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 0305219A: MQ-1 Sky Warrior - Army 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
Total Program Element	0.000	0.000	123.156	0.000	123.156	60.725	29.342	21.884	19.307	Continuing	Continuing
MQ1: MQ-1 SKY WARRIOR - ARMY UAV (MIP)	0.000	0.000	123.156	0.000	123.156	60.725	29.342	21.884	19.307	Continuing	Continuing

A. Mission Description and Budget Item Justification

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 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 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. The 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). Prior to FY 2011, ERMP RDT&E funding was in PE 0305204A, Project D09.

Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Army

DATE: February 2010

APPROPRIATION/BUDGET ACTIVITY

R-1 ITEM NOMENCLATURE

2040: Research, Development, Test & Evaluation, Army

PE 0305219A: MQ-1 Sky Warrior - Army UAV (MIP)

BA 7: Operational Systems Development

B. Program Change Summary (\$ in Millions)

	<u>FY 2009</u>	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Previous President's Budget	0.000	0.000	0.000	0.000	0.000
Current President's Budget	0.000	0.000	123.156	0.000	123.156
Total Adjustments	0.000	0.000	123.156	0.000	123.156
 Congressional General Reductions 		0.000			
 Congressional Directed Reductions 		0.000			
 Congressional Rescissions 	0.000	0.000			
 Congressional Adds 		0.000			
 Congressional Directed Transfers 		0.000			
 Reprogrammings 	0.000	0.000			
 SBIR/STTR Transfer 	0.000	0.000			
 Adjustments to Budget Years 	0.000	0.000	123.156	0.000	123.156

Change Summary Explanation

Change Summary Explination: Funding - FY 11 program was transferred to its own stand alone PE. Prior to FY 2011, ERMP RDT&E funding was in PE 0305204A, Project D09.

DAME DI

Exhibit R-2A, RDT&E Project Justif	ication: PB 2	011 Army								DATE: February 2010			
APPROPRIATION/BUDGET ACTI 2040: Research, Development, Test & E BA 7: Operational Systems Development		NOMENCLA A: <i>MQ-1 Sky</i>	_	ny UAV	PROJECT MQ1: MQ-1 SKY WARRIOR - ARMY UAV (MIP)								
COST (\$ in Millions) FY 2009 FY 2010 Base Estimate 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		
MQ1: MQ-1 SKY WARRIOR - ARMY UAV (MIP)	0.000	0.000	123.156	0.000	123.156	60.725	29.342	21.884	19.307	Continuing	Continuing		
Quantity of RDT&E Articles													

A. Mission Description and Budget Item Justification

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 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 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. The 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). Prior to FY 2011, ERMP RDT&E funding was in PE 0305204A, Project D09.

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

			FY 2011	FY 2011	FY 2011	
	FY 2009	FY 2010	Base	OCO	Total	
Program #1	0.000	0.000	61.656	0.000	61.656	

Exhibit R-2A, RDT&E Project Justification: PB 2011 Army				DATE: Febr	ruary 2010	
APPROPRIATION/BUDGET ACTIVITY 2040: Research, Development, Test & Evaluation, Army BA 7: Operational Systems Development	R-1 ITEM NOMENCLATURE PE 0305219A: MQ-1 Sky Warrior - Arr. (MIP)	ny UAV	PROJECT MQ1: MQ-	T I SKY WARRIOR - ARMY UAV (MIP)		
B. Accomplishments/Planned Program (\$ in Millions)						
		FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
ERMP EMD System including Electro-Optical / Infrared, synthetic Apertu Payloads	re Radar, and communications Relay					
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		0.000	0.000	20.500	0.000	20.500
Government Test support including IOT&E, LUT, Logistics Demonstratio	n Operational Tempo (OPTEMPO)					
FY 2009 Accomplishments: FY 2009						
FY 2010 Plans: FY 2010						
FY 2011 Base Plans: FY 2011 Base						
FY 2011 OCO Plans: FY 2011 OCO						

