ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

May 2009

BUDGET ACTIVITY	PE NUMBER AND TITLE
7 - Operational system development	**0305204A - Tactical Unmanned Aerial Vehicles**

	COST (In Thousands)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	Cost to Complete	Total Cost
	Total Program Element (PE) Cost	188257	103930	232021	Continuing	Continuing
114	Tactical Unmanned Aerial Vehicle (TUAV) (MIP)	20277	12169	70773	Continuing	Continuing
11A	Advanced Payload Develop & Spt (MIP)	40254	25654	49651	Continuing	Continuing
11B	TSP DEVELOPMENT (MIP)			21647	Continuing	Continuing
123	JOINT TECHNOLOGY CENTER SYSTEM INTEGRATION (MIP)	2230	2351	4411	Continuing	Continuing
D09	EXTENDED RANGE UAV (MIP)	103448	61767	83571	Continuing	Continuing
D10	SUAV (MIP)	22048	1989	1968	Continuing	Continuing

A. Mission Description and Budget Item Justification: Project 114 TUAV Shadow provides the Army Brigade Commander with dedicated Reconnaissance, Surveillance and Target Acquisition (RSTA), Intelligence, Battle Damage Assessment (BDA) and Force Protection. The Shadow provides the Brigade Commander with critical battlefield intelligence and targeting information in the rapid cycle time required for success at the tactical level. The Shadow system air vehicle meets the required range of 50 km and remains on station for up to five hours. The baseline fielded payload is electro-optic infrared (EO/IR). The TUAV Shadow system consists of four air vehicles, (each configured with an EO/IR sensor payload), launcher and ground control and support equipment including: power generation, communications equipment, automated recovery equipment, remote video terminals, vehicle mounted shelters, and High Mobility Multipurpose Wheeled Vehicles with trailer(s). Each system is equipped with one Maintenance Section Multifunctional (MSM) Vehicle and is supported at the division level by a Mobile Maintenance Facility (MMF). The TUAV Shadow has logged over 360,000 flight hours.

Project 11A Advance Payload Development supports the Army's transformation by developing payloads for brigade combat team, division, and corps UASs in accordance with Headquarters Department of the Army and Training and Doctrine Command UAS priorities. The Synthetic Aperture Radar/Ground Moving Target Indicator (SAR/GMTI) payload will provide a wide-area search capability with a built-in imaging mode that provides essential all-weather surveillance and increased situational awareness. The SAR/GMTI payload is a complementary system of the Army's Future Combat System (FCS) Class IV UAV and is a principal payload for the Extended Range Multi-Purpose (ERMP) UAS. The EO/IR w/Laser Designator (LD) is currently in development for the ERMP system and has potential application to other platforms. The EO/IR/LD will provide a day/night capability to collect and display continuous imagery with the ability to designate targets of interest for attack by laser guided precision weapons. Additional initiatives will continue to focus on the transition of technologies directly supporting emerging requirements and the Army's Current and Future Force.

Project 11B Tactical SIGINT Payload (TSP) is an Unmanned Aerial Vehicle (UAV) mounted SIGINT sensor that detects radio frequency (RF) emitters. TSP, a key FCS component, is capable of providing the Brigade Combat Team (BCT) Land Commander with an overwatch and a penetrating SIGINT system capable of detecting, identifying, locating, and providing geolocation information on RF emitters throughout the Area of Operations (AO). The BCT commander will deploy TSP to provide sensor coverage where FCS ground vehicles cannot perform the SIGINT mission due to radio line of sight blockage. TSP is developing sensors for BCT applications to detect low-power radio emitters. The SIGINT payload is scalable and designed to provide maximum flexibility for the BCT mission profile. TSP will provide near real time (NRT) actionable intelligence that can

immediately be used in the commanders decision cycle. The TSP electronic emitter information will be correlated with data from other systems, e.g. Prophet and Aerial Common Sensor (ACS) to provide precise targeting information for immediate engagement. The TSP sensors are critical to providing full coverage Intelligence, Surveillance and Reconnaissance (ISR) information for Future Force capabilities for FCS and contributing to the Joint ISR net.

Project 123 JTC/SIL is a joint facility that develops, integrates and supports the enhancement of its Multiple Unified Simulation Environment (MUSE) capability for Army systems and operational concepts. The JTC/SIL conducts prototype hardware and software development (i.e. TUAV Tactical Unmanned Control System (TUCS), TUAV Institutional Mission Simulation (IMS) Trainer, TUAV C4I module), modeling and simulation support. The MUSE develops real-time, operator in-the-loop simulations that are capable of tactical Hardware-In-the-Loop (HWIL) interoperability for multiple intelligence systems, that may be integrated with larger simulations in support of Service training and exercises. MUSE provides a realistic operational environment, supporting a wide range of C4I applications. This project funds the management of the JTC/SIL and MUSE enhancements.

Project D09 Extended Range Multi-Purpose (ERMP) UAS provides much improved real-time responsive capability to conduct long-dwell, wide area reconnaissance, surveillance, target acquisition, communications relay, and attack missions (4 HELLFIRE). ERMP addresses an ever-increasing demand for greater range, altitude, endurance and payload flexibility and allows for mission change while in flight. ERMP will be fielded as a system to a company level organization with one company being assigned to each of the 10 Army Divisions. This will provide a capability that is responsive to the lowest level of command facilitating dynamic re-tasking. The ERMP system consists of 12 aircraft with Electro-Optical/Infrared, Synthetic Aperture Radar, and communications relay payloads, Ground equipment includes 5 Ground Control Stations, 5 Ground Data Terminals, 2 Portable Ground Control Stations, 2 Portable Ground Data Terminals, and other associated ground support equipment. The acquisition strategy capitalized upon competitive forces, bringing cutting-edge improvements at the best cost and value that support the major thrusts of the DoD UAS Roadmap, and the imperatives of Army modernization and Army Aviation Transformation. The ERMP system includes a heavy fuel engine, endurance of 30 hours, TCDL, network connectivity that reduces information cycle time and enhances overall battlespace awareness through liberal dissemination, teaming with manned platforms, and steps toward integration of UAS into national and international airspace. ERMP has a 3,200 pound gross take off weight (with growth to 3,600 pounds), Fowler flaps which improve take-off and landing performance, Automatic Take-off and Landing (ATLS) and the flexibility to operate with or without SATCOM data links. The ERMP One System Ground Control Station has the ability to operate multiple ERMP aircraft simultaneously and is interoperable with the Shadow UAS.

Project D10 The Small Unmanned Aircraft System (SUAS) program provides the ground maneuver battalions and below with unprecedented situational awareness and enhanced force protection. SUAS is a man portable unmanned aircraft system capable of handling a wide variety of ISR tasks at Battalion and below. The SUAS aircraft has a wingspan of 4.5 feet and weighs 4.2 pounds. It is hand-launched, and provides aerial observation, day or night, at line-of-sight ranges up to 10 kilometers. The aircraft has an endurance rate of 90 minutes and can deliver color or infrared imagery in real time to the ground control and remote viewing stations. SUAS obtained Milestone C approval 6 Oct 05 and successfully completed IOT&E Jun 06. The program obtained Full Rate Production authority 5 Oct 06.

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

May 2009

BUDGET ACTIVITY	PE NUMBER AND TITLE
7 - Operational system development	**0305204A - Tactical Unmanned Aerial Vehicles**

B. Program Change Summary	FY 2008	FY 2009	FY 2010
Previous President's Budget (FY 2009)	100854	50976	35224
Current BES/President's Budget (FY 2010)	188257	103930	232021
Total Adjustments	87403	52954	196797
Congressional Program Reductions		-346	
Congressional Rescissions			
Congressional Increases		53300	29500
Reprogrammings	87403		
SBIR/STTR Transfer			
Adjustments to Budget Years			167297

Change Summary Explanation: Funding - FY 08: Funds reprogrammed to support TUAVS programs. FY 2010: Base funding increase to support Extended Range UAV, Tactical UAV and TSP development. Also anticipated FY 10 Overseas Contingency Operations supplemental request increase.

