



# Army Unmanned Aerial Vehicle Systems



"UAVS-Protecting the Point"

NDIA Symposium  
3 Oct 02

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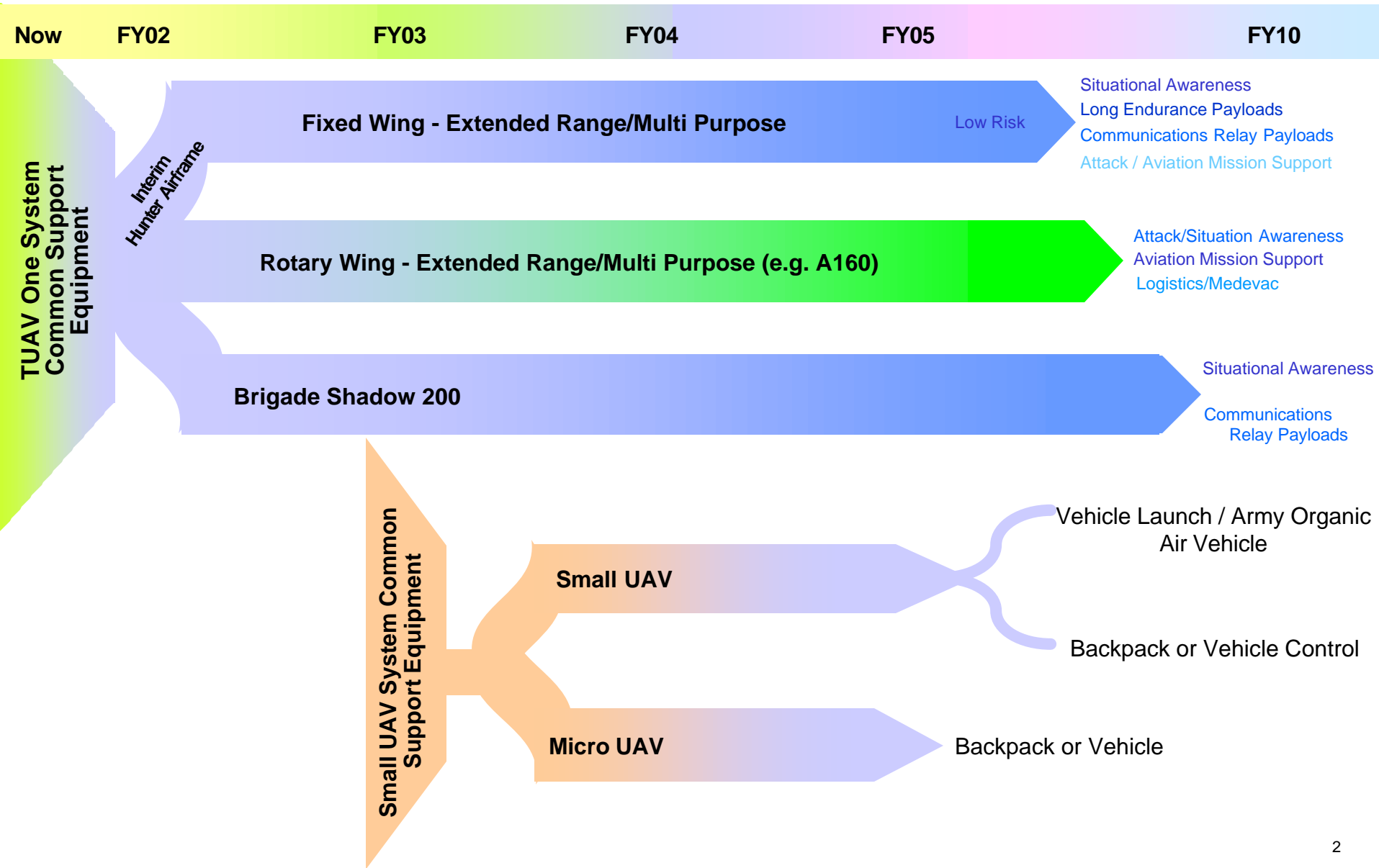




# An Army UAV Path



“UAVS-Protecting the Point”



