

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

**February 2008**

BUDGET ACTIVITY		PE NUMBER AND TITLE							
<b>7 - Operational system development</b>		<b>0305204A - Tactical Unmanned Aerial Vehicles</b>							
COST (In Thousands)	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total Cost
Total Program Element (PE) Cost	171257	100854	50976	35224	24439	27976	19189	Continuing	Continuing
114 Tactical Unmanned Aerial Vehicle (TUAV) (MIP)	16062	7866	8209	7854	8123	9100		Continuing	Continuing
11A Advanced Payload Develop & Spt (MIP)	17254	40085	25740	18955	7654	7945	8005	Continuing	Continuing
11B TSP DEVELOPMENT (MIP)	11771								44147
123 JOINT TECHNOLOGY CENTER SYSTEM INTEGRATION (MIP)	2429	2221	2359	2483	2538	2506	2559	Continuing	Continuing
D09 EXTENDED RANGE UAV (MIP)	123741	44759	12672	3932	4124	6425	6625	Continuing	Continuing
D10 SUAV (MIP)		5923	1996	2000	2000	2000	2000	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 207,000 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

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**0305204A - Tactical Unmanned Aerial Vehicles**

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, TC DL, 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. With more weapons, payloads, and endurance than any other current system in its class, ERMP gives the Army the required capability defined by years of wartime experience and codified by the Joint Requirement Oversight Council (JROC).

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.

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BUDGET ACTIVITY	PE NUMBER AND TITLE		
<b>7 - Operational system development</b>	<b>0305204A - Tactical Unmanned Aerial Vehicles</b>		
<b><u>B. Program Change Summary</u></b>	FY 2007	FY 2008	FY 2009
Previous President's Budget (FY 2008/2009)	153227	97947	62836
Current BES/President's Budget (FY 2009)	171257	100854	50976
Total Adjustments	18030	2907	-11860
Congressional Program Reductions		-1093	
Congressional Rescissions			
Congressional Increases		4000	
Reprogrammings	18030		
SBIR/STTR Transfer			
Adjustments to Budget Years			-11860

Change Summary Explanation: Funding - FY 2007: \$13 million reprogrammed into this PE to support Common Sensor; \$4 million reprogrammed into this PE to support Extended Range UAV. FY 2009: Funds realigned to higher priority Army programs.



# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

**February 2008**

<b>BUDGET ACTIVITY</b> <b>7 - Operational system development</b>		<b>PE NUMBER AND TITLE</b> <b>0305204A - Tactical Unmanned Aerial Vehicles</b>					<b>PROJECT</b> <b>114</b>			
COST (In Thousands)	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total Cost	
114 Tactical Unmanned Aerial Vehicle (TUAV) (MIP)	16062	7866	8209	7854	8123	9100		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, 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 250,000 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. 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 is required to improve reliability and provide a redundant take off capability for the system.

<b><u>Accomplishments/Planned Program:</u></b>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
Program Management Support	848	395	414
Block Upgrades, 1101 Engineering Development and Test	2500	1400	1400
Laser Designator	3245		
Blue Force Tracking Integration	306		
Heavy Fuel Engine	3250		
Small Sense and Avoid System (SSAASy)			4150
Communications Relay	2000		
Test Support	1705	1851	2014
Common System Integration	1208	750	231
Rolling Take Off	1000	2470	
Increment WX Capability/Wing Improvement		1000	

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

**February 2008**

<b>BUDGET ACTIVITY</b> <b>7 - Operational system development</b>	<b>PE NUMBER AND TITLE</b> <b>0305204A - Tactical Unmanned Aerial Vehicles</b>	<b>PROJECT</b> <b>114</b>
Total	16062	7866

<b><u>B. Other Program Funding Summary</u></b>	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	To Compl	Total Cost
TUAV Procurement (BA0330)	241533	72666	3	258307	58901			Continuing	Continuing
Initial Spares - TUAV (BS9738)		2980	2618	2752	2643			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)

