AIR NATIONAL GUARD

2013 WEAPONS SYSTEMS MODERNIZATION PRIORITIES

GUARDING AMERICA ★ DEFENDING FREEDOM

FOREWORD

For more than two decades the Air National Guard has demonstrated its value as a vital part of the world's greatest Air Force. Ongoing combat operations, coupled with the strategic rebalance to the Pacific, demand a strong Air National Guard and a strong Total Air Force. Our national and state leaders rely on the Air Guard's history of modernization innovation and efficiency, and the requirements contained within the 2013 Air National Guard Weapons Systems Modernization Priorities Book continue to build on that history.

The Air National Guard is the most value-added enabler in the Air Force arsenal, providing one-third of the US Air Force capability at less than half the cost of regular forces. Today we are a ready and reliable operational force while retaining our strategic surge capability. We served nobly in Iraq, and continue to be an integral component of ongoing combat operations in Afghanistan and countless other locations around the globe. Our tactical experts remain energetic in purpose, offering outside-the-box solutions to a myriad of evolving challenges. While we are proud of what we have accomplished, there is still more work to do.

To this end, over 600 battle-hardened and combat-tested experts and support personnel gathered this year to present our leaders with unencumbered, honest and direct input describing current critical material capability gaps. With the ever-increasing pressure to tighten our DoD budget, it is challenging to remain innovative, adaptable and resourceful. The modernization and recapitalization of the Air National Guard will persist as one of our greatest challenges, but I am confident we are equal to the task.

The aptly themed "Persistent Conflict - Enabling the Warfighter" Air Reserve Component Weapons and Tactics Conference (WEPTAC) was an extraordinary success. I present the Air National Guard Weapons Systems Modernization Priorities Book as the culmination of our rigorous process and as a demonstration of our first-hand knowledge of what it takes to secure the home front and defend the nation. I continue to be incredibly proud of today's Air National Guard.

HARRY M. WYATT III
Lieutenant General, USAF
Director, Air National Guard

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INTRODUCTION

The 2013 Air National Guard (ANG) Weapons Systems Modernization Priorities Book documents capability priorities identified during the October 2012 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 2013 Book is organized into 18 individual weapons systems 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:

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

The Executive Summary page within each Tab depicts the anticipated three-year cost projections by appropriation type for each Critical item. The total cost over three years for each critical item in the Executive Summary may or may not match the total program cost contained in each information paper depending on whether program completion occurs within or beyond the three-years depicted.

Applicable Funding Appropriation Definitions

 3840 - ANG Operations and Maintenance, one-year funding
 3010 - Aircraft Procurement, three-year funding
 3600 - Research and Development, two-year funding
 3080 - Other Procurement, three-year funding
   (NOTE: In most cases, Non-Recurring Engineering (NRE) costs are paid for with 3600 Research, Development, Test and Engineering (RDT&E) money, but in some cases they can be paid for with 3010 Procurement money.)

The State Matrix on each Tab page identifies ANG weapons systems locations by state/territory. These depictions reflect the force structure as of 30 Sept 2012, and are subject to change based on the final outcome of the 2013 President's Budget.

The Weapons Systems Modernization Priorities Summary Table (p. vi-xiii) lists each Critical capability and its associated total program cost by funding-type. In some cases, critical priorities may overlap with items funded in the Air Force Future Years Defense Program (FYDP); they are included in this summary as WEPTAC-defined Critical Requirements, but the program costs associated with them are not included to avoid double-counting.

2013 Weapons Systems Modernization Priorities

AIR SUPERIORITY/GLOBAL PRECISION ATTACK	Type Funds	Units Required	Unit Cost	Program Cost
A-10 Improved Positive Identification Through Helmet Mounted Integrated Targeting and High-Resolution Sensors and Displays				
HMIT Group A Kits and Spares	3010	42	$69,800	$2,931,600
Display NRE	3600	1	$9,000,000	$9,000,000
Color Displays	3010	106	$326,000	$34,556,000
Gen4 Upgrades	3010	10	$1,500,000	$15,000,000
Digital Port Upgrades	3010	244	$250,000	$61,000,000
ATP-SE Pods	3010	104	$1,700,000	$176,800,000
A-10 Operational Flight Program (OFP) Software Upgrades				
OFP Software Upgrades	3600	3	$18,600,000	$55,800,000
A-10 Fully Integrated Communications Suite				
Directional Audio NRE	3600	1	$5,000,000	$5,000,000
Directional Kits	3010	106	$50,000	$5,300,000
Directional Audio Pilot Equipment	3010	159	$7,000	$1,113,000
Unit Test Equipment	3080	10	$43,800	$438,000
SINCGARS SA Waveform Retrofit	3010	1	$1,000,000	$1,000,000
A-10 Increase Global Positioning System (GPS)/Inertial Navigation System (INS) and Datalink Capability in a Contested Degraded Operations (CDO) Environment				
Anti-Jam EGI NRE	3600	1	$4,500,000	$4,500,000
Anti-Jam EGI	3010	106	$155,000	$16,430,000
A-10 Austere Airfield Capabilities				
Landing Lights	3010	106	$11,000	$1,166,000
Combat Fuel Tanks	3010	63	$20,000	$1,260,000
OBOGS	3010	106	$208,000	$22,048,000
Parking Brakes	3010	106	$10,000	$1,060,000
Smart Triple Ejector Rack NRE	3600	1	$2,000,000	$2,000,000
Smart Triple Ejector Racks	3010	126	$100,000	$12,600,000
A-10 Airframe and Propulsion Enhancements				
Enhanced Wing Assemblies	3010	24	$4,000,000	$96,000,000
Phase 1 Engines	3010	212	$330,000	$69,960,000
Phase 2 Engine NRE	3600	1	$64,000,000	$64,000,000
Phase 2 Engines	3010	212	$66,000	$13,992,000
A-10 Subtotal				**$672,954,600**
F-15 Active Electronically Scanned Array (AESA) Radar				
V1 to V3 AESA Systems	3010	9	AF Future Years Defense Program	
V0 to V3 AESA Systems	3010	32	$8,500,000	$272,000,000
F-15 Infrared Search-and-Track (IRST) System				
NRE	3600	1	TBD	TBD
IRST Systems	3010	50	AF Future Years Defense Program	
F-15 Modernized Self-Protection Suite				
EPAWSS Kits	3010	103	AF Future Years Defense Program	
F-15 Cockpit Display Upgrades				
Radar Displays	3010	130	$82,500	$10,725,000
RWR Displays	3010	105	AF Future Years Defense Program	
F-15 Updated Non-Cooperative Target Identification Capability				
ALQ-128 NRE	3600	1	$5,000,000	$5,000,000
ALQ-128 Systems	3010	105	$440,000	$46,200,000
Combat Identification NRE	3600	1	$2,500,000	$2,500,000
Combat Identification	3010	1	$11,330,000	$11,330,000
F-15 Common Baseline Configuration				
ADCP II NRE	3600	1	$10,000,000	$10,000,000
ADCP II	3010	74	$750,000	$55,500,000
CFT NRE	3600	1	$3,000,000	$3,000,000
CFT	3010	105	$2,200,000	$231,000,000
EGI	3010	12	$75,000	$900,000
F-15 Subtotal				**$648,155,000**
F-16 Fully Integrated Sensor Enhancements - Active Electronically Scanned Array (AESA) Radar and Synthetic Aperture Radar (SAR)				
Block 40/50 AESA Radars	3010	93	AF Future Years Defense Program	
APG-68+ NRE	3600	1	$20,000,000	$20,000,000
Block 30 APG-68+ Kits	3010	178	$670,000	$119,260,000
SAR Pods	3010	40	$3,000,000	$120,000,000
F-16 Fully Integrated Sensor Enhancements - Blk 30/32/40/42 Advanced Identification Friend/Foe (AIFF)				
Block 40/42 Integration NRE	3010	1	$400,000	$400,000
Block 40/42 APX-125-60 Kits	3010	66	$322,224	$21,266,784
Block 30 Mode 5 Upgrade Kits	3010	79	$80,063	$6,324,977
F-16 Fully Integrated Sensor Enhancements - Infrared Search-and-Track (IRST) Pod				
NRE	3600	1	TBD	TBD
IRST Pods	3010	78	Item Funded in AF POM	

AIR SUPERIORITY/GLOBAL PRECISION ATTACK	Type Funds	Units Required	Unit Cost	Program Cost
F-16 Integrated Electronic Warfare (EW) Suite				
ALR-69 NRE	3600	1	$4,000,000	$4,000,000
ALR-69A	3010	267	$1,000,000	$267,000,000
ALR-56M Digital Upgrade NRE	3600	1	$50,000,000	$50,000,000
ALR-56M Digital Upgrades	3010	69	$340,000	$23,460,000
EA Pod Upgrades	3010	60	AF Future Years Defense Program	
ALQ-213	3010	69	$160,000	$11,040,000
MWS	3010	75	$1,330,000	$99,750,000
MWS/3D Ground Support Equipment	3080	1	$4,120,000	$4,120,000
F-16 Secure-Line-of-Sight (SLOS) and Beyond-Line-of-Sight (BLOS) with 3D Audio Communication				
2nd ARC-210 Radio Kits	3010	259	$150,000	$38,850,000
Directional Audio NRE	3600	1	$5,200,000	$5,200,000
Group A & B Directional Kits	3010	259	$45,000	$11,655,000
Pilot Directional Audio Kits	3010	311	$6,700	$2,083,700
Unit Test Equipment	3080	10	$43,800	$438,000
F-16 Advanced Targeting Pod (ATP)				
Gen4 Upgrades	3010	10	Included in A-10 Info Paper	
Digital Port Upgrades	3010	244	Included in A-10 Info Paper	
ATP-SE Pods & Spares	3010	104	Included in A-10 Info Paper	
F-16 Day/Night Compatible Helmet Mounted Integrated Targeting (HMIT)				
HMIT Kits	3010	49	$113,916	$5,581,884
JHMCS Night Kits	3010	129	$240,000	$30,960,000
F-16 Additional High Resolution Display				
Color Display Kits	3010	188	$183,764	$34,547,632
IBS Receiver Kits	3010	308	$176,061	$54,226,788
F-16 Subtotal				**$930,164,765**
AIR SUPERIORITY/GLOBAL PRECISION ATTACK TOTAL				**$2,251,274,365**

COMMAND AND CONTROL	Type Funds	Units Required	Unit Cost	Program Cost
C2 Air and Space Operations Center (AOC) Recurring Event (RE) 11/12/13 Upgrade				
RE 11 Upgrades	3080	8	$2,000,000	$16,000,000
C2 Air and Space Operations Center (AOC) Joint Range Extension (JRE) With Joint Distributed Operational Training System (JDOTS)				
JRE	3080	5	$135,000	$675,000
JDOTS	3840	5	$36,000	$180,000
Help Desk/Support	3840	5	$11,600	$58,000
C2 Air and Space Operations Center (AOC) Core Radio Package System (CRPS)				
CRPS	3080	27	$37,000	$999,000
C2 Air and Space Operations Center (AOC) Non-Organic Radar Access (NORA)				
NORA Systems	3080	6	$250,000	$1,500,000
Radar Feed	3840	6	$100,000	$600,000
Contract Support	3840	6	$40,000	$240,000
Help Desk/Support	3840	6	$65,000	$390,000
C2 Air and Space Operations Center (AOC) Targeting Applications Workstation Systems (TAWS)				
TAWS	3080	16	$8,000	$128,000
GPL/IPL	3080	14	$28,000	$392,000
C2 Control and Reporting Center (CRC) Modular Tactical Electrical Power Mission Support Sytems				
Electrical Systems	3840	72	$135,000	$9,720,000
Electrical Systems	3840	11	$250,000	$2,750,000
C2 Control and Reporting Center (CRC) Organic Integrated Mission Support Communications Syster				
Communications Systems	3080	11	$600,000	$6,600,000
C2 Control and Reporting Center (CRC) Highly-Mobile Medium Range Radar				
Mobile Radar Systems	3080	9	$6,500,000	$58,500,000
C2 Air Defense Sector (ADS) Line-of-Sight (LOS) Communications				
LOS Radio Systems	3080	100	$40,000	$4,000,000
C2 Air Defense Sector (ADS) Battle Control Center (BCC) Beyond-Line-of-Sight (BLOS) Tactical Satellite Communications (TACSAT)				
TACSAT Radios	3080	16	$37,000	$592,000
C2 Subtotal				**$103,324,000**
Tactical Air Control Party (TACP) Dismounted Interoperable Sensor Acquisition Suite				
JTAC Dismount Computer Kits	3080	280	$28,000	$7,840,000
TACP Day/Night Spot Trackers	3080	170	$50,000	$8,500,000
TACP Handheld LOS SPI/VDL	3080	170	$25,000	$4,250,000
Lightweight Handheld LRFs	3080	170	$25,000	$4,250,000
Helmet Mounted Recording Systems	3080	425	$6,500	$2,762,500
Tactical Air Control Party (TACP) Rapidly Deployable Joint Operational Communications Suite				
Radio Communications Suites	3840	30	$140,000	$4,200,000
Next Generation Handheld Radios	3080	425	$45,000	$19,125,000
Tactical Air Control Party (TACP) Air Support Operations Center (ASOC) Tactical Network Suite				
Tactical Network Suites	3080	2	$155,000	$310,000
Tactical Air Control Party (TACP) Software Targeting and Data Management Suite				
JTAC Targeting Software Kits	3080	220	$4,000	$880,000
TACP/ASOC Collaborative Login	3840	1	$650,000	$650,000
JTAC Equipment Wireless Kits	3080	340	$15,000	$5,100,000
TACP Subtotal				**$57,867,500**
COMMAND AND CONTROL TOTAL				**$161,191,500**

GLOBAL INTEGRATED ISR	Type Funds	Units Required	Unit Cost	Program Cost
E-8C Personnel Recovery (PR) Compatible Interrogation Radio				
NRE	3010	1	$6,400,000	$6,400,000
Modular PLS Units	3010	10	$300,000	$3,000,000
Group A Kits	3010	18	$144,444	$2,599,992
E-8C Integrated Broadcast Service (IBS) Modernization				
AFTRS-R NRE	3600	1	$7,500,000	$7,500,000
AFTRS-R	3010	17	$182,350	$3,099,950
E-8C Organic Combat Identification (CID) Capability For Targeting				
Aided Target Recognition (ATR) Software Development	3600	1	$41,198,000	$41,198,000
Net-Centric Collaborative Targeting (NCCT) NRE	3600	1	$31,914,000	$31,914,000
NCCT Kits	3010	18	$384,000	$6,912,000
MS-177 EO/IR Sensor NRE	3600	1	$120,000,000	$120,000,000
EO/IR Sensors	3010	6	$65,000,000	$390,000,000
E-8C Mission Radio Calibration Tool				
Test Sets	3010	6	$75,000	$450,000
T.O.s and Training Materials	3010	1	$500,000	$500,000
E-8C Fleet-Wide Multi-Agency Communication Capability (MACC)				
MACC Units - Motorola XTL 5000, PRC-117G, Modular Electronics Enclosure (MEE)	3010	10	$300,000	$3,000,000
E-8C Subtotal				**$616,573,942**
RC-26B Mission Management System (MMS) with PRC-117G and Handheld Integration				
NRE	3600	1	$500,000	$500,000
Shipset Kits	3010	11	$390,000	$4,290,000
RC-26B Avionics Modernization				
NRE	3600	1	$300,000	$300,000
Shipset Kits	3010	11	$1,000,000	$11,000,000
RC-26B Full-Spectrum Late Generation Downlinks and Communications				
NRE	3600	1	$400,000	$400,000
Shipset Kits	3010	11	$422,000	$4,642,000
RC-26B Common Upgraded Full Motion Video (FMV) Sensor				
NRE	3600	1	$500,000	$500,000
Shipset Kits	3010	11	$254,000	$2,794,000
RC-26B Self-Protection System (SPS) Provision for Block 20 and Upgraded SPS for Block 25				
Shipset Kits	3010	5	$520,000	$2,600,000
RC-26B Subtotal				**$27,026,000**
Senior Scout Receiver Modernization				
NRE	3600	1	$3,200,000	$3,200,000
Group B Kits	3010	4	$300,000	$1,200,000
Senior Scout Multi-Phased Beam Array (Beamformer)				
NRE	3600	1	$1,255,000	$1,255,000
Group B Kits	3010	4	$980,000	$3,920,000
Senior Scout Rip and Identification of Pre-Detection Recordings (RIPR)				
NRE	3600	1	$3,255,000	$3,255,000
Group B Kits	3010	4	$140,000	$560,000
Senior Scout High Frequency Communication Geo-Location				
NRE	3600	1	$1,380,000	$1,380,000
Group B Kits	3010	4	$740,000	$2,960,000
Senior Scout Analog-To-Digital Receiver Modernization				
NRE	3600	1	$2,610,000	$2,610,000
Group B Kits	3010	4	$435,000	$1,740,000
Senior Scout Subtotal				**$22,080,000**
Distributed Common Ground System (DCGS) Fully Integrated Suite of Air Force Special Operations Command (AFSOC) Support Equipment and Software Loads				
Suites	3080	6	$860,000	$5,160,000
Installs/Training	3840	6	$210,000	$1,260,000
Distributed Common Ground System (DCGS) Video Storage Capacity Required for High Definition (HD) Full Motion Video (FMV)				
HD FMV Storage Systems	3080	6	$200,000	$1,200,000
DCGS Subtotal				**$7,620,000**
MQ-1/MQ-9 Multi-level Secure Communications Suite				
2nd Radio NRE	3600	1	$3,600,000	$3,600,000
2nd Radio Mod Kits	3080	120	$300,000	$36,000,000
GCS Intercom NRE	3600	1	$2,100,000	$2,100,000
GCS Intercom Mod Kits	3080	23	$600,000	$13,800,000
MQ-1/MQ-9 Independent and Redundant Data Architectures				
Dual Diverse Infrastructure	3010	3	$2,100,000	$6,300,000
Defense Information Systems Agency Service Delivery Point	3010	7	$700,000	$4,900,000
RPA DMZ	3010	7	$800,000	$5,600,000
MQ-1/MQ-9 Ground-Based Sense and Avoid (GBSAA)				
NRE	3600	1	$15,000,000	$15,000,000
GBSAA Systems	3080	7	$1,000,000	$7,000,000
MQ-1/MQ-9 High Speed Exploitation Support Data (ESD)				
High Speed ESD Sytems	3080	16	$15,000	$240,000
MQ-1/MQ-9 Rapid, Robust Data Transfer and Sharing				
Data Storage & Transfer Systems	3080	7	$200,000	$1,400,000
RPA Subtotal				**$95,940,000**
GLOBAL INTEGRATED ISR TOTAL				**$769,239,942**

RAPID GLOBAL MOBILITY	Type Funds	Units Required	Unit Cost	Program Cost
C-17 Heads-Up Countermeasures Dispenser Control				
C-17 Stick- or Glare Shield-Mounted Flare Dispense Switch NRE	3600	1	$1,500,000	$1,500,000
C-17 Stick- or Glare Shield-Mounted Flare Dispense Switches	3010	22	$30,000	$660,000
C-17 Three-Engine Airdrop Escape Performance Data				
Three-Engine Performance Data NRE	3010	1	$3,000,000	$3,000,000
C-17 Improved Infrared (IR) Missile Defense and 360-Degree Situational Awareness Displays				
Next Generation NRE	3600	1	$12,000,000	$12,000,000
LAIRCM Group A Kits	3010	8	AF Future Years Defense Program	
LAIRCM Group B Kits	3010	8	AF Future Years Defense Program	
Next Generation Sensors	3010	18	$2,954,855	$53,187,390
C-17 Integrated Class III Electronic Flight Bag (EFB)				
Electronic Flight Bag NRE	3600	1	$2,400,000	$2,400,000
Electronic Flight Bags	3010	18	$240,000	$4,320,000
C-17 and C-5 Integrated Real-Time in the Cockpit (RTIC) and Datalink (DL)				
C-17 NRE	3600	1	$10,000,000	$10,000,000
C-5 NRE	3600	1	$10,000,000	$10,000,000
C-17 Group A Kits	3010	18	$100,000	$1,800,000
C-17 DL Radios	3010	18	$330,000	$5,940,000
C-17 DL Processors	3010	18	$100,000	$1,800,000
C-5 Group A Kits	3010	16	$100,000	$1,600,000
C-5 DL Radios	3010	16	$330,000	$5,280,000
C-5 DL Processors	3010	16	$100,000	$1,600,000
C-5 Structural Modernization				
Crown Skin Replacements	3840	16	$9,400,000	$150,400,000
C-5 Large Aircraft Infrared Countermeasures (LAIRCM) and Next Generation Threat Detection System				
LAIRCM NRE	3600	1	$10,000,000	$10,000,000
Next Generation NRE	3600	1	$12,000,000	$12,000,000
LAIRCM Group A Kits	3010	16	$4,500,000	$72,000,000
LAIRCM Group B Kits	3010	16	$3,000,000	$48,000,000
C-5 Brake Temperature Monitoring System (BTMS)				
BTMS NRE	3600	1	$3,000,000	$3,000,000
Upgraded Brake Systems	3010	16	$2,000,000	$32,000,000
Brake Temperature Monitoring Systems	3010	16	$2,000,000	$32,000,000
Strategic Airlift Subtotal				**$474,487,390**
C-130H Propulsion Modernization				
EPCS/IPBS NRE	3010	1	$8,000,000	$8,000,000
NP2000	3010	135	$2,000,000	$270,000,000
EPCS	3010	135	$825,000	$111,375,000
IPBS	3010	135	$350,000	$47,250,000
T-56 3.5 MOD Engines	3010	540	$1,400,000	$756,000,000
OCA	3010	135	$666,667	$90,000,045
C-130H/J Enhanced Situational Awareness				
RTIC Software Upgrade	3600	1	$1,500,000	$1,500,000
ALQ-213 NRE	3600	1	$2,000,000	$2,000,000
ALQ-213	3010	155	$226,154	$35,053,870
AIECS NRE	3600	1	$3,000,000	$3,000,000
AIECS	3010	155	$3,000,000	$465,000,000
C-130H/J Improved Self-Protection				
C-130J LAIRCM Group A Kits	3010	16	AF Future Years Defense Program	
C-130J LAIRCM Group B Kits	3010	10	AF Future Years Defense Program	
NexGen Group A Kits	3010	153	$420,000	$64,260,000
NexGen Group B Kits	3010	78	$774,855	$60,438,690
C-130H/J Single-Pass Precision Guided Airdrop				
Laser Designator Pod NRE	3600	1	$16,000,000	$16,000,000
APN-241 Radar Upgrade	3600	1	$3,000,000	$3,000,000
Laser Designator Pod	3010	77	$2,000,000	$154,000,000
C-130H Avionics Obsolescence Solution				
NRE	3600	1	TBD	TBD
Avionics Kits	3010	123	$5,700,000	$701,100,000
NVIS	3010	123	$465,000	$57,195,000
C-130J Cargo Compartment Camera				
NRE	3600	1	$2,000,000	$2,000,000
Kits	3010	18	$350,000	$6,300,000
C-130J Increased Firefighting Safety				
OFP Upgrade	3600	1	$7,000,000	$7,000,000
C-130H/J Subtotal				**$2,860,472,605**
C-27J Enhanced Situational Awareness Displays				
NRE	3010	1	$2,000,000	$2,000,000
Kits	3010	24	$70,000	$1,680,000
TAWS (DTED)	3010	21	$234,000	$4,914,000
C-27J Operational Flight Program (OFP) Software Upgrades				
OFP Upgrades	3600	1	$5,000,000	$5,000,000
C-27J Multi-Spectrum Sensor/Designator				
NRE	3010	1	$2,000,000	$2,000,000
Systems	3010	15	$1,000,000	$15,000,000
A Kit Installs	3010	38	$500,000	$19,000,000

RAPID GLOBAL MOBILITY	Type Funds	Units Required	Unit Cost	Program Cost
C-27J Loadmaster Armor				
Kits (2 sets per kit)	3010	15	$60,000	$900,000
C-27J Certified Primary Flight Display (PFD) Heads-Up Display (HUD)				
HUD Sets	3010	18	$723,000	$13,014,000
C-27J Subtotal				**$63,508,000**
LC-130 Eight-Bladed Propeller Replacement				
NRE	3010	1	$5,000,000	$5,000,000
EPCS Spares	3010	1	$1,500,000	$1,500,000
NP2000	3010	9	$2,000,000	$18,000,000
LC-130 Retractable External Arm and Response and Crevasse Detection Radar (CDR)				
CDR Operational Improvements	3010	1	$1,000,000	$1,000,000
Retractable External Arm Modification	3010	1	$2,000,000	$2,000,000
LC-130H In-Flight Propeller Balancing (IFPB)				
IFPB NRE	3600	1	$3,000,000	$3,000,000
IFPB	3010	10	$350,000	$3,500,000
LC-130H Flight Deck Night Vision Goggle (NVG) Compatability				
NRE	3010	1	$300,000	$300,000
Cockpit NVG Upgrades	3010	7	$375,000	$2,625,000
LC-130H Flight Deck Communications Upgrade				
NRE	3010	1	$1,000,000	$1,000,000
Flight Deck Upgrades	3010	11	$25,000	$275,000
LC-130 Subtotal				**$38,200,000**
KC-135 Advanced Infrared Countermeasures (IRCM) Defensive Systems				
NRE	3010	1	$10,000,000	$10,000,000
Group A Kits	3010	180	$500,000	$90,000,000
Group B Kits	3010	40	$1,600,000	$64,000,000
KC-135 Tactical Data Link (TDL) and Situational Awareness Cockpit Display Units (CDU)				
NRE	3600	1	$9,000,000	$9,000,000
Group A Kits	3010	180	$120,000	$21,600,000
TDL Radios and Processors	3010	197	$380,000	$74,860,000
KC-135 External Overt/Covert Lighting				
LED Light Kits	3010	197	$70,000	$13,790,000
KC-135 Fuel Tank Fire Explosion Protection				
NRE	3600	1	$5,000,000	$5,000,000
Fuel Tank Conversions	3010	180	$300,000	$54,000,000
KC-135 Aircraft Ground Cooling Capability				
Ground Cooling Units	3010	107	$40,000	$4,280,000
KC-135 Subtotal				**$346,530,000**
C-38A Replacement Aircraft Program				
Replacement Aircraft	3010	2	$66,752,500	$133,505,000
Additional Aircraft	3010	2	$66,752,500	$133,505,000
C-38A Avionics Modernization				
Avionics Suites	3010	2	$200,000	$400,000
C-38A/C-40C High Speed Data				
C-38 High Speed Data Systems	3010	2	$200,000	$400,000
C-40C Procurement				
C-40C Aircraft	3010	1	$103,000,000	$103,000,000
C-40C Electronic Flight Bag (EFB)				
Supplemental Type Certificate (STC)	3010	1	$320,000	$320,000
Electronic Flight Bags (EFB)	3010	3	$125,000	$375,000
OSA Subtotal				**$371,505,000**
RAPID GLOBAL MOBILITY TOTAL				**$4,154,702,995**

SPECIAL OPERATIONS/PERSONNEL RECOVERY	Type Funds	Units Required	Unit Cost	Program Cost
A-10 Lightweight Airborne Recovery System (LARS) Upgrade				
LARS V12	3010	63	$149,000	$9,387,000
Personnel Recovery A-10 Subtotal				**$9,387,000**
EC-130J Large Aircraft Infrared Countermeasures (LAIRCM)				
LAIRCM Group A Kits	3010	4	$970,000	$3,880,000
LAIRCM Group B Kits	3010	6	$4,400,000	$26,400,000
NexGen Group A Kits	3010	4	$420,000	$1,680,000
NexGen Group B Kits	3010	6	$774,855	$4,649,130
EC-130J Intelligence, Surveillance, and Reconnaissance (ISR)				
ISR NRE	3600	1	$2,000,000	$2,000,000
MK20 EO/IR Sensors	3010	6	$1,600,000	$9,600,000
Retractable Arm Kits	3010	7	$1,245,714	$8,719,998
Crashworthy Seat Kit	3010	1	$60,000	$60,000
EC-130J Fly-Away Broadcast System				
FABS NRE	3600	1	$6,000,000	$6,000,000
FABS Systems	3010	8	$500,000	$4,000,000
Retractable Arm Kits	3010	7	$1,245,714	$8,719,998
Crashworthy Seat Kit	3010	1	$60,000	$60,000
FABS Operator Stations	3010	4	$750,000	$3,000,000
EC-130J ArcLight2 Ku Band Spread Spectrum (KuSS) Modem				
VMBR 1520 Modems	3010	7	$50,000	$350,000
EC-130J Communcation/Situational Awareness Suite				
SAMS/ESA Systems	3010	8	$562,500	$4,500,000

SPECIAL OPERATIONS/PERSONNEL RECOVERY	Type Funds	Units Required	Unit Cost	Program Cost
HC/MC-130P/N Integrated Beyond-Line-of-Sight (BLOS/Secure-Line-of-Sight (SLOS) Datalink				
Gateway NRE	3600	1	$1,000,000	$1,000,000
Gateway Kits	3010	13	$500,000	$6,500,000
BFT Kits	3010	13	$100,000	$1,300,000
HC/MC-130P/N Information Superiority				
NRE	3600	1	$2,000,000	$2,000,000
EO/IR Sensor Upgrades	3010	13	$1,075,000	$13,975,000
FMV	3010	13	$192,300	$2,499,900
IOB	3010	13	$50,000	$650,000
HC/MC-130P/N Combat Penetrator Suite				
Dirctional Audio NRE	3600	1	$6,000,000	$6,000,000
3D Audio Pilot Kits	3010	117	$7,000	$819,000
Unit Test Equipment	3080	3	$58,500	$175,500
RF Jammer NRE	3600	1	$5,000,000	$5,000,000
RF Jammer	3010	13	$5,000,000	$65,000,000
ALR-69A NRE	3600	1	$2,000,000	$2,000,000
ALR-69A	3010	13	$1,300,000	$16,900,000
TFTA NRE	3600	1	$5,000,000	$5,000,000
TFTA	3010	13	$3,000,000	$39,000,000
Hostile Fire Indicator	3010	13	$270,000	$3,510,000
HC/MC-130P/N Enhanced Engine and Propeller Performance				
EPCS, IFPB, & NP2000 NRE	3600	1	$6,000,000	$6,000,000
EPCS	3010	13	$879,000	$11,427,000
IFPB	3010	13	$350,000	$4,550,000
NP2000	3010	13	$2,200,000	$28,600,000
HC/MC-130P/N Mission Flexible Cargo Compartment				
Dual-Rail Fuel Tanks	3010	9	$1,800,000	$16,200,000
HE Airdrop Kits	3010	13	$350,000	$4,550,000
HC/MC-130P/N Combat Search and Rescue (CSAR) Mission Area Working Group (MAWG) Electronic Flight Bags (EFB)				
EFB Devices	3010	450	$500	$225,000
Special Operations C-130s Subtotal				**$326,500,526**
C-32B Satellite Communication (SATCOM) System with Secure Ku Bandwidth				
5-Year Ku Bandwith	3840	5	$14,000,000	$70,000,000
Satellite Communication (SATCOM) Systems	3010	2	$1,400,000	$2,800,000
C-32B Communications Management System (CMS) Replacement				
CMS Replacement	3010	1	$4,500,000	$4,500,000
Special Operations C-32 Subtotal				**$77,300,000**
HH-60 Modernized Electronic Warfare System				
Defensive System NRE	3600	1	$2,000,000	$2,000,000
Directional Audio NRE	3600	1	$19,200,000	$19,200,000
Hostile Fire Indicators	3010	17	$279,411	$4,749,987
3D Audio Kits	3010	108	$7,051	$761,508
Unit Test Equipment	3080	3	$58,400	$175,200
ALQ-213 w / 3D Audio Kits	3010	17	$233,333	$3,966,661
Radar Warning Receivers	3010	17	$1,240,000	$21,080,000
HH-60 Integrated Flight Deck				
ACSU Kits	3010	16	$431,000	$6,896,000
AFTRS-R Installation	3010	1	$2,500,000	$2,500,000
Blue Force Tracker	3010	18	$100,000	$1,800,000
HH-60 Helmet Mounted Cueing				
HMCS NRE	3600	1	$6,000,000	$6,000,000
HMCS Aircraft Kits	3010	18	$335,294	$6,035,292
HMCS Helmet Kits	3010	102	$87,843	$8,959,986
Night Vision Units	3010	102	$65,882	$6,719,964
Coordinate Generating Lasers	3010	18	$558,824	$10,058,832
HH-60 3D Landing Zone (LZ)				
3D Landing Zone NRE	3600	1	$20,000,000	$20,000,000
3D Landing Zone Kits	3010	18	$1,000,000	$18,000,000
HH-60 Weapons Modernization				
M134D Minigun Components	3010	36	$30,000	$1,080,000
M134D Miniguns	3010	36	$66,667	$2,400,012
HH-60 Subtotal				**$142,383,442**
Guardian Angel (GA) Human Performance Optimization				
Human Performance Optimization Teams	3840	3	$535,000	$1,605,000
Human Performance Optimization Equipment Systems	3840	3	$100,000	$300,000
Guardian Angel GA) Combat Survivability Suite				
MicroDAGR	3080	54	$1,450	$78,300
PRC-152A	3080	72	$13,850	$997,200
Invisio V60	3080	150	$2,000	$300,000
HFI	3080	30	$1,800	$54,000
Fusion Goggles	3080	150	$9,200	$1,380,000
Night/Day Target Designators	3080	36	$18,500	$666,000

SPECIAL OPERATIONS/PERSONNEL RECOVERY	Type Funds	Units Required	Unit Cost	Program Cost
Guardian Angel (GA) Weapon Modernization Suite				
M-4 Modernization	3080	150	$2,370	$355,500
M-9 Modernization	3080	150	$550	$82,500
Multi-role Stand-off Systems	3080	11	$28,000	$308,000
Non-Lethal Weapons	3080	11	$12,500	$137,500
25M Live Fire Ranges	3080	3	$1,800,000	$5,400,000
Guardian Angel (GA) Rescue Recovery Vehicles				
Search and Rescue Tactical Vehicles	3080	6	$150,000	$900,000
Guardian Angel Subtotal				**$12,564,000**
Special Tactics (ST) Universal DataLink				
Universal DataLink	3080	20	$40,000	$800,000
Ruggedized Planning Computers	3080	20	$3,000	$60,000
Video Downlink Receivers	3080	25	$30,000	$750,000
Special Tactics (ST) Dismounted Operator Suite				
Personal Protection Equipment	3080	100	$1,000	$100,000
Integfrated Tactical Interface	3080	7	$30,000	$210,000
Fusion Goggle Wireless Upgrade	3080	20	$3,600	$72,000
Next Generation Small LRF	3080	30	$8,500	$255,000
Next Generation GPS	3080	70	$600	$42,000
Helmet Mounted Binoculars	3080	30	$3,500	$105,000
Improved Weapons Accessory Mounts	3080	8	$3,500	$28,000
Improved M-203 Sight	3080	20	$1,000	$20,000
Special Tactics (ST) Employment Enhancement Suite				
Maritime Parachute Ops Kit	3080	2	$100,000	$200,000
Maritme Support Boat	3080	2	$150,000	$300,000
Swift-Water Boats	3080	2	$6,000	$12,000
Maritme FLIR Mounting Systems	3080	2	$275,000	$550,000
Improved Tactical ATVs	3080	8	$16,000	$128,000
Snow Machines	3080	4	$11,000	$44,000
Manpowered Transition Systems	3080	12	$4,750	$57,000
Special Tactics (ST) Environmental Assessment Suite				
Next Generation LZ Assessment Kits	3080	4	$130,000	$520,000
LZ Assessment Modular Upgrades	3080	5	$45,000	$225,000
Riverine Analysis Kits	3080	12	$3,300	$39,600
Tactical Atmospheric Sounding Kits	3080	6	$21,000	$126,000
Special Tactics (ST) Communications Enhancement Suite				
Advanced Tactical Headsets	3080	20	$1,500	$30,000
Radio Software Upgrades	3080	20	$1,600	$32,000
Multi-Spectrum Radio Remote Units	3080	6	$15,000	$90,000
Advanced SATCOM Antennas	3080	10	$5,000	$50,000
Special Tactics Subtotal				**$4,845,600**
SPECIAL OPERATIONS/PERSONNEL RECOVERY TOTAL				**$572,980,568**
AGILE COMBAT SUPPORT	Type Funds	Units Required	Unit Cost	Program Cost
Security Forces (SF) Professional Bag Expansion and Modernization				
Professional Bag Kits	3080	8400	$2,000	$16,800,000
Security Forces (SF) Surveillance, Target Acquision, and Night Observation (STANO) Equipment Modernization				
AN/PAS-13 (V2)	3080	1000	$12,000	$12,000,000
AN/PAS-13 (V3)	3080	200	$12,000	$2,400,000
AN/PSQ-18A	3080	750	$2,000	$1,500,000
AN/PEQ-15	3080	500	$1,200	$600,000
QFELB	3080	92	$50,000	$4,600,000
Security Forces(SF) Explosive Detection Equipment				
Handheld Explosive Detection Devices	3080	111	$40,000	$4,440,000
Security Forces (SF) Less-Than-Lethal (LTL) Equipment				
Less-Than-Lethal Kits	3080	146	$46,000	$6,716,000
Security Forces (SF) Small Arms Range Solution				
Modular Small Arms Ranges	3080	10	$4,510,000	$45,100,000
Security Forces Subtotal				**$94,156,000**
Logisitics Obsolete Support Equipment Replacement				
A-10 Fuel Quantity Testers	3080	10	$305,800	$3,058,000
C-130 Engine R/I	3080	16	$202,500	$3,240,000
50/60 Testers	3080	180	$25,000	$4,500,000
Logisitics Advanced Support Equipment				
Alternative Tow Vehicles	3080	26	$160,000	$4,160,000
MJ-1E Electric Jammers	3080	52	$125,000	$6,500,000
VXI-IAIS Upgrade kits	3080	19	$2,540,000	$48,260,000
e-Tools	3080	6053	$2,842	$17,202,626
Logisitics Multiple Mission, Design, Series (MDS) Leak Detection Capability				
Hydrogen Leak Detectors	3080	156	$29,200	$4,555,200
Logistics Satellite Communication (SATCOM) Radio Support Capability				
Testers	3080	90	$25,000	$2,250,000
C-130 Isochronal (ISO) Inspection Stands				
ISO Inspection Stands	3080	8	$554,417	$4,435,336
Logistics Subtotal				**$98,161,162**
AGILE COMBAT SUPPORT TOTAL				**$192,317,162**

SPACE SUPERIORITY/CYBERSPACE SUPERIORITY	Type Funds	Units Required	Unit Cost	Program Cost
Space Operations Domain Infrastructure Capability Enhancement (DICE)				
DICE	3080	2	$1,200,000	$2,400,000
Space Superiority Subtotal				**$2,400,000**
Cyber Warfare/Information Operations (CW/IO) Critical Infrastructure Range (CCIR)				
CCIR NRE	3080	1	$70,000	$70,000
CCIR	3080	2	$510,000	$1,020,000
CCIR Refresh	3840	2	$78,000	$156,000
JIOR Pico Nodes	3080	7	$60,000	$420,000
DREN Service Delivery Points (SDP)	3840	6	$200,000	$1,200,000
Cyber Warfare/Information Operations (CW/IO) Secure Infrastructure Collaborative Capability (SIC2)				
JWICS SVTC	3080	8	$290,000	$2,320,000
SIPRNET SVTC	3080	8	$10,000	$80,000
JWICS Secure Packages	3080	5	$122,700	$613,500
Cyber Warfare/Information Operations (CW/IO) Portable Assessment for Wireless Network (PAWN)				
Wireless Analysis Systems	3080	2	$604,000	$1,208,000
Cyber Warfare/Information Operations (CW/IO) Remote Access Toolset (RAT)				
RAT Suites	3080	2	$400,000	$800,000
Cyberspace Subtotal				**$7,887,500**
SPACE SUPERIORITY/CYBERSPACE SUPERIORITY TOTAL				**$10,287,500**
SIMULATION/DMO/RANGE	Type Funds	Units Required	Unit Cost	Program Cost
Simulation C-130J Virtual Electronic Combat Training System (VECTS)				
NRE	3010	1	$5,000,000	$5,000,000
VECTS A Kits	3010	18	$50,000	$900,000
VECTS B Kits	3010	20	$250,000	$5,000,000
Simulation Battle Control Center (BCC) Distributed Mission Operations (DMO)				
Sim PROCONS	3080	4	$200,000	$800,000
Additional DMO Workstations	3080	35	$11,000	$385,000
Simulation Control and Reporting Center (CRC) Tailorable Distributed Live-Fly Training Support System				
Systems	3840	11	$625,000	$6,875,000
Simulation Control and Reporting Center (CRC) Deployable Mission Simulation Training Support Systems				
Systems	3080	11	$1,065,000	$11,715,000
Simulation Cyberspace Training Environment (CTE)				
CTE Systems	3080	11	$278,000	$3,058,000
CTE Laptop Packages	3080	9	$134,350	$1,209,150
Storage Area Network	3080	9	$65,000	$585,000
Simulation Advanced Air National Guard (ANG) Joint Terminal Attack Controller Training System (AAJTS)				
AAJTS	3080	15	$1,100,000	$16,500,000
Simulator Subtotal				**$52,027,150**
Ranges High-Fidelity Surrogate Targets				
High-Fidelity Targets	3080	46	$160,000	$7,360,000
Inflatable IR Targets	3080	65	$36,000	$2,340,000
Ranges Mobile High Fidelity Threat Simulators				
Mobile CTUs	3080	2	$2,300,000	$4,600,000
EW Emitters	3080	4	$8,000,000	$32,000,000
Surrogate RDR & TEL	3080	32	$140,000	$4,480,000
Ranges Communications and Tactical Data Link (CTDL) Architecture Support				
LVT-2 Link-16 Radios	3080	12	$270,000	$3,240,000
Battlefield Operational Support Systems	3840	13	$297,000	$3,861,000
Joint Range Extension Systems	3840	11	$132,000	$1,452,000
GPS Tracking Systems	3840	13	$125,000	$1,625,000
Range Radio Systems	3080	12	$86,000	$1,032,000
Ranges "Rangeless" Air Combat Maneuvering Instrumentation (ACMI)				
P-5 Pods	3010	135	$170,000	$22,950,000
Ranges Joint Advanced Weapon Scoring System (JAWSS)				
Replacement WISS Systems	3840	14	$500,000	$7,000,000
Site Communications Infrastructure	3840	14	$250,000	$3,500,000
JAWSS Spare/Upgrade	3840	14	$200,000	$2,800,000
Airspace Ranges Subtotal				**$98,240,000**
SIMULATION/DMO/RANGE TOTAL				**$150,267,150**
TOTAL ANG 2012 MODERNIZATION REQUIREMENTS				**$8,262,261,182**

State Matrix

Weapons Systems Reference Table by State (2013)

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

	A-10	B-2	C-5	C-17	C-27J	C-130	E-8/C-32	F-15	F-16	F-22	HH-60	KC-135	MQ-1 MQ-9	OSA	AOC/ACS CRC/ADS	Space/Cyber/IO	RC-26 DCGS/SS	GA/ST/TACP	Ranges
AK				●		●●					●	●			●	Space		GA	
AL								●				●					●●		
AR	●					●											●		●
AZ								●				●	MQ-1		●		●		
CA						●●		●	●		●		MQ-1			CY/SP	●●	GA	
CO								●						●		Space			●
CT														●		●●			
DC								●						●					
DE						●										Cyber			
FL								●							●	Space	●●		
GA						●	E-8								●		●	TACP	●
GU																			
HI				●					●			●			●		●		
IA								●				●			●				
ID	●														●	Space		TACP	
IL						●						●			●			TACP	
IN	●														●		●	TACP	●●
KS												●			●	CY/SP	●	TACP	●
KY						●												ST	
LA								●							●			TACP	
MA								●							●		●		
MD	●				●											Cyber			
ME												●							
MI	●											●		●	●				●
MN						●			●										
MO		●				●									●●				●
MS				●	●										●		●	TACP	●
MT								●						●					
NC						●												TACP	
ND													MQ-1	●					
NE												●							
NH												●							
NJ							C-32	●				●			●			TACP	●
NM						●				●							●		
NV						●							MQ-1/9				●		
NY				●		●●●					●		MQ-9		●●	Space	●	GA/TP	●
OH					●			●				●	MQ-1		●				
OK								●				●			●			TACP	
OR								●							●			ST	
PA						●						●			●			TACP	●
PR						●									●●				
RI						●										Cyber			
SC								●											
SD								●											
TN			●									●	MQ-9			Space			
TX						●		●					MQ-1			Cyber	●	TACP	●
UT												●				IO	SS ●		
VA										●							●		
VI																			
VT								●								Cyber			
WA												●			●	Cyber	●	TACP	
WI								●				●			●		●		●
WV			●			●											●		
WY						●										Space			

Contacts

Col Eric Mann NGB/A5
Director, Plans & Requirements
240-612-9366 (DSN 612-9366)
Email: Eric.Mann@ang.af.mil

Mr. Frank Ballinger NGB/A5
Associate Director, Plans &
Requirements
240-612-9351 (DSN 612-9351)
Email: Frank.Ballinger@ang.af.mil

Col Paul Mancini NGB/A5R
Chief, Operational Requirements
240-612-9363 (DSN 612-9363)
Email: Paul.Mancini@ang.af.mil

Lt Col Bobbi Doorenbos NGB/A5P
Chief, Requirements Integration
240-612-9367 (DSN 612-9367)
Email: Bobbi.Doorenbos@ang.af.mil

Mr. Michael Regan NGB/A5D
Chief, Domestic Requirements
240-612-9356 (DSN 612-9356)
Email: Michael.Regan.1@ang.af.mil

Col Richard Dennee AATC
Commander
520-295-6900 (DSN 844-6900)
Email: Richard.Dennee@.ang.af.mil

Col Mary Burrus NGB/A1
Director, Manpower, Personnel &
Services
240-612-9455 (DSN 612-9455)
Email: Mary.Burrus@ang.af.mil

Col Jessica Meyeraan NGB/A2
Director, Intelligence, Surveillance, and
Reconnaissance
240-612-9307 (DSN 612-9307)
Email: Jessica.Meyerann@ang.af.mil

Col Kirk Pierce NGB/A3
Director, Operations
240-612-9454 (DSN 612-9454)
Email: Kirk.Pierce.1@ang.af.mil

Col Michael Ogle NGB/A4
Director, Logistics
240-612-8470 (DSN 612-8470)
Email: Michael.Ogle@ang.af.mil

Col Arthur Wunder NGB/A6
Director, Communications
240-612-8602 (DSN 612-8602)
Email: Arthur.Wunder@ang.af.mil

Col Peter Sartori NGB/A7
Director, Installation & Mission Support
240-612-8060 (DSN 612-8060)
Email: Peter.Sartori@ang.af.mil

Col Randolph Staudenraus NGB/A8
Director, Plans & Programs
240-612-9382 (DSN 612-9382)
Email: Randolph.Staudenraus@ang.af.mil

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A-10

- **Close Air Support**
- **Forward Air Controller – Airborne**
- **Combat Search and Rescue**
- **ANG Units Provide 32% of the Total Fleet**

The A-10 continues to prove itself as the premier Close Air Support (CAS) platform of choice for Overseas Contingency Operations (OCO). Its ability to land at and operate from austere airfields provides flexibility beyond that of any other fixed wing Air Force asset, and makes it extremely viable for future conflicts. With a near continuous presence since 2002 in either Operations ENDURING FREEDOM (OEF) or IRAQI FREEDOM (OIF), the A-10 has proven its ability to minimize collateral damage with precision munitions and its 30MM cannon. Coupled with its extensive loiter time and targeting pod capabilities, it provides excellent coverage and capabilities for ground forces.

Air National Guard (ANG) A-10s provided over 66 percent of A-10 deployments in 2011, and all were equipped with the AN/AAR-47 missile warning system and dual Secure-Line-of-Sight (SLOS) ARC-210 SATCOM radio. The next ANG A-10s to deploy will carry the Lightweight Airborne Recovery System (LARS) to aid in Combat Search and Rescue (CSAR), and the Scorpion Helmet Mounted Integrated Targeting (HMIT) system, which reduces the time to acquire targets with aircraft sensors from minutes to seconds.

Current A-10 modernization priorities include a high resolution center display, which will allow pilots to see the High Definition (HD) picture provided by current targeting pods. Such a display will allow a significant improvement in positive identification of friendly and enemy combatants, while aiding in the search, surveillance, and tracking of enemy personnel, making up about 90 percent of each OCO mission. Near-term combat capability will include an integrated noise cancelling, 3D cockpit audio system, and an anti-jam embedded Global Positioning System (GPS), which will provide the ability to operate in a degraded, denied, or deceived GPS environment.
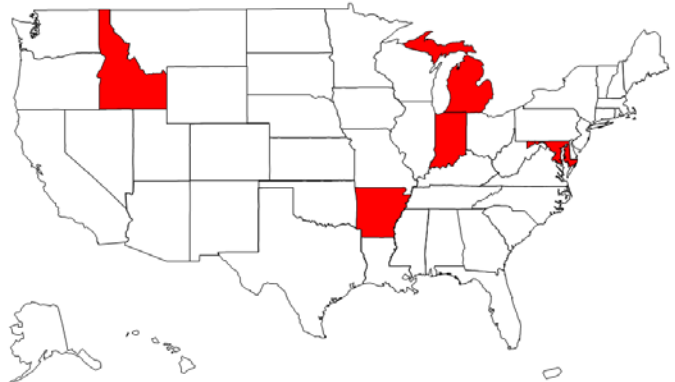
A-10
2012 Weapons and Tactics Conference

Critical Capabilities List

- Improve Positive Identification (ID) through Helmet Mounted Integrated Targeting (HMIT) Enhancement and High Resolution Sensors and Displays
- Fully Fund Operational Flight Program (OFP)
- Fully Integrated Communications Suite to Include 3D Audio, Personnel Locator System, Enhanced Datalink, SINCGARS SA Waveform
- Increase GPS/INS and Datalink Capability to Operate in Contested, Degraded Operations (CDO) Environment
- Austere Airfield Capabilities to Include Overt/Covert Landing Light, Combat Fuel Tank (CFT), On-Board Oxygen Generating System (OBOGS), Parking Brake, Smart TER
- Propulsion and Airframe Enhancement

Essential Capabilities List

- Improved ALR-69 Radar Warning Receiver (RWR), Electronic Attack Pod, and Electronic Warfare Bus Recording Capability
- Full AIM-9 Integration
- All-Weather Targeting and Coordinate Generation
- Laser-Guided Rockets
- Instrument Flight Rules (IFR)-Certified Heads-Up Display (HUD)

Desired Capabilities List

- Laser Threat Protection for Eyes and Sensors
- Electronic Flight Bag with Cockpit Power Source
- High Capacity Removable Mass Memory Device (RMMD)
- Longer Range Precision Guided Munition
- Reliable 1760 Selectable Fuse for General Purpose (GP) Bombs

A-10 EXECUTIVE SUMMARY

Modernization Priority Profiles ($ Million)

Program	2014	2015	2016
Improved Positive Identification			
HMIT	$2.93 [2]	-	-
Center Display	-	$17.25 [2]	$17.25 [2]
	$9.00 [3]	-	-
Advanced Targeting Pod Upgrade	$30.00 [2]	$30.00 [2]	$16.00 [2]
Sensor Enhanced Targeting Pod Procurement	$58.93 [2]	$58.93 [2]	$58.93 [2]
Operational Flight Program (OFP) Funding	$18.60 [3]	$18.60 [3]	$18.60 [3]
Fully Integrated Communications Suite	$1.00 [2]	$3.21 [2]	$3.21 [2]
	$5.00 [3]	-	-
Lightweight Airborne Recovery System (LARS)	$0.44 [4]	-	-
Upgrade	$9.40 [2]	-	-
Increase Capability in a Contested, Degraded	-	$8.21 [2]	$8.21 [2]
Operation (CDO)	$4.50 [3]	-	-
Austere Field Capabilities			
Overt/Covert Landing Light	$1.17 [2]	-	-
Combat Fuel Tank (CFT)	$1.26 [2]	-	-
On-Board Oxygen Generating System (OBOGS)	$8.74 [2]	$8.74 [2]	$4.56 [2]
Parking Brake	$1.06 [2]	-	-
Smart Triple Ejector Rack (TER)	-	$6.30 [2]	$6.30 [2]
	$2.00 [3]	-	-
Propulsion and Airframe Enhancement			
Engine	-	$27.72 [2]	$27.72 [2]
Wing Assembly	$36.00 [2]	$36.00 [2]	$24.00 [2]

Notes: [1] 3840 Appropriation   [2] 3010 Appropriation   [3] 3600 Appropriation   [4] 3080 Appropriation

- Improved Positive Identification - Helmet Mounted Integrated Targeting (HMIT) provides off-boresight rapid day/night target acquisition. Improved cockpit displays allow pilots to see the high resolution scene clarity provided by upgraded targeting pods.
- Fully Fund Operational Flight Program (OFP) - Ensures the A-10 is able to integrate new systems and weapons, while incorporating upgrades from sustainment programs.
- Fully Integrated Communication Suite - Directional audio enhances cockpit Situational Awareness (SA) with respect to communication and threat warning. SINCGARS SA Waveform and enhanced datalink will allow ground troop position data and other datalink participants to be viewed on all A-10 displays.
- Lightweight Airborne Recovery System (LARS) Upgrade - Allows A-10s to quickly and precisely find downed Airmen carrying the latest survival radios.
- Increase Capability in a Congested, Degraded Operation - Reduces the effects of jamming for improved GPS and datalink operation in a degraded, denied, or deceived environment.
- Austere Field Capabilities - Improves the A-10's ability to land at and sustain operations from unlit, unimproved, and unpaved airfields.
- Propulsion and Airframe Enhancement - Required to increase agility at medium/high altitude, provide increased combat munitions loads, and sustain the A-10 for 25 more years.

Persistent Conflict - Enabling the Warfighter

A-10 IMPROVED POSITIVE IDENTIFICATION THROUGH HELMET MOUNTED INTEGRATED TARGETING AND HIGH-RESOLUTION SENSORS AND DISPLAYS

1. Background. Positive Identification (PID) of friendly forces and enemy combatants is crucial in any conflict. Every action must be taken to eliminate fratricide and civilian casualties. Currently, three capabilities can immediately help A-10 pilots minimize misidentification. The first of these is the Helmet Mounted Integrated Targeting (HMIT) system. HMIT will reduce the time to acquire targets with aircraft sensors from minutes to seconds and allow pilots to quickly locate the position of friendly forces on the ground. The next key in finding and identifying hostile forces is the ability to see the best ground detail available. Advanced Targeting Pods (ATP) technology can provide the scene clarity necessary for a pilot to find enemies previously undetectable from the air, while displaying the detail necessary to determine if an individual is carrying a weapon or a tool. By simply looking at these two locations, the pilot can immediately determine a 3D picture of the battlefield, while assessing risk to friendly forces and civilian personnel and property. These new Gen4 and Sensor Enhancement systems will make legacy targeting pods obsolete, requiring them to be upgraded to provide the most capable connectivity, improved software and tracking upgrades, as well as a digital port to send high resolution digital imagery to the cockpit. In order to maximize the effectiveness of the upgraded ATPs, A-10s require new high resolution displays able to fully utilize the targeting pod image quality, improve available processing power, and replace aging flight instruments. Connecting the new displays to the ARC-210 allows the pilot to securely transfer data such as ATP scenes, Joint Tactical Air Controller (JTAC) taskings, and updated target area imagery.

2. Source of Need. Combatant Commander's Urgent Operational Need dated 26 Sep 2008; ARC 2012 WEPTAC Critical Requirement.

3. Impact If Not Funded. Pilots will take longer to locate enemy positions and be unable to exploit improved image quality of next generation targeting pods. This limits the ability to increase standoff, to determine enemy intent, and degrades the ability to execute Close Air Support (CAS), Combat Search and Rescue (CSAR), and Time Sensitive Target (TST) taskings.

4. Units Impacted.

122 FW Ft Wayne IAP, IN	127 WG Selfridge ANGB, MI	188 FW Ft Smith RAP, AR
124 WG Boise AP, ID	175 WG Martin State AP, MD	

5. Cost.   **PEC: 027131F**

Remaining Quantity Required	Unit Cost *	Program Cost
42 HMIT Group A Kits and Spares (3010)	**$69,800**	**$2,931,600**
Display NRE (3600)	**N/A**	**$9,000,000**
106 Color Displays (3010)	**$326,000**	**$34,556,000**
**10 Gen4 TGP Upgrades ** ** (3010)	**$1,500,000**	**$15,000,000**
**244 Digital Port Upgrades ** ** (3010)	**$250,000**	**$61,000,000**
**104 ATP-SE Pods ** ** (3010)	**$1,700,000**	**$176,800,000**
Total		**$299,287,600**

* Includes 10% spares.
** Quantities and Program Costs are shared with F-16s (see F-16 Info Paper).

A-10 OPERATIONAL FLIGHT PROGRAM (OFP) SOFTWARE UPGRADES

1. Background. Ensuring the A-10 is viable beyond the year 2034 will require constant updates to the Operational Flight Program (OFP). A-10 OFP is the key to integrating and updating all systems and weapons carried on the aircraft. Currently, the A-10 OFP software is updated every 2 years, and requires $28 million per year to incorporate sustainment of aging systems, while integrating new aircraft and weapon capabilities. Presently, the OFP is being funded at $13.4 million per year, with $4 million of that money being used to stand up a System Integration Laboratory (SIL) at Hill AFB, as the OFP production responsibilities transition to that location. As a result, OFP development is funded at approximately 34 percent for the foreseeable future. Not providing complete funding for the OFP has a significant impact on future A-10 capabilities. First, it will require all funding be directed only at sustainment items to keep the aircraft flying, and with only 34 percent, it may not cover all of those items. Additionally, it will prevent the A-10 from being able to carry updated, more capable weapons, and may preclude the use of the most up-to-date targeting pod, which is crucial in executing the primary missions of Close Air Support (CAS), Combat Search and Rescue (CSAR), as well as support to Joint Terminal Air Controllers (JTAC). Lastly, it will prevent the A-10 from integrating any new systems, such as the high resolution display, or the jam-resistant Global Positioning System (GPS), both of which will provide tremendous capabilities to the aircraft.

2. Source of Need. A-10 Operational Requirements Document (ORD); ARC 2012 WEPTAC Critical Requirement.

3. Impact If Not Funded. Failure to increase the funding for OFP development will significantly degrade the A-10's ability to integrate emerging technologies with all aircraft subsystems, and greatly limit the ability to sustain essential systems. By not properly funding the OFP, the A-10 may no longer be able to meet Combatant Commander's requirements.

4. Units Impacted.

122 FW Ft Wayne IAP, IN	127 WG Selfridge ANGB, MI	188 FW Ft Smith RAP, AR
124 WG Boise AP, ID	175 WG Martin State AP, MD	

5. Cost.   PEC: 027131F

Remaining Quantity Required	Unit Cost *	Program Cost **
3 OFP Software Upgrades (3600)	**$18,600,000**	**$55,800,000**
Total		**$55,800,000**

* Annual cost to meet OFP development requirement.
** Total cost over a 3 year period.

A-10 FULLY-INTEGRATED COMMUNICATIONS SUITE

1. Background. The requirement to operate the A-10 beyond the year 2034 requires a fully-integrated communications suite. The A-10 communications suite improvements consist of the ARC-210 radio, 3D Audio, Enhanced Datalink, and Single Channel Ground and Airborne Radio System (SINCGARS) Situation Awareness (SA) Waveform. Two ARC-210 multi-band and multi-mode digital radios that include Satellite Communications (SATCOM) to meet the urgent operational need for Simultaneous Beyond-Line-of-Sight (BLOS) and Secure-Line-of-Sight (SLOS) communications have been fully funded and fielded. Integration of SINCGARS SA Waveform in the ARC-210 radio would allow ground troops' Global Positioning System (GPS) data, transmitted by existing radios proliferated by the thousands to ground troops, to be displayed on the A-10 Tactical Awareness Display (TAD), the targeting pod field of view, as well as within the Helmet Mounted Integrated Targeting (HMIT) system display. This capability reduces the risk of fratricide and lowers the workload on the pilot in a Combat Search and Rescue (CSAR) or Close Air Support (CAS) scenario. The integration of noise-cancelling and 3D audio in the cockpit will increase SA by spatially separating aural warning and radio signals and providing angular cueing to ground and air threats when used in conjunction with the HMIT system. This spatial separation and reduction in ambient noise significantly increases the pilot's ability to process information coming simultaneously from multiple radios and warning systems. The continued advancements in datalink systems and the proliferation of datalink to multiple aircraft and ground parties, requires the A-10 to constantly upgrade its current datalink architecture, ensuring the best possible connectivity and security with all fielded datalink variants.

