Headquarters U.S. Air Force

AF UAS Flight Plan 2009-2047

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AF UAS Task Force
Assumptions

- Manned and unmanned systems must be integrated to increase capability across the full range of military operations for the Joint Force.
- UAS compelling where the human is a limitation to mission success.
- Automation is key to increasing effects, while potentially reducing cost, forward footprint and risk.
- The desired effect is a product of the “integrated system” (payload, network, and PED); and less the particular platform (truck).
- Modular systems with standardized interfaces enhance adaptability, sustainability and reduce cost.
- Robust, agile, redundant C2 enables supervisory control (“man on the loop”).
- DOTMLPF-P solutions are linked and must be synchronized.
Conventional Harbor

- 4 operators per crane
- Manpower-centric system
  - Legacy system
  - Manpower dependant
  - Manual Operation

“Multi-Crane Control”

- 1 operator per 6 cranes
- 24x increase in efficiency
- Tech-centric system
  - Multi-crane Control
  - Automation (cranes and AGV)
    - DGPS
    - Algorithms
Autonomy – Multi-Aircraft Control
Potential Manpower Savings

2011 (Current system)

- 50 CAPs
  - 50 MQ-9 CAPs
  - + 7 a/c in constant transit
- 10 pilots per CAP
  - 500 pilots required
  - + 70 pilots to transit a/c
  - 570 Total Pilots

2012 (MAC)

- 50 CAPs
  - 50 MQ-9 CAPs
  - 2 CAPs per MAC GCS
  - 1 transit per MAC GCS
- 5 pilots per CAP
  - 250 Pilots required
  - + 0 to transit aircraft
  - 250 Total Pilots

TBD (MAC + 50% auto)

- 50 CAPs
  - 50 MQ-9 CAPs on orbit
- 25 CAPs automated
- 25 CAPs in MAC (5 pilots/CAP)
  - 125 pilots required
  - + 25 auto-msn monitor pilots
  - + 0 to transit aircraft
- 150 Total Pilots

56% Manpower Savings

MAC = 1 pilot can fly up to 4 a/c

64% Manpower Savings
Modularity

Effective

- Standard Interfaces
- Variable / Tailorable armament set
- JFC Mission Flexibility
  - Conventional/nuclear
  - Stand-off strike, CAS

Affordable

- Standard interface/bus
- Swappable components
- Promotes vendor competition
- Drives down price, improves quality, allows for tailorability
- $399 PCs are reality

Flexible

- One platform/truck
- Supports multiple missions
- Swappable modules

Integrity - Service - Excellence
Enabling the “Global” in “Global Vigilance, Reach and Power!”

Notional Examples

- Mobility
- Long Range Strike
- Air Refueler

Common components, similar shape, and same production line
How do we get there?

- Methodology
  - Identified where we are today
  - Examined future scenarios and desired capabilities
  - From that future perspective identified actions to get there from today
  - Matched compelling requirements to UAS capabilities aligned with AF Core Functions
  - Identified and sequenced actions addressing not only materiel solutions, but also the doctrine, organization, training, facilities and policy
AF UAS Flight Plan: Mission sets for UAS

Today

**NANO/MICRO**
- WASP III

**Small**
- Raven
- Scan Eagle

**Medium “fighter size”**
- MQ-1B
- MQ-9

**Large “tanker size”**
- EO/IR/SAR
- RQ-4 Blk 10/20
- RQ-4 Blk 30
- +ASIP

**Special UAS**
- MP-RTIP
- RQ-4 Blk 40

**Current Capability Shortfalls**
- RQ-4 Blk 30
- RQ-4 Blk 40
- +ASIP

**EA GAP**
- Nano
- Family of Transformers
- NextGen – Multi-Mission
- Tier II STUAS
- Air-Launched SUAS

**Indoor recon, indoor lethal/non-lethal, indoor comm, cyber attack, Swarming**
- Personal ISR, Lethal, SIGINT, Cyber/EW, Counter UAS, Auto-sentry
- ISR, Comm Relay, Lethal/Non-lethal, Cyber/EW, SEAD, SIGINT, Low Altitude Pseudo-Sats
- Close-in ISR, Lethal, SIGINT/DF
- Fighter Recap