Schedule Detail (R4a Exhibit)	May 2009
BUDGET ACTIVITY **7 - Operational system development**	PE NUMBER AND TITLE **0305204A - Tactical Unmanned Aerial Vehicles**

Schedule Detail: Not applicable for this item.

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

May 2009

BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT
7 - Operational system development	**0305204A - Tactical Unmanned Aerial Vehicles**	**114**

COST (In Thousands)		FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	Cost to Complete	Total Cost
114	Tactical Unmanned Aerial Vehicle (TUAV) (MIP)	20277	12169	70773	Continuing	Continuing

A. Mission Description and Budget Item Justification: The Tactical Unmanned Aerial Vehicle (TUAV) Shadow 200 provides the Army Brigade Commander with dedicated Reconnaissance, Surveillance and Target Acquisition (RSTA), Intelligence, Battle Damage Assessment (BDA) and Force Protection. The Shadow provides the Brigade Commander with critical battlefield intelligence and targeting information in the rapid cycle time required for success at the tactical level. The TUAV Shadow system air vehicle meets the required operating range of 50 kilometers and remains on station for up to five hours. The baseline fielded payload is electro-optic infrared (EO/IR). Procurement of attrition air vehicles originated in FY 01 and was re-established in FY 06. The TUAV Shadow system consists of four air vehicles, (each configured with an EO/IR sensor payload), launcher and ground control and support equipment including: power generation, communications equipment, automated recovery equipment, one system remote video terminals, vehicle mounted shelters, and High Mobility Multipurpose Wheeled Vehicles with trailer(s). Each system is equipped with one Maintenance Section Multifunctional (MSM) Vehicle and is supported at the division level by a Mobile Maintenance Facility (MMF).

The TUAV has logged over 360,000 flight hours since Jun 01, most of which were flown in support of Operation Iraqi Freedom and Operation Enduring Freedom. Block upgrades are required for continued improvement and interoperability. Common Systems Integration is required to ensure interoperability with other weapon systems, manned and unmanned. Included in this category is Universal Ground Control Station (UGCS), Trainer upgrades and One System Remote Video Transceiver (OSRVT). Small Sense and Avoid System (SSAASy) is required to meet the requirement for a traffic alert and collision avoidance system and to allow for operations in the National Airspace (NAS). Rolling Take Off and Launch and Land Heavier Air Vehicle (LALHAV) is required to improve reliability and provides redundant take off capability for the system. Intelligence, Surveillance, and Reconnaissance Surge funding for development of an extended wing is required for weight growth from Tactical Common Data Link (TCDL) and increased endurance.

FY 2010 Overseas Contingency Operations (OCO) supplemental request will fund the continuing development of the RQ-7 Shadow TUAV.

Accomplishments/Planned Program:	FY 2008	FY 2009	FY 2010
Base: Program Management Support	304	350	234
Base: OIF Improvements	1400	1200	5665
Base: Re-wing (extended wing)	10600		
Base: Launch and Land Heavier Air Vehicle (LALHAV)	2000		
Base: Small Sense and Avoid System (SSAASy)		3908	
CBase: ommunications Relay			
Base: Test Support (TCDL - Tactical Common Data Link)	3043	5782	2021

Inclement WX Capability	1000		
Common System Integration (UGCS, Trainers, OSRVT)	750	231	31524
Base: Rolling Take Off	470		
OBase: ther Government Agencies (OGA)	710	698	1829
FY 10 OCO: Shadow Encryption			29500
Total	20277	12169	70773

B. Other Program Funding Summary	FY 2008	FY 2009	FY 2010	To Compl	Total Cost
TUAV Procurement/ OPA (BA0330)	547668	2		Continuing	Continuing
TUAV Procurement/ APA (A00015)			172545		230644
Initial Spares - TUAV (BS9738)	2980	2618	2752	Continuing	Continuing

Comment:

C. Acquisition Strategy A System Capability Demonstration (SCD) was conducted with four contractors. The results from the SCD in conjunction with proposal evaluations resulted in the competitive down select of a Best Value TUAV system. A successful Milestone II ASARC was conducted 21 Dec 99, and a TUAV LRIP contract was awarded to AAI Corporation 27 Dec 99. In order to accelerate fielding of the TUAV system, a second LRIP for four systems was awarded 30 Mar 01 following a successful OPTEMPO test. In order to maintain accelerated fielding and continue ramp up to full rate production, a third LRIP was awarded in Mar 02. A successful LRIP program led to a MS III decision 25 Sep 02. The full rate production contract was awarded 27 Dec 02. Continued development of the selected TUAV system will be accomplished through a series of modifications and retrofits such as Tactical Common Data Link (TCDL), Communications Relay, Laser Designator, and reliability upgrades.

ARMY RDT&E COST ANALYSIS (R3)

May 2009

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0305204A - Tactical Unmanned Aerial Vehicles

PROJECT
114

I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	FY 2010 Cost	FY 2010 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Base: Target Location Error (TLE) / TCDL/JTRS / Laser Designator	SS/CPFF	AAI Corporation, MD	52200								37369	36593
Base: OIF Improvements (Blue Force Tracker, 1101 Engine Upgrade, System Upgrades/Block Upgrades)	SS/CPFF	AAI Corporation, MD	12518	1400	2Q	1200	2Q	5665	2Q		20783	12449
Base: Re-Wing	SS/CPFF	AAI Corporation, MD / Other Government Agency		10600	4Q						10600	1500
Base: Common System Integration (UCGS, Trainers, OSRVT)	SS/CPFF	AAI Corporation, MD / Other Government Agency	6332	750	2Q	231	2Q	31524	2Q		38837	
Base: LALHAV	SS/CPFF/MIPR	AAI Corporation, MD / Other Government Agency		2000	2-3Q						2000	
Base: Small Sense and Avoid System (SSAASy)	SS/CPFF/MIPR	AAI Corporation, MD/Other Government Agency				3908	2Q				3908	
FY 10 OCO: Shadow Encryption								29500	2-4Q		29500	
Subtotal:			71050	14750		5339		66689			142997	50542

II. Support Costs	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	FY 2010 Cost	FY 2010 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Contractor Engineering Support	C/CPFF	Various Contractors	10711	406	1-2Q	412	1-2Q	1079	1-2Q	Cont.	Cont.	Cont.
Government Engineering Support	MIPR	AMRDEC & IMMC, Redstone Arsenal, AL	7704	304	1-2Q	286	1-2Q	750	1-2Q	Cont.	Cont.	Cont.
Government Engineering Support - Extended Range	MIPR	AMRDEC, Redstone Arsenal, AL	1476		2Q						1476	1476

ARMY RDT&E COST ANALYSIS (R3)

May 2009

BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT
7 - Operational system development	**0305204A - Tactical Unmanned Aerial Vehicles**	**114**

Subtotal:			19891	710		698		1829		Cont.	Cont.	Cont.

III. Test And Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	FY 2010 Cost	FY 2010 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Rolling Take Off	MIPR	Various	16345	1470	2Q					Cont.	Cont.	Cont.
Development Testing/ TCDL - Tactical Common Data Link	MIPR	Various	6928	3043	2Q	5782	2Q	2021	1-2Q		17774	4354
Subtotal:			23273	4513		5782		2021		Cont.	Cont.	Cont.