February 2008

BUDGET ACTIVITY			PE NUMBER AND TITLE							PROJECT		
7 - Operational system development			0305204A - Tactical Unmanned Aerial Vehicles							114		
I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Target Location Error (TLE) / TCDL/JTRS / Laser Designator	SS/CPFF	AAI Corporation, MD	34124	3245	2-3Q						37369	36593
OIF Improvements (Blue Force Tracker, 1101 Engine Upgrade, System Upgrades/Block Upgrades)	SS/CPFF	AAI Corporation, MD	7498	2806	2Q	1400	2Q	1400	2Q		13104	12449
Communications Relay	SS/CPFF	AAI Corporation, MD / Other Government Agency		2000	2Q						2000	1500
Common System Integration	SS/CPFF	AAI Corporation, MD / Other Government Agency	2562	1208	2Q	750	2Q	231	2Q		4751	
Heavy Fuel Engine	SS/CPFF/MIP R	AAI Corporation, MD / Other Government Agency		3250	2-3Q						3250	
Small Sense and Avoid System (SSAASy)	SS/CPFF/MIP R	AAI Corporation, MD/Other Government Agency						4150	2Q		4150	
Subtotal:			44184	12509		2150		5781			64624	50542
II. Support Costs												
II. Support Costs	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Contractor Engineering Support	C/CPFF	Various Contractors	9501	365	1Q	170	1-2Q	174	1-2Q	Cont.	Cont.	Cont.
Government Engineering Support	MIPR	AMRDEC & IMMC, Redstone Arsenal, AL	6549	283	1Q	118	1-2Q	121	1-2Q	Cont.	Cont.	Cont.
Government Engineering Support - Extended Range	MIPR	AMRDEC, Redstone Arsenal, AL	1476								1476	1476
Subtotal:			17526	648		288		295		Cont.	Cont.	Cont.

# ARMY RDT&E COST ANALYSIS (R3)

February 2008

BUDGET ACTIVITY <b>7 - Operational system development</b>	PE NUMBER AND TITLE <b>0305204A - Tactical Unmanned Aerial Vehicles</b>	PROJECT <b>114</b>
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III. Test And Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Risk Reduction Testing/ST&E / Rolling Take Off	MIPR	Various	15345	1000	2Q	2470	2Q		2Q	Cont.	Cont.	Cont.
Development Testing/ OPTEMPO Testing / Risk Reduction Testing / ST&E / Inclement WX Capability	MIPR	Various	4847	1588	2Q	2851	2Q	2014			11300	4354
Subtotal:			20192	2588		5321		2014		Cont.	Cont.	Cont.

IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Program Management Personnel	MIPR	PM UAS, Redstone, AL	8439	317	1-4Q	107	1-4Q	119	1-4Q	Cont.	Cont.	Cont.
Subtotal:			8439	317		107		119		Cont.	Cont.	Cont.

<b>Project Total Cost:</b>			<b>90341</b>	<b>16062</b>		<b>7866</b>		<b>8209</b>		<b>Cont.</b>	<b>Cont.</b>	<b>Cont.</b>
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# Schedule Profile (R4 Exhibit)

February 2008

BUDGET ACTIVITY		PE NUMBER AND TITLE																PROJECT										
<b>7 - Operational system development</b>		<b>0305204A - Tactical Unmanned Aerial Vehicles</b>																<b>114</b>										
Event Name	FY 07				FY 08				FY 09				FY 10				FY 11				FY 12				FY 13			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
OIF	[Redacted]				[Redacted]				[Redacted]				[Redacted]				[Redacted]				[Redacted]							
C4I Maintenance/Improvements	[Redacted]				[Redacted]				[Redacted]				[Redacted]				[Redacted]				[Redacted]							
Development Testing	[Redacted]				[Redacted]				[Redacted]				[Redacted]				[Redacted]				[Redacted]							
Total Ownership Cost Reduction Initiatives	[Redacted]				[Redacted]				[Redacted]				[Redacted]				[Redacted]				[Redacted]							
TLE / TC DL / JTRS / Laser Designator	[Redacted]				[Redacted]				[Redacted]				[Redacted]				[Redacted]				[Redacted]							
P3I	[Redacted]				[Redacted]				[Redacted]				[Redacted]				[Redacted]				[Redacted]							
Heavy Fuel Engine	[Redacted]				[Redacted]				[Redacted]				[Redacted]				[Redacted]				[Redacted]							
Small Sense and Avoid System (SSAASy)	[Redacted]				[Redacted]				[Redacted]				[Redacted]				[Redacted]				[Redacted]							