2. Source of Need. ARC 2012 WEPTAC Critical Requirement.

3. Impact If Not Funded. Not funding 3D audio will severely impact the pilot's ability to integrate the multitude of radio and aural warning cues in the aircraft's spatial environment, limiting SA, and reducing reaction time and survivability. Not funding SINCGARS SA Waveform increases the task loading on the pilot in time-critical CSAR and CAS missions, hindering mission coordination and timely recovery of isolated personnel.

4. Units Impacted.
122 FW Ft Wayne IAP, IN   127 WG   Selfridge ANGB, MI   188 FW Ft Smith RAP, AR
124 WG Boise AP, ID   175 WG   Martin State AP, MD

5. Cost.   PEC: 027131F

Remaining Quantity Required	Unit Cost *	Program Cost
Directional Audio NRE (3600)	**N/A**	**$5,000,000**
106 Directional Kits (3010)	**$50,000**	**$5,300,000**
159 Directional Audio Pilot Equipment (3010)	**$7,000**	**$1,113,000**
10 Unit Test Equipment (3080)	**$43,800**	**$438,000**
SINCGARS SA Waveform Retrofit (3010)	**N/A**	**$1,000,000**
Total		**$12,851,000**

* Includes 10% spares.

A-10 LIGHTWEIGHT AIRBORNE RECOVERY SYSTEM (LARS) UPGRADE

1. Background. There are numerous fielded Combat Search and Rescue (CSAR) survival radios that provide a wide spectrum of capability. These radios range from the basic PRC-90 to the PRQ-7 Combat Survivor-Evader Locator (CSEL) radio. The AN/ARS-6(V)6 Lightweight Airborne Recovery System (LARS) cockpit radio currently installed in select A-10 aircraft is not compatible with the newer survivor radios and can only display range and bearing to the survivor. The newer survivor radios offer more accurate information (Geo-Location, Text Messaging, and Situation Reports) to CSAR forces attempting to rescue isolated personnel. The AN/ARS-6(V)12 LARS is compatible with all CSAR survival radios. It is integrated with all cockpit displays, and is capable of presenting geographic coordinates and text messaging transmitted from the newer survival radios, such as PRQ-7 CSEL and the Hook-112G. Additionally, the AN/ARS-6(V)12 LARS provides the ability to quickly and securely pass vital survivor data (coordinates and messaging) between all CSAR aircraft, providing a better coordinated and more covert rescue, while protecting both the survivor and the rescuers. The AN/ARS-6(V)12 LARS also has improved antennas for better coverage and reliability.

2. Source of Need. Combat Air Force (CAF) Operational Requirements Document (ORD) CAF 401-91-I/II/III-D for A/OA-10 Aircraft Multi-Staged Improvement Program (MSIP) Oct 1999; LARS AN/ARS-6(V)12 1067 Modification Proposal, 24 Jul 2008; ARC 2012 WEPTAC Critical Requirement.

3. Impact If Not Funded. Without upgrading to the AN/ARS-6(V)12 LARS, rescue forces lack secure communications and exact Global Positioning System (GPS) location to both the PRC-112G and the PRQ-7 CSEL survivor radios, which are currently fielded by ground forces and aircrew. These modern CSEL radios significantly shorten the time required to locate and recover downed Airmen, improving the chance of recovery and reducing rescue force exposure to enemy fire. The lack of these capabilities hinders mission coordination and represents a significant operational disadvantage during the inherently dangerous and time-critical CSAR scenario.

4. Units Impacted.

122 FW Ft Wayne IAP, IN	127 WG Selfridge ANGB, MI	188 FW Ft Smith RAP, AR
124 WG Boise AP, ID	175 WG Martin State AP, MD	

5. Cost.   PEC: 027131F

Remaining Quantity Required	Unit Cost *	Program Cost
63 LARS V12 (3010)	**$149,000**	**$9,387,000**
Total		**$9,387,000**

 * Includes 10% spares.

A-10 INCREASE GLOBAL POSITIONING SYSTEM (GPS)/INERTIAL NAVIGATION SYSTEM (INS) AND DATALINK CAPABILITY IN A CONTESTED DEGRADED OPERATIONS (CDO) ENVIRONMENT

1. Background. The A-10 uses an Embedded Global Positioning System (GPS)/Inertial Navigation System (INS) (EGI) for precision navigation and weapons employment. The EGI is the heart of the A-10 avionics system. Virtually every system on the aircraft depends on the highly accurate position, orientation, and velocity data it provides. Jamming equipment has evolved to counter this capability with technology that may degrade and deny the effectiveness of the EGI, affecting navigation, positional awareness, and the accurate employment of ordnance. To combat these enemy actions, the first step will be the installation of a Controlled Reception Pattern Antenna (CRPA) that can significantly nullify the effects of jamming systems based on the aircraft distance from that system. The follow-on step is Selective Availability Anti-Spoofing Modules (SAASM), which combat these hostile outside jamming influences to protect Precise Positioning Systems and Standard Positioning Systems. Additionally, a current Federal Aviation Administration (FAA) ruling mandates a SAASM-based Automatic Dependent Surveillance-Broadcast (ADS-B) EGI by 2020 for all aircraft to support its transition to the satellite-based air traffic control system from a radar-based system, capable of providing better surveillance precision and reliability. Upgrading the A-10's current EGI system will support this FAA ruling, while providing increased capability to keep the datalink functional in a CDO environment. In addition to GPS jamming, the datalink can also be affected through Radio Frequency (RF) jamming. To mitigate RF jamming, the datalink must be modified to increase the range of frequencies used, lowering the likelihood of jamming effectiveness.

2. Source of Need. FAA Rule - 14 CFR Part 91 [Docket No. FAA-2007-29305; Amdt. No.91-314], RIN 2120-AI92 - Automatic Dependent Surveillance-Broadcast (ADS-B) Out Performance Requirements to Support Air Traffic Control (ATC) Services, 28 May 2010; ARC 2012 WEPTAC Critical Requirement.

3. Impact If Not Funded. Not funding a countermeasure for GPS jamming will severely impact the ability of the A-10 to operate in the Close Air Support (CAS) precision-dependent combat environment of current and future theaters of operation. The ability to identify targets and employ munitions with surgical precision will be hindered, while similar datalink jamming would increase the risk of collateral damage to both ground forces and civilians.

4. Units Impacted.

122 FW Ft Wayne IAP, IN	127 WG Selfridge ANGB, MI	188 FW Ft Smith RAP, AR
124 WG Boise AP, ID	175 WG Martin State AP, MD	

5. Cost.   **PEC: 027131F**

Remaining Quantity Required	Unit Cost *	Program Cost
Anti-Jam EGI NRE (3600)	**N/A**	**$4,500,000**
106 Anti-Jam EGI (3010)	**$155,000**	**$16,430,000**
Total		**$20,930,000**

* Includes 10% spares.

A-10 AUSTERE AIRFIELD CAPABILITIES

1. Background. The A-10 is the only fighter aircraft in the Air Force inventory that has the ability to land at austere, unimproved airfields, including dry lake beds. This capability gives Combatant Commanders a tremendous amount of flexibility to pre-deploy A-10s closer to the expected battlespace and allows them less response time for the three primary missions of Close Air Support (CAS), Forward Air Controller - Airborne (FAC-A), and Combat Search and Rescue (CSAR). Emerging capabilities will further improve the A-10's ability to operate out of austere airfields, while lowering the number of maintenance and logistics personnel required to support such operations. The first of these new capabilities is an overt/covert landing light that will give pilots the option to select a night vision compatible landing light when the situation dictates. Additionally, a combat fuel tank will provide additional flight time and limit the requirement to put a tanker aircraft in harm's way for extended missions in enemy territory. Next, to limit the support equipment footprint, an On-Board Oxygen Generating System (OBOGS) would remove the requirement for maintenance personnel to refill the liquid oxygen system between missions. A parking break would allow pilots to sit in the aircraft waiting for launch instructions, and not require additional personnel to place and remove wheel chocks. Finally, the Smart Triple Ejector Rack (TER) allows the A-10 to carry up to eight more GPS-guided munitions, potentially reducing the requirement for weapons loaders to replace expended ordnance between sorties.

2. Source of Need. A-10 Operational Requirements Document (ORD); ARC 2012 WEPTAC Critical Requirement.

3. Impact If Not Funded. Without funding for these items, the A-10 will require a much larger footprint of support personnel and equipment when operating from austere fields. This will limit the size and type of locations that will be available, and will significantly limit the Combatant Commander's flexibility when planning for contingency operations.

4. Units Impacted.

122 FW Ft Wayne IAP, IN	127 WG Selfridge ANGB, MI	188 FW Ft Smith RAP, AR
124 WG Boise AP, ID	175 WG Martin State AP, MD	

5. Cost.   **PEC: 027131F**

Remaining Quantity Required	Unit Cost *	Program Cost
106 Landing Lights (3010)	**$11,000**	**$1,166,000**
63 Combat Fuel Tanks (3010)	**$20,000**	**$1,260,000**
106 OBOGS (3010)	**$208,000**	**$22,048,000**
106 Parking Brakes (3010)	**$10,000**	**$1,060,000**
Smart Triple Ejector Rack NRE (3600)	**N/A**	**$2,000,000**
126 Smart Triple Ejector Racks (3010)	**$100,000**	**$12,600,000**
Total		**$40,134,000**

* Includes 10% spares.

A-10 AIRFRAME AND PROPULSION ENHANCEMENTS

1. Background. Air National Guard (ANG) A-10s are over 30 years old and most are approaching 10,000 flight hours. Despite its age, the A-10 continues to prove its value in combat with a scheduled service-life beyond the year 2034. To keep these aircraft flying for 20 more years, there are two basic aircraft systems that need attention. The current wing assemblies are reaching their max service life, and as a result, a replacement program has been created to replace the pylons, flight controls, fuel cells, as well as the hydraulic and electrical lines. There is an option to repair wings; however, it will cost nearly twice as much as replacement to sustain over its planned life-cycle. Without any wing modifications, the first A-10s will become unserviceable in 2019. The second structural area that will require attention is the engines. The A-10 has documented thrust deficiencies in its operational environment. In order to meet Combatant Commander tasking at high-density-altitude locations, such as the current Operation ENDURING FREEDOM (OEF) theater, pilots must reduce fuel loads, restrict take-off times to early morning hours, or refuse tasking that increases gross weights to unsupportable and unsafe limits. In addition, the aircraft does not perform well at medium and high altitudes, placing pilots at increased risk to ground-based threats and forces commanders to provide separate low-altitude A-10 air refueling tracks. There is a multi-phase program in place to upgrade the current engine. Phase 1 improves engine durability while lowering operating costs. Phase 2 builds on Phase 1 equipment by increasing turbine temperature, allowing for improved thrust, and providing a digital fan speed control that eliminates thrust droop and increases engine durability. Phase 3 is a thrust increase, including significant hardware changes that require more research before any cost estimates will be available. For over ten years the ARC WEPTAC has listed engine upgrades or new engines as a Critical Requirement for the A-10.

2. Source of Need. Concept Development Document (CDD) approved 17 Mar 2005 by the Air Force Requirements Oversight Council (AFROC); CDD Version 1.1 approved 21 Apr 2006; ARC 2012 WEPTAC Critical Requirement.

3. Impact If Not Funded. Without new or repaired wing assemblies, A-10s will become unserviceable starting in 2019. Future viability as a lethal platform is dependent on adequate thrust and agility in a maximum gross weight configuration at take-off and medium/high altitude.

4. Units Impacted.

122 FW	Ft Wayne IAP, IN	127 WG	Selfridge ANGB, MI	188 FW	Ft Smith RAP, AR
124 WG	Boise AP, ID	175 WG	Martin State AP, MD		

5. Cost.   **PEC: 027131F**

Remaining Quantity Required	Unit Cost *	Program Cost
24 Enhanced Wing Assemblies (3010)	**$4,000,000**	**$96,000,000**
212 Phase 1 Engines (3010)	**$330,000**	**$69,960,000**
Phase 2 Engine NRE (3600)	**N/A**	**$64,000,000**
212 Phase 2 Engines (3010)	**$66,000**	**$13,992,000**
Total		**$243,952,000**

* Includes 10% spares.

Command & Control

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

The Air National Guard (ANG) Command and Control (C2) weapons systems are integral to the joint fight in Overseas Contingency Operations (OCO), and transforming the rapidly expanding Homeland Defense (HD) mission area.

COMPONENT NUMBERED AIR FORCE (C-NAF) INTEGRATION - The C-NAF is comprised of an Air and Space Operations Center (AOC) and Air Force Forces (AFFOR) A-Staff. The AOC weapon system is the capstone of the Theater Air Control System (TACS) employed by the Commander, Air Force Forces (COMAFFOR) providing centralized control and decentralized execution of aerospace forces to the Joint Force Air Component Commander (JFACC). The A-Staff is organized functionally, with a command section, personal staff, and functional staff A1 through A9, as well as a variety of cross-functional teams that support the Commander Air Force Forces (COMAFFOR) as the AF service component commander.

CONTROL AND REPORTING CENTER (CRC)/AIR CONTROL SQUADRON (ACS) - An ACS is the only Air Force 24/7 deployable and sustainable ground air Battle Management Command and Control (BMC2) platform. The CRC, at operational and tactical levels of operations, provides surveillance, weapon control, tactical communications, datalinks, and combat-related air battle management of joint air operations with real-time, Shared Situational Awareness (SSA).

AIR DEFENSE SECTOR (ADS) - An ADS provides tactical communication and datalink capabilities to bridge communications between civil authorities and other military units responsible for planning, directing, coordinating, and controlling forces for air surveillance, air defense, and control of sovereign US airspace.

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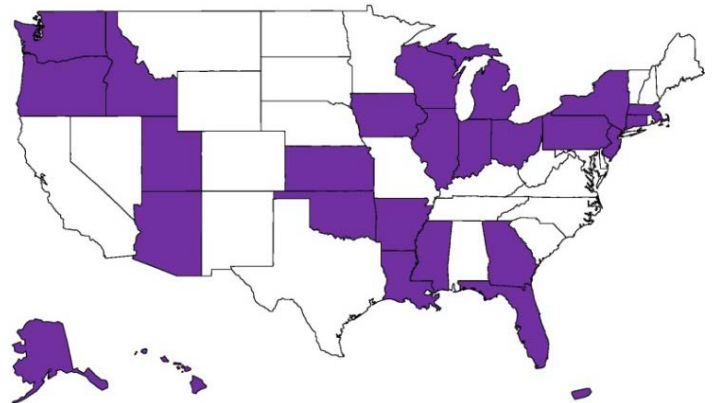
Command and Control
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Critical Capabilities List

Component Numbered Air Force (C-NAF)/Air and Space Operations Center (AOC):
- Recurring Event (RE)-11 Upgrade
- Joint Range Extension (JRE) with Joint Distributed Operational Training System (JDOTS)
- Air and Space Operations Center (AOC) Core Radio Package and Support Systems
- Non-Organic Radar Access (NORA)
- Targeting Application to Support AOC

Control and Reporting Center (CRC):
- Distributed Live-Fly Training Support System - See Simulation Tab for Info Paper
- Deployable Mission Simulation Training Support System - See Simulation Tab for Info Paper
- Modular Tactical Electrical Power Mission Support Systems
- Organic Integrated Mission Support Communications Systems
- Highly-Mobile Medium Range Radar

Air Defense Sectors (ADS):
- Have Quick/Secure Communications System
- Beyond-Line-of-Sight (BLOS) Multi-Spectral Radio Integration/Installation
- Combat Air Force (CAF)-Compliant Distributed Mission Operation (DMO) System

Essential Capabilities List

Component Numbered Air Force (C-NAF)/Air and Space Operations Center (AOC):
- Cross-Domain Solution for AOC and AFFOR (External to Falconer Weapon System)
- Data Backup Solution to Satisfy Information Assurance Control CODB-2
- ARC Geographic Information System (ARCGIS) Defense Solutions Suite
- Worldwide Dashboard System

Control and Reporting Center (CRC):
- Full Command and Control (C2) Cross-Domain Capability
- Simultaneous Video and Communications Recording

Air Defense Sectors (ADS):
- Nationwide Integrated Data Link Architecture

Desired Capabilities List

Air Defense Sectors (ADS):
- Next Generation Detection and Tracking System

Persistent Conflict - Enabling the Warfighter

C2 EXECUTIVE SUMMARY

Modernization Priority Profiles ($ Million)

Program	2014	2015	2016
Component Numbered Air Force /Air and Space Operations Center (C-NAF/AOC)			
Recurring Event (RE) 11/12/13 Upgrade	$6.00 [1]	$6.00 [1]	$4.00 [1]
Joint Range Extension (JRE) with Joint Distributed Operational Training System (JDOTS)	$0.24 [1] $0.68 [4]	- -	- -
AOC Core Radio Package System (CRPS)	$0.59 [4]	$0.40 [4]	
Non-Organic Radar Access (NORA)	$0.62 [1] $0.75 [4]	$0.61 [1] $0.75 [4]	- -
AOC Targeting Applications Workstation Systems	$0.52 [4]	-	-
Control and Reporting Center (CRC)			
Modular Tactical Electrical Power Mission Support Systems	$2.75 [1] $5.40 [4]	- $4.32 [4]	- -
Organic Integrated Mission Support Communications System	$3.30 [4]	$3.30 [4]	-
Highly-Mobile Medium Range Radar	$6.50 [4]	$26.00 [4]	$26.00 [4]
Air Defense Sector (ADS)			
Line-of-Sight (LOS) Communications	$4.00 [4]	-	-
Battle Control Center (BCC) Beyond-Line-of-Sight (BLOS) Tactical Satellite Communications (TACSAT)	$0.59 [4]	-	-

Notes: [1] 3840 Appropriation   [2] 3010 Appropriation   [3] 3600 Appropriation   [4] 3080 Appropriation

C-NAF/AOC
- Recurring Event (RE) Theater Battle Management Core Systems (TBMCS) - Provides software/hardware upgrade providing improved internal Air and Space Operations Center (AOC) network capabilities.
- Joint Range Extension (JRE) with Joint Distributed Operational Training System (JDOTS) - Provides critical training in support of the AOC.
- Core Radio Package System (CRPS) - Provides improved communication system for AOCs.
- Non-Organic Radar Access (NORA) - Provides a system that enables the AOC to develop and act upon a single integrated air picture.
- AOC Targeting Application - Targeting Application Work Stations (TAWS) provides additional workstations and storage capabilities that support point mensuration certification of personnel utilizing geospatial/imagery product libraries.

CRC
- Modular Tactical Electrical Power Mission Support Systems - Provides state-of-the art electrical power distribution and power production.
- Organic Integrated Mission Support Communications System - Provides theater deployable communications equipment to Air Control squadrons.
- Highly-Mobile Medium Range Radar - Provides a radar system compatible with the CRC legacy C2 system of record.

ADS

- Line-of-Sight (LOS) Communications - Provides next generation Ultra High Frequency/Very High Frequency (UHF/VHF) HAVE QUICK-capable radio system to meet BCC requirements.
- Beyond-Line-of-Sight (BLOS) Tactical Satellite Communications (TACSAT) - Provides voice and data radio system to ensure 100% communications throughout the Area of Responsibility (AOR) that are well beyond LOS capabilities.

Persistent Conflict - Enabling the Warfighter

C2 AIR AND SPACE OPERATIONS CENTER (AOC) RECURRING EVENT (RE) 11/12/13 UPGRADE

1. Background. Recurring Event (RE) 11 represents a considerable change to previous Theater Battle Management Core System (TBMCS) and is the core of the Air and Space Operations Center (AOC) weapon system baseline (12 and 13 will follow in planned releases). It contains a major system platform change, as well as an equipment upgrade. It provides improved internal AOC network capability, 83 percent client/server virtualization, security updates required to support recertification, and corrects vulnerabilities identified in the underlying applications and subsystems for previous REs. RE 11 has been programmed for installation for all active duty AOCs. However, only one Air Reserve Component (ARC)-aligned Air Operations Group (AOG) has been funded for this upgrade. Those that have been programmed are scheduled at a significant delay from their active duty-aligned counterpart. The AOC weapon system baseline funding shortfall creates a significant mismatch between active duty and ARC aligned units, affecting training standardization and ultimately preventing ARC Total Force Integration (TFI) from complying with the direction of PAD 10-2. At present, all ARC units are operating behind their active duty counterparts with regard to their current RE.

2. Source of Need. Program Action Directive (PAD) 10-2; CJCSI 3505.01A; ARC 2012 WEPTAC Critical Requirement.

3. Impact If Not Funded. The lack of a common AOC weapons system configuration will result in significant training/operational divergences between the ARC AOGs and their active duty aligned AOCs; specifically the Combat Operations Division (COD) and Combat Plans Division (CPD). These will severely impact the ability for all ARC AOGs to provide highly trained and qualified personnel to integrate seamlessly into their aligned Component Headquarters (CHQ) AOC, as well as to integrate into the air component of Geographic Combatant Command (GCC). There are significant Information Assurance (IA) issues involved with maintaining legacy REs due to the vulnerability of underlying applications and subsystems. It is estimated that ARC units could be IA non-compliant in as little as 13 months in the absence of the RE 11 upgrade as well as follow-on 12 and 13 upgrades.

4. Units Impacted.

102 IW	Otis ANGB, MA	112 AOS	State College, PA	183 AOG	Lincoln Capital IAP, IL
103 AW	Bradley ANGB, CT	152 AOG	Syracuse IAP, NY	217 AOG	Battle Creek IAP, MI
109 AOG	Hickam AFB, HI	157 AOG	Jefferson Barracks, MO		

5. Cost.   PEC: 507411F

Remaining Quantity Required	Unit Cost	Program Cost
8 RE 11 Upgrades (3080)	**$2,000,000**	**$16,000,000**
Total		**$16,000,000**

C2 AIR AND SPACE OPERATIONS CENTER (AOC) JOINT RANGE EXTENSION (JRE) WITH JOINT DISTRIBUTED OPERATIONAL TRAINING SYSTEM (JDOTS)

1. Background. Air National Guard (ANG) Air and Space Operations Center (AOC) units require a Joint Range Extension (JRE) with Joint Distributed Operational Training System (JDOTS) in order to meet Air Combat Command (ACC)-mandated Interface Control Team (ICT) Training Task Lists (TTL) in garrison. JRE allows the ICT to manage, manipulate, track, and link data in the AOC Combat Operations Division. JDOTS is a training suite necessary to train the ICT. Unlike the active duty, ANG units cannot consistently accomplish "live" training and thus require the additional simulation and training capability of JDOTS. In order to ensure seamless training capability, units also require installation, configuration, and 24/7 help desk support.

2. Source of Need. Program Action Directive (PAD) 10-2; ACC mandated Training Task List (TTL), associated with JRE, SATCOM, Multifunctional Information Distribution System/Low Volume Terminal Version 2 (MIDS/LVT2), Interim Joint Interface Control Officer (JICO) Support System (IJSS), Data Transformation Services (DTS), Transmission Control Protocol/Internet Protocol (TCP/IP), Ultra-High Frequency (UHF), Network Database Language (NDL), NetWare Directory Database (NDD); ARC 2012 WEPTAC Critical Requirement.

3. Impact If Not Funded. Without a JRE, AOC units are unable to train their personnel to ACC-mandated weapons system TTLs. Obtaining JRE with the JDOTS software is critical in order to effectively train personnel on all the essential equipment regularly utilized in their duty positions. Insufficient training of AOC augmentation personnel will result, and ACC-mandated training requirements will go unfulfilled. The lack of training will severely impact AOC operations and lead to the overall degradation of Combat Operations Division's (COD) situational awareness and other critical combat capabilities.

4. Units Impacted.

102 IW	Otis ANGB, MA	112 AOS	State College, PA	157 AOG	Jefferson Barracks, MO
103 AW	Bradley ANGB, CT	152 AOG	Syracuse IAP, NY	183 AOG	Lincoln Capital IAP, IL

5. Cost.   **PEC: 507411F**

Remaining Quantity Required	Unit Cost	Program Cost
5 JRE (3080)	**$135,000**	**$675,000**
5 JDOTS (3840)	**$36,000**	**$180,000**
5 Help Desk/Support (3840) *	**$11,600**	**$58,000**
Total		**$913,000**

   * Recurring annual expense.

C2 AIR AND SPACE OPERATIONS CENTER (AOC) CORE RADIO PACKAGE SYSTEM (CRPS)

1. Background. Air and Space Operations Centers (AOC) continue to use Radio Frequency (RF) as a means to communicate with the warfighter. The Core Radio Package System (CRPS) consists of at least two of the following radios: PRC-117F or PRC-117G model radio station, along with batteries, handset, speaker, antennas, and associated cables. With these components, the AOC operator and warfighter can communicate via Very High Frequency (VHF) or Ultra-High Frequency (UHF) Satellite Communication (SATCOM) frequencies. Air National Guard (ANG) units require the CRPS to properly train and equip operators and prepare maintainers for support of AOCs. Currently, most radio voice traffic amongst AOCs and warfighters travels over UHF SATCOM, and a matched high-gain antenna for those frequencies is required for training and support. ANG AOCs have an immediate need for the AN/PRC-117G CRPSs coupled with the proper high-gain fixed site UHF SATCOM antenna. The radio's technology has substantially changed with its ability for integration as a network repeater, the ability to talk directly with aircraft, point-to-point secure and non-secure communications, and the capability to provide air picture links. Operating the CRPS gives ANG AOCs the capability to train to the same proficiency as, and communicate with, their aligned units.

2. Source of Need. Program Action Directive (PAD) 10-2, CJCSI 3505.01A; ARC 2012 WEPTAC Critical Requirement.

3. Impact If Not Funded. ANG AOCs will be unable to train and equip assigned personnel. Without proper training, cyber maintainers will be unable to support a modern AOC and warfighters would potentially lose the capability to talk directly to AOC operators, which would severely degrade mission effectiveness.

4. Units Impacted.

102 FW	Otis ANGB, MA	110 AW	Battle Creek IAP, MI	157 AOG	Jefferson Barracks, MO
103 FW	Bradley ANGB, CT	112 AOS	State College, PA	183 FW	Lincoln Capital IAP, IL
109 AOG	Hickam AFB, HI	152 AOG	Syracuse IAP, NY		

5. Cost.   **PEC: 507411F**

Remaining Quantity Required	Unit Cost	Program Cost
27 CRPS (3080)	**$37,000**	**$999,000**
Total		**$999,000**

C2 AIR AND SPACE OPERATIONS CENTER (AOC) NON-ORGANIC RADAR ACCESS (NORA)

1. Background. The Air National Guard (ANG)-aligned Air and Space Operations Center (AOC) augmentation units do not currently possess the same radar capabilities as their active duty counterparts, which could be resolved with the acquisition of Non-Organic Radar Access (NORA). NORA is a Commercial Off-The-Shelf (COTS) high-performance tracking and data processing engine that synthesizes radar track, datalink, and sensor information from multiple, dissimilar sources. It also provides a Single Integrated Picture (SIP). A SIP provides US military forces reliable information about ground, air, space, and undersea threats in a theater of operations, including the Continental United States (CONUS).

2. Source of Need. Program Action Directive (PAD) 10-2; ARC 2012 WEPTAC Critical Requirement.

3. Impact If Not Funded. The divide between the active duty's AOC configuration and the ANG configuration will remain unchanged. Training and operational divergences will continue to occur. This ultimately will hinder all ANG AOC's ability to provide highly trained and qualified personnel to integrate seamlessly into their aligned AOCs.

4. Units Impacted.

101 AOG	Tyndall AFB, FL	152 AOG	Syracuse IAP, NY	183 FW	Lincoln Capital IAP, IL
103 AOG	Bradley ANGB, CT	157 AOG	Jefferson Barracks, MO	217 AOG	Battle Creek IAP, MI

5. Cost.   **PEC: 507411F**

Remaining Units Required	Unit Cost	Program Cost
6 NORA Systems (3080)	**$250,000**	**$1,500,000**
6 Radar Feed (3840)	**$100,000**	**$600,000**
6 Contract Support * (3840)	**$40,000**	**$240,000**
6 Help Desk/Support * (3840)	**$65,000**	**$390,000**
Total	**$455,000**	**$2,730,000**

* Recurring annual expense.

C2 AIR AND SPACE OPERATIONS CENTER (AOC) TARGETING APPLICATIONS WORKSTATION SYSTEMS (TAWS)

1. Background. Air National Guard (ANG) Air and Space Operations Center (AOC) units require two additional Targeting Application Workstation Systems (TAWS) and two 14.5 terabyte servers on Secure Internet Protocol Network (SIPRNET) in order to meet their Program Action Directive (PAD) 10-2 directed responsibilities to their aligned AOCs. PAD 10-2 directs the AOC units in the Air Reserve Component (ARC) to support their aligned AOC during all phases of operations. Targeteer positions in the Combined Air Operations Center (CAOC) require point mensuration certification, which requires Intelligence Surveillance, and Reconnaissance (ISR) Divisions within the AOC to train and certify targeteers on point mensuration. The Air Force system of record and AOC baseline system for point mensuration is TAWS. Point mensuration requires a two-person accountability process - one TAWS per two targeteers. The ARC AOC units are currently allocated only two TAWS, consisting of one SIPRNET and one JWICS. One TAWS on SIPRNET is inadequate to train and certify personnel and provide aligned AOCs sufficient federated targeting support. Additionally, the Geospatial Product Libraries (GPL) and the Imagery Product Libraries (IPL) that holds Digital Point Positioning Database imagery has limited storage space that impedes functional and geographical mission readiness. All ANG AOC augmentation units require these TAWS workstations and additional storage capacity in order to meet training certification and provide targeting reach-back support for their aligned AOC.

2. Source of Need. PAD 10-2, CJCSI 3505.01A; ARC 2012 WEPTAC Critical Requirement.

3. Impact If Not Funded. Without the additional TAWS workstations and storage servers, continuation training and certification of personnel will be impeded. The units will be unable to produce certified targeteers to meet current deployment tasking requirements, and unable to provide aligned AOCs sufficient federated targeting support. ANG AOC units will remain limited to certifying or training only two targeteers at a time during Unit Training Assemblies (UTA). Additionally, large geospatial and imagery datasets will have to be downloaded, delaying operations and consuming essential communication resources on the installation.

4. Units Impacted.

102 IW	Otis ANGB, MA	112 AOG	State College, PA	183 FW	Lincoln Capital IAP, IL
103 AW	Bradley ANGB, CT	152 AOG	Syracuse IAP, NY		
110 AW	Battle Creek IAP, MI	157 AOG	Jefferson Barracks, MO		

5. Cost.   PEC: 507411F

Remaining Quantity Required	Unit Cost	Program Cost
16 TAWS (3080)	**$8,000**	**$128,000**
14 GPL/IPL Storage (3080)	**$28,000**	**$392,000**
Total		**$520,000**

C2 CONTROL AND REPORTING CENTER (CRC) MODULAR TACTICAL ELECTRICAL POWER MISSION SUPPORT SYSTEMS

1. Background. The Modular Tactical Electrical Power Support System provides personnel and mission system protection and is comprised of: integrated power grids, load-supported Power Distribution Panel Systems (PDPS), all-weather tactical power cables, and state-of-the-art tactical generators. This system enables consolidation and reduction of numerous legacy electrical power production units and support systems. The primary power grid interconnected with PDPS should be capable of load-balancing 400 Amps, 3-phase, 120/208 VAC, and includes (5) wire, with cam-type/Class L cables and receptacles sized for individual mission load requirements. This system must meet National Electrical Code NEMA 3R requirements. Each cascaded power distribution box is typically a 100 Amp, 3-phase, 120/208 VAC, input, with 120/208 VAC, 3-phase Class L outputs with appropriately-sized interconnecting cables. Each tertiary PDPS is capable of a minimum of 30 Amp, 3-phase and single-phase loads, 120/208 VAC input with 120/208 VAC single- and 3-phase outputs and requirements. All systems will have user-defined inputs, outputs, and amperage ratings meeting specifications for the equipment configurations supported.

2. Source of Need. ARC 2010 - 2012 WEPTAC Critical Requirement.

3. Impact If Not Funded. Lack of proper power distribution and interconnection capabilities at each element of the CRC will contribute to critically unsafe and potentially catastrophic mission failures. Additional manpower and logistical resources will be required to meet power grid operational demands within units. Lack of properly sized interconnecting cables will increase operational risk to mission personnel and equipment with potential loss of life and/or catastrophic equipment failure. The CRC will continue to be limited in response, operation, flexibility to changing mission requirements.

4. Units Impacted.

103 ACS	Orange, CT	121 ACS	St Louis, MO	134 ACS	McConnell AFB, KS
109 ACS	Salt Lake City IAP, UT	123 ACS	Blue Ash, OH	141 ACS	Punta Borinquen ANGS, PR
116 ACS	Warrenton, OR	128 ACS	Volk Field, WI	255 ACS	Gulfport CRCT, MS
117 ACS	Savannah IAP, GA	133 TS	Ft Dodge, IA		

5. Cost.   PEC: 0502672F

Remaining Quantity Required	Unit Cost	Program Cost
72 Electrical Systems (3080)	**$135,000**	**$9,720,000**
11 Electrical Systems (3840)	**$250,000**	**$2,750,000**
Total		**$12,470,000**

C2 CONTROL AND REPORTING CENTER (CRC) ORGANIC INTEGRATED MISSION SUPPORT COMMUNICATIONS SYSTEM

1. Background. The Control and Reporting Center (CRC) is a mobile Battle Management Command and Control (BMC2) capability with deployable radar elements of the Theater Air Control System (TACS). The CRC integrates a comprehensive air picture via multiple datalinks from air-, sea-, and land-based sensors, as well as from embedded surveillance and control radars. The CRC performs decentralized C2 of joint operations by conducting threat warning, battle management, theater missile defense, weapons control, combat identification, and strategic communications. Air National Guard (ANG) Air Control Squadrons (ACS) are critically short of various major end items of Theater Deployable Communications (TDC) and network support equipment. Current Air Force Space Command (AFSPC) TDC realignment plans will critically impact day-to-day training opportunities for the ANG CRC. Legacy TDC assets are nearing end-of-life and will no longer be supported or permitted to tie into the AF network. ANG CRC units require organic internal switches, routers, voice systems, and multiplexers to enable and continue to meet rigid training and Design Operational Capability (DOC) tasked requirements.

2. Source of Need. ARC 2010 - 2012 WEPTAC Critical Requirement.

3. Impact If Not Funded. ANG ACS units will no longer be able to train on a daily basis to meet the unique needs of the CRC mission and Drill Status Guardsman (DSG). Mission support to various flying wings and Domestic Operations (DOMOPS) will be degraded. Training opportunities and ability to meet Combatant Commander (COCOM) tasking due to the lack of specialized equipment required to support combat operations will be severely degraded. Specifically, the lack of accredited networking equipment across the CRC will eliminate the CRC's ability to meet the Joint Force Air Component Commander's (JFACC) expectations of support.

4. Units Impacted.

103 ACS	Orange, CT	121 ACS	St Louis, MO	134 ACS	McConnell AFB, KS
109 ACS	Salt Lake City IAP, UT	123 ACS	Blue Ash, OH	141 ACS	Punta Borinquen ANGS, PR
116 ACS	Warrenton, OR	128 ACS	Volk Field, WI	255 ACS	Gulfport CRTC, MS
117 ACS	Savannah IAP, GA	133 TS	Ft Dodge, IA		

5. Cost.   PEC: 502672F

Remaining Quantity Required	Unit Cost	Program Cost
11 Communications Systems (3080)	**$600,000**	**$6,600,000**
Total		**$6,600,000**

C2 CONTROL AND REPORTING CENTER (CRC) HIGHLY-MOBILE MEDIUM RANGE RADAR

1. Background. Current operations continue to present new challenges for the Control and Reporting Center (CRC) that validate the need for a mobile, rapidly-deployable, tactical, multi-mission ground radar system that meets the requirements for both contingency and Domestic Operations (DOMOPS). This lightweight system must be capable of operations in a fixed environment or mounted on the High-Mobility Multipurpose Wheeled Vehicle (HMMWV). The system must provide 360-degrees of coverage with a range of 10-125 miles, altitude up to 60,000 feet, and include Identification Friend or Foe (IFF) capabilities. It must successfully detect, track, and identify several targets simultaneously consisting of various cross-sections ranging from very small ultra-light aircraft and drones, to various general aviation and military aircraft. This capability will provide a real-time air picture that can be integrated and utilized by the CRC or in support of DOMOPS as a stand-alone system.

2. Source of Need. ARC 2011 - 2012 WEPTAC Critical Requirement.

3. Impact If Not Funded. Immediate Command and Control (C2) capability to provide airspace coordination and awareness in response to urgent contingency requirements, natural disasters, border security, drug interdiction, and homeland defense missions will be compromised.

4. Units Impacted.

103 ACS	Orange, CT	121 ACS	St Louis, MO	134 ACS	McConnell AFB, KS
109 ACS	Salt Lake City IAP, UT	123 ACS	Blue Ash, OH	141 ACS	Punta Borinquen ANGS, PR
116 ACS	Warrenton, OR	128 ACS	Volk Field, WI	255 ACS	Gulfport CRTC, MS
117 ACS	Savannah IAP, GA	133 TS	Ft Dodge, IA		

5. Cost.   PE: 0502672F

Remaining Quantity Required	Unit Cost	Program Cost
9 Mobile Radar Systems (3080)	**$6,500,000**	**$58,500,000**
Total		**$58,500,000**

C2 AIR DEFENSE SECTOR (ADS) LINE-OF-SIGHT (LOS) COMMUNICATIONS

1. Background. Air Defense Sector (ADS) Battle Control Centers (BCC) require the capability to communicate via next-generation Ultra High Frequency/Very High Frequency (UHF/VHF) channels in the high band, anti-jam (HAVE QUICK), and secure modes. BCCs must be able to directly manipulate their integrated Line-of-Sight (LOS) UHF and VHF waveforms by having access to the operational radios at their location. The communications device must be located at the BCCs and the operational connectivity architecture should allow access via modem to remote antennae at strategic locations throughout the Area of Responsibility (AOR). Access to these antennae will be on a demand-basis, allowing the BCCs to focus their communications architecture to desired regions based on weight of operational effort. LOS communications are the primary means of communicating with Homeland Defense (HD), Aerospace Control Alert (ACA), and Defense Support to Civil Authorities (DSCA) assets. While the LOS communications network cannot provide 100 percent coverage of the AOR, it must provide the same coverage as the current communications system. The BCCs require LOS radios capable of both voice and data at each ADS location. BCC operators must have the capability to adjust the parameters of HAVE QUICK, load/clear crypto real-time, and switch between red (clear) and green (secure/anti-jam) channels from the operations floor.

2. Source of Need. ARC 2012 WEPTAC Critical Requirement.

3. Impact If Not Funded. Command and Control (C2) entities will be unable to communicate with aircraft during contested and degraded operations. The lack of datalink situational awareness will degrade C2 and the pilot's ability to successfully execute the mission with all available data. The inability to manipulate the waveforms between anti-jam, secure, and UHF/VHF is an unnecessary risk in the execution of North American Aerospace Defense Command-Northern Command (NORAD-NORTHCOM) missions.

4. Units Impacted.
169 ACWS   Wheeler AAF, HI   176 ACS   Elmendorf AFB, AK   EADS   Rome, NY
WADS   McChord AFB, WA

5. Cost.   **PEC: 51311F**

Remaining Quantity Required	Unit Cost	Program Cost
100 LOS Radio Systems (3080)	**$40,000**	**$4,000,000**
Total		**$4,000,000**

C2 AIR DEFENSE SECTOR (ADS) BATTLE CONTROL CENTER (BCC) BEYOND-LINE-OF-SIGHT (BLOS) TACTICAL SATELLITE COMMUNICATIONS (TACSAT)

1. Background. Battle Control Centers (BCC) require a baseline capability to use Beyond-Line-of-Sight (BLOS) Tactical Satellite Communications (TACSAT) to achieve 100 percent radio and data coverage in the US and its territories. TACSAT must be voice and data capable and have the ability to support connectivity in the extreme northern latitudes (North of 74°). Radios must be located at the BCC to allow direct control of the waveform by the BCC operators. While the primary method of communication in Homeland Defense (HD) will continue to be via Line-of-Sight (LOS), the vast expanse of the Area of Responsibly (AOR) means there are significant LOS gaps. Because of these gaps, the BCCs require communications via satellite, enabling 100 percent communication connectivity for HD. Employment of TACSAT at the BCC will positively affect voice and data connectivity in all North American Aerospace Defense Command-Northern Command (NORAD-NORTHCOM) mission sets to include Defense Support to Civil Authorities (DSCA), HD, and Aerospace Control Alert (ACA).

2. Source of Need. ARC 2008 - 2012 WEPTAC Critical Requirement.

3. Impact If Not Funded. Command and Control (C2) entities will be unable to communicate with aircraft during "no-fail" missions due to LOS limitations. Furthermore, the lack of datalink situational awareness due to LOS limitations will degrade C2 and the pilot's ability to successfully execute the mission with all available data. Relying on legacy LOS communications is an unnecessary risk in the execution of NORAD-NORTHCOM and Domestic Operations (DOMOPS) missions.

4. Units Impacted.
169 ACWS   Wheeler AAF, HI   176 ACS   Elmendorf AFB, AK

5. Cost.   PEC: 51311F

Remaining Quantity Required	Unit Cost	Program Cost
16 TACSAT Radios (3080)	**$37,000**	**$592,000**
Total		**$592,000**

C-17 & C-5

- **Strategic Airlift**
- **Outsized or Oversized Cargo Airlift**
- **Aeromedical Evacuation Missions**
- **ANG C-17 Units Provide 8% of the Total Fleet**
- **ANG C-5 Units Provide 22% of the Total Fleet**

C-17: The C-17 Globemaster III is the Nation's core military airlifter and continues to excel in a wide range of operational mission scenarios. It provides the flexibility to support both inter-theater and intra-theater missions and allows Air Mobility Command (AMC) to significantly improve throughput during contingency operations. Using C-17s as an intra-theater airlift platform has provided relief to the C-130 fleet and also reduced ground forces' dependence on vehicle convoys.

The Air National Guard (ANG) operates 18 C-17 aircraft assigned to the 105 AW, Stewart ANGB, NY and the 172 AW in Jackson, MS. The 154 AW in Hickam AFB, HI and the 176 WG at Elmendorf AFB, AK are ANG associate units.

C-5: The C-5 Galaxy, with its unmatched payload capability and delivery speed, provides AMC inter-theater airlift in support of U.S. national defense strategy. The C-5 provides all-weather passenger and outsized/oversized cargo airlift, air-land, and special operations-type missions. With the C-5's unique visor door and kneeling capability, the aircraft can both load and unload (roll-on/roll-off) simultaneously. The aircraft can carry fully-equipped, combat-ready military units to any point in the world on short notice, and provide critical field support to sustain the fighting force**.**

The ANG operates a fleet of 16 C-5A aircraft located at 164 AW at Memphis, TN and 167 AW at Martinsburg, WV.

TAB C
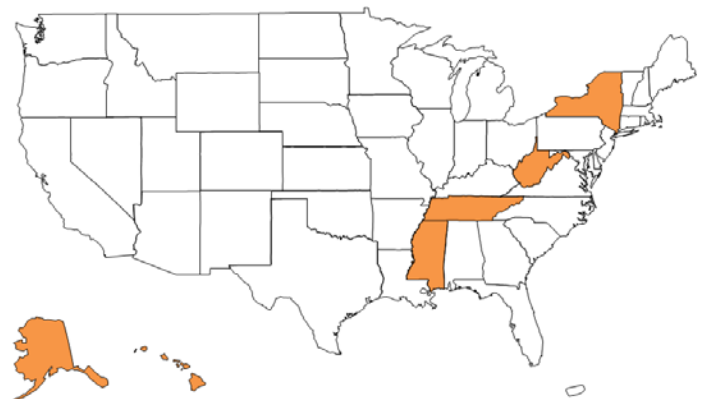
C-17 & C-5
2012 Weapons and Tactics Conference

Critical Capabilities List

C-17:
- Integrated Real-Time Information in the Cockpit (RTIC) and Datalink (DL)
- Integrated Class III Electronic Flight Bag (EFB)
- Three-Engine Airdrop Escape Performance Data
- Improved Infrared (IR) Missile Defense and 360-Degree Situational Awareness Displays
- Heads-up Countermeasures Dispenser Control

C-5:
- Structural Modernization
- Large Aircraft Infrared Countermeasures (LAIRCM) and Next Generation Threat Detection
- Equipment Rack for Portable Electronic Equipment
- Integrated Real-Time Information in the Cockpit (RTIC) and Datalink (DL)
- Brake Temperature Monitoring System (BTMS)

Essential Capabilities List

C-17:
- Stick-Mounted Electronic Countermeasures Dispense System (SMEDS)
- Remote Electronic Countermeasures Dispense System
- Enhanced Visual System (EVS) Infrared (IR) Heads-Up Display (HUD)

C-5:
- Broad Spectrum Laser Eye Protection
- Loadmaster In-Flight Restraint Harness

Desired Capabilities List

C-17:
- Radar Warning Receiver (RWR)
- Hostile Fire Indicator (HFI)

C-5:
- Integrated Class II Electronic Flight Bag (EFB)
- Global Positioning System (GPS) Jamming Indicator
- Secure Wireless Internet
- Heads-up Countermeasures Dispenser Control

Persistent Conflict - Enabling the Warfighter

C-17 & C-5 EXECUTIVE SUMMARY

Modernization Priority Profiles ($ Million)

Program	2014	2015	2016
C-17			
Integrated Real-Time Information in the Cockpit (RTIC) and Datalink (DL)	$2.00 [2] $10.00 [3]	$3.77 [2] -	$3.77 [2] -
Integrated Class III Electronic Flight Bag (EFB)	$2.16 [2] $2.40 [3]	$2.16 [2] -	- -
Three-Engine Airdrop Escape Performance Data	$3.0[2]		
Improved IR Missile Defense and 360-Degree Situational Awareness Displays	$18.70 [2] $12.00 [3]	18.70 [2] -	$18.70 [2] -
Heads-up Countermeasures Dispenser Control	$1.50 [3] $.66 [2]	- -	- -
C-5			
Structural Modernization	$39.48 [1]	$39.48 [1]	$39.48 [1]
Large Aircraft Infrared Countermeasures (LAIRCM) and Next Generation Threat Detection System	- $10.00 [3] - $12.00 [3]	$15.00 [2] - $20.00 [2] -	$15.00 [2] - $20.00 [2] -
Integrated Real-Time Information in the Cockpit (RTIC) and Datalink	$2.00 [2] $10.00 [3]	$3.24 [2] -	$3.24 [2] -
Brake Temperature Monitoring System (BTMS)	$4.00 [2] $3.00 [3]	$28.00 [2] -	$28.00 [2] -

Notes: [1] 3840 Appropriation   [2] 3010 Appropriation   [3] 3600 Appropriation   [4] 3080 Appropriation

C-17

- Integrated Real-Time Information in the Cockpit (RTIC) and Datalink (DL) - Provides a robust, secure, and scalable Line-of-Sight (LOS) and Beyond-Line-of-Sight (BLOS) connectivity with the network centric battlefield.
- Integrated Class III Electronic Flight Bag (EFB) - An electronic information management device that improves situational awareness, cockpit efficiency, productivity, and allows aircrews to safely adapt to in-flight mission changes.
- Three-Engine Airdrop Escape Performance Data - Ensures aircrew have proper three-engine performance data after crossing a drop zone (with or without) executing a drop.
- Improved IR Missile Defense and 360-Degree Situational Awareness Displays - Allows aircraft to survive in lethal threat environments by providing non-pyrotechnic countermeasures against widely proliferated Man-Portable Air Defense System (MANPADS). Provides a 360-degree (azimuth and elevation) picture displayed at the navigator, loadmaster, and cockpit flight stations.
- Heads-up Countermeasures Dispenser Control - Aircraft equipped with a stick- or glare shield-mounted dispense switch greatly enhances situational awareness, increased combat effectiveness, and decreased flare launch time during time critical maneuvering.

C-5

- Structural Modernization - Replaces aging cracked structures which are currently driving cargo weight reduction requirements by nearly 20 percent.
- Large Aircraft Infrared Countermeasures (LAIRCM) and Next Generation Threat Detection System - Allows aircraft to survive in lethal threat environments where MANPADS are widely used by providing non-pyrotechnic countermeasure solutions. Provides a 360-degree (azimuth and elevation) picture displayed at the navigator, loadmaster, and cockpit flight stations.
- Integrated Real-Time Information in the Cockpit (RTIC) and Datalink (DL) - Provides a robust, secure, and scalable Line-of-Sight (LOS) and Beyond-Line-of-Sight (BLOS) connectivity with the network-centric battlefield.
- Brake Temperature Monitoring System (BTMS) - Provides critical information if heavy braking is required or after the discovery of a brake malfunction.

C-17 HEADS-UP COUNTERMEASURES DISPENSER CONTROL

1. Background. Air National Guard (ANG) C-17s operate worldwide in environments where Man-Portable Air Defense System (MANPADS) Infrared (IR) seeking missiles are widely available and represent a significant threat during take-off and landing. Currently, the Tactics, Techniques, and Procedures (TTP) for all C-17s is to defeat IR missiles with flares, as not all aircraft have the integrated Large Aircraft Countermeasures (LAIRCM) system. In the C-17, the flare dispenser switch is located on the center pedestal. If crews are required to launch flares during an engagement, one crewmember is required to go "heads-down" to verify flares are launched during this critical phase of flight. The remedy is to place a dispense switch on the stick or glare shield, allowing the pilot monitoring the flares to remain "heads up" during critical maneuvering, maintain Crew Resource Management (CRM) and situational awareness while dispensing flares simultaneously.

2. Source of Need. ARC 2012 WEPTAC Critical Requirement.

3. Impact If Not Funded. Operating in the current configuration risks damage to or loss of aircraft and ultimately the potential loss of life. Without a stick-or glare shield-mounted dispenser switch, situational awareness and combat effectiveness is reduced, and flare launch time is increased during time critical maneuvering.

4. Units Impacted.
105 AW   Stewart IAP, NY   172 AW   Jackson-Evers IAP, MS

5. Cost.   **PEC: 0401130F**

Remaining Quantity Required *	Unit Cost	Program Cost
Stick- or Glare Shield-Mounted Flare Dispense Switch NRE (3600)	**N/A**	**$1,500,000**
22 Stick- or Glare Shield-Mounted Flare Dispense Switch (3010)	**$30,000**	**$660,000**
Total		**$2,160,000**

   * Includes 4 spares.

C-17 THREE-ENGINE AIRDROP ESCAPE PERFORMANCE DATA

1. Background. Air National Guard (ANG) C-17s operate worldwide in airdrop environments (extreme mountainous) where three-engine escape data is unknown. Mountainous terrain in Operation ENDURING FREEDOM (OEF) exceeds heights of 24,000 feet. Airdrop operations in these environments place the aircraft in extremely vulnerable areas. Aircrews do not have data to conduct pre-mission planning nor is Mission Computer (MC) data available during actual airdrops that can demonstrate the required performance to climb to a safe three-engine altitude. Aircrews have three-engine go-around gradient data with slats-only from the T.O. 1C-17A-1-1; however, this data is inconclusive since airdrop minimum configuration is ½ flaps and the aircraft usually operates in ¾ flap regime. The charts in T.O. 1C-17A-1-1 demonstrate gradients with little correlation to actual Climb Out Factors (COF) based on actual conditions and aircraft configurations. There is no means to determine COF to the regulatory altitudes during three-engine airdrop escape.

2. Source of Need. AFI 11-2C-17V3, Para 19.10.6; ARC 2012 WEPTAC Critical Requirement.

3. Impact If Not Funded. C-17s currently operate in environments of increasing levels of threat complexity and lethality while employing in an extreme mountainous environment. If a mechanical malfunction or enemy threat causes an aircraft to climb out after crossing a drop zone (with or without) executing a drop in a three-engine condition, aircrews have no assurance that a climb can be accomplished prior to impacting terrain.

4. Units Impacted.
105 AW   Stewart IAP, NY   172 AW   Jackson-Evers IAP, MS

5. Cost.   PEC: 0401130F

Remaining Quantity Required	Unit Cost	Program Cost
Three-Engine Performance Data NRE (3010)	**N/A**	**$3,000,000**
Total		**$3,000,000**

C-17 IMPROVED INFRARED (IR) MISSILE DEFENSE AND 360-DEGREE SITUATIONAL AWARENESS DISPLAYS

1. Background. Air National Guard (ANG) C-17s operate worldwide in environments where Man-Portable Air Defense System (MANPADS) Infrared (IR) seeking missiles are widely available and represent a significant threat during take-off and landing. These missiles are extremely advanced and are designed to defeat flare-based defensive systems. Flares are also extremely volatile, require special handling, and supply is limited on the aircraft. The AN/AAQ-24 (V) Large Aircraft Infrared Countermeasures (LAIRCM) system provides the most effective countermeasures against MANPADS. C-17s transferring to the ANG may not arrive with Large Aircraft Infrared Countermeasures (LAIRCM) installed. LAIRCM and its sensors are a prerequisite to having the Next Generation Threat Detection System installed. An upgrade to the current AAR-54 missile launch detectors is available which would provide better IR threat detection and significantly increase flare or LAIRCM effectiveness. The upgraded launch detect system must be capable of providing a 360-degree (azimuth and elevation) picture displayed at the navigator, loadmaster, and cockpit flight stations allowing crewmembers to see previously blind sectors and react accordingly. New sensors are capable of providing an Advance Threat Warning (ATW) system with IR images at a 960 Hz/sec refresh rate, allowing not only high fidelity of IR missile engagements but also allows the system to detect small arms and their lethality based on location and trajectory. This system would enhance the combat survivability of C-17s/C-5s by allowing 360-degree visual detection of threats both in the air and on the ground. It will also aid in low visibility operations for ground operations and secondary references during extremely low visibility approaches.

2. Source of Need. LAIRCM Operational Requirements Document 314-92, Aug 1998; AMC Requirements and Planning Council ranked Defensive Systems (LAIRCM) as #4 out of 50 at the Executive Session; AF Form 1067 with AMC tracking numbers 11-170, 11-169, and 11-168; ARC 2012 WEPTAC Critical Requirement.

3. Impact If Not Funded. C-17s currently operate in environments of increasing levels of threat complexity and lethality while employing less than state-of-the-art aircraft defensive systems. Operating in this configuration risks potential damage or loss of aircraft and ultimately the potential loss of life. Aircraft equipped with a threat detection system would greatly enhance the survivability rate while operating in high threat areas.

4. Units Impacted.
105 AW   Stewart IAP, NY   172 AW   Jackson-Evers IAP, MS

5. Cost.   PEC: 0401130F

Remaining Quantity Required	Unit Cost	Program Cost
Next Generation NRE (3600)	N/A	$12,000,000
8 LAIRCM Group A Kits (3010)	$2,100,000	$16,800,000
8 LAIRCM Group B Kits (3010)	$3,000,000	$24,000,000
18 Next Generation Sensors (3010)	$2,954,855	$53,187,390
Total		$105,987,390

C-17 INTEGRATED CLASS III ELECTRONIC FLIGHT BAG (EFB)

1. Background. The definition of an Electronic Flight Bag (EFB), according to the Federal Aviation Administration's (FAA) Advisory Circular (AC No. 120-76A), is "an electronic display system intended primarily for cockpit/flight deck or cabin use. EFB devices can display a variety of aviation data or perform basic calculations." In short, an EFB is an electronic information management device that helps to improve situational awareness, cockpit efficiency, productivity, and safety. They typically consist of a screen and a control unit that may be installed, mounted, or contained in one sole portable unit. EFBs can electronically store and retrieve documents required for flight operations, such as Technical Orders, Air Force Instructions, Flight Operations Manual, Minimum Equipment Lists, as well as providing the most current Flight Information Publications (FLIP). Additional motivators for using an EFB are significant cost savings on annual paper FLIP purchases and the considerable reduction of paper waste associated with each FLIP changeover. The potential to receive significant mission changes during worldwide cargo and personnel transport missions is extremely high. The aircrew needs the ability to have all possible mission information and performance calculation capability at their fingertips.

2. Source of Need. AMC Requirements and Planning Council ranked EFB as #23 out of 50 at the 2012 Executive Session; AF Form 1067 with AMC tracking number 09-164; ARC 2012 WEPTAC Critical Requirement.

3. Impact If Not Funded. Not funding the EFB might place the crew in a position where a single mission change could jeopardize mission success. Without the EFB, crews will continue to make critical decisions without accurate real-time information in the cockpit and won't realize cost savings and extraneous time with paper FLIP changes.

4. Units Impacted.
105 AW   Stewart IAP, NY   172 AW   Jackson-Evers IAP, MS

5. Cost.   PEC: 0401130F

Remaining Quantity Required	Unit Cost	Program Cost
Electronic Flight Bag NRE (3600)	**N/A**	**$2,400,000**
18 Electronic Flight Bags (3010)	**$240,000**	**$4,320,000**
Total		**$6,720,000**

C-17 AND C-5 INTEGRATED REAL-TIME IN THE COCKPIT (RTIC) AND DATALINK (DL)

1. Background. Current information-based dynamic battlespace environments require secure airborne data communications with other aircraft, Command and Control (C2) agencies, and ground-based forces. Datalink (DL) and data transfer will provide aircrews the ability to report and receive battlespace information from monitoring C2 agencies such as position of other aircraft, weather, threat, mission events, mission status, task completion, resource status, etc. This increased situational awareness allows agencies the ability to track mission progress and facilitate rapid decisions and adjustments during mission execution. Additionally, near real-time aircrew reporting will enable information exchanges with global and theater Air and Space Operations Centers and Mobility Air Force (MAF) assets (to include those that are airborne), which will improve synchronization of supporting and supported forces.

2. Source of Need. Air Mobility Command (AMC) Requirements and Planning Council ranked Integrated RTIC and DL #8 out of 50 (C-17) and #7 out of 37 (C-5) at the 2012 Executive Session; ARC 2012 WEPTAC Critical Requirement.

3. Impact If Not Funded. Without DL and data transfer capability, aircrew flexibility and situational awareness is inadequate in current and evolving mission environments. Critical battlespace information is not available to aircrew members or to monitoring C2 agencies tasked with execution of the assigned missions. Additionally, the inability to rapidly transfer critical information will further hamper battlespace driven adjustment to mission requirements and increases the potential for damage to the aircraft and/or loss of life.

4. Units Impacted.
105 AW   Stewart IAP, NY   167 AW   Eastern WV RAP, WV   172 AW   Jackson-Evers IAP, MS
164 AW   Memphis IAP, TN

5. Cost.   **PEC: (C-17) 0401130F   (C-5) 0401119F**

Remaining Quantity Required	Unit Cost	Program Cost
C-17 NRE (3600)	**N/A**	**$10,000,000**
18 C-17 Group A Kits (3010)	**$100,000**	**$1,800,000**
18 C-17 DL Radios (3010)	**$330,000**	**$5,940,000**
18 C-17 DL Processors (3010)	**$100,000**	**$1,800,000**
C-5 NRE (3600)	**N/A**	**$10,000,000**
16 C-5 Group A Kits (3010)	**$100,000**	**$1,600,000**
16 C-5 DL Radios (3010)	**$330,000**	**$5,280,000**
16 C-5 DL Processors (3010)	**$100,000**	**$1,600,000**
Total		**$38,020,000**

C-5 STRUCTURAL MODERNIZATION

1. Background. The C-5A fleet provides 22 percent of the US outsized cargo airlift capability. Confirmed cracking of the C-5A aft crown skins due to stress and corrosion requires replacement fleet-wide to avoid extensive groundings and flight restrictions.

2. Source of Need. AMC Requirements and Planning Council ranked Structural Modernization as #2 out of 37 at the 2012 Executive Session; AF Form 1067 with AMC tracking number 08-001; ARC 2012 WEPTAC Critical Requirement.

3. Impact If Not Funded. The initial restriction will reduce the cargo load factor by 20 percent and will adjust further downward depending on the severity of the cracking. Because of the unpredictable nature of the cracking, accumulation may lead to unsafe structural integrity and a potential catastrophic failure.