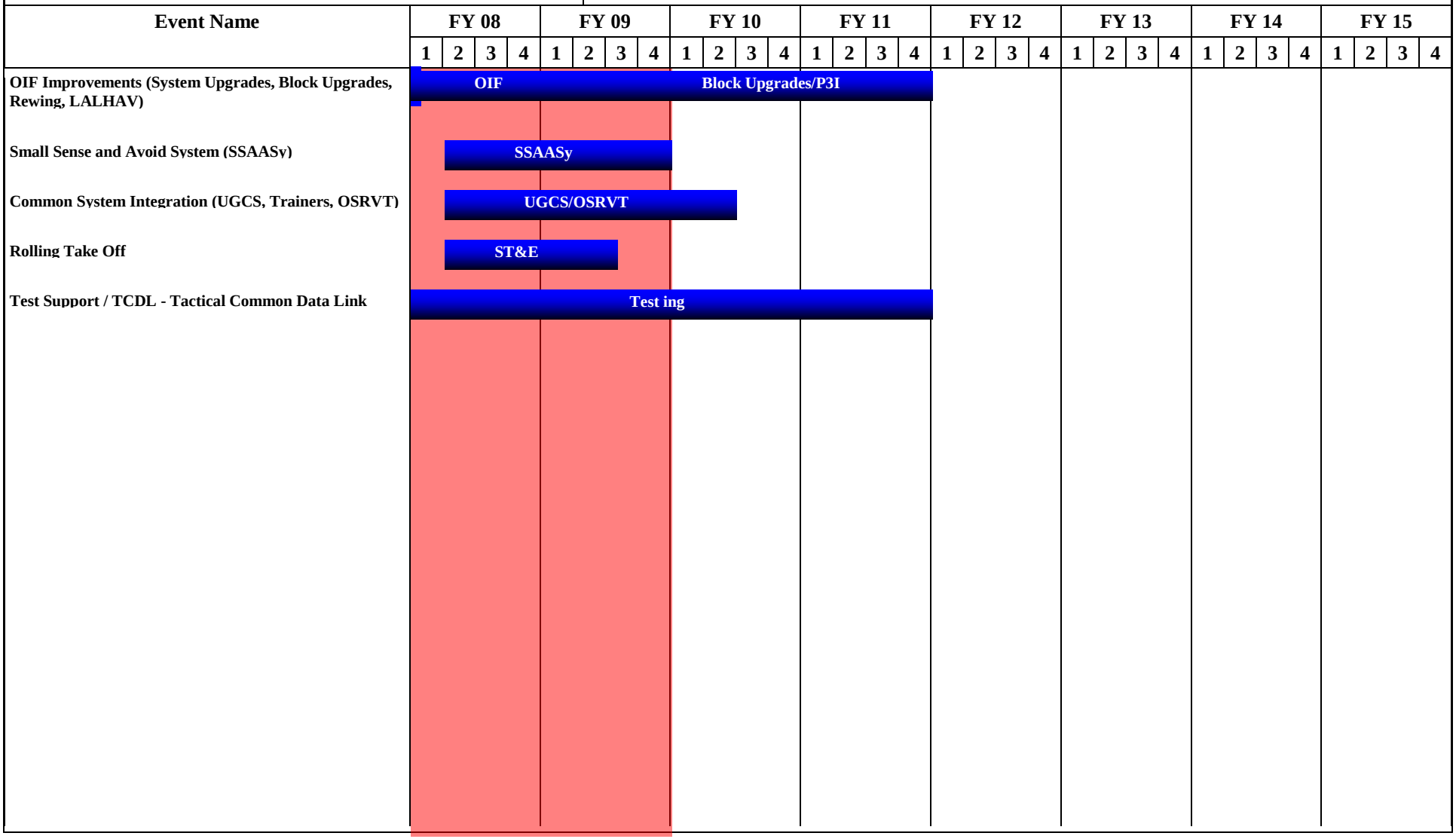
IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	FY 2010 Cost	FY 2010 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Program Management Personnel	MIPR	PM UAS, Redstone, AL	9139	304	1-4Q	350	1-4Q	234	1-4Q	Cont.	Cont.	Cont.
Subtotal:			9139	304		350		234		Cont.	Cont.	Cont.

Project Total Cost:			**123353**	**20277**		**12169**		**70773**		**Cont.**	**Cont.**	**Cont.**

Schedule Profile (R4 Exhibit)

May 2009

BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT
7 - Operational system development	**0305204A - Tactical Unmanned Aerial Vehicles**	**114**



Schedule Detail (R4a Exhibit)

May 2009

BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT
7 - Operational system development	**0305204A - Tactical Unmanned Aerial Vehicles**	**114**

Schedule Detail	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015
OIF Improvements (System Upgrades, Block Upgrades, Rewing, LALHAV)	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q				
Small Sense and Avoid System (SSAASy)	2Q - 4Q	1Q - 4Q						
Common System Integration (UGCS, Trainers, OSRVT)	2Q - 4Q	1Q - 4Q	1Q - 2Q					
Rolling Take Off	2Q - 4Q	1Q - 3Q						
Test Support / TCDL - Tactical Common Data Link	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q				

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

May 2009

BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT
7 - Operational system development	**0305204A - Tactical Unmanned Aerial Vehicles**	**11A**

COST (In Thousands)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	Cost to Complete	Total Cost
11A Advanced Payload Develop & Spt (MIP)	40254	25654	49651	Continuing	Continuing

A. Mission Description and Budget Item Justification: This project supports the Army's transformation by developing payloads for brigade combat team, division, and corps Unmanned Air Vehicles (UAV) and unmanned systems in accordance with Headquarters Department of the Army (HQDA) and Training and Doctrine Command (TRADOC) UAV priorities. The Synthetic Aperture Radar/Ground Moving Target Indicator (SAR/GMTI) payload will provide a wide-area search capability with a built-in imaging mode that provides essential all-weather surveillance and increased situational awareness. The SAR/GMTI payload is a complementary system of the Army's Future Combat System (FCS) Class IV UAV and is a principal payload for the Extended Range/Multi-Purpose (ER/MP) UAV. The Electro Optical Infra Red w/Laser Designator (EO/IR/LD) Common Sensor Payload (CSP) is being developed at the direction of the Vice Chief of Staff of the Army for the ER/MP system and has potential application to other platforms. The EO/IR/LD CSP will provide a day/night capability to collect and display continuous imagery with the ability to designate targets of interest for attack by laser guided precision weapons. Additional initiatives will continue to focus on the transition of technologies directly supporting emerging requirements and the Army's Current and Future Force.

The Enhanced Tactical Signals Intelligence (SIGINT) Payload (ETSP) is the second increment of an Unmanned Aerial System (UAS) mounted SIGINT sensor that detects radio frequency (RF) emitters. ETSP, through handoff from the Combat Aviation Brigade (CAB), is capable of providing the Brigade Combat Team (BCT) Land Commander with an overwatch and penetrating SIGINT system capable of detecting, identifying, locating, and providing geolocation information on RF emitters throughout the Area of Operations (AO). After FY2009, future year funding is carried in PE 0305204A-11B.

Fiscal Year 2010 base funding in the amount of $49.651 million continues the system integration and Increment 1 enhancements of the SAR/GMTI payload, and follow-on testing and HD/TLA upgrades of the EO/IR/LD Common Sensor Payload.

Accomplishments/Planned Program:	FY 2008	FY 2009	FY 2010
Common Sensor Payload (EO/IR/LD) Effort, includes NRE, prototypes, integration and testing efforts.	40055	10554	7100
LYNX II Integration Support	199		
Enhanced Tactical SIGINT NRE		4100	
SAR/GMTI Increment 1 Performance Enhancements and Platform Integration		11000	11855
Common Sensor Payload (EO/IR/LD) HD/TLA Upgrade NRE			30696
Total	40254	25654	49651

B. Other Program Funding Summary	FY 2008	FY 2009	FY 2010	To Compl	Total Cost
Advanced TUAV Payloads (B00302)	42135	141988			184123

Payload UAV (A00020)			167424	609793	777217
Tactical Unmanned Aerial Vehicles (0305204A/11B)			21647		21647

Comment: 1) Funding for the Tactical SIGINT Payload (TSP) Development in prior and future years is carried in the project D11B of this PE.
2) B00302 funding moved to APA line A00020 beginning FY 2010.