**Schedule Detail (R4a Exhibit)**

**February 2008**

BUDGET ACTIVITY <b>7 - Operational system development</b>		PE NUMBER AND TITLE <b>0305204A - Tactical Unmanned Aerial Vehicles</b>					PROJECT <b>114</b>	
<u>Schedule Detail</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	
OIF	1Q - 4Q	1Q - 4Q						
C4I Maintenance/Improvements	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q		
Development Testing	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q		
Total Ownership Cost Reduction Initiatives	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q		
TLE / TCDL / JTRS / Laser Designator	1Q - 4Q	1Q - 4Q	1Q					
P3I	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q		
OIF Improvements								
Heavy Fuel Engine	2Q - 4Q	1Q - 4Q						
Small Sense and Avoid System (SSAASy)			1Q - 4Q					

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<b>BUDGET ACTIVITY</b> <b>7 - Operational system development</b>			<b>PE NUMBER AND TITLE</b> <b>0305204A - Tactical Unmanned Aerial Vehicles</b>					<b>PROJECT</b> <b>11A</b>	
COST (In Thousands)	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total Cost
11A Advanced Payload Develop & Spt (MIP)	17254	40085	25740	18955	7654	7945	8005	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 as well as the Armed Reconnaissance Helicopter (ARH) ARH-70A 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 Tactical Signals Intelligence (SIGINT) Payload (TSP) is a modular, platform independent, SIGINT payload incorporating an open architecture to provide enhanced situational awareness, target identification, and signals prosecution throughout the tactical Area of Operations (AO). It is intended to be installed on an Army Inventory Unmanned Aerial System (UAS). The TSP payload is a complementary program to the Army's Future Combat System (FCS) for the Class IV Fire Scout UAS.

FY2009 funding continues the system integration and refurbishment of UAV payloads for follow on testing and the development of the EO/IR/LD Common Sensor Payload. FY2009 also funds the integration of the Tactical Signals Intelligence (SIGINT) Payload (TSP) onto an Army Inventory Unmanned Aerial System (UAS) and Developmental Test.

<b><u>Accomplishments/Planned Program:</u></b>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
SAR/GMTI Development and Integration - includes Development Test.	3016	643	640
EO/IR/LD development includes engineering/program management support	1238	600	600
Tactical Sigint Payload			4100
Advanced Payloads NRE for ER/MP			4200
Common Sensor Payload Effort, includes NRE, prototypes, integration and testing efforts.	13000	38842	16200
<b>Total</b>	<b>17254</b>	<b>40085</b>	<b>25740</b>

<b><u>B. Other Program Funding Summary</u></b>	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	To Compl	Total Cost
Advanced TUAV Payloads (B00302)	27265	42135	142924	164096	150709	124184	117688	Continuing	Continuing

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February 2008

BUDGET ACTIVITY

**7 - Operational system development**

PE NUMBER AND TITLE

**0305204A - Tactical Unmanned Aerial Vehicles**

PROJECT

**11A**

Comment: Common Sensor Payload RDTE funds were added to this PE, Common Sensor Payload Procurement funds were added to SSN B00302.

**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 refurbished and provided to ER/MP for integration and testing and participation in the ER/MP Initial Operational Test & Evaluation (IOT&E).

The SDD contract for the EO/IR/LD DAS-2 was competitively awarded in 3rd quarter FY05 for 10 test articles. After combined development and operational testing, the SDD articles will be provided to the ER/MP program for system integration and test. After the ER/MP Limited User Test, the SDD units will be refurbished and used to support the platform during Initial Operational Test & Evaluation (IOT&E).

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 December 2006. A competitive contract was awarded in Nov 07 for the design, build, test and delivery of 10 Common Sensor Payloads.

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BUDGET ACTIVITY			PE NUMBER AND TITLE							PROJECT		
7 - Operational system development			0305204A - Tactical Unmanned Aerial Vehicles							11A		
I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost To Complete	Total Cost	Target Value of Contract
SAR/GMTI System Development & Demonstration/Refurbishment and Integration	COMP/CPIF	General Atomics, San Diego, CA	23836	1750	2-3Q	643	2Q	640	2Q		26869	26869
EO/IR/LD System Development & Demonstration/Refurbishment and Integration	COMP/FFP/C PFF	Raytheon, McKinney, TX	11074			600	2Q	600	2Q		12274	12274
Advanced Payloads NRE for ER/MP	COMP/CPFF	TBD						4200	3Q		4200	
Tactical Sigint Payload		TBD									1564	
Tactical Sigint Payload Platform Integration	TBD	TBD						2200	2Q		2200	
Tactical Sigint Payload Platform Integration	TBD	TBD						1000	2Q		1000	
Common Sensor Payload NRE and Hardware	C/FFP/CPFF	Raytheon, McKinney, TX		11000		36758	2Q	12963	2Q	Cont.	Cont.	
Subtotal:			34910	12750		38001		21603		Cont.	Cont.	39143
II. Support Costs	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Engineering Support	MIPR	Various	10944	2211	1-4Q						13155	
Subtotal:			10944	2211							13155	
III. Test And Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost To Complete	Total Cost	Target Value of Contract

