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Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Army									DATE: February 2010		
APPROPRIATION/BUDGET ACTIVITY 2040: Research, Development, Test & Evaluation, Army BA 7: Operational Systems Development				R-1 ITEM NOMENCLATURE PE 0305204A: Tactical Unmanned Aerial Vehicles							
COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
Total Program Element	100.454	202.116	54.300	0.000	54.300	90.418	31.790	31.729	31.751	Continuing	Continuing
114: Tactical Unmanned Aerial Vehicle (TUAV) (MIP)	12.169	59.616	1.672	0.000	1.672	0.000	0.000	0.000	0.000	Continuing	Continuing
11A: Advanced Payload Develop & Spt (MIP)	22.177	39.444	40.252	0.000	40.252	86.077	27.496	27.517	27.501	Continuing	Continuing
11B: TSP DEVELOPMENT (MIP)	0.000	21.534	5.336	0.000	5.336	0.000	0.000	0.000	0.000	Continuing	Continuing
123: JOINT TECHNOLOGY CENTER SYSTEM INTEGRATION (MIP)	2.351	4.388	6.698	0.000	6.698	4.341	4.294	4.212	4.250	Continuing	Continuing
D09: EXTENDED RANGE UAV (MIP)	61.767	73.187	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
D10: SUAV (MIP)	1.990	3.947	0.342	0.000	0.342	0.000	0.000	0.000	0.000	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 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). 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. 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)											

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<p>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. The Extended Range Multi-Purpose (ERMP) Unmanned Aircraft System (UAS) will provide a real-time responsive capability to conduct long-dwell, wide area reconnaissance, surveillance, target acquisition, communications relay, and attack missions (up to 4 HELLFIRE Missiles aboard) to the Division Commander. The ER/MP addresses an ever increasing demand for greater range, altitude, endurance and payload flexibility, which enables dynamic mission changes while in flight. The ER/MP will be fielded as a system to a company level organization assigned to each of the 10 active Army Divisions Combat Aviation Brigades (CAB) providing a capability that is responsive to supported units based on the division Commander's priorities. The ER/MP system consists of 12 MQ-1C Sky Warrior aircraft with Electro-Optical/Infrared, Synthetic Aperture Radar with Ground Moving Target Indicator (EO/IR/SAR/GMTI), Communications Relay and precision weapons as payloads; Ground equipment includes 5 One System Ground Control Stations (OSGCS), 5 Ground Data Terminals (GDT), 2 Portable Ground Control Stations (PGCS), 2 Portable Ground Data Terminals (PGDT), a Satellite Communication (SATCOM) Ground Data Terminal (SGDT) and other associated ground support equipment. The acquisition strategy capitalizes upon competitive forces, bringing cutting edge improvements at the best cost and value to support the major thrusts of the DoD UAS Roadmap, and the imperatives of Army modernization and Army Aviation Transformation. This includes a heavy fuel engine, 30 mission hours of endurance (24 hours on station at 300 KM range), Tactical Common Data Link technology, network connectivity that reduces information cycle time and enhances overall battle space awareness, teaming with manned platforms, and steps toward integration of UAS into national and international airspace. The ability to operate multiple Sky Warrior aircraft simultaneously from a single One System Ground Control Station (currently mission and Air Data Relay Aircraft), 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 and the flexibility to operate with or without SATCOM data links are characteristics which make this system a significant combat multiplier. The Small Unmanned Aircraft System (SUAS) program provides the ground maneuver battalions and below with 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 June 06.</p>		

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B. Program Change Summary (\$ in Millions)					
	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Previous President's Budget	103.930	202.521	138.895	0.000	138.895
Current President's Budget	100.454	202.116	54.300	0.000	54.300
Total Adjustments	-3.476	-0.405	-84.595	0.000	-84.595
• Congressional General Reductions		-15.906			
• Congressional Directed Reductions		0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds		6.000			
• Congressional Directed Transfers		0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	-3.476	0.000			
• Adjustments to Budget Years	0.000	9.501	-84.595	0.000	-84.595
Change Summary Explanation					
Change Summary Explanation: Funding - FY 2011: Funds realigned to higher priority Army requirements.					

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COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
114: <i>Tactical Unmanned Aerial Vehicle (TUAV) (MIP)</i>	12.169	59.616	1.672	0.000	1.672	0.000	0.000	0.000	0.000	Continuing	Continuing
Quantity of RDT&E Articles											
A. Mission Description and Budget Item Justification <p>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 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 469,632 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 manned and unmanned weapon systems, to include incorporation of a 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). Development of an extended wing provides for weight growth from the integration of Tactical Common Data Link (TCDL) and provides increased endurance. FY 2011 Base funds will be used for OIF Improvements/Block Upgrades/Capability Improvements, specifically: development of a heavy fuel engine; airframe modifications to support all weather payload requirements; and integration of SAR, SIGINT, HD payloads. Additionally, funds will be for System Engineering/Reliability Solutions (to include avionics reliability improvements to meet emerging national airspace requirements) and TCDL Test Support. Beginning in FY 2011, funding for this project shifts to PE 0305233A Project RQ7. Due to an error in allocating the funds to the new PE, \$1.672 million still remains in the Project 114 in FY 2011 and is reflected ONLY in the total funding line above. The correct PE/Proj (0305233A/RQ7) includes the \$1.672 million amount ONLY in Accomplishments/Planned Program (R2a) and Cost Analysis (R3). This separate reporting mitigates any appearance of double funding.</p>											
B. Accomplishments/Planned Program (\$ in Millions)											
						FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	
Program #1						1.200	5.665	0.000	0.000	0.000	

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B. Accomplishments/Planned Program (\$ in Millions)						
		FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Base: OIF Improvements / Block Upgrades / Capability Improvements FY 2009 Accomplishments: FY 2009 FY 2010 Plans: FY 2010 FY 2011 Base Plans: FY 2011 Base FY 2011 OCO Plans: FY 2011 OCO						
Program #2 Base: 4th Generation Wireless Exploitation FY 2009 Accomplishments: FY 2009 FY 2010 Plans: FY 2010 FY 2011 Base Plans: FY 2011 Base FY 2011 OCO Plans: FY 2011 OCO		0.000	2.400	0.000	0.000	0.000

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B. Accomplishments/Planned Program (\$ in Millions)					
	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Program #3 Base: Small Sense and Avoid System (SSAASy)/Shadow Flight in the National Airspace FY 2009 Accomplishments: FY 2009 FY 2010 Plans: FY 2010 FY 2011 Base Plans: FY 2011 Base FY 2011 OCO Plans: FY 2011 OCO	3.908	0.000	0.000	0.000	0.000
Program #4 Base: System Engineering / Reliability Solutions FY 2009 Accomplishments: FY 2009 FY 2010 Plans: FY 2010 FY 2011 Base Plans: FY 2011 Base FY 2011 OCO Plans: FY 2011 OCO	0.000	0.000	0.000	0.000	0.000

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B. Accomplishments/Planned Program (\$ in Millions)						
		FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Program #5 Base: Test Support (TCDL - Tactical Common Data Link) FY 2009 Accomplishments: FY 2009 FY 2010 Plans: FY 2010 FY 2011 Base Plans: FY 2011 Base FY 2011 OCO Plans: FY 2011 OCO		5.782	2.264	0.000	0.000	0.000
Program #6 Base: Common System Integration (UGCS, Trainers, OSRVT) FY 2009 Accomplishments: FY 2009 FY 2010 Plans: FY 2010 FY 2011 Base Plans: FY 2011 Base FY 2011 OCO Plans: FY 2011 OCO		0.231	16.124	0.000	0.000	0.000

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B. Accomplishments/Planned Program (\$ in Millions)					
	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Program #7 Base: TUAS Heavy Fuel Engine (HFE) FY 2009 Accomplishments: FY 2009 FY 2010 Plans: FY 2010 FY 2011 Base Plans: FY 2011 Base FY 2011 OCO Plans: FY 2011 OCO	0.000	1.600	1.672	0.000	1.672
Program #8 Shadow Encryption FY 2009 Accomplishments: FY 2009 FY 2010 Plans: FY 2010 FY 2011 Base Plans: FY 2011 Base FY 2011 OCO Plans: FY 2011 OCO	0.000	0.000	0.000	0.000	0.000