4. Units Impacted.
164 AW Memphis IAP, TN   167 AW Eastern WV RAP, WV

5. Cost.   PEC: 0401119F

Remaining Quantity Required	Unit Cost	Program Cost
16 Crown Skin Replacements (3840)	**$9,400,000**	**$150,400,000**
Total		**$150,400,000**

C-5 LARGE AIRCRAFT INFRARED COUNTERMEASURES (LAIRCM) AND NEXT GENERATION THREAT DETECTION SYSTEM

1. Background. Air National Guard (ANG) C-5s operate worldwide in environments where Man-Portable Air Defense System (MANPADS) Infrared (IR) seeking missiles are widely available and represent a significant threat during take-off and landing. These missiles are extremely advanced and designed to defeat flare-based defensive systems. Flares are also extremely volatile, require special handling, and supply is limited on the aircraft. The AN/AAQ-24 (V) Large Aircraft Infrared Countermeasures (LAIRCM) system provides the most effective countermeasures against MANPADS. C-5A aircraft are equipped with a flare-based Aircraft Defensive System (ADS). LAIRCM and its sensors are a prerequisite to having the Next Generation Threat Detection System installed. An upgrade to the current AAR-54 missile launch detectors is available and provides better IR threat detection, significantly increasing flare and LAIRCM effectiveness. The upgraded launch detect system must be capable of providing a 360-degree (azimuth and elevation) picture displayed at the navigator, loadmaster, and cockpit flight stations allowing crewmembers to see previously blind sectors and react accordingly.

2. Source of Need. LAIRCM Operational Requirements Document 314-92, Aug 1998; AMC Requirements and Planning Council LAIRCM and Next Generation Threat Detection System as #25 out of 37 at the 2012 Executive Session; AF Form 1067 with AMC tracking numbers 09-009, 07-011, and 06-091; ARC 2012 WEPTAC Critical Requirement.

3. Impact If Not Funded. C-5s operate in environments of increasing levels of threat complexity and lethality while employing less than state-of-the-art aircraft defensive systems. Operating in this configuration risks potential damage or loss of aircraft and ultimately the potential loss of life. Aircraft equipped with a threat detection system would greatly enhance the survivability rate while operating in high threat areas.

4. Units Impacted.
164 AW   Memphis IAP, TN   167 AW   Eastern WV RAP, WV

5. Cost.   PEC: 0401119F

Remaining Quantity Required	Unit Cost	Program Cost
LAIRCM NRE (3600)	**N/A**	**$10,000,000**
Next Generation NRE (3600)	**N/A**	**$12,000,000**
16 LAIRCM Group A Kits (3010)	**$4,500,000**	**$72,000,000**
16 LAIRCM Group B Kits (3010)	**$3,000,000**	**$48,000,000**
Total		**$142,000,000**

C-5 BRAKE TEMPERATURE MONITORING SYSTEM (BTMS)

1. Background. Several recent brake fires have resulted in damage to aircraft and disruption of flight operations. Aircrews have no real-time data to alert them of an impending brake fire, and must rely on experience to determine when a brake temperature estimate should be accomplished. This temperature estimate on 24 different sets of brakes is manually accomplished by the flight engineer and can take as long as 30 minutes. It is during this time that crew actions, such as egress and coordinating for ground fire support can significantly limit the potential for loss of life and/or assets. The installation of a Brake Temperature Monitoring System (BTMS) first requires the installation of an upgraded brake system. These brakes are planned to be utilized on the C-5M as it can accommodate heavier cargo loads. Currently, the C-5A fleet is not programmed to receive the new brakes and will only receive them through attrition.

2. Source of Need. Air Mobility Command (AMC) Requirements and Planning Council ranked BTMS as #23 out of 37 at the 2012 Executive Session; AF Form 1067 with AMC tracking numbers 09-103 and 09-104 refer to upgrades to the brake system; ARC 2012 WEPTAC Critical Requirement.

3. Impact If Not Funded. Lack of situational awareness that BTMS provides could result in decreased reaction times and lead to potential loss of life and/or damage to assets.

4. Units Impacted.
164 AW   Memphis IAP , TN   167 AW   Eastern WV RAP, WV

5. Cost.   PEC: 0401119F

Remaining Quantity Required	Unit Cost	Program Cost
BTMS NRE (3600)	**N/A**	**$3,000,000**
16 Upgraded Brake Systems (3010)	**$2,000,000**	**$32,000,000**
16 Brake Temperature Monitoring Systems (3010)	**$2,000,000**	**$32,000,000**
Total		**$67,000,000**

C-130H/J & C-27J

- **Tactical Airlift**
- **ANG C-130 Units Provide 28% of the Total Fleet**
- **ANG C-27J Units Provide 100% of the Total Fleet**

C-130H/J: The C-130 Hercules is the U.S. military's primary combat delivery aircraft. In addition to its primary role in tactical airlift, Air National Guard (ANG) C-130s support humanitarian, peacekeeping, and disaster relief operations worldwide. Procurement efforts continue to address propulsion modernization,

enhanced situational awareness, improved self-protection, single-pass precision airdrop, and avionics obsolescence issues. These capabilities will ensure the ANG remains viable and relevant in tomorrow's fight.

C-27J: The C-27J supports operational and tactical priorities in the movement of time-sensitive/mission-critical equipment, supplies, and personnel across "the last tactical mile." It will complement the existing Air Force tactical airlift capability by adding a more efficient means to move small payloads over shorter distances and into remote and austere locations. Modernization requirements for the ANG C-27J fleet include loadmaster armor, enhanced situational awareness, Operation Flight Program (OFP) software upgrades, mission customizable external sensor, and Heads-Up Display (HUD)/Primary Flight Display (PFD).
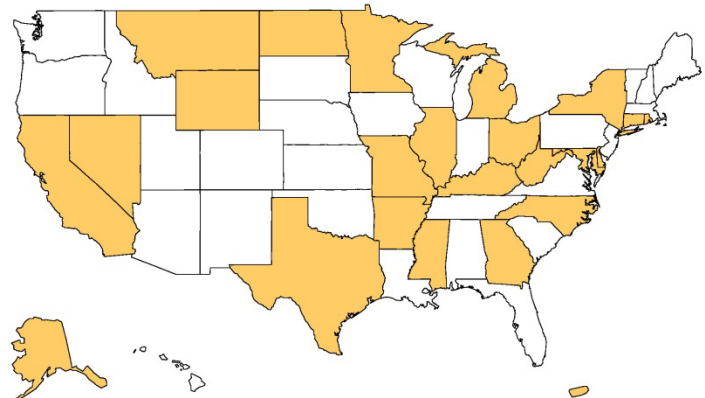
C-130H/J & C-27J
2012 Weapons and Tactics Conference

Critical Capabilities List

C-130H:
- Propulsion Modernization
- Enhanced Situational Awareness
- Improved Self-Protection
- Single-Pass Precision Airdrop
- Avionics Obsolescence Solutions

C-130J:
- Improved Self-Protection
- Cargo Compartment Camera
- Autonomous On-Board Wind-Sensing for Single-Pass Airdrop
- Increased Firefighting Safety
- Enhanced Training (Flight Simulator, On-Board Electronic Warfare Training) - See Simulation Tab for Info Paper

C-27J:
- Enhanced Situational Awareness Displays
- Operation Flight Program (OFP) Software Upgrades
- Multi-Spectrum Sensor/Designator
- Loadmaster Armor
- Certified Primary Flight Display (PFD)/Heads-Up Display (HUD)

Essential Capabilities List

C-130H:
- Military Secure Precision GPS Coupled with Flight Management System (FMS)
- Distributed Mission Operations (DMO) H-2, H-3, and J Simulator

C-130J:
- Block Upgrade
- High Speed CDS
- Improved HUD readability during NVIS Mode
- SELCAL Call
- Enhanced Personal Firearms for Aircrew

C-27J:
- Integrated Defensive Systems
- Squadron Level Live, Virtual, and Constructive (LVC) Aircraft Simulator
- IFF Mode V Upgrade
- Automatic Dependent Surveillance-Broadcast (ADS-B)
- Flight Deck Electrical Outlets

Desired Capabilities List

C-130H:
- Hearing Protection/Noise Cancellation
- Cargo Compartment Modernization

C-130J:
- Digi Map Enhancement

C-27J:
- Dynamic Propeller Balancing Capability
- Ready-to-Install Spare Engine
- Off-Wing Organizational Propeller Repair Capability
- HUD Symbology Modes
- Self-Contained Encapsulated Latrine

C-130H/J & C-27J EXECUTIVE SUMMARY

Modernization Priority Profiles ($ Million)

Program	2014	2015	2016
C-130H			
C-130H Propulsion Modernization	$8.00 [3]	$50.00 [2]	$50.00 [2]
C-130H Enhanced Situational Awareness	$20.00 [2] $6.50 [3]	$50.00 [2] -	$50.00 [2] -
C-130H Improved Self-Protection	$15.00 [2]	$50.00 [2]	$50.00 [2]
C-130H Single-Pass Precision Airdrop	- $8.00 [3]	$30.00 [2] -	$30.00 [2] -
C-130H Avionics Obsolescence Solution	TBD	TBD	$60.00 [2]
C-130J			
C-130J Improved Self-Protection (See C-130H Paper)	$60.00 [2]	$60.00 [2]	$60.00 [2]
C-130J Cargo Compartment Camera	- $2.00 [3]	$3.15 [2] -	$3.15 [2] -
C-130J Autonomous On-Board Wind-Sensing for Single-Pass Airdrop (See C-130H Paper)	- $8.00 [3]	$10.00 [2] -	$10.00 [2] -
C-130J Increased Firefighting Safety	$5.00 [3]	-	-
C-27J			
C-27J Enhanced Situational Awareness Displays	$3.60 [2]	$3.00 [2]	$2.00 [2]
C-27J Operational Flight Program Software Upgrade	$5.00 [3]	-	-
C-27J Multi-Spectrum Sensor/Designator	$11.00 [2] $2.00 [3]	$12.00 [2] -	$11.00 [2] -
C-27J Loadmaster Armor	$0.90 [2]	-	-
C-27J Certified Heads-Up Display (HUD)/Primary Flight Display (PFD)	$5.00 [2]	$4.00 [2]	$4.00 [2]

Notes: [1] 3840 Appropriation [2] 3010 Appropriation [3] 3600 Appropriation [4] 3080 Appropriation

C-130H
- C-130H Propulsion Modernization - Provides increased performance, efficiency, and reliability through incorporating modular blade technology (NP2000), Electronic Propeller Control System (EPCS) and In-flight Propeller Balancing Systems (IPBS).
- C-130H Enhanced Situational Awareness - Provides an increase in datalink capability, on-board/off-board threat correlation, data sharing, automated countermeasures, and route replanning when integrated with Airlift Integrated Electronic Combat System (AIECS)
- C-130H Advanced Large Aircraft Infrared Countermeasures (LAIRCM)/Missile Warning System with Hostile Fire Indicator (HFI) - Allows aircraft to survive in an environment of complex threats and lethality. Enhances existing missile warning system to provide operationally acceptable probabilities of detection and false alarms, to include a Hostile Fire Indication capability.
- C-130H/J Single-Pass Precision-Guided Airdrop - Eliminates multiple passes for wind sonde data during airdrops decreasing risk to aircrew while meeting U.S. Army requirements.

Persistent Conflict - Enabling the Warfighter

- C-130H Avionics Obsolescence Solution - Addresses the Communication Navigation Surveillance and Air Traffic management (CNS/ATM) mandates, to include avionics, gauges, and instrumentation obsolescence.

C-130J
- C-130J Advanced Large Aircraft Infrared Countermeasures (LAIRCM)/Missile Warning System with Hostile Fire Indicator - Allows aircraft to survive in an environment of complex threats and lethality. Enhances existing missile warning system to provide operationally acceptable probabilities of detection and false alarms, to include a Hostile Fire Indication capability. Note: See the LAIRCM information paper found in the C-130H section.
- C-130J Cargo Compartment Camera - Provides monitoring from cargo compartment and flight deck during parachute deployments, condition of extraction parachutes, cargo pallet extraction, as well as personnel movement within the cargo compartment.
- C-130J – Single-Pass Precision Airdrop - Eliminates multiple passes for wind sonde data during airdrops decreasing risk while meeting US Army requirements. Note: See the Single Pass Precision Airdrop information paper found in the C-130H section.
- C-130J Increased Firefighting Safety - Provides aircrew the ability to silence an audible landing gear warning while performing aerial firefighting.

C-27J
- C-27J Enhanced Situational Awareness Displays - Provides integrated digital map display with moving map data by displaying real-time mission changes to the crew. Additionally, Terrain Awareness and Warning System (TAWS) data capability is displayed along the route of flight reducing the potential for Controlled Flight into Terrain accidents.
- C-27J Operational Flight Program (OFP) Software Upgrades - Allows CNI-SP Parachute Ballistics Data updates to increase C-27J airdrop accuracy and upgraded Mission Computer digital performance data will result in lower aircrew workload, thus reducing error potential.
- C-27J Multi-Spectrum Sensor/Designator - Provides enhanced Intelligence, Surveillance, and Reconnaissance (ISR) capability to include current tactical mission survivability and accuracy by allowing surveillance of drop/landing zone prior to arrival.
- C-27J Loadmaster Armor - Provide increased safety for the loadmaster against small arms fire likely to be encountered during critical phases of flight in close proximity to the ground.
- C-27J Heads-Up Display (HUD)/Primary Flight Display (PFD) - New HUD will align the eye movement box with the C-27J cockpit design eye point allowing pilots to sit at the proper height in the cockpit and view all HUD symbology without any control yoke interference.

C-130H PROPULSION MODERNIZATION

1. Background. Current operations and the need for increased performance, efficiency, and reliability have highlighted the need for a comprehensive, propulsion upgrade to the C-130H fleet. Incorporating modular blade technology (NP2000), Electronic Propeller Control System (EPCS), and In-flight Propeller Balancing System (IPBS) will provide increased performance and reliability. EPCS improves safety by accelerating response time when throttles are rapidly advanced; an issue in previous mishaps. The legacy propeller control system uses 1950's technology and is a significant maintenance driver; while the EPCS improves propeller system reliability by 50 percent. Upgrading the T-56 engine with the Rolls Royce 3.5 modification, with redesigned compressors and turbines, will increase engine life-cycle and improve fuel economy. Oil Cooler Augmentation (OCA) is required to decrease engine wear and prevent engine shutdowns during ground operations in hot climates. The NP 2000 eight-bladed propeller decreases propeller maintenance time by being modular, increases aircraft efficiency while being transported by taking up less pallet space, and increases performance.

2. Source of Need. ARC 2012 WEPTAC Critical Requirement.

3. Impact If Not Funded. Until propulsion deficiencies are addressed, legacy aircraft will continue to lag behind modern counterparts, missing the opportunity to decrease operational risk and increase utility and effectiveness in the evolving combat and special mission environments.

4. Units Impacted.

109 AW	Schenectady CAP, NY	139 AW	St Joseph AP, MO	165 AW	Savannah IAP, GA
123 AW	Louisville IAP, KY	145 AW	Charlotte-Douglas IAP, NC	166 AW	New Castle CAP, DE
130 AW	Yeager AP, WV	152 AW	Reno-Tahoe IAP, NV	176 AW	JB Elmendorf, AK
133 AW	Mpls-St Paul IAP, MN	153 AW	Cheyenne RAP, WY	182 AW	Peoria IAP, IL
136 AW	JRB Fort Worth, TX	156 AW	San Juan IAP, PR	189 AW	Little Rock AFB, AR

5. Cost.   PEC: (C-130H) 0401115

Remaining Quantity Required *	Unit Cost	Program Cost
EPCS/IPBS NRE (3010)	**N/A**	**$8,000,000**
135 NP2000 * (3010)	**$2,000,000**	**$270,000,000**
135 EPCS * (3010)	**$825,000**	**$111,375,000**
135 IPBS * (3010)	**$350,000**	**$47,250,000**
540 T-56 3.5 MOD Engines * (3010)	**$1,400,000**	**$756,000,000**
135 OCA * (3010)	**$666,667**	**$90,000,045**
Total	**N/A**	**$1,282,625,045**

* Includes 10% spares.

C-130H/J ENHANCED SITUATIONAL AWARENESS

1. Background. Recent combat operations highlighted the need for comprehensive, networked, Command and Control (C2) battlespace awareness, and integration of aircraft systems. Upgrades to the C-130 Real-Time Information in the Cockpit (RTIC) program to increase the datalink capability and integrate with aircraft defensive systems will provide the required capability for on-board/off-board threat correlation, data sharing, automated countermeasures, and route replanning when integrated with the Airlift Integrated Electronic Combat System (AIECS). Additionally, integrating Electronic Take-off and Landing Data (ETOLD), Electronic Flight Bag (EFB), and electronic weight and balance into the system, will greatly increase aircrew's ability to execute missions in complex and dynamic situations. The lack of Terrain Awareness Warning System (TAWS) and ETOLD degrades Crew Resource Management (CRM) and increases cockpit workload that can be eliminated through displays and automation. EFB presents Flight Information Publications (FLIP) to the aircrew in a digital format relieving the need for multiple paper products.

2. Source of Need. Mobility Air Forces (MAF) Network Enabling Concept, 26 Apr 2006; AMC MAF Data Link Integration Technical Requirements Document (TRD), 25 Oct 2006; Tactical Data link Transformation CDD, Increment 1, JROCM, 23 Jun 2004; AMC R&PC Mission Essential 2007 and 2008; AMC Advanced Situational Awareness Countermeasures (ASACM) CDD, Jan 2008; ARC 2012 WEPTAC Critical Requirement.

3. Impact If Not Funded. Without tactical datalink upgrades and integrated defensive systems, C-130 aircrews will continue to lack the situational awareness and flexibility to operate in dynamic situations and contested environments.

4. Units Impacted.

109 AW Schenectady CAP, NY	139 AW St Joseph AP, MO	165 AW Savannah IAP, GA
123 AW Louisville IAP, KY	145 AW Charlotte-Douglas IAP, NC	166 AW New Castle CAP, DE
130 AW Yeager AP, WV	152 AW Reno-Tahoe IAP, NV	176 AW JB Elmendorf, AK
133 AW Mpls-St Paul IAP, MN	153 AW Cheyenne RAP, WY	182 AW Peoria IAP, IL
136 AW JRB Fort Worth, TX	156 AW Luis Munoz IAP, PR	189 AW Little Rock AFB, AR

5. Cost.   PEC: (C-130H) 0401115   (C-130J) 0401134

Remaining Quantity Required *	Unit Cost	Program Cost
RTIC Software Upgrade (3600)	**N/A**	**$1,500,000**
ALQ-213 NRE (3600)	**N/A**	**$2,000,000**
155 ALQ-213 * (3010)	**$226,154**	**$35,053,870**
AIECS NRE (3600)	**N/A**	**$3,000,000**
155 AIECS (3010)	**$3,000,000**	**$465,000,000**
Total		**$506,553,870**

* Includes 10% spares.

C-130H/J IMPROVED SELF-PROTECTION

1. Background. C-130 aircraft perform demanding missions worldwide in low- to medium-threat environments, where shoulder-fired, Man-Portable Air Defense Systems (MANPADS) are widely available, creating a significant threat during all phases of flight operations. Future operational concepts have the C-130 operating closer to the battle to reinforce the Army, which relies heavily on airlift for logistical support. The current C-130 AAR-47 Missile Warning System (MWS) has many weaknesses creating vulnerabilities for the aircraft. The ANG requires the AN/AAQ-24 LAIRCM system, which provides the best countermeasures against MANPAD threats and does not rely on pyrotechnic expendables. The Next Generation (NexGen) configuration, currently being fielded, is comprised of two Guardian Laser Transmitter Assemblies, five NexGen Ultra Violet sensors, one processor, and one Control Indicator Unit that would provide greater warning, less false alarm rates, and higher reliability. To address the Radio Frequency (RF) environment, C-130s will require a modern digital Radar Warning Receiver (RWR). In conjunction with defensive system improvements, situational awareness and data fusion is essential to maximize the use of these systems and increase both survivability and mission accomplishment. To improve the situational awareness (SA) of crews, Real-Time in the Cockpit (RTIC) upgrades including integration of the Airlift Integrated Electronic Combat System (AIECS) will enhance safety and mission effectiveness.

2. Source of Need. ARC 2012 WEPTAC Critical Requirement; AMC Advanced Situational Awareness Countermeasures (ASACM) CDD, Jan 2008.

3. Impact If Not Funded. The aging C-130 defensive systems will lag the current threat environment and negatively impact future operations. In addition, less-than-optimal SA and sensor correlation through RTIC upgrades will increase aircrew workload, impinging on mission effectiveness and survivability.

4. Units Impacted.

109 AW	Schenectady CAP, NY	143 AW	Quonset SAP, RI	165 AW	Savannah IAP, GA
123 AW	Louisville IAP, KY	145 AW	Charlotte-Douglas IAP, NC	166 AW	New Castle CAP, DE
130 AW	Yeager AP, WV	146 AW	Channel Islands ANGS, CA	176 AW	JB Elmendorf, AK
136 AW	JRB Fort Worth, TX	152 AW	Reno-Tahoe IAP, NV	182 AW	Peoria IAP, IL
139 AW	St Joseph AP, MO	153 AW	Cheyenne AP, WY	189 AW	Little Rock AFB, AR

5. Cost.   **PEC: (C-130H) 401115F   (C-130J) 401132F**

Remaining Quantity Required *	Unit Cost	Program Cost
18 C-130J LAIRCM Group A Kits * (3010)	**$970,000**	**$15,520,000**
10 C-130J LAIRCM Group B Kits * (3010)	**$4,400,000**	**$44,000,000**
153 NexGen Group A Kits * (3010) (135 C-130H, 18 C-130J)	**$420,000**	**$64,260,000**
78 NexGen Group B Kits * (3010) (68 C-130H, 10 C-130J)	**$774,855**	**$60,438,690**
Total		**$184,218,690**

* Includes 10% spares.

C-130H/J SINGLE-PASS PRECISION GUIDED AIRDROP

1. Background. The Air National Guard (ANG) C-130 fleet has several shortfalls in its ability to precisely deliver airdrop loads. The Army's requirement for airdrop accuracy is 50 meters Circular Error Average (CEA); however, traditional methods only provide accuracy to a 300 meter CEA. Additionally, the Improved Container Delivery System (ICDS) requires multiple passes over the drop zone for wind sonde deployment and atmospheric calculations before dropping actual bundles. Upgrades to the APN-241 radar, designator pods with Laser Radar (LIDAR), towplate extraction mechanisms, and wireless gate release will provide more accurate data on a single-pass and reduce human induced errors. The APN-241 radar can be equipped with ballistic wind sensing and Synthetic Aperture Radar (SAR) capabilities through software upgrades. Target designation pods with LIDAR will aid in precisely locating drop zones, measuring ballistic winds, continuously calculating impact points and assessing post-drop effectiveness. The pods will also allow greater flexibility in future airdrop methods.

2. Source of Need. Mission Need Statement AMC/CAF/AETC/AFSOC/AFMC 301-97; C-130 Avionics Modernization Program (AMP) System Requirement Document dated 31 March 2000; Required Theater CEA/Mitigate ADE; ARC 2012 WEPTAC Critical Requirement.

3. Impact If Not Funded. The lack of improved technology and wind gathering capabilities will require C-130s to make multiple passes, and unlikely make the required 50 meters CEA from safe drop altitudes in accordance with US Army requirements.

4. Units Impacted.

109 AW Schenectady CAP, NY	143 AW Quonset SAP, RI	165 AW Savannah IAP, GA
123 AW Louisville IAP, KY	145 AW Charlotte-Douglas IAP, NC	166 AW New Castle CAP, DE
130 AW Yeager AP, WV	146 AW Channel Island ANGS, CA	176 AW JB Elmendorf, AK
133 AW Mpls-St Paul IAP, MN	152 AW Reno-Tahoe IAP, NV	182 AW Peoria IAP, IL
136 AW JRB Ft Worth, TX	153 AW Cheyenne AP, WY	189 AW Little Rock AFB, AR
139 AW St Joseph AP, MO	156 AW San Juan IAP, PR	

5. Cost.   PEC: (C-130H) 041115, (C-130J) 0401134

Remaining Quantity Required *	Unit Cost	Program Cost
Laser Designator Pod NRE (3600)	**N/A**	**$16,000,000**
APN-241 Radar Upgrade * (3600)	**N/A**	**$3,000,000**
77 Laser Designator Pod * (3010)	**$2,000,000**	**$154,000,000**
Total		**$173,000,000**

* Includes 10% spares.

C-130H AVIONICS OBSOLESCENCE SOLUTION

1. Background. The delay of the Avionics Modernization Program (AMP) resulted in a tight timeline for Air National Guard (ANG) C-130H models to meet the 2020 deadline for international Communication Navigation Surveillance and Air Traffic Management (CNS/ATM) mandates. The C-130 fleet is also facing sustainability challenges with mission-required avionics equipment. Currently, C-130H models will not meet 2020 Precision and Area Navigation (P-RNAV) requirements to operate worldwide. In addition, current cockpit lighting is substandard for Night Vision Goggle (NVG) operations requiring intensive pre-mission preparation and reducing crew visual acuity. Also, Self-Contained Navigation System (SCNS) is unsupportable in approximately 2015. A modern Flight Management System (FMS) with Global Positioning System (GPS) approach capability and a modern "glass" flight deck will increase mission capability and training effectiveness rates with higher equipment reliability, lower maintenance costs, and enhanced safety. Updated avionics will address CNS/ATM mandates when new regulations come into effect, increase operational effectiveness and efficiency by opening up airspace that requires more stringent navigational requirements and allow the use of GPS approaches currently prohibited to the legacy C-130 fleet. In addition, a glass cockpit will reduce crew workload due to the ability to present a consolidated situational awareness picture when used in conjunction with a system integrator such as the Airlift Integrated Electronic Combat System (AIECS). Improving the Night Vision Instrument System (NVIS) lighting compatibility will ensure compliance with AFI 11-2C130 V3/MIL-STD-3009 and increase capability/sustainability to operate safely in night environments. NVIS upgrades are required immediately prior to CNS/ATM upgrades. The AF is aggressively pursuing a replacement for the AMP program.

2. Source of Need. ARC 2012 WEPTAC Critical Requirement.

3. Impact If Not Funded. The lack of C-130H improved communications and avionics technology will restrict them from operating in European airspace. Additionally, tactical night operations will continue to suffer with non-NVIS compliant lighting.

4. Units Impacted.

109 AW Schenectady CAP, NY	139 AW St Joseph AP, MO	165 AW Savannah IAP, GA
123 AW Louisville IAP, KY	145 AW Charlotte-Douglas IAP, NC	166 AW New Castle CAP, DE
130 AW Yeager AP, WV	152 AW Reno-Tahoe IAP, NV	176 AW JB Elmendorf, AK
133 AW Mpls-St Paul IAP, MN	153 AW Cheyenne AP, WY	182 AW Peoria IAP, IL
136 AW JRB Fort Worth, TX	156 AW San Juan IAP, PR	189 AW Little Rock AFB, AR

5. Cost.   **PEC: 0401115**

Remaining Quantity Required *	Unit Cost	Program Cost
NRE (3600)	**N/A**	**TBD**
123 Avionics Kits * (3010)	**$5,700,000**	**$701,100,000**
123 NVIS (3010)	**$465,000**	**$57,195,000**
Total		**$758,295,000**

* Includes 10% spares.

C-130J CARGO COMPARTMENT CAMERA

1. Background. C-130J aircrews require the capability to monitor activity within the cargo compartment during heavy equipment airdrops and Engine Running On-load and Off-load (ERO) operations. This capability must permit operations within the cargo compartment to be simultaneously monitored in the cargo compartment and on the flight deck. The ability to monitor parachute deployments, condition of extraction parachutes, cargo pallet extraction, as well as personnel movement within the cargo compartment is required. This solution, to include all sensors, controls, and displays, must be Night Vision Goggle (NVG) compatible. The existing C-130J crew complement does not permit using a primary crewmember to serve as a safety observer for operations within the cargo compartment during ERO operations. Safety observation is accomplished by the navigator in the C-130E/H aircraft and through the use of a pilot observation bubble on the C-17.

2. Source of Need. ARC 2012 WEPTAC Critical Requirement; Air Mobility Command (AMC) Requirements and Planning Council (R&PC) Essential Item.

3. Impact If Not Funded. During ERO operations, the possibility exists for the loadmaster to be injured and not visible to the remaining crewmembers. A delay in detection could prevent necessary and immediate medical attention and result in serious injury or death to crewmember. During airdrops of Heavy Equipment (HE), monitoring the condition of the extraction parachutes and extraction sequence is critical to preventing damage to the aircraft, and maintaining safety within the cargo compartment and on the drop zone.

4. Units Impacted.
143 AW   Quonset SAP, RI   146 AW   Channel Islands ANGS, CA

5. Cost.   **PEC: 401132F**

Remaining Quantities Required	Unit Cost	Program Cost
NRE (3600)	**N/A**	**$2,000,000**
18 Kits (3010)	**$350,000**	**$6,300,000**
Total		**$8,300,000**

C-130J INCREASED FIREFIGHTING SAFETY

1. Background. C-130J pilots require the ability to silence an audible landing gear warning while performing aerial firefighting. The aerial firefighting flight profile requires maneuvering a maximum gross-weight aircraft to a drop altitude of 150 feet Above Ground Level (AGL), at a speed of 120 knots. In order to maintain a safe margin between stall speed and retardant dispersal speed, 100 percent flaps are required. At flap settings greater than 70 percent, an audible "LANDING GEAR" warning is repeated non-stop until flaps are retracted below 70 percent. Under normal flight conditions, the audible warning promotes safety by warning the flight crew to not land the aircraft with the gear up. However, while performing aerial firefighting, this audible warning produces a dangerous and annoying distraction, significantly reducing flight safety in an environment which is arguably one of the most risky that the C-130 aircraft and crews operate in. An automated method to disable/enable the audible landing gear warning and modified checklist procedures that properly ensure the warning will trigger in conditions other than aerial firefighting is necessary.

2. Source of Need. ARC 2012 WEPTAC Critical Requirement; Air Mobility Command (AMC) Requirements and Planning Council (R&PC) Mission Need Item.

3. Impact If Not Funded. Audible landing gear warning horn while performing aerial firefighting creates a dangerous and annoying distraction to the flight crew that degrades situational awareness, increases risk, and reduces mission effectiveness. It distracts pilots from their focus on terrain, smoke plumes, other aircraft, and retardant drop. This is an unnecessary risk that can be mitigated by revising aircraft computer system software.

4. Unit Impacted.
146 AW   Channel Islands ANGS, CA

5. Cost.   **PEC: 401132F**

Remaining Quantity Required	Unit Cost	Program Cost
OFP Upgrade (3600)	**N/A**	**$7,000,000**
Total		**$7,000,000**

C-27J ENHANCED SITUATIONAL AWARENESS DISPLAYS

1. Background. C-27J aircraft have no integrated digital map system despite the fact that it is incorporated into its design. The integrated digital map system enhances mission accomplishment and reduces crew workload during two-person flight deck operations. This eliminates the need for the two independent Electronic Data Manager (EDM) systems that are not integrated into the aircraft Flight Management System (FMS). The Cockpit Working Group (CWG) identified the independent EDMs as a Crew Resource Management (CRM) degrader and increased cockpit workload that could be eliminated with an integrated system. The C-27J Terrain Awareness and Warning System (TAWS) provides alerts for terrain and obstacles, but no display is provided showing the location of the offending terrain or obstacle. This results in reduced terrain awareness, limited "look ahead" capability and an increased risk of Controlled Flight Into Terrain (CFIT) accidents. Tactical Digital Terrain Elevation Data (Level 2 DTED) is essential for accurate moving map and TAWS displays. Furthermore, the avionics suite does not include the seamless ability for the addition of essential future capabilities [e.g. Blue Force Tracker (BFT), Real-Time Information in the Cockpit (RTIC), electronic pubs (E-pubs), Situational Awareness (SA) Waveform, Combat Track II (CTII), communications upgrades, etc.]. This ability is enhanced by installing two High-Definition Smart Multi-Function Color Displays (SMFCD) with a minimum of six inputs.

2. Source of Need. Capability Development Document (CCD) for the Joint Cargo Aircraft, Air Mobility Command (AMC) Requirements and Planning Council (R&PC) Essential Item; ARC 2012 WEPTAC Critical Item.

3. Impact If Not Funded. The lack of an integrated digital map system increases cockpit workload and "heads down" time resulting in increased potential for mid-air collisions and undetected threat engagements against the aircraft. Without a TAWS terrain and obstacle display in the C-27J, pilot SA of high terrain and obstacles is reduced, and the potential for CFIT accidents is increased.

4. Units Impacted.

103 AW Bradley ANGB, CT	120 FW Great Falls IAP, MT	186 AW Meridian RAP, MS
110 AW Battle Creek IAP, MI	175 WG Martin SAP, MD	
119 WG Hector IAP, ND	179 AW Mansfield-Lahm RAP, OH	

5. Cost.　　　　**PEC: 51138F**

Remaining Quantity Required	Unit Cost	Program Cost
NRE (3010)	**N/A**	**$2,000,000**
24 Kits * (3010)	**$70,000**	**$1,680,000**
21 TAWS (DTED) * (3010)	**$234,000**	**$4,914,000**
Total		**$8,594,000**

　　* Includes 10% spares.

C-27J OPERATIONAL FLIGHT PROGRAM (OFP) SOFTWARE UPGRADES

1. Background. C-27J aircraft mission computers and system processors use outdated airdrop parachute ballistics and incorrect exit times to calculate the Computed Air Release Point (CARP). Additionally, aircraft Take-off and Landing Data (TOLD) is unusable and inaccurate. The C-27J participates in tactical operations in and out of remote, austere, unprepared, and short runways where accurate aircraft performance data is critical for safe operations. The C-27J is the only mobility tactical airlifter with a two-person flight deck that does not have certified mission computer TOLD. Improvements in C-27J parachute ballistic data increase airdrop accuracy and consistency, opening up smaller drop zones, providing greater flexibility, and survivability of recovery forces. Upgrading Operational Flight Program (OFP) software to a level commensurate with industry standard capabilities and human interface would remedy these two deficiencies.

2. Source of Need. Capability Development Document (CDD) for the Joint Cargo Aircraft; Air Mobility Command (AMC) Requirements and Planning Council (R&PC) Essential Item; ARC 2012 WEPTAC Critical Requirement.

3. Impact If Not Funded. Using current C-27J parachute ballistics data decreases airdrop accuracy and increases workarounds and crew workload during the mission planning process. Without accurate mission computer TOLD, aircrews must manually calculate performance data on the flight deck. These methods pose a high potential for error when calculating TOLD on the aircraft in the tactical environment, possibly leading to an aircraft mishap during take-off, climb-out, or landing.

4. Units Impacted.

103 AW Bradley ANGB, CT	120 FW Great Falls IAP, MT	186 AW Meridian RAP, MS
110 AW Battle Creek IAP, MI	175 WG Martin SAP, MD	
119 WG Hector IAP, ND	179 AW Mansfield-Lahm RAP, OH	

5. Cost.   **PEC: 51138F**

Remaining Quantity Required *	Unit Cost	Program Cost
OFP Upgrades (3600)	**N/A**	**$5,000,000**
Total		**$5,000,000**

* Assumes follow-on aircraft contracted with corrected software.

C-27J MULTI-SPECTRUM SENSOR/DESIGNATOR

1. Background. The C-27J is under consideration to support SOCOM/AFSOC combat operations and state/local authorities in support of Domestic Operations (DOMOPS). In addition to its tactical airlift mission, to better fulfill this role, the addition of an external multi-spectrum sensor/designation pod is required. As an example; with the addition of a multi-spectrum sensor the C-27J would be able to support SOCOM/AFSOC with a "God's-eye" view of any friendly ground forces during an operation with route recognition as it delivers needed supplies to forward operating bases. This same capability could be used to support a myriad of civil agencies with Search and Rescue (SAR) or Incident Awareness and Assessment (IAA) during a variety of contingencies/events. This capability would enhance both Tactical Airlift/Airdrop accuracy and survivability by being able to survey austere drop/landing zones for enemy activity, incursions, or obstacles prior to arrival. It would also allow for post-drop assessment/security of an airdrop. The ability to locate/survey a Drop Zone/Landing Zone (DZ/LZ) prior to arrival would help ensure first pass delivery as well as provide added survivability and situational awareness for the crew.

2. Source of Need. ARC 2011 - 2012 WEPTAC Critical Requirement.

3. Impact If Not Funded. Without this capability, the C-27J's ability to support various Federal and State missions will be reduced. Also, without such a capability the C-27J will be more vulnerable to threats and less effective at its current Airdrop/Air Land missions.

4. Units Impacted.

103 AW Bradley ANGB, CT	120 FW Great Falls IAP, MT	186 AW Meridian RAP, MS
110 AW Battle Creek IAP, MI	175 WG Martin SAP, MD	
119 WG Hector IAP, ND	179 AW Mansfield-Lahm RAP, OH	

5. Cost.   PEC: 51138F

Remaining Quantity Required	Unit Cost	Program Cost
**NRE * ** (3010)	**N/A**	**$2,000,000**
15 Systems (3010)	**$1,000,000**	**$15,000,000**
38 A Kit Installs (3010)	**$500,000**	**$19,000,000**
Total		**$36,000,000**

* Could be absorbed by contractor with larger buy order /covered through MC-27J development.

C-27J LOADMASTER ARMOR

1. Background. C-27J aircraft are not equipped with designated loadmaster armor protection in the observer position. During combat operations loadmasters are directed to sit at the observer windows and perform scanning duties. Loadmasters take positions at the observer windows and scan the ground for Surface-to-Air Fire (SAFIRE). The C-27J's direct support mission providing time sensitive/mission critical airlift to US Army forces at the "last tactical mile" will require it to operate frequently in areas and at altitudes where the small arms threat is prevalent. Baseline aircraft armor is incapable of protecting the loadmaster from the majority of threats. New armor provides the required level of protection.

2. Source of Need. Capability Development Document (CDD) for the Joint Cargo Aircraft; Air Mobility Command (AMC) Requirements and Planning Council (R&PC) Critical Item; ARC 2011 - 2012 WEPTAC Critical Requirement.

3. Impact If Not Funded. The lack of loadmaster armor protection at the scanner windows puts observing loadmasters at risk to small arms threat which could result in serious injury and/or loss of life.

4. Units Impacted.

103 AW Bradley ANGB, CT	120 FW Great Falls IAP, MT	186 AW Meridian RAP, MS
110 AW Battle Creek IAP, MI	175 WG Martin SAP, MD	
119 WG Hector IAP, ND	179 AW Mansfield-Lahm RAP, OH	

5. Cost.   **PEC: 51138F**

Remaining Quantity Required	Unit Cost	Program Cost
15 Kits (2 sets per kit) (3010)	**$60,000**	**$900,000**
Total		**$900,000**

C-27J CERTIFIED PRIMARY FLIGHT DISPLAY (PFD) HEADS-UP DISPLAY (HUD)

1. Background. Engineering analysis of the C-27J Heads-Up Display (HUD) indicates that the HUD eye movement box is not collocated with the cockpit design eyepoint. Anthropometric studies have determined that only a limited range of the pilot population can adjust the seat height to see all HUD symbology without excessive head movement and/or control yoke interference with the pilot's legs. HUD viewing and flight control interference is further aggravated when wearing aircrew protective equipment such as body armor and survival vests. Lowering the HUD approximately two inches will align the HUD eye movement box and the cockpit design eye point. Certifying the HUD as primary flight display will allow additional situational awareness information to be displayed on Head Down Displays (HDD) 1 and 5, which are currently reserved for primary flight displays only.

2. Source of Need. Capability Development Document (CDD) for the Joint Cargo Aircraft; Air Mobility Command (AMC) Requirements and Planning Council (R&PC) Essential Item; ARC 2012 WEPTAC Critical Requirement.

3. Impact If Not Funded. If the HUD is not modified, the C-27J will not accommodate the full range of the pilot population to operate the aircraft while wearing protective equipment without control yoke interference. Additionally, pilots need be able to see all HUD symbology without excessive head movements, which ultimately degrades mission performance when operating in the tactical environment.

4. Units Impacted.

103 AW Bradley ANGB, CT	120 FW Great Falls IAP, MT	186 AW Meridian RAP, MS
110 AW Battle Creek IAP, MI	175 WG Martin SAP, MD	
119 WG Hector IAP, ND	179 AW Mansfield-Lahm RAP, OH	

5. Cost.   PEC: 51138F

Remaining Quantity Required *	Unit Cost	Program Cost
18 HUD Sets (3010)	**$723,000**	**$13,014,000**
Total		**$13,014,000**

* Includes 10% spares.

C-130 Special Mission

- **Commando Solo**
- **SOF/CSAR**
- **Special Mission (Airborne Firefighting, Antarctic Logistics)**
- **ANG Commando Solos Provide 100% of the Total Fleet**
- **ANG CSAR H/MC-130s Units Provide 36% of the Total Fleet**
- **ANG LC-130s Provide 100% of the Total Fleet**

EC-130J: The EC-130J "Commando Solo" conducts information operations, psychological operations, and civil affairs broadcasts. Procurement efforts continue for Large Aircraft Infrared Countermeasure (LAIRCM) system, tactical datalink Secure-Line-of-Sight/Beyond-Line-of-Sight (SLOS/BLOS) capability, and radio communication upgrades, and loadmaster crashworthy seats.

HC/MC-130: The Air National Guard (ANG) provides 35 percent of the AF's HC/MC-130 combat search and rescue capability. ANG HC/MC-130 units continue to deploy in support of Overseas Contingency Operations (OCO) and provide emergency rescue and relief support during Domestic Operations (DOMOPS). Upcoming modernization efforts for the ANG HC/MC-130 fleet include loadmaster crashworthy seats, Aircrew Flight Equipment Racks, Electro-Optical/Infrared (EO/IR) Sensor Upgrades and Heavy Equipment (HE) airdrop capability.

LC-130: The LC-130 operates on snowfields in remote areas of the Polar Regions in support of the National Science Foundation (NSF). In order to keep the aircraft up-to-date, several modification efforts are underway including the Electronic Propeller Control System (EPCS), eight-bladed propellers, and the Crevasse Detection Radar (CDR). The ANG is also working with the NSF to develop a pod-based scientific payload capability for the LC-130s.
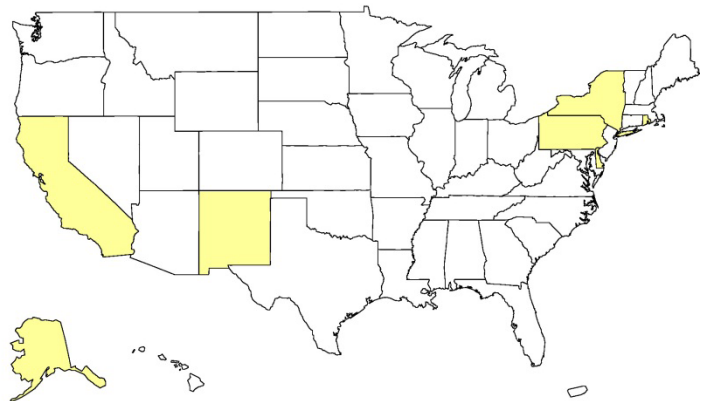
C-130 Special Mission
2012 Weapons and Tactics Conference

Critical Capabilities List

EC-130J:
- Large Aircraft Infrared Countermeasures (LAIRCM)
- Intelligence, Surveillance, and Reconnaissance (ISR)
- Fly-Away Broadcast System
- ArcLight2 Ku Band Spread Spectrum (KuSS) Modem
- Communication/Situational Awareness Suite

HC/MC-130P/N:
- Integrated Beyond-Line-of-Sight/Secure-Line-of-Sight (BLOS/SLOS) Datalink
- Information Superiority
- Combat Penetrator Suite
- Enhanced Engine and Propeller Performance
- Mission Flexible Cargo Compartment
- Electronic Flight Bags

LC-130H:
- Eight-Bladed Propeller Replacement
- Retractable External Arm and Crevasse Detection Radar (CDR)
- In-Flight Propeller Balancing (IFPB)
- Flight Deck Night Vision Goggle (NVG) Compatibility
- Flight Deck Communications Upgrade

Essential Capabilities List

EC-130J:
- Single-Pass Precision Guided Airdrop
- Emergency Equipment Bins
- Increased Aircraft Fuel Capacity

HC/MC-130P/N:
- Variable Speed Drogue
- Gas Turbine Compressor (GTC) to Auxiliary Power Unit (APU) Upgrade
- CNS/ATM Compliant Avionics
- Distributed Mission Operations and Training - See Simulation Tab for Info Paper
- Roll-on/Roll-off External Arm

Desired Capabilities List

HC/MC-130P/N:
- Visual Threat Recognition and Avoidance Training (VTRAT)
- Global Positioning System (GPS) Internal Repeater
- Radar Altimeter on Copilot Instrument Panel
- Altitude Alerter

C-130 SPECIAL MISSION EXECUTIVE SUMMARY

Modernization Priority Profiles ($ Million)

Program	2014	2015	2016
EC-130J			
LAIRCM	$5.56 [2]	$15.52 [2]	$15.52 [2]
Intelligence, Surveillance, and Reconnaissance (ISR)	- $2.00 [3]	$8.78 [2] -	$9.60 [2] -
Fly-Away Broadcast System	- -	- 6.00 [3]	$8.78 [2] -
ArcLight2 Ku Band Spread Spectrum (KuSS) Modem	$0.35 [2]	-	-
Communication/Situational Awareness Suite	$4.50 [2]	-	-
HC/MC-130P/N			
Integrated BLOS/SLOS Datalink	$1.30 [2] $1.00 [3]	$6.50 [2] -	- -
Information Superiority	$5.00 [2] $2.00 [3]	$8.98 [2] -	3.15 [2] -
Combat Penetrator Suite	$3.51 [2] -	- $6.00 [3]	$1.00 [2] $2.00 [3]
Enhanced Engine and Propeller Performance	- $6.00 [3]	$12.43 [2] -	$4.88 [2] -
Mission Flexible Cargo Compartment	$4.55 [2]	-	$16.20 [2]
LC-130H			
Eight-Bladed Propeller Replacement	$24.5 [2]	-	-
Retractable External Arm and CDR	$3.00 [2]	-	-
In-Flight Propeller Balancing (IFPB)	$3.50 [2] $3.00 [3]	- -	- -
Flight Deck Night Vision Goggle (NVG) Compatibility	$2.93 [2]	-	-
Flight Deck Communications Upgrade	$1.25 [2]	-	-

Notes: [1] 3840 Appropriation   [2] 3010 Appropriation   [3] 3600 Appropriation   [4] 3080 Appropriation

EC-130J
- Large Aircraft Infrared Counter Measures (LAIRCM) - Allows survival in a complex and lethal threat environment. All Group A kits are procured but not installed. Need all Group B kits to complete the program.
- Intelligence, Surveillance, and Reconnaissance (ISR) - Provides Beyond-Line-of-Sight (BLOS) transmissions and support for Full Motion Video (FMV). The EC-130J is the Air Force Special Operations Command (AFSOC) weapon system of choice to provide an ISR capability.
- Fly-Away Broadcast System (FABS) - The FABS is designed to support Military Information Support Operations (MISO) broadcasting.
- ArcLight 2 Ku Band Spread Spectrum (KuSS) Modem - The KuSS is used to send/receive airborne (FMV) ISR feeds, stream audio/video content for MISO broadcast, in addition to providing a data-link for other critical Command and Control (C2) functions.

- Communication/Situational Awareness Suite - Provides the AFSOC standard Special Operations Forces Air Mission Suite/Enhanced Situational Awareness (SAMS/ESA) installed on all of the command's airframes. The system is a computer network-based communication and datalink integration system.

HC/MC-130P/N

- Integrated Beyond-Line-of-Sight/Secure-Line-of-Sight (BLOS/SLOS) Datalink - Networks the HC/MC-130 with other assets in-theater enhancing Situational Awareness (SA) during Combat Search and Rescue (CSAR) Task Force (TF) missions.
- Information Superiority - Provides the ability to transmit and receive Full Motion Video (FMV) from upgraded Electro-Optical/Infrared (EO/IR) sensors, coupled with Internet on Board (IOB), alleviates the need for high-demand Intelligence, Surveillance, and Reconnaissance (ISR) assets.
- Combat Penetrator Suite - Provides an integrated defensive system that alerts the crew to small arms and rocket propelled grenade fire while also allowing the aircraft to suppress radar threats utilizing a jammer capability.
- Enhanced Engine and Propeller Performance - The Oil Cooler Augmentation allows HC-130Ps to operate for extended periods on the ground without having to shut down engines due to excessive oil temperature. The Electronic Propulsion Control System (EPCS) and the eight-bladed props will dramatically increase efficiency, responsiveness, and power availability. The In-Flight Propeller Balancing (IFPB) system will reduce maintenance and increase aircraft availability.
- Mission Flexible Cargo Compartment - Addresses safety issues and introduces standardization to the cargo and aircrew flight equipment compartment by utilizing crashworthy seats, palletized fuel tanks, wireless headsets, an Aircrew Flight Equipment (AFE) rack, and Heavy Equipment (HE) airdrop capabilities.

LC-130H

- Eight-Bladed Propeller Replacement - Replaces the existing four-bladed propellers with eight-bladed propellers that improve the take-off performance of the aircraft.
- Retractable External Arm and Crevasse Detection Radar (CDR) - Updates the current radar system used by the LC-130 to identify crevasses/hazards on snowfields for deep field landing sites. The CDR is mounted on the aircraft using the external articulating arm.
- In-Flight Propeller Balancing (IFPB) - Provides In-Flight Propeller Balancing (IFPB) system to eliminate the need for regular maintenance. The propeller is continuously balanced at all times, virtually eliminating propeller balance induced vibration resulting in reduced noise, less vibration damage, and improved aircraft availability.
- Flight Deck Night Vision Goggle (NVG) Compatibility - Provides NVG capability to LC-130 crews to effectively operate in VMC during night operations. Required night operations utilizing NVGs include airdrop, airland and Search and Rescue (SAR) missions.
- Flight Deck Communications Upgrade - Provides polar missions with reliable long range Beyond-Line-of-Sight (BLOS) communications.

EC-130J LARGE AIRCRAFT INFRARED COUNTERMEASURES (LAIRCM)

1. Background. Air National Guard (ANG) EC-130Js perform demanding missions worldwide in a low-to-medium threat environment where shoulder-fired, Man-Portable Air Defense System (MANPADS) infrared-seeking missiles are widely available creating a significant threat during all phases of flight. The ANG requires the AN/AAQ-24 LAIRCM system, which provides the best countermeasures against MANPAD threats and does not rely on pyrotechnic expendables. The Next Generation (NexGen) configuration, currently being fielded, is comprised of two Guardian Laser Transmitter Assemblies, five NexGen Ultra Violet sensors, one processor, and one Control Indicator Unit that would provide greater warning, less false alarm rates, and higher reliability. Group A kits are being procured, but there is no AF funding for the Group B kits.

2. Source of Need. LAIRCM ORD 314-92, Aug 1998; AFSOC Statement of Need, 001-91, Infrared Countermeasures Improvements; ARC 2012 WEPTAC Critical Requirement.

3. Impact If Not Funded. The EC-130J operates in an increasingly complex and lethal threat environment. The aircrew and aircraft will be tasked to operate in this environment while employing a less than state-of-the-art aircraft defensive system, as well as an increased use of pyrotechnic expendables.

4. Unit Impacted.
193 SOW   Harrisburg IAP, PA

5. Cost.   PEC: 401132F

Remaining Quantity Required	Unit Cost	Program Cost
4 LAIRCM Group A Kits (3010)	**$970,000**	**$3,880,000**
6 LAIRCM Group B Kits (3010)	**$4,400,000**	**$26,400,000**
4 NexGen Group A Kits * (3010)	**$420,000**	**$1,680,000**
6 NexGen Group B Kits * (3010)	**$774,855**	**$4,649,130**
Total		**$36,609,130**

EC-130J INTELLIGENCE, SURVEILLANCE, AND RECONNAISSANCE (ISR)

1. Background. The Air Force Special Operations Command (AFSOC) Commander has identified the 193rd Special Operation Wing's C-130J, with its sustained loiter time, to support an immediate theater requirement to provide Intelligence, Surveillance, and Reconnaissance (ISR) capability. There is an immediate need to install a retractable external arm and ISR collection systems on a C-130J. The retractable external arm requires a crashworthy seat for the observer and the system should be equipped with a MX-20 sensor turret with appropriate controls and recording equipment at the work station. The system must include the capability to store and transfer ISR data to a Processing Exploitation Dissemination (PED) ground station post-mission and should be capable of Beyond-Line-of-Sight (BLOS) transmissions. Additionally, the system should transmit Full Motion Video (FMV) to Line-of-Sight (LOS) ground forces via current Special Operations Forces video transmission devices. The retractable external arm is a flexible system capable of holding multiple pod mounted sensors, kinetic weapons, Remotely Piloted Aircraft (RPA) control systems, and/or antennae, and would make the aircraft multi-mission capable.

2. Source of Need. AFSOC 1067 SOC #12047; 193 SOW Strategic Plan FY12-37; ARC 2012 WEPTAC Critical Requirement.

3. Impact If Not Funded. Without this system, AFSOC will have to resource another platform to conduct this immediate theater requirement, ultimately causing delays in providing necessary ISR assets to the Combatant Commanders to support Special Operations Forces.

4. Unit Impacted.
193 SOW   Harrisburg IAP, PA

5. Cost.   PEC: 401132F

Remaining Quantity Required	Unit Cost	Program Cost
ISR NRE (3600)	**N/A**	**$2,000,000**
6 MK20 EO/IR Sensors (3010)	**$1,600,000**	**$9,600,000**
7 Retractable Arm Kits (3010)	**$1,245,714**	**$8,719,998**
1 Crashworthy Seat Kit (3010)	**$60,000**	**$60,000**
Total		**$20,379,998**

EC-130J FLY-AWAY BROADCAST SYSTEM (FABS)

1. Background. Only three of the seven EC-130J aircraft are capable of performing the primary mission of Military Information Support Operations (MISO) broadcasting. The Fly-Away Broadcast System (FABS) is a US Army-developed and -fielded portable transmitter system used to broadcast MISO messages. This is a low-cost solution to mounting systems on C-130 aircraft without the need for permanent modifications to either the airframe or power systems. Systems are designed to be installed in just 2 to 3 hours and use existing power ports, cargo floor, and/or cargo rails. Some systems are "palletized," thus they can potentially be configured in the cargo compartment allowing for cargo or personnel delivery and parallel employment of the system. The retractable external arm is a flexible system capable of holding multiple pod mounted sensors, kinetic weapons, Remotely Piloted Aircraft (RPA) control systems, and/or antennae. The retractable external arm makes the aircraft multi-mission capable. The retractable external arm is a flexible system capable of holding multiple pod mounted sensors, kinetic weapons, Remotely Piloted Aircraft (RPA) control systems, and/or antennae, and would make the aircraft multi-mission capable. The retractable external arm requires a crashworthy seat for the observer.

2. Source of Need. ARC 2012 WEPTAC Critical Requirement; Lessons Learned from Operations ENDURING FREEDOM (OEF) and IRAQI FREEDOM (OIF); 193 SOW Strategic Way Ahead FY12-37.

3. Impact If Not Funded. Without this system, four EC-130Js will be incapable of carrying out their primary mission of MISO broadcasting. The retractable external arm and pods are an integral part of providing a low-cost, removable MISO and/or multi-mission capability on the aircraft.

4. Unit Impacted.
193 SOW   Harrisburg IAP, PA

5. Cost.   PEC: 401132F

Remaining Quantity Required	Unit Cost	Program Cost
FABS NRE (3600)	**N/A**	**$6,000,000**
8 FABS Systems (3010)	**$500,000**	**$4,000,000**
7 Retractable Arm Kits (3010)	**$1,245,714**	**$8,719,998**
1 Crashworthy Seat Kit (3010)	**$60,000**	**$60,000**
4 FABS Operator Stations (3010)	**$750,000**	**$3,000,000**
Total		**$21,779,998**

EC-130J ARCLIGHT2 Ku BAND SPREAD SPECTRUM (KuSS) MODEM

1. Background. Air National Guard (ANG) EC-130Js perform a variety of missions, which require the use of the Airborne Ku Band Spectrum (KuSS) Hatch Mounted Satellite System. The 193rd Special Operations Group (SOG) uses the KuSS to send/receive airborne Full Motion Video (FMV) Intelligence, Surveillance, and Reconnaissance feeds, stream audio/video content for Military Information Support Operation (MISO) broadcasts, in addition to providing a datalink for other critical Command and Control (C2) functions. The ArcLight2 modem request is in direct support of Overseas Contingency Operations (OCO) mission taskings, which requires modem technology for sufficient bandwidth and accurate geographic location. ArcLight2 modems are backwards compatible, a direct one-for-one swap, and support regions currently unsupported with legacy ArcLight satellite footprints. Specifically, the HQ U.S. Africa Command (AFRICOM) Area of Responsibility (AOR) does not support legacy ArcLight satellite footprints, and the HQ U.S. Central Command (CENTCOM) has extremely limited resources supporting the legacy ArcLight. In addition to access into previously denied AOR's, the modem upgrade provides four times the upload/transmit speeds from 512 Kilo Bytes Per Second (Kbps) up to 2.5 Mega Bytes Per Second (Mbps). The speed enhancement alone will shift broadcast quality from marginal to exceeding current standards.

2. Source of Need. USSOCOM Lessons Learned; MC-130J Enhanced Situational Awareness/Mission Networking Requirement; ARC 2012 WEPTAC Critical Requirement.

3. Impact If Not Funded. Without immediate approval and installation of the ArcLight2 modem, the 193 SOG will not have ViaSat satellite coverage in the AFRICOM AOR, and only limited coverage in CENTCOM. This would result in a critical shortfall with the Super-J or Commando Solo to provide services that require Command and Control (C2) support with airborne streaming data.

4. Unit Impacted.
193 SOW   Harrisburg IAP, PA

5. Cost.   PEC: 401132F

Remaining Quantity Required	Unit Cost	Program Cost
7 VMBR 1520 Modems (3010)	**$50,000**	**$350,000**
Total		**$350,000**

EC-130J COMMUNICATION/SITUATIONAL AWARENESS SUITE

1. Background. Special Operations Forces Air Mission Suite/Enhanced Situational Awareness (SAMS/ESA) is the Air Force Special Operations Command (AFSOC) standard situational awareness system to be installed on all of the command's airframes. The system is a computer network-based communication and datalink integration system. It is made up of multiple Line-of-Sight (LOS) and Over-the-Horizon (OTH) radios, an electronic flight publication database, software for in-flight planning and re-planning, secure internet, and live video reception and transmission, all provided to the crew thru dedicated Multi-Function Color Displays (MFCDs). SAMS/ESA Phase 1 has been funded for EC-130s, but a follow-on Phase 2 capability is still required. Phase I of SAMS/ESA includes Situational Awareness Data Link, Beyond-Line-of-Sight (BLOS) and Line-of Sight (LOS) Radios, Air Force Tactical Receiver System-Ruggedized, Touch Screen Displays and Ruggedized Computers. Phase II will provide Full Motion Video Send and Receive Capability. Additionally, all AFSOC aircraft require Satellite Communications (SATCOM) to conduct tasked U.S. Special Operations Command (USSOCOM) missions. Currently four EC-130J aircraft are utilizing a nonintegrated man-portable PRC-117 SATCOM radio.

2. Source of Need. AFSOC 1067 #11104, #09037, USSOCOM Lesson Learned and TERESA CDD; ARC 2012 WEPTAC Critical Requirement.

3. Impact If Not Funded. As the AFSOC standard datalink suite, integration of the EC-130J into AFSOC operations will be significantly reduced or eliminated if this capability is not funded. This fully integrated, low-cost, stand-alone system is critical for operating on the modern digital data field. Failure to implement the SATCOM solution reduces accessibility and readiness of EC-130J airframes to Combatant Commanders in the Area of Responsibility (AOR).