# ARMY RDT&E COST ANALYSIS (R3)

**February 2008**

BUDGET ACTIVITY <b>7 - Operational system development</b>			PE NUMBER AND TITLE <b>0305204A - Tactical Unmanned Aerial Vehicles</b>							PROJECT <b>11A</b>		
SAR/GMTI Developmental Test Support	MIPR	DTC, Aberdeen Proving Grounds, MD	797								797	
SAR/GMTI Operational Testing	MIPR	IEWTD, Fort Huachuca, AZ	1330								1330	
EO/IR/LD Developmental Testing	MIPR	DTC, Aberdeen Proving Grounds, MD	835								835	
EO/IR/LD Operational Testing	MIPR	IEWTD, Fort Huachuca, AZ	993								993	
Tactical Sigint Payload	MIPR	ATEC, Alexandria, VA						300	2-4Q		300	
Common Sensor Payload Testing	MIPR	TBD			488	3Q	1395	1-3Q	Cont.	Cont.		
Subtotal:			3955		488		1695		Cont.	Cont.		

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 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Program Mgmt Personnel	In House	PM RUS, Ft. Monmouth, NJ	2047	2293					1-4Q		4340	
Common Sensor Mgmt	MIPR	TBD				1596	1-4Q	1842	1-4Q	Cont.	Cont.	
Program Mgmt Personnel	MIPR	PM AC Sensors, Ft Monmouth, NJ						600	1-4Q		600	
Subtotal:			2047	2293		1596		2442		Cont.	Cont.	

<b>Project Total Cost:</b>	<b>51856</b>	<b>17254</b>		<b>40085</b>		<b>25740</b>		<b>Cont.</b>	<b>Cont.</b>	<b>39143</b>
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# Schedule Profile (R4 Exhibit)

February 2008

BUDGET ACTIVITY  
**7 - Operational system development**

PE NUMBER AND TITLE  
**0305204A - Tactical Unmanned Aerial Vehicles**

PROJECT  
**11A**

Event Name	FY 07				FY 08				FY 09				FY 10				FY 11				FY 12				FY 13			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
SAR/GMTI SDD & UAV Systems Integration & Test																												
EO/IR/LD SDD & UAV Systems Integration & Test																												
ER/MP System LUT (PM MAE program event)																												
(1) Common Sensor Payload Award																												
Common Sensor Payload Incr 1 Engr/Hdwe Efforts																												
Emerging Technology transition initiatives																												

**Schedule Detail (R4a Exhibit)**

**February 2008**

BUDGET ACTIVITY <b>7 - Operational system development</b>		PE NUMBER AND TITLE <b>0305204A - Tactical Unmanned Aerial Vehicles</b>					PROJECT <b>11A</b>	
<u>Schedule Detail</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	
SAR/GMTI SDD & UAV Systems Integration & Test	1Q - 4Q	1Q - 4Q	1Q - 4Q					
EO/IR/LD SDD & UAV Systems Integration & Test	1Q - 4Q	1Q - 4Q	1Q - 4Q					
ER/MP System LUT (PM MAE program event)			1Q - 2Q					
Common Sensor Payload Award		1Q						
Common Sensor Payload Incr 1 Engr/Hdwe Efforts		1Q - 4Q	1Q - 4Q	1Q - 4Q				
Emerging Technology transition initiatives				1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q	

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

**February 2008**

<b>BUDGET ACTIVITY</b> <b>7 - Operational system development</b>		<b>PE NUMBER AND TITLE</b> <b>0305204A - Tactical Unmanned Aerial Vehicles</b>					<b>PROJECT</b> <b>123</b>			
COST (In Thousands)	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total Cost	
123 JOINT TECHNOLOGY CENTER SYSTEM INTEGRATION (MIP)	2429	2221	2359	2483	2538	2506	2559	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 Shadow 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 simulations 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).

