DEPARTMENT OF THE AIR FORCE
ACQUISITION

ANNUAL REPORT FISCAL YEAR 2021

INNOVATE. ACCELERATE. DELIVER.

Fiscal Year 2021 was a tremendous year for the Department of the Air Force (DAF) acquisition enterprise. This report provides data showing we are executing and meeting requirements, while increasing our focus on meeting the pacing challenges and persistent and acute threats. We continue to deliver affordable and meaningful capabilities to assure air, space, and cyberspace preeminence for the nation and our allies. Now and in the future, it's our innovative acquisition workforce, tightly coupled with the warfighter, which makes this all come together for the U.S. Air Force and U.S. Space Force.

As we go forward, our priorities will be centered on delivering operational capability to the warfighter, shaping a vibrant innovation base for strategic competition, and transforming the acquisition enterprise for the 21st century. We will work together to implement the operational imperatives identified by the Secretary and the Chiefs, including integrating our space architectures across domains and delivering on our nuclear modernization programs to give our warfighters a strategic edge. I look forward to engaging the acquisition enterprise and stakeholders as we ensure the DAF is ready to meet and overcome the worthy challenges ahead.

Andrew P. Hunter
Assistant Secretary of the Air Force
(Acquisition, Technology & Logistics)

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ACQUISITION **BUDGET**

FY 2021

6 ACQUISITION CATEGORIES:

Acquisition programs are organized into three acquisition categories - or **ACATs** and three business categories or **BCATs.**

ACAT I: Eventual expenditure of more than $480M in RDT&E, or more than $2.79B in procurement, in FY 2014 dollars

ACAT II: Eventual expenditure of more than $185M in RDT&E or more than $835M in procurement in FY 2014 dollars

ACAT III: Does not meet the criteria of ACAT I or ACAT II

BCAT I: Expected total budget authority over the period of the current Future Years Defense Program in excess of $250M

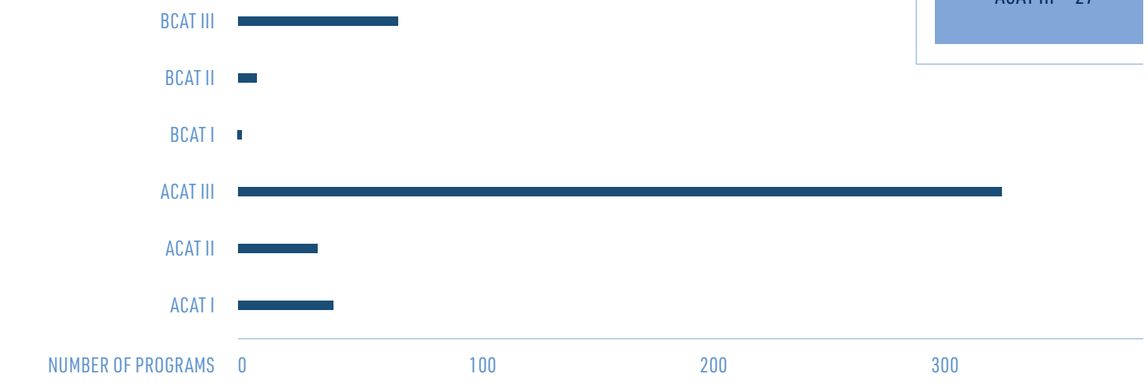
BCAT II: Expected total budget authority over the period of the current Future Years Defense Program in excess of $50M

BCAT III: Does not meet the criteria for BCAT I or BCAT II

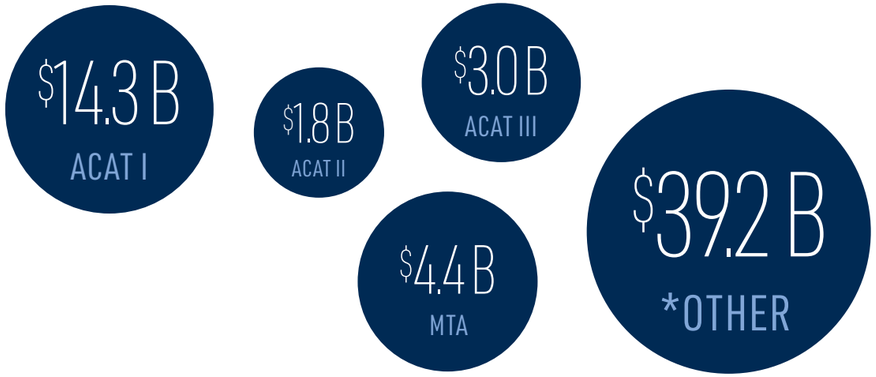
472
FY 21 PROGRAMS
- ACAT I - 35
- ACAT II - 29
- ACAT III - 328
- BCAT I - 2
- BCAT II - 8
- BCAT III - 69

41
FY 21 ACAT-EQUIVALENT MTA PROGRAMS
- ACAT I - 12
- ACAT II - 2
- ACAT III - 27

PROGRAMS BY ACQUISITION CATEGORY **FY 2021**



FY21 FUNDING BY ACAT (RDT&E/PROCUREMENT)



*Includes: F-35, classified programs (including B-21), science and technology efforts, pre-acquisition activities, acquisition workforce, etc.

FY21 FUNDING APPROPRIATION:

$25.4 B
PROCUREMENT

$37.3 B
RDT&E

FY21 FUNDING:

Education and Training	$537 M
Special Operations	$604 M
Agile Combat Support	$8.11 B
Cyberspace Superiority	$829 M
Personnel Recovery	$1.13 B
Command and Control	$1.34 B
Global Integrated ISR	$2.77 B
Global Precision Attack	$11.71 B
Special Access	$10.01 B
Air Superiority	$4.81 B
Rapid Global Mobility	$4.53 B
Nuclear Deterrence Operations	$5.02 B
Space Superiority	$8.00 B

CAPABILITIES.

COST, SCHEDULE, & PERFORMANCE

AGGREGATE PERFORMANCE DATA

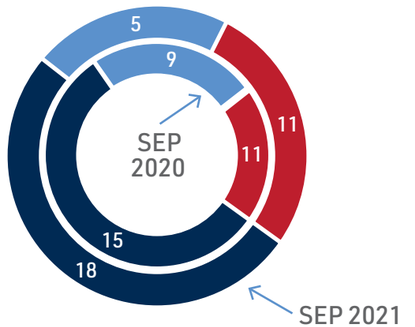
Note: All data in this report is current as of 30 Sep 21.

The Air Force balances program cost, schedule and performance to meet warfighter needs and optimize taxpayers' dollars. Acquisition programs are organized into three categories (ACATs) based on level of spending. Baselines are used to show increases or decreases over time. These baselines provide a measure of accountability.

Cost Performance measures the Program Acquisition Unit Cost (PAUC) estimate difference from the Original/Current baselines. Schedule Performance measures the programs' estimated or actual date of Initial Operational Capability (IOC) against the Original/Current baseline date.

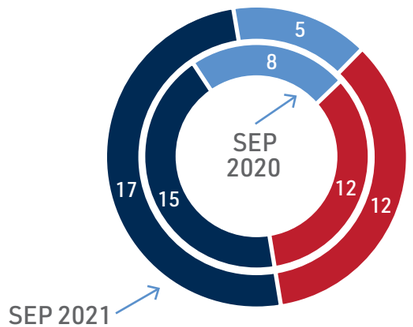
ORIGINAL BASELINE CHARTS – ACAT I

ACAT I - COST PERFORMANCE ORIGINAL BASELINE



■ Under Cost ■ Unbaselined/Pre-Milestone B ■ Over Cost

ACAT I - SCHEDULE PERFORMANCE ORIGINAL BASELINE



■ On Schedule ■ Unbaselined/Pre-Milestone B ■ Over Schedule

PROGRAMS OVER ORIGINAL COST BASELINE (% GROWTH)

	2020 VALUE	2021 VALUE
F-15 EPAWSS	18%	24%
ICBM Fuze Mod	16%	15%
GPS IIIF	6%	-4%
HH-60W	5%	7%
OCX	3%	1%
GPS III	3%	4%
C-130J	1%	-1%
FAB-T CPT	1%	0.4%
APT	1%	1.5%
SDB II	1%	-2%
AWACS Block 40/45 Upgrade	0.2%	0.3%
MH-139A	-1%	0.3%
MGUE Inc 1	-8%	6%
GBSD	-	0.2%

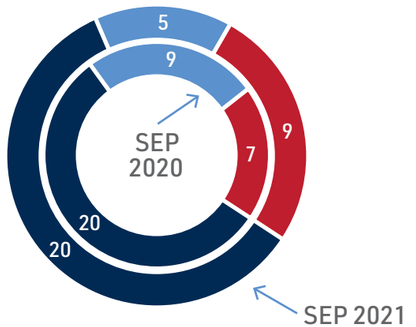
PROGRAMS OVER ORIGINAL SCHEDULE BASELINE (IN MONTHS)

	2020 VALUE	2021 VALUE
KC-46A	49	49
SDB II	42	42
GPS III	40	40
F-15 EPAWSS	33	0*
AMRAAM	24	24
FAB-T CPT	21	31
ICBM Fuze Mod	14	19
B61 Mod 12 LEP TKA	12	12
SBIRS Block Buy	12	13
JASSM ER	11	11
VC-25B	9	21
OCX	7	8
B-2 BDM	9	57

* Original baseline was reset

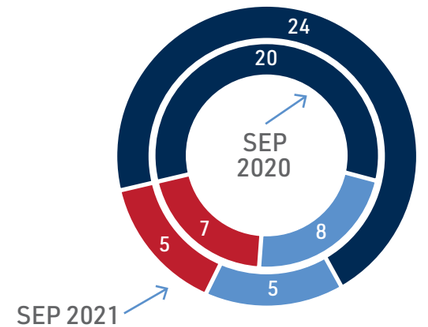
CURRENT BASELINE CHARTS – ACAT I

ACAT I - COST PERFORMANCE CURRENT BASELINE



■ Under Cost ■ Unbaselined/Pre-Milestone B ■ Over Cost

ACAT I - SCHEDULE PERFORMANCE CURRENT BASELINE



■ On Schedule ■ Unbaselined/Pre-Milestone B ■ Over Schedule

PROGRAMS OVER CURRENT COST BASELINE (% GROWTH)

	2020 VALUE	2021 VALUE
ICBM Fuze Mod	16%	-0.6%*
GPS IIIF	6%	-2%
FAB-T CPT	3%	3%
SDB II	3%	0%
OCX	3%	1%
APT	1%	2%
F-15 EPAWSS	0.1%	2%
HH-60W	0%	2%
MH-139A	-1%	0.3%
B-2 BDM	-7%	1%
GBSD	-	0.2%

* Current baseline was reset

PROGRAMS OVER CURRENT SCHEDULE BASELINE (IN MONTHS)

	2020 VALUE	2021 VALUE
B-2 BDM	33	0*
FAB-T CPT	3	13
KC-46A	15	0*
ICBM Fuze Mod	14	0*
B61 Mod 12 LEP TKA	12	12
SBIRS Block Buy	12	13
VC-25B	9	21
OCX	7	8

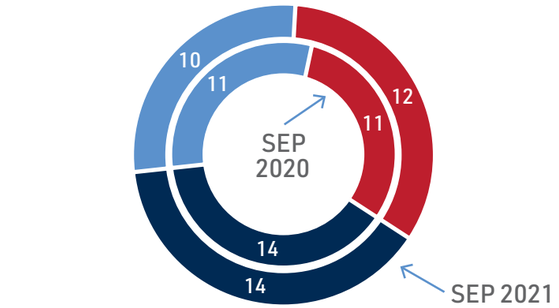
* Current baseline was reset

COST, SCHEDULE, & PERFORMANCE

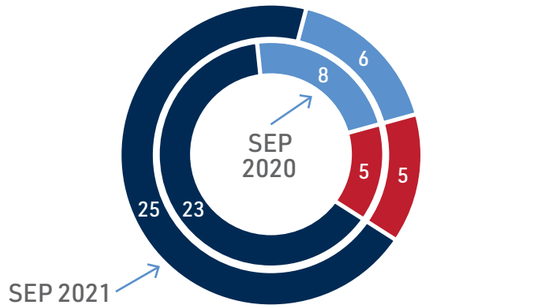
AGGREGATE
PERFORMANCE DATA

CURRENT BASELINE CHARTS – ACAT II

ACAT II - COST PERFORMANCE



ACAT II - SCHEDULE PERFORMANCE



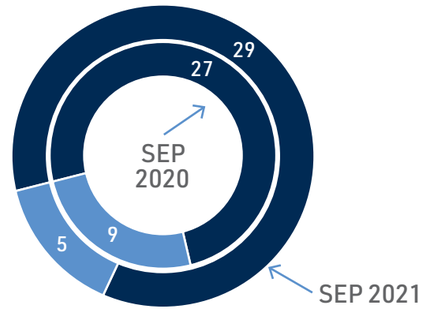
PROGRAMS OVER CURRENT COST BASELINE (% GROWTH)

	2020 VALUE	2021 VALUE
Advanced Targeting Pod Modernization Program	169%	169%
F-16 SCU & M-Series OFP Increment 1	-	9%
Advanced Targeting Pod - Sensor Enhancement	42%	43%
F-15 Infrared Search and Track	39%	-50%
QF-16 Full Scale Aerial Target	18%	37%
F-15 Advanced Display Computer Processor II	13%	13%
RQ-4 Communications System Modernization Program	0%	11%
LGM-30G Flight Test Telemetry and Termination System	9%	9%
F-15E Radar Modernization Program	5%	5%
Miniature Air Launched Decoy-Jammer	5%	5%
C-130J BU Retrofit	5%	0.4%
E-3 DMS Replacement of Avionics for Global Ops & Nav	2%	2%
B-2 Flex Strike Phase 1	1%	1%

PROGRAMS OVER CURRENT SCHEDULE BASELINE (IN MONTHS)

	2020 VALUE	2021 VALUE
LGM-30G Flight Test Telemetry and Termination System	18	0
Embedded Global Positioning System/Inertial Navigation Systems-Modernization	6	6
B-2 Flex Strike Phase 1	12	8
Global ASNT	4	8
F-16 Active Electronically Scanned Array Radar	8	2
F-15 Advanced Display Computer Processor II	5	8
E-3 DMS Replacement of Avionics for Global Ops & Nav	7	7

ACAT 1 - TECHNICAL PERFORMANCE ORIGINAL & CURRENT BASELINE



The ACAT II portfolio does not have sufficient key performance parameter data to perform a yearly analysis.

Due to a lack of historical data ACAT II programs cannot be tracked to their original baselines

The ACAT III programs do not have sufficient baselines or data to perform a yearly cost, schedule, or performance analysis.

ORIGINAL BASELINE

The original baseline reflects the cost, schedule, and performance parameters as approved by the milestone decision authority in the program's first acquisition program baseline. Cost, schedule and performance parameters will only be revised in the case of recertification post critical Nunn-McCurdy breach or Critical Change.

CURRENT BASELINE

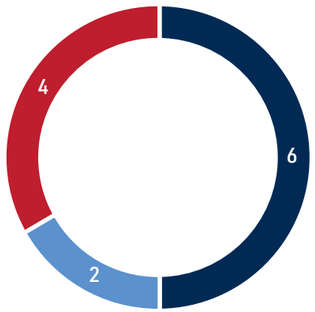
The current baseline reflects the current cost, schedule, and performance parameters as approved by the milestone decision authority in the current acquisition program baseline. The current baseline differs from the original baseline as a result of updates made at milestones or decision points, major program restructures or breaches.

COST, SCHEDULE, & **PERFORMANCE**

AGGREGATE
PERFORMANCE DATA

ACAT I-EQUIVALENT MIDDLE TIER OF ACQUISITION COST PERFORMANCE

MTA COST PERFORMANCE



■ Over Cost ■ Under Cost ■ Unbaselined/No Data

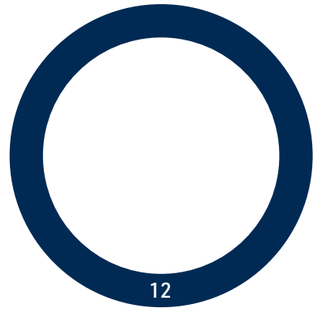
PROGRAMS OVER COST BASELINE (% GROWTH)

	ACAT EQUIVALENT	GROWTH
B-52 Commercial Engine Replacement Program Rapid Virtual Prototype	I	1.6%
F-15EX	I	13.9%
Next Generation OPIR Space Rapid Prototype	I	14.6%
Protected Tactical Enterprise Service Rapid Prototype	I	3.4%
Protected Tactical SATCOM Rapid Prototype	I	2.4%

MTA Cost Performance is the measure of the programs' current total cost estimate versus either the baseline cost or the first full cost estimate submitted to the Air Force.

ACAT I-EQUIVALENT MIDDLE TIER OF ACQUISITION SCHEDULE PERFORMANCE

MTA SCHEDULE PERFORMANCE



■ On Schedule ■ Over Schedule

Schedule Performance measures whether the program is currently estimating if it will meet the 5-year requirement for program completion.

PERFORMANCE OF THE ENTERPRISE

FISCAL YEAR 2021 DEPARTMENT OF THE AIR FORCE ACQUISITION ENTERPRISE PERFORMANCE SUMMARY

Since the National Defense Authorization Act of 2011, the Office of the Assistant Secretary of the Air Force for Acquisition, Technology, and Logistics has conducted annual performance assessments on the acquisition enterprise's abilities to acquire capabilities effectively and efficiently. Rather than focusing on individual program-by-program compliance against established cost, schedule, and technical performance objectives, data were aggregated to provide an enterprise or total system perspective.

In FY21, we analyzed 29 Acquisition Category (ACAT) I and 26 ACAT II programs that met the criteria for assessment: (1) had established program baselines and (2) reported data consistently on a recurring basis.

The following programs were not included in the assessment: (1) ACAT IIIs as current reporting guidance does not provide sufficient data to analyze on a consistent yearly basis, and (2) non-Air Force led programs (e.g., F-35) because other services are responsible for data reporting. All cost data are expressed in FY20 dollars.

Over FY21, the Department of the Air Force acquisition enterprise cost growth decreased from the previous year by 0.3% in the ACAT I portfolio and increased by 0.7% in the ACAT II portfolio. Schedule growth in the ACAT I portfolio saw annual growth of 2.2%, and the ACAT II portfolio saw annual schedule improvement of 7%.

FY21 enterprise results are reported in the following pages with comparisons to the trends from recent fiscal years.

ACAT I COST PERFORMANCE SUMMARY

Cost growth control was largely successful in FY21 when compared to recent fiscal years. This assessment looked at: (1) cost estimate performance and (2) unit cost performance.

The total cost of the portfolio (based on current cost estimates) decreased by a total of $920M. This total represents a 0.3% decrease in the ACAT I portfolio. In comparison, the rate of growth for FY20 was an increase of 1.9% and an increase of 2.7% in FY19. At the end of FY21, the total portfolio cost estimate was $352B.

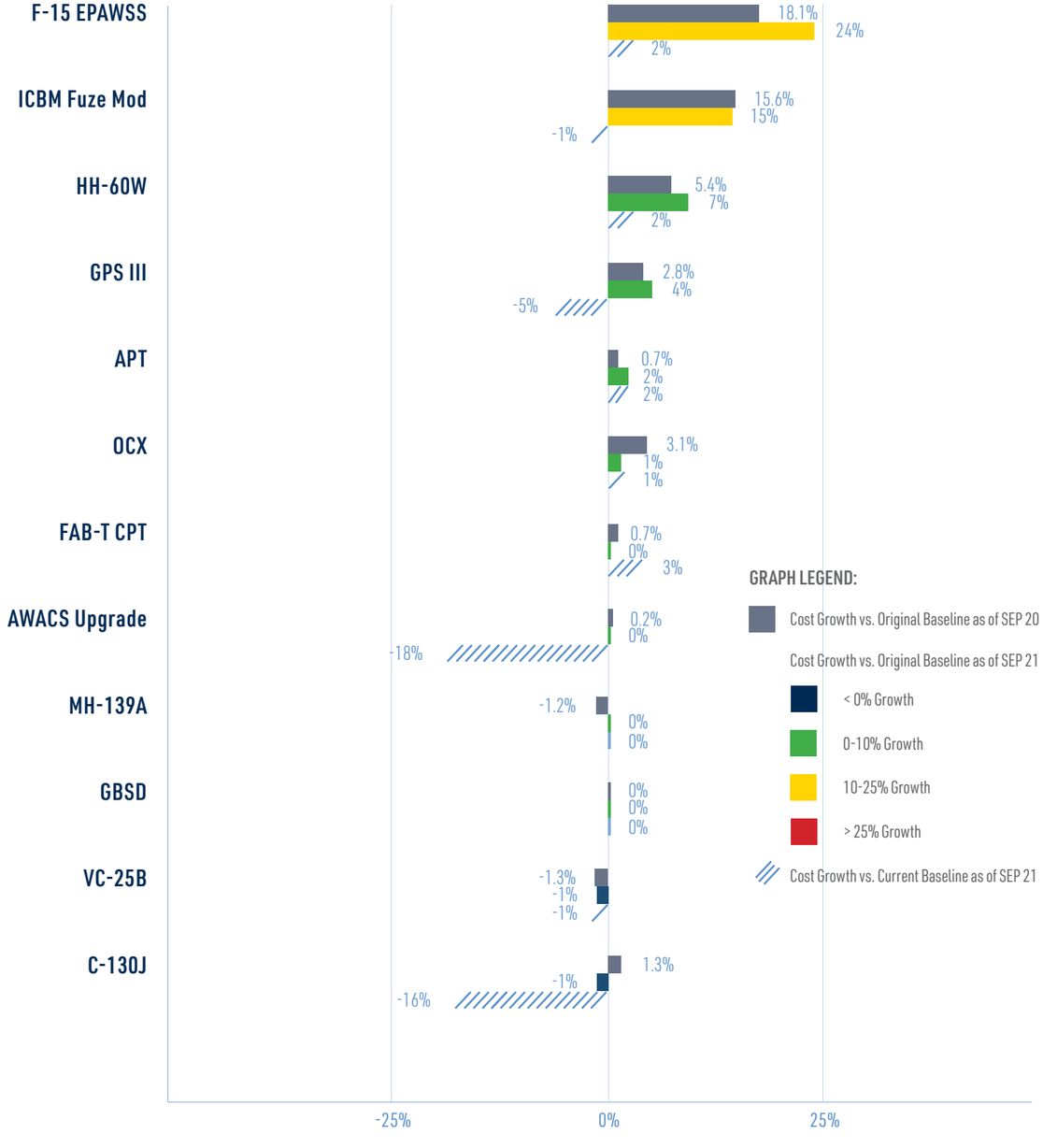
In FY21, 13 of the 29 ACAT I programs increased their estimates, 14 programs decreased their estimates, and two programs had no change.

Eleven of the 13 programs that increased costs kept their growth below 5%, while one program, MGUE Inc 1, saw growth over 10%. The biggest driver for the portfolio was a $1.6B decrease for the National Security Space Launch (NSSL) program, which achieved these savings without cutting quantities. Furthermore GPS-III Follow-on saw a decrease of $612M without cutting quantities. These two programs were more than enough to offset other program cost increases.