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B. Accomplishments/Planned Program (\$ in Millions)					
	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Program #9 Base: Program Management Support FY 2009 Accomplishments: FY 2009 FY 2010 Plans: FY 2010 FY 2011 Base Plans: FY 2011 Base FY 2011 OCO Plans: FY 2011 OCO	0.350	0.234	0.000	0.000	0.000
Program #10 Base: Other Government Agencies (OGA) FY 2009 Accomplishments: FY 2009 FY 2010 Plans: FY 2010 FY 2011 Base Plans: FY 2011 Base FY 2011 OCO Plans: FY 2011 OCO	0.698	1.829	0.000	0.000	0.000

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B. Accomplishments/Planned Program (\$ in Millions)											
						FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	
Program #11						0.000	29.500	0.000	0.000	0.000	
OCO; Shadow Encryption -- Type 2 Interim Encryption System (TIES)											
FY 2009 Accomplishments: FY 2009											
FY 2010 Plans: FY 2010											
FY 2011 Base Plans: FY 2011 Base											
FY 2011 OCO Plans: FY 2011 OCO											
Accomplishments/Planned Programs Subtotals						12.169	59.616	1.672	0.000	1.672	
C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• Ord. #1: TUAV Procurement/ OPA (BA0330)	167.906	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
• Ord. #2: TUAV Procurement/ APA (A00018)	0.000	607.900	505.015	97.800	602.815	37.541	40.360	86.984	148.594	0	1,524.194
• Ord. #3: Initial Spares - TUAV (BS9738)	2.349	2.743	2.628	0.000	2.628	0.000	0.000	0.000	0.000	Continuing	Continuing
	0.000	0.000	9.477	0.000	9.477	50.487	78.084	38.667	22.527	0	199.242

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C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• Ord. #4: PE 0305233A RQ-7 UAV RDTE											
D. 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.											
E. Performance Metrics											
Performance metrics used in the preparation of this justification material may be found in the FY 2010 Army Performance Budget Justification Book, dated May 2010.											

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Army										DATE: February 2010			
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Product Development (\$ in Millions)													
				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Base: Target Location Error (TLE) / TCDL/ JTRS / Laser Designator	SS/CPFF	AAI Corporation MD	52.200	0.000		0.000		0.000		0.000	Continuing	Continuing	52.200
Base: OIF Improvements / Block Upgrades / Capability Improvements	SS/CPFF	AAI Corporation MD	13.918	5.665		0.000		0.000		0.000	Continuing	Continuing	12.449
Base: Re-Wing	SS/CPFF	AAI Corporation MD / Other Government Agency	10.600	0.000		0.000		0.000		0.000	Continuing	Continuing	1.500
Base: Shadow Flight in NAS	SS/CPFF	AAI Corporation MD/ Other	0.000	0.000		0.000		0.000		0.000	Continuing	Continuing	0
Base: Common System Integration (UCGS, Trainers, OSRVT)	SS/CPFF	AAI Corporation MD / Other Government Agency	7.082	16.124		1.672		0.000		1.672	Continuing	Continuing	0
Base: TUAS Heavy Fuel Engine	SS/CPFF	AAI Corporation MD / Other	0.000	1.600		0.000		0.000		0.000	Continuing	Continuing	0
Base: LALHAV	SS	AAI Corporation MD / Other Government Agency	2.000	0.000		0.000		0.000		0.000	Continuing	Continuing	0
Base: Small Sense and Avoid System (SSAASy)	SS	AAI Corporation MD/Other Government Agency	0.000	0.000		0.000		0.000		0.000	Continuing	Continuing	0
	SS/CPFF	AAI Corporation	0.000	0.000		0.000		0.000		0.000	Continuing	Continuing	0

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Product Development (\$ in Millions)														
				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total				
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract	
Base: System Engineering / Reliability Solutions		MD												
OCO: FY10 OCO Shadow Encryption	C	Various Location could not be determined.	0.000	29.500		0.000		0.000		0.000	Continuing	Continuing	0	
Base: Fourth Generation Wireless Exploitation	SS/CPFF	AAI Corporation MD	0.000	2.400		0.000		0.000		0.000	Continuing	Continuing	0	
Subtotal			85.800	55.289		1.672		0.000		1.672			66.149	
Remarks														
Support (\$ in Millions)														
				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total				
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract	
Contractor Engineering Support	C	Various Contractors Location could not be determined.	11.117	1.079		0.000		0.000		0.000	Continuing	Continuing	0	
Government Engineering and Logistics Support	C	AMRDEC & IMMC Redstone Arsenal, AL	8.008	0.750		0.000		0.000		0.000	Continuing	Continuing	0	
	C	AMRDEC	14.760	0.000		0.000		0.000		0.000	Continuing	Continuing	1.476	

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Support (\$ in Millions) <table border="1" style="width:100%; border-collapse: collapse; margin-top: 10px;"> <tr> <th colspan="4"></th> <th colspan="2">FY 2010</th> <th colspan="2">FY 2011 Base</th> <th colspan="2">FY 2011 OCO</th> <th>FY 2011 Total</th> <th colspan="3"></th> </tr> <tr> <th>Cost Category Item</th> <th>Contract Method & Type</th> <th>Performing Activity & Location</th> <th>Total Prior Years Cost</th> <th>Cost</th> <th>Award Date</th> <th>Cost</th> <th>Award Date</th> <th>Cost</th> <th>Award Date</th> <th>Cost</th> <th>Cost To Complete</th> <th>Total Cost</th> <th>Target Value of Contract</th> </tr> <tr> <td>Government Engineering Support - Extended Range</td> <td></td> <td>Redstone Arsenal, AL</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td align="right" colspan="3">Subtotal</td> <td>33.885</td> <td>1.829</td> <td></td> <td>0.000</td> <td></td> <td>0.000</td> <td></td> <td>0.000</td> <td></td> <td></td> <td>1.476</td> </tr> </table>																		FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total				Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract	Government Engineering Support - Extended Range		Redstone Arsenal, AL												Subtotal			33.885	1.829		0.000		0.000		0.000			1.476														
				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total																																																																									
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Government Engineering Support - Extended Range		Redstone Arsenal, AL																																																																																	
Subtotal			33.885	1.829		0.000		0.000		0.000			1.476																																																																						
Remarks																																																																																			
Test and Evaluation (\$ in Millions) <table border="1" style="width:100%; border-collapse: collapse; margin-top: 10px;"> <tr> <th colspan="4"></th> <th colspan="2">FY 2010</th> <th colspan="2">FY 2011 Base</th> <th colspan="2">FY 2011 OCO</th> <th>FY 2011 Total</th> <th colspan="3"></th> </tr> <tr> <th>Cost Category Item</th> <th>Contract Method & Type</th> <th>Performing Activity & Location</th> <th>Total Prior Years Cost</th> <th>Cost</th> <th>Award Date</th> <th>Cost</th> <th>Award Date</th> <th>Cost</th> <th>Award Date</th> <th>Cost</th> <th>Cost To Complete</th> <th>Total Cost</th> <th>Target Value of Contract</th> </tr> <tr> <td>Rolling Take Off</td> <td>C</td> <td>Various Location could not be determined.</td> <td>17.815</td> <td>0.000</td> <td></td> <td>0.000</td> <td></td> <td>0.000</td> <td></td> <td>0.000</td> <td>Continuing</td> <td>Continuing</td> <td>0</td> </tr> <tr> <td>Development Testing/ TCDL - Tactical Common Data Link</td> <td>C</td> <td>Various Location could not be determined.</td> <td>9.971</td> <td>2.264</td> <td></td> <td>0.000</td> <td></td> <td>0.000</td> <td></td> <td>0.000</td> <td>Continuing</td> <td>Continuing</td> <td>4.354</td> </tr> <tr> <td align="right" colspan="3">Subtotal</td> <td>27.786</td> <td>2.264</td> <td></td> <td>0.000</td> <td></td> <td>0.000</td> <td></td> <td>0.000</td> <td></td> <td></td> <td>4.354</td> </tr> </table>																		FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total				Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract	Rolling Take Off	C	Various Location could not be determined.	17.815	0.000		0.000		0.000		0.000	Continuing	Continuing	0	Development Testing/ TCDL - Tactical Common Data Link	C	Various Location could not be determined.	9.971	2.264		0.000		0.000		0.000	Continuing	Continuing	4.354	Subtotal			27.786	2.264		0.000		0.000		0.000			4.354
				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total																																																																									
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract																																																																						
Rolling Take Off	C	Various Location could not be determined.	17.815	0.000		0.000		0.000		0.000	Continuing	Continuing	0																																																																						
Development Testing/ TCDL - Tactical Common Data Link	C	Various Location could not be determined.	9.971	2.264		0.000		0.000		0.000	Continuing	Continuing	4.354																																																																						
Subtotal			27.786	2.264		0.000		0.000		0.000			4.354																																																																						
Remarks																																																																																			