4. Unit Impacted.
193 SOW Harrisburg IAP, PA

5. Cost.   **PEC: 401132F**

Remaining Quantity Required	Unit Cost	Program Cost
8 SAMS/ESA Systems (3010)	**$562,500**	**$4,500,000**
Total		**$4,500,000**

HC/MC-130P/N INTEGRATED BEYOND-LINE-OF-SIGHT (BLOS)/SECURE-LINE-OF-SIGHT (SLOS) DATALINK

1. Background. Installation of a Tactical Datalink (TDL) provides comprehensive Command and Control (C2) and maximizes HC/MC-130P/N aircrew situational awareness with Beyond-Line-of-Sight/Secure-Line-of-Sight (BLOS/SLOS) capabilities. It provides critical real-time data to aircrews so they can participate in the present day network-centric battlespace. A TDL capability should be compatible with any situational awareness cockpit display units utilized by the community. TDL capabilities need to be compatible with existing Task Force TDL technology. To comply with Personnel Recovery (PR) Doctrine the HC/MC-130P/N needs to perform as an Airborne Mission Commander/Rescue Mission Commander and On-Scene Commander. The community is unable to perform these roles effectively without a full picture of the battlespace. Gateways are crucial today to allow different datalinks to communicate together. Currently the HC/MC-130P/N cannot see PR forces on any datalink to include fighter and C2 datalinks. Today we still have aircraft that are unable to track and locate all survival radios in the Area of Responsibility (AOR) and during domestic civil emergencies. New technology like the 406 MHz beacon or the Combat Survivor Evader Locator can't be located or tracked by HC/MC-130P/N aircraft, creating a capability gap in locating survivors. This upgraded communication and avionics suite should be equipped with modern data loading capabilities such as the Digital Mapping Interface System. Secure Internet Protocol (SIPR) data will enable aircrews to receive near-real-time Blue Force data and text messaging from the battlefield. Blue Force Tracker (BFT) is a modernized joint tracking system which is complimentary with Situational Awareness Datalink (SADL) and Link-16 providing BLOS interactive data communication between aviation assets and C2.

2. Source of Need. Mobility Air Forces (MAF) Network Enabling Concept, 26 Apr 2006; Air Mobility Command (AMC) MAF Datalink Integration Technical Requirements Document (TRD), 25 Oct 2006; Tactical Data link Transformation CDD, Increment 1, JROCM, 23 Jun 2004; AMC R&PC Mission Essential 07/08; CAF MNS 316-92, Real-Time Information in the Cockpit (RTIC); Global Information Grid CRD, JROCM 134-01, 30 Aug 2001; AF Tactical Data Link Master Plan; ARC 2012 WEPTAC Critical Requirement.

3. Impact If Not Funded. Without a tactical datalink, Air National Guard (ANG) HC/MC-130P/N assets will remain outside the C2 networks in theater. Crews will not be able to access critical real-time data resulting in degraded mission performance and exposure of aircrews to unnecessary threats. Crews will remain unable to perform basic PR missions or requirements.

4. Units Impacted.
106 RQW Gabreski AP, NY   129 RQW   Moffett Fld, CA   176 WG JB Elmendorf, AK

5. Cost.   PEC: (HC-130) 27224F, (MC-130) 27230F

Remaining Quantity Required	Unit Cost	Program Cost
Gateway NRE (3600)	**N/A**	**$1,000,000**
13 Gateway Kits (3010)	**$500,000**	**$6,500,000**
13 BFT Kits (3010)	**$100,000**	**$1,300,000**
Total		**$8,800,000**

HC/MC-130P/N INFORMATION SUPERIORITY

1. Background. Rescues performed in combat and during the aftermath of Hurricane Katrina highlighted the need to modernize the HC/MC-130P/N situational awareness capability. Real-time information exchange is paramount during personnel recovery operations, requiring great precision and speed in asymmetric battle space environments. Recent technical advancements provide the means to integrate existing HC/MC-130P/N sensors with modern processors and data links facilitating superior Command and Control (C2) and tactical coordination from either an overhead or offset orbit. Having an integrated eye-safe laser range finder, illuminator, and designator capability in a state-of-the-art Electro-Optical/Infrared (EO/IR) sensor that can Find, Fix, Track, and Target (F2T2) Targets of Interest (TOI), or to precisely determine survivor location information, takes the "search" out of "search and rescue" and provides the Combined Force Air Component Commander (CFACC) with a powerful collaboration tool in uncertain tactical environments. Equipping HC/MC-130P/N aircraft with an enhanced EO/IR infrared sensor capable of Full Motion Video (FMV) relieves reliance on high-demand Intelligence, Surveillance, and Reconnaissance (ISR) assets. In order for rescue forces to fully support information superiority operations they require the ability to utilize the Internet while on board the aircraft. The Internet on Board (IOB) allows for efficient information sharing across a digital network.

2. Source of Need. The Personnel Recovery (PR) Core Function Master Plan (CFMP); AMC, RMC and OSC duties as outlined in AFTTP 3-3.HC/MC-130; AMC R&PC Mission Essential 07/08; CAF MNS 316-92, Real-Time Information in the Cockpit (RTIC); Global Information Grid CRD; JROCM 134-01, 30 Aug 2001; ARC 2012 WEPTAC Critical Requirement.

3. Impact If Not Funded. The Combat Search and Rescue Task Force will have no precision marking for fixed or dynamic targets and no F2T2 capability for cross-cueing. Combat Search and Rescue (CSAR) is reliant on Low-Density/High-Demand (LD/HD) weapons systems to provide these critical capabilities during recovery operations despite on-going tactical requirements of equal priority. Personnel Recovery (PR) doctrine fulfillment capability will continue to be limited.

4. Units Impacted.
106 RQW Gabreski AP, NY   129 RQW   Moffett Fld, CA   176 WG JB Elmendorf, AK

5. Cost.   **PEC: (HC-130) 27224F, (MC-130) 27230F**

Remaining Quantity Required	Unit Cost	Program Cost
NRE (3600)	**N/A**	**$2,000,000**
13 EO/IR Sensor Upgrades (3010)	**$1,075,000**	**$13,975,000**
13 FMV (3010)	**$192,300**	**$2,499,900**
13 IOB (3010)	**$50,000**	**$650,000**
Total		**$19,124,900**

HC/MC-130P/N COMBAT PENETRATOR SUITE

1. Background. The HC/MC-130P/N rescue platform is unprepared to survive a combat rescue in a peer-on-peer conflict due to its inability to counter radar threats. In order to operate in a high threat environment the HC/MC-130P/N requires a Radio Frequency (RF) jammer, improved radar detection capability (ALR-69A), and Terrain Following and Terrain Avoidance (TFTA) radar system. The ALR-69A will provide more sensitivity and improved range and accuracy for supplying the crew with information on radar threat type and location. A Radio Frequency (RF) jammer will allow the Combat Search and Rescue (CSAR) Task Force (TF) to perform rescues in an elevated radar threat environment. When penetrating an elevated threat environment, the aircraft requires TFTA radar in order to utilize terrain by navigating at low altitude to defeat a radar threat. The ALQ-213 Electronic Combat system is required to integrate these Electronic Warfare (EW) systems, providing easy-to-understand information which will allow for timely threat reactions by the crew. The ALQ-213 will also pave the way for future growth into 3D audio and the Virtual Electronic Countermeasure Training System (VECTS), which provides advanced training to the crews and further increases their likelihood of surviving a threat engagement. The NexGen sensor is capable of detecting small arms and rocket propelled grenade fire which cannot be detected by current aircraft defensive systems, even though they are widely proliferated in virtually every threat environment.

2. Source of Need. ARC 2012 WEPTAC Critical Requirement; Lessons Learned from Operations ENDURING FREEDOM (OEF) and IRAQI FREEDOM (OIF).

3. Impact If Not Funded. The HC/MC-130P/N operates in environments of increasing levels of threat and lethality and therefore must have a robust self-defense capability. Reaction time and survivability will continue to be an issue at low altitude until a more capable and user-friendly system is used.

4. Units Impacted.
106 RQW Gabreski AP, NY   129 RQW Moffett Fld, CA   176 WG JB Elmendorf, AK

5. Cost.   **PEC: (HC-130) 27224F, (MC-130) 27230F**

Remaining Quantity Required	Unit Cost	Program Cost
Directional Audio (NRE) (3600)	N/A	$6,000,000
117 3D Audio Pilot Kits (3010)	$7,000	$819,000
3 Unit Test Equipment (3080)	$58,500	$175,500
RF Jammer NRE (3600)	N/A	$5,000,000
13 RF Jammer (3010)	$5,000,000	$65,000,000
ALR-69A NRE (3600)	N/A	$2,000,000
13 ALR-69A (3010)	$1,300,000	$16,900,000
TFTA NRE (3600)	N/A	$5,000,000
13 TFTA (3010)	$3,000,000	$39,000,000
13 Hostile Fire Indicator (3010)	$270,000	$3,510,000
Total		**$143,404,500**

HC/MC-130P/N ENHANCED ENGINE AND PROPELLER PERFORMANCE

1. Background. Currently the HC/MC-130P/N aircraft is performance-limited creating a safety hazard for the aircrew. They routinely operate with the heavy gross weights associated with fuel loads for Helicopter Air-to-Air Refueling and Forward Area Refueling Procedures (FARP), and fly in conditions with high outside air temperatures and high pressure altitudes. The HC/MC-130P/N also operates in the low-altitude environment (<500 feet) in mountainous terrain, requiring enhanced engine performance in order to prevent Controlled Flight Into Terrain (CFIT) incidents. Multiple aircraft upgrades are required to include the Electronic Propeller Control System (EPCS), NP2000, Oil Cooler Augmentation (OCA), In-Flight Propeller Balancing (IFPB) system, and Electronic Takeoff and Landing Data (ETOLD). The EPCS enhances performance because of improved synchrophasing during ground operations and improved thrust responsiveness from the controls (very little delay after making throttle adjustments). The NP2000 is an eight-bladed, composite propeller that significantly improves the thrust output of the current HC/MC-130P/N engines during take-off and at low altitude. The OCA is critical for FARP operations in desert climate and humanitarian operations for the older HC/MC-130Ps that have difficulty keeping engine oil from overheating in hot desert environments. The IFPB system eliminates the need for regular maintenance and results in reduced noise, less damage from vibration, and improved aircraft availability. ETOLD is a system that electronically calculates engine performance data and significantly reduces the time a crewmember spends manually extracting the information from charts.

2. Source of Need. Air Combat Command (ACC) Validated 1067; ARC 2012 WEPTAC Critical Requirement.

3. Impact If Not Funded. HC/MC-130P/N crews will continue to operate underpowered aircraft in unforgiving environments. The HC/MC-130P/N fleet would not be able to benefit from the reduced cost of maintenance and increased reliability the increased performance would provide.

4. Units Impacted.
106 RQW Gabreski AP, NY   129 RQW Moffett Fld, CA   176 WG JB Elmendorf, AK

5. Cost.   **PEC: (HC-130) 27224F, (MC-130) 27230F**

Remaining Quantity Required	Unit Cost	Program Cost
EPCS, IFPB, & NP2000 NRE (3600)	**N/A**	**$6,000,000**
13 EPCS (3010)	**$879,000**	**$11,427,000**
13 IFPB (3010)	**$350,000**	**$4,550,000**
13 NP2000 * (3010)	**$2,200,000**	**$28,600,000**
Total		**$50,777,000**

* Electronic Propeller Control System (EPCS) is pre-requisite component – replaces mechanical valve housing.

HC/MC-130P/N MISSION FLEXIBLE CARGO COMPARTMENT

1. Background. The HC/MC-130P/N has recently been modified with the dual-rail system which increases the mission capability of the aircraft. The increased mission capability requires a more survivable and capable cargo compartment, to include an Aircrew Flight Equipment (AFE) Rack, Palletized Fuel Tank, Loadmaster Crashworthy Seats, Heavy Equipment (HE) Airdrop capability and wireless communication. A standardized equipment rack must not interfere with a palletized fuel tank, Benson fuel tank, or cargo on-loading and off-loading operations. Non-standard loading of rescue equipment and AFE create a potential safety hazard by having loose items in the cargo compartment. A palletized fuel tank compatible with the dual-rails will allow for more expeditious reconfiguration that will provide greater mission flexibility. It is also capable of withstanding small arms fire and is equipped with fire retardant material creating a safer flight environment. Loadmasters are required to scan for enemy threats through the paratroop doors in a low-level environment. If an aircraft is hit by a threat or experiences a hard landing, the loadmasters do not have a survivable crash seat. Wireless interphone communication systems allow loadmasters to move freely about the cargo compartment and the immediate area outside the aircraft for Joint Precision Airdrop System (JPAS) and Forward Area Refueling Point (FARP) operations. The wireless interphone system enhances safety by keeping the loadmaster connected to communication systems and improves visibility by enabling freedom of movement. In order to support evolving rescue missions the HC/MC-130P/N aircraft must be capable of supporting Guardian Angel requirements. These requirements demand an alert asset capable of performing HE airdrops for large terrain and ocean rescue craft.

2. Source of Need. ARC 2012 WEPTAC Critical Requirement; Class A Mishap MC-130P 20020213FTEV016A SIB2 Recommendation; 20020612FTEV033A Report, ORS 6, Fall 04/05/06/07.

3. Impact If Not Funded. Safety will continue to be compromised for crewmembers. Missions will be affected by limiting the amount of fuel that can be passed to receivers, as well as limiting the range of the HC/MC-130P/N.

4. Units Impacted.
106 RQW Gabreski AP, NY   129 RQW   Moffett Fld, CA   176 WG JB Elmendorf, AK

5. Cost.   **PEC: (HC-130) 27224F, (MC-130) 27230F**

Remaining Quantity Required	Unit Cost	Program Cost
9 Dual-Rail Fuel Tanks (3010)	**$1,800,000**	**$16,200,000**
13 HE Airdrop Kits (3010)	**$350,000**	**$4,550,000**
Total		**$20,750,000**

HC/MC-130 P/N COMBAT SEARCH AND RESCUE (CSAR) MISSION AREA WORKING GROUP (MAWG) ELECTRONIC FLIGHT BAGS (EFB)

1. Background. Rescue aircrews are required to carry approximately 20 pounds of paper publications on each flight and each aircraft is required to carry approximately 100 pounds of Flight Information Publications (FLIP). The average cost to each squadron per year to maintain paper copies of instrument approach procedures, navigational charts, technical orders, and maps alone is approximately $150,000. The Electronic Flight Bag (EFB) program allows crews to carry the required publications and flight manuals electronically, review or study them at any time, and to receive updates more efficiently. There have been multiple historical examples where rescue aircraft have experienced safety of flight incidents where out-of-date publications on board were found to be a contributing factor. Department of Defense (DoD) Memorandum titled "Use of Commercial Mobile Devices not connected to DoD Networks" dated 31 July 2012, has approved the use of commercial electronic devices. Air Mobility Command (AMC) and Air Force Special Operations Command (AFSOC) have already approved electronic devices to be used as EFBs. Air Combat Command (ACC) is currently in the process of providing approval for electronic devices to be used as electronic flight bags. These electronic devices would be issued to each member on active flying status and would be maintained with unit O&M funds. These devices are required by all three rescue weapons systems: Guardian Angels, HC-130s, and HH-60s.

2. Source of Need. ARC 2012 WEPTAC Critical Requirement.

3. Impact If Not Funded. Rescue Wings will continue to use non-standardized methods of electronic publications or antiquated paper copies. Units will continue to spend O&M funds on unnecessary paper publications.

4. Units Impacted.
106 RQW Gabreski AP, NY   129 RQW   Moffett Fld, CA   176 WG JB Elmendorf, AK

5. Cost.   PEC: (HC-130) 27224F, (MC-130), (HH-60G) 53114F

Remaining Quantity Required	Unit Cost	Program Cost
450 EFB Devices (3010)	**$500**	**$225,000**
Total		**$225,000**

LC-130H EIGHT-BLADED PROPELLER REPLACEMENT

1 Background. Air National Guard (ANG) LC-130Hs from Schenectady, NY have ski-equipped landing gear to enable landings and take-offs on snow and ice. The current fleet consists of six AF-owned and four National Science Foundation (NSF)-owned aircraft. A significant portion of their mission requires landing on deep field runways and unimproved snow and ice. In order to ensure successful takeoff from deep field bases, the use of Jet Assisted Take-Off (JATO) rocket motors is required. Dwindling supplies of circa-1950 JATO motors will require replacements at a cost of more than $8.0 million per year. The NP2000 is an eight-bladed, composite propeller that improves the thrust 20 percent over the current C-130 engines during take-off and negates the need for JATO in most cases. An added benefit of the eight-bladed propeller is the availability of this additional power at any time during a mission, as well as reduced vibration and shock during take-off and in flight. The Electronic Propeller Control System (EPCS) is a prerequisite and integral subsystem of the NP2000. It replaces current (1950's design) mechanical valve housings and synchrophasers (1970's design) with modern Electronic Valve Housings and Electronic Propeller Controls. The EPCS enhances performance because of improved synchrophasing during ground operations and improved responsiveness from the controls. The increase in system reliability will directly contribute to an improvement in readiness and aircraft availability. The EPCS also increases crew comfort and reduces maintenance actions due to vibration damage.

2. Source of Need. NP2000 - AF 1067, A4MY 11-066, 10 Oct 2011; EPCS - AF 1067, 09-003, 31 May 2011; ARC 2012 WEPTAC Critical Requirement.

3. Impact If Not Funded. If a propulsion system upgrade for the LC-130H is not funded the AF's JATO supply will quickly disappear. The resulting loss of capability will seriously reduce future polar operations. Also, the fleet would not realize the reduced cost of maintenance and reduced mobility footprint, or experience the improved performance and reduced noise signature of the eight-bladed propellers and the EPCS. Note: EPCS is a pre-requisite component for the eight-bladed propeller.

4. Unit Impacted.
109 AW   Schenectady, NY

5. Cost.   **PEC: 401115F**

Remaining Quantity Required *	Unit Cost	Program Cost
NRE (3010)	**N/A**	**$5,000,000**
EPCS Spares (3010)	**N/A**	**$1,500,000**
9 ** NP2000 * (3010)**	**$2,000,000**	**$18,000,000**
Total		**$24,500,000**

* Includes 10% spares.
** The unit has a total of 10 LC-130H aircraft, six AF and four NSF-owned but operated by the ANG. However, in support of operational testing one of the ANG LC-130Hs is already equipped with the NP2000.
*** EPCS is pre-requisite component - replaces mechanical valve housing and its cost is not included in this estimate.

LC-130H RETRACTABLE EXTERNAL ARM AND CREVASSE DETECTION RADAR (CDR)

1. Background. Air National Guard (ANG) LC-130s from Schenectady, NY have ski-equipped landing gear to enable landing and take-offs on snow and ice. The 109th AW supports both polar operations and National Science Foundation (NSF) polar research missions using specialized, ski-equipped LC-130H aircraft. Over the last four decades, LC-130H aircraft have sustained serious damage while landing on unsurveyed ice- and snow-covered areas. Current methods to identify hazards with national imaging assets entail long lead-times and increasing unreliability. The 109th AW has a need for Crevasse Detection Radar (CDR) with additional capabilities including survivability enhancements, polar search and rescue, and airborne sensing. The Air National Guard (ANG) completed the evaluation and implementation of a Sandia Labs X-band radar that meets the requirement. The system is fielded but additional changes are required to improve the performance and operational capabilities of the system. Also, the CDR is mounted on the aircraft using a flexible external articulating arm. Additional effort is required to establish the retractable external arm as a permanent modification in the LC-130H fleet. Although partially funded, additional funding is required for updating and supporting the CDR and the retractable external arm.

2. Source of Need. AF Form 1067 A4MY 07-007, 19 Nov 2004; AF Form 1067 A4MY 11-012, 15 Apr 2011; ARC 2012 WEPTAC Critical Requirement.

3. Impact If Not Funded. Although partially funded, additional funding is required for updating and supporting the CDR and the retractable external arm. The lack of surveillance data significantly increases risk to aircraft and personnel.

4. Unit Impacted.
109 AW   Schenectady CAP, NY

5. Cost.   **PEC: 401115F**

Remaining Quantity Required	Unit Cost	Program Cost
CDR Operational Improvements (3010)	**N/A**	**$1,000,000**
Retractable External Arm Modification (3010)	**N/A**	**$2,000,000**
Total		**$3,000,000**

LC-130H IN-FLIGHT PROPELLER BALANCING (IFPB)

1. Background. Air National Guard (ANG) LC-130Hs from Schenectady, NY have ski-equipped landing gear to enable landings and take-offs on snow and ice. The current fleet consists of six AF-owned and four National Science Foundation (NSF)-owned aircraft. Their mission requires them to operate out of austere environments where there are no shelters, and very little normal base infrastructure where maintenance to the aircraft can be performed. One such maintenance item that requires regular attention is the propeller balancing system. This is a manual system which requires a maintainer-in-the-loop to balance the propellers. As the propellers go out of balance, there is additional vibration on the aircraft, and the system again needs to be rebalanced to remain within acceptable tolerances. This regular servicing is difficult to accomplish at bare-base locations and reduces aircraft availability when down for maintenance. The In-Flight Propeller Balancing (IFPB) system eliminates the need for regular maintenance as the propeller is continuously being balanced while operating. As a result, it virtually eliminates propeller balance induced vibration, which equates to reduced noise, less damage, and improved aircraft availability.

2. Source of Need. ARC 2012 WEPTAC Critical Requirement.

3. Impact If Not Funded. The LC-130H aircraft would not benefit from the improved performance, increased mission availability, or reduced maintenance associated with the IFPB system.

4. Units Impacted.
109 AW   Schenectady CAP, NY

5. Cost.   PEC: 401115F

Remaining Quantity Required	Unit Cost	Program Cost
IFPB NRE (3600)	**N/A**	**$3,000,000**
10 IFPB (3010)	**$350,000**	**$3,500,000**
Total		**$6,500,000**

LC-130H FLIGHT DECK NIGHT VISION GOGGLE (NVG) COMPATABILITY

1. Background. The LC-130H fleet consists of six AF- and four National Science Foundation (NSF)-owned aircraft. Currently, the 109 AW has seven LC-130Hs which are not Night Vision Goggle (NVG) compatible. In accordance with regulations and current procedures, NVG operations have become a core competency of the USAF, particularly in Mobility aircraft. All C-130 aircrew deploying to combat zones are required to be proficient in Air Force Tactics Techniques and Procedures (AFTTP) 3-3.C-130E/H, AFI 11-2C-130V1, and V3 NVG guidance. As the arctic air operations grow in importance LC-130Hs and crews will be tasked to perform Search and Rescue (SAR) and air-land/airdrop. The drawbacks of non-compatible aircraft are self-evident as aircrew members go overdue on NVG events due to lack of a compatible aircraft. All LC-130Hs should be standardized and available for crews to maintain NVG currency and proficiency to safely and efficiently execute all of the unit's missions.

2. Source of Need. Approved and Validated AF 1067 (A4MY 09-060, 8 Mar 2010); ARC 2012 WEPTAC Critical Requirement.

3. Impact If Not Funded. The 109 AW aircrews will not be able to qualify and maintain proficiency in NVG operations in accordance with existing AF guidance. Furthermore, LC-130H aircraft will not be standardly equipped to perform NVG-required mission tasking.

4. Unit Impacted.
109 AW   Schenectady CAP, NY

5. Cost.   PEC: 401115F

Remaining Quantity Required *	Unit Cost	Program Cost
NRE (3010)	**N/A**	**$300,000**
7 Cockpit NVG Upgrades (3010)	**$375,000**	**$2,625,000**
Total		**$2,925,000**

* Includes 10% spares.

LC-130H FLIGHT DECK COMMUNICATIONS UPGRADE

1. Background. Air National Guard (ANG) LC-130Hs from Schenectady, NY have ski-equipped landing gear to enable landings and takeoffs on snow and ice. The current fleet consists of six AF-owned and four National Science Foundation (NSF)-owned aircraft. Because of the remote locations that the LC-130H operates from they require long-range Beyond-Line-of-Sight (BLOS) communications for the polar mission. Satellite Communications (SATCOM) is limited at polar high latitudes and High Frequency (HF) radios are unreliable during periods of high solar flare activity. Weather, Air Traffic Control (ATC), and Command and Control (C2) communications (voice and text) are critical to ensure safe flight operations in Antarctica and the Arctic. The LC-130H currently uses a portable system with the Iridium phone and associated components are housed in a tailored pelican case. Although the portable system is functional, it is not a robust package and can be unreliable. Window-mounted antennas have poor reception and the sextant port antenna needs to be frequently removed for celestial navigation. Additionally, the "box" becomes a hazard with exposed wires on the flight deck that often needs repair due to fragile connections. A permanently installed Iridium voice and data solution with an external flush-mount antenna, capable of secure communication with text capability is required.

2. Source of Need. AF 1067 submitted to NGB/A4MA 20070212; ARC 2012 WEPTAC Critical Requirement.

3. Impact If Not Funded. Safe and efficient polar flight operations rely extensively on reliable Iridium voice and text communications to ensure mission accomplishment. Without this upgrade the LC-130Hs are subject to safety issues and operational concerns associated with the short term fix currently in place for the Iridium radio and the inconsistent performance of the High Frequency (HF) radios.

4. Unit Impacted.
109 AW   Schenectady CAP, NY

5. Cost.   PEC: 401115F

Remaining Quantity Required *	Unit Cost	Program Cost
NRE (3010)	**N/A**	**$1,000,000**
11 Flight Deck Upgrades (3010)	**$25,000**	**$275,000**
Total		**$1,275,000**

    * Includes 10% spares.

E-8C & C-32B

- **Robust "Sensor-To-Shooter" C2 Battle Management**
- **Wide-Area Ground, Littoral, and Maritime Surveillance/Tracking**
- **ANG E-8 Unit Provides 100% of the Total Fleet**
- **ANG C-32 Unit Provides 100% of the Total Fleet**

E-8C: The E-8C Joint Surveillance and Target Attack Radar System (JSTARS) is the world's premier wide-area surveillance Moving Target Indicator (MTI), airborne battle management, and Command and Control (C2) aircraft. It brings a unique combination of robust communication and real-time surveillance to air, ground, and surface domains. The aircraft's capability to find, fix, track, and orient shooters to air, ground, and surface Targets of Interest (TOI) puts friendly forces in a position to respond rapidly to a changing battlefield environment.

The 116 ACW at Robins AFB, GA is home to 16 E-8Cs and the only E-8(T)C. With an enviable combat record to include continuous deployments since 2001 in support of missions in Iraq, Afghanistan, Libya, and Pacific Command (PACOM), Team JSTARS has accrued more than 87,000 combat hours and 8,175 combat sorties; a testament to the associate unit[1] concept and to the men and women who employ this weapon system. The active associate wings of the 116 ACW (Air National Guard (ANG)) and 461 ACW (Active) are manned by approximately 750 full-time and 350 traditional ANG personnel, approximately 1,300 active duty Airmen, and 100 active duty Army Soldiers. Modernization efforts are underway to enhance the warfighting capabilities of the E-8C well into the 21st century through programs including the Communication/Network Upgrade, enhanced target identification utilizing Enhanced Land/Maritime Mode (ELMM), Multi-Agency Communications Capability (MACC), and a cross-domain security solution to include multi-theater chat, e-mail, and web access.

C-32B: The C-32B provides dedicated rapid response worldwide airlift to the Department of Defense (DoD), through the Commander, United States Special Operations Command (USSOCOM), in support of the US Government crisis response activities, both domestically and abroad. The 150 SOS of the New Jersey ANG operates the C-32B from Joint Base McGuire-Dix-Lakehurst, NJ.

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[1] Active duty wing associated under an ANG wing (2011).

E-8C & C-32B
2012 Weapons and Tactics Conference

Critical Capabilities List

E-8C:
- E-8C Personnel Recovery (PR) Compatible Interrogation Radio
- Integrated Broadcast Service (IBS) Modernization
- Non-Cooperative Target Combat Identification Modernization
- Mission Radio Calibration Tool
- Fleet-Wide Multi-Agency Communication Capability

C-32B:
- Communications Management System Replacement
- Ku Bandwidth

Essential Capabilities List

E-8C:
- Onboard Global Imagery Server
- Bridge/Relay Dissimilar Defense Support to Civilian Authorities (DSCA), Homeland Defense (HD) Voice and Data Networks
- Beyond-Line-of-Sight (BLOS) Tactical Datalink Interoperability/Multi-Tactical Data
- Enhanced Electronic Protection Capability
- Self-Defense Suite

C-32B:
- Audio/Video (A/V) System Replacement

Desired Capabilities List

E-8C:
- Common Data Link with Common Ground Station
- Net Enabled Weapons
- Electronic Flight Bag (EFB)
- MTI/Link-16/Battle Management Command and Control (BMC2) Deployable Ground System Capability
- Independent Positional Situational Awareness Capability for Aircraft Commander and Co-Pilot

C-32B:
- None

Persistent Conflict - Enabling the Warfighter

E-8C & C-32B EXECUTIVE SUMMARY

Modernization Priority Profiles ($ Million)

Program	2014	2015	2016
E-8C			
Personnel Recovery Compatible Interrogation Radio	$12.00 [1]	-	-
Integrated Broadcast Service (IBS) Modernization	- $6.60 [3]	$1.90 [1] $0.90 [3]	$1.20 [1] -
Organic Combat Identification (CID) Capability for Targeting	44.56 [3]	$107.06 [3]	$98.43 [3]
Mission Radio Calibration Tool	$0.95 [2]	-	-
Fleet-Wide Multi-Agency Communication Capability	$3.00 [1]	-	-
C-32B			
Satellite Communication System With Secure Ku Bandwidth	$14.00 [1] $2.80 [2]	$14.00 [1] -	$14.00 [1] -
Communication Management System (CMS)	$2.00 [2]	$2.00 [2]	-

Notes: [1] 3840 Appropriation   [2] 3010 Appropriation   [3] 3600 Appropriation   [4] 3080 Appropriation

E-8C:
- Personnel Recovery Compatible Interrogation Radio - Provides overwatch of potentially hostile extraction areas guiding isolated personnel and extraction teams via secure messaging.
- Integrated Broadcast Service (IBS) Modernization - Provides JSTARS intelligence reports of Electronic Intelligence (ELINT), Signals Intelligence (SIGINT) and Human Intelligence (HUMINT) for fusion with local sensor information in support of target nomination and identification.
- Organic Combat Identification (CID) Capability for Targeting - Provides organic combat identification capability to allow multiple sensors on the aircraft to provide targeting quality identification to other forces.
- Mission Radio Calibration Tool - Allows aircrew to calibrate multi-band radio systems after performing in-flight adjustments.
- Fleet-Wide Multi-Agency Communication Capability - Provides ground Special Operations, Homeland Defense (HD), law enforcement, and US Customs and Border Protection agencies with enhanced access to Command and Control, Intelligence, Surveillance, and Reconnaissance (C2ISR) resources through interoperability with the E-8C.

C-32B:
- Satellite Communication System With Secure Ku Bandwidth - Provides a Ku transmit/receive capability currently fielded on similar aircraft.
- Communication Management System (CMS) Replacement - Provides the operators means to control mission radios and user system access. The CMS is the mission communications "backbone," and without it no mission communications, voice or data, enters or leaves the aircraft.

E-8C PERSONNEL RECOVERY (PR) COMPATIBLE INTERROGATION RADIO

1. Background. The E-8C Joint Surveillance Target Radar System (JSTARS) supports Combat Search and Rescue (CSAR) by providing overwatch of potential hostile extraction areas, guiding isolated personnel and extraction teams via secure messaging, and providing Command and Control (C2) to strike assets when needed to support extraction operations. JSTARS has a requirement to support CSAR operations using a Personnel Recovery (PR) compatible radio capable of interrogating isolated personnel (downed member). The overall objective of the PR program is to provide isolated personnel and extraction teams with enhanced surveillance, connectivity, and security through interoperability with the E-8C via the secure PR datalink. JSTARS, with the PR capability, provides a persistent airborne C2, Intelligence, Surveillance, and Reconnaissance (C2ISR) node to support isolated personnel and extraction teams. The PR system offers interoperability with all US and many North Atlantic Treaty Organization (NATO) deployed combat survival radios, to include the PRC-112B/G, PRC-434, and PRQ-7 (CSEL).

2. Source of Need. ARC 2012 WEPTAC Critical Requirement; Air Combat Command (ACC) JSTARS Requirements List (CSAR Support).

3. Impact If Not Funded. Without this capability, isolated personnel and extraction teams have a higher risk of confrontation with hostile forces and fratricide occurrences during PR missions.

4. Unit Impacted.
116 ACW   Robins AFB, GA

5. Cost.   **PEC: 27581F**

Remaining Quantity Required	Unit Cost	Program Cost
NRE (3010)	**N/A**	**$6,400,000**
10 Modular PLS Units (3010)	**$300,000**	**$3,000,000**
18 Group A Kits (3010)	**$144,444**	**$2,599,992**
Total		**$11,999,992**

E-8C INTEGRATED BROADCAST SERVICE (IBS) MODERNIZATION

1. Background. Integrated Broadcast Service (IBS) is the primary threat warning system to the Joint Surveillance Target Radar System (JSTARS) and those interacting with JSTARS. Additionally, IBS provides intelligence reports of Electronic Intelligence (ELINT), Signals Intelligence (SIGINT), and Human Intelligence (HUMINT) reports for fusion with local sensor information in support of target nomination and identification. Production of Commander's Tactical Terminal/Hybrid, Receive Only (CTT/H-R) terminals that supply IBS information to users has ended with repair support ending in 2013. The system's internal components are no longer supplied through the commercial market with repairs taking 90-180 days. Furthermore, the CTT/H-R terminals cannot be modified to support new Common Message Format nor Common Interactive Broadcast waveform migration; and its crypto requires replacement with a Crypto Modernization Program compliant device/algorithm. Air Force Tactical Receiver System-Ruggedized (AFTRS-R) terminals are fully capable of supporting IBS requirements and as replacements for CTT/H-R terminals. AFTRS-R National Security Agency (NSA)-certified Block II terminals are already readily available for JSTARS; however, these assets require integration and test with the aircraft.

2. Requirement. JSTARS Operational Requirements Document - Rev 5, Dec 2004; ARC 2012 WEPTAC Critical Requirement.

3. Impact If Not Funded. Without IBS, JSTARS experiences degraded targeting and situational awareness, thereby degrading overall battle management. Additionally, JSTARS will have no future threat warning capability. This deficiency will severely reduce the aircraft's survivability in hostile threat environments and reduces the aircraft's awareness of friendly or neutral emitters in semi-permissive environments.

4. Unit Impacted.
116 ACW   Robins AFB, GA

5. Cost.   PEC: 27581F

Remaining Quantity Required	Unit Cost	Program Cost
AFTRS-R NRE (3600)	**N/A**	**$7,500,000**
17 AFTRS-R (3010)	**$182,350**	**$3,099,950**
Total		**$10,599,950**

E-8C ORGANIC COMBAT IDENTIFICATION (CID) CAPABILITY FOR TARGETING

1. Background. An on-board Combat Identification (CID) capability on the E-8C Joint Surveillance Target Attack Radar System (JSTARS) aircraft increases lethality of the weapons system by reducing the length of the sensor-to-shooter kill chain. This capability enables an accurate characterization of detected objects in the joint battlespace and provides decision quality data to the operator for the timely application of military options and weapons. There may not be a single solution to field this requirement. A Family-of-Systems (FOS) approach may be used to find a balanced combination of sensors with the capability to collectively provide the identification information required to perform all mission area tasks. These systems may include Blue Force Tracker (BFT) and any number of multi-spectral, Electro-Optical/Infrared (EO/IR) sensors that are cued by the radar and incorporate an aided target recognition upgrade to the current radar system.

2. Source of Need. JSTARS Operational Requirements Document (USAF 001-84) I/II/II A (Rev 5) (Dec 2004) contains a requirement for CID; ARC 2012 WEPTAC Critical Requirement.

3. Impact If Not Funded. Organic CID is critical to JSTARS' future warfighting capability. Without a CID capability JSTARS is unable to internally identify a target, thereby requiring integration with additional ground or air assets to provide or confirm the identification. This delay can add minutes or even hours to the kill chain. Because JSTARS lacks an onboard CID capability, its stand-off capability is not utilized and additional personnel and equipment are placed in harm's way.

4. Unit Impacted.
116 ACW   Robins AFB, GA

5. Cost.   PEC: 27581F

Remaining Quantity Required	Unit Cost	Program Cost
Aided Target Recognition (ATR) Software Development (3600)	**N/A**	**$41,198,000**
Net-Centric Collaborative Targeting (NCCT) NRE (3600)	**N/A**	**$31,914,000**
18 NCCT Kits (3010)	**$384,000**	**$6,912,000**
MS-177 EO/IR Sensor NRE (3600)	**N/A**	**$120,000,000**
6 EO/IR Sensors (3010)	**$65,000,000**	**$390,000,000**
Total		**$590,024,000**

E-8C MISSION RADIO CALIBRATION TOOL

1. Background. JSTARS is an all-weather Airborne Theater Air Control System (ATACS) tasked to orient and pair shooters, solve problems, up-channel battlefield assessments, and execute the kill chain as the premier counter-land/counter-sea Command and Control (C2) asset supporting the joint warfighter during all phases of combat operations. The E-8C Joint Surveillance Target Radar System (JSTARS) maintenance personnel do not have the capability to test, adjust, and baseline certain features and parameters of the aircraft's Ultra High Frequency (UHF) and Very High Frequency (VHF) radios. The maintenance personnel require the ability to test and adjust the radio once it is connected to the aircraft's receiver/transmitter, associated Line Replaceable Units (LRU), and circuitry to ensure optimal performance. Northrop Grumman Field Service Engineering Report (FSER) 05-0130 provided a recommendation for periodic evaluation and checkout which includes testing/base lining transmit modulation, transmit power out, cable standing wave ratio, receive sensitivity, and receive squelch setting. The recommendation to accomplish the procedures identified in FSER 05-0130 should be formalized in the JSTARS Integrated Maintenance Information System (JIMIS) as a general aircraft maintenance procedure. These limiting factors lead to degradation of the aircraft radios and ultimately impact communication effectiveness during flight.

2. Source of Need. JSTARS Operational Requirements Document (USAF 001-84) I/II/II A (Rev 5) (Dec 2004); ARC 2012 WEPTAC Critical Requirement.

3. Impact If Not Funded. Without the ability to properly calibrate multi-band radio systems prior to flight, the communications system may experience inadvertent degradation that impedes aerial communication and the aircraft's ability to provide tactical direction.

4. Unit Impacted.
 116 ACW   Robins AFB, GA

5. Cost.   **PEC:** 27581F

Remaining Quantity Required	Unit Cost	Program Cost
6 Test Sets (3010)	**$75,000**	**$450,000**
T.O.s and Training Materials (3010)	**N/A**	**$500,000**
Total		**$950,000**

E-8C FLEET-WIDE MULTI-AGENCY COMMUNICATION CAPABILITY (MACC)

1. Background. The objective of the Multi-Agency Communication Capability (MACC) program is to provide ground Special Operations, special tactics teams, Homeland Defense (HD), Law Enforcement, and US Customs and Border Protection agencies with enhanced access to Command and Control, Intelligence, Surveillance, and Reconnaissance (C2ISR) resources. The system also enables E-8C Joint Surveillance Target Radar System (JSTARS) to execute its Northern Command mission in support of Customs and Border Protection and Department of Homeland Security (DHS) organizations meeting the required Advanced Encryption Standard (AES) Type 2 Law Enforcement Agency (LEA) encryption standards in the frequency spectrum (152.000 to 173.975 MHz). The MACC system was initially funded to enable limited fleet capability by installing new antenna kits fleet-wide, while providing six roll-on, roll-off radio kits comprising of a PRC-117G for Special Operations Forces (SOF) missions and Motorola XTL 5000 for DHS missions. In order to gain full MACC capability and lower logistical efforts and complexity for operators and maintainers, additional radio kits need to be acquired. Once equipped, the E-8C will be able to provide the above mentioned capabilities at any time with any type of aircraft.

2. Source of Need. JSTARS Operational Requirements Document (USAF 001-84) I/II/II A (Rev 5) (Dec 2004); ARC 2012 WEPTAC Critical Requirement; 116 ACW Capability Needs list (MACC).

3. Impact If Not Funded. Without this capability, disadvantaged ground force units, law enforcement units and HD agencies (JSTARS high emphasis domestic mission area) have little capability to coordinate tactical missions and have a higher risk of missed opportunities to locate, apprehend, or engage Time Sensitive Targets (TST) or High Value Targets (HVT). This is exacerbated if all six existing MACC units are in use in other Areas of Responsibility (AOR). The risk exists that with only six MACC units, JSTARS, may not be able to conduct these varying missions. Also, logistics costs will continue to increase when MACC units are moved from theater to theater.

4. Unit Impacted.
 116 ACW   Robins AFB, GA

5. Cost.   PEC: 27581F

Remaining Quantity Required	Unit Cost	Program Cost
10 MACC units - Motorola XTL 5000, PRC-117G, Modular Electronics Enclosure (MEE) (3010)	**$300,000**	**$3,000,000**
Total		**$3,000,000**

C-32B SATELLITE COMMUNICATION (SATCOM) SYSTEM WITH SECURE Ku BANDWIDTH

1. Background. The current system does not provide reliable, sufficient, secure, and dedicated bandwidth to meet the C-32B nor the Operational Requirements Document (ORD) defined requirements. The legacy system relies on a commercially available service and therefore competes for a finite amount of bandwidth against any and all other system users, both commercial and government. This system was sufficient at the time of installation but has since been commercially proliferated to the point of system saturation. Additionally, the Department of Defense (DoD) Chief Information Officer (CIO) recently declared this "legacy" system must be replaced. A Ku transmit/receive capability exists and has been fielded on similar aircraft. In order to proceed with installation secure Ku bandwidth must be acquired with O&M funds. Procurement funding for the hardware and installation may be available; however, without securing bandwidth funding acquisition and installation of the Ku transmit/receive hardware cannot move forward.

2. Source of Need. USAF/National Guard Bureau classified ORD NGB ORD 001-57 I/II/III dated 8 Aug 2002; ARC 2012 WEPTAC Critical Requirement.

3. Impact If Not Funded. Without dedicated secure Ku bandwidth, C-32B communications will continue to degrade due to commercial proliferation and system saturation, critical communications will not occur, and may cause mission disruption or even failure. The legacy system will require replacement within the next 5 years in accordance with the DoD CIO memorandum titled "Discontinuation of Legacy Inmarsat Services" dated 25 Aug 2011.

4. Unit Impacted.
150 SOS   JB McGuire, NJ

5. Cost.   PEC: 1160408BB

Remaining Quantity Required	Unit Cost	Program Cost
5-Year Ku Bandwidth (3840)	**$14,000,000**	**$70,000,000**
2 Satellite Communication (SATCOM) Systems (3010)	**$1,400,000**	**$2,800,000**
Total		**$72,800,000**

C-32B COMMUNICATIONS MANAGEMENT SYSTEM (CMS) REPLACEMENT

1. Background. The Communications Management System (CMS) provides the operators a means to control mission radios and provides C-32B system access. Without the CMS no mission communications, voice or data, enters or leaves the aircraft. The current system is nearly a decade old, and multiple modifications have maintained its viability. The life expectancy of the current CMS is extremely limited; a replacement should be procured now before missions are impacted. Additionally, near-term replacement is necessary to eliminate diminishing manufacturing sources and obsolescence issues.

2. Source of Need. USAF/National Guard Bureau classified Operational Requirements Document (ORD) NGB ORD 001-57 I/II/III dated 8 August 2002; ARC 2012 WEPTAC Critical Requirement.

3. Impact If Not Funded. The current CMS is outdated and unsustainable. A near-term component failure may cause mission degradation or mission failure.

4. Unit Impacted.
150 SOS   JB McGuire, NJ

5. Cost.   PEC: 1160408BB

Remaining Quantity Required	Unit Cost	Program Cost
1 CMS Replacement (3010)	**$4,500,000**	**$4,500,000**
Total		**$4,500,000**

F-15 & F-22

- **Air Dominance**
- **Homeland Defense**
- **ANG F-15 Units Provide 52% of the Total Fleet**
- **ANG F-22 Units Provide 11% of the Total Fleet**

The Air National Guard (ANG) possesses over 40 percent of the Combat Air Force's (CAF) Air Dominance capability. These units also provide 37 percent of the nation's Aerospace Control Alert (ACA) assets ensuring 24-hour Homeland Defense (HD). The introduction of the Active Electronically Scanned Array (AESA) radar on ANG F-15Cs provides the Combatant Commander with unmatched HD capability.

Operating six combat-coded F-15C squadrons, compared to three in the active duty fleet, the ANG possesses the majority of the air superiority assets available for Air Expeditionary Forces (AEF) commitments. Additionally, the ANG operates the only F-15 flying training unit at the 173 FW, Klamath Falls IAP, OR and trains all F-15C pilots.

Current F-15 modernization programs are necessary to improve this combat-proven fighter's capabilities for both HD and Overseas Contingency Operations (OCO). These programs include the APG-63(v)3 AESA radar, as well as a modernized electronic warfare suite, updated non-cooperative target identification capability, upgraded cockpit displays, and Infrared Search-and-Track (IRST) system. Maintaining a common configuration during these upgrades ensures the same level of persistent, lethal air superiority is available to every Combatant Commander.

The ANG also has two F-22 classic associate units at JB Langley-Eustos, VA and Tyndall AFB, FL. Additionally, the Hawaii ANG is the first operational ANG F-22 squadron at Hickam AFB. The Hawaii ANG provides ACA support for the Hawaiian Islands and Air Dominance in the Pacific.

Modernization efforts through common configuration and Increment 3.2C must be continued. Survivability and Missile Launch Detector (MLD) enhancements, especially improved Infrared (IR) spectrum capabilities, will ensure the Raptor remains unmatched in aerial combat. Communication upgrades, including 4th/5th and 5th/5th generation datalink, and a helmet mounted display will enable the F-22 to efficiently accomplish alert taskings.
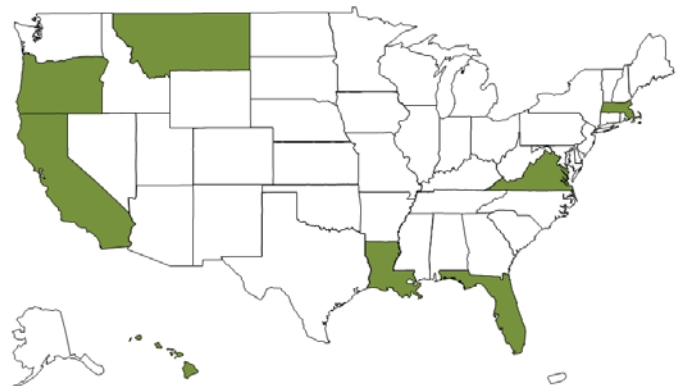
F-15 & F-22
2012 Weapons and Tactics Conference

Critical Combat Capabilities List

F-15:
- Active Electronically Scanned Array (AESA) Radar/Infrared Search-and-Track (IRST) System
- Modernized Electronic Warfare Suite (Digital Radio Frequency Memory Jammer, Digital Radar Warning Receiver, BOL AN/ALE-58 Countermeasures Dispenser, Fiber-Optic Towed Decoy)
- Upgraded Cockpit Displays
- Updated Non-Cooperative Target ID Capability
- Common Baseline Configuration

F-22:
- ACC Modernization Roadmap Through Common Configuration and Increment 3.2C
- Color Helmet-Mounted Display
- Survivability Enhancements
- Communications Upgrade (Broadband Datalink, Beyond-Line-of-Sight (BLOS) Communications, 4th/5th Generation and 5th/5th Generation Datalink)
- Missile Launch Detector (MLD) Enhancements Improving Infrared (IR) Spectrum Capability

Essential Capabilities List

F-15:
- External Missile Launcher
- High Fidelity Simulators at Air National Guard Bases
- 5th/4th Generation Datalink
- Advanced Data Computer
- Air Launch Hit-to-Kill (ALHK)

Desired Capabilities List

F-15:
- Common AESA Configuration
- Offensive Electronic Warfare
- US Government Owned Operational Flight Program (OFP)
- Next Generation Missile

F-15 EXECUTIVE SUMMARY

Modernization Priority Profiles ($ Million)

Program	2014	2015	2016
AESA Radar	$110.16 [2]	$110.16 [2]	$110.16 [2]
IRST System	TBD	$87.50 [2]	$87.50 [2]
Modernized Self-Protection Suite EPAWSS	-	-	$226.60 [2]
Cockpit Display Upgrades	$10.73 [2]	-	-

Updated Non-Cooperative Target ID Capability
    ALQ-128
    Combat Identification
	
	$5.00 [3]
	$2.50 [3]
		
		$22.66 [2]
		$11.33 [2]
			
			$22.66 [2]
			-

Commom Baseline Configuration
    ADCP II
    Conformal Fuel Tanks (CFT)
 	
    EGI
	
	-
	$3.00 [3]
	$77.00 [2]
	$0.90 [2]
		
		-
		
		$77.00 [2]
		-
			
			-
			
			$77.00 [2]
			-

Notes: [1] 3840 Appropriation   [2] 3010 Appropriation   [3] 3600 Appropriation   [4] 3080 Appropriation

- Active Electronically Scanned Array (AESA) Radar - State-of-the-art capability to detect, track, and target traditional and asymmetric threats for homeland and in-theater air defense.
- Infrared Search-and-Track (IRST) System - Passive sensor that couples with AESA radar to enable effective targeting in radar jamming environments and against asymmetric threats.
- Modernized Self-Protection Suite - Eagle Passive Active Warning Survivability System (EPAWSS) - A robust integrated electronic attack suite to enable the F-15C to counter current and future radar and infrared threats. The system shall incorporate a digital radar warning receiver, digital radio frequency memory jammer and ALE-58 BOL.
- Upgraded Cockpit Displays - Current legacy displays are incapable of properly displaying appropriate information due to small size and outdated technology. Smart color display systems are required to intuitively display and process data.
- Updated Non-Cooperative Target Identification (ID) Capability
  - ALQ-128 - F-15C requires fully integrated ID capabilities to detect and identify aircraft and related targets with friendly systems in a collaborative environment.
  - Combat Identification - Improved ID capability enables pilots to rapidly identify targets in contested or degraded radio frequency environments.
- Common Baseline Configuration
  - Advanced Display Core Processor (ADCP) II - ADCP II is the mission computer for all future F-15C combat systems upgrades, however, a significant number of ANG F-15C/D aircraft are not currently scheduled to receive ADCP II.
  - Conformal Fuel Tanks (CFT) - CFTs significantly reduce domestic Aerospace Control Alert (ACA) air refueling requirements and project the F-15C's capabilities worldwide with minimal air refueling support.
  - Enhanced Global Positioning System Inertial Navigation (EGI) - Enhanced capability through precise positional data delivery and instrumentation is required for ANG non-EGI modified F-15C aircraft.

F-15 ACTIVE ELECTRONICALLY SCANNED ARRAY (AESA) RADAR

1. Background. Active Electronically Scanned Array (AESA) technology exponentially increases detection and track ranges of airborne targets and greatly improves identification capability. AESA radar gives the F-15C true multi-target track and attack capability, as well as a vastly increased capability against advanced Electronic Attack (EA) from enemy systems. AESA radars are critical for Homeland Defense (HD) missions because the system enables pilots to locate a Target of Interest (TOI) in a saturated air traffic environment or detect and track small, asymmetric threats. AESA radars also eliminate the hydraulic and electrical systems associated with mechanically operated radars such as the APG-63(v)0, resulting in dramatically improved reliability and maintainability. The APG-63(v)0 is 1970's technology and unable to keep pace with current and postulated threats. Additionally, the Mean Time Between Failure (MTBF) for the (v)0 is 10 - 12 hours of flight time, while the MTBF for an AESA radar is over 30 times greater. To date, Congressional appropriations have purchased 39 AESA radars for the Air National Guard (ANG) based on an original 48 AESA requirement. However, ANG F-15C units also continue to operate the only combat-coded APG-63(v)0 radar systems in the Combat Air Forces (CAF) and the radar systems are not currently planned for conversion to AESA. The Department of Defense's (DoD) strategic pivot to the Pacific has adjusted the ANG requirement for F-15C AESA radars in order to effectively support combatant commands and preserve the commitment to HD. The ANG requirement has been modified to account for the 32 combat-coded (v)0 ANG aircraft that are not otherwise scheduled to receive an AESA upgrade. Further, the amendment allows each operational ANG unit to provide AESA-equipped F-15Cs for worldwide deployment while simultaneously providing 24/7 HD at Aerospace Control Alert (ACA) locations. Finally, the AESA is required to create the physical space needed for installation of ADCP II, which is the foundation of fleet commonality.

2. Source of Need. F-15C/D Radar Improvement Program, APG-63(v)3 CDD, 21 Apr 2005; ARC 2012 WEPTAC Critical Requirement.

3. Impact If Not Funded. Without additional AESA radars, the F-15C may be unable to counter both asymmetric threats and enemy aircraft under the latest DoD strategic scenarios.

4. Units Impacted.

104 FW	Westfield-Barnes RAP, MA	142 FW	Portland IAP, OR	159 FW	JRB New Orleans, LA
120 FW	Great Falls IAP, MT	144 FW	Fresno IAP, CA	173 FW	Klamath Falls AP, OR
125 FW	Jacksonville IAP, FL				

5. Cost.   PEC: 0207130F

Remaining Units Required	Unit Cost *	Program Cost
9 V1 to V3 AESA Systems (3010)	**$6,500,000**	**$58,500,000**
32 V0 to V3 AESA Systems (3010)	**$8,500,000**	**$272,000,000**
Total		**$330,500,000**

* Includes installation, spares, and program costs.

F-15 INFRARED SEARCH-AND-TRACK (IRST) SYSTEM

1. Background. The Infrared Search-and-Track (IRST) system is an external pod carried by the F-15 and is a passive sensor that detects and tracks the heat generated by an airborne target. The current fighter threat employs Digital Radio Frequency Memory (DRFM) Electronic Attack (EA) methods that degrade radar performance, but IRST is completely passive and not susceptible to EA. IRST offers robust tracking capabilities against nearly all airborne targets. IRST provides a complementary capability to a fighter aircraft's radar for detection and weapons cueing. It is not a capability that is used in lieu of AESA radars, but as part of the integrated fire-control system in a radar jamming environment. IRST is a game-changing capability essential to current and future air dominance, and a critical enabler for currently unfilled mission sets, such as airborne ballistic missile defense.

2. Source of Need. F/A-18 Infrared Search-and-Track System CDD, Mar 2011, USAF Annex; F/A-18 Infrared Search-and-Track System CDD; 2012; ARC 2012 WEPTAC Critical Requirement.

3. Impact If Not Funded. Air National Guard (ANG) F-15s are tasked for threat areas throughout the world as part of the Air and Space Expeditionary Force (AEF) while defending the homeland. Based on current and emerging threats, both traditional and asymmetric, the F-15 will be unable to provide tasked Homeland Defense (HD) and is vulnerable when countering enemy airborne fighters in a deployed environment.

4. Units Impacted.

104 FW	Westfield-Barnes RAP, MA	142 FW	Portland IAP, OR	159 FW	JRB New Orleans, LA
120 FW	Great Falls IAP, MT	144 FW	Fresno IAP, CA	173 FW	Klamath Falls AP, OR
125 FW	Jacksonville IAP, FL				

5. Cost.   PEC: 0207130F

Remaining Quantity Required	Unit Cost	Program Cost
NRE * (3600)	**N/A**	**TBD**
**50 IRST Systems ** (3010)	**$3,900,000**	**$195,000,000**
Total		**$195,000,000**

*Additional 3600 may be provided by USN and/or USAF.
**Assumes Full Rate Production.

F-15 MODERNIZED SELF-PROTECTION SUITE

1. Background. The existing F-15C/D Electronic Warfare (EW) internal self-protection suite is comprised of 1980's era EW equipment and is incapable of providing adequate defensive situational awareness and countermeasures against present and future radar systems. The AF documented these shortfalls in a Capabilities Design Document (CDD) entitled Eagle Passive Active Warning Survivability System (EPAWSS) and plans on initiating funding in Fiscal Year 2013 in concert with the removal of sustainment funding for the existing EW suite. A robust integrated Electronic Attack (EA) suite is required to enable the F-15 to counter current and future radars, to include enemy fighters. The attributes of this integrated suite shall incorporate a digital Radar Warning Receiver (RWR), a Digital Radio Frequency Memory (DRFM) jammer, the ALE-58 BOL, and integration with the replacement for the ALQ-128. While the AF plans to begin fielding EPAWSS on the F-15C in Fiscal Year 2018, the expected fielding date for ANG F-15C/D aircraft is much later, requiring the fielding of an interim "gap filler" system.

2. Source of Need. Tactical Air Forces (TAF) 304-80-I/II/III-C System ORD for the F-15A-D Tactical Electronic Warfare Suite dated 7 Apr 1992; JROC EPAWSS CDD Jun 2007; ARC 2012 WEPTAC Critical Requirement.

3. Impact If Not Funded. The F-15C/D is at risk from the current and future threat systems proliferating throughout potential deployment areas. The lack of robust self-protection directly affects combat capability and survivability. F-15s will be restricted from entering contested airspace, preventing mission execution and ultimately resulting in mission failure.

4. Units Impacted.

104 FW	Westfield-Barnes RAP, MA	142 FW	Portland IAP, OR	159 FW	JRB New Orleans, LA
120 FW	Great Falls IAP, MT	144 FW	Fresno IAP, CA	173 FW	Klamath Falls AP, OR
125 FW	Jacksonville IAP, FL				

5. Cost.   PEC: 0207130F

Remaining Quantity Required	Unit Cost *	Program Cost
103 EPAWSS Kits (3010)	**$6,600,000**	**$697,800,000**
Total		**$697,800,000**

* Includes required spares, support equipment, and technical orders.

F-15 COCKPIT DISPLAY UPGRADES

1. Background. The current displays in the F-15 cockpit were designed based on the amount of information displayed to the pilot in the 1970's. The F-15 fleet has experienced an exponential growth in capability and lethality in its 30+ years of combat-proven service due to the modernization of radars, weapons, sensors, and datalinks. Fully utilizing these enhancements requires a complex pilot interface. The current legacy displays are incapable of properly displaying this information due to their small size and outdated monochromatic technology. Replacement of legacy displays with larger color and/or smart color display systems increases the lethality of Air National Guard (ANG) F-15s by more intuitively displaying and processing data. The addition of a color display allows the pilot to interpret the data quicker, increases the effectiveness of the Pilot-to-Vehicle Interface (PVI), and allows the pilot to make full operational use of current and planned aircraft capabilities. Addition of these new displays not only improves pilot awareness, but also facilitates rapid integration of advanced capabilities into the F-15 fleet.

2. Source of Need. F-15C/D ORD; ARC 2012 WEPTAC Critical Requirement.

3. Impact If Not Funded. Without the addition of new displays, ANG F-15 pilots cannot process the information provided by on- and off-board sensors, thereby reducing operational effectiveness. The time sensitive aircraft, sensor, and instrument cross-check is often interrupted in an attempt to distinguish geographically co-located targets. The additional pilot workload dramatically decreases situational awareness and reduces time available for safety of flight tasks.

4. Units Impacted.

104 FW	Westfield-Barnes RAP, MA	142 FW	Portland IAP, OR	159 FW	JRB New Orleans, LA
120 FW	Great Falls IAP, MT	144 FW	Fresno IAP, CA	173 FW	Klamath Falls AP, OR
125 FW	Jacksonville IAP, FL				

5. Cost.   **PEC: 0207130F**

Remaining Units Required	Unit Cost *	Program Cost
130 Radar Displays (3010)	**$82,500**	**$10,725,000**
105 RWR Displays (3010)	**$80,000**	**$8,400,000**
Total		**$19,125,000**

*Assumes installation, program costs and 10% spares.

F-15 UPDATED NON-COOPERATIVE TARGET IDENTIFICATION CAPABILITY

1. Background. The current F-15C/D non-cooperative target identification capability cannot provide adequate target identification during critical phases of Homeland Defense (HD) and contingency operations. Verification of friendly or enemy aircraft is fundamental to virtually all theater Rules of Engagement (ROE). The current and emerging environment demonstrates the need to counter adversaries who quickly adapt using commercially available products and military systems to deny or degrade identification. Current identification systems cannot provide high reliability or near-100 percent operating confidence in contested or degraded Radio Frequency (RF) environments and often result in false indications, or worse, no indications when friendly or enemy aircraft or systems are present. Based on recent experience and Air-Sea Battle plans, future conflicts will include a combination of friendly, hostile, and neutral targets. These targets could be air, ground, or naval vehicles with a mix of civil or military targets. Therefore, target identification functions must be effective in different, RF-contested environments with a significant variety of targets. F-15C/D aircraft will require fully integrated identification capabilities that not only detect and identify aircraft and related targets, but also integrate with the wide array of friendly systems in a collaborative environment.

2. Source of Need. TAF 304-80-I/II/III-C System ORD for the F-15A-D Tactical Electronic Warfare Suite dated 7 Apr 1992; JROC EPAWSS CDD Jun 2007; ARC 2012 WEPTAC Critical Requirement.