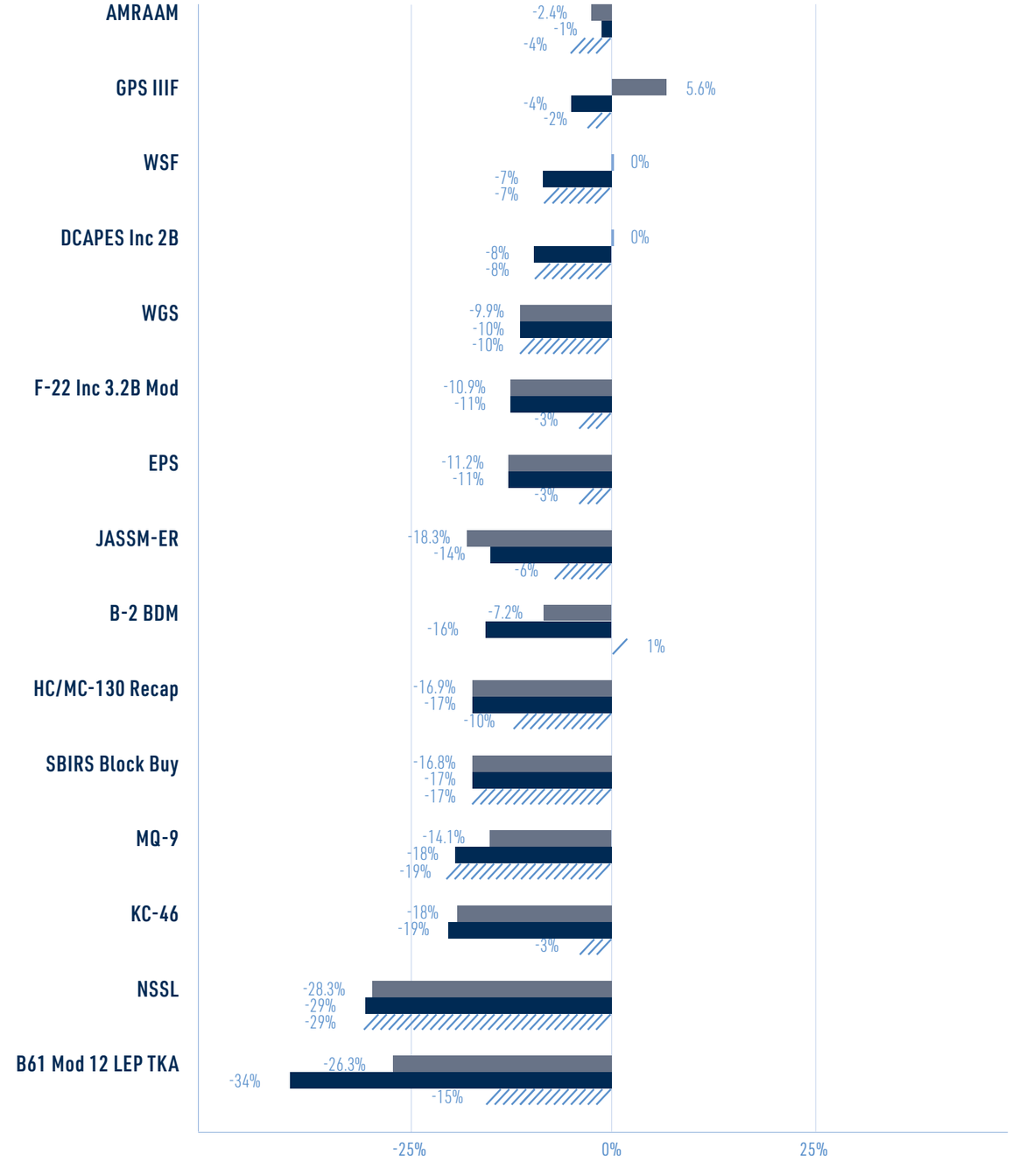
Unit cost performance analysis, which compares program estimates against their original and current unit cost baselines, showed positive results. For the 27 programs assessed in FY21, the average Program Acquisition Unit Cost (PAUC) was 5.9% below original baselines and 4.5% below current baselines. The unit cost measure used by Congress to monitor excessive Service program cost growth (i.e., the Nunn-McCurdy Act) mandates the reporting of programs exceeding certain thresholds of cost growth against current and original baselines.

In FY21, 63% (17) of the programs are below their original baselines with 93% (25) of the programs reporting below 10% growth. For current baselines, 63% (17) of the programs are below their current baselines with 100% (27) of the programs reporting below 5% growth. Two of the ACAT I programs do not report unit costs and are not included in this measure as they are either information systems that have no quantities or are delivering capabilities rather than quantities.

ACAT I UNIT COST PERFORMANCE



ACAT I UNIT COST PERFORMANCE



ACAT II COST PERFORMANCE SUMMARY

Overall cost control remained stable, mirroring the ACAT I portfolio.

The total portfolio cost (based on current cost estimates) grew $190M in FY21, representing a 0.7% annual rate of growth. This is an improvement from the 1.7% increase in FY20 and 14% increase in FY19. Four of the 26 programs increased their estimates and two decreased estimates. The rest reported no change.

Unit cost performance also showed a slight increase. Current baseline analysis shows that the average PAUC grew across the ACAT II portfolio and now stands at 10% above current baselines. In FY21, 61% (14) of the programs executed at or below their current baselines and 86% (19) reported below 10% growth. The ACAT II programs do not have a record of original baselines to track against.

ACAT I SCHEDULE PERFORMANCE SUMMARY

Some ACAT I programs showed schedule savings while the portfolio as a whole followed the trend of increased schedule growth from prior years. This assessment is based on: (1) schedule growth of programs aggregated to measure Enterprise performance and (2) Initial Operational Capability (IOC) timeline measuring individual program performance.

The aggregate schedule grew by 2.2% in FY21, which is a bit better than the 3% average rate of growth over the last five years. Scheduled growth in FY21 was driven primarily by 9 programs experiencing schedule growth, with two of those, FAB-T CPT and VC-25B, growing by over 10 months. No programs shortened their overall schedule length. IOC achievement averaged approximately 1.5 months of growth per program over FY21, also a slight improvement over the last five years. On average, programs have achieved IOC approximately one and a half years later than the originally planned schedules estimated.

PERSONNEL
BY THE NUMBERS

TOTAL FORCE PERSONNEL:

55,900

63% CIVILIAN

16% MILITARY

21% CONTRACTOR

EDUCATION: HIGHEST DEGREE COMPLETED

- ASSOCIATE/PROFESSIONAL/HIGH SCHOOL: 10%
- BACHELOR: 37%
- MASTER: 49%
- DOCTORATE: 4%

AVERAGE AGE:

- < 29: 18%
- 30-39: 29%
- 40-49: 22%
- 50-59: 21%
- 60+: 10%

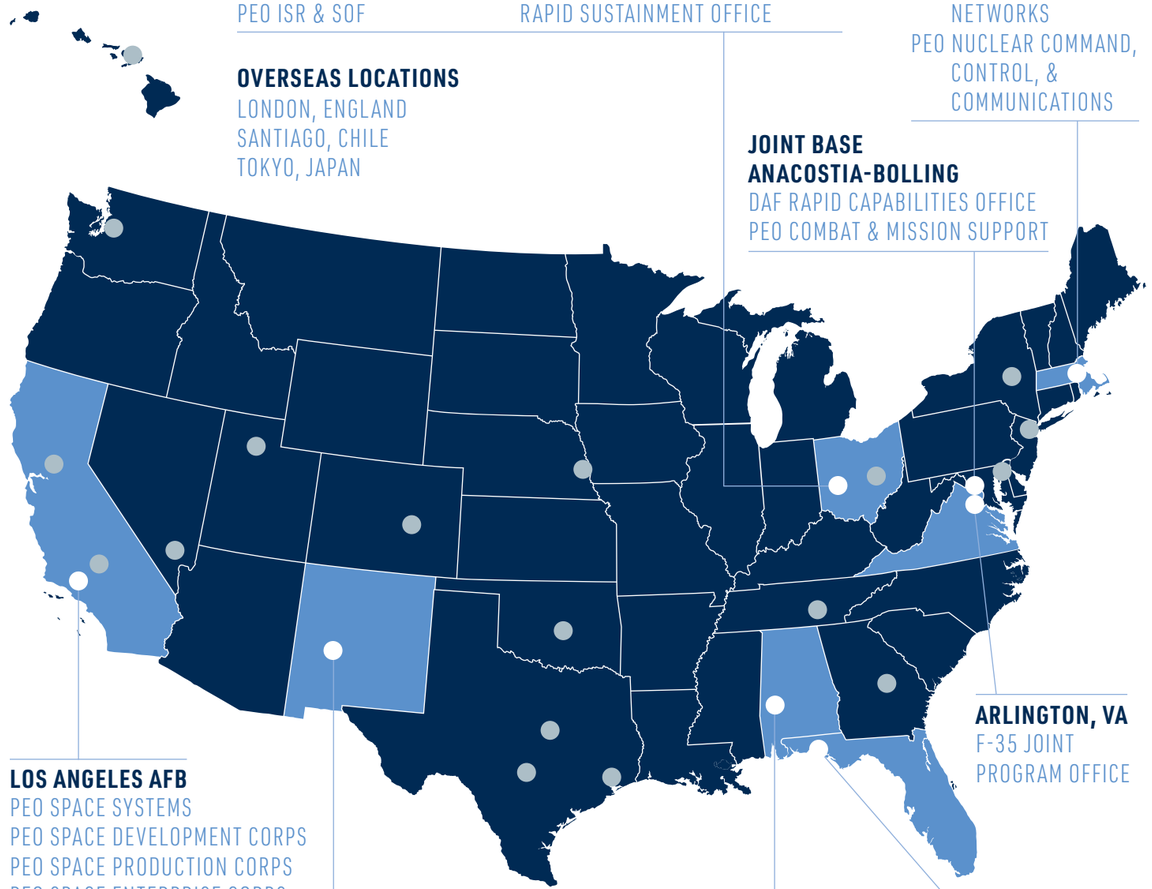
WORKFORCE CAREER FIELDS

- ENGINEERING 25%
- CONTRACTING 20%
- PROGRAM MANAGEMENT 17%
- OTHER 13%
- LOGISTICS 10%
- TEST & EVALUATION 8%
- FINANCIAL MANAGEMENT / COST-ESTIMATING 7%

WHERE WE ARE

PROGRAM EXECUTIVE OFFICER LOCATIONS

OTHER PROGRAM / ACQUISITION LOCATIONS



WRIGHT-PATTERSON AFB
- PEO AGILE COMBAT SUPPORT
- PEO BOMBER
- PEO FIGHTER & ADVANCED AIRCRAFT
- PEO ISR & SOF
- PEO MOBILITY & TRAINING AIRCRAFT
- PEO PRESIDENTIAL AND EXECUTIVE AIRLIFT
- TECHNOLOGY EXECUTIVE OFFICER
- RAPID SUSTAINMENT OFFICE

OVERSEAS LOCATIONS
- LONDON, ENGLAND
- SANTIAGO, CHILE
- TOKYO, JAPAN

HANSCOM AFB
- PEO DIGITAL
- PEO COMMAND, CONTROL, COMMUNICATIONS, INTELLIGENCE & NETWORKS
- PEO NUCLEAR COMMAND, CONTROL, & COMMUNICATIONS

JOINT BASE ANACOSTIA-BOLLING
- DAF RAPID CAPABILITIES OFFICE
- PEO COMBAT & MISSION SUPPORT

ARLINGTON, VA
- F-35 JOINT PROGRAM OFFICE

LOS ANGELES AFB
- PEO SPACE SYSTEMS
- PEO SPACE DEVELOPMENT CORPS
- PEO SPACE PRODUCTION CORPS
- PEO SPACE ENTERPRISE CORPS

KIRTLAND AFB
- SPACE RAPID CAPABILITIES OFFICE
- PEO STRATEGIC SYSTEMS

MAXWELL AFB, GUNTER ANNEX
- PEO BUSINESS & ENTERPRISE SYSTEMS

EGLIN AFB
- PEO WEAPONS

ACQUISITION **TALENT**

Building the most professional acquisition workforce possible to support the Department of the Air Force's programs and missions is a top priority. The Department's diverse 55,900 person acquisition workforce is comprised of Air and Space professionals adept at managing all phases of the system development lifecycle, with the agility required by today's technology, trends, and threats. Our focus on recruiting, hiring, developing, and rewarding our innovative, talented, and diverse workforce ensures we are poised to compete with our adversaries, now and in the future.

RECRUITING

Competition for top talent drives our use of strategic and online recruiting tools like LinkedIn and Facebook to attract and hire the right candidates. The Air Force Civilian Service (AFCS) talent acquisition team leverages the use of virtual platforms for 90% of its hiring events originally due to precautions related to the COVID pandemic, but this approach has proven effective.

Notably, the AFCS talent acquisition team met with candidates at the Annual American Indian Science and Engineering Society (AISES) National Conference in September 2021 as part of an ongoing effort to support diversity and inclusion throughout the workforce.

In total, there were 532 tentative job offers or selections made by hiring managers stemming from 39 planned hiring events in FY21. Use of social media and the commercial marketing space allowed for increased targeted engagement and contact with a greater number of qualified candidates for career opportunities within the Department of the Air Force. The AFCS talent acquisition team averaged a record of 51 days active recruiting from "Open" to "Close" for job announcements. Overall, the team helped hire 2,464 new employees.

HIRING

As we enhance our ability to attract the talent required to fuel our innovative culture we used multiple strategies to fully leverage existing hiring authorities. We used the student direct hire authority to support the Premiere College Intern Program, with 247 new members working in Science, Technology, Engineering, and Math. The intern program also allowed us to build our Palace Acquire recent graduate program to hire 638 recent graduates across five different acquisition career fields. The Department of the Air Force used various Direct Hire Authorities to expedite the hiring process and acquire top talent professional talent for the critical acquisition mission. The number of individuals hired under these various authorities totaled 8,921.

DEVELOPING

Equipping our workforce with technical and leadership skills to support acquisition programs and missions is vital. Over the last year, we worked with the Office of the Secretary of Defense Human Capital Initiatives office to overhaul the long-standing acquisition certification framework and requirements by introducing a 21st century approach to lifelong learning and career management. The new framework allows us to provide more relevant, efficient, and timely training, resulting in an empowered and more capable workforce. Moving forward, the new construct will transform the workforce by affording it opportunities for cross-functional credentialing. In FY21, 579 workforce members earned Acquisition Professional Development Program (APDP) certifications.

The Defense Acquisition Workforce Development Fund (DAWDF) is critical to the development of our workforce. The Department of the Air Force used DAWDF funds to develop and deliver training courses through the Air Force Institute of Technology, quickly reacting to the need for enhanced skill sets within the workforce. DAWDF funds were also used to enhance the education of the workforce by providing tuition assistance to members pursuing Masters level degrees and members pursuing PhD level programs. Additionally, DAWDF funds were used to meet multiple functional training needs, as identified by our functional leaders, ensuring tailored training was available for workforce development. Over $5.6 million in Civilian Acquisition Tuition Assistance was provided to acquisition professionals to fund 3,939 courses for critical training.

One of the unique developmental offerings is the Education with Industry (EWI) program. During this 10-month experience, acquisition workforce members are immersed with various industry partners, gaining insight to the latest corporate trends, developing business acumen, and understanding private industry best practices. EWI partners include traditional defense companies, software and digital-focused companies, venture capital firms, and small businesses. The FY21 class consisted of 81 fellows across 30 career fields, located at over 58 companies nationwide.

The Materiel Leader (ML) and Senior Materiel Leader (SML) program formalizes the identification process of Acquisition Program Managers who are ready to assume key leadership positions and assist the Department of the Air Force in deliberately growing senior leaders. Boarded ML and SML qualified candidates have demonstrated high-potential, as well as the ability to not only become Program Managers of major acquisition programs but to become exceptional leaders and innovators as they deliver cutting edge capabilities to our warfighters. There are 142 ML and 102 SML qualified civilian candidates ready and able to exercise command. On the military side, there are 252 Lieutenant Colonels serving as MLs and 141 Colonels serving as SMLs.

REWARDING

In 2021, the Department of Defense rewarded two of our acquisition teams with prestigious awards for the best acquisition practices and innovation in acquiring and delivering products and capabilities for the warfighter.

The Acquisition Demonstration program continues to be acquisition community's personnel performance program of choice, covering 41% of the acquisition workforce, which includes some bargaining unit employees.

FUTURE

The Department of the Air Force continues to drive transformation in how we recruit, hire, develop, and reward personnel to sustain the needed acquisition workforce. In FY21, we focused on cultivating talent by employing innovative tools, using state of the art technology, relying on data-driven approaches, and encouraging education, training and professional development as part of our everyday routine. We foster and cultivate diverse and high performing individuals set on accomplishing mission requirements. Our diverse and innovative acquisition workforce gets the job done, and is truly essential for warfighting success. ■

DEPARTMENT OF DEFENSE ACQUISITION AWARDS TO DEPARTMENT OF THE AIR FORCE ACQUISITION TEAMS

2021

TEAM	AWARD
COVID-19 USTRANSCOM JUON TC-0003 Response Team (Aberdeen Proving Ground, Maryland)	★ David Packard Excellence in Acquisition Award
Three-Dimensional Expeditionary Long-Range Radar (3DELRR) (Hanscom Air Force Base, Massachusetts)	★ David Packard Excellence in Acquisition Award

CONTRACTING FOR A NEW AGE

The Department of the Air Force continued execution of its Contracting Flight Plan in FY21. The plan creates strategic alignment and links between the Department's contracting activities, acquisition guidance, mission, Chief of Staff of the Air Force Action Orders, Chief of Space Operations priorities, and ultimately, the National Defense Strategy. With strategic alignment, we are ensuring we have the best Mission-Focused Business Leaders who can employ the full spectrum of government contracting tools.

FY21 accomplishments within each Line of Effort include:

LINE OF EFFORT 1: Build Mission-Focused Business Leaders

Air Force Contracting created six core competencies to highlight specific focus areas to develop business experts from initial skills through executive level training. Those competencies are Mission-Focus, Leadership, Business Acumen, Technical Skills, Relationship Management, and Critical Thinking. An example of new training in FY21 to support the Business Acumen core competency is the Air Force Business Leadership Course in partnership with the University of North Carolina. This course reduced the training gap to develop contracting personnel holding unlimited warrants to become more well-rounded leaders.

LINE OF EFFORT 2: Tools not Rules

Contracting teams implemented new Tactics, Techniques, and Procedures (TTPs) homegrown from the grassroots level, cutting bureaucracy, removing 14 weeks from clearances and 487 pages of outdated policy across the Department of the Air Force. CON-IT, the Department of the Air Force's next-generation contract writing system, was further developed and expanded in 2021. A system engineered using agile software development principles, CON-IT is continuously updated and fortified with new functional and technical capabilities – paving the path to sunset legacy contract writing systems across the DAF. In 2021, Contracting functionals collaborated with technical and program management experts to identify, specify, and implement new requirements geared towards Major Defense Acquisition Program needs to allow expansion to 17 buying offices with 450+ contract negotiators previously dependent on an aging contract writing system.

LINE OF EFFORT 3: Owning the High Ground: Optimizing the Acquisition Enterprise

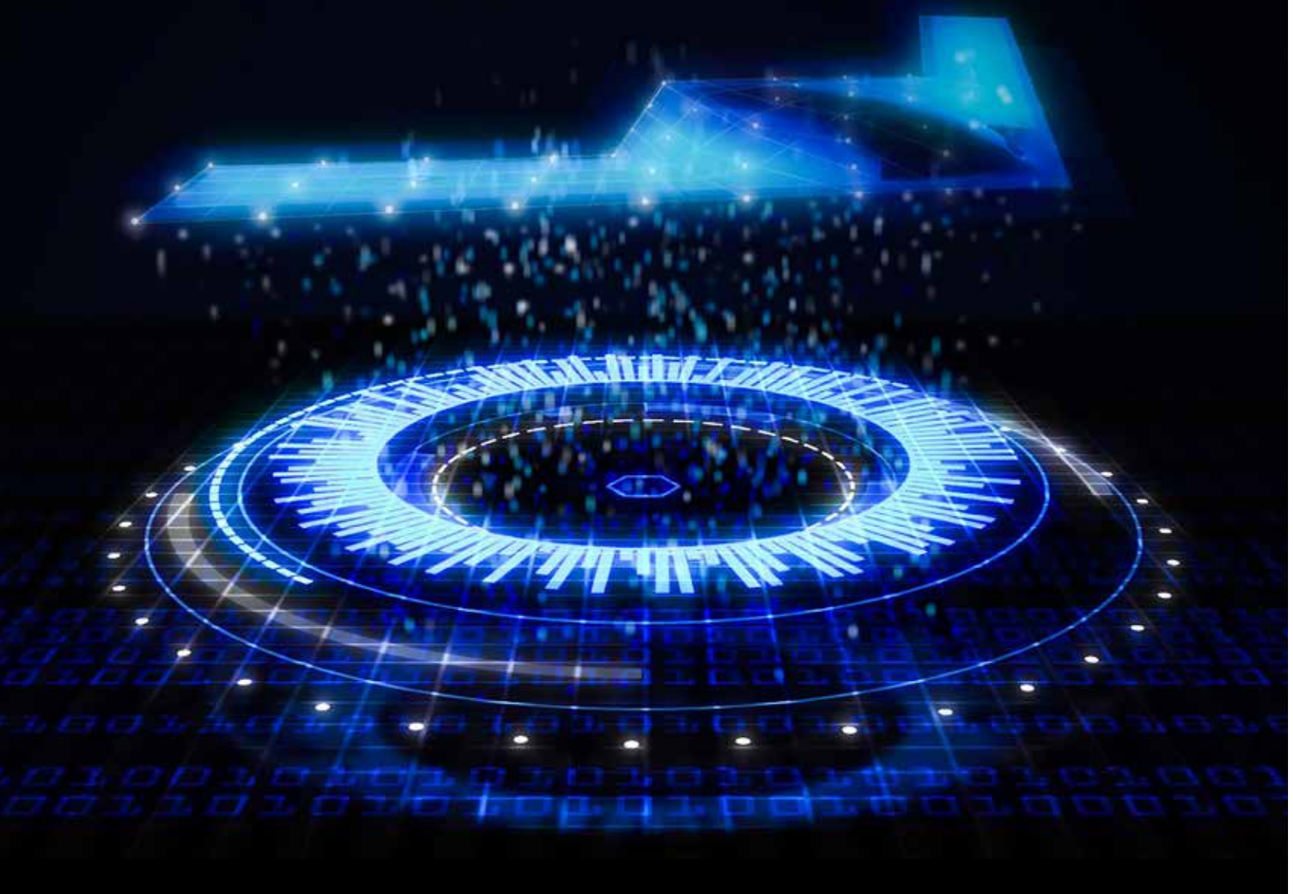
In FY21, the contracting community established a novel formalized knowledge sharing network through the RAPIDx LNO CONOPS. These innovative acquisition activities are key to connecting the innovation ecosystem with the contracting workforce for the Air Force and Space Force. A new user friendly Cost Saving Tracker and Launchpad with interactive dashboard hosted in the Chief Data Officer (CDO) Visible, Accessible, Understandable, Linked and Trustworthy (VAULT) data platform was also launched. Finally, the contracting community achieved rate and process savings using a new e-commerce provider, purchases valued at $27 million, secured savings of $3.2 million over General Services Administration pricing, with a reduction in processing time of 40 percent per transaction.

LINE OF EFFORT 4: Expeditionary Contracting as a Joint force Capability

The contracting community balanced deployment taskings across all Major Commands, and became a centrally managed career field. More than 260 taskings were modernized by development of two Unit Type Codes and updates to 2,000 Contingency Contracting Officer (CCO) reporting instructions, which increased deployable personnel by 11 percent.

