NDIA's 31st Annual Air Armament Symposium

Tomorrow's Warfighting Solutions Begin Today

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Program Executive Officer
Strike Weapons and Unmanned Aviation
4-5 October 2005
JSOW-C
Increased Quantity & Improved Capability Through Cost Reduction

Block II
- FY06 cost reduction >$90K per unit
- Savings bought 358 additional weapons across FYDP
  - Development 05, 06
  - IOC FY07

Block III
- FY07 cost reduction >$38M across FYDP
- Savings funded WDL integration
  - Development in 07, 08
  - IOC FY10

Manufacturing & Supplier Modifications (Phase 1)
- Outsource Opportunities
- Assembly Locations Changes
- Contractual Changes
- Supplier Investments
- Spec Flowdown changes
- Testing/Inspection Changes
- Alternate Materials
- Engineering Support

Sub Assembly VE Modifications (Phase 2)
- Battery
- Battery Harness Adapter
- WDD
- Antenna
- CAS
- Wings
- Power Converter

GEU & Airframe Modifications (Phase 3)
- Segment 1
  - Airframe
  - Mid-Alt Harness
- Segment 2
  - BLU-111
  - GEU/SAASM
  - Seeker

Outboard Sensor
MIDS
WDL
Dynamic Re-planning
(JMPS in the cockpit)

**Airborne Replanning**

**Mission Data**
- Aircraft Sensors
- Execution/Debrief

**Updated Mission Plans**
- Aircraft route
- Weapon routes/employment

**Ground-Based Replanning**

**Situational Awareness**
- Pre-determined data push
  - Periodic (COP, OOB, BFT)
  - Asynchronous/Rule-Based
- Ad-Hoc Query

**Updated Mission Plans**
- Aircraft routes
- Weapon routes/targets/employment

- Airborne IP Network
- Wireless brick/LINK-16

**Systems**
- JMPS Server
- JMPS Client
- Web Services
- Meta-Data Broker
- Oper. Data Store
- (MB) GCCS-M
- (ODS) C2PC
- DCGS
**AARGM**

**Key Capabilities**
- **Counter Shutdown**
  - Active Millimeter Wave (MMW) guidance
- **Expanded Threat Coverage**
  - Enhanced Anti-Radiation Homing (ARH) receiver
- **Netted Targeting**
  - Real-time Intel feed via Integrated Broadcast Service Receiver (IBS-R)
  - Weapon Impact Assessment (WIA) transmitted prior to detonation
- **Geospecificity**
  - GPS/Point-to-Point Weapon
  - Impact Avoidance Zones (IAZ)/Missile Impact Zones (MIZ)
- **Multi-Spectral Guidance to Kill**
  - ARH, MMW, GPS

**Acquisition Objectives**
- Quantity: 1750
- IOC: FY09
- Target Price (Unit FY03): $475K
- Next Milestone (FEB 06): CDR

**Operational Modes**

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<th>Mode</th>
<th>HARM</th>
<th>AARGM</th>
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<tr>
<td>Emitter Engagement</td>
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<td>Exclusion Zones</td>
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<td>Moving Non-Emitters</td>
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<td>BDA Support</td>
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**Guidance Section**
- ARH Seeker
- MMW Seeker
- Joint Service Interoperability

**Control Section**
- Guidance Navigation & Control
- WIA Transmitter
- Interface Compatibility
  - HARM Weight/CG
  - AS-5186 Compliant Aircraft
AMRAAM: Demonstrating Tomorrow’s Capabilities...Today

Phase 4
AMRAAM
With

• Software/Hardware Improvements
• GPS/IMU
• Enhanced Data Link

Fighters

• Improved High Off-Boresight
• Two-Way Data Link

Cruise Missiles

• Improved Range and Targeting Accuracy

AIM-9X Coming Attractions

• Lock-on-After-Launch
• Data Link
• Advanced Tracker

Cruise Missiles

Block II AIM-9X: Possibilities

Data Link
Advanced AOTD
New Processor
Software Enhancements

AIM-9X Air-to-Ground

SL-AMRAAM

AIM-9X Sea Serpent

JHMCS

AIM-9X Air-to-Ground

Air-to-Air: Providing Tomorrow’s Warfighting Solutions
...Beginning Today
Navy Target Program
Training the Fleet Against Tomorrow's Threats