**EO/IR/SAR**
- MQ-La
- MQ-Lb
- MQ-Lc

**Interoperable UAS C2**
- High Altitude Long Endurance
- **ISR/EIS** Low Observable
- **Hypersonic**

**AF UAS Flight Plan: Mission sets for UAS**

Integrity - Service - Excellence
Medium “System”

Now

Future

MQ-1
- Collection – SIGINT/FMV
- CAS

MQ-9
- Collection – SIGINT/FMV
- CAS

MQ-Xa

MQ-9
- Collection
- SIGINT/FMV
- Wide Area Airborne ISR
- SAR/GMTI
- CAS

Modular Payloads

EW
ISR
CAS
Comm Relay
Collection
Dissemination
Specialized ISR
AAR-R

MQ-Xb

Modular Payloads

EW
ISR
CAS
Comm Relay
Collection
Dissemination
Specialized ISR
AAR-R&T
SEAD
Air Interdiction
CSAR
Missile Defense
Strategic Attack

MQ-Xc

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Now

Future

Integrity - Service - Excellence
Connectivity and Teaming

Future

MQ-LE Collection/Info Ops Connectivity

MQ-Ls EW/Collection/Info Ops CAS/Air Interdiction/Airlift

MQ-L – JSF/MQ-X Aerial Refueling/Connectivity

F-22/MQ-X Teaming Counterair/Missile Defense Kinetic & Non-kinetic Wpns

JSF/Multi Msn MQ-X Teaming Air Interdiction, CAS -- Kinetic & Non-kinetic Wpns

B-2/MQ-L Teaming Strategic Attack/CAS/Air Interdiction Kinetic & Non-kinetic Wpns

MQ-Hyper Sonic Strategic Attack/Prompt Global Strike

Multi Msn MQ-L/X, SUAS - FOS Teaming ISR/EW/SEAD – Kinetic & Non-kinetic Wpns

Network

I n t e g r i t y  -  S e r v i c e  -  E x c e l l e n c e
Action Synchronization

Near-term FY09-10
Mid-term FY10-15
Long-term FY15-25
Long-term FY25-47

Doctrine
CCDR allocation
J2/J3
SUAS Sqdn
MAC Ops
MAC Logistics
RSO Basing
Auto Tgt Engage
Autonomous Fight

Organization
SUAS Sqdn
UAS Beta Test
MAC Sqdn
UAS AFSC
Auto Ops Sqdn
Auto Flight

Training
100% Common
GCS
Assured Comm
Auto TPD
Auto Flight

Materiel
MAC Sim
STD
Auto Hi-Fi T/O
ECSS
Auto Hi-Fi Sim
Auto T/O

Leadership
CC’s
SAF/PA Outreach
PME
Career Pyramids
Command of Autonomy
Bldg the “New” AF Leader

Personnel
Rated?
SUAS Operator
UAS LNOs
Recruiting Focus
Teaming w/Schools
Force Structure Reform

Facilities
C2 Facility
CFACC Facility
Auto MX Facilities

Policy
NAS
ILAs
Acq Excellence
MAC-in-NAS
Treaties
Autonomy
Auto Tgt Engage

Integrity - Service - Excellence
AF UAS Flight Plan Vision

- An Air Force where unmanned aircraft systems are considered as viable alternatives to traditionally manned platforms.

- An Air Force that harnesses increasingly automated, modular and sustainable systems resulting in a leaner, more adaptable, tailorable, and efficient force that maximizes combat capabilities to the Joint Force.

- An Air Force that teams with the other Services, our allies, academia and industry to capitalize on the unique unmanned aircraft attributes of persistence, connectivity, flexibility, autonomy, and efficiency.