Contracting crisis support was vital to real world operations, as 35 CCOs mobilized to fill DoD vaccinations teams, and also support noncombatant evacuation operations for 80,000 Afghan travelers. Expeditionary Contracting also launched the first ever Joint Senior Contracting Official Table Top Exercise. More than 80 leaders across all services worked together to refine operation plans for two critical Areas of Operation. Finally, contingency training was revamped into three tiers to address predeployment planning through redeployment, and codified in the CCO Training Program requirements. ■

DIGITAL TRANSFORMATION



Digital transformation is the enabler the Department of the Air Force (DAF) needs to overcome our adversaries' rapidly increasing parity. The Air Force and Space Force are enabling the creation of a digitally empowered acquisition and sustainment capability equipped with the use of digital engineering, agile software development, and modeling and simulation. Upon this foundation, we will enable accelerated procurement, process automation, institutionalize open architectures, and leverage authoritative models and data to ensure seamless stakeholder collaboration across the acquisition lifecycle. In FY21, the DAF made major advancements in our knowledge, capability, and resolve to fully embrace digital transformation.

DIGITAL ENGINEERING AND MANAGEMENT

Digital engineering continues to provide us with the ability to create, modify, test, assemble, and experiment in the virtual world before ever bending metal in the physical world. In essence, it evolves the process of acquisition of new capability from the traditional design-build-test to a model-analyze-build methodology. In FY21, the DAF continued to implement digital engineering in the weapon systems acquisition spanning the entire lifecycle. The Department focused on digital engineering from an enterprise solution perspective, and made significant progress on key initiatives.

Digital Campaign: The DAF expanded its Digital Campaign throughout FY21. The campaign is solely focused on increasing digital engineering capabilities across the Air Force and Space Force, providing support to program implementation, and sharing experiences. The Digital Campaign made significant strides, leveraging existing funding and the expertise of over 900 dedicated Airmen and Guardians to resource digital engineering capabilities at an enterprise level.

Digital Guidebook: In July 2021, the campaign developed and published the first ever online guidebook that provides programs and practitioners with tools, resources, and training to jumpstart transformation at the grassroots level. The guide provides a forum for sharing

best practices, lessons learned, and useful digital products across the department.

Digital Building Code: Published in May 2021, the Digital Building Code provides guidance so all programs can plan for and incorporate digital engineering acquisition practices into acquisition programs. This document established the axiom that new programs will be "born digital," and our legacy programs will benefit in their sustainment, modification, and life-extension activities. This document also provides a living set of standards for programs to incorporate, along with recommendations for implementation and links to applicable resources.

Digital Transformation Office (DTO): The DAF established the DTO in June 2021 at Wright-Patterson Air Force Base, Ohio, to ensure continuous momentum and acceleration of transformative efforts. This is the first organization stood up to address digital needs of all programs with a long-term and department-wide perspective in mind. The DTO will ensure continued alignment and synergy of major digital acquisition and digital sustainment efforts, provide training, and conduct workshops while championing key enterprise activities across the Department and with other agencies.

Product Lifecycle Management (PLM): The Department reached a major milestone by directing the retirement of hundreds of disparate sustainment tools into a single PLM tool to assist with the digital transformation of acquisition and sustainment programs. This long-term initiative will enable the sharing of important and authoritative data throughout the lifecycle and connect subject matter experts with stakeholders, maintainers, and logisticians to improve the readiness, accuracy, and robustness of our warfighting capability.

The following highlights a few Air Force and Space Force digital engineering efforts in FY21:

The B-52 program office has fully embraced digital engineering. **The B-52 Commercial Engine Replacement Program (CERP)** rapid prototyping project conducted a "digital fly-off" between power plants (engines), using modeling and simulation to compare fuel efficiency, maintenance requirements, and performance. Digital artifacts for Model Based Systems Engineering (MBSE) and 3D analyses were received in the competitive proposals to perform rapid, accurate assessments. A contract was awarded in September 2021.

Space Systems Command (SSC) is using a complex MBSE approach for MILSATCOM acquisitions for the **Protected Tactical Enterprise Service (PTES)**. PTES is enabling Government ownership of MBSE-developed models of system level requirements and test verification strategies, while, at the same time, enabling industry to maintain intellectual property of lower-level design detail models and sub-system testing where appropriate. Interface agreements have enabled rapid decision making through data sharing, interoperability, and collaboration between the program office and its prime contractor.

The Department awarded four digital engineering contracts for system design, analysis, validation, and verification against a subscale prototype of the **Advanced Radar Threat System-Variant 3 (ARTS-V3)**. ARTS-V3 is using Cameo as the System Modeling (SysML) for digital engineering to model requirements prior to soliciting bids. By using digital designs, costs were cut by one tenth compared to full scale system enabling multiple vendors to build for a "digital fly off."

AGILE SOFTWARE DEVELOPMENT

Software is the common thread in our interconnected world; it touches every mission, each domain, and is a critical tool for our Digital Transformation. With this in mind, the DAF has pressed forward to modernize our approach to procuring and developing software with the aim of accelerating change and meeting tomorrow's fight. To confront our software needs, we have embraced an agile software methodology, which encourages rapid and flexible response to change, an incremental and iterative approach, continuous delivery, and a user-centric mentality fueled by direct feedback from the end user. An agile method gets capabilities–not outdated requirements–into the hands of the warfighter at the speed of relevance.

Security is also essential for software to be effective. When software security is an afterthought, there is a risk of creating a disjointed environment that makes unsubstantiated tradeoffs between security and functionality. Therefore, cybersecurity must be integrated throughout the software development process by adopting a DevSecOps approach, which unifies software development (Dev), cybersecurity (Sec), and operations (Ops). This practice builds on agile principles by placing an emphasis on automation and thereby making security decisions throughout the process.

In FY21, the adoption of modern software development practices expanded across the DAF. Both legacy and greenfield programs adopted agile mindsets and leveraged Enterprise Services–including cloud infrastructure from Cloud One and DevSecOps/Software Factory managed services from Platform One–to build mission-ready capabilities and applications. DevSecOps became a formal part of the institution when the DAF designated Platform One as a program of record in FY21. By providing a common, open architecture, Enterprise Services are enabling the type of interoperability across programs that is critical for Department-wide efforts of the future.

MODELING AND SIMULATION

The DAF relies on widespread and diverse modeling and simulation (M&S) capabilities to accomplish its mission. M&S itself has grown markedly since the proliferation of personal computers circa 1990. The Department's employment of M&S has matured congruently, and the opportunity to scale to an enterprise capability has materialized. M&S has provided an optimistic way forward for development of virtual ranges that permits threat-representative environments and it provides the means to test and train in high-fidelity, operationally realistic battlespace environments.

In FY21, M&S was utilized in multiple stages of the acquisition lifecycle. The Space Force's PTES program used Digital Twins and M&S to enable a rapid user requirements feedback loop in operationally relevant scenarios resulting in 43% of requirements being significantly rewritten. An estimated six years total schedule was saved within the MBSE/Digital Engineering accelerated programs portfolio. The Air Force Research Laboratory (AFRL) performed extensive M&S and analysis using high performance computing resources to evaluate common and less expensive flares on F-35, maintaining effectiveness while reducing logistical burden and costs of $1B over the fighter lifetime. The Advanced Framework for Simulation, Integration and Modeling (AFSIM), a key pillar of the DAF M&S Enterprise, was used to provide the environment for rapid experimentation of sensors in a partnership between AFRL and USAF Weapon School. Finally, the Joint Simulation Environment (JSE) made significant progress in simulations preparation for test scores to enable F-35 IOT&E and meet critical Milestone C. It is serving as the only location where the Weapon School can perform air-air simulated sorties with reliable 8-ship F-35 operations versus red threat aircraft in a congested battlespace. ■

SCIENCE & TECHNOLOGY

The Department of the Air Force's Science and Technology (S&T) investment hedges against the unpredictable future and provides pathways to a flexible, precise, and lethal force. Innovations arising from technology breakthroughs create new, previously unimagined capabilities that stand to re-shape future military operations. At approximately $2.8 billion per year, the Department of the Air Force focuses S&T on advancing technologies into those capabilities ensuring sustained freedom of access and action in air, space, and cyberspace.

At over 6,200 military and civilian Airmen and Guardians strong, the Air Force Research Laboratory (AFRL) conducts unparalleled research, develops tomorrow's technology, and enhances strategic partnerships, giving warfighters unmatched advantage in the field.

ONE LAB - TWO SERVICES

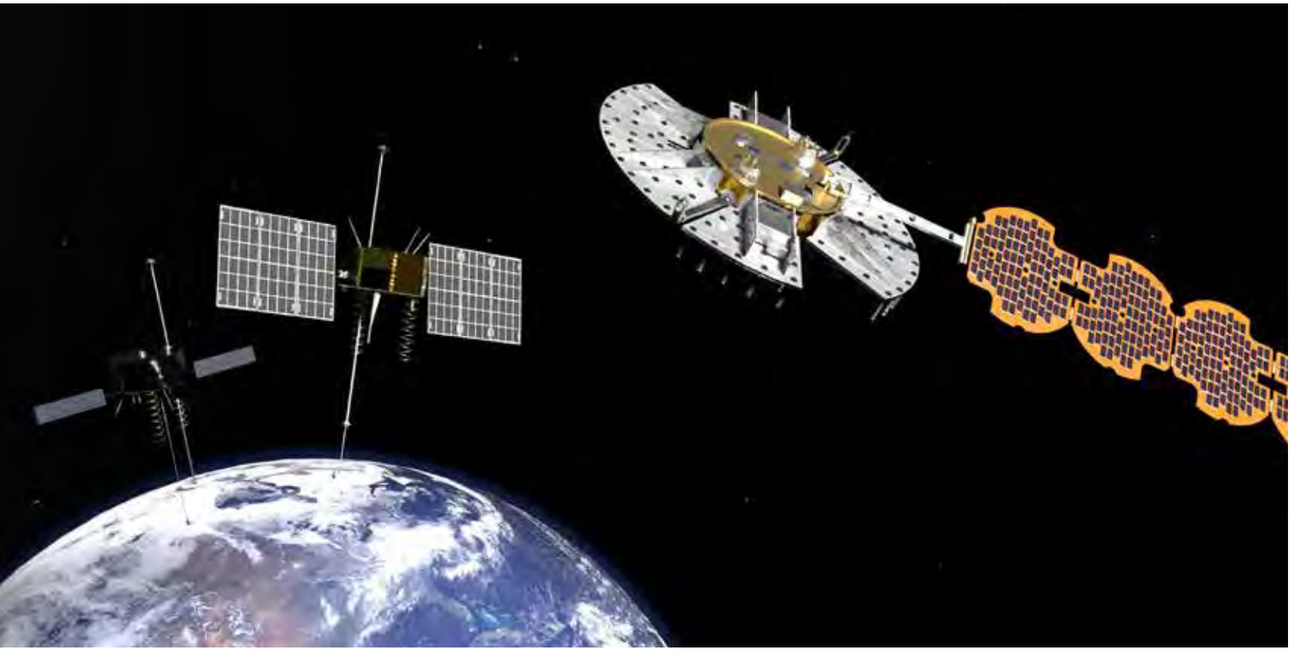
As "One Lab for Two Services," AFRL's commitment to the warfighter is stronger than ever. AFRL continued to evolve during FY21 in response to great power competition from China and Russia, setting a path to continuously accelerate S&T and deliver cutting edge capability to the Air and Space forces. AFRL overhauled its S&T portfolio, shifting efforts to develop technologies that will outpace Russia, China, and other peer competitors. The laboratory strengthened its support to the new Space Enterprise, establishing a Deputy Technology Executive Officer for Space and directing efforts and personnel to support the space mission. The Transformational Capability Office reached Initial Operational Capability, accelerating revolutionary concepts for application in the field in support of Airmen and Guardian missions. AFRL also expanded its innovation network partnering with technologists from academia, small businesses, industry, and allies.

WARTECH PROCESS INITIATED

In FY21, AFRL's Transformational Capability Office initiated WARTECH to provide a forum that brings both warfighters and technologists together to co-develop new operational concepts, creating a nexus for combining S&T investments with future operating concepts and future force design. WARTECH leveraged the "Air Force Explore" solicitation and the internal Seedlings for Disruptive Capabilities Program (SDCP), to create a pipeline of bold ideas by using competition to drive cross-disciplinary collaboration and partnerships at the start of the process of technology maturation and solution development. WARTECH summits evaluated warfighter needs and prioritized advanced technology demonstration programs including potential Vanguard programs. The annual summit, held in July 2021, focused on successfully transitioning the most advanced technologies into warfighting capabilities to fulfill Department of the Air Force S&T portfolio priorities. During the summit, the Department of the Air Force Transformational Capability Executive Committee approved several capability topics to begin program execution in FY22, including theatre-scale, multi-domain planning capability for rapid generation and exploration of plan options and plausible futures; real-time multi-domain battlespace awareness in highly contested environments; hypersonic systems; and satellite demonstrations focused on autonomy technologies to enable satellite inspection.

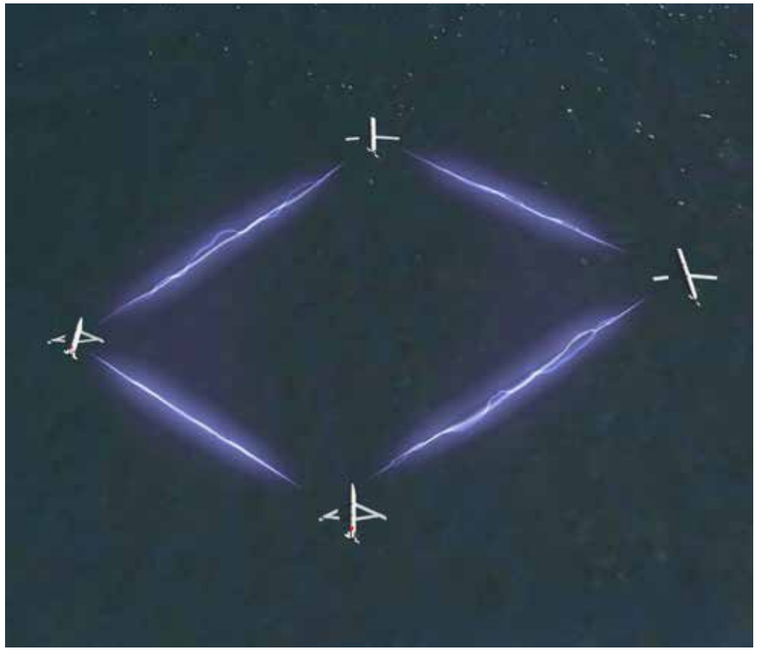
VANGUARDS

In FY21, the Department of the Air Force continued its three Vanguard initiatives forward, and initiated a fourth program as a result of the WARTECH process. Vanguard programs ensure warfighters, future force designers, technologists, and program managers ensure technical feasibility, operational utility, and a solid business case to work through the complexities of implementation and facilitate transition into acquisition and fielding. S&T funds are dedicated to complete the S&T components of each Vanguard effort and to accelerate transitions, while Program Executive Officers are designated upfront to develop and execute an acquisition strategy in collaboration with the Technology Executive Officer. Upon the successful prototyping and experimentation, the Department of the Air Force can transition the technology into an operational capability.



The **NTS-3** Vanguard program is advancing technologies for a family of systems capability improving resilient communications. The Space Force's Global Positioning System (GPS) constellation provides unprecedented position, navigation, and timing (PNT) accuracy to the warfighter. Since the inception of GPS, PNT has become a global utility with commercial use far outweighing military use. Set to launch in 2023, NTS-3, America's next experimental navigation technology satellite (NTS), will augment today's PNT capabilities to pave the way for a more flexible, robust, and resilient architecture for satellite navigation. AFRL is working with industry to develop advanced techniques and technologies to detect and mitigate interference to PNT capabilities and increase system resiliency for military, civil, and commercial users. NTS-3 will test these new capabilities for one year in Geosynchronous Earth Orbit.

The objective of the **Golden Horde** Vanguard effort is to demonstrate networked collaborative semi-autonomous weapons by creating an integrated weapon system to increase survivability and lethality. In FY21, the Golden Horde program continued to develop and test a Collaborative Small Diameter Bomb (CSDB) integrated weapon system to enable a swarm of CSDBs to share data and execute coordinated behaviors. Onboard radios that receive and send data to other CSDBs enable the swarm to locate, identify, and defeat targets, while being robust to attrition and taking into account target priority and time of arrival constraints. In addition to hardware demonstrations, the Golden Horde program is fueling a future digital acquisition strategy. It implemented digital engineering to augment testing and demonstration using simulation on high performance computers, establishing a foundation for future weapon acquisitions. It is fueling a future digital acquisition strategy, a foundation for future of weapon acquisitions. Digital engineering lowers entry barriers, allowing traditional and non-traditional suppliers to assist in rapid development, thereby fostering innovative designs and successful programs.



Skyborg is a Vanguard program developing a system of technologies to allow un-crewed air vehicles (UAVs) to operate alongside human-piloted aircraft, or other UAVs, autonomously, in support of long-range conventional strike missions and penetrating counter air systems. The Skyborg technologies integrate autonomy with un-crewed systems, allowing UAVs to team with crewed aircraft as "wingmen" and provide pilots with key data to support rapid, informed decisions in the cockpit. The human pilot will have better awareness of the environment and threats, and thus greater survivability and lethality during combat missions. Field tests are currently assessing the autonomous algorithms' performance and verifying that the system continuously operates within the constraints established during mission planning. Skyborg technology will provide transition opportunity for future collaborative combat aircraft programs.

Pushing on the boundary of the possible, the **Rocket Cargo** Vanguard was initiated in FY21 to assess the viability of leveraging commercial rockets as a service to ship supplies around the world. With the aim of putting cargo containers onto rockets, the concept would provide the ability to fly supplies to remote areas in just 90 minutes, instead of hours or days. Rocket Cargo could serve in situations such as disaster relief, humanitarian assistance, emergency shortages, unforeseen attacks, and remote bases and outposts. Rocket Cargo strives to understand and solve critical technical challenges and reduce the risk to realize this capability with commercial space vendors.

PROTOTYPING AND EXPERIMENTATION

The Department of the Air Force uses prototypes and experimentation to reduce acquisition risk and accelerate transition of new capabilities to the field.

For example, the **AgilePod** is comprised of a series of compartments and can be configured to meet a wide variety of mission requirements for many aircraft platforms. Experimenters can fill the spaces with plug-and-play sensors needed for a mission (e.g., high-definition video, electro-optical and infrared sensors, and devices with other capabilities, including PNT). Alt-PNT AgilePod seeks to provide reliable, resilient position, navigation, and timing signals for warfighters in scenarios where access to GPS is not guaranteed. The fused alt-PNT system incorporates multiple technologies within a single government-owned open-architecture prototype. In the Phase I tests in April 2021, the Air Force Strategic Development Planning & Experimentation Office and Naval Surface Warfare Center successfully demonstrated fused PNT technologies within the AgilePod mounted on a low-performance airborne testbed in Centennial, Colorado. The team also fit-tested the configuration on a T-38 jet at Holloman Air Force Base, New Mexico. In FY22, Alt-PNT AgilePod will continue to mature in its prototype design configuration and will be integrated into a wider range of airframes to demonstrate military utility across a broader range of operational scenarios.

AFWERX AND SPACEWERX

In FY21, **AFWERX** aligned organizationally with AFRL's diverse team of innovators. As the Department of the Air Force's chief investment group, AFWERX accelerates change by bringing startup philosophy and industry talent to bear on the Department's challenges and finds new ways to deliver capabilities to the warfighter. AFWERX is expanding the air and space industrial bases by forming collaborative partnerships between the military's operational experts and the top innovators in industry and academia, leveraging commercial investment, and rapidly pursuing new technologies.

To support the full breadth of the Department of the Air Force mission areas and AFRL's "One Lab, Two Services" ethos, AFWERX expanded in FY21 to include both Space Force-focused (SpaceWERX) and Air Force-focused (AFWERX) teams. AFWERX helps transition new capabilities to the warfighter by partnering its innovative technology developers with Airmen and Guardian talent throughout the Department of the Air Force. Across both its air and space efforts AFWERX initiatives are carried out by its three divisions: Spark, AFVentures, and Prime.

Spark is building a decentralized network of cells at Air Force and Space Force bases around the world to execute locally generated ideas and projects. These Spark Cells give Airmen and Guardians access to resources and support from across the Department of the Air Force innovation network. The innovation network enables rapid communication and scaling across the enterprise to drive new capabilities, effectiveness, and improve quality of life for servicemembers. In February 2021, Master Sergeant Justin Bauer from the 355th Fighter Wing at Davis-Monthan Air Force Base, Arizona, was selected as the Spark Tank 2021 winner and awarded the prestigious trophy. His innovative method for C-130 Hercules wheel repair provided an outstanding improvement and solution to a critical operational process.

AFVentures, the commercial investment arm of the Department of the Air Force, creates simple pathways for commercial innovators and private capital investment to help the Department solve problems. As of FY21, AFVentures has funded over 1,800 companies with Small Business Innovation Research (SBIR)/Small Business Technology Transfer (STTR) funds through its "Open Topic" solicitations, 81% of which have never partnered with the Department of the Air Force before.

The **AFWERX Prime** program works to rapidly drive affordable capability to the field after effective technology development (e.g., AFVentures) and concept engagement (e.g., Spark). Successful fielding builds trust among Airmen and Guardians as well as industry, investors, interagency partners, and international stakeholders. The ongoing Air Force Agility Prime program is driving towards the development of electric Vertical Takeoff and Landing (eVTOL) systems. This effort will deliver new active debris remediation capabilities in the next two to four years. ■

SUSTAINMENT

Sustaining the weapons systems of the Department of the Air Force (DAF) is a continuous effort to ensure mission capability. During FY21, the DAF made significant strides to improve sustainment and logistics readiness for the Air Force and Space Force, with a focus on innovative solutions in core technology areas, depot infrastructure revitalization, and supply chain risk management.

RAPID SUSTAINMENT OFFICE

The Rapid Sustainment Office (RSO) leverages mature, new, emerging, and disruptive technologies to dramatically improve readiness, with a sustainment centric focus. Organized with a non-traditional construct, based on agile principles and a short chain of command, the RSO pioneers innovative and cost-effective sustainment technologies and tools for the betterment of the sustainment enterprise. The RSO is located near Wright-Patterson Air Force Base, with a robust presence in Air Force Life Cycle Management Center's (AFLCMC) Advanced Technology & Training Centers (Dayton, Ohio; Warner Robins, Georgia; Pittsburgh, Pennsylvania).

Part of AFLCMC, the RSO's objective is to increase mission readiness and capabilities by identifying, applying, and scaling technology and innovative solutions to advance and modernize sustainment operations. To achieve this goal in FY21, the RSO used the novel technology delivery approach of "Identify-Apply-Scale." Essentially, sustainment technologies are identified across public and private sectors via Small Business Innovation Research (SBIR) opportunities, Commercial Solutions Openings (CSO) calls, and in-house Pitch Days. Technologies are then prototyped, validated (applied), and finally deployed (scaled) across the enterprise.

The RSO and its partners focus on core technology areas where emerging and commercial technology solutions have outsized impact on increasing readiness and decreasing costs. FY21

accomplishments across the RSO's six technology focus areas include:

Condition Based Maintenance Plus (CBM+)
CBM+ is employing artificial intelligence technology to transform sustainment data into valuable knowledge about the condition of components on weapon systems. FY21 accomplishments include the fielding of CBM+ to over 3,200 aircraft and the removal of over 500 parts prior to failure.

Advanced Manufacturing
The DAF is using emerging manufacturing techniques, such as 3D printing and Cold Spray technologies, to sustain fleets, reduce waste, and extend aircraft lifespans. FY21 accomplishments include completion of the first "on-aircraft" Cold Spray repair negating the need for B-1 major component disassembly and both development and approval of 18 Technical Data Packages for various airframes enabling additive manufacturing reproduction.

Automation & Robotics
Implementing automation and robotics technology solutions is accelerating maintenance times, reducing manual labor, mitigating health risks, and decreasing costs. Recent accomplishments include robotic rapid prototyping for sheet metal forming as a potential replacement for current costly and high maintenance tooling processes, and an improved handheld Electro Discharge Machining tool for removing non-aluminum fasteners enabling quicker and less costly repairs.