# One Army UAV System Approach

The system is much more than an airframe

Ground Data Terminal



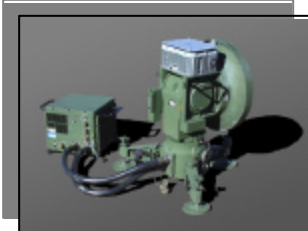
Launcher



Air Vehicles



TALS



Payloads



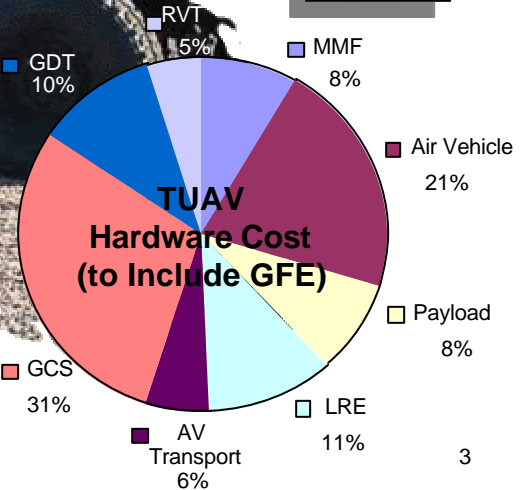
Portable Ground Control Station & Data Terminal



Personnel



Contact Teams



# Shadow 200 UAV

**Mission: Army tactical level reconnaissance, surveillance, target acquisition, and battle damage assessment**



## Characteristics/Description:

Wing Span	13 feet
Weight	350 lbs
Range	125 km (200 km obj)
Airspeed	(70 kt loiter, 105 kt dash)
Altitude	14,000 Ft
Endurance	4 Hours @ 50 km
Primary Payload (s)	EO/IR (up to 60 lb)
Launch/Recovery	100m x 50m Area

## Capabilities :

- Automatic Landing and Takeoff
- System and Maintenance Section transportable on 3 C-130s
- Early entry capability with 1 C-130
- Compatible with ABCS
- EO/IR Sensor

## Contractors:

- AAI Corporation (Prime)

## **Shadow 200**

Flights	1070
Hours	1888.3

- FY02 Fieldings: Training Base, Ft. Hood, Ft. Lewis (SBCT-1)
- IOTE completed May FY02
- 13 LRIP Systems on contract
  - AAO 83 Systems
  - AAO 41 Systems



# Shadow 200 System



“UAVS-Protecting the Point”



Ground Data Terminal x 2

Ground Control Stations x 2



Remote Video Terminal & Antenna x 4



Portable Ground Control Station & Data Terminal

## Maintenance Section



Air Vehicle



Personnel/ Equipment Transport



Equipment Trailer



Maintenance Section Multifunctional



**Personnel**  
4 x 33W (EW System Repairer)  
3 x 52D (Engine Mechanic)

## System

Air Vehicles with Payloads x 3



TALS

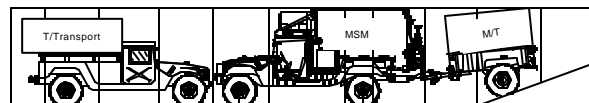
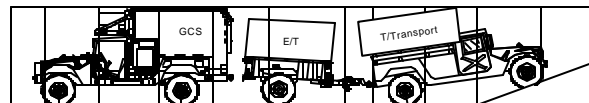
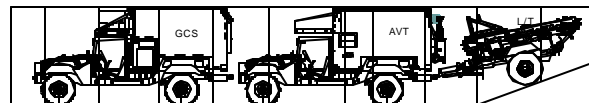


Arresting Net



Air Vehicle Transport & Launcher Trailer

## Deployability / Transportability C130 Transportable



Equipment Trailer



Personnel/ Equipment Transport



**Personnel**  
1 x 35D (Platoon Leader)  
1 x 350U (UAV Warrant Officer)  
1 x 96U (Platoon Sergeant)  
12 x 96 U (Air Vehicle Operators)



# Shadow 200 System Update



“UAVS-Protecting the Point”



- Many minor improvements to airframe and training / procedures since last spring
- Concluded several highly successful OPTEMPO exercises with troops during winter
- Cold weather, C4I, mobility and lift demonstrations / tests successfully accomplished
- LRIP '02 of 5 systems awarded in March
- IOT&E -- 23 April -- 03 May 2002
  - ✓ 53 missions conducted
  - ✓ Average flight duration 4.5 hours
  - ✓ Average daily flight hours 17.5
  - ✓ Exceeded operational tempo
  - ✓ Anticipated positive report
- Milestone III Full Rate Production -- 25 Sep 2001