C. Acquisition Strategy The System Development and Demonstration (SDD) contract for the SAR/GMTI Payload was competitively awarded 1QFY04 for the design/modification and fabrication of SDD articles. The SAR/GMTI SDD articles will be provided to ER/MP for integration and testing.

The SDD contract for the EO/IR/LD was competitively awarded in 3rd quarter FY05 for 10 test articles. After combined development and operational testing, the SDD articles were provided to the ER/MP program for system integration and test.

An acquisition strategy based on a full and open competition for the Army Common Sensor Payload program was briefed and approved at the Army Systems Acquisition Review Council (ASARC) in Dec 06. A competitive contract was awarded in Nov 07 for the design, build, test and delivery of 27 Common Sensor Payloads.

TSP System Development and Demonstration (SDD) Phase for Future Combat Systems (FCS) requirements was completed in FY08. The SIGINT requirement for FCS was moved to Objective and funding removed in FY08. As such, prototype deliveries for TSP fulfilled an operational requirement with USSOCOM.
TSP for MQ-1C ERMP UAS or Enhanced TSP (ETSP) is the second increment for the TSP program. Due to additional performance requirements, it will be based on a full and open competitive solicitation. Increment II will be focused on starting with a mature TRL 6+ sensor that meets the Increment I requirements. It will be upgraded via Non-Recurring Engineering (NRE) in an EMD phase to meet the full set of threshold SIGINT requirements for the MQ-1C ERMP UAS. Following the EMD phase, a Milestone C decision will be sought to move into full rate production and to meet the fielding timelines of the MQ-1C ERMP UAS platform.

ARMY RDT&E COST ANALYSIS (R3)

May 2009

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0305204A - Tactical Unmanned Aerial Vehicles

PROJECT
11A

I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	FY 2010 Cost	FY 2010 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Common Sensor Payload NRE and Hardware	COMP, FFP/CPFF	Raytheon, McKinney, TX	11000	17536	1-4Q	2484	1-4Q	400	1-4Q	Cont.	Cont.	
SAR/GMTI System Development & Demonstration/Refurbishment and Integration	COMP, CPIF	General Atomics, San Diego, CA	25586	199	1-4Q						25785	26869
Tactical SIGINT Payload NRE	TBD, CPFF	TBD				3300	4Q				3300	4100
SAR/GMTI Increment 1 Enhancement	CPFF	Northrop Grumman, Linthicum, MD				3223	2-4Q	2832	1-4Q	Cont.	Cont.	
Common Sensor Payload (EO/IR/LD) HD/TLA Upgrade NRE	CPFF	Raytheon, McKinney, TX						30696	2-4Q	Cont.	Cont.	
Subtotal:			36586	17735		9007		33928		Cont.	Cont.	30969

II. Support Costs	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	FY 2010 Cost	FY 2010 Award Date	Cost To Complete	Total Cost	Target Value of Contract
ARH Integration Support	MIPR	Various		12593	1-4Q						12593	
ERMP Integration Support	MIPR	Various		4981	1-4Q	11531	1-4Q	9400	1-4Q		25912	
Subtotal:				17574		11531		9400			38505	

III. Test And Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	FY 2010 Cost	FY 2010 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Common Sensor Payload Testing	MIPR	TBD		401	1-4Q	3574	1-4Q	1797	1-4Q	Cont.	Cont.	
SAR/GMTI Increment 1 Verification Testing	MIPR	TBD					1-4Q	3591	1-4Q	Cont.	Cont.	
Subtotal:				401		3574		5388		Cont.	Cont.	

ARMY RDT&E COST ANALYSIS (R3)

May 2009

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0305204A - Tactical Unmanned Aerial Vehicles

PROJECT
11A

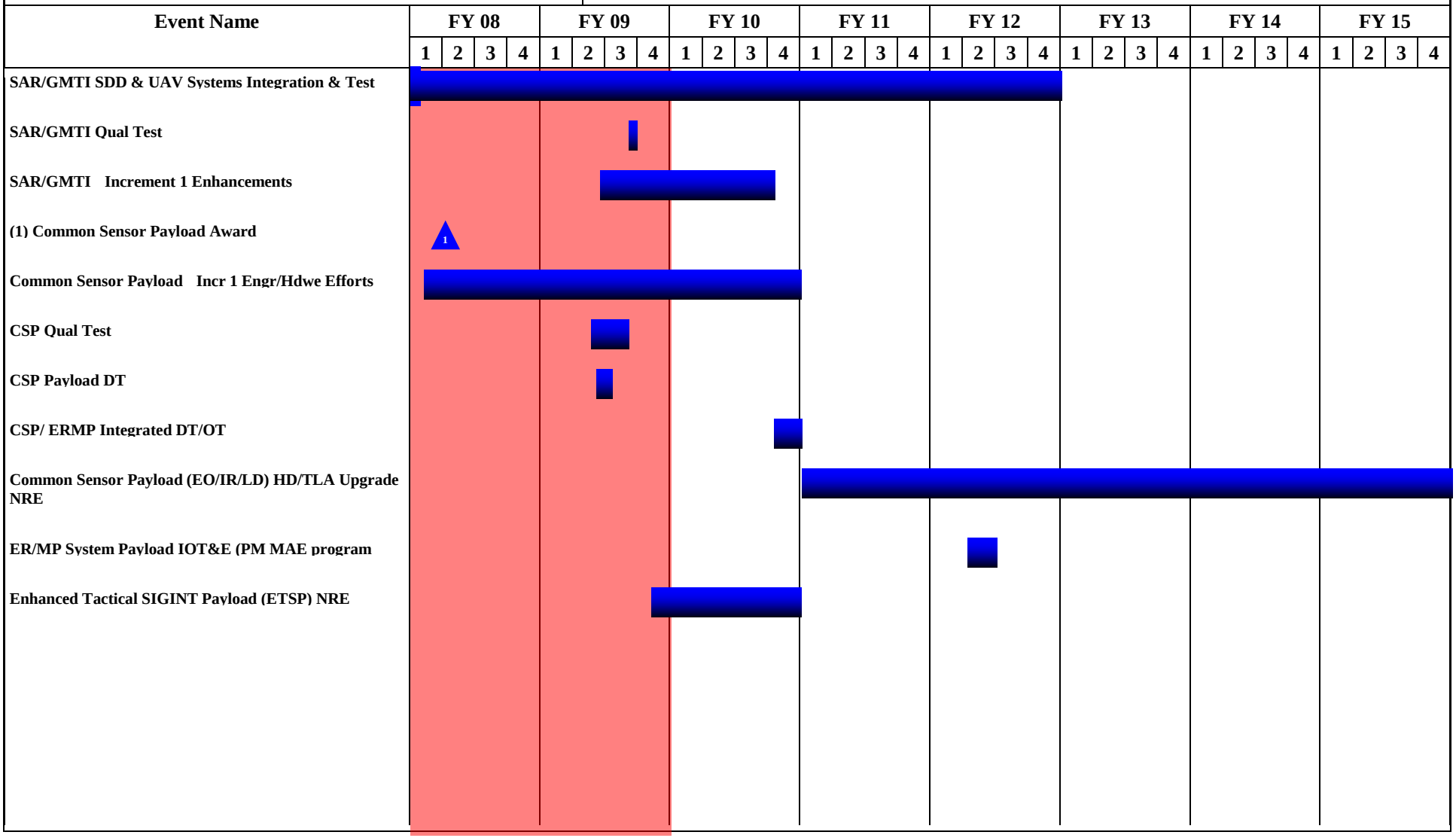
Remarks: Government, contractor, and test support for UAV testing contained in the ER/MP Platform.

IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	FY 2010 Cost	FY 2010 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Program Mgmt Personnel	In House	PM RUS, Ft. Monmouth, NJ	4340	4544	1-4Q	742	1-4Q	935	1-4Q	Cont.	Cont.	
Program Mgmt Personnel	Multiple/ In House	PM ACS, Ft. Monmouth, NJ				800	1-4Q			Cont.	Cont.	
Subtotal:			4340	4544		1542		935		Cont.	Cont.	
Project Total Cost:			**40926**	**40254**		**25654**		**49651**		**Cont.**	**Cont.**	**30969**

Schedule Profile (R4 Exhibit)

May 2009

BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT
7 - Operational system development	**0305204A - Tactical Unmanned Aerial Vehicles**	**11A**



Schedule Detail (R4a Exhibit)

May 2009

BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT
7 - Operational system development	**0305204A - Tactical Unmanned Aerial Vehicles**	**11A**

Schedule Detail	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015
SAR/GMTI SDD & UAV Systems Integration & Test	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q			
SAR/GMTI Qual Test		3Q						
SAR/GMTI Increment 1 Enhancements		2Q - 4Q	1Q - 4Q					
Common Sensor Payload Award	2Q							
Common Sensor Payload Incr 1 Engr/Hdwe Efforts	1Q - 4Q	1Q - 4Q	1Q - 4Q					
CSP Qual Test		2Q - 3Q						
CSP Payload DT		2Q - 3Q						
CSP/ ERMP Integrated DT/OT			4Q	1Q				
Common Sensor Payload (EO/IR/LD) HD/TLA Upgrade NRE				1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q
ER/MP System Payload IOT&E (PM MAE program event)					2Q			
Enhanced Tactical SIGINT Payload (ETSP) NRE		4Q	1Q - 4Q					

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

May 2009

BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT
7 - Operational system development	**0305204A - Tactical Unmanned Aerial Vehicles**	**11B**

COST (In Thousands)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	Cost to Complete	Total Cost
11B TSP DEVELOPMENT (MIP)			21647	Continuing	Continuing

A. Mission Description and Budget Item Justification: Tactical Signals Intelligence (SIGINT) Payload (TSP) is an Unmanned Aerial System (UAS) mounted SIGINT sensor that detects radio frequency (RF) emitters. TSP, through handoff from the Combat Aviation Brigade (CAB), is capable of providing the Brigade Combat Team (BCT) Land Commander with an overwatch and penetrating SIGINT system capable of detecting, identifying, locating, and providing geolocation information on RF emitters throughout the Area of Operations (AO). The BCT commander will deploy TSP to provide sensor coverage where FCS ground vehicles cannot perform the SIGINT mission due to radio line of sight blockage. TSP is developing sensors for BCT applications to detect low-power radio emitters. The SIGINT payload is scalable and designed to provide maximum flexibility for the BCT mission profile. TSP will provide near real time (NRT) actionable intelligence that can immediately be used in the commander's decision cycle. The TSP electronic emitter information will be correlated with data from other systems, e.g. Prophet and Aerial Common Sensor (ACS) to provide precise targeting information for immediate engagement. TSP will also be able to provide Airborne Precision Geolocation (APG) against high value targets. TSP sensors are critical to providing coverage Intelligence, Surveillance, and Reconnaissance (ISR) / Reconnaissance Surveillance, and Target Acquisition (RSTA) information and contributing to the Joint ISR net.
This is not a New Start in 2010. Prior year funding was carried in PE 0305204A-11A.
FY2010 funding supports Non-Recurring Engineering (NRE), Test, and Production Decision Support for Increment II for Enhanced TSP (ETSP).

Accomplishments/Planned Program:	FY 2008	FY 2009	FY 2010
Enhanced TSP (ETSP) for the MQ-1C ERMP UAS			21647
Total			21647

B. Other Program Funding Summary	FY 2008	FY 2009	FY 2010	To Compl	Total Cost
NSA MIP (TSP)	6739	6433	683		13855
Project B00302 Advanced Payload Develop & Spt (MIP)			14832		14832
0305204A 11A Tactical SIGINT Payload		4100			4100

Comment: FY09 ETSP Engineering and Manufacturing Development (EMD)contract was funded in the 0305204A 11A line.

C. Acquisition Strategy TSP System Development and Demonstration (SDD) Phase for Future Combat Systems (FCS) requirements was completed in FY08. The SIGINT requirement for FCS was moved to Objective and funding removed in FY08. As such, prototype deliveries for TSP fulfilled an operational requirement with USSOCOM.

TSP for MQ-1C ERMP UAS or Enhanced TSP (ETSP) is the second increment for the TSP program. Due to additional performance requirements, it will be based on a full and open competitive solicitation. Increment II will be focused on starting with a mature TRL 6+ sensor that meets the Increment I requirements. It will be upgraded via Non-Recurring Engineering (NRE) in an EMD phase to meet the full set of threshold SIGINT requirements for the MQ-1C ERMP UAS. Following the EMD phase, a Milestone C decision will be sought to move into full rate production and to meet the fielding timelines of the MQ-1C ERMP UAS platform.

ARMY RDT&E COST ANALYSIS (R3)

May 2009

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0305204A - Tactical Unmanned Aerial Vehicles

PROJECT
11B

I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	FY 2010 Cost	FY 2010 Award Date	Cost To Complete	Total Cost	Target Value of Contract
ETSP EMD Contract	CPFF	TBD	22657					15497	2Q		38154	
ERMP Integration	TBD	Multi/TBD						3000	2Q		3000	
Subtotal:			22657					18497			41154	

II. Support Costs	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	FY 2010 Cost	FY 2010 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Engineering Support	FFP	MITRE, McLean, VA	1573					450	2Q		2023	
Matrix Support	MIPR	CERDEC, Fort Monmouth NJ	2125					800	2Q		2925	
Engineering Support	FFP	CACI, Eatontown, NJ	3142								3142	
Engineering Support	FFP	Various	440								440	
EMD Engineering Support	MIPR	Various, Ft Monmouth, NJ	3092								3092	
Subtotal:			10372					1250			11622	

III. Test And Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	FY 2010 Cost	FY 2010 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Test Support	MIPR	TBD	4139					1400	2Q		5539	
Continuous Evaluation	MIPR	ATEC, Ft Belvoir, VA	500					500	2-3Q		1000	
Test Platform for DT/OT	CPAF	TBD	4733								4733	
Subtotal:			9372					1900			11272	

ARMY RDT&E COST ANALYSIS (R3)

May 2009

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0305204A - Tactical Unmanned Aerial Vehicles

PROJECT
11B

IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	FY 2010 Cost	FY 2010 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Program Management	In House support	PM, Aerial Common Sensors, Fort Monmouth, NJ	2092								2092	
Subtotal:			2092								2092	
Project Total Cost:			**44493**					**21647**			**66140**	