Data & Digital Environments
The DAF is using data and digital environments technology to make data more usable with higher quality information and increased consistency. In FY21, the RSO deployed five Robotic Process Automation (RPA) efforts. RPAs are high performance macros that imitate human action in the digital space allowing the RPA to replace tedious or time consuming tasks. These five RPAs are in use at Hurlburt Field, Florida, and Scott Air Force Base, Illinois, and have freed Airmen for other higher priority projects.

Augmented & Virtual Reality (AR/VR)
Deployment of augmented and virtual reality hardware and software to unify geographically-dispersed expertise is accelerating the speed by which maintainers are trained. The RSO successfully demonstrated AR/VR technologies for B-1 and CV-22 maintenance training and operations in FY21.

Rapid & Austere Maintenance Environments
The RSO is developing capabilities and providing Airmen and Guardians with emerging technologies that are rapidly deployable to austere locations. FY21 accomplishments include the development of the Hands-Off Expeditionary Tent, a stand-alone, rapidly-assembled autonomous structure; and the design of a fighter-sized hurricane-resistant maintenance hangar that is easy to transport, durable, and can be assembled quickly with minimum personnel.

ORGANIC INDUSTRIAL BASE

The Organic Industrial Base (OIB) provides depot-level maintenance, engineering support, and software development to support numerous weapon systems. The Air Logistics Complexes (ALCs) are uniquely positioned to provide the strategic depth, capability, and capacity to surge production, rapidly respond to emergent requirements, and to reconstitute capabilities necessary to support the sustainment enterprise.

The Air Force Sustainment Center (AFSC) recently refined the 20-year strategic plan to revitalize the OIB infrastructure to retain industrial capabilities, accommodate new weapon systems, and improve readiness at an affordable cost. The plan details four essential dimensions for investment: 1) depot equipment and technology, 2) digital depot, 3) facilities for overhaul and final assembly, and 4) repair/manufacturing nodes & hidden infrastructure.

Continued investment in new technologies and process improvements is creating more secure and intelligent depots. Enhanced organic capabilities in agile manufacturing technology include: Reverse Engineering and Critical Tooling (REACT) at Oklahoma City ALC, Oklahoma; Reverse Engineering Avionics Redesign and Manufacturing (REARM) at Warner Robins ALC, Georgia; and Reverse Engineering of Composites, Low Observables, and Innovative Materials (RECLAIM) at Ogden ALC, Utah. In FY21, these organic labs provided cutting-edge innovation and rapid solutions using additive manufacturing to minimize depot maintenance costs, produce rapid prototyping, and design iteration, as well as performing dimensional verification and low volume tooling fabrication.

SUPPLY CHAIN RESILIENCY

The DAF relies on a global, dynamic, and multi-layered vendor-based supply chain which endures risks daily. Additionally, COVID-19's continued impact has prolonged unprecedented supply chain disruptions including transportation slowdowns and stoppages, critical materiel production delay, and overall degraded industry performance.

Supply chain risk is addressed through program protection planning–a multi-functional activity integrating holistic security policies and practices throughout a program's life cycle. Potential supply chain risks include, but are not limited to: technology, counterfeit parts, diminishing manufacturing sources and material shortages, quality, financial, political and regulatory, foreign influence, operational, environmental, and human capital.

To support program protection, the DAF developed an organic Supply Chain Risk Management (SCRM) network in FY21 using existing resources and personnel from a variety of functional areas (e.g., acquisition, logistics, engineering, procurement, cyber, intelligence), and also developed organizations to institutionalize iterative processes, practices, and capabilities. SCRM Focal Points within the network can be found in Headquarters Air Force, Air Force Materiel Command, Space Systems Command, and select subordinate organizations. In support of program offices, the SCRM network revised Cyber-SCRM policy, conducted over 200 Discrete Supplier Reviews, illuminated 16 platforms/subsystems, and provided 12 supplier disruption alerts. Additionally, the network teamed with the Office of Commercial and Economic Analysis (OCEA). OCEA informs the Department of the Air Force by advancing strategic research, conducting cutting edge macro-economic analyses, and studying U.S. and foreign industrial policies to illuminate the root causes that drive commercial and economic risk into the DAF and DoD. ■

ACQUISITION SUCCESSES

In addition to the accomplishments in other pages of this report, here are a number of highlighted successes from the Department of the Air Force acquisition enterprise in FY21.

The **F-16 Integrated Viper EW Suite (IVEWS)** was successfully flown at the Northern Lightning tactical level joint training exercise in August 2021. It successfully detected, identified, and jammed Joint Theater Emitter signals while interoperating with Active Electronic Scanned Array (AESA) radar. The IVEWS leverages an open-systems, ultra-wideband architecture, providing the instantaneous bandwidth needed to defeat modern threats.

The Long Range Stand Off (LRSO) weapon successfully completed Milestone B in June 2021 and awarded an Engineering and Manufacturing Development contract in July 2021. The LRSO will replace the aging Air Launched Cruise Missile and provide a more capable and more reliable weapon system to enhance nuclear deterrence.

The Air Force consolidated the **Battlefield Airborne Communications Node (BACN)** aircraft into a single aircraft type fleet and stood up a program of record. This reduced maintenance and logistics, and streamlined seven organizations across a $2 billion budget profile in order to secure future combat communications. BACN is a communications relay and gateway system that provides military commanders with a versatile means of exchanging information from multiple air, ground, and maritime sources, to include host nation, joint, and coalition forces.

Platform One (P1), the Department of the Air Force's software development platform, directly supported Operation Allies Refuge in July and August 2021 by deploying and continuously updating three applications used by the USCENTCOM Joint Task Force to evacuate personnel on C-17s and KC-10s. This was a real-world example of the power of software-minded Airmen coupled with a DevSecOps platform which enabled continuous feedback from the warfighter to constantly update and deliver mission capability.

The GPS III Space Vehicle-05 (SVN 78), "Neil Armstrong," was launched on June 17, 2021 and operationally-accepted June 29, 2021. This set a new record for fastest GPS III launch-to-Operationally-accepted delivery time. This space vehicle is the 24th Military-Code capable satellite on-orbit, which enables persistent global coverage of the signal and improves anti-jam and anti-spoof capabilities for U.S. and allied military GPS users.

The Adaptive Engine Transition Program (AETP) flight-weight three stream prototype adaptive engines (General Electric Aviation's XA100 and Pratt and Whitney's XA101) entered into testing phases. Adaptive engines have the potential to provide increases in fuel efficiency, thrust, and thermal management capacity, and decreases in greenhouse gas emissions, representing revolutionary progress for large fighter aircraft engines.

The **Autonomous Attritable Aircraft Experiment (AAAx)** tested operational utility of autonomous collaborative platforms through a series of flight tests initiated at Tyndall Air Force Base, Florida, in March 2021 and participation in the Orange Flag exercise on 24 June 2021, demonstrating the integration of communication, datalinks, and tactical sensors in an operationally relevant experimentation vehicle (General Atomics MQ-20). The datalinks and sensors hosted on the MQ-20 integrated with the Skyborg Autonomy Core System to demonstrate single ship autonomy behaviors.

The first low-rate initial production **HH-60W "Jolly Green II"** was formally accepted by the Air Force from Sikorsky on 8 June 2021. The HH-60W missions include personnel recovery, humanitarian operations, civil search and rescue, disaster relief, medical and non-combatant personnel evacuation operations.

The **Office of the Assistant Secretary of the Air Force for Space Acquisition and Integration** was stood up on August 24, 2021. This office is charged with the synchronization and acquisition of Department of the Air Force space systems and programs to advance integration and promote unity of effort with other national security, civil, and commercial space capabilities; guiding efficient Department of Defense investments; and driving delivery of combat-ready space capabilities to the Joint Force at the speed of relevance.

AFWERX **Agility Prime** and industry partner Kitty Hawk conducted its first operational exercise in May 2021. During this exercise, a diverse group of industry and government operators, engineers, and test professionals assessed the ability to execute medical evacuation, personnel recovery, and logistics missions with Kitty Hawk's Heaviside electric vertical takeoff and landing (eVTOL) aircraft.

ADVANCED BATTLE MANAGEMENT SYSTEM

The Advanced Battle Management System (ABMS) is the Department of the Air Force's primary contribution to the Joint All Domain Command and Control (JADC2) requirement. The Department of the Air Force Rapid Capabilities Office (DAF RCO) is the lead for the ABMS acquisition efforts as the Integrating Program Executive Office and the DAF ABMS Cross Functional Team is the operational lead.

ABMS creates decision advantage by leveraging commercial and government technologies, infrastructure, and applications across air, space, and cyberspace. ABMS is leveraging operational analysis to inform acquisition strategies and delivering capability through Digital Infrastructure and targeted investments.

Primary efforts advanced in FY21:

Capability Release #1 – Airborne Edge Node: The node connects selected tactical air assets and command and control (C2) functions to the ABMS cloud at the tactical edge, enhancing situational awareness and decision-making at the tactical, operational, and strategic levels. Early prototypes of the communications subsystem flew during the Northern Edge exercise in May 2021.

Digital Infrastructure: As the foundation of ABMS, it will leverage commercial technologies and investment to converge data, secure processing, and connectivity to provide global decision advantage for the Joint force.

Cloud-Based C2: This effort is modernizing C2 capabilities by developing cutting edge applications, enhanced by artificial intelligence and machine learning, to enable battle management and create a common operating picture.

GLOBAL POWER

Global Power is the Air Force's ability to threaten or strike any target anywhere in the world, assert national sovereignty, and provide joint freedom of action. The Department's global power portfolio ensures ours is the most lethal Air Force in the world through its bombers, fighters, Intercontinental Ballistic Missiles (ICBMs), and weapons and munitions programs.

B-2

B-2 DISPLAYS MODERNIZATION

ORIGINAL UNIT COST:
$140.8 MILLION

CURRENT UNIT COST:
$118 MILLION

FY22 BUDGET: $225.3 MILLION

The B-2 Displays Modernization Program (BDM) effort will replace eight legacy cathode ray tube cockpit displays in the B-2, a top supply chain issue for the fleet. Displays must be replaced by FY27 to avoid grounding aircraft. This program transitioned from the previous Defensive Management System Modernization (DMS-M) effort to the current BDM effort which is limited to cockpit display replacement.

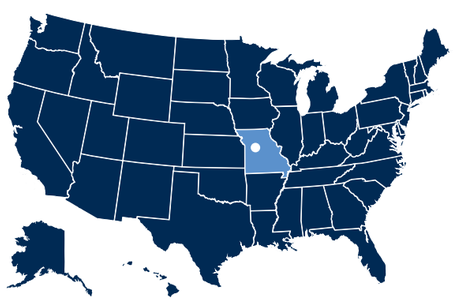
In FY21, an Acquisition Decision Memorandum officially changed the program name from DMS-M to BDM.

CONTRACTING:

NORTHROP GRUMMAN CORPORATION,
El Segundo, California

Engineering & Manufacturing Development
- Firm-Fixed-Price

Production
- Firm-Fixed-Price (Award projected for Q1/Q2 FY23)



BASING STRATEGY:
Whiteman Air Force Base, Missouri

SCHEDULE:

The program is scheduled to achieve Milestone C in FY24 and reach Full Operational Capability in FY26.

ARTIST RENDERING

B-21

B-21 RAIDER

FY22 BUDGET: $3.32 BILLION

CONTRACTING:

NORTHROP GRUMMAN CORPORATION,
Falls Church, Virginia

Engineering & Manufacturing Development
- Cost-Plus-Incentive-Fee

Production
- Fixed-Price-Incentive-Firm

SCHEDULE:

The next programmatic milestone will be first flight. This decision will be driven by event and data, rather than the calendar.

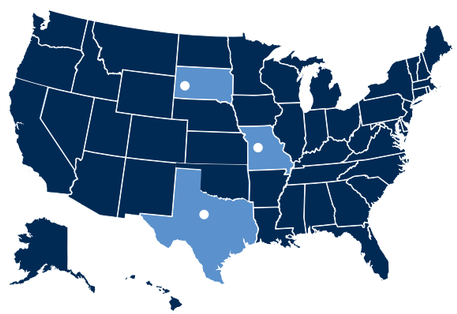
The program is on-track to its acquisition program baseline for cost, schedule, and performance. First aircraft deliveries to operational bases are slated for the mid-2020s.

Note: Unit cost is classified.

DIGITAL ENGINEERING

The B-21 Raider stealth bomber will form the backbone of our future bomber fleet, providing both conventional and nuclear capability. It will incrementally replace the conventional B-1 and the nuclear-capable B-2 fleets.

The B-21 will have the capability to penetrate the most advanced adversary air defenses to accomplish national objectives. The B-21 program is built upon decades of experience with low observable platforms that underpins everything from the aircraft design to its sustainment strategy. The open architecture design, coupled with the necessary technical data rights secured early-on in the program, will enable the B-21 to rapidly integrate future technological advances ensuring continued relevancy as the mission and threat environment evolves.



BASING STRATEGY:

In June 2021, the Air Force announced Ellsworth Air Force Base, South Dakota, as the first B-21 Main Operating Base (MOB).

The preferred locations for the second and third MOBs are Whiteman Air Force Base, Missouri, and Dyess Air Force Base, Texas. The Air Force will conduct an Environmental Impact Statement beginning in CY22 to assess these preferred locations. Final basing decisions are anticipated in FY24.

B-52

B-52 STRATOFORTRESS MODERNIZATION

FY22 BUDGET: $720.8 MILLION

ORIGINAL UNIT COST:
$126.4MILLION (CERP AND RMP)

CURRENT UNIT COST:
$126.4MILLION (CERP AND RMP)

The venerable B-52 is undergoing the most comprehensive modernization in its history to ensure the longest serving bomber continues to fly through 2050.

COMMERCIAL ENGINE REPLACEMENT PROGRAM (CERP)

The B-52 CERP is a large and complex modernization effort replacing the B-52's current TF33-PW-103 engines with new, military-derivative commercial Rolls-Royce F130 engines of similar size, weight, and thrust characteristics. Additionally, the CERP updates associated subsystem designs affecting the wing, wheel well, flight deck, and engine strut/nacelle areas of the aircraft. The effort incorporates digital engineering principles and virtual prototyping to integrate the engine and all affected subsystem designs at the B-52 system level.

The B-52 CERP is a Middle Tier of Acquisition rapid prototyping program using digital engineering to develop a virtual System Prototype (vSP) allowing for early familiarization to speed readiness timelines. In September 2021, one month ahead of schedule, the program delivered the first vSP increment, consisting of a digital prototype of engines and associated subsystems integrated onto the B-52. Also on September 24, 2021, the Air Force awarded a $2.6 billion engine contract to Rolls-Royce for 608 commercial engines, associated support equipment, and commercial engineering data, to include sustainment activities.

SCHEDULE:

The B-52 CERP is scheduled to complete the subsystem and system-level Preliminary Design Reviews in FY22. In FY23, the CERP will complete the Rapid Virtual Prototyping Middle Tier of Acquisition effort and transition to a program under the Major Capability Acquisition pathway, ultimately leading to an Initial Operational Capability in FY29.

CONTRACTING:

COMMERCIAL ENGINE REPLACEMENT PROGRAM

Prime Contract (for Integration):
BOEING COMPANY, Oklahoma City, Oklahoma
- Cost-Plus-Incentive-Fee

Engine Contract:
ROLLS-ROYCE, Indianapolis, Indiana
- Firm-Fixed-Price

RADAR MODERNIZATION PROGRAM

BOEING COMPANY, Oklahoma City, Oklahoma

Engineering & Manufacturing Development
- Cost-Plus-Incentive-Fee

DIGITAL ENGINEERING

MID-TIER OF ACQUISITION (MTA)

RADAR MODERNIZATION PROGRAM (RMP)

The B-52 radar is a mission essential component for effective accomplishment of all B-52 missions. In June 2021, the program completed Milestone B and awarded the Engineering and Manufacturing Development contract. The program is using digital, model-based tools to ensure traceability of design requirements to the data, activities, and artifacts generated during the testing/verification process. The next program milestone is Critical Design Review in mid-FY22.

With a modernized radar system, the B-52 will achieve greater reliability when compared to the legacy system and benefit from significantly improved digital processing and crew station capabilities to support national objectives for both conventional and nuclear missions, through 2050 and beyond.

SCHEDULE:

The B-52 RMP will complete Critical Design Review in FY22, with flight test starting in FY23. Milestone C is anticipated in 2024 and the program will begin Full Rate Production in 2026.

F-15EX

F-15 EX

FY22 BUDGET: $1.453 BILLION

The F-15EX will replace the F-15C/D fleet and augment the aging F-15E fleet. The most significant difference between the F-15EX and legacy F-15s is its Open Mission Systems architecture, which enables rapid insertion of the latest aircraft technologies. The F-15EX also has fly-by-wire flight controls, a new electronic warfare system, advanced cockpit systems, and the latest mission systems and software capabilities available for legacy F-15s.

In parallel with rapidly fielding the initial aircraft lots, the Air Force is also exploring technology insertion options to ensure the F-15EX remains a complementary platform with 5th generation assets operating in highly contested environments. The baseline F-15EX incorporates provisions for future growth, most notably fiber optic cabling for a high-speed avionics service bus to enable an Open Mission Systems computing environment.

The Air Force received its first two F-15EX aircraft in FY21. These aircraft participated in their first exercise at Northern Edge 21, and underwent additional testing and evaluation throughout the second half of FY21.

CONTRACTING:

BOEING COMPANY, St. Louis, Missouri

Production & Deployment (FY21, Lot 3):

- Indefinite-Delivery/Indefinite-Quantity contract with a mix of Firm-Fixed-Price, Fixed-Price-Incentive-Firm, Cost-Plus-Incentive-Fee, and Cost-Plus-Fixed-Fee.

SCHEDULE:

The program is scheduled to complete Initial Operational Test and Evaluation and achieve Initial Operational Capability in FY23. Full Operational Capability is anticipated in FY26.

IMPLEMENTATION STRATEGY:

- Eglin Air Force Base, Florida for the eight (8) Lot 1 aircraft
- Kingsley Field Air National Guard Base, Oregon for the twelve (12) Lot 2 aircraft
- Portland Air National Guard Base, Oregon for the twelve (12) Lot 3 aircraft
- Strategic Basing Process is in work to determine the fielding locations for subsequent aircraft lots

DIGITAL ENGINEERING

MID-TIER OF ACQUISITION (MTA)

F-15

F-15 EAGLE PASSIVE ACTIVE WARNING AND SURVIVABILITY SYSTEM

FY22 BUDGET: $338.6 MILLION

ORIGINAL UNIT COST: $11.39 MILLION

CURRENT UNIT COST: $13.67 MILLION

The F-15 Eagle Passive Active Warning and Survivability System (EPAWSS) replaces the existing, functionally obsolete F-15 electronic warfare self-protection system and is critical to maintaining the F-15's viability past 2040.

F-15 EPAWSS is an electronic warfare system with capabilities including electronic detection and identification, internal countermeasures, associated antennas, and countermeasures dispensing. This upgrade provides the F-15 the capability to autonomously and automatically detect, identify, and locate radio frequency threats. The upgrade will also provide the ability to deny, degrade, deceive, disrupt, and detect radio frequency and electro-optical/infrared threat systems in contested environments.

In FY21, the EPAWSS program successfully accomplished Milestone C Decision Point 1 which approved Low Rate Initial Production. EPAWSS-equipped F-15s participated in the Northern Edge 2021 exercise which provided an early look at overall system effectiveness.

CONTRACTING:

BOEING COMPANY, St. Louis, Missouri

Engineering & Manufacturing Development

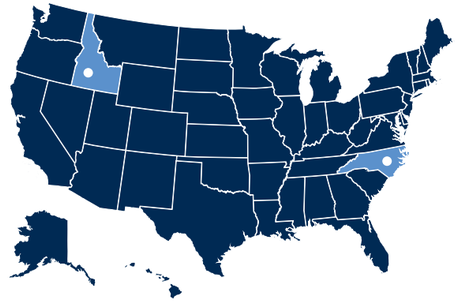
- Firm-Fixed-Price

Production (FY21, Lot 1):

- Fixed-Price-Incentive-Firm
- Firm-Fixed-Price: Group B Hardware, Depot Activation

SCHEDULE:

Current production plans include all F-15Es and F-15EXs. Low Rate Initial Production began in FY21 and the Engineering and Manufacturing Development phase is scheduled to complete in FY24.



IMPLEMENTATION STRATEGY:

Mountain Home Air Force Base, Idaho and Seymour Johnson Air Force Base, North Carolina

Overseas Locations: Royal Air Force Lakenheath, England and Kadena Air Base, Japan

DIGITAL ENGINEERING

F-22

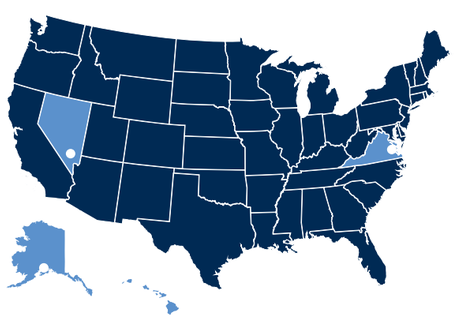
F-22 SENSOR ENHANCEMENTS

ORIGINAL UNIT COST:
$11.7 MILLION

CURRENT UNIT COST:
$10.7 MILLION

The F-22 Sensor System programs improve sensor capabilities to maintain air dominance and preserve first look, first shot, and first kill capability. These include developing an Infrared Search and Track (IRST) sensor to allow the F-22 to more closely track and stay ahead of potential adversaries and threats while continuing to deliver unmatched maneuverability.

F-22 Sensor System programs are conducted using a rapid acquisition construct leveraging commercial best practices.



BASING STRATEGY:

Sensor Enhancements kits will be installed on 143 F-22s at locations including Joint Base Langley-Eustis, Virginia; Joint Base Elmendorf, Alaska; Joint Base Pearl Harbor-Hickam, Hawaii; and Nellis Air Force Base, Nevada.

FY22 BUDGET: $459.79 MILLION

CONTRACTING:

LOCKHEED MARTIN CORPORATION,
Fort Worth, Texas

Engineering and Manufacturing Development
- Cost-Plus-Award-Fee

Kit Production
- Group A: Cost-Plus-Fixed-Fee
- Group B: Firm-Fixed-Price

Kit Installs
- Group A: Cost-Plus-Fixed-Fee
- Group B: N/A (Operational Level Modification)

SCHEDULE:

To support the Required Assets Available milestone by the end of CY25, the Air Force plans to procure a total of 71 Group A kits for Buys 1 and 2 starting in FY21 and 30 Group B kits starting in FY22.

MID-TIER OF ACQUISITION (MTA)

F-35

F-35 LIGHTNING II JOINT STRIKE FIGHTER (JSF) PROGRAM

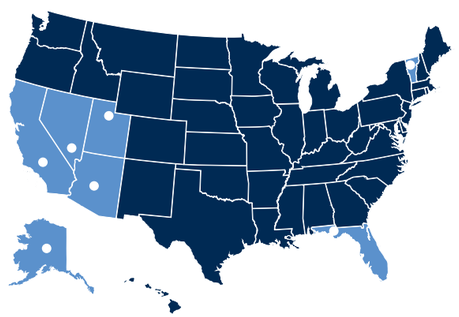
ORIGINAL UNIT COST:
$134.5 MILLION (RECERT IN 2012)

CURRENT UNIT COST:
$130 MILLION

The F-35 program is managed by a joint program office under the Office of the Secretary of Defense.