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Army											DATE: February 2010		
APPROPRIATION/BUDGET ACTIVITY 2040: <i>Research, Development, Test & Evaluation, Army</i> BA 7: <i>Operational Systems Development</i>				R-1 ITEM NOMENCLATURE PE 0305204A: <i>Tactical Unmanned Aerial Vehicles</i>				PROJECT 114: <i>Tactical Unmanned Aerial Vehicle (TUAV)</i> (MIP)					
Management Services (\$ in Millions)													
				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management Personnel	C	PM UAS Redstone, AL	9.443	0.234		0.000		0.000		0.000	Continuing	Continuing	0
Subtotal			9.443	0.234		0.000		0.000		0.000			0.000
Remarks													
			Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			156.914	59.616		1.672		0.000		1.672			71.979
Remarks													

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Exhibit R-4, RDT&E Schedule Profile: PB 2011 Army																								DATE: February 2010			
APPROPRIATION/BUDGET ACTIVITY 2040: Research, Development, Test & Evaluation, Army BA 7: Operational Systems Development												R-1 ITEM NOMENCLATURE PE 0305204A: Tactical Unmanned Aerial Vehicles												PROJECT 114: Tactical Unmanned Aerial Vehicle (TUAV) (MIP)			

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Exhibit R-4A, RDT&E Schedule Details: PB 2011 Army			DATE: February 2010	
APPROPRIATION/BUDGET ACTIVITY 2040: Research, Development, Test & Evaluation, Army BA 7: Operational Systems Development	R-1 ITEM NOMENCLATURE PE 0305204A: Tactical Unmanned Aerial Vehicles	PROJECT 114: Tactical Unmanned Aerial Vehicle (TUAV) (MIP)		
Schedule Details				
	Start		End	
Event	Quarter	Year	Quarter	Year
Shadow Flight in NAS	1	2010	1	2010
TUAS Heavy Fuel Engine	1	2010	1	2010
OCO Shadow Encryption	1	2010	3	2010

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Army								DATE: February 2010			
APPROPRIATION/BUDGET ACTIVITY 2040: <i>Research, Development, Test & Evaluation, Army</i> BA 7: <i>Operational Systems Development</i>				R-1 ITEM NOMENCLATURE PE 0305204A: <i>Tactical Unmanned Aerial Vehicles</i>				PROJECT 11A: <i>Advanced Payload Develop & Spt (MIP)</i>			
COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
11A: <i>Advanced Payload Develop & Spt (MIP)</i>	22.177	39.444	40.252	0.000	40.252	86.077	27.496	27.517	27.501	Continuing	Continuing
Quantity of RDT&E Articles											

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 STARLite 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 STARLite payload 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 and built at the direction of the Vice Chief of Staff of the Army for the ER/MP system and has potential application to other platforms. 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 an Unmanned Aircraft System (UAS) mounted SIGINT sensor that detects radio frequency (RF) emitters. TSP, through handoff from the Combat Aviation Brigade, 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. The TSP is scalable and modular, designed to provide maximum flexibility for the BCT mission profile. TSP will provide near real time 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 Enhanced Medium Altitude Reconnaissance and Surveillance System (EMARSS), at a Distributed Common Ground Station-Army (DCGS-A) node to provide precise targeting information for immediate engagement. TSP maps and aligns with the 2009 Under Secretary of Defense for Intelligence Cross Cutting study and Force Sizing Assessment with Airborne Precision Geolocation and Tactical SIGINT capabilities. TSP also supports the 2009 Office of the Secretary of Defense Cross-Cutting Study: 6 Overarching Axioms for Information Warfare, Intelligence, Surveillance, and Reconnaissance (ISR) Force Sizing, VCJCS Update, 25 Apr 09, with SIGINT (Geolocation) and SIGINT (Internals). TSP sensors are critical to providing coverage ISR / Reconnaissance Surveillance, and Target Acquisition (RSTA) information and contributing to the Joint ISR net.FY11 Base development dollars in the amount of \$29.252 million continues to support system test and integration, Increment 1 enhancements of the SAR/GMTI payload and continued Non Recurring Engineering (NRE), design, build integration and testing of the High Definition Target Location Accuracy (HD/TLA) upgrades for the EO/IR/LD CSP.

B. Accomplishments/Planned Program (\$ in Millions)

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Army			DATE: February 2010		
APPROPRIATION/BUDGET ACTIVITY 2040: Research, Development, Test & Evaluation, Army BA 7: Operational Systems Development	R-1 ITEM NOMENCLATURE PE 0305204A: Tactical Unmanned Aerial Vehicles	PROJECT 11A: Advanced Payload Develop & Spt (MIP)			
B. Accomplishments/Planned Program (\$ in Millions)					
	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Program #1 Tactical SIGINT Payload (TSP) - includes Development, Test and Evaluation FY 2009 Accomplishments: FY 2009 FY 2010 Plans: FY 2010 FY 2011 Base Plans: FY 2011 Base FY 2011 OCO Plans: FY 2011 OCO	0.609	0.000	11.000	0.000	11.000
Program #2 CSP (EO/IR/LD) - includes NRE, prototypes, integration and testing efforts. FY 2009 Accomplishments: FY 2009 FY 2010 Plans: FY 2010 FY 2011 Base Plans: FY 2011 Base FY 2011 OCO Plans: FY 2011 OCO	11.412	0.000	0.000	0.000	0.000

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Army			DATE: February 2010		
APPROPRIATION/BUDGET ACTIVITY 2040: Research, Development, Test & Evaluation, Army BA 7: Operational Systems Development	R-1 ITEM NOMENCLATURE PE 0305204A: Tactical Unmanned Aerial Vehicles	PROJECT 11A: Advanced Payload Develop & Spt (MIP)			
B. Accomplishments/Planned Program (\$ in Millions)					
	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Program #3 STARLite (SAR/GMTI) - includes Increment 1 Performance Enhancements and Platform Integration FY 2009 Accomplishments: FY 2009 FY 2010 Plans: FY 2010 FY 2011 Base Plans: FY 2011 Base FY 2011 OCO Plans: FY 2011 OCO	10.156	6.802	6.730	0.000	6.730
Program #4 CSP (EO/IR/LD) HD/TLA Upgrade - includes NRE, prototype manufacturing, integration and testing efforts. FY 2009 Accomplishments: FY 2009 FY 2010 Plans: FY 2010 FY 2011 Base Plans: FY 2011 Base FY 2011 OCO Plans: FY 2011 OCO	0.000	32.642	22.522	0.000	22.522