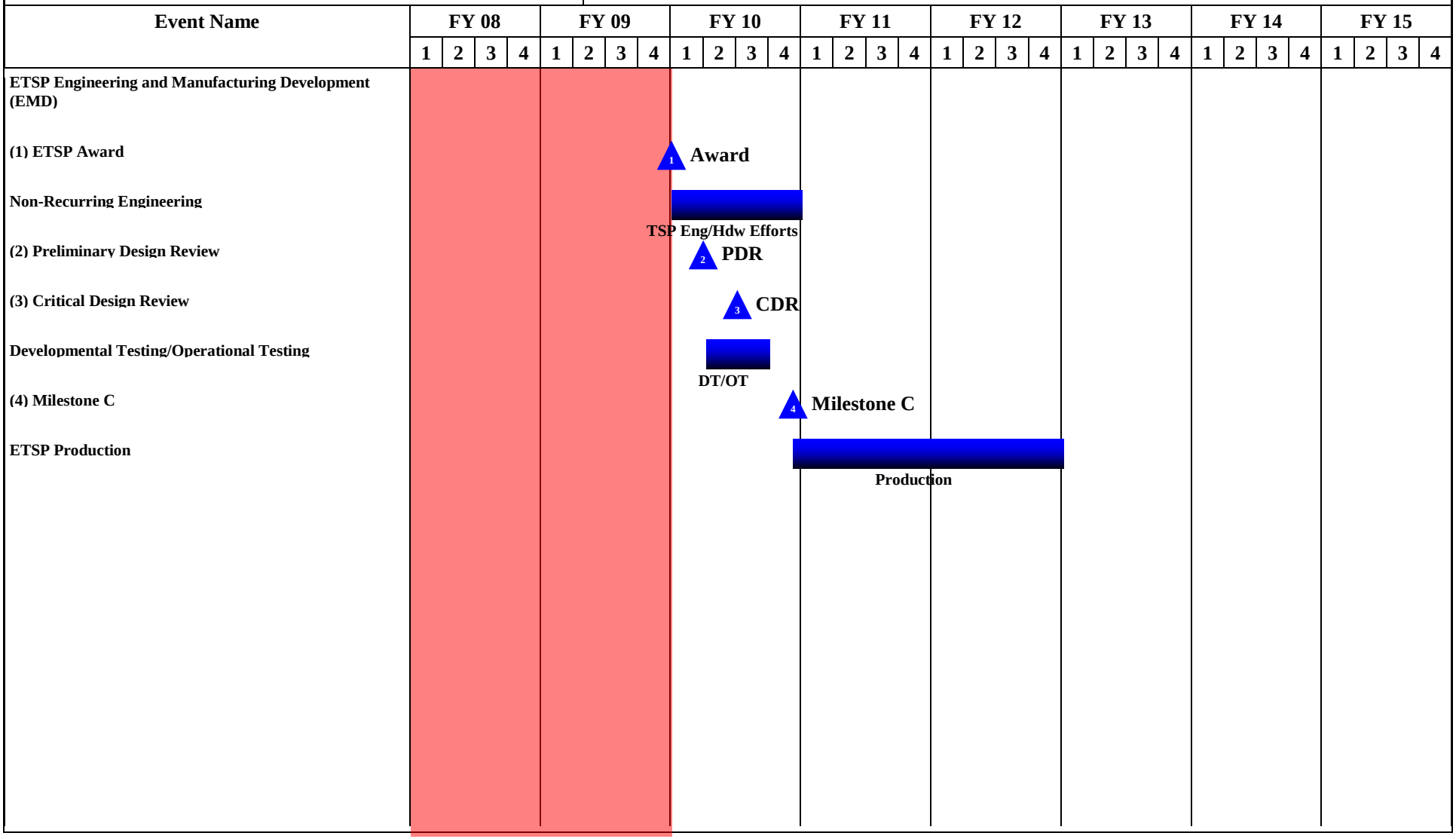
Schedule Profile (R4 Exhibit)

May 2009

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0305204A - Tactical Unmanned Aerial Vehicles

PROJECT
11B



Schedule Detail (R4a Exhibit)

May 2009

BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT
7 - Operational system development	**0305204A - Tactical Unmanned Aerial Vehicles**	**11B**

Schedule Detail	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015
ETSP Engineering and Manufacturing Development (EMD)		2Q						
ETSP Award		4Q						
Non-Recurring Engineering		4Q	1Q - 4Q					
Preliminary Design Review			1Q					
Critical Design Review			2Q					
Developmental Testing/Operational Testing			2Q - 3Q					
Milestone C			4Q					
ETSP Production			4Q	1Q - 4Q	1Q - 4Q			

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

May 2009

BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT
7 - Operational system development	**0305204A - Tactical Unmanned Aerial Vehicles**	**123**

COST (In Thousands)		FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	Cost to Complete	Total Cost
123	JOINT TECHNOLOGY CENTER SYSTEM INTEGRATION (MIP)	2230	2351	4411	Continuing	Continuing

A. Mission Description and Budget Item Justification: The Joint Technology Center/System Integration Laboratory (JTC/SIL) is a joint facility that develops, integrates and supports the enhancement of its Multiple Unified Simulation Environment (MUSE) capability for Army systems and operational concepts. The JTC/SIL conducts prototype hardware and software development, the UAS Institutional Mission Simulator (IMS) trainer for the Shadow, Hunter, and ERMP programs, and modeling and simulation support. The MUSE is a real-time, operator in-the-loop simulation that may be integrated with larger simulations in support of Army and Joint training and exercises. The MUSE is also employed as a Mission Rehearsal Tool for ongoing combat operations. This project funds the management of the JTC/SIL and MUSE enhancements.

This system supports the Legacy to Objective transition path of the Transformation Campaign Plan (TCP).

Accomplishments/Planned Program:	FY 2008	FY 2009	FY 2010
Product Development	1836	1959	1886
Support cost in support of OSD Joint Interoperability Requirements			2000
Management Services	394	392	525
Total	2230	2351	4411

B. Other Program Funding Summary	FY 2008	FY 2009	FY 2010	To Compl	Total Cost
PE 0305204N Navy	1700	1700	1700	Continuing	Continuing
PE 0305205F Air Force	2000	2000	2000	Continuing	Continuing

Comment: Comment: The JTC/SIL and the MUSE receive funding from the Air Force and Navy through their POM processes. This effort is a continuing effort in support of Service UAS programs.

C. Acquisition Strategy Continued MUSE development will be accomplished through a combination of Government in-house functional directorate support using a variety of existing contract vehicles.

ARMY RDT&E COST ANALYSIS (R3)

May 2009

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0305204A - Tactical Unmanned Aerial Vehicles

PROJECT
123

I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	FY 2010 Cost	FY 2010 Award Date	Cost To Complete	Total Cost	Target Value of Contract
MUSE Development	SS/CPFF/FFP	AMC/AMCOM/AMRDEC/SED/Redstone Arsenal, AL	11422	1836		1959	1Q	1886			17103	143
Subtotal:			11422	1836		1959		1886			17103	143

II. Support Costs	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	FY 2010 Cost	FY 2010 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Interoperability Support	SS/CPFF/FFP	AMC/RDECOM/AMRDEC, Redstone Arsenal, AL						2000	1Q		4000	75
Subtotal:								2000			4000	75

III. Test And Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	FY 2010 Cost	FY 2010 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Subtotal:												

IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	FY 2010 Cost	FY 2010 Award Date	Cost To Complete	Total Cost	Target Value of Contract
JTC/SIL Management Personnel	In House	JTC/SIL/Redstone Arsenal, AL	2132	394	1-4Q	392	1-4Q	525	1-4Q		3968	1806
Subtotal:			2132	394		392		525			3968	1806

ARMY RDT&E COST ANALYSIS (R3)

May 2009

BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT
7 - Operational system development	**0305204A - Tactical Unmanned Aerial Vehicles**	**123**

Project Total Cost:	**13554**	**2230**		**2351**		**4411**			**25071**	**2024**

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

May 2009

BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT
7 - Operational system development	**0305204A - Tactical Unmanned Aerial Vehicles**	**D09**

COST (In Thousands)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	Cost to Complete	Total Cost
D09 EXTENDED RANGE UAV (MIP)	103448	61767	83571	Continuing	Continuing