<u>Accomplishments/Planned Program:</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
Implement Tactical Common Datalink Model		50	50
Develop and upgrade Terrain and Target databases	80	80	80
Implement Advanced Sensor / Payload Simulations	75	75	75
Implement / Integration Weapons Simulation for Weaponized UAV	50	50	50
Incorporate STANAG 4586 Datalike Interface Standard	61	50	60
Evaluate and integrate New Visualization Technologies into MUSE	75	75	75
Technical support of MUSE integration with IEWTPT	40	40	40
Enhance VTUAV Models	50	50	50
Provide MUSE Configuration Management and Help Desk Services	250	250	250
MUSE Equipment	348	291	338
JTC/SIL Management	412	385	400
Initial development of Multi-Spectral and Hyper-Spectral simulations		25	50
Enhance IR and SAR model sets	100	50	50
Update interfaces to DoD models	80	50	50
Integrate UAV Survivability Models and Attributes	80		

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

**February 2008**

BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT		
<b>7 - Operational system development</b>	<b>0305204A - Tactical Unmanned Aerial Vehicles</b>	<b>123</b>		
Enhance Fixed Wing UAV Models	75	75	75	
Update MUSE HLA and DITSCAP	100	100	100	
Enhance of Fixed Target Models	75	72	75	
Common UAV Trainer Enhancements	80	80	80	
Implement Tailored Auto Track and Auto Search Models	75	75	75	
Incorporate Effects of Digital Payload Imagery	35	50	50	
Continue C4I Enhancements	72	73	86	
Continue OneSAF Vignette development	75	50	50	
Continue Usability Enhancements	91	75	100	
Enhance Small UAV Models	50	50	50	
<b>Total</b>	<b>2429</b>	<b>2221</b>	<b>2359</b>	

<u><b>B. Other Program Funding Summary</b></u>	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	To Compl	Total Cost
PE 0305204N Navy	1616								1616
PE 0305205F Air Force	1491								1491

Comment:

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

# ARMY RDT&E COST ANALYSIS (R3)

February 2008

BUDGET ACTIVITY			PE NUMBER AND TITLE							PROJECT		
7 - Operational system development			0305204A - Tactical Unmanned Aerial Vehicles							123		
I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Initiate MTI/FTI Sensor Sim Develop/Upgrade SAR	SS/CPFF	AMC/AMCOM/AMRD EC/SED/Redstone Arsenal, AL	143								143	143
MUSE Remote Support Capability	SS/CPFF	SAIC/ HSV, AL	415								415	415
Develop MUSE Fixed Target Damage Site Visualization	SS/CPFF	SAIC/ HSV, AL	235			72	1Q	75	1Q		382	235
Upgrade HLA Certification and DITSCAP	SS/CPFF	AMC/AMCOM/AMRD EC/SED/Redstone Arsenal, AL	792	100	1Q	100	1Q	100	1Q		1092	892
MUSE Equipment	C/FFP	Various	2249	348	1Q	291	1Q	338	1Q		3226	2597
MUSE Hardware Consolidation into Single PC-Based Platform	SS/CPFF	SAIC/ HSV, AL	237								237	237
Develop / Integrate and Implement TCDL into MUSE in Support of TUAV ORD	SS/CPFF	SAIC/ HSV, AL	250			50	1Q	50	1Q		350	250
Develop & Upgrade Terrain & Target Databases	SS/CPFF	SAIC/ HSV, AL	1119	80	2Q	80	1Q	80	1Q		1359	1199
Incorporate New Technology Sensors & Platforms into the MUSE	SS/CPFF	SAIC/ HSV, AL	275								275	275
Integrate Weapon Employment Capabilities into MUSE	C/FFP	Various	124								124	124
Evaluate and Integrate New Visualization Technologies into MUSE	C/FFP	Various	180	75	2Q	75	1Q	75	1Q		405	105
Link Fixed Target Database with DIA MIDB	SS/CPFF	Various	295	75	1Q						370	370
Initial VTUAV/UCARS Vehicle models	SS/CPFF	Various	215	50	2Q	50	1Q	50	1Q		365	265
Initial ATARS & TARPS Simulation model	SS/CPFF	SAIC/HSV, AL.	235								235	235