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Army									DATE: February 2010		
APPROPRIATION/BUDGET ACTIVITY 2040: Research, Development, Test & Evaluation, Army BA 7: Operational Systems Development				R-1 ITEM NOMENCLATURE PE 0305204A: Tactical Unmanned Aerial Vehicles				PROJECT 11A: Advanced Payload Develop & Spt (MIP)			
B. Accomplishments/Planned Program (\$ in Millions)											
				FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total			
Accomplishments/Planned Programs Subtotals				22.177	39.444	40.252	0.000	40.252			
C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• Ord. #1: Advanced TUAV Payloads (B00302)	65.664	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	65.664
• Ord. #2: Payload UAV (A00020)	0.000	87.207	100.413	0.000	100.413	119.730	188.970	146.091	112.895	Continuing	Continuing
• Ord. #3: 0305204A 11B Tactical SIGINT Payload	0.000	21.534	5.336	0.000	5.336	0.000	0.000	0.000	0.000	Continuing	Continuing
D. Acquisition Strategy											
Common Sensor Payload (CSP) EO/IR/LD is a KPP requirement for the MQ-1C Extended Range Multi Purpose (ERMP) UAS. The acquisition strategy for the CSP program was based on a full and open competition for the Army. It was briefed and approved at the Army Systems Acquisition Review Council (ASARC) in Dec 2006. A competitive contract was awarded in Nov 07 to Raytheon for the design, build, test and delivery of 27 Common Sensor Payloads. A new requirement was identified which includes a need for High Definition Target Location Accuracy (HD/TLA) to be included within the CSP unit. The HD/TLA upgrade is within scope of the current contract and will be incorporated into the contract via an Engineering Change Proposal (ECP). Milestone C is planned for FY10.STARLite SAR/GMTI is a threshold requirement for the MQ-1C ERMP UAS. The acquisition strategy for STARLite is for five years of production which was based on a full and open competition for the Army. A competitive contract was awarded in April 2008 to Northrop Grumman for the build, test and delivery of 28 STARLite units with the option for improvements to the Increment 1 (Increased Range and Reliability) system as well as integration and test onto the ERMP UAV platform. STARLite is being procured to support the Independent Operational Test and Evaluation (IOT&E) planned for 3rd Qtr FY12.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 was removed in FY08. As such, prototype deliveries for TSP fulfilled an operational requirement with USSOCOM.TSP is a Threshold (when available) requirement for the MQ-1C ERMP UAS. The TSP Program will be based on a full and open competitive solicitation and will be focused on starting with a mature TRL 6+ sensor for integration and test onto the ERMP platform and into the Distribute Common Ground Station-Army workstation. NRE will occur in an EMD phase to meet the full set of threshold SIGINT requirements and complete integration and test. Following EMD, a Milestone C/LRIP decision will be sought to procure TSP systems to support an IOT&E planned for FY13. Following the IOT&E, a FRP decision will be sought in FY13 to support the fielding timelines of the MQ-1C ERMP UAS platform.											

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Army		DATE: February 2010
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E. Performance Metrics

Performance metrics used in the preparation of this justification material may be found in the FY 2010 Army Performance Budget Justification Book, dated May 2010.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Army										DATE: February 2010			
APPROPRIATION/BUDGET ACTIVITY 2040: Research, Development, Test & Evaluation, Army BA 7: Operational Systems Development				R-1 ITEM NOMENCLATURE PE 0305204A: Tactical Unmanned Aerial Vehicles				PROJECT 11A: Advanced Payload Develop & Spt (MIP)					
Product Development (\$ in Millions)													
				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
CSP (EO/IR/LD) NRE, test & Prototype Manufacturing	C/CPFF	Raytheon McKinney, TX	28.125	0.000		0.000		0.000		0.000	Continuing	Continuing	0
STARLite (SAR/GMTI) Increment 1 Enhancement (Reliability)	C/CPFF	Northrop Grumman Linthicum, MD	0.000	4.500		3.668		0.000		3.668	Continuing	Continuing	0
CSP (EO/IR/LD) HD/TLA Upgrade NRE, design, and Prototype Manufacturing	C/CPFF	Raytheon McKinney, TX	0.000	20.877		9.441		0.000		9.441	Continuing	Continuing	0
TSP Training Development	C/TBD	TBD Location could not be determined.	0.000	0.000		0.126		0.000		0.126	Continuing	Continuing	0
TSP Other Licensing and Equipment	C/TBD	TBD Location could not be determined.	0.000	0.000		0.381		0.000		0.381	Continuing	Continuing	0
Subtotal			28.125	25.377		13.616		0.000		13.616			0.000
Remarks													
Support (\$ in Millions)													
				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
ERMP Integration Support	C	PM UAS/Various	19.772	6.000		8.286		0.000		8.286	Continuing	Continuing	0

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Support (\$ in Millions)													
				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
		Location could not be determined.											
TSP Engineering Support	C/FFP	Various Location could not be determined.	0.000	0.000		1.908		0.000		1.908	Continuing	Continuing	0
Subtotal			19.772	6.000		10.194		0.000		10.194			0.000
Remarks													
Test and Evaluation (\$ in Millions)													
				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
CSP (EO/IR/LD) Testing	C	Various Location could not be determined.	2.009	0.000		0.000		0.000		0.000	Continuing	Continuing	0
STARLite (SAR/GMTI) Increment 1 & 2 Testing	C	TBD Location could not be determined.	0.000	1.588		2.359		0.000		2.359	Continuing	Continuing	0
CSP (EO/IR/LD) HD/TLA Testing	C	TBD Location could not be determined.	0.000	3.059		1.915		0.000		1.915	Continuing	Continuing	0
	C	Various	0.000	0.000		6.908		0.000		6.908	Continuing	Continuing	0

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Test and Evaluation (\$ in Millions)													
				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
TSP Development Test and OT Prep		Location could not be determined.											
TSP Continuous Evaluation	C	ATEC FT Belvoir, Va	0.000	0.000		0.650		0.000		0.650	Continuing	Continuing	0
Subtotal			2.009	4.647		11.832		0.000		11.832			0.000
Remarks Government, contractor and test support contained in the ERMP Integration Support under Support Costs.													
Management Services (\$ in Millions)													
				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Mgmt Personnel	C	PM RUS Ft. Monmouth, NJ	3.348	3.420		3.583		0.000		3.583	Continuing	Continuing	0
Program Mgmt Personnel (TSP)	C	PM ACS Ft. Monmouth, NJ	0.000	0.000		0.000		0.000		0.000	Continuing	Continuing	0
TSP Program Management	C	PM Aerial Common Sensors, Fort Monmouth, NJ	0.000	0.000		0.373		0.000		0.373	Continuing	Continuing	0
TSP Matrix Support	C	CERDEC Fort Monmouth, NJ	0.000	0.000		0.654		0.000		0.654	Continuing	Continuing	0

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Army											DATE: February 2010																																												
APPROPRIATION/BUDGET ACTIVITY 2040: <i>Research, Development, Test & Evaluation, Army</i> BA 7: <i>Operational Systems Development</i>					R-1 ITEM NOMENCLATURE PE 0305204A: <i>Tactical Unmanned Aerial Vehicles</i>					PROJECT 11A: <i>Advanced Payload Develop & Spt (MIP)</i>																																													
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				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total																																													
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			Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract																																										
Project Cost Totals			53.254	39.444		40.252		0.000		40.252			0.000																																										
Remarks																																																							

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Exhibit R-4, RDT&E Schedule Profile: PB 2011 Army		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: <i>Research, Development, Test & Evaluation, Army</i> BA 7: <i>Operational Systems Development</i>	R-1 ITEM NOMENCLATURE PE 0305204A: <i>Tactical Unmanned Aerial Vehicles</i>	PROJECT 11A: <i>Advanced Payload Develop & Spt (MIP)</i>

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Exhibit R-4A, RDT&E Schedule Details: PB 2011 Army			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: <i>Research, Development, Test & Evaluation, Army</i> BA 7: <i>Operational Systems Development</i>	R-1 ITEM NOMENCLATURE PE 0305204A: <i>Tactical Unmanned Aerial Vehicles</i>	PROJECT 11A: <i>Advanced Payload Develop & Spt (MIP)</i>	

Schedule Details

Event	Start		End	
	Quarter	Year	Quarter	Year
STARLite (SAR/GMTI) Increment 1 Performance Enhancements and Testing	1	2009	3	2011
STARLite (SAR/GMTI) Testing	3	2009	1	2012
CSP (EO/IR/LD) Testing	1	2009	1	2010
CSP (EO/IR/LD) HD/TLA Testing	2	2011	2	2012
CSP (EO/IR/LD) HD/TLA NRE	1	2010	4	2011
CSP (EO/IR/LD) HD/TLA Production	2	2012	3	2015
Advanced Payload Development	2	2012	3	2015

