Program Details.

Quantity	Unit Cost	Program Cost
Link 16 NRE	N/A	$5,000,000
63 Link 16 Tactical Radios	$350,000	$22,050,000
Total		$27,050,000

A-10: CARRIAGE AND INTEGRATION OF ADVANCED WEAPONS TO SUPPORT 5TH / 6TH GENERATION OPERATIONS IN A CONTESTED, DEGRADED, AND OPERATIONALLY LIMITED ENVIRONMENT

1. Background. ANG A-10s require an enhanced ability to support operations in high-threat areas of operation by integrating standoff munition capabilities. These capabilities provide combatant commanders the flexibility to integrate ANG A-10s into operations that directly support 5th and 6th generation operations while augmenting 4th generation operations by freeing up valuable weapons stations on F-16, F-15E, F-18, B-1, and B-52 aircraft. Standoff munitions integration will be accomplished initially through the employment of ADM-160 Miniature Air Launched Decoy (MALD), while future standoff munitions integration should include AGM-158, AGM-84, and AGM-88. Further, integration and carriage of AIM-9X and AIM-120 is required to provide planners unrealized options for distributing munitions across areas of operations. The ability of the A-10 to forward deploy to austere locations, combined with a robust combat radius, offers combatant commanders and their planners a remarkable ability available in highly contested areas of operations.

2. Program Details.

Quantity	Unit Cost	Program Cost
1760 Bus to Universal Armament Interface NRE and Integration	N/A	**$1,000,000**
Total		**$1,000,000**

A-10: COMMUNICATION SYSTEMS TO SUSTAIN OPERATIONAL VIABILITY

1. Background. ANG A-10s require a communications suite that enables continued integration with fielded and upcoming crypto and frequency hopping mandates. Two tactical data link (TDL) radios, capable of utilizing the Mobile User Objective System. Multi-mode digital radios meet the need for simultaneous beyond-line-of-sight and secure line-of-sight communications. This capability maintains the A-10's ability to communicate using modern voice crypto requirements on the upcoming standard of anti-jam communication nets.

2. Program Details.

Quantity	Unit Cost	Program Cost
TDL Radio NRE	**N/A**	**$3,000,000**
126 TDL Radios	**$175,000**	**$22,050,000**
Total		**$25,050,000**

A-10: AUTOMATED DIGITAL ELECTRONIC WARFARE SUITE

1. Background. The ANG A-10 Electronic Warfare (EW) suite requires investment to keep pace with surface-to-air threat technology advancements and proliferation. A-10 EW sustainment requires a focus on several critical capabilities in the radio frequency spectrum: radar warning receiver (RWR) replacement and improved countermeasures program development. The A-10 fleet has a legacy analog electronic attack (EA) Pod (ALQ-184). All require replacements that are digitally driven. A-10 vulnerabilities in the infrared (IR) spectrum must also be addressed through the development of IR countermeasures (IRCM) which decoy modern IR threats by replacing the AAR-47 with a missile warning system capable of detecting those threats. Further, advanced self-protection expendables, including a digital sequencer switch and smart dispensers, are required to keep pace with the current radar threat environment. Modernized EW suite subsystems, architecture, and countermeasures will allow the A-10 to conduct full-spectrum combat operations in most contested environments. Each of the 63 ANG A-10s require an ALR-69A kit and advanced countermeasure system as well as a replacement EA pod.

2. Program Details.

Quantity	Unit Cost	Program Cost
ALR-69A RWR NRE	N/A	$5,000,000
70 ALR-69A Upgrades*	$800,000	$56,000,000
Advanced IRCM System NRE	N/A	$10,000,000
Advanced Countermeasures NRE	N/A	$5,000,000
EA Pod NRE	N/A	$2,000,000
Total		$78,000,000

* Includes 10% spares

A-10: DIGITAL HIGH-DEFINITION INTERFACE, DISPLAY, AND RECORDING

1. Background. ANG A-10s require improved positive identification (PID), intelligence, surveillance, reconnaissance, and battle-tracking capabilities. Advanced targeting pod digital output upgrades with color video provide high-resolution feeds. When coupled with high-definition displays, the system enables improved targeting ability and visual identification of friendly and enemy forces from greatly increased standoff ranges. High-definition displays in the A-10 enable full utilization of targeting pod color improvements. A digital camera and video recorder capable of recording high-definition video of Heads-Up Display and forward pilot view as well as the high-definition displays in full resolution is required. This modification will fulfill classified recording and data storage requirements of the current Digital Video Air Data Recorder system and comply with cybersecurity mandates regarding classified data storage and removable media. Each of the 63 ANG A-10s require high-definition displays as well as video recorders and data servers.

2. Program Details.

Quantity	Unit Cost	Program Cost
High-Definition Display NRE	N/A	**$5,000,000**
140 High-Definition Displays*	**$70,000**	**$9,800,000**
Video Recorder and Data Server NRE	N/A	**$1,000,000**
70 Video Recorder and Data Server*	**$131,260**	**$9,188,200**
4 Ground Equipment Units	**$325,000**	1,300,000
Total		$26,288,200

* Includes 10% spares

C-17

- **Strategic Airlift**
- **Outsized and Oversized Cargo Airlift**
- **Aeromedical Evacuation Missions**
- **ANG C-17 Units Provide 23% of the Total Fleet**

The C-17 Globemaster III is the nation's primary strategic military airlifter and continues to excel in a wide range of operational mission scenarios. It supports both inter- and intra-theater missions and allows Air Mobility Command to significantly improve throughput during contingency operations. Using C-17s as an intra-theater airlift platform provides relief to the C-130 fleet and reduces ground forces' dependence on vehicle convoys.

The ANG operates 50 C-17 aircraft assigned to five wings and two associate units. The fully-equipped aircraft carries combat-ready military units to any point in the world on short notice and provides critical field support to sustain the fighting force.

C-17
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Critical Capabilities List

- C-17 Self-Protection
- Common Mobility Air Forces Mission Computer
- Extended Range Modification
- Communication System Modernization
- Rapid Onload/Offload Capability

Essential Capabilities List

- Common Maintenance Computer
- Automated-Hardened Position, Navigation, and Timing Solution
- External View System
- Aircraft Security Enhancement
- Cockpit Display Modernization

Desired Capabilities List

- Enhanced Flight Vision System in Heads-Up-Display
- Improve Storage Capacity for Enhanced Navigation Database
- Light-Emitting Diode Landing Lights
- Independent, Mobile, and Collaborative Flight Planning and Flight Reference Solution
- Audible G-State Awareness

C-17: C-17 SELF-PROTECTION

1. Background. ANG C-17s require self-defense capabilities to detect and defeat enemy threats. To detect these threats, C-17s require an open mission system digital backbone capable of processing at the forward edge and integrating the platform into Advanced Battle Management System and Joint All Domain Command and Control architectures.   To increase survivability, C-17 aircraft require a radar warning receiver (RWR) capable of processing signals in a dense Radio Frequency (RF) environment capable of automatically directing countermeasures to defeat those threats.   This capability enables C- 17s to detect and defend against threats in likely scenarios in which the aircraft is operating independently.   This increased situational awareness is needed to correlate onboard and off-board threat detection, terrain masking, and optimized dynamic rerouting capabilities to minimize exposure to threats.   Additionally, to defeat these threats, C-17s require onboard and/or off-board threat jamming, decoys, kinetic, and non-kinetic defense measures.   Similarly, improved full-spectrum active and passive infrared (IR) defensive capabilities can dramatically increase survivability in layered defense situations.   The C-17 fleet requires modular defensive systems to provide a method for rapid acquisition and replacement of low-cost, simplified improvements. A common-carry pod with open- architecture that is capable of quick modifications to address ever-changing contested environments is ideal.   Hardware for this digital backbone on the C-17 fleet can be installed via a mission design series- specific aircraft-to-pylon interface for a mobility air forces common hardpoint. All 50 ANG C-17s require RWR, power and data to the hardpoints, and 12 common carry pods.

2. Program Details.

Quantity	Unit Cost	Program Cost
Self-Protection NRE	**N/A**	**$12,000,000**
50 RWR Group A Kits	**$250,000**	**$12,500,000**
50 RWR Group B Kits	**$500,000**	**$25,000,000**
50 Hard-Point Kits	**$500,000**	**$25,000,000**
12 MAF Common Carry Pods	**$2,500,000**	**$30,000,000**
Total		**$104,500,000**

C-17: COMMON MOBILITY AIR FORCES MISSION COMPUTER

1. Background. ANG C-17s require secure airborne data communications with other aircraft, command and control (C2) nodes, and ground-based forces via line-of-sight and beyond-line-of-sight means. The Mobility Air Forces mission system data link and data transfer capabilities provide aircrew the ability to report and receive battlespace information such as the position of other aircraft, weather, threat, mission events, mission status, task completion, and resource status. This increased situational awareness allows C2 nodes the ability to track mission progress and facilitate rapid decisions and adjustments during mission execution. C-17s operating across vast geographic areas can provide C2 reach-back capabilities to mitigate Electromagnetic (EM) spectrum degradation in a contested environment. Next-generation military ultra-high frequency (UHF) satellite communication (SATCOM) radios and Ku/Ka radios provide both data and voice using satellites operating outside of traditional data link bandwidths. Inflight access to secure and unsecure high-speed internet data is a foundational capability upon which beyond-line-of-sight tactical datalink can be built. This enables real-time strategic and tactical decision making, as well as C2 reach-back capability while simultaneously serving as a critical node for Joint All Domain Command and Control. Integrated secure electronic flight bags store and retrieve documents required for flight operations such as technical orders, Air Force Instructions, flight operations manuals, minimum equipment lists, and the most current flight information publications as well as display tactical information. C-17s require one set of installation components for each of the 50 airframes and tactical display emulator software at each base to effectively employ data link tactics, techniques, and procedures as well as integration into existing aircrew simulators.

2. Program Details.

Quantity	Unit Cost	Program Cost
MAF Mission Computer NRE	**N/A**	**$15,000,000**
55 C-17 Group A Kits*	**$100,000**	**$5,500,000**
55 C-17 Group B Kits*	**$750,000**	**$41,250,000**
55 C-17 Data Link Processors*	**$100,000**	**$5,500,000**
55 Electronic Flight Bags*	**$240,000**	**$13,200,000**
55 UHF SATCOM Kits*	**$475,000**	**$26,125,000**
Emulator Software	**$4,000,000**	**$4,000,000**
50 High-Speed Data Systems	**$1,500,000**	**$75,000,000**
Total		**$175,575,000**

* Includes 10% spares

C-17: EXTENDED RANGE MODIFICATION

1. Background. ANG C-17As will continue to play an important role supporting United States Transportation Command missions, especially in the USINDOPACOM area of operation. The C-17A, with Extended Range (ER) fuel tanks installed, has the capability to carry an additional 65,000 pounds of fuel and fly an additional 1,800 NM (empty aircraft) when compared to non-ER C-17As. This added capability reduces the need for fuel stops, enables faster cargo delivery and results in less wear and tear on the aircraft due to eliminating landing and takeoff cycles and reduces the fuel required at forward operating bases. ER fuel tanks also reduce the need for air-to-air refueling, freeing up critical airborne tanker assets for other operational requirements. 19 remaining ANG C-17As require extended range fuel tank modification.

2. Program Details.

Quantity	Unit Cost	Program Cost
19 Extended Range Fuel Tanks	**$12,000,000**	**$228,000,000**
Total		**$228,000,000**

C-17: COMMUNICATION SYSTEMS MODERNIZATION

1. Background. ANG C-17s require an updated communication system to increase aircraft survivability in airborne engagements, decrease onload/offload times, enhance lethality and minimize exposure to ground threats. Current C-17 communications systems are significantly outdated and require numerous modifications to meet 21st century mission requirements. An updated communication system enhances worldwide command and control functions and increases mission effectiveness.   This system must allow an aircrew member automated dynamic capability to manage aircraft and threat indications, multiple communications radios, and crew positions simultaneously. Current technologies such as lightweight headsets, extended battery life, 3D audio, noise cancelling, and wireless technology facilitate these requirements. An option for a dozen crewmembers to connect via wireless technology would allow Pilots, Loadmasters, Ravens, Flying Crew Chiefs, Maintainers, Aeromedical personnel, Jumpmasters, and others to simultaneously, and selectively, communicate with one another securely.   Such communication systems would optimally operate at least 100 meters from the aircraft without being tethered to a cord. This improves aircraft/aircrew security in austere locations, reduces onload/offload times, facilitates medical decisions, allows precise airdrop coordination, decreases long-term hearing damage, and enables additional missions such as Specialized Fueling Operations.

2. Program Details.

Quantity	Unit Cost	Program Cost
Communication System NRE	N/A	$2,000,000
150 Wireless Communication Systems	$4,000	$600,000
Total		$2,600,000

C-17: RAPID ONLOAD/OFFLOAD CAPABILITY

1. Background. ANG C-17s require a rapid onload/offload capability that minimizes C-17 ground times to deliver cargo quickly. The C-17 ramp and toe design is more than half a century old and must be improved to facilitate the Agile Combat Employment construct. Large or low-clearance form factor payloads require extended ground times leaving the aircraft and crew exposed to threats and diminishing the aircrew's useable Flight Duty Period. In Austere or Command and Control degraded environments, many pieces of cargo critical to sustained lethality through rapid redeployment are unloadable without proper shoring. A lack of standardization makes planning and executing onloads/offloads consistently difficult. Solutions should be stowable on board the aircraft without diminishing capacity, improve ramp approach angles, and be field deployable by two people in approximately 5-10 minutes. Automated solutions improve freight tracking, management, load optimization and enable independence from external support. The system should be durable enough to sustain rugged use in harsh conditions yet low-cost enough to be expendable under certain threat conditions.

2. Program Details.

Quantity	Unit Cost	Program Cost
50 Toe Ramps	**$25,000**	**$1,250,000**
50 Shoring Systems	**$50,000**	**$2,500,000**
Freight Tracking Management NRE	**$3,000,000**	**$3,000,000**
Total		**$6,750,000**

C-130 H/J

- **Tactical Airlift**
- **ANG C-130 Units Provide 48% of the Total Fleet**

With a legacy lasting over 64 years, the C-130 Hercules remains the U.S. Military's primary combat delivery aircraft. In addition to its primary role in tactical airlift, ANG C-130s support humanitarian, peacekeeping, and disaster relief operations. Procurement efforts continue to address needed updates to the avionics suites, propulsion modernization, improved self-protection, fuel efficiency, and enhanced situational awareness. These improvements ensure that the ANG C-130 fleet remains capable of safely and effectively executing its missions globally and maintains relevancy in tomorrow's fight.

C-130 H/J
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Critical Capabilities List

C-130H
- MAF Common Data Link Suite
- Radio Frequency Self-Protection
- Infrared Self-Protection
- Updated Avionics/Instrumentation and Associated Training Devices
- Propulsion System Upgrades

C-130J
- MAF Common Data Link Suite
- Military and Commercial Beyond Line-of-Sight Connectivity
- Radio Frequency Self-Protection
- Infrared Self-Protection
- Enhanced Flight Vision System

Essential Capabilities List

C-130H
- Stand Alone Satellite Communication via Voice
- Increased Fuel Delivery
- LED Landing Lights
- Self-Contained Contested Training Suite
- Loadmaster Enhanced Wireless Headset

C-130J
- Large Aircraft Infrared Countermeasures Image Integration
- Increased Fuel Capacity
- Self-Contained Contested Training Suite
- Loadmaster Enhanced Wireless Headset
- LED Landing Lights

Desired Capabilities List

To save space, desired lists can be obtained upon request from NGB/A5.

C-130H: MAF COMMON DATALINK SYSTEM

1. Background. The ANG C-130H fleet requires scalable, reliable, comprehensive, and networked battlespace awareness. The real-time information in the cockpit (RTIC) system allows C-130 aircraft to participate in multiple data link networks using technologies fielded on other DoD assets. The system must be upgraded to support Joint Range Extension Application Protocol-C through commercial and military satellite constellations. To include NIPR/SIPR and Mobile User Objective Systems (MUOS) access. Requires the installation of a new Tactical Data Link radio to access to MUOS and commercial satellite communication systems that have a minimum of 50kbps. In addition to Situational Awareness Data Link, the system needs a Link-16 Multifunctional Information Distribution System Joint Tactical Radio System. (MIDS-JTRS) Upgrades to the C-130 RTIC system increases the overarching network capability and provides a common processing and display platform for previously federated systems, resulting in a consolidated situational awareness picture. Integration with the Advanced Integrated Electronic Combat System (AIECS) software provides the capability for on-board and off-board threat correlations, data sharing, and automated countermeasures. Combining the control and outputs of multiple systems into one common graphical interface reduces crew workload, decreases "heads-down" time, and provides improved decision support for aircrews operating in the tactical environment. A Special Mission Processor enables integration of third-party software and hardware allowing the C-130H to rapidly and effectively innovate solutions at the speed of modern combat. All 82 C-130H aircraft need common adaptable mission systems with integrated AIECS.

2. Program Details.

Quantity	Unit Cost	Program Cost
AIECS NRE	N/A	$1,000,000
82 AIECS Kits	$150,000	$12,300,000
82 TDL Radios	$245,000	$20,090,000
82 MIDS-JTRS Terminals	$130,000	$10,660,000
82 Special Mission Processors	$70,000	$5,740,000
Commercial Beyond Line-of-Sight (BLOS) NRE	N/A	$800,000
82 Commercial BLOS Group B	$110,000	$9,020,000
82 Commercial BLOS Group A and Installs	$250,000	$20,500,000
Total		$80,110,000

C-130H: RADIO FREQUENCY SELF-PROTECTION

1. Background. The ANG C-130H fleet requires self-defense capabilities to detect, deny and defeat modern factor threats specifically designed to target large Mobility Air Forces aircraft. To detect these threats, C-130Hs require an open mission system compliant digital backbone executing processing at the forward edge and connecting the platform to Air Battle Management System and Joint All Domain Command and Control architectures. To defeat these threats, C-130Hs require onboard and/or off-board threat jamming, decoys, and kinetic and non-kinetic defense measures. To survive in modern combat, C-130H aircraft require a digital Radar Warning Receiver (RWR) capable of providing situational awareness on millimeter wavelength systems in addition to legacy systems, with geolocation ability, capable of processing signals in a dense radio frequency (RF) environment. Further, the ability to dispense active expendable RF countermeasures is necessary to the C-130Hs survival against peer threats. Many of these solutions can be accomplished utilizing a common carry open-architecture mission pod capable of supporting the current and future networked architecture, and flexible enough to be quickly altered to address contested environments. The open-architecture mission system will provide additional capacity for electronic attack/electronic protection. The open-architecture pod requires hard-points for 82 unmodified C-130Hs, 34 common carry pods, 82 RF Group A and 82 Group B Kits, and 24 digital RWR kits.

2. Program Details.

Quantity	Unit Cost	Program Cost
82 C-130H Next-Generation RF Group A Kits	$120,000	$9,840,000
82 C-130H Next-Generation RF Group B Kits	$775,000	$63,550,000
24 C-130H ALR-69As	$500,000	$12,000,000
34 Active Expendable Countermeasures	$300,000	$10,200,000
34 MAF Common Carry Pods	$2,000,000	$68,000,000
82 Hard-Point Installations	$330,000	$27,060,000
Total		$190,650,000

C-130H: INFRARED SELF-PROTECTION

1. **Background.** The ANG C-130H fleet requires self-defense capabilities to detect, deny and defeat modern factor threats specifically designed to target large Mobility Air Forces aircraft. To detect these threats, C-130Hs require an open mission system compliant digital backbone executing processing at the forward edge and connecting the platform to Air Battle Management System and Joint All Domain Command and Control architectures. To defeat advanced threats in the Infrared (IR) spectrum, C-130Hs require an Infrared Suppression System (IRSS) capable of reducing the aircraft's heat signature from engine exhaust in all aspects. Additionally, Block 30 or Block 35 AN/AAQ-24 Large Aircraft IR Countermeasures (LAIRCM) system will improve detection against advanced man-portable air defense systems threats, while degrading the enemy's ability to engage and replacing ageing and obsolete LAIRCM systems. IR self-protection requires 24 IRSS Group B kits, 82 IRSS Group A Kits and installations, 82 LAIRCM Group A kits and Group B kits.

2. **Program Details.**

Quantity	Unit Cost	Program Cost
IRSS Non-Recurring Engineering	**N/A**	**$5,000,000**
82 IRSS Group A Kits and Installs	**$150,000**	**12,300,000**
24 IRSS Group B Kits	**$1,000,000**	**$24,000,000**
82 C-130H LAIRCM Group A Kits	**$1,500,000**	**$123,000,000**
82 C-130H LAIRCM Group B Kits	**$6,000,000**	**$492,000,000**
Total		**$656,300,000**

C-130H: UPDATED AVIONICS/INSTRUMENTATION AND ASSOCIATED TRAINING DEVICES

1. Background. The ANG C-130H fleet requires avionics modernization. The C-130H faces severe sustainment challenges with current avionics and cockpit instrumentation. Additionally, tactical night operations continue to suffer from non-night vision imaging system (NVIS) compliant lighting. To eliminate critical sustainment issues due to diminishing manufacturing sources, this modernized cockpit will include: a multifunction engine instrument display system, NVIS compatibility, and a modern flight management system with a global positioning system approach and polar navigation capabilities. An NVIS-compatible and modernized glass cockpit, to include digital overhead panel, reduces crew workload, lowers maintenance costs, and increases capability and sustainability to operate safely at night. The integration of a noise-canceling, three-dimensional (3D) enhanced, voice activated transmit intercom system increases situational awareness through directional audio correlated to the most significant factor threat. Additionally, this system will reduce excess aircraft noise, eliminate the push-to-talk requirement of the current system, and ultimately reduce crew fatigue while increasing crew resource management. Mobile User Objective Systems (MUOS) and Second Generation Anti-jam Tactical UHF Radio for NATO (SATURN) Beyond-Line-of-Sight (BLOS) radios must be integrated to make the C-130H viable in the future fight. The C-130 requires secure global high-speed data access for compatibility with the Air Battle Management System and access to the common operating picture that will be vital to any future conflict. It is imperative that infrastructure for future capability upgrades is installed while the cockpit undergoes this significant modification. All 82 C-130H models require updated avionics kits, NVIS compatibility kits, 3D audio kits, and a Tactical Data radio. All Weapons Systems Trainers require conversion to the same modernized cockpit suite, all 12 units require access to Distributed Mission Operations Capable, level 6 or higher.

2. Program Details.

Quantity	Unit Cost	Program Cost
Avionics Upgrade NRE	N/A	$50,000,000
82 Avionics Kits and Installs	$3,700,000	$303,400,000
82 NVIS Compatibility Kits	$465,000	$38,130,000
12 Aircrew Training Devices	$14,000,000	$168,000,000
Directional Audio NRE	N/A	$5,000,000
82 Intercom Kits	$50,000	$4,100,000
82 MUOS/SATURN BLOS Radios	$130,000	$10,660,000
Total		$579,290,000

C-130H: PROPULSION SYSTEM UPGRADES

1. Background. The ANG C-130H fleet requires a comprehensive propulsion upgrade for increased performance, efficiency, and reliability. Incorporating modular propeller blade technology (NP2000), and an electronic propeller control system (EPCS) provides increased performance and reliability. The T-56 3.5 engine upgrade, with redesigned compressors and turbines, decreases engine life-cycle costs, improves fuel economy, increases reliability, and improves aircraft availability. The modular design of NP2000 eight-bladed propellers decreases propeller maintenance time, increases airlift efficiency during transportation by taking up less pallet space, and increases operational performance. EPCS improves safety by accelerating response time when throttles are rapidly advanced, an issue in previous mishaps. EPCS increases propeller system reliability by 50 percent, decreasing maintenance costs. Additional upgrades are needed to address NP2000 spinner and blade de-icing capability to ensure optimal performance in icing conditions. Each NP2000 kit contains four nacelle kits and each T-56 3.5 kit contains four-engine upgrades. All 82 ANG C-130H models require propulsion system upgrades.

2. Program Details.

Quantity	Unit Cost	Program Cost
82 NP2000 Kits and Installs	$3,200,000	$262,400,000
82 T-56 3.5 Modified Engines and Installs	$4,200,000	$344,400,000
Total		$606,800,000

C-130J: MAF COMMON DATALINK SUITE

1. Background. The ANG C-130J fleet requires scalable, reliable, comprehensive and networked battlespace awareness. The real-time information in the cockpit (RTIC) system allows C-130J aircraft to participate in multiple data link networks using technologies fielded on other DoD assets. The system must be upgraded to Multifunctional Information Distribution System Joint Tactical Radio System. Upgrades to the C-130J data link architecture increases the network capability and provides a common processing and display platform for enhanced situational awareness. Integration with the Advanced Integrated Electronic Combat System (AIECS) software provides the capability for on-board and off-board threat correlations, data sharing, on-board radar threat system geolocation, route replanning, and automated countermeasures. A federated Special Mission Processor allows integration of third-party software and hardware allowing the C-130J to rapidly and effectively implement tactical solutions at the speed of modern combat. All 48 C-130J aircraft need common adaptable mission systems with integrated AIECS.

2. Program Details.

Quantity	Unit Cost	Program Cost
MAF Datalink NRE	N/A	$5,000,000
48 C-130J RTIC Group A Kits and Installs	$300,000	$14,400,000
48 C-130J RTIC Group B Kits	$1,000,000	$48,000,000
Total		$67,400,000

C-130J: MILTARY AND COMMERCIAL BEYOND LINE-OF-SIGHT CONNECTIVITY

1. Background. ANG C-130Js require secure high-speed data systems for reliable, worldwide beyond line-of-sight (BLOS) communications, and internet connectivity. This enables the C-130J fleet to use existing onboard infrastructure to connect the force as an airborne node within a Joint All- Domain Command and Control environment. Current C-130J BLOS data speed and connectivity is limited by a lack of service and equipment that will not meet operational needs for conducting pertinent, timely, and secure airborne data transfer. ANG C-130Js require secure high-speed data access for compatibility with the Air Battle Management System and access to the common operating picture that is vital to any future conflict. All 48 ANG C-130Js require access to military Tactical Data Link (TDL) radios and commercial BLOS radios.

2. Program Details.

Quantity	Unit Cost	Program Cost
TDL NRE	**N/A**	**$5,000,000**
48 TDL Group B Radio Kits	**$245,000**	**$11,760,000**
48 TDL Group A Kits and Installs	**$800,000**	**$38,400,000**
Commercial BLOS NRE	**N/A**	**$5,000,000**
48 Commercial BLOS Group B Modems	**$80,000**	**$3,840,000**
48 TDL Group A Kits and Installs	**$240,000**	**$11,520,000**
Total		**$75,520,000**

C-130J: RADIO FREQUENCY SELF PROTECTION

1. Background. The ANG C-130J fleet requires self-defense capabilities to detect, deny and defeat modern factor threats specifically designed to target large MAF aircraft. To detect these threats, C-130Js require an open mission system compliant digital backbone connecting the platform to Air Battle Management System and Joint All Domain Command and Control architectures. To defeat these threats, C-130Js require onboard and/or off-board threat jamming, decoys, and kinetic and non-kinetic defense measures. To survive in modern combat, C-130J aircraft require a digital Radar Warning Receiver (RWR) capable of providing situational awareness on millimeter wavelength systems in addition to legacy systems, with geolocation ability, capable of processing signals in a dense radio frequency (RF) environment. Further, the ability to dispense active expendable RF countermeasures is necessary to the C-130Js survival against peer threats. Many of these solutions can be accomplished utilizing a common carry open-architecture mission pod capable of supporting the current and future networked architecture, and flexible enough to be quickly altered to address contested environments. The open-architecture mission system will provide additional capacity for electronic attack/electronic protection. The open-architecture pod requires hard-points for 48 unmodified C-130Js, 12 common carry pods, 48 RF RWR Group A and 48 Group B Kits.