# ARMY RDT&E COST ANALYSIS (R3)

February 2008

BUDGET ACTIVITY			PE NUMBER AND TITLE							PROJECT	
7 - Operational system development			0305204A - Tactical Unmanned Aerial Vehicles							123	
Initial effects-based fixed target behavior model	SS/CPFF	SAIC/HSV, AL.	190							190	190
Initial development of Multi-spectral & Hyper-spectral simulation	SS/CPFF	SAIC/ HSV, AL	206							206	206
Prototype FIA interfaces & capabilities			120							120	120
Imagery generation upgrade conversion	SS/CPFF	SAIC/ HSV, AL	160							160	160
Enhance IR & SAR model sets	SS/CPFF	SAIC/ HSV, AL	190	100	1Q	50	1Q	50	1Q	390	90
Implement Advanced Sensor / Payload	SS/CPFF	SAIC/ HSV, AL	50	75	2Q	75	1Q	75	1Q	275	125
Implement / Integration Weapons Simulation for Weaponized UAV	SS/CPFF	SAIC/ HSV, AL	75	50	2Q	50	1Q	50	1Q	225	125
Incorporate STANAG 4586 Datalink Interface Standard	SS/CPFF	SAIC/ HSV, AL	82	61	2Q	50	1Q	60	1Q	253	143
Enhance Small UAV / IR / SAR & Fixed Target Models	SS/CPFF	SAIC/ HSV, AL	50	50	2Q	50	1Q	50	1Q	200	450
Integrate UAV Survivability Models and Attributes	SS/CPFF	SAIC/ HSV, AL		80	2Q					80	80
Evaluate and Integrate new Visualization Technology / System	SS/CPFF	SAIC/ HSV, AL	75	75	2Q	75	1Q	75	1Q	300	150
Common UAV Trainer Enhancements	SS/CPFF	SAIC/ HSV, AL	80	80	2Q	80	1Q	80	1Q	320	160
Incorporate Effects of Digital Payload Imagery	SS/CPFF	SAIC/ HSV, AL	80	35	2Q	50	1Q	50	1Q	215	115
OneSAF Vignette development	SS/CPFF	SAIC/ HSV, AL	75	75	2Q	50	1Q	50	1Q	250	150
Usability Enhancements	SS/CPFF	SAIC/ HSV, AL	100	91	2Q	75	1Q	100	1-2Q	366	200
Initial Development of Multi-Spectral and Hyperspectral Simulations	SS/CPFF	SAIC/ HSV, AL				25	1Q	50	1Q	75	
Implement Tailored Auto Track and Auto Search	SS/CPFF	SAIC/ HSV, AL		75	2Q	75	1Q	75	1Q	225	
Subtotal:			8297	1575		1423		1533		12828	9806

# ARMY RDT&E COST ANALYSIS (R3)

February 2008

<b>BUDGET ACTIVITY</b> <b>7 - Operational system development</b>	<b>PE NUMBER AND TITLE</b> <b>0305204A - Tactical Unmanned Aerial Vehicles</b>	<b>PROJECT</b> <b>123</b>
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II. Support Costs	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Provide Direct JSTARS CGS Interface	SS/CPFF	GDIS/Arlington, VA	75								75	75
Technical Support of MUSE Integration with IEWTPT	C/CPFF	GDIS/Arlington, VA	215	40	2Q	40	1Q	40	1Q		335	255
Initiate MUSE TUAV Flight Performance Model Verification & Validation Process	C/CPFF	Dynetics/Huntsville, AL	465								465	465
Provide MUSE Configuration Mgt and Help Desk Services	C/CPFF	GDIS, Arlington, VA	1412	250	1Q	250	1Q	250	1Q		2162	1662
JTC/SIL Management	C/CPFF	TBD	280								280	280
MUSE Equipment	C/CPFF	AMC/AMCOM/AMRD EC/SED/Redstone Arsenal, AL	761								761	761
Incorporate New Technology Sensors & Platforms into the MUSE	C/CPFF	SAIC/Huntsville, AL	275								275	275
Update interfaces to DoD models	C/CPFF	GDIS/Arlington, VA	295	80	2Q	50	1Q	50	1Q		475	375
Subtotal:			3778	370		340		340			4828	4148

III. Test And Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost To Complete	Total Cost	Target Value of Contract
C4I Enhancements	SS/CPFF	GDIS/Arlington, VA	90	72	2Q	73	1Q	86	1Q		321	180
Subtotal:			90	72		73		86			321	180