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Army								DATE: February 2010			
APPROPRIATION/BUDGET ACTIVITY 2040: <i>Research, Development, Test & Evaluation, Army</i> BA 7: <i>Operational Systems Development</i>				R-1 ITEM NOMENCLATURE PE 0305204A: <i>Tactical Unmanned Aerial Vehicles</i>				PROJECT 11B: <i>TSP DEVELOPMENT (MIP)</i>			
COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
11B: <i>TSP DEVELOPMENT (MIP)</i>	0.000	21.534	5.336	0.000	5.336	0.000	0.000	0.000	0.000	Continuing	Continuing
Quantity of RDT&E Articles											
A. Mission Description and Budget Item Justification <p>The Tactical Signals Intelligence (SIGINT) Payload (TSP) is an Unmanned Aircraft System (UAS) mounted SIGINT sensor that detects radio frequency (RF) emitters. TSP, through handoff from the Combat Aviation Brigade, is capable of providing the Tactical 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. The TSP is scalable and modular, designed to provide maximum flexibility. TSP will provide near real time 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 Enhanced Medium Altitude Reconnaissance and Surveillance System (EMARSS), at a Distributed Common Ground System-Army (DCGS-A) node to provide precise targeting information for immediate engagement. TSP maps and aligns with the 2009 Under Secretary of Defense for Intelligence Cross Cutting study and Force Sizing Assessment with Airborne Precision Geolocation and Tactical SIGINT capabilities. TSP also supports the 2009 Office of the Secretary of Defense Cross-Cutting Study: 6 Overarching Axioms for Information Warfare, Intelligence, Surveillance, and Reconnaissance (ISR) Force Sizing, VCJCS Update, 25 Apr 09, with SIGINT (Geolocation) and SIGINT (Internals). TSP sensors are critical to providing Reconnaissance, Surveillance, and Target Acquisition (RSTA) information and contributing to the Joint ISR netJustification: FY11 funds continued integration of TSP sensor onto the Extended Range Multi Purpose (ERMP) UAS and into the Distributed Common Ground System-Army (DCGS-A).</p>											
B. Accomplishments/Planned Program (\$ in Millions)											
						FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	
Program #1						0.000	4.062	0.000	0.000	0.000	
Development Testing and OT Prep											
<i>FY 2009 Accomplishments:</i>											
FY 2009											
<i>FY 2010 Plans:</i>											
FY 2010											

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Army			DATE: February 2010		
APPROPRIATION/BUDGET ACTIVITY 2040: Research, Development, Test & Evaluation, Army BA 7: Operational Systems Development	R-1 ITEM NOMENCLATURE PE 0305204A: Tactical Unmanned Aerial Vehicles	PROJECT 11B: TSP DEVELOPMENT (MIP)			
B. Accomplishments/Planned Program (\$ in Millions)					
	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2011 Base Plans: FY 2011 Base					
FY 2011 OCO Plans: FY 2011 OCO					
Program #2 EMD Production Representatives FY 2009 Accomplishments: FY 2009 FY 2010 Plans: FY 2010 FY 2011 Base Plans: FY 2011 Base FY 2011 OCO Plans: FY 2011 OCO	0.000	6.686	0.000	0.000	0.000
Program #3 EMD NRE, Training Development,Other Licensing and Equipment Support, Program Management and Engineering Support FY 2009 Accomplishments: FY 2009	0.000	10.786	5.336	0.000	5.336

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Army							DATE: February 2010				
APPROPRIATION/BUDGET ACTIVITY 2040: Research, Development, Test & Evaluation, Army BA 7: Operational Systems Development			R-1 ITEM NOMENCLATURE PE 0305204A: Tactical Unmanned Aerial Vehicles			PROJECT 11B: TSP DEVELOPMENT (MIP)					
B. Accomplishments/Planned Program (\$ in Millions)											
						FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	
FY 2010 Plans: FY 2010											
FY 2011 Base Plans: FY 2011 Base											
FY 2011 OCO Plans: FY 2011 OCO											
Accomplishments/Planned Programs Subtotals						0.000	21.534	5.336	0.000	5.336	
C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• Ord. #1: NSA MIP (TSP)	6.433	0.657	1.171	0.000	1.171	9.605	8.669	6.795	6.795	0	40.125
• Ord. #2: A00020 Payload UAV	0.000	14.832	20.000	0.000	20.000	0.000	49.000	49.000	49.000	0	181.832
• Ord. #3: 0305204A 11A Tactical SIGINT Payload	0.609	0.000	11.000	0.000	11.000	0.000	0.000	0.000	0.000	0	11.609
D. 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 is a Threshold (when available) requirement for the MQ-1C Extended Range Multi Purpose (ERMP) UAS. The TSP Program will be based on a full and open competitive solicitation in FY10 and will be focused on starting with a mature TRL 6+ sensor for integration and test into the Distribute Common Ground Station-Army workstation in FY11. In FY11-FY12, the TSP system will be integrated onto the ERMP platform to reach an Initial Operational Test and Evaluation in early FY13. Non-Recurring Engineering (NRE) will occur in an EMD phase to meet the full set of threshold SIGINT requirements and complete integration and test. Following EMD, a Milestone C/Low-Rate Initial Production decision will be sought to procure TSP systems to support an Independent Operational Test and Evaluation (IOT&E) planned for FY13. Following the IOT&E, a Full-Rate Production decision will be sought in FY13 to support the fielding timelines of the MQ-1C ERMP UAS platform.											

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Army		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: <i>Research, Development, Test & Evaluation, Army</i> BA 7: <i>Operational Systems Development</i>	R-1 ITEM NOMENCLATURE PE 0305204A: <i>Tactical Unmanned Aerial Vehicles</i>	PROJECT 11B: <i>TSP DEVELOPMENT (MIP)</i>
<p>E. Performance Metrics</p> <p>Performance metrics used in the preparation of this justification material may be found in the FY 2010 Army Performance Budget Justification Book, dated May 2010.</p>		

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Army											DATE: February 2010		
APPROPRIATION/BUDGET ACTIVITY 2040: Research, Development, Test & Evaluation, Army BA 7: Operational Systems Development				R-1 ITEM NOMENCLATURE PE 0305204A: Tactical Unmanned Aerial Vehicles				PROJECT 11B: TSP DEVELOPMENT (MIP)					
Product Development (\$ in Millions)													
				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
TSP EMD NRE	C/CPFF	TBD Location could not be determined.	0.000	2.639		5.336		0.000		5.336	Continuing	Continuing	0
TSP EMD Production Representatives	C/CPFF	TBD Location could not be determined.	0.000	6.686		0.000		0.000		0.000	Continuing	Continuing	0
Training Development	C/TBD	TBD Location could not be determined.	0.000	3.291		0.000		0.000		0.000	Continuing	Continuing	0
Other Licensing and Equipment	C/TBD	TBD Location could not be determined.	0.000	2.465		0.000		0.000		0.000	Continuing	Continuing	0
Subtotal			0.000	15.081		5.336		0.000		5.336			0.000
Remarks													
Support (\$ in Millions)													
				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Engineering Support	C/FFP	MITRE McLean, VA	1.573	0.290		0.000		0.000		0.000	Continuing	Continuing	0
Engineering Support - 2	C/FFP	Various	0.440	1.276		0.000		0.000		0.000	Continuing	Continuing	0

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				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total																																																																									
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Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract																																																															
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<table border="1" style="width:100%; border-collapse: collapse; margin-top: 10px;"> <thead> <tr> <th rowspan="2">Project Cost Totals</th> <th>Total Prior Years Cost</th> <th colspan="2">FY 2010</th> <th colspan="2">FY 2011 Base</th> <th colspan="2">FY 2011 OCO</th> <th>FY 2011 Total</th> <th>Cost To Complete</th> <th>Total Cost</th> <th>Target Value of Contract</th> </tr> <tr> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> </tr> </thead> <tbody> <tr> <td align="right">Project Cost Totals</td> <td align="right">10.869</td> <td align="right">21.534</td> <td></td> <td align="right">5.336</td> <td></td> <td align="right">0.000</td> <td></td> <td align="right">5.336</td> <td></td> <td></td> <td align="right">0.000</td> </tr> </tbody> </table>														Project Cost Totals	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract											Project Cost Totals	10.869	21.534		5.336		0.000		5.336			0.000																													
Project Cost Totals	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract																																																																	
Project Cost Totals	10.869	21.534		5.336		0.000		5.336			0.000																																																																	
Remarks																																																																												

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Exhibit R-4, RDT&E Schedule Profile: PB 2011 Army		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: <i>Research, Development, Test & Evaluation, Army</i> BA 7: <i>Operational Systems Development</i>	R-1 ITEM NOMENCLATURE PE 0305204A: <i>Tactical Unmanned Aerial Vehicles</i>	PROJECT 11B: <i>TSP DEVELOPMENT (MIP)</i>