2. Program Details.

Quantity	Unit Cost	Program
48 C-130J Next-Generation RF Group A Kits	$120,000	$5,760,000
48 C-130J Next-Generation RF Group B Kits	$775,000	$37,200,000
48 Active Expendable Countermeasures	$300,000	$14,400,000
12 MAF Common Carry Pods	$2,000,000	$24,000,000
48 Hard-Point Installations	$330,000	$15,840,000
Total		$97,200,000

C-130J: INFRARED SELF PROTRECTION

1. Background. The ANG C-130J fleet requires self-defense capabilities to detect, deny and defeat modern factor threats specifically designed to target large Mobility Air Forces aircraft. To detect these threats, C-130Js require an open mission system compliant architecture connecting the platform to Air Battle Management System and Joint All Domain Command and Control architectures. To defeat advanced threats in the infrared (IR) spectrum, C-130Js require an Infrared Suppression System (IRSS) capable of reducing the aircraft's heat signature from engine exhaust in all aspects. Additionally, Block 30 or Block 35 AN/AAQ-24 Large Aircraft IR Countermeasures (LAIRCM) system will improve detection against advanced man-portable air defense systems threats, while degrading the enemy's ability to engage and replacing ageing and obsolete LAIRCM systems. IR self-protection requires 12 IRSS Group B kits, 48 IRSS Group A kits and installs, 48 LAIRCM Group A kits and Group B kits.

2. Program Details.

Quantity	Unit Cost	Program Cost
IRSS NRE	N/A	$5,000,000
48 IRSS Group A Kits and Installs	$150,000	$7,200,000
12 IRSS Group B Kits	$1,000,000	$12,000,000
48 C-130J LAIRCM Group A Kits	$1,500,000	$72,000,000
48 C-130J LAIRCM Group B Kits	$3,000,000	$144,000,000
Total		$240,200,000

C-130J: ENHANCED FLIGHT VISION SYSTEM

1. Background. The ANG C-130J mission requires an Enhanced Flight Vision System (EFVS) to execute operations in obscured environments, marginalized airfields, and poor weather conditions. EFVS significantly increases situational awareness and safety margins during operations in smoke, dust, and weather-induced periods of low visibility. C-130J missions include firefighting and domestic operations in natural disaster response environments that require vision enhancements to execute these ever-increasing operations with increased efficiency and safety margins. EFVS will also enable updated techniques and procedures to operate more effectively during combat operations. Agile Combat Employment requirements will be met with improvement to visual navigation and objective area acquisition with passive EFVS sensors. Mission effectiveness will be improved in global theaters while increasing the success rate of traditional and self-contained instrument approaches, including approaches to austere, unlit airfields at night. The EFVS package includes two digital heads-up displays (D-HUD) fused with an enhanced vision system. The D-HUD is currently approved as a primary flight display on the C-130J and is serving as a replacement to the analog HUD on production C-130Js. Installation of D-HUD will be an offset to future retrofit expense. All 48 ANG C-130Js require EFVS.

2. Program Details.

Quantity	Unit Cost	Program Cost
EFVS NRE	N/A	$10,000,000
48 EFVS Kits and Installations	$800,000	$38,400,000
Total		$48,400,000

KC-135

- **Air Refueling**
- **Aeromedical Evacuation**
- **Airlift**
- **ANG KC-135 Units Provide 44% of the Total Fleet**

The KC-135 Stratotanker is Air Mobility Command's primary air refueling platform providing approximately 87 percent of air refueling in support of US, allied, and coalition military aircraft. The KC-135 supports deployment, employment, sustainment, and redeployment of joint forces across the full range of military operations, including nuclear warfare, routine military activities, and irregular warfare. The KC-135 is tasked to operate close to high-threat areas. Defensive systems are necessary to prevent surface-to-air missile and air-to air missile systems from destroying aircraft during all phases of flight. Tactical data link technologies and situational awareness displays that bring real-time threat information, as well as secure radio capability, greatly enhance KC-135 air refueling, airlift, and aeromedical evacuation missions.

KC-135
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Critical Capabilities List

- KC-135 Self-Protection
- Common MAF Mission System
- Aircraft/Aircrew Cooling Capability
- Organic Cargo Lift/Loading system
- Alternate/Automated, Hardened Position, Navigation and Timing (PNT)

Essential Capabilities List

- Multi Modal Aircraft Radar
- EMCON Control Device
- Common Roll-On/Roll-Off (RORO) Interface for Integration of Third-Party Equipment into Aircraft and Federated Mission System, not Limited to: Air Defense Systems Integrator, Platform Agnostic Command and Control and Edge Processing
- Boom Nozzle to Soft-Basket Adapter Capable of Contingency Jettison.
- Weapons Delivery System

Desired Capabilities List

- Updated/Modernized Aircraft Electrical System/Wiring.
- Free Space Optics for Communication.
- Targeted, Secure Communications.
- Directed Energy Capabilities to Jam and Destroy Threats
- Winglets, Increased Fuel Efficiency, Mounting Points for Advanced Sensors for Defensive Systems.

KC-135 SELF-PROTECTION

1. Background. ANG KC-135s require self-defense capabilities to detect and defeat modern threats specifically designed to target large high value airborne assets (HVAA). To survive HVAA threats, KC-135s require an open mission system compliant digital and physical backbone to execute processing at the forward edge by connecting the platform to joint all domain command and control architectures. KC-135s require onboard/off-board threat jamming, decoys, and defense measures to defeat modern threats through destructive or non-destructive means. A model, simulation, and analysis of the KC-135 incorporating Air Mobility Command Pacing Threats will determine which systems drive mission failure and/or survivability. In accordance with National Defense Strategy defined competitors, modernization must ensure overmatch including but not limited to radio frequency (RF), infrared (IR) self-protection systems, expendables, jammers, and signals intelligence/electronic intelligence detection capability and data. Routine operations subject the KC-135 to increasingly hostile environments. To survive, KC-135s require a digital radar warning receiver (RWR) capable of processing signals in a dense RF environment and automatically cue/direct countermeasures to degrade or defeat threats. Multi-modal Advanced Electronically Scanned Array radar capability increases survivability with an increased number of sensors available to the common operating picture. The KC-135s require an IR countermeasure system that does not rely on pyrotechnic expendables to counter widely proliferated shoulder-fired IR man-portable air defense systems and other IR-guided weapons. The RF and IR countermeasures should be capable of being moved between aircraft; therefore, all 166 ANG KC-135s require digital RWR Group A kits, RF/IR Group A kits, and Large Aircraft Infrared Countermeasures (LAIRCM) Group A kits. ANG KC-135s require 27 modular LAIRCM Group B-kits to equip the 17 ANG KC-135 units.

2. Program Details.

Quantity	Unit Cost	Program Cost
HVAA NRE	**N/A**	**$15,000,000**
166 LAIRCM Group A Kits	**$500,000**	**$83,000,000**
27 LAIRCM Group B Kits	**$3,000,000**	**$81,000,000**
166 Digital RWR Group A Kits	**$800,000**	**$132,800,000**
38 Digital RWR Group B Kits	**$500,000**	**$19,000,000**
Total		**$330,800,000**

KC-135: COMMON MAF MISSION SYSTEM

1. Background. ANG KC-135s require a robust, secure tactical data link (TDL) with visualized situational awareness (SA). Recent combat operations highlighted the need for comprehensive, networked command and control (C2) throughout all operational theaters. TDL provides near-real-time monitoring of mission events, mission status, task completion, resource status, and enhances all participant's SA. TDL provides a C2 link and maximizes aircrew SA with beyond-line-of-sight (BLOS) and line-of-sight (LOS), military and commercial capabilities. TDL provides critical real-time information to KC-135 aircrews, such as friendly aircraft position, weather conditions, and hostile threat locations. Coupled with remote radio relay, the KC-135 can act as an intelligent gateway between BLOS coordination and LOS players via secure protocols (e.g. Joint Range Extension Application Protocol-C). Reach back capability is extended by global high-speed data and the ability for secure, wireless data transfer. Additionally, to complement the MAF Mission System and to decrease aircrew workload, a comprehensive Quick Reaction Handbook is required to address the aircraft's normal and abnormal operations. All 166 ANG KC-135s require TDL radios, processors, gateway functionality, and a Quick Reaction Handbook. Also, to satisfy operational and training needs, ANG KC-135s require portable, secure connectivity for support to agile combat employment (ACE) operations. This connectivity should be sufficient to support a mission generation force element (4x KC-135s) package to include operations (mission planning, flight planning, scheduling, tasking), maintenance and logistics (sortie generation/aircraft maintenance coordination), and command and control connectivity. The system must support 10-20 users. This solution should be agnostic of internet service provider, mobile broadband service 3G/4G/5G, or local broadband internet. It must incorporate the appropriate high assurance internet protocol encryptor (HAIPE) for secure connections. This system should be expandable in terms of number of users and in terms additional security for higher classification systems. Each ANG KC-135 wing should have 1 device/solution per 4 assigned aircraft.

2. Program Details.

Quantity	Unit Cost	Program Cost
166 Group A Kits	**$120,000**	**$19,920,000**
183 TDL Radios and Processors*	**$700,000**	**$128,100,000**
Quick Reaction Handbook	**$600,000**	**$600,000**
42 Mobile Ground Stations	**$300,000**	**$12,600,000**
166 Commercial NIPR/SIPR Terminals	**$200,000**	**$33,200,000**
Total		**$194,420,000**

* Includes 10% spares

KC-135 AIRCRAFT / AIRCREW COOLING CAPABILITY

1. Background. ANG KC-135s require entire aircraft and avionics cooling during ground, low-level flight, and endurance operations. Temperatures at forward operating locations routinely result in cockpit temperatures more than 120°F and cargo compartment temperatures of 170°F. Aircrews, Aeromedical Evacuation (AE) crew members, and AE patients generally spend several hours in these conditions, which degrades mission accomplishment. Aircraft avionics systems currently fail in hot conditions and are prone to system circuit breaker(s) popping. These circuit breakers are unable to be reset until cooled below temperature limitations, often resulting in delays or mission cancellations. Currently aerospace ground equipment (AGE) cooling carts are the primary method for temperature reduction during aircrew pre-flight operations. AGE cooling carts are removed before engine start and are unusable if mission delays occur. During Agile Combat Employment (ACE) operations and AGE support equipment limitations, these cooling carts may not be available. ANG KC-135s need an Auxiliary Power Unit (APU) and Air Cycle Machine (ACM) that can provide the necessary cooling in these conditions. An alternative solution is a robust roll-on/roll-off vapor cycle air conditioning unit(s) placed onboard that can provide ground, low-level flight, and endurance operations cooling. Although not required, but highly desired, these units should be electromagnetic pulse hardened.

2. Program Details.

Quantity	Unit Cost	Program Cost
102 Ground Cooling Units	**$140,000**	**$14,280,000**
166 Auxiliary Power Units	**$1,200,000**	**$199,200,000**
166 Air Cycle Machines	**$400,000**	**$66,400,000**
Total		**$279,880,000**

KC-135: ORGANIC CARGO LIFT/LOADING SYSTEM

1. Background. ANG KC-135s require an organic cargo lift/loading system for Agile Combat Employment (ACE) operations. ACE demands swift and flexible deployment of aircraft, personnel, and equipment to various forward operating locations. At these locations, potential lack of necessary K-loader or forklifts availability could cause delays in mission loading and unloading requirements which increase crew duty days. KC-135s need an organic system capable of lifting 6,000 pounds from ground level to the aft pallet position, with or without the use of the existing KC-135 roller system. This system enables efficient and versatile loading/unloading of cargo, ranging from critical supplies to specialized equipment. The lifting system should be configurable to lift pallets, KC-135 engines, aeromedical equipment, and necessary crew equipment. This cargo loading crane is key to transforming the KC-135 into a versatile and indispensable airlift asset for modern military operations.

2. Program Details.

Quantity	Unit Cost	Program Cost
Cargo Loading System NRE	N/A	**$3,000,000**
166 Cargo Loading Systems	**$250,000**	**$41,500,000**
Total		**$44,500,000**

KC-135: ALTERNATE / AUTOMATED HARDENED POSITION, NAVIGATION, AND TIMING

1. Background. ANG KC-135s require an automated hardened position, navigation, and timing (PNT) system integrated into the existing navigation equipment. ANG KC-135s fulfill almost 70% of the nuclear and USTRANSCOM refueling missions. KC-135s require the ability to navigate in a post-strike environment where traditional navigation aids and satellites would not be available. In addition, the KC-135 will be required to operate in a contested environment against a peer adversary. An alternate multi-modal navigation system should provide the greatest accuracy and a bounded position error over an extended use-time and distance in a contested and degraded environment. Solutions should provide organic PNT updates. These systems are autonomous, passive, non-jammable, and automatic. All 166 ANG KC-135s require automated, hardened PNT systems.

2. Program Details.

Quantity	Unit Cost	Program Cost
PNT System NRE	**N/A**	**$8,000,000**
166 PNT Kits	**$300,000**	**$49,800,000**
Total		**$57,800,000**

Tab I

KC-46

- **Air Refueling**
- **Aeromedical Evacuation**
- **Airlift**
- **ANG KC-46 Units Provide 18% of the Total Fleet**

The KC-46 Pegasus is Air Mobility Command's newest premier air refueling platform providing approximately 17 percent of air refueling in support of US, allied, and coalition military aircraft. The KC-46 will support deployment, employment, sustainment, and redeployment of joint forces across the full range of military operations, including nuclear warfare, routine military activities, and irregular warfare. The KC-46 is tasked to operate close to high-threat areas. Defensive systems are necessary to prevent surface-to-air missile systems and air-to-air missile systems from destroying aircraft during all phases of flight. Tactical data link technologies and situational awareness displays that bring real-time threat information, as well as secure radio capability, greatly enhance KC-46 air refueling, airlift, and aeromedical evacuation missions.

KC-46
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Critical Capabilities List

- High-Bandwidth, Resilient Hybrid Commercial Satellite Communications
- Open Mission System Architecture and User Interface
- KC-46 Common Carry Radio Frequency/Electro Optical/Infrared Self-Protection Pod
- Hardened and Automated Alternate Position, Navigation, Timing
- Carry-On Beyond Line-of-Sight Voice and Data Connectivity

Essential Capabilities List

- Portable, Pallet-Mounted/Cargo Door-Mounted Cargo Hoist
- Mobile Sensitive Compartmented Information Facility for Portable Mission Planning Center Functionality
- Aft Pallet Position Advanced Transportable Galley Lavatory
- Interactive KC-46 Mission System Ground Training Suite
- Palletized Seating

Desired Capabilities List

- Entry and Exit Stairs

KC-46: HIGH-BANDWIDTH, RESILIENT HYBRID COMMERCIAL SATELLITE COMMUNICATIONS

3. Background. ANG KC-46As require a resilient hybrid satellite communication (SATCOM) capability. The KC-46A lacks high-bandwidth, multi-waveform, multi-orbit/constellation, non-secure and secure commercial beyond line-of-sight (BLOS) communication capability. The KC-46A has very limited military SATCOM and civilian BLOS communications capability. The current civilian BLOS bandwidth is extremely slow at a few Kbps. KC-46A military BLOS solutions lacks resiliency and bandwidth. With a resilient hybrid SATCOM capability, the KC-46A would satisfy mission requirements in our most challenging AORs. Namely, the KC-46A would be able to support BLOS requirements that directly or indirectly support Joint Range Extension Application Protcol-C data forwarding, Battle Management Command and Control, and overall situational awareness for Joint and Coalition forces.

4. Program Details.

Quantity	Unit Cost	Program Cost
SATCOM NRE	**N/A**	**$5,000,000**
12 SATCOM Kits	**$900,000**	**$10,800,000**
Total		**$15,800,000**

KC-46: OPEN MISSION SYSTEM ARCHITECTURE AND USER INTERFACE

1. Background. ANG KC-46s require connectivity in a conflict with near peer adversaries. Insufficient military beyond line-of-sight (BLOS) bandwidth and lack of redundancy to military BLOS systems is unacceptable in a near peer conflict. This drives a need for the increased resiliency and capability that civilian systems offer, while also providing redundancy should military BLOS systems become overwhelmed or unavailable. Further, to provide services such as secure video teleconferencing, full motion video, common operating picture, and other data-based information systems to exploit the most up-to-date intelligence data, high-bandwidth/multi-waveform/multi-orbit/constellation systems are necessary. The lack of resilient hybrid satellite communication capability that supports multiple waveforms at high bandwidth, precludes CAF and MAF aircraft from utilizing tankers as a critical part of the communications BLOS architecture. Tankers, which are required in our most challenging near-peer AORs, can provide the critical component that extends physical reach while simultaneously extending connectivity in contested, degraded and operationally challenged AORs.

2. Program Details.

Quantity	Unit Cost	Program Cost
Real Time Information (RTIC) NRE	N/A	**$12,000,000**
12 RTIC Kits	**$1,000,000**	**$12,000,000**
Total		**$24,000,000**

KC-46: COMMON CARRY RADIO FREQUENCY, ELECTRO OPTICAL SELF-PROTECTION POD

1. Background. ANG KC-46s require self-defense capabilities to detect and defeat modern threats specifically designed to target large high-value airborne assets (HVAA). To survive HVAA threats, KC-46s require an open mission system compliant digital and physical backbone to execute processing at the forward edge. KC-46s require onboard/off-board threat jamming, decoys, and defense measures to defeat modern threats through destructive or non-destructive means. In accordance with National Defense Strategy defined competitors, modernization must ensure overmatch including, but not limited to radio frequency (RF), infrared (IR) self-protection systems, expendables, jammers, and signals intelligence/electronic intelligence detection capability and data. Routine operations subject the KC-46 to increasingly hostile environments. To survive, KC-46s will require the ALR-69A digital radar warning receiver (RWR) capable of processing signals in a dense RF environment to automatically cue/direct countermeasures to degrade or defeat threats. Multi-modal Advanced Electronically Scanned Array (AESA) radar capability increases survivability with an increased number of sensors available to the common operating picture. RF countermeasures should be capable of being moved between aircraft.

2. Program Details.

Quantity	Unit Cost	Program Cost
HVAA Pod NRE	N/A	**$15,000,000**
24 HVAA Pods	**$400,000**	**$9,600,000**
24 ALR-69A Systems	**$400,000**	**$9,600,000**
12 AESA Radars	**$2,000,000**	**$24,000,000**
Total		**$58,200,000**

Rapid Global Mobility
KC-46: HARDENED AND AUTOMATED ALTERNATE
POSITION, NAVIGATION, TIMING

1. Background. The KC-46 relies on GPS and inertial navigation for accurate navigation. Inertial navigation provides temporary hold-over tied to sensor drift rate. While jam-resistant GPS units are installed on the KC-46, GPS electromagnetic interference is persistent in current conflicts and is likely to increase in reach, duration, and complexity in any future conflict. Both military and commercial GPS constellations are vulnerable to kinetic and cyber threats which could eliminate GPS worldwide. Magnetic navigation provides an all-weather, jam-proof and drift-free navigation solution with constrained error when no other solution is possible. Compact sensors can be installed on nearly all air platforms, including the KC-46A. Combined with other alternate position, navigation and timing (PNT) solutions, globally persistent navigation in absence of GPS has been demonstrated with magnetic navigation being one of the best solutions to constrain navigation error.

2. Program Details.

Quantity	Unit Cost	Program Cost
Alternate PNT NRE	N/A	$5,000,000
12 Alternate PNT Systems	$1,500,000	$18,000,000
Total		$23,000,000

KC-46: CARRY-ON BEYOND LINE-OF-SIGHT VOICE AND DATA CONNECTIVITY

1. Background. ANG KC-46s require fly-away kits to solve ground connectivity issues. The KC-46 needs to operate from austere bases as demands for tankers and other mobility assets stretch into the INDOPACOM theater. Rapid and dynamic mission sets will require crews and ops personnel to respond to new and changing requirements at austere locations. Aircrew and support personnel will, by necessity, require beyond line-of-sight (BLOS) data and voice communications via secure means. All 12 ANG KC-46s require fly-away kits.

2. Program Details.

Quantity	Unit Cost	Program Cost
12 BLOS Fly-Away Kits	$250,000	$3,000,000
Total		$3,000,000

Contingency Response

- **Rapidly Deployable, Multi-Skilled Expeditionary Force**
- **Embedded for Agile Combat Employment**
- **Arctic Airfield Operations**

The ANG Contingency Response (CR) Enterprise provides rapidly deployable, multi-skilled, expeditionary forces that can assess, open, and operate contingency airbases across the spectrum of air operations from permissive to uncertain environments for both international and domestic support. ANG CR provides airfield command and control, in transit visibility, airfield logistics, quick turn maintenance, and airfield security. These capabilities packaged together quickly open austere airfields and air bases to support the initial movement of personnel and material in contingency operations in pre and post domestic disaster operations. ANG CR is embedded for Agile Combat Employment and arctic airfield operations. CR personnel deliver a myriad of skill sets such as airfield survey and assessment, pavement evaluation, landing zone, air drop zone survey and operations duties, air advisors, air traffic controllers, rotary sling load, and security forces precision engagement teams. CR team sizes vary, from CR Elements, which provide over 100 personnel and 40 specialties, to a CR Team that is comprised of over 25 personnel with more than 15 specialties.

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Critical Capabilities List

- Self-Contained Water Generation and Purification Systems
- Airfield Security and Counter Small, Unmanned Aircraft System Detection Systems
- Man-Portable Low Earth Orbit Satellite Communications
- Contingency Fueling Operations Kits
- Personal Communications and Hearing Protection Systems

Essential Capabilities List

- Surveillance Communication Relay Small, Unmanned Aircraft Systems
- Modular Multi-Capable Material Handling Loaders 930K Air Deployable Loader 10K All Terrain Forklift
- Increased Less Than Lethal Capabilities.
- Solar Power/Battery Back-Up Capability
- Rolling Mass Casualty Kit

Desired Capabilities List

- Airfield Landing Zone Operations Kit
- Indications and Warnings System
- Very High Frequency / Ultra High Frequency Line-of-Sight Enhancement Suite to include Augmented Reality/Virtual Reality System for Combat Training
- Sling Load Kits
- Artic Clothing Movement Package

CR: SELF-CONTAINED WATER GENERATION AND PURIFICATION SYSTEMS

1. **Background:** Contingency Response Forces (CRF) lack the ability to organically produce potable water. CRF depend on resupply from MAF assets to replenish food and water while deployed to austere locations. CRF require a self-contained water generation and purification system capable of producing a minimum of 3.3 gallons of potable water per person, per day. System must be capable of filtration, purification, desalination, atmospheric water capture, and use of any viable source found in all environments. System must be lightweight, modular, and designed to be palletized and downloaded from an aircraft by no more than 4 personnel.

2. **Program Details.**

Quantity	Unit Cost	Program Cost
10 Water Generation and Purification Systems	**$125,000**	**$1,250,000**
Total		**$1,250,000**

CR: AIRFIELD THREAT DETECTION WITH COUNTER SMALL UMANNED AIRCRAFT SYSTEM KIT

1. Background: The Contingency Response Force (CRF) lacks the ability to properly secure airfield locations due to the lack of a modernized airfield security detection system and Counter-small unmanned aircraft system (C-sUAS) kit during wartime situations. C-sUAS equipment must be packable, modular, and two man portable, with the ability to set up or take down in under 10 minutes in support of all contingency operations. Equipment must be able to operate in temperature range from -20 to 120 degrees Fahrenheit. Software must be non-library and library based with the ability to remotely upgrade to incorporate new drone protocols and classification algorithms. The CRF requires a detection kit to robust force protection and situational awareness. C-sUAS must have the ability to detect and defeat UAS' at least two km away. System must have full frequency threat detection and controller, video, telemetry, and Wi- Fi communication links from 400 MHz to 6 GHz.

2. Program Details.

Quantity	Unit	Program Cost
10 C-sUAS Kits	$250,000	$2,500,000
1 Training Event	$25,000	$25,000
2 CR Element Level Detection Kits	$695,000	$1,390,000
8 CR Team Level Detection Kits	$475, 000	$3,800,000
Total		$7,715,000

CR: MAN-PORTABLE LOW EARTH ORBIT SATELLITE COMMUNICATIONS

1. **Background**: Contingency Response Forces (CRF) lack the ability to rapidly set up data/communications in austere environments due to the lack of a man-portable communications Low Earth Orbit (LEO) satellite. CRF require ground access to LEO Satellite Commercial Internet or Commercial Space Internet (CSI) to include command and control of assets through CSI. Rapid and robust data passage is critical to the needs of the CRF. With CSI ground terminals, decision makers will be able to receive and provide information in a fraction of the time required to set up legacy systems. Terminals need to be light, rugged, and mobile, enhancing rapid set up of the airfield. The CRF require capability to support high-capacity bandwidth with low latency and control over information entry and exit of the satellite constellation, securing US-only ground access to information packets.

2. **Program Details.**

Quantity	Unit Cost	Program Cost
14 LEO Ground Terminal Kits and Activations	**$185,000**	**$2,590,000**
LEO Communications Training Event	**N/A**	**$25,000**
Total		**$2,615,000**

CR: CONTINGENCY FUELING OPERATIONS KIT

1. Background: Contingency Response Forces (CRF) lack the ability to provide contingency refueling capabilities to the Joint Force. CRF require a system capable of defueling and refueling fixed wing, rotary wing, and tilt-rotor aircraft with engines running, from all US government, coalition partner, and civil aircraft. The system must be operable in all environments and climates, at temperatures from -40F to +120F. The system should be resistant to degradation and corrosion while deployed or in long-term storage. The system must provide variable fuel flow and pressurization rates to support the operating limitations of all airframes up to 5th generation fighters. The system should include necessary components for fuel transfer in an austere location including pump-module, 600' of hoses, connectors, Y connectors, single point refueling nozzles, automatic shutoff over-the-wing fuel nozzles, and a storage and containment solution that meets DoD environmental protection requirements. The system must be C-130 transportable, with a setup time of under one hour to full operation.

2. Program Details.

Quantity	Unit Cost	Program Cost
10 Sets Of Two 10K Gallon Bladders	**$20,000**	**$200,000**
10 Fuel Pump Systems	**$80,000**	**$800,000**
10 Sets of Special Fueling Operations Accessories	**$120,000**	**$1,200,000**
Total		**$2,200,000**

CR: PERSONAL COMMUNICATION AND HEARING PROTECTION SYSTEMS

1. **Background**: Contingency Response Forces (CRF) lack the ability to effectively communicate and protect the hearing of members in austere environments. CRF require a system capable of overcoming the considerable noise of an active airfield and/or combat, while protecting the hearing of members using the system. The system must contain headsets and advanced control units that interface with a wide range of communication devices. The system must be lightweight and capable of operating in adverse weather.

2. **Program Details:**

Quantity	Unit Cost	Program Cost
522 Communication and Hearing Protection Kits	**$5,472**	**$2,856,384**
Total		**$2,856,384**

Aeromedical Evacuation

- **Universally Qualified (C-130, KC-135, C-17)**
- **Opportune Aircraft (KC-46, C-5, C-21)**
- **Specialty Team Support (CCATT, Burn)**
- **En Route Patient Staging System Integration**

The primary mission of Aeromedical Evacuation AE is to transport casualties from within the Joint Operations Area to the appropriate role of care provided in or out of theater. During the past decade, it has become increasingly important for the AE system to continue to develop its capability to integrate with components of our Nations allies. The rapid evacuation of patients during contingencies is necessary to prevent undue suffering and preserve military strength. AE provides time sensitive en route care of regulated and unregulated casualties to and between medical treatment facilities using organic and/or contracted aircraft with medical crew trained explicitly for the mission. AE forces can operate as far forward as aircraft are able to conduct air operations, across the full range of military operations, and in all operating environments. Specialty trained medical teams may be assigned to work with the aeromedical evacuation crewmembers to support patients requiring intensive care in flight.

Aeromedical Evacuation
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Critical Capabilities List

- Communication Kits
- AE Virtual Reality Training Systems

AE: AEROMEDICAL EVACUATION COMMUNICATION KITS

3. **Background:** ANG Aeromedical Evacuation (AE) squadrons require additional communication kits that are used during AE Missions. The ANG requires AE communications capable of operating in a degraded environment to safely move critical patients. During mass evacuations, the ANG will be tasked to transport the sick and injured. In a contested environment AE will be required to leave the aircraft to assess patients and communicate with ground personnel. It is vital the crewmembers on and off the aircraft can communicate. Immediate mission changes can be relayed and ensure no one is left behind. The communication kit consists of a ballistic helmet, headset, extension cable, and wireless intercom system transceiver. To improve communication and a patient's chance of survival during transport, AE crews are required to maintain these communications kits. One AE Communication kit will be required for each aeromedical evacuation crewmember in every AE Squadron.