Exhibit R-2A, RDT&E Project Justification: PB 2011 Army	·							
APPROPRIATION/BUDGET ACTIVITY 2040: Research, Development, Test & Evaluation, Army BA 7: Operational Systems Development	R-1 ITEM NOMENCLATURE PE 0305219A: MQ-1 Sky Warrior - Arn (MIP)	ny UAV	PROJECT MQ1: MQ-1 SKY WARRIOR - ARMY UAV (MIP)					
B. Accomplishments/Planned Program (\$ in Millions)								
		FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total		
Program #3		0.000	0.000	18.900	0.000	18.900		
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								
Program #4		0.000	0.000	22.100	0.000	22.100		
ERMP Support including Engineering and Program Management								
FY 2009 Accomplishments: FY 2009								
FY 2010 Plans: FY 2010								
FY 2011 Base Plans: FY 2011 Base								
FY 2011 OCO Plans: FY 2011 OCO								

Exhibit R-2A, RDT&E Project Justification: PB 2011 Army			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY	R-1 ITEM NOMENCLATURE	PROJECT	
2040: Research, Development, Test & Evaluation, Army	PE 0305219A: MQ-1 Sky Warrior - Army UAV	MQ1: <i>MQ-1</i>	SKY WARRIOR - ARMY UAV (MIP)
BA 7: Operational Systems Development	(MIP)		

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

			FY 2011	FY 2011	FY 2011
	FY 2009	FY 2010	Base	OCO	Total
Accomplishments/Planned Programs Subtotals	0.000	0.000	123.156	0.000	123.156

C. Other Program Funding Summary (\$ in Millions)

			FY 2011	FY 2011	FY 2011					Cost To	
Line Item	FY 2009	FY 2010	Base	<u>OCO</u>	<u>Total</u>	FY 2012	FY 2013	FY 2014	FY 2015	Complete	Total Cost
• Ord. #1: TUAV - Extended Range	89.044	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	89.044
Multi-Purpose - OPA (B00305)											
• Ord. #2: MQ-1 UAV - APA (A00005)	0.000	480.170	459.310	47.000	506.310	483.468	490.552	510.295	478.054	0	2,948.849
- Base and OCO											
• Ord. #3: TUAV - Extended Range	15.079	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	15.079
Multi-Purpose - Weapons Capability											
Modifications OPA (B10307)											
• Ord. #4: MQ-1 UAV - APA (A00025)	0.000	14.795	14.729	0.000	14.729	0.000	0.000	0.000	0.000	0	29.524

D. Acquisition Strategy

The ERMP Operational Requirement Document (ORD) was approved by the Joint Requirement Oversight Council (JROC) 6 Apr 2005, Milestone B occurred 20 Apr 2005, and the System Development and Demonstration contract was awarded 8 Aug 2005, as a result of a competitive solicitation which included a vendor system capabilities demonstration. To meet the required capability, evolutionary acquisition has been employed to implement the incremental approach outlined in the ORD. The ERMP UAS is being matured during the System Development and Demonstration (SDD) phase, which includes the development and integration of key components such as the Tactical Common Data Link (TCDL), Link-16, and integration of Government Furnished Equipment (GFE), payloads, appropriate Common Aviation Ground Support Equipment and the One System GCS. PM JAMS is developing the P+ model of the HELLFIRE missile and participating 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

Exhibit R-2A, RDT&E Project Justification: PB 2011 Army	DATE: February 2010	
APPROPRIATION/BUDGET ACTIVITY	R-1 ITEM NOMENCLATURE	PROJECT
2040: Research, Development, Test & Evaluation, Army	PE 0305219A: MQ-1 Sky Warrior - Army UAV	MQ1: MQ-1 SKY WARRIOR - ARMY UAV (MIP)
BA 7: Operational Systems Development	(MIP)	
test & evaluation. d. Support Doctrine, Training, Leadership Development, (TTP) development. e. Provide an opportunity to incorporate lessons learne E. Performance Metrics		
Performance metrics used in the preparation of this justification material ma	ov he found in the EV 2010 Amory Performance Budge	t Justification Book dated May 2010
Terrormance metrics used in the preparation of this justification material in	ay be found in the FT 2010 Army Performance Budge	Tustification Book, dated Way 2010.