A. Mission Description and Budget Item Justification: The Extended Range Multi-Purpose (ERMP) Unmanned Aircraft System (UAS) provides a much improved real-time responsive capability to conduct long-dwell, wide area reconnaissance, surveillance, target acquisition, communications relay, and attack missions (4 HELLFIRE). ERMP addresses an ever-increasing demand for greater range, altitude, endurance and payload flexibility and allows for mission change while in flight. ERMP will be fielded as a system to a company level organization with one company being assigned to each of the 10 Army Divisions providing a capability that is responsive to the lowest level of command facilitating dynamic re-tasking. The ERMP system consists of 12 aircraft with Electro-Optical/Infrared, Synthetic Aperture Radar, and communications relay payloads, Ground equipment includes 5 Ground Control Stations, 5 Ground Data Terminals, 2 Portable Ground Control Stations, 2 Portable Ground Data Terminals, and other associated ground support equipment. The acquisition strategy capitalized upon competitive forces, bringing cutting-edge improvements at the best cost and value that support the major thrusts of the DoD UAS Roadmap, and the imperatives of Army modernization and Army Aviation Transformation. The ERMP system includes a heavy fuel engine, endurance of 30 mission hours, Tactical Common Data Link (TCDL) technology, network connectivity that reduces information cycle time and enhances overall battlespace awareness through liberal dissemination, teaming with manned platforms, and steps toward integration of UAS into national and international airspace. ERMP has a 3,200 pound gross take off weight (with growth to 3,600 pounds), Fowler flaps which improve take-off and landing performance, Automatic Take-off and Landing (ATLS) and the flexibility to operate with or without Satellite Communication (SATCOM) data links. The ERMP One System Ground Control Station has the ability to operate multiple ERMP aircraft simultaneously and is interoperable with the Shadow UAS.

RDT&E funds continue to resource the System Development and Demonstration (SDD) phase for ERMP, as well as continuing improvements after SDD. Engineering developmental tests and prototype production and integration frame the major FY 10 activities. These activities prepare the system and lower risk for the Limited User Test, the Logistics Demonstration event and the Operational Temp (OPTEMPO) and Initial Operational Test & Evaluation (IOT&E) events. Testing of prototype articles includes components of Electronic Environmental Effects (E3), environmental, and Nuclear, Biological, Chemical (NBC) as well as software certification, many of which run concurrently to conserve schedule.

Accomplishments/Planned Program:	FY 2008	FY 2009	FY 2010
ER/MP System Development and Demonstration (SDD) System including Electro-Optical / Infrared, Synthetic Aperture Radar, and communications Relay Payloads	92673	46711	40180
Government Test Support including Limited User Test (LUT), Logistics Demonstration Operational Temp (OPTEMO)	3925	8706	12780
Initial Operational Test and Evaluation (IOT&E) Events			22897
Program Management	6850	6350	7714
Total	103448	61767	83571

B. Other Program Funding Summary	FY 2008	FY 2009	FY 2010	To Compl	Total Cost
TUAV - Extended Range / Multi-Purpose - OPA (B00305) / A00005	158635	89044			247679
TUAV - Extended Range / Multi-Purpose - APA (A00005)			651364	Continuing	Continuing
Extended Range / Multi-Purpose - Weapons Capability Modifications - OPA (B10307)	15104	15079			30183
Extended Range / Multi-Purpose - Weapons Capability Modifications - APA (A00025)			14832		14832
Extended Range / Multi-Purpose - Weaponization - RDTE (D20)	3766				3766

Comment:

C. Acquisition Strategy The ERMP Operational Requirement Document (ORD) was approved by the Joint Requirement Oversight Council (JROC) 6 Apr 05, Milestone B occurred 20 Apr 05, and the System Development and Demonstration contract was awarded 8 Aug 05 as a result of a competitive solicitation which included a vendor system capabilities demonstration. To meet the required capability, evolutionary acquisition has been employed to implement the incremental approach outlined in the ORD. The ERMP UAS is being matured during the System Development and Demonstration (SDD) phase, which includes the development and integration of key components such as the Tactical Common Data Link (TCDL), Link-16, and integration of Government Furnished Equipment, payloads, appropriate Common Aviation Ground Support Equipment and the One System GCS. PM JAMS is developing the P+ model of the HELLFIRE missile and participate in the integration and test activities for the entire ERMP system. PM JAMS is budgeting for the procurement of missiles for the fielded systems. Field Tests at the Electronic Proving Grounds in Ft.Huachuca, AZ, and integration tests at the Central Technical Support Facility in Ft. Hood,TX, are examples of the tests planned to reduce risk in the SDD phase. A favorable Milestone C decision will permit award of the Low Rate Initial Production (LRIP) contract and Production and Deployment phase. The LRIP will:

a. Establish an effective and efficient production base for the system required to provide a solid foundation on which to build FRP systems.
b. Permit an orderly increase in production rate to mitigate risk.
c. Procure production representative equipment to support test & evaluation.
d. Support Doctrine, Training, Leadership Development, Organization, Materiel, Personnel and Facilities (DTLOMPF) and Tactics, Techniques and Procedures (TTP) development.
e. Provide an opportunity to incorporate lessons learned from the comprehensive test and evaluation program into the production baseline.

ARMY RDT&E COST ANALYSIS (R3)

May 2009

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0305204A - Tactical Unmanned Aerial Vehicles

PROJECT
D09

I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	FY 2010 Cost	FY 2010 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Development Engineering & Prototype Manufacturing	C/CPIF/AF	General Atomics / ASI - San Diego, CA	203306	92673	1-3Q	46711	2Q	40180	1Q		382870	60826
Government Furnished Equipment	MIPR/REQ	Various Government Agencies	4625								4625	8494
Common System Integration	MIPR	AAI, MD and Various Government Agencies	3663								3663	
Launcher Software Development	MIPR	PM JAMS, Redstone Arsenal, AL	1000								1000	
Aviation Mission Planning Systems	MIPR	Other Government Agency	1615								1615	
Next Generation Ice Protection	MIPR	AMRDEC, Redstone Arsenal, AL	1920								1920	
Subtotal:			216129	92673		46711		40180			395693	69320

II. Support Costs	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	FY 2010 Cost	FY 2010 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Contractor Engineering Support	C/FFP	Various Contractors	5713	3985	1-2Q	3643	2Q	1896	2Q		15237	3459
Government Engineering Support	MIPR	AMRDEC and IMMC, Redstone Arsenal, AL	8691	2146	1-2Q	1961	2Q	4135	2Q		16933	2730
Subtotal:			14404	6131		5604		6031			32170	6189

III. Test And Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	FY 2010 Cost	FY 2010 Award Date	Cost To Complete	Total Cost	Target Value of Contract
System Test and Evaluation	MIPR	Various Government	5850	3925	2-3Q	8706	2-3Q	6749	2Q		25230	11115

ARMY RDT&E COST ANALYSIS (R3)

May 2009

BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT
7 - Operational system development	**0305204A - Tactical Unmanned Aerial Vehicles**	**D09**