3. Impact If Not Funded. The F-15C/D is at risk from systems proliferating throughout the world that deny or degrade identification capabilities. The inability to identify friendly or enemy aircraft reduces capability and survivability while greatly increasing the risk of fratricide.

4. Units Impacted.

104 FW	Westfield-Barnes RAP, MA	142 FW	Portland IAP, OR	159 FW	JRB New Orleans, LA
120 FW	Great Falls IAP, MT	144 FW	Fresno IAP, CA	173 FW	Klamath Falls AP, OR
125 FW	Jacksonville IAP, FL				

5. Cost.   **PEC: 0207130F**

Remaining Quantity Required	Unit Cost *	Program Cost
ALQ-128 NRE (3600)	**N/A**	**$5,000,000**
105 ALQ-128 Systems (3010)	**$440,000**	**$46,200,000**
Combat Identification NRE (3600)	**N/A**	**$2,500,000**
1 Combat Identification (3010)	**$11,330,000**	**$11,330,000**
Total		**$65,030,000**

* Includes required spares, support equipment, and technical orders.

F-15 COMMON BASELINE CONFIGURATION

1. Background. The F-15C/D is expected to remain in service beyond 2035, therefore, fleet-wide avionics and combat systems upgrades are critical to maximize survivability and deliver persistent, lethal air superiority. Upgrades such as Advanced Display Core Processor (ADCP) II, Conformal Fuel Tanks (CFT), and Embedded Global Positioning System (GPS) Inertial (EGI) Navigation System establish the baseline for a common configuration of enabling systems. ADCP II serves as a common mission computer for 175 F-15C/D and all F-15E aircraft because current mission computers have reached speed, memory, throughput, and security limits. ADCP II is the mission computer for all future F-15C combat systems upgrades because of its ability to display and process data, allowing full operational use of current and planned aircraft capabilities. However, 62 Air National Guard (ANG) F-15C/D aircraft are not scheduled to receive the ADCP II upgrade, creating severe capability gaps and fleet management issues because these aircraft are distributed across every ANG squadron. An F-15C/D configured with CFTs significantly reduces domestic Aerospace Control Alert (ACA) air refueling requirements and projects the F-15C's capabilities worldwide, delivering combat-ready air superiority with minimal tanker support. Additionally, every ANG F-15C must be ready to accept the rapid implementation of advanced capabilities via the Passive Attack Sensor System (PASS). Enhanced capability through precise positional data delivery and instrumentation is achieved with the EGI modification on all F-15C aircraft.

2. Source of Need. F-15C/D ORD, 7 Apr 1992; ARC 2012 WEPTAC Critical Requirement.

3. Impact If Not Funded. Many, but not all, F-15C/D aircraft are undergoing extensive modifications to address modern combat requirements. Failure to maintain a common configuration forces separate F-15C training requirements, increases aircraft maintenance costs, and significantly reduces combat survivability and effectiveness of any unmodified aircraft.

4. Units Impacted.

104 FW	Westfield-Barnes RAP, MA	142 FW	Portland IAP, OR	159 FW	JRB New Orleans, LA
120 FW	Great Falls IAP, MT	144 FW	Fresno IAP, CA	173 FW	Klamath Falls AP, OR
125 FW	Jacksonville IAP, FL				

5. Cost.   PEC: 0207130F

Remaining Quantity Required	Unit Cost *	Program Cost
ADCP II NRE (3600)	**N/A**	**$10,000,000**
74 ADCP II (3010)	**$750,000**	**$55,500,000**
CFT NRE (3600)	**N/A**	**$3,000,000**
105 CFT (3010)	**$2,200,000**	**$231,000,000**
12 EGI (3010)	**$75,000**	**$900,000**
Total		**$300,400,000**

* Includes required spares, support equipment, and technical orders.

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F-16

- **Close Air Support/Interdiction/Precision Strike**
- **Suppression/Destruction of Enemy Air Defenses (SEAD/DEAD)**
- **Air Superiority for Homeland Defense**
- **ANG F-16 Units Provide 37% of the Total Fleet**

Air National Guard (ANG) F-16s directly support and have proven to be critical to the success of contingencies around the globe including Operations NOBLE EAGLE (ONE), IRAQI FREEDOM (OIF), ENDURING FREEDOM (OEF), NEW DAWN (OND), and Homeland Defense (HD) scrambles. Since 2003, ANG F-16Cs have fulfilled over 30 percent of AFCENT Precision Guided Munitions (PGM) and Close Air Support (CAS) taskings, including convoy escort, dedicated infrastructure defense, border patrol, and raid support.

The ANG operates 379 Block 25/30/32/40/42/50/52 F-16C/Ds. Block 25/30/32 aircraft are equipped with Situational Awareness Datalink (SADL) and provide a near-constant presence in operational theaters conducting CAS and armed reconnaissance taskings. Capability enhancements to the Block 40/42 and Block 50/52 aircraft will make them the AF's only Suppression of Enemy Air Defenses (SEAD)-capable platform until future 5th Generation, SEAD-capable aircraft become fully operational.

Modernization efforts are underway to improve the warfighting capabilities of ANG F-16s by fielding affordable systems with Secure-Line-of-Sight and Beyond-Line-of-Sight (SLOS/BLOS) communication suites, smart displays with data processing capability, advanced helmet mounted target cueing for air and ground weapons employment, enhanced self-protection suites, and improved radar performance and reliability.
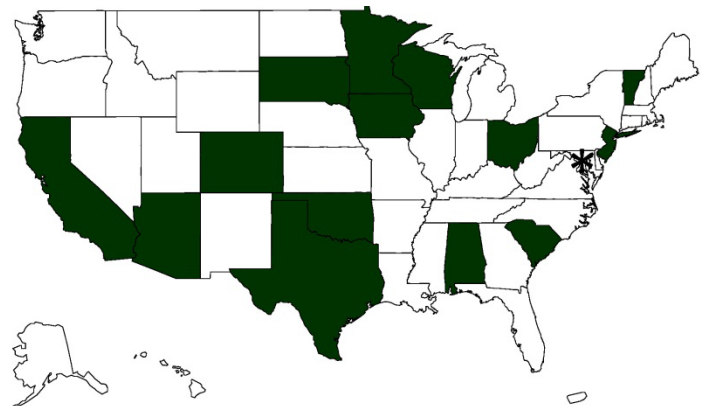
F-16
2012 Weapons and Tactics Conference

Critical Capabilities List

- Fully Integrated Sensor Enhancements With All-Weather A-G, A-A, Electronic Protection (EP), and Identification Capabilities
- Integrated Electronic Warfare (EW) Suite Incorporating Advanced Electronic Attack (EA), EP, Radar Warning Receiver (RWR)/Missile Warning System (MWS) With Directional Audio, and Infrared Countermeasures (IRCM)
- Improved Communications, Simultaneous Secure-Line-of-Sight (SLOS) and Beyond-Line-of-Sight (BLOS) (3rd Radio) with 3D Audio Communications
- Additional Enhancements and Procurement of Advanced Targeting Pods (ATP)
- Night Vision Goggle (NVG)-Compatible, Color, Helmet-Mounted Cueing System For All F-16 Blocks
- Additional High Resolution Display With Capability To Transmit, Receive, and Process Real-Time Data (CDU)

Essential Capabilities List

- Proliferation and Sustainment of Concurrent High-Fidelity Ready Aircrew Program (RAP) Quality Simulators
- Increased Jam Resistance In Embedded Global Positioning System Inertial Navigation (EGI) (New Antenna, SAASM)
- Improved Smart Bomb Ejector Rack
- Auto Ground Collision Avoidance System
- Digital Video Recorder (DVR) Phase II
- Laser Sensor Hardening

Desired Capabilities List

- Incremental Development of Targeting Pod (TGP) Data Links Supporting Two-Way Encrypted Video Downlink
- Laser Eye Protection
- Color Video from the TGP
- Incorporate Live, Virtual, and Constructed Technology Into Current Systems
- Provide Link Conductivity Across All Blocks and Other Fighter Aircraft
- Military Navigation (MNAV)

F-16 EXECUTIVE SUMMARY

Modernization Priority Profiles ($ Million)

Program	2014	2015	2016
Fully Integrated Sensor Enhancements			
AESA	-	-	$24.12 [2]
APG-68+	-	-	$41.54 [2]
	$10.00 [3]	$10.00 [3]	-
SAR Pod	-	-	$30.00 [2]
Fully Integrated Sensor Enhancements			
Block 40/42 AIFF Kits	$15.70 [2]	$7.20 [2]	$5.10 [2]
	$0.40 [3]	-	-
Block 30/32 Mode 5 Kits	-	$3.32 [2]	$3.00 [2]
Fully Integrated Sensor Enhancements - IRST Pod	-	$60.30 [2]	$112.80 [2]-
Integrated Electronic Warfare Suite	$44.50 [2]	$55.62 [2]	$55.62 [2]
ALR-69A	$4.00 [3]	-	-
ALR-56M Upgrades	-	$4.76 [2]	$9.52 [2]
	$50.00 [3]	-	-
EA Pod Upgrades	-	$15.84 [2]	$31.68 [2]
	$31.00 [3]	-	-
ALQ-213 Upgrades	$0.62 [2]	$4.76 [2]	$1.86 [2]
		$25.97 [2]	$25.97 [2]
Missile Warning System w/ 3D Audio	$51.93 [2]	-	-
	$4.12 [3]	-	-
Secure LOS and Beyond LOS w/ 3D Audio Comm			
2nd ARC-210	$6.30 [2]	$12.60 [2]	$6.00 [2]
Directional Audio	$4.72 [2]	$4.72 [2]	$4.72 [2]
	$5.20 [3]	-	-
Advanced Targeting Pod (ATP)			
ATP Upgrades	$30.00 [2]	$30.00 [2]	$16.00 [2]
ATP Procurement	$58.93 [2]	$58.93 [2]	$58.93 [2]
Day/Night Compatible Helmet Mounted Targeting			
Helmet Mounted Integrated Targeting (HMIT)	$2.79 [2]	$2.79 [2]	-
Joint Helmet Mounted Cueing System (JHMCS)			
Night Kits	$10.32 [2]	$10.32 [2]	$10.32 [2]
High Resolution Display			
Center Color Display	$15.00 [2]	$15.00 [2]	$4.55 [2]
Integrated Broadcast Service	$12.67 [2]	$12.67 [2]	$3.87 [2]

Notes: [1] 3840 Appropriation   [2] 3010 Appropriation   [3] 3600 Appropriation   [4] 3080 Appropriation

- F-16 Fully Integrated Sensor Enhancements
  - Active Electronically Scanned Array (AESA) Radar - Replaces mechanically scanned radar in Block 42/52 with AESA for improved detection and targeting of ground and air targets. APG-68+ will improve radar performance and reduce sustainment costs. A Synthetic Aperture Radar (SAR) pod will provide critical mapping capabilities in all weather conditions.

- Block 30/32/40/42 Advanced Identification Friend/Foe (AIFF) - Provides Block 30/32/40/42 aircraft with Mode 5/S and the capability to interrogate air targets utilizing the APX-125-60.
- Infrared Search-and-Track (IRST) Pod - Enables passive detection and tracking of asymmetric and radar jamming threats for both Homeland Defense (HD) and deployed operations.

- F-16 Integrated Electronic Warfare (EW) Suite - Improves detection, identification, and geo-location of current and emerging radar guided threat systems. Increases processor speed (10x) and memory size (100x) while enabling capacity to facilitate future software updates. Upgrades pods with Digital Radio Frequency Memory (DRFM). Pylon-based Missile Warning System (MWS) provides capability to detect and counteract infrared guided threat systems.
- Secure-Line-Of-Sight (SLOS) and Beyond-Line-Of-Sight (BLOS) with 3D Audio Communication - Provides advanced secure BLOS communications for integration with ground forces and HD agencies. Provides directional audio/noise cancelling to help pilot process information coming simultaneously from multiple radios.
- F-16 Advanced Targeting Pod (ATP) Upgrades and Procurement - Allows warfighter to employ precision-guided munitions, coordinate with ground elements, and target airborne threats.
- F-16 Day/Night Compatible Helmet Mounted Integrated Targeting (HMIT) - Provides day/night, self-cueing for air and ground weapons employment, standoff capability and full sensor-to-pilot fusion.
- F-16 Additional High Resolution Display - Center Display Unit (CDU) - Replaces flight instruments with color display to provide high resolution image from 4th generation targeting pods to the pilot. Allows aircrew to transmit and receive real-time data from national sources through the display while providing en-route threat warning.

F-16 FULLY INTEGRATED SENSOR ENHANCEMENTS - ACTIVE ELECTRONICALLY SCANNED ARRAY (AESA) RADAR AND SYNTHETIC APERATURE RADAR (SAR)

1. Background. Air National Guard (ANG) F-16 Block 25/30/32/40/42/50/52 aircraft require new Active Electronically Scanned Array (AESA) radars to replace the current APG-68 mechanically scanned radar to effectively employ Homeland Defense (HD) and Suppression/Destruction of Enemy Air Defenses (SEAD/DEAD) roles. New AESA radars can perform detection, tracking, communication, and jamming functions in multiple directions simultaneously. They provide the capability to detect, track, and eliminate multiple airborne threats, allowing pilots to locate Targets of Interest (TOI) in dense civilian air traffic environments prevalent around major population centers, a critical capability for Aerospace Control Alert (ACA). Additionally, the AESA radar eliminates several components associated with mechanical radars, thus dramatically improving reliability and maintainability costs. A podded Synthetic Aperture Radar (SAR) is necessary for all aircraft not receiving AESAs to engage surface targets and perform the full-spectrum of combat capabilities in all weather conditions. The SAR capability is available through several podded solutions and provides critical all weather mapping capabilities. An upgrade to the current legacy APG-68 radar system, APG-68+, will provide significant sustainment cost savings while at the same time will improve the radar's performance characteristics for F-16s that may not receive an AESA radar upgrade.

2. Source of Need. TAF 303-76-I/II/III-A SORD for the F-16C/D, CAF ORD 303-76-I/II/III-D F-16C/D MSIP ORD (14 Aug 00); ARC 2012 WEPTAC Critical Requirement.

3. Impact If Not Funded. As the adversary technologies and capabilities mature, the existing capabilities on U.S. fighters are becoming less effective against asymmetric threats and enemy fighters. The survivability and lethality of the F-16, which makes up more than half of the AF's fighter aircraft inventory, will diminish without the inherent capabilities and reliability of an AESA radar.

4. Units Impacted.

113 WG JB Andrews, MD	140 WG Buckley AFB, CO	162 FW Tucson IAP, AZ
114 FW Sioux Falls RAP, SD	144 FW Fresno IAP, CA	169 FW McEntire JNGB, SC
115 FW Truax Fld, WI	148 FW Duluth IAP, MN	177 FW Atlantic City IAP, NJ
132 FW Des Moines IAP, IA	149 FW Kelly Fld, TX	180 FW Toledo Express AP, OH
138 FW Tulsa, OK	158 FW Burlington IAP, VT	187 FW Montgomery RAP, AL

5. Cost.   PEC: 0207133F

Remaining Quantity Required	Unit Cost	Program Cost
93 Block 40/50 AESA Radars (3010)	**$2,500,000**	**$232,500,000**
APG-68+ **NRE** (3600)	**N/A**	**$20,000,000**
178 Block 30 APG-68+ **Kits** (3010)	**$670,000**	**$119,260,000**
40 SAR Pods (3010)	**$3,000,000**	**$120,000,000**
Total		**$491,760,000**

**F-16 FULLY INTEGRATED SENSOR ENHANCEMENTS - BLOCK 30/32/40/42
ADVANCED IDENTIFICATION FRIEND/FOE (AIFF)**

1. Background. Air National Guard (ANG) F-16s fulfill defensive counter-air taskings in the Air and Space Expeditionary Force (AEF) as well as Aerospace Control Alert (ACA) missions over the US. The Advanced Identification Friend/Foe (AIFF) provides an interrogator capability enabling the F-16 to meet established Rules Of Engagement (ROE) for identifying aircraft. Furthermore, interrogator capability is vital in the ACA role to ensure proper Target of Interest (TOI) identification and avoidance of civilian air traffic in crowded Federal Aviation Administration (FAA)-controlled civilian airspace, and timely intercept completion. The Block 50/52 F-16 fleet's interrogators are being replaced with the updated APX-125-60, which addresses the new Mode S requirement for the Global Air Traffic Management System (GATMS) and the Congressionally mandated Mode 5 requirement. ANG Block 40s and 42s are tasked with ACA and require the same system as the Block 50/52 aircraft. Some ANG Block 25/30/32 aircraft are currently equipped with the APX-113-56, which does not have Mode 5 capability. Upgrading the Block 30/32 aircraft with APX-125-60 components resolves the aircraft Mode 5 capability gap.

2. Source of Need. TAF 303-76-I/II/III-A SORD, Jul 2091 for the F-16 Blk 40; NORTHCOM Integrated Priority List; ARC 2012 WEPTAC Critical Requirement.

3. Impact If Not Funded. The system increases the intercept success of ACA missions in high-density traffic areas, radar-cluttered environments, and limited air surveillance coverage areas. Lack of an interrogation capability risks intercepting the wrong target and improper TOI identification, delays intercepts, and presents a safety of flight concern in congested air traffic environments.

4. Units Impacted.

113 WG JB Andrews, MD	138 FW Tulsa IAP, OK	162 FW Tucson IAP, AZ
114 FW Sioux Falls RAP, SD	140 WG Buckley AFB, CO	177 FW Atlantic City IAP, NJ
115 FW Truax Field, WI	144 FW Fresno IAP, CA	180 FW Toledo Express AP, OH
132 FW Des Moines IAP, IA	158 FW Burlington IAP, VT	187 FW Montgomery RAP, AL

5. Cost.   PEC: 0207133F

Remaining Quantity Required	Unit Cost *	Program Cost
Block 40/42 Integration NRE (3010)	**N/A**	**$400,000**
66 Block 40/42 APX-125-60 Kits (3010)	**$322,224**	**$21,266,784**
79 Block 30 Mode 5 Upgrade Kits (3010)	**$80,063**	**$6,324,977**
Total		**$27,991,761**

* Includes 10% spares.

F-16 FULLY INTEGRATED SENSOR ENHANCEMENTS - INFRARED SEARCH-AND-TRACK (IRST) POD

1. Background. The Infrared Search-and-Track (IRST) pod is a completely passive sensor that detects and tracks the heat generated by an airborne target. Asymmetric threats such as cruise missiles and small unmanned vehicles are difficult to detect with the existing conventional mechanically scanned F-16 radar. IRST systems offer robust tracking capabilities against nearly all airborne targets. Current fighter threats employ Digital Radio Frequency Memory (DRFM) Electronic Attack (EA) methods that degrade radar performance; however, the passive nature of IRST is not susceptible to such jamming. IRST provides a complementary capability to an active electronically scanned fighter radar for detection and targeting in both radar jamming and high priority Aerospace Control Alert (ACA) environments. The Air National Guard (ANG) requires a minimum of 78 IRST pods: 40 pods to support operations at 10 F-16 ACA sites, 20 pods to support training, and 18 pods to support Overseas Contingency Operations (OCO). IRST pods can be shared between the F-16 and F-15 fleets.

2. Source of Need. TAF 303-76-I/II/III-A SORD for the F-16C/D, CAF ORD 303-76-I/II/III-D F-16C/D MSIP ORD, 14 Aug 2000; F/A-18 Infrared Search-and-Track System CDD, Mar 2011; USAF Annex, F/A-18 Infrared Search-and-Track System CDD, 2012; ARC 2012 WEPTAC Critical Requirement.

3. Impact If Not Funded. ANG F-16s will face continued limitations in tracking and targeting asymmetric threats and operating in dense EA environments. IRST capability is a high interest Homeland Defense item for both North American Aerospace Defense Command (NORAD) and United States Northern Command (USNORTHCOM).

4. Units Impacted.

113 WG	JB Andrews, MD	140 WG	Buckley AFB, CO	169 FW	McEntire JNGB, SC
114 FW	Sioux Falls RAP, SD	144 FW	Fresno IAP, CA	177 FW	Atlantic City IAP, NJ
115 FW	Truax Field, WI	148 FW	Duluth IAP, MN	180 FW	Toledo Express AP, OH
132 FW	Des Moines IAP, IA	158 FW	Burlington IAP, VT	187 FW	Montgomery RAP, AL
138 FW	Tulsa IAP, OK	162 FW	Tucson IAP, AZ		

5. Cost.   PEC: 0207133F

Remaining Quantity Required	Unit Cost	Program Cost
NRE (3600)	**N/A**	**TBD**
78 IRST Pods (3010)	**$3,900,000**	**$304,200,000**
Total		**$304,200,000**

F-16 INTEGRATED ELECTRONIC WARFARE (EW) SUITE

1. Background. Current F-16 Block 30/32/40/42/50/52 Electronic Warfare (EW) suite is comprised of a series of EW equipment designed in the 1980's which is incapable of providing adequate defensive situational awareness and countermeasures against present and future radar systems. Today, this suite of equipment suffers from sustainment issues and significant capability gaps against modern threat systems. A robust integrated electronic attack suite will enable all F-16 blocks to counter current and future threats. The attributes of this integrated suite will incorporate an upgraded digital Radar Warning Receiver (RWR), a digital Radio Frequency (RF) memory upgraded Electronic Attack (EA) pod, legacy ALE-50, a pylon-based Missile Warning System (MWS), adequate expendables and the ALQ-213 legacy Electronic Combat (EC) integration system. Additionally, these systems must be compatible with upgrades funded by the AF's Combat Avionics Programmed Extension Suite (CAPES).

2. Source of Need. AN/ALR-69A CPD approved by AFROC, 17 Nov 2005; CAF 301-01-B, F-16 C/D Block 25/30/32 MSIP ORD, 15 Dec 2004; CAF ORD 303-76-I/II/III-D F-16C/D MSIP ORD, 14 Aug 2000; ARC 2012 WEPTAC Critical Requirement.

3. Impact If Not Funded. F-16s will remain at risk to many current and all advanced threat systems resulting in areas of denied access, significantly impacting the pilot's ability to accomplish assigned missions and meet Combatant Commanders' requirements.

4. Units Impacted.

113 WG JB Andrews, MD	140 WG Buckley AFB, CO	162 FW Tucson IAP, AZ
114 FW Sioux Falls RAP, SD	144 FW Fresno IAP, CA	169 FW McEntire JNGB, SC
115 FW Truax Field, WI	148 FW Duluth IAP, MN	177 FW Atlantic City IAP, NJ
132 FW Des Moines IAP, IA	149 FW Kelly Fld, TX	180 FW Toledo Express AP, OH
138 FW Tulsa IAP, OK	158 FW Burlington IAP, VT	187 FW Montgomery RAP, AL

5. Cost.   **PEC: 0207133F**

Remaining Quantity Required	Unit Cost *	Program Cost
ALR-69A NRE (3600)	**N/A**	**$4,000,000**
267 ALR-69A (3010)	**$1,000,000**	**$267,000,000**
ALR-56M Digital Upgrade NRE (3600)	**N/A**	**$50,000,000**
69 ALR-56M Digital Upgrades (3010)	**$340,000**	**$23,460,000**
60 EA Pod Upgrades (3010)	**$900,000**	**$54,000,000**
69 ALQ-213 (3010)	**$160,000**	**$11,040,000**
75 MWS (3010)	**$1,330,000**	**$99,750,000**
1 MWS/3D Ground Support Equipment (3080)	**$4,120,000**	**$4,120,000**
Total		**$513,370,000**

* Includes 10% spares.

F-16 SECURE-LINE-OF-SIGHT (SLOS) AND BEYOND-LINE-OF-SIGHT (BLOS) WITH 3D AUDIO COMMUNICATION

1. Background. Current upgrades to F-16s provide Secure-Line-Of-Sight (SLOS) and Beyond-Line-Of-Sight (BLOS) communications through the installation of a second ARC-210 radio. The ARC-210 modification provides an improved ability to securely communicate with ground forces and Command and Control (C2) nodes, but does not allow simultaneous operations on SLOS/BLOS frequencies. Homeland Defense (HD) and combat theater operations require simultaneous SLOS/BLOS communications to concurrently maintain contact with both C2 and friendly forces. A second ARC-210 permits growth to extended data and image transfer when linked to an advanced display. The combination of two ARC-210s plus a legacy radio (three radios total) allows in-theater communications on a C2 frequency, a secure tactical frequency with ground forces, and an intra-flight frequency. In the HD mission, this radio configuration enables monitoring C2, air traffic control, and intra-flight frequencies simultaneously. The integration of noise-cancelling and directional (3D) audio simplifies interpretation of simultaneous radio calls by spatially separating aural warning and radio signals and provides angular cueing to ground and air threats when used in conjunction with a helmet mounted cueing system. These capabilities are critical to operations in remote areas, dense threat environments, and dynamic HD missions.

2. Source of Need. TAF 303-76-I/II/III-A SORD for the F-16C/D; CAF ORD 303-76-I/II/III-D F-16C/D MSIP ORD, 14 Aug 2000; CENTCOM UON; NORTHCOM Integrated Priority List; ARC 2012 WEPTAC Critical Requirement.

3. Impact If Not Funded. Combat and Air Control Alert (ACA) missions are vulnerable to encumbered intercept and engagement authentications that are caused by interrupted communications between fighters, ground forces, and C2 authorities. Furthermore, switching between radio channels to communicate with multiple parties slows mission execution and increases the likelihood aircrew members will miss vital information.

4. Units Impacted.

113 WG	JB Andrews, MD	140 WG	Buckley AFB, CO	162 FW	Tucson IAP, AZ
114 FW	Sioux Falls RAP, SD	144 FW	Fresno IAP, CA	169 FW	McEntire JNGB, SC
115 FW	Truax Field, WI	148 FW	Duluth IAP, MN	177 FW	Atlantic City IAP, NJ
132 FW	Des Moines IAP, IA	149 FW	Kelly Fld, TX	180 FW	Toledo Express AP, OH
138 FW	Tulsa IAP, OK	158 FW	Burlington IAP, VT	187 FW	Montgomery RAP, AL

5. Cost.   PEC: 0207133F

Remaining Quantity Required	Unit Cost *	Program Cost
259 2nd ARC-210 Radio Kits (3010)	**$150,000**	**$38,850,000**
Directional Audio NRE (3600)	**N/A**	**$5,200,000**
259 Group A & B Directional Kits (3010)	**$45,000**	**$11,655,000**
311 Pilot Directional Audio Kits (3010)	**$6,700**	**$2,083,700**
10 Unit Test Equipment (3080)	**$43,800**	**$438,000**
Total		**$58,226,700**

* Includes 10% spares.

F-16 ADVANCED TARGETING POD (ATP)

1. Background. Positive identification of friendly forces and enemy combatants is crucial in any conflict. Every action must be taken to eliminate fratricide and civilian casualties. A key element in finding and identifying hostile forces, as well as civilian personnel and property, is providing the pilot the ability to see the best ground detail available. The constantly improving technology of Advanced Targeting Pods (ATP) can provide the scene clarity necessary for a pilot to find enemy targets that were previously undetectable from the air, while displaying the detail necessary to determine if an individual is carrying a weapon or simply a tool. These new Gen4 and Sensor Enhancement systems are making legacy targeting pods obsolete, requiring legacy systems upgrades to provide the most capable connectivity, improved software and tracking upgrades, as well as a digital port, which will send high resolution digital imagery to the cockpit. Modernization with Gen4 capability, including 1K Forward Looking Infrared (FLIR), 1K Closed Coupled Device (CCD), Laser Target Image Processing, and digital video downlinks vastly improves day and night target acquisition at extended ranges in both air-to-ground and air-to-air roles. The Air National Guard (ANG) requires Gen4 capability on all ATPs. Up to 104 additional ATPs are required to meet all mission requirements for domestic Aerospace Control Alert (ACA) aircraft in order to track and target asymmetric threats, aid in target identification, and conduct maritime interdiction taskings.

2. Source of Need. Combatant Commander Urgent Need Request (UNR), Nov 2004; ARC 2012 WEPTAC Critical Requirement.

3. Impact If Not Funded. Not funding will limit the ANG's ability to effectively fulfill its Air and Space Expeditionary Force (AEF) and Homeland Defense (HD) taskings. It will severely restrict the capability of pilots to acquire, identify, and successfully engage hostile forces. It will also limit the standoff capability of current Global Positioning System (GPS) and laser-guided weapons and degrade the pilot's ability to detect, track, and target threats in defense of the homeland during air sovereignty missions.

4. Units Impacted.

113 WG JB Andrews, MD	140 WG Buckley AFB, CO	162 FW Tucson IAP, AZ
114 FW Sioux Falls RAP, SD	144 FW Fresno IAP, CA	169 FW McEntire JNGB, SC
115 FW Truax Field, WI	148 FW Duluth IAP, MN	177 FW Atlantic City IAP, NJ
132 FW Des Moines IAP, IA	149 FW Kelly Fld, TX	180 FW Toledo Express AP, OH
138 FW Tulsa IAP, OK	158 FW Burlington IAP, VT	187 FW Montgomery RAP, AL

5. Cost.   **PEC: 0207133F**

Units Required	Unit Cost	Program Cost
10 Gen4 Upgrades * (3010)	**$1,500,000**	**$15,000,000**
244 Digital Port Upgrades * (3010)	**$250,000**	**$61,000,000**
104 ATP-SE Pods & Spares * (3010)	**$2,000,000**	**$208,000,000**
Total		**$284,000,000**

* Quantities and Program Costs are shared with A-10s (see A-10 Info Paper).

F-16 DAY/NIGHT COMPATIBLE HELMET MOUNTED INTEGRATED TARGETING (HMIT)

1. Background. The Helmet Mounted Integrated Targeting (HMIT) reduces the time required to acquire targets with aircraft sensors from minutes to seconds. This reduction in time can potentially make the difference between acquiring a high-value, fleeting target or not. Currently, pilots typically acquire targets by pointing the aircraft at the target to place it within the heads-up display field of view. This tactic is time consuming and maneuvers the aircraft closer to the threat. The system performs precise, head-steered weapons and sensor cueing enabling pilots to fly parallel to targets and maintain standoff distance, thus improving survivability. The cueing system allows rapid target acquisition, giving aircrew the ability to acquire targets simply by looking at them. Furthermore, the high resolution color display places information in front of the pilot's eye, reduces heads-down time in the cockpit and improves the survivability rate. The display technology allows pilots to quickly build a 3D picture of the battlespace by placing data linked symbols over the actual target, threat, and friendly positions. HMIT is compatible with existing AN/AVS-9 Night Vision Goggles (NVG) and fully supports night operations while retaining full color capability. ANG F-16 Block 40/42/50/52 aircraft are equipped with the day-only Joint Helmet Mounted Cueing System (JHMCS) but require a night cueing and display module.

2. Source of Need. JHMCS ORD CAF-USN 308-93-II-A Dec 1996; CAF 301-01-B, F-16C/D Block 25/30/32 MSIP ORD, 15 Dec 2004; CENTCOM Urgent Operational Need (UON); ARC 2012 WEPTAC Critical Requirement.

3. Impact If Not Funded. Target misidentification, collateral damage, and fratricide potential are much higher without the display benefits of a HMIT system.

4. Units Impacted

113 WG JB Andrews, MD	140 WG Buckley AFB, CO	162 FW Tucson IAP, AZ
114 FW Sioux Falls RAP, SD	144 FW Fresno IAP, CA	169 FW McEntire JNGB, SC
115 FW Truax Field, WI	148 FW Duluth IAP, MN	177 FW Atlantic City IAP, NJ
132 FW Des Moines IAP, IA	149 FW Kelly Fld, TX	180 FW Toledo Express AP, OH
138 FW Tulsa IAP, OK	158 FW Burlington IAP, VT	187 FW Montgomery RAP, AL

5. Cost.   PEC: 0207133F

Remaining Quantity Required	Unit Cost *	Program Cost
49 HMIT Kits (3010)	**$113,916**	**$5,581,884**
129 JHMCS Night Kits (3010)	**$240,000**	**$30,960,000**
Total		**$36,541,884**

*Includes 10% spares.

F-16 ADDITIONAL HIGH RESOLUTION DISPLAY

1. Background. Air National Guard (ANG) F-16 Block 25/30/32/40/42/50/52 aircraft require a Central Display Unit (CDU) to transfer imagery with ground controllers, fully utilize Gen4 advanced targeting pod image quality, improve available processing power, and replace aging flight instruments. The CDU will directly connect to the ARC-210 radio and provide pilots with the ability to securely transfer data, such as a targeting pod scenes, Joint Tactical Air Controller (JTAC) taskings, and updated target area imagery. The ability to transfer data and exploit digital targeting pod video is critical for rapid coordination with ground units during Close Air Support (CAS) missions and with Command and Control (C2) assets during time sensitive and emerging target operations. Expanding CDU with an Integrated Broadcasting Service (IBS) capability allows aircrew to receive real-time data from national sources through the display while providing en-route threat warning. Furthermore, the CDU contains additional processing capacity that allows for the manipulation of data external to the aircraft Operational Flight Program (OFP). This additional processing capacity provides pilots with the ability to insert mission planning data pre-mission, while opening low cost pathways for the integration of new capabilities without the costly and time consuming process of changing the aircraft OFP software. Pilot selectable display options will provide electronic instrument flight displays (attitude, performance, and navigation) when required.

2. Source of Need. CAF 301-01-B, F-16C/D Block 25/30/32 MSIP ORD, 15 Dec 2004; ARC 2012 WEPTAC Critical Requirement.

3. Impact If Not Funded. Pilots will remain unable to transfer imagery with ground controllers, exploit the improved image quality of next generation targeting pods in order to increase standoff while determining the intent of enemy combatants, and rapidly integrate emerging technologies, degrading their ability to effectively execute CAS, interdiction, and time sensitive target taskings.

4. Units Impacted.

113 WG JB Andrews, MD	140 WG Buckley AFB, CO	162 FW Tucson IAP, AZ
114 FW Sioux Falls RAP, SD	144 FW Fresno IAP, CA	169 FW McEntire JNGB, SC
115 FW Truax Field, WI	148 FW Duluth IAP, MN	177 FW Atlantic City IAP, NJ
132 FW Des Moines IAP, IA	149 FW Kelly Fld, TX	180 FW Toledo Express AP, OH
138 FW Tulsa IAP, OK	158 FW Burlington IAP, VT	187 FW Montgomery RAP, AL

5. Cost.   **PEC: 0207133F**

Units Required	Unit Cost *	Program Cost
188 Color Display Kits (3010)	**$183,764**	**$34,547,632**
308 IBS Receiver Kits (3010)	**$176,061**	**$54,226,788**
Total		**$88,774,420**

* Includes 10% spares.

HH-60

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

Air National Guard (ANG) Combat Search and Rescue (CSAR) helicopters and crews play a critical and highly involved role in support of Overseas Contingency Operations (OCO) while also responding to increasingly high demands for Domestic Operations (DOMOPS). These ANG CSAR helicopters are based in Alaska, California, New Mexico, and New York.

In Fiscal Year 2012, the 129 RQS continued to provide civil search and rescue capabilities to the state of California and flew numerous aerial firefighting missions. They also supported the nation to provide mission capabilities for Operation ENDURING FREEDOM (OEF).   The 210 RQS continues to hold a 24-hour, state-wide, rescue alert in Alaska and has executed numerous missions in support of OEF resulting in numerous lives saved. The 101 RQS from New York provides lifesaving capabilities for domestic disasters and continues to execute missions in support of OEF. The 188 RQS is a classic associate unit in New Mexico that maintains readiness to respond to domestic disasters and provides training to produce mission ready aircrew.

In Fiscal Year 2012, the AF continued modernization programs for the HH-60G to include the Improved Altitude Hover-Hold System (IAHHS) and the AN/ARS-6 v12 Personnel Locator System. ANG-funded programs expected to continue in the upcoming year are the Avionics Communication Suite Upgrade (ACSU) program and continued support for the Smart Multi-Function Display program. The ANG would also like to pursue modernization programs such as Blue Force Tracker and improved defensive equipment to include a hostile fire detector.

Persistent Conflict - Enabling the Warfighter

TAB I

HH-60 2012 Weapons and Tactics Conference

Critical Capabilities List

- Modernized Electronic Warfare System
- Integrated Flight Deck
- Helmet Mounted Cueing
- 3D Landing Zone
- Weapons Modernization

Essential Capabilities List

- Full Motion Video (FMV)/Video Downlink (VDL)
- Improved Ballistic Protection
- Standard Cockpit Configuration
- Federal Aviation Administration (FAA) Global Positioning System (GPS) Certified Aircraft
- Distributed Mission Operations (DMO) Capable HH-60G Aircraft Simulator

Desired Capabilities List

- Wireless Intercom
- Improved Aircraft Hover and Hold System (IAHHS)
- Identification Friend or Foe (IFF) Mode 5/S
- Improved Aircraft Generators
- Aircrew Flight Equipment (AFE) Enhancements

HH-60
EXECUTIVE SUMMARY

Modernization Priority Profiles ($ Million)

Program	2014	2015	2016
Modernized Electronic Warfare System	- $2.00[3]	$4.20[2] -	4.80[2] -
Integrated Flight Deck	$3.58[2]	$4.30[2]	-
Helmet Mounted Cueing	- -	- $6.00[3]	$15.00[2] -
3D Landing Zone (LZ)	-	$20.00[3]	$18.00[2]
Weapons Modernization	$3.50[2]	-	-

Notes: [1] 3840 Appropriation   [2] 3010 Appropriation   [3] 3600 Appropriation   [4] 3080 Appropriation

- HH-60 Modernized Electronic Warfare System - Provides a defensive system that alerts the crew to small arms, Rocket Propelled Grenade (RPG) fire, and radar threats with an integrated control for all defensive systems and will host 3D audio to improve aircraft survivability and aircrew situational awareness.
- HH-60 Integrated Flight Deck - Integrates the Smart Multi-Function Color Display (SMFCD), Situational Awareness Datalink (SADL), and the Lightweight Airborne Recovery System Version 12 (LARS V12) while also providing an improved secure multi-spectrum radio.
- HH-60 Helmet Mounted Cueing System - Provides helmet mounted cueing and display capability to significantly increase pilot and crew situational awareness, weapons employment capability, enhance terminal area search and rescue operations, and speed internal communication during critical mission phases.
- HH-60 3D Landing Zone (LZ) - Provides 3D landing zone symbology to the pilots for a safe landing when landing zones are completely obscured due to main rotor down-wash during near-ground operations.
- HH-60 Weapons Modernization - Provides the GAU-21 .50 caliber machine gun with a high rate of fire that can suppress enemy threats up to 1,500 meters and the M134D mini-gun which is an ultra-reliable GAU-2B mini-gun replacement and provides overall weight savings.

HH-60 MODERNIZED ELECTRONIC WARFARE SYSTEM

1. Background. Personnel Recovery (PR) operations performed in combat highlight the need to modernize the HH-60G defensive systems. Rescue helicopters and crews have been lost due to their inability to detect and react to hostile enemy fire. The HH-60G requires a precise, integrated defensive system that permits the aircrew to detect and defeat threats such as small arms fire, Rocket Propelled Grenades (RPG), Man-Portable Air Defense Systems (MANPADS), and Radio Frequency (RF) tracking and guided weapons. The current method employed to detect these threats is visual detection or radio notification from a friendly ground party. Detecting threats visually or via radio contact from a ground party is not acceptable because it takes too long for the crew to build enough information to react accordingly, or even worse, the aircrew may not be able to detect enemy fire until it is too late. 3D audio capability is required to integrate with a Missile Warning System (MWS), Hostile Fire Indicator (HFI), Radar Warning Receiver (RWR), as well as communication and mission equipment. With this equipment, crews rapidly return precise and immediate defensive fire, effectively suppressing or destroying the enemy threat, or maneuver to avoid the threat as needed.

2. Sources of Need. ARC 2012 WEPTAC Critical Requirement; Lessons Learned from current operations PR OPLAN and CONPLANS require forces to penetrate near-peer contested airspace with advanced surface-to-air threat systems to recover isolated personnel in contested environments.

3. Impact If Not Funded. The lack of a Modernized Integrated Electronic Warfare System (MIEWS) exposes the HH-60G crews and aircraft to unnecessary risks during operational missions. MIEWS will mitigate risk and provide a higher rate of combat survivability.

4. Units Impacted.
106 RQW   Gabreski AP, NY   129 RQW   Moffett Field, CA   176 WG   JB Elmendorf, AK

5. Cost.   **PEC: 53114F**

Remaining Quantity Required	Unit Cost	Program Cost
Defensive System NRE (3600)	**N/A**	**$2,000,000**
Directional Audio NRE (3600)	**N/A**	**$19,200,000**
17 Hostile Fire Indicators (3010)	**$279,411**	**$4,749,987**
108 3D Audio Kits (3010)	**$7,051**	**$761,508**
3 Unit Test Equipment (3080)	**$58,400**	**$175,200**
17 ALQ-213 w/ 3D Audio Kits (3010)	**$233,333**	**$3,966,661**
17 Radar Warning Receivers (3010)	**$1,240,000**	**$21,080,000**
Total		**$51,933,356**

HH-60 INTEGRATED FLIGHT DECK

1. Background. Current military and Domestic Operations (DOMOPS) require HH-60G crews to process fragmented and dissimilar information presented by legacy systems to rapidly formulate courses of action in dynamic and time sensitive threat environments. To reduce crew workload and enhance mission effectiveness, the current Smart Multi-Function Color Display (SMFCD) installed on Air National Guard (ANG) and Air Force Reserve Command (AFRC) HH-60Gs need to be fully integrated with Situational Awareness Datalink (SADL), Lightweight Airborne Recovery System Version 12 (LARS V12), and Air Force Tactical Receive Segment-Ruggedized (AFTRS-R). The capability to quickly access mission essential data from one centralized display will enable HH-60G aircrews to reduce "heads down" time and vastly improve situational awareness. Secure Internet Protocol (SIPR) data will enable aircrews to receive Near Real-Time (NRT) Blue Force Tracker (BFT) data and text messaging from the battlefield. BFT is a modernized joint tracking system which is cooperative with SADL and Link-16 and provides BLOS interactive data communication between aviation assets and Command and Control (C2). A securable multi-spectrum radio capable of supporting SRW ensures military and civil command authorities that rescue helicopters will be ready for any and all relief operations. This also increases the Combat Search and Rescue (CSAR) capability by filling an existing secure radio shortfall.

2. Sources of Need. ARC 2012 WEPTAC Critical Requirement; Lessons Learned from current operations, PR OPLAN, and CONPLANS, and Defense Support to Civil Authorities (DSCA) necessitate the requirement for LOS/BLOS situational awareness and modernized communications management.

3. Impact If Not Funded. Lack of system integration and a central source of essential mission data, combined with the inability to communicate with first responders and supporting assets will decrease crew situational awareness and drastically increase response times for both civil and military operations.

4. Units Impacted.
106 RQW Gabreski AP, NY   129 RQW   Moffett Fld, CA   176 WG   JB Elmendorf, AK

5. Cost.   PEC: 53114F

Remaining Quantity Required	Unit Cost	Program Cost
16 ACSU Kits (3010)	**$431,000**	**$6,896,000**
1 AFTRS-R Installation (3010)	**$2,500,000**	**$2,500,000**
18 Blue Force Tracker (3010)	**$100,000**	**$1,800,000**
Total		**$11,196,000**

HH-60 HELMET MOUNTED CUEING

1. Background. The addition of day and night, helmet mounted cueing and display capability in the HH-60G would significantly increase aircrew Situational Awareness (SA) and weapons employment capability, enhance terminal area search and rescue operations, and speed overall internal communication during critical mission phases. A Helmet Mounted Cueing System (HMCS) allows all crewmembers to quickly build SA based on other crewmembers' SA without the need for voice communication. Sensor and datalink symbols are visible on the helmet mounted display superimposed over the geographic location of friendly, hostile, and survivor positions. Additionally, the ability to display sensor pictures and datalink information while maintaining a heads-up posture will greatly enhance safety while flying in the low-level (<500ft) environment. Since the majority of the HH-60G mission employment occurs at night, this capability must be compatible with Night Vision Goggles (NVG). The HH-60G currently has no method to develop and transmit coordinates for a location that is not directly below the aircraft. This limitation requires the crew to use voice transmissions to talk crewmembers and supporting assets onto potential landing zones, threat locations or any point of interest. The ability to designate a location on the ground that is superimposed on the helmet mounted display and generate coordinates allows the crew to direct their navigation system directly to the point if required.

2. Source of Need. ARC 2012 WEPTAC Critical Requirement; Lessons Learned from Operations ENDURING FREEDOM (OEF) and IRAQI FREEDOM (OIF).

3. Impact If Not Funded. Heads-down time in the cockpit during low-level flight increases the chances of a mishap. For rescue operations and weapons employment, continued operation without the HMCS will hamper mission execution.

4. Units Impacted.
106 RQW Gabreski AP, NY   129 RQW Moffett Fld, CA   176 WG JB Elmendorf, AK

5. Cost.   PEC: 53114F

Remaining Quantity Required	Unit Cost	Program Cost
HMCS NRE (3600)	**N/A**	**$6,000,000**
18 HMCS Aircraft Kits (3010)	**$335,294**	**$6,035,292**
102 HMCS Helmet Kits (3010)	**$87,843**	**$8,959,986**
102 Night Vision Units (3010)	**$65,882**	**$6,719,964**
18 Coordinate Generating Lasers (3010)	**$558,824**	**$10,058,832**
Total		**$37,774,074**

HH-60 3D LANDING ZONE (LZ)

1. Background. Solutions are urgently needed for brown-out, white-out, and other restricted visibility conditions, which can cause issues during helicopter landing and take-off operations. Intense blinding conditions caused by the aircraft's main-rotor down-wash during near-ground flight can cause helicopter pilots to suddenly lose all visual cues. This creates significant flight safety risks from aircraft and ground obstacle collisions, and rollover due to sloped and uneven terrain. In restricted visibility operations, the pilot cannot see nearby objects which provide critical outside visual references necessary to control the aircraft near the ground. The loss of visibility can also cause spatial disorientation and loss of situational awareness leading to an accident. 3D LZ symbology provides pilots with sufficient situational awareness to maneuver the aircraft in less than ideal visibility conditions.

2. Source of Need. ARC 2012 WEPTAC Critical Requirement; Lessons Learned from Operations ENDURING FREEDOM (OEF) and IRAQI FREEDOM (OIF).

3. Impact If Not Funded. Without a technological solution to restricted visibility operations the HH-60 community will likely continue to see aircraft attrition and damage requiring lengthy repair down time. Ultimately, lives will continue to be at risk.

4. Units Impacted.
106 RQW   Gabreski AP, NY   129 RQW   Moffett Fld, CA   176 WG   JB Elmendorf, AK

5. Cost.   **PEC: 53114F**

Remaining Quantity Required	Unit Cost	Program Cost
3D Landing Zone NRE (3600)	**N/A**	**$20,000,000**
18 3D Landing Zone Kits (3010)	**$1,000,000**	**$18,000,000**
Totals		**$38,000,000**

HH-60 WEAPONS MODERNIZATION

1. Background. The HH-60G has a requirement to provide reliable defensive firepower to support various combat mission operations. Currently fielded are the GAU-2B and the GAU-18 weapons systems. The GAU-21 .50-caliber machine gun is an accurate, reliable, lightweight, high rate of fire, open-bolt weapon that can effectively suppresses threats out to 1,500 meters, and is scheduled to replace the GAU-18 weapon system. The GAU-2B weapon system is a 7.62 mm weapon system allowing aircrews the ability continue operating with a reliable defensive capability but at a lower mission weight. Since the HH-60G routinely operates at maximum allowable gross weight, it is necessary to find weight savings whenever possible. The M134D mini-gun is a GAU-2B weapon system that, once updated with the improved weapon components, will provide overall weight savings and bring the weapon system to an up-to-date capability. Improved weapons components include an ergonomic designed grip, safing sector housing cover, 3,000-round firing trigger, direct current drive motor with battery and cable set, low-drag ammo feed chute, rigid expended brass link chute, and a barrel clamp safety retainer. Currently the system relies on an electronic control unit and aircraft alternating current power to operate. In the event an aircraft must land in an austere environment and lose aircraft power, there is no capability to fire the weapon for aircrew self-defense. Though electronic control units are difficult to replace, removal increases cabin space, and reduces aircraft overall gross weight.

2. Source of Need. Air Combat Command (ACC) Project 96-012A HH-60G Cabin Configuration FOT&E Final Report dated April 1997, and Combat Air Forces (CAF) ORD 306-00-I/II/III HH-60G Block 152 both state the requirement for a .50-caliber machine gun on the Rescue HH-60Gs; ACC / CENTCOM C-MNS 02-501, approved ACC GAU-21 AF Form 1067; ARC 2012 WEPTAC Critical Requirement.

3. Impact If Not Funded. The HH-60G fleet will continue to have an unreliable defensive capability to support their missions. Not having the ability to add and upgrade capabilities to the aircraft weapons systems affects reliability and hampers operations.

4. Units Impacted.
106 RQW   Gabreski AP, NY   129 RQW   Moffett Fld, CA   176 WG   JB Elmendorf, AK

5. Cost.   PEC: 53114F

Remaining Quantity Required	Unit Cost	Program Cost
36 M134D Minigun Components (3010)	**$30,000**	**$1,080,000**
36 M134D Miniguns (3010)	**$66,667**	**$2,400,012**
Totals		**$3,480,012**

KC-135

- **Air Refueling**
- **Aeromedical Evacuation**
- **Airlift**
- **ANG KC-135 Units Provide 43% of the Total Fleet**

Air refueling is vital to air mobility and serves to enable and multiply the effects of airpower at all levels of warfare. The KC-135 Stratotanker is Air Mobility Command's primary air refueling platform providing approximately 88 percent of air refueling in support of US, allied, and coalition military aircraft. The KC-135 enhances air refueling capabilities and 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.

In today's ever-changing environments, the KC-135 is being tasked to operate closer and closer to high-threat areas. Defensive systems are necessary to prevent shoulder-fired surface-to-air missile systems from destroying aircraft during take-off, landing, and in low-altitude flight over mountainous terrain.

Tactical datalink technologies and situational awareness displays that bring real-time threat information, as well as secure radio capability, will greatly enhance KC-135 air refueling, airlift, and aeromedical evacuation missions.
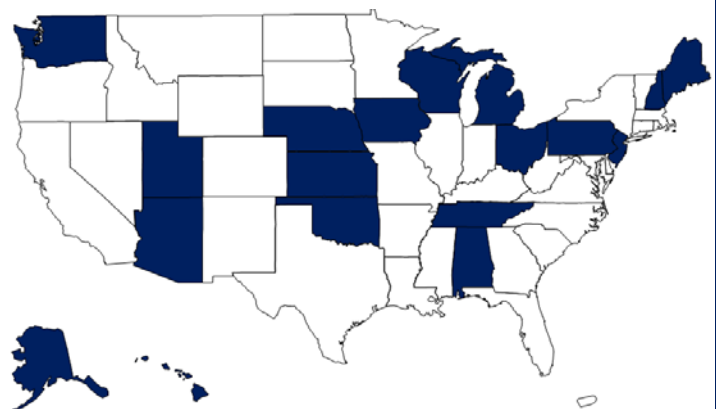
KC-135
2012 Weapons and Tactics Conference

Critical Capabilities List

- Advanced Infrared Countermeasures (IRCM) Defensive Systems
- Tactical Datalink (TDL) and Situational Awareness Cockpit Display Units (CDU)
- External Overt/Covert Lighting
- Fuel Tank Fire Explosion Protection
- Aircraft Ground Cooling Capability

Essential Capabilities List

- Improved Cargo Compartment Lighting
- Soft Basket Quick Connect Boom Drogue Adapter
- Block 45 Electronic Engine Instrument Display (EEID) Integrated Handset Control Software
- Boom Operator Simulation Systems (BOSS)
- Electronic Flight Bag (EFB)

Desired Capabilities List

- Improved Crew Bunks
- Advanced Squadron Level Simulator (ASLS) Systems

Persistent Conflict - Enabling the Warfighter

KC-135
EXECUTIVE SUMMARY

Modernization Priority Profiles ($ Million)

Program	2014	2015	2016
Advanced Infrared Countermeasures Defensive Systems	$60.00 [2]	$60.00 [2]	$44.00 [2]
Tactical Data Link (TDL) and Situational Awareness Cockpit Display Units (CDU)	- $9.00 [3]	$30.00 [2] -	$30.00 [2] -
External Overt/Covert Lighting	$6.89 [2]	$6.89 [2]	-
Fuel Tank Fire Explosion Protection	$15.00 [2] $5.00 [3]	$15.00 [2] -	$15.00 [2] -
Aircraft Ground Cooling Capability	$2.14 [2]	$2.14 [2]	-

Notes: [1] 3840 Appropriation   [2] 3010 Appropriation   [3] 3600 Appropriation   [4] 3080 Appropriation

- Advanced Infrared Countermeasures (IRCM) Defensive Systems - Provides an integral laser-based self-protection system to combat Infrared (IR) threats to large aircraft. Man-Portable Air Defense Systems (MANPADS) are a significant threat during takeoffs, landings, and low-altitude refueling missions. An advanced IRCM system is needed to counter MANPAD threats. Existing pyrotechnic systems (flares) are incompatible with the air refueling mission because of the highly combustible fuel load and lack of tank inerting.

- Tactical Datalink (TDL) and Situational Awareness Cockpit Display Units (CDU) - Provides a robust, Secure-Line-of-Sight (SLOS) and Beyond-Line-of-Sight (BLOS) connectivity with the network centric battlefield allowing tankers more flexibility to carry out effective operations closer to enemy airspace. Supplies increased situational awareness to aircrew by providing critical Real-Time Information in the Cockpit (RTIC).

- External Overt/Covert Lighting - Provides Federal Aviation Administration (FAA) and Military Specification (MILSPEC) compliant external lighting. Also provides covert mode to reduce mid-air collision potential during nighttime blacked-out operations, and improved reliability with significantly increased Mean Time Between Failures (MTBF).

- Fuel Tank Fire Explosion Protection - In the event a tanker is struck by a projectile, this type of protection reduces the possibility of ignition of fuel vapors in the aircraft's fuel tank and increases the chances of survivability.

- Aircraft Ground Cooling Capability - Allows crews and aircraft a more robust operating capability, reduces crew fatigue, and minimizes unsafe temperature conditions.

Persistent Conflict - Enabling the Warfighter

KC-135 ADVANCED INFRARED COUNTERMEASURES (IRCM) DEFENSIVE SYSTEMS

1. Background. Changes in employment tactics place KC-135 aircraft in high threat areas. Low altitude refueling, forward positioning, and mission sets establishing the tanker as a Command and Control (C2) relay are subjecting the KC-135 to increasingly hostile operational environments. This threat environment is widely populated with shoulder-fired, Man-Portable Air Defense Systems (MANPADS) infrared-seeking missiles. MANPADS are a significant threat during take-offs, landings, and low-altitude refueling missions. An advanced Infrared (IR) countermeasures system is needed to counter MANPAD threats; one that does not rely on pyrotechnic expendables that are incompatible with a fuel-laden aircraft, and leverages previous government investments in laser-based countermeasures.

2. Source of Need. Large Aircraft Infrared Countermeasures (LAIRCM) ORD 314-92, Aug 1998; LAIRCM Equipage Study; AMC Requirements and Planning Council ranked Defensive Systems as #2 out of 38 at the 2012 Executive Session; AF Form 1067 with AMC tracking numbers 10-137 and 12-053; ARC 2012 WEPTAC Critical Requirement.

3. Impact If Not Funded. KC-135 aircraft are uniquely vulnerable to MANPAD threats due to their size, lack of maneuverability, and a large combustible fuel load. Without defensive systems, a MANPAD attack against a KC-135 has a high probability of a kill. Additionally, lack of defensive systems limits the KC-135 from operating out of Forward Operating Bases (FOB) causing increased flying time and fuel consumption thus decreasing mission effectiveness by limiting fuel available for offload.

4. Units Impacted.

101 ARW	Bangor IAP, ME	128 ARW	Gen Mitchel IAP, WI	161 ARW	Phoenix IAP, AZ
108 ARW	JB McGuire, NJ	134 ARW	McGhee Tyson AP, TN	168 ARW	Eielson AFB, AK
117 ARW	Birmingham IAP, AL	151 ARW	Salt Lake City IAP, UT	171 ARW	Pittsburgh IAP, PA
121 ARW	Rickenbacker IAP, OH	154 WG	Hickam AFB, HI	185 ARW	Sioux Gateway AP, IA
126 ARW	Scott AFB, IL	155 ARW	Lincoln AP, NE	190 ARW	Forbes Fld, KS
127 WG	Selfridge ANGB, MI	157 ARW	Pease ITAP, NH		

5. Cost.   PEC: 0401134F

Remaining Quantity Required	Unit Cost	Program Cost
NRE (3010)	**N/A**	**$10,000,000**
180 Group A Kits (3010)	**$500,000**	**$90,000,000**
40 Group B Kits (3010)	**$1,600,000**	**$64,000,000**
Total		**$164,000,000**

KC-135 TACTICAL DATALINK (TDL) AND SITUATIONAL AWARENESS COCKPIT DISPLAY UNITS (CDU)

1. Background. Recent combat operations highlighted the need for comprehensive, networked Command and Control (C2) throughout all theaters of operation. Installation of a robust, secure, Tactical Datalink (TDL) provides this C2 link and maximizes KC-135 aircrew situational awareness with Beyond Line-of-Sight and Line-of-Sight capabilities. TDL provides critical real-time information to KC-135 aircrews such as positions of other aircraft, especially those about to receive fuel, as well as weather conditions and current threat locations, thus greatly increasing the tanker's ability to effectively participate in the present day network-centric battlespace. The resulting connectivity enables C2 elements near-real-time monitoring of mission events, mission status, task completion, and resource status. It also enhances the situational awareness of both tanker formations and the joint and coalition aircraft involved in aerial refueling operations.

2. Source of Need. Draft annex to Tanker Operational Requirement Document (AF/A5R); Mobility Air Forces (MAF) Network Enabling Concept, 26 Apr 2006; AMC MAF Datalink Integration Technical Requirements Document (TRD), 25 Oct 2006; TDL Transformation CDD, Increment 1, JROCM, 23 Jun 2004; AMC Requirements and Planning Council Ranked Real-Time Information in the Cockpit (RTIC)/Tanker TDL #3 out of 38 at the 2012 Executive Session; AF Form 1067 with AMC tracking number 11-143; ARC 2012 WEPTAC Critical Requirement.

3. Impact If Not Funded. Without datalink and data transfer capability, aircrew flexibility and situational awareness will be inadequate to be effective in current and evolving mission environments. Critical battlespace information would not be available to aircrew members or to monitoring C2 agencies tasked with execution of the assigned missions. Additionally, the inability to rapidly transfer critical information will further impede battlespace-driven adjustments to mission requirements and has the potential for damage to the aircraft and/or loss of life.

4. Units Impacted.

101 ARW	Bangor IAP, ME	128 ARW	Gen Mitchel IAP, WI	161 ARW	Phoenix IAP, AZ
108 ARW	JB McGuire, NJ	134 ARW	McGhee Tyson AP, TN	168 ARW	Eielson AFB, AK
117 ARW	Birmingham IAP, AL	151 ARW	Salt Lake City IAP, UT	171 ARW	Pittsburgh IAP, PA
121 ARW	Rickenbacker IAP, OH	154 WG	Hickam AFB, HI	185 ARW	Sioux Gateway AP, IA
126 ARW	Scott AFB, IL	155 ARW	Lincoln AP, NE	190 ARW	Forbes Fld, KS
127 WG	Selfridge ANGB, MI	157 ARW	Pease ITAP, NH		

5. Cost.   **PEC: 0401218F**

Remaining Quantity Required	Unit Cost	Program Cost
NRE (3600)	**N/A**	**$9,000,000**
180 Group A Kits (3010)	**$120,000**	**$21,600,000**
197 TDL Radios and Processors (3010)	**$380,000**	**$74,860,000**
Total		**$105,460,000**

 * Includes 1 spare per unit.