4. **Program Details.**

Quantity	Unit Cost	Program Cost
750 Wireless Communication Kits	**$4,300**	**$3,225,000**
Total		**$3,225,000**

AE: AEROMEDICAL EVACUATION VIRTUAL REALITY TRAINING SYSTEM

1. Background: ANG Aeromedical Evacuation Crew Members (AECMs) require exceptional training tools to be proficient at their aircraft and medical skills. AECMs must build muscle memory, refine their skills, knowledge, and critical thinking. Virtual reality training systems are key to perfecting their trade. During operational missions, AECMs are required to provide aircraft support and medical care in dynamic, unpredictable situations like aircraft emergencies, medical emergencies, and medical procedures. By providing AECMs with virtual reality training, these emergencies and high-stress situations can be simulated in a controlled environment with high fidelity and accuracy. Virtual connectivity enables AECMs to connect with non-collocated AECMs to work as a crew in a virtual training environment preparing for the near peer fight.

2. Program Details.

ANG Quantity	Unit Cost	Program Cost
150 Virtual Reality Training Kits	**$1,400**	**$210,000**
Total		**$210,000**

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SPACE OPERATIONS

- **ANG Space Units Provide 60%+ of Space Electronic Warfare Operations**
- **40% Military Satellite Communication & C2**
- **Unique Mobile and Fixed Missile Warning Missions**
- **Commercial & State Partnerships providing Space Domain awareness**

The ANG contribution to United States Space Force (USSF) missions includes over 1,100 personnel within nine squadrons. Space capabilities support federal- and state-level agencies, USAF, the nuclear command and control community, and combatant commands.

Space units provide missile warning, space situational awareness, space intelligence, satellite communications, space electronic warfare capabilities to support operational, exercise, and planning activities along with other space support as requested. Air National Guardsmen participating in these missions draw upon skills from their related civilian careers. Specific missions assigned to ANG units include mobile, survivable missile warning, command and control of military strategic and tactical relay satellite constellation, space intelligence, and offensive and defensive space electronic warfare to support exercises and contingency operations. Execution of these activities occurs from the home station and deployed locations.
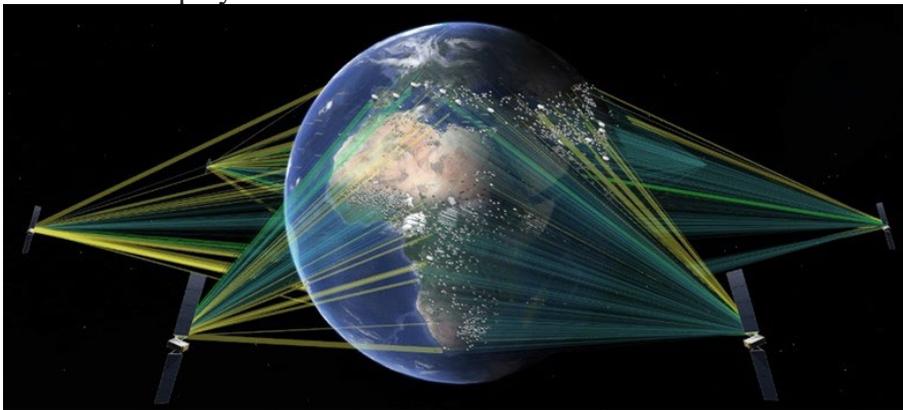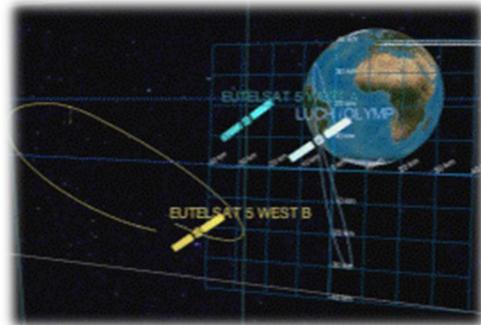
SPACE
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Critical Capabilities List

- Electronic Spectrum Collection and Analysis System Enabling Multi-Domain Operations
- Electronic Warfare Operations Enhancement
- Electromagnetic Warfare Training
- Remote Secure Communications

Essential Capabilities List

- Defensive SEW Equipment Training Range Integration
- Fully Remote Operations Capbilities Across Core Mission Platforms
- Small Form Factor CCS Capability Expansion

Desired Capabilities List

- Multi-Aperture Phased Arrar Antenna Family

SPACE: ELECTRONIC SUPPORT COLLECTION AND ANALYSIS SYSTEM ENABLING MULTI-DOMAIN OPERATIONS

1. Background. The ANG requires modern configurable electronic support kits to conduct multi-domain operational Radio Frequency (RF) spectrum over-watch for homeland defense and overseas contingency operations. The Electronic Support Collection and Analysis System Enabling Multi-Domain Operations capability must be highly mobile with a subset of remote-capable components to support diverse geographic coverage and mission sets. The mobile workstations will be used to locally manage the endpoint and require a dedicated ethernet port for remote operations. All of this will be self-contained and ready for rapid worldwide deployment in a dedicated dustproof, waterproof, HVAC controlled rugged protective case. Additionally, a tactical version is required that operates off the same common hardware and software baseline. These systems will perform automated satellite communication RF surveys and automated cyber network mapping with searchable packet capture software applications to provide rapid RF and network mapping functions for Space, support ISR, SOF, and Cyber unit objectives. This will enhance spectrum awareness, protection, and troubleshooting for both domestic operations and overseas contingency deployments across multiple domains. The electronic support kit will be highly configurable and can be adapted to suit each unit's (space, ISR, cyber, air and special tactics) unique mission requirements, current equipment inventory, and specific operations parameters.

2. Program Details.

Quantity	Unit Cost	Program Cost
2 Deathwatch Systems	$1,000,000	$2,000,000
2 Deathwatch Lite Systems	$400,000	$800,000
SCEPTRE Integration	$1,000,000	$1,000,000
2 Monarch Three-Screen + Laptop Systems	$400,000	$800,000
Automatic RF Spectrum Survey Software Application Addon	$150,000	$150,000
Automatic Cyber Network Survey and Mapping Software Application Integration	$150,000	$150,000
Cyber Network Packet Capture and Searchable Database Software Application Integration	$150,000	$150,000
4 Fly-Away Dual Pol/Multiband Antennas	$2,000,000	$8,000,000
2 Fly-Away High-Gain UHF Antennas	$5,000	$10,000
2 Fly-Away Tactical SHF Antennas	$200,000	$400,000
2 Fly-Away Tactical UHF Antennas	$5,000	$10,000
2 Honey Badger RF Training Kit Integrations	$800,000	$1,600,000
Total		$15,070,000

SPACE: ELECTROMAGETIC WARFARE OPERATIONS ENHANCEMENT

5. Background. ANG units require multi-domain small form factor electromagnetic warfare systems. The current hardware footprint, logistics tail, legacy software applications on the Counter Communication System (CCS) and Bounty Hunter system cannot be effectively utilized in a near-peer fight focused on Agile Combat Employment. These systems each operate on different hardware baselines, lack the ability to rapidly integrate new antennas, utilize legacy software delivery practices, and are not developed to common application programming interfaces (APIs). Additionally, this increases integration timelines, cost, and results in parallel development efforts across a variety of air, space, and cyber weapon systems reducing interoperability and limiting total number of systems available to meet peer and near peer threats. Accordingly, the ANG requires Darksaber electromagnetic warfare toolkits, photonics enhancements for electronic attack and electronic protection payloads, and the ability to counter near-peer proliferated weapon systems across the electromagnetic spectrum within and through multiple orbital regimes. Finally, these systems must be small form factor, antenna agnostic, utilize multiple vendors, developed to common API standards, and have applications capable of being rapidly cross ported between hardware platforms.

6. Program Details.

Quantity	Unit Cost	Program Cost
6 Darksaber Electromagnetic Warfare Toolkits	**$1,000,000**	**$6,000,000**
2 Electromagnetic Warfare Photonics Enhancements	**$2,000,000**	**$4,000,000**
2 Agile Targeting Counter-Proliferation Toolkits	**$5,000,000**	**$10,000,000**
Total		**$20,000,000**

SPACE: ELECTROMAGETIC WARFARE TRAINING

1. Background. ANG units require the ability to conduct electromagnetic warfare advanced training scenarios in a live, virtual, and constructive (LVC) environment from multiple distributed locations. Currently, the electromagnetic warfare community has limited ability to conduct basic continuation training and cannot interface across multiple units for enterprise level scenarios. A multi-domain LVC environment will help meet the mission-critical requirement to provide realistic threat-based training that integrates multiple electronic attack and protection units, allows flexible scheduling, remote hardware/software control and provides significantly increased throughput to meet requirements. The solution must be capable of hybrid remote and local operations, utilize small form factor technology, be developed to open application programming interface (API) standards, be weapon system agnostic, and allow for electronic attack, electronic protection, training, range, and cyber capabilities to be easily cross ported across hardware platforms. The next block of this project will evolve beyond hub-and-spoke and local operations to create a true mesh network of interconnected systems that enable the multi-domain fight and support forward deployed Agile Combat Employment (ACE) against peer and near-peer adversaries.

2. Program Details.

Quantity	Unit Cost	Program Cost
2 Darksaber Range Integrations	**$250,000**	**$500,000**
2 Deathwatch Range Integrations	**$250,000**	**$500,000**
2 Midgard Range Block III Enhancements	**$2,000,000**	**$4,000,000**
2 Honey Badger RF Training Lab Toolkits	**$600,000**	**$1,200,000**
7 Honey Badger Software Defined Radio Toolkits	**$200,000**	**$1,400,000**
7 Honey Badger Instructor Stations	**$100,000**	**$700,000**
7 Honey Badger Digital Video Encoder Toolkits	**$100,000**	**$700,000**
Total		**$9,000,000**

SPACE: REMOTE SECURE COMMUNICATIIONS

1. Background. ANG Space Electromagnetic Warfare Squadrons require remote secure communications. The units rely on shore power and communication from host bases. Host bases routinely lose power resulting in a loss of secure communication during critical missions. Without access to secure communications, the unit would not be able to connect with proper authorities to deliver time critical information. Remote secure communications would improve the survivability and readiness of ongoing electronic warfare missions to complete theater objectives. Each of the five space electromagnetic warfare squadrons require two secure communication packages.

2. Program Details.

Quantity	Unit Cost	Program Cost
10 Secure Communication Packages	**$1,000,000**	**$10,000,000**
Total		**$10,000,000**

Cyberspace Warfare Operations

- **ANG Cyberspace Units Provide 15% of Cyber Mission Force Teams**
- **Network Warfare and Information Operations**
- **Defend DoD Networks, Systems, and Information**
- **Defend U.S. Homeland and National Interests Against Cyberattacks**
- **Provide Cyber Support to Military Operational and Contingency Plans**

The United States relies on the Internet, systems, and data of cyberspace for a wide range of critical services. Modern weapon systems, such as aircraft and satellites, have evolved into computers with wings and computers in orbit. They are filled with 4th and 5th generation technology and rely on the cyberspace domain to function. This reliance leaves the U.S. vulnerable in the face of dangerous cyber threats, as state and non-state actors plan to conduct disruptive and destructive cyberattacks on the networks of our critical infrastructure and steal U.S. intellectual property to undercut our technological and military advantage. ANG cyber operations units are postured for cyber deterrence and cyber defense, focusing on building cyber capabilities to defend warfighting capability and homeland/national interests against cyberattacks.

The ANG cyber operations force includes three cyber operations groups and twenty units. Cyber capabilities support federal- and state-level agencies, the Air Force, and combatant commands. Cyber units provide offensive and defensive cyberspace capability to support operational and planning activities and other cyberspace support as requested. Guardsmen participating in these missions draw upon skills from their related civilian careers. Specific missions assigned to ANG units include network vulnerability assessments, digital media and network analysis, and full-spectrum cyber warfare support in both exercises and operations. Execution of these activities occur from home station and national facilities through distributed operations.

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Critical Capabilities List

Offensive Cyber Operations
- Tactics Observable Model Part Task Trainer
- Senior Capability Developer Kits
- Cyber Decision – Determining Objective Operator Resiliency System

Defensive Cyber Operations
- Lightweight Deployable Defensive Cyber System
- Hybrid-Cloud Collaboration System
- Operational Technology Training Network Environment

***Department of Defense Information Network
- Agile Combat Employment Kit
- Radio Frequency Emitter Detection Package
- Commander's Readiness Assessment Platform

Essential Capabilities List

Offensive Cyber Operations
- Multi Domain Signal Collection and Analysis Suite
- Cyber – Tactics Augmented Trainer

Defensive Cyber Operations
- Emerging Threat Rules
- Automated Collaboration and Execution System
- Linux/Solaris EDR Solution
- Cloud Cyber Operations Platform
- Cyber Range

***Department of Defense Information Network
- Cloud Cyber Operations Platform
- Expanded Virtual Interconnected Training Environment

Desired Capabilities List

To save space, desired lists can be obtained upon request from NGB/A5

***Department of Defense Information Network Lists carried forward from 2023 Weapon System Modernization Prioritization Book

OCO: TACTICS OBSERVABLE MODEL PART TASK TRAINER

1. Background. The operators and analysts supporting Offensive Cyberspace Operations (OCO) provide effects in and through cyberspace and the electromagnetic spectrum to service component and combatant commanders. To fulfill those effects, units are required to gain and maintain proficiency in cyber warfare tactics, techniques, and procedures (TTP). The domains of knowledge that these Airmen must master include networking, applied operating system internals for Windows and Unix, exploitation techniques, and tactics identified in the MITRE ATT&CK matrix. Commanders require the ability to measure, assess, and report the proficiency of their assigned forces. The Tactics Observable Model Part Task Trainer (TOM-PTT) is an interoperable connected system that provides the realistic scenarios, training lessons, virtual systems, and metric capabilities required to organize, train, and equip these units. The TOM-PTT provides Airmen with training from the basic to master proficiency levels. It is accessible on standalone networks and via the Internet on a 24/7/365 timeframe. It implements a learning management system that integrates with existing range capabilities such as the Virtual Interconnected Training Environments, Persistent Cyber Training Environment, and reporting mechanisms such as Joint Cyber Command and Control. The system must not require a recurring licensing or subscription fee to operate. One TOM-PTT is required for each of the OCO squadrons.

2. Program Details.

Quantity	Unit Cost	Program Cost
4 TOM-PTTs	**$350,000**	**$1,400,000**
Total		**$1,400,000**

OCO: SENIOR CAPABILITY DEVELOPER KIT

1. Background. Offensive Cyberspace Operations (OCO) units require training to fulfill software development missions in support of cyber effects capabilities. These units do not currently have the training material nor Integrated Development Environment to progress from basic to Senior Cyber Capability Developer (CCD). Each Senior Capability Developer Kit (SCDK) will include a data repository for developed tools and hardware and software to conduct advanced training in developing OCO toolkits via the development networks located on JWICS and NSANet. The SCDK system supports loading of additional software through industry-common package management solutions and accredited for TS/SCI environments. SCDK hardware modules include workstations with compute, memory, storage, and networking. SCDK software modules include code versioning and repository software, integrated development environments, software debugging, reverse engineering, and representative adversary environments in which to test code. SCDK training modules include the development of weapons, sensors, and payloads. Weapons implement initial access, command execution, and exploitation tactics. Sensors implement collection, credential access, discovery, and defense evasion tactics. Payloads implement command and control, exfiltration, and impact tactics. SCDK interconnects with the Virtual Interconnected Training Environment platform, enabling CCD participation in exercises. One SCDK is required for each of the OCO and development squadrons.

2. Program Details.

Quantity	Unit Cost	Program Cost
5 SCDK	**$400,000**	**$2,000,000**
Total		**$2,000,000**

OCO: CYBER DECISION - DETERMINING OBJECTIVE OPERATOR RESILIENCY SYSTEM (CYDE-DOORS)

1. Background. Offensive Cyberspace Operations (OCO) units require the ability to retain expertise and talent within the cyberspace operations career field. Cyber Decision – Determining Objective Operator Resiliency System (CYDE-DOORS) requires a tool that uses biometric and cognitive/psychometric information to address the mental, physical and emotional performance of airmen to identify stressors and avoid burnout. The system must focus on mental and physical energy, confidence, focus, engagement and anxiety. CYDE-DOORS is a data-driven method to support operator management of stress and exhaustion. Commanders, leaders and personnel can use the tool to address burnout symptoms in order to achieve and sustain the expected high level of performance. Five CYDE-DOORS are required for all OCO squadrons.

2. Program Details.

Quantity	Unit Cost	Program Cost
5 CYDE-DOORS	**$750,000**	**$3,750,000**
Total		**$3,750,000**

DCO: LIGHTWEIGHT DEPLOYABLE DEFENSIVE CYBER SYSTEM

1. Background. ANG defensive cyberspace operations (DCO) units currently face challenges with large server rack equipment used for both on-and-off Department of Defense information network (DODIN) vulnerability assessment and hunt operations. This pallet of equipment is expensive to ship, requires power, cooling, and space from the mission partner, and can be lost if the mission partner doesn't agree to allow for its reuse in future operations. Configuring and deploying this physical equipment consumes time and manpower, hindering timely Hunt and Incident Response Team (HIRT) operations. To address these limitations, DCO units need an agile, minimal footprint solution. Small form factor servers offer enhanced portability and versatility, enabling rapid deployment for on-and-off DODIN HIRT capabilities. These servers maintain high performance and are inconspicuous, making them suitable for low-profile operations and cyber threats requiring discretion or physical access. Additionally, small form factor servers consume less power, reducing operational costs and environmental impact. Integrating these servers enhances cybersecurity capabilities, ensuring agile responses to emerging threats and supporting Federal and State missions for mission partners.

2. Program Details.

Quantity	Unit Cost	Program Cost
54 Lightweight Deployable Defensive Cyber Systems	**$20,000**	**$1,080,000**
Total		**$1,080,000**

DCO: HYBRID-CLOUD COLLABORATION SYSTEM

1. Background. ANG defensive cyberspace operations (DCO) units require the hybrid-cloud-based solutions for collaborative efforts and remote cyber operations. DCO requires the capacity to ensure that internally developed tools and products (e.g., scripts, signatures, guides and procedures) contributing to operational continuity are stored within a repository using an industry-standard version control system. This capability will be centrally managed and made commercially available in a community repository, accessible to the entire community. Additionally, DCO necessitates an on-and-off Department of Defense Information Network cloud-based Security Information and Event Management (SIEM) stack that can work in conjunction with both physical and remote network sensors. The SIEM should also be compatible with standard case management, communication, packet capture analysis and tools used by cyber analysts. This system must also offer agnostic remote connections to on-premises defensive cyber systems for operators to interface with a physical system's locally hosted tools. Notably, the Hybrid-Cloud Collaboration System and its underlying resources must be accessible via NIPRNet and commercial internet providers. This hybrid-cloud-based solution will streamline weapon system deployments by providing various options for deploying defensive systems reducing the need for extensive on-premises hardware infrastructure. Without this capability, technical collaboration and standardization, including the advantageous use of remote weapon systems among cyber operation units, will remain cumbersome and static. This capability is crucial to support both federal and domestic remote cyber missions.

2. Program Details.

Quantity	Unit Cost	Program Cost
1 Hybrid-Cloud Collaboration System	**$3,500,000**	**$3,500,000**
Total		**$3,500,000**

DCO: OPERATIONAL TECHNOLOGY TRAINING NETWORK ENVIRONMENT

1. Background. ANG cyberspace operations (CO) units are required to understand industrial control systems (ICS) architecture and how to hunt for adversary activity therein. The Operational Technology Training Network Environment (OT-TNE) system is a cost-effective training solution that allows CO and maintenance personnel to familiarize themselves with mission particular tasks, weapons systems operations and ICS. It will provide hands-on training for critical skills required to operate in a team environment and support CO in carrying out ICS missions. The OT-TNE should replicate operational ICS environments and will introduce cyber operators to programmable logic controller (PLC) operation, human machine interface (HMI), ladder-logic, function block programming, ICS protocols (Modbus, DNP3, BACnet, etc.), analyzing ICS network traffic, common ICS security flaws and how to enable hardening on ICS networks. It should provide the ability to train on all common ICS vendor equipment. The OT-TNE should train CO on how to interact with PLCs to retrieve and validate firmware, files and other artifacts for baselining. The OT-TNE should contain a database of known vendor hashes to compare baseline artifacts. The OT-TNE provides an individual training and skills assessment suite allowing personnel to train on specific tasks and identify areas needing improvement. The system is maintained locally, allowing personnel to connect to the OT-TNE, does not require a continuous commercial network connection and is managed through an intuitive administration page. The system must not require a recurring licensing or subscription fee to operate. It must integrate with the current Virtual Interconnected Training Environments (VITE) resident within ANG units. It will focus on preparing personnel to execute in a team construct within the VITE and during operational missions. One OT-TNE is required for each of the 19 ANG cyber operations squadrons and requires a VITE integration module.

2. Program Details.

Quantity	Unit Cost	Program Cost
19 OT-TNE	**$168,452**	**$3,200,588**
1 VITE Integration	**$1,473,282**	**$1,473,282**
2 VITE (2 New Units)	**$885,780**	**$1,771,560**
Total		**$6,445,430**

DODIN: AGILE COMBAT EMPLOYMENT KIT

1. Background. ANG Department of Defense Information Network (DoDIN) units require Agile Combat Employment (ACE) equipment for its Fixed Communications Units to support the Air Force-Force Generation model and ACE Air Operations. Without this capability, our forces are not capable of providing Combatant Commanders the equipment and forces to execute agile air operations in an austere and/or communications degraded environment. The equipment required per ANG Wing includes two Agile Comm Packages with deployable JWICS. Each kit must support ten or more users, including three Fly Away Comm Terminals supporting 2-3 users. The solution will also provide for the ability to implement and maintain command and control capability during domestic operations, Homeland Defense, and homeland security events. These systems are considered unit equipped and Air Force funded, however they have not been funded for ANG units to date.

2. Program Details.

Quantity	Unit Cost	Program Cost
89 ACE Kits	**$5,520,000**	**$491,280,000**
Total		**$491,280,000**

DODIN: RADIO FREQUENCY EMITTER DETECTION PACKAGE

1. Background. ANG Engineering and Installation units have been tasked to support forward operating bases that ensure aircraft can take off and land safely, while allowing ground forces to communicate without interruption. The Radio Frequency Emitter Detection Package (RFEDP) allows for the detection and identification of radio frequency emission sources tied to jamming interfaces within the HF, VHF, UHF, and SHF electromagnetic spectrum. This capability deciphers location, source, and frequency of adversarial RF attacks. These systems are considered unit equipped and Air Force funded, however they have not been funded for ANG units to date.

2. Program Details.

Quantity	Unit Cost	Program Cost
3 RFEDP	$585,812	$1,757,436
Total		$1,757,436

DODIN: COMMANDERS AWARENESS READINESS EVALUATION SYSTEM

1. Background. ANG cyberspace operations units are required to maintain comprehensive readiness reporting systems that "measure in an objective, accurate, and timely manner" the capability of the U.S. military to carry out the National Security Strategy, Defense Planning Guidance, and the National Military Strategy. Current systems do not provide collective readiness and support answering Defense Readiness Reporting System requirements. Commanders Awareness Readiness Evaluation System (CARES) must utilize artificial intelligence, automated design and predictive analytics and address readiness, force status, assess risk, respond to deficiencies, and be mission focused. Information must be shared through a single dashboard with collaborative tools in near real time and build in identification of mitigation strategies through an iterative process. CARES will display force availability, organizational construct, force presentation for mobilization, and include availability of installations, facilities, and ranges. The system must provide alternative courses of actions based on readiness availability. Data must be available online and offline with on-premise secure systems and allow a minimum of 800 users to be tracked annually. System must not require a recurring license.

2. Program Details.

Quantity	Unit Cost	Program Cost
1 CARES	**$2,404,837**	**$2,404,837**
Total		**$2,404,837**

Command and Control

- **Air Surveillance and Defense for North America and Hawaii**
- **Air Battle Management**
- **C-NAF Integration/Augmentation**
- **Military Range Control**
- **Ground Controlled Intercept**
- **Flight Safety Monitoring**

Air Operations Center (AOC). The AOC weapon system is employed by the Joint Forces Air Component Commander (JFACC), facilitating operational control and direction of theater air, space, and cyber forces. Air National Guard AOC and Air Force Forces (AFFOR) staffs are comprised of personnel and facilities postured to support Homeland Defense, Overseas Contingency Operations, and Defense Support of Civil Authorities (DSCA). AOC personnel are organized into multiple squadrons and flights. Each unit specializes in integrated, distributive Command and Control processes and products. The AFFOR staff is organized as special and functional directorates providing planning teams to the Commander Air Force Forces in support of the JFACC.

Battle Control Center (BCC). The BCC operations force includes four Air Reserve Component (ARC) operations groups and squadrons. BCCs support North American Aerospace Defense and Northern Command as part of the homeland defense mission, DSCA, and search and rescue. BCCs provide 24/7 aerospace surveillance, warning, control, and maritime warning in defense of North America.

Control and Reporting Center (CRC). The CRC, at the operational and tactical level, provides surveillance, tactical communications, data links, and combat-related air battle management of joint air operations with real-time networked situational awareness. There are 10 CRC units across the enterprise that support both Active Duty and ANG missions.

Command and Control
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Critical Capabilities List

AOC
- Weapon System Modernization
- Virtual Application Desktop Delivery
- Secure Voice Capability – Wideband HF
- Agile Operations Center
- Mission Assurance & Cyber Security Toolkit

BCC
- Assured Communications for Contested Operations
- Training Modernization for Peer Adversary
- Pacific Air Defense Sector Continuity of Operations
- Mission Assurance and Cyber Security Toolkit
- Post-Mission Debrief and Review

CRC
- Mode 5 Suite to supplement TPS-75
- Weapons Quality Track Production Capability for TPY-4
- Assured Communications for Contested Operations
- Training Modernization for Peer Adversary
- Distributed Operations and Cyber Security

Essential Capabilities List

AOC
- Secure View Laptops

- TACLANE Upgrades
- Infrastructure for Warfighting Networks
- Full Motion Video ISR Integration Applications and Hardware
- T-SCIF & SAR Toolkit (SAP/STO)

BCC
- Agile Operations Center
- Enhanced Regional Situational Awareness Camera Modernization
- Land Mobile Radio and Satellite Phone Communications
- TS/SCI Mobile Mission Center

CRC
- Data Cross Domain Solution for SAP/TS/S
- Mobile/Transportable Link 16 Capability
- Edge Connect System for TOC-L Teams
- Updated Fuel Storage and Distribution Capability
- Mobile Security System to Enable Open Storage

Desired Capabilities List

Contact NGB A5 for Desired List

AOC: WEAPON SYSTEM MODERNIZATION

1. Background. The ANG AOC Falconer Lite weapon systems are currently not included in the program office fielding plan for upgrade to Block 20. Instead, ANG units are expected to remotely access upgraded Block 20 capabilities solely through a cloud environment. This approach introduces new, unmitigated risk in maintaining ANG AOC combat mission readiness/operational training, ongoing distributed operations, and effective reach-back capability for aligned geographic AOCs. The six ANG AOCs require one Block-20 Lite AOC-Weapons System, or interim weapon system, each consisting of scaled down hardware and software to directly support aligned AOC requirements for combat mission ready augmentation and distributed operations.

2. Program Details.

Quantity	Unit Cost	Program Cost
6 x Block-20 Lite Hardware/Block 20 Weapon System	**$3,000,000**	**$18,000,000**
Total		**$18,000,000**

AOC: VIRTUAL APPLICATION DESKTOP DELIVERY

1. Background. Network appliances enabling distributed operational and exercise support between Active Component and ANG AOCs reached end of life 1 January 2021. The program office is executing a replacement plan but has not included ANG units, incurring risk to mission continuity and network security. This capability gap is independent from the Falconer Block 20 upgrade. Two appliances are required for each of 5 AOC locations to ensure redundancy and maintain parity with Active Component AOCs.

2. Program Details.

Quantity	Unit Cost	Program Cost
10 x Application Delivery Controllers	**$150,000**	**$1,500,000**
Total		**$1,500,000**

AOC: SECURE VOICE CAPABILITY – WIDEBAND HF

1. Background. ANG Air Operations Center (AOC) units require the capability to communicate directly via radio to supported commanders, fielded units, and state emergency agencies. ANG AOCs need a modernized secure core radio package (CRP), a Mobile User Objective System tactical satellite-compatible radio, a wideband high-frequency (HF) radio for contested communication operations, antenna systems, and radio-to-internet protocol (IP) bridge and communications security equipment. AOC units must train and operate on the same systems as their supported Active Component AOCs. Without these capabilities, units cannot train or execute to fill mission requirements. ANG AOCs require five of the following: CRPs, HF radios, and IP bridges. This critical capability is specifically to implement the final phase of the project, wideband HF.