**BQM-74F**

- Subsonic Sea-Skimmer used to represent anti-ship cruise missile
- Completing development in FY06
- Currently in flight test
- 1st operations anticipated in late FY07 or early FY08
- Mach 0.92
- Altitude 7 ft.
- 6 to 8g Maneuvers

**GQM-163A**

- Supersonic Sea-Skimmer used to represent anti-ship cruise missiles
- Completed development in FY05 and currently in production
- 1st op in support of AEGIS TEMP801 (DDG-97) – 1st week of OCT
- 2nd op in support of USS Reagan Stream Raid – 2 salvos
- Mach 2.8+
  (Demonstrated)
- Altitude 15 ft.
  (Demonstrated)
- Combined 11g+ Maneuvers
  (Demonstrated)
Hunter Standoff Killer Team ACTD Sample Employment Concept

**Legend**
- Link 16
- TCDL
- IDM

**Diagram Description**
- Strike A/C downloads target coordinates and releases a weapon.
- ISR MTI feed cues search by UAV-helo team.
- UH-60 with A2C2X.
- TF Commander tasks Strike A/C to attack target.
- AH-64 detects, tracks & locates target with UAV.
- AH-64D.
- Near Real-Time BDA from UAV.
- Target dies.

**Text**
- ACTD enables direct feedback between operational units and technology developers as “good ideas” get put to the warfighter test!
Global Strike Weapon (High Speed Weapon)

**Potential missions/targets:**
- TCS, Relocatable Targets, Fixed Targets, Counter-WMD, GWOT, HDBT, SUW, ...

**What it is:**
A Weapon SYSTEM NOT just a speed/propulsion...

**Potential missions/targets:**
- TCS, Relocatable Targets, Fixed Targets, Counter-WMD, GWOT, HDBT, SUW, ...

**Potential launch platforms:**
- TacAir, Surface Ships, Submarines, Bombers, ...

**What it is:**
- A Weapon SYSTEM NOT just a speed/propulsion...

**Milestone B**
- JCIDS
- AoA
- JOINNTNESS/Funding

**Notional Schedule**
- JCIDS
- AoA
- Studies
- RFP
- SourceSel
- MS B
- IOC?
- FY 05 06 07 08 09 13 14

**It all depends on... the CAPABILITIES Required**
### J-UCAS Demonstration Program:

#### Mission & Requirements

**Overview**
- DARPA-led joint Capability Demonstration and Assessment
- Transitioning to AF and Navy Joint Program Office 1 Nov 05
- Provides toolkit for assessment of operational flexibility, feasibility, and military utility in FY07-12 timeframe.
- Air vehicle contractors address joint mission spectrum
- Program balanced between Service desires and technology opportunities

**Boeing X-45**
- LO and Mission demonstrators
- Design heritage - SEAD & Strike Missions

**Northrop Grumman X-47**
- CV Capable and Mission demonstrators
- Design heritage - Armed ISR and carrier operations

**Common Systems and Technologies**
- **Common Operating System (COS)** – provides mission functionality for J-UCAS operations on both platforms.
- Common ESM subsystem for multi-vehicle targeting

#### Program Status

- **Program on track and schedule**
  - J-UCAS Program realigned due to budget cuts

- **Transition from DARPA to AF/ Navy Joint Program Office**

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### Table: COS Surrogates

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<th>FY06</th>
<th>FY07</th>
<th>FY08</th>
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<td><strong>Build 1 Mission Demo</strong></td>
<td><strong>Build 2 Mission Demo</strong></td>
<td><strong>JEFX</strong></td>
<td><strong>Multi-ship ESM</strong></td>
<td><strong>JEFX</strong></td>
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<td><strong>Targeting</strong></td>
<td><strong>Network Mgt</strong></td>
<td><strong>Attack Mgt</strong></td>
<td><strong>AT3</strong></td>
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<td><strong>Imaging</strong></td>
<td><strong>Network Mgt</strong></td>
<td><strong>ESM</strong></td>
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<td><strong>Other</strong></td>
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<td><strong>COS Surrogates</strong></td>
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<td><strong>Manned Surrogate</strong></td>
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### Diagram:

- Application Services Demo
- Build 1 Mission Demo
- Build 2 Mission Demo
- JEFX
- Multi-ship ESM
- JEFX
- Weapon Mgt
- Targeting
- Network Mgt
- Attack Mgt
- AT3
- Imaging
- Network Mgt
- ESM
- JEFX
- X-45C FF
- X-47B FF
- Land Deployment
- Contingency Mgt
- Multi-Ship
- Sea Based CV
- Air Refueling

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