# ARMY RDT&E COST ANALYSIS (R3)

February 2008

BUDGET ACTIVITY <b>7 - Operational system development</b>			PE NUMBER AND TITLE <b>0305204A - Tactical Unmanned Aerial Vehicles</b>							PROJECT <b>123</b>		
IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost To Complete	Total Cost	Target Value of Contract
JTC/SIL Management Personnel	In House	JTC/SIL/Redstone Arsenal, AL	1412	412	1-4Q	385	1-4Q	400	1-4Q		2609	1806
Subtotal:			1412	412		385		400			2609	1806
<b>Project Total Cost:</b>			<b>13577</b>	<b>2429</b>		<b>2221</b>		<b>2359</b>			<b>20586</b>	<b>15940</b>

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

**February 2008**

<b>BUDGET ACTIVITY</b> <b>7 - Operational system development</b>		<b>PE NUMBER AND TITLE</b> <b>0305204A - Tactical Unmanned Aerial Vehicles</b>						<b>PROJECT</b> <b>D09</b>	
COST (In Thousands)	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total Cost
D09 EXTENDED RANGE UAV (MIP)	123741	44759	12672	3932	4124	6425	6625	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. With more weapons, payloads, and endurance than any other current system in its class, ERMP gives the Army the required capability defined by years of wartime experience and codified by the Joint Requirement Oversight Council (JROC).

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 09 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.

<b><u>Accomplishments/Planned Program:</u></b>	<b><u>FY 2007</u></b>	<b><u>FY 2008</u></b>	<b><u>FY 2009</u></b>
Program Management	8991	3846	960
Government Furnished Equipment	410		
Development Engineering & Prototype Manufacturing	106724	30496	9686
System Test & Evaluation	2031	6523	2026
Common System Integration	1050	1583	
Launcher Software Development	1000	1498	

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

**February 2008**

<b>BUDGET ACTIVITY</b> <b>7 - Operational system development</b>	<b>PE NUMBER AND TITLE</b> <b>0305204A - Tactical Unmanned Aerial Vehicles</b>	<b>PROJECT</b> <b>D09</b>	
Aviation Mission Planning Systems	1615	813	
Next Generation ice protection	1920		
<b>Total</b>	<b>123741</b>	<b>44759</b>	<b>12672</b>

<b><u>B. Other Program Funding Summary</u></b>	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	To Compl	Total Cost
TUAV - Extended Range / Multi-Purpose (B00305)	9367	122663	174607	323886	300904	123781	128902	Continuing	Continuing
Extended Range / Multi-Purpose - Weapons Capability Modifications (B10307)	1324	15104	15124	15105	15143			Continuing	Continuing
Warrior Alpha (Training Set) (B00305)	8725								8725

Comment:

**C. Acquisition Strategy** The ERMP Operational Requirement Document (ORD) was approved by the 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 will be 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 will develop the P+ model of the HELLFIRE missile and participate in the integration and test activities for the entire ERMP system. PM JAMS will budget 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)

February 2008

BUDGET ACTIVITY			PE NUMBER AND TITLE							PROJECT		
7 - Operational system development			0305204A - Tactical Unmanned Aerial Vehicles							D09		
I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Development Engineering & Prototype Manufacturing	C/CPIF/AF	General Atomics / ASI - San Diego, CA	75570	106724	1-3Q	30496	1-2Q	9686	1-2Q		222476	60826
Government Furnished Equipment	MIPR/REQ	Various Government Agencies	4215	410	1-3Q						4625	8494
Common System Integration	MIPR	AAI, MD and Various Government Agencies	2613	1050	2Q	1583	1-3Q				5246	
Launcher Software Development	MIPR	PM JAMS, Redstone Arsenal, AL		1000	2Q	1498					2498	
Aviation Mission Planning Systems	MIPR	Other Government Agency		1615	2Q	813	1-2Q				2428	
Next Generation Ice Protection	MIPR	AMRDEC, Redstone Arsenal, AL		1920	2Q						1920	
Subtotal:			82398	112719		34390		9686			239193	69320
II. Support Costs	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Contractor Engineering Support	C/FFP	Various Contractors	4294	4397	1-2Q	1858	1-2Q	420	1-2Q		10969	3459
Government Engineering Support	MIPR	AMRDEC and IMMC, Redstone Arsenal, AL	2570	3143	1-2Q	1238	1-2Q	240	1-2Q		7191	2730
Subtotal:			6864	7540		3096		660			18160	6189
III. Test And Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost To Complete	Total Cost	Target Value of Contract
System Test and Evaluation	MIPR	Various Government	3819	2031	2-3Q	6523	2-3Q	2026	2Q		14399	11115