2. Program Details.

Quantity	Unit Cost	Program Cost
6 x CRPs	**$130,000**	**$780,000**
6 x Wideband HF Radios	**$40,000**	**$240,000**
6 x IP Bridges	**$300,000**	**$1,800,000**
Total		**$2,820,000**

AOG/AOC: AGILE OPERATIONS CENTER

1. **Background**. The ANG Air Operation Groups (AOG) require modernization of their operation center infrastructure to increase operator efficiency, expedite decision making and accommodate the Joint All Domain Command and Control concept and the Advance Battle Management System. The Agile Ops Center accomplishes this through the use of a video matrix fusion engine, solving multi-classification issues, during operations on the floor. The use of this technology allows for agnostic classification in the future at higher levels and eliminates multi-classification-level equipment separation requirements between systems. The Agile Ops Center covers all front-end IT to include passive infrastructure (e.g. fiber/copper cabling), integrated furnishings systems, audio, visual, keyboard, video, and mouse switch, telephony, video matrix, and video teleconference technology as site requirements. Additional items include backend active infrastructure (i.e. network routers, switches,). Agile Ops Center technology delivers continuous infrastructure and human factors for homeland defense performance at the speed of relevance that are not possible with the current infrastructure. The current infrastructure and user interface/number of interfaces required causes exponential differences in a timeline from minutes to seconds for the AOG team, increasing situational awareness and mission effectiveness.

2. **Program Details.**

Quantity	Unit Cost	Program Cost
6 x Agile Operations Centers	**$12,000,000**	**$72,000,000**
Total		**$72,000,000**

AOC: MISSION ASSURANCE & CYBER SECURITY TOOLKIT

1. Background: Air National Guard Air Operations Groups lack a standardized cybersecurity toolkit to provide mission assurance for the Falconer Lite and Battle Control System-Fixed weapon systems.

2. Program Details:

Quantity	Unit Cost	Program Cost
17 x Mission Assurance & Cyber Security Toolkits	**$230,000**	**$3,910,000**
424 x Application Based Encryption Suites	**$1,000**	**$424,000**
Total		**$4,334,000**

BCC: ASSURED COMMUNICATIONS FOR CONTESTED OPERATIONS

1. Background. Air Defense Sectors and Squadrons require modernized communications in several mission areas: radios with modern capabilities, radios accessible from distributed and non-traditional operating locations, and the ability to manipulate and control voice communications. Established radio sites across Alaska, Hawaii and CONUS should include a combination of radios that are tunable across both the VHF and UHF spectrum, remotely switched in/out of Anti-Jam mode, remotely tuned, remotely rekeyable communications security, and remotely switched between secure and non-secure modes while being accessible through Mission Voice Platform. Air Defense Squadrons require the ability to control radios in other sectors' Area of Responsibility (AORs) as well as from distributed operating locations. Radio over internet protocol solutions meets this demand and provide resilient communications using internet connections, satellite, long term evolution, or private networks that can be controlled from fixed or distributed locations. Additionally, the Western Air Defense Sector has a validated requirement for HF voice and data integration within the Gulf of Mexico. The requirement is in the FY26 POM but failure fund it or to award the contract in a timely manner will result in increased cost and the need to resolicit the contract. Finally, the Pacific Air Defense Sector (PADS) requires a mobile, securable, frequency-agile communications solution for distributed operations in support of the defense of Hawaii and Guam. The communications will accompany their existing mobile mission application and datalink capabilities enabling a distributed, survivable battle management command and control solution for the PADS.

2. Program Details.

Quantity	Unit Cost	Program Cost
5 RM-12 Suite Option	$220,000	$1,100,000
50 Secure/Anti-Jam Radio Site Upgrades	$9,700	$485,000
2 Mission Voice Platform Upgrades	$200,000	$400,000
4 Ground Tactical Data Link Systems	$100,000	$400,000
4 Halo Satellite Communications Simulator	$70,000	$280,000
High Frequency Radio Antenna Site	$2,800,000	$2,800,000
4 PRC-167, SATURN, 50W AMP, Blue Sky Mast	$90,000	$360,000
Total		$5,825,000

BCC: TRAINING MODERNIZATION FOR PEER ADVERSARY

1. Background. ANG Battle Control Centers (BCC) require training modernization for the entire enterprise. The current Distributed Mission Operations (DMO) training systems at the BCC lack capability to support impending Battle Control System-Fixed (BCS-F) upgrades and to fully represent realistic training for all crew members. Further, inconsistent baselining has excluded the Pacific Air Defense (PADS) sector from the DMO network.

2. Program Details.

Quantity	Unit Cost	Program Cost
1 x BCS-F 3.3.1 DMO Virtualized Workstations	**$300,000**	**$300,000**
4 x Job Skills Education Program version 7.0.0.4 with Support Package	**$66,400**	**$265,600**
1 x PADS DMO Baseline	**$240,200**	**$240,200**
1 x Enhanced Regional Situation Awareness DMO Plug-In	**$160,000**	**$160,000**
Total		**$965,800**

BCC: PACIFIC AIR DEFENSE SECTOR CONTINUITY OF OPERATIONS

1. Background. For the continuity of operations plan (COOP), the Pacific Air Defense Sector (PADS) requires an additional portable data transport system from Mt. Kaala, Oahu to Joint Base Pearl Harbor Hickam. Currently, the COOP uses the Navy Fleet Area Control & Surveillance Facility (FASFAC) microwave system and only provides limited radar data and a Navy based voice communication capability. The Navy system does not allow access to other mission essential systems such as NIPR, SIPR, secure phone lines, secure comms and space for a fully manned mission crew. To access other mission systems, the PADS sends two teams, one to Navy FASFAC and one to an FAA facility. Acquiring portable data transport equipment to include a microwave system, and edge connect, allows the PADS to use alternate facilities equipped with essential systems to ensure continuity of operations in accordance with AFI 10-208 and would uphold the no-fail Homeland Defense mission. The connection would provide the Air Force with resilient communication capabilities to maintain operational effectiveness. Additionally, this construct will increase crew cohesion and situational awareness by operating from a single location.

2. Program Details.

Quantity	Unit Cost	Program Cost
2 x Point-to-Point Data Backhaul Infrastructure	**$98,000**	**$196,000**
2 x Man-Portable Communications System	**$90,000**	**$180,000**
2 x Surveillance Data Distribution & Conversion Platform	**$50,000**	**$100,000**
Total		**$476,000**

BCC: MISSION ASSURANCE & CYBER SECURITY TOOLKIT

1. Background: Air National Guard Air Operations Groups lack a standardized cybersecurity toolkit to provide mission assurance for the Falconer Lite and Battle Control System-Fixed weapon systems.

2. Program Details:

Quantity	Unit Cost	Program Cost
17 x Mission Assurance & Cyber Security Toolkits	**$230,000**	**$3,910,000**
424 x Application Based Encryption Suites	**$1,000**	**$424,000**
Total		**$4,334,000**

BCC: POST-MISSION DEBRIEF AND REVIEW

1.   Background: The Alaska and Pacific Air Defense Sectors (AADS / PADS) require post mission debrief and review software that allows operators to analyze training effectiveness and provide critical warfighter feedback. Complex training environments require equally robust debriefs to ensure that the correct lessons learned are captured and distributed for tactics improvements and increased warfighter proficiency. AADS and PADS currently have no means of capturing operator actions and truth data from live, virtual, and constructive training missions. Mission reconstruction must include a memory hand off for those involved in the mission. This reconstruction allows team members to identify contributing factors to mission failures or ineffective execution. Commercially available software can close this gap. The mission debrief and review system should be capable of capturing operator workstation video, audio, and data as well as Mission Voice Platform communications in live, virtual, and constructive training environments. Recordings should be compiled into a seamless interface that allows for operators to interact with the playback to extract truth data and identify training deficiencies.

2.   Program Details:

Quantity	Unit Cost	Program Cost
2 Mission Debrief Systems	**$1,000,000**	**$2,000,000**
Total		**$2,000,000**

CRC: MODE 5 SUITE TO SUPPLEMENT TPS-75

1. Background. The AN/TPS-75 surveillance radar does not have the capability to interrogate Mode 5/S or access Automatic Dependent Surveillance-Broadcast (ADS-B) data to complete an identification matrix. The DoD has already transitioned to the use of Mode 5 in accordance with Defense Security Cooperation Agency Memorandum dated 7 March 2018. The Control and Reporting Center (CRC) does not have the capability of using a passive sensor that provides long range surveillance against a multitude of threats to include low radar cross section and unmanned aerial systems. A proposed solution to this issue is the Army Long-Range Persistent Surveillance (ALPS) sensor. The CRC requires the capability to interrogate Mode 5 and access ADS-B data to complete the surveillance and command and control missions. One sensor suite is required for each of the 10 ANG CRCs.

2. Program Details.

Quantity	Unit Cost	Program Cost
10 Mode 5/S/ ADS-B TPS-75 Upgrades	**$2,000,000**	**$20,000,000**
10 ALPS	**$1,200,000**	**$12,000,000**
Total		**$32,000,000**

CRC: WEAPONS QUALITY TRACK PRODUCTION CAPABILITY FOR TPY-4

1. Background. ANG CRCs require a radar system capable of generating weapons quality tracks. The baseline TPY-4 RADAR system is not capable of generating weapons quality tracks. A commercially available upgrade is sought that can be installed prior to delivery of ordered systems, enabling weapons quality track generation and delivery to shooters.

2. Program Details.

Quantity	Unit Cost	Program Cost
TPY-4 Radar Upgrade	**$5,500,000**	**$5,500,000**
Total		**$5,500,000**

CRC: ASSURED COMMUNICATIONS FOR CONTESTED OPERATIONS

1. Background. To accomplish Battle Management Command and Control, the CRC requires both organic and remote capable secure anti-jam communications for both data and voice. This capability enables long-chain fires and target updates to shooters and ensures CRC crew/equipment survivability. Ideally these would come with radios, amplifiers, and delivery or holding devices (such as high-altitude platforms).

2. Program Details.

Quantity	Unit Cost	Program Cost
20 Assured Communication Kits	**$50,000**	**$1,000,000**
Total		**$1,000,000**

CRC: TRAINING MODERNIZATION FOR PEER ADVERSARY

1. Background. The evolving nature of air defense challenges posed by peer adversaries demands a paradigm shift in the training methodologies employed at CRCs. Modernization efforts must encompass Artificial Intelligence (AI) based simulation technologies, cross-disciplinary training, red teaming, and a focus on cyber resilience. By equipping CRC personnel with AI simulations that will develop the skills to operate effectively in complex, technology-driven environments, the USAF will ensure its ability to maintain air superiority and protect national security interests in the face of emerging threats.

2. Program Details.

Quantity	Unit Cost	Program Cost
10 x Simulation Environment Licenses	**$20,000**	**$200,000**
Total		**$200,000**

CRC: DISTRIBUTED OPERATIONS AND CYBER SECURITY

1. Background. The CRC community does not have organic distributed operations capabilities. Working in unison with edge node devices, or "on-prem" solutions, successful distributed operations would include access to cloud-based data. To connect to a cloud based environment and pass data from low-to-high classification levels, a Cross Domain Solution (CDS) is required. To meet the CSAF's Agile Combat Employment priorities, a cloud based CDS reduces the footprint required to deploy and employ equipment while focusing Mission Defense Team efforts to accomplish the mission. With integration and access to NORAD and USNORTHCOM communication feeds, and reduced latency issues, a data diode similar to a Cloud-Based Command & Control system diode is ideal. A diode is only one potential solution; there are other CDSs available to the warfighter. Throughput would drive overall diode requirements and diode would be required per AOR or mission set.

2. Program Details.

Quantity	Unit Cost	Program Cost
Cloud Based Data Diode, Non-Recurring Engineering	N/A	$612,000
Total		**$612,000**

Airborne Intelligence, Surveillance, and Reconnaissance

MC-12W – The MC-12W is tasked to support U.S. Special Operations Command directed missions. The MC-12W aircrews are specifically trained to support special operations ground forces through the find, fix, finish, exploit, and analyze model. Aircrews train, brief, support, advise, and assist special operations forces (SOF) elements from the ground assaulter to SOF commanders while executing across the full spectrum of SOF mission sets, manned intelligence, surveillance, and reconnaissance, and fires.

Airborne Intelligence, Surveillance, and Reconnaissance
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Critical Capabilities List

MC-12W
- Airborne Mission Network
- Steerable Signal Intelligence Antenna
- Modular Forward Refueling System
- Waveform/Mobile Ad-Hoc Network Integration
- Second Full Motion Video Sensor

Essential Capabilities List

MC-12W
- Combat LST Hardware Module to Provide the Capability to the MX-15 Sensor Ball
- Combat Systems Officer / Tactical Systems Operator Aircraft Oxygen System Integration
- Combat System Officer / Tactical Systems Operator Aircraft Intercom Integration for Traffic and Ground Collision Avoidance Systems
- Selective Availability Anti-Spoofing Module Global Positioning System

Desired Capabilities List

MC-12W
- Improved Ku Spread Spectrum Antenna
- Cockpit Voice Recorder Cutout Adjustment
- Left Pilot Mission System Access
- Improved Right Pilot Mission System Controls

MC-12W: AIRBORNE MISSION NETWORK

1. Background. ANG MC-12W aircraft require a carry-on tactical data link (TDL) radio, with associated hardware and antennas, to employ across multiple areas of responsibility. MC-12Ws lack the means to establish and maintain direct TDL communications with command and control, tactical agencies, and other TDL users. TDLs are used to share aircraft position, targeting data, sensor points of interest, cursor-on-target data, and target-track information derived from various intelligence sources via an airborne network. The lack of onboard TDL slows the kill chain, delays effects for supported commanders, and poses a safety deconfliction risk with other aircraft. Lack of direct information sharing with other TDL participants degrades overall situational awareness. The MC-12W requires a handheld system that is capable of interfacing with multiple airborne platforms using LINK-16. The system must be lightweight, J-Voice capable, and able to interface with situational awareness kits. In addition, the MC-12W will require a lightweight android-based end user device to display mission critical data. This complete Digitally Assisted Close Air Support (DACAS) system must have all required plug-ins, licenses, and cables to ensure interoperability between the end user device and the radio. Finally, MC-12Ws utilizing this DACAS system require a server to facilitate a common operating picture and information sharing. Each of the 13 ANG MC-12W aircraft require one fully integrated TDL kit.

2. Program Details.

Quantity	Unit Cost	Program Cost
13 Multi-Function Displays w/ Case and Cables	$14,000	$182,000
13 Hand-Held Link-16 Radios	$35,000	$455,000
1 Server	$50,000	$50,000
1 Enterprise Link-16 Hosting License	$4,000,000	$4,000,000
Total		$4,687,000

Note: As a weapon system identified for possible divestment, modernization efforts will focus on safety of flight, near-term sustainment requirements and integration of transferrable equipment.

MC-12W: STEERABLE SIGNALS INTELLIGENCE ANTENNA

1. Background. ANG MC-12W aircrews cannot meet the full scope of deployment SIGINT taskings with current approved equipment on their aircraft. A 2.4/5GHz steerable antenna is required and would be limited to only aircraft actively deployed. This would allow the antenna spot beam to be directed out of aircraft orbit or off-axis. This solution would concentrate the antennas spot beam on a specific location (both in and out of orbit). There are typically two types of steerable antennas, gimbal and Electronically Steerable Array (ESA). The gimbal would be preferable as it can be RF locked to a signal, geo-locked to a grid, or set to perform raster scans of an area. Another benefit is that it is steerable in both the transmit and receive versus ESA (receive only). A steerable antenna solution on a MC-12W would represent a generational leap in SIGINT capability as well as afford unforeseen opportunities with active targeting.

2. Program Details.

Quantity	Unit Cost	Program Cost
2 2.45 GHz Steerable Antenna	$30,000	$60,000
Total		$60,000

Note: As a weapon system identified for possible divestment, modernization efforts will focus on safety of flight, near-term sustainment requirements and integration of transferrable equipment.

MC-12W: MODULAR FORWARD REFUELING SYSTEM

1. Background. ANG MC-12Ws cannot refuel at an austere location due to a lack of forward deployable fuel tanks and kits. Mission Readiness Teams deploy and train with MC-12W aircrew but do not possess the required components to refuel the aircraft. Four modular suppression tanks along with rapid ground refueling kits enable austere site operations and the associated training.

2. Program Details.

Quantity	Unit Cost	Program Cost
4 Modular Suppression Tanks	**$300,000**	**$1,200,000**
2 Rapid Ground Refueling Kits	**$25,000**	**$50,000**
Total		**$1,250,000**

Note: As a weapon system identified for possible divestment, modernization efforts will focus on safety of flight, near-term sustainment requirements and integration of transferrable equipment.

MC-12W: WAVEFORM/MOBILE AD-HOC NETWORK INTEGRATION

1. Background. ANG MC-12Ws require a mobile, scalable and maneuverable communications system to meet Agile Combat Employment demands while providing a robust and resilient command and control (C2) node for the Joint Force. The equipment should meet the needs of echelons from the tactical edge to the highest levels of C2 that enable Joint All Domain Command and Control. MC-12W support teams use waveforms that are not currently supported by the aircraft. Common waveform equipment enables data transfer as a force multiplier to the supported ground user. This capability provides Combatant Commanders with an agile, highly mobile, scalable, resilient, durable C2, precision strike and joint integration capability at the tactical edge to execute the kill chain in contested environments.

2. Program Details.

Quantity	Unit Cost	Program Cost
13 Tactical C2 Box	**$109,000**	**$1,417,000**
1 Lower Echelon Network System	**$2,800,000**	**$2,800,000**
2 Edge Compute Solutions	**$28,000**	**$56,000**
Total		**$4,273,000**

Note: As a weapon system identified for possible divestment, modernization efforts will focus on safety of flight, near-term sustainment requirements and integration of transferrable equipment.

MC-12W: SECOND FULL MOTION VIDEO SENSOR

1. Background. ANG MC-12Ws require a more capable optical sensor to bring the MC-12W to the SOCOM manned platform standard. The additional full motion video system will double the imagery intelligence capability for MC-12W crews and provide a substantial increase of situational awareness to the commanders on the battlefield. By extension, this capability will greatly enhance the ability of MC-12W crews to provide collateral damage estimates and scans for kinetic strike and close air support situations, positively identify enemy combatants, and protect the ground force with added defensive scans. Increased fidelity enables the MC-12W to fly higher, mitigate surface-to-air threats, identify more details of high value targets, and identify hostile intent by detecting armed personnel. All 13 ANG MC-12Ws require a second sensor with more capability than the MX-15DiD sensor.

2. Program Details.

Quantity	Unit Cost	Program Cost
NRE	N/A	$2,500,000
13 Electro Optical/Infrared Sensors	$1,500,000	$19,500,000
Total		$22,000,000

Note: As a weapon system identified for possible divestment, modernization efforts will focus on safety of flight, near-term sustainment requirements and integration of transferrable equipment.

Global Integrated Intelligence, Surveillance, and Reconnaissance

Intelligence – Intelligence, Surveillance, and Reconnaissance (ISR) production centers are the analytical engines behind timely environment characterization and in-the-moment awareness to enable decisions and action. ANG production enterprises include the following:

Distributed Common Ground System (DCGS) – All nine DCGS sites process, exploit, and disseminate near real-time intelligence derived from U-2, RQ-4, and MQ-9 sensors for combatant commands, component numbered air forces, and national command authorities.

Targeting – Nine squadrons at six locations provide federated intermediate and advanced target development, battle damage assessments, collateral damage estimates, and analytical assessment for steady-state planning and contingency operations.

Cyber ISR – Enables operations across air, space, and cyber domains. Seven sites across the country create all-source products derived from digital network intelligence.

Unit Level Intelligence - Supports 23 Mission Design Series weapons systems across 143 ANG units and imbeds with other mission sets to tailor intelligence for Air Tasking Order execution and integration.

Intelligence
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Critical Capabilities List

- Unit-Level Intelligence Scenario Generator
- Unit-Level Intelligence Zero-Trust Classified Tablets for Agile Combat Employment
- Electronic Support Collection and Analysis System
- Intelligence Augmented Reality for Full Motion Video
- Localized Servers for Geospatial Intelligence Exploitation

Essential Capabilities List

- Multi-National Information Sharing Cross-Domain Integration - Mission Partner Environment for National Guard Units
- Tactical-Sensitive Compartmentalized Information Facilities
- Network Switching Solution for 120Hz Stereoscopic Imagery Exploitation and Point Mensuration Monitors
- Open Enterprise Advanced Geospatial Information Systems Suite for Targeting Workflow

Desired Capabilities List

- Scenario Driven Virtual Environment that Facilitates Signal Intelligence and Cyber Training
- Virtual Target Modeling for Offensive Cyber Operations and other Non-Lethal Fires
- Multi-Domain Denial and Deception Agile Combat Employment Kits
- Cognitive Performance Training Tool for Intelligence Analysts

INTELLIGENCE: UNIT-LEVEL INTELLIGENCE SCENARIO GENERATOR

1. Background. ANG intelligence analysts require synthetic training data to be integrated with Distributed Mission Operations (DMO) for readiness, training, and wargaming purposes. This system must be able to project synthetic target signature data onto commonly used intelligence systems. This data should also be backward compatible to enable scenario development from real-world missions. This capability supports rapid target discovery, analysis and reporting by analysts supporting sensor-to-shooter linkages within the Joint All-Domain Command and Control operating construct. This system must have minimal latency and tie into existing tools and databases to ensure that Intelligence, Surveillance, and Reconnaissance functions are realistically represented in various DMO networks. System intelligence training requirements with other operational platforms and capabilities enable kinetic and non-kinetic fires, tailor intelligence support to Operational Imperatives, and meet the intent of the National Defense Strategy.

2. Program Details.

Quantity	Unit Cost	Total Cost
Scenario Generator NRE	**N/A**	**$5,000,000**
Total		**$5,000,000**

INTELLIGENCE: UNIT LEVEL INTELLIGENCE ZERO-TRUST CLASSIFIED TABLETS FOR AGILE COMBAT EMPLOYMENT

1. Background. ANG Unit Level Intelligence (ULI) Personnel are required to provide classified threat and mission planning data to aircrew in support of combat operations. The dynamic nature of Agile Combat Employment, layered with the Contested and Degraded Operations expected in a near-peer fight, means communication pathways and existing military infrastructure will not always be assured. To this end, ULI requires the ability to provide high bandwidth, near-real time analysis, anywhere in the world at a moment's notice to enable combat operations. A zero-trust classified tablet allows this to take place anywhere there is an existing cellular network. The concept has been proven resilient and quicker than existing communication pathways provided by military technology. Furthermore, the zero-trust nature does not necessitate any classified storage requirements or additional security measures as there is no secure data stored on the tablet. This funding would put four tablets in the hands of ULI at every flying base across the ANG and supplements existing programs of record.

2. Program Details.

Quantity	Unit Cost	Program Cost
320 Zero-Trust Classified Tablets w/Puck	**2,137.90**	**$684,128**
Total		**$684,128**

INTELLIGENCE: ELECTRONIC SUPPORT COLLECTION & ANALYSIS SYSTEM

1. Background: The ANG requires modern configurable electromagnetic spectrum support (EMSO) kits to conduct multi-domain Radio-Frequency (RF) spectrum surveys for homeland defense and overseas operations. The Electronic Support Collection and Analysis System enables Multi-Domain Operations capability and must be highly mobile with a subset of remote-capable components to support diverse geographic coverage and mission sets. The mobile system can be used for Satellite Communication (SATCOM) signals intelligence exploitation, RF spectrum mapping, vulnerability analysis, pattern of life development, baseband network mapping of any devices connected to the SATCOM modems, and geolocation of the SATCOM terminals for tipping/queuing of other collection assets during contingency operations. The mobile workstations will be used to locally manage endpoints and require dedicated RF switching capabilities with ethernet ports for remote operations and transmission of collected data. All workstations will be self-contained and ready for rapid worldwide deployment in a dedicated dustproof, waterproof, HVAC-controlled, and rugged protective case. Additionally, a tactical version is required that operates off the same common hardware and software baseline. These systems will perform SATCOM automated RF surveys and automated cyber network mapping with searchable packet capture software applications to provide rapid RF and network mapping functions for Space, ISR, SOF, and Cyber units. This will enhance intelligence preparation of the battlespace, RF spectrum awareness, pattern of life development, vulnerability analysis, and troubleshooting for both domestic and overseas contingency operations. The EMSO kit will be highly configurable and can be adapted to suit each unit's unique mission requirements, current equipment inventory, and specific operations parameters.

2. Program Details.

Quantity	Unit Cost	Program Cost
Deathwatch System	N/A	$1,000,000
Deathwatch Lite System	N/A	$400,000
SCEPTRE Integration	N/A	$150,000
Monarch Three-Screen + Laptop	N/A	$250,000
Monarch Laptop	N/A	$150,000
Automatic RF Spectrum Survey Software Application Add-On	N/A	$150,000
Automatic Cyber Network Survey and Mapping Software Application Add-On	N/A	$150,000
Cyber Network Packet Capture and Searchable Database Software Application Addon	N/A	$150,000
4 Fly-Away Dual Pol/Multiband Antennas	$500,000	$2,000,000
Fly-Away High-Gain UHF Antenna	N/A	$5,000
Fly-Away Tactical SHF Antenna	N/A	$200,000
Fly-Away Tactical UHF Antenna	N/A	$5,000
Honey Badger RF Trainer Kit	N/A	$600,000
Total		$5,210,000

INTELLIGENCE: AUGMENTED REALITY FOR FULL MOTION VIDEO

1. Background. Remotely piloted aircraft (RPA) intelligence requires augmented reality to overlay threat and situational awareness data to crew members. Intelligence operators working in RPA squadron operations centers lack the capability to overlay threat or situational awareness data on the pilot or sensor operator's heads up displays. This results in lengthy and confusing threat and target identification efforts for pilots and sensor operators. Augmented reality allows for increased situational awareness to RPA aircrew and customers, increasing survivability by providing real-time threat information overlaid onto the full-motion video feeds. This capability also provides increased situational awareness on targets, reducing the find, fix, track, target, engage, and assess timeline to increase lethality for the RPA enterprise. This matching of human and machine interface is in line with the Next-Generation ISR Dominance Flight Plan and the National Defense Strategy. The ANG requires one kit for each of the 35 ground control stations.

2. Program Details.

Quantity	Unit Cost	Total Cost
35 RPA Kits	**$100,000**	**$3,500,000**
Total		**$3,500,000**

INTELLIGENCE: LOCALIZED SERVERS FOR GEOSPATIAL INTELLIGENCE EXPLOITATION

1. Background. ANG Geospatial Intelligence analysts rely on readily available imagery to accomplish tasked mission sets. A File Transfer Protocol (FTP) server will enable analysts access to relevant imagery for mission execution within the Distributed Ground System (DGS) and targeting sites will create parity with active-duty counterparts. An FTP server is required to use National Geospatial Intelligence Agency's orchestration services. Access to orchestration services provides an analyst the ability to request imagery directly from databases that house all imagery available to the user. Orchestration services allows imagery to be automatically downloaded based on a user's defined parameters. This in turn gives analysts a fully, downloaded, workable image to then be exploited within an electronic light table. The server will need to be mobile in order to support cooperative mission assurance plans in the event analysts need to exercise within the Agile Combat Support construct. With FTP integration this will allow analysts to apply automated workflows, enabled by project NEXUS, to be incorporated into the DGS and targeting cycles.

2. Program Details.

Quantity	Unit Cost	Total Cost
10 FTP Servers	**$200,000**	**$2,000,000**
Total		**$2,000,000**

MQ-9

- **Persistent Attack and Long Endurance Battlespace Awareness**
- **ANG MQ-9 Units Execute 50% of All Conventional MQ-9 Combat Lines**
- **ANG MQ-9 aircraft comprise 8% of all Total Force MQ-9 Aircraft**

The MQ-9 remotely piloted aircraft (RPA) comprises the largest Major Weapons System community in the Air Force. The MQ-9 Reaper is a medium-to-high altitude, long-endurance, remotely piloted system. Due to the robust weapons payload capacity and long-endurance, the MQ-9 is able to prosecute time-sensitive targets through precision targeting. The aircraft employs up to eight laser-guided AGM-114 Hellfire missiles and/or four GBU-12/38/49/54 500-pound precision-guided bombs. Additionally, the MQ-9's long-endurance makes it the ideal platform to provide intelligence, surveillance, and reconnaissance by employing multiple sensors to provide real-time data to commanders and intelligence specialists at all levels.