The F-35A is the centerpiece of our future fighter precision attack capability—serving in both conventional and nuclear capacities for the U.S. and partner nations. Its primary missions will include air interdiction, offensive and defensive counter-air, close air support, strategic attack, and suppression of enemy air defenses.

The program of record includes 2,456 U.S. production aircraft: 1,763 F-35A conventional takeoff and landing aircraft for the Air Force, and 693 F-35B short take-off and vertical landing aircraft and F-35C carrier variant aircraft for the Marine Corps and Navy. Partners and Foreign Military Sales countries expect to buy over 900 aircraft.



BASING STRATEGY:

F-35As are currently based at Hill Air Force Base, Utah; Eglin Air Force Base, Florida; Luke Air Force Base, Arizona; Nellis Air Force Base, Nevada; Edwards Air Force Base, California; Burlington Air Guard Station, Vermont; and Eielson Air Force Base, Alaska. Royal Air Force Lakenheath, England; Truax Field Air National Guard Base, Wisconsin; Dannelly Field Air National Guard, Alabama; and Tyndall Air Force Base, Florida have been selected as future locations for the beddown of F-35As.

FY22 BUDGET: $6.147 BILLION

CONTRACTING:

LOCKHEED MARTIN CORPORATION,
Fort Worth, Texas
PRATT & WHITNEY, East Hartford,
Connecticut

Development
- Cost-Plus-Incentive-Fee

Low Rate Initial Production (Lot 4+ Production)
- Fixed-Price-Incentive-Firm
- LRIP Lot 12-14 production re-baseline contract modification awarded on September 22, 2021

SCHEDULE:

The Dual Capable Aircraft flight test phase was completed on May 12, 2021. The F-35's next development effort centers on a Continuous Capability Development and Delivery process to field upgraded Block 4 capabilities.

GBSD

GROUND BASED STRATEGIC DETERRENT

ORIGINAL UNIT COST:
$120.3 MILLION

CURRENT UNIT COST:
$120.3 MILLION

The Ground Based Strategic Deterrent (GBSD) will deliver the next generation of Intercontinental Ballistic Missile (ICBM) nuclear deterrence and ensure the ground-based leg of the nuclear triad remains a responsive deterrent capability through 2075. The program is a full recapitalization of the Minuteman (MM) III ICBM weapon system which includes new missile, command and control, and ground systems. It includes conversion of 450 MM III launch facilities (LFs) and 45 launch control centers (LCCs) spanning 31,500 square miles in six states.

Digital intelligence continues to drive successes in the program and has been crucial for current success. Additionally, continued emphasis on Model Based Systems Engineering will enable the Air Force to reduce program risks and deliver on cost commitments.

In FY21, the program successfully completed conversion of a full-scale legacy LF to prove out the design and feasibility of operational configuration conversion. To reduce integration risk to first flight, the program also completed centrifuge testing on developmental Inertial Measurement Units, prototyping of the Altitude Control Engine, and ground pitch and yaw testing for the Post Boost Attitude Control Module.

FY22 BUDGET: $2.752 BILLION

CONTRACTING:

NORTHROP GRUMMAN CORPORATION,
Roy, Utah

Engineering and Manufacturing Development & Early Production and Deployment

- Cost-Plus-Incentive-Fee (Awarded September 2020)

SCHEDULE:

First flight is scheduled in FY24 with Initial Operational Capability expected in FY29.

DIGITAL ENGINEERING

ICBM

INTERCONTINENTAL BALLISTIC MISSILE FUZE MODERNIZATION

ORIGINAL UNIT COST:
$2.6 MILLION

CURRENT UNIT COST:
$2.6 MILLION

The Intercontinental Ballistic Missile Fuze Modernization program is producing a replacement for the legacy Mk21 fuze, which is well beyond its planned design life. The program is a cooperative effort between the Air Force and the Navy that shares common-use technologies gained from the Mark 5 Alteration 370 fuze program, being deployed as part of the Navy's Trident II D5 submarine-launched ballistic missile system. The new Air Force fuze will incorporate modular and adaptable components that will improve design life, reduce development time, and achieve cost savings.

The program executed a successful Flight Test Unit (FTU)-2 flight test in January 2020. A ground test was executed in February 2021 and the next flight test is scheduled for August 2022.

FY22 BUDGET: $230.5 MILLION

CONTRACTING:

NATIONAL NUCLEAR SECURITY ADMINISTRATION, Washington D.C.

Design & Development for the Arming & Fuzing Assembly

- Department of Energy (DOE) Strategic Partnership Project, Military Interdepartmental Purchase Request (MIPR)

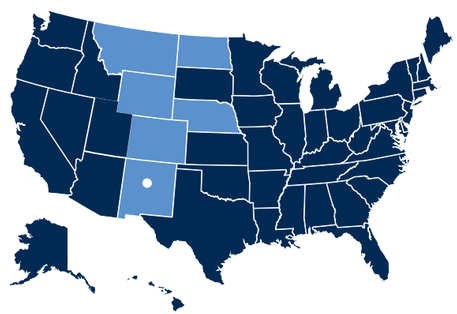
LOCKHEED MARTIN CORPORATION,
King of Prussia, Pennsylvania

Weapon System Integration

- Cost-Plus-Fixed-Fee

SCHEDULE:

The next major scheduled event objectives include the following: Full Rate Production in March 2024, First Production Unit in May 2024, Initial Operational Capability in February 2025, and Full Scale Production in May 2025.



BASING STRATEGY:

The Program Office's headquarters is the Air Force Nuclear Weapons Center at Kirtland Air Force Base, New Mexico. The three Air Force missile wings receiving fuze modernization kits are based in North Dakota, Wyoming, and Montana. Minuteman III ICBM silos are based in Colorado, Montana, Nebraska, North Dakota, and Wyoming.

LRSO

LONG-RANGE STAND-OFF (LRSO) CRUISE MISSILE

ORIGINAL UNIT COST:
$13.1 MILLION

CURRENT UNIT COST:
$13.1 MILLION

FY22 BUDGET: $609 MILLION

The Long-Range Stand-Off (LRSO) cruise missile will replace the Air-Launched Cruise Missile (ALCM), designed in the 1970s and fielded in 1982 with a 10-year design-life expectancy. ALCM's ability to survive in hostile environments is diminishing as adversary air defenses improve. The LRSO cruise missile provides a visible and tailorable deterrent option to project power and target any location on the globe. The Air Force plans to buy approximately 1,000 missiles to support warfighter requirements, provide sufficient spares, and support Nuclear Weapon System Evaluation Program requirements.

The LRSO program entered Engineering and Manufacturing Development with a sole-source contract award to Raytheon Missiles and Defense in July 2021. Development is on track for on-time fielding with first powered flight planned for 2QFY22. Development and procurement costs for the LRSO cruise missile are estimated to be close to $16 billion dollars.

CONTRACTING:

RAYTHEON MISSILES AND DEFENSE,
Tucson, Arizona

Engineering and Manufacturing Development

- Cost-Plus-Fixed-Fee with incentives

SCHEDULE:

Initial Operational Capability is planned for 2030.

ARTIST RENDERING

NEXT GENERATION AIR DOMINANCE

FY22 BUDGET: $1.525 BILLION

SCHEDULE:

The acquisition strategy for the NGAD programs was approved in March 2021.

Note: Unit cost is classified.

As the Air Force's primary air superiority fighter in highly contested environments, the digital engineering-based Next Generation Air Dominance (NGAD) system-of-systems is designed to outpace threats to air superiority. Key attributes of NGAD include the ability to survive, persist, interoperate, adapt, and deliver lethal effects from the air domain. Additionally, it will function as a critical information node for all assets operating both within and outside highly contested operational environments. NGAD is an air superiority advantage that facilitates Joint Force operations.

NGAD is an advanced fighter program with technologies that complement the capabilities of the F-35, replace the aging F-22, and work in concert with non-traditional uncrewed platforms. This new digitally-engineered fighter and associated weapons are designed to outpace near-peer threats by rapidly delivering time critical and relevant innovative technologies. Development is using digital engineering and manufacturing, open system architectures enabled through a government reference architecture, and agile software through containerization and DevSecOps employment. This digital approach breaks vendor lock, and strengthens and expands the industrial base by reducing barriers to entry for non-traditional small companies, both of which drive competition and innovation.

DIGITAL ENGINEERING

WEAPONS MODERNIZATION

The current strategic environment and future threats require weapons investments prioritizing range, speed, and survivability in highly contested environments. As a result, the Air Force is prioritizing investment for future Suppression of Enemy Air Defense (SEAD), long-range strike, and air-to-air weapons that win the future conflicts. The Air Force is investing in Weapons Open Systems Architecture as a way to accelerate capability to the warfighter, keep the industrial base viable, and manage cost across the weapons life cycle.

AIM-120

AIM-120 ADVANCED MEDIUM RANGE AIR-TO-AIR MISSILE

FY22 BUDGET: $265.29 MILLION

ORIGINAL UNIT COST:
$1.4 MILLION

CURRENT UNIT COST:
$1.5 MILLION

CONTRACTING:

RAYTHEON MISSILES AND DEFENSE, Tucson, Arizona

Development (Aircraft Integration, Software Capability Improvement, Test Support)
- Cost-Plus-Fixed-Fee/Cost-Plus-Incentive-Fee

Production (FY21, Lot 35)
- Firm-Fixed-Price/Firm-Fixed-Price-Plus-Incentive-Fee

Sustainment (Contractor Logistics Support)
- Fixed-Price-Incentive-Fee

SCHEDULE:

SIP 3 is scheduled for fielding in 2022. SIP 4 Engineering and Manufacturing Development began in 4QFY21 with fielding planned for 3QFY25. The F3R Functional Configuration Audit is scheduled for 2QFY23.

The AIM-120 Advanced Medium Range Air-to-Air Missile (AMRAAM) is the Air Force and Navy premier beyond-visual-range missile to counter air vehicle threats.

The AIM-120D is the next evolution of AMRAAM, incorporating software/hardware improvements including GPS-aided navigation, enhanced two-way data link, increased kinematic range, improved high off-boresight capabilities, and improved targeting accuracy.

The AMRAAM's Form, Fit, Function, Refresh (F3R) modernization continued through 2021, providing key guidance section components critical to continued production/sustainment. Cut-in of F3R began with an FY19 contract award (Lot 33) and ramps up through the FY24 deliveries (Lot 35).

The AMRAAM's F3R hardware upgrade is a key enabler to unlock the capabilities in the third System Improvement Program (SIP 3) software update. The SIP 3 effort exceeded expectations in 2021, with anticipated fielding scheduled for early 2022, well ahead of schedule.

DEPLOYMENT STRATEGY:

The AIM-120 is fielded for the Air Force and Navy plus 41 Foreign Military Sales customers and two consortia.

JASSM

JOINT AIR-TO-SURFACE STANDOFF MISSILE

ORIGINAL UNIT COST:
$1.7 MILLION

CURRENT UNIT COST:
$1.6 MILLION

The Joint Air-to-Surface Standoff Missile (JASSM) is a conventional, autonomous, long-range, precision-guided, highly-survivable, low-observable cruise missile capable of striking high value, highly-defended targets. Its standoff capability enables the delivery platforms to avoid surface-to-air missile and integrated air defense systems.

The JASSM has two configurations: JASSM Baseline (AGM-158A) and the JASSM Extended Range (ER) variants (i.e., AGM-158B, AGM-158B-2, and AGM-158D). The AGM-158A is integrated on the B-1, B-2, B-52, F-15E, F-16, and F-16 and F/A-18 Foreign Military Sales. The AGM-158B is integrated on the B-1, B-52, F-15E, and F-16 and F-16 Foreign Military Sales. The AGM-158B-2 and AGM-158D are in development.

The JASSM program successfully executed four Combat Hammer Weapon System Evaluation Program live fire tests in FY21. In addition, flight testing of the JASSM Electronic Safe Arm Fuze continued with four weapon releases at White Sands Missile Range.

FY22 BUDGET: $828.31 MILLION

CONTRACTING:

LOCKHEED MARTIN CORPORATION,
Orlando, Florida

Research, Development, Test & Evaluation
- Cost-Plus-Incentive-Fee
- Cost-Plus-Fixed-Fee
- Cost-Plus-Award-Fee

Production
- Fixed-Firm-Price
- Fixed-Price-Incentive-Firm

SCHEDULE:

Both JASSM configurations are currently in production, with Lot 20 expected to award in FY22. The Weapon Data Link development effort begins in FY22 and the B-2 variant will execute flight tests throughout 2022.

SDB II

SMALL DIAMETER BOMB INCREMENT II

FY22 BUDGET: $321.7 MILLION

CONTRACTING:

RAYTHEON MISSILES AND DEFENSE,
Tucson, Arizona

Engineering & Manufacturing Development and Low Rate Initial Production
- Fixed-Price-Incentive-Firm (FY15-17, Lots 1-3)
- Firm-Fixed-Price with Economic Price Adjustment (FY18-19, Lots 4-5)
- Fixed-Price-Incentive-Firm (FY20-25, Lots 6-11)

Production (FY20-25, Lots 6-11)
- Fixed-Price-Incentive-Firm (FY26-38, Lots 12-24)

SCHEDULE:

The SDB II program will award the Lot 8 production contract (1,140 total All-Up-Rounds) in FY22.

ORIGINAL UNIT COST:
$0.3 MILLION

CURRENT UNIT COST:
$0.3 MILLION

The Small Diameter Bomb Increment II is a Joint Interest Air Force and Navy program with the Air Force as the lead service. The SDB II is a 250-lb class precision guided air-to-ground munition. It is a Network Enabled Weapon designed to attack mobile and fixed targets from standoff distances through adverse weather via multiple attack modes.

The joint program team continued integration efforts on the Navy's F-35B/C and the F/A-18E/F throughout FY21. Additionally, the program continues to develop M-Code capability, cryptographic modernization compliance, and a Digital Signal Processor redesign to support exportability. System technical refresh continues to address obsolescence activities to replace and integrate the obsolete seeker components and associated electronics.

ARRW

AGM-183A AIR-LAUNCHED RAPID RESPONSE WEAPON

FY22 BUDGET: $238.3 MILLION

The AGM-183A Air-launched Rapid Response Weapon (ARRW) is a hypersonic air-launched weapon designed to enable the U.S. to hold fixed, high value, time-sensitive targets at risk in contested environments from standoff distances. The program is using Middle Tier of Acquisition rapid prototyping authorities to accelerate development. The ARRW is derived from the Air Force and Defense Advanced Research Projects Agency (DARPA) science and technology demonstration known as Tactical Boost Glide.

The weapon consists of a solid rocket motor, protective shroud, and hypersonic glider containing a fragmenting warhead. The ARRW will be externally integrated on the B-52, enabling the carriage of up to four missiles on the heavy stores adapter beam.

In FY21, the ARRW program completed many developmental test milestones including captive carry flight tests, solid rocket motor qualification testing, warhead high speed sled track tests, and warhead arena qualification tests. In 2021, the ARRW program also executed initial booster test flights.

CONTRACTING:

LOCKHEED MARTIN CORPORATION, Orlando, Florida

- Cost-Plus-Fixed-Fee
- Cost-Plus-Incentive-Fee

SCHEDULE:

The remaining booster test flights are scheduled to complete in FY22 and the All-Up-Round flights will occur in FY23, leading to an Early Operational Capability in FY23.

MID-TIER OF ACQUISITION (MTA)

SiAW

STAND-IN ATTACK WEAPON

FY22 BUDGET: $166.6 MILLION

CONTRACTING:

Middle Tier of Acquisition, Rapid Prototyping Pathway Phase 1

- Firm-Fixed-Price Indefinite Delivery/ Indefinite Quantity contract with pre-priced options

SCHEDULE:

The SiAW Middle Tier of Acquisition Phase 1 contract award is anticipated May 2022.

DIGITAL ENGINEERING

MID-TIER OF ACQUISITION (MTA)

The Stand-in Attack Weapon (SiAW) provides 5th generation aircraft the ability to defeat rapidly relocatable targets in an anti-access/area denial environment.

The SiAW will be developed using the Middle Tier of Acquisition rapid prototyping pathway. The SiAW prototyping effort will deliver six residual prototypes for future testing or operational use. The acquisition strategy includes a two-phase prototyping approach to incorporate digital engineering and weapons systems open architecture, and enabling future capability upgrades. The threshold aircraft is the F-35A.

GLOBAL REACH

Global reach characterizes the Department's ability to project American airpower quickly anywhere around the world. These airlift, air refueling, personnel recovery, special operations, and training programs deliver the aircraft and systems necessary for Airmen to accomplish their missions, ranging from major combat to humanitarian relief operations around the world.

C-130J

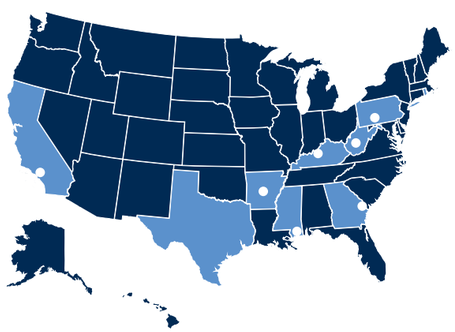
C-130J

ORIGINAL UNIT COST:
$101.3 MILLION

CURRENT UNIT COST:
$101.3 MILLION

The C-130J program replaces legacy C/WC/EC-130s with modern, more capable aircraft. Compared to the legacy aircraft, the C-130J has a lower operational footprint, integrated commercial avionics architecture, and increased cargo capacity. The Air Force finalized the Air Reserve Component (ARC) Basing Decision Memorandum in May 2021. In FY21, four aircraft were delivered to Fort Worth Air National Guard Base, Texas, and four aircraft were delivered to Yeager Air National Guard Base, West Virginia.

Key FY21 activities include the February 2021 contract award for eight ARC C-130Js with deliveries in FY25 and completion of the Capability Management Upgrade 1C, an internationally-funded software upgrade for Block 8.1 aircraft. All USAF Block 8.1 aircraft have received the software and the new configuration is Block 8.1.1. Block 8.1.1 C 130Js are currently deployed overseas.



BASING STRATEGY:

Little Rock Air Force Base, Arkansas; Dyess Air Force Base, Texas; Keesler Air Force Base, Mississippi; Channel Islands Air National Guard Base, California; Harrisburg Air National Guard Base, Pennsylvania; Quonset Point Air National Guard Base, Rhode Island; Fort Worth Air National Guard Base, Texas; Yeager Air National Guard Base, West Virginia; Louisville Air National Guard Base, Kentucky; and Savannah Air National Guard Base, Georgia

Overseas Locations:
Ramstein Air Base, Germany, and Yokota Air Base, Japan

FY22 BUDGET: $269.5 MILLION

CONTRACTING:

LOCKHEED MARTIN CORPORATION,
Marietta, Georgia

Production and Deployment
- Firm-Fixed-Price

SCHEDULE:

Eight additional ARC C-130Js will be delivered in FY22. There is a large bow wave of diminishing manufacturing sources (DMS) for all C-130Js delivering after the current Multiyear III aircraft. DMS contract award is planned for March 2022.

In FY22, two Block 8.1 modification kits will be ordered and 15 C-130Js will be upgraded with Block 8.1.1.

AC/HC/MC-130J

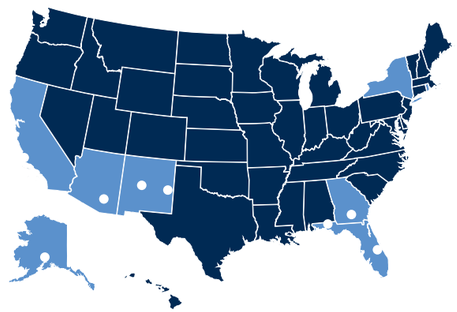
AC/HC/MC-130J RECAP

ORIGINAL UNIT COST:
$132.7 MILLION

CURRENT UNIT COST:
$122 MILLION

The HC/MC/HC-130J program recapitalizes the 40+ year-old combat rescue (39 aircraft) and special operations (94 aircraft) C-130 fleet. The fleet's primary missions include infiltration, exfiltration, resupply, aerial refueling, and close air support. The Multiyear III contract completes the AC/MC/HC-130J Recap deliveries. The multiyear program has provided stability and accelerated procurement resulting in lower aircraft prices.

Key FY21 activities included the delivery of nine aircraft (five AC-130Js, three MC-130Js, one HC-130J). Additionally, the first Block 8.1 HC-130J completed Block 8.1 testing.



BASING STRATEGY:

Davis-Monthan Air Force Base, Arizona; Kirtland Air Force Base, New Mexico; Hurlburt Field Air Force Base, Florida; Cannon Air Force Base, New Mexico; Moody Air Force Base, Georgia; Patrick Space Force Base, Florida; Kulis Air National Guard Base, Alaska; Moffett Field Air National Guard Base, California; and Gabreski Air National Guard Base, New York

Overseas Locations:
Kadena Air Base, Japan, and RAF Mildenhall, United Kingdom

FY22 BUDGET: $417 MILLION

CONTRACTING:

LOCKHEED MARTIN CORPORATION,
Marietta, Georgia

Production and Deployment
- Firm-Fixed-Price

SCHEDULE:

In FY22, the last four MC-130Js will go on the Multiyear III contract, delivering in FY25, which will complete the AC/MC/HC-130J recapitalization of 133 aircraft (94 AC-130/MC-130J, 39 HC-130J). Also in FY22, there will be 12 aircraft deliveries (10 MC-130Js, 2 HC-130Js). Gabreski Air National Guard Base, New York, will be the first HC-130J unit to convert to Block 8.1 with three upgrades scheduled in FY22.

HH-60W

HH-60W COMBAT RESCUE HELICOPTER

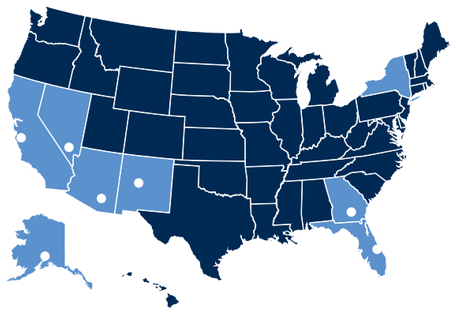
FY22 BUDGET: $996.704 MILLION

ORIGINAL UNIT COST:
$92.3 MILLION

CURRENT UNIT COST:
$86.9 MILLION

The HH-60W Jolly Green II Combat Rescue Helicopter recovers isolated personnel from hostile or denied territory, day or night, in adverse weather, and in a variety of threat environments–from terrorist attacks to chemical, biological, radiological, and nuclear threats. Other HH-60W missions include humanitarian operations, civil search and rescue, disaster relief, and medical and non-combatant personnel evacuation operations.

The first Low Rate Initial Production HH-60W was formally accepted by the Air Force from Sikorsky on June 8, 2021. A total of 14 aircraft have been delivered to Moody Air Force Base, Georgia, and Kirtland Air Force Base, New Mexico, to support operational test and training.



BASING STRATEGY:

Davis Monthan Air Force Base, Arizona; Gabreski Field, New York; Joint Base Elmendorf-Richardson, Alaska; Kirtland Air Force Base, New Mexico; Moffett Field, California; Moody Air Force Base, Georgia; Nellis Air Force Base, Nevada; Patrick Air Force Base, Florida

Overseas Locations: Kadena Air Base, Japan, and Aviano Air Base, Italy

CONTRACTING:

SIKORSKY, Stratford, Connecticut

Engineering and Manufacturing Development and Low Rate Initial Production:

- Firm-Fixed-Price-Incentive-Firm

Production (FY21, Lot 3):

- Firm-Fixed-Price

SCHEDULE:

Formal Initial Operational Test and Evaluation begins in February 2022.