KC-135 EXTERNAL OVERT/COVERT LIGHTING

1. Background. Current KC-135 exterior lighting does not meet Military Specification (MILSPEC) illumination standards. This deficiency has been highlighted during ground testing conducted by Air Force Research Lab (AFRL). By replacing the existing incandescent lighting with updated Light Emitting Diode (LED) lighting, the KC-135 combat and peacetime operations benefit in three areas: safety, survivability, and sustainability. LED lighting increases safety margins by providing significantly better aircraft visual acquisition during ground and airborne operations. The covert mode allows KC-135 crews the ability to operate in accordance with theater requirements while allowing friendly forces using night vision devices to see the aircraft. Covert lighting drastically reduces the potential of a mid-air collision which has been highlighted as a safety concern during night operations in theater. The upgraded lighting will increase Mean Time Between Failures (MTBF) from 40 to 60 hours for incandescent bulbs to over 10,000 hours with LEDs. This significant increase in MTBF will reduce supply costs and decrease maintenance requirements.

2. Source of Need. Air Mobility Command (AMC) Requirements and Planning Council ranked external overt/covert lighting as #23 out of 38 at the 2012 Executive Session; AF Form 1067 with AMC tracking number 10-044; ARC 2012 WEPTAC Critical Requirement.

3. Impact If Not Funded. Aircraft are vulnerable to mid-air collisions in blacked-out conditions where covert lighting would make them visible to friendly forces utilizing night vision devices. The deficient lighting also creates safety hazards in day and night operations.

4. Units Impacted.

101 ARW	Bangor IAP, ME	128 ARW	Gen Mitchel IAP, WI	161 ARW	Phoenix IAP, AZ
108 ARW	JB McGuire, NJ	134 ARW	McGhee Tyson AP, TN	168 ARW	Eielson AFB, AK
117 ARW	Birmingham IAP, AL	151 ARW	Salt Lake City IAP, UT	171 ARW	Pittsburgh IAP, PA
121 ARW	Rickenbacker IAP, OH	154 WG	Hickam AFB, HI	185 ARW	Sioux Gateway AP, IA
126 ARW	Scott AFB, IL	155 ARW	Lincoln AP, NE	190 ARW	Forbes Fld, KS
127 WG	Selfridge ANGB, MI	157 ARW	Pease ITAP, NH		

5. Cost.   PEC: 0401218F

Remaining Quantity Required *	Unit Cost	Program Cost
197 LED Light Kits (3010)	**$70,000**	**$13,790,000**
Total		**$13,790,000**

 * Includes 17 spares.

KC-135 FUEL TANK FIRE EXPLOSION PROTECTION

1. Background. Changes in employment concepts are placing KC-135 aircraft in a threat environment that is widely populated with shoulder-fired, Man-Portable Air Defense Systems (MANPADS), Anti-Aircraft Artillery (AAA), and small arms. All of these threats are significant during take-off, landing, and low-altitude flight over mountainous terrain. When struck by projectiles, tankers do have some advantages, including multiple engines and redundant flight control systems. However, fires and wing structural damage induced by fire would be enough to cause even the most resilient of these systems to fail and destroy the aircraft. Fuel tank fire explosion protection reduces that vulnerability. The Federal Aviation Administration (FAA), through FAA RIN 2120-AI23 Fuel Tank Flammability Inerting, sets acceptable flammability exposure values in tanks most prone to explosion or requires the installation of an ignition mitigation system in an affected fuel tank. These aircraft are flying into less hostile airspace and are required to have this capability, while the KC-135 is flying into areas with potential MANPAD threats and have no explosion protection in their fuel tanks.

2. Source of Need. FAA RIN 2120-AI23 Fuel Tank Flammability Inerting; ARC 2012 WEPTAC Critical Requirement.

3. Impact If Not Funded. Tankers equipped with fuel tank fire explosion protection would increase their survivability and subsequent combat effectiveness. Without this capability, any attack against a tanker has an increased probability of a kill. The increased vulnerability limits the tanker fleet from operating from Forward Operating Bases (FOB) causing increased flying time and fuel consumption, limiting fuel available for offload and decreasing mission effectiveness.

4. Units Impacted.

101 ARW	Bangor IAP, ME	128 ARW	Gen Mitchel IAP, WI	161 ARW	Phoenix IAP, AZ
108 ARW	JB McGuire, NJ	134 ARW	McGhee Tyson AP, TN	168 ARW	Eielson AFB, AK
117 ARW	Birmingham IAP, AL	151 ARW	Salt Lake City IAP, UT	171 ARW	Pittsburgh IAP, PA
121 ARW	Rickenbacker IAP, OH	154 WG	Hickam AFB, HI	185 ARW	Sioux Gateway AP, IA
126 ARW	Scott AFB, IL	155 ARW	Lincoln AP, NE	190 ARW	Forbes Fld, KS
127 WG	Selfridge ANGB, MI	157 ARW	Pease ITAP, NH		

5. Cost.   **PEC: 0401218F**

Remaining Quantity Required	Unit Cost	Program Cost
NRE (3600)	**N/A**	**$5,000,000**
180 Fuel Tank Conversions (3010)	**$300,000**	**$54,000,000**
Total		**$59,000,000**

KC-135 AIRCRAFT GROUND COOLING CAPABILITY

1. Background. KC-135 aircraft currently have no internal means of cooling when below 2,000 feet Above Ground Level (AGL), which is the point at which the cockpit becomes pressurized and cooling systems become effective. Current and future employment locations require crews and aircraft to operate in extreme environments. Temperatures at deployed locations routinely exceed 100° F. This ambient temperature results in cockpit temperatures of 140° F and cargo compartment temperatures of 170° F. Crews generally spend greater than one hour in these conditions, and is not conducive to mission accomplishment. Currently ground cooling carts are the primary method to attempt aircraft and crew temperature reduction. Ground cooling carts are removed prior to engine start and are not usable if mission delays occur. Multiple civilian companies build vapor cycle air conditioning units for aircraft to supplement ground cooling. The KC-135 can leverage this capability to provide a limited amount of cooling for crew and aircraft performance. A demonstrated system can produce 24,000 British Thermal Units (BTU) of cooling at 600 Cubic Feet per Minute (CFM); approximately a normal house-sized air conditioner, within normal aircraft power and weight requirements. This limited system provides crews and aircraft a more robust operating capability, reduces crew fatigue, and minimizes unsafe temperature conditions.

2. Source of Need. AF Form 1067 with Air Mobility Command (AMC) tracking number 06-131; ARC 2012 WEPTAC Critical Requirement.

3. Impact If Not Funded. KC-135 aircraft will continue to operate in extreme high temperature environments. Aircraft will continue to experience degraded system effectiveness during those extreme temperature windows. Crews will experience increased fatigue and a reduced ability to operate during aircraft delays. Ground cooling carts will remain the only limited means to reduce cockpit operating temperatures.

4. Units Impacted.

101 ARW	Bangor IAP, ME	128 ARW	Gen Mitchel IAP, WI	161 ARW	Phoenix IAP, AZ
108 ARW	JB McGuire, NJ	134 ARW	McGhee Tyson AP, TN	168 ARW	Eielson AFB, AK
117 ARW	Birmingham IAP, AL	151 ARW	Salt Lake City IAP, UT	171 ARW	Pittsburgh IAP, PA
121 ARW	Rickenbacker IAP, OH	154 WG	Hickam AFB, HI	185 ARW	Sioux Gateway AP, IA
126 ARW	Scott AFB, IL	155 ARW	Lincoln AP, NE	190 ARW	Forbes Fld, KS
127 WG	Selfridge ANGB, MI	157 ARW	Pease ITAP, NH		

5. Cost.   PEC: 0401218F

Remaining Quantity Required *	Unit Cost	Program Cost
107 Ground Cooling Units (3010)	**$40,000**	**$4,280,000**
Total		**$4,280,000**

* Includes 17 spares.

Logistics

- **Homeland Defense**
- **Provide Agile and Responsive Forces**
- **Viability Through Modernization**

The contributions of our citizen Airmen are without equal and provide both State Governors and Combatant Commanders with highly skilled, professional, and flexible forces on a daily basis. Air National Guard (ANG) Logistics is the largest career field in the United States Air Force, encompassing over 21 different occupational series. They range in scope from aircraft maintenance and inventory management, to Traffic Management and Petroleum, Oils, and Lubricants Management. Logistics operations in the 54 states, territories and the District of Columbia prepare and train for their dual mission of supporting worldwide contingency deployments as well as responding to State emergencies. Each and every member of the Logistics team plays a key role in getting people and supplies where they need to be and when they need to be there, to generate sorties in support of Domestic Operations (DOMOPS) and Overseas Contingency Operations (OCO).

Presently the ANG has functioned at a prolonged high operations tempo, driving the need to concurrently modernize and recapitalize our fleet of aircraft. Overall, the average age of aircraft within the ANG is 27.8 years, evidence that the ANG operates and maintains the oldest aircraft in the Air Force inventory.

Today's increasingly austere fiscal environment drives the need for logisticians to reduce both product lifecycle costs and the cost of enterprise logistics processes. Procurement of devices that enhance maintenance efficiency and safety, while improving capabilities, will ultimately lead to improved aircraft availability, diminished operating costs, and enhanced Agile Combat Support (ACS) capabilities. Devices such as the C-130 Isochronal (ISO) inspection stands, SATCOM radio testers, leak detectors, digital test equipment, etc., will reduce aircraft downtime, permit Logistics personnel to maintain a high rate of sortie generation, ensuring the longevity of our aging fleet in a safe and efficient manner.

Logistics
2012 Weapons and Tactics Conference

Critical Capabilities List

- Obsolete Support Equipment Replacement
- Advanced Support Equipment
- Multiple Mission Design Series (MDS) Leak Detection Equipment
- Satellite Communication (SATCOM) Radio Support Equipment
- Isochronal (ISO) Maintenance Stands

Range Logistics:
- None

Essential Capabilities List

- Advanced Borescope Equipment
- Internal Lighting (KC-135)
- Sealant Removal
- Cabin Pressure Test Set
- Combustible Gas Alarms

Range Logistics:
- Range Safety and Security and Personal Protection Equipment Sustainment
- Range Tower Modernization

Desired Capabilities List

- Remotely Piloted Aircraft (RPA) Casket Mobility
- A-10 Fuel Quantity Tester
- Wireless Communication (MAF)
- Fall Restraint
- Tank Storage/Loader

Range Logistics:
- Ground Unit Support and Training/Storage Facilities

LOGISTICS
EXECUTIVE SUMMARY

Modernization Priority Profiles ($ Million)

Program	2014	2015	2016
Obsolete Support Equipment Replacement	$3.00 [4]	$3.79 [4]	$4.00 [4]
Advanced Support Equipment	$5.53 [4]	$21.00 [4]	$21.00 [4]
Multiple Mission Design Series (MDS) Leak Detection Capability	$1.47 [4]	$1.47 [4]	$1.62 [4]
Satellite Communication (SATCOM) Radio Support Capability	$0.55 [4]	$0.55 [4]	$1.15 [4]
C-130 Isochronal (ISO) Inspection Stands	$4.36 [4]	-	-

Notes: [1] 3840 Appropriation [2] 3010 Appropriation [3] 3600 Appropriation [4] 3080 Appropriation

- Obsolete Support Equipment Replacement - Provides replacement support equipment items to ensure continued maintenance success and long-term aircraft supportability.
- Advanced Support Equipment - Enhances routine maintenance efficiency and safety, while improving maintenance capabilities and reducing overall operating costs.
- Multiple Mission Design Series (MDS) Leak Detection Capability - Improves troubleshooting capabilities of pressurized aircraft systems, reducing non-mission capable time, and improves aircraft availability.
- Satellite Communication (SATCOM) Radio Support Capability - Provides necessary troubleshooting capability for advanced aircraft radio frequency systems.
- C-130 Isochronal (ISO) Inspection Stands - Enhances scheduled maintenance in hard-to-reach places of the aircraft.

LOGISTICS OBSOLETE SUPPORT EQUIPMENT REPLACEMENT

1. Background. Many support equipment items critical to daily operations at Air National Guard (ANG) units are quickly nearing the end of their expected life. As these items age, they become increasingly difficult to sustain and uneconomical to repair. In many cases, the original manufacturer is no longer in business, is unwilling to produce outdated equipment, or is unwilling to allow other sources to produce proprietary equipment. The net effect is that the ANG has a diminishing source for manufacturing items required for aircraft maintenance. During the 2012 ARC Weapons and Tactics Conference, replacements for the following systems were identified as critical maintenance capabilities requiring immediate attention: A-10 Fuel Quantity Tester, C-130 engine removal and replacement vehicle system, and 50/60 Stray Voltage Pre-Load Tester. The A-10 Fuel Quantity Gull tester currently lacks a source of supply or repair, which needs to be identified, or fielding of the PATS-70 tester needs to be accelerated in order to avoid critical shortfalls. A vehicle-mounted C-130 engine removal and replacement system capable of performing all required tasks is needed to ensure maximum aircraft availability on a daily basis. The F-16, A-10, and F-15 50/60 tester currently in use is unsustainable, requiring fielding of a replacement tester suitable for use during deployed F-16 fighter sortie generation.

2. Source of Need. ARC 2011 - 2012 WEPTAC Critical Requirement.

3. Impact If Not Funded. Failure to field replacements for the identified equipment will significantly reduce the Fully Mission Capable (FMC) rates for the affected fleets. In most cases, the failure to field replacements will result in aircraft grounding.

4. Units Impacted. The A-10 Fuel Quantity Tester impacts all five ANG A-10 units. The C-130 engine removal and replacement system impacts all 16 ANG C-130 units. The replacement 50/60 tester impacts all 28 ANG Combat Air Forces (CAF) units (F-15/F-16/A-10).

5. Cost.   **PEC: 207133F**

Remaining Quantity Required	Unit Cost *	Program Cost
10 A-10 Fuel Quantity Testers (3080)	**$305,800**	**$3,058,000**
16 C-130 Engine R/I (3080)	**$202,500**	**$3,240,000**
180 50/60 Testers (3080)	**$25,000**	**$4,500,000**
Total		**$10,798,000**

  * Includes 10% spares.

LOGISTICS ADVANCED SUPPORT EQUIPMENT

1. Background. Current maintenance operations depend upon equipment based on technology from the 1970s and 1980s. Legacy equipment is cumbersome to use, expensive to operate, and often produces significant safety concerns. Procurement of devices that enhance maintenance efficiency and safety, while improving capabilities, will ultimately lead to improved aircraft availability, diminished operating costs, and enhanced Agile Combat Support (ACS) capabilities. Procurement of an alternative tow vehicle will utilize new technology to provide improved maneuverability and visibility during towing operations, resulting in better utilization of hangar space as well as improved sheltering of aging aircraft. This vehicle is intuitive to operate and requires less time to position aircraft which decreases man-hours, enhances operational safety, and reduces current deployment footprint. Procurement of MJ-1E electric jammers will improve load crew training effectiveness while enhancing safety by eliminating noise and pollution from legacy diesel engines in enclosed training facilities. Both vehicles support the Presidential Directive to reduce use of fossil fuels within the Department of Defense (DoD). Procurement of the VXI-based mid-life upgrade for the Improved Avionics Intermediate Shop (IAIS) will update electronics, rectify diminishing manufacturing source issues, and extend the shop's useful life to 2030. This upgrade is projected to result in more than $85 million in cost avoidance for IAIS sustainment, improve reliability by 37 percent, and contribute to an average $48M annual Consolidated Asset Management (CAM) cost avoidance (CAM cost avoidance relates to Line Replaceable Unit (LRU) exchange costs flying units avoid by having IAIS stations and base repair capability). The enhanced e-Tools reader replacement program will eliminate the use of expensive laptop devices that introduce safety concerns when used in certain maintenance activities, by utilizing tablet technology in the same role. Potential candidates reduce the cost of the e-Tools program to roughly one-third of the current cost while improving technical order access and usability.

2. Source of Need. ARC 2011 - 2012 WEPTAC Critical Requirement.

3. Impact If Not Funded. Failure to field state-of-the-art replacement equipment that rely on advanced technologies will adversely impact the ability to ensure longevity of our aging fleets in a safe and efficient manner.

4. Units Impacted. MJ-1E electric jammer and alternative tow vehicles will be fielded at all ANG Combat Air Force (CAF) units. The VXI-IAIS systems would be fielded at all ANG F-16 and A-10 units. The e-Tools will be used at all ANG bases.

5. Cost.   **PEC: 207133F**

Remaining Quantity Required	Unit Cost	Program Cost
26 Alternative Tow Vehicles (3080)	**$160,000**	**$4,160,000**
52 MJ-1E Electric Jammers *(3080)	**$125,000**	**$6,500,000**
19 VXI-IAIS Upgrade Kits (3080)	**$2,540,000**	**$48,260,000**
6,053 e-Tools (3080)	**$2,842**	**$17,202,626**
Total		**$76,122,626**

* Includes 10% spares.

LOGISTICS MULTIPLE MISSION DESIGN SERIES (MDS) LEAK DETECTION CAPABILITY

1. Background. Existing leak detection procedures employ ineffective and time-consuming methods. The tools used for these procedures have not kept up with advances in technologies that identify minute or multiple leaks. Modern leak detection equipment uses tracer gas or ultrasonic sound to identify leaks in a fraction of the time compared to legacy tools and methods currently used. Compounding problems with existing leak detection procedures is the lack of support equipment capable of maintaining sufficient pressure in a system to identify leaks. Without this capability, technicians are required to refuel aircraft to determine the validity of a fuel system repair. If a leak is still noted, the aircraft must be defueled to facilitate further repairs, and then refueled again to check the validity of the repair, thus creating a time-consuming cycle to resolve the discrepancy. The new detector systems utilize tracer gas instead of fuel to identify multiple leaks in areas difficult to reach within aircraft fuel systems. Fielding a nonspecific Mission Design Series (MDS) leak detector, similar to that approved for use on the F-16, will improve leak detection capability and eliminate the find, fix, and repeat cycle of current fuel system repair and will increase aircraft availability to meet operational requirements.

2. Source of Need. ARC 2011 - 2012 WEPTAC Critical Requirement.

3. Impact If Not Funded. Maintainers will have to continue using lengthy troubleshooting procedures for fuel system and cabin/cockpit leak detection, resulting in reduced aircraft availability.

4. Units Impacted. All ANG manned aviation units.

5. Cost.   PEC: 027131F

Remaining Quantity Required *	Unit Cost	Program Cost
156 ** Hydrogen Leak Detectors (3080)	**$29,200**	**$4,555,200**
Total		**$4,555,200**

* Includes 10% spares.
** Two per unit minus 29 previously funded for F-16 units.

LOGISTICS SATELLITE COMMUNICATION (SATCOM) RADIO SUPPORT CAPABILITY

1. Background. In 2009, the A-10 and F-16 System Program Offices (SPO) fielded a Satellite Communication (SATCOM)-capable ARC-210 radio system for Air National Guard (ANG) and Air Force Reserve Command (AFRC) aircraft. This was in response to a United States Central Command (CENTCOM) Urgent Operational Need (UON) request for an A-10/F-16 robust, Secure-Line-of-Sight (SLOS) and Beyond-Line-of-Sight (BLOS) communications capability. Subsequently, similar combatant commander requirements to add SATCOM radio capabilities have been levied against other Air Reserve Component (ARC) Mission, Design, and Series (MDS) aircraft. SATCOM radio systems, including the ARC-210, were tested and fielded without immediate consideration for maintainability and sustainability. Presently, there is no test equipment available at the units for ground testing or troubleshooting specific SATCOM functionality on recently acquired radio systems on any aircraft. High demand for available satellite frequency and time prevents any pre-deployment training. Similar requests for system maintenance would also likely be denied. Ideally, the new capability/tester should be usable for all radio systems (including SATCOM) on all ANG MDS aircraft.

2. Source of Need. ARC 2010 - 2012 WEPTAC Critical Requirement.

3. Impact If Not Funded. Without SATCOM radio test capability, maintainers are unable to test, troubleshoot, or repair the SATCOM radio systems installed on ARC aircraft.

4. Units Impacted. All SATCOM equipped ANG units.

5. Cost.   **PEC: 207133F**

Remaining Quantity Required *	Unit Cost	Program Cost
90 Testers (3080)	**$25,000**	**$2,250,000**
Total		**$2,250,000**

* Includes 10% spares.

C-130 ISOCHRONAL (ISO) INSPECTION STANDS

1. Background. C-130 Isochronal (ISO) inspection stands no longer meet Air Force Occupational Safety and Health Administration (AFOSH) or Occupational Safety and Health Administration (OSHA) standards. Many stands currently in use are 40+ years old, require frequent maintenance actions in order to maintain serviceability, and are still critical to accomplishing periodic inspection requirements. Established workarounds delay production, effectively doubling inspection times, and negatively impact aircraft availability. New stands alleviate unneeded risk mitigation and allow maintainers to re-focus energy on aircraft-specific tasks.

2. Source of Need. ARC 2010 - 2012 WEPTAC Critical Requirement; OSHA standards, 29 CFR 1910 Subpart D.

3. Impact If Not Funded. Units will continue to accept and manage safety risks associated with using these older stands in order to keep aircraft flowing through the inspection process.

4. Units Impacted.

106 RQW	Gabreski AP, NY	133 AW	MPNLS-St Paul IAP, MN	156 AW	Luis Munoz IAP, PR
109 AW	Schenectady CAP, NY *	145 AW	Charlotte-Douglas IAP, NC	165 AW	Savannah IAP, GA*
123 AW	Louisville IAP, KY *	152 AW	Reno-Tahoe IAP, NV	166 AW	New Castle AP, DE
129 RQW	Moffett Fld, CA	153 AW	Cheyenne RAP, WY *	182 AW	Peoria IAP, IL *

       * 5 stands funded in FY12.

5. Cost.   **PEC: 401115F**

Remaining Quantity Required	Unit Cost	Program Cost
8 ISO Inspection Stands (3080) **	**$544,417**	**$4,435,336**
Total		**$4,435,336**

    ** 1 spare included due to pending mission changes.

Intelligence, Surveillance, & Reconnaissance

- **Multi-Discipline Intelligence Collection**
- **Distributed Common Ground System (DCGS)**

The Air National Guard (ANG) manned airborne reconnaissance assets to fill critical Intelligence, Surveillance, and Reconnaissance (ISR) and Incident Awareness and Assessment (IAA) requirements. These ANG resources can be called upon for homeland operations, counter-drug enforcement, and support for Combatant Commander's (COCOM) in their Areas of Responsibility (AOR).

RC-26B CONDOR

The RC-26B is a unique manned ISR platform providing day and night Full Motion Video (FMV) for IAA and ISR requirements with two configurations: the Block 20 and 25 aircraft. The RC-26B is a Low Density/High Demand (LD/HD) platform that operates in the US and overseas, supporting COCOM Overseas Contingency Operations (OCO) and IAA requirements for disaster response, National Special Security Events (NSSE), and Counter-Drug (CD). All modernization efforts will move toward a common configuration of aircraft. Eleven aircraft are attached to 11 units from three commands (Air Combat Command (ACC) Air Mobility Command (AMC), Air Education and Training Command (AETC). RC-26B locations include AL, AZ, CA, FL, MS, NM, NY, TX, WA, WI and WV.

C-130 SENIOR SCOUT

Senior Scout is a tactical airborne Signals Intelligence (SIGINT) system consisting of a roll-on, roll-off "shelter" that fits into a slightly modified C-130H. It provides direct support to ground forces, theater, and national level consumers with near real-time, on-scene SIGINT collection, analysis, geo-location, and dissemination capabilities. Senior Scout is operated by the 169 IS (UT ANG) and can be carried on any C-130H model aircraft.

DISTRIBUTED COMMON GROUND SYSTEM (DCGS)

The AF DCGS, designated the AN/GSQ-272 Sentinel, is the primary ISR Processing, Exploitation, and Dissemination (PED) system. DCGS provides multi-discipline intelligence derived from ISR platforms to COCOMs, Component Numbered Air Forces (C-NAF), and national command authorities across the globe 24 hours a day, 7 days a week. Through distributed (reach-back and deployed) and collaborative operations, DCGS personnel enable the AF to engage in multiple, simultaneous military operations across the globe. ANG DCGS locations include AL, AR, CA, GA, HI, IN, KS, MA, NV, UT, and VA.
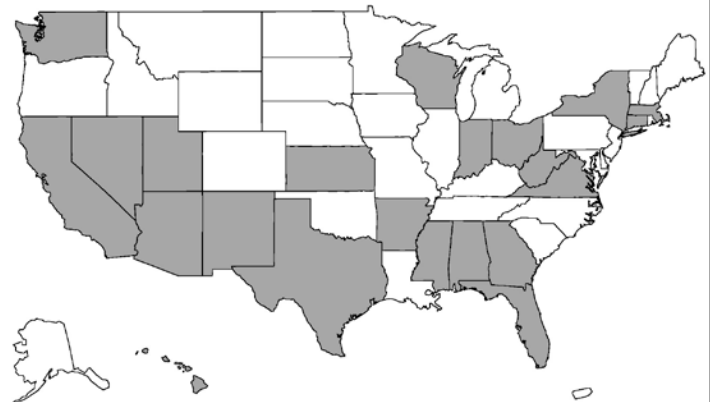
Intelligence, Surveillance, & Reconnaissance
2012 Weapons and Tactics Conference

Critical Capabilities List

RC-26B:
- Mission Management System (MMS) with PRC-117G and Handheld Integration
- Upgraded Avionics Including Autopilot
- Full-Spectrum Late Generation Downlinks and Communications
- Common Upgraded Full Motion Video (FMV) Sensor
- AAR/ALE-47 Provisions for Block 25

SENIOR SCOUT:
- Analog-to-Digital Receiver Modernization
- Multi-Beam Phased Array Antenna
- Receiver to Exploit Modern Low Power Low Probability of Intercept (LPI) Communications
- Modernized High Frequency Communication Geolocation
- Signal of Interest Automation

DISTRIBUTED COMMON GROUND SYSTEM (DCGS):
- Fully Integrated Suite of Processing, Exploitation, and Dissemination (PED) Equipment to Archive, Exploit, Sort, and Retrieve FMV
- Adequate Storage For Retrieval of Archived High Definition FMV

Essential Capabilities List

RC-26B:
- Additional Sensor Capability (Synthetic Aperture Radar, Ground Moving Target Indicator, Hyper-Spectral Imaging, Signals Intelligence, Camera, Laser Designator)
- Night Vision Goggle (NVG) Capability With Existing Cockpit
- Dual FMV Sensor Capability

SENIOR SCOUT:
- Direction Finding (DF) Calibration Tool Integration
- CAMELHAIR Next Generation
- Flight Deck Situational Awareness

DISTRIBUTED COMMON GROUND SYSTEM (DCGS):
- Full Signals Intelligence Simulation Capability for All ANG Core and Distributed Mission Sites
- Single Source Geospatial Information System

Desired Capabilities List

RC-26B:
- Increased Aircraft Performance (Winglets, Composite High Performance Propellers, Etc.)
- Generator Upgrade
- Weapons Provisioning

SENIOR SCOUT:
- Special Signals Operator Post Mission Processing Station
- High Frequency Mission Radio Replacement
- Situational Awareness Imagery Ground Server

DISTRIBUTED COMMON GROUND SYSTEM (DCGS):
- Mission Fusion and Analysis Toolset

INTELLIGENCE, SURVEILLANCE, & RECONNAISSANCE EXECUTIVE SUMMARY

Modernization Priority Profiles ($ Million)

Program	2014	2015	2016
RC-26B			
Mission Management System (MMS) w/PRC-117G and Handheld Integration	$4.29 [2] $0.50 [3]	- -	- -
Avionics Modernization	$6.00 [2] $0.30 [3]	$5.00 [2] -	- -
Full-Spectrum Late Generation Downlinks and Communications	$4.64 [2] $0.40 [3]	- -	- -
Common Upgraded Full Motion Video (FMV) Sensor	$2.79 [2] $0.50 [3]	- -	- -
Self-Protection System (SPS) Provision for Block 20 and Upgraded SPS for Block 25	$0.52 [2]	-	-
Senior Scout			
Receiver Modernization	$1.20 [2] $3.20 [3]	- -	- -
Multi-Beam Phased Array Antenna (Beamformer)	$3.92 [2] $1.26 [3]	- -	- -
Rip & Identification of Pre-detection Recordings (RIPR)	$0.56 [2] $3.26 [3]	- -	- -
High Frequency Communication Geolocation	$2.96 [2] $1.38 [3]	- -	- -
Analog to Digital Receiver Modernization	$1.70 [2] $2.60 [3]	- -	- -
Distributed Common Ground System (DCGS)			
Fully Integrated Suite of Air Force Special Operations Command (AFSOC) Support Equipment and Software Loads	$0.63 [1] $2.58 [4]	$0.63 [1] $2.58 [4]	- -
Video Storage Capacity Required for High Definition Full Motion Video (FMV)	$1.20 [4]	-	-

Notes: [1] 3840 Appropriation   [2] 3010 Appropriation   [3] 3600 Appropriation   [4] 3080 Appropriation

RC-26B
- Mission Management System (MMS) with PRC-117G and Handheld Integration - Replaces obsolete and unsustainable mission management system for aircraft sensors
- Avionics Modernization - Provides avionics upgrades needed due to obsolescence and sustainment issues. Frequency Modulation (FM) immunity is required for the radios in

accordance with Federal Aviation Administration (FAA) and International Civil Aviation Organization (ICAO) regulations.

- Full-Spectrum Late Generation Downlinks and Communications - Provides a common fleet-wide communications configuration to rapidly adapt to different mission downlink and radio requirements in Overseas Contingency Operations (OCO) and Incident Awareness and Assessment (IAA) taskings.
- Common Upgraded FMV Sensor - Provides a reliable and sustainable high definition FMV sensor.
- Self-Protection System (SPS) Provision for Block 20 and Upgraded SPS for Block 25 - Provides a new SPS capability for the Block 20 and 25, resulting in a common SPS configuration for the fleet.

SENIOR SCOUT

- Receiver Modernization - Provides Senior Scout with improved Communications Intelligence (COMINT) capability to search for, detect, and characterize new low-power conventional and spread-spectrum radio signals at extended stand-off ranges in the presence of interference.
- Multi-Beam Phased Array Antenna - Provides a specialty antenna for both transmit and receive capability and will be optimized to operate in multiple Radio Frequency (RF) bands with simultaneous independent steerable beams for each frequency band.
- Rip & Identification of Pre-detection Recordings (RIPR) - Allows SENIOR SCOUT to detect signals in and out of a wideband recording, identify the detections, and deliver the data to system data storage by their identification or non-identification.
- High Frequency (HF) Communication Geo-location - Allows SENIOR SCOUT operators to identify HF communications, determine signal type, collect, and geolocate the signals of interest.
- Analog to Digital Receiver Modernization - Improves SENIOR SCOUT's Communication Intelligence (COMINT) signals internal capability to exploit new and modern low-power LPI radio signals at extended stand-off ranges in the presence of interference.

DCGS

- Fully Integrated Suite of AF Special Operations Command (AFSOC) Support Equipment and Software Loads - Provides ANG DCGS with the capability to properly and effectively process, exploit, and disseminate information for USSOCOM Tier 1 and Tier 2 missions.
- Video Storage Capacity Required for High Definition (HD) Full Motion Video (FMV) – Increased speed of data transfer and overall storage capacity of high definition video.

RC-26B MISSION MANAGEMENT SYSTEM (MMS) WITH PRC-117G AND HANDHELD INTEGRATION

1. Background. The RC-26B fleet currently consists of two completely different Intelligence, Surveillance, and Reconnaissance (ISR) configurations of Mission Management Systems (MMS). One configuration is obsolete and unsustainable, while the other configuration does not meet basic mission nor Combatant Commander (COCOM) capability requirements. Current missions require comprehensive integrated sensor capabilities throughout all theaters of operation including Domestic Operations (DOMOPS). As a threshold, the RC-26B requires a common and expandable supportable mission system to operate sensors and communication equipment via MMS console operations. Basic system requirements include the following capabilities: software control of multiple Electro-Optical (EO) sensor systems, real-time data sharing and networking, integration with terrestrial and space-based data sharing capabilities, independent panel controls, integrated mission radio software control, and Mission Sensor Operator (MSO) station dual monitors. An MMS integrated with the PRC-117G will ensure basic voice and data connectivity with ground elements through datalinks and high performance waveforms and is a key component of a common Air National Guard (ANG) RC-26B fleet configuration. RC-26B aircraft need improved, modern, and more reliable MMS equipment to execute COCOM combat missions and directly support NORTHCOM and Defense Support to Civil Authorities (DSCA). RC-26 crews supporting Overseas Contingency Operations (OCO) require equipment that will provide the highest level of operational viability in various theaters of operation.

2. Source of Need. AF Form 1067 06-317, 13 Nov 2006; ARC 2012 WEPTAC Critical Requirement.

3. Impact If Not Funded. The legacy equipment is unreliable, outdated, and technically insufficient to meet mission requirements. The impacts to mission success include: failed intelligence gathering, unreliable communications, inefficient operations, and an inability to effectively sustain intelligence collection and management. The overall impact to mission success is RC-26B irrelevance in OCO and DOMOPS.

4. Units Impacted.

115 FW	Truax Fld, WI	144 FW	Fresno IAP, CA	174 ATW	Syracuse Hancock IAP, NY
125 FW	Jacksonville IAP, FL	147 RW	Ellington IAP, TX	186 ARW	Meridian RAP, MS
130 AW	Yeager AP, WV	150 FW	Kirtland AFB, NM	187 FW	Montgomery RAP, AL
141 ARW	Fairchild AFB, WA	162 FW	Tucson IAP, AZ		

5. Cost.   PEC: 502889F

Remaining Quantity Required	Unit Cost	Program Cost
NRE (3600)	**N/A**	**$500,000**
11 Shipset Kits (3010) *	**$390,000**	**$4,290,000**
Total		**$4,790,000**

* Including spares.

RC-26B AVIONICS MODERNIZATION

1. Background. RC-26B avionics are obsolete and unsustainable due to diminishing manufacturing sources. The affected areas of the overall avionics system are the Global Positioning System (GPS), Electronic Flight Information System (EFIS) Displays, Flight Management System (FMS), as well as the navigation and communication radios. The FMS is not certified to perform GPS approaches and does not comply with Federal Aviation Administration (FAA)/International Civil Aviation Organization (ICAO) Communication Navigation Surveillance/Air Traffic Management (CNS/ATM) requirements. A GPS failure would restrict crews to operating in Visual Meteorological Conditions (VMC) only. The RC-26B does not have Frequency Modulation (FM) frequency immunity on any of its navigation radios, and the communication radios do not have the proper frequency spacing requirements to legally operate in today's congested European Command (EUCOM) area of operations. Modernization of the avionics system will ensure the RC-26B is compliant with FAA and ICAO mandates for continued operations in US and European airspace. Additionally, battlefield requirements now demand the use of night vision compatible cockpits and utilization of certified GPS approaches to safely depart and land at austere and remote airfields. The current RC-26B avionics suite and GPS does not meet these requirements.

2. Source of Need. AF Form 1067; ARC 2012 WEPTAC Critical Requirement.

3. Impact If Not Funded. The current configuration compromises safety as the airspace worldwide becomes increasingly congested. FM frequency immunity is required to ensure safe operation of aircraft when flying terminal area approaches to prevent a mishap and possible Controlled Flight into Terrain (CFIT). Many systems listed above have no spares available or are no longer supportable by the vendor. Failure of any single part would effectively ground an aircraft indefinitely.

4. Units Impacted.

115 FW	Truax Fld, WI	144 FW	Fresno IAP, CA	186 ARW	Meridian RAP, MS
125 FW	Jacksonville IAP, FL	147 RW	Ellington IAP, TX	187 FW	Montgomery RAP, AL
130 AW	Yeager AP, WV	150 FW	Kirtland AFB, NM	174 ATW	Syracuse Hancock IAP, NY
141 ARW	Fairchild AFB, WA	162 FW	Tucson IAP, AZ	745 SOS (P)	Hurlburt Fld, FL

5. Cost.   **PEC: 502889F**

Remaining Quantity Required	Unit Cost	Program Cost
NRE (3600)	**N/A**	**$300,000**
11 Shipset Kits (3010) *	**$1,000,000**	**$11,000,000**
Total		**$11,300,000**

* Including spares.

RC-26B FULL-SPECTRUM LATE GENERATION DOWNLINKS AND COMMUNICATIONS

1. Background. There are currently two configurations of the RC-26B: a Block 20 Domestic Operations (DOMOPS) version and a Block 25 Overseas Contingency Operations (OCO) version, each with different communication equipment configurations. This makes personnel training, currency, and sustainment problematic. Both configurations' communication architectures are rapidly becoming obsolete due to technology advances and threaten the weapon system's relevance. Radio and communication equipment currently installed has not been able to be used to its full capability. This modification allows both aircraft blocks to transmit and receive Positive Position Locating Information (PPLI) for Link-16 or Situational Awareness Datalink (SADL). Air and ground tracks, location of friendly forces, as well as Sensor Point of Interest (SPI) need to be transmitted to the network and displayed in the RC-26B mission system. The expected result of this modernization effort is to enhance operational situational awareness and enable platform-to-platform data exchange and sensor slewing. A communications suite to include Beyond-Line-of-Sight (BLOS), VORTEX, and voice and data communications through late generation tactical radios capable across the full spectrum of current DOMOPS and OCO requirements is critical.

2. Source of Need. AF Form 1067; ARC 2011 - 2012 WEPTAC Critical Requirement.

3. Impact If Not Funded. Given a lack of comprehensive, full-spectrum communications, the RC-26 will not be Fully Mission Capable (FMC) in combat or DOMOPS. Aircraft need to be datalink capable for safety and interoperability. Without reliable voice communication and datalink the potential for target misidentification and fratricide exists.

4. Units Impacted.

115 FW	Truax Fld, WI	144 FW	Fresno IAP, CA	186 ARW	Meridian RAP, MS
125 FW	Jacksonville IAP, FL	147 RW	Ellington IAP, TX	187 FW	Montgomery RAP, AL
130 AW	Yeager AP, WV	150 FW	Kirtland AFB, NM	174 ATW	Syracuse Hancock IAP, NY
141 ARW	Fairchild AFB, WA	162 FW	Tucson IAP, AZ	745 SOS (P)	Hurlburt Fld, FL

5. Cost.   **PEC: 502889F**

Remaining Quantity Required	Unit Cost	Program Cost
NRE (3600)	**N/A**	**$400,000**
11 Shipset Kits (3010) *	**$422,000**	**$4,642,000**
Total		**$5,042,000**

* Costs Include spares.

RC-26B COMMON UPGRADED FULL MOTION VIDEO (FMV) SENSOR

1. Background. The RC-26B fleet currently operates two configurations (Block 20 and Block 25) with two completely different Full Motion Video (FMV) sensors. Each FMV sensor has a low Mean Time Between Failure (MTBF) rate, hindering sustainability. Each sensor also faces obsolescence in the near future when comparing its capabilities to current operational capabilities. High Definition (HD) FMV-capable sensors on the Block 25s require upgrades to meet current battlefield FMV HD standards, provide a common configuration across the fleet, and improve sustainability at minimal cost. Additional government owned HD-capable sensors would also be upgraded and replaced in current Block 20 sensors to ensure a common configuration across the RC-26B fleet. Current mission requirements dictate a comprehensive integrated HD sensor capability throughout all theaters of operation, including domestic. Minimally, the RC-26B requires a standard level of integration between digital combat sensors and communications equipment via the Mission Management System (MMS), as well as the ability to process and distribute HD FMV.

2. Source of Need. AF Form 1067; ARC 2010 - 2012 WEPTAC Critical Requirement.

3. Impact If Not Funded. RC-26B aircraft face obsolescence by failing to meet basic Combatant Commander (COCOM) and domestic FMV HD capability requirements. While the airframe itself is very capable, without the required sensor modernization effort, it will struggle to remain a relevant and effective Intelligence, Surveillance, and Reconnaissance (ISR) and Incident Awareness and Assessment (IAA) platform. Impacts to mission success include: failed intelligence gathering and decreased over-watch effectiveness jeopardizing the safety of ground forces, civil support authorities, and law enforcement.

4. Units Impacted.

115 FW	Truax Fld, WI	144 FW	Fresno IAP, CA	186 ARW	Meridian RAP, MS
125 FW	Jacksonville IAP, FL	147 RW	Ellington IAP, TX	187 FW	Montgomery RAP, AL
130 AW	Yeager AP, WV	150 FW	Kirtland AFB, NM	174 ATW	Syracuse Hancock IAP, NY
141 ARW	Fairchild AFB, WA	162 FW	Tucson IAP, AZ	745 SOS (P)	Hurlburt Fld, FL

5. Cost.   **PEC: 502889F**

Remaining Quantity Required	Unit Cost	Program Cost
NRE (3600)	**N/A**	**$500,000**
11 Shipset Kits (3010) *	**$254,000**	**$2,794,000**
Total		**$3,294,000**

   * Cost includes spares.

RC-26B SELF-PROTECTION SYSTEM (SPS) PROVISION FOR BLOCK 20 AND UPGRADED SPS FOR BLOCK 25

1. Background. The RC-26B aircraft is a Low Density/High-Demand (LD/HD) manned Intelligence, Surveillance, and Reconnaissance (ISR) and Incident Awareness and Assessment (IAA) aircraft that distributes critical tactical and intelligence information to the warfighter. It can be tasked to operate worldwide in high-threat environments where Man-Portable Air Defense System (MANPADS) heat-seeking missiles are widely available, posing a significant threat during take-offs and landings. To counter MANPAD threats, the RC-26B requires all aircraft to be configured with a missile warning and countermeasures Self Protection System (SPS) featuring a high probability of missile launch detection and a low false alarm rate. The five domestically configured aircraft (Block 20) currently have no self-protection capability, which limits their ability to respond to any Combatant Commander (COCOM) tasking, as they are essentially dedicated to the Domestic Operations (DOMOPS) only. While the remaining six Block 25 aircraft are configured for Overseas Contingency Operations (OCO) with self-protection capability, they are using outdated, legacy components no longer available through Air Force supply. To bring the fleet into a common configuration, Block 20 aircraft require a full SPS sensor, receiver (AAR) and expendable (ALE) capability. The Block 25 requires modernization of existing capability including a sensor upgrade to the A(V)2 sensor from the A(V)0 configuration. Although, all A(V)2 sensor equipment has been procured, resources to install and commonly configure aircraft are required.

2. Source of Need. AF Form 1067; ARC 2010 - 2012 WEPTAC Critical Requirement.

3. Impact If Not Funded. The use of a configuration comprised of sensors prone to both high false alarms rates and low probability of missile detection reduces the aircrew's survivability and safety. Unsupportable and ineffective defensive systems will result in a loss of capability to the warfighter and/or loss of personnel and equipment.

4. Units Impacted.

115 FW	Truax Fld, WI	144 FW	Fresno IAP, CA	186 ARW	Meridian RAP, MS
125 FW	Jacksonville IAP, FL	147 RW	Ellington IAP, TX	187 FW	Montgomery RAP, AL
130 AW	Yeager AP, WV	150 FW	Kirtland AFB, NM	174 ATW	Syracuse Hancock IAP, NY
141 ARW	Fairchild AFB, WA	162 FW	Tucson IAP, AZ	745 SOS (P)	Hurlburt Fld, FL

5. Cost.   **PEC: 502889F**

Units Required	Unit Cost	Program Cost
5 Shipset Kits (3010) *	**$520,000**	**$2,600,000**
Total		**$2,600,000**

* Cost includes spares.

SENIOR SCOUT RECEIVER MODERNIZATION

1. Background. There is an immediate need to add improved Communication Intelligence (COMINT) capability to exploit new and modern low power/low probability of intercept radio signals at extended stand-off ranges in the presence of interference. The current SkyHawk systems are currently able to detect, identify, and support geo-location of these emitters, but are not able to exploit the actual communication channel information, which limits intelligence collection capabilities. This effort will provide an upgrade to the existing SkyHawk systems to permit a full COMINT signals exploitation system for Very High Frequency/ Ultra High Frequency (VHF/UHF) band.

2. Source of Need. Tactical Air Force (TAF)/Electronic Security Command (ESC) Statement of Need (SON) 1-83; Network Centric Collaborative Targeting (NCCT) requirements as pertains to wideband reachback capability; Operational Requirements Document (ORD), Air Force Command and Control Intelligence, Surveillance, and Reconnaissance Center (AFC2ISRC), 002-88-I/II/III-a, 9 May 1999; Capabilities Review and Risk Assessment (CRAA) issue #22, ISR Sensor Capabilities, CRAA issue #30, ISR - Characterization of Electromagnetic Environment; Integrated Priority List (IPL) #1 for CENTCOM and SOUTHCOM; ARC 2011 - 2012 WEPTAC Critical Requirement.

3. Impact If Not Funded. Without this capability, the Air Force's ability to exploit these advanced modern communication systems will be limited.

4. Unit Impacted.
169 IS   Salt Lake City IAP, UT

5. Cost.   PEC: 53115

Remaining Quantity Required	Unit Cost	Program Cost
NRE (3600)	**N/A**	**$3,200,000**
4 Group B Kits (3010)	**$300,000**	**$1,200,000**
Total		**$4,400,000**

SENIOR SCOUT MULTI-PHASED BEAM ARRAY (BEAMFORMER)

1. Background. There is an immediate need to add improved Communications Intelligence (COMINT) collection capability to search for, detect, and characterize new and modern low-power conventional and spread spectrum radio signals at extended stand-off ranges in the presence of interference. The current antenna systems are not able to detect these specific signal sets, which limits intelligence collection capabilities. A beamforming specialty antenna, providing both transmit and receive capability, will be optimized to operate in the Radio Frequency (RF) bands from 400-500 MHz, 800-1,000 MHz and 1,700-2,100 MHz with simultaneous independently steerable beams for each frequency band. The array would provide simultaneous coverage on both sides of the aircraft with independently steerable beams. The antenna would be designed to fit into a modified C-130 wing-mounted fuel tank, and meet all performance requirements and environmental factors of the C-130E/H/J model aircraft.

2. Source of Need. Tactical Air Force (TAF)/Electronic Security Command (ESC) Statement of Need (SON) 1-83; Network Centric Collaborative Targeting (NCCT) requirements; Operational Requirements Document (ORD), Air Force Command and Control Intelligence, Surveillance, and Reconnaissance Center (AFC2ISRC), 002-88-I/II/III-a, 9 May 99; Capabilities Review and Risk Assessment (CRAA) issue #22, ISR Sensor Capabilities, CRAA issue #30, ISR - Characterization of Electromagnetic Environment; Integrated Priority List (IPL) #1 for CENTCOM and SOUTHCOM; ARC 2011 - 2012 WEPTAC Critical Requirement.

3. Impact If Not Funded. Without this capability, the Air Force's ability to detect and collect advanced modern communication system signals in a dense signal environment will be limited.

4. Unit Impacted.
169 IS   Salt Lake City IAP, UT

5. Cost.   **PEC: 53115**

Remaining Quantity Required	Unit Cost	Program Cost
NRE (3600)	**N/A**	**$1,255,000**
4 Group B Kits (3010)	**$980,000**	**$3,920,000**
Total		**$5,175,000**

SENIOR SCOUT RIP AND IDENTIFICATION OF PRE-DETECTION RECORDINGS (RIPR)

1. Background. Current SENIOR SCOUT operational need requires the implementation of a product with the capability to detect signals in a wideband recording, select the signal detection out of a wideband recording, identify the detections and deliver the data to system data storage by their identification or non-identification. This effort will procure, integrate, and implement the new Rip and Identification of Pre-detection Recordings (RIPR) capability into the SENIOR SCOUT shelters. Files in the directories will then be processed through a logical series of processing, categorization, and evaluation. Computer-controlled interfaces will allow these collection assets to be integrated with existing platform tool suites providing operators with seamless capabilities. The collected energy will also be used for cooperative geo-location after which sorting and further processing and/or analysis may occur. When analytical processing and evaluation is complete, some data and metadata will be tagged and used for mission simulation purposes.

2. Source of Need. Tactical Air Force (TAC)/Electronic Security Command (ESC) Statement of Need (SON) 1-83; Operational Requirements Document (ORD), Air Force Command and Control Intelligence, Surveillance, and Reconnaissance Center (AFC2ISRC)(AFIC) 002-88-I/II/III-a (9 May 1999); Capabilities Review and Risk Assessment (CRAA) issue #22, ISR Sensor Capabilities; CRAA issue #35, ISR - Processing and Exploitation to support Dynamic Targeting; ARC 2011 - 2012 WEPTAC Critical Requirement.

3. Impact If Not Funded. Senior Scout's ability to cull through the mass of signals data collected will be limited, thereby reducing the ability to provide complete picture of the threat environment.

4. Unit Impacted.
169 IS   Salt Lake City IAP, UT

5. Cost.   PEC: 53115

Remaining Quantity Required	Unit Cost	Program Cost
NRE (3600)	**N/A**	**3,255,000**
4 B Kits (3010)	**$140,000**	**$560,000**
Total		**$3,815,000**

SENIOR SCOUT HIGH FREQUENCY COMMUNICATION GEO-LOCATION

1. Background. The High Frequency (HF) radio communication geo-location capability will allow SENIOR SCOUT operators to identify HF communications, determine signal type, collect and geo-locate the signals of interest. As new advanced communication systems are fielded, SENIOR SCOUT operators are constrained in their ability to provide adequate force protection information to troops on the battlefield. In order to provide optimized support, the SENIOR SCOUT platform requires new HF collection subsystems with high performance capabilities for computer-controlled search in order to determine location of sources. Computer-controlled interfaces will allow these collection assets to be integrated with existing platform tool suites providing platform operators with seamless capabilities. This effort will procure, integrate, and implement the new HF geo-location subsystem into the SENIOR SCOUT shelters.

2. Source of Need. Tactical Air Force (TAC)/Electronic Security Command (ESC) Statement of Need (SON) 1-83; NCCT requirements as pertains to wideband reach-back capability; Operational Requirements Document (ORD), Air Force Command and Control Intelligence, Surveillance, and Reconnaissance Center (AFC2ISRC)(AFIC) 002-88-I/II/III-a (9 May 99); Capabilities Review and Risk Assessment (CRAA) issue #22, ISR Sensor Capabilities; CRAA issue #35, ISR - Processing and Exploitation to support Dynamic Targeting; ARC 2011 - 2012 WEPTAC Critical Requirement.

3. Impact If Not Funded. Senior Scout's ability to detect and track friendly forces in relationship to the threat environment will be limited.

4. Unit Impacted.
169 IS   Salt Lake City IAP, UT

5. Cost.   PEC: 53115

Remaining Quantity Required	Unit Cost	Program Cost
NRE (3600)	**N/A**	**$1,380,000**
4 Group B Kits (3010)	**$740,000**	**$2,960,000**
Total		**$4,340,000**

SENIOR SCOUT ANALOG-TO-DIGITAL RECEIVER MODERNIZATION

1. Background. There is an immediate need to add improved Communications Intelligence (COMINT) capability to search for, detect and characterize new and modern low-power conventional and spread-spectrum radio signals at extended stand-off ranges in the presence of interference. The current systems are not able to detect these specific signal sets, which limits intelligence collection capabilities. The effort will provide a single receiver set with multiple tuners (two per band for a total of eight) to provide direct, pre-detection Radio Frequency (RF) to Intermediate Frequency (IF) from the advanced directional antenna set. This IF would then be fed into other systems for processing. Receiver controls and a smaller IF distribution for this set will have to be developed.

2. Source of Need. Tactical Air Force (TAF)/Electronic Security Command (ESC) Statement of Need (SON) 1-83; Operational Requirements Document (ORD), Air Force Command and Control Intelligence, Surveillance, and Reconnaissance Center (AFC2ISRC), 002-88-I/II/III-a, 9 May 99; Capabilities Review and Risk Assessment (CRAA) issue #22, ISR Sensor Capabilities, CRAA issue #30, ISR – Characterization of Electromagnetic Environment; Integrated Priority List (IPL) #1 for CENTCOM and SOUTHCOM; ARC 2012 WEPTAC Critical Requirement.

3. Impact If Not Funded. Without this capability, the Air Force's ability to detect and collect advance modern communication system signals will be limited.

4. Unit Impacted.
169 IS   Salt Lake City IAP, UT

5. Cost.   PEC: 53115

Remaining Quantity Required	Unit Cost	Program Cost
NRE (3600)	**N/A**	**$2,610,000**
4 Group B Kits (3010)	**$435,000**	**$1,740,000**
Total		**$4,350,000**

DISTRIBUTED COMMON GROUND SYSTEM (DCGS) FULLY INTEGRATED SUITE OF AIR FORCE SPECIAL OPERATIONS COMMAND (AFSOC) SUPPORT EQUIPMENT AND SOFTWARE LOADS

1. Background. Air National Guard (ANG) and AF Distributed Common Ground System (DCGS) lack the system capability to efficiently provide Processing, Exploitation, and Dissemination (PED) support to current and future Combatant Commander (COCOM) tasked Full Motion Video (FMV) missions. The current system configuration is neither robust nor reliable enough to support COCOM requirements. To support today's fast-paced tactical missions and avoid the software limitations inherent in the current architecture, ANG DCGS analysts are growing increasingly reliant on workarounds and supplemental systems. Use of multiple systems has led to task saturation, making it difficult to meet the stringent timelines implemented by COCOMs. Current architecture requires the use of five separate systems to accomplish current COCOM mission taskings. Moving from five systems to a single standardized hardware and software solution immediately reduces exploitation timelines by an average of 50% and will result in less reliance on workarounds, thus enhancing overall analytical support. In addition, the AF DCGS enterprise has migrated to United States Special Operations Command (USSOCOM) standards as the baseline for mission execution. As such, it is paramount to implement a solution which provides the same functionality and support employed by Air Force Special Operations Command (AFSOC). This capability would reduce complexity and interface seamlessly with existing AN/GSQ-272 SENTINEL weapons system architecture, which will enhance support to both Conventional and Special Forces ground commanders. Production timelines significantly decrease while providing proven data archival, exploitation, sort, and retrieval capabilities. Additionally, integration into COCOM and AF voice/data networks is essential to providing threat warning while maintaining situational awareness for DCGS analysts. The solution exists and includes the required exploitation capabilities for current and future mission requirements.

2. Source of Need. ARC 2012 WEPTAC Critical Requirement.

3. Impact If Not Funded. ANG DCGS units will be unable to properly and effectively PED USSOCOM Tier 1 and Tier 2 missions. Failure of these missions could jeopardize the safety of US forces.

4. Units Impacted.

102 IW	Otis ANGB, MA	123 IS	Little Rock AFB, AR	181 IW	Terre Haute IAP, IN
117 IS	Birmingham IAP, AL	152 IS	Reno-Tahoe IAP, NV	184 IW	McConnell AFB, KS

5. Cost.   **PEC: 5031174F**

Remaining Quantity Required	Unit Cost	Program Cost
6 Suites (3080)	**$860,000**	**$5,160,000**
6 Installs/Training (3840)	**$210,000**	**$1,260,000**
Total		**$6,420,000**

DISTRIBUTED COMMON GROUND SYSTEM (DCGS) VIDEO STORAGE CAPACITY REQUIRED FOR HIGH DEFINITION (HD) FULL MOTION VIDEO (FMV)

1. Background. AF Distributed Common Ground System (DCGS) video storage capacity is only large enough to store standard definition video feeds currently streaming into DCGS sites at the rate of 6MB per second. Standard definition sensors have been replaced with High Definition (HD) on all AF Special Operations Command (AFSOC) MQ-9A aircraft. All standard-definition sensors are mandated to be replaced on all Air Combat Command (ACC) MC-12, MQ-1B, and MQ-9A aircraft within the immediate future. The data rate will increase from the stated 6MB per second for standard definition sensors to the rate of 45MB per second for HD sensors with this upgraded capability. This is an increase of more than seven times the amount of data being ingested currently into the AN/GSQ-272 SENTINEL weapons system.

2. Source of Need. ARC 2012 WEPTAC Critical Requirement.

3. Impact If Not Funded. ANG DCGS units will be unable to work any FMV missions that employ HD FMV sensors for current and future missions set forth from COCOM taskings. The lack of having the appropriate storage capacity will ultimately impede the ANG AF DCGS ability to archive, exploit, and retrieve HD feeds.

4. Units Impacted.

102 IW	Otis ANGB, MA	123 IS	Little Rock AFB, AR	181 IW	Terre Haute IAP, IN
117 IS	Birmingham IAP, AL	152 IS	Reno-Tahoe IAP, NV	184 IW	McConnell AFB, KS

5. Cost.   PEC: 5031174F

Remaining Quantity Required	Unit Cost	Program Cost
6 HD FMV Storage Systems (3080)	**$200,000**	**$1,200,000**
Total		**$1,200,000**

Operational Support Aircraft

- **Provides Special Mission Transportation of Distinguished Visitors (DV)**
- **ANG OSA Units Provide: C-38 - 100%, C-40 - 25%, C-21 - 36% of the Total Fleet**

The Air National Guard (ANG) supports crucial special missions including Distinguished Visitor (DV) transportation. Each of these missions has unique requirements beyond the traditional support provided to the rest of the ANG's fleet.
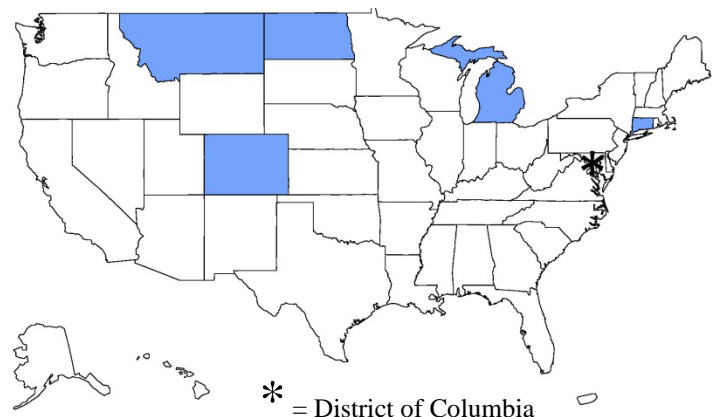
The ANG's Operational Support Aircraft (OSA) include the C-40C and C-38A flown by the D.C. Air Guard's 201 AS at Andrews AFB, MD and the C-21A flown by the 200 AS at Colorado Springs, CO; the 119 WG at Fargo, ND; the 103 AW at Bradley, CT; and the 110 AW at Battle Creek, MI.
The 201 AS aircraft provide worldwide VIP transportation for Congressional, Department of Defense (DoD), AF and National Guard (NG) travel missions. The primary mission of all OSA aircraft is to ensure passenger safety and comfort while providing the utmost in reliability. The ANG's modernization efforts will continue to focus on keeping these aircraft modern and safe.

Since the ANG began the C-40C mission, demand has increased significantly. In order to improve service and increase mission availability an additional C-40C aircraft is required.

The C-38A was originally acquired to support CONUS operations. However, the evolution of National Guard OCONUS commitments has driven a fundamental mission change. The two C-38As are non-standard airframes within the AF inventory, lack the range and reliability to meet new mission requirements, and need to be replaced.

✳ = District of Columbia

Operational Support Aircraft
2012 Weapons and Tactics Conference

Critical Capabilities List

- C-38A Replacement Aircraft
- C-38A Avionics Modernization
- C-38A/C-40C High Speed Data, On-Board Internet Capability
- C-40C Procurement
- C-40C Electronic Flight Bag

Essential Capabilities List

- None

Desired Capabilities List

- None

OPERATIONAL SUPPORT AIRCRAFT EXECUTIVE SUMMARY

Modernization Priority Profiles ($ Million)

Program	2014	2015	2016
C-38A Replacement Aircraft	$66.75 [2]	$66.75 [2]	$66.75 [2]
C-38A Avionics Modernization	$0.40 [2]	-	-
C-38A/C-40C High Speed Data	$0.40 [2]	-	-
C-40C Procurement	$103.00 [2]	-	-
C-40C Electronic Flight Bag	$0.70 [2]	-	-

Notes: [1] 3840 Appropriation   [2] 3010 Appropriation   [3] 3600 Appropriation   [4] 3080 Appropriation

- C-38A Replacement Aircraft Program - Replaces existing C-38 aircraft with longer range aircraft to support evolving worldwide Congressional and Department of Defense (DoD) missions.
- C-38A Avionics Modernization - Enables C-38A to comply with next-generation Federal Aviation Administration (FAA) mandates. Includes Future Air Navigation System-1/A (FANS-1/A), Wide Area Augmentation System (WAAS), Localizer Performance with Vertical Guidance (LPV), and Automatic Dependent Surveillance-Broadcast (ADS-B) and - Contract (ADS-C).
- C-38A/C-40C High Speed Data (HSD) - Allows the DVs and their staffs traveling on the C-38A the ability to conduct time-critical business via internet, e-mail, and phone while airborne. C-40C funded in FY11 and FY12, but system not installed yet.
- C-40C Procurement - Completes the requirement for the C-40C aircraft in the Air National Guard (ANG). This aircraft supports worldwide Congressional, DoD, Air Force, and National Guard Distinguished Visitor (DV) support missions.
- C-40C Electronic Flight Bag (EFB) - Adds an electronic information management device that helps to improve situational awareness, cockpit efficiency, productivity, and most important, allows aircrews to safely adapt to in-flight mission changes.