## Shadow 200

Flights	1070
Hours	1888.3

Prime Contractor: AAI Corporation

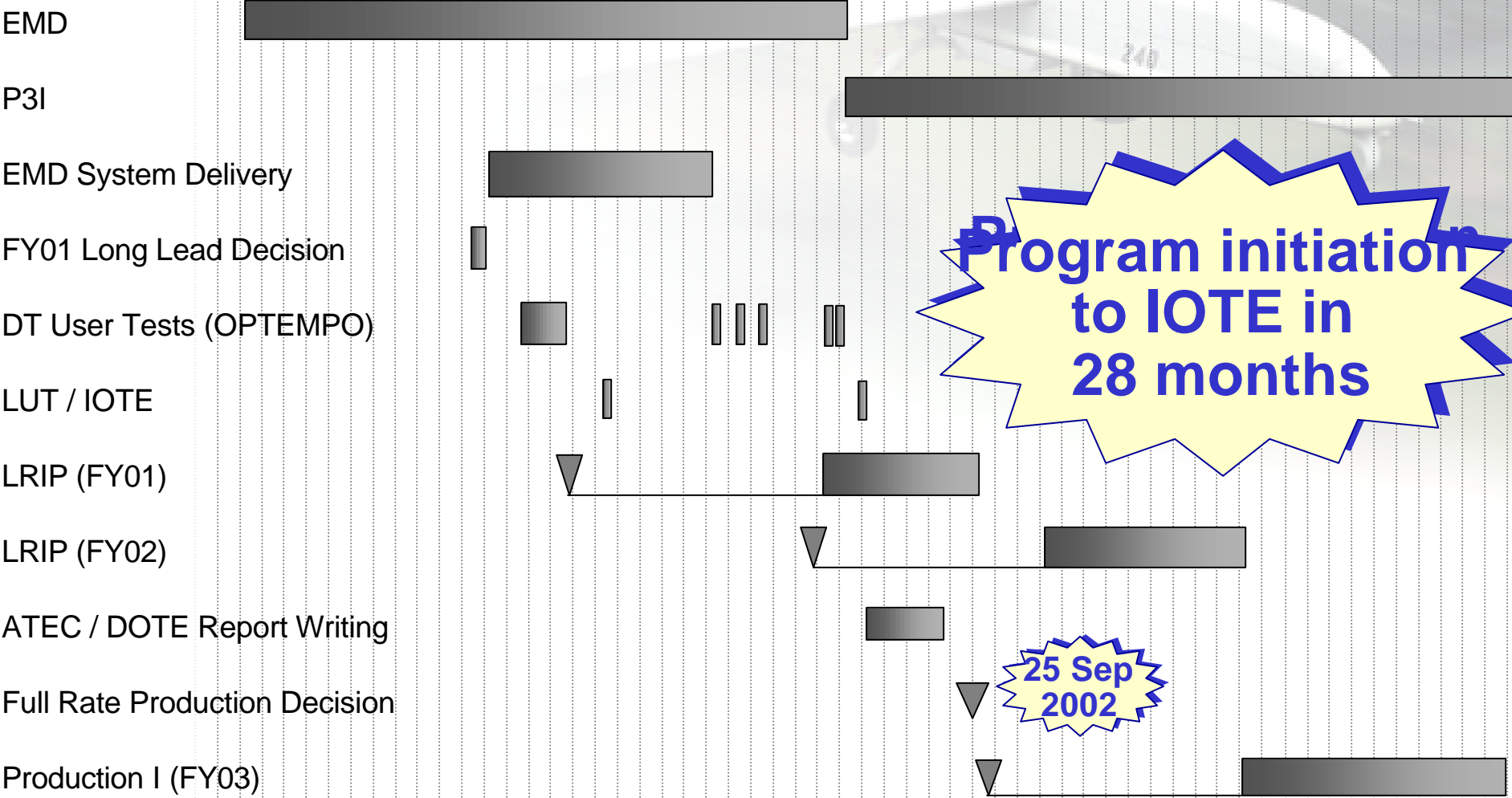


# Shadow 200 Schedule



“UAVS-Protecting the Point”

FY00					FY01					FY02					FY03					FY04																											
O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S



**Program initiation to IOTE in 28 months**

**25 Sep 2002**



# Hunter System Update



“UAVS-Protecting the Point”