KC-46A

KC-46A PEGASUS

FY22 BUDGET: $2.678 BILLION

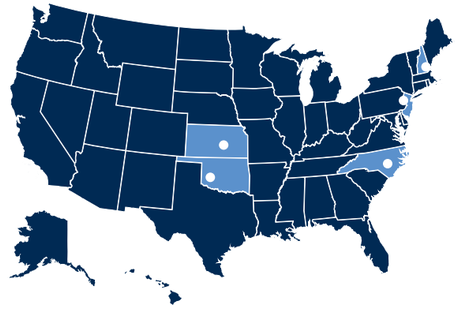
ORIGINAL UNIT COST:
$298.5 MILLION

CURRENT UNIT COST:
$213.1 MILLION

The KC-46A Pegasus is a commercial-derivative aerial refueling platform intended to recapitalize a large portion of the Air Force's more than 50 year old fleet of tanker aircraft.

In January 2021, the Air Force awarded the sixth and seventh KC-46A production lots to Boeing for 12 and 15 aircraft, respectively. As of the end of FY21, the Air Force has fielded 48 new KC-46A tankers and has 98 KC-46A tankers on contract.

The Remote Vision System (RVS) Preliminary Design Review began in May 2021 and is projected to officially close in mid-FY22. Per the 2020 RVS 2.0 Memorandum of Agreement between the Air Force and Boeing, Boeing will implement the RVS 2.0 solution on all previously-delivered and new KC-46 aircraft at no additional cost to the government. The Air Force is a partner in developing the technical design and will approve and assume responsibility for the RVS 2.0 design after Preliminary Design Review closure. RVS 2.0 will include 4K color cameras with proper viewing geometry and a redesigned operator station that incorporates a virtual-view display.



BASING STRATEGY:

Air Mobility Command established KC-46A units at four main operating bases: McConnell Air Force Base, Kansas; Pease Air National Guard Base, New Hampshire; Seymour Johnson Air Force Base, North Carolina; and Joint Base McGuire-Dix-Lakehurst, New Jersey. The formal training unit is at Altus Air Force Base, Oklahoma. Joint Base McGuire-Dix-Lakehurst, New Jersey is projected to receive its first aircraft in 1QFY22.

CONTRACTING:

BOEING COMPANY, Seattle, Washington

Engineering & Manufacturing Development

- Fixed-Price-Incentive-Firm

Production

- Firm-Fixed-Price, Not-to-Exceed

SCHEDULE:

The eighth KC-46A production lot is projected to award in 2QFY22. The RVS 2.0 Critical Design Review is scheduled for 3QFY22.

The Air Force's total KC-46A procurement is 179 aircraft through 2027.

Air Mobility Command has approved limited KC-46 operational capability to support U.S. Transportation Command refueling requirements.

T-7A

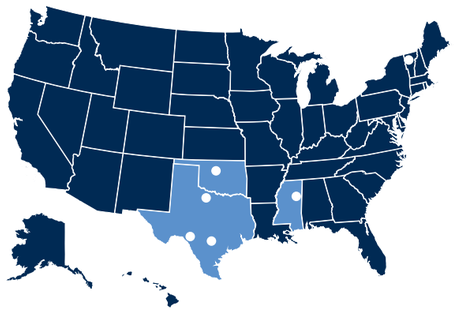
T-7A ADVANCED PILOT TRAINING SYSTEM

ORIGINAL UNIT COST:
$24.4 MILLION

CURRENT UNIT COST:
$24.4 MILLION

The Advanced Pilot Training System (APT), T-7A Red Hawk, will replace Air Education and Training Command's fleet of 428 T-38C aircraft with 351 T-7A aircraft and 46 associated training devices. This new system will provide advanced training capabilities the Air Force needs to increase the lethality and effectiveness of future pilots.

The APT program has had outstanding success following its contract award on September 27, 2018. Upon completion of its Critical Design Review in 2020, the program transitioned from the design phase into the build and test phase in 2021, with all Engineering and Manufacturing Development aircraft now under construction. The program has continued developmental testing completing over 300 test sorties. Phase 2 of developmental testing, is scheduled to begin in early 2022.



BASING STRATEGY:

The T-7A will be fielded at five bases: Joint Base San Antonio-Randolph, Texas; Laughlin Air Force Base, Texas; Vance Air Force Base, Oklahoma; Columbus Air Force Base, Mississippi; and Sheppard Air Force Base, Texas.

FY22 BUDGET: $248.7 MILLION

CONTRACTING:

BOEING COMPANY, St. Louis, Missouri

Engineering & Manufacturing Development
- Fixed-Price-Incentive-Firm

Production and Deployment
- Firm-Fixed-Price

SCHEDULE:

Joint Base San Antonio-Randolph will receive its first T-7A aircraft in 2023, with Initial Operational Capability planned for 2024 and Full Operational Capability expected in 2034.

DIGITAL ENGINEERING

MH-139A

MH-139A UTILITY HELICOPTER REPLACEMENT PROGRAM

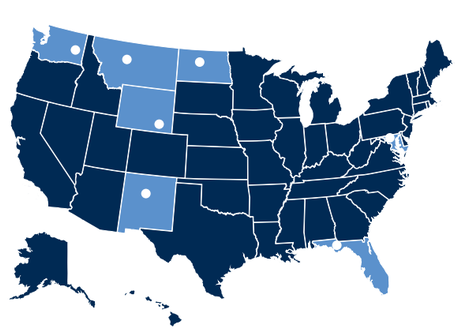
ORIGINAL UNIT COST:
$41.8 MILLION

CURRENT UNIT COST:
$41.8 MILLION

The MH-139A Grey Wolf addresses vertical lift needs currently fulfilled by the aging UH-1N Huey Helicopter. The MH-139A will support critical mission requirements for Air Force Global Strike Command, Air Force District of Washington, Air Force Materiel Command, and Air Education and Training Command.

There are three primary missions for the MH-139A: Intercontinental Ballistic Missile (ICBM) convoy escort, ICBM Emergency Security Response, and Continuity of Operations/Government. It brings increased carrying capacity, speed, range, endurance, defensive systems, and survivability over the legacy UH-1N Huey.

Currently under test, the MH-139A leverages the existing AW-139 commercial aircraft foundation while adding militarization modifications.



BASING STRATEGY:

The new aircraft and training systems will be fielded at seven bases: Malmstrom Air Force Base, Montana; Maxwell Air Force Base, Alabama; FE Warren Air Force Base, Wyoming; Minot Air Force Base, North Dakota; Joint Base Andrews, Maryland; Fairchild Air Force Base, Washington; and Eglin Air Force Base, Florida.

FY22 BUDGET: $16.1 MILLION

CONTRACTING:

BOEING COMPANY, Ridley Park, Pennsylvania

Non-Developmental Integration
- Firm-Fixed-Price

Production and Deployment (FY23, Lot 1)
- Firm-Fixed-Price

SCHEDULE:

Milestone C is anticipated in early FY23. An updated acquisition program baseline is in coordination as a result of challenges experienced in updating the aircraft's civil certifications required to fulfill operational requirements.

VC-25B

VC-25B PRESIDENTIAL AIRCRAFT RECAPITALIZATION

FY22 BUDGET: $680.66 MILLION

ORIGINAL UNIT COST:
$2.66 BILLION

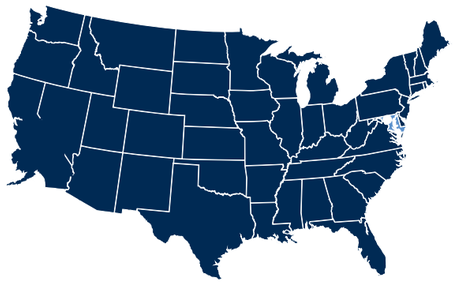
CURRENT UNIT COST:
$2.66 BILLION

The VC-25B will replace the current VC-25A, known as Air Force One, to safely and securely transport and enable the President to execute the duties of Head of State, Chief Executive, and Commander in Chief. The VC-25B is a modified Boeing 747-8. The Air Force selected Boeing as the prime contractor to design, modify, test, and field presidential mission-ready VC-25B aircraft.

CONTRACTING:

BOEING COMPANY, Seattle, Washington

Engineering and Manufacturing Development
- Firm-Fixed-Price



BASING STRATEGY:
Joint Base Andrews, Maryland

SCHEDULE:

Boeing provided the Air Force a recommended update to the VC-25B delivery schedule. The Air Force is analyzing this proposed schedule and upon completion of the evaluation will implement formal contractual and program actions. There will be a delay in delivering the two VC-25B aircraft as compared to the original schedule.

ACAT II & III

ACAT II & III PROGRAM HIGHLIGHTS

SENIOR LEADER COMMAND, CONTROL, & COMMUNICATION SYSTEMS – AIRBORNE

The Air Force is rapidly acquiring, testing, and installing new airborne communications technologies for the Service's fleet of VC- 25A, C-32A, C-37A/B, and C-40B/C executive aircraft. These technologies will enable the Department to keep pace with emerging requirements for high-quality, secure, reliable, and assured communications between national leaders.

CONTRACTING:

L3HARRIS, Greenville, Texas
- Contract type varies

SCHEDULE:

These communication system improvements are required across the Future Years Defense Program (FYDP) and are dependent on the starting configuration of each aircraft, communication upgrades required, and aircraft availability.

KC-135 BLOCK 45 UPGRADE

The Block 45 upgrade modernizes the KC-135 fleet to ensure future viability. The new systems improve signal fidelity and convert legacy analog autopilot, radio altimeter, engine instruments, and flight director to digital systems. This conversion creates a digital backbone, enabling future capability growth, ease of operator use, and future software integration.

CONTRACTING:

PHOENIX LOGISTICS, INC., Gilbert, Arizona
- Firm-Fixed-Price

COLLINS AEROSPACE, Charlotte, North Carolina
- Firm-Fixed-Price Indefinite Delivery/Indefinite Quantity

SCHEDULE:

Block 45 is currently in Full Rate Production Lot 6 and 38 kits will be installed in FY22.

ACAT II & III

ACAT II & III PROGRAM HIGHLIGHTS

C/LC-130H AVIONICS MODERNIZATION PROGRAM (AMP) INCREMENT 2

The C/LC-130H AMP Increment 2 program upgrades the C-130H fleet with comprehensive avionics and cockpit modernization, replacing aging unreliable equipment and adding combat capability enhancements. It also updates radios due to future Diminishing Manufacturing Sources (DMS)/ integration issues and incorporation of Mobile User Objective System (MUOS)/ Second Generation Anti-Jam Tactical Ultra-High Frequency Radio (SATURN) radio capabilities. It addresses select obsolescence and DMS issues with solutions that may include life of type buys or bridge buys.

The program's Primary Critical Design Review closed out in December 2020. The Delta Critical Design Review of the ARC-210 radio closed out in July 2021. FY21 accomplishments also included modifications of three test aircraft to support AMP Increment 2 Test Kit installation and initiation of Test Kit installation on all three aircraft.

CONTRACTING:

L3HARRIS, Waco, Texas

Engineering and Manufacturing Development

- Fixed-Price-Incentive-Firm

Low Rate and Full Rate Production and Deployment (7 Lots)

- Firm-Fixed-Price

SCHEDULE:

Test Kit installation on all three aircraft will complete in 2QFY22 with Ground Testing scheduled to begin later that quarter. Flight testing is scheduled to begin by the end of 4QFY22. Milestone C is scheduled for 1QFY23.

INFORMATION DOMINANCE

Information dominance is achieved through command, control, communications, computers, intelligence, surveillance, and reconnaissance (or C4ISR) systems and architectures. The Department's information dominance portfolio includes airborne reconnaissance, business and enterprise systems, command and control, and cyber programs.

EC-37B

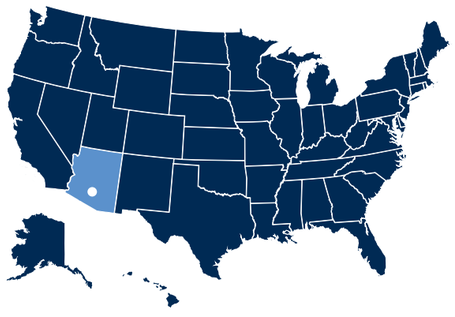
EC-37B COMPASS CALL

FY22 BUDGET: $352 MILLION

Compass Call is the Air Force's premier wide-area airborne electronic attack weapon system. It denies, degrades, and disrupts adversary communications, information processing, navigation, radar systems, and radio controlled threats. Compass Call is designed for rapid updates to adopt new capabilities and counter emerging technologies, tactics, techniques, and procedures.

In FY21 the program continued the re-host of the Compass Call mission from an EC-130H to a more capable EC-37B with several notable accomplishments. Gulfstream completed production of the first G550 aircraft, with initial power-on and the successful first flight of the G550 Conformal Airborne Early Warning (CAEW) modified aircraft. During flight testing, the aircraft set a new Gulfstream altitude record for the CAEW configuration. The aircraft then transitioned to Texas to begin installation of the mission equipment.

Baseline 4, an upgrade to the mission system incorporating the System-Wide Open Reconfigurable Dynamic Architecture (SWORD-A), successfully completed Preliminary Design Review in FY21. SWORD-A will bring the open architecture and agility necessary to address an evolving threat landscape and meet Electromagnetic Spectrum (EMS) superiority objectives.



BASING STRATEGY:

Re-hosted EC-37B Compass Call aircraft will be delivered to the 55th Electronic Combat Group, located at Davis-Monthan Air Force Base in Tucson, Arizona. The 55th ECG is the sole operator of Compass Call aircraft in worldwide contingency operations.

CONTRACTING:

L3HARRIS (aircraft integration), Greenville, Texas and Waco, Texas

BAE SYSTEMS (MISSION SYSTEMS) Nashua, New Hampshire

Aircraft System Integration
- Cost-Plus-Incentive-Fee and Firm-Fixed-Price

Commercial Aircraft Procurement
- Firm-Fixed-Price

SCHEDULE:

The first EC-37B was procured in FY17 with 6 total procured to date. Prime Mission Equipment integration is underway for aircraft number one with modification expected to complete in FY22.

MQ-9

MQ-9 REAPER

FY22 BUDGET: $357.9 MILLION

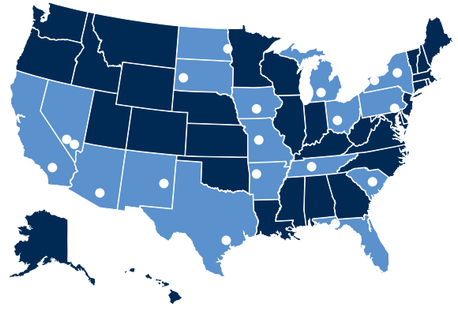
ORIGINAL UNIT COST: $32 MILLION

CURRENT UNIT COST: $31.9 MILLION

The MQ-9 Reaper is a medium-altitude, long-endurance, multi-role remotely piloted aircraft (RPA). The MQ-9 is both a hunter-killer and an intelligence collection asset. Given its significant loiter time, wide range of sensors, multi-mode communications suite, and precision weapons, the MQ-9 can perform strike, coordination, and reconnaissance against high-value, fleeting, and time-sensitive targets.

The MQ-9 Upgrade program and the MQ-9 System Lifecycle Agile Modernization (SLAM) program provide an agile capability development strategy. The programs enable rapid fielding of modernized hardware/software capabilities across the MQ-9 fleet on a 6-12 month schedule.

In April 2021, the Air Force awarded a contract to General Atomics for 19 additional MQ-9 Block 5 RPAs. The award included 16 MQ-9s for the FY21 buy and an additional MQ-9 for the FY20 buy.



BASING STRATEGY:

Davis-Monthan Air Force Base, Arizona; Hurlburt Field, Florida; Whiteman Air Force Base, Missouri; Creech Air Force Base, Nevada; Nellis Air Force Base, Nevada; Holloman Air Force Base, New Mexico; Cannon Air Force Base, New Mexico; Shaw Air Force Base, South Carolina; Ellsworth Air Force Base, South Dakota; March Air Reserve Base, California; Ebbing Air National Guard Base, Arkansas; Des Moines Air National Guard Base, Iowa; Battle Creek Air National Guard Base, Michigan; Hancock Field, New York; Niagara Falls Air Reserve Station, New York; Hector Field, North Dakota; Springfield-Beckley Air National Guard Base, Ohio; Horsham Air Guard Station, Pennsylvania; Berry Field, Tennessee; and Ellington Field Joint Reserve Base, Texas.

CONTRACTING:

GENERAL ATOMICS, Poway, California

Research, Development, Test & Evaluation, Software Releases, & Sustainment
- Cost-Plus-Fixed-Fee

Production
- Fixed-Price-Incentive-Firm
- Firm-Fixed-Price
- Agile Reaper Enterprise Solution (ARES) Indefinite Delivery/Indefinite Quantity
- Agile Reaper Target Enhancement and Monitoring Improved Solution (ARTEMIS) Sensor Indefinite Delivery/Indefinite Quantity

SCHEDULE:

In FY22, the Air Force begins development of the MQ-9 Multi-Domain Operations (M2DO) configuration to keep the platform viable in the wide-spectrum of armed conflict. It includes Open Mission Systems (OMS), Anti-Jam GPS, Command and Control Resiliency, Enhanced Power, and Link 16.

3DELRR

THREE-DIMENSIONAL EXPEDITIONARY LONG-RANGE RADAR

FY22 BUDGET: $96.2 MILLION

The Three-Dimensional Expeditionary Long-Range Radar (3DELRR) will provide detection of aerial threats to warfighters operating in deployed locations. The radar gives commanders the ability to orchestrate friendly operations and detect a wide range of airborne targets.

3DELRR replaces the AN/TPS-75 radar as the primary long-range, ground-based sensor for detecting, identifying, tracking, and reporting aerial targets in support of theater commanders providing capability against emerging threats.

In 2021, the Air Force issued competitive integration contracts to Lockheed Martin Corporation Rotary and Mission Systems and Northrop Grumman Corporation. The results of these efforts, combined with the results of the 2020 prototype demonstration, will be used to select the final system for production in 2022.

SCHEDULE:

The program is scheduled to transition from a Middle Tier of Acquisition Rapid Prototyping program to a Middle Tier of Acquisition Rapid Fielding program in early 2022 in preparation for down select and production.

CONTRACTING:

NORTHROP GRUMMAN CORPORATION,
Linthicum Heights, Maryland

Integration Contract with Production Unit, Production Management, Spares, Training, Interim Contract Support, and Contractor Proposed Enhancement options

- Cost-Plus-Fixed-Fee, Firm-Fixed-Price, and Cost Type

LOCKHEED MARTIN CORPORATION,
Liverpool, New York

Integration Contract with Production Unit, Production Management, Spares, Training, Interim Contract Support, and Contractor Proposed Enhancement options

- Cost-Plus-Fixed-Fee, Firm-Fixed-Price, and Cost Type

MID-TIER OF ACQUISITION (MTA)

UP

UNIFIED PLATFORM (UP)

FY22 BUDGET: $106.8 MILLION

CONTRACTING:

Software Development

- Indefinite Delivery/Indefinite Quantity
- Multiple vendors and contracts reaching nationwide to source expertise to realize the UP capability vision with the Government as the primary integrator

SCHEDULE:

Unified Platform will continue to expand connection of service, agency, and international partner big data platforms at different classifications that will greatly increase the Cyber Mission Force's access to data. The next focus areas will be improved data querying and analytics across platforms, automated tools for offensive and defensive cyber operations, and development of the operational infrastructure required for cutting-edge artificial intelligence applications.

Unified Platform fulfills the need to fuse cyber data from multiple sources and classification levels across military Services, and is a central component of U.S. Cyber Command's Joint Cyber Warfighting Architecture. The centralization of offensive and defensive mission, commercial, and third-party data allows decision analytics that produce mission-relevant information. Cyber planners, operators, and support personnel may query this enriched information source across the 133 Cyber Mission Force teams and Service-specific cyber elements to enhance ongoing cyber operations and planning. The scalability and interoperability of this architecture allows future expansion to new mission sets, integration of innovative technologies, and exploitation of emerging opportunities.

In 2021, Unified Platform delivered 25 new operational features enhancing quick cyber responses and seamless cross-domain solution integration between all military services across multiple security enclaves. Highlights include enhancements to the Services' and U.S. Cyber Command's big data platforms, an initial security orchestration and automation response capability, integration of new data sets, support to Cyber National Mission Force hunt forward operations, security process automation, and enhanced incident management processes and analytics to execute real-time defensive cyber operations.

AFIPPS

AIR FORCE INTEGRATED PERSONNEL AND PAY SYSTEM (AFIPPS)

FY22 BUDGET: $37.25 MILLION

The Air Force Integrated Personnel and Pay System is a web-enabled, commercial-off-the-shelf enterprise resource planning solution that will replace the legacy Defense Joint Military Pay System (DJMS) with a modernized capability. AFIPPS integrates leave and pay processes into the Department of the Air Force's existing personnel system to provide a single military human resources and pay platform for the Air Force and Space Force Total Force–active duty, guard, and reserve.

In FY21, the program completed agile development of pay and leave capabilities and initiated a comprehensive test program. In January and July 2021, the program completed two incremental releases of self-service capability to the Total Force enabling user account creation, data verification, and system performance validation.

CONTRACTING:

ACCENTURE FEDERAL SERVICES,
Arlington, Virginia

Agile Development
- Cost-Plus-Incentive-Fee

SCHEDULE:

In FY22, the program will continue integrated testing and initiate a series of reconciliation tests to ensure member pay and leave entitlements are correctly calculated.

MROi

THE MAINTENANCE, REPAIR, AND OVERHAUL INITIATIVE (MROi)

FY22 BUDGET: $22 MILLION

CONTRACTING:

ACCENTURE FEDERAL SERVICES,
Arlington, Virginia

Business System Acquisition, Testing and Deployment
- Firm-Fixed-Price-Capacity-Based

SCHEDULE:

The implementation of MROi's second version at Tinker Air Force Base, Oklahoma, will begin in early 2024, enabling end-to-end depot maintenance operations with a single product. Hill Air Force Base, Utah, and Robins Air Force, Georgia, will begin implementation of MROi in fall 2024.

The Maintenance, Repair, and Overhaul initiative is a business process transformation and standardization effort. It provides the Air Force Sustainment Center (AFSC) with an integrated capability for planning, scheduling, and executing organic depot maintenance via a commercial off-the-shelf Oracle E-Business software suite. Its customized configuration will reduce workload by enabling agile planning, optimizing workload assignments, and enhancing resource allocation. Additionally, the program will enable maintenance-driven Air Force Working Capital Fund financial auditability.

In FY21, the MROi program continued to develop its second software product for implementation into the AFSC commodities, electronics, missiles, propulsion, and aircraft maintenance groups. This product will modernize logistics information systems for the center by enabling end-to-end depot maintenance operations in a single system, replacing 19 legacy systems.

ACAT II & III

ACAT II & III PROGRAM HIGHLIGHTS

E11-A BATTLEFIELD AIRBORNE COMMUNICATIONS NODE (BACN)

The BACN program enables tactical edge information interoperability across disparate tactical data networks. It provides beyond-line-of-sight voice, data relay, and persistent command and control data link coverage in austere environments while providing 24/7 operations.

The BACN aircraft payload is comprised of various datalink terminals and radios that receive, translate, and transmit communications between ground and air participants. BACN is deployed on a fleet of three E-11A commercial derivative aircraft.

The BACN program has supported 16,500 combat missions and flown 212,700 combat hours, enabling seamless voice and data exchange between multiple locations.

In FY21, the Air Force divested the EQ-4B remotely piloted BACN variant and completed transition to a unified fleet of E-11A aircraft.

CONTRACTING:

LEARJET/BOMBARDIER, Wichita, Kansas

Commercial Aircraft Procurement
- Indefinite Delivery/Indefinite Quantity

NORTHROP GRUMMAN CORPORATION, Falls Church, Virginia

Payload Integration, Operations, and Sustainment
- Indefinite Delivery/Indefinite Quantity

SCHEDULE:

The BACN fleet will continue to procure an additional six aircraft and payload systems throughout the FYDP, providing greater operational flexibility and capabilities to the warfighter.