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 0305219A: MQ-1 Sky Warrior - Army UAV

(MIP)

PROJECT

MQ1: MQ-1 SKY WARRIOR - ARMY UAV (MIP)

Product Development (\$ in Millions)

				FY	2010		2011 ase		2011 CO	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	С	General Atomics/ ASI - San Diego CA	0.000	0.000		61.656		0.000		61.656	Continuing	Continuing	0
Government Furnished Equipment	С	Various Location could not be determined.	0.000	0.000		0.000		0.000		0.000	Continuing	Continuing	0
Common System Integration	С	Nothing entered for Activity and Location. Location could not be determined.	0.000	0.000		0.000		0.000		0.000	0	0	0
Launcher Software Development	С	PM JAMS Redstone Arsenal, AL	0.000	0.000		0.000		0.000		0.000	0	0	0
Aviation Mission Planning Systems	С	Other Government Agency Location could not be determined.	0.000	0.000		0.000		0.000		0.000	0	0	0
Next Generation Ice Protection	С	AMRDEC Redstone Arsenal, AL	0.000	0.000		0.000		0.000		0.000	0	0	0
	Subtotal 0.000					61.656		0.000		61.656			0.000

Remarks

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Army

DATE: February 2010

APPROPRIATION/BUDGET ACTIVITY

R-1 ITEM NOMENCLATURE

PROJECT

2040: Research, Development, Test & Evaluation, Army

PE 0305219A: MQ-1 Sky Warrior - Army UAV

MQ1: MQ-1 SKY WARRIOR - ARMY UAV (MIP)

BA 7: Operational Systems Development

(MIP

Support (\$ in Millions)

				FY	FY 2010		FY 2011 Base		FY 2011 OCO				
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.	0.000	0.000		6.377		0.000		6.377	Continuing	Continuing	0
Government Engineering Support	С	AMRDEC and IMMC Redstone Arsenal, AL	0.000	0.000		9.565		0.000		9.565	Continuing	Continuing	0
ERMP System Training and Training Equipment Development	С	Ft. Huachuca Location could not be determined.	0.000	0.000		18.900		0.000		18.900	Continuing	Continuing	0
		Subtotal	0.000	0.000		34.842		0.000		34.842			0.000

Remarks

Test and Evaluation (\$ in Millions)

				FY	FY 2010		2011 ise	FY :	2011 CO	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	С	Various Government Agencies Location could not be determined.	0.000	0.000		20.500		0.000		20.500	Continuing	Continuing	0
	_	Subtotal	0.000	0.000		20.500		0.000		20.500			0.000

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 0305219A: MQ-1 Sky Warrior - Army UAV (MIP)	PROJECT MQ1: MQ-1	SKY WARRIOR - ARMY UAV (MIP)

Test and Evaluation (\$ in Millions)

				FY	Z 2010		2011 ase		Y 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

Remarks

Management Services (\$ in Millions)

				FY 2010		FY :	2011 ase	FY 2	2011 CO	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	С	PM UAS Redstone Arsenal, AL	0.000	0.000		6.158		0.000		6.158	Continuing	Continuing	0
		Subtotal	0.000	0.000		6.158		0.000		6.158			0.000

Remarks

	Total Prior			TON.	2011	FY	2011	FY 2011	C4 T-		Target
					2011		-		Cost To		Value of
	Years Cost	FY 2	2010	Ba	ise	O	CO	Total	Complete	Total Cost	Contract
Project Cost Totals	0.000	0.000		123.156		0.000		123.156			0.000

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2011 Army

APPROPRIATION/BUDGET ACTIVITY

2040: Research, Development, Test & Evaluation, Army
BA 7: Operational Systems Development

(MIP)

PATE: February 2010

R-1 ITEM NOMENCLATURE
PE 0305219A: MQ-1 Sky Warrior - Army UAV
(MIP)

]	FY:	200	9	FY 2010			FY 2011			FY 2012			2	FY 2013			3	FY 2014				FY 2015			5		
	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 Produciton Contract Award													#															
Initial Operating Capability													#															
FOT&E														#	#													

Exhibit R-4A, RDT&E Schedule Details: PB 2011 Army			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY	R-1 ITEM NOMENCLATURE	PROJECT	
2040: Research, Development, Test & Evaluation, Army	PE 0305219A: MQ-1 Sky Warrior - Army UAV	MQ1: <i>MQ-1</i>	SKY WARRIOR - ARMY UAV (MIP)
BA 7: Operational Systems Development	(MIP)		

Schedule Details

	St	art	En	ıd
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	2	2010
First Unit Equipped	2	2011	2	2011
Initial Operational Test and Evaluation (IOT&E)	3	2011	4	2011
Full Rate Produciton Contract Award	1	2012	1	2012
Initial Operating Capability	1	2012	1	2012
FOT&E	2	2012	3	2012