- Hunter has supported III Corps since 1996
  - ✓ Operational deployments in support of KFOR in 99, 00, 01, 02
- Warning order in early FY02 to determine feasibility and unit size for additional Corps fieldings
- Emerging Corps structure is platoon (+) / company (-) size unit
- Systems in place at III Corps (Fort Hood), Training Base (Fort Huachuca), XVIII Airborne Corps (Fort Polk), Training Base (Fort Huachuca)
- 21 Payload / Sensor Demonstrations
- Weaponization - BATS Demo FY03
- 22 Training Center Exercises (JRTC & NTC)
- Lowest mishap rate of any U.S. owned UAV

Hunter	
Flights	6501
Hours	23,141

Prime Contractor: TRW





# Future Army UAVs



"UAVS-Pr"

Army has committed to Hunter UAV as the ER / MP Surrogate through '07

## Extended Range/Multi-Purpose

- Hunter Replacement
- ER/MP **Draft** Requirements include:
  - Division/Corps UAV
  - Multiple Payloads
  - 200-300km Range
  - 10-14 hours flight time
  - Heavy Fuel Engine
- Acquisition Strategy:
  - Competition for an ER/MP airframe only
  - Utilize Common Components of Shadow Ground Station and Ground Equipment
- Potential Timelines:
  - FY03-04 – RFP, Downselect to two Airframes, Integrate on Shadow Ground equipment, Fly-off
  - FY04 –05 - Final Integration, System Design, Test, Provision
  - FY06 Initial Fielding

## Small UAV Concept

- SUAV **Draft** Requirements include:
  - BN and Below UAV
  - 0-20km Range
  - 60-90 min flight time
  - Very low cost/easy to operate
- Acquisition Strategy
  - One system concept
  - Ground station capable of control
  - Multiple small UAVs
- Potential Timelines:
  - FY05 transfer of MAV ACTD management to PM UAVS
  - FY05 initial fielding





# Evolving TUAV Capabilities Include ...



“UAVS-Protecting the Point”

## Manned/Unmanned Teaming

### Accomplishments

- The Apache received direct video feed (Level 2 control) from the UAV at all times.
- The AH-64 controlled both the UAV and the payload cameras (Level 4 control) for 76 minutes.

### When in control:

- Apache directed the aircraft flight patterns by waypoint navigation to the target area
- Slewed the camera to identify the targets and send video to ground locations.



**Airborne Manned-Unmanned System Technology (AMUST):**

Demonstrate teamed interoperability of manned and unmanned platforms using AH-64 Apache and RQ-5A Hunter UAV



## UAV Payload Priorities

Brigade	Division/Corps
CRP Light – VHF SINCGARS or EPLRS	CRP Heavy
Synthetic Aperture Radar/Moving Target Indicator	SIGINT
CRP Medium – (Block One with Tactical Internet)	Mine Detection
Illuminator (Point & Shoot)	Chemical/Biological
Laser Range Finder/Designator	Foliage Penetration
Hyperspectral/Ultraspectral Imaging	Electronic Attack

Source: CG TRADOC, 12 Jul 00

## Armed UAV's

### Planned demo mounts Brilliant Anti-tank (BAT) Submunition on Hunter

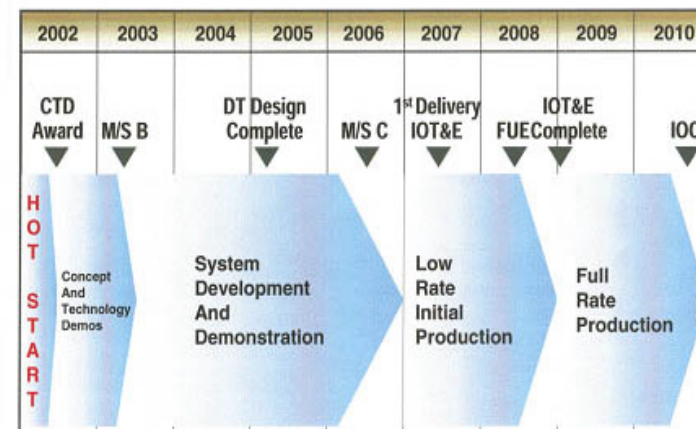
- BAT is routinely dropped from Cessna aircraft similar to Hunter
- BAT deploys from ATACMS at Hunter Operational Altitudes
- BAT operates autonomously once dropped from Hunter, simplifying integration

### Concept

- Mount 2 BAT submunitions, one under each wing
- Demo is in two phases over one year



## Future Combat System Unmanned Air Vehicles





# An Army UAV Path



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