	FY 2009				FY 2010				FY 2011				FY 2012				FY 2013				FY 2014				FY 2015			
	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
Milestone B						#																						
TSP EMD Award							#																					
System Integration and Test							#	#	#	#	#	#	#	#	#	#	#											
Limited Users Test										#	#																	
Milestone C											#																	
TSP LRIP											#	#	#	#	#	#	#											
Independent Operational Test and Evaluation																	#											
TSP Full Rate Production Decision																	#											

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Exhibit R-4A, RDT&E Schedule Details: PB 2011 Army			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: <i>Research, Development, Test & Evaluation, Army</i> BA 7: <i>Operational Systems Development</i>	R-1 ITEM NOMENCLATURE PE 0305204A: <i>Tactical Unmanned Aerial Vehicles</i>	PROJECT 11B: <i>TSP DEVELOPMENT (MIP)</i>	

Schedule Details

Event	Start		End	
	Quarter	Year	Quarter	Year
Milestone B	2	2010	2	2010
TSP EMD Award	3	2010	3	2010
System Integration and Test	3	2010	1	2013
Limited Users Test	2	2011	3	2011
Milestone C	3	2011	3	2011
TSP LRIP	3	2011	1	2013
Independent Operational Test and Evaluation	1	2013	1	2013
TSP Full Rate Production Decision	1	2013	1	2013

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Army								DATE: February 2010			
APPROPRIATION/BUDGET ACTIVITY 2040: <i>Research, Development, Test & Evaluation, Army</i> BA 7: <i>Operational Systems Development</i>				R-1 ITEM NOMENCLATURE PE 0305204A: <i>Tactical Unmanned Aerial Vehicles</i>				PROJECT 123: <i>JOINT TECHNOLOGY CENTER SYSTEM INTEGRATION (MIP)</i>			
COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
123: <i>JOINT TECHNOLOGY CENTER SYSTEM INTEGRATION (MIP)</i>	2.351	4.388	6.698	0.000	6.698	4.341	4.294	4.212	4.250	Continuing	Continuing
Quantity of RDT&E Articles											
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).											
B. Accomplishments/Planned Program (\$ in Millions)											
							FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Program #1							1.957	1.867	3.902	0.000	3.902
Product Development											
<i>FY 2009 Accomplishments:</i>											
FY 2009											
<i>FY 2010 Plans:</i>											
FY 2010											
<i>FY 2011 Base Plans:</i>											
FY 2011 Base											

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Army			DATE: February 2010		
APPROPRIATION/BUDGET ACTIVITY 2040: Research, Development, Test & Evaluation, Army BA 7: Operational Systems Development	R-1 ITEM NOMENCLATURE PE 0305204A: Tactical Unmanned Aerial Vehicles	PROJECT 123: JOINT TECHNOLOGY CENTER SYSTEM INTEGRATION (MIP)			
B. Accomplishments/Planned Program (\$ in Millions)					
	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2011 OCO Plans: FY 2011 OCO					
Program #2 Support cost in support of OSD Joint Interoperability Requirements FY 2009 Accomplishments: FY 2009 FY 2010 Plans: FY 2010 FY 2011 Base Plans: FY 2011 Base FY 2011 OCO Plans: FY 2011 OCO	0.000	2.000	2.000	0.000	2.000
Program #3 Management Services FY 2009 Accomplishments: FY 2009 FY 2010 Plans: FY 2010	0.394	0.521	0.796	0.000	0.796

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Army				DATE: February 2010							
APPROPRIATION/BUDGET ACTIVITY 2040: Research, Development, Test & Evaluation, Army BA 7: Operational Systems Development		R-1 ITEM NOMENCLATURE PE 0305204A: Tactical Unmanned Aerial Vehicles		PROJECT 123: JOINT TECHNOLOGY CENTER SYSTEM INTEGRATION (MIP)							
B. Accomplishments/Planned Program (\$ in Millions)											
				FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total			
FY 2011 Base Plans: FY 2011 Base											
FY 2011 OCO Plans: FY 2011 OCO											
Accomplishments/Planned Programs Subtotals				2.351	4.388	6.698	0.000	6.698			
C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• Ord. #1: PE 0305204N Navy	1.700	1.700	1.700	0.000	1.700	1.700	1.700	1.700	1.700	Continuing	Continuing
• Ord. #2: PE 0305205F Air Force	2.000	2.000	2.000	0.000	2.000	2.000	2.000	2.000	2.000	Continuing	Continuing
D. 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.											
E. Performance Metrics											
Performance metrics used in the preparation of this justification material may be found in the FY 2010 Army Performance Budget Justification Book, dated May 2010.											

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Army											DATE: February 2010		
APPROPRIATION/BUDGET ACTIVITY 2040: <i>Research, Development, Test & Evaluation, Army</i> BA 7: <i>Operational Systems Development</i>				R-1 ITEM NOMENCLATURE PE 0305204A: <i>Tactical Unmanned Aerial Vehicles</i>				PROJECT 123: <i>JOINT TECHNOLOGY CENTER SYSTEM INTEGRATION (MIP)</i>					
Product Development (\$ in Millions)													
				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
MUSE Development	SS/FFP	AMC/AMCOM/ AMRDEC/SED/ Redstone Arsenal AL	13.258	1.867		3.902		0.000		3.902	Continuing	Continuing	.143
Subtotal			13.258	1.867		3.902		0.000		3.902			0.143
Remarks													
Support (\$ in Millions)													
				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Interoperability Support	SS/FFP	AMC/RDECOM/ AMRDEC Redstone Arsenal, AL	0.000	2.000		2.000		0.000		2.000	Continuing	Continuing	.075
Subtotal			0.000	2.000		2.000		0.000		2.000			0.075
Remarks													

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Army											DATE: February 2010		
APPROPRIATION/BUDGET ACTIVITY 2040: <i>Research, Development, Test & Evaluation, Army</i> BA 7: <i>Operational Systems Development</i>				R-1 ITEM NOMENCLATURE PE 0305204A: <i>Tactical Unmanned Aerial Vehicles</i>				PROJECT 123: <i>JOINT TECHNOLOGY CENTER SYSTEM INTEGRATION (MIP)</i>					
Management Services (\$ in Millions)													
				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
JTC/SIL Management Personnel	C	JTC/SIL/Redstone Arsenal AL	2.526	0.521		0.796		0.000		0.796	Continuing	Continuing	1.806
Subtotal			2.526	0.521		0.796		0.000		0.796			1.806
Remarks													
			Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			15.784	4.388		6.698		0.000		6.698			2.024
Remarks													

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Army								DATE: February 2010			
APPROPRIATION/BUDGET ACTIVITY 2040: Research, Development, Test & Evaluation, Army BA 7: Operational Systems Development				R-1 ITEM NOMENCLATURE PE 0305204A: Tactical Unmanned Aerial Vehicles				PROJECT D09: EXTENDED RANGE UAV (MIP)			
COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
D09: EXTENDED RANGE UAV (MIP)	61.767	73.187	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
Quantity of RDT&E Articles											
A. Mission Description and Budget Item Justification											
<p>The Extended Range Multi-Purpose (ERMP) Unmanned Aircraft System (UAS) will provide a real-time responsive capability to conduct long-dwell, wide area reconnaissance, surveillance, target acquisition, communications relay, and attack missions (up to 4 HELLFIRE Missiles aboard) to the Division Commander. The ERMP addresses an ever increasing demand for greater range, altitude, endurance and payload flexibility which enables dynamic mission changes while in flight. The ERMP program will deliver 14 systems, 12 to support active Army requirements and 2 to support Special Operations requirements. The ERMP will be fielded as a system to a company evel organization assigned to each of the 10 active Army Divisions Combat Aviation Brigades (CAB) providing a capability that is responsive to supported units based on the division Commander's priorities. The ERMP system consists of 12 MQ-1C Sky Warrior aircraft with Electro-Optical/Infrared, Synthetic Aperture Radar with Ground Moving Target Indicator (EO/IR/SAR/GMTI), Communications Relay and precision weapons as payloads; Ground equipment includes 5 One System Ground Control Stations (OSGCS), 5 Ground Data Terminals (GDT), 2 Portable Ground Control Stations (PGCS), 2 Portable Ground Data Terminals (PGDT), a Satellite Communication (SATCOM) Ground Data Terminal (SGDT) and other associated ground support equipment. The acquisition strategy capitalizes upon competitive forces, bringing cutting edge improvements at the best cost and value to support the major thrusts of the DoD UAS Roadmap, and the imperatives of Army modernization and Army Aviation Transformation. This includes a heavy fuel engine, 30 mission hours of endurance (24 hours on station at 300 KM range), Tactical Common Data Link technology, network connectivity that reduces information cycle time and enhances overall battle space awareness, teaming with manned platforms, and steps toward integration of UAS into national and international airspace. The ability to operate multiple Sky Warrior aircraft simultaneously from a single One System Ground Control Station (currently mission and Air Data Relay Aircraft), 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 and the flexibility to operate with or without SATCOM data links are characteristics which make this system a significant combat multiplier. RDT&E funds continue to resource the Engineering Manufacturing and Development (EMD) phase for ERMP, as well as continuing improvements after EMD. FY 2011 funding will provide for continued system development and integration, developmental test, Limited User Testing (LUT), and Initial Operational Test and Evaluation (IOT&E).Beginning in FY 2011, ERMP RDT&E funding has been moved to PE 0305219A to comply with Seciton 214 of the FY 2009 National Defense Authorization Act to submit the ERMP budget in a dedicated Program Element. However, due to an error in allocating the funds to new PE \$123.156 million remains in the Project for FY 2011.</p>											
B. Accomplishments/Planned Program (\$ in Millions)											