C-38A REPLACEMENT AIRCRAFT PROGRAM

1. Background. A C-38A replacement aircraft is required to support the existing Distinguished Visitor (DV) transportation fleet at the 201 AS. The unit supports Congressional members and Delegations, Executive Branch, Department of Defense (DoD), AF, and National Guard (NG) travel missions worldwide. Current requirements identify four small DV support aircraft. The 201 AS currently operates only two C-38A aircraft. Replacing the C-38A fleet addresses several operational shortfalls and significantly improves the mission capability. The replacement aircraft will extend the non-stop range of the aircraft well into European airspace and complement the existing larger C-40Cs for smaller contingents. This capability eliminates time-consuming enroute refueling stops and decreases extended duty days for passengers and aircrews. In addition to the lack of range, the C-38A has historically demonstrated a substandard mission capable rate, which is unacceptable for aircraft in the DV transportation arena.

2. Source of Need. Air Mobility Command Operational Requirements Document (ORD) 000-90 dated 12 June 1995 modified 3 May 1996; NGB Mission Need Statement 002-94 and NGB ORD 002-94 dated 24 July 1994; ARC 2012 WEPTAC Critical Item.

3. Impact If Not Funded. The unit is currently operating with only two short range aircraft to fulfill taskings. Requests for support are unfilled because the current aircraft are tasked or don't have the range to complete the mission. Without additional aircraft, the Air National Guard (ANG) assets will remain over tasked and unable to effectively accomplish the unit's primary mission.

4. Unit Impacted.
201 AS   JB Andrews, MD

5. Cost.   PEC: 0401314F

Remaining Quantity Required	Unit Cost	Program Cost
2 Replacement Aircraft (3010)	**$66,752,500**	**$133,505,000**
2 Additional Aircraft (3010)	**$66,752,500**	**$133,505,000**
Total		**$267,010,000**

C-38A AVIONICS MODERNIZATION

1. Background. The changing technological landscape has re-defined the equipment and tools necessary to effectively conduct business in today's corporate/government environment. The C-38A is not equipped to take advantage of, nor comply with, the emergence of several next-generation Federal Aviation Administration (FAA) capabilities. These capabilities include: Future Air Navigation System-1/A (FANS-1/A) which provides a direct datalink between the aircraft and air traffic control (ATC), Wide Area Augmentation System (WAAS) which augments the aircraft's Global Positioning System (GPS) by improving its accuracy, integrity, and availability, and allows the aircraft to rely on GPS for guidance during precision approaches, Localizer Performance with Vertical Guidance (LPV) approaches which are the highest precision GPS (WAAS enabled) approaches, Automatic Dependent Surveillance-Broadcast (ADS-B) and -Contract (ADS-C) which enhances safety by making an aircraft visible real-time to ATC and to other appropriately equipped aircraft, and which will be mandatory by 1 January 2020. These capabilities allow the aircraft to operate with increased safety. However, the current flight management system (FMS) and displays will not support FANS-1/A, WAAS, LPV approaches, or ADS-B and ADS-C, and are approaching the end of their life expectancy.

2. Source of Need. Air National Guard Operational Requirements Document 002-02 dated 19 Feb 01; AMS Requirements and Planning Council (R&PC) requirements matrix, July 2010; ANG sponsored AF Form 1067 submitted to AMC; ARC 2012 WEPTAC Critical Item.

3. Impact If Not Funded. The lack of an upgraded FMS and associated displays will result in a substantial loss of capability, limit the number of available airfields with suitable approaches, and will lead to eventual non-compliance with FAA and International Civil Aviation Organization (ICAO) airspace requirements. Additionally, the life expectancy of the existing FMS and displays will require their replacement in the near term. The quantity of spares is limited and diminishing.

4. Unit Impacted.
201 AS   JB Andrews, MD

5. Cost: PEC: 0401314F

Remaining Quantity Required	Unit Cost	Program Cost
2 Avionics Suites (3010)	**$200,000**	**$400,000**
Total		**$400,000**

C-38A/C-40C HIGH SPEED DATA

1. Background. The 201 AS utilizes the C-40C and C-38A aircraft to provide worldwide air transportation to Congressional Members and Delegations, the Executive Branch, Department of Defense (DoD) officials, and high-ranking US and foreign dignitaries. The changing technological landscape has re-defined the equipment and tools necessary to effectively conduct business in today's corporate/government environment. The Distinguished Visitors (DV) and their staffs on these aircraft require the ability to conduct time critical unclassified business via internet, e-mail, and phone while airborne; however, the aircraft currently do not provide a wireless internet capability to its passengers.

2. Source of Need. Air National Guard (ANG) Operational Requirements Document 002-02 dated 19 Feb 2001; AMS Requirements and Planning Council (R&PC) requirements matrix, Jul 2012; AMC Form 1067 10-106 C-40C High Speed Data Internet; ARC 2012 WEPTAC Critical Requirement.

3. Impact If Not Funded. Although the aircraft currently provides an excellent service to the DV travelers, it does not meet their technological needs for effectively conducting business while airborne. Not funding the incorporation of wireless internet into the aircraft will significantly impact the unit's ability to provide an adequate airborne work environment.

4. Unit Impacted.
 201 AS   JB Andrews, MD

5. Cost: **PEC: 0401314F**

Remaining Quantity Required	Unit Cost	Program Cost
2 C-38 High Speed Data Systems (3010)	**$200,000**	**$400,000**
Total		**$400,000**

C-40C PROCUREMENT

1. Background. The 201 AS, District of Columbia Air National Guard (ANG) provides worldwide air transportation for Congressional Members and Delegations, Executive Branch, Department of Defense (DoD) officials, high-ranking US and foreign dignitaries and HQ USAF inspection team travel. The 201 AS currently operates three C-40Cs (military modified Boeing 737 Business Jets). The ANG is one aircraft short of meeting operational requirements. A fourth aircraft will significantly improve fleet readiness and reliability. Scheduled maintenance reduces unit capability and if unscheduled maintenance actions ground additional aircraft, there is a good chance that flights will be cancelled. An additional aircraft allows the unit to overlap schedules and significantly improves aircraft availability. Another aircraft is required in order to increase airlift capability, reliability and support additional airlift requests.

2. Source of Need. Mission Need Statement NGB 001-97 dated 10 Jun 1997; ANG Operational Requirements Document 002-02 dated 19 Feb 2004; ARC 2012 WEPTAC Critical Requirement.

3. Impact If Not Funded. Not funding a fourth aircraft impacts aircraft availability, mission readiness, and the unit's ability to meet all Congressional taskings.

4. Unit Impacted.
201 AS   JB Andrews, MD

5. Cost.   **PEC: 0401314F**

Remaining Quantity Required	Unit Cost	Program Cost
1 C-40C Aircraft (3010)	**$103,000,000**	**$103,000,000**
Total		**$103,000,000**

C-40C ELECTRONIC FLIGHT BAG (EFB)

1. Background. The definition of an Electronic Flight Bag (EFB), according to the Federal Aviation Administration's (FAA) Advisory Circular (AC No. 120-76A) is, "an electronic display system intended primarily for cockpit/flight deck or cabin use. EFB devices can display a variety of aviation data or perform basic calculations." In short, an EFB is an electronic information management device that helps to improve situational awareness, cockpit efficiency, productivity, and safety. They typically consist of a screen and a control unit that may be installed, mounted or contained in one sole portable unit. EFBs can electronically store and retrieve documents required for flight operations, such as Technical Orders (TO), AF Instructions (AFI), Flight Operations Manual, Minimum Equipment Lists, as well as provide the most current Flight Information Publications (FLIP). Additional motivators for using an EFB are significant cost savings on annual paper FLIP purchases and the considerable reduction of paper waste associated with each FLIP changeover.

2. Source of Need. AF Form 1067 with Air Mobility Command (AMC) tracking number 03-119; AMC Operational Support Airlift/Executive Airlift (OSA/EA) Requirements Matrix; ARC 2012 WEPTAC Critical Requirement.

3. Impact If Not Funded. The potential to receive significant mission changes during Distinguished Visitor (DV) transport missions is extremely high. The aircrew needs to have all possible mission information and performance calculation capability at their fingertips. Not funding the EFB places the crew in a position where a single mission change could jeopardize mission success because the crew may not have the needed paper publications with them. It is not practical to carry all possible publications. Without the EFB, crews will continue to make critical decisions without accurate or complete information.

4. Unit Impacted.
201 AS JB Andrews, MD

5. Cost.   **PEC: 0401314F**

Remaining Quantities Required	Unit Cost	Program Cost
Supplemental Type Certificate (STC) (3010)	**N/A**	**$320,000**
3 Electronic Flight Bags (EFB) (3010)	**$125,000**	**$375,000**
Total		**$695,000**

Guardian Angel, Special Tactics, & Tactical Air Control Party

- **Combat Search and Rescue**
- **Special Operations**
- **ANG GA Units Provide 30% of the Total Force**
- **ANG ST Units Provide 25% of the Total Force**
- **ANG TACP Units Provide 35% of the Total Force**

The ANG has three Guardian Angel squadrons: the 103 RQS, Francis S. Gabreski Airport, NY; 131 RQS, Moffett Federal Airfield, CA; and 212 RQS, Joint Base Elmendorf, AK. Pararescue consists of Combat Rescue Officers (CROs) and Pararescue Jumpers (PJ) and their mission is to recover downed and injured aircrew members in austere and non-permissive environments. Pararescue provides emergency medical treatment necessary to stabilize and evacuate injured personnel while acting in an enemy-evading recovery role.

The ANG has two Special Tactics Squadrons (STS): the 123 STS, Standiford Field, KY and 125 STS, Portland IAP, OR. Special Tactics Teams (STT) are quick-reaction, deployable AF units, which are uniquely organized, trained, and equipped to facilitate the air/ground interface during joint special operations and sensitive recovery missions. Special tactics personnel provide quick-reaction Command and Control (C2), Close Air Support (CAS), positive air traffic management, and casualty recovery, treatment and evacuation staging during joint air and ground/maritime operations including short notice, sensitive contingencies.

TACP is a small team of AF
airspace de-confliction and
firepower onto enemy ground
provide advice, assistance, and
employment of air and space
Air Support Operations Center
subordinate to the Air Operations
advise ground commanders on the
establish and maintain Command,
Communications (C3), and
terminal attack guidance.

personnel who provide
terminal control of CAS
targets. TACPs also
planning for the
power in support of the
(ASOC) which is
Center (AOC). TACPs
best use of airpower,
Control, and
provide precision

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Persistent Conflict - Enabling the Warfighter

Guardian Angel, Special Tactics, & Tactical Air Control Party
2012 Weapons and Tactics Conference

Critical Capabilities List

Guardian Angel:
- Human Performance Optimization
- Combat Survivability Suite
- Weapons Modernization Suite
- Rescue Recovery Vehicles

Special Tactics:
- Universal Datalink
- Dismounted Operator Suite
- Employment Enhancement Suite
- Environmental Assessment Suite
- Communications Enhancement Suite

Tactical Air Control Party:
- Joint Terminal Attack Controller (JTAC) Distributed Mission Operations (DMO) Training Simulator - See Simulation Tab for Info Paper
- Dismounted Interoperable Sensor Acquisition Suite
- Rapidly Deployable Joint Operational Communications Suite
- Air Support Operations Center (ASOC) Tactical Network Suite
- Software Targeting and Data Management Suite

Essential Capabilities List

Guardian Angel:
- Computerized Software Program to Integrate HARM and Scheduling
- Joint Terminal Air Controller (JTAC) Simulation Suite

Special Tactics:
- Sensor Equipped Airlift Platform

- Covert Night Marking Capability
- Modular Maritime Command and Control (C2) Kit
- Two-Channel Radio
- Operator Wireless Network
- Air-Ground Two-Way Datalink
- JTAC Simulation Suite
- Alternate Insertion and Extraction (AIE) Tower

Tactical Air Control Party:
- Ancillary Equipment to Increase Dismounted Ground-to-Ground Communications
- TACP Small Arms Weapons Modernization
- 110 VAC Lightweight Generator

Desired Capabilities List

Special Tactics:
- Persistent Space/Air-to-Ground Two-Way Datalink
- Mortar Tubes

GUARDIAN ANGEL, SPECIAL TACTICS, & TACTICAL AIR CONTROL PARTY EXECUTIVE SUMMARY

Modernization Priority Profiles ($ Million)

Program	2014	2015	2016
Guardian Angel			
Human Performance Optimization	-	$0.80 [1]	$0.80 [1]
Combat Survivability Suite	$1.74 [4]	$0.87 [4]	$0.87 [4]
Weapon Modernization Suite	$0.45 [4]	$0.44 [4]	$5.40 [4]
Rescue Recovery Vehicles	-	$0.90 [4]	-
Special Tactics			
Universal Datalink	$0.81 [4]	$0.80 [4]	-
Dismounted Operator Suite	$0.51 [4]	$0.33 [4]	-
Employment Enhancement Suite	$1.29 [4]	-	-
Environmental Assessment Suite	$0.45 [4]	$0.45 [4]	-
Communications Enhancement Suite	$0.20 [4]	-	-
Tactical Air Control Party			
Dismounted Interoperable Sensor Acquisition Suite	$13.80 [4]	$6.90 [4]	$6.90 [4]
Rapidly Deployable Joint Operational Communications Suite	$13.76 [4]	$4.78 [4]	$4.78 [4]
Air Support Operations Center (ASOC) Tactical Network Suite	$0.31 [4]	-	-
Software Targeting and Data Management Suite	$0.65 [1]	$0.88 [4]	$5.10 [4]

Notes: [1] 3840 Appropriation   [2] 3010 Appropriation   [3] 3600 Appropriation   [4] 3080 Appropriation

Guardian Angel
- Human Performance Optimization - Provides Pararescue Jumpers (PJ) optimal fitness methods to include both rest and rehabilitation of injuries sustained while training that negatively impact mission readiness.
- Upgraded Combat Survivability Suite - Provides improvements in communication equipment, handheld daytime laser markers, navigation tools, and night vision devices to accomplish rescue missions in both hostile and friendly environments.
- Weapon Modernization Suite - Provides weapon upgrades and marksmanship training in both lethal and non-lethal weapons against an enemy threat or unknown hostile forces.
- Rescue Recovery Vehicles - Provides ground vehicles and watercraft to respond quickly to over-land or water rescue mission.

Special Tactics
- Universal Datalink - Provides Special Tactics Squadrons (STS) with the lightest and easiest to operate situational awareness datalink receivers available.
- Dismounted Operator Suite - Provides STS with protective equipment, weapon upgrades, situational awareness enhancements, and night vision optics necessary for accurately targeting the enemy.

- Employment Enhancement Suite - Provides STS operators with small light tactical vehicles and watercraft for overland and water movement to transverse to their objective area as quickly and efficiently as possible.
- Environmental Assessment Suite - Provides STS operator's special assault zone and weather equipment to conduct special reconnaissance missions and report environmental and runway data in a non-permissive or friendly environment.
- Communication Enhancement Suite - Provides STS with lightweight multi-band communication radios and accessories to talk to aircraft and other networks securely.

Tactical Air Control Party
- Dismounted Interoperable Sensor Acquisition Suite - Provides integrated target sensor points of interest to airborne platforms and shortens the kill chain.
- Rapidly Deployable Joint Operational Communications - Provides modular multi-band and High Frequency (HF) tactical radio and network protocol capability.
- Air Support Operations Center (ASOC) Tactical Network Suite - Provides a lightweight, portable, tactical network suite capable of linking JTACs with tactical airborne platforms.
- Software Targeting and Data Management Suite - Provides a software solution that transmits digital information (data and voice) to maintain proper ground situational awareness and determine near-mensuration of target locations.

GUARDIAN ANGEL (GA) HUMAN PERFORMANCE OPTIMIZATION

1. Background. Air National Guard (ANG) Guardian Angles have fallen behind in progressive methods of fitness, and rest and rehabilitation of injuries sustained while executing or training for missions that are consistent with other Special Operations Forces weapon systems. Ideally, we should optimize human performance so that we field (human) weapon systems superior to those of current and potential adversaries. Injuries are having a negative impact on the health and readiness of the Guardian Angel Weapon System and are resulting in excessive and unnecessary lost work-days and a subsequent impact to mission-ready status. The current medical system does not provide a detailed initial medical screening for elite Air Force Specialties, nor does it address past injuries and structural concerns. In order to enhance human performance and mitigate injuries, Guardian Angels require a Human Optimization System that consists of both contracted physical training personnel and physical training equipment. The Human Optimization System would provide contracted personnel such as a professional team of physical therapists, injury managers, strength coaches, nutritionists and physician's assistants that would be capable of addressing structural concerns and tracking data through the lifecycle of the operator. The second part of the Human Optimization System is procuring the required equipment necessary to execute the program.   Many Guardian Angel units already own physical training equipment but this equipment is not suited for recovery and rehabilitation. Additional rehabilitation, physical training, strength conditioning and reconditioning equipment are required. In summary, Guardian Angels require a Human Optimization System that will optimize education, guidance, injury tracking, and expedited return-to-work programs.

2. Source of Need. ARC 2012 WEPTAC Critical Requirement; Human Performance Optimization (HPO) requirement identified by the GA Senior Leaders Working Group and supported by the Rescue Senior Leaders Panel; It is referenced as "Sustainment" of the Force in the GA Vision 2020 document currently in coordination; THOR3 (Tactical Human Optimization, Rapid Rehabilitation, and Reconditioning) Program and current AFSOC HPO program.

3. Impact If Not Funded. Pararescue personnel will continue to experience unnecessary injuries, delayed return-to-work, and a substandard historical tracking mechanism leading to injury mismanagement. These methods will increase "lost work days" to the operator, increase medical costs to USAF and will compromise mission readiness.

4. Units Impacted.
106 RQW   Gabreski AP, NY   129 RQW   Moffett Fld, CA   176 WG   JB Elmendorf, AK.

5. Cost.   PEC: 53119F

Remaining Quantity Required	Unit Cost	Program Cost
3 Human Performance Optimization Teams (3840)	**$535,000**	**$1,605,000**
3 Human Performance Optimization Equipment Systems (3840)	**$100,000**	**$300,000**
Total		**$1,905,000**

GUARDIAN ANGEL (GA) COMBAT SURVIVABILITY SUITE

1. Background. Guardian Angel (GA) missions demand an agile combat capability to defeat conventional and guerrilla-style threats in a broad range of environments. The key to success is having an inherent flexibility that combines a unique blend of equipment designed to function globally and is effective against current and emerging enemy threats. Guardian Angels require enhancements to the combat survivability suite. Lessons learned show that in prosecution of the GA mission it is extremely difficult for the operator to determine the direction of incoming fire. To alleviate this constraint, a light-weight, man-portable, hostile fire indicator is essential. Similarly, the proliferation of Global Positioning System (GPS)-denial systems require enhanced equipment that is less susceptible to jamming and is capable of providing improved navigation accuracy in both mounted and dismounted applications. Another requirement is the capability to see into areas of reduced visibility (low ambient light, fog, smog or concealment measures). A fusion goggle that operates day or night, incorporating thermal and Night Vision Goggle (NVG) technology, and giving the operator "heads-up" information such as distance and bearing to a chosen objective could fill this capability gap. GA success on the battlefield also depends heavily on its ability to designate threats to supporting parties. A handheld day/night target designator is essential. Additionally, the force-multiplying effect of advanced communications cannot be overstated. Acquisition of a lightweight and compact communication system, capable of delivering voice and high-speed data in both line-of-sight and over-the-horizon while on the move, would dramatically improve GA capability.

2. Source of Need. ARC 2012 WEPTAC Critical Requirement; Lessons Learned from Operations ENDURING FREEDOM (OEF) and IRAQI FREEDOM (OIF); Mission Required Equipment; Shortfalls identified in the Guardian Angel (GA) Modernization Initial Capabilities Document and the GA Capabilities-Based Assessment Final Report.

3. Impact If Not Funded. Degradation of mission accomplishment resulting from equipment and communication capability gaps.

4. Units Impacted.
106 RQW   Gabreski AP, NY   129 RQW   Moffett Fld, CA   176 WG   JB Elmendorf, AK.

5. Cost.   PEC: 53119F

Remaining Quantity Required	Unit Cost	Program Cost
54 MicroDAGR (3080)	**$1,450**	**$78,300**
72 PRC-152A (3080)	**$13,850**	**$997,200**
150 Invisio V60 (3080)	**$2,000**	**$300,000**
30 HFI (3080)	**$1,800**	**$54,000**
150 Fusion Goggles (3080)	**$9,200**	**$1,380,000**
36 Night/Day Target Designators (3080)	**$18,500**	**$666,000**
Total		**$3,475,500**

GUARDIAN ANGEL (GA) WEAPON MODERNIZATION SUITE

1. Background. Guardian Angel (GA) missions demand agile combat capability to defeat conventional and guerrilla-style threats in a broad range of day/night-time environments. The key to success is the flexibility that comes from having a unique blend of weapons and equipment designed to function globally and be effective against common and emerging enemy threats. In an effort to continually modernize and improve the safety of rescue operations, GAs require a simple, versatile and long-range weapon for the defense of personnel and mission objectives against an entrenched enemy when Close Air Support (CAS) is not available. GAs also need the capability to control crowds and unknown hostiles, and hold them at an ineffective and safe distance from an incident site. Lessons learned from Operation ENDURING FREEDOM (OEF) have highlighted the need for improvements to current GA outdated weapons capabilities (lethal and non-lethal) which would greatly improve the chances of mission success. The current 9mm weapon has insufficient stopping power for personal defense, has a heavy trigger-pull reducing accuracy, is heavy, and the components easily corrode. A modification or replacement of the 9mm is required. The M-4 has an unacceptable malfunction rate of 1 in 5,000. Modifications could improve malfunction rates to 1 in 50,000. GA also needs more Enhanced Battle Rifles. Lastly, GAs require the resources to train consistently on current weapons which will greatly enhance their successful employment. Training quality and quantity could be substantially improved with the purchase of suitable multilane 25m ranges.

2. Source of Need. ARC 2012 WEPTAC Critical Requirement; Lessons Learned from Operation ENDURING FREEDOM (OEF), Operation IRAQI FREEDOM (OIF); Mission Required Equipment; Shortfalls identified in the Guardian Angel (GA) Modernization Initial Capabilities Document and the GA Capabilities-Based Assessment Final Report.

3. Impact If Not Funded. Outdated weapons jeopardize mission accomplishment and the safety of GA personnel. GAs lack the ability to control and deter unruly crowds and prevent further escalation. Insufficient and inconsistent training leads to a significant decline in proficiency, specifically in target acquisition and target engagement with small arms weapons.

4. Units Impacted.
106 RQW   Gabreski AP, NY   129 RQW   Moffett Fld, CA   176 WG   JB Elmendorf, AK.

5. Cost.   **PEC: 53119F**

Remaining Quantity Required	Unit Cost	Program Cost
150 M-4 Modernization (3080)	**$2,370**	**$355,500**
150 M-9 Modernization (3080)	**$550**	**$82,500**
11 Multi-role Stand-off Systems (3080)	**$28,000**	**$308,000**
11 Non-Lethal Weapons (3080)	**$12,500**	**$137,500**
3 25M Live Fire Ranges (3080)	**$1,800,000**	**$5,400,000**
Total		**$6,283,500**

GUARDIAN ANGEL (GA) RESCUE RECOVERY VEHICLES

1. Background. Guardian Angel (GA) teams are required to operate in any environment and recover isolated personnel in the full spectrum of terrain, in both combat operations and domestic response events. A water rescue craft capable of being air-dropped and operated in the open ocean is required to replace the legacy water rescue craft. Due to the more stringent safety regulations and an increase in the number of team members, the support required for jump and dive operations has also increased. A larger support boat is necessary to facilitate this training. Additionally, ground rescue vehicles (both armored and unarmored) are needed to ensure Para-Rescue Jumpers (PJ) can respond quickly and survive over-land rescue scenarios. Currently, the Pararescue community is acquiring armored vehicles that will support their operational requirements, though fielding for the Air National Guard (ANG) is not projected until late-2013 or early-2014. ANG teams are currently operating without this critical mission equipment.

2. Source of Need. Guardian Angel, Air-Deployable, Recovery Vehicle System Development Requirement; Lessons Learned from Operations ENDURING FREEDOM (OEF) and IRAQI FREEDOM (OIF); ARC 2012 WEPTAC Critical Requirement; Shortfalls identified in the Guardian Angel (GA) Modernization Initial Capabilities Document and the GA Capabilities-Based Assessment Final Report.

3. Impact If Not Funded. PJ personnel will continue to rely on legacy vehicles and watercraft with limited range and capability, risking operator and patient safety as well as potential mission accomplishment.

4. Units Impacted.
106 RQW   Gabreski AP, NY   129 RQW   Moffett Fld, CA   176 WG   JB Elmendorf, AK.

5. Cost.   PEC: 53119F

Remaining Quantity Required	Unit Cost	Program Cost
6 Search and Rescue Tactical Vehicles (3080)	**$150,000**	**$900,000**
Total		**$900,000**

SPECIAL TACTICS (ST) UNIVERSAL DATALINK

1. Background. Special Tactics Combat Control Teams (CCT) deployed in Overseas Contingency Operations (OCO) are often ambushed by the enemy at various ranges from one meter to three hundred meters. As Special Operations Forces in Operation ENDURING FREEDOM (OEF) transition to Village Stabilization Operations (VSO), CCT personnel find themselves moving with small teams in all-terrain vehicles and/or on foot through hostile territory. CCT operators currently carry multiple radios to ensure interoperability with the various types of aircraft that may support them. CCTs require the lightest and easiest situational awareness equipment available, and they must be universally compatible with the equipment on all strike aircraft. Examples of this type of equipment would include mini ruggedized laptops, and Video Downlink (VDL) receivers.

2. Source of Need. ARC 2012 WEPTAC Critical Requirement; Lessons Learned from Operations ENDURING FREEDOM (OEF) and IRAQI FREEDOM (OIF); all equipment items requested are continuation of AFSOC/A5KB and USAF Battlefield Airman Requirements Working Group (BARWG) fielding efforts that are either unfunded or still in the procurement process.

3. Impact If Not Funded. Real-time information exchange between ground party personnel and aircraft is critical to conducting ground operations in hostile territory. Lack of datalink communication creates high potential for mission failures, lost personnel, lost aircraft and an increased likelihood of collateral damage. The situational awareness suites must be interoperable with all air packages.

4. Units Impacted.
123 STS Louisville IAP, KY   125 STS Portland IAP, OR

5. Cost.   **PEC: 53130F**

Remaining Quantity Required	Unit Cost	Program Cost
20 Universal Datalink (3080)	**$40,000**	**$800,000**
20 Ruggedized Planning Computers (3080)	**$3,000**	**$60,000**
25 Video Downlink Receivers (3080)	**$30,000**	**$750,000**
Total		**$1,610,000**

SPECIAL TACTICS (ST) DISMOUNTED OPERATOR SUITE

1. Background. Special Tactics Squadron (STS) Operators supporting Overseas Contingency Operations (OCO) find themselves engaging the enemy with their personal weapons at close range while providing precision strike capabilities on targets at various ranges from two hundred to three thousand meters. Lessons learned indicate that the key to victory is rapid and accurate return fire on the enemy, followed by immediate and accurate precision air strikes. As aircraft technology has advanced, the need to carry additional devices to employ those capabilities has increased the dismounted operator's load. STS Operators require the lightest, most accurate, and easiest to use gear available. This suite provides a single light-weight system to increase their lethality on the battlefield by first using personal weapons and then gaining situational awareness to quickly bring precise airpower to bear on the enemy while avoiding fratricide. Capabilities of the components are complementary and interoperable throughout the entire STS mission set in wartime and Domestic Operations (DOMOPS). The package includes protective clothing, a small tactical information display, wireless interface between night vision devices and peripherals, a range finder, hands-free optics, and improved weapons accessories.

2. Source of Need. Lessons Learned from Operation ENDURING FREEDOM (OEF); ARC 2012 WEPTAC Critical Requirement; all equipment items requested are continuation of AFSOC/A5KB and USAF Battlefield Airman Requirements Working Group (BARWG) fielding efforts that are either unfunded or still in the procurement process.

3. Impact If Not Funded. Failure to provide STS operators with lighter, more precise, and easily operated equipment will result in decreased mission capability, possible fratricide events, and potential casualties among STS operators.

4. Units Impacted.
123 STS Louisville IAP, KY   125 STS Portland IAP, OR

5. Cost.   PEC: 53130F

Remaining Quantity Required	Unit Cost	Program Cost
100 Personal Protection Equipment (3080)	**$1,000**	**$100,000**
7 Integrated Tactical Interface (3080)	**$30,000**	**$210,000**
20 Fusion Goggle Wireless Upgrade (3080)	**$3,600**	**$72,000**
30 Next Generation Small LRF (3080)	**$8,500**	**$255,000**
70 Next Generation GPS (3080)	**$600**	**$42,000**
30 Helmet Mounted Binoculars (3080)	**$3,500**	**$105,000**
8 Improved Weapons Accessory Mounts (3080)	**$3,500**	**$28,000**
20 Improved M-203 Sight (3080)	**$1,000**	**$20,000**
Total		**$832,000**

SPECIAL TACTICS (ST) EMPLOYMENT ENHANCEMENT SUITE

1. Background. Special Tactics Squadrons (STS) consist of Combat Control, Pararescue, and Special Operations Weather Teams who utilize a wide variety of employment vehicles for both Overseas Contingency and Domestic Response operations. The operators rely heavily on small, light tactical vehicles and watercraft to reach their objective area as quickly and efficiently as possible. It has been five years or more since the majority of these vehicles have been updated and their reliability is rapidly degrading. Advancements in technology now provide improvements to both land and marine rescue vehicles. The Maritime Support Boats are larger, more seaworthy craft with new, more reliable motors and a heated cabin capable of supporting life-saving emergency operations in the case of an injured jumper. The Maritime Parachute Operations Kit is required to safely employ precision jump masters at sea, and the Maritime Forward-Looking IR system will greatly enhance safety by enabling rapid detection and marking the location of personnel in the water. Replacement of aging small swift-water boats permits STS to safely conduct reconnaissance and recovery operations in fast moving waters in the rivers of Afghanistan or the floods in the heartland. Additionally, Battlefield Airman currently utilize small All-Terrain Vehicles (ATV) to conduct ground transportation in remote environments. These ATVs suffer from a low cargo capability, minimal range, and are extremely terrain limited. A vehicle capable of transporting a minimum of two personnel plus equipment over extremely rugged terrain is urgently required. New snow machines are needed to replace the current underpowered and undersized fleet. They also add greater range and the ability to traverse extreme snow conditions. Replacing a portion of the fleet will enable STS operators to successfully respond to events and accomplish the mission commander's intent.

2. Source of Need. Lessons Learned from Operation ENDURING FREEDOM (OEF); ARC 2012 WEPTAC Critical Requirement; all equipment items requested are continuation of AFSOC/A5KB and USAF Battlefield Airman Requirements Working Group (BARWG) fielding efforts that are either unfunded or still in the procurement process.

3. Impact If Not Funded. STS operators may experience mission degradation due to aging and less-capable equipment. These employment platforms are used to respond to both hostile engagements and homeland disaster relief efforts.

4. Units Impacted.
123 STS Louisville IAP, KY   125 STS Portland IAP, OR

5. Cost.   PEC: 53130F

Remaining Quantity Required	Unit Cost	Program Cost
2 Maritime Parachute Ops Kit (3080)	**$100,000**	**$200,000**
2 Maritime Support Boat (3080)	**$150,000**	**$300,000**
2 Swift-Water Boats (3080)	**$6,000**	**$12,000**
2 Maritime FLIR Mounting Systems (3080)	**$275,000**	**$550,000**
8 Improved Tactical ATVs (3080)	**$16,000**	**$128,000**
4 Snow Machines (3080)	**$11,000**	**$44,000**
12 Manpowered Transition Systems (3080)	**$4,750**	**$57,000**
Total		**$1,291,000**

SPECIAL TACTICS (ST) ENVIRONMENTAL ASSESSMENT SUITE

1. Background. Special Tactics Squadrons (STS) consist of Combat Control Teams (CCT), Pararescue Teams and Special Operations Weather Teams, and are charged with providing special reconnaissance and environmental data (both weather and assault zones) to higher headquarters for both contingency and Domestic Operations (DOMOPS). The operators currently operate with outdated, heavy and bulky weather sensors and assault zone survey equipment that are unreliable and have not been updated in many years. The size and weight of this legacy equipment, coupled with the lengthy time they take to gather data, exposes operators to greater risk than any other mission set in Special Tactics. Technology advancements promise to lighten the load of the individual operator by 25 percent and reduce data collection times by 50 percent. Procurement of new environmental assessment equipment will enable STS operators to conduct their vital reconnaissance missions safely, with far greater efficiency.

2. Source of Need. Lessons Learned from Operation ENDURING FREEDOM (OEF); ARC 2012 WEPTAC Critical Requirement; all equipment items requested are continuation of AFSOC/A5KB and USAF Battlefield Airman Requirements Working Group (BARWG) fielding efforts that are either unfunded or still in the procurement process.

3. Impact If Not Funded. STS operators may experience mission degradation due to aging and unreliable equipment, with a potential negative impact on both hostile engagements and homeland disaster relief efforts.

4. Units Impacted.
123 STS Louisville IAP, KY   125 STS Portland IAP, OR

5. Cost.   PEC: 53130F

Remaining Quantity Required	Unit Cost	Program Cost
4 Next Generation LZ Assessment Kits (3080)	**$130,000**	**$520,000**
5 LZ Assessment Modular Upgrades (3080)	**$45,000**	**$225,000**
12 Riverine Analysis Kits (3080)	**$3,300**	**$39,600**
6 Tactical Atmospheric Sounding Kits (3080)	**$21,000**	**$126,000**
Total		**$910,600**

SPECIAL TACTICS (ST) COMMUNICATIONS ENHANCEMENT SUITE

1. Background. Special Tactics Squadrons (STS) consist of Combat Control Teams, (CCT) Pararescue Teams and Special Operations Weather Teams. The teams must communicate Command and Control (C2) information to a variety of assets on the battlefield and in Domestic Operations (DOMOPS) via both Line-of-Sight (LOS) and Beyond-Line-of-Sight (BLOS) scenarios. Critical C2 data and voice transmissions must be clear, while the equipment must be light weight, durable, and easy to operate. The communications enhancement suite allows operators to communicate more effectively in maritime and very loud environments through LOS and Satellite Communication (SATCOM) radios with all military and US emergency responders. Procurement of enhanced communications equipment will enable STS operators to safely conduct their vital missions in any environment with far greater efficiency.

2. Source of Need. Lessons Learned from Operation ENDURING FREEDOM (OEF); ARC 2012 WEPTAC Critical Requirement; all equipment items requested are continuation of AFSOC/A5KB and USAF Battlefield Airman Requirements Working Group (BARWG) fielding efforts that are either unfunded or still in the procurement process.

3. Impact If Not Funded. STS Operators may experience mission degradation if communications are degraded or interrupted due to aging or unreliable equipment. The effectiveness of both contingency and DOMOPS could be impacted.

4. Units Impacted.
123 STS Louisville IAP, KY   125 STS Portland IAP, OR

5. Cost.   PEC: 53130F

Remaining Quantity Required	Unit Cost	Program Cost
20 Advanced Tactical Headsets (3080)	**$1,500**	**$30,000**
20 Radio Software Upgrades (3080)	**$1,600**	**$32,000**
6 Multi-Spectrum Radio Remote Units (3080)	**$15,000**	**$90,000**
10 Advanced SATCOM Antennas (3080)	**$5,000**	**$50,000**
Total		**$202,000**

TACTICAL AIR CONTROL PARTY (TACP) DISMOUNTED INTEROPERABLE SENSOR ACQUISITION SUITE

1. Background. Dismounted Joint Terminal Attack Controllers (JTAC) currently lack an integrated solution capable of providing Sensor Points of Interest (SPI) and covert marking detection. In order to maintain and provide situational awareness, JTACs need the capability to simultaneously operate geospatial mapping, navigation, and precision targeting software with the option to provide direct, near real-time connectivity with supporting aircraft and ground forces. These capabilities will shorten the kill chain timeline and help mitigate collateral damage and fratricide. This requirement would also provide SPI and other J-series messages on a common datalinked system, with or without the use of a gateway. The ability to visually determine the location of pulse-coded frequency lasers is paramount in order to confirm that aircraft-based lasers are tracking the same intended target that ground forces are designating. The legacy Laser Range Finder (LRF) system is cumbersome and not conducive for use in high-speed and rugged terrain environments where JTACs are expected to operate. JTACs need LRFs with integrated eye-safe magnified optics, capable of identifying a tank-sized target out to 5 kilometers for day and 1 kilometer for night recognition. The device should have RS-232 cables and USB interfaces, and be capable of wireless integration for future applications with a total weight less than 2 lbs. JTACs lack the ability to record direct combat operations and require a helmet mounted system that would facilitate mission recordings and debriefings.

2. Source of Need. ACC TACP RWG validated requirement; AFRL request for solutions solicitation number BAA-RWK-10-0003; AFMC RFP Solicitation Number TACPCASS061512; ARC 2012 WEPTAC Critical Requirement; Lessons Learned from Operations ENDURING FREEDOM (OEF) and IRAQI FREEDOM (OIF).

3. Impact If Not Funded. Air National Guard (ANG) JTACs will be unable to effectively navigate, maintain situational awareness, and communicate digitally with supporting aircraft and will be reliant upon legacy technology to complete mission objectives.

4. Units Impacted.

113 ASOS Terre Haute IAP, IN	146 ASOS Will Rodgers World AP, OK	227 ASOS Atlantic City IAP, NJ
116 ASOS Camp Murray, WA	147 ASOS Ellington IAP, TX	238 ASOS Meridian RAP, MS
118 ASOS New London, NC	148 ASOS Ft Indiantown Gap, PA	274 ASOS Syracuse IAP, NY
122 ASOS Camp Beauregard, LA	165 ASOS Garden City, GA	284 ASOS Smoky Hill, KS
124 ASOS Boise AP, ID	169 ASOS Peoria IAP, IL	

5. Cost.   PEC: 52671F

Remaining Quantity Required	Unit Cost	Program Cost
280 JTAC Dismount Computer Kits (3080)	**$28,000**	**$ 7,840,000**
170 TACP Day/Night Spot Trackers (3080)	**$50,000**	**$8,500,000**
170 TACP Handheld LOS SPI/VDL (3080)	**$25,000**	**$4,250,000**
170 Lightweight Handheld LRFs (3080)	**$25,000**	**$4,250,000**
425 Helmet Mounted Recording Systems (3080)	**$6,500**	**$2,762,500**
Total		**$27,602,500**

TACTICAL AIR CONTROL PARTY (TACP) RAPIDLY DEPLOYABLE JOINT OPERATIONAL COMMUNICATIONS SUITE

1. Background. It is essential to communicate with military, law enforcement, and civilian agencies on the appropriate frequencies, with an adequate amount of power, during Federal contingencies as well as Homeland Defense (HD) and disaster relief missions. The ability to package multi-band tactical radios and High Frequency (HF) tactical radios would facilitate improved communication with tactical and disaster response agencies. It should be a modular container that can be installed, operated and maintained in either a strategic or highly-mobile tactical environment. The system should be integrated requiring only the user to provide power from any world-wide source with an auto-sensing power distribution system, antennas, cables and initial radio programming for net operations. The set-up time for two-person operations should be ten minutes or less. Joint Terminal Attack Controllers (JTACs) are also in an ever-evolving communications-intensive operating environment under direct combat conditions. They require the ability to talk to and maintain persistent communications with aircraft and other remote sites in a non-permissive environment. This radio should be capable of multiple waveforms with a desired capability of 2 to 512 MHz, and Video Downlink (VDL) frequencies. This device should be capable of communications with aircraft within approximately eight nautical miles at low to medium altitudes without an additional amplifier. It should weigh three pounds or less, should possess network and Voice-Over Internet Protocol (VOIP) potential with the smallest signature on the JTAC's body-worn kit.

2. Source of Need. ACC TACP RWG and LOGDET Review validated requirement; AFMC Pre-Solicitation reference number R1550; AFRL request for solutions solicitation number BAA-RWK-10-0003; ARC 2012 WEPTAC Critical Requirement; Lessons Learned from Operations ENDURING FREEDOM (OEF) and IRAQI FREEDOM (OIF).

3. Impact If Not Funded. Without this capability, JTACs risk mission degradation or failure both in combat and disaster response due to limitations of current communication equipment.

4. Units Impacted.

111 ASOS Camp Murray, WA	146 ASOS Will Rodgers World AP, OK	227 ASOS Atlantic City IAP, NJ
113 ASOS Terre Haute IAP, IN	147 ASOS Ellington IAP, TX	238 ASOS Meridian RAP, MS
116 ASOS Camp Murray, WA	148 ASOS Ft Indiantown Gap, PA	274 ASOS Syracuse IAP, NY
118 ASOS New London, NC	165 ASOS Garden City, GA	284 ASOS Smoky Hill, KS
122 ASOS Camp Beauregard, LA	168 ASOS Peoria IAP, IL	
124 ASOS Boise AP, ID	169 ASOS Peoria IAP, IL	

5. Cost.   **PEC: 52671F**

Remaining Quantity Required	Unit Cost	Program Cost
30 Radio Communications Suites (3080)	**$140,000**	**$4,200,000**
425 Next Generation Handheld Radios (3080)	**$45,000**	**$19,125,000**
Total		**$23,325,000**

TACTICAL AIR CONTROL PARTY (TACP) AIR SUPPORT OPERATIONS CENTER (ASOC) TACTICAL NETWORK SUITE

1. Background. Air Support Operations Centers (ASOC) serve as the principal air control agency of the Theater Air Control System (TACS), and are responsible for the direction and control of air operations supporting the ground combat element. They process and coordinate requests for immediate air support, and coordinate air missions requiring integration with other supporting air and ground forces. They normally collocate with the US Army tactical headquarters' senior Fire Support Coordination Center (FSCC) within the ground combat element. The ASOCs aid with long-haul voice and data communications and serve as the primary link between Joint Terminal Attack Controllers (JTAC) and airborne assets. The ASOCs lack a lightweight, transportable, tactical network suite capable of linking JTACs, aircrews, and senior echelons in the TACS. This tactical network should include approximately 3 routers, 3 switches, and crypto to facilitate both classified and unclassified transmissions. The solution needs a Voice-Over Internet Protocol (VOIP) server and VOIP phones to support voice demand, and must support a minimum bandwidth of 5 Mbps.

2. Source of Need. AFRL request for solutions solicitation number BAA-RWK-10-0003; USSOCOM sponsored recommendation for deployable C4I requirements; ARC 2012 WEPTAC Critical Requirement; Lessons Learned from Operations ENDURING FREEDOM (OEF) and IRAQI FREEDOM (OIF).

3. Impact If Not Funded. Air National Guard (ANG) ASOCs will continue to work with antiquated assets for tactical network capability which require large amounts of vehicle support to move. Additionally, there won't be a connection from the JTACS and aircrew to the senior decision makers.

4. Units Impacted.
111 ASOS Camp Murray, WA   168 ASOS Peoria IAP, IL

5. Cost.   **PEC: 52671F**

Remaining Quantity Required	Unit Cost	Program Cost
2 Tactical Network Suites (3080)	**$155,000**	**$310,000**
Total		**$310,000**

TACTICAL AIR CONTROL PARTY (TACP) SOFTWARE TARGETING AND DATA MANAGEMENT SUITE

1. Background. Joint Terminal Attack Controllers (JTACs) require a software solution capable of digitally aiding them to maintain proper ground situational awareness and determine accurate target locations in a format that can quickly and easily be transmitted to all attack aviation platforms. Currently, Digitally-Aided Close Air Support (DaCAS) systems are designed to manage assets from a command and control construct. There needs to be a JTAC-centric solution that allows for timely and accurate targeting solutions that translate to airborne platforms directly without requiring Beyond-Line-of-Sight (BLOS) communications through a remote gateway. JTACs also require a means to share ideas in a collaborative environment and take advantage of social media venues in order to better develop Tactics, Techniques, and Procedures (TTP). Additionally, JTAC computing solutions are tied to equipment which requires numerous cables for connectivity. A secure wireless network would increase the combat capability of JTACs while decreasing the weight carried during combat operations. Enhanced Sensor Point of Interest (SPI) and situational awareness capabilities can dramatically decrease required voice communications, decrease the propensity for target misidentification, and expedite kinetic strikes on known targets.

2. Source of Need. AFRL request for solutions solicitation number BAA-RWK-10-0003; ARC 2012 WEPTAC Critical Requirement; Lessons Learned from Operations ENDURING FREEDOM (OEF) and IRAQI FREEDOM (OIF).

3. Impact If Not Funded. The lack of these capabilities will decrease mission effectiveness. Air National Guard (ANG) JTACs will be reliant upon legacy technology to complete mission objectives and will be unable to effectively navigate, maintain situational awareness, and communicate digitally with supporting aircraft.

4. Units Impacted.

113 ASOS Terre Haute IAP, IN	138 CTF Camp Gruber, OK	169 ASOS Peoria IAP, IL
116 ASOS Camp Murray, WA	146 ASOS Will Rodgers World AP, OK	227 ASOS Atlantic City IAP, NJ
118 ASOS New London, NC	147 ASOS Ellington IAP, TX	238 ASOS Meridian RAP, MS
122 ASOS Camp Beauregard, LA	148 ASOS Ft Indiantown Gap, PA	274 ASOS Syracuse IAP, NY
124 ASOS Boise IAP, ID	165 ASOS Garden City, GA	284 ASOS Smoky Hill, KS

5. Cost.   **PEC: 52671F**

Remaining Units Required	Unit Cost	Program Cost
220 JTAC Targeting Software Kits (3080)	**$4,000**	**$880,000**
1 TACP/ASOC Collaborative Login (3840)	**$650,000**	**$650,000**
340 JTAC Equipment Wireless Kits (3080)	**$15,000**	**$5,100,000**
Total		**$6,630,000**

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MQ-1 & MQ-9

- **Intelligence, Surveillance, and Reconnaissance (ISR)**
- **Air Interdiction/Armed Reconnaissance**
- **Close Air Support (CAS) to Ground Forces**
- **ANG MQ-1 / MQ-9 Units Provide 17% of the Total Fleet**

MQ-1 PREDATOR REMOTELY PILOTED AIRCRAFT:

The MQ-1 Predator is a medium-altitude, long endurance, Remotely Piloted Aircraft (RPA) system. The MQ-1's primary mission is to act as an ISR asset, employing sensors to provide real-time data to commanders and intelligence specialists at all levels. The MQ-1 conducts interdiction and armed reconnaissance with a system integrating Electro-Optical, Infrared (EO/IR) laser designator and laser illuminator into a single sensor package. The aircraft can employ two laser-guided AGM-114 Hellfire missiles. Additionally, the MQ-1 is a theater asset for reconnaissance, surveillance, and target acquisition organic to the Joint Force Air Component Commander's (JFACC) forces. The MQ-1 Predator is flown by ND, AZ, TX, OH, and CA Air National Guard (ANG) units. The NV ANG supports active duty MQ-1 operational and training sorties.

MQ-9 REAPER REMOTELY PILOTED AIRCRAFT:

The MQ-9 Reaper is a medium-to-high altitude, long-endurance, RPA system. Because of its robust weapons payload capacity, long endurance and on-station times, the MQ-9's primary mission is hunter-killer operations against emerging targets. The MQ-9's secondary mission is to act as an ISR asset, employing sensors to provide real-time data to commanders and intelligence specialists at all levels. It is larger and more powerful than the MQ-1 Predator, and is designed to prosecute time-sensitive targets using its capabilities of precision targeting and long endurance to find, fix, and destroy or disable those targets. The NY and TN ANG operate the MQ-9 Reaper, and the NV ANG supports active duty MQ-9 operational and training sorties.

Persistent Conflict - Enabling the Warfighter
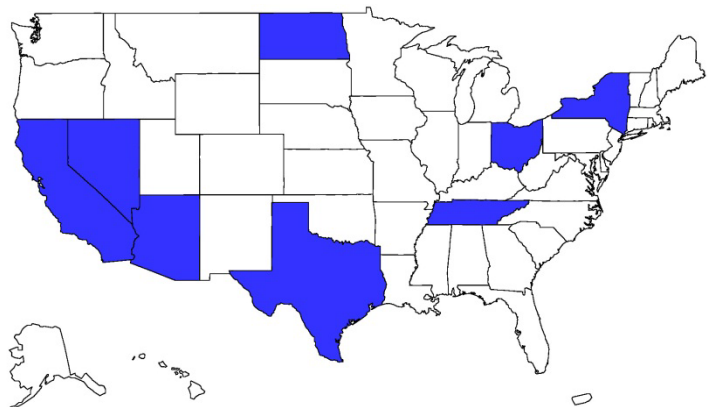
MQ-1 & MQ-9
2012Weapons and Tactics Conference

Critical Capabilities List

- Multi-Level Secure Communication Suite
- Independent and Redundant Data Architectures
- Ground-Based Sense and Avoid (GBSAA)
- High Speed Exploitation Support Data
- Rapid, Robust Data Transfer and Storage

Essential Capabilities List

- Squadron Operations Center (SOC) Standardization to System Program Office Baseline
- Rapidly Deployable Remotely Piloted Aircraft (RPA) Capability
- Imminent Threat Warning and Targeting
- Improved Multi-Spectral Targeting System (MTS)
- Weapons Simulate Mode
- Increased Capability and Security for C-Band Operations
- Improved Electronic Protection

Desired Capabilities List

- Increased Video Downlink (VDL) Range
- High Definition Video
- Podded Link-16 Interoperability

MQ-1 & MQ-9
EXECUTIVE SUMMARY

Modernization Priority Profiles ($ Million)

Program	2014	2015	2016
Multi-Level Secure Communications Suite	$5.70 [3] -	- $13.80 [4]	- $36.00 [4]
Independent and Redundant Data Architectures	$10.50 [4]	$4.80 [4]	-
Ground-Based Sense and Avoid (GBSAA)	$9.00 [3] -	$4.00 [3] $2.00 [4]	$2.00 [3] $2.00 [4]
High Speed Exploitation Support Data (ESD)	$0.24 [4]	-	-
Rapid, Robust Data Transfer and Sharing	$1.40 [4]	-	-

Notes: [1] 3840 Appropriation   [2] 3010 Appropriation   [3] 3600 Appropriation   [4] 3080 Appropriation

- Multi-Level Secure Communications Suite - Provides the ability for tactical aircrew to send and receive vital, time-sensitive information to both Command and Control (C2) agencies and other battlefield entities.
- Independent and Redundant Data Architectures - Provides the ability for tactical aircrew to gain and maintain situational awareness through independent and redundant digital network-based connectivity, reducing the reliance on non-combat related networks.
- Ground-Based Sense and Avoid (GBSAA) - Provides Remotely Piloted Aircraft (RPA) access to the National Airspace System (NAS) by linking a network of low-cost, scalable, and deployable 3D radars to RPA Ground Control Stations (GCS).
- High Speed Exploitation Support Data (ESD) - Provides RPA GCSs with significantly faster ESD resulting in improved aircraft and sensor point of interest position data and situational awareness.
- Rapid, Robust Data Transfer and Sharing - Provides the ability to rapidly archive and distribute extremely large data files, such as those associated with Full Motion Video (FMV) and crew communications, in order to improve cross-organizational information sharing.

MQ-1/MQ-9 MULTI-LEVEL SECURE COMMUNICATIONS SUITE

1. Background. Currently, both MQ-1 and MQ-9 aircraft lack sufficient on- and off-board means to establish and maintain communication with vital Command and Control (C2) agencies and tactical assets in the Area of Responsibility (AOR). The Ground Control Station (GCS) is currently limited to utilizing external audio sources, such as standard phone and Internet Protocol (IP)-based systems (i.e., WAVE®, a radio-over-IP system, voice-over-secure-IP, and TOP SECRET voice-over-IP) for extended communications, and has no inherent extended radio capability. Both aircraft have a single on-board radio, but suffer from significant limitations due to antenna placement and poor operation. MQ-1/9 operators require a multi-level secure communications suite for use during current and future operations, both domestically and abroad, involving a variety of mission partners at multiple classification levels. This suite must include provisions for clear, consistent, reliable, and timely communications across all classified enclaves. It would optimally consist of a single pilot-selectable interface and a single-point reception capability, but may require multiple control interfaces due to certification and accreditation limitations. The suite must also integrate the ARC-210 aircraft radio with IP-based systems. This capability would supplement the textual communication standard established with internet relay chat.

2. Source of Need. ARC 2009 - 2012 WEPTAC Critical Requirement.

3. Impact If Not Funded. Historically, the lack of a multi-level secure communications suite has been a leading causal factor for the ineffectiveness of MQ-1/9 missions. This will remain true for both current and emerging missions, unless operators are provided with a reliable and effective means to communicate with a range of agencies and assets, across all classified enclaves.

4. Units Impacted.

118 AW Nashville IAP, TN	163 RW March ARB, CA	178 FW Springfield-Beckley MAP, OH
119 WG Hector IAP, ND	174 ATW Syracuse IAP, NY	214 RS Davis-Monthan AFB, AZ
147 RW Ellington IAP, TX		

5. Cost.   **PEC: 53219F**

Remaining Quantity Required	Unit Cost	Program Cost
1 2nd Radio NRE (3600)	**N/A**	**$3,600,000**
120 2nd Radio Mod Kits (3080)	**$300,000**	**$36,000,000**
1 GCS Intercom NRE (3600)	**N/A**	**$2,100,000**
23 GCS Intercom Mod Kits (3080)	**$600,000**	**$13,800,000**
Total		**$55,500,000**

MQ-1/MQ-9 INDEPENDENT AND REDUNDANT DATA ARCHITECTURES

1. Background. The MQ-1 and MQ-9 weapons systems are unique as tactical airpower assets as they require ground-based systems to operate effectively. The ability for the aircrew to gain and maintain situational awareness in today's battlefield hinges on digital network-based connectivity, and more specifically, effective support to ground forces requires uninterrupted access to mission-critical network systems. The presence of this connectivity is often the difference between mission success or mission failure. The MQ-1 and MQ-9 currently lack independent and redundant data architectures to maximize uninterrupted connectivity. Reliance on other agencies for sustainment and control of the required network connections signifies a potential and often realized weakness, resulting in mission failure. This effort would provide squadron-level direct connection and control over current systems, in addition to future systems that are installed as mission enablers. This requires a separate Point of Presence (PoP) and a Demilitarized Zone (DMZ) for all tactical networks that are independent of normal base-level communications squadron control. Local remotely piloted aircraft leadership will maintain complete control over this PoP and DMZ. Having complete control of this equipment (i.e. router, switch, and firewall) allows local leadership to protect the ISR assets against unauthorized access and unnecessary services which can inadvertently shutdown mission-essential equipment during critical mission phases. Additionally, this capability will allow significant flexibility as the Air National Guard (ANG) supports emerging missions in other areas of responsibility, as well as Domestic Operations (DOMOPS).

2. Source of Need. ARC 2009 - 2012 WEPTAC Critical Requirement.

3. Impact If Not Funded. The lack of an independent and redundant data architecture will result in degraded mission effectiveness resulting from lengthy periods of non-connectivity.

4. Units Impacted.

118 AW Nashville IAP, TN	163 RW March ARB, CA	178 FW Springfield-Beckley MAP, OH
119 WG Hector IAP, ND	174 ATW Syracuse IAP, NY	214 RS Davis-Monthan AFB, AZ
147 RW Ellington IAP, TX		

5. Cost.　　　**PEC: 53219F**

Remaining Quantity Required	Unit Cost	Program Cost
3 Dual Diverse Infrastructure (3010)	**$2,100,000**	**$6,300,000**
7 Defense Information Systems Agency Service Delivery Point (3010)	**$700,000**	**$4,900,000**
7 RPA DMZ (3010)	**$800,000**	**$5,600,000**
Total		**$16,800,000**

MQ-1/MQ-9 GROUND-BASED SENSE AND AVOID (GBSAA)

1. Background. The MQ-1/9's current configuration and equipment, along with international and Federal aviation safety requirements, limit their ability to operate in international and domestic airspace outside of Military Restricted Areas. MQ-1/9 flight operations require specific, International Civil Aviation Organization (ICAO), Federal Aviation Administration (FAA), or foreign authority approval which restricts the aircraft to insufficient airspace, and specific or limited routing and/or altitudes. Such restrictions prevent optimal aircrew training and degrade operational flexibility during Federal and State missions. Before the ICAO and FAA will approve unrestricted flight operations for unmanned aircraft, there is a requirement to achieve an "Equivalent Level of Safety," analogous to manned aircraft (pilot on board). Federal Aviation Regulation (FAR) 91.113 requires all pilots to "see-and-avoid" other aircraft. The FAA will authorize an equivalent "sense-and-avoid" solution once one is developed and certified. An MQ-1/9 operating with a Ground-Based Sense and Avoid (GBSAA) system meets the intent of collision avoidance contained in the ICAO Rules of the Air and FAA Federal Aviation Regulations (FAR). GBSAA systems incorporating active radar sensors, such as the Lightweight Surveillance and Target Acquisition Radar (LSTAR) high precision ground radar are Commercial Off-the-Shelf (COTS), low-cost solutions that provide the National Guard with a unique, scalable, and transportable system – critical for the State Title 32 Defense Support to Civil Authorities (DSCA) mission. Air National Guard (ANG) MQ-1/9 operations centers configured with a GBSAA system will improve and expedite the assimilation of the MQ-1/9 into operations in both international and domestic airspace.

2. Source of Need. ARC 2010 and 2012 WEPTAC Critical Requirement; 2012 Joint Domestic Operations Equipment Requirements (JDOER) Conference Critical Requirement.

3. Impact If Not Funded. ANG MQ-1/MQ-9 units will continue to lack the ability to "Sense and Avoid," and continue to require specific airspace approval prior to conducting operations in International and Federal Airspace. Training will be sub-standard and Defense Support to Civil Authorities (DSCA) response virtually non-existent for Remotely Piloted Aircraft (RPA).

4. Units Impacted.

118 AW Nashville IAP, TN	163 RW March ARB, CA	178 FW Springfield-Beckley MAP, OH
119 WG Hector IAP, ND	174 ATW Syracuse IAP, NY	214 RS Davis-Monthan AFB, AZ
147 RW Ellington IAP, TX		

5. Cost.   PEC: 53219F

Remaining Quantity Required	Unit Cost	Program Cost
NRE (3600) *	**N/A**	**$15,000,000**
7 GBSAA Systems (3080)	**$1,000,000**	**$7,000,000**
Total		**$22,000,000**

* Includes certification.

MQ-1/MQ-9 HIGH SPEED EXPLOITATION SUPPORT DATA (ESD)

1. Background. Exploitation Support Data (ESD) is the telemetry stream from the Remotely Piloted Aircraft (RPA) that powers essential situational awareness and war fighting tools in both the Squadron Operations Center (SOC) and Ground Control Station (GCS). Current ESD arrives at the GCS and is parceled to external users at .3 Hz, or once every three seconds. This results in aircraft positional updates that are relatively slow and choppy in tactical situation displays such as Zeus and Google Earth. Simple hardware modifications can increase this sample rate to 20 Hz, creating a 600 percent improvement in aircraft and Sensor Point of Interest (SPI) positional refresh. This increased refresh rate also enables automated population of several essential war fighting tools including Hellfire Missile Impact Tool and Skynet. This higher fidelity navigational data will be key to flying in the National Airspace System (NAS) for Domestic Operations (DOMOPS). It also supports off-board threat warning systems, crucial to increasing survivability in major combat operations, as well as geo-registration of the Full Motion Video (FMV) feed. These capabilities will not function with the current low-speed ESD configuration.

2. Source of Need. ARC 2012 WEPTAC Critical Requirement.

3. Impact If Not Funded. Air National Guard (ANG) RPA will be unable to participate in DOMOPS due to insufficient sample rate of positional data, required for operation in the NAS. ANG RPA's ability to prosecute missions in contested environments will be severely degraded due to lack of interoperability with off-board threat warning technology. Crew workload will be needlessly increased because low-speed ESD does not allow for automation of menial tasks such as updating Height Above Target (HAT) in the Hellfire Missile Impact Tool software. Finally, Mission Intelligence Coordinators (MIC) will be unable to take advantage of crucial features of imagery exploitation software, such as geo-registration of the FMV feed.