In addition to supporting their individual state requirements, ANG units fly combat missions 24 hours a day, 365 days a year in every major combat theater. The ANG manages flight training operations at two locations and supports test and evaluation at a third. Five launch and recovery element sites can support continuation training and support to domestic operations across the continental United States.

In 2023, the ANG flew eight MQ-9 flight hours in support of search and rescue operations, and approximately 2,000 MQ-9 flight hours of continuation training for Air Combat Command, the Air National Guard, and the United States Marine Corps.

MQ-9
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Critical Capabilities List

- Command and Control Resiliency
- Multi-Spectral Targeting System Resolution and Computing Improvements
- Joint Airborne Network Extension for Cross-Banding, Translation, And Correlation
- MQ-9 Multi-Domain Operations Program of Record Equipment Alignment
- Long Endurance, Stand-In Electronic Warfare For Joint Force Survivability

Essential Capabilities List

- Broad Spectrum All-Domain Sensors
- Multi-Function Aperture Replacement for Legacy Synthetic Aperture Radar
- Mixed Reality Heads Up Display Technology
- Beyond Line-of-Sight Intelligence, Sensor, and Fires Coordination
- Group 1-5 Unmanned Aircraft System Adaptive Airborne Enterprise

Desired Capabilities List

- Arctic Environmental Hardening for Aircraft and Ground Equipment
- Dislocated Unit Access to Ground Based Detect and Avoid Radar Feed
- Technologies to Enable More Permissible Due Regard Alternate Means of Compliance Measures
- Power System Capable of Restarting Aircraft in An Austere Location
- Low Size, Weight, and Power Anti-Ice and De-Ice Capability

MQ-9: COMMAND AND CONTROL RESILIENCY

1. Background. ANG MQ-9 aircraft require an upgrade to the existing satellite communications (SATCOM) equipment used for command and control (C2) and payload dissemination. The current SATCOM configuration does not allow the MQ-9 to continue to provide the effects required by the Joint Force. Transitioning C2 and payload dissemination to satellites in Low Earth Orbit (LEO), will provide the increased resiliency and data throughput to drastically change the way MQ-9s are employed. Additional beyond line-of-sight connections and capabilities, to include mesh networks, minimum latency datalinks, and Manned-Unmanned Teaming will provide further resiliency for command and control and allow the MQ-9 to be an edge node for connecting other players within the larger Joint Force communications network. 24 ANG MQ-9 aircraft will require upgraded C2 communications equipment. Additionally, five spare kits are required for continuity of mission operations.

2. Program Details.

Quantity	Unit Cost	Program Cost
NRE	N/A	$9,000,000
29 P-LEO SATCOM Kits	$200,000	$5,800,000
Total		$14,800,000

MQ-9: MULTI-SPECTRAL TARGETING SYSTEM RESOLUTION AND COMPUTING IMPROVEMENTS

1. Background. ANG MQ-9s require an upgrade to the Multi-Spectral Targeting System (MTS) for deep-look, find, and fix effects. The current high-definition electronics unit for the MTS is outdated and is the limiting factor in improving the capabilities of the MTS. The intelligent electronics unit (iEU), using Sensor Open Systems Architecture compliant hardware, provides the computational power to dramatically improve combat identification and enable artificial intelligence/machine learning algorithms to run on the sensor data inside the MTS. This iEU upgrade provides a significant improvement in the MQ-9s passive find/fix capability, filling one of the Combat Air Force's critical capability gaps in that area. Militarized systems in emission control or highly mobile systems executing emit-and-move tactics are still susceptible to passive find/fix tactics utilized by the MQ-9 MTS. ANG MQ-9 aircraft will require 24 iEUs. In Additionally, five spare kits are required for continuity of mission operations.

2. Program Details.

Quantity	Unit Cost	Program Cost
NRE	N/A	$5,000,000
29 MTS Intelligent Electronic Units	$500,000	$14,500,000
Total		$19,500,000

MQ-9: JOINT AIRBORNE NETWORK EXTENSION FOR CROSS-BANDING, TRANSLATION, AND CORRELATION

1. Background. The MQ-9 is an optimal platform to perform Airborne Network Extension (ANE) duties for the Joint Force. The remotely piloted nature of the MQ-9 affords the Joint Force an invaluable capability to extend vital targeting networks into Anti-Access Area Denial regions. Working cross-band, an ANE node should connect the many disparate waveforms and act as a universal translator and correlator for the Joint and Coalition Forces in a region. The robust datalink afforded by the ANG SATCOM modernization initiative will supply remote Command and Control elements the ability to backhaul and forward-pass vital data. The persistence that the MQ-9 platform affords ensures that the kill web can function at a time and place of the Joint Force's choosing. ANG MQ-9 aircraft will require 10 ANE pods.

2. Program Details.

Quantity	Unit Cost	Program Cost
NRE	N/A	$500,000
10 ANE Pods	$5,000,000	$50,000,000
Total		$50,500,000

MQ-9: MQ-9 MULTI DOMAIN OPERATIONS PROGRAM OF RECORD EQUIPMENT ALIGNMENT

1. Background. ANG MQ-9 fleet is not programmed to receive the Air Combat Command (ACC) Program of Record's latest Block 5 Multi Domain Operations (M2DO) configuration. Failure to adopt the Block 5 M2DO configuration will make future ACC and United States Marine Corps (USMC) sensors and components incompatible with the ANG MQ-9 fleet. The Block 5 M2DO configuration expands on the previous ANG Ghost Reaper initiative and ANG Command and Control Resiliency efforts by adding components that improve onboard power generation, power distribution, networking, GPS resiliency, open-mission systems, and an updated Multi-Intelligent Smart Processing (MISP) Virtual Network Architecture interface and secure connections for data dissemination. Procuring the missing pieces of the Block 5 M2DO configuration will ensure ANG MQ-9 aircraft are ready for worldwide deployment with the latest hardware and capabilities available to the Joint Force. ANG MQ-9 requires 29 Block 5-25 (M2DO Enabler) Retrofit kits, Link-16 kits, and Open Mission Systems (OMS) Stellar Relay kits. Additionally, ANG MQ-9 must complete integration on the previously purchased MISP kits to enable full M2DO data dissemination capabilities.

2. Program Details.

Quantity	Unit Cost	Program Cost
NRE (MISP data dissemination)	**N/A**	**$4,000,000**
29 Block 5-25 (M2DO Enabler) Retrofit Kits	**$1,000,000**	**$29,000,000**
29 Link-16 Kits	**$500,000**	**$14,500,000**
29 OMS Stellar Relay Kits	**$500,000**	**$14,500,000**
Total		**$62,000,000**

MQ-9: LONG ENDURANCE, STAND-IN ELECTRONIC WARFARE CAPABILITIES FOR JOINT FORCE SURVIVABILITY

1. Background. By leveraging the remotely piloted nature of MQ-9 as an Electronic Warfare (EW) platform, Combatant Commanders are afforded an EW asset that can operate at increased levels of acceptable risk and increase survivability for joint force stand-off munitions and manned assets. MQ-9's inherent long-endurance ensures it can perform persistent EW and alleviate demand on low density assets like the EA-18G Growler. What MQ-9 lacks in output power can be compensated for by operating in mass on multiple axis with multiple techniques. By promulgating EW systems on MQ-9 throughout an area of contest, joint forces can be made aware of changes in an adversary's Electronic Order of Battle and ensure appropriate adjustments are made on manned defensive systems. ANG MQ-9s require 10 EW pods.

2. **Program Details.**

Quantity	Unit Cost	Program Cost
NRE	N/A	$5,000,000
10 Electronic Warfare Pods	$2,100,000	$21,000,000
Total		$26,000,000

C-130 Special Mission

- **Special Operations Forces/Combat Search and Rescue (SOF/CSAR)**
- **Special Mission (Airborne Firefighting, Antarctic Logistics)**
- **ANG CSAR HC-130 Units Provide 38% of the Total Fleet (NY, AK, CA)**
- **ANG LC-130s Provide 100% of the Total Fleet (NY)**

C-130 Special Mission aircraft include:

HC-130J Combat King II - HC-130Js operate as the Department of Defense's only dedicated fixed-wing Personnel Recovery (PR) and Combat Search and Rescue (CSAR) platform. HC-130J crews provide frontline expertise in the execution of CSAR in dynamic and contested threat environments. HC-130J crews leverage unique onboard tracking equipment, communication systems, training, and a comprehensive understanding of tasking supporting assets on a battlefield. This short notice response and expertise maximizes the survivability of isolated personnel (IP) in enemy territory before an adversary can capture and exploit the IP for information or the degradation of U.S. forces morale. Domestic activations of the HC-130J allow for contingency and crisis response through the HC-130J's medical evacuation, refueling, airdrop, and transport capabilities. HC-130J crews accomplish their mission under the CSAR motto *"These things I do, that others may live."*.

LC-130H - The LC-130H operates on snowfields in remote areas of the Polar Regions in support of the National Science Foundation (NSF). To keep the aircraft up to date, several modification efforts are underway including eight bladed propellers and T-56 3.5 engine modification. The ANG is working with the NSF to support a pod-based scientific payload capability.

C-130 Special Mission
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Critical Capabilities List

HC-130J
- Combat Search and Rescue Mission Management Suite
- On-Board Multi-Band Secure Global Networking
- Mount for Multiple Podded Solutions with the Ability to Interface with Mission Management Suite
- Multi-Radio Modern Crypto Compatible Communication System
- Modernized Countermeasures for Joint Force Survivability

LC-130H
- Self-Protection Capability
- Propulsion System Upgrades
- Updated Avionics/Instrumentation and Associated Training Devices
- Common Mobility Air Forces Mission Computer
- Polar Construction Skiway Team Equipment/Gear

Essential Capabilities List

HC-130J
- Synthetic Aperture Radar /Ground Moving Target Indicator to Locate Passive Survivor Signatures and Organic Threat Identification within the Battle Space
- Multi-Function Capabilities to Meet Agile Solutions for Intelligence Collection Systems
- Distributed Mission Operations Simulators to Enhance Combat Search and Rescue Coordinator Training for Major Combat Operations
- Integrated Second-Generation 406 MHz PLB Interrogator and Next Gen Survival Radio Interrogation and Communication Capability

LC-130H
- Digital Audio Interphone Communication System
- High-Speed Ramp and Door
- Center Wing Box Replacement Program
- High-Frequency Radios with SELCAL
- Radar Upgrade

Desired Capabilities List

To save space, desired lists can be obtained upon request from NGB/A5.

HC-130J: COMBAT SEARCH AND RESCUE MISSION MANAGEMENT SUITE

1. Background. ANG HC-130Js require an integrated mission management suite utilizing a modular open systems approach to integrate and manage combat search and rescue data across multiple domains. Aircrew must have the ability to manage, sort and prioritize isolated personnel data to direct multiple recovery missions in a peer contested environment. The software-definable requirements for this integrated tactical mission suite must allow HC-130J aircrew to add, remove and modify multiple joint force standard payloads interfacing with open architecture podded solutions. This suite must meet HAF requirements for Joint All Domain Command & Control and seamlessly integrate into the Advanced Battle Management System requirements and capabilities. Additionally, the interface must provide aircrew with a common operating picture to maximize the capability to coordinate the Combat Search and Rescue mission. One suite is required for each of the 12 HC-130J aircraft in the ANG.

2. Program Details.

Quantity	Unit Cost	Program Cost
NRE	**N/A**	**$10,000,000**
13 Software Definable Radio Suites*	**$250,000**	**$3,250,000**
13 Moving Map Display Group A Kits*	**$150,000**	**$1,950,000**
COP Engineering	**N/A**	**5,000,000**
Total		**$20,200,000**

* Includes 10% spares.

HC-130J: ON-BOARD MULTI-BAND SECURE GLOBAL NETWORKING

1. Background. ANG HC-130Js require secure, continuous, on-board connectivity over wide-band beyond-line-of-site (BLOS) systems. The requirement to communicate and disseminate information securely via BLOS with multiple assets and agencies is critical to the HC-130J's ability to execute its doctrinal role of combat search and rescue coordinator (CSAR-C). The limited voice-only BLOS capability hinders the CSAR-C's ability to gather information in a timely manner and severely limits data flow during CSAR operations. The HC-130J needs the ability to utilize secure internet while on board the aircraft for rescue forces to fully support information superiority operations. Furthermore, the HC-130J requires enhanced situational awareness during domestic support operations with on-board unclassified internet capability for civil agency data and video interoperability. The integration of an organic digital network for unencrypted/encrypted internet on-board delivers efficient information sharing across Multi-User Internet Relay Chat Secret Internet Protocol Router, Joint Worldwide Intelligence Communications System, and Non-Classified Internet Protocol Router architectures. One Software Definable Radio (SDR) system is required for each of the 12 HC-130Js in the ANG.

2. Program Details.

Quantity	Unit Cost	Program Cost
SDR NRE	N/A	$9,000,000
13 SDR Suite*	$250,000	$3,250,000
13 Full Motion Video*	$200,000	$2,600,000
13 Internet On-Board*	$300,000	$3,900,000
Totals		$18,750,000

* Includes 10% spares.

HC-130J: MOUNT FOR MULTIPLE PODDED SOLUTIONS WITH THE ABILITY TO INTERFACE WITH MISSION MANAGEMENT SUITE

1. Background. ANG HC-130Js require the ability to carry theater/mission-specific capabilities of electro-optical sensors, Search and Rescue/Ground Moving Target Indicator (SAR/GMTI), and electronic intelligence (ELINT) payloads mounted on external hard points without detrimental effects to baseline aircraft capabilities, specifically aerial refueling. This allows a tailored capability to geolocate and authenticate isolated personnel through low probability of intercept/low probability of exploitation or passive means. The sensors listed are joint force standard payloads capable of being integrated into a podded solution set. Twelve ANG HC-130Js require an agile pod with one spare for each location (15 total) to outfit the ANG HC-130J community. Additionally, two of each sensor type listed are required for each ANG HC-130J location.

2. Program Details.

Quantity	Unit Cost	Program Cost
RF Jammer NRE	**N/A**	**$5,000,000**
6 SAR/GMTI*	**$5,000,000**	**$30,000,000**
SAR/GMTI NRE	**N/A**	**$5,000,000**
6 ELINT Payloads*	**$700,000**	**$4,200,000**
10 Pods**	**$900,000**	**$9,000,000**
Total		**$53,200,000**

* Includes 10% spares.
** ANG owns 5

HC-130J: MULTI-RADIO MODERN CRYPTO COMPATIBLE COMMUNICATION SYSTEM

1. Background. ANG HC-130Js require the ability to utilize modern waveforms and crypto to communicate. Currently, the HC-130J must rely on an outdated beyond line-of-sight (BLOS) voice communication radio to exchange critical survivor information from command-and-control sources, delaying the isolated personnel recovery effort. Additionally, the current radio suite on the HC-130J does not support DoD and NSA mandates for updated waveforms and crypto. The UHF Follow-On satellite constellation has reached end-of-life and must be replaced with Mobile User Objective System capable radios to ensure BLOS capability. Furthermore, the current radios do not support second-generation Anti-Jam tactical UHF radio, SATURN, nor the new DoD mandated VINSON/ANDVT crypto. Without updated radios, HC-130J crews are at risk of not receiving critical survivor data, or exposing data to adversaries since it cannot be passed securely between PR assets. Two crypto compatible radios are required for each of the 12 HC-130Js in the ANG.

2. Program Details.

Quantity	Unit Cost	Program Cost
Crypto Compatible Radio Modernization NRE	**N/A**	**$3,800,000**
30 Crypto Compatible Radios	**$220,000**	**$6,600,000**
Total		**$10,400,000**

HC-130J: MODERNIZED COUNTERMEASURES FOR JOINT FORCE SURVIVABILITY

1. Background. ANG HC-130Js require countermeasure suite upgrades to increase its survivability and provide support to the Joint Force. By leveraging forward deployed HC-130Js as an Electromagnetic Warfare (EW) platform, Combatant Commanders are afforded an EW asset which is operating in conjunction with strike packages and increases the survivability of both Combat Search and Rescue assets and Joint Forces in the operating area. Equipping HC-130Js with digital radio frequency memory jammers allows the aircraft to target a specific set of EW targets while executing Personnel Recovery (PR) missions with little to no input from the crew. By promulgating EW systems on HC-130Js throughout an area of responsibility, Joint Forces gain an additional layer of EW protection while the asset is providing personnel recovery support during periods of vulnerability. ANG HC-130Js require 6 EW pods.

2. Program Details.

Quantity	Unit Cost	Program Cost
NRE	N/A	$5,000,000
6 EW Pods	$2,100,000	$12,600,000
Total		$17,600,000

LC-130: SELF PROTECTION CAPABILITY

1. Background. ANG LC-130Hs require an ability to operate in a contested environment, especially as our mission set refocuses towards the resurgent Arctic. The aircraft is devoid of the traditional defensive systems that all other C-130s have. As the MAF prepares to meet the pacing challenges of China and Russia, it is imperative that we are suitably equipped to survive in the high-end fight. A podded, MAF common-carry solution would represent the most 'bang-for-the-buck' given the current capability gap. Furthermore, such a modular solution would be ideal to pivot from wartime mission to peacetime science support. However, certain baseline functions would need to be installed to meet this capability, including an ALR-69A radar warning receiver (or equivalent), ALE-40/47 countermeasures dispensing system (or equivalent), and power + MIL-STD 1553 Bus to the outboard pylon positions for any podded solution. All ten ANG LC-130s require self-protection systems.

2. Program Details.

Quantity	Unit Cost	Program Cost
10 RWR Installations	**$500,000**	**$5,000,000**
10 Common Pod Installations	**$2,000,000**	**$20,000,000**
10 Hardpoint Power/Data Installations	**$330,000**	**$3,300,000**
10 Modular, Mission-Tailored Self-Protection Pods	**$1,000,000**	**$10,000,000**
Total		**$38,300,000**

LC-130: PROPULSION SYSTEM UPGRADES

1. Background. ANG LC-130Hs require increased performance, efficiency, and reliability. The LC-130H fleet has ski-equipped landing gear to enable landings and takeoffs on snow and ice. The present method to takeoff from deep snow field runways requires Jet Assisted Take-Off rocket motors, which are no longer produced. Current operations require increased performance, efficiency, and reliability which highlight the need for a comprehensive propulsion upgrade to the LC-130H fleet. The LC-130s have already received the NP2000 modification, however it has become apparent that the NP2000 propeller lacks a robust de-icing system that is comparable to the 54H60 propeller. This has caused one class B mishap and two Aviation Safety Action Program reports due to damage caused by ice shedding in moderate ice. This system needs improvement to prevent future mishaps. The LC-130s still require the 3.5 engine modification to complete the propulsion upgrade. Upgrading the T-56 engine with the Rolls Royce 3.5 modification, with redesigned compressors and turbines, increases engine life cycle, improves fuel economy, and improves aircraft availability. All 10 ANG LC-130H aircraft require this final phase of the propulsion modernization.

2. Program Details.

Quantity	Unit Cost	Program Cost
3.5 Engine Upgrades at Component Repair Facility	$1,500,000	$1,500,000
NP2000 De-Ice System Development	$10,000,000	$10,000,000
10 NP2000 De-Ice System Development	$1,000,000	$10,000,000
40 3.5 Engine Installs	$1,200,000	$48,000,000
Total		$69,500,000

LC130: UPDATED AVIONICS/INSTRUMENTATION AND ASSOCIATED TRAINING DEVICES

1. Background. The ANG LC-130H fleet requires updated avionics to ensure continued global airspace access. LC130Hs face severe sustainment challenges with current avionics and cockpit instrumentation, and will be out of compliance with Communications, Navigation and Surveillance/Air Traffic Management (CNS/ATM) mandates if not modernized. Additionally, tactical night operations continue to suffer with non-Night Vision Imaging System (NVIS) compliant lighting. To eliminate critical sustainment issues due to Diminishing Manufacturing Sources (DMS), and to meet required mandates and Air Force Instructions, this modernized cockpit will include: a multifunction engine instrument display system, automatic dependent surveillance-broadcast capability, NVIS compatibility, and a modern flight management system with global positioning system (GPS) approach and polar navigation capabilities. Updated avionics address CNS/ATM mandates and increase operational efficiency by opening up airspace routes with stringent navigational requirements and allow the use of GPS approaches. An NVIS--compatible and modernized glass cockpit reduces crew workload, lowers maintenance costs, and increases capability and sustainability to operate safely at night. In order to produce a fully NVIS compliant aircraft, all L1 (H2) and L1A (H2.5) aircraft must receive the NVIS baseline Time Compliance Technical Orders (TCTOs) that modify the side panels and center console. There are 6 LC-130H aircraft that need these TCTOs completed. Lastly, due to communications limitations imposed by polar operations, LC-130Hs require a hard-wired satellite voice/data connectivity with the ability to call both secure and unsecure cell phones, landlines, and tied into the intercom system. Currently, the only solution to this is the Iridium constellation for high-latitude satellite communications. All 10 ANG LC-130H aircraft require avionics and communication system upgrades.

2. Program Details.

Quantity	Unit Cost	Program Cost
Avionics Upgrade NRE	N/A	$50,000,000
10 Avionics Kit	$5,700,000	$57,000,000
6 NVIS TCTO Kits	$50,000	$300,000
10 NVIS Kits	$465,000	$4,650,000
NRE Communications Upgrade	N/A	$1,000,000
10 Flight Deck Communications Upgrade	$220,000	$2,200,000
Total		$115,150,000

LC-130: COMMON MOBILITY AIR FORCES MISSION COMPUTER

1. Background. ANG LC-130Hs require a robust, secure tactical data link (TDL). TDL provides a command and control (C2) link and maximizes aircrew situational awareness with beyond line-of-sight capabilities. TDL also provides critical real-time information to the LC-130H aircrews such as friendly aircraft position, weather conditions, and hostile threat locations, as well as allowing integration through podded solutions. This increases the LC-130H's ability to effectively participate in the network-centric battlespace. Recent operations have highlighted the need for comprehensive, networked C2 awareness, and integration of aircraft systems. Due to routine operations in the polar regions, the LC-130H will need to upgrade to Radios with voice capability and Generation 6 Mobile User Objective System satellite communications radios. A common MAF mission computer will reduce communication transmission time and provide aircrew with the information necessary to adjust mission profiles in accordance with changing conditions and commander's guidance. All 10 ANG LC-130Hs require the common MAF mission computer.

2. Program Details.

Quantity	Unit Cost	Program Cost
MAF Mission Computer NRE	N/A	$400,000
10 RTIC Hardware Kits	$560,000	$5,600,000
10 Radios	$220,000	$2,200,000
Total		$8,200,000

LC-130: POLAR CONSTRUCTION SKIWAY TEAM EQUIPMENT / GEAR

1. Background. ANG LC-130Hs require equipment for the polar construction skiway team (PCST) and the ski landing area control officer (SLACO) team. These teams are required to forward deploy to remote areas, establish a forward operating base, and construct a skiway to support LC-130H operations. The PCST is subject to harsh arctic conditions and requires specialized gear for survival. Additionally, specialized equipment is required to prepare the landing surface, on ice or snow, for a ski equipped aircraft. Extreme cold weather life sustaining gear such as cold weather tents, clothes, generators, heaters, cooking equipment, and communications equipment are required for the survival of the team. The team consists of 20 personnel, any member of the 109AW could be tasked with supporting the PCST. This requires all crew members and maintenance personnel to be issued the same highly specialized extreme cold weather clothing. To be able to successfully build a skiway, equipment such as snowmobiles, groomers, flagging, ice/snow measuring tools, general hand tools, overt/covert lights, and remote refueling operations equipment are needed. Finally, an LC-130-loadable extreme cold weather tractor is required for skiway grooming, heavy lifting, aircraft maintenance, and aircraft towing. A formal sustainment program needs to be established to maintain all gear and equipment in good working order.

2. Program Details.

Quantity	Unit Cost	Program Cost
Grooming Tractor	**$300,000**	**$300,000**
PCST Equipment	**N/A**	**$300,000**
210 Extreme Cold Weather Clothing Kits	**$2,000**	**$420,000**
SLACO Equipment	**N/A**	**$200,000**
50 Extreme Cold Weather Clothing Sustainment Kits	**$2,000**	**$100,000**
Total		**$1,320,000**

C-32B and C-40C

C-32B: The C-32B provides dedicated rapid response worldwide airlift to the Commander, United States Special Operations Command, in support of the US Government domestic and overseas crisis response activities.

C-40C: The C-40C provides worldwide distinguished visitor transportation for Congressional, Department of Defense, Air Force, and National Guard missions. The primary mission of the C-40 is to ensure passenger safety and comfort while providing the utmost in reliability.

C-32B and C-40C
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Critical Capabilities List

C-32B
- Satellite Based Augmentation System
- Enhanced Flight Vision System

C-40C
- Aircraft Communication Addressing and Reporting System and Controller-Pilot Data Link Communications Avionics Upgrade
- Large Aircraft Infrared Countermeasure System Replacement
- M-Code Global Position System
- Upgraded Weather Radar

Essential Capabilities List

C-32B
- None

C-40C
- Interior Tech Refresh
- Modernized In-Flight Entertainment System

Desired Capabilities List

C-32B
- None

C-40C
- Galley Refresh

C-32B: SATELLITE BASED AUGMENTATION SYSTEM

1. Background. The ANG C-32B mission requires a Satellite-Based Augmentation System (SBAS) to increase the reliability and accuracy of GPS operations. SBAS enables satellite-based approaches to precision minimums and ensures full compliance with Automatic Dependent Surveillance-Broadcast mandates. Additionally, this system will reduce the C-32B's reliance on ground-based navigational aids for terminal area guidance. One system is required for each of the two C-32Bs as well as spare parts for the system.

2. Program Details.

Quantity	Unit Cost	Program Cost
SBAS Non-Recurring Engineering	N/A	**$4,500,000**
2 SBAS Kits	**$4,500,000**	**$9,000,000**
Spare Parts	**$500,000**	**$500,000**
Total		**$14,000,000**

C-32B: ENHANCED FLIGHT VISION SYSTEM

1. Background. The ANG C-32B mission requires an enhanced flight vision system (EFVS) to execute operations with reduced weather minimums. The EFVS increases situational awareness and safety during operations in severe weather and periods of low visibility. The EFVS package includes a heads-up display (HUD) fused with an enhanced vision system. The HUD is a means to provide all primary flight display information to the pilot, increasing pilot situational awareness, and decreasing pilot workload. This technology is commercially available and approved by the Federal Aviation Administration in a Supplemental Type Certificate for Boeing 757 installation and operation. One system is required for each of the two C-32Bs as well as spare parts for the system.

2. Program Details.

Quantity	Unit Cost	Program Cost
2 EFVS Kits	**$5,500,000**	**$11,000,000**
Spare Parts	**$1,000,000**	**$1,000,000**
Total		**$12,000,000**

C-40C: AIRCRAFT COMMUNICATION ADDRESSING AND REPORTING SYSTEM AND CONTROLLER PILOT DATA LINK COMMUNICATIONS

1. Background. ANG C-40Cs require upgraded Aircraft Communication Addressing and Reporting System (ACARS) and Controller Pilot Data Link Communications (CPDLC) for data link systems which sends messages between an aircraft and an operator's ground-base through various radio links. The current C-40C ACARS Communication Management Unit (CMU) and Very High Frequency (VHF) transmitter require software upgrades. The FAA has mandated required avionics for aircraft using US Domestic Enroute CPDLC services. Currently, the C-40C does not meet these requirements. The aircraft's Communications Management Unit and Digital Radio software must be updated to align with current FAA requirements. If not satisfied, the aircraft will not be allowed to fly in congested airspace, no longer report via ACARS, lose beyond-line-of-sight capability, and lose command and control capability. Furthermore, aircraft will be limited to flying below Flight Level 290. This will decrease safety margins as aircraft are forced to fly lower than optimal altitudes, which increases fuel cost and creates more enroute fuel stops. ANG C-40s require a CMU and VHF software update for each airframe in addition to updating any spare components.