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Army				DATE: February 2010		
APPROPRIATION/BUDGET ACTIVITY 2040: Research, Development, Test & Evaluation, Army BA 7: Operational Systems Development		R-1 ITEM NOMENCLATURE PE 0305204A: Tactical Unmanned Aerial Vehicles		PROJECT D09: EXTENDED RANGE UAV (MIP)		
B. Accomplishments/Planned Program (\$ in Millions)						
		FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Program #1		50.079	40.116	0.000	0.000	0.000
ERMP EMD System including Electro-Optical / Infrared, Synthetic Aperture Radar, and communications Relay Payloads						
FY 2009 Accomplishments: FY 2009						
FY 2010 Plans: FY 2010						
FY 2011 Base Plans: FY 2011 Base						
FY 2011 OCO Plans: FY 2011 OCO						
Program #2		5.600	13.373	0.000	0.000	0.000
Government Test Support including IOT&E, LUT, Logistics Demonstration Operational Tempo (OPTEMPO)						
FY 2009 Accomplishments: FY 2009						
FY 2010 Plans: FY 2010						
FY 2011 Base Plans: FY 2011 Base						

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Army			DATE: February 2010		
APPROPRIATION/BUDGET ACTIVITY 2040: Research, Development, Test & Evaluation, Army BA 7: Operational Systems Development	R-1 ITEM NOMENCLATURE PE 0305204A: Tactical Unmanned Aerial Vehicles	PROJECT D09: EXTENDED RANGE UAV (MIP)			
B. Accomplishments/Planned Program (\$ in Millions)					
	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2011 OCO Plans: FY 2011 OCO					
Program #3 ERMP System Training and Training Equipment Development FY 2009 Accomplishments: FY 2009 FY 2010 Plans: FY 2010 FY 2011 Base Plans: FY 2011 Base FY 2011 OCO Plans: FY 2011 OCO	0.000	2.900	0.000	0.000	0.000
Program #4 ERMP Support including Engineering and Program Management FY 2009 Accomplishments: FY 2009 FY 2010 Plans: FY 2010	6.088	16.798	0.000	0.000	0.000

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Army									DATE: February 2010		
APPROPRIATION/BUDGET ACTIVITY 2040: Research, Development, Test & Evaluation, Army BA 7: Operational Systems Development			R-1 ITEM NOMENCLATURE PE 0305204A: Tactical Unmanned Aerial Vehicles			PROJECT D09: EXTENDED RANGE UAV (MIP)					
B. Accomplishments/Planned Program (\$ in Millions)											
						FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	
FY 2011 Base Plans: FY 2011 Base											
FY 2011 OCO Plans: FY 2011 OCO											
Accomplishments/Planned Programs Subtotals						61.767	73.187	0.000	0.000	0.000	
C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• Ord. #1: TUAV - Extended Range / Multi-Purpose - OPA (B00305)	89.044	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	247.679
• Ord. #2: MQ-I UAV - APA (A00005) - Base and OCO	0.000	480.170	459.310	47.000	506.310	483.468	490.552	510.295	478.054	0	2,948.849
• Ord. #3: Extended Range / Multi-Purpose - Weapons Capability Modifications - OPA (B10307)	15.079	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	15.079
• Ord. #4: MQ-I UAV - APA (A00005)	0.000	14.795	14.729	0.000	14.729	0.000	0.000	0.000	0.000	0	29.524
• Ord. #5: Extended Range / Multi-Purpose - Weaponization - RDTE (D20)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	3.766
D. 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											

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Army		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: <i>Research, Development, Test & Evaluation, Army</i> BA 7: <i>Operational Systems Development</i>	R-1 ITEM NOMENCLATURE PE 0305204A: <i>Tactical Unmanned Aerial Vehicles</i>	PROJECT D09: <i>EXTENDED RANGE UAV (MIP)</i>
<p>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. PM Night Vision/Reconnaissance, Surveillance, and Target Acquisition (RSTA) under PEO Intelligence and Electronic Warfare Systems (IEWS) develops, manages, and competes in the POM and is responsible for meeting all ERMP costs associated for payloads, payload integration, and payload sustainment. The US Army's Acquisition Objective for ERMP is 35 systems. The Army procurement Objective for ERMP is 14 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.</p> <p><u>E. Performance Metrics</u></p> <p>Performance metrics used in the preparation of this justification material may be found in the FY 2010 Army Performance Budget Justification Book, dated May 2010.</p>		

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Army											DATE: February 2010		
APPROPRIATION/BUDGET ACTIVITY 2040: <i>Research, Development, Test & Evaluation, Army</i> BA 7: <i>Operational Systems Development</i>				R-1 ITEM NOMENCLATURE PE 0305204A: <i>Tactical Unmanned Aerial Vehicles</i>				PROJECT D09: <i>EXTENDED RANGE UAV (MIP)</i>					
Product Development (\$ in Millions)													
				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Development Engineering & Prototype Manufacturing	C	General Atomics / ASI - San Diego CA	338.894	40.116		0.000		0.000		0.000	Continuing	Continuing	60.826
Government Furnished Equipment	C	Various Location could not be determined.	4.625	0.000		0.000		0.000		0.000	0	4.625	0
Common System Integration	C	Nothing entered for Activity and Location. Location could not be determined.	3.663	0.000		0.000		0.000		0.000	0	3.663	0
Launcher Software Development	C	PM JAMS Redstone Arsenal, AL	1.000	0.000		0.000		0.000		0.000	0	1.000	0
Aviation Mission Planning Systems	C	Other Government Agency Location could not be determined.	1.615	0.000		0.000		0.000		0.000	0	1.615	0
Next Generation Ice Protection	C	AMRDEC Redstone Arsenal, AL	1.920	0.000		0.000		0.000		0.000	0	1.920	0
Subtotal			351.717	40.116		0.000		0.000		0.000			60.826
Remarks													

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Army										DATE: February 2010			
APPROPRIATION/BUDGET ACTIVITY 2040: Research, Development, Test & Evaluation, Army BA 7: Operational Systems Development				R-1 ITEM NOMENCLATURE PE 0305204A: Tactical Unmanned Aerial Vehicles				PROJECT D09: EXTENDED RANGE UAV (MIP)					
Support (\$ in Millions)													
				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Contractor Engineering Support	C/FFP	Various Contractors Location could not be determined.	9.084	5.256		0.000		0.000		0.000	Continuing	Continuing	3.459
Government Engineering Support	C	AMRDEC and IMMC Redstone Arsenal, AL	15.487	7.884		0.000		0.000		0.000	Continuing	Continuing	2.730
ERMP System Training and Training Equipment Development	C	Ft Huachuca Location could not be determined.	0.000	2.900		0.000		0.000		0.000	Continuing	Continuing	0
Subtotal			24.571	16.040		0.000		0.000		0.000			6.189
Remarks													
Test and Evaluation (\$ in Millions)													
				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
System Test and Evaluation	C	Various Government Agencies Location could not be determined.	5.850	13.373		0.000		0.000		0.000	Continuing	Continuing	11.115
Subtotal			5.850	13.373		0.000		0.000		0.000			11.115