ACAT II & III

ACAT II & III PROGRAM HIGHLIGHTS

CONTRACTING INFORMATION TECHNOLOGY (CON-IT)

The Contracting Information Technology (CON-IT) system replaces aging legacy contract writing and management systems with a single contract management system to provide interoperability across all Department of the Air Force contracting. The program uses agile acquisition practices in partnership with the Department of Agriculture to develop, deploy, and enhance contract information capabilities faster and with less risk.

In FY21, CON-IT completed 15 development sprints, deployed 56 system patches, and delivered nearly 1,000 requirements to the contracting community. The system supported 4,300 active users and completed 63,221 awards/modifications totaling $15.6 billion of obligated dollars. CON-IT performance is trending strong as it awarded 57% of Department of the Air Force contract actions throughout the year.

CONTRACTING:

U.S. Department of Agriculture; Inter-Agency Agreement

SCHEDULE:

In FY22, CON-IT will be deployed to up to 1,000 more users. Additionally, the program is preparing data migration and sunset efforts for the legacy ConWrite system. Thereafter, CON-IT will expand to the logistics and classified contracting communities.

BASING STRATEGY:

CON-IT is currently deployed to 188 Department of the Air Force organizations, including 22 overseas locations.

SPACE POWER

Space power is the Department's ability to not just win in space, but to dominate in space. The Department's space power portfolio- including satellite communications, space launch, space control, remote sensing, and positioning, navigation, and timing- enables the Space Force to protect our space capabilities and conduct global operations with speed, flexibility, and precision.

COMSATCOM

COMMERCIAL SATELLITE COMMUNICATIONS

FY22 BUDGET: $23.4 MILLION

Commercial Satellite Communications (COMSATCOM) Integration will integrate military and commercial SATCOM in order to fully leverage commercial capabilities as part of the Department's SATCOM enterprise. COMSATCOM Integration will use a Middle Tier of Acquisition to rapidly prototype integration tools and mission applications to provide joint warfighters responsive and resilient enterprise SATCOM, as well as timely and effective provisioning.

COMSATCOM Integration will leverage Other Transaction Authorities via the Space Enterprise Consortium (SpEC) to secure competitive fixed-price agreements and to leverage non-traditional defense contractors. On August 9, 2021, six prototype contracts were awarded to develop advanced enterprise management and control technologies.

CONTRACTING:

LINQUEST CORPORATION, El Segundo, CA

Systems Engineering and Integration
- Cost-Plus-Incentive-Fee

BAE SYSTEMS INFORMATION & ELECTRONIC SYSTEMS INTEGRATION; KRATOS RT LOGIC; RKF ENGINEERING SOLUTION; KNIGHT SKY LLC; NORTHSTRAT; and BOEING CORPORATION

DevOps Platform, Systems Integration, Prototyping
- Firm-Fixed-Price

SCHEDULE:

The following efforts will include prototyping and integration of a SATCOM terminal registry, integrated data manager, health and status, user interface and common operating picture, spectral and electromagnetic interference data and geolocation, and COMSATCOM management and control. An acquisition strategy is in development to deliver the following enterprise management and control capabilities: Situational Awareness/ Common Operating Picture, Enterprise SATCOM Planning, SATCOM Mission Management, and SATCOM Analytical Tools.

DARC

DEEP SPACE ADVANCED RADAR CAPABILITY (DARC)

FY22 BUDGET: $123.3 MILLION

DARC will be a 24/7, all-weather ground-based radar system made up of three geographically separated sites around the world delivering deep-space satellite tracking and custody capabilities to support Space Domain Awareness (SDA) mission requirements. DARC will provide custody of foreign launches, continuous tracking from launch to geosynchronous orbit, global coverage for High Value Asset clearing, and frequent revisits for persistent awareness of any object of interest in deep space. The initial DARC technology demonstration, which included the construction of seven antennas on White Sands Missile Range, successfully completed in August 2021, proved three key knowledge points to inform the Government Reference Architecture in support of the DARC's Site 1 development.

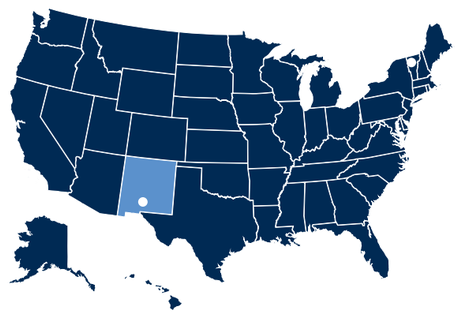
CONTRACTING:

JOHNS HOPKINS UNIVERSITY APPLIED PHYSICS LABORATORY (JHU/APL), Laurel, Maryland

DARC Technology Demonstration

SCHEDULE:

Site 1 prime contract is planned for award in 2022. Site 1 operational leave behind capability will be ready in 2025.



BASING/DEPLOYMENT STRATEGY:

Technology Demonstration: White Sands Missile Range, New Mexico

Future Sites: United States Indo-Pacific Command, United States European Command, Continental United States

MID-TIER OF ACQUISITION (MTA)

ESS

EVOLVED STRATEGIC SATCOM

FY22 BUDGET: $160.1 MILLION

Evolved Strategic SATCOM (ESS) is the modernized and disaggregated protected SATCOM constellation, continuing the strategic mission of the Advanced Extremely High Frequency (AEHF) system. ESS will provide worldwide and Arctic secure, survivable, endurable, and jam-resistant communications for high-priority ground, sea, and air assets in support of the Nuclear Command, Control, and Communications (NC3) mission. It will have enhanced cyber and resiliency features to combat emerging threats and provide a robust nuclear deterrent.

The ESS space segment is using a Middle Tier of Acquisition pathway. The program awarded three contracts to rapidly prototype key technologies to minimize space segment risk. The acquisition strategy is built on modularity and competition to drive innovation. All three contractors successfully completed System Requirements Reviews. Both the space and ground efforts are maximizing the use of digital engineering to improve acquisition models.

CONTRACTING:

LOCKHEED MARTIN CORPORATION, Sunnyvale, California

Space Segment Rapid Prototyping
- Firm-Fixed-Price

NORTHROP GRUMMAN, Redondo Beach, California

Space Segment Rapid Prototyping
- Firm-Fixed-Price

BOEING COMPANY, El Segundo, California

Space Segment Rapid Prototyping
- Firm-Fixed-Price

SCHEDULE:

In FY22, the three contractors will conclude System Functional Reviews. Ground segment and cryptographic development begins in FY23, and the first ESS space vehicle is projected to launch in FY31.

MID-TIER OF ACQUISITION (MTA)

EWS

ELECTRO-OPTICAL / INFRARED (EO/IR) WEATHER SYSTEMS (EWS)

FY22 BUDGET: $162.3 MILLION

CONTRACTING:

ASTRA, Louisville, Colorado
- Space Enterprise Consortium (SpEC) Other Transaction Authority agreement

GENERAL ATOMICS, San Diego, California
- Other Transaction Authority agreement

RAYTHEON TECHNOLOGIES, El Segundo, California
- Other Transaction Authority agreement

SCHEDULE:

All competing vendors will have their Final Design Reviews complete by 2QFY22. The EWS program office will then select the winning vendor to launch Increment 0, which will be configured for operations while on-orbit. The first EWS prototype is scheduled for launch by FY23. EWS Increment 0 is scheduled for launch by FY25.

The EWS marks a transition to smaller, more responsive EO/IR sensors for global cloud characterization and theater weather imagery. The EWS will first employ smaller satellites in polar orbits to modernize and replace larger legacy EO/IR weather capabilities. When fully operational, a proliferated architecture of EWS satellites will be capable of providing global EO/IR weather data on an hourly basis.

The EWS acquisition strategy is composed of three overlapping phases. The first is an Air Force Research Laboratory-led development effort through Small Business Innovation Research contracts: WeatherSat and Project Normandy. WeatherSat is aimed at producing modern EO/IR sensors of small weight and power needs; Project Normandy will assess the utility of the weather data from the smaller sensors through a prototype launch. The second phase uses multiple Other Transaction Authority agreements for rapid prototyping. Three competing vendors are producing EWS prototypes, with one vendor launching the first prototype by FY23. The remaining two vendors will compete for their prototype launch by FY25 for on-orbit configuration to support a four-hour global revisit rate with the Space Based Environmental Monitoring (SBEM) Family of Systems (FoS). The third phase encompasses competitive EWS increments to constitute its architecture and replenishment.

FAB-T

FAMILY OF ADVANCED BEYOND LINE-OF-SIGHT TERMINALS (FAB-T)

FY22 BUDGET: $196.1 MILLION

ORIGINAL UNIT COST:
$21.8 MILLION

CURRENT UNIT COST:
$18.8 MILLION

The Family of Advanced Beyond Line-of-Sight Terminals (FAB-T) Command Post Terminal (CPT) program provides terminals capable of communicating with modern and legacy strategic communications satellites. These terminals are designed to survive and operate through a nuclear event and are an essential component of the nation's nuclear command, control, and communications system. FAB-T CPTs will be deployed to locations worldwide including ground fixed sites, ground mobile platforms, and on E-4 and E-6 aircraft.

During FY21, the FAB-T CPT program continued to procure and install terminals.

The Family of Advanced Beyond Line-of-Sight Terminals (FAB-T) Force Element Terminal (FET) program provides nuclear survivable communications, emergency action messaging, and force report-back capability for the B-52 aircraft.

In FY21, the FAB-T FET program continued prototyping efforts and system design, and conducted its Preliminary Design Review.

BASING/DEPLOYMENT STRATEGY:

The FAB-T CPT Airborne terminals will be installed on E-4 and E-6 aircraft, with the FET variant installed on B-52 aircraft. Ground-mobile terminals will be installed at geographically-separated locations. Ground-fixed configurations will be deployed to multiple locations worldwide.

CONTRACTING:

RAYTHEON TECHNOLOGIES (Development), Marlborough, Massachusetts
- Cost-Plus-Fixed-Fee and Firm-Fixed-Price

RAYTHEON TECHNOLOGIES (Production), Largo, Florida
- Firm-Fixed-Price

Development & Production
- Firm-Fixed-Price

SCHEDULE:

In FY22, the three contractors will conclude System Functional Reviews. Ground segment and cryptographic development begins in FY23, and the first ESS space vehicle is projected to launch in FY31.

MID-TIER OF ACQUISITION (MTA)

GPS III/IIIF

GLOBAL POSITIONING SYSTEM (GPS) III/III FOLLOW-ON (IIIF)

FY22 BUDGET: $1.2 BILLION

ORIGINAL UNIT COST:
GPS III: $638.7 MILLION
GPS IIIF: $435.3 MILLION

ORIGINAL UNIT COST:
GPS III: $579 MILLION
GPS IIIF: $447.3 MILLION

Global Positioning System (GPS) III is the next-generation series of satellites for the GPS constellation that provides worldwide positioning, navigation, and timing capabilities to an unlimited number of users across the globe.

GPS III provides additional capabilities to users, including a boosted military-code signal for operations in GPS-contested environments, and a new international civil signal.

GPS III launched Space Vehicle (SV) 04 in November 2020 and SV-05 in June 2021. SV-05 is the 24th military-code-capable spacecraft for the operational constellation which achieves global coverage of military-code.

GPS III Follow-On (GPS IIIF) provides additional capabilities beyond GPS III, including Regional Military Protection, which delivers a high-power, regional spot beam capability for military operations in GPS-contested environments.

Additionally, the GPS IIIF satellites will host a redesigned U.S. Nuclear Detonation Detection System payload and a new Canadian-built search and rescue payload.

CONTRACTING:

LOCKHEED MARTIN CORPORATION, Denver, Colorado

GPS III SV-01-10
- Firm-Fixed-Incentive-Firm/Award Fee

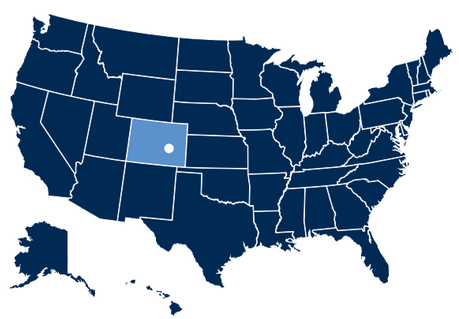
GPS IIIF SV-11-12
- Firm-Fixed-Incentive-Firm/Award Fee

GPS IIIF SV-13-32
- Fixed-Price-Incentive-Firm

SCHEDULE:

The first five of 10 GPS III satellite vehicles purchased are on-orbit; four have been accepted into the operational constellation.

The GPS IIIF program is working on the production of satellites with the first launch projected for FY26.



BASING/DEPLOYMENT STRATEGY:

To optimize signal strength and coverage area, the GPS satellite constellation is deployed in a medium Earth orbit. GPS satellites are operated by the 2nd Space Operations Squadron at Schriever Space Force Base, Colorado.

MGUE

MILITARY GLOBAL POSITIONING SYSTEM (GPS) USER EQUIPMENT

FY22 BUDGET: $434.2 MILLION

MGUE INCREMENT 1

The Military GPS User Equipment (MGUE) program develops GPS receiver cards for insertion into Department of Defense weapon systems that provide warfighters with secure and accurate positioning, navigation, and timing data in contested environments.

The Army Stryker Lead Platform completed Program Executive Officer (PEO) certification March 2021. PEO certification for the B-2 Spirit and Arleigh Burke class of guided missile destroyers (DDGs) are estimated for FY23.

MGUE INCREMENT 2

MGUE Increment 2 will continue to employ military-code receiver technology into additional applications to meet Service requirements. MGUE Increment 2 will deliver a military-code-capable joint common handheld, address future requirements while maintaining backward-compatibility with MGUE Increment 1, and produce a lower size, weight, and power military-code receiver card to address the needs of users unable to employ the MGUE Increment 1 receiver cards.

The program is comprised of two Middle Tier of Acquisition efforts, the Miniature Serialized Interface (receiver card) and joint common handheld.

SCHEDULE:

The Increment 1 program rebaselined in 2QFY21, shifting the remaining milestones associated with the aviation/maritime form factor. The MGUE Increment 2 awarded contracts November 2020 and Critical Design Review for the Miniature Serialized Interface is estimated to complete in FY23.

CONTRACTING:

Increment 1:
RAYTHEON TECHNOLOGIES, El Segundo, California
- Firm-Fixed-Price

BAE SYSTEMS, Cedar Rapids, Iowa
- Cost-Plus-Award-Fee/Incentive-Fee

L3HARRIS, Anaheim, California
- Cost-Plus-Award-Fee/Incentive-Fee

Increment 2:
RAYTHEON TECHNOLOGIES, El Segundo, California
- Cost-Plus-Incentive Fee/Award Fee

BAE SYSTEMS, Cedar Rapids, Iowa
- Cost-Plus-Incentive Fee/Award Fee

L3HARRIS, Anaheim, California
- Cost-Plus-Incentive Fee/Award Fee

MID-TIER OF ACQUISITION (MTA)

NSSL

NATIONAL SECURITY SPACE LAUNCH (NSSL)

FY22 BUDGET: $2 BILLION

ORIGINAL UNIT COST: $404.2 MILLION

CURRENT UNIT COST: $318.5 MILLION

The National Security Space Launch (NSSL) program acquires launch services that provide critical space support needed to satisfy Department of Defense warfighter, national security, and other Government spacelift missions. This mission includes the execution of the flight worthiness certification processes and booster-to-satellite mission integration. It also provides the gateway for intermediate and larger class payloads to maintain assured access to space.

On August 12, 2020, the Phase 2 Launch Service Procurement contracts were awarded to United Launch Alliance (ULA) and SpaceX. The U.S. Space Force procured four launch services in FY20 and three launch services in FY21 for launches starting in FY22. ULA continued its Launch Service Agreements Other Transaction Authority awarded in October 2018 to develop its Vulcan family of launch vehicles. On September 24, 2021, Enabling Investments Other Transaction Authority agreements were awarded to SpaceX for Next Generation Rocket Engine Testing and to ULA, Blue Origin, and Rocket Lab for Upper Stage Resiliency Enhancements.

CONTRACTING:

- UNITED LAUNCH ALLIANCE, Denver, Colorado
- SPACEX, Hawthorne, California
- BLUE ORIGIN, Kent, Washington
- AEROJET ROCKETDYNE, Sacramento, California
- ROCKET LAB, Long Beach, California

Development
- Rocket Propulsion System, Launch Service Agreements, and Enabling Investments Other Transaction Authority agreements

Procurement
- Firm-Fixed-Price Requirements Contracts

SCHEDULE:

In FY22, the program will continue development efforts toward ULA's Vulcan certification flights. The program is planning to award Orbital Transfer and Maneuver Other Transaction Authority agreements for prototypes that transfer payloads from the launch vehicle upper stage to operational orbits. The Space Force plans to procure five launch services in FY22 that will be launched starting in FY24.

OCX

NEXT GENERATION OPERATIONAL CONTROL SYSTEM (OCX)

FY22 BUDGET: $413.8 MILLION

ORIGINAL UNIT COST:
$6.457 BILLION

CURRENT UNIT COST:
$6.564 BILLION

The Next Generation Operational Control System (OCX) replaces the legacy control segment and provides command, control, and mission support for all Global Positioning System (GPS) satellites. The OCX program will allow for effective use of the latest military and civil GPS signals, enabling navigation warfare capabilities for the warfighter and ensuring the Space Force can combat the latest threats.

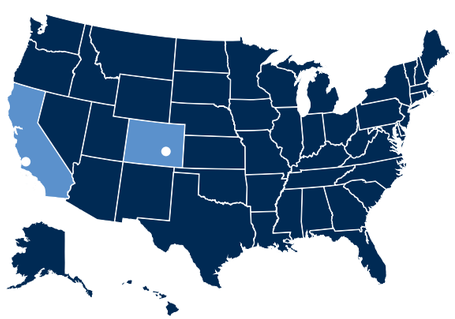
OCX Block 0 successfully supported the launch and on-orbit checkout of GPS III Space Vehicles (SV) 01-05, with SV 04 launching November 2020 and SV05 in June 2021. OCX Blocks 1 and 2 will be delivered concurrently as the program is finishing the integration and test phase.

CONTRACTING:

RAYTHEON TECHNOLOGIES,
Aurora, Colorado
- Cost-Plus-Incentive-Fee

SCHEDULE:

Block 0 was accepted in October 2017 and Blocks 1 and 2 will transition to operations concurrently in FY23. OCX remains on-track to deliver within its remaining Acquisition Program Baseline milestones.



BASING STRATEGY:

OCX is a software-intensive development program structured to deliver capability incrementally in Blocks 0, 1, and 2, with two deliveries. OCX will be delivered and installed at Schriever Space Force Base, Colorado; Vandenberg Air Force Base, California; and various remote sites around the globe.

OPIR

NEXT GENERATION OVERHEAD PERSISTENT INFRARED (OPIR) PROGRAM

FY22 BUDGET: $2.5 BILLION

CONTRACTING:

LOCKHEED MARTIN CORPORATION
(Geosynchronous), Sunnyvale, California
- Cost-Plus-Incentive-Fee

NORTHROP GRUMMAN CORPORATION
(Polar), Redondo Beach, California
- Cost-Plus-Incentive-Fee

RAYTHEON TECHNOLOGIES: FORGE Mission Data Processing Application Framework (MDPAF)
- Cost-Plus-Incentive-Fee

ALTAMIRA TECHNOLOGIES, Fairborn, Ohio
MAXAR TECHNOLOGIES, Chantilly, Virginia
SCITEC INCORPORATED, Boulder, Colorado
(MDP Applications Prototypes)
- Other Transaction Authority agreements

SCHEDULE:

GEO System Critical Design Review was completed in October 2021. Both GEO and Polar payload bus providers completed Critical Design Reviews in June and July 2021. Polar Preliminary Design Review is scheduled for 2023. FORGE will award the MDP Applications Provider Other Transaction Authority agreement in 2022.

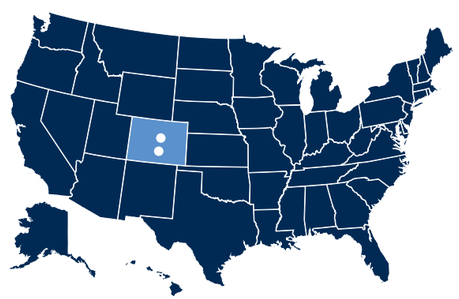
As the Space Force's follow-on program to the Space Based Infrared System (SBIRS), Next Generation Overhead Persistent Infrared (OPIR) will deliver missile warning, missile defense, battlespace awareness, and technical intelligence for the U.S. and its allies.

The program will deliver three geosynchronous earth orbit (GEO) satellites and two polar coverage satellite in highly elliptical orbits (HEO), all with improved payload sensitivity, added resiliency features, and strengthened bus survivability.

The program also includes a ground control and mission data processing segment, the Future Operationally Resilient Ground Evolution (FORGE) program.

OPIR Space and Ground systems are Middle Tier of Acquisition programs rapidly prototyping solutions. The MTA approach will deliver the first resilient GEO satellite and associated ground system to meet the 2025 warfighter need.

Next Generation OPIR Space Modernization Initiatives will refine space technology to deliver future capabilities in the areas of demonstrations, technology maturation, and data exploitation.



BASING/DEPLOYMENT STRATEGY:

The Next-Gen OPIR constellation includes satellites in both geosynchronous and polar orbits. The satellite bus and payloads use a variety of locations for command and control, including: Mission Control Station, Buckley Space Force Base, Colorado; Mission Control Station Backup, Schriever Space Force Base, Colorado; and Relay Ground Stations at various locations.

PTES

PROTECTED TACTICAL ENTERPRISE SERVICE (PTES)

FY22 BUDGET: $107.7 MILLION

The Protected Tactical Enterprise Service (PTES) will deliver a software-intensive ground system to provide worldwide, anti-jam protected communications to warfighters who are currently unable to operate through interference. PTES will use the Protected Tactical Waveform, enabling anti-jam capability over the existing Wideband Global satellite communication (SATCOM) system and the future Protected Tactical SATCOM system.

PTES is using digital engineering to increase speed and agility. The application of digital engineering will allow for an unprecedented understanding of system performance before any hardware is built or tested, and provide continuous insight for early problem resolution. Ultimately, this will help to deliver warfighting capability rapidly and affordably.

PTES is a Middle Tier of Acquisition rapid prototyping program bringing the capability to support two Navy Carrier Strike Groups, or any Service formation, in the Pacific Theater by the end of 3QFY22, meeting emerging threats one year earlier than a conventional acquisition program.

The Joint Hub and Key Management System (KMS) End Cryptographic units (ECUs) conducted Preliminary Design Reviews in November and December 2020 respectively, and Critical Design Reviews in September and October 2021 respectively. Additionally, in September 2021, a risk reduction test was performed to demonstrate early testout of critical capabilities in preparation for operational demonstration in 3QFY22.

BASING/DEPLOYMENT STRATEGY:

The PTES provides a Hub, Mission Management System, and a Key Management System. Equipment comprising Hubs will be hosted at existing SATCOM gateway sites and will provide connectivity between user terminals. The MMS and KMS software applications will manage the allocation of tactical communications resources and will be hosted on commercially-available servers.

OVERSEAS LOCATIONS::

Equipment comprising Joint Hubs will be deployed to Wahiawa, Hawaii; Geraldton, Australia; Lago Patria, Italy; Landstuhl, Germany; Manama, Bahrain; Camp Arifjan, Kuwait; and Croughton, United Kingdom.

CONTRACTING:

BOEING COMPANY, El Segundo, California

Developmental Contract
- Cost-Plus-Incentive-Fee/Award Fee

SCHEDULE:

The PTES operational demonstration is expected to occur in 3QFY22.