# ARMY RDT&E COST ANALYSIS (R3)

February 2008

BUDGET ACTIVITY <b>7 - Operational system development</b>			PE NUMBER AND TITLE <b>0305204A - Tactical Unmanned Aerial Vehicles</b>							PROJECT <b>D09</b>		
		Agencies										
Subtotal:			3819	2031		6523		2026			14399	11115

IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Program Management Personnel	MIPR	PM UAS, Redstone Arsenal, AL	888	1451	1-4Q	750	1-4Q	300	1-2Q		3389	1716
Subtotal:			888	1451		750		300			3389	1716

<b>Project Total Cost:</b>			<b>93969</b>	<b>123741</b>		<b>44759</b>		<b>12672</b>			<b>275141</b>	<b>88340</b>
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# Schedule Profile (R4 Exhibit)

February 2008

BUDGET ACTIVITY  
**7 - Operational system development**

PE NUMBER AND TITLE  
**0305204A - Tactical Unmanned Aerial Vehicles**

PROJECT  
**D09**

Event Name	FY 07				FY 08				FY 09				FY 10				FY 11				FY 12				FY 13															
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4												
Limited User Testing  (1) Milestone C  Initial Operational Test and Evaluation (IOT&E)																																								

**Schedule Detail (R4a Exhibit)**

**February 2008**

BUDGET ACTIVITY <b>7 - Operational system development</b>		PE NUMBER AND TITLE <b>0305204A - Tactical Unmanned Aerial Vehicles</b>					PROJECT <b>D09</b>	
<u>Schedule Detail</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	
Limited User Testing			1Q					
Milestone C		4Q						
Initial Operational Test and Evaluation (IOT&E)				1Q				

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# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

**February 2008**

<b>BUDGET ACTIVITY</b> <b>7 - Operational system development</b>		<b>PE NUMBER AND TITLE</b> <b>0305204A - Tactical Unmanned Aerial Vehicles</b>						<b>PROJECT</b> <b>D10</b>	
COST (In Thousands)	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total Cost
D10 SUAV (MIP)		5923	1996	2000	2000	2000	2000	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 will provide product improvements studies/plans that include: noise reduction, integral radio location beacon, endurance and target location error. Effort will result in identification and implementation of technical solutions and product improvements to enhance the warfighting capability of the SUAS system. Additional efforts will focus on the identification, integration, and test of block II/III payloads.

FY09 program efforts will focus on Digital Data Link (DDL) development. Specific emphasis will be on productionization of the communication architecture developed in the ACTD phase, procurement of prototype systems for operational test in theater, soldier training, training materials, and environmental test.

<u>Accomplishments/Planned Program:</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
Program Management Support			300
SUAS Product Improvement Studies and Plans		1975	1696
Digital Data Link		3948	
<b>Total</b>		<b>5923</b>	<b>1996</b>

<u>B. Other Program Funding Summary</u>	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	To Compl	Total Cost
SUAS Procurement (B00303)	15531	33254	30023	35652	20718	2349			137527

Comment:

**C. Acquisition Strategy** Not applicable for this item.

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

February 2008

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

**7 - Operational system development**

**0305204A - Tactical Unmanned Aerial Vehicles**

**D10**

# ARMY RDT&E COST ANALYSIS (R3)

February 2008

BUDGET ACTIVITY			PE NUMBER AND TITLE							PROJECT		
7 - Operational system development			0305204A - Tactical Unmanned Aerial Vehicles							D10		
I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Product Improvement Studies and Plans	C/CPFF	AeroVironment, Simi Valley, California				1985	2Q	1696	2Q		3681	
DDL Development and Prototypes	C/CPFF	AeroVironment, Simi Valley, California				3538	2Q				3538	
Subtotal:						5523		1696			7219	
II. Support Costs	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Subtotal:												
III. Test And Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost To Complete	Total Cost	Target Value of Contract
DDL Testing In Theater	MIPR	Various				400	3Q				400	
Subtotal:						400					400	
IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Program Management Personnel	MIPR	PM UAS, Redstone Arsenal, AL						300	1-4Q		300	
Subtotal:								300			300	

# ARMY RDT&E COST ANALYSIS (R3)

February 2008

BUDGET ACTIVITY

**7 - Operational system development**

PE NUMBER AND TITLE

**0305204A - Tactical Unmanned Aerial Vehicles**

PROJECT

**D10**

**Project Total Cost:**

**5923**

**1996**

**7919**