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Exhibit R-4, RDT&E Schedule Profile: PB 2011 Army		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: <i>Research, Development, Test & Evaluation, Army</i> BA 7: <i>Operational Systems Development</i>	R-1 ITEM NOMENCLATURE PE 0305204A: <i>Tactical Unmanned Aerial Vehicles</i>	PROJECT D09: <i>EXTENDED RANGE UAV (MIP)</i>

	FY 2009				FY 2010				FY 2011				FY 2012				FY 2013				FY 2014				FY 2015			
	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
Operational Assessment		#	#	#	#	#																						
Milestone C					#																							
Low Rate Initial Production Contract Award					#																							
Limited User Testing						#	#	#	#	#	#																	
First Unit Equipped									#	#																		
Initial Operational Test and Evaluation (IOT&E)										#	#																	
Full Rate Initial Production Contract Award													#															
Initial Operating Capability													#															
FOT&E													#	#														

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Exhibit R-4A, RDT&E Schedule Details: PB 2011 Army			DATE: February 2010	
APPROPRIATION/BUDGET ACTIVITY 2040: Research, Development, Test & Evaluation, Army BA 7: Operational Systems Development	R-1 ITEM NOMENCLATURE PE 0305204A: Tactical Unmanned Aerial Vehicles	PROJECT D09: EXTENDED RANGE UAV (MIP)		
Schedule Details				
	Start		End	
Event	Quarter	Year	Quarter	Year
Operational Assessment	2	2009	2	2010
Milestone C	1	2010	1	2010
Low Rate Initial Production Contract Award	1	2010	1	2010
Limited User Testing	2	2010	3	2011
First Unit Equipped	2	2011	3	2011
Initial Operational Test and Evaluation (IOT&E)	3	2011	4	2011
Full Rate Initial Production Contract Award	1	2012	1	2012
Initial Operating Capability	1	2012	1	2012
FOT&E	2	2012	3	2012

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Army								DATE: February 2010			
APPROPRIATION/BUDGET ACTIVITY 2040: <i>Research, Development, Test & Evaluation, Army</i> BA 7: <i>Operational Systems Development</i>				R-1 ITEM NOMENCLATURE PE 0305204A: <i>Tactical Unmanned Aerial Vehicles</i>				PROJECT D10: <i>SUAV (MIP)</i>			
COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
D10: <i>SUAV (MIP)</i>	1.990	3.947	0.342	0.000	0.342	0.000	0.000	0.000	0.000	Continuing	Continuing
Quantity of RDT&E Articles											
A. Mission Description and Budget Item Justification <p>The Small Unmanned Aircraft System (SUAS) program provides the ground maneuver battalions and below with 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 June 06. The program obtained Full Rate Production authority 5 Oct 06. A significant system upgrade completed in early FY 2010 incorporated a Digital Data Link (DDL) which improved operational capability by: incorporating encryption capability, enabling secure data links; increasing the number of channels, allowing for more air vehicles to be flown in a smaller area; improving the operational range through communications relay capability; and integration of advanced digital payloads. The first DDL systems were fielded in December 2009. FY 2011 efforts will focus on improved auto-land accuracy, software blocking integration, chemical payload integration, common controller, Radio Frequency Beacon Tracker, and ADS-B integration. Beginning in FY 2011, the funding for this project will shift to PE 0305232A RQ-11 Raven (MIP). However, due to an error in allocating the funds to new PE \$342 thousand still remains in the Project for FY 2011. Shadow Flight in the National Airspace of \$2 million should be reflected in TUAS Project 114.</p>											
B. Accomplishments/Planned Program (\$ in Millions)											
						FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	
Program #1						1.690	1.419	0.342	0.000	0.342	
Product Improvement Studies and Development											
<i>FY 2009 Accomplishments:</i>											
FY 2009											
<i>FY 2010 Plans:</i>											
FY 2010											

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Army			DATE: February 2010		
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B. Accomplishments/Planned Program (\$ in Millions)					
	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2011 Base Plans: FY 2011 Base					
FY 2011 OCO Plans: FY 2011 OCO					
Program #2 Program Management Support FY 2009 Accomplishments: FY 2009 FY 2010 Plans: FY 2010 FY 2011 Base Plans: FY 2011 Base FY 2011 OCO Plans: FY 2011 OCO	0.143	0.370	0.000	0.000	0.000
Program #3 Other Government Agencies (OGA) FY 2009 Accomplishments: FY 2009	0.157	0.158	0.000	0.000	0.000

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Army			DATE: February 2010		
APPROPRIATION/BUDGET ACTIVITY 2040: Research, Development, Test & Evaluation, Army BA 7: Operational Systems Development	R-1 ITEM NOMENCLATURE PE 0305204A: Tactical Unmanned Aerial Vehicles	PROJECT D10: SUAV (MIP)			
B. Accomplishments/Planned Program (\$ in Millions)					
	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2010 Plans: FY 2010					
FY 2011 Base Plans: FY 2011 Base					
FY 2011 OCO Plans: FY 2011 OCO					
Program #4 Shadow Flight in the National Airspace	0.000	2.000	0.000	0.000	0.000
FY 2009 Accomplishments: FY 2009					
FY 2010 Plans: FY 2010					
FY 2011 Base Plans: FY 2011 Base					
FY 2011 OCO Plans: FY 2011 OCO					
Accomplishments/Planned Programs Subtotals	1.990	3.947	0.342	0.000	0.342

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Army									DATE: February 2010		
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C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• Ord. #1: PE 0305232A RQ-11 Raven (MIP) (RDT&E,A)	0.000	0.000	1.941	0.000	1.941	1.943	1.935	2.895	2.956	0	11.670
• Ord. #2: SUAS Procurement/OPA (B00303)	57.481	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	134.112
• Ord. #3: SUAS Procurement/APA (A00010)	0.000	79.450	20.152	17.430	37.582	18.720	16.391	24.080	25.454	0	201.677
D. Acquisition Strategy											
N/A											
E. Performance Metrics											
Performance metrics used in the preparation of this justification material may be found in the FY 2010 Army Performance Budget Justification Book, dated May 2010.											

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Army											DATE: February 2010																																																																								
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Support (\$ in Millions) <table border="1" style="width:100%; border-collapse: collapse; margin-top: 10px;"> <tr> <th colspan="4"></th> <th colspan="2">FY 2010</th> <th colspan="2">FY 2011 Base</th> <th colspan="2">FY 2011 OCO</th> <th>FY 2011 Total</th> <th colspan="3"></th> </tr> <tr> <th>Cost Category Item</th> <th>Contract Method & Type</th> <th>Performing Activity & Location</th> <th>Total Prior Years Cost</th> <th>Cost</th> <th>Award Date</th> <th>Cost</th> <th>Award Date</th> <th>Cost</th> <th>Award Date</th> <th>Cost</th> <th>Cost To Complete</th> <th>Total Cost</th> <th>Target Value of Contract</th> </tr> <tr> <td>Other Government Agencies</td> <td>C</td> <td>Various Location could not be determined.</td> <td align="right">0.235</td> <td align="right">0.158</td> <td></td> <td align="right">0.000</td> <td></td> <td align="right">0.000</td> <td></td> <td align="right">0.000</td> <td align="center">Continuing</td> <td align="center">Continuing</td> <td align="right">0</td> </tr> <tr> <td align="right" colspan="3">Subtotal</td> <td align="right">0.235</td> <td align="right">0.158</td> <td></td> <td align="right">0.000</td> <td></td> <td align="right">0.000</td> <td></td> <td align="right">0.000</td> <td></td> <td></td> <td align="right">0.000</td> </tr> </table>																		FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total				Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract	Other Government Agencies	C	Various Location could not be determined.	0.235	0.158		0.000		0.000		0.000	Continuing	Continuing	0	Subtotal			0.235	0.158		0.000		0.000		0.000			0.000														
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					Total Prior Years Cost	FY 2010			FY 2011 Base			FY 2011 OCO			FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals					10.596	3.947			0.342			0.000			0.342			0.000
Remarks																		

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