DIGITAL ENGINEERING

MID-TIER OF ACQUISITION (MTA)

PTS

PROTECTED TACTICAL SATCOM (PTS)

FY22 BUDGET: $243.3 MILLION

ORIGINAL UNIT COST: $488.2 MILLION

CURRENT UNIT COST: $488.2 MILLION

Protected Tactical SATCOM (PTS) will provide advanced satellite communication (SATCOM) capabilities to tactical users in anti-access/area denial environments leveraging the resilient Protected Tactical Waveform. PTS will provide maximum anti-jam performance in close proximity to adversaries through on-board signal processing and advanced beam-forming using a distributed, diversified, and agile constellation of hostable payloads and high capacity free-flyers.

PTS is using digital engineering to increase speed and agility. The application of digital engineering will allow for an unprecedented understanding of system performance before any hardware is built or tested, and provide continuous insight for early problem resolution. Ultimately, this will help to deliver warfighting capability rapidly and affordably.

PTS is a Middle Tier of Acquisition rapid prototyping program that will deliver up to two prototype payloads available for launch in FY24, three years earlier than a conventional acquisition program.

On March 31, 2021, after completion of the prototype payload Preliminary Design Reviews, Boeing and Northrop Grumman were selected to continue to build their payloads for launch.

BASING/DEPLOYMENT STRATEGY:

PTS will provide worldwide (to include northern polar) protected tactical communications and will use the Protected Tactical Enterprise Service (PTES) as its ground system.

CONTRACTING:

NORTHROP GRUMMAN CORPORATION, Redondo Beach, California
Prototype Payload Development
- Firm-Fixed-Price Other Transaction Authority Agreement

LOCKHEED MARTIN CORPORATION, Denver, Colorado
Prototype Payload Development
- Firm-Fixed-Price Other Transaction Authority Agreement

BOEING COMPANY, El Segundo, California
Prototype Payload Development
- Firm-Fixed-Price Other Transaction Authority Agreement

L3HARRIS, Camden, New Jersey
Space Hub End Cryptographic Unit
- Cost-Plus-Incentive-Fee

SCHEDULE:

Two prototype payloads will be available for launch in FY24.

DIGITAL ENGINEERING

MID-TIER OF ACQUISITION (MTA)

RSLP

ROCKET SYSTEMS LAUNCH PROGRAM (RSLP)

FY22 BUDGET: $48.2 MILLION

The Rocket Systems Launch Program (RSLP) fosters new small launch vehicles, allowing competition among a diverse pool of large and small businesses with a mixture of mature and emerging launch providers to meet Space Force and Department of Defense mission needs.

RSLP seeks to capitalize on the dynamic launch market by employing a flexible acquisition approach, showcasing industry's innovation while providing affordable and reliable launch solutions through tailorable mission assurance.

RSLP also maintains excess ballistic missile motors by safely storing, testing, and analyzing the motors as they age, ensuring flightworthiness for refurbished motors and disposing of unusable motors.

SMALL LAUNCH PROVIDERS

RSLP conducted three additional successful launches in FY21, including a Space Vector sounding rocket from the Mid-Atlantic Regional Spaceport (MARS) on March 3, 2021, and a Northrop Grumman Minotaur I from MARS on June 15, 2021. The Space Systems Command Launch Enterprise executed a launch with Rocket Lab from Mahia, New Zealand, on July 28, 2021.

RSLP cultivates small launch innovation by partnering with new providers to achieve mission success. Launch services are active with Aevum for RavnX and VOX Space for LauncherOne. RSLP has access to ten other providers that are on RSLP contracts.

RSLP demonstrated tactically responsive launch with a successful Northrop Grumman Pegasus launch on June 13, 2021, within a 21-day call-up window.

CONTRACTING:

RSLP has multiple contracts for suborbital and orbital launch services, with 12 launch service providers available: ABL, Aevum, Astra, Firefly Black, Northrop Grumman, Relativity, Rocket Lab USA, Space Vector, SpaceX, United Launch Alliance, VOX Space, and X-BOW.

SCHEDULE:

RSLP awarded two suborbital launch service task orders in 1QFY21 and 3QFY21 and intends to make two RSLP and two Tactically Responsive launch awards in FY22. Additionally, RSLP awarded an Other Transaction Authority agreement rideshare service to Relativity in 2QFY21 via the Defense Innovation Unit, targeting a mid-2023 launch opportunity from Relativity's new launch pad under development at Vandenberg Space Force Base. RSLP has five projected launches in FY22.

SPACE C2

SPACE COMMAND AND CONTROL (C2)

FY22 BUDGET: $154.5 MILLION

SCHEDULE:

In 2022, the program plans to fully decommission the current Joint Space Operations Center (JSpOC) Mission System (JMS) with the Warp Core data-as-a-service capability and to deliver SDA applications to enable the decommissioning of the Space Defense Operations Center (SPADOC) hardware and software.

To address the rapidly expanding threats to the space enterprise, the Space Command and Control (C2) system will provide a collaborative environment to enhance and modernize Space Domain Awareness (SDA) and Battle Management C2 (BMC2) capabilities; create decision-relevant views of the space environment; rapidly detect, track, and characterize objects of interest; identify/exploit traditional and non-traditional sources; perform space threat analysis; and enable efficient distribution of data.

The program's acquisition approach involves an innovative agile DevSecOps effort linking users with developers to deliver improved and prioritized capabilities for operators on a recurring basis in a secure, flexible, and interoperable fashion. Employing an agile-based Rapid Delivery Framework with a 90-day Program Increment construct fosters a collaborative and integrated environment for the community to effectively plan and deliver C2 capabilities. The system will provide a common infrastructure and standards for rapid prototyping of dynamic SDA and BMC2 applications for end-to-end "sensor-to-shooter" execution for U.S. Space Command and other Combatant Commands.

WSF-M

WEATHER SYSTEM FOLLOW-ON-MICROWAVE (WSF-M)

FY22 BUDGET: $61.5 MILLION

ORIGINAL UNIT COST:
$511.2 MILLION

CURRENT UNIT COST:
$511.2 MILLION

The Weather System Follow-on-Microwave (WSF-M) will satisfy three Joint Requirements Oversight Council (JROC)–validated space based environmental monitoring capability gaps: ocean surface vector winds, tropical cyclone intensity, and energetic charged particles in Low Earth Orbit. WSF-M will replace and improve upon some of the capabilities provided by the decaying Defense Meteorological Satellite Program constellation.

WSF-M's microwave sensor will provide weather monitoring capabilities used to forecast hurricanes and typhoons, in addition to measuring ice thickness, snow depth, and soil moisture. Additionally, WSF-M's energetic charged particle sensor will aid in the attribution of naturally induced satellite anomalies.

The WSF-M objective system contract was awarded to Ball Aerospace in November 2017. WSF-M is in post Milestone B production, with the first satellite available for launch by 1QFY24.

BASING/DEPLOYMENT STRATEGY:

WSF-M will be operated from the Naval Research Laboratory's Blossom Point Tracking Facility.

CONTRACTING:

BALL AEROSPACE, Boulder, Colorado
- Firm-Fixed-Price, Performance-based

SPEC

SPACE ENTERPRISE CONSORTIUM (SPEC)

CONTRACTING:

- Through FY21, the original SpEC Other Transaction Authority agreement awarded 81 prototype projects, valued at over $1 billion.
- In January 2021, the Space and Missile Systems Center (now Space Systems Command) awarded a new SpEC Other Transaction Authority agreement to a competitively-sourced follow-on consortium manager, National Security Technology Accelerator (NSTXL), Los Angeles, California.
- The new SpEC Other Transaction Authority agreement is a 10-year agreement with a $12 billion ceiling.
- As of the end of FY21, SpEC has 626 consortium members, with 463 being non-traditional defense vendors, which include small businesses, non-profits, and academia.

The Space Enterprise Consortium (SpEC) was created in 2017 to bridge the gap between military buyers and non-traditional defense vendors through Other Transaction Authority agreements. The SpEC Other Transaction Authority reduces barriers to entry for non-traditional defense vendors, promoting rapid technology and capability insertions for space acquisitions.

Recent SpEC Other Transaction Authority prototype project awards include the Mission Data Processing (MDP) Application Provider for the Future Operationally Resilient Ground Evolution (FORGE) program. This prototyping effort is part of the Next Generation Overhead Persistent Infrared program and will provide a modular approach to developing mission applications capable of meeting tomorrow's missile warning threats. Upcoming SpEC Other Transaction Authority prototype project awards include the Deep Space Advanced Radar Capability (DARC). DARC is a developmental ground-based Space Domain Awareness radar system to detect, track, and maintain custody of deep space objects in partnership with allies. DARC will rely on the SpEC to prototype its first radar site. Both MDP and DARC are Middle Tier of Acquisition efforts representing examples of how SpEC is accelerating the space acquisition timeline.

WGS

WIDEBAND GLOBAL SATELLITE COMMUNICATIONS (WGS)

FY22 BUDGET: $0 MILLION

ORIGINAL UNIT COST:
$622 MILLION

CURRENT UNIT COST:
$622 MILLION

The Wideband Global Satellite Communications (WGS) is the DoD's primary wideband system, significantly increasing the DoD's high-capacity communications by augmenting the previous Defense Satellite Communications System and the Global Broadcast Service. WGS delivers worldwide, high-capacity military satellite communication offering warfighters a significant increase in capacity, connectivity, and interoperability. WGS provides service in both the X and Ka-band frequency spectrums, including a new two-way Ka-band service supporting weather, Air Tasking Order, aerial intelligence, surveillance, and reconnaissance (AISR) imagery/video, missile defense, search and rescue, and disaster relief to the U.S. and key allies.

WGS has ten operational satellites. An eleventh satellite is under development and will provide twice the capacity of WGS-10. The Space Systems Command (previously Space and Missile Systems Center) awarded the contract for production of WGS-11 on February 10, 2020. WGS-11 completed a Preliminary Design Review on July 1, 2020.

The WGS system is cooperatively enhanced with international partnerships who provide funding in exchange for access to a portion of the WGS constellation. Australia, Canada, Denmark, Luxembourg, the Netherlands, New Zealand, Norway, and the Czech Republic use WGS. Belgium and the United Kingdom will join with WGS-11.

BASING STRATEGY/OVERSEAS LOCATIONS:

The Space Force's 4th Space Operations Squadron operates WGS satellites from Schriever Space Force Base, Colorado and Vandenberg Air Force Base, California. The U.S. Army operates the WGS communications payloads at five Wideband Satellite Communications Operations Centers: Fort Detrick and Fort Meade, Maryland; Wahiawa, Hawaii; Landstuhl, Germany; and Okinawa, Japan.

CONTRACTING:

BOEING COMPANY,
El Segundo, California

Engineering and Manufacturing Development, Production and Deployment

WGS-1 to WGS-3
- Firm-Fixed-Price

WGS-4 to WGS-6
- Firm-Price-Incentive-Firm

Block II Follow-On (WGS-7 through WGS-11)
- Firm-Fixed-Price

10 of 11 satellites are operational and the eleventh satellite is projected to be ready for launch in 2024.

SCHEDULE:

WGS-11 will complete a Critical Design Review in 1QFY22 and is planned to launch in 4QFY24.

EPS-R

ENHANCED POLAR SYSTEMS-RECAPITALIZATION (EPS-R)

FY22 BUDGET: $127.9 MILLION

ORIGINAL UNIT COST:
$783 MILLION

CURRENT UNIT COST:
$718.3 MILLION

Enhanced Polar System Recapitalization (EPS-R) recapitalizes the EPS space and ground segments to prevent a critical protected communications gap in the North Polar Region until next generation systems come online in the 2030s.

Two EPS payloads developed by Northrop Grumman Aerospace Systems will be hosted on spacecraft procured by Norway under a partnership called the Arctic Satellite Broadband Mission. A Memorandum of Agreement (MOA) between the U.S. Department of Defense and the Norwegian Ministry of Defense was signed in May 2019. The first EPS-R payload integration and the system confidence test, two important milestones towards launch, completed on September 30, 2021.

CONTRACTING:

NORTHROP GRUMMAN AEROSPACE SYSTEMS, Redondo Beach, California
Payload Development and Production
- Cost-Plus-Incentive-Fee

NORTHROP GRUMMAN MISSION SYSTEMS, Baltimore, Maryland
Ground Control and Planning Segment Development
- Cost-Plus-Incentive-Fee

SCHEDULE:

Both spacecraft will be placed into orbit by a single SpaceX launch vehicle in mid-2023.

BASING/DEPLOYMENT STRATEGY:

The ground segment consists of the Control and Planning Segment at Schriever Space Force Base, Colorado and the Gateway at Clear Space Force Station, Alaska.

GBOSS

GROUND BASED OPTICAL SENSOR SYSTEM (GBOSS)

FY22 BUDGET: $42 MILLION

The Ground-Based Optical Sensor System (GBOSS) program is an upgrade to the Ground-based Electro-Optical Deep Space Surveillance (GEODSS) system that enables GEODSS to monitor small, closely-spaced, and advanced threats in low, mid, high, and geostationary orbits. The upgraded system will discover currently undetectable space threats, reduce an adversary's tactical surprise, and deliver the data required to support accurate, timely, actionable Space Domain Awareness (SDA).

GBOSS will enhance GEODSS's sensitivity and search rate, and fields new multi-spectral advanced technology sensors supporting extended operations, high-fidelity characterization, enhanced indications and warnings, and attribution. GBOSS has successfully completed advanced design and development efforts, testing, environmental assessments, algorithm support, and modeling and simulation.

CONTRACTING:

L3HARRIS, Melbourne, Florida

Technology Maturation and Risk Reduction

- Cost-Plus-Incentive-Fee within the Maintenance of Space Situational Awareness Integrated Capabilities (MOSSAIC) contract

Engineering and Manufacturing Development

- Cost-Plus-Incentive-Fee within the MOSSAIC contract

BASING STRATEGY/OVERSEAS LOCATIONS:

Current sites are Maui, Hawaii; Diego Garcia Air Base, Diego Garcia, and White Sands Missile Range, New Mexico.

SCHEDULE:

GBOSS is planned to complete a Critical Design Review in December 2021. The program will continue the software development needed to implement the enhanced image processing algorithms and to support the upgraded cameras, and begin upgrades to the White Sands Missile Range and Maui sites to support GBOSS effort.

GLOSSARY:

ACQUISITION CATEGORY (ACAT):
Categories established to facilitate decentralized decision making and execution, as well as compliance with statutorily imposed requirements. The categories determine the level of review, decision authority, and applicable procedures.

AUTOMATED INFORMATION SYSTEM (AIS):
A combination of computer hardware and computer software, data, and/or telecommunications that collects, processes, stores, transmits, and displays information.

AVERAGE PROCUREMENT UNIT COST (APUC):
APUC is calculated by dividing total procurement cost by the number of articles to be procured. Total procurement cost includes flyaway cost (recurring and nonrecurring costs associated with production of the item, like hardware, software, systems engineering, engineering changes and warranties), plus the costs of procuring technical data, training, support equipment, and initial spares.

COMMERCIAL OFF-THE-SHELF (COTS):
A commercial item sold in substantial quantities in the commercial marketplace and offered to the government under a contract or subcontract at any tier, without modification, in the same form in which it was sold in the marketplace.

ENGINEERING & MANUFACTURING DEVELOPMENT (EMD):
The purpose of the EMD phase is to develop, build, and test a product to verify all requirements have been met and to support production and deployment decisions.

FUTURE YEARS DEFENSE PROGRAM (FYDP):
A DoD database and internal accounting system that summarizes forces and resources associated with programs approved by the Secretary of Defense. Its three parts are the organizations affected, appropriations accounts (e.g., research,development,test and evaluation; operation and maintenance), and the 11 major force programs (e.g., strategic forces, mobility forces, research and development).

INITIAL OPERATIONAL CAPABILITY (IOC):
In general, attained when some units and/or organizations in the force structure scheduled to receive a system have received it and have the ability to employ and maintain it. The specifics for any particular system IOC are defined in that system's capability development document and capability production document.

MAJOR DEFENSE ACQUISITION PROGRAM (MDAP):
An acquisition program that is designated by the Under Secretary of Defense for Acquisition and Sustainment or estimated to expend a total of more than $365 million in RDT&E or more than $2.19 billion in procurement (in FY00 constant dollars).

MIDDLE TIER OF ACQUISITION (MTA):
Acquisition Pathway used to rapidly develop fieldable prototypes within an acquisition program to demonstrate new capabilities and/or rapidly field production quantities of systems with proven technologies that require minimal development.

MILESTONE (MS):
The point at which a recommendation is made and approval sought regarding starting or continuing an acquisition program (i.e., proceeding to the next phase).

PROGRAM EXECUTIVE OFFICER (PEO):
A military or civilian official who has responsibility for directing several major defense acquisition programs and for assigned major system and non-major system acquisition programs. A PEO normally reports to and receives guidance and direction from the DoD component acquisition executive.

REQUEST FOR PROPOSAL (RFP):
A solicitation used in negotiated acquisitions to communicate government requirements to prospective contractors and to solicit proposals.

SYSTEM PROGRAM OFFICE (SPO):
The office of the program manager and the single point of contact with industry, government agencies, and other activities participating in the system acquisition process.

TECHNOLOGY MATURATION & RISK REDUCTION (TMRR):
The purposes of the Technology Maturation & Risk Reduction Phase are to reduce technology risk, engineering integration and life cycle cost risk, and to determine the appropriate set of technologies to be integrated into a full system. The TMRR phase conducts competitive prototyping of system elements, refines requirements, and develops the functional and allocated baselines of the end-item system configuration.

UNIT COSTS:
Unit costs listed in this report are Program Acquisition Unit Costs in FY21 dollars, computed by dividing the Program Acquisition Cost by the Program Acquisition Quantity.

CONTRACTING DEFINITIONS:

COST-PLUS-AWARD-FEE (CPAF)
A cost-reimbursement contract is suitable for level-of-effort contracts where mission feasibility is established, but measurement of achievement must be by subjective evaluation rather than objective measurement. A CPAF contract provides for a fee consisting of both a base amount, which may be zero, fixed at inception of the contract, and an award amount, based upon a judgmental evaluation by the government, sufficient to provide motivation for excellence in contract performance. A CPAF contract may not be used to avoid establishing a cost-plus-fixed-fee contract when the criteria for CPFF contracts apply, or developing objective targets so a cost-plus-incentive-fee contract can be used.

COST-PLUS-FIXED-FEE
A cost-reimbursement-type contract that provides for the payment of a fixed-fee to the contractor. The fixed fee, once negotiated, does not vary with actual cost, but may be adjusted as a result of any subsequent changes in the scope of work or services to be performed under the contract.

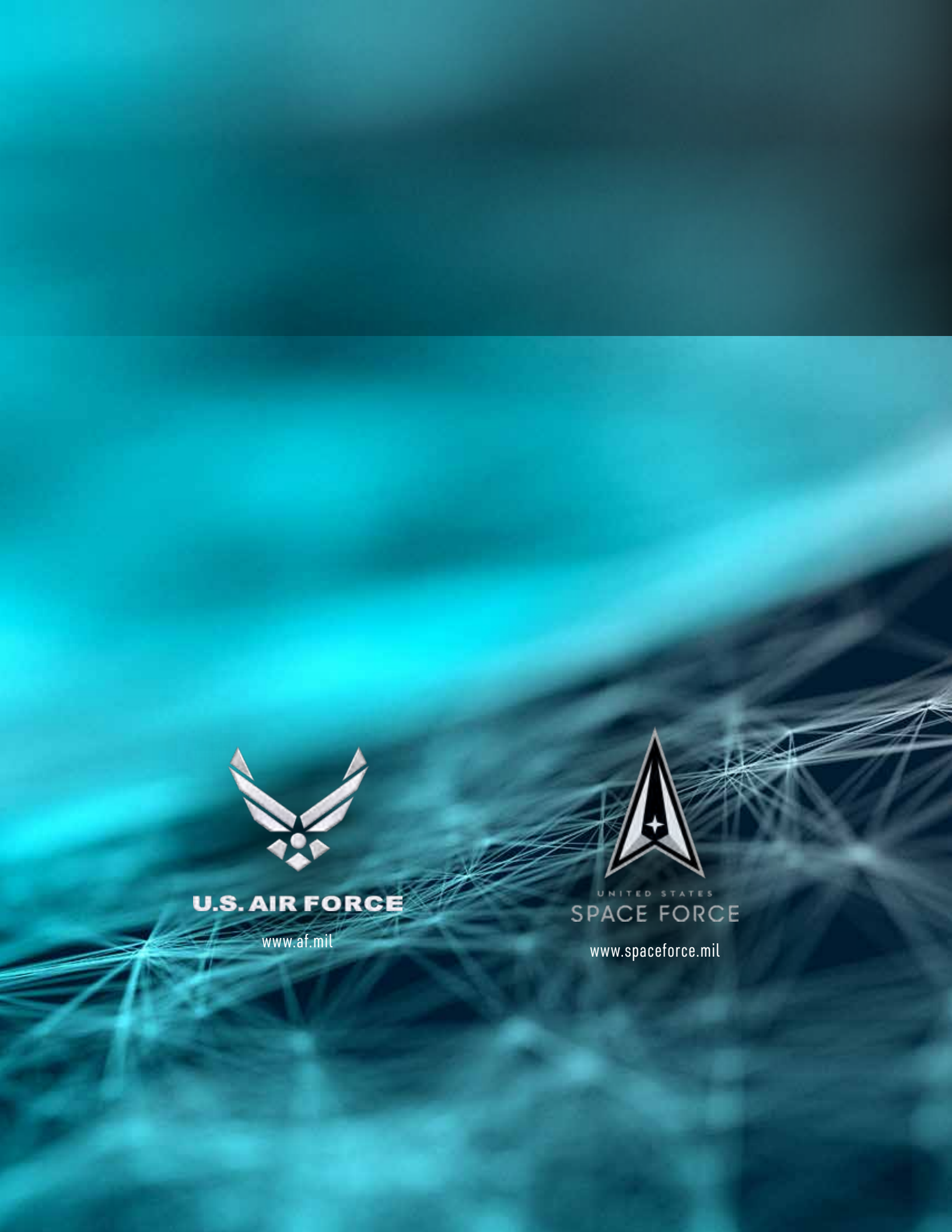
COST-PLUS-INCENTIVE-FEE
A cost-reimbursement-type contract with provision for a fee, which is adjusted by formula in accordance with the relationship that the total allowable costs bear to target costs. The provision for increase or decrease in the fee, depending upon allowable costs of contract performance, is designed as an incentive to the contractor to increase the efficiency of performance.

FIXED-PRICE-INCENTIVE-FIRM
A fixed-price contract that provides for adjusting profit and establishing the final contract price by application of a formula based on the relationship of total final negotiated cost to total target cost. The final price is subject to a price ceiling, negotiated at the outset.

FIRM-FIXED-PRICE
A firm-fixed-price contract provides for a price that is not subject to any adjustment on the basis of the contractor's cost experience in performing the contract.

INDEFINITE-DELIVERY CONTRACT
There are three types of indefinite-delivery contracts: 1) definite-quantity contracts, 2) requirements contracts, and 3) indefinite-quantity contracts. The appropriate type of indefinite-delivery contract may be used to acquire supplies and/or services when the exact times and/or exact quantities of future deliveries are not known at the time of contract award.

TIME-AND-MATERIALS (T&M)
A contract that provides for acquiring supplies or services on the basis of 1) direct labor hours at specified fixed hourly rates that include wages, overhead, general and administrative expenses, and profit; and 2) actual cost for materials. A T&M contract may be used only when it is not possible at the time of placing the contract to estimate accurately the extent or duration of the work or to anticipate costs with any reasonable degree of confidence.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