2. Program Details.

Quantity	Unit Cost	Program Cost
3 Upgraded ACARS/CPDLC Systems	**$2,400,000**	**$7,200,000**
Total		**$7,200,000**

C-40C: LARGE AIRCRAFT INFRARED COUNTERMEASURE SYSTEM REPLACEMENT

1. Background. ANG C-40Cs require upgraded Large Aircraft Infrared Countermeasure Systems (LAIRCM). C-40Cs rely on the LAIRCM system for self-defense in contested airspace. The current LAIRCM system requires replacement due to component obsolescence by 2025. Current Concept of Operations and aircraft minimum equipment listings require a functional LAIRCM system. Without an upgraded LAIRCM system, the C-40C will not be capable of performing its primary mission of safely transporting required distinguished visitors around the world. All C-40Cs require an updated LAIRCM system and supply chain.

2. Program Details.

Quantity	Unit Cost	Program Cost
LAIRCM NRE	**N/A**	**$12,000,000**
3 Upgraded LAIRCM Systems	**$2,000,000**	**$6,000,000**
Total		**$18,000,000**

C-40C: MILITARY-CODE GLOBAL POSITIONING SYSTEM

1. Background. ANG C-40Cs require an upgraded GPS that will provide the aircraft navigation and transponder with access to the military M-Code secure GPS signal. M-code is a more powerful GPS signal which is distinct from other GPS signals (C/A and Y Code). New M-Code receivers will improve anti-spoofing and anti-jamming performance by using new and more robust cryptographic algorithms. Continued operation without M-Code capable receivers may result in significantly degraded performance in a GPS denied or degraded environment. It may also restrict aircraft from operating in contested airspace.

2. Program Details.

Quantity	Unit Cost	Program Cost
M-CODE GPS NRE	**N/A**	**$5,000,000**
3 M-CODE GPS	**$2,000,000**	**$6,000,000**
Total		**$11,000,000**

C-40C: WEATHER RADAR UPGRADE

1. Background. ANG C-40Cs require an upgraded multi-scan radar that will standardize symbology and flight information on the flight displays, provide at-a-glance situational awareness of convective weather, detection and analysis of thunderstorm threats. This will provide automatic tracking of weather which will significantly reduce flight deck workload and greatly improve safety. All 3 C-40Cs require upgraded weather radars.

2. Program Details.

Quantity	Unit Cost	Program Cost
NRE	**N/A**	**$3,000,000**
3 Upgraded Weather Radars	**$1,000,000**	**$3,000,000**
Total		**$6,000,000**

HH-60G

- **Combat Search and Rescue**
- **ANG HH-60G Units Provide 18% of the Total Fleet**

ANG Personnel Recovery (PR) helicopters and aircrew play a critical role in support of overseas contingency operations while responding to the increasingly high demand for domestic operations. There are three ANG PR helicopter units and one ANG PR training unit associated with an active-duty unit.

In 2023, ANG Rescue Squadrons (RQS's) deployed in support of multiple contingency operations. The 129 RQS worked with multiple agencies to fight fires in Northern California. Additionally, HH-60Gs conducted numerous counter-drug missions throughout the state and supported search and rescue operations including a long-range recovery in the Pacific Ocean.

The 101 RQS performed multiple missions in support of both overseas and domestic operations. The 210 RQS deployed in support of COCOM requirements and held a 24-hour state-wide, rescue alert in Alaska resulting in many lives saved.

The 188 RQS supported aircrew training for the 58 Special Operations Wing.

HH-60G
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Critical Capabilities List

- Carry-On Container to Rapidly Employ Emergent Technologies
- Expendables/Defensive Systems Modeling and Simulations
- In-Flight Simulations for Contested Degraded Operations Training Tasks
- Weapons Lethality Enhancements to Mounts, Targeting System, and Configuration
- Carry-On Shared Situational Awareness Suite

Essential Capabilities List

- Agile Combat Search and Rescue Basing Capability
- Rotor Brakes on remaining Fleet for Maritime/Shipboard Operations
- Integrated Mission Debrief Capability
- HH-60 Skis/Mounts for Arctic Operating Environment
- Defensive Systems Upgrades

Desired Capabilities List

- Performance Based Navigation Certified Area Navigation
- Mission System Software Upgrades
- Aircrew Flight Equipment Enhancements
- Instrumentation Upgrade
- Helicopter Hovering In-Flight Refueling

HH-60G: CARRY-ON CONTAINER TO RAPIDLY EMPLOY EMERGENT TECHNOLOGIES

1. Background. ANG HH-60Gs require a container that can house and employ new and emergent technologies, on a rapid timeline, in support of Combat Search and Rescue missions. Because the HH-60G does not have hard points to mount mission specific pods, the HH-60G requires a container that can be secured in the helicopter cabin to house a broad spectrum of mission and defensive systems. There are operational systems available for advanced survivor geolocation, increased battlefield situational awareness via tactical data link, and electronic attack/radar frequency defensive systems. These systems typically require power from the aircraft, a GPS location from the aircraft, and an optimized antenna allocation. The Zealous Rooster container is water resistant, temperature regulated, and has a sensor open systems architecture/open mission systems (OMS) backbone to facilitate integration and employment of new/multiple payloads. The container receives power from the aircraft, a GPS signal, and has an external connector panel to allow for multiple antenna connections. The container is securable to the cabin floor on top of the cargo hook door and has weight bearing capacity. The cargo hook door can be removed, and cabling can be routed for bottom mounted antennas. All ANG HH-60Gs require an OMS container.

2. Program Details.

Quantity	Unit Cost	Program Cost
9 Zealous Rooster OMS Containers	**$50,000**	**$450,000**
9 Sandia Labs Radio Electronics Assembly	**$1,000**	**$9,000**
9 Small Tactical Terminal Link 16 Radios	**$25,000**	**$225,000**
9 Situational Awareness Data Link Radios	**$10,000**	**$90,000**
Total		**$774,000**

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HH-60G: EXPENDABLES/DEFENSIVE SYSTEMS MODELING AND SIMULATIONS

1. Background. ANG HH-60Gs require effective radio frequency countermeasures (RFCM) to operate in a contested environment. Current HH-60Gs rely on a legacy APR-39B(V)2 and RR-180 chaff for the task. As technology has matured, smaller, lighter, cheaper means of expendable RFCM have become available. As a bridge, and potential continuation to HH-60W, the USAF HH-60G community is seeking a suite of federated and/or expendable RFCM. First, improved chaff must present a larger radar cross section (RCS), delivered in factor bands to include millimeter wave, achieving sufficient RCS blooming within the beamwidth of factor RF threats. Modeling and simulation (M&S) must be conducted to maximize the dispense location, direction, and timing of chaff. Second, active expendable decoys which present an actively emitting radar signature, that enhance survivability through decoy and/or jamming and employ techniques such as digital RF memory (DRFM) are needed. Active expendables can be dispensed via existing ALE-47 architecture or manually by the crew. Active expendables must be persistent enough to enable an escape from the missile engagement zone and must render themselves unclassified upon completion of their task. Third, HH-60Gs are pursuing means of deploying small unmanned aerial systems (SUAS) that conduct an RFCM or electronic attack (EA) effect. SUAS may be carried internally and deployed airborne from the cabin or from the ground by crew or a man-portable launcher. SUAS should be small, lightweight, affordable, and expendable while providing a layered, coordinated, potentially teamed effect. SUAS must also render themselves unclassified upon completion of their task. Finally, HH-60G will consider other means of readily available expendable RFCM, to include towed, or temporarily mounted systems.

2. Program Details.

Quantity	Unit Cost	Program Cost
RFCM Effectiveness M&S	**$2,000,000**	**$2,000,000**
1,200 ALE-47 Active Expendable Decoys	**$4,000**	**$4,800,000**
240 EA sUAS	**$10,000**	**$2,400,000**
Total		**$9,200,000**

HH-60G: IN-FLIGHT SIMULATIONS FOR CONTESTED DEGRADED OPERATIONS TRAINING TASKS

1. Background. ANG HH-60Gs require training software integrated into the electronic warfare and navigation suite to prepare for combat. Training for a GPS denied/degraded environment and against radar threats is difficult. Range schedules, cost, and threat simulator availability are all significant constraints to achieving the tasked quantity of training. Restricting training to range airspace and against only available threat simulators does not prepare aircrew for realistic combat engagements. To meet training requirements in both quantity and quality, on-board threat emulation is required. This includes radar warning receiver (RWR) training modes and threat representation such as the currently fielded Virtual Electronic Combat Training System (VECTS) and in-line navigation degradation such as Air Force Research Lab's Space Jam. RWR training modes must support pre-planned threat environments. It also must support real time simple threat injects by an on-board instructor through an easy-to-use handheld device. For navigation degradation, threat simulators shall operate in-line with no external emissions. Training systems should be software-based. No hardware modifications should be planned to existing systems. All ANG HH-60G units require VECTS and Space Jam.

2. Program Details.

Quantity	Unit Cost	Program Cost
VECTS NRE	N/A	$2,000,000
18 VECTS	$1,300,000	$23,400,000
6 Space Jam Systems	$50,000	$300,000
Total		$25,700,000

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HH-60G: WEAPONS LETHALITY ENHANCEMENTS TO MOUNTS, TARGETING SYSTEM, AND CONFIGURATION

1. Background. ANG HH-60Gs require enhanced lethality from currently fielded weapons systems to ensure crew survivability and mission accomplishment in a contested environment. These weapons enhancements ensure HH-60Gs can suppress enroute and terminal area threats when force-packaged aircraft are not available or are unable to identify the threat. The enhancements enable rapid configuration changes and flexibility. The enhancements include refurbishing all existing GAU-18 weapons cradles, installing a holographic sight which displays a continuously calculated impact point, and cabin floor mounts for additional weapons carriage. All ANG GAU-18 cradles require refurbishment by the manufacturer to replace worn parts and an inspection of wear points to ensure the mounts meet specifications. The holographic sight accounts for aircraft movement through the air mass and continuously calculates and displays the bullet impact point based on external ballistics. Two cabin floor mounts are required to carry additional crew-served weapons to exploit the advantages of flexible, side-fire weapons while still maintaining a forward firing weapon. This design allows the GAU-2s to be mounted fixed forward on the existing external gun mount system with GAU-18s mounted in the cabin for reactive side fires. All 18 ANG HH-60G will also require two holographic sights and two floor gun mounts per aircraft plus 10% spares.

2. Program Details.

Quantity	Unit Cost	Program Cost
40 GAU-18 Cradle Refurbishment	**$17,000**	**$680,000**
40 Weapons Sights	**$10,000**	**$400,000**
Cabin Floor Weapons Mounts NRE	**N/A**	**$45,000**
40 Cabin Floor Weapons Mounts	**$1,000**	**$40,000**
Total		**$1,165,000**

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HH-60G: CARRY-ON SHARED SITUATIONAL AWARENESS SUITE

1. Background. ANG HH-60G aircrews require shared situational awareness (SA) systems to quickly understand the common operating picture. The entire suite of systems will be carry-on/carry-off and airframe agnostic. The independent systems will send and receive information from well-established combat protocols that fuse data onto a portable Android Tactical Assault Kit (ATAK) hub. The hub will share information to individual nodes carried on by individual crewmembers. Each crewmember shall interface with the shared SA suite via a handheld ATAK and/or a AN/AVS-6/9-compatible clip-on imager. The clip-on imager enhances the spectral response of the ANV-6/9 to include shortwave infrared or thermal and display compatible tactical information such as waypoints, route, and datalink tracks on the eyepiece. Airframe interaction will be via temporary internal antenna mounts and temporarily secured cables. The ability to interface with already-owned military electronic flight bags, Foreflight, and automated dependent surveillance-broadcast is desired. Finally, the ATAK hub and modular nature of the shared SA Suite will inherently support rapid integration of emerging technologies, theater-specific applications, and rapid modernization.

2. Program Details.

Quantity	Unit Cost	Program Cost
72 Clip-on Imagers	$20,000	$1,440,000
72 ATAK Tablets	$1,000	$72,000
18 Mounting Brackets, Cable Kits	$100	$1,800
18 GPS Antennas	$100	$1,800
18 Portable Remotely Operated Video Enhanced Receivers	$60,000	$1,080,000
18 Modular Radio Carrying Case With Power	$70,000	$1,260,000
18 Handheld Link 16	$25,000	$450,000
Total		$4,305,600

Special Warfare

- **Combat Search and Rescue, Ground-Air Targeting and Global Access**
- **Special Operations**
- **ANG Guardian Angel Units Provide 30% of the Total Force**
- **ANG Special Tactics Units Provide 25% of the Total Force**
- **ANG Air Support Operations Units Provide 38% of the Total Force**

Special Warfare is made up of the following three squadron types:

Guardian Angel (GA) - The ANG has three squadrons consisting of combat rescue officers and pararescue and survival evasion resistance and escape. Their mission is to execute personnel recovery of downed, injured service/aircrew members and domestic operation alert. They provide recovery and emergency treatment necessary to stabilize and evacuate stateside and abroad.

Special Tactics (ST) - The ANG has two Special Tactics squadrons that are uniquely organized, trained, and equipped to conduct joint special operations and sensitive recovery missions. Special Tactics combat controllers, special tactics officers, pararescue and special reconnaissance provide quick-reaction global access to include austere airfield operations, command and control, close air support and casualty recovery.

Air Support Operations Squadrons (ASOS) - The ANG has

one Operations Group and eight Squadrons that provide multi-disciplinary, offensive ground special warfare teams that execute missions at the tactical edge with a focus on air/space/cyber access, communications, multi-domain effects, reconnaissance, and personnel recovery. ASOS units are composed of Tactical Air Control Party officers and enlisted as well as Special Warfare Mission Support. They specialize in projection of airpower to complete kill chains.

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Special Warfare
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Critical Capabilities List

Guardian Angel
- Combat Survivability Suite
- Austere Airfield Operations Kit
- Contested Command and Control Modernization
- Maritime Operations Modernization
- Cold Weather Search and Rescue Warfare Package

Special Tactics
- Contested Command and Control Package
- Extreme Cold Weather Package
- INDOPACOM Modernization
- Survey Data Collection Modification
- Spectrum Battlefield Identification Broad

Air Support Operations Squadrons
- Distributed C2 Package
- Next Generation Tactical Edge Hub
- Spectrum Unmanned Aerial System
- EMS Awareness and Attack Suite
- Ground Radio Optimization

Essential Capabilities List

Guardian Angel
- Modernization Large Maritime Vessel
- Spectrum Unmanned Aerial Systems
- Small Arms/Indirect Fire Enhancement
- Electronic Warfare Capability
- Marksmanship Trainer

Special Tactics
- Find, Fix, Target, Track Capability Modernization Suite
- Non-Kinetic Effects Suite of Tools
- Diver's Underwater Navigation and Sonar Modernization
- Portable, Airframe Agnostic Equipment and Personnel Infiltrate/Exfiltrate Equipment
- Common GCS and user interface for fielded SUAS

Air Support Operations Squadrons
- Spectrum Battlefield Identification Broad
- Multi-Spectral Emission Mitigation
- Human Performance Optimization Program
- Joint Terminal Attack Controller Tracking Application
- Self-Protection Modernization

Desired Capabilities List

In an effort to save space, desired lists can be obtained upon request from NGB/A5.

GA: COMBAT SURVIVABILITY SUITE

1. Background. ANG Guardian Angel (GA) requires modernization of the combat survivability suite, which includes signature reducing uniforms, neutral buoyant body armor, next-generation helmet systems, updated chemical, biological, radiation, nuclear and explosives (CBRNE) suits, small, unmanned aircraft system (sUAS) with artificial intelligence sensors capable of finding and fixing isolated personnel (IP), Find, Fix, Finish (F3) Targets, carrying munitions, and EW equipment. Those items will assist in access, survivability, and to protect GPS/Radio communications in A2/AD (anti-access/area denial) environments. Additionally, GA teams need over the horizon NIPR & SIPR system connectivity to monitor secure chat for incoming ballistics and receive Mission Type Order in the A2/AD environment. Neutral buoyant body armor is needed for missions in the maritime environment and current body armor systems are not maritime compatible. Existing CBRNE suits in the Air Force inventory restrict tactical capability for GA ground recovery operations. Commercial sUAS are needed to reduce time on ground by aiding in locating isolated personnel and sensitive items. GPS counter jamming and consistent radio communications systems are needed in A2/AD environments to keep GA teams effective and secure.

2. Program Details.

Quantity	Unit Cost	Program Cost
200 Signature Reducing Camouflage Uniforms	$1,800	$360,000
200 Signature Reducing Poncho	$900	$180,000
200 Hydrophobic Plate Carriers	$1,500	$300,000
200 Neutral Buoyancy Plate Sets	$2,000	$400,000
200 Next-Generation Modular Helmets	$2,000	$400,000
200 Enhanced CBRNE Suits	$1,000	$200,000
200 PAPR Mask/Blower Sets	$1,600	$320,000
200 Enhanced CBRNE Training Suits	$500	$100,000
6 sUAS/Counter UAS	$35,000	$210,000
3 GPS Counter Jamming Systems	$200,000	$600,000
3 UHF/VHF Through Jamming Communications	$100,000	$300,000
9 Fly Away Comm Terminals (NIPR/SIPR/VOIP/VOISP)	$75,000	$675,000
3 UHF/VHF Through Jamming Communications	$100,000	$300,000
40 DAR enabled Tablets (NIPR/SIPR)	$1,000	$40,000
Total		$4,385,000

GA: AUSTERE AIRFIELD OPERATIONS KIT

1. Background. ANG Guardian Angel (GA) squadrons require the capability to assess, establish, and operate Contingency Locations (CL), including Landing Zones (LZ) and Drop Zones (DZ) in austere environments in line with emerging Agile Combat Employment concepts and Tactics Techniques and Procedures. GA units running CLs will expand Air Force Special Warfare and Personnel Recovery Tast Force (PRTF) concepts of employment across all combatant commands. This will facilitate the rapid relocation and operation of PRTF aircraft and personnel for short durations to increase operational reach and degrade the effectiveness of enemy targeting. Teams must have organic mobility and the capability to survey, establish, properly mark, monitor, and run LZs/DZs. Once the CLs are established, they must load and unload cargo, and monitor, conceal, and defend rotary wing and fixed wing aircraft at the CLs. Teams need off-road mobility platforms, stand-alone survey kits, remote monitoring systems, concealment kits, and austere material handling equipment.   The off-road capable vehicles should be relatively low visibility and blend locally, can take multiple passengers, mission equipment, or at least two litter patients, and be air transportable. Teams also need individual mobility to move around the LZs; including foldable, all-terrain, electric dirt-bikes with replaceable batteries that are air transportable and can be inserted via airdrop. The remote monitoring and concealment kits must be able to be transported via the off-road vehicles, set up and packed quickly, and compatible with multiple aircraft types. The austere material handling kits must be relatively small, air transportable, and capable of loading and unloading Internal Slingable-Container Units (ISUs) and standard 463L pallets without the use of a forklift or K-loader.

2. Program Details.

Quantity	Unit Cost	Program Cost
6 Austere Airfield Operations Kit	**$250,000**	**$1,500,000**
3 Non-Standard Commercial Vehicles with Level 7 Armor For 6 Pax	**$180,000**	**$540,000**
2 Non-Standard Commercial Vehicles with Suitcase Armor For 3 Pax	**$100,000**	**$200,000**
12 Electric Dirt Bikes	**$10,000**	**$120,000**
12 Defensive Anti-Personnel/Anti-Vehicle Deterrence	**$5,000**	**$60,000**
12 Remote Monitoring Security System (Cameras)	**$5,000**	**$60,000**
12 Aircraft Concealment Kits	**$10,000**	**$120,000**
6 Austere Material Handling Kits	**$30,000**	**$180,000**
Total		**$2,780,000**

GA: CONTESTED COMMAND AND CONTROL MODERIZATION

1. Background. ANG Guardian Angel (GA) communications and austere Command and Control (C2) capabilities require modernization to be effective against National Defense Strategy threats. The increased distance between rescue forces, likelihood of isolated personnel, and the need for GA forces to establish austere command centers operating unsupported for sustained periods of time require communications upgrades for ANG GA units. Required communication capabilities are mobile, scalable, lightweight, and mesh networked radio frequency-based communications suites that are resilient in contested, degraded environments during joint operations across multiple domains. Integrated software should allow GA access to air and ground common operating pictures with active blue and red force pictures and isolated personnel geolocation. Additionally, GA needs predictive sea ice and global ocean drift model software to forecast isolated personnel drift locations on both open ocean and migrating sea ice to facilitate deliberate recoveries. For ground operations, an electronic warfare/electromagnetic attack (EW/EA) system should be included. This combined capability provides the Personnel Recovery Task Force and Combatant Commanders with agile, personnel recovery C2 nodes using joint integration to facilitate air and surface recoveries for isolated personnel in highly contested and degraded environments.

2. Program Details.

Quantity	Unit Cost	Program Cost
6 Sets Network hardware	**$20,000**	**$120,000**
18 Tactical C2 Boxes	**$1,000**	**$18,000**
18 Tactical/Waterproof Rucks	**$2,000**	**$36,000**
3 Generators	**$2000**	**$6,000**
3 Optical Comm System	**$100,000**	**$300,000**
3 COMSAT System	**$230,000**	**$690,000**
3 Negative SNR MANET	**$250,000**	**$750,000**
3 EW/EA System	**$80,000**	**$240,000**
COP, Drift model Software	**$50,000**	**$50,000**
6 Mobile Broadband Kit	**$30,000**	**$180,000**
Total		$2,390,000

GA: MARITIME OPERATIONS MODERNIZATION

1. Background. ANG Guardian Angel (GA) personnel require systemic equipment, software and hardware upgrades to the H763 Rigid Hull Inflatable Boat (RHIB), known as the Maritime Recovery Craft (MRC). The MRC will deploy from aircraft in paradrop configuration as well as shore launch on deliberate surface recoveries for isolated personnel in support of combatant commander objectives worldwide. Successful employment of the MRC, in non-permissive environments, requires operation as a standalone recovery vehicle capable of over the horizon communications, navigation, threat denial and defense unsupported for up to 24 hours. If upgrades to the current maritime recovery craft are not met, the status of GA led maritime recovery will not be viable to leverage the surface domain and give Isolated Personnel a suite of recovery options in support of the Theater Air Component Commander's scheme of maneuver to meet Joint Force Commander objectives.

2. Program Details.

Quantity	Unit Cost	Program Cost
8 Full Windshield w/ Motored Wiper	**$10,000**	**$80,000**
8 Collapsible Covered over Cabin/Helm	**$15,000**	**$120,000**
8 Mounted Center Console Mission Suite Screen	**$150,000**	**$1,200,000**
16 Sponson Storage Units	**$2,000**	**$32,000**
24 Liter Stanchions w/Stroke and Break Away	**$3,000**	**$72,000**
16 Protection Accessories	**$25,000**	**$400,000**
8 Collapsible Cold Weather Protection Housings	**$20,000**	**$160,000**
5 Self-Righting System	**$15,000**	**$75,000**
5 Modular COMSAT Systems w/ Annual Plan	**$230,000**	**1,150,000**
5 C-SEL LOS/BLOS Interrogation Radio	**$150,000**	**$750,000**
8 Deployment Kit	**$75,000**	**$600,000**
8 Engine Run Up Kit	**$10,000**	**$80,000**
6 Outboard Electronic Motors/Housings for RAM-T	**$19,000**	**$114,000**
32 Cavitation Eliminating Propeller	**$5,000**	**$160,000**
Total		**$4,993,000**

GA: COLD WEATHER SEARCH AND RESCUE WARFARE PACKAGE

1.Background. ANG Guardian Angel (GA) units require upgraded vehicles, over the horizon (OTH) communications, and protective equipment to operate in extreme cold weather environments. The outdated system was for an 18-man team and was non-air-droppable. USNORTHCOM mission analysis showed that GA needs a rapidly deployable package to meet airborne and forward deployed ground search and rescue combatant commander launch requirements in an air-droppable system. Over the past decade, GA's ability to recover isolated personnel in an extreme cold weather environments have atrophied. Modernized equipment and training are required to revive GA capabilities within this complex environment. All three ANG GA units require a mobility platform, a sustainment package, a personal performance equipment package, and an OTH communications package. Additionally, near-peer competitors have developed extreme cold weather ground transportation and communications capabilities far exceeding those of the US. ANG GA units require an all-terrain vehicle that can operate in deep snow, shifting sea ice and open water and carry up to six operators and equipment for each mission support site. ANG GA requires the ability to transport a troop size element on a long patrol in extreme cold weather. ANG GA units require a modernized personal equipment load-out specific to multi-day combat operations in extreme cold weather and their current equipment is not designed to do so. ANG GA units require durable personal equipment tested in extreme cold weather for multi-day operations to increase survivability.

2.Program Details.

Quantity	Unit Cost	Program Cost
180 GA Extreme Cold Weather Clothing	**$5,000**	**$900,000**
180 Survival Rucks	**$4,200**	**$756,000**
6 IP Sustainment Airdroppable Package	**$45,000**	**$270,000**
6 Arctic All-Terrain Vehicle	**$170,000**	**$1,020,000**
30 Jump Operation ADSB Trackers	**$10,000**	**$300,000**
Total		**$3,246,000**

ST: CONTESTED COMMAND AND CONTROL PACKAGE

1. Background. To keep up with pacing threats, ANG Special Tactics (ST) must invest in scalable, lightweight, Internet Protocol (IP) based communications capabilities. These capabilities must be compatible and additive to existing programs of record and resilient in contested, degraded environments. Special Tactics C2 requires 2x (4x receivers/transmitters) non-radio frequency (RF), anti-jam, high throughput, IP based, full-duplex optical communications link to facilitate RF emission control (EMCON) C2. The optical communications devices should act as a layer 2 / layer 3 switching device to allow for integration with existing ST communication devices. The optical communication links should provide at least 100MBps connectivity. The optical communication links should provide 2+ kilometers of range. The optical communication device should have some form of auto tracking of the distant end to allow for minor deviations of the transmission path. The radios should come with all necessary cabling and tools for leave behind network integration, portable usage, and austere operations. The radios should come with integration functionality with existing drone platforms and enable SEAD (suppression of enemy air defenses) via deceptive Electronic Warfare and Electronic Attacked (EW/EA). System must be scalable to facilitate sUAS integration, remote operation, and system synchronous teaming and complementary effects. The system must include the ability to collect and analyze signals in order to enable multi-domain operations and it must be simple to select or change effect with coherent characteristics.

2. Program Details.

Quantity	Unit Cost	Program Cost
2 Optical Communications Systems	**$100,000**	**$200,000**
2 Negative SNR MANET Suite	**$250,000**	**$500,000**
4 EW/EA System	**$80,000**	**$320,000**
TOTAL		**$1,020,000**

ST: EXTREME COLD WEATHER PACKAGE

1. Background. ANG Special Tactics (ST) units require vehicles and protective equipment to operate in extreme cold weather environments. Each modernized sustainment package includes shelters and sustainment for up to 36 personnel, mobility platforms capable of carrying one to four personnel, and tools required to establish a Mission Support Site to conduct ST missions. Over the past decades, ST's ability to conduct global access, personnel recovery, and precision strike missions in the arctic has severely diminished. Modernized equipment and training are required to revive ST's arctic capability. Both ANG ST squadrons require a mobility package, a sustainment package, and a personal performance equipment package. Near-peer competitors have developed extreme cold weather ground transportation that far exceeds US Special Operation Forces capabilities. The current issued equipment is not designed for conducting multi-day combat operations in extreme cold weather. ST units require durable personal equipment that is tested in extreme cold weather for multi-day operations to increase survivability.

2. Program Details.

Quantity	Unit Cost	Program Cost
2 Mobility Packages	$370,000	$740,000
2 Sustainment Packages	$85,000	$170,000
2 Personal Performance Equipment Packages	$225,200	$450,400
Total		$1,360,400

ST: INDOPACOM MODERNIZATION

1. Background. Due to the persistent focus on the CENTCOM area of operation, ANG Special Tactics (ST) global fighting capabilities and equipment have degraded. ST requires environment-specific individual equipment to operate within maritime, jungle, tropical and sub-tropical environments to provide capability from infiltration through actions on the objective to exfiltration. ST requires improved maritime capabilities for infiltration. This includes fins, mask, snorkel, wearable dive pouches for current fielded radios, adequate thermal protection for 65–80-degree water that is also suitable for alternate insertion extraction operations and waterproof dive packs capable of holding 60 and 120 liters. ST also requires an underwater precision navigation device to ensure arrival within 30 meters of an intended beach landing site and night vision device (NVD)/thermal optics capable of dive operations to 66 feet and useable at the surface to clear threats prior to exiting the water. Additionally, ST requires multi-spectral emissions control uniforms, hide sites, and vehicle covers to provide personal protection against adversary targeting from air and ground units. Individual equipment requirements include lightweight, breathable, water-shedding and quick drying uniforms and load bearing equipment.