4. Units Impacted.

118 AW Nashville IAP, TN	163 RW March ARB, CA	178 FW Springfield-Beckley MAP, OH
119 WG Hector IAP, ND	174 ATW Syracuse IAP, NY	214 RS Davis-Monthan AFB, AZ
147 RW Ellington IAP, TX		

5. Cost.   PEC: 53219F

Remaining Quantity Required	Unit Cost	Program Cost
16 High Speed ESD Systems (3080)	**$15,000**	**$240,000**
Total		**$240,000**

MQ-1/MQ-9 RAPID, ROBUST DATA TRANSFER AND SHARING

1. Background. A universally accessible server which utilizes a large bandwidth and multi-domain capability is necessary to provide access to mission essential information rapidly enough to positively affect mission and training success. Remotely Piloted Aircraft (RPA) crews and their targeting pods amassed a treasure trove of locally stored data during the past 11+ years, and archives are overflowing with data that remains unshared because this information, combined with Full Motion Video (FMV), is typically too large to share across the community. While these materials and lessons learned are effectively distributed within the operating unit to improve aircrew knowledge, it is problematic for external users to access and benefit from this data. The system limitation is due to the lack of an effective electronic medium for the storage of the required products and an inability to easily and rapidly access the required information from non-local networks. This system must be able to share these lessons across the entire enterprise.

2. Source of Need. ARC 2011 - 2012 WEPTAC Critical Requirement; CDD 6.1.8 and 8.0, TRI-MAJCOM SOC Requirement Working Group.

3. Impact If Not Funded. MQ-1 and MQ-9 mission effectiveness will continue to be limited and distribution of lessons learned will be hampered; all of which may increase the risk of civilian casualties and friendly fire situations.

4. Units Impacted.

118 AW Nashville IAP, TN	163 RW March ARB, CA	178 FW Springfield-Beckley MAP, OH
119 WG Hector IAP, ND	174 ATW Syracuse IAP, NY	214 RS Davis-Monthan AFB, AZ
147 RW Ellington IAP, TX		

5. Cost.   PEC: 53219F

| Remaining Quantity Required	Unit Cost	Program Cost
7 Data Storage & Transfer Systems (3080)	**$200,000**	**$1,400,000**
Total		**$1,400,000**

Simulation, Distributed Mission Operations, & Range Instrumentation

- **Advanced Simulator Development**
- **Operational Training Environments**

Innovation and agile technology integration are hallmarks of the Air National Guard's (ANG) program of squadron level simulators and trainers to meet specific warfighter requirements. The devices span the entire spectrum from high fidelity to a family of micro simulators. As part of the Guard's "fly before you buy" policy, both flight and mission crew simulator proofs of concept are constructed in partnership with government technology development centers and industry. This approach ensures that production decisions are made only <u>after</u> evaluation by ANG subject matter experts; resulting in reduced risk, cost, and schedule.
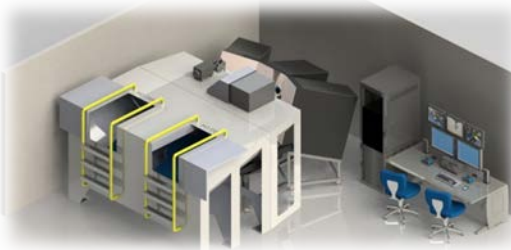
Major programs include the KC-135 Boom Operator Simulation System (BOSS) in cooperation with the Army's Program Executive Office, Simulation, Training and Instrumentation, the Advanced ANG JTAC Training System (AAJTS); C-130 Multi-Mission Crew Trainer (MMCT); and the next generation F-16C Full Mission Trainer (FMT). Fielded micro simulators include the MQ-9 Reaper Mission Training Device (MTD) and the KC-135 MicroBOSS (µBOSS).

Live - Virtual - Constructive architectures, supported by Distributed Mission Operations (DMO), remains a key component of all ANG training systems. The Distributed Training Operations Center (DTOC), located at the 132 FW, provides the operational environment for DMO by linking a wide array of flight and mission crew simulators at Guard, Air Force Reserve Command (AFRC) and active duty AF units.

The ANG training range community strives to continuously modernize its equipment and infrastructure to support all current weapons systems in the Department of Defense (DoD) inventory. As new systems are developed, such as the F-22, F-35, the Joint Direct Attack Munition (JDAM), improved Precision Guided Munitions (PGM), Airborne Lasers (ABL), Remotely Piloted Vehicles (RPV) and Information Warfare, range modernization must keep pace. The constant evolution of these technologies requires new training space, equipment, infrastructure, and instrumentation to evolve and remain relevant.

Persistent Conflict - Enabling the Warfighter

Simulation, Distributed Mission Operations & Range Instrumentation
2012 Weapons and Tactics Conference *

Critical Capabilities List

Simulation & Distributed Mission Operations (DMO):
- C-130J: Enhanced Training (Flight Simulator, On-Board Electronic Warfare Training)
- C2 ADS: Battle Control Center (BCC) Distributed Mission Operations (DMO)
- CRC: DMO & Live-Mission Integration
- CRC: Self-contained Simulation Suite Supporting Joint Kill Chain Training
- CSAR: Region & Unit level DMO Simulation Capability
- Cyber: Cyberspace Training Environment (CTE)
- TACP: JTAC Simulation Suite for DMO and Stand Alone Simulation

Ranges:
- High-Fidelity Targets - Multispectral Capability
- Mobile High-Fidelity Threat Emitters
- Communications and Tactical Data Link Architecture Support
- P5CTS Rangeless Training System
- Joint Advanced Weapons Scoring System

Essential Capabilities List

Simulation & Distributed Mission Operations (DMO):
- C-130H: H2, H3, and J DMO Simulator

- C-27J: Live, Virtual, and Constructive (LVC) Squadron Level Simulator
- CCT: Training/Simulation AIE Tower
- CRC: EA Suite for TPS-75 Jamming Training & Simulation
- DCGS: SIGINT Simulation - ANG/DMS
- F-15C: High Fidelity Simulators
- F-16: High Fidelity RAP Simulators
- HH-60G: DMO Capable Simulator
- KC-135R: Boom Operator Simulation System (BOSS)
- MC/HC-130: DMO/T & Weapon System Training Simulators
- MC/HC-130: Visual Threat Recognition & Avoidance Training Fielding
- SF: Combat Training Simulators

Ranges:
- IR MANPAD Threat Simulators
- GPS Ground Target and Safety Tracking
- JTAC Training Simulation

Desired Capabilities List

Simulation & Distributed Mission Operations (DMO):
- F-16: Live Constructed Environment Upgrade
- KC-135R: Advanced Squadron Level Simulator (ASLS) Systems

Ranges:
- GPS Jamming Capability
- UAS/RPA Operations and Support
- Surrogate RPA Support

* Note: Simulation and Distributed Mission Operations did not have a separate breakout session at WEPTAC 2012. Capabilities are extracted from the referenced Tab and weapon system and repeated in this Tab for clarity.

SIMULATION, DISTRIBUTED MISSION OPERATIONS, & RANGE INSTRUMENTATION EXECUTIVE SUMMARY

Modernization Priority Profiles ($ Million)

Program	2014	2015	2016
Simulation and Distributed Mission Operations (DMO)			
C-130J Virtual Electronic Combat Training System (VECTS)	$5.00 [2]	$3.00 [2]	$3.00 [2]
Simulation Battle Control Center (BCC) Distributed Mission Operations (DMO)	$0.39 [4]	$0.39 [4]	$0.40 [4]
Control and Reporting Centers (CRC) Tailorable Distributed Live-Fly Training Support System	$3.75 [1]	$3.13 [1]	-
CRC Deployable Mission Simulation Training Support System	$4.26 [1]	$4.26 [1]	$3.20 [1]
Cyber Training Environment (CTE)	$3.10 [4]	$1.70 [4]	-
ANG Advanced JTAC Training System (AAJTS)	$16.50 [4]	-	-
Ranges			
High-Fidelity Surrogate Targets	$3.35 [4]	$3.35 [4]	$3.00 [4]
Mobile High-Fidelity Threat Simulators	$16.30 [4]	$14.30 [4]	$10.48 [4]
Comm & Tactical Datalink Architecture Support	$2.00 [1] $1.52 [4]	$2.00 [1] $1.52 [4]	$2.01 [1] $1.50 [4]
"Rangeless" Air Combat Maneuvering Instrumentation	$7.65 [2]	$7.65 [2]	$7.65 [2]
Joint Advanced Weapon Scoring System	$4.44 [1]	$4.44 [1]	$4.42 [1]

Notes: [1] 3840 Appropriation   [2] 3010 Appropriation   [3] 3600 Appropriation   [4] 3080 Appropriation

Simulation and Distributed Mission Operations (DMO)

- C-130J Virtual Electronic Combat Training System (VECTS) - Places aircraft defensive systems into a training mode and injects real-time Radio Frequency (RF) and Infrared (IR) threat simulations that allow aircrews to plan against, and practice defensive maneuvering in an electronic combat scenario.
- Battle Control Center (BCC) Distributive Mission Operations (DMO) - Provides a LVC Operational Training Flight Plan to achieve and maintain combat mission readiness, improve training capabilities, and effectively integrate with joint, interagency and coalition partners to support Homeland Defense (HD) and Aerospace Control Alert (ACA) training.
- Control and Reporting Center (CRC) Tailorable Distributed Live-Fly Training Support System - Provides equipment with Commercial-Off-the-Shelf (COTS) and net-centric capabilities to enable units to train and match mission requirements to available aircraft

mission across the US reducing cost and maximizing training events. Eventual integration into the Live, Virtual, and Constructive (LVC) battlespace.

- Deployable Mission Simulation Training Support System - Provides a fully-integrated comprehensive simulation suite to enable mission crews to maintain extremely high levels of proficiency in the Air and Space Battle Management weapon system.
- Cyber Training Environment (CTE) - Provides a remote, distributed distance learning system that can be accessed by drill status personnel in cyber warfare units. Content/scenarios (unclassified) populated by units provide for accelerated advanced cyber training based on mission, technology, and currency needs.
- Advanced ANG JTAC Training System (AAJTS) - Provides Joint Terminal Air Controllers (JTAC) from Tactical Air Control Parties (TACP) and Combat Control Teams (CCT) with a robust Distributed Mission Operations (DMO)-capable and standalone simulation system.

Ranges
- High-Fidelity Surrogate Targets - Provides an additional 111 realistic target surrogates to replicate real-world complex target sets for target identification and acquisition training.
- Mobile High-Fidelity Threat Emitters - Provides simulators to replicate an Integrated Air Defense (IADS) environment with associated surrogate threat emitters.
- Communications and Tactical Data Link Architecture Support – Provides LVC Integrated Air Defense (IADS) environment.
- "Rangeless" Air Combat Maneuvering Instrumentation (ACMI) - Provides 135 P5 pods to complete ANG conversion to "Rangeless" ACMI configuration.
- Joint Advanced Weapons Scoring System (JAWSS) - Provides immediate scoring feedback to aircrew.

SIMULATION C-130J VIRTUAL ELECTRONIC COMBAT TRAINING SYSTEM (VECTS)

1. Background. In light of the recent budgetary environment, coupled with the list of advanced threat systems operated by potential adversaries, the need for low-cost and robust training opportunities is increasing. The ability to put the C-130J defensive systems into a training mode and inject real-time Radio Frequency (RF) and Infrared (IR) threat simulations would allow aircrews to plan against, and practice defensive maneuvering in an electronic combat scenario without the need for a dedicated range or special use airspace. Off-the-shelf systems, such as Virtual Electronic Combat Training System (VECTS), provide unmatched realism to the operator and allow for post-mission playback and debrief; something not provided by traditional methods of electronic combat training. VECTS is a low-cost system with unmatched training potential.

2. Source of Need. ARC 2012 WEPTAC Critical Requirement.

3. Impact If Not Funded. The lack of VECTS will result in C-130J aircrews with few quality training opportunities in robust threat scenarios likely to be experienced in future combat operations.

4. Units Impacted.

143 AW   Quonset SAP, RI   146 AW   Channel Islands ANGS, CA

5. Cost.   **PEC: 401132F**

Remaining Quantity Required *	Unit Cost	Program Cost
NRE (3010)	**N/A**	**$5,000,000**
18 VECTS A Kits (3010)	**$50,000**	**$900,000**
20 VECTS B Kits (3010)	**$250,000**	**$5,000,000**
Total		**$10,900,000**

   * Includes 10% spares.

SIMULATION BATTLE CONTROL CENTER (BCC) DISTRIBUTED MISSION OPERATIONS (DMO)

1. Background. Battle Control Centers (BCC) require the capability to train in a Live, Virtual, Constructive (LVC) environment to achieve and maintain combat mission readiness. The North American Aerospace Defense Command (NORAD) BCCs have limited capability to train in a LVC environment. This is largely due to limited numbers of workstations and lack of integration into the mission system, the Battle Control System-Fixed (BCS-F). Integrating Distributed Mission Operations (DMO) into the BCS-F requires the ability for simulation installed at each DMO site to securely link the virtual environment to the mission system while complying with Information Assurance (IA) requirements. An adequate number of operator workstations will enable DMO training across the spectrum of classifications and users. Integrating DMO into the BCS-F would allow the sectors to train as they fight from the operations floor positions they fight in. DMO connectivity will network all four NORAD BCCs and the AF Northern Command (AFNORTH) with Aerospace Control Alert (ACA) mission training centers and support Homeland Defense (HD) and ACA training. Addition of the DMO Suite, comprised of the BCS-F Shadow System, Simulation Generator, Communications Suite, and connectivity to the Distributive Missions Operations Network (DMON) and its associated customers will provide the necessary training environment. DMO supports training across a wide spectrum of mission areas including detection/identification, weapons engagement, and battle staff functions in a realistic mission environment. Currently, live training events meet only 60 percent of controller requirements at Western Air Defense Sector (WADS) and Eastern Air Defense Sector (EADS). LVC training events account for 70 percent of activity at the Alaskan Regional Aerospace Operations Center (AKRAOC). Employment of DMO at the BCC will enable training in all air defense mission sets including Defense Support to Civil Authorities (DSCA), HD, Maritime Defense, and ACA.

2. Source of Need. DODD 1322.18, AFI 36-2251, USAF Live, Virtual, and Constructive Operational Training Flight Plan, and CONPLAN 3310; ARC 2011 - 2012 WEPTAC Critical Requirement.

3. Impact If Not Funded. Command and Control (C2) entities will be unable to maintain CMR status.

4. Units Impacted.
WADS   McChord AFB,WA   HIRAOC   Wheeler Army Airfield, HI
EADS   Rome, NY   AKRAOC   JB Elmendorf, AK

5. Cost.   PEC: 0501311

Remaining Quantity Required	Unit Cost	Program Cost
4 Sim PROCONs (3080)	**$200,000**	**$800,000**
35 Additional DMO Workstations (3080)	**$11,000**	**$385,000**
Total		**$1,185,000**

SIMULATION CONTROL AND REPORTING CENTER (CRC) TAILORABLE DISTRIBUTED LIVE-FLY TRAINING SUPPORT SYSTEM

1. Background. Loss of Command and Control (C2) mission training opportunities, proposed airframe reductions and Theater Deployable Communications (TDC) divestiture plans will have long-standing critical impacts to Control and Reporting Center (CRC) mission crew readiness. Distributed Mission Operations (DMO) enhanced by Commercial-Off-the-Shelf (COTS) net-centric capabilities will ensure battle management mission crew training is feasible. The COTS system must support battle management, weapons control, wide area surveillance, combat identification, airspace management, and Tactical Data Link (TDL) to ensure comprehensive mission crew training. The system must be scalable and flexible to support Tactical Display Framework (TDF), and accept inputs from the CRC systems of record.

2. Source of Need. ARC 2012 WEPTAC Critical Requirement.

3. Impact If Not Funded. Air National Guard (ANG) Air Control Squadrons will be unable to meet Combatant Commander (COCOM) tasking due to the lack of specialized training required to support mission crew requirements. Specifically, the lack of live missions, TDC assets, and reduced training opportunities across the CRC will break the ANG's ability to fill Design Operational Capability (DOC) tasked requirements with qualified personnel. The CRC will continue to be limited in response, operation, flexibility, and to changing mission requirements identified to meet urgent war fighter needs.

4. Units Impacted.

103 ACS	Orange, CT	121 ACS	St Louis, MO	134 ACS	McConnell AFB, KS
109 ACS	Salt Lake City IAP, UT	123 ACS	Blue Ash, OH	141 ACS	Punta Borinquen ANGS, PR
116 ACS	Warrenton, OR	128 ACS	Volk Fld, WI	255 ACS	Gulfport CRTC, MS
117 ACS	Savannah IAP, GA	133 TS	Ft Dodge, IA		

5. Cost.   PEC: 0502672

Remaining Quantity Required	Unit Cost	Program Cost
11 Systems (3840)	**$625,000**	**$6,875,000**
Total		**$6,875,000**

SIMULATION CONTROL AND REPORTING CENTER (CRC) DEPLOYABLE MISSION SIMULATION TRAINING SUPPORT SYSTEMS

1. Background. The Control and Reporting Center (CRC) integrates a comprehensive air picture via multiple datalinks from air-, sea-, and land-based sensors, as well as from its embedded surveillance and control radars. It performs decentralized Command and Control (C2) of joint operations by conducting threat warning, battle management, theater missile defense, weapons control, combat identification, and strategic communications. Simulation and well-scripted training events are a critical part of the training required to meet these mission crew capabilities. The organic CRC simulation system is not able to simulate Higher Headquarters (HHQ) or robust training scenarios. A man-portable, fully-integrated, comprehensive CRC Simulation Suite that is high-fidelity and capable of providing training in Battle Management, Weapons Control, Wide Area Surveillance, Combat Identification (CID), Airspace Management, and Tactical Data Link (TDL) is critical to CRC mission crew training. The system must be a scalable, Distributed Mission Operation (DMO)-capable and able to be networked with other like-systems. It must also be flexible enough to run Tactical Display Framework (TDF) and accept inputs from the Non-Organic Radar Access (NORA) system of record. It must also include an integrated communications capability that is compatible with the TYQ-23/Operations communications group.

2. Source of Need. ACCI 13-1 Mission Training Program (MTP); ARC 2012 WEPTAC Critical Requirement.

3. Impact If Not Funded. CRC crews will continue to experience degraded training and missed opportunities for simulation integration with other Theater Air Control System (TACS) elements utilizing the standardized CRC simulation software package. Ultimately, units may not be able to field Combat Mission Ready (CMR) personnel. The CRC will continue to be limited in response, operation, flexibility, and to changing mission requirements needed to meet urgent warfighter needs.

4. Units Impacted.

103 ACS	Orange, CT	121 ACS	St Louis, MO	134 ACS	McConnell AFB, KS
109 ACS	Salt Lake City IAP, UT	123 ACS	Blue Ash, OH	141 ACS	Punta Borinquen ANGS, PR
116 ACS	Warrenton, OR	128 ACS	Volk Fld, WI	255 ACS	Gulfport CRTC, MS
117 ACS	Savannah IAP, GA	133 TS	Ft Dodge, IA		

5. Cost.   PEC: 0502672

Remaining Quantity Required	Unit Cost	Program Cost
11 Systems (3080)	**$1,065,000**	**$11,715,000**
Total		**$11,715,000**

SIMULATION CYBERSPACE TRAINING ENVIRONMENT (CTE)

1. Background. Air National Guard (ANG) cyber warfare squadrons lack the capability to deliver remote, distributed advanced skills training to Drill Status Guardsmen (DSG). A solution is needed that will provide an unclassified, remotely-accessible environment that can deliver advanced skills practice and training to personnel. Desired training capability will provide scenarios that are tailored and then accessed by cyber warfare personnel across the ANG. Ideally, this capability will be comprised of a cyber-training system which can be designed, populated, and operated by ANG personnel and is accessible from anywhere.

2. Source of Need. ARC 2012 WEPTAC Critical Requirement.

3. Impact If Not Funded. Individual advanced skills training applicable to mission qualification will remain ad-hoc, with continued difficulty in maintaining currency in rapidly changing cyber warfare environment.

4. Units Impacted.

101 IOF	Salt Lake City IAP, UT	175 NWS	Martin SAP,MD	275 IOS	Kelly Fld, TX
102 NWS	Quonset SAP, RI	177 IAS	McConnell AFB, KS		
143 NWS	Camp Murray, WA	261 NWS	Sepulveda ANGB, CA		
166 NWS	New Castle AP, DE	262 NWS	JB Lewis-McChord, WA		

5. Cost.   PEC: 05356F

Remaining Quantity Required *	Unit Cost	Program Cost
11 CTE Systems (3080)	**$278,000**	**$3,058,000**
9 CTE Laptop Packages (3080)	**$134,350**	**$1,209,150**
9 Storage Area Network (3080)	**$65,000**	**$585,000**
Total		**$4,852,150**

    * Starting in FY13.

SIMULATION AIR NATIONAL GUARD (ANG) ADVANCED JOINT TERMINAL ATTACK CONTROLLER (JTAC) TRAINING SYSTEM (AAJTS)

1. Background. Joint Terminal Air Controllers (JTAC), at both Air Support Operations Squadrons (ASOS) and Special Tactics Squadrons (STS), have currently fielded simulators with limited training capability. Training requirements are rapidly approaching the point where the lack of live-fly air assets will reduce the JTAC's ability to maintain Combat Mission Readiness (CMR) training requirements. There is an urgent need for an immersive simulator at each squadron, with both stand alone and Distributed Mission Operations (DMO) capabilities, in order to facilitate training opportunities. This simulation system will consist of a multi-channel visual display system including image generators, screens, and projectors; a robust Instructor Operating Station (IOS) with scenario generation capability; high resolution visual models and terrain databases; and associated hardware and software. The IOS will include functionality to access both virtual and constructive forces to facilitate the configuration of environment generation capabilities required for standalone event control. In addition, the total training system will include a two position Tactical Operations Center (TOC) fully integrated into the IOS. Due to delays in fielding the AF's Program of Record, the Air National Guard (ANG), with support from other commands, has initiated an interim program to equip ANG ASOS and STS with the AAJTS.

2. Source of Need. AFI 13-112v1 JTAC, AFI 13-114v1; ARC 2012 WEPTAC Critical Requirement.

3. Impact If Not Funded. Without a simulation system for mission rehearsal, combat efficiency will be impacted and CMR-capable operators will not be ready for deployments.

4. Units Impacted.

111 ASOS Camp Murray, WA	146 ASOS Will Rodgers World AP, OK	227 ASOS Atlantic City IAP, NJ
113 ASOS Terre Haute IAP, IN	147 ASOS Ellington IAP, TX	238 ASOS Meridian RAP, MS
116 ASOS Camp Murray, WA	148 ASOS Ft Indiantown Gap, PA	274 ASOS Syracuse IAP, NY
118 ASOS New London, NC	165 ASOS Garden City, GA	284 ASOS Smoky Hill, KS
122 ASOS Camp Beauregard, LA	168 ASOS Peoria IAP, IL	902 MSG/TD Randolph AFB TX
124 ASOS Boise AP, ID	169 ASOS Peoria IAP, IL	

5. Cost.   **PEC: 52671**

Remaining Quantity Required	Unit Cost	Program Cost
15 AAJTS (3080)	**$1,100,000**	**$16,500,000**
Total		**$16,500,000**

RANGES HIGH-FIDELITY SURROGATE TARGETS

1. Background. The Air National Guard (ANG) has a shortfall in realistic target identification and acquisition training. To meet Ready Aircrew Program (RAP) tasking requirements, the ANG's primary training ranges require realistic target surrogates to replicate real-world complex target sets. These ranges have the airspace and real estate infrastructure necessary to fully utilize surrogate assets. High-value complex target arrays mimicking unique vehicles, tanks, mobile communication equipment and other targets require the physical characteristics to include visual footprint, density, and heat signatures to simulate real systems. High-fidelity surrogate target arrays, used in conjunction with complex mission scenarios, advanced aviation targeting pods and electronic sensors, provide a cost effective solution to providing both visual target density as well as targeting pod identification and acquisition associated with physical and heat signatures of real systems. Acquisition of these systems will provide local access to ANG units to accomplish realistic training from home station and during deployments to the Combat Readiness Training Centers (CRTC). This accurate re-creation of target systems will allow aviators to hone their skills and add increasingly difficult training scenarios for a constantly changing environment. These high-fidelity target arrays are used at ANG training ranges to support primary users (both air and ground forces) during all phases of training to include air-to-ground gunnery, laser operations, and Close Air Support (CAS) training and exercises.

2. Source of Need. RAP Tasking messages; ANG Training Ranges and Airspace Roadmap, FY 10; ANG MD 10.01; ARC 2012 WEPTAC Critical Requirement.

3. Impact If Not Funded. Units will not have home station access to high-fidelity target capability to meet minimum training requirements.

4. Units Impacted.

Adirondack Range, NY	Airburst Range, CO	Atterbury Range, IN
Bollen Range, PA	Cannon Range, MO	Grayling Range, MI
Hardwood Range, WI	Jefferson Range, IN	McMullen Range, TX
Razorback Range, AR	Shelby Range, MS	Smoky Hill Range, KS
Townsend Range, GA	Warren Grove Range, NJ	

5. Cost.   **PEC: 52634**

Remaining Quantity Required	Unit Cost	Program Cost
46 High-Fidelity Targets (3080)	**$160,000**	**$7,360,000**
65 Inflatable IR Targets (3080)	**$36,000**	**$2,340,000**
Total		**$9,700,000**

RANGES MOBILE HIGH-FIDELITY THREAT SIMULATORS

1. Background. The Air National Guard (ANG) has a shortfall in realistic Electronic Warfare (EW) threat training. To meet Ready Aircrew Program (RAP) tasking requirements, the ANG's Combat Readiness Training Centers (CRTC) ranges require realistic simulators to replicate an Integrated Air Defense (IADS) environment. These ranges have the airspace and real-estate infrastructure necessary to fully utilize EW assets. These EW packages will consist of three major components: mobile Control Threat Units (CTU) - to provide regional support in moving current Joint Threat Emitters (JTE); high fidelity threat surrogates - replicate physical threat system characteristics; and upgraded JTE emitters - currently being re-bid by ACC. Acquisition of these systems will provide regional access to ANG units to accomplish realistic IADS training from home station and during deployments to the CRTCs through Distributed Mission Operations (DMO). This accurate re-creation of threat signals will allow aviators to hone their initial EW skills and add increasingly difficult threat scenarios to simulate a constantly changing environment. Threat simulators will be tied into the Air Combat Maneuver Instrumentation (ACMI) systems located at the CRTCs.

2. Source of Need. RAP Tasking messages; ANG Training Ranges and Airspace Roadmap, FY 10; ANG MD 10.01; ARC 2012 WEPTAC Critical Requirement.

3. Impact If Not Funded. Units will not have home station access to regional advanced EW simulators to meet minimum training requirements.

4. Units Impacted.

5. Cost.   **PEC: 27429**

Remaining Quantity Required	Unit Cost	Program Cost
2 Mobile CTUs (3080)	**$2,300,000**	**$4,600,000**
4 EW Emitters (3080)	**$8,000,000**	**$32,000,000**
32 Surrogate RDR & TEL (3080)	**$140,000**	**$4,480,000**
Total		**$41,080,000**

RANGES COMMUNICATIONS AND TACTICAL DATA LINK (CTDL) ARCHITECTURE SUPPORT

1. Background. The Air National Guard (ANG) has a shortfall in realistic communications and datalink immersive environment at the critical nodes in the range training infrastructure. To meet Ready Aircrew Program (RAP) tasking requirements, the ANG's Combat Readiness Training Centers (CRTC) and Primary Training Ranges (PTR) require realistic, standardized, full spectrum, and immersive electronic training environments that include appropriate levels of communications and datalink systems. These ranges have the airspace and real estate infrastructure necessary to support every phase of ANG combat training from employment through After Action Review (AAR). These systems include: radios, data links, radars, and display Global Positioning System (GPS) Target/Blue Force Trackers; which are systems required to replicate the operating environment and record/score employment and relay that in a useable format back to the warfighter. Acquisition of these systems will provide ANG units the ability to accomplish realistic full-spectrum training from home station. This accurate re-creation of the electronic wartime operating environment, and recording of aircrew actions and performance, will allow aviators to hone their cockpit resource management skills and push their personal envelopes of task saturation prior to experiencing them on the battlefield. The systems will be located at the CRTCs and PTRs with distributed AAR to the squadron level.

2. Source of Need. RAP Tasking messages; ANG Training Ranges and Airspace Roadmap, FY 10; Training Range Infrastructure Connectivity CONOPS FY 09, ANG MD 10.01; ARC 2012 WEPTAC Critical Requirement.

3. Impact If Not Funded. Units will not have home station access to operational levels of CTDL for daily and spin up training before deploying to support the Combatant Commanders.

4. Units Impacted.
4 CRTCs; 14 PTRs; ANG A-10, C-130, C-17, C-27, C-5, F-15, F-16 Flying Units

5. Cost.   PEC: 52634

Remaining Quantity Required	Unit Cost	Program Cost
12 LVT-2 Link-16 Radios (3080)	**$270,000**	**$3,240,000**
13 Battlefield Operational Support Systems (3840)	**$297,000**	**$3,861,000**
11 Joint Range Extension Systems (3840)	**$132,000**	**$1,452,000**
13 GPS Tracking Systems (3840)	**$125,000**	**$1,625,000**
12 Range Radio systems (3080)	**$86,000**	**$1,032,000**
Total		**$11,210,000**

RANGES "RANGELESS" AIR COMBAT MANEUVERING INSTRUMENTATION (ACMI)

1. Background. "Rangeless" instrumentation capability has been a long-standing requirement of the Combat Air Force (CAF). The next generation of the Air Combat Maneuvering Instrumentation (ACMI) pod (P-5) provides this capability by leveraging Global Positioning System (GPS) receivers, data recorders, and on-board simulation technology to provide ACMI training independent of ground infrastructure. This technology allows training to occur at any location to support home station and deployed training. This capability provides greater training to pilots by increasing development of situational awareness and more effective debriefing. Without this capability, Air National Guard (ANG) units must deploy to a Combat Readiness Training Center (CRTC) to train with a traditional "tethered" ACMI system. The P-5 pod system reduces operations tempo while providing higher levels of more complex training. With the limited availability of traditional, part-time ANG pilots, and the high operations tempo being maintained, it is essential to maximize training opportunities. The CAF Combat Training Range Review Board has programmed 250 P-5 pods for the ANG. The ANG requires a total of 135 more pods to meet immediate requirements and complete transition to the "rangeless' system.

2. Source of Need. Ready Aircrew Program Tasking messages; ANG Training Ranges and Airspace Road Map, FY 10; ANG MD 10.01; ANG ACMI/EW CONOPS; CAF MNS 330-88 Improved Combat Training Space, 22 Sep 1999 and is revision #5 to CAF ORD #305-76-I/II/III-H for P-5 Combat Training System, dated 29 July, 2004 (based upon TAF ROC 305-76, Improvements to TAF Ranges, validated 6 Dec 76); ARC 2012 WEPTAC Critical Requirement.

3. Impact If Not Funded. Units will not have home station access to ACMI capability to meet minimum training requirements. ANG units will have to deploy to receive this training.

4. Units Impacted.
CRTC Alpena, MI   CRTC Savannah, GA   CRTC Volk Fld, WI
CRTC Gulfport, MS

5. Cost.   PEC: 27429

Remaining Quantity Required	Unit Cost	Program Cost
135 P-5 Pods (3010)	**$170,000**	**$22,950,000**
Total		**$22,950,000**

RANGES JOINT ADVANCED WEAPON SCORING SYSTEM (JAWSS)

1. Background. Using off-the-shelf technology, Joint Advanced Weapon Scoring System (JAWSS), upgrades the Tactical Ordnance Scoring System (TOSS) with a joint Air Force/Navy system by providing night and laser scoring capabilities. These systems provide greater accuracy, night and day scoring capabilities, laser scoring, strafe scoring, virtual reality Imaging Weapons Training System (IWTS), No-Drop Weapon Scoring (NDWS), and automated remote feedback for home-station debrief. JAWSS consists of five systems: Weapon Impact Scoring System (WISS), Laser Evaluation System-Mobile (LES-M), Large Scale Target Sensor System (LSTSS), Remote Strafe Scoring System (RSSS), and the Imaging Weapons Training System (IWTS). Upgrading systems currently in use at our 14 Air Gunnery Ranges would provide pilots immediate feedback during training events at local ANG ranges to meet training and Ready Aircrew Program (RAP) requirements.

2. Source of Need. Range Working Group, Combat Training Range Group; RAP.

3. Impact If Not Funded. Limited or no scoring capability at ANG ranges limits immediate feedback from training sorties. Units risk not meeting RAP and other training requirements.

4. Units Impacted.

Adirondack Range, NY	Airburst Range, CO	Atterbury Range, IN
Bollen Range, PA	Cannon Range, MO	Grayling Range, MI
Hardwood Range, WI	Jefferson Range, IN	McMullen Range, TX
Razorback Range, AR	Shelby Range, MS	Smoky Hill Range, KS
Townsend Range, GA	Warren Grove Range, NJ	

5. Cost.   PEC: 52634

Remaining Quantity Required	Unit Cost	Program Cost
14 Replacement WISS Systems (3840)	**$500,000**	**$7,000,000**
14 Site Communications Infrastructure (3840)	**$250,000**	**$3,500,000**
14 JAWSS Spare/Upgrade (3840)	**$200,000**	**$2,800,000**
Total		**$13,300,000**

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Space, Cyber Warfare, & Information Operations

- **Missile Warning, Satellite Control, and Launch Ops**
- **Network Warfare/Information Ops**
- **ANG CW is 40% of AF Network Warfare/Information Ops**
- **ANG Space is 20% of AF MW, SATC2, Launch Ops**

SPACE OPERATIONS

The Air National Guard's (ANG) contribution to Air Force Space Command (AFSPC) space missions includes over 1,300 personnel within 10 squadrons operating eight distinct weapons systems. These units support three of the four AFSPC functional mission areas. From the 137 SWS (CO), which is the nation's sole provider of mobile, survivable, and endurable ballistic missile warning for the defense of North America, to the 148 SOS (CA), which is responsible for command and control of 40 percent of the Military Strategic and Tactical Relay (MILSTAR) satellite constellation.
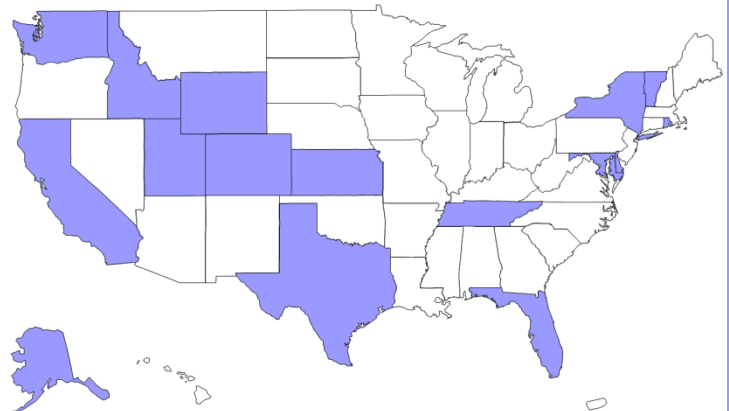
CYBER WARFARE AND INFORMATION OPERATIONS (CW/IO)

The ANG Cyber Warfare and Information Operations (CW/IO) force is made up of eight units in DE, KS, MD, RI, TX, UT, VT, and WA. Together, they provide CW/IO capabilities supporting federal- and state-level agencies, the AF, and Combatant Commanders (COCOM), by conducting cyberspace force application, cyberspace defense, cyberspace support, influence operations, and related planning activities. Guardsmen participating in these missions draw upon synergies with their related civilian careers, leveraging skills developed by high-tech companies. Specific missions assigned to ANG units range from network vulnerability assessments to digital media/network analysis to full-spectrum cyber warfare support in both exercises and operations. Execution of these activities occurs from home station, AF locations, and national facilities.

In 2013, ANG CW/IO units will continue to employ the Cyberspace and Critical Infrastructure Range (CCIR) for training, capability testing, and Tactics, Techniques and Procedures (TTP) development. The remaining unfunded requirements related to individual training, infrastructure connectivity, and updated software tools/suites are needed for normalizing ANG CW and could prevent the ANG from being efficiently employed and tasked to support the Air Force and US Cyber Command (USCYBERCOM) if not addressed.

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Space, Cyber Warfare, & Information Operations
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Critical Capabilities List

Space Operations:
- Domain Infrastructure Capability Enhancement (DICE)

Cyber Warfare/Information Operations:
- Cyber and Critical Infrastructure Range (CCIR)
- Cyberspace Training Environment (CTE) - See Simulation Tab for Info Paper
- Secure Infrastructure Collaborative Capability (SIC2)
- Portable Assessment for Wireless Network (PAWN)
- Remote Access Toolkit (RAT)

Essential Capabilities List

- None

Desired Capabilities List

- None

SPACE, CYBER WARFARE, & INFORMATION OPERATIONS EXECUTIVE SUMMARY

Modernization Priority Profiles ($ Million)

Program	2014	2015	2016
Space			
Domain Infrastructure Capability Enhancement (DICE)	$1.20 [4]	$1.02 [4]	-
Cyber Warfare & Information Operations			
Cyber and Critical Infrastructure Range (CCIR)	$0.68 [1] $1.20 [4]	$0.68 [1] $0.30 [4]	- -
Secure Infrastructure Collaborative Capability (SIC2)	$1.00 [4]	$2.00 [4]	-
Portable Analysis for Wireless Networks (PAWN)	$1.20 [4]	-	-
Remote Access Toolkit (RAT)	$0.80 [4]	-	-

Notes: [1] 3840 Appropriation   [2] 3010 Appropriation   [3] 3600 Appropriation   [4] 3080 Appropriation

Space Operations
- Domain Infrastructure Capability Enhancement (DICE) - Provides capability for Command and Control Squadrons (CACS) to equip facilities, provide independent network access, global situational awareness, and information collaboration capabilities for civilian and military forces.

Cyber Warfare & Information Operations
- Cyber and Critical Infrastructure Range (CCIR) - Equipment and software that provides the capability to emulate a variety of Department of Defense (DoD) and critical infrastructure networks that can be joined to the Joint Information Operations Range (JIOR). Provides the means for Air National Guard (ANG) Cyber Warfare (CW) units to exercise, rehearse, and conduct qualification and collective training with cyber tools and other cyber organizations.
- Secure Infrastructure Collaborative Capability (SIC2) - Provides the software and equipment to enable real-time secure conferencing, data and information sharing, and collaboration through access to Joint World Wide Intelligence Communication Systems (JWICS) and Secure Internet Protocol Routing Network (SIPRNET).
- Portable Analysis for Wireless Networks (PAWN) - Portable equipment and network analysis software that enable cyber defense and assessment teams to detect, map, and analyze Wi-Fi and cellular networks used by AF and Joint Forces for communications and operations.
- Remote Access Toolkit (RAT) - Software suite that provides for remote execution of cyber exploits and attacks that replicate current and advanced threat signatures and behaviors. Enables realistic Red Team and Opposing Force presentation to assess cyber defense operators, sensors, and processes.

SPACE OPERATIONS DOMAIN INFRASTRUCTURE CAPABILITY ENHANCEMENT (DICE)

1. Background. Air National Guard (ANG) Command and Control Squadrons (CACS) operate two national Command and Control (C2) facilities that provide for a redundant and independent communications network for global situational awareness and information collaboration capabilities for state, federal, and military personnel during national emergencies and response. In the event of a large scale disaster or emergency, capability provides access to the CACS infrastructure, across various classification levels, by 169 simultaneous users between 127 CACS and 212 CACS. The Department of Defense (DoD)-provided Clear Cube Technology, Inc. infrastructure in its current configuration, does not provide this capacity or allow for cross-domain access of appropriate, unclassified information residing on classified networks. The DICE provides the additional workstations and National Security Agency (NSA)-approved equipment and software that integrates with the existing Clear Cube and CACS infrastructure.

2. Source of Need. ARC 2012 WEPTAC Critical Requirement.

3. Impact If Not Funded. ANG CACS will be under-equipped and unable to provide direct access to available national information and communications for events and situations that do not involve the National Command Authorities (NCA).

4. Units Impacted.
127 CACS   McConnell AFB, KS   212 CACS   Boise IAP, ID

5. Cost.   PEC: 53116F

Remaining Quantity Required *	Unit Cost	Program Cost
2 DICE (3080)	**$1,200,000**	**$2,400,000**
Total		**$2,400,000**

  * Starting in FY13.

CYBER WARFARE/INFORMATION OPERATIONS (CW/IO) CRITICAL INFRASTRUCTURE RANGE (CCIR)

1. Background. Cyberspace warfare units in the Air National Guard (ANG) require a virtual (cyber) range in order to conduct the practical training, team exercises, and operational skills development required for offensive and defensive cyber operations missions. The Cyber and Critical Infrastructure Range (CCIR) is a combination of equipment, software, and infrastructure configurable to virtually simulate a wide variety of network architectures employed within Department of Defense (DoD) and the real-world, along with associated "users." The CCIR operates as a stand-alone range or can be connected as a node on a national range network such as the Joint Information Operations Range (JIOR). The ANG has already successfully deployed five CCIR ranges in WA, DE, KS, RI, and DE.

2. Source of Need. ARC 2010, 2011, and 2012 WEPTAC Critical Requirement.

3. Impact If Not Funded. Ability to train, rehearse, exercise, and remain mission ready will be compromised.

4. Units Impacted.

102 NWS	Quonset SAP, RI	175 NWS	Martin SAP, MD	262 NWS	McChord AFB, WA
143 IOS	Camp Murray, WA	177 IAS	McConnell AFB, KS		
166 NWS	New Castle IAP, DE	261 NWS	Sepulveda ANGB, CA		

5. Cost.   **PEC: 53056F**

Remaining Quantity Required *	Unit Cost	Program Cost
CCIR NRE (3080)	**N/A**	**$70,000**
2 CCIR (3080) **	**$510,000**	**$1,020,000**
2 CCIR Refresh (3840)	**$78,000**	**$156,000**
7 JIOR Pico Nodes (3080)	**$60,000**	**$420,000**
6 DREN Service Delivery Points (SDP) (3840)	**200,000**	**$1,200,000**
Total		**$2,866,000**

    * Starting in FY13.
    ** Procure 2 CCIR (262nd and 261st).

CYBER WARFARE/INFORMATION OPERATIONS (CW/IO) SECURE INFRASTRUCTURE COLLABORATIVE CAPABILITY (SIC2)

1. Background. Air National Guard (ANG) Information Operations (IO) and Network Warfare (NW) squadrons lack the capability to access secure, classified, real-time communications, and networks used by the AF and US Cyber Command (USCYBERCOM) for collaboration, threat, and unique cyber situational awareness. The requirement was highlighted in recent mission planning and US Cyber Command (USCC) exercise planning (Cyber Guard 12-1). ANG units operate from squadron operation spaces that are at a distance from service and national cyber locations, while most planning, operations activities and cyber warfare information sharing occurs in classified, collaborative environments, primarily through the Joint Worldwide Intelligence Communication System (JWICS) and National Security Agency-Network (NSA-Net) infrastructure. At a minimum, SIC2 would consist of the equipment and technologies to enable real-time Secure Video Teleconferencing and information sharing across SIPR (Secret) and JWICS (Top Secret) networks.

2. Source of Need. USCC Cyber Guard 12-1; ARC 2012 WEPTAC Critical Requirement.

3. Impact If Not Funded. The inability to be present during secure USCC planning and operational video teleconferences/virtual session results in erosion of access to real-time understanding of and situational awareness concerning the relevant cyber environment.

4. Units Impacted.

101 IOF	Salt Lake City IAP, UT	166 NWS	New Castle AP, DE	261 NWS	Sepulveda ANGB, CA
102 NWS	Quonset SAP, RI	175 NWS	Martin SAP, MD	262 NWS	McChord AFB, WA
143 NWS	Camp Murray, WA	177 IAS	McConnell AFB, KS		

5. Cost. PEC: 05356F

Remaining Quantity Required *	Unit Cost	Program Cost
8 JWICS SVTC (3080)	**$290,000**	**$2,320,000**
8 SIPRNET SVTC (3080)	**$10,000**	**$80,000**
5 JWICS Secure Packages (3080)	**$122,700**	**$613,500**
Total		**$3,013,500**

* Starting in FY13.

CYBER WARFARE/INFORMATION OPERATIONS (CW/IO) PORTABLE ASSESSMENT FOR WIRELESS NETWORK (PAWN)

1. Background. The Air Force and Department of Defense (DoD) continue to employ wireless and mobile technologies in order to enable new kinds of operations and tactics. This cyber environment requires vulnerability assessment and analysis in order to develop offensive and defensive Tactics, Techniques, and Procedures (TTP). The Air National Guard (ANG) lacks the capability to replicate, assess, and analyze such environments. A solution is required that is portable/deployable, can identify and map wireless networks and devices, can conduct deep packet inspection on secure networks, and enable advanced testing and network analysis correlation of Wi-Fi, cellular, personal area networks, and resident mobile applications.

2. Source of Need. Executive Order to Incorporate Realistic Cyberspace Conditions into Major DoD Exercises, CJCSI 6510.01F dated 09 Feb 2011, and DoD Strategy for Operating in Cyberspace, dated Jul 2011; ARC 2012 WEPTAC Critical Requirement.

3. Impact If Not Funded. Situational awareness and defense of wireless networks and mobile communications networks that enable critical military operations will erode.

4. Units Impacted
177 IAS   McConnell AFB, KS   262 NWS   McChord AFB, WA

5. Cost.   PEC: 05356F

Remaining Quantity Required *	Unit Cost	Program Cost
2 Wireless Analysis Systems (3080)	**$604,000**	**$1,208,000**
Total		**$1,208,000**

 * Starting in FY13.

CYBER WARFARE/INFORMATION OPERATIONS (CW/IO) REMOTE ACCESS TOOLSET (RAT)

1. Background. The Air National Guard (ANG), as the AF Cyber Red Team, employs cyber threat tactics to operationally assess both cyber defense systems and sensors, and conducts training for cyber defense operators and maintainers. The existing software platform lacks the agility to employ updated malware and signatures required to replicate advanced threat behaviors. Remote Access Toolset (RAT) is commercial software that enables the control and behavior of cyber threat techniques presented to targeted networks and computers.

2. Source of Need. ARC 2011 - 2012 WEPTAC Critical Requirement; Executive Order to Incorporate Realistic Cyberspace Conditions into Major DOD Exercises, CJCSI 6510.01F dated 09 Feb 2011.

3. Impact If Not Funded. Without RAT capabilities, the ability to maintain an effective Cyber Red Team will erode and cyber defense operators and their associated sensors will not be exposed to new, advanced cyber threat activities.

4. Units Impacted.
177 IAS   McConnell AFB, KS   262 NWS   McChord AFB, WA

5. Cost.   **PEC: 53056F**

Remaining Quantity Required *	Unit Cost	Program Cost
2 RAT Suites (3080)	**$400,000**	**$800,000**
Total		**$800,000**

    * Starting in FY13.

Security Forces

- **Mobilize and Deploy**
- **Integrated Base Defense**
- **Homeland/Fulltime Security**

Air National Guard (ANG) Security Forces (SF) personnel from the 54 states and territories prepare and train for their dual mission of supporting worldwide

contingency deployments as well as responding to State emergencies. With more than 7,000 assigned SF members, they provide security to personnel and priority resources at home-station and deployed locations through law enforcement patrols, integrated base defense, and anti-terrorism/force protection initiatives. By using Integrated Base Defense principles, SF control terrain both inside and outside the base perimeter. As the battlefield dictates, SF train to encounter hostile threats while conducting Military Operations in Urban Terrain, Area Security Operations, Close Precision Engagement, Raven Missions, Fly-Away Security, Detainee Movement

Operations, Agricultural Development missions, Personal Security Details, Mounted/Dismounted Individual and Team Patrols, Convoy Operations, High-Risk Vehicle Inspections, Suspect Apprehension/Detention, Installation Access Control, and Heavy Weapons Support. Security Forces professionals also provide nuclear security, information/industrial/physical security, and combat arms training.

Security Forces
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Critical Capabilities List

- Professional Bag Expansion and Modernization
- Surveillance, Target Acquisition, and Night Observation (STANO) Equipment
- Explosive Detection Equipment (EDE) and Training
- Less-Than-Lethal (LTL) Equipment and Training
- Small Arms Range Solutions

Essential Capabilities List

- Weapons Shortfalls
- Small Arms Training Simulated Munitions
- Dual Use Traffic Control / Security Kits
- Combat Training Simulators
- All-Terrain Vehicles

Desired Capabilities List

- None

SECURITY FORCES
EXECUTIVE SUMMARY

Modernization Priority Profiles ($ Million)

Program	2014	2015	2016
Professional Bag Expansion and Modernization	$5.60 [4]	$5.60 [4]	$5.60 [4]
Surveillance, Target Acquisition, and Night Observation (STANO) Equipment	$7.00 [4]	$7.00 [4]	$7.10 [4]
Explosive Detection Equipment (EDE)	$2.20 [4]	$2.20 [4]	-
Less-Than-Lethal Equipment (LTL)	$3.72 [4]	$3.00 [4]	-
Small Arms Range Solutions	$9.02 [4]	$18.04 [4]	$18.04 [4]

Notes: [1] 3840 Appropriation   [2] 3010 Appropriation   [3] 3600 Appropriation   [4] 3080 Appropriation

- Professional Bag Expansion and Modernization - Provides Security Forces (SF) personnel replacement and upgrade of their daily operational equipment specific to their duties used at both home and deployed locations.
- Surveillance, Target Acquisition, and Night Observation (STANO) Equipment - Provides enhanced combat and domestic capability to fight and operate in a nighttime environment.
- Explosive Detection Equipment (EDE) - Provides the procurement of handheld explosive detection equipment, in the absence of highly trained dogs (K-9), to fill an explosive detection critical gap.
- Less-Than-Lethal Equipment (LTL) - Provides the capability for SF personnel to respond with less-than-lethal force in any given situation.
- Small Arms Range Solutions - Procures a modular small arms range to provide all warfighters with the capability and immediate availability to complete mission-required small arms training.

SECURITY FORCES (SF) PROFESSIONAL BAG EXPANSION AND MODERNIZATION

1. Background. Security Forces (SF) deploy at an extended and more frequent rate than most other Airmen, causing SF professional bag equipment to degrade at a higher rate. The content of the SF professional bag includes specialized equipment specific to SF duties and is utilized both in deployed Areas of Responsibility (AOR) as well as in normal, daily operational use. Professional bag items include Personal Protective Equipment (PPE) and SF mission specific duty gear. The current inventory of SF clothing does not meet current AOR requirements for fire-retardant clothing, placing SF members at a greater risk of severe injuries when exposed to indirect fire or improvised explosive devices. Ballistic eye protection is another equipment item used by SF members to combat environmental and wartime hazards inherent to force protection missions. SF units are currently unable to maintain the required number of professional bags necessary to meet mission requirements due to a lack of funding. Professional bag expansion and modernization brings improved capabilities to ensure mission success.

2. Source of Need. ARC 2012 WEPTAC Critical Requirement; Lessons Learned from Domestic Operations (DOMOPS) as well as Operations ENDURING FREEDOM (OEF), IRAQI FREEDOM (OIF), and NEW DAWN (OND).

3. Impact If Not Funded. Failure to procure the individual protective equipment items significantly degrades mission effectiveness, increases ANG personnel vulnerability, and reduces Total Force standardization.

4. Units Impacted. All 96 SF squadrons within the 54 states and territories require the professional bags.

5. Cost.　　PEC: 52625F

Remaining Quantity Required	Unit Cost	Program Cost
8,400 Professional Bag Kits (3080)	**$2,000**	**$16,800,000**
Total		**$16,800,000**

SECURITY FORCES (SF) SURVEILLANCE, TARGET ACQUISITION, AND NIGHT OBSERVATION (STANO) EQUIPMENT MODERNIZATION

1. Background. The nature of combat and Domestic Operations (DOMOPS) requires that Security Forces (SF) fight and operate in a nighttime environment. To gain nighttime advantages SF personnel require Surveillance, Target Acquisition, and Night Observation (STANO) equipment. The AN/PAS-13 (V2) Night Vision Scope enhances combat capability of SF personnel required to fight and operate with the M-240B and M-249 machine guns in a low-visibility environment. This new equipment is the only authorized night vision scope for the M-240B/M-249. The AN/PAS-13 (V3) Night Vision Scope enhances combat capability of SF personnel required to fight and operate with the MK-19 grenade launcher and M-2 .50 caliber machine gun in a low-visibility environment. This new equipment is the only authorized night vision scope for MK-19 and M-2. The M-4, M-203, M-240B, and M-249 require the AN/PEQ-15 Advanced Target Pointer Illuminator Aiming Light. This equipment provides critical infrared and individual tactical illumination capabilities. An additional optic needed for the M-203 is the AN/PSQ-18 Infrared Quadrant Sight. This sight is specifically designed for the M-203, enabling the grenadier to effectively engage targets in both daytime and nighttime operations. The SF Unit Type Code (UTC) QFELB requires SF Combat Arms Training and Maintenance (CATM) personnel have the ability to repair any small arms item in the AF inventory in an austere environment. This kit provides the required tools and weapons parts in a mobile and easily transported package. The funding of this STANO equipment aligns ANG SF with their active duty counterparts.

2. Source of Need. ARC 2011 - 2012 WEPTAC Critical Requirement; Lessons Learned from Operations ENDURING FREEDOM (OEF), IRAQI FREEDOM (OIF), and NEW DAWN (OND).

3. Impact If Not Funded. Failure to procure the required STANO items significantly degrades mission effectiveness and increases the vulnerability of SF personnel and all protected resources. SF personnel will be unable to effectively engage targets in any operation during hours of limited light and visibility. Personnel are prohibited from deploying without this required equipment. Limited on-hand stocks translate to limited number of deployable personnel per SF squadron.

4. Units Impacted. Shortfalls impact all 96 ANG SF squadrons within the 54 states and territories.

5. Cost.   PEC: 52625F

Remaining Quantity Required	Unit Cost	Program Cost
1000 AN/PAS-13 (V2) (3080)	**$12,000**	**$12,000,000**
200 AN/PAS-13 (V3) (3080)	**$12,000**	**$2,400,000**
750 AN/PSQ-18A (3080)	**$2,000**	**$1,500,000**
500 AN/PEQ-15 * (3080)	**$1,200**	**$600,000**
92 QFELB (3080)	**$50,000**	**$4,600,000**
Total		**$21,100,000**

* Replacement due to wear and tear and additional CATM Requirements.

SECURITY FORCES (SF) EXPLOSIVE DETECTION EQUIPMENT

1. Background. Security Forces (SF) maintain an extremely high operations tempo including Air and Space Expeditionary Force (AEF) deployments and Homeland Defense (HD) responsibilities. Explosive device threats and incidents are increasing in number and complexity, and the Air National Guard (ANG) SF community has zero capability to detect this threat, resulting in a major vulnerability. The active duty SF community combats the same threat through the use of electronic Explosive Detection Equipment (EDE) and highly trained dogs (K-9). The ANG SF has no K-9 support and the ability to procure K-9 resources is not an option. The procurement of handheld electronic EDE is the optimal solution to fill this critical capability gap. The ability to detect explosives at base entry control points, at home stations and overseas, will fortify installation security as well as provide a higher level of safety and security for all Airmen. The procurement achieves standardization between the ANG and active duty forces.

2. Source of Need. ARC 2012 WEPTAC Critical Requirement; Lessons Learned from Domestic Operations (DOMOPS) as well as Operations ENDURING FREEDOM (OEF), IRAQI FREEDOM (OIF), and NEW DAWN (OND).

3. Impact If Not Funded. Failure to procure electronic EDE significantly degrades mission effectiveness and increases the vulnerability of SF personnel and all protected resources. The inability to detect explosives at installation entry control points is a threat to all ANG operations.

4. Units Impacted. All 96 SF squadrons will be impacted within the 54 states and territories.

5. Cost.   **PEC: 52625F**

Remaining Quantity Required	Unit Cost	Program Cost
111 Handheld Explosive Detection Devices (3080)	**$40,000**	**$4,440,000**
Total		**$4,440,000**

SECURITY FORCES (SF) LESS-THAN-LETHAL (LTL) EQUIPMENT

1. Background. AF Use of Force (UoF) regulations mandate Less-Than-Lethal (LTL) options between basic verbal commands and lethal force. In many circumstances, the ability of Air National Guard (ANG) Security Forces (SF) personnel to employ LTL force is a more appropriate solution than the use of deadly force. Security incidents often involve an increased risk to the public until first responders can secure the scene, and having a LTL capability is essential to mitigating the associated risk. Due to limited funding, ANG SF do not currently have a LTL capability creating a liability and putting the safety of our Airmen at risk. The funding of this LTL requirement aligns ANG SF with their active duty counterparts. A single LTL kit equips a 13-person squad with tasers and LTL munitions such as beanbag rounds and tear gas. Additionally, each kit equips ANG SF with helmets, pads, shields, batons, and Oleoresin Capsicum (pepper) spray for each member.

2. Source of Need. ARC 2011 - 2012 WEPTAC Critical Requirement; AFI 31-207 (Arming and Use of Force); Lessons Learned from Domestic Operations (DOMOPS) as well as Operations ENDURING FREEDOM (OEF), IRAQI FREEDOM (OIF), and NEW DAWN (OND).

3. Impact If Not Funded. Failure to procure the individual equipment items will significantly degrade mission effectiveness, increase ANG personnel vulnerability, and reduce Total Force standardization.

4. Units Impacted. All 96 SF squadrons will be impacted within the 54 states and territories.

5. Cost.   **PEC: 52625F**

Remaining Quantity Required *	Unit Cost	Program Cost
146 Less-Than-Lethal Kits (3080)	**$46,000**	**$6,716,000**
Total		**$6,716,000**

* 40 funded in FY12.

SECURITY FORCES (SF) SMALL ARMS RANGE SOLUTIONS

1. Background. The Air National Guard (ANG) owns and operates 12 small arms ranges, costing in excess of $1 million per year for maintenance and sustainment of each range. The conditions of these small arms ranges continue to deteriorate over time because of their age and frequent use, and are in constant need of upkeep and repairs. The costs to maintain the current ranges outweigh the benefits of sustaining these ranges. Additionally, with only 12 ranges in operation within the ANG, Security Forces (SF) personnel rely heavily upon other agencies to utilize small arms range space in order to prepare SF personnel for their wartime mission, driving scheduling conflicts and expenses for the use of other small arms ranges. This becomes a daunting task to integrate our training in ranges owned and operated by outside agencies, both civilian and military. Every ANG Airman is required to meet small arms training requirements prior to deployment in support of overseas contingency operations, as well as maintaining small arms proficiency in support of the homeland defense mission. The limited number of training ranges affects all ANG warfighters; SF is merely the Office of Primary Responsibility (OPR) for small arms ranges. As the OPR, ANG SF Combat Arms Training and Maintenance (CATM) personnel are tasked with the small arms training of all members of the ANG at every installation. The procurement of a modular small arms range at various ANG installations provides a significant increase in the number of ANG warfighters able to complete the required small arms training to meet mission requirements.

2. Source of Need. ARC 2012 WEPTAC Critical Requirement; Lessons Learned from Domestic Operations (DOMOPS) as well as Operations ENDURING FREEDOM (OEF), IRAQI FREEDOM (OIF), and NEW DAWN (OND).

3. Impact If Not Funded. Failure to procure the small arms modular range solutions will significantly degrade mission effectiveness because Airmen will lack sufficient training facilities to maintain proficiency. It will also increase SF personnel vulnerability and reduce Total Force readiness.

4. Units Impacted.

114 FW	Sioux Falls RAP, SD	147 RW	Ellington IAP, TX	154 WG	Hickam AFB, HI
118 WG	Nashville IAP, TN	148 FW	Duluth IAP, MN	156 AW	Luis Munoz IAP, PR
123 AW	Louisville IAP, KY	152AW	Reno-Tahoe IAP, NV	183 FW	Lincoln Capital IAP, IL
142 FW	Portland IAP, OR				

5. Cost.   **PEC: 52625F**

Remaining Quantity Required	Unit Cost	Program Cost
10 Modular Small Arms Ranges (3080)	**$4,510,000**	**$45,100,000**
Total		**$45,100,000**