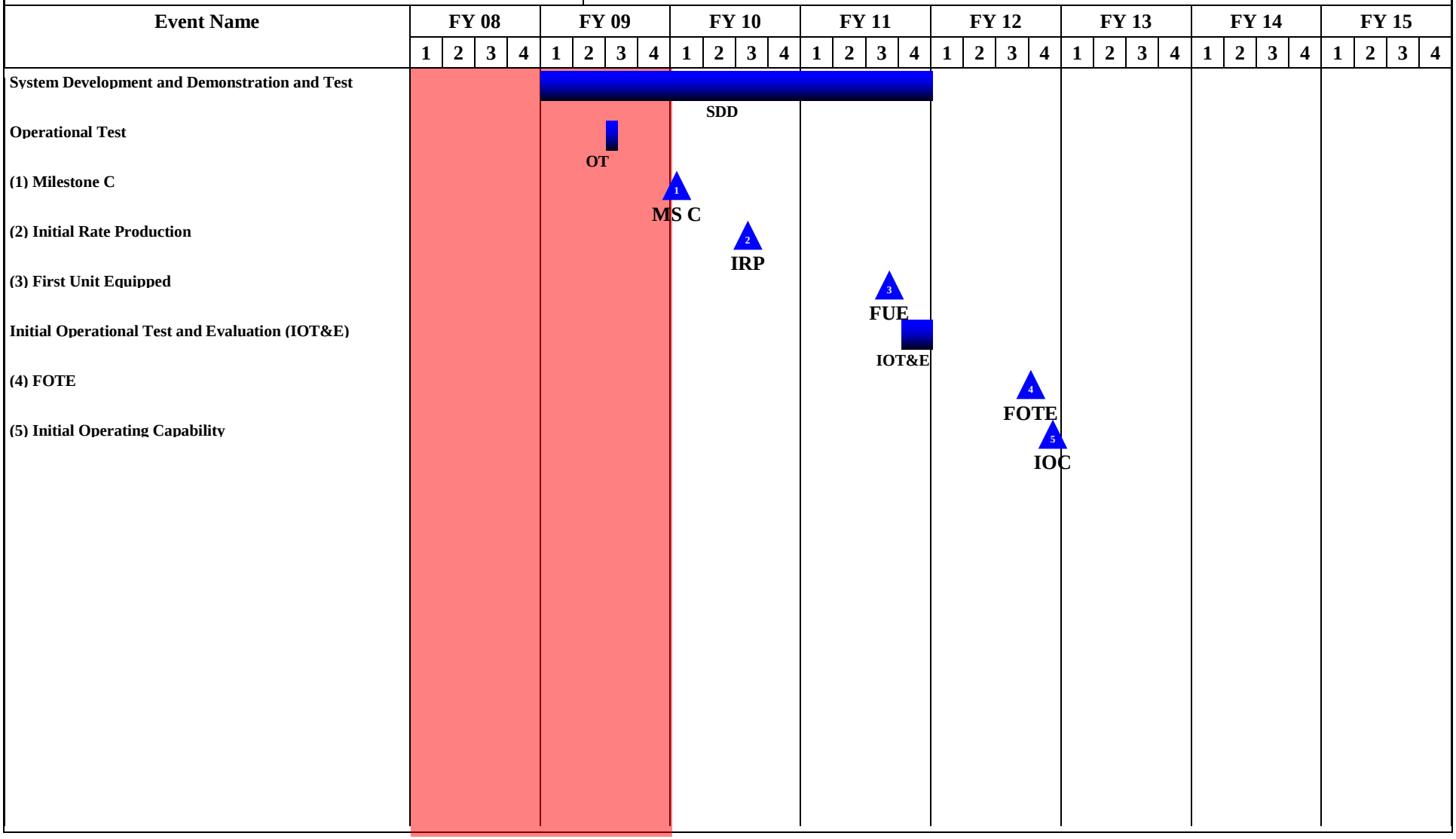
		Agencies										
Subtotal:			5850	3925		8706		6749			25230	11115

IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	FY 2010 Cost	FY 2010 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Program Management Personnel	MIPR	PM UAS, Redstone Arsenal, AL	2339	719	1-4Q	746	1-4Q	7714	1-4Q		11518	1716
ER/MP System Training for Field Deployment								22897			22897	
Subtotal:			2339	719		746		30611			34415	1716
Project Total Cost:			**238722**	**103448**		**61767**		**83571**			**487508**	**88340**

Schedule Profile (R4 Exhibit)

May 2009

BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT
7 - Operational system development	**0305204A - Tactical Unmanned Aerial Vehicles**	**D09**



Schedule Detail (R4a Exhibit)

May 2009

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0305204A - Tactical Unmanned Aerial Vehicles

PROJECT
D09

Schedule Detail	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015
System Development and Demonstration and Test	4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q				
Operational Test		2Q - 3Q						
Milestone C			1Q					
Initial Rate Production			3Q					
First Unit Equipped				3Q				
Initial Operational Test and Evaluation (IOT&E)				4Q				
FOTE					3Q			
Initial Operating Capability					4Q			

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

May 2009

BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT
7 - Operational system development	**0305204A - Tactical Unmanned Aerial Vehicles**	**D10**

COST (In Thousands)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	Cost to Complete	Total Cost
D10 SUAV (MIP)	22048	1989	1968	Continuing	Continuing

A. Mission Description and Budget Item Justification: The Small Unmanned Aircraft System (SUAS) program provides the ground maneuver battalions and below with unprecedented situational awareness and enhanced force protection. SUAS is a man portable unmanned aircraft system capable of handling a wide variety of Intelligence, Surveillance & Reconnaissance (ISR) tasks at Battalion and below. The SUAS aircraft has a wingspan of 4.5 feet and weighs 4.2 pounds. It is hand-launched, and provides aerial observation, day or night, at line-of-sight ranges up to 10 kilometers. The aircraft has an endurance rate of 90 minutes and can deliver color or infrared imagery in real time to the ground control and remote viewing stations. SUAS obtained Milestone C approval 6 Oct 05 and successfully completed IOT&E Jun 06. The program obtained Full Rate Production authority 5 Oct 06.

Funding in FY2009-2010 will provide for engineering support by enhancing system performance through incorporation of a Digital Data Link and associated subsystem components necessary for system operation with DDL, such as improved operational capability through an increase in the number of channels and ability for frequency reuse, improved operational range through relay capability, encryption capability, capability to interface with advanced digital payloads, and greater interoperability.

FY2010 program efforts will focus on Digital Data Link (DDL) development.

Accomplishments/Planned Program:	FY 2008	FY 2009	FY 2010
Program Management Support	189	300	142
SUAS Product Development	14124	1689	1826
DARPA Heterogeneous Urban Reconnaissance Team (HURT) Phase II	7500		
Other Government Agencies (OGA)	235		
Total	22048	1989	1968

B. Other Program Funding Summary	FY 2008	FY 2009	FY 2010	To Compl	Total Cost
SUAS Procurement/OPA (B00303)	76631	57481			134112
SUAS Procurement/APA (A00010)			35008	270420	305428

Comment: $3.952M of FY 2008 was a pass through PM UAS to Aviation Applied Technical Directorate at Ft. Eustis, VA for Integrated Vehicle Health Monitoring System.

C. Acquisition Strategy Not applicable for this item.

ARMY RDT&E COST ANALYSIS (R3)

May 2009

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0305204A - Tactical Unmanned Aerial Vehicles

PROJECT
D10

I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	FY 2010 Cost	FY 2010 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Engineering Services	C/CPFF	AeroVironment, Simi Valley, California		10172	2Q	1689	2Q	1826	2Q		13687	
Integrated Vehicle Health Monitoring System	C/CPFF	Aviation Applied Tech Directorate, FT Eustis, VA		3952	2Q						3952	
DARPA Heterogeneous Urban Reconnaissance Team (HURT) Phase II	C/CFF			7500	2Q						7500	
Subtotal:				21624		1689		1826			25139	

II. Support Costs	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	FY 2010 Cost	FY 2010 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Other Government Agencies	MIPR	Edwards Air Force Base, CA		235	2-3Q						235	
Subtotal:				235							235	

III. Test And Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	FY 2010 Cost	FY 2010 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Reliability Availability and Maintainability(RAM) Test	MIPR	RDECOM, Redstone Arsenal, AL		27	2Q						27	
Subtotal:				27							27	

ARMY RDT&E COST ANALYSIS (R3)

May 2009

BUDGET ACTIVITY
7 - Operational system development

PE NUMBER AND TITLE
0305204A - Tactical Unmanned Aerial Vehicles

PROJECT
D10

IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	FY 2010 Cost	FY 2010 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Program Management Personnel	MIPR	PM UAS, Redstone Arsenal, AL		162	4Q	300	1-4Q	142	1-4Q		604	
Subtotal:				162		300		142			604	
Project Total Cost:				**22048**		**1989**		**1968**			**26005**	