2. Program Details.

Quantity	Unit Cost	Program Cost
160 Fins	**$120**	**$19,200**
160 Thermal Protection	**$300**	**$48,000**
160 Mask/Snorkel	**$150**	**$24,000**
28 Underwater Navigation Devices	**$1500**	**$42,000**
24 Waterproof NVD/Thermals	**$15,000**	**$360,000**
180 Maritime Waterproof Radio Pouches	**$150**	**$27,000**
180 Waterproof Dive Bag 60L & 120L	**$1200**	**$216,000**
210 Multi-Spectral Emission Mitigation	**$3800**	**$798,000**
160 Waterproof Stuff Sack	**$120**	**$19,200**
Total		**$1,553,400**

ST: SURVEY DATA COLLECTION MODIFICATION

1. Background. Current equipment for airfield assessment in Special Tactics (ST) is antiquated and requires extended periods of exposure for personnel as well as large logistics and manning requirements. ANG ST squadrons require a modernization of survey data collection capabilities in both the geometric and surface/subsurface domain via airborne and ground employment options. For geometric collections, a bolt on drone-based solution coupled with geometric data collection software can provide expeditious survey data collection and significantly reduce soil sample reading time. ST must modernize from the dynamic cone penetrometer (DCP) to a more holistic and expeditious interpretation of airfield capacity such as a ground penetrating radar (GPR) type system. GPR technology has the potential to provide a broad-spectrum assessment of the entire aircraft movement area sub-surface while reducing operator time on location, and improving the ability to find critical subsurface failure areas unsuitable for aircraft operations. Geometric collection data needs to include glideslope (to include obstacle distance and height measurements), airfield length and width measurements, as well as longitudinal and transverse gradient measurements. Baseline data collection of a 3,500' airfield needs to be no more than one hour with a ground user capable/initiated processing time of no more than one hour post collection. ANG ST units needs a foldable, all terrain, electric mountain bike to reduce noise signature on/around the objective area. These must be capable of airborne delivery, with minimal additional training, carry reduced maintenance requirements, and remain lightweight (less than 150lbs) for small-platform infiltration payload requirements. This platform needs a carrying capacity of 300lbs or greater, equipped with flat resistant tires, powered by an exchangeable and rechargeable power source, with a range of at least 50 miles at a sustained 35mph rate of speed. Additionally, ST needs a vehicle capable of transporting personnel and equipment. This platform must be a non-tactical vehicle capable of traversing multiple terrains, 4-wheel drive, carrying capacity of 1000 lbs above tare or greater, a range of at least 150 miles at a sustained speed of 50mph or greater and transportable in multiple aircraft platforms.

2. Program Details.

Quantity	Unit Cost	Program Cost
4 Survey Drone	$172,000	$688,000
2 Automated DCP	$50,000	$100,000
2 GPR Systems	$180,000	$360,000
20 Foldable Electric Mountain Bikes	$2,000	$40,000
20 ADS-B (IN) Receivers	$500	$10,000
4 Data Processing Equipment	$2500	$10,000
6 Non-standard Commercial Vehicles	$200,000	$1,200,000
6 Short Wave Infrared Assault Zone Maker Systems	$20,000	$120,000
Total		$2,528,000

ST/TACP: SPECTRUM BATTLEFIELD IDENTIFICATION BROAD

1. Background. ANG Tactical Air Control Party (TACP) and Special Tactics (ST) require supplemental capability to conduct Close Air Support and deep battlefield reconnaissance/surveillance in support of Joint Force Intelligence Preparation of the Operational Environment efforts. Additionally, ANG TACP and ST must be fully equipped with a diverse menu of advanced sensors to integrate with the Joint All-Domain Command and Control infrastructure. ANG TACP and ST require a tripod mounted laser range finding (LRF) device to acquire long range targets at distances greater than 10km under day/night conditions and capable of generating target locations, accurate within 0-6 meters (CAT 1 Target Location Error), to accommodate static operations in the over watch position. This system must be able to be controlled remotely from dislocated positions with full functionality and a Pan/Tilt/Zoom capability. The LRF device must be interoperable with Special Warfare Assault Kit and the ability to overcome GPS jamming and spoofing as well as have a true north finding capability in a degraded environment. ANG TACP and ST require the capability to observe multiple 1064 nanometer (nm) coded lasers out to 6 km simultaneously, in a small form factor, that can be stowed, rail mounted, or handheld with the ability to determine pulse repetition frequency code. ANG TACP require the ability to perform night operations utilizing interoperable night vision device (NVD) and Shortwave Infrared (SWIR) viewing devices. Compact laser designator, capable of providing 1064 nm and 1550 nm marking combined with a near IR pointer and integrated spot search camera. ANG TACP requires the ability to mark a target with non-pulsed 1064 nm and 1550 nm lasers in a small form factor for dismounted operations.

2. Program Details.

Quantity	Unit Cost	Program Cost
168 NVD Mountable SWIR Viewer	**$18,000**	**$3,024,000**
20 Compact Infrared / Coded Laser Camera	**$38,000**	**$760,000**
84 Combined Laser Designator / Coded Laser Camera	**$193,000**	**$16,212,000**
84 Long Range Multi-Spectrum Laser Range Finder	**$98,000**	**$8,232,000**
84 Advanced Anti-Jam / Spoof Tripod	**$69,300**	**$5,821,200**
76 Remote Pan/Tilt/Zoom Kit	**$40,000**	**$3,040,000**
Total		**$37,089,200**

TACP: DISTRIBUTED COMMAND AND CONTROL PACKAGE

1. Background. ANG Tactical Air Control Party (TACP) requires highly mobile, scalable, and maneuverable communications systems to meet the demands within Agile Combat Employment while providing a robust and resilient Command and Control (C2) node for the Joint Force. The equipment must be designed to meet the needs of echelons from the tactical edge to the highest levels of TACP Command and Control that enables Joint All Domain Command and Control. The suite must be scalable to address the future needs of the TACP weapon system as a customer agnostic force and their legacy mission of direct support to the US Army with C2, Strike, and Integration. This combined capability will provide Combatant Commanders with an agile, highly mobile, scalable, resilient, and durable command and control, precision strike and joint integration capability at the tactical edge to execute the kill chain (web) in contested and highly contested environments.

2. Program Details.

Quantity	Unit Cost	Program Cost
120 Tactical Radio Integration Kit	**$300,000**	**$36,000,000**
12 Lower Echelon Network Systems	**$2,309,000**	**$27,708,000**
Total		**$63,708,000**

TACP: NEXT GENERATION TACTICAL EDGE HUB

1. Background. ANG Tactical Air Control Party (TACP) requires a family of edge processing systems that can distribute power and data to TACP peripherals such as radios, end user devices (EUDs), and targeting equipment. These systems must also be compatible with tactical attack kit (TAK) and feature an intuitive user interface that does not demand specialized networking skills to integrate peripherals into TAK. The dismounted systems must be able to mount onto Air Force Special Warfare body armor without any special tooling. Vehicle mounted edge processing systems must be able to distribute power and data to TACP peripherals such as radios, EUDs, and targeting equipment.

2. Program Details.

Quantity	Unit Cost	Program Cost
200 Small Edge Processing Systems	**$10,000**	**$2,000,000**
200 Medium Edge Processing Systems	**$15,000**	**$3,000,000**
400 Dismounted Multi Channel Radio Cables	**$800**	**$320,000**
200 Dismounted Link-16 Handheld Radio Cables	**$800**	**$160,000**
200 Dismounted Ethernet Cables	**$800**	**$160,000**
200 EUD Cables	**$800**	**$160,000**
24 Vehicle Edge Processing System with Bags	**$30,000**	**$720,000**
200 Vehicle Cables for Five Radio Types	**$1,200**	**$240,000**
24 Ethernet Vehicle Cables	**$1,200**	**$28,800**
24 EUD Vehicle Cables	**$1,200**	**$28,800**
48 Additional Vehicle Power Cables	**$1,500**	**$72,000**
Total		**$6,889,600**

TACP: SPECTRUM SMALL UMANNED AERIAL SYSTEM (SUAS)

1. **Background.** ANG Tactical Air Control Party (TACP) requires a family of Small Unmanned Aerial Systems to conduct deep battlefield reconnaissance/surveillance, enable close air support/Joint Fires targeting, and to support and extend command and control (C2) networks. The Class I Small Unmanned Aircraft System (sUAS) must have a tactical range of up to 2.5 km with no less than 35 minutes of endurance while the Class II sUAS must have a tactical range up to 10 km with no less than 2 hours of endurance. All sUAS must have modular sensor/payload options outside of electro optical/infrared. The tethered sUAS provides similar capabilities as the sUAS but provides a sustained loiter presence to provide rear echelon organic support to forward elements.

2. Program Details.

Quantity	Unit	Program Cost
80 Class I sUAS	$20,000	$1,600,000
40 Class II sUAS	$70,000	$2,800,000
24 Class II Tetherable sUAS Bundles	$175,000	$4,200,000
24 Laser Target Designator Payloads	$180,000	$4,320,000
30 ISR Radio Module/Sleds	$8,000	$240,000
Total		$13,160,000

TACP/ST: ELECTROMAGNETIC SPECTRUM AWARENESS AND ATTACK SUITE

1. Background. ANG Tactical Control Party (TACP) and Special Tactics (ST) require communications and Electromagnetic Spectrum (EMS) awareness equipment. The equipment must be designed to provide awareness and attribution of friend and foe EMS use and offensive RF actions to degrade, disrupt, and target enemy capabilities. Additionally, the suite must be scalable to address the capacity and capability within the TACP Strike and Command and Control capabilities and legacy mission areas.

2. Program Details.

Quantity	Unit Cost	Program Cost
34 Electronic Warfare Handheld TX/RX Sensor W/ EMS Sled. Includes Amplifier, WB DF Antenna, Spare Control Cable and Radio Interface Kit	**$268,000**	**$9,112,000**
Total		**$9,112,000**

TACP: GROUND RADIO OPTIMIZATION

1. Background. ANG Tactical Air Control Party (TACP) requires upgraded peripherals and equipment for their ground radios to adapt with next-generation waveforms and agile-redundant communications. Each of the 14 squadrons require Special Warfare Assault Kit (SWAK) upgraded kits and multi-channel radio upgrades. These kits require cabling that provides data between the peripheral device and the fielded SWAK kits. The squadrons require expeditionary antenna kits for optimal communications and survivability on new and current waveforms to include HF, TSM, Link 16, UHF/VHF. Our currently fielded Mobile Adhoc Network (MANET) requires new waveform repeaters, waveform dedicated handheld radios, and waveform repeaters that can be fixed to a sUAS vehicle. To effectively maintain our current fielded equipment, every squadron needs pieces of test equipment capable of automated scripted testing for digital waveforms. Each squadron requires dedicated standalone computers with high processing power to enable effective use of all the radio programming/operating applications, and function as a server simultaneously. Each of the squadrons require Battlefield Airman System of Integrated Communications (BASIC) conversion kits for the currently fielded vehicle mounted communications pallet to be able to effectively use HF and mobile user objective system (MUOS) waveforms. The Tactical Air Control Party requires waveform optimization to increase weapons system survivability on the leading edge of the battlefield.

2. Program Details.

Quantity	Unit Cost	Program Cost
168 SWAK Upgrade Kits	$13,300	$2,234,400
56 Multi Channel Radio Upgrade Kits	$1,800	$100,800
280 Multi Channel Radio Upgrade Kits	$1,800	$504,000
280 Multi Channel Radio Upgrade Kits	$1,800	$504,000
210 Waveform Banded Antenna Kits	$1,500	$315,000
56 PTS Expeditionary Antenna Kits	$15,000	$840,000
56 Dedicated Waveform Radios	$12,000	$672,000
56 Waveform Repeaters	$6,500	$364,000
28 SUAS Waveform Repeaters	$10,000	$280,000
56 Dedicated Standalone	$2,600	$145,600
28 Automated Test Equipment	$80,000	$2,240,000
168 BASIC Conversion Kits	$5,000	$840,000
270 Waveform Optimization	$10,000	$2,700,000
Total		$11,739,800

Isolated Personnel Survivability

Tab V

- **Personnel Recovery**
- **Any Member of the Armed Forces Can Become an Isolated Personnel (IP)**
- **Combat Air Forces are at the Most Risk of Isolation and Exploitation**

IP survivability affects all our ANG personnel. The IP mission is to return to friendly control without giving aid or comfort to the enemy, to return early, and in good physical and mental condition.

ANG Aircrew play a critical role in support of overseas contingency operations and as the threat to our aircrew evolves in a near-peer conflict there is a greater risk of isolation and exploitation than ever before.

IPs modernization priorities have shifted due to the duration of isolation significantly increasing. The survival equipment our aircrew is currently flying with and SERE Tactic Techniques and Procedures they train to do not meet these new time frames.

Isolated Personnel Survivability
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Critical Capabilities List

- Desalination Capability
- Human Signature Reduction
- Multi-Spectral Ground to Air Signal for National Asset Tracking and Communication
- Digital Evasion Tool
- Passive and Active Universal Charger

Essential Capabilities List

- Automated IP Multi-Spectral Location System on Aircraft Using Existing Sensors
- Assisted Travel for the One-Man Life Raft
- New One-Man Life Raft that Reduces Size and Weight when Packed

Desired Capabilities List

In an effort to save space, desired lists can be obtained upon request from NGB/A5.

ISOLATED PERSONNEL: DESALINATION CAPABILITY

1. Background. The Isolated Personnel (IP) requires potable water for up to 14 days in a maritime environment to positively affect recovery. Currently, the CAF aircrew member is equipped with only two liters of water packed between the survival vest and survival seat kit. The proposed solution is a multi-pronged approach with a compactable device (< 3lbs) in order to fit in the current ACES II Seat Kit configuration. This device should have the capability of being operated with an injured arm and produce two liters a day for one survivor. In addition, this device would be coupled with a passive solution that would produce both potable water and caloric intake of 200 calories per serving. The tool would equip all 25 ANG CAF Wings and 53 MAF Wings.

2. Program Details.

Quantity	Unit Cost	Program Cost
500 Manual Desalination Pump (CAF)	**$1,500**	**$750,000**
1,000 Passive Desalination w/ Caloric Intake (CAF)	**$60**	**$60,000**
380 Manual Desalination Pump (MAF)	**$2500**	**$950,000**
1,900 Passive Desalination w/ Caloric Intake (MAF)	**$60**	**$114,000**
Total		**$1,874,000**

ISOLATED PERSONNEL: HUMAN SIGNATURE REDUCTION

1. Background. To effectively evade in the modernized battlefield, the Isolated Personnel (IP) must be equipped with multi-spectral signature mitigation material. These materials, when combined with TTPs will conceal against both the human eye and enemy infrared and thermal optics. The materials must be ruggedized to allow the evader to move through rough terrain and large enough to cover the evader and their equipment. Additionally, the materials should be able to cover a survivor in a one-man life raft.

2. Program Details.

Quantity	Unit Cost	Program Cost
500 Poncho Material	**$950**	**$475,000**
500 IP Shelters	**$3500**	**$1,750,000**
Total		**$2,225,000**

ISOLATED PERSONNEL: MULTI-SPECTRAL GROUND TO AIR SIGNAL FOR NATIONAL ASSET TRACKING AND COMMUNICATION

1. Background. The IP currently does not have access to a ground to Air Signaling (GTAS) for use within the open ocean environment. Furthermore, the pacing challenge we currently face limits the ability to communicate with IPs efficiently, highlighting the importance of GTAS that can maximize our friendly sensor suite. We are seeking a signaling means that can be adjustable, towable, Search and Rescue reflective, infrared, and multi-colored GTAS which can both help identify an IP within the open ocean and aid in communicating the status of the IP.

2. Program Details.

Quantity	Unit Cost	Program Cost
1,000 GTAS/Sea Communication	**$500**	**$500,000**
Total		**$500,000**

GA: DIGITAL EVASION TOOL

1. Background. Isolated Personnel need a modern digital tool to enhance their Survival, Evasion, Resistance and Escape (SERE) capabilities. Our current legacy systems and evasion charts (EVC) are inadequate for the extended distances that ANG at-risk personnel operate in and require a level of training the MAF aircrew no longer receive. We are seeking a compact and advanced smart device that can deliver real-time data to the isolated personnel. This device should provide the most suitable routes and areas to evade based on filtered options for users immediate and long-term needs. Other features should include environmental data, a digital evasion plan of action, translation services, dynamic maps, EVC, terrain analysis, signal propagation, calorie expenditure, concealment, caches, and others to be identified.

2. Program Details.

Quantity	Unit Cost	Program Cost
1,000 Digital Evasion Tool	**$1,500**	**$1,500,000**
1,000 Computers	**$2,000**	**$2,000,000**
1,000 Logistics Kit	**$1,000**	**$1,000,000**
Total		**$4,500,000**

ISOLATED PERSONNEL: PASSIVE AND ACTIVE UNIVERSAL CHARGER

1. Background. ANG Isolated Personnel (IP) require a recharging capability for long-term survival operations. Currently, IP do not have the capability to recharge any device. This gap inhibits the IP to sustain electronic devices off-grid and on the move for a prolonged period of time. ANG requires 1000 units, distributed across all ANG units, for one unit per aircraft. ANG requires the device to be smaller than 4" W x 5" x 4" and weigh less than 2 lbs, and operate in temperature variations from -20 to 60 Degrees Celsius. It must be waterproof when submerged at 1 meter at least 29 minutes. The device must have a minimum port voltage of 9-30V DC in. This device must be able to operate in austere/contested environments where it will be exposed to various climatic conditions and function in the marine environment. In addition, the device needs to accommodate various recharging methods to include manual crank arm, USB ports, cigarette lighter charging, and solar charge capable. It must be at least compatible with most standard military issue batteries. E.g. BA-5590, BB-2557.

2. Program Details.

Quantity	Unit Cost	Program Cost
500 Battery Recharging Devices (CAF)	**$1,000**	**$500,000**
500 Battery Recharging Devices (MAF)	**$1,000**	**$500,000**
Total		**$1,000,000**

Operational Training Infrastructure and Ranges

- **Operational Training Environments**
- **Range Infrastructure**

This tab supports two components: Operational Training Infrastructure (OTI) and Ranges. The first tab component is a key facet of readiness training. Operational Training Infrastructure (OTI) elements such as the ANG's Distributed Training Operations Center (DTOC) provide persistent networks, modeling and simulation expertise, and operational support for daily Distributed Mission Operations (DMO) training. DMO links a wide array of simulators at ANG, Air Force Reserve, Active Component units, and other Services, preparing warfighters for combat in joint and coalition environments.

Air Combat Command released its Enterprise Range Plan, the second tab component. As part of this plan, the ANG's OTI requires realistic, static, multispectral target surrogates to replicate real-world complex target sets and realistic full-spectrum electronic warfare emitters to replicate an Integrated Air Defense System environment. These are complemented by a Digital Radio Management System, Link 16, updated range radios, and a training data link management system.

This portfolio effectively exposes our forces to realistic, sufficiently dense, and advanced threat capability live training environments while protecting our 5th generation weapon systems' capabilities and tactics.

Operational Training Infrastructure and Ranges
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Critical Capabilities List

Operational Training Infrastructure
- Air Reserve Component Network Connectivity Across the Air Reserve Components
- Air National Guard Operating Location
- ANG Distributed Operation Center Hybrid Network Storage and File Server Upgraded Capability

Ranges
- Air Combat Maneuvering Instrumentation
- Integrated Secure Communications Suite for Enhanced Live-Fly Training
- High-Fidelity Surrogate Targets
- Realistic Integrated Electronic Warfare Threat Emitters
- Joint Advanced Weapon Scoring System

Essential Capabilities List

Operational Training Infrastructure
- N/A

Ranges
- Range Safety and Emergency Response Land Mobile Radio Systems

Desired Capabilities List

To save space, desired lists can be obtained upon request from NGB/A5.

OPERATIONAL TRAINING INFRASTRUCTURE: AIR RESERVE COMPONENT NETWORK CONNECTIVITY ACROSS THE AIR RESERVE COMPONENTS

1. Background. As ANG combat training continues to transition from live training with live weapon systems to synthetic training with simulated weapons systems, additional units need to be connected to the distributed training community. This connection serves as an entry point to utilize synthetic capabilities in meeting AFFORGEN Level 100 and 200 training requirements. This requires additional Air Reserve Component Network (ARCNet) portal fielding and upgrades to existing portals in the field to take advantage of emerging hardware technologies. Currently, there are approximately 45 units connected to the ARCNet, however, there are still airmen in ANG Mission Design Series training devices that require distributed training to maintain Combat Mission Ready training requirements. Adding and maintaining connectivity for units, not only allows members to maintain their annual Ready Aircrew Program and Ready Intelligence Program requirements, but also prepares forces for certification and ultimately presentation to a Combatant Commander. ARCNet portals must be acquired and maintained for each requisite unit, so that the 132nd Combat Training Squadron/Distributed Training Operations Center can provide this much needed capability.

2. Program Details.

Quantity	Unit Cost	Program Cost
3 Portals	**$35,000**	**$105,000**
Total		**$105,000**

OPERATIONAL TRAINING AND TEST INFRASTRUCTURE: ANG OPERATING LOCATION

1. Background. The ANG's Distributed Training Center (DTOC), via the 132nd Combat Training Squadron, requires upgraded technology to its ANG Operating Location's (AOL) Synthetic Training Environment (STE). The DTOC denies events and decreases event sizes based on the limiting factor of availability of STE resources. Denial and decreased event sizes means that the ANG units are not receiving their distributed operational training needed to complete annual training requirements. The AOL was fielded in 2016 and upgraded in 2022 and 2023 respectively. New technology requires upgrades to meet and mitigate current cybersecurity threats, while not creating additional disconnects and loss in training opportunities if the AOL doesn't exist.

2. Program Details.

Quantity	Unit Cost	Program Cost
ANG Operating Location	**$300,000**	**$300,000**
Total		**$300,000**

OPERATIONAL TRAINING AND TEST INFRASTRUCTURE: ANG DISTRIBUTED TRAINING CENTER HYBRID NETWORK STORAGE AND FILE SERVER UPGRADED CAPABILITY

1. Background. The ANG's 132d CTS/Distributed Training Operations Center requires a next generation networked hybrid storage and file server capability that upgrades their current Common Synthetic Training Environment core infrastructure. This capability will consist of both block storage and real time file access that is designed for performance and optimized efficiency providing high-speed access to simulation suite data with the ability to simultaneously run mixed application workloads utilizing cybersecurity best practices in terms of configuration and hardening. This upgraded capability running on flash memory requires far less electricity and cooling capacity to operate and offers significantly higher storage capacities available to store and process simulation terrain required of ANG MQ9, DCGS and A-10 operational training. This will also provide the capability for support to the ANG HH-60W simulators connecting to ARCNet.

2. Program Details.

Quantity	Unit Cost	Program Cost
Hybrid Storage Array	**$650,000**	**$650,000**
Total		**$650,000**

RANGES: AIR COMBAT MANEUVERING INSTRUMENTATION

1. Background. The ANG ranges require expanded instrumentation training systems in the live environment. These systems provide precision tracking data for threat emitter systems and recording air and ground system interactions providing high fidelity mission reconstruction for debrief and after-action reviews. The P5 Combat Training System (P5CTS) is composed of a remote range unit (RRU), a live monitor system utilized at the range training officer location, and an AAR system utilized at the squadron debriefing locations and training centers. The P5CTS has been deployed to 50% of the ANG locations that require the capability. Complete fielding to the remaining ANG wings and training ranges requires an additional 18 RRUs, 44 additional P5CTS pods and 12 Squadron Level Control Suites. Additionally, the ANG requires a standard configuration of software and hardware providing a common architecture for live training ranges thereby improving training and centralizing modernization and sustainment. This configuration provides a shared arrangement of range training systems and applications that is a central component of ACC's Enterprise Range Plan. It is composed of networks, servers, and workstations that consolidate training systems and software.

2. Program Details.

Quantity	Unit Cost	Program Cost
18 RRUs	**$400,000**	**$7,200,000**
44 P5CTS Pods	**$180,000**	**$7,920,000**
12 Squadron Level Control Suites	**$1,100,000**	**$13,200,000**
Total		**$28,320,000**

RANGES: INTEGRATED SECURE COMMUNICATIONS SUITE FOR ENHANCED LIVE-FLY TRAINING

1. Background. The ANG operational training infrastructure (OTI) enterprise requires realistic, standardized, full spectrum, and immersive data link and secure voice communication systems. The ANG continues to have shortfalls in standardized communication and data link systems at the critical nodes of the range training infrastructure. The OTI enterprise consists of the flying squadrons, primary training ranges, live mission operations capability centers, training centers, and forward operating locations. Acquisition of advanced radio over internet protocol (ROIP) management systems, Link 16, situational advanced data link (SADL), secure/Saturn capable range communications, and a training data link management system with man-in-the-loop data input capability will enhance ANG units' ability to accomplish realistic full-spectrum, multi-domain training. The ANG requires communication upgrades for 8 Primary Training Ranges and 23 fighter wings.

2. Program Details.

Quantity	Unit Cost	Program Cost
23 Link 16 Radios	$360,000	$8,280,000
23 SADL Radios	$30,000	$690,000
23 Data Link Management Systems	$297,000	$6,831,000
44 Range Radio Systems	$12,000	$528,000
34 ROIP systems	$480,000	$16,320,000
44 Remote Site Radios	$25,000	$1,100,000
54 Saturn Capable Radios	$56,000	$3,024,000
Total		$36,773,000

RANGES: HIGH-FIDELITY SURROGATE TARGETS

1. Background. Ready Aircrew Program tasking requirements call for the ANG operational training infrastructure enterprise to acquire realistic, multispectral target surrogates replicating real-world complex target sets. The ANG currently employs a variety of high and medium fidelity surrogate targets, but still has shortfalls in realistic target acquisition and identification training. High-value complex target arrays are needed to mimic specific near-peer surface-to-air missile and anti-aircraft artillery sites along with associated equipment. These arrays require the same characteristics as the actual entity to include visual footprint, density, and heat signatures. The ANG's four electronic warfare (EW) training ranges require fifteen high fidelity targets each associated with specific EW threat emitters.

2. Program Details.

Quantity	Unit Cost	Program Cost
33 High-Fidelity Targets	**$380,000**	**$12,540,000**
Total		**$12,540,000**

RANGES: REALISTIC INTEGRATED ELECTRONIC WARFARE THREAT EMITTERS

1. Background. The ANG Operational Training Enterprise requires realistic electronic warfare (EW) simulators to replicate a near-peer integrated air defense system (IADS) environment. range emitters are needed to replicate an array of threat representative surface-to-air missile and anti-aircraft artillery systems in an IADS. The EW Server, which acts as the range training officer's link between the existing Air Combat Training System and the threat systems, must be replaced to incorporate full duplex joint threat emitter linkage to the ranges with relevant simulations for the new threat systems. ANG requires an additional 36 Low-Cost Threat Emitter Systems compatible with training requirements for both 4th and 5th generation aircraft, 4 EW servers and 10 weapons flyout simulations to fully equip ANG EW ranges.

2. Program Details.

Quantity	Unit Cost	Program Cost
36 Low Cost Threat Systems	**$90,000**	**$3,240,000**
10 Weapons Flyout Simulations	**$1,000,000**	**$10,000,000**
4 EW Servers	**$100,000**	**$400,000**
Total		**$13,640,000**

RANGES: JOINT ADVANCED WEAPON SCORING SYSTEM

1. Background. ANG requires an upgrade to the Joint Advanced Weapon Scoring System (JAWSS) to provide greater accuracy, night and day scoring capabilities, laser scoring, and strafe scoring capabilities. JAWSS also provides virtual reality imaging weapons training system (IWTS), no-drop weapon scoring, and automated remote feedback for home-station debrief. JAWSS consists of five systems: weapon impact scoring system; laser evaluation system-mobile; large-scale target sensor system; remote strafe scoring system and, the IWTS. Each of the ANG's 11 ranges require one JAWSS capability and one Battle Damage Assessment System with solar power capability. Nine JAWSS systems are currently funded through ACC.

2. Program Details.

Quantity	Unit Cost	Program Cost
2 Replacement WISS Systems	**$750,000**	**$1,500,000**
11 Battle Damage Assessment Systems and Remote Solar Systems	**$1,100,000**	**$12,100,000**
Total		**$13,600,000**

Logistics

Logistics activities support every ANG mission area, and range from aircraft maintenance and inventory management to traffic management and petroleum, oils, and lubricants management. Logisticians in the 54 states, territories, and the District of Columbia prepare for and execute worldwide contingency deployments and domestic emergency response operations. The logistics team is key to getting people and supplies where and when they need to be.
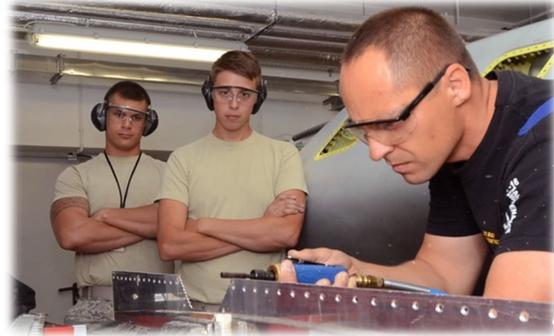
The ANG operates and maintains the oldest aircraft in the Air Force inventory. Aircraft support and test equipment are critical to daily maintenance operations at all ANG flying units. Much of the equipment used in testing aircraft systems is nearing or has surpassed the end of its designed useful life and is increasingly difficult to sustain and expensive to repair. The ANG functions at a prolonged high operations tempo, driving the need for efficient maintenance processes and robust supply chains.

Logisticians strive to reduce product lifecycle costs and the costs of logistics processes. Devices enhancing maintenance efficiency and safety while improving capabilities also improve aircraft availability, reduce operating costs, and enhance agile combat support. Equipment such as the maintenance inspection platforms and digital test equipment reduce aircraft downtime, allow logistics personnel to maintain a high rate of sortie generation, and ensure the longevity, relevance, reliability, and responsiveness of the aging fleet.

Logistics
FY2024 Weapons and Tactics Conference

Critical Capabilities List

Support equipment
- Gaseous Servicing Equipment
- Tow Bar-less Towing Equipment
- High-Capacity Toilet Replacement
- Isochronal/Phase Stands
- Non-Destructive Inspection Equipment

Test Equipment
- Armament Testers
- Thermal Imagers
- I-Level Avionics Back Shop Modernization
- Boresight Equipment
- Advanced Cabin Pressure Tester

Essential Capabilities List

- Enhanced Wire Tester
- SATCOM Communication Suite
- LOX System
- Tactical Rinse System

Desired Capabilities List

- MQ-9 Mooring
- Electric Manlift
- Power Pusher
- Corrosion Control
- IETM

SE: GASEOUS SERVICING EQUIPMENT

1. Background: All Air National Guard aircraft are equipped with systems that use pressurized gasses during flight operations. These systems frequently require servicing from large carts to maintain operational serviceability. Existing gaseous oxygen servicing bottles can be replaced with a ceramic oxygen generation system (COGS) to produce pure oxygen for use in portable oxygen bottles. The system separates 99.9% pure oxygen from ambient air and then pressurizes it to charge high pressure cylinders. Currently, the field relies on bottled oxygen supplied from a commercial vendor to fill the bottles. Existing nitrogen servicing equipment consists of carts that carry up to eight large bottles. These carts are cumbersome and cannot be carried on most aircraft, creating the need to source nitrogen from deployed locations along the path of travel. These large carts can be replaced by small, portable, backpack-sized servicing bottles that can be carried on more aircraft and used in lieu of locally sourced nitrogen. These smaller bottles can be re-serviced from fill stations, extending the range of operations.

2. Program Details.

Quantity	Unit Cost	Program Cost
50 Oxygen Generation System Kit	$20,000	$1,000,000
75 Nitrogen Deployment Sustainment Kit	$25,000	$1,875,000
75 Containment Fill Kit; High Pressure Fill Service	$12,000	$900,000
75 Nitrogen Backpack Servicing System	$13,000	$975,000
Total		$4,750,000

SE: TOW BAR-LESS TOWING EQUIPMENT

1. Background: Air National Guard maintenance personnel require aircraft towing equipment capable of maneuvering aircraft in and out of hangars and/or hardened aircraft structures with low or zero turn-radius turning capability. This allows equipped bases to properly shelter aircraft during inclement weather and in combat environments. Currently, aircraft positioning is accomplished by using a full-size MB-4 tow tractor or similar model and a long tow bar, resulting in a high turn radius. Studies have shown that the size and weight of current tow equipment is causal in seven documented F-16 nose landing gear collapses. Report recommendations include use of a smaller, lightweight aircraft positioner as proposed by this initiative.

2. Program Details.

Quantity	Unit Cost	Program Cost
60 Tow Bar-less Aircraft Towing Sets	**$200,000**	**$12,000,000**
Total		**$12,000,000**

SE: HIGH-CAPACITY TOILET REPLACEMENT

1. Background: Approximately 165 Air National Guard KC-135s have aircraft latrines that do not meet diverse mission requirements based on capacity, structural integrity and/or intrinsically safe operation. The capacity level for the originally equipped suitcase style toilets is inadequate, and present an overflow hazard when passengers are carried on long duration flights. These toilets are susceptible to leakage during aggressive flight profiles or removal. Existing toilets are also unsanitary for Aeromedical mission requirements.

2. Program Details.

Quantity	Unit Cost	Program Cost
165 FAA Approved Toilet Assemblies	**$75,000**	**$12,375,000**
Total		**$12,375,000**

SE: ISOCHRONAL/PHASE STANDS

1. Background: The ANG requires F-15 isochronal stands (ISO) and C-130J ISO/Phase Inspection Stands modernization. Aircraft maintenance is currently accomplished using a mix of antiquated inspection platforms, ladders, and B-series stands. These maintenance workaround activities do not meet Air Force Occupational Safety and Health Administration or Occupational Safety and Health Administration standards. Current inspection stands require frequent maintenance actions and numerous man-hours to maintain their serviceability. Modernized stands incorporate electric power, lighting, and pneumatics into their function. These stands enable maintainers to complete inspections and maintenance more effectively in a reduced time frame, leading to increased aircraft availability and enhanced mission effectiveness. By standardizing stands for maintenance activities, a smaller, more efficient supply chain with common parts and stock numbers can be established.

2. Program Details.

Quantity	Unit Cost	Program Cost
23 C-130 Stand Modernization	**$500,000**	**$11,500,000**
5 F-15 Phase Stands	**$450,000**	**$2,250,000**
Total		**$13,750,000**

SE: IMPROVED NON-DESTRUCTIVE INSPECTION CAPABILITY

1. **Background:** Air National Guard (ANG) flying organizations require modernized aircraft Non-Destructive Inspections (NDI) equipment to keep up with increasing structural inspections driven by the age and extensive flying hours of assigned aircraft. Currently, NDI inspections take considerable time and use severely outdated test equipment. Today, ANG inspections still use Eddy current and Dye penetrant equipment that lacks resolution and the ability to model deformities in identifying structural cracks, delamination, or other defects. To properly conduct inspections, considerable time is spent stripping paint and sealant to expose the bare surface. This can add hours or days to some inspections. On some airframes, such as the F-15, structural inspections previously conducted at the depot level have been pushed out to the field. These added inspections were levied on the field without additional manpower or improved equipment. The added workload increases downtime and decreases aircraft availability.

2. **Program Details.**

Quantity	Unit Cost	Program Cost
100 Ultrasonic or Similar NDI Testers	**$60,000**	**$6,000,000**
Total		**$6,000,000**

TE: ARMAMENT TESTER

1. Background: Air National Guard Combat Air Force Units require modernized common armament testers. These new testers will replace obsolete and uneconomical-to-repair testers that retain their basic functions while also providing the testing of capabilities not included in existing testers. They allow interaction with the aircraft weapons bus and perform operational checks of multiple breeches at the same time. Additionally, these testers will provide capabilities to emulate smart weapons on stations and test advancements in modern missiles. This digital armament tester will troubleshoot and maintain aircraft stores, standard tanks, racks, adapters and pylons (STRAPP), as well as the presence of firing voltage when appropriate, ensuring the system is in a safe state before the installation of ejection carts and any loading of munitions.

2. Program Details.

Remaining Quantity Required	Unit Cost	Program Cost
10 Armament Test Sets	**$160,000**	**$1,600,000**
4 Armament Test Set F-15EX Conversion Kits	**$50,000**	**$200,000**
2 Conformal Fuel Tank Test Cable Kits	**$72,000**	**$144,000**
Total		**$1,944,000**

TE: THERMAL IMAGERS

1. Background: ANG aircraft maintenance units require thermal imaging devices to facilitate improved diagnostic capabilities for aircraft environmental, electrical, and mechanical systems. Current testers measure system functionality at either the input or output with no ability to identify faults occurring in valves, relays, ducting, pumps, or other transition points. Thermal imaging provides the capability to observe valves and relays opening and closing, identify leaks occurring in submerged or hard to reach ducts and lines, and monitor pump functionality during operation. Additionally, thermal imaging reduces aircraft downtime by reducing the maintenance actions typically required to remove components for bench or pressure checks. There are currently numerous commercial off-the-shelf solutions that can be used across multiple mission design series and maintenance functional areas.

2. Program Details.

Quantity	Unit Cost	Program Cost
96 Thermal Imaging Devices	**$75,000**	**$7,200,000**
Total		**$7,200,000**

TE: I-LEVEL AVIONICS INTERMEDIATE SHOP MODERNIZATION

1. Background: Air National Guard F-15 and F-16 support units require new Avionics Intermediate Shop (AIS) capabilities to keep up with aircraft system modernization. Currently, the F-16 utilizes a Commercial Fire Control Computer (CFCC) that cannot be tested on existing AIS stations. ANG F-15 Wings converting to the F-15EX will lose all AIS capabilities. Their AIS station is completely incompatible with the Line Replaceable Units installed on that airframe.

2. Program Details:

Quantity	Unit Cost	Program Cost
4 F-15 EX AIS Station Upgrade Kits	$5,500,000	$22,00,000
6 AIS CFCC Capability Upgrade Kits	$200,000	$1,200,000
Total		$23.200,000

TE: FLIGHTLINE AVIONICS UPGRADES

1. Background: The Air National Guard lacks critical organizational avionics capabilities that are critical to the generation of combat capable aircraft. First, Combat Air Forces legacy boresight equipment poses significant challenges in terms of maintenance, sustainability, and operational efficiency. The equipment is quickly becoming obsolete, making it increasingly challenging to source serviceable replacements for the necessary boresight procedures. Use of current equipment is extremely time consuming and prone to human error in completing complex calculations and perfectly aligning fixtures. The ANG requires updated boresite kits as current test equipment is obsolete and an improperly boresited aircraft can diminish weapons accuracy. Additionally, the ANG lacks the ability to perform critical Embedded Global Positioning/Internal Navigation (EGI) maintenance inside structures or shelters that interrupt a line of site to navigation satellites. Sortie production is delayed as additional manpower is required to position the aircraft outside and potentially exposes it to the dangers associated with extreme weather conditions while performing EGI maintenance. A poorly maintained EGI can also negatively impact weapons accuracy. Incorporating EGI repeaters in structures and shelters provides a link to navigational satellites while the aircraft is sheltered. Lastly, ANG CAF organizations require video data link pod testers to verify proper transmission of video signals providing critical combat information to Command and Control elements as well as troops in contact.

2. **Program Details.**

Quantity	Unit Cost	Program Cost
15 Boresite Kits	**$950,000**	**$14,250,000**
150 GPS Repeaters	**$75,000**	**$11,250,000**
16 Video Data Link Pod Testers	**$40,000**	**$640,000**
Total		**$26,140,000**

TE: ADVANCED CABIN PRESSURE TESTER

1. Background: The ANG lacks a portable, lightweight Cabin Pressure Tester (CPT) that can be used inside shelters. The existing CPT uses a diesel engine to provide pressurization, requiring checks be performed in the open. Additionally, the existing tester takes up multiple pallet positions, is extremely loud, Champers communication, and negatively impacts leak detection by overpowering the sound of escaping air. Updated sets are required for each ANG unit with Combat Air Forces (CAF) aircraft.

2. Program Details.

Quantity	Unit Cost	Program Cost
180 CPT Sets	$20,000	$3,600,000
Total		$3,600,000

Security Forces

- **ANG Security Forces Units Provide 7% of the Total Force**
- **Integrated Base Defense**
- **Combat Arms Support**
- **Law Enforcement**

Air National Guard security forces include over 7,755 defenders from all wings in each of the 54 States, Territories, and the District of Columbia. Security forces protect and support worldwide contingencies and home station installations.

The security forces missions include: installation access control, base defense, asset security, suspect apprehension and detention, high-risk vehicle inspections, heavy weapons support with military operations in urban terrain, mounted and dismounted individual and team patrols, convoy operations, detainee movement operations, personal security details, fly-away security, Raven tasking, close precision engagement teams, active shooter response, and weapons qualifications to maintain combat readiness.

Security Forces
FY2024 Weapons and Tactics
Conference

Critical Capabilities List

- Modular Scalable Vest
- Modular Small Arms Ranges
- M18 Block II Kit
- Security Forces Situational Awareness Kits
- Enhanced Explosive Detection System

Essential Capabilities List

- Enhanced Communications and Hearing
- Portable Intrusion Detection System and Alarm Annunciator
- Security Forces Individual / Squad Tracking and Awareness
- Installation Breach Mitigation System -Vehicle Payload Undercarriage Insp System
- Climate Clothing System

Desired Capabilities List

- Lite, Lean, Lethal Defender Integration Kit
- Enhanced BDOC Integrated Base Defense Sensor Fusion and Analytics System
- PVS-31C Night Vision Optic/NVG Thermal Imaging and Accessory Kit
- Portable Counter UAS Pack
- Security Forces Trauma Kit

MODULAR SCALABLE VEST

1. Background: ANG Security Forces (SF) require modernization of outdated body armor to provide SF personnel the capability to improve Defender survivability, as well as reduce chronic fatigue and injury. This will align ANG Defenders with the Total Force Modular Scalable Vest Program of Record. Integrating the SF Enterprise Model Defender Kit will efficiently protect and sustain our SF personnel in the field with lighter and more versatile body armor.

2. Program Details.

Quantity	Unit Cost	Program Cost
8500 Modular Scalable Vest	**$942**	**$8,007,000**
8500 SF Enterprise Model Defender Kit	**$1,320**	**$11,220,000**
Total		**$19,227,000**

MODULAR SMALL ARMS RANGES

1. Background: ANG Combat Arms (CA) personnel need a Modular Indoor Containerized Range (MICR) that will provide a fully enclosed zero surface danger zone and vertical danger zone environment. Allowing personnel to train and qualify safely 365 days a year, day and night regardless of external environmental conditions. With the MICR, CA personnel will ensure all Air Force's assigned combat personnel (an average of over 250 personnel per installation) will receive weapons qualification training in a timely and cost-efficient manner. Additionally, personnel assigned to a deployable Unit Type Code must qualify once every three years to meet Category B requirements. This results in a minimum of a 33 percent increase in personnel requiring scheduled weapons qualification. The ANG has 28 installations with a small-arms range, and only three are compliant with the Air Force Engineering Technical Letter (ETL) 11-18: Small Arms Range Design and Construction. The need for a modular small arms range is magnified because of the remaining 25 ranges, eight are permanently closed and 17 are operating with waivers in degraded conditions. Once repairs become too costly, or waivers are withdrawn, they will be closed. Due to significant health and safety concerns, the ETL prohibits major and component repairs of existing ranges if it costs more than 50 percent of the estimated replacement cost. The ETL also states if repairs cost more than 50 percent of the replacement cost, the entire range facility must be upgraded. The ETL identifies and authorizes only one replacement option that will meet ANG base requirements. Remaining installations lack organic range capability and must find offsite locations to train and qualify. For most ANG wings, this involves increased time and travel costs for CA personnel and other wing members. To ensure SF members remain trained and qualified on their assigned weapons, the ANG needs to modernize and transform their small arm training capabilities .

2. Program Details.

Quantity	Unit Cost	Program Cost
14 Small Arms Ranges	**$8,600,000**	**$120,400,000**
Total		**$120,400,000**

M18 BLOCK II KIT

1. Background: ANG Security Forces (SF) requires a modernized pistol mounted optic to provide SF personnel the capability to improve rapid target acquisition and multi-threat engagement in low light environments. Defenders are currently restricted to using iron sights alone. Having the ability to superimpose a red dot on a threat enhances their ability to engage target(s) with greater accuracy at greater distance. This optic must be night vision compatible, have adjustable brightness levels to include manual on/off setting, windage and elevation adjustment capabilities. The battery must easily be replaceable by either Combat Arms or the user. Optic compatible Tritium sights are required for a co-witness sight picture in the case of optic failure. To remain low-profile and light weight, the optic needs to be no larger than the optic mounting area of the M18 pistol. Additionally, SF personnel require a pistol mounted flashlight to increase the ability to positively identify and accurately engage targets in low light environments. Without a pistol mounted light, our Defenders are forced to use a stand-alone flashlight in one hand with a pistol in the other, forcing them to choose between less accurate, one-handed pistol shooting or forgoing the light source. Security Forces requires a durable, quick detachable LED light source to illuminate common indoor and outdoor environments up to 100 meters. The product must have an ambidextrous on-off switch, and at least momentary-on, constant-on modes, and mountable specific to the M18 pistol. Security Forces also requires a level 2 holster that will accommodate the M18MHS with installed weapon light and red dot optic. The holster should be modular in a way that allows the user to carry the weapon in several configurations, to include a light/no light and optic/no optic in order to capture multiple mission sets. The holster must work with existing holster accessories. The holster must be retained on the weapon itself.

2. Program Details.

Quantity	Unit Cost	Program Cost
8000 Reflex Sight with Mounting Plate/Sight Set	**$800**	**$6,400,000**
8000 Pistol Mounted Flashlight	**$300**	**$2,400,000**
8000 Optic and Light Compatible Holster	**$170**	**$1,360,000**
Total		**$10,160,000**

SECURITY FORCES SITUATIONAL AWARENESS KIT

1.   Background: Security Forces requires a situational awareness kit with access to real-time Defender information. This kit should be handheld, lightweight, encryption capable, and connectable to all currently approved tactical communications. It should enable navigation using GPS and geospatial map data overlayed with real-time situational awareness of ongoing events. The complete system must have access to all approved plug-ins and cables to ensure interoperability between the end-user device and Base Defense Operations Centers. Given uncertainties of future operating environments, the system must be able to operate in an off-grid mobile command center in concert with current military communications equipment as well as an ability to uplink to higher echelon systems as required . To allow users freedom of movement, the system must incorporate a lightweight renewable power source and have the capability to deliver energy to individual electronics. The system must be compatible for use of cellular networks and the associated software must be capable of future upgrades and updates to allow for additional mission sets and capabilities such as video streaming, Close Air Support, and intrusion alarm systems.

2. Program Details.

Quantity	Unit Cost	Program Cost
940 Situational Awareness Kits	**$800**	**$752,000**
188 Command & Control Tablet	**$700**	**$131,600**
94 Deployment Case & Accessory Kits	**$5,000**	**$470,000**
LTE Service (3 years)	**$600**	**$169,200**
Total		**$1,522,800**

ENHANCED EXPLOSIVE DETECTION DEVICE SYSTEM

1. Background: Security Forces (SF) must conduct inspections of commercial transport and delivery vehicles requesting access to ANG installations. An Enhanced Explosives Detection system is required for all Large Vehicle Inspection Points (LVIP) and Installation Entry Control Points (IEP). The ANG SF's current capability is phasing out of production with end-of-life in 2024. The system design must incorporate the latest technology to increase capability in detecting explosives with traditional vehicle search techniques across the threat spectrum. The system must be on the approved MEMORANDUM FOR ALMAJCOM-FOA-DRU, AFSFC/CC (*Mandatory Use Policy for Security Forces' Explosive Detection Equipment Purchases*). All ANG SF units require a minimum of two systems, including training and extended warranties.

2. Program Details.

Quantity	Unit Cost	Program Cost
152 Enhanced Explosive Detection System Kits	**$25,000**	**$3,800,000**
76 Consumables Kits	**$5,000**	**$380,000**
Total		**$4,180,000**

Explosive Ordnance Disposal

The ANG has 20 Explosive Ordnance Disposal (EOD) flights. These units are uniquely trained and equipped to facilitate explosive operations during joint wartime missions. In the deployed environment, EOD operators routinely defeat improvised explosive devices (IED), render safe unexploded ordnance (UXO), perform route clearance operations, conduct post-blast analysis, evidence collection, and embed with special operations forces. Furthermore, EOD technicians must also be prepared to respond to incidents involving chemical/biological weapons, weapons of mass destruction (WMD), and nuclear weapons.

EOD technicians perform an extremely dangerous military mission and must continually adapt their equipment and technology to meet our adversaries' ever-changing tactics. The breadth and variety of IEDs/UXOs/WMDs encountered by EOD technicians in the field forces units to maintain many single-purpose items while simultaneously staying at the forefront of technology. Technological advancement within the EOD program is imperative to match the advancements of our enemies.

Explosive Ordnance Disposal
FY 2024 Weapons and Tactics Conference

Critical Capabilities List

- Robot Modernization
- Standalone Classified Laptop
- TAK Communications Interface Suite
- Standardized UXO Response Truck
- Chemical Warfare Personal Protective Equipment Modernization

Essential Capabilities List

- Digital Radiography Upgrade
- Enhanced Thermal Imager
- Advanced EOD UXO Recon Tool
- Gas-Powered All-Terrain Utility Vehicle
- Handheld Spectrum Analyzer

Desired Capabilities List

- Augmented/Virtual Reality Unexploded Ordnance Simulators
- M4 Weapon Modernization
- All-Terrain, Electric Payload Mobility Platform
- Dual-Arm Robotic Manipulator Attachment
- Short Range EOD Aerial Recon Platform

EOD: ROBOT MODERNIZATION

1. Background. ANG Explosive Ordnance Disposal (EOD) units require 21 modernized large robotic platforms. Current legacy robots do not meet warfighting requirements and are no longer being sustained. This capability will allow ANG EOD to maintain interoperability with our Active Duty counterparts. Access to this platform will increase the safety and efficiency of ANG EOD teams during reconnaissance missions and execution of operations. Additionally, this purchase would modernize the 19 existing medium-sized robotics platforms to extend the range of mesh-network communications, enhance high-definition cameras, improve controls, and provide 360-degree situational awareness for the EOD operator.

2. Program Details.

Quantity	Unit Cost	Program Cost
21 Large Robot	**$500,000**	**$10,500,000**
19 Robot Refresh	**$160,000**	**$3,040,000**
Total		**$13,540,000**

EOD: STANDALONE SECURE LAPTOPS

1. Background. ANG Explosive Ordnance Disposal (EOD) personnel require standalone laptop systems to run EOD decision making software, publications and technical data. Existing hardware is either outdated or non-existent, preventing flights from accessing up to date publication data and preventing EOD technicians from identifying and defeating explosive threats, leading to inevitable catastrophic outcomes. These specialized laptops are currently unavailable for procurement at the flight level. The ANG requires 40 laptops, two for each of the 20 ANG EOD flights.

2. Program Details.

Quantity	Unit Cost	Program Cost
40 Secure Laptops	**$7,000**	**$280,000**
Total		**$280,000**

EOD: TAK COMMUNICATIONS INTERFACE SUITE

1. Background. ANG Explosive Ordnance Disposal (EOD) technicians require a communications platform that can facilitate the use of multiple communication devices and provide a mobile server for our Team Awareness Kit (TAK). Currently, EOD teams have TAK end user devices, but no way to connect to a server or communicate beyond line of sight. To increase situational awareness, a plug-and-play communications interface that enables EOD teams to utilize available communications devices (i.e., existing radios, satcom, LTE, etc.) to network TAK devices and bridge normally incompatible communication devices during EOD multi-agency responses. Additionally, EOD teams require a backhaul capability to reach EOD Command Centers beyond line of sight. Each of the 20 EOD flights and three regional training sites require one system.

2. Program Details.

Quantity	Unit Cost	Program Cost
23 TAK Communications Interface Suites	**$100,000**	**$2,300,000**
Total		**$2,300,000**

EOD: STANDARDIZED UXO RESPONSE TRUCK

1. Background. The ANG Explosive Ordnance Disposal (EOD) requires a six-passenger vehicle fleet with an enclosed utility cargo body to effectively store, move, and protect required emergency response equipment and explosives in adverse environmental conditions. Currently, EOD Unexploded Ordnance (UXO) response vehicles are grossly outdated and unreliable, with little standardized organization or environmental protection. The current fleet of UXO response trucks is incapable of towing the Total Containment Vessel, which places an unnecessary risk when transporting UXO's to safe disposal sites. The acquisition of an updated fleet will ensure EOD technicians have a safe and efficient transportation system that can safely transport explosives and UXO's to remote ranges for destruction. Each of the ANG's 20 EOD flights needs a standardized UXO Response Truck.

2. Program Details.

Quantity	Unit Cost	Program Cost
20 Standardized UXO Response Truck	**$100,000**	**$2,000,000**
Total		**$2,000,000**

EOD: CHEMICAL WARFARE PERSONAL PROTECTIVE EQUIPMENT MODERNIZATION

1. Background. ANG Explosive Ordnance Disposal (EOD) teams require updated personal protective equipment (PPE) that protects against current and emergent chemical warfare agents (CWA). Current PPE is not effective against all CWAs and impedes the ability of EOD teams to conduct successful operations. The chemical warfare modernization kit should afford protection against all current CWAs, not require third-party additions to afford gross contamination protection, feature a reduced thermal burden on the wearer, and allow wear for extended periods of time even while contaminated. Scalability is desired to allow EOD teams to wear PPE across the full range of combat operations and avoid undesirable tradeoffs (e.g., having to wear thick over boots and gloves that reduce dexterity and mobility). The kit needs to include a full PPE system with modernized respiration and air supply systems capable of CWA protection and positive pressure satisfying all levels of Mission Oriented Protective Posture. ANG EOD teams require two kits consisting of training and operational ensembles for personnel in all 20 flights.

2. Program Details.

Quantity	Unit Cost	Program Cost
440 Chemical Warfare PPE Kits	**$8,000**	**$3,520,000**
180 Modernized Respirator and Air Supply Kits	**$13,000**	**$2,340,000**
Total		**$5,860,000**

SURGEON GENERAL

The primary mission of the Surgeon General (SG) is to assist with the Training, Equipping and Organization of all Medical Units across the Air National Guard.   Ensuring units meet mandated training requirements and equipping priorities is critical to maintain readiness for State and Federal missions. The rapid care and treatment of casualties on the battlefield demands advanced training tools explicitly for the mission. ANG Airmen can operate in all operating environments, which requires robust training and skills to save lives and get Airmen back in the fight. Medical teams trained in their military specialties may be assigned to work with medical evacuation crewmembers to support patients requiring intensive care in flight as well as to get them to medical treatment facilities for life saving treatment

Surgeon General (SG)
FY2024 Weapons and Tactics Conference

Critical Capabilities List

- Tactical Combat Causality Care

SG: TACTICAL COMBAT CASUALTY CARE

1. **Background:** Medical professionals in the ANG require extensive trauma training that provides basic, intermediate, and advanced lifesaving practices to treat the most common causes of death on the battlefield. Personnel assigned Tier 3 or Tier 4 training, require a mix of didactic and psychomotor skills and rely on exposure to high-fidelity combat casualty scenarios with necessary stress inoculation. Using realistic moulage and part-task trainers that can be treated with standardized deployment equipment and supplies, improves competence and confidence in a low-threat environment conducive to learning. ANG medical personnel are often highly-trained professionals who provide medical care within the civilian population. The civilian clinical working environment does not mimic the stressful and austere conditions or battlefield wound patterns they will likely face in future conflicts. In accordance with DoD Instruction 1322.24, *Medical Readiness Training,* this training will increase survivability and bolster the medical team's ability to return the warfighters back to the front-line in defense of the United States.

2. **Program Details.**

Quantity	Unit Cost	Program Cost
102 Tactical Combat Casualty Care Tier 3 & 4 kits	**$107,500**	**$10,965,000**
Total		**$10,965,000**